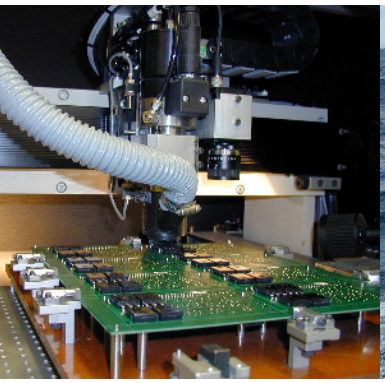
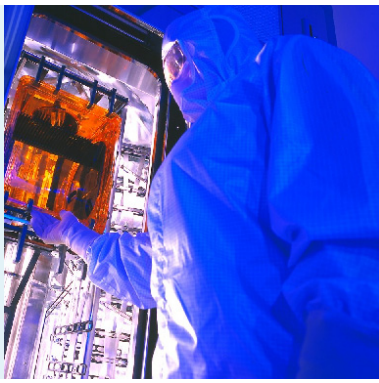
ADVANCED MOTION CONTROLS



Everything's possible.

POWERLINK Communication

Reference Manual

DigiFlex® Performance™ Servo Drives

Preface

ADVANCED Motion Controls constantly strives to improve all of its products. We review the information in this document regularly and we welcome any suggestions for improvement. We reserve the right to modify equipment and documentation without prior notice.

For the most recent software, the latest revisions of this manual, and copies of compliance and declarations of conformity, visit the company's website at *www.a-m-c.com*. Otherwise, contact the company directly at:

ADVANCED Motion Controls • 3805 Calle Tecate Camarillo, CA • 93012-5068 USA

Agency Compliances

The company holds original documents for the following:

- UL 508c, file number E140173
- Electromagnetic Compatibility, EMC Directive - 2014/30/EU
  EN61000-6-2:2005
  EN61000-6-4:2007/A1:2011
- Electrical Safety, Low Voltage Directive - 2014/35/EU
  EN 60204-1:2006/A1:2009
- Reduction of Hazardous Substances (RoHS II), 2011/65/EU

Trademarks

ADVANCED Motion Controls®, the combined isosceles trapezoid/right triangle logo, **DIGIFLEX®, DIGIFLEX® Performance™** and DriveWare® are either registered trademarks or trademarks of *ADVANCED* Motion Controls in the United States and/or other countries.

Related Documentation

- Product datasheet specific for your drive, available for download at www.a-m-c.com.

Attention Symbols

The following symbols are used throughout this document to draw attention to important operating information, special instructions, and cautionary warnings. The section below outlines the overall directive of each symbol and what type of information the accompanying text is relaying.

Note - Pertinent information that clarifies a process, operation, or ease-of-use preparations regarding the product.

Notice - Required instruction necessary to ensure successful completion of a task or procedure.

Caution - Instructs and directs you to avoid damaging equipment.

Warning - Instructs and directs you to avoid harming yourself.

Danger - Presents information you must heed to avoid serious injury or death.

Revision History

Document ID	Revision #	Date	Changes
MNCMPLRF-01	7.3.2	9/2015	- First Release
MNCMPLRF-02	7.4.0	10/2017	- Added sub-indices 1018.02h-1018.04h to object 1018h: Identity Object - Added object 2022h: Analog Input ADC Raw Values -Updated instances of "Current Overshoot" to "Over Current"

Contents

1 POWERLINK Communication

1.1 Introduction

Ethernet POWERLINK is an open-source real-time industrial Ethernet protocol created by B&R Automation. Ethernet POWERLINK expands upon Ethernet according to the IEE 802.3 standard with a mixed polling and time slicing mechanism. This provides:

- Guaranteed transfer of time-critical data in very short isochronous cycles with configurable response time
- Time-synchronization of all nodes in the network with very high precision of sub-microseconds
- Transmission of less time critical data in a reserved asynchronous channel

The Ethernet POWERLINK communication profile is based on CANopen communication profiles DS301 and DS302. Ethernet POWERLINK is developed and maintained by the Ethernet POWERLINK Standardization Group (EPSG). For more information on Ethernet POWERLINK visit www.ethernet-powerlink.org.

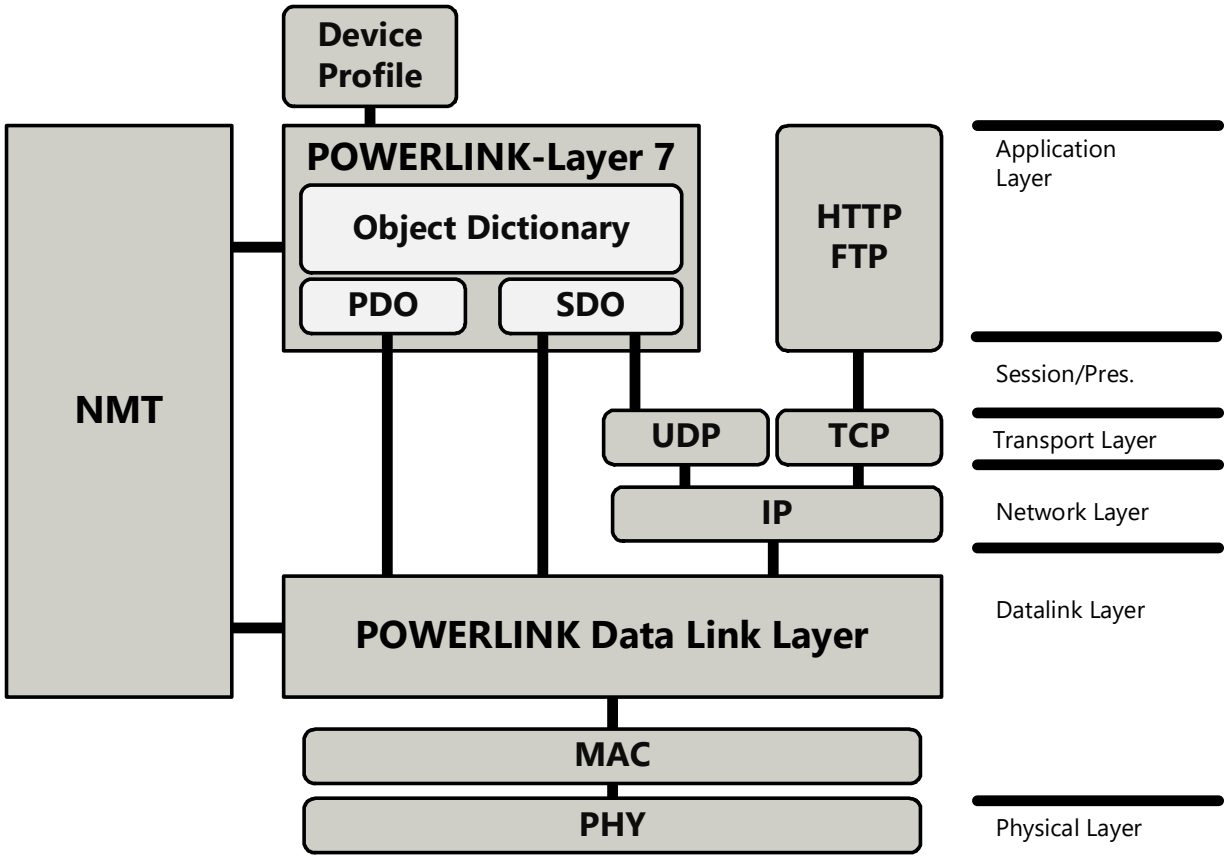
ADVANCED Motion Controls' DigiFlex® Performance™ DPP and DZP series servo drives utilize the standards and practices in EPSG Draft Standard 301 for Ethernet POWERLINK Communication Profile Specification Version 1.2.0. For additional details on POWERLINK communication and standards consult the above document.

Ethernet POWERLINK uses a "polling" method to create deterministic communication between all devices on the network. A master node, or Managing Node (MN), controls the request/response behavior of all the Controlled Nodes (CNs) (up to 239). The MN sends either unicast or multicast commands and data requests to the CNs, which may only transmit data when allowed by the MN. POWERLINK therefore avoids network collisions, and may be realized using any network topology (line, tree, star, etc.).

1.2 Communication Model

POWERLINK is based on the ISO OSI model (Open Systems Interconnection). In this model, the major capabilities of a communication protocol are grouped into seven layers.

FIGURE 1.1 POWERLINK Communication Model



1.3 Physical Layer

POWERLINK is a protocol residing on top of the standard IEEE 802.3 MAC layer. The physical layer is 100BASE-X. Half-duplex transmission is not used.

POWERLINK uses Ethernet as is, without any modifications.

1.4 POWERLINK Messages and Cycle

Messages on a POWERLINK network are grouped in cycles, which is controlled by the MN. Each POWERLINK cycle consists of an Isochronous phase and an Asynchronous phase.

- Isochronous - During the Isochronous phase, data exchange occurs cyclically between nodes and is repeated at a fixed interval.
- Asynchronous - Allows the exchange of non-cyclic data between two or more nodes. Asynchronous data transfer is used for the exchange of non time-critical data, and non-POWERLINK frames.

FIGURE 1.2 POWERLINK Cycle

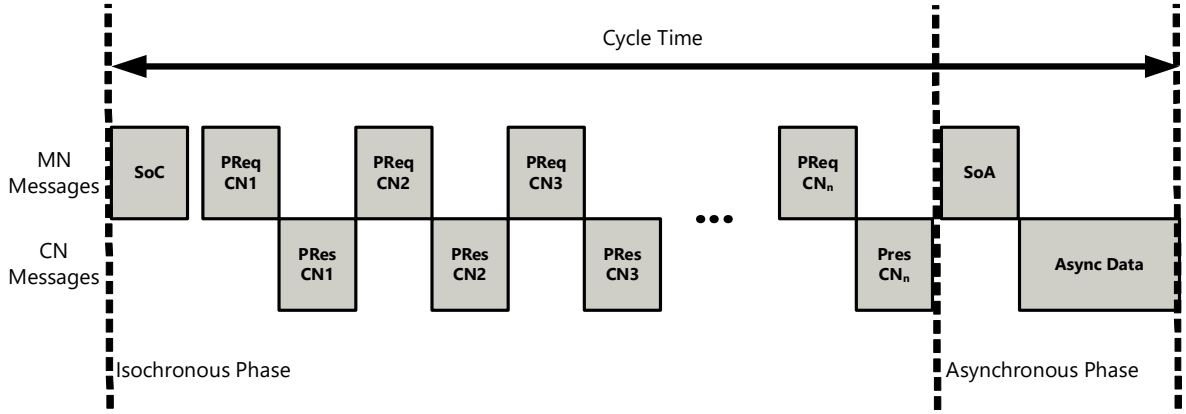


TABLE 1.1 POWERLINK Frame Types

Name	Description
Start of Cycle	(SoC) Sent by the Managing Node to begin the POWERLINK cycle. Synchronizes all the CNs.
Poll Request	(PReq) Sent by the Managing Node along with the data to a CN.
Poll Response	(PRes) Sent by a Controlled Node with real-time data in response to a poll request
Start of Asynchronous	(SoA) Sent by the Managing Node to signal the end of the isochronous phase and the beginning of the asynchronous phase.
Asynchronous Send	(ASnd) Transmission of asynchronous data between the Managing Node and Controlled Nodes

POWERLINK frames use the value "0x88AB" in the Ethertype field in the Ethernet frame header.

1.5 POWERLINK Object Parameters

Since POWERLINK is based on CANopen device profiles, communication via POWERLINK utilizes an object dictionary that serves as a method of delivering predefined, indexed behaviors. The POWERLINK object dictionary is categorized as follows:

TABLE 1.2 POWERLINK Object Dictionary

Index	Description
1h - 1Fh	Static Data Types
20h - 3Fh	Complex Data Types
40h - 5Fh	Manufacturer Specific Complex Data Types
60h - 7Fh	Device Profile Specific Static Data Types
80h - 9Fh	Device Profile Specific Complex Data Types
A0h - 3FFh	Reserved
400h - 41Fh	POWERLINK Specific Static Data Types
420h - 4FFh	POWERLINK Specific Complex Data Types
500h - FFFh	Reserved
1000h - 1FFFh	Communication Profile Area
2000h - 5FFFh	Manufacturer Specific Profile Area
6000h - 9FFFh	Standardized Device Profile Area
A000 - BFFFh	Standardized Interface Profile Area

For a list of objects supported by *ADVANCED* Motion Controls DigiFlex Performance DPP and DZP series servo drives, see "Object Dictionary" on page 27.

1.5.1 SDO vs. PDO Messages

There are two methods for reading and writing data to objects: Service Data Object (SDO) and Process Data Object (PDO) messages. An SDO consists of an outgoing message from MN to CN and a reply message from CN to MN; this is called confirmed messaging. A PDO consists of 1 or more unconfirmed messages. PDOs are used for cyclic, time critical data exchange, while SDOs are used for non-time-critical communication and configuration. PDOs are the primary method for communication during run-time but they must be configured prior to being used.

SDO Messages An SDO message can be used to read nearly every object in the object dictionary. Write access may be limited to certain objects or certain drive operation conditions. The MN generally handles the message structure of an SDO. If writing to an object, it is required to specify the object index, sub-index, and the data (the size of the data may also be required).

PDO Messages PDO messages exchange information between the MN and CNs without the overhead of SDO messages. PDO messages have no reply, (i.e. they are unconfirmed messages) which allows for fast, efficient data transfer of up to 16 objects per PDO. PDO messages, unlike SDO messages, are configured prior to use. Once configured, PDOs are transmitted every POWERLINK cycle. There are two types of PDO messages: a transmit PDO (TPDO) message and a receive PDO (RPDO) message.

Transmit Process Data Object (TPDO)

The TPDO sends data from the CN to the MN. Before data is transmitted by the TPDO, it must first have the desired read objects mapped to it. The TPDO does not alter any object data; it only transmits data to the MN.

Receive Process Data Object (RPDO)

The host uses the RPDO to write data to objects in the CN. Before data is received by an RPDO, it must have the desired write objects mapped to it. Since the RPDO is used to write to object data, it is important to ensure that the data sent from the MN is in agreement with the objects mapped to the PDO (PDO object mapping is discussed below).

PDO Configuration

PDO configuration is accomplished by writing the index, sub-index, and object length of the desired object to the appropriate sub-index of the PDO mapping object. With one or more objects mapped, PDO communication will begin once the POWERLINK cycle is in the isochronous phase.

Mapping Parameter Object

The mapping parameter object contains information about each object mapped to the PDO. *ADVANCED* Motion Controls' POWERLINK drives have one RPDO mapping object (1600) and one TPDO mapping object (1A00), each with 16 sub-indices allowing up to 16 objects to be mapped. The total data for each must be less than or equal to 256 bits. This could be in the form of up to eight 32-bit objects, or sixteen 16-bit objects, or some other combination of 16 and 32 bit objects. Sub-index zero is read/write in this case, and must be configured with the total number of objects mapped to the PDO. Table 1.3 shows the structure of the address information for the PDO mapping objects.

TABLE 1.3 Mapping Parameter bit descriptions

Bits 31 – 16	Bits 15 – 8	Bits 7 – 0
Index	Sub Index	Object Length

The three components that represent a mapped object are described below:

- **Index:** The index of the object mapped to the PDO (zero if no object is mapped).
- **Sub-index:** The sub-index of the mapped object (zero if the object has no sub-indices).
- **Object Length:** The bit length (in hex) of the data to be transmitted. For example, 20h = 32 bits.

By placing information about an object in the Mapping Parameter, that object becomes mapped to the associated PDO. Mapping allows PDOs to know where they should read their data prior to transmission (in the case of a TPDO) or where they should write their data upon reception (in the case of an RPDO).

POWERLINK PDO Assignments

ADVANCED Motion Controls' POWERLINK drives employ a user mappable PDO structure. By default, there are pre-mapped PDOs when drives are shipped from the factory, as shown in Table 1.4. TxPDOs are PDOs coming from the drive, and RxPDOs are data going to the drive. This default mapping may be changed or added to as the application requires.

TABLE 1.4 Default Pre-Mapped PDOs

TxPDOs	RxPDOs
Status Word	Control Word
Actual Position	Target Position
Actual Velocity	Target Velocity
Actual Current	Target Current
Digital Inputs	User Bits

The list of PDOs may be modified or added to. It is not recommended to remove the pre-mapped PDOs.

PDO Mappable Objects

Only a subset of objects in the object dictionary may be mapped to a TPDO or RPDO. Table 1.5 lists all PDO mappable objects. Data exchange with objects not listed in the table require an SDO.

TABLE 1.5 PDO Mappable Objects

Type	Object Index	Sub-Index	Object Name	Mapping Access	PDO Allocation (bits)
Drive Operation	2001	03	User Bits	RPDO/TPDO	16
	6040	00	ControlWord	RPDO/TPDO	16
Command Objects	6071	00	Target Current	RPDO/TPDO	16
	607A	00	Target Position	RPDO/TPDO	32
	60B1	00	Velocity Offset	RPDO/TPDO	32
	60B2	00	Current Offset	RPDO/TPDO	16
	60FF	00	Target Velocity	RPDO/TPDO	32
Monitor Objects	2002	01	Drive Bridge Status	TPDO Only	16
	2002	02	Drive Protection Status	TPDO Only	16
	2002	03	System Protection Status	TPDO Only	16
	2002	04	Drive/System Status 1	TPDO Only	16
	2002	05	Drive/System Status 2	TPDO Only	16
	2002	06	Drive/System Status 3	TPDO Only	16
	2002	07	Active Configuration Status	TPDO Only	16
	2003	01	Drive Bridge Status History	TPDO Only	16
	2003	02	Drive Protection Status History	TPDO Only	16
	2003	03	System Protection Status History	TPDO Only	16
	2003	04	Drive/System Status 1 History	TPDO Only	16
	2003	05	Drive/System Status 2 History	TPDO Only	16
	2003	06	Drive/System Status 3 History	TPDO Only	16
	200F	01	DC Bus Voltage	TPDO Only	16
	2010	02	Current Demand - Torque	TPDO Only	16
	2010	12	Torque Summation Input	TPDO Only	32
	2010	13	Torque Summation Offset	TPDO Only	32
	2011	05	Velocity Error	TPDO Only	32

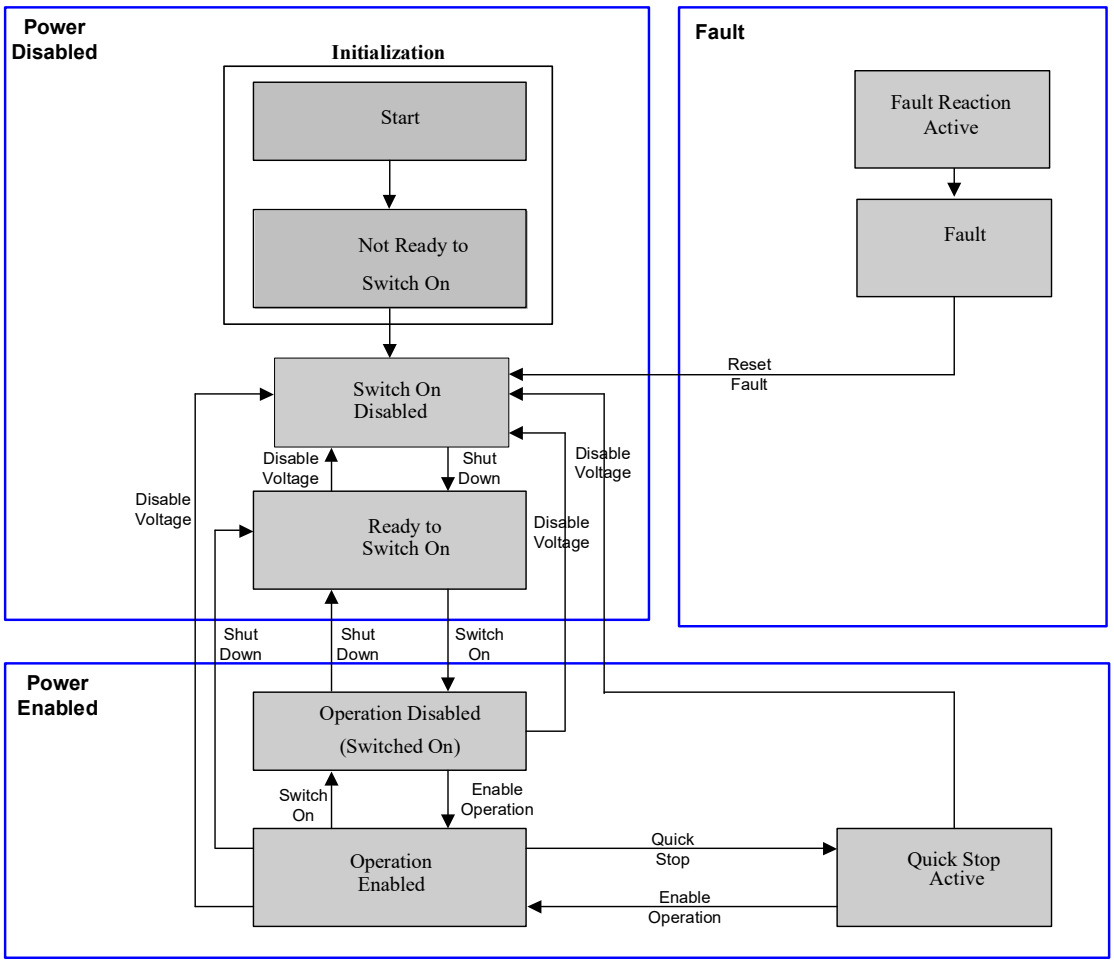
Monitor Objects	2011	06	Velocity Summation Input	TPDO Only	32
	2011	07	Velocity Summation Offset	TPDO Only	32
	2012	03	Position Demand	TPDO Only	32
	2012	05	Position Summation Input	TPDO Only	32
	2012	06	Position Summation Offset	TPDO Only	32
	2012	07	Position Index Capture Value	TPDO Only	32
	2018	01	PLS Input Value	TPDO Only	32
	2018	02	PLS 1 State	TPDO Only	32
	2018	03	PLS 2 State	TPDO Only	32
	2019	01	Capture 'A' Value	TPDO Only	32
	2019	02	Capture 'B' Value	TPDO Only	32
	2019	03	Capture 'C' Value	TPDO Only	32
	201A	01	Analog Input 1 Value	TPDO Only	16
	201A	02	Analog Input 2 Value	TPDO Only	16
	201A	03	Analog Input 3 Value	TPDO Only	16
	201A	04	Analog Input 4 Value	TPDO Only	16
	201D	01	PVT Status Values	TPDO Only	16
	201E	01	Auxiliary Encoder Value	TPDO Only	32
	201E	02	Auxiliary Position Index Capture Value	TPDO Only	32
	2021	01	External Thermal Sense Value	TPDO Only	32
	2021	02	Thermistor Resistance	TPDO Only	16
	2022	01	Analog Input 1 ADC Raw Value	TPDO Only	16
	2022	02	Analog Input 2 ADC Raw Value	TPDO Only	16
	2022	03	Analog Input 3 ADC Raw Value	TPDO Only	16
	2022	04	Analog Input 4 ADC Raw Value	TPDO Only	16
	2023	01	Digital Input Values	TPDO Only	16
	2025	01	Analog Output 1 Value	TPDO Only	16
	2025	02	Analog Output 2 Value	TPDO Only	16
	6041	00	Status Word	TPDO Only	16
	6061	00	Modes of Operation Display	TPDO Only	16
	6064	00	Actual Position	TPDO Only	32
	606B	00	Velocity Demand	TPDO Only	32
	606C	00	Actual Velocity	TPDO Only	32
	6077	00	Actual Current	TPDO Only	16
	60F4	00	Position Error	TPDO Only	32

1.6 Control State Machine

1.6.1 State Machine Overview

ADVANCED Motion Controls' POWERLINK drives operate based on a control state machine as defined by CANopen standards, where each state has a defined behavior. The drive can be controlled to transition from one state to another in a particular order using the ControlWord object (6040h). This is a write only object used specifically to transition the drive's control state machine between states. Below is a graphical overview of the state machine. The grey boxes represent the states. The arrows represent the one-way path between states. The small text along the path of the arrow represents the command necessary to make each transition.

FIGURE 1.3 ControlWord State Machine Block Diagram



Upon power-up, the drive will automatically step through the 'Start' and 'Not Ready to Switch On' states, arriving at the 'Switch On Disabled' state. Further advancement to other states is accomplished by setting the ControlWord (Object index 6040h) to the proper value. The commands that cause the state transitions in the state machine correspond to certain bit

settings within the ControlWord. For example, to transfer from the 'Ready to Switch On' state to the 'Switched On State', one would use the Switch On command, by setting the ControlWord to the appropriate value (and hence bit pattern). The drive state may be queried by using StatusWord (Object index 6041h). If the drive senses a fault (any internal drive event which causes the bridge to be disabled), it will automatically move into the Fault Reaction Active state, then transition to the Fault state. The ControlWord can once again be used to move from the Fault state to the Switch On Disabled state.

1.6.2 Drive States

The following tables provide details on each of the CANopen states supported by *ADVANCED* Motion Controls' POWERLINK drives.

TABLE 1.6 Drive States

Not Ready to Switch On	
Function	Part of drive initialization
Status	Logic Supply has been applied to the drive. The drive is being initialized. Drive functionality is disabled during this time.
Transitions	Transition to 'Switch On Disabled' is automatic when initialization complete.

Switch On Disabled	
Function	Drive initialization is complete. If a fatal error exists, the processor executes a Reset Fault command automatically. The drive is still disabled.
Status	Drive parameters have been set up. Only logic supply voltage is necessary at this time. Drive process monitoring may begin.
Transitions	Transition to the **Ready to Switch On** state is possible by a *Shut Down* command.

Ready to Switch On	
Function	Last state before Bridge enabled
Status	No energy is supplied to the motor. Control loops do not work. The drive function is still disabled. Bus power may be applied.
Transitions	Transition to **Operation Disabled (Switched ON)** state is possible via the *Switch On* command. Transition back to the **Switch On Disabled** state is possible via the *Disable Voltage* command, or by a *Quick Stop* command.

Operation Disabled (Switched On)	
Function	The bridge is turned on and a mode-dependent zero command is issued.
Status	The control loops are operational. Bus power is applied. The power section is switched on (if not already on). The target signal is not processed. The drive function is disabled.
Transitions	Transition to the **Operation Enabled** state is possible via the *Enable Operation* command. Transition back to the **Ready to Switch On** state is equally possible via the *Shut Down* command. Transition back to the **Switch On Disabled** state is possible via the *Disable Voltage* command or via a *Quick Stop* command.

Operation Enabled	
Function	This is the normal operation state of the drive.
Status	Power is supplied to the motor. Control loops are operational and target signals are processed.
Transitions	A *Quick Stop* command transfers the drive to the **Quick Stop Active** state. Transition back to the **Ready to Switch On** state is possible via the *Shut Down* command. Transition back to the **Switch On Disabled** state is possible via the *Disable Voltage* command or the *Drive Enable Input*. Transition back to the **Operation Disabled** state is possible via the *Switch On* command.

Quick Stop Active	
Function	The motor (shaft) is brought to a stop using the Stop Deceleration Limit.
Status	Control loops are operational. Power is applied to the motor. The motor shaft is held in position in position mode or zero velocity in velocity mode.
Transitions	Transition back to the Operation Enabled state is possible via the *Enable Operation (7)* command. Transition back to the Switch On Disabled state is possible via *the Disable Voltage (4)* command, or via the *Drive Enable Input (2)* (both include the "Power Disable Delay" process).

Fault Reaction Active	
Function	The event reaction for the incident fault state will occur.
Status	Power is supplied to the motor. Control loops are operational and target signals are processed.
Transitions	Fault Reaction Active will automatically transition to the Fault state. Time in Fault Reaction Active state is dependent on background tasks, but could be anywhere between 100µs and 2ms.

Fault	
Function	A fault has occurred and has not yet been reset
Status	The power output stage is disabled; no energy is supplied to the motor.
Transitions	Transition to the Switch On Disabled state is possible via the *Reset Fault* command.

1.6.3 ControlWord (6040h)

The following table shows the values used with object 6040h to cause transitions shown in Figure 1.3 above. An example hexadecimal value is provided on the right.

TABLE 1.7 ControlWord values

State Transition Command	Bit 7	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Example Value
Reset Fault	0→1	X	X	X	X	X	XX 80
Disable Voltage	0	X	X	X	0	X	XX 00
Shutdown	0	X	X	1	1	0	XX 06
Switch On	0	X	0	1	1	1	XX 07
Enable Operation	0	X	1	1	1	1	XX 0F
Quick Stop	0	X	X	0	1	X	XX 02
Begin Homing (Homing mode only)	0	1	1	1	1	1	XX 1F
End Homing (Homing mode only)	0	0	1	1	1	1	XX 0F
0 = OFF, 1 = ON, X = don't care							

TABLE 1.8 Additional ControlWord values

State Transition Command	Bit 13	Bit 12	Description
Inhibit Negative Motion	X	1	enable *commanded* * [*negative stop* OR *negative torque inhibit*]
Inhibit Positive Motion	1	X	enable *commanded* * [*positive stop* OR *positive torque inhibit*]
0 = disable, 1 = enable, X = don't care,			* see Event Action Configuration command (2065h)

For more information on object 6040h, see "6040h: ControlWord" on page 176.

1.6.4 StatusWord (6041h)

The StatusWord reports exactly which state the drive is in. Table 1.9 defines each bit in the StatusWord and Table 1.10 shows how to interpret what state the drive is in via the combination of bits 0-3, 5 and 6. Each drive state is described in detail in "Drive States" on page 9.

TABLE 1.9 StatusWord bit descriptions

Bits	Name	Descriptions
0	Ready to Switch On	See Table 1.10 to see how this bit relates to the control state machine.
1	Switched On	See Table 1.10 to see how this bit relates to the control state machine
2	Operation Enabled	See Table 1.10 to see how this bit relates to the control state machine
3	Fault	See Table 1.10 to see how this bit relates to the control state machine
4	Voltage Enabled	1 when power is applied to the motor
5	Quick Stop	See Table 1.10 to see how this bit relates to the control state machine
6	Switch On disabled	See Table 1.10 to see how this bit relates to the control state machine
7	Warning	Object 205B can be used to configure which internal drive events will set this bit.
8	Manufacture specific	Object 205B can be used to configure which internal drive events will set this bit.
9	Remote	0 when read/write access has been seized by the service channel (i.e. configuration software). 1 when control over the network is allowed.
10	Target Reached	1 Under the following conditions: - Home reached if the Can operational-mode is homing. - Home reached if the Can operational-mode is custom and homing is active. - At command for all other conditions.
11	Internal Limit Active	Object 205B can be used to configure which internal drive events will set this bit.
12	Homing complete	1 when Homing completes, otherwise 0.
13	-	-
14	-	-
15	-	-

TABLE 1.10 StatusWord drive states

Drive State	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	StatusWord
Not Ready to Switch On	0	X	X	0	0	0	0	xxxx xxxx x0xx 0000
Switch On Disabled	1	X	X	0	0	0	0	xxxx xxxx x1xx 0000
Ready to Switch On	0	1	X	0	0	0	1	xxxx xxxx x01x 0001
Switched On	0	1	X	0	0	1	1	xxxx xxxx x01x 0011
Operation Enabled	0	1	X	0	1	1	1	xxxx xxxx x01x 0111
Fault Reaction Active	0	X	X	1	1	1	1	xxxx xxxx x0xx 1111
Fault	0	X	X	1	0	0	0	xxxx xxxx x0xx 1000
Quick Stop Active	0	0	X	0	1	1	1	xxxx xxxx x00x 0111
0 = OFF, 1 = ON, X = don't care								

1.7 Modes of Operation

ADVANCED Motion Controls' POWERLINK drives close position, velocity, and torque (current) loops that are configurable via the network. There are 8 modes of operation available with object 6060h. Other modes of operation are achievable using DriveWare. When changing loop configurations using object 6060h, velocity and position loop feedback sources are not touched. This means changing loop configurations assumes the feedback wiring and project parameters are configured properly for both the present loop and the one the drive is moving to.

More information on object 6060h is found in the "Object Dictionary" on page 27.

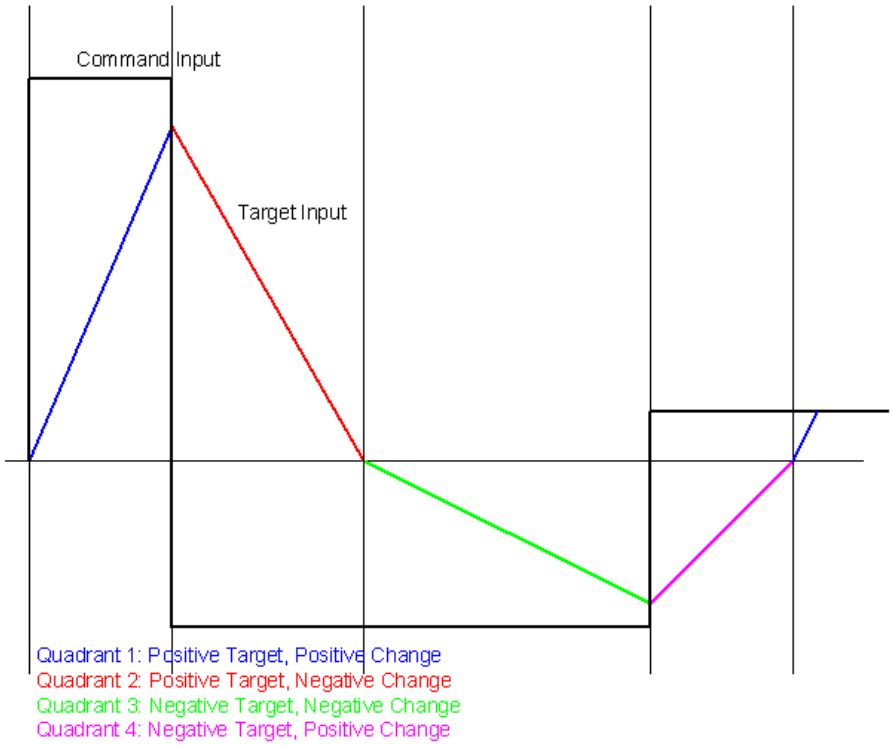
TABLE 1.11 Modes of Operation

Modes of Operation
Profile Position Mode
Profile Velocity Mode
Profile Torque Mode (current mode)
Homing Mode
Cyclic Synchronous Position Mode
Cyclic Synchronous Velocity Mode
Cyclic Synchronous Torque Mode
Custom Configured Modes

1.7.1 Profile Modes

In a profile mode of operation, the trajectory is limited by the drive. Profile modes use the command limiter values (object 203Ch) to limit the maximum command rate. If the host sends a large command step, the drive spreads the demand over some period of time to stay equal to or below the maximum defined rate. The command limiter is configurable to supply up to 4 different slopes depending on the input, as shown in Figure 1.4 below.

FIGURE 1.4



Profile Position Mode The *ADVANCED* Motion Controls' Position control loop is a fully de-coupled PID with velocity and acceleration feedforward terms. In Profile Position Mode, the drive closes three control loops, position, velocity, and current. The velocity loop provides additional "stiffness," keeping the dynamic position errors minimal because the drive now reacts not only to position errors, but also to velocity errors (which can be interpreted as position error changes). The Command Limiter is enabled in this mode. The Profiler sets limits on the rate of change of the target position command, otherwise called velocity. When commanding point-to-point moves, the velocity between points is limited to the maximum value set in the profiler. When tuning the position loop for profile position mode, proportional gain is typically all that is needed. It is important, however, to start with a stable, yet responsive velocity loop. Feedforward gain can be added to improve tracking performance, if needed. More information on tuning is found in the DriveWare application help files.

The following objects define how the drive will behave in Position mode.

TABLE 1.12

Object index	Name	Description
6060h	Modes Of Operation	Sends a request to change the drive's mode of operation.
6061h	Modes of Operation Display	Displays the actual mode of operation.
203Ch	Command Limiter Parameters	Sets the values used by the command limiter to limit the target command.
6086h	Motion Profile Type	Sets profiling to linear ramp. Currently this is fixed and read only.
2038h	Position Loop Control Parameters	Sets the tuning values associated with the position loop
2039h	Position Limits	Sets the trip points for various position events such as Max Measured Position Limit.
2012h	Position Values	Read instantaneous values such as Position demand and Position Target. This object is read only.
6064h	Actual Position	Same as 2012.01h, reads measured position value.
607Ah	Target Position	Sets the target position command.

Profile Velocity Mode The *ADVANCED* Motion Controls' Velocity control loop is a fully de-coupled PID with an acceleration feedforward term, and a low speed estimator. In Profile Velocity Mode, the drive closes two control loops, velocity, and current. Velocity feedback may be derived from a motor mounted encoder or analog source with a 10V maximum. The low speed estimator is most useful when necessarily tight velocity loops can cause audible noise during low speed moves (less than 1 count per velocity update).

The Command Limiter is enabled in this mode. The Limiter sets limits on the rate of change of the velocity command. When commanding large velocity transients, the resulting acceleration between points is limited to the maximum value set in the profiler.

When tuning the velocity loop it is important to start with a stable, yet responsive current loop. Feedforward gain can be added to improve tracking performance, if needed. More information on tuning is found in the DriveWare help files.

TABLE 1.13

Object index	Name	Description
6060h	Modes Of Operation	Sends a request to change the drive's mode of operation.
6061h	Modes of Operation Display	Displays the actual mode of operation.
203Ch	Command Limiter Parameters	Sets the values used by the command limiter to limit the target command.
6086h	Motion Profile Type	Sets profiling to linear ramp. Currently this is fixed and read only.
2037h	Velocity Limits	Sets the trip points for various velocity events such as Over Speed.
2036h	Velocity Loop Control Parameters	Sets the tuning values associated with the velocity loop
2011h	Velocity Values	Read instantaneous values such as Velocity demand and Velocity Target. This object is read only.
6069h	Velocity Sensor Actual Value	Same as 2011.01h, reads pre-filtered measured velocity value.
606Bh	Velocity Demand	Same as 2011.04h, reads Velocity Demand value.
606Ch	Actual Velocity	Same as 2011.02h, reads post-filtered measured velocity value.
60FFh	Target Velocity	Sets the target velocity command.

Profile Current Mode Profile Current Mode, also referred to as Profile Torque Mode, configures the drive to respond to target current commands. The drive's current loop consists of a PI loop. Because torque is merely a constant Kt multiplied by a magnitude of current, it is the programmer's responsibility to convert current values into torque values in the software environment.

The Command Limiter is enabled in this mode and sets limits on the rate of change of the current command. During a step acceleration command, the change in commanded torque, known as Jerk, is limited to the maximum value set in the profiler.

Tune this loop according to "current loop tuning" instructions in the DriveWare Software Guide. The following objects are used to setup and operate the Current Mode:

TABLE 1.14

Object index	Name	Description
6060h	Modes Of Operation	Sends a request to change the drive's mode of operation.
6061h	Modes of Operation Display	Displays the actual mode of operation
203Ch	Command Limiter Parameters	Sets the values used by the command limiter to limit the target command.
6086h	Motion Profile Type	Sets profiling to linear ramp. Currently this is fixed and read only.
2010h	Current Values	Read instantaneous values such as Current Demand and Current Target. This object is read only.
2034h	Current Loop and Commutation Values	Sets the tuning and commutation values associated with the current loop.
6071h	Target Current	Sets the target current command.
6077h	Actual Current	Reads the actual motor current (in case of 3-phase motors, this is a composite, equivalent single phase current).

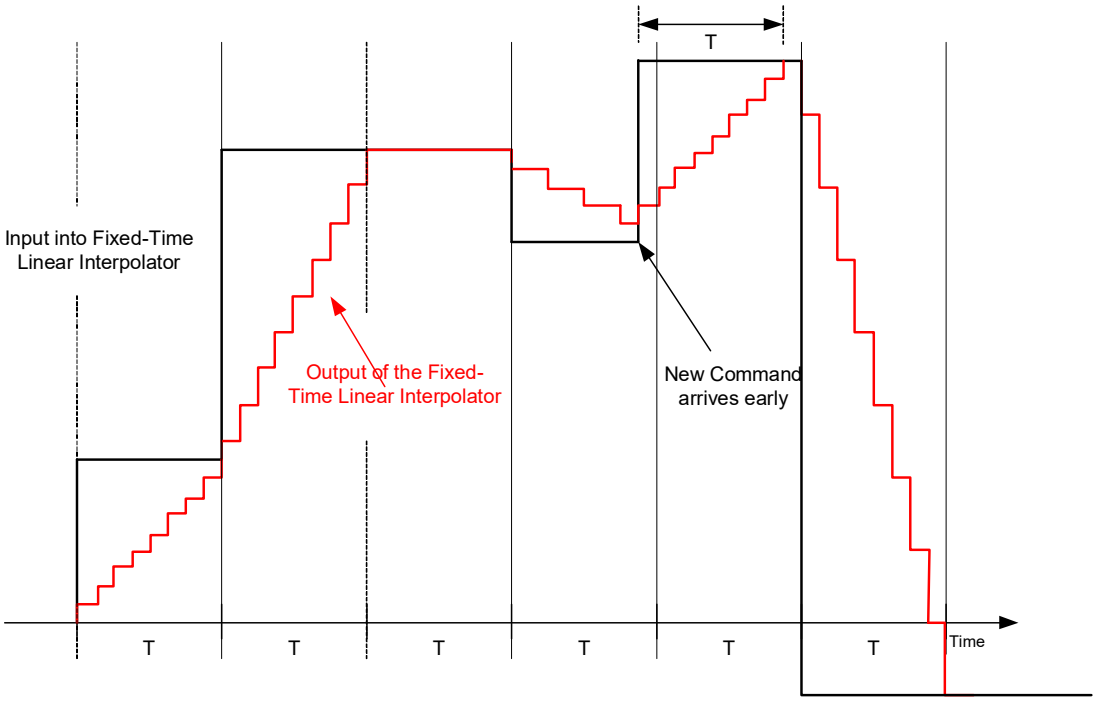
1.7.2 Homing Mode

See "Homing" on page 19 for detailed information about methods and hardware involved in homing.

1.7.3 Cyclic Synchronous Modes

Cyclic Synchronous Modes give responsibility of trajectory control to the host. There is no command limiter. Instead, the drive interpolates between command points, defining the rate by dividing the change in command by the interpolation time period (object 60C2). This allows the drive to respond smoothly to each step in command. Figure 1.5 below shows how the drive interpolates different commands, with T representing the interpolation time. In each case, the drive arrives at the commanded value at precisely T seconds after the command changed.

FIGURE 1.5



Cyclic Synchronous Position Mode In Cyclic Synchronous Position Mode, the drive closes three control loops: position, velocity, and current. The host can send target position, velocity feedforward, and current feedforward values to the drive. This allows for gain compensation in applications with varying loads.The Command Limiter is disabled in this mode, giving the host more control over the motion profile. The drive interpolates linearly between updates to maintain consistent targets between commands. The interpolation time period value should be equal to the POWERLINK cycle time for proper functionality.

The following objects define how the drive will behave in Cyclic Synchronous Position Mode.

Object index	Name	Description
6060h	Modes Of Operation	Sends a request to change the drive's mode of operation.
6061h	Modes of Operation Display	Displays the actual mode of operation.
60B1h	Velocity Offset	Contains the input value for velocity feed forward.
60B2h	Current Offset	Contains the input value for current feed forward.
60C2h	Interpolation Time Period Value	Contatins the period used for the linear interpolation algorithm. Used with Cyclic synchronous modes of operation.
2038h	Position Loop Control Parameters	Sets the tuning values associated with the position loop.
2039h	Position Limits	Sets the trip points for various position events such as Max Measured Position Limit.
2012h	Position Values	Reads instantaneous values such as Position demand and Position Target. This object is read only.
6064h	Actual Position	Same as 2012.01h, reads measured position value.
607Ah	Target Position	Sets the target position command.

Cyclic Synchronous Velocity Mode

In Cyclic Synchronous Velocity Mode, the drive closes the velocity loop around the current loop. The host can send target velocity, velocity offset, and current feedforward values to the drive. This allows for gain compensation in applications with varying loads.The Command Limiter is disabled in this mode, giving the host more control over the motion profile. The drive interpolates linearly between updates to maintain consistent targets between commands. The interpolation time period value should be equal to the POWERLINK cycle time for proper functionality.

The following objects define how the drive will behave in Cyclic Synchronous Velocity Mode.

Object index	Name	Description
6060h	Modes Of Operation	Sends a request to change the drive's mode of operation.
6061h	Modes of Operation Display	Displays the actual mode of operation.
60B1h	Velocity Offset	Contains the input value for velocity feed forward.
60B2h	Current Offset	Contains the input value for current feed forward.
60C2h	Interpolation Time Period Value	Contatins the period used for the linear interpolation algorithm. Used with Cyclic synchronous modes of operation.
2036h	Velocity Loop Control Parameters	Sets the tuning values associated with the velocity loop.
2037h	Velocity Limits	Sets the trip points for various velocity events such as Over Speed.
2011h	Velocity Values	Read instantaneous values such as Velocity Demand and Velocity Target. This object is read only.
6069h	Velocity Sensor Actual Value	Same as 2011.01h, reads pre-filtered measured velocity value.
606Bh	Velocity Demand	Same as 2011.04h, reads Velocity Demand value.
606Ch	Actual Velocity	Same as 2011.02h, reads post-filtered measured velocity value.
60FFh	Target Velocity	Sets the target velocity command.

Cyclic Synchronous Current Mode In Cyclic Synchronous Current Mode, the drive closes the current loop. The host can send target current and current offset values to the drive.The Command Limiter is disabled in this mode, giving the host more control over the motion profile. The drive interpolates linearly between updates to maintain consistent targets between commands. The interpolation time period value should be equal to the POWERLINK cycle time for proper functionality.

The following objects define how the drive will behave in Cyclic Synchronous Current Mode.

Object index	Name	Description
6060h	Modes Of Operation	Sends a request to change the drive's mode of operation.
6061h	Modes of Operation Display	Displays the actual mode of operation.
60B2h	Current Offset	Contains the input value for current offset.
60C2h	Interpolation Time Period Value	Contatins the period used for the linear interpolation algorithm. Used with Cyclic synchronous modes of operation.
2010h	Current Values	Reads instantaneous values such as Current Demand and Current Target. This object is read only.
2034h	Current Loop & Commutation Control Parameters	Sets the tuning values and commutation values associated with the current loop.
6071h	Target Current	Sets the target current command.
6077h	Actual Current	Reads the actual motor current (in case of 3-phase motors, this is a composite, equivalent single phase current)

1.7.4 Custom Defined Modes Of Operation

ADVANCED Motion Controls digital servo drives provide flexibility beyond the CANopen defined standard modes of operation. For a case where a drive configuration is desired that is not available via object 6060h, contact *ADVANCED* Motion Controls directly for technical support.

1.8 Homing

ADVANCED Motion Controls' POWERLINK drives support a wide variety of homing routines. These routines rely on signals such as limit switch, home switch, and encoder index signals to achieve precise starting positions. Four objects define the offset, speed, acceleration, and the particular homing method used. These objects are listed in the table below.

TABLE 1.15 Homing Objects

Object Index	Description
607Ch	Home Offset
6099h	Homing Speeds
609Ah	Homing Acceleration
6098h	Homing Method

1.8.1 Home Offset

The home offset specifies the difference between the home position and the zero position. The home position is the position of the motor when the home switch or encoder index is toggled during a homing routine. The zero position is the position defined to be zero as seen by the POWERLINK MN. If the home offset is set to zero, the home position will be equal to the zero position.

1.8.2 Homing Speeds

There are two homing speeds to take into consideration: the speed during the search for home switch, and the speed during the search for the index. Typically, the speed during the search for the home switch is set to be faster than the speed during the search for the index.

1.8.3 Homing Acceleration

A single value is used to define the acceleration and deceleration of all moves during the homing routine.

1.8.4 Homing Methods

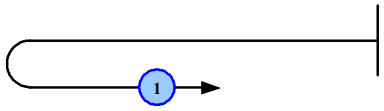
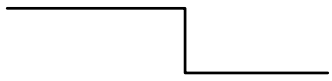
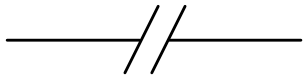
ADVANCED Motion Controls' homing methods depend on the presence of up to three different system components: an index pulse, a home switch, and a limit switch. The simplest homing methods require just one or none of these components, whereas the more complex methods require two or all of these components. All homing methods have been summarized in Table 1.16, along with their necessary components, and have been named according to [DSP402] which states that there are a total of 35 possible homing methods, some of which are reserved and not currently specified.

TABLE 1.16 Homing Methods Summary

Homing Method	Index Pulse	Home Switch	Limit Switch
Methods 1 & 2	✓		✓
Methods 3 to 6	✓	✓	
Methods 7 to 14	✓	✓	✓
Methods 15 & 16	Reserved		
Methods 17 & 18			✓
Methods 19 to 22		✓	
Methods 23 to 30		✓	✓
Methods 31 & 32	Reserved		
Methods 33 & 34	✓		
Method 35			

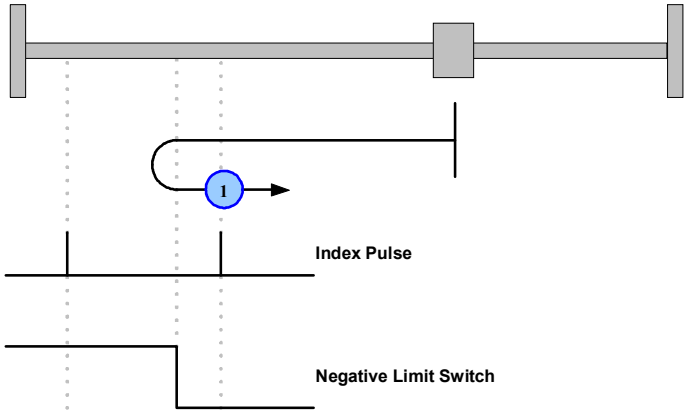
Because these homing methods can become fairly complex, they are best described visually. As a result, *homing diagrams* are utilized to illustrate the behavior of each method. Homing diagrams consist of multiple components each of which is described in Figure 1.6.

FIGURE 1.6 Homing Diagrams

Load and physical limits	
The square near the middle of the illustration shows the load object that is to be moved. The endpoints represent physical limitations or barriers, which the load cannot travel past. The left side is in the negative direction while the right side is in the positive direction.	
Direction of travel	
The vertical line on the right side represents the starting position. The load travels in the direction of the arrow. In the illustration shown, the load begins traveling in the negative direction and then switches directions to move in the positive direction. The circle represents the home position at which point the (actual) measured position is reset to zero. The small section of arrow following the circle represents the distance traveled, past the home position, during deceleration of the load. Lastly, the number in the circle represents the number designated to that particular homing method.	
Index Pulse	
Each vertical line represents one index pulse.	
Limit/Home Switch	
A label in the actual homing diagram will be used to label a switch as either a limit/home switch. As shown, there are only two positions for a switch: high (active) or low (inactive).	
Break	
Represents a break in the diagram. This is used for representing a length of distance too large to properly scale on the diagram.	

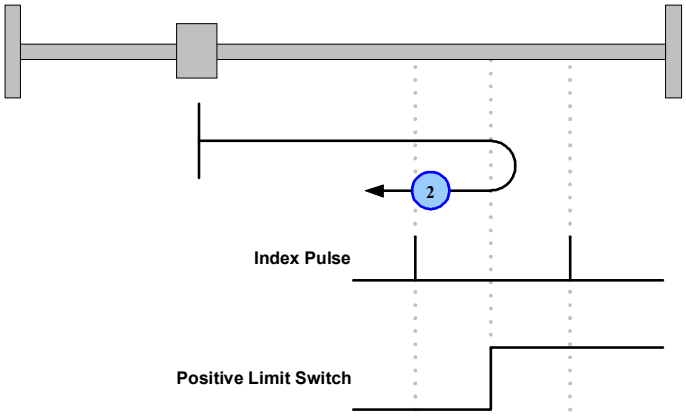
Method 1: Homing on the Negative Limit Switch This method uses the negative limit switch and index to home the load. If the negative limit switch is off, the motor moves in the negative direction. Once the limit switch toggles, the motor changes direction and moves until the next encoder index. Homing is complete at this point. Figure 1.7 illustrates the homing diagram for this method.

FIGURE 1.7 Homing on the Negative Limit Switch



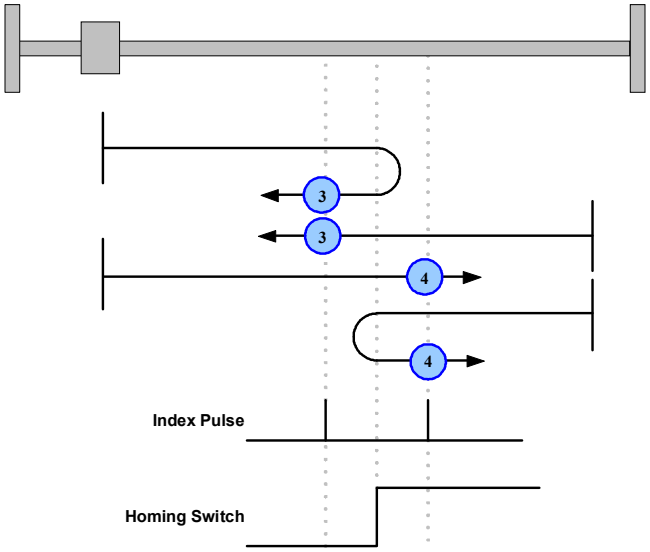
Method 2: Homing on the Positive Limit Switch This method uses the positive limit switch and index to home the load. If the positive limit switch is off, the motor moves in the positive direction. Once the limit switch toggles, the motor changes direction and moves until the next encoder index. Homing is complete at this point. Figure 1.8 illustrates the homing diagram for this method.

FIGURE 1.8 Homing on the Positive Limit Switch



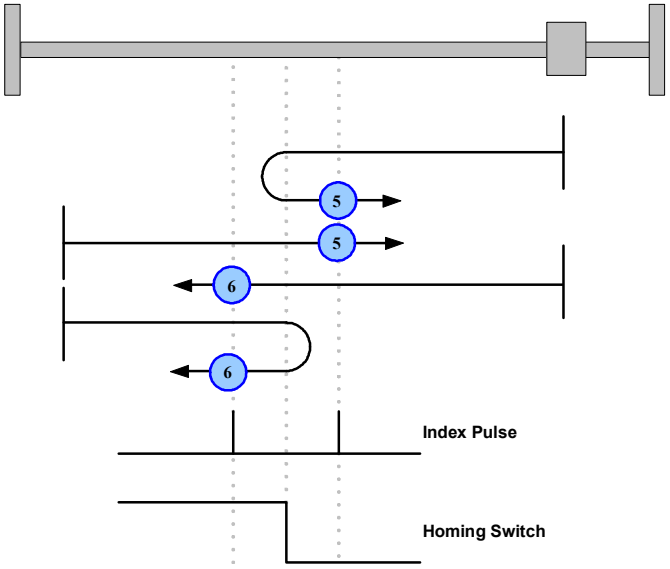
Methods 3 and 4: Homing on the Positive Home Switch These methods use the positive home switch and index to home the load. The initial direction of movement for a given routine method is dependent on the home switch position. However, the final position is always in the same direction. Homing methods 3 and four perform the same operations, but in opposite directions with opposite home switch polarity. Figure 1.9 illustrates the homing diagram for these methods.

FIGURE 1.9 Homing on the Positive Home Switch



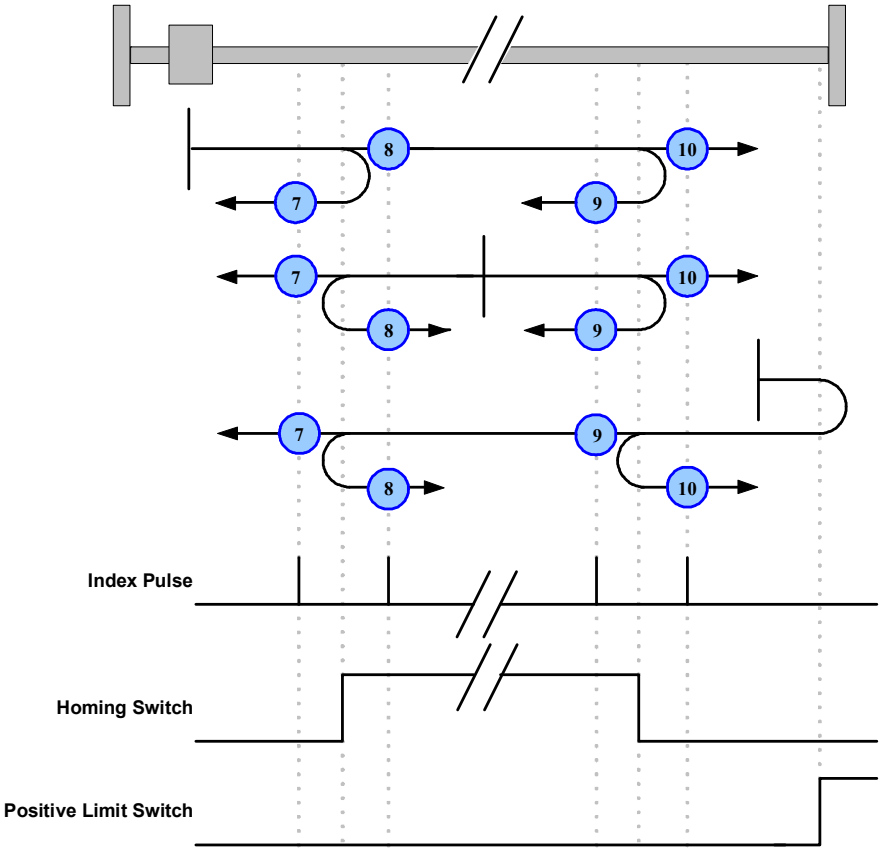
Methods 5 and 6: Homing on the Negative Home Switch This is literally a mirror image of the homing routines used by methods 3 and 4. Figure 1.10 illustrates the homing diagram for these methods.

FIGURE 1.10 Homing on the Negative Home Switch



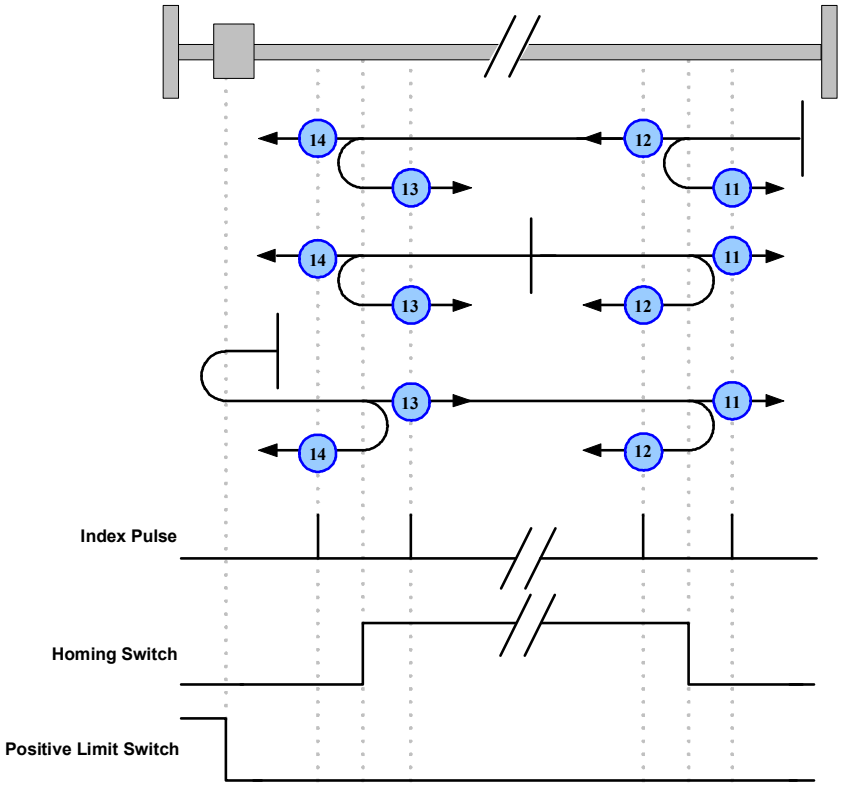
Methods 7-14: Homing on the Home Switch These methods use all three possible homing components (index pulse, home switch, and limit switch) with the index pulse to the nearest right or left of the home switch always being the sought after home position. Methods 7 to 10 use a positive limit switch and if the starting position is outside the active home switch region the initial direction of travel is always positive. For cases where the starting position is inside the active home switch region the initial direction will depend upon the index pulse being sought after: methods 7 & 8 home towards the left home switch edge so the initial direction will be left, whereas methods 9 & 10 home towards the right home switch edge so the initial direction will be right. Note that the only difference between methods 7 & 8 is that one homes to the index pulse left of the home switch edge whereas the other homes to the index pulse to the right; the same difference holds true for methods 9 & 10. Figure 1.11 illustrates the homing diagram for methods 7 to 10.

FIGURE 1.11



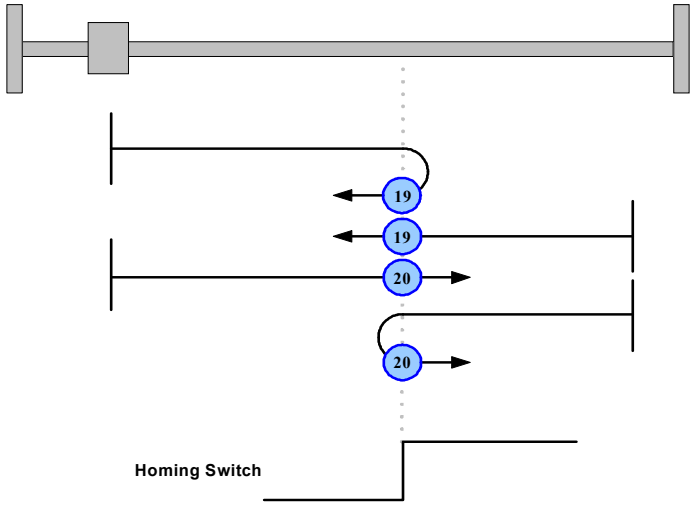
Methods 11 to 14 use a negative limit switch instead of a positive limit switch. As a result, the initial direction will be left, instead of right, whenever the starting point is outside of the active home switch region. Outside of this difference, methods 11 to 14 are identical to methods 7 to 10. Figure 1.12 illustrates the homing diagram for methods 11 to 14.

FIGURE 1.12



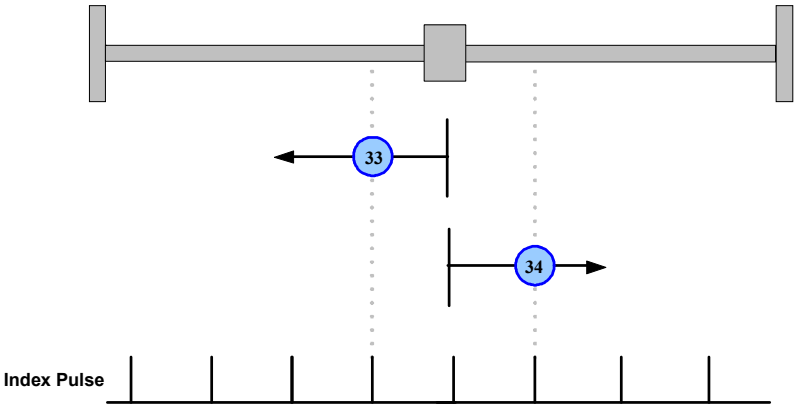
Methods 17-30: Homing without an Index Pulse These homing routines use the same methods as 1 to 14, except the index pulse is not used. Instead, the home position is dependant on the edge of the relevant home or limit switch. To illustrate this difference, Figure 1.13 shows the homing diagram for methods 19 and 20, which are equivalent to methods 3 and 4 without the index pulse.

FIGURE 1.13



Methods 33 and 34: Homing on the Index Pulse These homing methods home to the nearest index pulse. Method 33 homes in the negative directions and method 34 homes in the positive direction.

FIGURE 1.14



Method 35 This homing method requires no index pulse or switches and involves nothing more than setting the current measured position equal to the home position value, which can be accomplised in object 2039.02h “Home Position Value” on page 59.

1.9 Connecting to an AMC POWERLINK Drive

Connecting to an *ADVANCED* Motion Controls' POWERLINK drive is possible via two communication interfaces on the drive. One interface is the POWERLINK communication interface, which is used after the drive is configured for proper operation. The other interface is a USB serial communication interface. This is used when first configuring a drive project file according to the application needs and storing it to the drive's Non Volatile Memory.

When connecting to an *ADVANCED* Motion Controls' POWERLINK drive with DriveWare via Ethernet, if the host is connected at the same time, the host must be in the pre-operational state, or DriveWare must be in Read-only or Restricted Read/Write.

1.9.1 Network Ports and Connectors

ADVANCED Motion Controls' DPP drives use dual RJ-45 connectors for POWERLINK network connections, with a standard CAT 5 cable recommended to connect between devices.

A mounting card or interface PCB can be used to facilitate network connections for DZP drives. Consult the DZP Hardware Installation Manual for more information.

1.9.2 USB Interface Setup

All that is needed is a USB cable connected from the drive USB port to a computer. Refer to the hardware manual and software configuration manual for more information about connecting to the USB interface.

1.9.3 POWERLINK Addressing

The POWERLINK node address is defined by the drive's IP address. *ADVANCED* Motion Controls' POWERLINK drives feature hexadecimal rotary switches (DPP drives) or dedicated node addressing pins (DZP drives) used to set the last octet of the IP address. The first 3 octets are always 192.168.100.

2 Object Dictionary

2.1 Dictionary Table Format

The object dictionary provides one entry for each existing object. Since objects may or may not have sub-indices, the following convention is used for each entry:

FIGURE 2.1 Object Table Convention

2002.01h	Sub Index Name			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(15)}-1]$	N/A (SF1)	Read / Write*	No
Description: Detailed description of what this object does and how to use it. * This indicates a note about conditions.				

In the example of Figure 2.1 the object index and sub-index is referenced via the dot (.). 2002h is the object index and .01h is the sub-index. Objects without sub-indices will be referenced without the dot (.). Furthermore, each entry has the following attributes:

- Data Type: This field specifies the data type of the object. Data types can be 8-bit, 16-bit, 32-bit, or string.
- Range: This field specifies the usable range of the values this object can contain.
- Units: This field specifies the units that apply to the value stored in this object. If the value contained in this object has no units, the field will contain "N/A". The appropriate physical unit is only supplied if there is a one-to-one relationship between the physical unit and the drive data type or if a generic scaling factor is used. If a generic scaling factor is used, its abbreviation will be supplied in brackets beside the units (as shown in Figure 2.1). For units that require specific scaling between a physical unit and the drive data type, an abbreviation for a drive unit is supplied. All scaling factors and drive units are described in "Appendix" on page 219 according to their abbreviation.
- Accessibility: This field specifies whether the object can be read or written to. If there is a * in this box, then the object may only be accessible in certain modes. See the Description box for more information about mode dependencies.
- Stored to NVM: This field specifies whether or not the object can be stored to Non Volatile Memory such that it is recalled on power up.
- Description: This field contains detailed information on the object and what it is used for.

2.2 Configuration Objects

Although the following objects are used predominately during drive setup and initialization, they are not restricted to use only during setup. Configuration objects can be divided into the following three categories.

- Administrative Objects: These objects are used for administrative operations such as loading or restoring parameters from non-volatile memory.
- Communication Objects: These objects determine the CANopen communication settings of the drive.
- Drive Objects: These objects define the drive configuration and are largely determined by DriveWare setup and configuration software. Objects which contain general drive information are also available.

2.2.1 Administrative Objects

2009h: Load EEPROM Values

2009.01h	Load EEPROM Values			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	See Table	N/A	Write Only	No

Description:
Defines which parameters will be loaded from the drive's non-volatile memory to the drive's RAM.

Key (Hex)	Description
165B	Load CANopen communication parameters
1CAE	Load RS232 communication parameters
7405	Load non-axis parameters
8137	Load axis parameters

200Ah: AMC Store Drive Parameters

200A.01h	AMC Store Drive Parameters			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	See Table	N/A	Write Only	Yes

Description:
Defines which parameters will be stored to the drive's non-volatile memory.

Key (Hex)	Description
165B	Store CANopen communication parameters
1CAE	Store RS232 communication parameters
7405	Store non-axis parameters
8137	Store axis parameters

2.3 Communication Settings

2.3.1 General Settings

1000h: Device Type

1000h	Device Type			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	$0 – [2^{(32)} – 1]$	N/A	Read Only	No

Description:
Contains information about the device type. This 32-bit object is split into two 16-bit fields. Bits 0-15 describe the device profile and bits 16-31 supply additional optional information about the device. AMC drives fit under device profile number 402 (Drives and Motion Control), which is represented by 0192h in the first 16-bit field. Servo drives are designated by setting the second bit of the second field (bit 17) to 1.

Bit 0-15	Device Profile Number = 0192h (402 - Drives and Motion Controllers)
Bit 16-23	Type = 02h (Servo Drive
Bit 24-31	Reserved = 00

1018h: Identity Object

1018.01h	Vendor ID			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	N/A	Read Only	No

Description:
A unique vendor identifier. Always BDh for *ADVANCED* Motion Controls' drives.

1018.02h	Product Code			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	N/A	Read Only	No

Description:
Contains the product code. *ADVANCED* Motion Controls' DigiFlex Performance series products use a fixed product code of 12C.

1018.03h	Revision Number			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	N/A	Read Only	No

Description:
Contains the drive revision number.

1018.04h	Serial Number			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	N/A	Read Only	No
Description: Contains the drive serial number.				

20E6h: CANopen Parameters

20E6.01h	Startup Mode of Operation			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)} – 1]$	N/A	Read / Write	Yes

Description:
Contains the initial mode of operation when the drive is powered on. Requires power cycle to activate.

Bit	Assignment (1 = assigned, 0 = not assigned)
1	Profile Position Mode
2	Profile Velocity Mode
4	Profile Torque Mode (current mode)
6	Homing Mode
8	Cyclic Synchronous Position Mode
9	Cyclic Synchronous Velocity Mode
A	Cyclic Synchronous Torque Mode (current mode)
9E	Config 0
DE	Config 1
FF	None (Use active configuration settings)

20E6.02h	CAN options			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read / Write	No

Description:
Configuration settings for CANopen functionality. This is the mechanism to switch COB ID filtering on and off.

Bit	Assignment (1 = assigned, 0 = not assigned)
0	State Machine Autosequence - When assigned, the drive will automatically sequence to the enabled state when configured to do so.
1	Inhibit COB ID filtering - When assigned, COB ID filtering will be turned off. It is recommended to leave this bit unassigned.
2-15	Reserved

Note: A reset node or power cycle is needed before the changes will take effect.

2006h: Network Configuration

2006.01h	IP Address			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – (2^{31}-1)	N/A	Read/Write	Yes
Description: Contains the IP address. Each byte represents one octet of the IP address. **Example:** C0 A8 64 01 = 192.168.100.1				

2006.02h	Subnet Mask			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – (2^{31}-1)	N/A	Read/Write	Yes
Description: Contains the Subnet Mask. Each byte represents one octet of the subnet mask. **Example:** FF FF FF 00 = 255.255.255.0				

2006.03h	Default Gateway			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – (2^{31}-1)	N/A	Read/Write	Yes
Description: Contains the default gateway. Each byte represents one octet of the gateway. **Example:** C0 A8 64 64 = 192.168.100.100				

2.3.2 PDO Configuration

1600h: Receive PDO Mapping Holds the RPDO mappings

1600.00h	Number of objects in this PDO			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned8	0 - 16	N/A	Read / Write	No
Description: Holds the number of RPDO mappings.				

1600.01h	PDO Mapping for the 1st Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 1st offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.02h	PDO Mapping for the 2nd Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 2nd offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.03h	PDO Mapping for the 3rd Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 3rd offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.04h	PDO Mapping for the 4th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 4th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.05h	PDO Mapping for the 5th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 5th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.06h	PDO Mapping for the 6th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 6th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.07h	PDO Mapping for the 7th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 7th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.08h	PDO Mapping for the 8th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 8th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.09h	PDO Mapping for the 9th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 9th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.0Ah	PDO Mapping for the 10th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 10th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.0Bh	PDO Mapping for the 11th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 11th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.0Ch	PDO Mapping for the 12th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 12th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.0Dh	PDO Mapping for the 13th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 13th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.0Eh	PDO Mapping for the 14th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 14th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.0Fh	PDO Mapping for the 15th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 15th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1600.10h	PDO Mapping for the 16th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read/Write	Yes
Description: Holds the COB-ID of the object mapped to the 16th offset of RPDO1. A value of zero means no object is mapped to this offset.				

1A00h: Transmit PDO Mapping Holds the TPDO mappings.

1A00.00h	Number of objects in this PDO			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned8	0 - 16	N/A	Read / Write	Yes
Description: Holds the number of TPDO mappings.				

1A00.01h	PDO Mapping for the 1st Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 1st offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.02h	PDO Mapping for the 2nd Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 2nd offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.03h	PDO Mapping for the 3rd Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 3rd offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.04h	PDO Mapping for the 4th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 4th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.05h	PDO Mapping for the 5th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 5th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.06h	PDO Mapping for the 6th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 6th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.07h	PDO Mapping for the 7th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 7th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.08h	PDO Mapping for the 8th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 8th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.09h	PDO Mapping for the 9th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 9th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.0Ah	PDO Mapping for the 10th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 10th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.0Bh	PDO Mapping for the 11th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 11th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.0Ch	PDO Mapping for the 12th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 12th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.0Dh	PDO Mapping for the 13th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 13th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.0Eh	PDO Mapping for the 14th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 14th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.0Fh	PDO Mapping for the 15th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 15th offset of TPDO1. A value of zero means no object is mapped to this offset.				

1A00.10h	PDO Mapping for the 16th Application Object			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 - 2^{32}	N/A	Read / Write	Yes
Description: Holds the COB-ID of the object mapped to the 16th offset of TPDO1. A value of zero means no object is mapped to this offset.				

2.4 Drive Configuration

2.4.1 Motion Control Profile

20D0h: Control Loop Configuration Parameters

20D0.01h	Control Loop Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
N/A	N/A	N/A	Read / Write	Yes
Description: Control loop configuration. Drive setup and configuration software will determine the values in this parameter. For systems that do not load parameter values from non-volatile memory but rather download parameters to the drive upon each system initialization, this parameter should be read from the drive upon completion of setup and configuration and saved with all other relevant drive parameters.				

2032h: Feedback Sensor Parameters

2032.01h	Encoder Wiring Polarity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the encoder wiring polarity.				

2032.02h	Maximum Phase Detection Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	DC2	Read / Write	Yes
Description: Contains a value corresponding to the maximum phase detection current that is allowed during a phase detect. See "Appendix" on page 219 for units conversion.				

2032.03h	Phase Detect Settling Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(31)}$ –1]	N/A	Read / Write	Yes
Description: Contains the delay after a phase detect, before the commutation angle value is assigned. This delay should be set greater than the time it takes for the load to settle after phase detection. The value to be written to the drive is calculated as follows: *(desired phase detect settling time in milliseconds) x f* where f = the switching frequency of the drive in kHz. **Examples:** For a drive with a switching frequency of 20 kHz, to achieve a phase detect settling time of 500ms, the value written to the drive is: 500 x 20 = 10000 For a drive with a switching frequency of 14 kHz, to achieve a phase detect settling time of 500ms, the value written to the drive is: 500 x 14 = 7000				

2032.04h	Maximum Phase Detection Brake Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 – [$2^{(32)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: Contains a value corresponding to the maximum phase detection brake time.				

2032.05h	Maximum Phase Detection Motion			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	DG1	Read / Write	Yes
Description: Contains a value corresponding to the maximum phase detection motion that is allowed during a phase detect. See "Appendix" on page 219 for unit conversion details.				

2032.06h	Resolver Resolution			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 1	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the resolver resolution.

Value	Resolver Resolution*
0	Low (12 bit = 4096 counts/resolver cycle standard)
1	High (14 bit = 16384 counts/resolver cycle standard)

*Refer to the drive datasheet for the specific resolution values supported by the drive.

2032.07h	Serial Encoder Type			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the serial encoder type:

Value	Serial Encoder Type
0	Not Assigned
1	Hiperface
2	EnDat 2.1
3	BiSS
4	EnDat 2.2

2032.08h	Position Interpolation / Velocity Divider			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
For Sin/Cos encoder interpolation, contains a value corresponding to the position interpolation. The number of position counts per Sin/Cos cycle is equal to 4 multiplied by the interpolation value. This only applies to position. The measured velocity is unaffected by the interpolation. For digital encoder feedback (BiSS, EnDat 2.2) contains a value corresponding to the Velocity Divider parameter. The Velocity Divider is used to scale down the feedback going to the velocity gains when very high resolution encoders are used. This prevents saturation of the velocity loop. For incremental encoder feedback, the Interpolation Value is 1.

	Sin/Cos Encoder	Digital Encoder
Value	Interpolation	Velocity Divider
0	1x	1
1	2x	2
2	4x	4
3	8x	8
4	16x	16
5	32x	32
6	64x	64
7	128x	128
8	256x	256
9	512x	512

2032.09h	Encoder Steps Per Encoder Sine Period			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the encoder steps per encoder sine period.

2032.0Ah	Secondary Encoder Position Interpolation			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the secondary encoder position interpolation.

2032.0Bh	Low Speed Smoothing Constant			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the low speed smoothing constant.				

2032.0Ch	Encoder Emulation Divide By			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	1-20h	N/A	Read / Write	Yes
Description: Contains a value corresponding to the emulated encoder divide by amount. The drive will output an emulated encoder frequency equal to the drive's interpreted encoder frequency divided by the divide amount. Allowable values are 1,2,4,8,16 and 32.				

2032.0Dh	Sin/Cos Error Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0000h – 4000h	N/A (SF1)	Read / Write	Yes
Description: Contains a value corresponding to the Sin/Cos error window for drives that support a 1V peak-to-peak encoder. The valid range in physical units is 0 to 1. The window determines whether or not a feedback sensor error should be activated according to the health of a Sin/Cos encoder (see object 2027.03h). If x is the error window entered in this object, then an error is activated when the health of the encoder is not within the range 1±x. See "Appendix" on page 219 for information on scaling.				

2032.0Eh	Emulation Output Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0-1	N/A	Read / Write	Yes
Description: This applies only to drives that support sin/cos encoder or absolute encoder feedback. Specifies whether the output encoder signal is buffered (0) or emulated (1).				

2032.0Fh	Position of Emulated Index			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	[$-2^{(32)}$] – [$2^{(31)}$-1]	counts	Read / Write	Yes
Description: This applies only to drives that support sin/cos encoder or absolute encoder feedback. Specifies the position of the emulated index in drive counts.				

2032.10h	Emulated Counts per Emulated Index			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read / Write	Yes

Description:
This applies only to drive that support sin/cos encoder or absolute encoder feedback. Specifies the number of emulated counts per emulated index.

2032.11h	Digital Absolute Only - Resolution Configuration Bitfield			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	N/A	Read / Write	Yes

Description:
Contains the absolute encoder resolution. This parameter is used with BiSS encoders. The bits are separated into resolution per turn and resolution (turns).

Bit	Description
0...7	Number of bits per turn. A value of decimal 16 represents 2^{16} counts per turn.
8...15	Number of bits whole turns. A value of decimal 16 represents 2^{16} turns.

2032.12h	Digital Absolute Only - Data Format Configuration Bitfield			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	N/A	Read / Write	Yes

Description:
Contains information about the data format used. This parameter is used with BiSS encoders. The bits are separated into data width and justification for single turn data and multi turn data.

Bit	Description
0...6	Single turn data width. A value of decimal 16 represents 16 bits.
7	1 when bits/turn data is left justified, and 0 when bits/turn data is right justified.
8...14	Multi turn data width. A value of decimal 16 represents 16 bits.
15	1 when turns data is left justified, and 0 when turns data is right justified.

2046h: Auxiliary Input Parameters

2046.01h	Auxiliary Input - Input Counts: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	1 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the number of input counts in the input/output ratio used for Encoder following and Step and Direction modes in Configuration 0.				

2046.02h	Auxiliary Input - Output Counts: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-[$2^{(16)}$ –1] - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the output in the input/output ratio used for Encoder following and Step and Direction modes in Configuration 0. Encoder following mode can be used only when the position loop is closed. However, Step and Direction can be used to control position, velocity or current. Therefore, the scaling value used is mode dependent.				

2046.03h	Auxiliary Input - Input Counts: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	1 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the number of input counts in the input/output ratio used for Encoder following and Step and Direction modes in Configuration 1.				

2046.04h	Auxiliary Input - Output Counts: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-[$2^{(16)}$ –1] - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the output in the input/output ratio used for Encoder following and Step and Direction modes in Configuration 1. Encoder following mode can be used only when the position loop is closed. However, Step and Direction can be used to control position, velocity or current. Therefore, the scaling value used is mode dependent.				

2034h: Current Loop & Commutation Control Parameters

2034.01h	Torque Current Loop Proportional Gain			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(15)}$-1]	N/A	Read / Write	Yes
Description: Contains the value of proportional gain for the current loop. This value is calculated from the gain value as follows: $Gain \times 2^9 = Value\ to\ the\ drive$				

2034.02h	Torque Current Loop Integral Gain			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(15)}$-1]	N/A	Read / Write	Yes
Description: Contains the value of integral gain for the current loop. This value is calculated from the gain value as follows: $Gain \times 2^9 = Value\ to\ the\ drive$				

2034.03h	Torque Current Target Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	[$-2^{(15)}$] – [$2^{(15)}$-1]	DC1	Read / Write	Yes
Description: Contains a value corresponding to the torque current target offset				

2034.04h	Peak Current Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(15)}$-1]	DC1	Read / Write	Yes
Description: Contains a value corresponding to the peak current limit set in the drive. See "Appendix" on page 219 for unit conversion.				

2034.05h	Peak Current Hold Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: Contains a value corresponding to the peak current time set in the drive.				

2034.06h	Continuous Current Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(15)}$-1]	DC1	Read / Write	Yes
Description: Contains a value corresponding to the continuous current limit set in the drive. See "Appendix" on page 219 for unit conversion.				

2034.07h	Peak to Continuous Current Transition Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: Contains a value corresponding to the peak to continuous current transition time set in the drive.				

2034.08h	Flux Current Reference Loop Proportional Gain			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the flex current reference loop proportional gain. The flux current loop is only used for AC induction motors. This value can be calculated from the gain value as follows: (Flux Current Reference Loop Proportional Gain) x 10000h, where ($0 \leq$ Gain ≤ 32767)				

2034.09h	Flux Current Reference Loop Integral Gain			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the flex current reference loop integral gain. The flux current loop is only used for AC induction motors. This value can be calculated from the gain value as follows: (Flux Current Reference Loop Integral Gain) x 400000h, where ($0 \leq$ Gain ≤ 512)				

2034.0Ah	Rated Peak Line Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the rated peak line current allowed when using an AC induction motor.				

2034.0Bh	No Load Peak Magnetization Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the no-load peak magnetization current allowed when using an AC induction motor.				

2034.0Ch	Rated Frequency			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the rated frequency.				

2034.0Dh	Rated Rotor No Load Base Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	RPM	Read / Write	Yes
Description: Contains a value corresponding to the rated rotor no-load base speed. This parameter is only used with an AC induction motor.				

2034.0Eh	FW Threshold Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the field weakening threshold speed. This parameter is used for AC induction motors only.				

2034.0Fh	Motor Type			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-	N/A	Read / Write	Yes
Description: Contains a value corresponding to the type of motor connected to the drive.				

2034.10h	Auxiliary Commutation Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-	N/A	Read / Write	Yes
Description: Contains a value corresponding to the auxiliary commutation mode. Auxiliary commutation only occurs if the drive is connected to a ***brushed*** motor. Brushed motors commutate the motor internally and therefore do not require the drive to commutate the motor. The drive supplies current over two phases. This remains fixed for a brushed drive.				

2034.11h	Encoder Direction			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 3	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the direction of the encoder feedback.

Data Value	Rotation Direction	Primary Feedback Polarity
0	Inverted	Inverted
1	Inverted	Standard
2	Standard	Inverted
3	Standard	Standard

2034.12h	Synchronization Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-	N/A	Read / Write	Yes
Description: Contains a value corresponding to the current commutation method.				

2034.13h	Encoder Counts Per Electrical Cycle			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	counts	Read / Write	Yes
Description: Contains the number of encoder counts per electrical cycle.				

2034.14h	NTHS Angle 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} –1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the NTHS angle 1.				

2034.15h	NTHS Angle 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} –1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the NTHS angle 2.				

2034.16h	NTIS Angle 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} –1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the NTIS angle 1.				

2034.17h	NTIS Angle 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} –1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the NTIS angle 2.				

2034.18h	NTA-EZ Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the NTA-EZ position.				

2034.19h	Max SPA Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the max SPA error.				

2034.1Ah	Max SPA Adjustment			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the max SPA adjustment.				

2034.1Bh	EC Adjust Count			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the EC adjust count.				

2034.1Ch	ECC Adjust Amount			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the ECC adjust amount.				

2034.1Dh	Valid HS Mask			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes
Description: Contains a value corresponding to the valid HS mask.				

2034.1Eh	Hall Parameter 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 1.				

2034.1Fh	Hall Parameter 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 2.				

2034.20h	Hall Parameter 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 3.				

2034.21h	Hall Parameter 4			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 4.				

2034.22h	Hall Parameter 5			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 5.				

2034.23h	Hall Parameter 6			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 6.				

2034.24h	Hall Parameter 7			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 7.				

2034.25h	Hall Parameter 8			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to Hall Parameter 8.				

2034.26h	Phase Detect Control			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the Phase Detect Control options:

Data Value	Description
0	Normal Phase Detect Operation
1	Ignore User Positive Limit Event
2	Ignore User Negative Limit Event
3	Ignore both User Positive and Negative Limit Events

2034.27h	Phase Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	[$-2^{(15)}$] – [$2^{(15)}$-1]	DG1	Read / Write	Yes
Description: Contains a value corresponding to the Phase Advance feature.				

2034.28h	Current Limiting Algorithm			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0-2	N/A	Read / Write	Yes

Description:
This enum selects from one of three current limiting algorithms. See "Appendix B - Current Limiting Algorithm" on page 222 for more details.

Data Value	Description
0	Time Based (Default)
1	Charge Based with RMS Scaling
2	Charge Based

2034.29h	Torque At Command Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$ –1]	DC2	Read / Write	Yes
Description: Contains a value for an At Command window around the current error. While in current mode, when the current error is within this window, the At Command event will be active.				

2036h: Velocity Loop Control Parameters

2036.01h	Velocity Feedback Direction			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	-	N/A	Read / Write	Yes
Description: Contains a value corresponding to the feedback polarity of an auxiliary encoder used for velocity feedback.				

2036.02h	Velocity Feedback Filter Coefficient			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(30)}$]	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the velocity feedback filter coefficient. To convert between the value entered into DriveWare and the value sent to the drive, use the following functions:

DriveWare to drive:

$$2^{30}(-e^{a}+1) = P$$

where a = [value entered into DriveWare] x (-6.283185307x10^{-4}) and P = [value sent to drive]

Drive to DriveWare:

$$\frac{\ln\left(1-\frac{P}{2^{30}}\right)}{-6.283185307\times 10^{-4}} = \text{[value seen in DriveWare (Hz)]}$$

where P = [value in drive]

2036.03h	Velocity Loop Proportional Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the proportional loop gain of the velocity loop for Gain Set 0. This value can be calculated from the gain value as follows:

(Velocity Loop Proportional Gain) x $((2^{16} * V_{vel} * R_{ppv}) / (2 * C_{pk}))$, where:
V_{vel} = (Switching Frequency / 2)
R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)
C_{pk} = Peak Current

2036.04h	Velocity Loop Integral Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the integral loop gain of the velocity loop for Gain Set 0. This value can be calculated from the gain value as follows:

(Velocity Loop Integral Gain) x $(2^{32} * R_{ppv}) / (2 * C_{pk})$, where
R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)
C_{pk} = Peak Current

2036.05h	Velocity Loop Derivative Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the derivative loop gain of the velocity loop for Gain Set 0. This value can be calculated from the gain value as follows:

(Velocity Loop Derivative Gain) x $((2^{16} * (V_{vel})^2 * R_{ppv}) / (2 * C_{pk}))$, where
V_{vel} = (Switching Frequency / 2)
R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)
C_{pk} = Peak Current

2036.06h	Velocity Loop Acceleration Feed Forward Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the velocity loop acceleration feed forward gain for Gain Set 0. This value can be calculated from the gain value as follows:

(Velocity Loop Acceleration Feed Forward Gain) x $((2^{16} * (V_{vel})^2 * R_{ppv}) / (2 * C_{pk}))$, where

V_{vel} = (Switching Frequency / 2)

R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)

C_{pk} = Peak Current

2036.07h	Velocity Loop Integrator Decay Rate			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to a percentage of the velocity loop integrator decay rate. The value can be calculated from the velocity loop integrator decay rate as follows:

(% of Integrator Gain) * $(2^{16} / 100)$

2036.08h	Velocity Loop Proportional Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the proportional loop gain of the velocity loop for Gain Set 1. This value can be calculated from the gain value as follows:

(Velocity Loop Proportional Gain) x $((2^{16} * V_{vel} * R_{ppv}) / (2 * C_{pk}))$, where:

V_{vel} = (Switching Frequency / 2)

R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)

C_{pk} = Peak Current

2036.09h	Velocity Loop Integral Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the integral loop gain of the velocity loop for Gain Set 1. This value can be calculated from the gain value as follows:

(Velocity Loop Integral Gain) x (2^{32} * R_{ppv}) / (2 * C_{pk}), where
R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)
C_{pk} = Peak Current

2036.0Ah	Velocity Loop Derivative Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the derivative loop gain of the velocity loop for Gain Set 1. This value can be calculated from the gain value as follows:

(Velocity Loop Derivative Gain) x ((2^{16} * (V_{vel})^2 * R_{ppv}) / (2 * C_{pk})), where
V_{vel} = (Switching Frequency / 2)
R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)
C_{pk} = Peak Current

2036.0Bh	Velocity Loop Acceleration Feed Forward Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes

Description:
Contains a value that corresponds to the velocity loop acceleration feed forward gain for Gain Set 1. This value can be calculated from the gain value as follows:

(Velocity Loop Acceleration Feed Forward Gain) x ((2^{16} * (V_{vel})^2 * R_{ppv}) / (2 * C_{pk})), where
V_{vel} = (Switching Frequency / 2)
R_{ppv} = Interpolation Value (see object 2032.08h for a reference table to locate the actual interpolation value using the stored enum)
C_{pk} = Peak Current

2037h: Velocity Limits

2037.01h	Motor Over Speed Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Contains a value corresponding to the motor over speed limit set in the drive. When the velocity of the motor meets or exceeds this value, the drive will indicate a motor over speed condition is present. See "Appendix" on page 219 for unit conversion.				

2037.02h	Zero Speed Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Contains a value corresponding to the motor zero speed limit set in the drive. When the velocity of the motor reaches this value or LOWER, the drive will indicate that it has reached a zero speed condition. See "Appendix" on page 219 for unit conversion.				

2037.03h	At Velocity Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 – [$2^{(31)}$-1]	DS4	Read / Write	Yes
Description: Contains a value for an At Velocity tolerance window around the target velocity. The At Velocity Window functions like a tolerance value for the velocity error. When the velocity error is within this window either above or below the target velocity, the drive will indicate that it is At Command. See "Appendix" on page 219 for unit conversion.				

2037.04h	Velocity Loop Following Error Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Contains a value corresponding to the velocity at speed limit set in the drive. If the measured velocity meets or exceeds this value, the drive will perceive this as a velocity following error. See "Appendix" on page 219 for unit conversion.				

2037.05h	Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Contains a value corresponding to the positive velocity limit set in the drive. When the speed set by this value is met or exceeded, the drive will indicate that the positive limit was reached. See "Appendix" on page 219 for unit conversion.				

2037.06h	Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Contains a value corresponding to the negative velocity limit set in the drive. When the speed set by this value is met or exceeded, the drive will indicate that the negative limit was reached. See "Appendix" on page 219 for unit conversion.				

2037.07h	Velocity Loop Integrator Decay Active Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value that corresponds to the velocity loop integrator decay active window.				

2038h: Position Loop Control Parameters

2038.01h	Position Loop Proportional Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the position loop proportional gain for Gain Set 0. This value can be calculated from the gain value using the following formula: (Position Loop Proportional Gain) x 2^{32}, where				

2038.02h	Position Loop Integral Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the position loop integral gain for Gain Set 0. This value can be calculated from the gain value using the following formula: (Position Loop Integral Gain) x (2^{41} / V_{pos}), where V_{pos} = (Switching Frequency / 2)				

2038.03h	Position Loop Derivative Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the position loop derivative gain for Gain Set 0. This value can be calculated from the gain value using the following formula:

(Position Loop Derivative Gain) x $(2^{28} * V_{pos})$, where
V_{pos} = (Switching Frequency / 2)

2038.04h	Position Loop Velocity Feed Forward Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the position loop velocity feed forward gain for Gain Set 0. This value can be calculated from the gain value using the following formula:

(Position Loop Velocity Feed Forward Gain) x $(2^{28} * V_{pos})$, where
V_{pos} = (Switching Frequency / 2)

2038.05h	Position Loop Acceleration Feed Forward Gain: Gain Set 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the position loop acceleration feed forward gain for Gain Set 0. This value can be calculated from the gain value using the following formula:

(Position Loop Acceleration Feed Forward Gain) x $(2^{28} * (V_{pos})^2)$, where
V_{pos} = (Switching Frequency / 2)

2038.06h	Position Feedback Direction			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	-	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the feedback polarity of an auxiliary encoder used for position feedback.

2038.07h	Position Loop Integrator Decay Rate			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	%	Read / Write	Yes
Description: Contains a value that corresponds to the position loop integrator decay rate. The value is in percentage of the position loop Integrator Gain.				

2038.08h	Position Loop Proportional Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the position loop proportional gain for Gain Set 1. This value can be calculated from the gain value using the following formula: (Position Loop Proportional Gain) x 2^{32}, where				

2038.09h	Position Loop Integral Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the position loop integral gain for Gain Set 1. This value can be calculated from the gain value using the following formula: (Position Loop Integral Gain) x (2^{41} / V_{pos}), where V_{pos} = (Switching Frequency / 2)				

2038.0Ah	Position Loop Derivative Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	N/A	Read / Write	Yes
Description: Contains a value corresponding to the position loop derivative gain for Gain Set 1. This value can be calculated from the gain value using the following formula: (Position Loop Derivative Gain) x (2^{28} * V_{pos}), where V_{pos} = (Switching Frequency / 2)				

2038.0Bh	Position Loop Velocity Feed Forward Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the position loop velocity feed forward gain for Gain Set 1. This value can be calculated from the gain value using the following formula:

(Position Loop Velocity Feed Forward Gain) x $(2^{28} * V_{pos})$, where
V_{pos} = (Switching Frequency / 2)

2038.0Ch	Position Loop Acceleration Feed Forward Gain: Gain Set 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the position loop acceleration feed forward gain for Gain Set 1. This value can be calculated from the gain value using the following formula:

(Position Loop Acceleration Feed Forward Gain) x $(2^{28} * (V_{pos})^2)$, where
V_{pos} = (Switching Frequency / 2)

2039h: Position Limits

2039.01h	Measured Position Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} –1]$	counts	Read / Write	Yes

Description:
Replacement value for the measured position when the Set Position event is triggered. This allows you to redefine the current measured position (e.g. reset to zero).

2039.02h	Home Position Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} –1]$	counts	Read / Write	Yes

Description:
Position value of the home position. When the measured position reaches this position, within the In-Home Position Window, the At-Home event becomes active.

2039.03h	Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	counts	Read / Write	Yes
Description: Maximum allowed measured position. The Max Measured Position event will become active if the measured position exceeds this value.				

2039.04h	Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	counts	Read / Write	Yes
Description: Minimum allowed measured position. The Min Measured Position event will become active if the measured position exceeds this value.				

2039.05h	At Home Position Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	counts	Read / Write	Yes
Description: Defines a window around the Home Position Value, such that when the measured position is within this window, the At-Home event will be active.				

2039.06h	In Position Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 - [2^{(32)} - 1]$	counts	Read / Write	Yes
Description: Defines a window around the target position, such that when the position error is within this window, the At Command event will be active.				

2039.07h	Position Following Error Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 - [2^{(32)} - 1]$	counts	Read / Write	Yes
Description: The maximum allowed position error (difference between target position and measured position), prior to setting the "Position Following Error" event (active in position mode only). This parameter is equivalent to the "Position Following Error Limit" of DSP402 (object 6065h).				

2039.08h	Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	counts	Read / Write	Yes
Description: Maximum allowed target position. The Max Target Position event will become active if the target position exceeds this value.				

2039.09h	Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	counts	Read / Write	Yes
Description: Minimum allowed target position. The Min Target Position event will become active if the target position exceeds this value.				

2039.0Ah	Position Limits Control			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-	N/A	Read / Write	Yes
Description: Defines if the position limits are enabled or not. 3 = Enable Limits, 0 = Disable Limits.				

2039.0Bh	Position Loop Integrator Decay Active Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 - [2^{(31)}-1]$	counts	Read / Write	Yes
Description: Contains a value that corresponds to the position loop integrator decay active window.				

6098h: Homing Method

6098h	Homing Method			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer8	1 – 35	N/A	Read / Write	Yes
Description: There are almost 35 homing methods supported by AMC servo drives. See "Homing" on page 19 for details on each homing method.				

6099h: Homing Speeds

6099.01h	Speed During Search For Switch			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	$0 - (2^{32}-1)$	DS4	Read / Write	Yes
Description: Sets the speed during the first stage of Homing algorithms. See "Appendix" on page 219 for unit conversion.				

6099.02h	Speed During Search For Zero			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	$0 - (2^{32}-1)$	DS4	Read / Write	Yes
Description: Sets the speed during the search for zero. This is usually after the search for switch has completed and is set much slower for accuracy. See "Appendix" on page 219 for unit conversion.				

609Ah: Homing Acceleration

609Ah	Homing Acceleration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	0 – (2^{32}-1)	DA1	Read / Write	Yes
Description: Sets the accelerations and decelerations used by the drive's homing routine. See "Appendix" on page 219 for unit conversion details.				

607Ch: Home Offset

607Ch	Home Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	-2^{31} – (2^{31}-1)	counts	Read / Write	Yes
Description: When the homing routine is complete, the zero position found by the drive is given an offset equal to the value stored in this object. All moves are interpreted relative to this new zero position. When homing completes, the equation for the drive's current position is "Current position = 0 – Home Offset value".				

203Ch: Command Limiter Parameters

The Command Limiter limits the slope of the target command in any mode. It is broken into four components, where each component is assigned to one sub-index. To remove any effects of the command limiter, maximize all limiter parameters. Some limiter parameters have units that change with the operating mode of the drive. For these parameters, refer to Table 2.1 to make the correct unit selection.

TABLE 2.1 Command Limiter Units

Drive Operation Mode	Units
Current (Torque)	DJ1
Velocity	DA2
Position (Around Velocity Or Current)	DS2

203C.01h	Linear Ramp Positive Target Positive Change: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum positive change in positive command used with the command limiter in Configuration 0. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.02h	Linear Ramp Positive Target Negative Change: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum negative change in positive command used with the command limiter in Configuration 0. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.03h	Linear Ramp Negative Target Negative Change: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum negative change in negative command used with the command limiter in Configuration 0. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.04h	Linear Ramp Negative Target Positive Change: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum positive change in negative command used with the command limiter in Configuration 0. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.05h	Linear Ramp Positive Target Positive Change: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum positive change in positive command used with the command limiter in Configuration 1. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.06h	Linear Ramp Positive Target Negative Change: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum negative change in positive command used with the command limiter in Configuration 1. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.07h	Linear Ramp Negative Target Negative Change: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum negative change in negative command used with the command limiter in Configuration 1. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.08h	Linear Ramp Negative Target Positive Change: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	0 - [$2^{(48)}$ –1]	See Table 2.1	Read / Write	Yes
Description: Defines the maximum positive change in negative command used with the command limiter in Configuration 1. Units are mode dependant. See "Appendix" on page 219 for unit conversions.				

203C.09h	Controlled Accel/Decel Maximum Speed: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer64	0 - [$2^{(64)}$ –1]	DS3	Read / Write	Yes
Description: Sets the maximum speed for a profile in Configuration 0. See "Appendix" on page 219 for unit conversions.				

203C.0Ah	Controlled Accel/Decel Maximum Acceleration: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	DA3	Read / Write	Yes
Description: Defines the maximum acceleration used with the command limiter in Configuration 0. See "Appendix" on page 219 for unit conversions.				

203C.0Bh	Controlled Accel/Decel Maximum Deceleration: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	DA3	Read / Write	Yes
Description: Defines the maximum deceleration used with the command limiter in Configuration 0. See "Appendix" on page 219 for unit conversions.				

203C.0Ch	Controlled Accel/Decel Maximum Speed: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer64	0 - [$2^{(64)}$ –1]	DS3	Read / Write	Yes
Description: Sets the maximum speed for a profile in Configuration 1. See "Appendix" on page 219 for unit conversions.				

203C.0Dh	Controlled Accel/Decel Maximum Acceleration: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	DA3	Read / Write	Yes
Description: Defines the maximum acceleration used with the command limiter in Configuration 1. See "Appendix" on page 219 for unit conversions.				

203C.0Eh	Controlled Accel/Decel Maximum Deceleration: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	DA3	Read / Write	Yes
Description: Defines the maximum deceleration used with the command limiter in Configuration 1. See "Appendix" on page 219 for unit conversions.				

60C2h: Interpolation Time Period

This object is used only for synchronous cyclic modes of operation (see "6060h: Modes Of Operation" on page 179). The interpolation time period defines the rate in which target commands are sent by the host to the drive. When a periodic target command is sent to the drive at a rate slower than the loop update rate, there is potential for the loop gains to spike with each new target command. Defining the interpolation time period allows the target to follow a linear ramp between target commands. The interpolation time period is made up of two values as follows:

Interpolation Time Period = [interpolation time period value] x $10^{(\text{interpolation time index})}$ seconds

The drive will support an interpolation time period between 0 and 1 second. If the value is not a multiple of the loop update rate, it will be truncated to the next lowest multiple.

60C2.01h	Interpolation Time Period Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned 8	0 - 255	N/A	Read / Write	Yes
Description: Defines the mantissa of the interpolation time period.				

60C2.02h	Interpolation Time Index			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer 8	-6 to 0	N/A	Read / Write	Yes
Description: Defines the exponent of the interpolation time period.				

2.4.2 Hardware Profile

200Bh: Stored User Parameters

200B.01h	User Defined Drive Name			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String256	ASCII Values	N/A	Read / Write	Yes

Description:
Contains a user specified drive name for the drive. The characters in the string are stored as ASCII values. For the drive name "AMC", the digits stored are: 41h, 4Dh, 43h

2008h: Drive Initialization Parameters

2008.01h	Start-Up Sequence Control			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes

Description:
Defines how the drive will behave when power is first applied.

Bit	Drive Initialization Parameters
0	Disable Bridge
1	Load Config 1
2	Phase Detect
3	Set Position
4	Enable Motion Engine After Startup Sequence
5...15	Reserved

2008.02h	Start-Up Phase Detect Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	N/A	Read / Write	Yes

Description:
Defines how the Phase Detect feature will behave when power is first applied.

Value	Description
0	Phase Detect Immediately upon power-up
1	Phase Detect after the first bridge enable upon power-up

20C8h: Motion Engine Configuration

20C8.01h	Start-Up Motion Type			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 1FFFh	N/A	Read / Write	Yes

Description:

Defines the startup behavior when running a motion engine index upon power-up. The bit values are broken up as defined below.

Bits 0:2

0: Indexer Mode

1-7: Reserved

Bits 3:4

0: Motion initiated via digital inputs

1: Motion initiated via Network commands

Bits 5:8

Defines the index number to load on power-up

Bits 9:15

0: Motion will not immediately start.

1: Motion will automatically start if the Motion Engine is configured to be enabled on power-up.

2-7: Reserved

2033h: User Voltage Protection Parameters

2033.01h	Over-Voltage Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DV1	Read / Write	Yes

Description:

Contains the over voltage limit specified for the drive. It must be set lower than the drive over-voltage hardware shutdown point and greater than the Nominal DC Bus Voltage. See "Appendix" on page 219 for unit conversion.

2033.02h	Under-Voltage Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DV1	Read / Write	Yes

Description:

Contains the under voltage limit specified for the drive. It must be set above the drive under-voltage hardware shutdown point and less than the Nominal DC Bus Voltage. See "Appendix" on page 219 for unit conversion.

2033.03h	Shunt Regulator Enable Threshold			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(15)}$-1]	DV1	Read / Write	Yes

Description:
Contains a value corresponding to the shunt regulator enable threshold voltage. When the bus reaches this voltage, built in shut regulator will turn on allow excess energy to be dissipated across an external shunt resistor. Not all drives have built in shunt regulators. See "Appendix" on page 219 for unit conversion.

2033.04h	Shunt Regulator Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	See Table	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the current state of the shunt regulator.

Value (Hex)	Description
00	Disable Shunt Regulator
02	Enable Shunt Regulator

2033.05h	External Shunt Resistance			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	ohms (Ω)	Read / Write	Yes

Description:
Contains a value corresponding to the resistance of the external shunt resistor.

2033.06h	External Shunt Power			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	watts (W)	Read / Write	Yes

Description:
Contains a value corresponding to the amount of power the external shunt resistor is allowed to dissipate.

2033.07h	External Shunt Inductance			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	microhenrys (µH)	Read / Write	Yes

Description:
Contains a value corresponding to the inductance of the external shunt resistor.

2054h: Drive Temperature Parameters

2054.01h	External Analog Temperature Disable Level			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	DT1	Read / Write	Yes
Description: Contains a value corresponding to the temperature disable level for an analog over temperature event. See "Appendix" on page 219 for unit conversion.				

2054.02h	External Analog Temperature Enable Level			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	DT1	Read / Write	Yes
Description: Contains a value corresponding to the temperature re-enable level after the analog over temperature event has been activated. See "Appendix" on page 219 for unit conversion.				

2054.03h	Thermistor Disable Resistance			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	Ohms	Read / Write	Yes
Description: If supported by the hardware, this value represents the value of the thermistor resistance (ohms) in which the Motor Over Temperature Event is to trip. For a Positive Thermal Coefficient (PTC), the disable resistance will be greater than or equal to the enable value. For a Negative Thermal Coefficient (NTC), the disable resistance will be less than the enable value.				

2054.04h	Thermistor Enable Resistance			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	Ohms	Read / Write	Yes
Description: If supported by the hardware, this value represents the value of the thermistor resistance (ohms) in which the Motor Over Temperature Event is to release. For a Positive Thermal Coefficient (PTC), the disable resistance will be greater than or equal to the enable value. For a Negative Thermal Coefficient (NTC), the disable resistance will be less than the enable value.				

2054.05h	Thermal Monitor Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
N/A	N/A	-	Read / Write	Yes

Description:
If supported by the hardware, configures the operation of the thermistor/thermal cutoff switch.

Valid Values	
0	Disabled
1	Thermistor Active
2	Thermal Cutoff Switch Active Closed
3	Thermal Cutoff Switch Active High

2043h: Capture Configuration Parameters The following tables are used by the sub-indices of this object.

TABLE 2.2 Capture Edge Configuration

Value	Description
0	None / Off
1	Rising Edge
2	Falling Edge
3	Both Rising and Falling Edges

TABLE 2.3 Capture Trigger Type

Value	Description
0	Single Trigger: Captures one value at a time. Need to reset Capture before capturing another.
1	Continuous Trigger: Captures a new value each time Capture input is triggered without having to reset.

TABLE 2.4 Capture Source High/Low Values

Signal Source	Low Value	High Value
Velocity Feedback	16	17
Velocity Measured	18	19
Velocity Target	20	21
Velocity Demand	22	23
Velocity Error	24	25
Position Measured	26	27
Position Target	28	29
Position Demand	30	31
Position Error	32	33
Auxiliary Position Input	34	35
Phase Angle	15	87
Stator Angle	86	87

2043.01h	Capture 'A' Edge Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 3	N/A	Read / Write	Yes
Description: Selects the edge(s) that will trigger Capture A to capture the pre-selected signal source. See Table 2.2 for a list of allowable values.				

2043.02h	Capture 'A' Trigger			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 1	N/A	Read / Write	Yes
Description: Selects whether a value should be captured only once, upon the first applicable edge that is encountered, or every time an edge is encountered. See Table 2.3 for a list of allowable values.				

2043.03h	Capture 'A' Source – Low Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	See Table 2.4	N/A	Read / Write	Yes
Description: This sub-index is used together with the next to select the signal source to capture. See Table 2.4 for a list of allowable values.				

2043.04h	Capture 'A' Source – High Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	See Table 2.4	N/A	Read / Write	Yes
Description: This sub-index is used together with the previous to select the signal source to capture. See Table 2.4 for a list of allowable values.				

2043.05h	Capture 'B' Edge Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 3	N/A	Read / Write	Yes
Description: Selects the edge(s) that will trigger Capture B to capture the pre-selected signal source. See Table 2.2 for a list of allowable values.				

2043.06h	Capture 'B' Trigger			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 1	N/A	Read / Write	Yes
Description: Selects whether a value should be captured only once, upon the first applicable edge that is encountered, or every time an edge is encountered. See Table 2.3 for a list of allowable values.				

2043.07h	Capture 'B' Source – Low Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	See Table 2.4	N/A	Read / Write	Yes
Description: This sub-index is used together with the next to select the signal source to capture. See Table 2.4 for a list of allowable values.				

2043.08h	Capture 'B' Source – High Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	See Table 2.4	N/A	Read / Write	Yes
Description: This sub-index is used together with the previous to select the signal source to capture. See Table 2.4 for a list of allowable values.				

2043.09h	Capture 'C' Edge Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 3	N/A	Read / Write	Yes
Description: Selects the edge(s) that will trigger Capture C to capture the pre-selected signal source. See Table 2.2 for a list of allowable values.				

2043.0Ah	Capture 'C' Trigger			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 1	N/A	Read / Write	Yes
Description: Selects whether a value should be captured only once, upon the first applicable edge that is encountered, or every time an edge is encountered. See Table 2.3 for a list of allowable values.				

2043.0Bh	Capture 'C' Source – Low Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	See Table 2.4	N/A	Read / Write	Yes
Description: This sub-index is used together with the next to select the signal source to capture. See Table 2.4 for a list of allowable values.				

2043.0Ch	Capture 'C' Source – High Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	See Table 2.4	N/A	Read / Write	Yes
Description: This sub-index is used together with the previous to select the signal source to capture. See Table 2.4 for a list of allowable values.				

2058h: Digital Input Parameters

TABLE 2.5 Object 2058 Mapping

Bit	Digital Input Mask*
0	Digital Input 1
1	Digital Input 2
2	Digital Input 3
3	Digital Input 4
4	Digital Input 5
5	Digital Input 6
6	Digital Input 7
7	Digital Input 8
8…15	Reserved

* Number of actual inputs depends on drive model

2058.01h	Digital Input Mask: Active Level			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Determines which digital inputs are active high and which are active low. See Table 2.5 above for mapping structure.				

2058.02h	Digital Input Mask: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to User Disable. See Table 2.5 above for mapping structure.				

2058.03h	Digital Input Mask: Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the positive limit. See Table 2.5 above for mapping structure.				

2058.04h	Digital Input Mask: Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to negative limit. See Table 2.5 above for mapping structure.				

2058.05h	Digital Input Mask: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to activate Motor Over Temperature. See Table 2.5 above for mapping structure.				

2058.06h	Digital Input Mask: Phase Detection			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to activate Phase Detection. See Table 2.5 above for mapping structure.				

2058.07h	Digital Input Mask: Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to activate the Auxiliary Disable. See Table 2.5 above for mapping structure.				

2058.08h	Digital Input Mask: Set Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to activate the Set Position event. See Table 2.5 above for mapping structure.				

2058.09h	Digital Input Mask: Start Homing			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to activate the Start Homing event. See Table 2.5 above for mapping structure.				

2058.0Ah	Digital Input Mask: Home Switch			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Home Switch. See Table 2.5 above for mapping structure.				

2058.0Bh	Digital Input Mask: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Stop event. See Table 2.5 above for mapping structure.				

2058.0Ch	Digital Input Mask: Set / Reset Capture A			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Set / Reset Capture A event. See Table 2.5 above for mapping structure.				

2058.0Dh	Digital Input Mask: Set / Reset Capture B			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Set / Reset Capture B event. See Table 2.5 above for mapping structure.				

2058.0Eh	Digital Input Mask: Set / Reset Capture C			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Set / Reset Capture C event. See Table 2.5 above for mapping structure.				

2058.0Fh	Digital Input Mask: Reset Event History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Reset Event History event. See Table 2.5 above for mapping structure.				

2058.10h	Digital Input Mask: Configuration Select 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Configuration Select 0 event. See Table 2.5 above for mapping structure.				

2058.11h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read / Write	Yes

2058.12h	Digital Input Mask: Gain Select 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Gain Select 0 event. See Table 2.5 above for mapping structure.				

2058.13h	Digital Input Mask: Zero Position Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Zero Position Error event. See Table 2.5 above for mapping structure.				

2058.14h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read / Write	Yes

2058.15h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read / Write	Yes

2058.16h	Digital Input Mask: Motion Engine Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Engine Mode event. See Table 2.5 above for mapping structure.				

2058.17h	Digital Input Mask: Motion Engine Enable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Enable Enable event. See Table 2.5 above for mapping structure.				

2058.18h	Digital Input Mask: Motion Execute			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Execute event. See Table 2.5 above for mapping structure.				

2058.19h	Digital Input Mask: Motion Select 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Select 0 event. See Table 2.5 above for mapping structure.				

2058.1Ah	Digital Input Mask: Motion Select 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Select 1 event. See Table 2.5 above for mapping structure.				

2058.1Bh	Digital Input Mask: Motion Select 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Select 2 event. See Table 2.5 above for mapping structure.				

2058.1Ch	Digital Input Mask: Motion Select 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Select 3 event. See Table 2.5 above for mapping structure.				

2058.1Dh	Digital Input Mask: Motion Engine Abort			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Motion Engine Abort event. See Table 2.5 above for mapping structure.				

2058.1Eh	Digital Input Mask: Jog Plus			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Jog Plus event. See Table 2.5 above for mapping structure.				

2058.1Fh	Digital Input Mask: Jog Minus			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Jog Minus event. See Table 2.5 above for mapping structure.				

2058.20h	Digital Input Mask: Jog 0 Select			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Jog 0 Select event. See Table 2.5 above for mapping structure.				

2058.21h	Digital Input Mask: Jog 1 Select			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital inputs, if any, are assigned to the Jog 1 Select event. See Table 2.5 above for mapping structure.				

205Ah: Digital Output Parameters

TABLE 2.6 Object 205A Mapping

Bit	Digital Output Mask
0	Digital Output 1
1	Digital Output 2
2	Digital Output 3
3	Digital Output 4
4…15	Reserved

205A.01h	Digital Output Mask: Active Level			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs are active high and which are active low. See Table 2.6 above for mapping structure.				

205A.02h	Digital Output Mask: Drive Reset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Drive Reset event. See Table 2.6 above for mapping structure.				

205A.03h	Digital Output Mask: Drive Internal Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Drive Internal Error event. See Table 2.6 above for mapping structure.				

205A.04h	Digital Output Mask: Short Circuit Fault			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Short Circuit Fault event. See Table 2.6 above for mapping structure.				

205A.05h	Digital Output Mask: Over-Current Fault			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Over-Current event. See Table 2.6 above for mapping structure.				

205A.06h	Digital Output Mask: Hardware Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Hardware Under Voltage event. See Table 2.6 above for mapping structure.				

205A.07h	Digital Output Mask: Hardware Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Hardware Over Voltage event. See Table 2.6 above for mapping structure.				

205A.08h	Digital Output Mask: Drive Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Drive Over Temperature event. See Table 2.6 above for mapping structure.				

205A.09h	Digital Output Mask: Parameter Restore Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Parameter Restore Error event. See Table 2.6 above for mapping structure.				

205A.0Ah	Digital Output Mask: Parameter Store Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Parameter Store Error event. See Table 2.6 above for mapping structure.				

205A.0Bh	Digital Output Mask: Invalid Hall State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Invalid Hall State event. See Table 2.6 above for mapping structure.				

205A.0Ch	Digital Output Mask: Phase Synchronization Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Phase Synchronization Error event. See Table 2.6 above for mapping structure.				

205A.0Dh	Digital Output Mask: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Motor Over Temperature event. See Table 2.6 above for mapping structure.				

205A.0Eh	Digital Output Mask: Phase Detection Fault			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Phase Detection Fault event. See Table 2.6 above for mapping structure.				

205A.0Fh	Digital Output Mask: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Feedback Sensor Error event. See Table 2.6 above for mapping structure.				

205A.10h	Digital Output Mask: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Log Entry Missed event. See Table 2.6 above for mapping structure.				

205A.11h	Digital Output Mask: Software Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Software Disable event. See Table 2.6 above for mapping structure.				

205A.12h	Digital Output Mask: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the User Disable event. See Table 2.6 above for mapping structure.				

205A.13h	Digital Output Mask: User Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Positive Limit event. See Table 2.6 above for mapping structure.				

205A.14h	Digital Output Mask: User Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Negative Limit event. See Table 2.6 above for mapping structure.				

205A.15h	Digital Output Mask: Current Limiting (Foldback)			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Current Limiting event. See Table 2.6 above for mapping structure.				

205A.16h	Digital Output Mask: Continuous Current Limit Reached			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Continuous Current Limit Reached event. See Table 2.6 above for mapping structure.				

205A.17h	Digital Output Mask: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Current Loop Saturated event. See Table 2.6 above for mapping structure.				

205A.18h	Digital Output Mask: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the User Under Voltage event. See Table 2.6 above for mapping structure.				

205A.19h	Digital Output Mask: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the User Over Voltage event. See Table 2.6 above for mapping structure.				

205A.1Ah	Digital Output Mask: Non-Sinusoidal Commutation			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Non-Sinusoidal Commutation. See Table 2.6 above for mapping structure.				

205A.1Bh	Digital Output Mask: Phase Detection			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Phase Detection event. See Table 2.6 above for mapping structure.				

205A.1Ch	Digital Output Mask: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the User Auxiliary Disable event. See Table 2.6 above for mapping structure.				

205A.1Dh	Digital Output Mask: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Shunt Regulator event. See Table 2.6 above for mapping structure.				

205A.1Eh	Digital Output Mask: Phase Detection Complete			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Phase Detection Complete event. See Table 2.6 above for mapping structure.				

205A.1Fh	Digital Output Mask: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Command Limiter Active event. See Table 2.6 above for mapping structure.				

205A.20h	Digital Output Mask: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Motor Over Speed event. See Table 2.6 above for mapping structure.				

205A.21h	Digital Output Mask: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the At Command event. See Table 2.6 above for mapping structure.				

205A.22h	Digital Output Mask: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Zero Velocity event. See Table 2.6 above for mapping structure.				

205A.23h	Digital Output Mask: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Velocity Following Error event. See Table 2.6 above for mapping structure.				

205A.24h	Digital Output Mask: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Positive Velocity Limit event. See Table 2.6 above for mapping structure.				

205A.25h	Digital Output Mask: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Negative Velocity Limit event. See Table 2.6 above for mapping structure.				

205A.26h	Digital Output Mask: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Max Measured Position event. See Table 2.6 above for mapping structure.				

205A.27h	Digital Output Mask: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Min Measured Position event. See Table 2.6 above for mapping structure.				

205A.28h	Digital Output Mask: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the At Home Position event. See Table 2.6 above for mapping structure.				

205A.29h	Digital Output Mask: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Position Following Error event. See Table 2.6 above for mapping structure.				

205A.2Ah	Digital Output Mask: Max Target position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Max Target Position Limit event. See Table 2.6 above for mapping structure.				

205A.2Bh	Digital Output Mask: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Min Target Position Limit event. See Table 2.6 above for mapping structure.				

205A.2Ch	Digital Output Mask: Set Measured Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Set Measured Position event. See Table 2.6 above for mapping structure.				

205A.2Dh	Digital Output Mask: Homing Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Homing Active event. See Table 2.6 above for mapping structure.				

205A.2Eh	Digital Output Mask: Apply Brake			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Apply Brake event. See Table 2.6 above for mapping structure.				

205A.2Fh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205A.30h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205A.31h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205A.32h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205A.33h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205A.34h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205A.35h	Digital Output Mask: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Communication Error event. See Table 2.6 above for mapping structure.				

205A.36h	Digital Output Mask: Homing Complete			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Homing Complete event. See Table 2.6 above for mapping structure.				

205A.37h	Digital Output Mask: Commanded Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Commanded Stop event. See Table 2.6 above for mapping structure.				

205A.38h	Digital Output Mask: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the User Stop event. See Table 2.6 above for mapping structure.				

205A.39h	Digital Output Mask: Bridge Enabled			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Bridge Enabled status. See Table 2.6 above for mapping structure.				

205A.3Ah	Digital Output Mask: Dynamic Brake Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Dynamic Brake Active event. See Table 2.6 above for mapping structure.				

205A.3Bh	Digital Output Mask: Stop Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Stop Active event. See Table 2.6 above for mapping structure.				

205A.3Ch	Digital Output Mask: Positive Stop Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Positive Stop Active event. See Table 2.6 above for mapping structure.				

205A.3Dh	Digital Output Mask: Negative Stop Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Negative Stop Active event. See Table 2.6 above for mapping structure.				

205A.3Eh	Digital Output Mask: Positive Inhibit Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Positive Inhibit Active event. See Table 2.6 above for mapping structure.				

205A.3Fh	Digital Output Mask: Negative Inhibit Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to the Negative Inhibit Active event. See Table 2.6 above for mapping structure.				

205A.40h	Digital Output Mask: User Bit 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 0. See Table 2.6 above for mapping structure.				

205A.41h	Digital Output Mask: User Bit 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 1. See Table 2.6 above for mapping structure.				

205A.42h	Digital Output Mask: User Bit 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 2. See Table 2.6 above for mapping structure.				

205A.43h	Digital Output Mask: User Bit 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 3. See Table 2.6 above for mapping structure.				

205A.44h	Digital Output Mask: User Bit 4			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 4. See Table 2.6 above for mapping structure.				

205A.45h	Digital Output Mask: User Bit 5			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 5. See Table 2.6 above for mapping structure.				

205A.46h	Digital Output Mask: User Bit 6			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 6. See Table 2.6 above for mapping structure.				

205A.47h	Digital Output Mask: User Bit 7			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 7. See Table 2.6 above for mapping structure.				

205A.48h	Digital Output Mask: User Bit 8			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 8 See Table 2.6 above for mapping structure.				

205A.49h	Digital Output Mask: User Bit 9			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 9. See Table 2.6 above for mapping structure.				

205A.4Ah	Digital Output Mask: User Bit 10			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 10. See Table 2.6 above for mapping structure.				

205A.4Bh	Digital Output Mask: User Bit 11			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 11. See Table 2.6 above for mapping structure.				

205A.4Ch	Digital Output Mask: User Bit 12			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 12. See Table 2.6 above for mapping structure.				

205A.4Dh	Digital Output Mask: User Bit 13			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 13. See Table 2.6 above for mapping structure.				

205A.4Eh	Digital Output Mask: User Bit 14			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 14. See Table 2.6 above for mapping structure.				

205A.4Fh	Digital Output Mask: User Bit 15			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to User Bit 15. See Table 2.6 above for mapping structure.				

205A.50h	Digital Output Mask: Capture A			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Capture A. See Table 2.6 above for mapping structure.				

205A.51h	Digital Output Mask: Capture B			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Capture B. See Table 2.6 above for mapping structure.				

205A.52h	Digital Output Mask: Capture C			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Capture C. See Table 2.6 above for mapping structure.				

205A.53h	Digital Output Mask: Commanded Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Commanded Positive Limit. See Table 2.6 above for mapping structure.				

205A.54h	Digital Output Mask: Commanded Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Commanded Negative Limit. See Table 2.6 above for mapping structure.				

205A.55h	Digital Output Mask: Safe Torque Off Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Safe Torque Off Active. See Table 2.6 above for mapping structure.				

205A.56h	Digital Output Mask: Zero Position Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Zero Position Error. See Table 2.6 above for mapping structure.				

205A.57h	Digital Output Mask: Motion Engine Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Motion Engine Error. See Table 2.6 above for mapping structure.				

205A.58h	Digital Output Mask: Motion Engine Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Motion Engine Active. See Table 2.6 above for mapping structure.				

205A.59h	Digital Output Mask: Active Motion Busy			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion Busy. See Table 2.6 above for mapping structure.				

205A.5Ah	Digital Output Mask: Active Motion Done			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion Done. See Table 2.6 above for mapping structure.				

205A.5Bh	Digital Output Mask: Active Motion Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion Error. See Table 2.6 above for mapping structure.				

205A.5Ch	Digital Output Mask: Active Motion Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion Active. See Table 2.6 above for mapping structure.				

205A.5Dh	Digital Output Mask: Active Motion Aborted			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion Aborted. See Table 2.6 above for mapping structure.				

205A.5Eh	Digital Output Mask: Active Motion Execute			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion Execute. See Table 2.6 above for mapping structure.				

205A.5Fh	Digital Output Mask: Active Motion MotionDone			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion MotionDone. See Table 2.6 above for mapping structure.				

205A.60h	Digital Output Mask: Active Motion SequenceDone			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Active Motion SequenceDone. See Table 2.6 above for mapping structure.				

205A.61h	Digital Output Mask: Absolute Position Valid			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Absolute Position Valid See Table 2.6 above for mapping structure.				

205A.62h	Digital Output Mask: Jog Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Jog Active. See Table 2.6 above for mapping structure.				

205A.63h	Digital Output Mask: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to PWM and Direction Broken Wire. See Table 2.6 above for mapping structure.				

205A.64h	Digital Output Mask: PLS Pulse 1 Post Active Level Output			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to PLS Pulse 1 Post Active Level. See Table 2.6 above for mapping structure.				

205A.65h	Digital Output Mask: PLS Pulse 2 Post Active Level Output			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to PLS Pulse 2 Post Active Level. See Table 2.6 above for mapping structure.				

205A.66h	Digital Output Mask: Motion Engine Abort			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Defines which digital outputs, if any, are assigned to Motion Engine Abort. See Table 2.6 above for mapping structure.				

2044h: Analog Input Parameters

2044.01h	Analog Input 1 Offset: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	[$-2^{(15)}$] - [$2^{(15)}$ –1]	DAI	Read / Write	Yes
Description: Contains a value corresponding to the Analog Input 1 Offset in Configuration 0. To convert the desired Offset Voltage to the appropriate do the following: Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.				

2044.02h	Analog Input 1 Scale Factor: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 1 in Configuration 0. The values contained are mode dependent and require a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.03h	Analog Input 2 Offset: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 2 Offset in Configuration 0.

To convert the desired Offset Voltage to the appropriate value do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.04h	Analog Input 2 Scale Factor: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 2 in Configuration 0. This value is mode dependent and requires a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.05h	Analog Input 3 Offset: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 3 Offset in Configuration 0.

To convert the desired Offset Voltage to the appropriate value do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.06h	Analog Input 3 Scale Factor: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 3 in Configuration 0. The value is mode dependent and requires a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.07h	Analog Input 4 Offset: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 4 Offset in Configuration 0.

To convert the desired Offset Voltage to the appropriate value do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.08h	Analog Input 4 Scale Factor: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 4 in Configuration 0. The value is mode dependent and requires a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.09h	Analog Input 1 Offset: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 1 Offset in Configuration 1.

To convert the desired Offset Voltage to the appropriate do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.0Ah	Analog Input 1 Scale Factor: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 1 in Configuration 1. The values contained are mode dependent and require a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.0Bh	Analog Input 2 Offset: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 2 Offset in Configuration 1.

To convert the desired Offset Voltage to the appropriate value do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.0Ch	Analog Input 2 Scale Factor: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 2 in Configuration 1. This value is mode dependent and requires a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.0Dh	Analog Input 3 Offset: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 3 Offset in Configuration 1.

To convert the desired Offset Voltage to the appropriate value do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.0Eh	Analog Input 3 Scale Factor: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:

Contains a value corresponding to the scale factor for analog input 3 in Configuration 1. The value is mode dependent and requires a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

2044.0Fh	Analog Input 4 Offset: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	DAI	Read / Write	Yes

Description:

Contains a value corresponding to the Analog Input 4 Offset in Configuration 1.

To convert the desired Offset Voltage to the appropriate value do the following:

Multiply Voltage (in decimal) by 819.2 and ignore any resulting fractional part. Now convert this decimal value to hexadecimal.

2044.10h	Analog Input 4 Scale Factor: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes

Description:
Contains a value corresponding to the scale factor for analog input 4 in Configuration 1. The value is mode dependent and requires a different algorithm to calculate for each mode.

•Assigned to Current Loop Example: Desired scale factor = (X Amps / 1 Volt)

(X Amps * 10 * 2^18) / Drive Peak Current = Value in decimal; convert to hex.

•Assigned to Velocity Loop Example: Desired Scale factor = (X cnts/sec / 1 Volt)

Convert X cnts/sec → Y cnts/100us by dividing by 10000.

Now multiply: Ycnts * 20 * 2^18 = Value in Decimal; convert to hex.

•Assigned to Position Loop Example: Desired Scale Factor = (X cnts / 1 Volt)

Now Multiply: X cnts * 80 = Value in Decimal; convert to hex.

•Assigned to Current Limit Example: Desired Scale Factor = (X% of drive peak / 1 Volt)

Cannot achieve a value higher than 20% / 1 Volt.

Now Multiply X * 2^18 / 5 = Value in Decimal; convert to hex.

•Assigned to External Temperature: Desired Scale Factor = (X degrees C / 1 Volt)

Now multiply X *20 *2^18 = Value in Decimal; convert to hex

205Ch: Analog Output Parameters

205C.01h	Analog Output 1 Signal Select A			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	N/A	Read / Write	Yes

Description:
Together with Signal Select B determines which internal drive parameter is assigned to analog output 1.

205C.02h	Analog Output 1 Signal Select B			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	N/A	Read / Write	Yes

Description:
Together with Signal Select A determines which internal drive parameter is assigned to analog output 1.

205C.03h	Analog Output 1 Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	N/A	Read / Write	Yes

Description:
Analog output 1 offset.

205C.04h	Analog Output 1 Gain			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes
Description: Analog output 1 gain.				

205C.05h	Analog Output 1 Operator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	N/A	Read / Write	Yes
Description: Analog output 1 operator.				

205C.06h	Analog Output 2 Signal Select A			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	N/A	Read / Write	Yes
Description: Together with Signal Select B determines which internal drive parameter is assigned to analog output 2.				

205C.07h	Analog Output 2 Signal Select B			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 - [2^{(16)} - 1]$	N/A	Read / Write	Yes
Description: Together with Signal Select B determines which internal drive parameter is assigned to analog output 2.				

205C.08h	Analog Output 2 Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)} - 1]$	N/A	Read / Write	Yes
Description: Analog output 2 offset.				

205C.09h	Analog Output 2 Gain			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	N/A	Read / Write	Yes
Description: Analog output 2 gain.				

205C.0Ah	Analog Output 2 Operator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Analog output 2 operator.				

2040h: Programmable Limit Switch Parameters

2040.01h	Programmable Limit Switch Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
Defines the PLS mode and the signal that is monitored by PLS 1 and PLS 2.

Bit	Description
0...4	PLS input select bits. 0 = No Source, 1 = Measured Position, 2 = Demand Position
5...14	Reserved
15	A value of 1 enables linear mode. A value of 0 enables rotary mode.

2040.02h	Programmable Limit Rollover Count			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	N/A	Read / Write	Yes
Description: Contains the maximum value of the PLS position counter before rollover to zero.				

2040.03h	PLS 1 Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
Contains the limits and settings for PLS 1.

Bit	Description
0	PLS enable. 0 = disable, 1 = enable
1	Output active level. 0 = active low, 1 = active high.
2	Repeat control. 0 = repeat count enabled, 1 = repeat count disabled (infinite repeat)
3	Pulse width control. 0 = pulse width based on position, 1 = pulse width based on time.
4-5	Pulse direction control. 0 = level sensitive / both directions, 1 = rising edge forward, 2 = falling edge reverse
6-7	Reserved. Write as 0.
8...15	Pulse repeat count. Total number of pulses in the pulse train = 1 + repeat count.

2040.04h	PLS 1 Lower Position Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	Counts	Read / Write	Yes

Description:
Contains the value of the lower PLS 1 pulse edge.
For rotary mode: Lower Position Value ≥ 0
For linear mode: Any 32 bit value

2040.05h	PLS 1 Upper Position Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	Counts	Read / Write	Yes

Description:
Contains the value of the upper PLS 1 pulse edge. Upper Position ≥ Lower Position

2040.06h	PLS 1 Repeat Delta Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	Counts	Read / Write	Yes

Description:
Contains the number of counts between repeating pulses. Repeat Delta Value > (Upper Position - Lower Position)

2040.07h	PLS 1 Pulse Width Time Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - [$2^{(16)}$ –1]	-	Read / Write	Yes
Description: Used with time-based PLS. Contains the pulse width of PLS 1 in terms of time. Measured in number of position loop samples (or switching frequency/2)				

2040.08h	PLS 2 Configuration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes

Description:
Contains the limits and settings for PLS 2.

Bit	Description
0	PLS enable. 0 = disable, 1 = enable
1	Output active level. 0 = active low, 1 = active high.
2	Repeat control. 0 = repeat count enabled, 1 = repeat count disabled (infinite repeat)
3	Pulse width control. 0 = pulse width based on position, 1 = pulse width based on time.
4-5	Pulse direction control. 0 = level sensitive / both directions, 1 = rising edge forward, 2 = falling edge reverse
6-7	Reserved. Write as 0.
8...15	Pulse repeat count. Total number of pulses in the pulse train = 1 + repeat count.

2040.09h	PLS 2 Lower Position Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	Counts	Read / Write	Yes
Description: Contains the value of the lower PLS 2 pulse edge. For rotary mode: Lower Position Value ≥ 0 For linear mode: Any 32 bit value				

2040.0Ah	PLS 2 Upper Position Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	Counts	Read / Write	Yes
Description: Contains the value of the upper PLS 2 pulse edge. Upper Position ≥ Lower Position				

2040.0Bh	PLS 2 Repeat Delta Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 - [$2^{(32)}$ –1]	Counts	Read / Write	Yes
Description: Contains the number of counts between repeating pulses. Repeat Delta Value > (Upper Position - Lower Position)				

2040.0Ch	PLS 2 Pulse Width Time Window			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - [$2^{(16)}$ –1]	-	Read / Write	Yes
Description: Used with time-based PLS. Contains the pulse width of PLS 2 in terms of time. Measured in number of position loop samples (or switching frequency/2)				

203Dh: Deadband Parameters Some deadband parameters have units that vary with the operating mode of the drive. For these parameters, refer to Table 2.7 for the correct unit selection.

TABLE 2.7 Deadband Units

Drive Operation Mode	Units
Current (Torque)	DC2
Velocity	DS1
Position (Around Velocity Or Current)	counts

203D.01h	Deadband Type: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 1	N/A	Read / Write	Yes

Description:
Deadband Type for Configuration 0.

Value	Description
0	Non-linear (starts smoothly after reaching end of deadband)
1	Linear (jumps to command after reaching end of deadband)

203D.02h	Deadband Width: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	0 – [$2^{(31)}$-1]	See Table 2.7	Read / Write	Yes
Description: The width from the midpoint to one end of the deadband in Configuration 0. Therefore, the total width is 2X this value.				

203D.03h	Deadband Set Point: Config 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	See Table 2.7	Read / Write	Yes
Description: Midpoint of the Deadband in Configuration 0.				

203D.04h	Deadband Type: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 - 1	N/A	Read / Write	Yes

Description:
Deadband Type for Configuration 1.

Value	Description
0	Non-linear (starts smoothly after reaching end of deadband)
1	Linear (jumps to command after reaching end of deadband)

203D.05h	Deadband Width: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$0 – [2^{(31)}-1]$	See Table 2.7	Read / Write	Yes
Description: The width from the midpoint to one end of the deadband in Configuration 1. Therefore, the total width is 2X this value.				

203D.06h	Deadband Set Point: Config 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	See Table 2.7	Read / Write	Yes
Description: Midpoint of the Deadband in Configuration 1.				

203Eh: Jog Parameters

203E.01h	Max Acceleration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$1 – [2^{(31)}-1]$	DA4	Read / Write	Yes
Description: Sets the maximum acceleration for the selected Jog.				

203E.02h	Max Deceleration			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 – [$2^{(31)}$-1]	DA4	Read / Write	Yes
Description: Sets the maximum deceleration for the selected Jog.				

203E.03h	Jog Speed 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Sets the target speed for Jog 0.				

203E.04h	Jog Speed 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Sets the target speed for Jog 1.				

203E.05h	Jog Speed 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Sets the target speed for Jog 2.				

203E.06h	Jog Speed 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 – [$2^{(31)}$-1]	DS1	Read / Write	Yes
Description: Sets the target speed for Jog 3.				

2062h: Braking/Stop General Properties

2062.01h	Braking: Delay After Applying Brake			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: Specifies the delay, in milliseconds, after applying the external brake before disabling the power bridge or dynamic braking.				

2062.02h	Braking: Delay Before Disengaging Brake			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: Specifies the delay, in milliseconds, before releasing the external brake after enabling the power bridge or discontinuing dynamic braking.				

2062.03h	Stop Deceleration Limit - Position Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 - [$2^{(31)}$ –1]	DA1	Read / Write	Yes
Description: Specifies the maximum position mode deceleration during a controlled Stop event. See "Appendix" on page 219 for unit conversion details.				

2062.04h	Stop Deceleration Limit - Velocity Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 - [$2^{(31)}$ –1]	DA1	Read / Write	Yes
Description: Specifies the maximum velocity mode acceleration during a controlled Stop event. See "Appendix" on page 219 for unit conversion details.				

2062.05h	Stop Jerk Limit - Current Mode			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	1 - [$2^{(31)}$ –1]	DJ1	Read / Write	Yes
Description: Sets the rate at which the target current ramps down during a Stop event. Only valid for current mode. See "Appendix" on page 219 for unit conversion details.				

2064h: Event Response Time Parameters

2064.01h	Event Response Time: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Motor Over Temperature before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.02h	Event Response Time: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a Feedback Sensor Error before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.03h	Event Response Time: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a Log Entry Missed before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.04h	Event Response Time: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a User Disable before the power bridge is disabled. The event action is disabled when bit 15 is set to 1.				

2064.05h	Event Response Time: User Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a User Positive Limit input before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.06h	Event Response Time: User Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a User Negative Limit input before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.07h	Event Response Time: Current Limit Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	Milliseconds	Read / Write	Yes
Description: The time delay after the occurrence of Current Limit Active before its Event Action (2065h) is executed.				

2064.08h	Event Response Time: Continuous Current Foldback			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of reaching the Continuous Current Foldback setting before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.09h	Event Response Time: Current Limit Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Current Limit Saturated before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.0Ah	Event Response Time: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of User Under Voltage before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.0Bh	Event Response Time: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a user-specified Over Voltage level before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.0Ch	Event Response Time: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Motor Over Speed before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.0Dh	Event Response Time: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of a User Auxiliary Disable input before dynamic braking is applied. The event action is disabled when bit 15 is set to 1.				

2064.0Eh	Event Response Time: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Shunt Regulator activity before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.0Fh	Event Response Time: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Command Limiter Active before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.10h	Event Response Time: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of At Command before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.11h	Event Response Time: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Zero Velocity before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.12h	Event Response Time: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Velocity Following Error before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.13h	Event Response Time: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Positive Velocity Limit before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.14h	Event Response Time: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Negative Velocity Limit before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.15h	Event Response Time: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of At Home Position before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.16h	Event Response Time: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Position Following Error before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.17h	Event Response Time: Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Max Target Position Limit before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.18h	Event Response Time: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Min Target Position Limit before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.19h	Event Response Time: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Maximum Measured Position Limit before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.1Ah	Event Response Time: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(15)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of Minimum Measured Position Limit before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2064.1Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2064.1Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2064.1Dh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2064.1Eh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2064.1Fh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2064.20h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2064.21h	Event Response Time: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(15)} – 1]$	milliseconds (ms)	Read / Write	Yes

Description:
The time delay after the occurrence of Communication Error before its Event Action (2065h) is executed.
The event action is disabled when bit 15 is set to 1.

2064.22h	Event Response Time: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(15)} – 1]$	milliseconds (ms)	Read / Write	Yes

Description:
The time delay after the occurrence of a User Stop command before stopping the motor.
The event action is disabled when bit 15 is set to 1.

2064.23h	Event Response Time: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(15)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after the occurrence of PWM and Direction Broken Wire before its Event Action (2065h) is executed. The event action is disabled when bit 15 is set to 1.				

2065h: Event Action Parameters

2065.01h	Event Action: Parameter Restore Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Parameter Restore Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.02h	Event Action: Parameter Store Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Parameter Store Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.03h	Event Action: Invalid Hall State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after an Invalid Hall State. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.04h	Event Action: Phase Synch Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Phase Synch Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.05h	Event Action: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Motor Over Temperature. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.06h	Event Action: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Feedback Sensor Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.07h	Event Action: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Log Entry Missed. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.08h	Event Action: Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Current Limiting. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.09h	Event Action: Continuous Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Continuous Current. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.0Ah	Event Action: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after Current Loop Saturated. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.0Bh	Event Action: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a User Under Voltage. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.0Ch	Event Action: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a User Over Voltage. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.0Dh	Event Action: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after Shunt Regulator active. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.0Eh	Event Action: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after Command Limiter Active. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.0Fh	Event Action: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Motor Over Speed. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.10h	Event Action: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after an At Command state. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.11h	Event Action: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Zero Velocity state. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.12h	Event Action: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Velocity Following Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.13h	Event Action: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Positive Velocity Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.14h	Event Action: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Negative Velocity Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.15h	Event Action: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Max Measured Position Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.16h	Event Action: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Min Measured Position Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.17h	Event Action: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after an At Home Position state. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.18h	Event Action: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Position Following Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.19h	Event Action: Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Max Target Position Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.1Ah	Event Action: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Min Target Position Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.1Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2065.1Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2065.1Dh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2065.1Eh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2065.1Fh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2065.20h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2065.21h	Event Action: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Communication Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.22h	Event Action: User Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a User Positive Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.23h	Event Action: User Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a User Negative Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.24h	Event Action: Drive Reset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Drive Reset. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.25h	Event Action: Drive Internal Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Drive Internal Error. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.26h	Event Action: Short Circuit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Short Circuit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.27h	Event Action: Over Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Over Current. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.28h	Event Action: Hardware Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Hardware Under Voltage. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.29h	Event Action: Hardware Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Hardware Over Voltage. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.2Ah	Event Action: Drive Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Drive Over Temperature. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.2Bh	Event Action: Software Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Software Disable. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.2Ch	Event Action: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a User Disable. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.2Dh	Event Action: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a User Auxiliary Disable. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.2Eh	Event Action: Phase Detection Fault			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Phase Detection Fault. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.2Fh	Event Action: Commanded Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Commanded Positive Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.30h	Event Action: Commanded Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 15	N/A	Read / Write	Yes
Description: The action of the drive immediately after a Commanded Negative Limit. Refer to Table 2.8 below for the valid event actions and their respective values.				

2065.31h	Event Action: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(15)} – 1]$	N/A	Read / Write	Yes
Description: The action of the drive immediately after a PWM and Direction Broken Wire. Refer to Table 2.8 below for the valid event actions and their respective values.				

TABLE 2.8 Event Action Options

Sub Index	Event	Valid Event Action Values (refer to Table 2.9 for value definitions)											
01h	Parameter Restore Error	-	1	-	-	4	-	-	-	8	9	10	11
02h	Parameter Store Error	-	1	-	-	4	-	-	-	8	9	10	11
03h	Invalid Hall State	-	1	-	-	4	-	-	-	8	9	10	11
04h	Phase Synch Error	0	1	-	-	4	-	-	-	8	9	10	11
05h	Motor Over Temperature	0	1	2	3	4	5	6	7	8	9	10	11
06h	Feedback Sensor Error	0	1	2	3	4	5	6	7	8	9	10	11
07h	Log Entry Missed	0	1	2	3	4	5	6	7	8	9	10	11
08h	Current Limiting	0	1	2	3	4	5	6	7	8	9	10	11
09h	Continuous Current	0	1	2	3	4	5	6	7	8	9	10	11
0Ah	Current Loop Saturated	0	1	2	3	4	5	6	7	8	9	10	11
0Bh	User Under Voltage	0	1	2	3	4	5	6	7	8	9	10	11
0Ch	User Over Voltage	0	1	2	3	4	5	6	7	8	9	10	11
0Dh	Shunt Regulator	0	1	-	-	4	-	-	-	8	9	10	11
0Eh	Command Limiter Active	0	-	-	-	-	-	-	-	-	-	-	-
0Fh	Motor Over Speed	0	1	2	3	4	5	6	7	8	9	10	11
10h	At Command	0	1	2	3	4	5	6	7	8	9	10	11
11h	Zero Velocity	0	-	-	-	-	-	-	-	-	-	-	-
12h	Velocity Following Error	0	1	2	3	4	5	6	7	8	9	10	11
13h	Positive Velocity Limit	0	1	2	3	4	5	6	7	8	9	10	11
14h	Negative Velocity Limit	0	1	2	3	4	5	6	7	8	9	10	11
15h	Max Measured Position Limit	0	1	2	3	4	5	6	7	8	9	10	11
16h	Min Measured Position Limit	0	1	2	3	4	5	6	7	8	9	10	11
17h	At Home Position	0	-	-	-	-	-	-	-	-	-	-	-

18h	Position Following Error	0	1	2	3	4	5	6	7	8	9	10	11
19h	Max Target Position Limit	0	1	2	3	4	5	6	7	8	9	10	11
1Ah	Min Target Position Limit	0	1	2	3	4	5	6	7	8	9	10	11
1Bh	Reserved	0	1	2	3	4	5	6	7	8	9	10	11
1Ch	Reserved	0	1	2	3	4	5	6	7	8	9	10	11
1Dh	Reserved	0	1	2	3	4	5	6	7	8	9	10	11
1Eh	Reserved	0	1	2	3	4	5	6	7	8	9	10	11
1Fh	Reserved	0	1	2	3	4	5	6	7	8	9	10	11
20h	Reserved	0	1	2	3	4	-	-	-	8	9	10	11
21h	Communication Error	0	1	2	3	4	5	6	7	8	9	10	11
22h	User Positive Limit	-	-	2	-	-	5	-	-	-	-	-	-
23h	User Negative Limit	-	-	-	3	-	-	6	-	-	-	-	-
24h	Drive Reset	-	1	-	-	-	-	-	-	-	-	10	-
25h	Drive Internal Error	-	1	-	-	-	-	-	-	-	-	10	-
26h	Short Circuit	-	1	-	-	-	-	-	-	-	-	10	-
27h	Over Current	-	1	-	-	-	-	-	-	-	-	10	-
28h	Hardware Under Voltage	-	1	-	-	4	-	-	-	-	-	10	-
29h	Hardware Over Voltage	-	1	-	-	-	-	-	-	-	-	10	-
2Ah	Drive Over Temperature	-	1	-	-	-	-	-	-	-	-	10	-
2Bh	Software Disable	-	1	-	-	-	-	-	-	8	-	10	-
2Ch	User Disable	-	1	-	-	-	-	-	-	8	-	10	-
2Dh	User Auxiliary Disable	-	1	-	-	4	-	-	-	8	9	10	11
2Eh	Phase Detection Fault	-	1	-	-	-	-	-	-	8	-	10	-
2Fh	Commanded Positive Limit	-	-	2	-	-	5	-	-	-	-	-	-
30h	Commanded Negative Limit	-	-	-	3	-	-	6	-	-	-	-	-
31h	PWM and Dir Broken Wire	0	1	2	3	4	5	6	7	-	-	-	-

TABLE 2.9 Event Action Values Definition

Event Action Values	Hex Values	Event Actions
0	00h	No Action
1	01h	Disable Power Bridge
2	02h	Disable Positive Direction
3	03h	Disable Negative Direction
4	04h	Dynamic Brake
5	05h	Positive Stop
6	06h	Negative Stop
7	07h	Stop
8	08h	Apply Brake **then** Disable Bridge
9	09h	Apply Brake **then** Dynamic Brake
10	0Ah	Apply Brake **and** Disable Bridge
11	0Bh	Apply Brake **and** Dynamic Brake

2066h: Event Recovery Time Parameters

2066.01h	Event Recovery Time: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Motor Over Temperature is no longer true before its Event Action (2065h) is removed.				

2066.02h	Event Recovery Time: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Feedback Sensor Error is no longer true before its Event Action (2065h) is removed.				

2066.03h	Event Recovery Time: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Log Entry Missed is no longer true before its Event Action (2065h) is removed.				

2066.04h	Event Recovery Time: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after User Disable is no longer true before its Event Action (2065h) is removed.				

2066.05h	Event Recovery Time: Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Positive Limit is no longer true before its Event Action (2065h) is removed.				

2066.06h	Event Recovery Time: Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Negative Limit is no longer true before its Event Action (2065h) is removed.				

2066.07h	Event Recovery Time: Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Current Limiting is no longer true before its Event Action (2065h) is removed.				

2066.08h	Event Recovery Time: Continuous Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Continuous Current Limiting is no longer true before its Event Action (2065h) is removed.				

2066.09h	Event Recovery Time: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Current Loop Saturated status is no longer true before its Event Action (2065h) is removed.				

2066.0Ah	Event Recovery Time: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after User Under Voltage is no longer true before its Event Action (2065h) is removed.				

2066.0Bh	Event Recovery Time: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after User Over Voltage is no longer true before its Event Action (2065h) is removed.				

2066.0Ch	Event Recovery Time: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after User Auxiliary Disable is no longer true before its Event Action (2065h) is removed.				

2066.0Dh	Event Recovery Time: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Shunt Regulator active is no longer true before its Event Action (2065h) is removed.				

2066.0Eh	Event Recovery Time: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Command Limiter Active is no longer true before its Event Action (2065h) is removed.				

2066.0Fh	Event Recovery Time: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Motor Over Speed is no longer true before its Event Action (2065h) is removed.				

2066.10h	Event Recovery Time: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after At Command is no longer true before its Event Action (2065h) is removed.				

2066.11h	Event Recovery Time: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Zero Velocity is no longer true before its Event Action (2065h) is removed.				

2066.12h	Event Recovery Time: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Velocity Following Error is no longer true before its Event Action (2065h) is removed.				

2066.13h	Event Recovery Time: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Positive Velocity Limit is no longer true before its Event Action (2065h) is removed.				

2066.14h	Event Recovery Time: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Negative Velocity Limit is no longer true before its Event Action (2065h) is removed.				

2066.15h	Event Recovery Time: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Max Measured Position Limit status is no longer true before its Event Action (2065h) is removed.				

2066.16h	Event Recovery Time: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Min Measured Position Limit status is no longer true before its Event Action (2065h) is removed.				

2066.17h	Event Recovery Time: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after no longer At Home Position before its Event Action (2065h) is removed.				

2066.18h	Event Recovery Time: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Position Following Error is no longer true before its Event Action (2065h) is removed.				

2066.19h	Event Recovery Time: Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Max Target Position Limit is no longer true before its Event Action (2065h) is removed.				

2066.1Ah	Event Recovery Time: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Min Target Position Limit is no longer true before its Event Action (2065h) is removed.				

2066.1Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2066.1Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2066.1Dh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2066.1Eh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2066.1Fh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2066.20h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2066.21h	Event Recovery Time: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after Communication Error is no longer true before its Event Action (2065h) is removed.				

2066.22h	Event Recovery Time: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after User Stop is no longer true before it is considered no longer active.				

2066.23h	Event Recovery Time: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time delay after PWM and Direction Broken Wire is no longer true before it is considered no longer active.				

2067h: Event Time-Out Window Parameters

2067.01h	Event Time-Out Window: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Motor Over Temperature as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.02h	Event Time-Out Window: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Feedback Sensor Error as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.03h	Event Time-Out Window: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a User Disable as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.04h	Event Time-Out Window: User Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Positive Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.05h	Event Time-Out Window: User Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Negative Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.06h	Event Time-Out Window: Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Current Limiting as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.07h	Event Time-Out Window: Continuous Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Continuous Current as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.08h	Event Time-Out Window: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Current Loop Saturated as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.09h	Event Time-Out Window: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a User Under Voltage as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.0Ah	Event Time-Out Window: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a User Over Voltage as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.0Bh	Event Time-Out Window: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a User Auxiliary Disable as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.0Ch	Event Time-Out Window: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Shunt Regulator as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.0Dh	Event Time-Out Window: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Command Limiter Active as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.0Eh	Event Time-Out Window: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Motor Over Speed as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.0Fh	Event Time-Out Window: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of At Command as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.10h	Event Time-Out Window: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Zero Velocity as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.11h	Event Time-Out Window: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Velocity Following Error as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.12h	Event Time-Out Window: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Positive Velocity Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.13h	Event Time-Out Window: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Negative Velocity Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.14h	Event Time-Out Window: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Max Measured Position Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.15h	Event Time-Out Window: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Min Measured Position Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.16h	Event Time-Out Window: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of At Home Position as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.17h	Event Time-Out Window: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Position Following Error as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.18h	Event Time-Out Window: Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)} – 1]$	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Max Target Position Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.19h	Event Time-Out Window: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of Min Target Position Limit as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.1Ah	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2067.1Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2067.1Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2067.1Dh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2067.1Eh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2067.1Fh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2067.20h	Event Time-Out Window: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a Communication Error as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.21h	Event Time-Out Window: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of a User Stop as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2067.22h	Event Time-Out Window: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	milliseconds (ms)	Read / Write	Yes
Description: The time, after the Recovery Time (2066h) and subsequent removal of the event action, during which the drive will NOT consider an occurrence of PWM and Direction as a new occurrence. The Event Action (2065h) will still be applied in case an event does occur within this window. However, that occurrence will not be counted as a new occurrence with regard to the Maximum Recoveries (2068h) attribute.				

2068h: Event Maximum Recoveries Parameters

2068.01h	Event Maximum Recoveries: Short Circuit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes
Description: Each occurrence of a Short Circuit performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Short Circuit event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.				

2068.02h	Event Maximum Recoveries: Hardware Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes
Description: Each occurrence of a Hardware Under Voltage performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Hardware Under Voltage event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.				

2068.03h	Event Maximum Recoveries: Hardware Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Hardware Over Voltage performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Hardware Over Voltage event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.04h	Event Maximum Recoveries: Drive Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Drive Over Temperature performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Drive Over Temperature event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.05h	Event Maximum Recoveries: Invalid Hall State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of an Invalid Hall State performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Invalid Hall State event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.06h	Event Maximum Recoveries: Phase Synchronization Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Phase Synchronization Error performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Phase Synchronization Error event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.07h	Event Maximum Recoveries: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Motor Over Temperature performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Motor Over Temperature event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.08h	Event Maximum Recoveries: Phase Detection Failure			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Phase Detection Failure performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Phase Detection Failure event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.09h	Event Maximum Recoveries: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Feedback Sensor Error performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Feedback Sensor Error event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.0Ah	Event Maximum Recoveries: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Log Entry Missed performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Log Entry Missed event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.0Bh	Event Maximum Recoveries: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a User Disable performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the User Disable event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.0Ch	Event Maximum Recoveries: User Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Positive Limit performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Positive Limit event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.0Dh	Event Maximum Recoveries: User Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Negative Limit performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Negative Limit event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.0Eh	Event Maximum Recoveries: Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Current Limiting performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Current Limiting event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.0Fh	Event Maximum Recoveries: Continuous Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Continuous Current Limiting performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Continuous Current Limiting event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.10h	Event Maximum Recoveries: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Current Loop Saturated performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Current Loop Saturated event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.11h	Event Maximum Recoveries: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a User Under Voltage performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the User Under Voltage event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.12h	Event Maximum Recoveries: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a User Over Voltage performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the User Over Voltage event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.13h	Event Maximum Recoveries: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a User Auxiliary Disable performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the User Auxiliary Disable event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.14h	Event Maximum Recoveries: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Shunt Regulator performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Shunt Regulator event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.15h	Event Maximum Recoveries: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Command Limiter Active performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Command Limiter Active event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.16h	Event Maximum Recoveries: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of a Motor Over Speed performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Motor Over Speed event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.17h	Event Maximum Recoveries: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of At Command performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the At Command event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.18h	Event Maximum Recoveries: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Zero Velocity performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Zero Velocity event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.19h	Event Maximum Recoveries: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Velocity Following Error performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Velocity Following Error event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.1Ah	Event Maximum Recoveries: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Positive Velocity Limit performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Positive Velocity Limit event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.1Bh	Event Maximum Recoveries: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Negative Velocity Limit performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Negative Velocity Limit event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.1Ch	Event Maximum Recoveries: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Max Measured Position performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Max Measured Position event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.1Dh	Event Maximum Recoveries: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Min Measured Position performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Min Measured Position event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.1Eh	Event Maximum Recoveries: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of At Home Position performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the At Home Position event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.1Fh	Event Maximum Recoveries: Position Following Errors			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes
Description: Each occurrence of Position Following Errors performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Position Following Errors event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.				

2068.20h	Event Maximum Recoveries: Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes
Description: Each occurrence of Max Target Position performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Max Target Position event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.				

2068.21h	Event Maximum Recoveries: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes
Description: Each occurrence of Min Target Position performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Min Target Position event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.				

2068.22h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2068.23h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2068.24h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2068.25h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2068.26h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2068.27h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2068.28h	Event Maximum Recoveries: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of Communication Error performs the action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Communication Error event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.29h	Event Maximum Recoveries: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of User Stop performs the event action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the User Stop event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.2Ah	Event Maximum Recoveries: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes

Description:
Each occurrence of PWM and Direction Broken Wire performs the event action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the PWM and Direction Broken Wire event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.

2068.2Bh	Event Maximum Recoveries: Motion Engine Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 65535	N/A	Read / Write	Yes
Description: Each occurrence of Motion Engine Error performs the event action assigned to this event. Each time the event is removed for longer than the addition of the values in the Time-Out Window (2067h) and Recovery Time (2066h), a recovery counter is incremented. This object sets the maximum recovery count allowed before the Motion Engine Error event latches and must be actively reset in order to enable the bridge. Re-setting the recovery counter requires a connection to the AMC drive configuration software appropriate for this drive. For more information on event handling, see the Help file associated with the AMC drive configuration software.				

205Bh: Programmable Status Parameters

Determines which events will be mapped to the StatusWord (6041h) bits, indicated below. When multiple events are mapped to a single bit, they will be logically OR-ed.

TABLE 2.10 Programmable Status Mapping

Programmable Status Mask	Description
Bit 9	Bit 11 (Internal Limit Active) in 6041h (StatusWord)
Bit 10...13	Reserved
Bit 14	Bit 7 (Warning) in 6041h (StatusWord)
Bit 15	Bit 8 (manufacturer specific) in 6041h (StatusWord)

205B.01h	Programmable Status Mask: Drive Reset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Drive Reset event. See Table 2.10 above for mapping structure.				

205B.02h	Programmable Status Mask: Drive Internal Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Drive Internal Error event. See Table 2.10 above for mapping structure.				

205B.03h	Programmable Status Mask: Short Circuit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Short Circuit event. See Table 2.10 above for mapping structure.				

205B.04h	Programmable Status Mask: Over Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Over Current event. See Table 2.10 above for mapping structure.				

205B.05h	Programmable Status Mask: Hardware Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Hardware Under Voltage event. See Table 2.10 above for mapping structure.				

205B.06h	Programmable Status Mask: Hardware Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Hardware Over Voltage event. See Table 2.10 above for mapping structure.				

205B.07h	Programmable Status Mask: Drive Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Drive Over Temperature event. See Table 2.10 above for mapping structure.				

205B.08h	Programmable Status Mask: Parameter Restore Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Parameter Restore Error event. See Table 2.10 above for mapping structure.				

205B.09h	Programmable Status Mask: Parameter Store Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Parameter Store Error event. See Table 2.10 above for mapping structure.				

205B.0Ah	Programmable Status Mask: Invalid Hall State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Invalid Hall State event. See Table 2.10 above for mapping structure.				

205B.0Bh	Programmable Status Mask: Phase Synchronization Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Phase Synchronization Error event. See Table 2.10 above for mapping structure.				

205B.0Ch	Programmable Status Mask: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Motor Over Temperature event. See Table 2.10 above for mapping structure.				

205B.0Dh	Programmable Status Mask: Phase Detection Fault			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Phase Detection Fault event. See Table 2.10 above for mapping structure.				

205B.0Eh	Programmable Status Mask: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Feedback Sensor Error event. See Table 2.10 above for mapping structure.				

205B.0Fh	Programmable Status Mask: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Log Entry Missed event. See Table 2.10 above for mapping structure.				

205B.10h	Programmable Status Mask: Software Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Software Disable Event. See Table 2.10 above for mapping structure.				

205B.11h	Programmable Status Mask: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Disable Event. See Table 2.10 above for mapping structure.				

205B.12h	Programmable Status Mask: Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Positive Limit event. See Table 2.10 above for mapping structure.				

205B.13h	Programmable Status Mask: Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Negative Limit event. See Table 2.10 above for mapping structure.				

205B.14h	Programmable Status Mask: Current Limiting (Foldback)			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Current Limiting event. See Table 2.10 above for mapping structure.				

205B.15h	Programmable Status Mask: Continuous Current Limit Reached			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Continuous Current Limit Reached event. See Table 2.10 above for mapping structure.				

205B.16h	Programmable Status Mask: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to Current Loop Saturated event. See Table 2.10 above for mapping structure.				

205B.17h	Programmable Status Mask: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Under Voltage event. See Table 2.10 above for mapping structure.				

205B.18h	Programmable Status Mask: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Over Voltage event. See Table 2.10 above for mapping structure.				

205B.19h	Programmable Status Mask: Non-sinusoidal Commutation			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Non-sinusoidal Commutation event. See Table 2.10 above for mapping structure.				

205B.1Ah	Programmable Status Mask: Phase Detection			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Phase Detection event. See Table 2.10 above for mapping structure.				

205B.1Bh	Programmable Status Mask: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Auxiliary Disable event. See Table 2.10 above for mapping structure.				

205B.1Ch	Programmable Status Mask: Shunt Regulator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Shunt Regulator event. See Table 2.10 above for mapping structure.				

205B.1Dh	Programmable Status Mask: Phase Detection Complete			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Phase Detection Complete event. See Table 2.10 above for mapping structure.				

205B.1Eh	Programmable Status Mask: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Command Limiter Active event. See Table 2.10 above for mapping structure.				

205B.1Fh	Programmable Status Mask: Motor Over Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Motor Over Speed event. See Table 2.10 above for mapping structure.				

205B.20h	Programmable Status Mask: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the At Command event. See Table 2.10 above for mapping structure.				

205B.21h	Programmable Status Mask: Zero Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Zero Velocity event. See Table 2.10 above for mapping structure.				

205B.22h	Programmable Status Mask: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Velocity Following Error event. See Table 2.10 above for mapping structure.				

205B.23h	Programmable Status Mask: Positive Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Positive Velocity Limit event. See Table 2.10 above for mapping structure.				

205B.24h	Programmable Status Mask: Negative Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Negative Velocity Limit event. See Table 2.10 above for mapping structure.				

205B.25h	Programmable Status Mask: Max Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Max Measured Position event. See Table 2.10 above for mapping structure.				

205B.26h	Programmable Status Mask: Min Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Min Measured Position Limit event. See Table 2.10 above for mapping structure.				

205B.27h	Programmable Status Mask: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the At Home Position event. See Table 2.10 above for mapping structure.				

205B.28h	Programmable Status Mask: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Position Following Error event. See Table 2.10 above for mapping structure.				

205B.29h	Programmable Status Mask: Max Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Max Target Position Limit event. See Table 2.10 above for mapping structure.				

205B.2Ah	Programmable Status Mask: Min Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Min Target Position Limit event. See Table 2.10 above for mapping structure.				

205B.2Bh	Programmable Status Mask: Set Measured Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Set Measured Position event. See Table 2.10 above for mapping structure.				

205B.2Ch	Programmable Status Mask: Homing Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Homing Active event. See Table 2.10 above for mapping structure.				

205B.2Dh	Programmable Status Mask: Apply Brake			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Apply Brake event. See Table 2.10 above for mapping structure.				

205B.2Eh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205B.2Fh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205B.30h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205B.31h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205B.32h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205B.33h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

205B.34h	Programmable Status Mask: Communication Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Communication Error Mask event. See Table 2.10 above for mapping structure.				

205B.35h	Programmable Status Mask: Homing Complete			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Homing Complete event. See Table 2.10 above for mapping structure.				

205B.36h	Programmable Status Mask: Commanded Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Commanded Stop event. See Table 2.10 above for mapping structure.				

205B.37h	Programmable Status Mask: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Stop event. See Table 2.10 above for mapping structure.				

205B.38h	Programmable Status Mask: Bridge Enabled			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Bridge Enabled event. See Table 2.10 above for mapping structure.				

205B.39h	Programmable Status Mask: Dynamic Brake Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Dynamic Brake Active event. See Table 2.10 above for mapping structure.				

205B.3Ah	Programmable Status Mask: Stop Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Stop Active event. See Table 2.10 above for mapping structure.				

205B.3Bh	Programmable Status Mask: Positive Stop Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Positive Stop Active event. See Table 2.10 above for mapping structure.				

205B.3Ch	Programmable Status Mask: Negative Stop Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Negative Stop Active event. See Table 2.10 above for mapping structure.				

205B.3Dh	Programmable Status Mask: Positive Inhibit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Positive Inhibit event. See Table 2.10 above for mapping structure.				

205B.3Eh	Programmable Status Mask: Negative Inhibit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Negative Inhibit event. See Table 2.10 above for mapping structure.				

205B.3Fh	Programmable Status Mask: User Bit 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 0 event. See Table 2.10 above for mapping structure.				

205B.40h	Programmable Status Mask: User Bit 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 1 event. See Table 2.10 above for mapping structure.				

205B.41h	Programmable Status Mask: User Bit 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 2 event. See Table 2.10 above for mapping structure.				

205B.42h	Programmable Status Mask: User Bit 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 3 event. See Table 2.10 above for mapping structure.				

205B.43h	Programmable Status Mask: User Bit 4			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 4 event. See Table 2.10 above for mapping structure.				

205B.44h	Programmable Status Mask: User Bit 5			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 5 event. See Table 2.10 above for mapping structure.				

205B.45h	Programmable Status Mask: User Bit 6			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 6 event. See Table 2.10 above for mapping structure.				

205B.46h	Programmable Status Mask: User Bit 7			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 7 event. See Table 2.10 above for mapping structure.				

205B.47h	Programmable Status Mask: User Bit 8			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 8 event. See Table 2.10 above for mapping structure.				

205B.48h	Programmable Status Mask: User Bit 9			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 9 event. See Table 2.10 above for mapping structure.				

205B.49h	Programmable Status Mask: User Bit 10			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 10 event. See Table 2.10 above for mapping structure.				

205B.4Ah	Programmable Status Mask: User Bit 11			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 11 event. See Table 2.10 above for mapping structure.				

205B.4Bh	Programmable Status Mask: User Bit 12			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 12 event. See Table 2.10 above for mapping structure.				

205B.4Ch	Programmable Status Mask: User Bit 13			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 13 event. See Table 2.10 above for mapping structure.				

205B.4Dh	Programmable Status Mask: User Bit 14			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 14 event. See Table 2.10 above for mapping structure.				

205B.4Eh	Programmable Status Mask: User Bit 15			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the User Bit 15 event. See Table 2.10 above for mapping structure.				

205B.4Fh	Programmable Status Mask: Capture 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Capture 1 event. See Table 2.10 above for mapping structure.				

205B.50h	Programmable Status Mask: Capture 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Capture 2 event. See Table 2.10 above for mapping structure.				

205B.51h	Programmable Status Mask: Capture 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Capture 3 event. See Table 2.10 above for mapping structure.				

205B.52h	Programmable Status Mask: Commanded Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Commanded Positive Limit event. See Table 2.10 above for mapping structure.				

205B.53h	Programmable Status Mask: Commanded Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Commanded Negative Limit event. See Table 2.10 above for mapping structure.				

205B.54h	Programmable Status Mask: Safe Torque Off Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Safe Torque Off Active event. See Table 2.10 above for mapping structure.				

205B.55h	Programmable Status Mask: Zero Position Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Zero Position Error event. See Table 2.10 above for mapping structure.				

205B.56h	Programmable Status Mask: Motion Engine Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Motion Engine Error event. See Table 2.10 above for mapping structure.				

205B.57h	Programmable Status Mask: Motion Engine Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Motion Engine Active event. See Table 2.10 above for mapping structure.				

205B.58h	Programmable Status Mask: Active Motion Execute			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion Execute event. See Table 2.10 above for mapping structure.				

205B.59h	Programmable Status Mask: Active Motion Busy			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion Busy event. See Table 2.10 above for mapping structure.				

205B.5Ah	Programmable Status Mask: Active Motion Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion Active event. See Table 2.10 above for mapping structure.				

205B.5Bh	Programmable Status Mask: Active Motion MotionDone			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion MotionDone event. See Table 2.10 above for mapping structure.				

205B.5Ch	Programmable Status Mask: Active Motion SequenceDone			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion SequenceDone event. See Table 2.10 above for mapping structure.				

205B.5Dh	Programmable Status Mask: Active Motion Done			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion Done event. See Table 2.10 above for mapping structure.				

205B.5Eh	Programmable Status Mask: Active Motion Aborted			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion Aborted event. See Table 2.10 above for mapping structure.				

205B.5Fh	Programmable Status Mask: Active Motion Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Active Motion Error event. See Table 2.10 above for mapping structure.				

205B.60h	Programmable Status Mask: PWM and Direction Broken Wire			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the PWM and Direction Broken Wire event. See Table 2.10 above for mapping structure.				

205B.61h	Programmable Status Mask: Motion Engine Abort			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	N/A	Read / Write	Yes
Description: Specifies which StatusWord bit, if any, is assigned to the Motion Engine Abort event. See Table 2.10 above for mapping structure.				

208Ch: Product Information

208C.01h	Hardware Information			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(352)	ASCII	N/A	Read Only	Yes

Description:
Provides all the drive information in a single 384-byte string. The meaning of each byte in the string is divided into sections according to the following table. Bytes 2 through 33 provide the “Control Board Name” for example.

Byte Definitions	Description
0...1	Reserved
2...33	Control Board Name
34...65	Control Board Version
66...97	Control Board Serial Number
98...129	Control Board Build Date
130...161	Control Board Build Time
162...191	Reserved
192...223	Product Part Number (including revision letter)
224...255	Product Version
256...287	Product Serial Number
288...319	Product Build Date
320...351	Product Build Time
352...383	Reserved

208Dh: Firmware Information

208D.01h	Firmware Version			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	ASCII	N/A	Read Only	Yes
Description: Returns a 32-byte string containing the firmware version that is currently running on the drive.				

208D.02h	Bootloader Version			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	ASCII	N/A	Read Only	Yes
Description: Returns a 32-byte string containing the bootloader version that is currently running on the drive.				

208D.03h	FPGA-Image Version			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	ASCII	N/A	Read Only	Yes
Description: Returns a 32-byte string containing the FPGA-image version that is currently running on the drive.				

20D8h: Power Board Information

20D8.01h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.02h	Name			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	N/A	N/A	Read Only	Yes

20D8.03h	Version			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	N/A	N/A	Read Only	Yes

20D8.04h	Serial Number			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	N/A	N/A	Read Only	Yes

20D8.05h	Build Date			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	N/A	N/A	Read Only	Yes

20D8.06h	Build Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
String(32)	N/A	N/A	Read Only	Yes

20D8.07h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.08h	DC Bus Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(16)} - 1]$	PBV	Read Only	Yes

20D8.09h	DC Bus Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(16)} - 1]$	PBV	Read Only	Yes

20D8.0Ah	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	N/A	Read Only	Yes

20D8.0Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	N/A	N/A	Read Only	Yes

20D8.0Ch	Maximum Peak Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	PBC	Read Only	Yes

20D8.0Dh	Maximum Continuous Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	PBC	Read Only	Yes

20D8.0Eh	Maximum Peak Current Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	PBT	Read Only	Yes

20D8.0Fh	Maximum Peak To Continuous Current Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	PBT	Read Only	Yes

20D8.10h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.11h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.12h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.13h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.14h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.15h	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.16h	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.17h	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.18h	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.19h	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.1Ah	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.1Bh	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.1Ch	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.1Dh	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.1Eh	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.1Fh	Reserved			
Data Type	Data Range	Units	Accessibility	Stored to NVM
Unsigned16	N/A	N/A	Read Only	Yes

20D8.20h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	N/A	N/A	Read Only	Yes

20D8.21h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.22h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.23h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.24h	Switching Frequency			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	PBF	Read Only	Yes

20D8.25h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.26h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.27h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.28h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.29h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.2Ah	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.2Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.2Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

20D8.2Dh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	Yes

2.5 Drive Operation Objects

The following objects are typically used during operation. They are either used to perform specific tasks or to obtain information from the drive. These objects have been divided into the following three categories: Control Objects, Command Objects, and Monitor Objects.

2.5.1 Control Objects

6040h: ControlWord

6040h	ControlWord			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - 65535	N/A	Read / Write	No

Description:

The ControlWord object sets the control state machine in the drive. "State Machine Overview" on page 8 explains each drive state and how to use the ControlWord to move the drive to that state. Below is a table providing the basic ControlWord commands and bit field definitions.

Value (Hex)	Command	Description
80	Reset Fault	On any transition to "1" of bit 7 causes a Reset Fault
04	Disable Voltage	Drive in "Switch On Disabled" state
06	Shutdown	Drive in "Ready to Switch On" state
07	Switch On	Drive in "Switched On" state
0F	Enable Operation	Drive in "Operation Enabled" state
02	Stop	Drive in "Stop Active" state
1F	Start Homing	Starts Homing (when in homing mode)
0F	End Homing	Ends Homing

Bit	Name	Description
0	Switch On	A transition from 0 to 1 commands the state machine into the Switched On state.
1	Disable Voltage	A transition from 0 to 1 commands the state machine into the Switch On Disabled State.
2	Quick Stop	A value of 0 activates a commanded stop.
3	Enable Operation	A transition from 0 to 1 commands the state machine into Operation Enabled state.
4	Mode Specific 1	In Jog Mode, Jog Select 0: Writing a 1 sets bit 0 of the Jog Speed Select. Writing a 0 clears it. In Homing, Home Execute: Writing a 1 causes the homing routine to be active. Writing a 0 ends it.
5	Mode Specific 2	In Jog Mode, Jog Plus: Writing a 1 asserts Jog Plus. Writing a 0 deasserts Jog Plus.
6	Mode Specific 3	In Jog Mode, Jog Minus: Writing a 1 asserts Jog Minus. Writing a 0 deasserts Jog Minus.
7	Reset Fault	A transition from 0 to 1 activates a fault reset.
8	Reserved	Read as zero / write as zero.
9	Mode Specific 4	In Jog Mode, Jog Select 1: Writing a 1 sets bit 1 of the Jog Speed Select. Writing a 0 clears it.
10	Reserved	Read as zero / write as zero.
11	Dynamic Brake	Activates the Dynamic Brake
12	Commanded Negative Limit	Activates negative limiting.
13	Commanded Positive Limit	Activates positive limiting.
14-15	Reserved	Read as zero / write as zero.

See "ControlWord (6040h)" on page 10 for more information on this subject.

2001h: Control Parameters

2001.01h	Drive Control Word 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 1FFFh	N/A	Read/Write*	No

Description:
This bit field enables/disables certain drive functions according to the table below.

Bit	Name	Description
0	Reserved	Read as zero / write as zero.
1	Zero Position Error	Sets the target position equal to the measured position.
2	Phase Detect	Activates the phase detection routine.
3	Set Position	Causes the position counter to be loaded with the preset position value.
4	Reserved	Read as zero / write as zero.
5	Reserved	Read as zero / write as zero.
6	Reserved	Read as zero / write as zero.
7	Capture 1 Arm	A change from 0 to 1 arms/rearms Capture unit 1. A change from 1 to 0 Disarms it.
8	Capture 2 Arm	A change from 0 to 1 arms/rearms Capture unit 2. A change from 1 to 0 Disarms it.
9	Capture 3 Arm	A change from 0 to 1 arms/rearms Capture unit 3. A change from 1 to 0 Disarms it.
10	Reserved	Read as zero / write as zero.
11	Reserved	Read as zero / write as zero.
12	Reset Events	Resets all but the following events: Over Current, Parameter Restore Error, Parameter Store Error, Phase Detection Failure, Software Disable
13-15	Reserved	Read as zero / write as zero.

2001.02h	Drive Control Word 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 1FFFh	N/A	Read/Write*	No

Description:
This bit field enables/disables certain drive functions according to the table below.

Bit	Name	Description
0	Gain Parameters Set	A change from 0 to 1 selects Gain Set 1. A change from 1 to 0 selects Gain Set 0.
1	Command Limiter Parameters Set	A change from 0 to 1 selects Command Limiter Set 1. A change from 1 to 0 selects Command Limiter Set 0.
2	Command Source Modifier Set	A change from 0 to 1 selects Source Modifier Set 1. A change from 1 to 0 selects Source Modifier Set 0.
3-15	Reserved	Read as zero / write as zero.

2001.03h	User Bit Control			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – FFFFh	N/A	Read / Write	No

Description:

Toggles the User Bits on or off by assigning a 1 or 0 to the appropriate bit. See the table below for bit assignment. Note that User Bits can be mapped to digital outputs through the configuration software or by directly configuring command 2024h.

Bit	Assignment (1 = asserted, 0 = not asserted)
0	User Bit 0
1	User Bit 1
2	User Bit 2
3	User Bit 3
4	User Bit 4
5	User Bit 5
6	User Bit 6
7	User Bit 7
8	User Bit 8
9	User Bit 9
10	User Bit 10
11	User Bit 11
12	User Bit 12
13	User Bit 13
14	User Bit 14
15	User Bit 15

6060h: Modes Of Operation

6060h	Modes Of Operation			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer8	-128 - 127	N/A	Read / Write	No

Description:
This object indicates the requested mode of operation. This may differ from the actual mode of operation if the mode change is not yet possible (for example, if the mode change is requested while the drive is in the operation enabled state). The actual mode of operation can be found using the read-only object 6061. "Modes of Operation" on page 12 explains the valid control loop configurations for an AMC servo drive.

Value	Operation Mode
1	Profile Position Mode
3	Profile Velocity Mode
4	Profile Torque Mode (current mode)
6	Homing Mode
8	Cyclic Synchronous Position Mode
9	Cyclic Synchronous Velocity Mode
A	Cyclic Synchronous Torque Mode (current mode)
9E	Config 0
DE	Config 1
FF	None (Use active configuration settings)

2.5.2 Command Objects

60FFh: Target Velocity

60FFh	Target Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$-2^{31} – (2^{31}-1)$	DS1	Read / Write	No

Description:
Use this object to set the Target Velocity when the drive is in Velocity mode. See "Appendix" on page 219 for unit conversion.

607Ah: Target Position

607Ah	Target Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$-2^{31} – (2^{31}-1)$	counts	Read / Write	No

Description:
Sets the Target Position value while in position mode (set by object 6060h). This is the target position before limiting and profiling is applied. Position error is derived from demanded position, which is this signal after limiting and profiling is applied.

60B1h: Velocity Offset

60B1h	Velocity Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	$-2^{31} – (2^{31}-1)$	DS1	Read / Write	No
Description: Contains a value corresponding to offset for the target velocity value. Used with cyclic synchronous position and cyclic synchronous velocity modes. In cyclic synchronous position mode, this object contains the input value for velocity feed forward. In cyclic synchronous velocity mode it contains the commanded velocity offset.				

60B2h: Current Offset

60B2h	Current Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$-2^{14} – (2^{14}-1)$	DC2	Read / Write	No
Description: Contains a value corresponding to offset for the target current value. Used with cyclic synchronous modes of operation. In cyclic synchronous position mode and cyclic synchronous velocity mode, this object contains the input value for current feed forward. In cyclic synchronous torque mode it contains the commanded current offset.				

2045h: Interface Inputs

Interface inputs can be used in place of analog inputs for any function that can be assigned to an analog input. Examples of this include command source, feedback source, and motor temperature source. The units for interface inputs are dependent upon the function the interface input is assigned to as given in Table 2.11. For details on unit conversion see "Appendix" on page 219.

TABLE 2.11 Interface Input Units

Interface Input Function	Units
Position Command Source	counts
Velocity Command Source	DS1
Torque/Current Command Source	DC2
Position Feedback Source	counts
Velocity Feedback Source	DS1
Motor Temperature Source	DT1

2045.01h	Interface Input 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} – 1]$	See Table 2.11	Read / Write	No
Description: Defines the value used with interface input 1.				

2045.02h	Interface Input 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	See Table 2.11	Read / Write	No
Description: Defines the value used with interface input 2.				

2045.03h	Interface Input 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	See Table 2.11	Read / Write	No
Description: Defines the value used with interface input 3.				

2045.04h	Interface Input 4			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	See Table 2.11	Read / Write	No
Description: Defines the value used with interface input 4.				

2.5.3 Motion Engine Command Objects

20C9h: Motion Engine Control

20C9.01h	Start-Up Motion Type			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	N/A	N/A	Read / Write	Yes

Description:

Defines the startup behavior when running a motion engine index upon power-up. The bit values are broken up as defined below.

Bits 0:15 - Enumerated values

0: Select Motion (This enum is only used when motion is initiated via a digital input.)

1: Initiate Selected Motion (Run the index or sequence specified in the Motion Engine Control Data)

2: Abort Active Motion (No fault, Motion Engine will return to ready for motion start)

3: Reserved. Write zero.

4: Initiate Dynamic Index

5: Set Motion Select Source

6: Indexer / Sequencer Select

7-15: Reserved

Bits 16:31 - This is the data that is associated with each of the action enums above. The allowable values for each enum are as follows

0: Select Index - When the communication channel is the motion select source, the valid range is [0,15], otherwise it is an error

1: Initiate Selected Motion - When the communication channel is the motion select source, this value will be the motion that is initiated. Otherwise it will be ignored.

2: Abort Active Motion - Values are ignored

3: Reserved. Write zero.

4: Initiate Dynamic Index - Values are ignored

5: Set Motion Select Source - 0:Hardware, 1:Communication Channel - all other values are invalid

6: Indexer / Sequencer Select - When the communication channel is the motion select source, this value will be the motion type that is selected. Valid values are 0: Indexer, 1: Sequencer - all other values are invalid.

7-15: Reserved

20CAh: Dynamic Index Data

20CA.01h	Move Index			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	-	Read / Write	No

Description:

When defining a dynamic index, this value should be set to 0x0020.

20CA.02h	Move Type			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	-	Read / Write	No

Description:
Defines the type of move.

Value	Move Type
0x0008	Absolute
0x0018	Relative

20CA.03h	Repeat Count			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	-	Read / Write	No

Description:
Specifies the number of times to repeat the move. Only valid for relative moves.

20CA.04h	Dwell Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	milliseconds (ms)	Read / Write	No

Description:
Specifies the time after the move is complete before the Index Done status becomes active.

20CA.05h	Position Target - Word 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	counts	Read / Write	No

Description:
The least significant word in the 2-word (32-bit) position command. Depending on the assigned move type, will apply to an absolute or relative position target.

20CA.06h	Position Target - Word 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	counts	Read / Write	No

Description:
The most significant word in the 2-word (32-bit) position command. Depending on the assigned move type, will apply to an absolute or relative position target.

20CA.07h	Max Velocity - Word 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DS3	Read / Write	No
Description: The least significant word in the 4-word (64-bit) maximum velocity value. See "Appendix" on page 219 for unit conversion.				

20CA.08h	Max Velocity - Word 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DS3	Read / Write	No
Description: The second word in the 4-word (64-bit) maximum velocity value. See "Appendix" on page 219 for unit conversion.				

20CA.09h	Max Velocity - Word 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DS3	Read / Write	No
Description: The third word in the 4-word (64-bit) maximum velocity value. See "Appendix" on page 219 for unit conversion.				

20CA.0Ah	Max Velocity - Word 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DS3	Read / Write	No
Description: The most significant word in the 4-word (64-bit) maximum velocity value. See "Appendix" on page 219 for unit conversion.				

20CA.0Bh	Max Acceleration - Word 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DA5	Read / Write	No
Description: The least significant word in the 2-word (32-bit) maximum acceleration value. See "Appendix" on page 219 for unit conversion.				

20CA.0Ch	Max Acceleration - Word 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DA5	Read / Write	No
Description: The most significant word in the 2-word (32-bit) maximum acceleration value. See "Appendix" on page 219 for unit conversion.				

20CA.0Dh	Max Deceleration - Word 0			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DA5	Read / Write	No
Description: The least significant word in the 2-word (32-bit) maximum deceleration value. See "Appendix" on page 219 for unit conversion.				

20CA.0Eh	Max Deceleration - Word 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - FFFFh	DA5	Read / Write	No
Description: The most significant word in the 2-word (32-bit) maximum deceleration value. See "Appendix" on page 219 for unit conversion.				

20CA.0Fh - 20CA.1Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	-	-	-	No

2.5.4 Monitor Objects

6041h: StatusWord

6041h	StatusWord			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - 655535	N/A	Read Only	No

Description:

The StatusWord is used to determine which state the drive is in. "Drive States" on page 9 explains each drive's state and the StatusWord bit definitions. Below is a table of the hex values for each state.

Value	State	Description
xxxx xxxx x0xx 0000	Not Ready to Switch On	Drive is initializing, drive is disabled
xxxx xxxx x1xx 0000	Switch On Disabled	Drive completed initialization, drive is disabled
xxxx xxxx x01x 0001	Ready to Switch On	Bus power may be applied, drive is disabled
xxxx xxxx x01x 0011	Switched On	Bus power is applied, drive is disabled
xxxx xxxx x01x 0111	Operation Enabled	Drive is enabled
xxxx xxxx x0xx 1111	Fault Reaction Active	Drive will execute fault reaction event
xxxx xxxx x0xx 1000	Fault	Drive is in the fault state
xxxx xxxx x00x 0111	Stop Active	Stop received from host and now in this state

2002h: Drive Status

2002.01h	Drive Bridge Status			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

2002.02h	Drive Protection Status			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

2002.03h	System Protection Status			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

2002.04h	Drive/System Status 1			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

2002.05h	Drive/System Status 2			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

2002.06h	Drive/System Status 3			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

2002.07h	Active Configuration Status			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No
Description: The function of each bit is given in Table 2.12 below.				

TABLE 2.12 Drive Status bit-field definitions

Bit	Drive Bridge Status	Drive Protection Status	System Protection Status	Drive System Status 1	Drive System Status 2	Drive System Status 3	Active Configuration Status
0	Bridge Enabled	Drive Reset	Parameter Restore Error	Log Entry Missed	Zero Velocity	Reserved	Absolute Position Valid
1	Dynamic Brake Enabled	Drive Internal Error	Parameter Store Error	Software Disable	At Command	Reserved	Positive Stop Active
2	Stop Enabled	Short Circuit	Invalid Hall State	User Disable	Velocity Following Error	Reserved	Negative Stop Active
3	Positive Stop Enabled	Over Current	Phase Sync. Error	User Positive Inhibit	Positive Target Velocity Limit	Reserved	Reserved
4	Negative Stop Enabled	Under Voltage	Motor Over Temperature	User Negative Inhibit	Negative Target Velocity Limit	Reserved	Reserved
5	Positive TorqueInhibit Active	Over Voltage	Phase Detection Fault	Current Limiting	Command Limiter Active	Reserved	Reserved
6	Negative TorqueInhibit Active	Drive Over Temperature	Feedback Sensor Error	Continuous Current Foldback	In Home Position	Commanded Stop	Reserved
7	External Brake Active	Reserved	Motor Over Speed	Current Loop Saturated	Position Following Error	User Stop	Reserved
8	Reserved	Reserved	Max Measured Position	User Under Voltage	Max Target Position Limit	Capture 1 Active	Reserved
9	Reserved	Reserved	Min Measured Position	User Over Voltage	Min Target Position Limit	Capture 2 Active	Reserved
10	Reserved	Reserved	Comm. Error (Node Guarding)	Non-sinusoidal Commutation	Set Position	Capture 3 Active	Reserved
11	Reserved	Reserved	PWM Input Broken Wire	Phase Detect Active	Reserved	Commanded Positive Limit	Reserved
12	Reserved	Reserved	Motion Engine Error	Motion Engine Active	Homing Active	Commanded Negative Limit	Reserved
13	Reserved	Reserved	Motion Engine Abort	User Auxiliary Disable	Safe Torque Off Status	Reserved	Reserved
14	Reserved	Reserved	Reserved	Shunt Regulator	Homing Complete	Reserved	Reserved
15	Reserved	Reserved	Reserved	Phase Detect Done	Zero Position Error	Reserved	Reserved

2003h: Drive Status History

2003.01h	Drive Bridge Status History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only*	No

Description:
If an event becomes active and then becomes inactive, Drive Status History will mark the event with a history bit. If a bit is 1, that event has occurred sometime in the past; 0 indicates the event has never occurred since power-up. The function of each bit is given in Table 2.12 of object 2002h.

*Features a Read / Write function, in that any history bit can be cleared by writing a 1 to that bit.

2003.02h	Drive Protection Status History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only*	No

Description:
If an event becomes active and then becomes inactive, Drive Status History will mark the event with a history bit. If a bit is 1, that event has occurred sometime in the past; 0 indicates the event has never occurred since power-up. The function of each bit is given in Table 2.12 of object 2002h.

*Features a Read / Write function, in that any history bit can be cleared by writing a 1 to that bit.

2003.03h	System Protection Status History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only*	No

Description:
If an event becomes active and then becomes inactive, Drive Status History will mark the event with a history bit. If a bit is 1, that event has occurred sometime in the past; 0 indicates the event has never occurred since power-up. The function of each bit is given in Table 2.12 of object 2002h.

*Features a Read / Write function, in that any history bit can be cleared by writing a 1 to that bit.

2003.04h	Drive/System Status 1 History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only*	No

Description:
If an event becomes active and then becomes inactive, Drive Status History will mark the event with a history bit. If a bit is 1, that event has occurred sometime in the past; 0 indicates the event has never occurred since power-up. The function of each bit is given in Table 2.12 of object 2002h.

*Features a Read / Write function, in that any history bit can be cleared by writing a 1 to that bit.

2003.05h	Drive/System Status 2 History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only*	No

Description:
If an event becomes active and then becomes inactive, Drive Status History will mark the event with a history bit. If a bit is 1, that event has occurred sometime in the past; 0 indicates the event has never occurred since power-up. The function of each bit is given in Table 2.12 of object 2002h.

*Features a Read / Write function, in that any history bit can be cleared by writing a 1 to that bit.

2003.06h	Drive/System Status 3 History			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only*	No

Description:
If an event becomes active and then becomes inactive, Drive Status History will mark the event with a history bit. If a bit is 1, that event has occurred sometime in the past; 0 indicates the event has never occurred since power-up. The function of each bit is given in Table 2.12 of object 2002h.

*Features a Read / Write function, in that any history bit can be cleared by writing a 1 to that bit.

2029h: Motion Engine Status

2029.01h	Active Sequence			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
N/A	-2 - 15	N/A	Read Only	No

Description:
Displays the active sequence number when using motion engine sequencing.

Bits 0:7

0-15 for index 0 to 15

FE: Dynamic Index

FF: No Invalid Index

Bits 8:15

Reserved

2029.02h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
N/A			Read Only	No

2029.03h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
N/A			Read Only	No

2029.04h	Motion Engine Status			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
N/A	0 - 9	N/A	Read Only	No

Description:

Defines the present state of the motion engine.

Value	Motion Engine State
0	Inactive
1	Waiting for Motion Start (Motion Engine is enabled and ready for an index)
2	Executing Motion (Index is currently running)
3	Program Load in Progress (Motion Engine is not ready for commanded index)
4	Program Load Failure - CRC Error (Problem loading Index. Must reset Motion Engine to continue)
5	Halt Asserted (Motion has been interrupted)
6	Single Step Active
7	Break Point Active
8	No Errors
9	Invalid Data Parameter (Problem loading Index. Must reset Motion Engine to continue)
10	Invalid Op-Code (Problem loading Index. Must reset Motion Engine to continue)
11	Invalid Op-code for Dynamic Motion (Problem with index parameters)
12	Invalid Reference Frame (Problem with index parameters)
13	Invalid Bridge State (Bridge must be enabled to begin indexed motion)
14	User Defined Fault

6061h: Modes Of Operation Display

6061h	Modes Of Operation Display			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer8	-128 - 127	N/A	Read Only	No

Description:
A "Mode Of Operation" refers to how the drive's internal control loops are configured. "Modes of Operation" on page 12 explains the valid control loop configurations for an AMC CANopen servo drive.

Value	Operation Mode
1	Profile Position Mode
3	Profile Velocity Mode
4	Profile Torque Mode (current mode)
6	Homing Mode
8	Cyclic Synchronous Position Mode
9	Cyclic Synchronous Velocity Mode
A	Cyclic Synchronous Torque Mode
FF	Custom Configured Modes

200Eh: Feedback Sensor Values

200E.01h	Primary Encoder Counts			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)}-1]$	counts	Read Only	No

Description:
Contains the current number of encoder counts from the primary encoder. It is an absolute value in that it does not depend on the current load measured position or home values.

200E.02h	Latched Encoder/Resolver Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned32	$0 - [2^{(32)} - 1]$	counts	Read Only	No

Description:
Contains a value corresponding to the latched encoder/resolver position.

200E.03h	Commutation Synchronization Counts			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)}-1]$	counts	Read Only	No

Description:
Contains a value corresponding to the commutation synchronization counts.

200E.04h	Hall Sensor Values			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$ –1]	N/A	Read Only	No
Description: Contains a value corresponding to the Hall sensor values.				

2027h: Feedback Hardware Diagnostics

2027.01h	Sin/Cos Encoder Sine			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	[$-2^{(15)}$] – [$2^{(15)}$-1]	Volts (SF1)	Read Only	No
Description: Represents the differential voltage of the +/- sine input of a 1V peak-to-peak encoder. Only applicable to drives that support Sin/Cos encoders. See "Appendix" on page 219 for information on scaling.				

2027.02h	Sin/Cos Encoder Cosine			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	[$-2^{(15)}$] – [$2^{(15)}$-1]	Volts (SF1)	Read Only	No
Description: Represents the differential voltage of the +/- cosine input of a 1V peak-to-peak encoder. Only applicable to drives that support Sin/Cos encoders. See "Appendix" on page 219 for information on scaling.				

2027.03h	Sin/Cos Encoder Health			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	[$-2^{(15)}$] – [$2^{(15)}$-1]	Volts (SF1)	Read Only	No
Description: Represents the health of the Sin/Cos encoder inputs according the formula below, where a value closer to 1 is healthy and a value closer to 0 is unhealthy. See "Appendix" on page 219 for information on scaling. Encoder Health = $Sin^2 + Cos^2$				

2027.04h	Absolute Encoder Fault Word			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(16)}$ –1]	N/A	Read Only	No

Description:

Contains a value that corresponds to an absolute encoder fault code. Fault codes are listed below by encoder type. The drive checks for faults and attempts to clear them during a phase detection routine. If a fault cannot be cleared, the appropriate fault code will be given by this sub-index and the drive will activate a feedback sensor error.

Hiperface (Stegmann):

Status Value	Status Name
00h	No Error
01h	Analog signals outside of specification
02h	Internal angle offset erroneous
03h	Data field partition destroyed
04h	Analog limit is not available
05h	Internal I^2C is not serviceable
06h	Internal checksum error
07h	Encoder reset occurred
08h	Counter overflow
09h	Parity error
0Ah	Checksum of transmitted data is wrong
0Bh	Unknown command code
0Ch	Number of data transmitted is wrong
0Dh	Command argument transmitted is impermissible
0Eh	Data may not be written to the data field selected
0Fh	Wrong access code
10h	Size of specified data field cannot be changed
11h	Specified word address outside data field
12h	Access to non-existent data field
1Ch	Monitoring the magnitude of the analog signals
1Dh	Critical encoder current
1Eh	Critical encoder temperature
1Fh	Speed too high, position information not possible
20h	Position of single turn impermissible
21h	Position error, multi-turn
22h	Position error, multi-turn
23h	Position error, multi-turn
28h	Error absolute value formation linear measuring system

EnDat (Heidenhein):

Bit	Fault Name
0	Light Source
1	Signal Amplitude
2	Position Value
3	Over Voltage
4	Under Voltage
5	Over Current
6	Battery
7-15	RFU

2027.05h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(16)}$ –1]	N/A	Read Only	No

2027.06h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	0 – [$2^{(16)}$ –1]	N/A	Read Only	No

201Ch: Gearing Values

201C.01h	Gear Input			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	[$-2^{(31)}$] – [$2^{(31)}$-1]	Counts	Read Only	No
Description: Contains a value corresponding to the number of encoder counts sent to the gearing module.				

201C.02h	Present Gear Input Counts			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$-1]	N/A	Read Only	No
Description: Value corresponding to the denominator of the gear ratio.				

201C.03h	Present Gear Output Counts			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – [$2^{(16)}$-1]	N/A	Read Only	No
Description: Value corresponding to the numerator of the gear ratio.				

201Eh: Auxiliary Encoder Value

201E.01h	Auxiliary Encoder Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	-2^{31} – (2^{31}-1)	Counts	Read Only	No
Description: Contains the raw number of counts seen on the auxiliary encoder input. This value resets to zero when the drive is power-cycled.				

201E.02h	Auxiliary Position Index Capture Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$-2^{31} – (2^{31}-1)$	counts	Read Only	No
Description: Contains the position of the last auxiliary encoder index captured by the drive. Requires auxiliary encoder with index.				

6077h: Actual Current

6077h	Actual Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$-2^{15} – (2^{15}-1)$	DC1	Read Only	No
Description: Contains the instantaneous current applied to the motor. See "Appendix" on page 219 for units conversion.				

2010h: Current Values

2010.01h	Current Target - Torque			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DC2	Read Only	No
Description: Contains the value of the target current (torque-producing). See "Appendix" on page 219 for unit conversion.				

2010.02h	Current Demand - Torque			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains the value of the demand current (torque-producing). See "Appendix" on page 219 for unit conversion.				

2010.03h	Current Measured - Torque			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains the value of the measured current (torque-producing). See "Appendix" on page 219 for unit conversion.				

2010.04h	Current Error - Torque			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains the error between the target current and the measured current (torque-producing). This is equivalent to: demand current minus measured current. When the demand current is reached, the current error is zero. See "Appendix" on page 219 for unit conversion.				

2010.05h	Current Target - Flux			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DC2	Read Only	No
Description: Contains the value of the target current (flux-producing). See "Appendix" on page 219 for unit conversion.				

2010.06h	Current Demand - Flux			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains the value of the demand current (flux-producing). See "Appendix" on page 219 for unit conversion.				

2010.07h	Current Measured - Flux			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains the value of the measured current (flux-producing). See "Appendix" on page 219 for unit conversion.				

2010.08h	Current Error - Flux			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains the value of the Current error (flux-producing). See "Appendix" on page 219 for unit conversion.				

2010.09h	Current Target - Flux Reference			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DC2	Read Only	No
Description: Contains a value corresponding to the Current target flux reference. See "Appendix" on page 219 for unit conversion.				

2010.0Ah	Current Demand - Flux Reference			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read Only	No
Description: Contains a value corresponding to the current demand flux reference.				

2010.0Bh	Current Measured - Flux Reference			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read Only	No
Description: Contains a value corresponding to the current measured flux reference.				

2010.0Ch	Current Error - Flux Reference			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	N/A	Read Only	No
Description: Contains a value corresponding to the current error flux reference.				

2010.0Dh	Current Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	N/A	Read Only	No
Description: Contains a value corresponding to the current limit.				

2010.0Eh	Current Measured - Phase A			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains a value corresponding to the current measured in phase A. See "Appendix" on page 219 for unit conversion.				

2010.0Fh	Current Measured - Phase B			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DC1	Read Only	No
Description: Contains a value corresponding to the current measured in phase B. See "Appendix" on page 219 for unit conversion.				

2010.10h	Phase Angle - Rotor			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 359	DG1	Read Only	No
Description: Contains a value corresponding to the Phase Angle – Rotor. See "Appendix" on page 219 for unit conversion.				

2010.11h	Phase Angle - Stator			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 – 359	DG1	Read Only	No
Description: Contains a value corresponding to the Phase Angle – Stator. See "Appendix" on page 219 for unit conversion.				

2010.12h	Torque Summation Input			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DC2	Read Only	No
Description: Contains the raw current command before filtering or an offset has been applied. See "Appendix" on page 219 for unit conversion.				

2010.13h	Torque Summation Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DC2	Read Only	No
Description: Contains the offset of the commanded current in the current loop. See "Appendix" on page 219 for unit conversion.				

606Ch: Actual Velocity

606Ch	Actual Velocity			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$-2^{31} – (2^{31}-1)$	DS1	Read Only	No
Description: Actual Velocity is defined as the measured velocity, after conditioning, used to close the drive's velocity loop. See "Appendix" on page 219 for unit conversion.				

2011h: Velocity Values

2011.01h	Velocity Measured Pre-Filter			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the measured velocity before the feedback cutoff filter. See "Appendix" on page 219 for unit conversion.				

2011.02h	Velocity Measured Post-Filter			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the measured velocity after the feedback cutoff filter. See "Appendix" on page 219 for unit conversion.				

2011.03h	Velocity Target			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the current velocity target when the drive is in velocity mode. See "Appendix" on page 219 for unit conversion.				

2011.04h	Velocity Demand			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the current velocity demand when the drive is in velocity mode. See "Appendix" on page 219 for unit conversion.				

2011.05h	Velocity Loop Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the error between the target velocity and the measured velocity. This is equivalent to target velocity minus measured velocity. When the current commanded velocity is reached, the velocity loop error will be zero. See "Appendix" on page 219 for unit conversion.				

2011.06h	Velocity Summation Input			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the raw velocity command before filtering or an offset has been applied. See "Appendix" on page 219 for unit conversion.				

2011.07h	Velocity Summation Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DS1	Read Only	No
Description: Contains the offset of the commanded velocity in the velocity loop. See "Appendix" on page 219 for unit conversion.				

6064h: Actual Position

6064h	Actual Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$-2^{31} – (2^{31}-1)$	counts	Read Only	No
Description: Position Actual Value contains the measured position of the primary feedback device. This is the actual value used to create position error in position mode.				

2012h: Position Values

2012.01h	Position Measured			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the current measured position in counts.				

2012.02h	Position Target			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the current commanded position when the drive is used in the position mode.				

2012.03h	Position Demand			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the current position demand in counts.				

2012.04h	Position Loop Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the error between the target position (in counts) and the measured position (in counts). This is equivalent to target position (counts) minus measured position (counts). When the current commanded position is reached, the position loop error will be zero.				

2012.05h	Position Summation Input			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the raw position command before filtering or an offset has been applied.				

2012.06h	Position Summation Offset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the offset of the commanded position in the position loop.				

2012.07h	Position Index Capture Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the position of the last encoder index captured by the drive. Requires encoder with index.				

2014h: Command Limiter Input

2014.01h	Input Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	N/A	Read Only	No
Description: Contains a value corresponding to the input of the command limiter.				

200Fh: Power Bridge Values

200F.01h	DC Bus Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$0 – [2^{(15)}-1]$	DV1	Read Only	No
Description: Contains a value corresponding to the DC Bus Voltage. See "Appendix" on page 219 for unit conversions.				

200F.02h	Phase A Output Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DPV	Read Only	No
Description: Contains a value corresponding to the Phase A Output Voltage. See "Appendix" on page 219 for unit conversion details.				

200F.03h	Phase B Output Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DPV	Read Only	No
Description: Contains a value corresponding to the Phase B Output Voltage. See "Appendix" on page 219 for unit conversion details.				

200F.04h	Phase C Output Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DPV	Read Only	No
Description: Contains a value corresponding to the Phase C Output Voltage. See"Appendix" on page 219 for unit conversion details.				

200F.05h	Trap Mode Output Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DPV	Read Only	No
Description: Contains a value corresponding to the trap mode output voltage. See "Appendix" on page 219 for unit conversion details.				

2021h: Drive Temperature Values

2021.01h	External Thermal Sense Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	N/A	Read Only	No
Description: Contains a value corresponding to the external thermal sense value.				

2021.02h	Thermistor Resistance			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	Ohms	Read Only	No
Description: If supported by the hardware, this value represents the measured thermistor resistance value in ohms.				

2019h: Capture Values

The capture values have units that vary with the operating mode of the drive. For these parameters, refer to Table 2.13 for the correct unit selection.

TABLE 2.13 Capture Units

Drive Operation Mode	Units
Current (Torque)	DC2
Velocity	DS1
Position (Around Velocity Or Current)	counts

2019.01h	Capture 'A' Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} –1]$	See Table 2.13	Read Only	No
Description: Capture A captured value				

2019.02h	Capture 'B' Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} –1]$	See Table 2.13	Read Only	No
Description: Capture B captured value				

2019.03h	Capture 'C' Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] - [2^{(31)} - 1]$	See Table 2.13	Read Only	No
Description: Capture C captured value				

2023h: Digital Input Values

2023.01h	Digital Inputs (Post Active Level)			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	See Table	N/A	Read Only	No

Description:
Bit field corresponding to the state of the digital inputs. Bit field definitions are given below.

Bit	Digital Inputs*
0	Digital Input 1
1	Digital Input 2
2	Digital Input 3
3	Digital Input 4
4	Digital Input 5
5	Digital Input 6
6	Digital Input 7
7	Digital Input 8
8	Digital Input 9
9	Digital Input 10
10	Digital Input 11
11	Digital Input 12
12	Digital Input 13
13	Digital Input 14
14	Digital Input 15
15	Digital Input 16

*Number of actual inputs depends on drive model

2024h: Digital Output Values

2024.01h	Digital Outputs (Pre Active Level)			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	See Table	N/A	Read Only	No

Description:
Bit field corresponding to the state of the digital inputs. Bit field definitions are given below.

Bit	Digital Outputs*
0	Digital Output 1
1	Digital Output 2
2	Digital Output 3
3	Digital Output 4
4	Digital Output 5
5	Digital Output 6
6	Digital Output 7
7	Digital Output 8
8	Digital Output 9
9	Digital Output 10
10	Digital Output 11
11	Digital Output 12
12	Digital Output 13
13	Digital Output 14
14	Digital Output 15
15	Digital Output 16

*Number of actual outputs depends on drive model

201Ah: Analog Input Values

201A.01h	Analog Input 1 Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)}-1]$	DAI	Read Only	No

Description:
Contains a value corresponding to the voltage present on analog input 1. See "Appendix" on page 219 for unit conversion details.

201A.02h	Analog Input 2 Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] - [2^{(15)}-1]$	DAI	Read Only	No

Description:
Contains a value corresponding to the voltage present on analog input 2. See "Appendix" on page 219 for unit conversion details.

201A.03h	Analog Input 3 Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DAI	Read Only	No
Description: Contains a value corresponding to the voltage present on analog input 3. See "Appendix" on page 219 for unit conversion details.				

201A.04h	Analog Input 4 Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DAI	Read Only	No
Description: Contains a value corresponding to the voltage present on analog input 4. See "Appendix" on page 219 for unit conversion details.				

2022h: Analog Input ADC Raw Values

2022.01h	Analog Input 1 ADC Raw Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	N/A	Read Only	No
Description: Provides the full scale raw value of the ADC used for Analog Input 1.				

2022.02h	Analog Input 2 ADC Raw Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	N/A	Read Only	No
Description: Provides the full scale raw value of the ADC used for Analog Input 2.				

2022.03h	Analog Input 3 ADC Raw Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	N/A	Read Only	No
Description: Provides the full scale raw value of the ADC used for Analog Input 3.				

2022.04h	Analog Input 4 ADC Raw Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	$0 – [2^{(16)}-1]$	N/A	Read Only	No
Description: Provides the full scale raw value of the ADC used for Analog Input 4.				

2025h: Analog Output Values

2025.01h	Analog Output 1 Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DAO	Read Only	No
Description: Contains a value corresponding to the value of analog output 1. The analog outputs have a range of 0 to 10 Volts. See "Appendix" on page 219 for unit conversion details.				

2025.02h	Analog Output 2 Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(15)}] – [2^{(15)}-1]$	DAO	Read Only	No
Description: Contains a value corresponding to the value of analog output 2. The analog outputs have a range of 0 to 10 Volts. See "Appendix" on page 219 for unit conversion details.				

2015h: Deadband Input Value

2015.01h	Deadband Input Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	DC2, DS1, counts	Read Only	No
Description: Value of the command input to the Deadband function. Mode dependant units.				

2018h: Programmable Limit Switch Values

2018.01h	PLS Input Value			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer32	$[-2^{(31)}] – [2^{(31)}-1]$	counts	Read Only	No
Description: Contains the value of the programmable limit switch position input. If a rollover value has been defined, this value will range between zero and the rollover value.				

2018.02h	PLS 1 State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Bits	0-1	-	Read Only	No
Description: Contains the current state of programmable limit switch 1. This bit is high when PLS 1 is active.				

2018.03h	PLS 2 State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Bits	0-1	-	Read Only	No
Description: Contains the current state of programmable limit switch 2. This bit is high when PLS 2 is active.				

201Bh: PWM and Direction Input Values

201B.01h	Applied PWM Duty Cycle			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$[-2^{(13)}] – [2^{(13)}]$	Fractional duty cycle * $2^{(13)}$	Read Only	No
Description: Contains the value of the input duty cycle expressed as a signed fraction when the drive is configured for PWM command input. This value represents the measured duty cycle after polarity and inversions applied.				

201B.02h	Input PWM Duty Cycle			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Integer16	$0 – [2^{(13)}]$	duty cycle * $2^{(31)}$	Read Only	No
Description: Contains the value of the input duty cycle expressed as an unsigned fraction when the drive is configured for PWM command input. This value represents the measured duty cycle before polarity and inversions applied.				

2028h: Fault Log Counter

2028.01h	Log Counter: Total Run Time			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned48	$0 – 2^{48}$	msec	Read Only	No
Description: This object holds the total run time of the drive.				

2028.02h	Log Counter: Drive Reset			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Drive Reset occurred in the life of the drive.				

2028.03h	Log Counter: Drive Internal Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Drive Internal Error occurred in the life of the drive.				

2028.04h	Log Counter: Short Circuit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Short Circuit occurred in the life of the drive.				

2028.05h	Log Counter: Over Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Over Current occurred in the life of the drive.				

2028.06h	Log Counter: Hardware Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Hardware Under Voltage occurred in the life of the drive.				

2028.07h	Log Counter: Hardware Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Hardware Over Voltage occurred in the life of the drive.				

2028.08h	Log Counter: Drive Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Drive Over Temperature occurred in the life of the drive.				

2028.09h	Log Counter: Parameter Restore Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Parameter Restore Error occurred in the life of the drive.				

2028.0Ah	Log Counter: Parameter Store Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Parameter Store Error occurred in the life of the drive.				

2028.0Bh	Log Counter: Invalid Hall State			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Invalid Hall State occurred in the life of the drive.				

2028.0Ch	Log Counter: Phase Synchronization Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Phase Sync. Error occurred in the life of the drive.				

2028.0Dh	Log Counter: Motor Over Temperature			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Motor Over Temperature occurred in the life of the drive.				

2028.0Eh	Log Counter: Phase Detection Fault			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Phase Detection Fault occurred in the life of the drive.				

2028.0Fh	Log Counter: Feedback Sensor Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Feedback Sensor Error occurred in the life of the drive.				

2028.10h	Log Counter: Log Entry Missed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Log Entry Missed occurred in the life of the drive.				

2028.11h	Log Counter: Software Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Software Disable occurred in the life of the drive.				

2028.12h	Log Counter: User Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times User Disable occurred in the life of the drive.				

2028.13h	Log Counter: User Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times User Positive Limit occurred in the life of the drive.				

2028.14h	Log Counter: User Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times User Negative Limit occurred in the life of the drive.				

2028.15h	Log Counter: Current Limiting			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Current Limiting occurred in the life of the drive.				

2028.16h	Log Counter: Continuous Current			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Continuous Current occurred in the life of the drive.				

2028.17h	Log Counter: Current Loop Saturated			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Current Loop Saturated occurred in the life of the drive.				

2028.18h	Log Counter: User Under Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times User Under Voltage occurred in the life of the drive.				

2028.19h	Log Counter: User Over Voltage			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times User Over Voltage occurred in the life of the drive.				

2028.1Ah	Log Counter: User Auxiliary Disable			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times User Auxiliary Disable occurred in the life of the drive.				

2028.1Bh	Log Counter: Shunt Regulator Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Shunt Regulator Active occurred in the life of the drive.				

2028.1Ch	Log Counter: Command Limiter Active			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Command Limiter Active occurred in the life of the drive.				

2028.1Dh	Log Counter: Motor Overspeed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Motor Overspeed occurred in the life of the drive.				

2028.1Eh	Log Counter: At Command			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times At Command occurred in the life of the drive.				

2028.1F0h	Log Counter: Zero Speed			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Zero Speed occurred in the life of the drive.				

2028.20h	Log Counter: Velocity Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Velocity Following Error occurred in the life of the drive.				

2028.21h	Log Counter: Positive Target Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Positive Target Velocity Limit occurred in the life of the drive.				

2028.22h	Log Counter: Negative Target Velocity Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Negative Target Velocity Limit occurred in the life of the drive.				

2028.23h	Log Counter: Upper Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Upper Measured Position Limit occurred in the life of the drive.				

2028.24h	Log Counter: Lower Measured Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Lower Measured Position Limit occurred in the life of the drive.				

2028.25h	Log Counter: At Home Position			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times At Home Position occurred in the life of the drive.				

2028.26h	Log Counter: Position Following Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Position Following Error occurred in the life of the drive.				

2028.27h	Log Counter: Upper Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Upper Target Position Limit occurred in the life of the drive.				

2028.28h	Log Counter: Lower Target Position Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times Lower Target Position Limit occurred in the life of the drive.				

2028.29h	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No

2028.2Ah	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No

2028.2Bh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No

2028.2Ch	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No

2028.2Dh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No

2028.2Eh	Reserved			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	N/A	N/A	Read Only	No

2028.2Fh	Log Counter: Communication Channel Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0- $[2^{(16)} - 1]$	count	Read Only	No
Description: Number of times Communication Channel Error occurred in the life of the drive.				

2028.30h	Log Counter: Commanded Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(16)} - 1]$	count	Read Only	No
Description: Number of times Commanded Stop occurred in the life of the drive.				

2028.31h	Log Counter: User Stop			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(16)} - 1]$	count	Read Only	No
Description: Number of times User Stop occurred in the life of the drive.				

2028.32h	Log Counter: Commanded Positive Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(16)} - 1]$	count	Read Only	No
Description: Number of times Commanded Positive Limit occurred in the life of the drive.				

2028.33h	Log Counter: Commanded Negative Limit			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - $[2^{(16)} - 1]$	count	Read Only	No
Description: Number of times Commanded Negative Limit occurred in the life of the drive.				

2028.34h	Log Counter: PWM and Direction Broken Wire Error			
Data Type	**Data Range**	**Units**	**Accessibility**	**Stored to NVM**
Unsigned16	0 - [$2^{(16)}$ –1]	count	Read Only	No
Description: Number of times PWM and Direction Broken Wire Error occurred in the life of the drive.				

Appendix

A.1 Appendix A - Units

Table A.1 below shows scaling factors and formulas for converting physical units to drive units.

TABLE A.1 Drive Units and Scaling Factors

Abbreviation	Drive Unit Type	Physical Units	Data Type	Scaling Factor
DA1	Acceleration	counts/s^2	Integer32/Unsigned32	$2^{34}/K_S^2$
DA2	Acceleration	counts/s^2	Unsigned48	$2^{34}/K_IK_S^2$
DA3	Acceleration	counts/s^2	Integer32	$2^{28}/K_{MS}\ K_S$
DA4	Acceleration	counts/s^2	Integer32	$(2^{18})/(K_S^2)$
DA5	Acceleration	counts/s^2	Unsigned48	$2^{28}/K_{DS}\ K_S$
DC1	Current	A	Integer16	$2^{13}/K_P$
DC2	Current	A	Integer32	$2^{15}/K_P$
DJ1	Jerk	A/s	Unsigned48	$2^{32}/(K_P\ K_S)$
DG1	Angle	degrees	Integer16/Unsigned16	$2^{16}/360$
DS1	Speed/Velocity	counts/s	Integer32	$2^{17}/K_IK_S$
DS2	Speed/Velocity	counts/s	Unsigned48	$2^{17}/K_S$
DS3	Speed/Velocity	counts/s	Integer64	$2^{33}/K_S$
DS4	Speed/Velocity	counts/s	Unsigned32	$2^{17}/K_S$
DV1	Voltage	V	Integer16	$2^{14}/(1.05\ K_{OV})$
DPV	Phase Voltage	V	Integer16	$2^{14}/K_B$
DAI	Analog Input Voltage	V	Integer16	$2^{14}/20$
DAO	Analog Output Voltage	V	Integer16	$2^{14}/10$
DT1	Temperature	°C	Integer32	2^{16}
PBC	Power Board Current	A	Unsigned16	10
PBV	Power Board Voltage	V	Unsigned16	10
PBT	Power Board Time	s	Unsigned16	100
PBF	Power Board Frequency	Hz	Unsigned32	$2^{16}/1000$
SF1	Scale Factor 1	-	-	2^{14}

1.Multiply physical units by the scaling factor to obtain drive units. Divide drive units by the scaling factor to obtain physical units.

The drive units used for a parameter depend upon the parameter type and size. Drive units must be rounded to the nearest integer and then converted to a hexadecimal base of the appropriate data type before they are written to the drive. When converting to a signed integer

data type, use two's complement for representation of negative numbers (see "Conversion Example 3" on page 221). Some scaling factors involve drive dependent constants. These constants are given in Table A.2, along with details on determining their values.

TABLE A.2 Drive dependent conversion constants

Constant	Value
K_B	DC Bus Voltage in volts. This value can be read from 200F.01h.
K_{DS}	Maximum dynamic index speed (in counts/s). This value can be read from 20CA.07h, 20CA.08h, 20CA.09h, and 20CA.0Ah.
K_I	Feedback interpolation value. Only applies to drives that support 1 V_{pp} Sin/Cos feedback. For all other drives, K_I = 1. When applicable, this value can be read from 2032.08h.
K_{MS}	Maximum profiler speed (in counts/s) for an Accel/Decel command profile. This value can be read from 203C.09h for Configuration 0 and 203C.0Ch for Configuration 1.
K_{OV}	The hardware defined, DC bus, over-voltage limit of the drive in volts. This value can be read from 20D8.09h.
K_P	The maximum rated peak current of the drive in amps. For example, 20 for the DPRALTE-**020**B080. This value can be read from 20D8.0Ch.
K_S	Switching frequency of the drive in Hz. This value can be found on the drive datasheet, or can be read from 20D8.24h and divided by 65.536.

A.1.1 Conversion Example 1

- **Drive:** DPRALTE-020B080
- **Feedback:** 1000 Line Incremental Encoder

To specify a Motor Over Speed Limit (2037.01h) of 10,000 RPM, first convert to the appropriate physical unit as shown below, keeping in mind that counts have a quadrature resolution (4X) over lines.

$$10{,}000\frac{\text{rev}}{\text{min}}\times\frac{1000\,\text{lines}}{1\,\text{rev}}\times\frac{4\,\text{counts}}{1\,\text{line}}\times\frac{1\,\text{min}}{60\,\text{sec}}=666{,}666.7\frac{\text{counts}}{\text{sec}}$$

Motor Over Speed is of data type Integer32 and uses DS1 drive units. Taking the appropriate 32-bit scaling factor from Table A.1 yields

$$666{,}666.7\times\frac{2^{17}}{K_I K_S}=666{,}666.7\times\frac{2^{17}}{1\times 20{,}000}=4369066.9$$

where K_I = 1 because we are not dealing with 1 V_{PP} Sin/Cos feedback. Rounding this to the nearest integer and converting to a hexadecimal base then results in

$$4369067_{10}=42\text{AAAB}_{16}.$$

Now, to apply the setting, a value of 42AAABh would be written to sub-index 2037.01h.

A.1.2 Conversion Example 2

- **Drive:** 1000 cycles per revolution; DPCANIA-030A400

- **Feedback:** 1Vp-p Sine/Cosine Encoder

To specify a Motor Over Speed Limit (2037.01h) of 10,000 RPM, first convert to the appropriate physical unit as shown below, keeping in mind that counts have a quadrature resolution (4X) over each cycle.

$$10{,}000\,\frac{\text{rev}}{\text{min}} \times \frac{\text{K}_\text{I} \cdot \#\text{cycles}}{1\,\text{rev}} \times \frac{4\,\text{counts}}{1\,\text{cycle}} \times \frac{1\,\text{min}}{60\,\text{sec}} = 666.7 \cdot K_I \cdot \# \frac{\text{counts}}{\text{sec}}$$

Motor Over Speed is of data type Integer32 and uses DS1 drive units. Taking the appropriate 32-bit scaling factor from Table A.1 yields:

$$666.7 \cdot K_I \cdot \# \times \frac{2^{17}}{K_I K_S} = 666.7 \cdot \# \times \frac{2^{17}}{20{,}000} = 4369.0669 \cdot \#$$

where the K_I term cancels out. Note that the "#" in the two conversions (shown above) equal 1000. Rounding this to the nearest integer and converting to a hexadecimal base then results in:

$$4369067_{10} = 42\text{AAAB}_{16}.$$

Now, to apply the setting, a value of 42AAABh would be written to sub-index 2037.01h.

A.1.3 Conversion Example 3

To set a temperature parameter to 23°F first convert to the appropriate physical unit as shown below.

$$\frac{5}{9}(23-32) = -5\,^\circ\text{C}.$$

Referring to Table A.1, the appropriate scaling factor yields:

$$-5 \times 2^{16} = -327680.$$

Because the resulting integer value is negative, two's complement notation will be used to represent its hexadecimal equivalent. To obtain the two's complement, the positive version of the desired number should be subtracted from 2^N, where N is the number of bits in the data type. Temperature parameters use the data type Integer32 so the calculation is as follows:

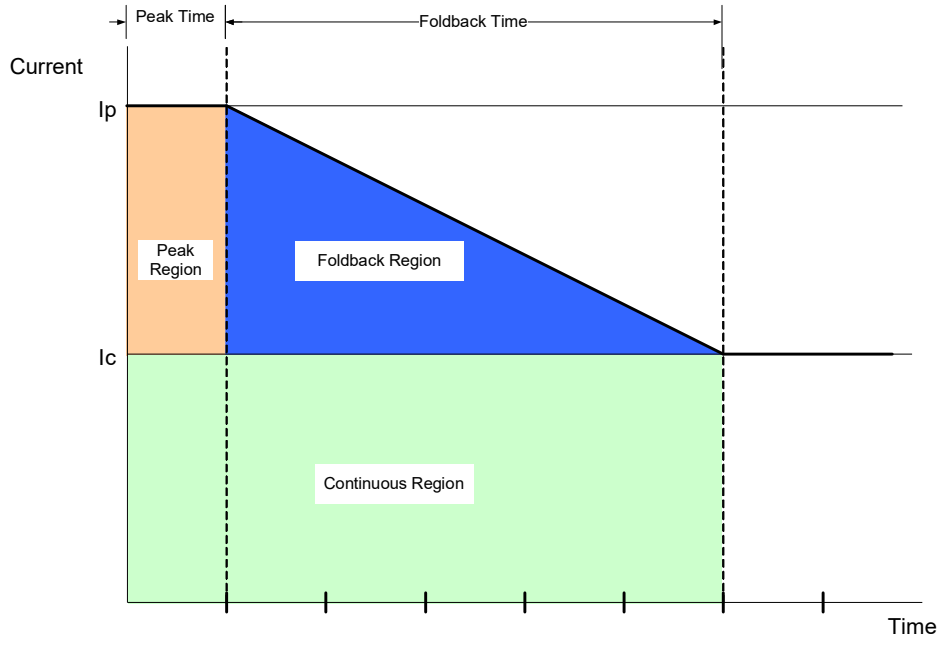
$$2^N - 327680 = 2^{32} - 327680 = 4294639616$$
$$4294639616_{10} = \text{FFFB0000}_{16}$$

The final step would be to write a value of FFFB0000h to the appropriate parameter.

A.2 Appendix B - Current Limiting Algorithm

In order to understand the current limiting algorithm used by *ADVANCED* Motion Controls' DigiFlex Performance drives, it is necessary to first understand the different current limiting regions. The graph in Figure A.1 breaks the available current into three different regions.

FIGURE A.1 Current Limiting Regions



- **Continuous Region:** The commanded current is less than or equal to the continuous current limit. The available current is equal to the commanded current.
- **Peak Region:** The commanded current is between the continuous and peak current limits. The available current is equal to the commanded current for a limited time (Peak Time).
- **Foldback Region:** Commanded current is between the continuous and peak current limits of the drive. The available current is less than the commanded current. The available current decreases over time until it equals the continuous current limit. The rate of this decrease is equal to:

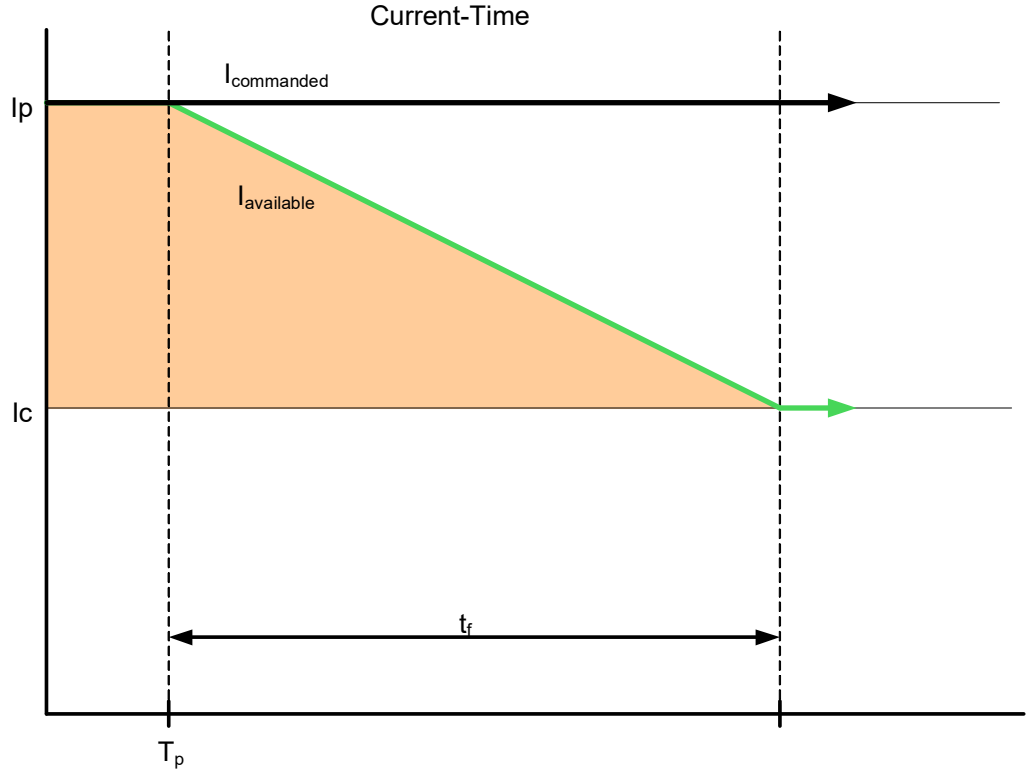
$$Slope = \frac{Ip - Ic}{tf}$$

Ip	Peak current limit
Ic	Continuous current limit
tf	Foldback time

A.2.1 Time-Based Peak Current Limiting

The full peak value of current is available to begin with. When a current command is equal to the peak current limit, the current begins to foldback to the continuous limit after T_p, following the same slope as given in Figure A.1. Once the available current has reached the continuous current limit after t_f, the available current will be limited to the continuous current limit until the commanded current is dropped below the continuous level.

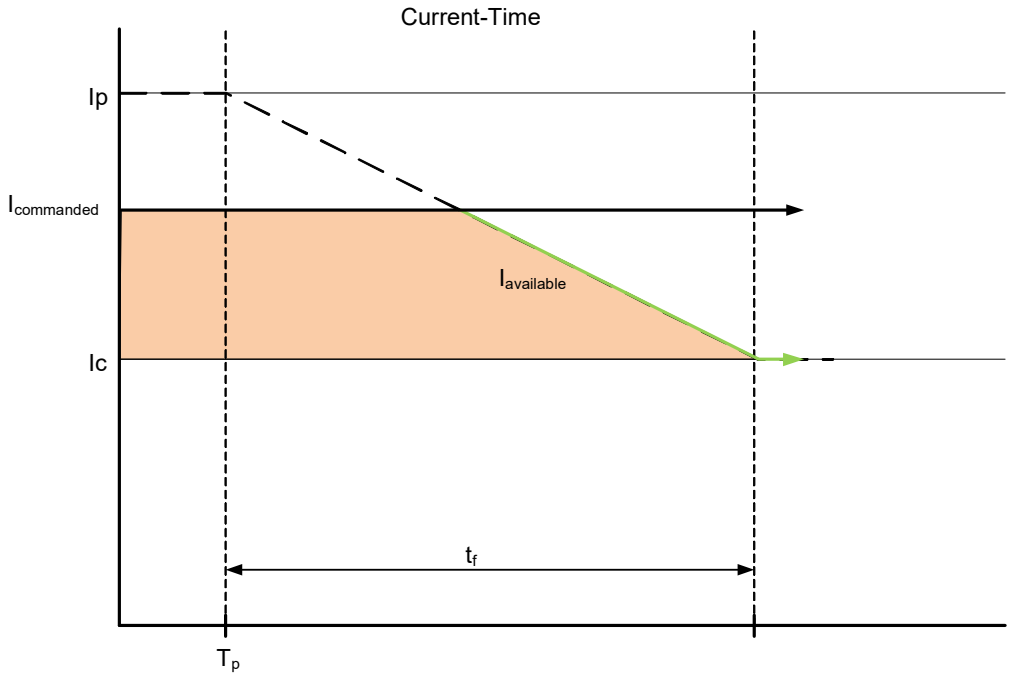
FIGURE A.2 Time-Based Peak Current Limiting



A.2.2 Time-Based Non-Peak Current Limiting

When the commanded current is between the peak and continuous current limits, the available current will begin to foldback at the intersection with the slope from "Time-Based Peak Current Limiting". The larger the commanded current, the sooner the available current will begin to foldback.

FIGURE A.3 Time-Based Non-Peak Current Limiting



A.2.3 Time-Based Current Recovery

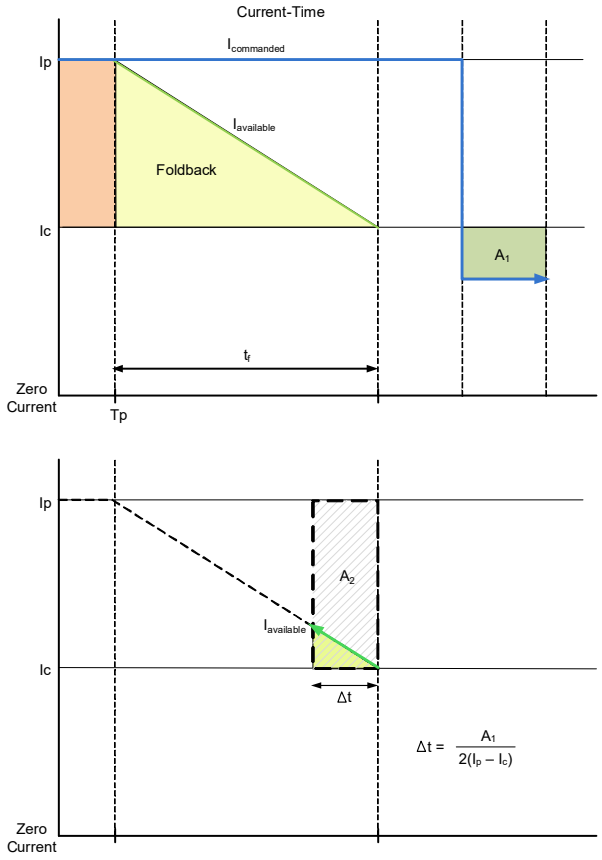
Initially, the full peak value of current is available. A commanded current above the continuous level causes the available current to foldback to the continuous level as shown in the first graph of Figure A.4. When the commanded current drops below the continuous current limit value ($\mathbf{A_1}$ in the first graph), the available current will then begin to recover along the slope of the foldback line towards the peak current level, as shown in the second graph of Figure A.4. The relationship between the commanded current and the recovered current is given as:

$$A_2 = \frac{1}{2}A_1$$

Using this relationship, you can calculate the amount of time recovered, Δt, by using the following equation:

$$\Delta t = \frac{A_1}{2(I_p - I_c)}$$

FIGURE A.4 Time-Based Current Recovery - Foldback and Commanded Current

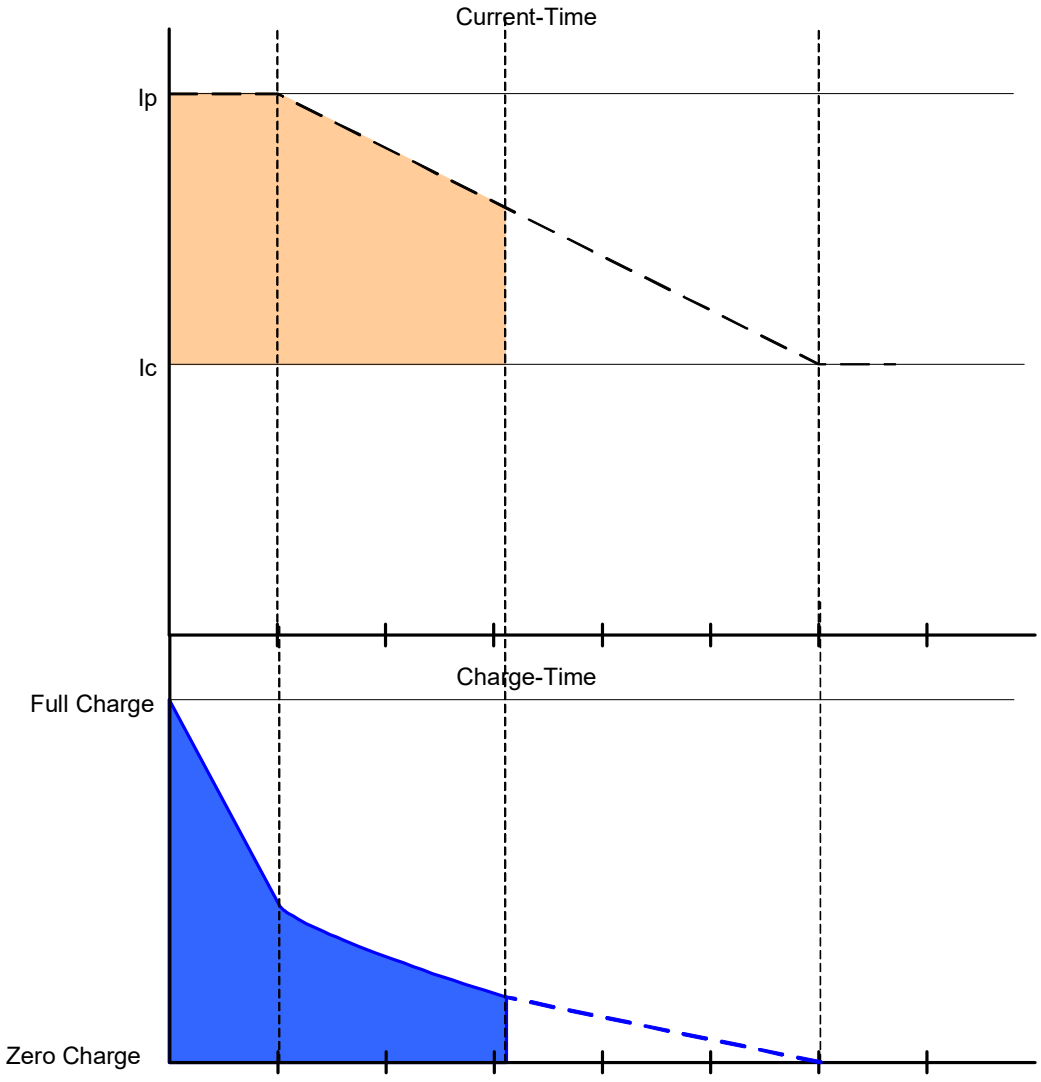


Note that current must be commanded below the specified continuous value to start recovering from a foldback condition.

A.2.4 Charge-Based Peak Current Limiting

The charge is full to begin with. When a current greater than the continuous current limit is commanded, the charge begins to decay. The loss of charge is determined by the area under the curve as shown in Figure A.5. The larger the command, the faster the charge will decay. When the charge decreases to zero, the available current will be limited to the continuous current limit until the charge is restored.

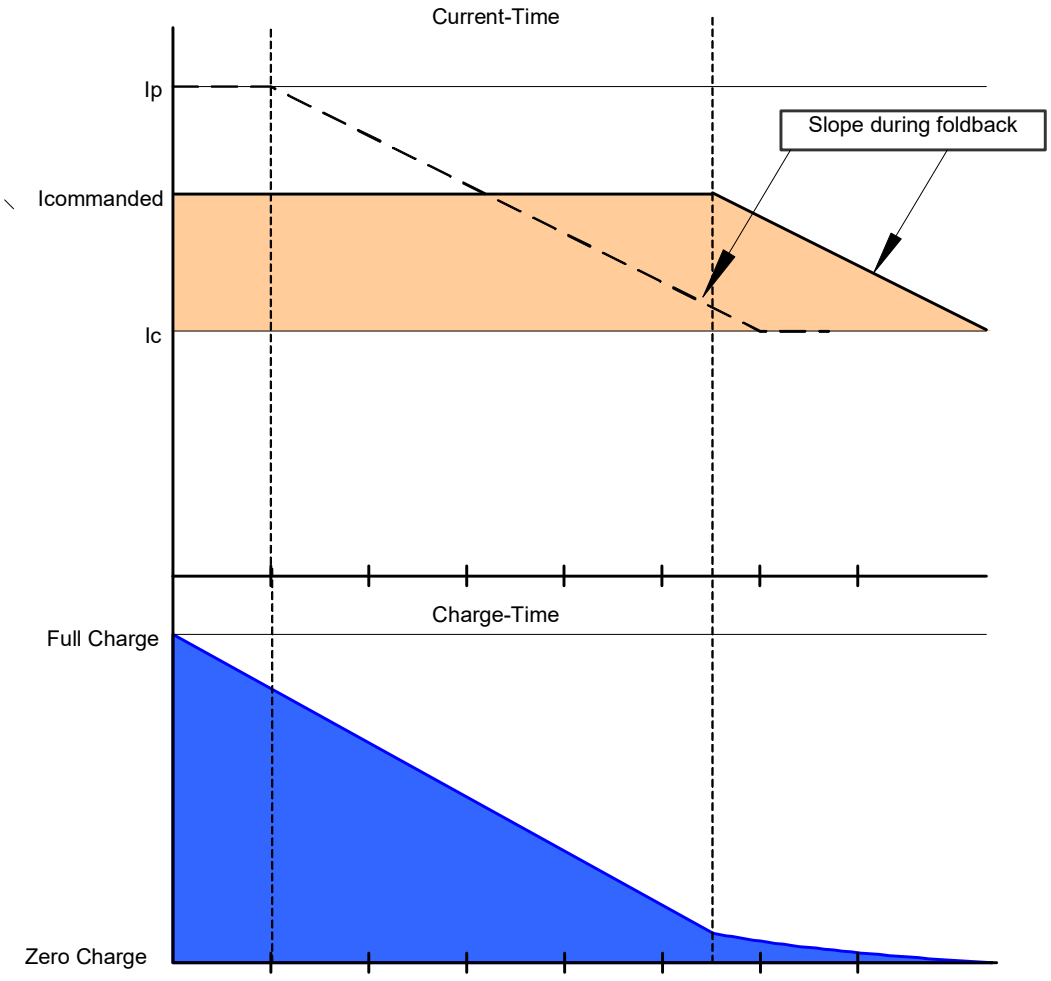
FIGURE A.5 Charge-Based Peak Current Limiting



A.2.5 Charge-Based Non-Peak Current Limiting

When the commanded current is between the peak and continuous current limits, the commanded current will be available for a longer period when compared to limiting at peak command. Note that the slope of the line during foldback is the same for both cases.

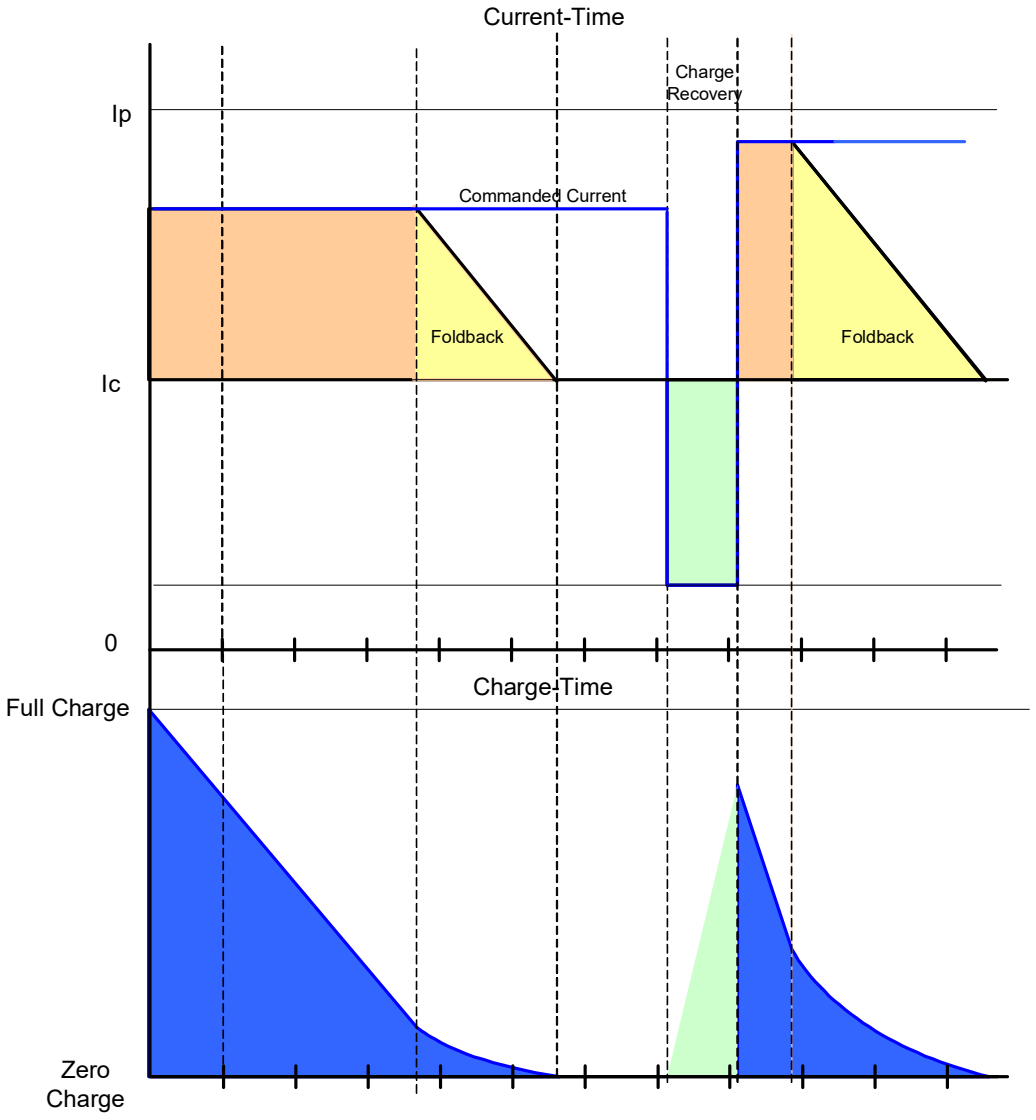
FIGURE A.6 Charge-Based Non-Peak Current Limiting



A.2.6 Charge-Based Current Recovery

After losing some value of charge, the charge may be recovered when the commanded value is dropped less than the continuous current limit. The amount of charge recovered depends on the magnitude of the commanded current and the amount of time in which it is commanded. The amount of charge recovered can be calculated by measuring the area within the curve as shown during the charge recovery phase in Figure A.7.

FIGURE A.7 Charge Recovery



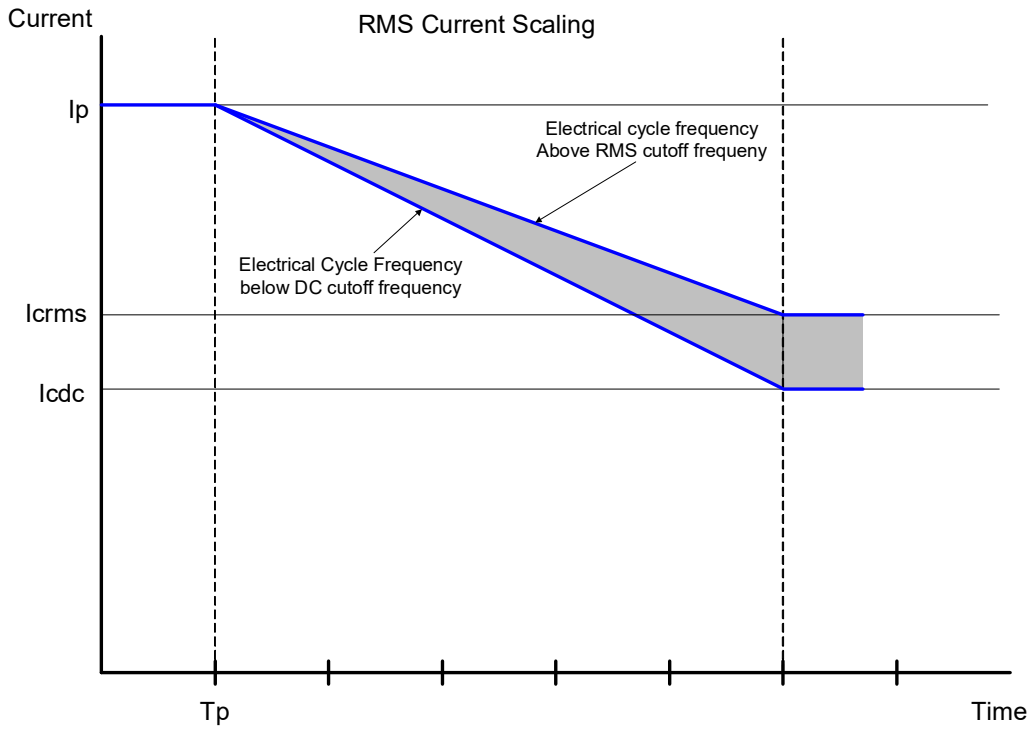
A.2.7 RMS Current Scaling

RMS Current Scaling uses the charge-based algorithm described above. The only difference is the value of the continuous current the drive is capable of outputting. The continuous RMS limit can be used when the motor is moving so that the electrical cycle frequency is greater than the upper frequency assigned to that drive. The upper frequency is typically around 5Hz or 150 RPM for a 4-pole motor. The continuous RMS value is the continuous DC value multiplied by the square root of two.

$$Icrms \equiv \sqrt{2} \cdot Icdc$$

When the electrical cycle frequency drops below the upper frequency, the continuous current drops below the RMS value. When the motor is moving at slow speeds, the continuous current is equal to the DC value of the current.

FIGURE A.8 RMS Current Limiting



Index

ADVANCED Motion Controls® POWERLINK Communication

Reference Manual

MNCMPLRF-02

3805 Calle Tecate • Camarillo, CA 93012-5068
Tel: (805) 389-1935 Fax: (805) 384-2315 www.a-m-c.com