

Allen-Bradley

Smart Motor Manager™ DeviceNet™ Communication Card

Cat. No. 825-MDN

DeviceNet
CONFORMANCE TESTED

User Manual

Rockwell
Automation

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this manual we use notes to make you aware of safety considerations:

ATTENTION

Identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss

Attention statements help you to:

- identify a hazard
- avoid a hazard
- recognize the consequences

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

European Communities (EC) Directive Compliance

If this product has the CE mark it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This product is tested to meet the Council Directive 89/336/EC Electromagnetic Compatibility (EMC) by applying the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2 EMC — Generic Emission Standard, Part 2 — Industrial Environment
- EN 50082-2 EMC — Generic Immunity Standard, Part 2 — Industrial Environment

This product is intended for use in an industrial environment.

Low Voltage Directive

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 - Equipment Requirements and Tests. For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as the Allen-Bradley publication Industrial Automation Wiring and Grounding Guidelines For Noise Immunity, publication 1770-4.1.

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

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DeviceNet Information

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Using This Manual

Manual Objectives

The purpose of this manual is to provide you with the necessary information to apply the Cat. No. 825-MDN DeviceNet™ Communication Card. Described in this manual are methods for installing, configuring, and troubleshooting the Cat. No. 825-MDN DeviceNet Communication Card.

For information on specific features of the Bulletin 825 Smart Motor Manager™, refer to the Bulletin 825 Smart Motor Manager User Manual (Publication 825-UM001A-EN-P).

Important: Read this manual in its entirety before installing, operating, servicing, or initializing the 825-MDN card.

Who Should Use This Manual

This manual is intended for qualified personnel responsible for setting up and servicing these devices. You must have previous experience with, and a basic understanding of: communication terminology, configuration procedures, required equipment, and safety precautions.

To make efficient use of the Communication Card, you must be able to program and operate serial communication devices, as well as have a basic understanding of the parameter settings and functions of the Bulletin 825 Smart Motor Manager.

You should understand DeviceNet network operations, including how slave devices operate on the network and communicate with a DeviceNet master.

Vocabulary

In this manual we refer to the:

Cat. No. 825-MDN DeviceNet Communication Card as “Communication Card” or “825-MDN”.

Bulletin 825 Smart Motor Manager as the “SMM”.

Programmable Logic Controller as the “Programmable Controller” or “PLC”.

Earth Ground as “GND”.

Manual Organization

Chapter	Title	Description
	Preface	Manual objectives, audience, vocabulary, manual organization, safety precautions, DeviceNet compatibility
1	Product Overview	Communication Card features, configuration and diagnostics
2	Installation	Mounting, switch configuration, cabling, and hardware
3	Configuring and Interfacing	Addressing and information transfer
4	Troubleshooting	LCD indications and fault descriptions
5	Specifications	Communications, electrical, environmental, mechanical
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Safety Precautions

ATTENTION



Only personnel familiar with DeviceNet and Bulletin 825 devices and associated machinery should plan or implement the installation, startup, configuration, and subsequent maintenance of the Communication Card. Failure to comply may result in personal injury and/or equipment damage.

ATTENTION



This card contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing, or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Allen-Bradley Publication 8000-4.5.2 Guarding Against Electrostatic Damage or any other applicable ESD protection handbook.

Firmware Revision Compatibility

Firmware Rev. Cat. No. 825-M...	Firmware Rev. Cat. No. 825-MDN
V3.11, V3.14	V8.002, 10.001
V2.15, V2.16, V2.17, V2.18, V2.19, V2.20	V3.005, V4.001, V8.002, 10.001

Product Overview

Chapter Objectives

In this chapter, you will read about:

- The physical layout of the card
- DeviceNet compatibility

Card Description

The Cat. No. 825-MDN DeviceNet Communication Card is an optional interface device designed to provide a direct, digital link between DeviceNet devices and the Bulletin 825 Smart Motor Manager. The card occupies the communication expansion slot in the SMM. Installation instructions are covered in Chapter 2 of this manual.

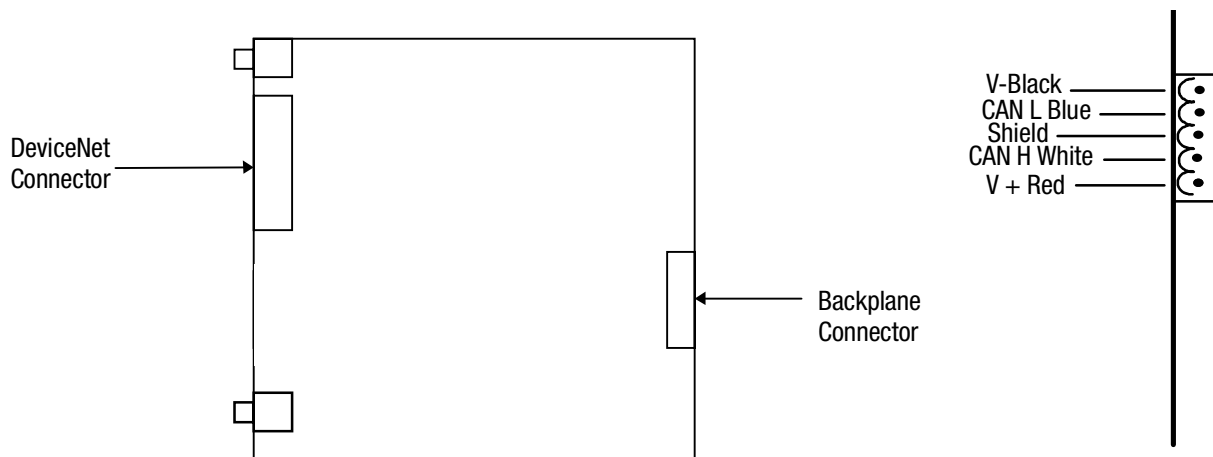


Figure 1.1 Card Front and Edge Views

DeviceNet Compatibility

The Communication Card is intended for use with only Bulletin 825 devices. When properly connected, it communicates via the DeviceNet Protocol. It supports DeviceNet Polled slave messaging and Unconnected Message Manager (UCMM) functions.

Installation

Chapter Objectives

In this chapter you will learn how to:

- Remove the rear cover from the Bulletin 825 SMM
- Install the Communication Card in the Bulletin 825 SMM
- Wire the DeviceNet communication cables

Read this chapter completely before you attempt to install or configure your Communication Card. Check all connections and option selections before you apply power.

ATTENTION

This card contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing, or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Allen-Bradley Publication 8000-4.5.2 Guarding Against Electrostatic Damage or any other applicable ESD protection handbook.

Removing the Rear Cover of the Bulletin 825-SMM

Before installing the Communication Card, the SMM's rear cover must be removed. This is done by removing the 4 screws on the corners of the rear cover as shown in Figure 2.1.

ATTENTION

Ensure that you disconnect line power from the Bulletin 825 SMM before removing the rear cover.

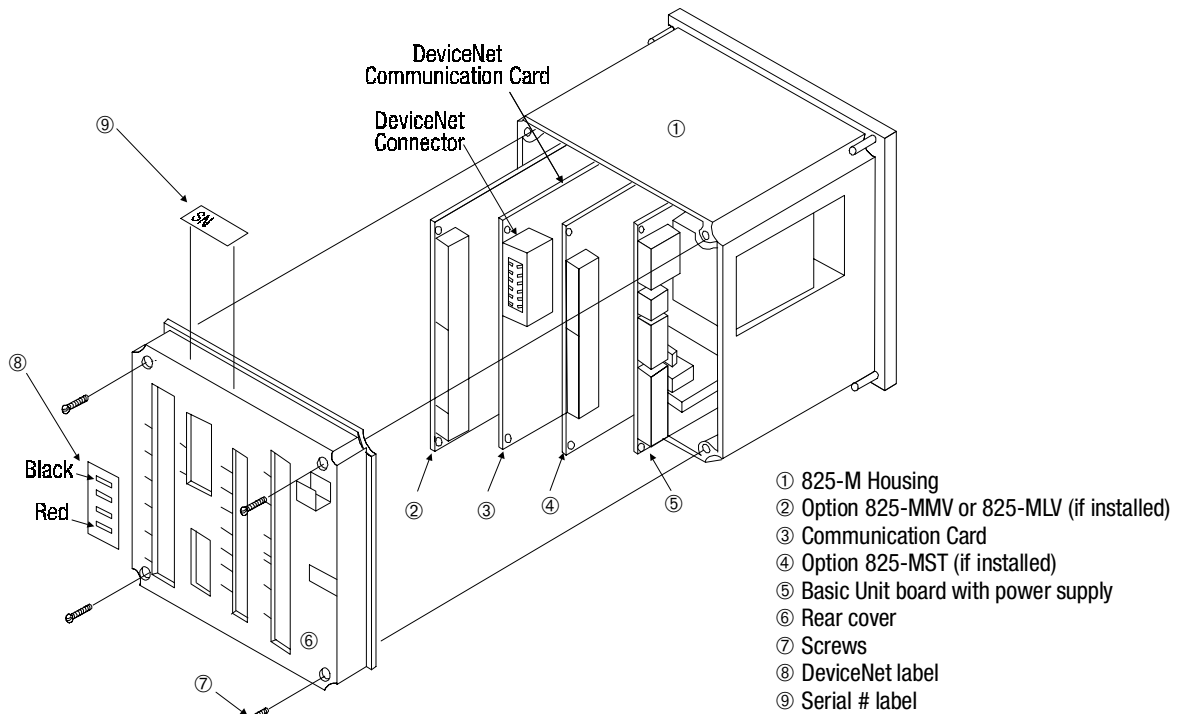


Figure 2.1 Removing and Installing the Communication Card

Installing the Communication Card in the Bulletin 825-SMM

1. Remove the previously installed Communication Card ③ (if necessary) by carefully pulling it out from the unit along the guiding slots of the SMM housing.
2. Align the new Communication Card in the second set of guiding slots from the left with the component side facing the basic unit with power supply ⑤. Carefully and slowly slide the Communication Card into the SMM housing, making sure that backplane connector shown in Figure 2.1 mates with the backplane receptacle pins on the motherboard. Care should be taken not to damage the pins or backplane connector while making sure that the Communication Card seats against the motherboard.

3. Remove the appropriate cutouts from the rear cover to match the connectors supplied. Care should be taken during this process not to damage the rear cover and to keep the breakout area within the cutout outline.
4. Place the rear cover in position over the installed card and reinstall the four retaining screws.
5. Attach the supplied DeviceNet label ⑧ and serial # label ⑨ as shown in Figure 2.1.

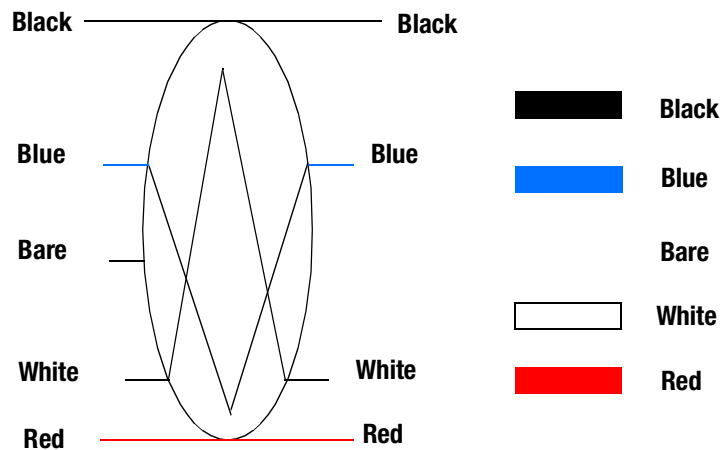


Figure 2.2 DeviceNet Label

Once the Communication Card has been installed and the rear cover attached, the unit is ready to be powered up. If the card has been properly installed, the configuration screens of the LCD for the Communication Card will be available in the SETVALUES menu tree.

DeviceNet Connection

The Communication Card receives power and communicates through the DeviceNet Connector (See Figure 1.1 and Figure 2.1 for the location of this connector). DeviceNet cable wires connect to the plug in the connector terminal block as shown in the following table.

Terminal	Signal	Function	Color
1	V-	Common	Black
2	CAN_L	Signal Low	Blue
3	SHIELD	Shield	Uninsulated
4	CAN_H	Signal High	White
5	V+	Power Supply	Red

Operation

Chapter Objectives

In this chapter you will read about:

- Configuring the Communication Card
- Modes of operation

Cat. No. 825-MDN Configuration

Configuring the Communication Card consists of setting the DeviceNet communication port baud rate and the “station number” (commonly referred to as the DeviceNet MAC ID). This is done using the SMM built-in display and keypad.

DeviceNet Baud Rate

You can access and set the DeviceNet communication port baud rate through the SET VALUES menu tree.

1. Use the keypad to locate the SET VALUES menu, then use the Down Select key to locate the display LCD screen shown in the table below. The LCD will alternate between the Baud Rate code and BAUD RATE.
2. To set the Baud Rate press the SETTINGS key while the LCD is alternating. This will change the alternating to a flashing Baud Rate code. Use the Up or Down Select keys to change the code to the desired Baud Rate as shown in the table below.

Table 3.A Baud Rate Selection

Baud Rate Code	Baud Rate
00	125K
01	250K
02	500K
03	125K
04	125K

3. Press the SETTINGS key to accept the selected Baud Rate.

DeviceNet MAC_ID

1. To access and set the DeviceNet MAC_ID for the Bulletin 825-MDN, use the keypad to locate the SET VALUES menu tree. Use the Down Select key to locate the display LCD screen STATION NUMBER.

IMPORTANT

The Bulletin 825 “STATION NUMBER” is used to set the MAC ID. The LCD will alternate between the actual Station Number and STATION NUMBER.

2. To set the Station Number, press the SETTINGS key while the LCD is alternating. This will change the alternating to a flashing Station Number. Use the Up or Down Select keys to change the Station Number to the desired Station Number.
3. Press the SETTINGS key to accept the Station Number selected. Station Numbers higher than 63 will default to Station Number 63.

ATTENTION



After setting the DeviceNet MAC_ID (Station Number), cycle power to the SMM for initializing the parameters.

Communication Status LCD

Communication status information is provided by the Bulletin 825 LCD shown in Figure 3.1. The information is available through the ACTUAL VALUES menu tree in the form of Communication Status Code and Counter Status. To find the status display, use the keypad to locate the ACTUAL VALUES menu, then use the Down Select key to locate the display LCD screen shown in Figure 3.1. The left two digits display the module communication status. The middle two digits display the previous module communication status. The right three digits count the number of device polled requests received by the Communication Card from the DeviceNet network. The following table summarizes the status codes displayed.

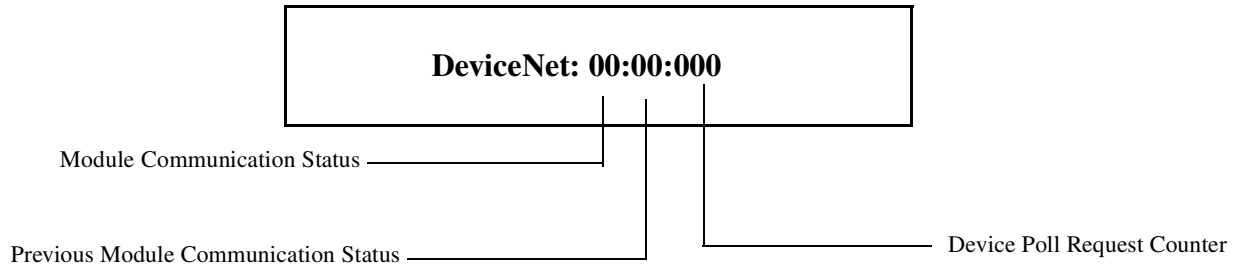


Figure 3.1 DeviceNet Status Display

Status Code ❶	Description
00	No DeviceNet Power or Initializing.
01	Device is on-line with duplicate MAC check complete. Device not allocated to master.
02	Normal operating state. Device is allocated to a master.
03	I/O connection has timed out.
04	Unrecoverable fault.

❶ Contact the nearest Allen-Bradley sales office if a status code other than these listed is returned

Modes of Operation

The Communication Card has 3 modes of operation:

- Powerup Reset mode
- Run Mode
- Error Mode

Powerup Reset Mode

During a powerup or reset, the Communication Card:

- Sets the Module Communication Status field in the DeviceNet Status Display to 00.
- Performs powerup initialization. If initialization fails, the Current Module Communication Status field in the DeviceNet Status Display is set to 04. You must recycle power to recover from a power-up initialization failure. Repeated failures may indicate a faulty Communication Card or a faulty SMM.
- Performs a duplicate node address check to verify that another node is not assigned the same DeviceNet MAC_ID as the Communication Card.

If a duplicate node error occurs, the Module Communication Status field in the DeviceNet Status Display is set to 04. You must cycle power to clear the error.

If the powerup or reset is successful, the Communication Card enters the run mode and the LCD displays 01.

Run Mode

After a successful powerup or reset, the Communication Card enters the run mode and operates as a slave device to a master device when connection is established with the master. The Current Module Communication Status field in the DeviceNet Status Display displays 02. The SMM then:

- accepts messages from other nodes on the DeviceNet network
- monitors DeviceNet incoming power

If an error is detected, the error mode is entered.

Error Mode

In error mode, the Module Communication Status field in the DeviceNet Status Display is set to 03 or 04. The Communication Card monitors the error state for correct operation. Errors are critical or noncritical, and are summarized below

Error Type	Description	LCD Code
Critical (Not Recoverable)	Powerup initialization failure	04
	Duplicate node address detected	
	Incorrect data rate	
Non-Critical (Recoverable)	I/O connection timed out	03

See the troubleshooting chart in Chapter 4 for details on how to recover from an error.

Troubleshooting

Chapter Objectives

The purpose of this chapter is to help you troubleshoot your DeviceNet Communication Card using the DeviceNet Status Display.

ATTENTION

Servicing energized industrial control equipment can be hazardous. Electrical shock, burns, or unintentional actuation of controlled industrial equipment may cause death or serious injury. Follow the safety-related practices of NPFA 70E, Electrical Safety for Employee Workplaces, when working on or near energized equipment. Do not work alone on energized equipment.

ATTENTION

Do not attempt to defeat or override fault circuits. The cause of a fault indication must be determined and corrected before attempting operation. Failure to correct a drive or system malfunction may result in personal injury and/or equipment damage due to uncontrolled machine system operation.

Using the DeviceNet Status Display

The DeviceNet Status Display provides status information on Communication Card operations. The troubleshooting chart below shows how to use the DeviceNet Status Display to detect and correct common operation problems.

Status Code	What it Means:	What to do:
00	The Communication card is not receiving power from the network.	Check DeviceNet power and cable connections and the power connection on the DeviceNet terminal block.
01	Device is on-line but not allocated to a master.	Check DeviceNet master for correct Communication Card configuration information (node address, input bytes, output bytes).
02	Normal operating state and device is allocated to a master.	No action required.
03	I/O connection timed out.	Reset device and/or DeviceNet master device.
04	Diagnostics failed on powerup/reset.	Internal fault. Cycle power to the drive and network. If the fault still exists, return the Communication Card for repair.
	Duplicate DeviceNet node address (Two nodes cannot have the same address).	Use the SET VALUES menu to locate the STATION NUMBER and change to a valid unused address and reset by cycling device power.
	Invalid data rate.	Use the SET VALUES menu to locate the BAUD RATE to the network data rate and reset by cycling device power.

IMPORTANT

If the DeviceNet Status Display does not appear on the LCD, check for proper installation of the Communication Card in the SMM after removing power

IMPORTANT

Contact the nearest Allen-Bradley sales office if a status code other than those listed is returned.

Specifications

Electrical (DeviceNet)	Supply Voltage Input Current Power Consumption	11...25V DC 70 mA max. 1.75 W max.
Environmental	Ambient Temperature -Operating -Storage -Transport Relative Humidity	-5...+60° C (23...140° F) -40...+60° C (-40...+140° F) -40...+85° C (-40...+185° F) 0...95% non-condensing
Communication	DeviceNet -Baud Rates -Distance Max.	125, 250, 500 kbps 500 m (1640 ft) @ 125 kbps 200 m (656 ft) @ 250 kbps 100 m (328 ft) @ 500 kbps
Mechanical	Dimensions -inches -millimeters	5.128" x 4.252" 130 mm x 108 mm

DeviceNet Information

The Communication Card supports Explicit Messages and Polled I/O Messages of the predefined master/slave connection set. It also supports the Explicit Unconnected Message Manager (UCMM).

This Appendix defines the DeviceNet message types, class services and objects that are supported by the Communication Card.

DeviceNet Message Types

The Communication Card supports the following message types.

CAN Identifier Field	Group 1 Message Type
0000ssssss...01001ssssss	Group 1 Explicit Messages
01100ssssss	Group 1 Explicit Response Messages

ssssss = Source MAC_ID

CAN Identifier Field	Group 2 Message Type
10xxxxx111	Duplicate MAC ID Check Messages
10xxxxx101	Master I/O Poll Command Messages
10xxxxx100	Master Explicit Request Messages
10xxxxx011	Slave Explicit Response Messages
01111xxxxx	Slave I/O Poll Response Messages

xxxxxx = Communication Card Node Address

CAN Identifier Field	Group 3 Message Type
11000ssssss...11010ssssss	Group 3 Explicit Messages
11011ssssss...11100ssssss	Group 3 Explicit Response Messages
11101ssssss	Unconnected Explicit Response Messages
11110ssssss	Unconnected Explicit Request Messages

ssssss = Source MAC_ID

Object Classes

The Communication Card supports the following object classes.

Class	Object
0x01	Identity
0x03	DeviceNet
0x04	Assembly
0x05	Connection
0x0F	Parameter
0x10	Parameter Group
0x29	Control Supervisor
0x2C	Motor Overload
0xB4	DN Interface

Identity Object

Class Code 0x01

Class Attributes

Attribute ID	Access Rule	Name (param #)	Data Type	Value
1	Get	Revision	UINT	1

Number of Instances: 1

Instance Attributes

Attribute ID	Access Rule	Name (param #)	Data Type	Value
1	Get	Vendor	UINT	1
2	Get	Device Type	UINT	3
3	Get	Product Code	UINT	❶
4	Get	Revision Major Revision Minor Revision	Structure of: USINT USINT	❶
5	Get	Status	WORD	0=not owned 1=owned
6	Get	Serial Number	UDINT	unique number
7	Get	Product Name String Length ASCII String	Structure of: USINT STRING	13 "Bul 825/CET-4"

❶ The value will vary according to the firmware release.

Common Services

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	Yes	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single
0x05	No	Yes	Reset

Message Router Object**Class Code 0x02***Class Attributes*

Attribute ID	Access Rule	Name (param #)	Data Type	Value
1	Get	Revision	UINT	1

Number of Instances: 1

Instance Attributes

Attribute ID	Access Rule	Name (param #)	Data Type	Value
1	Get	Object_list	STRUCT of UINT ARRAY of UINT	10 1,2,3,4,5,15,16, 41, 44,180
2	Get	Number Available	UINT	5
3	Get	Number Active	UINT	Number of active connections
4	Get	Active Connections	ARRAY of UINT	Array of active system connection IDs

Common Services

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	Yes	Yes	Get_Attribute_Single

DeviceNet Object**Class Code 0x03***Class Attributes*

Attribute ID	Access Rule	Name (param #)	Data Type	Value
1	Get	Revision	UINT	2

Number of Instances: 1

Instance Attributes

Attribute ID	Access Rule	Name (param #)	Data Type	Value
1	Get	Node Address (#151)	USINT	0..63
2	Get	Baud Rate (#152)	USINT	0=125K 1=250K 2=500K
3	Get	BOI	BOOL	0=Not Set 1=Set
5	Get	Allocation Info Allocation Choice Master Node Addr	Structure of: BYTE USINT	Allocation_byte ^❶ 0..63 = address 255 = unallocated

- ❶ Allocation_byte
 Bit 0 Explicit Messaging
 Bit 1 Polled I/O

Common Services

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	Yes	Yes	Get_Attribute_Single
0x4B	No	Yes	Allocate_Master/Slave _Connection_Set
0x4C	No	Yes	Release_Master/Slave _Connection_Set

Assembly Objects**Class Code 0x04***Class Attributes: None Supported**Format of I/O Assembly Data Attribute***Instance 2: Basic Overload (Output)**

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0						Reset all faults		

Instance 5: Extended Motor Starter (Output)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0						Reset all faults	Run 2 (aux 3)	Run 1 (aux 2)

Instance 50: Basic Overload (Input)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0								Faulted

Instance 51: Basic Motor Starter (Input)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0							Warning	Faulted

Instance100 Data (User Configurable Input Assembly)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Parameter Value (Low byte) pointed to by 0X05-2-102.							
1	Parameter Value (High byte) pointed to by 0X05-2-102.							
2	Parameter Value (Low byte) pointed to by 0X05-2-103.							
3	Parameter Value (High byte) pointed to by 0X05-2-103.							
4	Parameter Value (Low byte) pointed to by 0X05-2-104.							
5	Parameter Value (High byte) pointed to by 0X05-2-104.							
6	Parameter Value (Low byte) pointed to by 0X05-2-105.							
7	Parameter Value (High byte) pointed to by 0X05-2-105.							

Instance 101: Average Current Overload (Input)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Warning	Faulted
1	Reserved							
2	Average 3Ø Current (Low byte)							
3	Average 3Ø Current (High byte)							

Instance 102: Phase Current Overload (Input)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Warning	Faulted
1	Reserved							
2	Current Phase L1 (low byte)							
3	Current Phase L1 (high byte)							
4	Current Phase L2 (low byte)							
5	Current Phase L2 (high byte)							
6	Current Phase L3 (low byte)							
7	Current Phase L3 (high byte)							

Instance 103: Current Overload (Input)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Warning	Faulted
1	% Thermal Capacity Used, TCU							
2	Average 3Ø Current (Low byte)							
3	Average 3Ø Current (High byte)							
4	% Asymmetry							

Instance104 Data Format (Vendor Specific Input Assembly)

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Warning	Faulted
1	% Thermal Capacity Used, TCU							
2	Average 3Ø Current (Low byte)							
3	Average 3Ø Current (High byte)							
4	Asymmetry							
5	Max value of all temperature sensors							
6	Earth Current (Low byte)							
7	Earth Current (High byte)							

The following table indicates the I/O Assembly Data Attribute mapping for Output Assemblies.

Data Name	Class		Instance Number	Attribute	
	Name	Number		Name	Number
Faulted	Control Supervisor	29 _{hex}	1	Faulted	10
Warning	Control Supervisor	29 _{hex}	1	Warning	11
Reset Fault	Control Supervisor	29 _{hex}	1	ResetFault	12
Average 3Ø Current	Overload	2C _{hex}	1	AvgCurrent	5
Current L1	Overload	2C _{hex}	1	CurrentL1	8
Current L2	Overload	2C _{hex}	1	CurrentL2	9
Current L3	Overload	2C _{hex}	1	CurrentL3	10
% Thermal Capacity Used	Overload	2C _{hex}	1	% Thermal	7
Earth Current	Overload	2C _{hex}	1	Ground Current	11
Asymmetry	Overload	2C _{hex}	1	% PhImbal	6
Max Value of all Temperature Sensors	Overload	64 _{hex}	1	Pt100max	107

Common Services

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	No	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single

Connection Object**Class Code 0x05***Class Attributes*

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Revision	UINT	1

Number of Instances: 5

Instance 1 Attributes (Predefined Slave Explicit Message)

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	State	USINT	0=nonexistant 1=configuring 3=established 4=timed out
2	Get	Instance Type	USINT	0=Explicit Message
3	Get	Transport Class Trigger	USINT	0x83 - Server, Transport Class 3
4	Get	Produced Connection ID	UINT	10xxxxxx011 xxxxxx=node address
5	Get	Consumed Connection ID	UINT	10xxxxxx100 xxxxxx=node address
6	Get	Initial Comm Characteristics	USINT	0x01
7	Get	Produced Connection Size	UINT	0xFF
8	Get	Consumed Connection Size	UINT	0xFF
9	Get/Set	Expected Packet Rate	UINT	Set by Master (2500)
12	Get	Watchdog Action	USINT	01 = auto delete
13	Get	Produced Connection Path Length	UINT	# of bytes in produced connection path (00)
14	Get	Produced Connection Path		Empty
15	Get	Consumed Connection Path Length	UINT	# of bytes in consumed connection path (00)
16	Get	Consumed Connection Path		Empty

Instance 2 Attributes (Predefined Slave Polled I/O Message)

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	State	USINT	0=nonexistent 1=configuring 3=established 4=timed out
2	Get	Instance Type	USINT	1= Poll Message
3	Get	Transport Class Trigger	USINT	0x82 - Server, Transport Class 2
4	Get	Produced Connection ID	UINT	10xxxxx100 xxxxx=node address
5	Get	Consumed Connection ID	UINT	10xxxxx101 xxxxx=node address
6	Get	Initial Comm Characteristics	USINT	0x21
7	Get	Produced Connection Size	UINT	0...8 Size of assembly instance selected
8	Get	Consumed Connection Size	UINT	0...1 Size of assembly instance selected
9	Get/Set	Expected Packet Rate	UINT	Set by Master (00)
12	Get/Set	Watchdog Action	USINT	0=transition to timed out 1=auto delete 2=auto reset
13	Get	Produced Connection Path Length	UINT	0...6 depending on path type
14	Get/Set	Produced Connection Path		Set by Master during configuration
15	Get	Consumed Connection Path Length	UINT	0...6 depending on path type
16	Get/Set	Consumed Connection Path		Set by Master during configuration

Instance 3 Attributes (Group 1 Message Connection)

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	State	USINT	0=nonexistent 1=configuring 3=established 4=timed out
2	Get	Instance Type	USINT	0=Explicit Message
3	Get	Transport Class Trigger	USINT	0x83 - Server, Transport Class 3
4	Get	Produced Connection ID	UINT	0????xxxxx xxxxxx=source MAC ID
5	Get	Consumed Connection ID	UINT	0????xxxxx xxxxxx=source MAC ID
6	Get	Initial Comm Characteristics	USINT	0x21
7	Get	Produced Connection Size	UINT	0xFF
8	Get	Consumed Connection Size	UINT	0xFF
9	Get/Set	Expected Packet Rate	UINT	Set by Master (2500)
12	Get	Watchdog Action	USINT	01
13	Get	Produced Connection Path Length	UINT	# of bytes in produced connection path (00)
14	Get	Produced Connection Path		Empty
15	Get	Consumed Connection Path Length	UINT	# of bytes in consumed connection path (00)
16	Get	Consumed Connection Path		Empty

Instance 4 and 5 Attributes (Group 3 Message Connections)

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	State	USINT	0=nonexistant 1=configuring 3=established 4=timed out
2	Get	Instance Type	USINT	0=Explicit Message
3	Get	Transport Class Trigger	USINT	0x83 - Server, Transport Class 3
4	Get	Produced Connection ID	UINT	11???xxxxx xxxxx=source MAC ID
5	Get	Consumed Connection ID	UINT	11???xxxxx xxxxx=source MAC ID
6	Get	Initial Comm Characteristics	USINT	0x21
7	Get	Produced Connection Size	UINT	0xFF
8	Get	Consumed Connection Size	UINT	0xFF
9	Get/Set	Expected Packet Rate	UINT	Set by Master (2500)
12	Get	Watchdog Action	USINT	01
13	Get	Produced Connection Path Length	UINT	# of bytes in produced connection path (00)
14	Get	Produced Connection Path		Empty
15	Get	Consumed Connection Path Length	UINT	# of bytes in consumed connection path (00)
16	Get	Consumed Connection Path		Empty

Common Services

Service Code	Implemented for:		Service Name
	Class	Instance	
0x05	No	Yes	Reset
0x0E	Yes	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single
0x09	Yes	Yes	Delete
0x0D	No	Yes	Apply_Attributes

Parameter Object

Class Code 0x0F

Class Attributes:

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Revision	UINT	1
2	Get	Max Instances	UINT	223 for SMM rev < 3.1 245 for SMM rev ≥ 3.1
8	Get	Parameter Class Descriptor	WORD	03
9	Get	Configuration Assembly Instance	UINT	0
10	Set/Get	Native Language	USINT	0 ^❶

❶ Adjusted to the language installed.

Instance Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get/Set only get is supported for monitoring parameters	Parameter Value	See Data Type and Data Size Attributes	Value Retrieved from 825/CET4
2	Get	Link Path Size	USINT	06
3	Get	Link Path Segment type/port Segment address	BYTE path data dependent	Path to specific device object attribute if applicable
4	Get	Descriptor	WORD	Parameter Dependent: 000000000ab0cd0 a-Monitoring Parameter b-Read Only Parameter c-Scaled Parameter d-Enumerated String
5	Get	Data Type	USINT	Parameter Dependent
6	Get	Data Size	USINT	Parameter Dependent
7	Get	Parameter Name	SHORT_STRING	Parameter Dependent
8	Get	Units String	SHORT_STRING	Parameter Dependent
9	Get	Help String	SHORT_STRING	Help String
10	Get	Minimum Value	data type	Parameter Dependent
11	Get	Maximum Value	data type	Parameter Dependent
12	Get	Default Value	data type	Parameter Dependent
13	Get	Scaling Multiplier	UINT	01
14	Get	Scaling Divisor	UINT	01
15	Get	Scaling Base	UINT	01
16	Get	Scaling Offset	INT can be negative	00
17	Get	Multiplier Link	UINT	0
18	Get	Divisor Link	UINT	0
19	Get	Base Link	UINT	0
20	Get	Offset Link	UINT	0
21	Get	Decimal Precision	USINT	Parameter Dependent

Parameters Supported

Parameter No. Ⓜ=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
1 Ⓜ	I Motor	0x2C-1-5	AvgPhaseCurrent in % of FLC - Average of 3 Currents	INT	% FLC	0...1200	0
2 Ⓜ	Th Utilize	0x2C-1-7	% Thermal Capacity Utilization	USINT	%	0...100	0
3 Ⓜ	I Motor L1	0x2C-1-8	PhaseCurrentL1 in % of FLC - Actual motor phase current L1	INT	% FLC	0...1200	0
4 Ⓜ	I Motor L2	0x2C-1-9	PhaseCurrentL2 in % of FLC - Actual motor phase current L2	INT	% FLC	0...1200	0
5 Ⓜ	I Motor L3	0x2C-1-10	PhaseCurrentL3 in % of FLC - Actual motor phase current L3	INT	% FLC	0...1200	0
6 Ⓜ	Time to Trip	0x2C-1-102	Time to trip	UINT	seconds	0...9999	9999
7 Ⓜ	Asymmetry	0x2C-1-6	% Phase Imbalance	USINT	%	0...100	0
8 Ⓜ	I Earth-H	0x2C-1-103	Ground fault current via Holmgreen Method in % of actual motor current	USINT	%	0...100	0
9 Ⓜ	I Earth-C	0x2C-1-11	Ground fault current via core balance transformer	UINT	mA	0...500	0
10 Ⓜ	T Ambient	0x0F-10-1	Platinum RTD Ambient Temp. Sensor	USINT	°C	0...255❶	0
11 Ⓜ	PT100 #1	0x0F-11-1	Platinum RTD Temp Sensor #1	USINT	°C	0...255❶	0
12 Ⓜ	PT100 #2	0x0F-12-1	Platinum RTD Temp Sensor #2	USINT	°C	0...255❶	0
13 Ⓜ	PT100 #3	0x0F-13-1	Platinum RTD Temp Sensor #3	USINT	°C	0...255❶	0
14 Ⓜ	PT100 #4	0x0F-14-1	Platinum RTD Temp Sensor #4	USINT	°C	0...255❶	0
15 Ⓜ	PT100 #5	0x0F-15-1	Platinum RTD Temp Sensor #5	USINT	°C	0...255❶	0
16 Ⓜ	PT100 #6	0x0F-16-1	Platinum RTD Temp Sensor #6	USINT	°C	0...255❶	0
17 Ⓜ	PT100 max	0x0F-17-1	Platinum RTD Max Temp of all Sensors	USINT	°C	0...255❶	0
18 Ⓜ	Actual Trip	0x2C-1-104	Actual Trip Cause - Bit-string	UINT		0...0xFFFF	0
19 Ⓜ	Actual Warning	0x2C-1-105	Actual Warning Cause - Bit-string	UINT		0...0xFFFF	0
20 Ⓜ❷	Control Inputs	0x29-1-137	State of Control Inputs #1, #2	UINT		0...0x101	0
21❸	Full Load Curr	0x2C-1-3	TripFLCSet - Overload FLC	UDINT	0.01 A	50...200,000	2000
21❹	Full Load Curr	0x2C-1-3	TripFLCSet - Overload FLC	UINT	0.01 A	50...63,000	2000
22	Locked Rot Curr	0x2C-1-106	Locked Rotor to FLC Current Ratio (2.5...12.0 times FLC)	USINT	times 0.1FLC	25...120	60
23	Locked Rot Time	0x2C-1-165	Maximum Locked Rotor Time	UINT	seconds	1...600	10
24	Thermal Trip Rel	0x29-1-100	Thermal Trip Relay Assignment, 0=main 7=None	USINT		0, 7	0
25	Thermal Warning	0x2C-1-107	Thermal Warning, 0=OFF 1=ON	BOOL		0...1	0
26	Th Warning Level	0x2C-1-108	Thermal Warning Level	USINT	%	50...99	75

❶ Values 254 and 255 indicate an error (PT100 short circuit or open circuit).

❷ Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination only.

❸ Available with SMM version 2.xx (and lower).

Parameters Supported, Continued

Parameter No.	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
27	Th Warning Relay	0x29-1-101	Thermal Warning Relay Assignment	USINT		1...7	1
28	Asymmetry Trip	0x2C-1-109	Asymmetry Protection, 0=OFF 1=ON	BOOL		0...1	1
29	As Trip Level	0x2C-1-110	Asymmetry Trip Level	USINT	%	5...80	35
30	As Trip Delay	0x2C-1-111	Asymmetry Trip Delay Time	USINT	0.1 s	10...250	25
31	As Trip Relay	0x29-1-102	Asymmetry Trip Relay Assignment	USINT		0...7	0
32	As Warning	0x2C-1-112	Asymmetry Warning, 0=OFF 1=ON	BOOL		0...1	0
33	As Warning Level	0x2C-1-113	Asymmetry Warning Level	USINT	%	5...80	20
34	As Warning Relay	0x29-1-103	Asymmetry Warning Relay Assignment	USINT		1...7	1
35	Overcurrent Trip	0x2C-1-114	Overload/Locked Rotor Protection 0=OFF 1=ON	BOOL		0...1	1
36	OC Trip Level	0x2C-1-115	Overload/Locked Rotor Trip Level (1.0...6.0 times FLC)	USINT	times 0.1FLC	10...60	24
37	OC Trip Delay	0x2C-1-116	Overload/Locked Rotor Trip Delay Time (0.1...5.0 sec)	USINT	0.1 s	1...50	5
38	OC Trip Relay	0x29-1-104	Overload/Locked Rotor Relay Assignment	USINT		0...7	0
39	OC Warning	0x2C-1-117	Overload/Locked Rotor Warning, 0 = OFF 1=ON	BOOL		0...1	0
40	OC Warning Level	0x2C-1-118	Overload/Locked Rotor Warning Level (1.0...6.0 *FLC)	USINT	times 0.1FLC	10...60	20
41	OC Warning Relay	0x29-1-105	Overload/Locked Rotor Warning Relay Assignment	USINT		1...7	1
42	Earth Fault Prot	0x2C-1-119	Earth Fault Protection, 0=OFF 1=ON	BOOL		0...1	1
43	EF Holmg Trip	0x2C-1-120	Earth Fault Protection (Holmgreen), 0=OFF 1=ON	BOOL		0...1	1
44	EF H Trip Level	0x2C-1-121	Earth Fault Protection (Holmgreen), Trip Level	USINT	%Current	10...100	50
45	EF H Trip Delay	0x2C-1-122	Earth Fault Protection (Holmgreen), Trip Delay Time	USINT	0.1 s	1...50	5
46	EF H Trip Relay	0x29-1-106	Earth Fault Protection (Holmgreen), Relay Assignment	USINT		0...7	0
47	EF Core Prot	0x2C-1-123	Earth Fault (core balance) Protection, 0=OFF 1=ON	BOOL		0...1	0
48	EF C Trip Level	0x2C-1-124	Earth Fault (core balance) Trip Level	UINT	mA	5...50,000	1000
49	EF C Trip Delay	0x2C-1-125	Earth Fault (core balance) Trip Delay Time (0.1...5.0 s)	USINT	0.1 s	1...50	5
50	EF C Trip Relay	0x29-1-107	Earth Fault (core balance) Trip Relay Assignment	USINT		0 to 7	0

Parameters Supported, Continued

Parameter No. ®=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
51	EF C Warning	0x2C-1-126	Earth Fault (core balance) Trip, Warning, 0=OFF 1=ON	BOOL		0...1	0
52	EF C Warn Level	0x2C-1-127	Earth Fault (core balance) Warning, Level	UINT	mA	5...50,000	500
53	EF C Warn Relay	0x29-1-108	Earth Fault (core balance) Warning, Relay Assignment	USINT		1...7	1
54	Short Circ Trip	0x2C-1-128	Short Circuit Protection, 0=OFF 1=ON	BOOL		0...1	0
55	SC Trip Level	0x2C-1-129	Short Circuit Trip Level (4.0...12.0 times FLC)	USINT	times 0.1FLC	40...120	100
56	SC Trip Delay	0x2C-1-130	Short Circuit Trip Delay Time	USINT	10 ms	2...99	5
57	SC Trip Relay	0x29-1-109	Short Circuit Relay Assignment	USINT		2, 7	2
58	Underload Trip	0x2C-1-131	Underload Protection, 0=OFF 1=ON	BOOL		0...1	0
59	UL Trip Level	0x2C-1-132	Underload Trip Level	USINT	% FLC	25...100	75
60	UL Trip Delay	0x2C-1-133	Underload Trip Delay Time	USINT	seconds	1...60	10
61	UL Trip Relay	0x29-1-110	Underload Trip Relay Assignment	USINT		0...7	0
62	UL Start Delay	0x2C-1-134	Underload Trip Start Delay	USINT	seconds	0...240	0
63	UL Warning	0x2C-1-135	Underload Warning, 0=OFF 1=ON	BOOL		0...1	0
64	UL Warning Relay	0x29-1-111	Underload Warning, Relay Assignment	USINT		1...7	1
65	Star Delta	0x29-1-112	Star-Delta Starting, 0=OFF 1=ON	BOOL		0...1	0
66 ®	Star Relay	0x29-1-113	Star-Delta Starting, Star Relay	USINT		5	5
67 ®	Delta Relay	0x29-1-114	Star-Delta Starting, Delta Relay	USINT		6	6
68	Set Star Time	0x29-1-115	Star-Delta Starting, Max. Star-Time, 0=OFF 1=ON	BOOL		0...1	0
69	Max. Star Time	0x29-1-116	Star-Delta Starting, Max. Star-Time,	USINT	s	1...240	10
70	Warm Starting	0x2C-1-136	Warm Start 0=OFF 1=ON	BOOL		0...1	0
71	Warm Start Every	0x2C-1-137	Warm Start Allowed Every ___ Minutes	USINT	minutes	4...60	60
72	Warm Trip Time	0x2C-1-138	Warm Start Trip Time, as % of Tripping Time From Cold	USINT	%	50...100	70
73	Start Inhibit	0x2C-1-139	Limiting the Number of Starts/Hour, 0=OFF 1=ON	BOOL		0...1	0
74	Max Starts/Hour	0x2C-1-140	Maximum number of Starts/Hour	USINT	Starts/hr	1...10	2
75	Start Inhib Rel	0x29-1-117	Maximum Starts/Hour, Relay Assignment	USINT		0...7	0
76	Start Control	0x2C-1-141	Monitoring Starting Time, 0=OFF 1=ON	BOOL		0...1	0

Parameters Supported, Continued

Parameter No. ®=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
77	Max. Start Time	0x2C-1-142	Maximum Starting Time	USINT	seconds	1...240	10
78	Starttime Exceed	0x29-1-118	Starting Time Exceeded, Relay Assignment	USINT		0...7	0
79	Rel-con Mn/Wrn	0x29-1-119	Main / Warning Relay Connection. Bit-string 0=Non-Fail-Safe 1=Fail Safe	WORD		0...195	128
80	Th Trip Reset	0x29-1-143	Thermal Trip Reset, 0=Manual 1=Automatic	BOOL		0...1	0
81	Th Reset Level	0x2C-1-144	Thermal Trip Reset at... % of Thermal Utilization	USINT	%	10...10 0	50
82	Cool-Const Ratio	0x2C-1-145	Cooling Constant Ratio, Motor OFF / Motor ON (1.0...5.0)	USINT	0.1	10...50	25
83	PTC Trip	0x0F-83-1	Thermal Protection PTC, 0=OFF 1=ON	BOOL		0...1	0
84	PTC Trip Relay	0x29-1-120	PTC Trip, Relay Assignment	USINT		0...7	0
85	PTC Trip Reset	0x0F-85-1	PTC Trip Reset, 0=Manual, 1=Automatic	BOOL		0...1	0
86	Control Input #1	0x29-1-121	Control Input #1, 0=OFF 1=ON	BOOL		0...1	0
87	Delay Aux Rel #2	0x29-1-122	Time Delay of Auxiliary Relay #2, 0=OFF 1=ON	BOOL		0...1	0
88	On Delay Aux #2	0x29-1-123	On Delay of Auxiliary Relay #2	USINT	seconds	0...240	1
89	Off Delay Aux #2	0x29-1-124	Off Delay of Auxiliary Relay #2	USINT	seconds	0...240	2
90	Speed Switch	0x29-1-125	Speed Switch / Stop Indicator, 0=OFF 1=ON	BOOL		0...1	0
91 ®	Sp Switch Relay	0x29-1-126	Speed Switch / Stop Indicator, Trip Relay Assignment (is the same as no. 38)	USINT		0...7	0
92	Disable Prot #1	0x29-1-127	Disable Protective Functions, 0=OFF 1=ON	BOOL		0...1	0
93	As Prot #1	0x2C-1-146	Asymmetry Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
94	OC Prot #1	0x2C-1-147	Overcurrent / Locked-Rotor Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
95	EF Prot #1	0x2C-1-148	Earth Fault Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
96	SC Prot #1	0x2C-1-149	Short Circuit Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
97	UL Prot #1	0x2C-1-150	Underload Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
98	St Inhib Prot #1	0x2C-1-151	Limiting the Starts Per Hour, 0=Not Disable 1=Disable	BOOL		0...1	0
99	PTC Prot #1	0x0F-99-1	PTC Protection, 0=Not Disable 1=Disable	BOOL		0...1	0

Parameters Supported, Continued

Parameter No. Ⓜ=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
100	PT100 Prot #1	0x0F-100-1	PT100 Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
101	Control Input #2	0x29-1-128	Control Input #2, 0=OFF 1=ON	BOOL		0...1	0
102	Delay Aux Rel #3	0x29-1-129	Time Delay of Auxiliary Relay #3, 0=OFF 1=ON	BOOL		0...1	0
103	On Delay Aux #3	0x29-1-130	ON Delay of Auxiliary Relay #3	USINT	seconds	0...240	1
104	Off Delay Aux #3	0x29-1-131	OFF Delay of Auxiliary Relay #3	USINT	seconds	0...240	2
105	2nd FLC Enable	0x2C-1-152	2nd Rated Motor Current, 0=OFF 1=ON	BOOL		0...1	0
106 ①	2nd FLC	0x2C-1-153	2nd Rated Motor Current, Value (0.50...2000.00 A)	UDINT	0.01 A	50...200,000	2000
106 ②	2nd FLC	0x2C-1-153	2nd Rated Motor Current, Value (0.50...630.00 A)	UINT	0.01 A	50...63,000	2000
107	Disable Prot #2	0x29-1-132	Disable Protective Functions, 0=OFF 1=ON	BOOL		0...1	0
108	As Prot #2	0x2C-1-154	Asymmetry Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
109	OC Prot #2	0x2C-1-155	Overcurrent / Locked-Rotor Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
110	EF Prot #2	0x2C-1-156	Earth Fault Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
111	SC Prot #2	0x2C-1-157	Short Circuit Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
112	UL Prot #2	0x2C-1-158	Underload Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
113	St Inhib Prot #2	0x2C-1-159	Limiting the Starts Per Hour, 0=Not Disable 1=Disable	BOOL		0...1	0
114	PTC Prot #2	0x0F-114-1	PTC Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
115	PT100 Prot #2	0x0F-115-1	PT100 Protection, 0=Not Disable 1=Disable	BOOL		0...1	0
116	Phase-Rever Trip	0x2C-1-160	Phase Reversal Trip, 0=OFF 1=ON	BOOL		0...1	0
117	Phase-Rever Rel	0x29-1-133	Phase Reversal Trip Relay Assignment	USINT		0...7	0
118	Phase Loss Trip	0x2C-1-161	Phase Loss Trip, 0=OFF 1=ON	BOOL		0...1	0
119	Phase Loss Rel	0x29-1-134	Phase Loss Trip, Relay Assignment	USINT		0...7	0
120	PT100 Prot	0x0F-120-1	PTC Protection, 0=OFF 1=ON	BOOL		0...1	0
121	PT100 #1 Trip	0x0F-121-1	PT100 #1 Trip, 0=OFF 1=ON	BOOL		0...1	0
122	#1 Trip Temp	0x0F-122-1	PT100 #1 Trip, Temperature	USINT	°C	50...200	50

① Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination.

② Available with SMM version 2.xx (and lower).

Parameters Supported, Continued

Parameter No. ®=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
123	PT100 #2 Trip	0x0F-123-1	PT100 #2 Trip, 0=OFF 1=ON	BOOL		0...1	0
124	#2 Trip Temp	0x0F-124-1	PT100 #2 Trip, Temperature	USINT	°C	50...200	50
125	PT100 #3 Trip	0xB4-1-19	PT100 #3 Trip, 0=OFF 1=ON	BOOL		0...1	0
126	#3 Trip Temp	0x0F-126-1	PT100 #3 Trip, Temperature	USINT	°C	50...200	50
127	PT100 #4 Trip	0x0F-127-1	PT100 #4 Trip, 0=OFF 1=ON	BOOL		0...1	0
128	#4 Trip Temp	0x0F-128-1	PT100 #4 Trip, Temperature	USINT	°C	50...200	50
129	PT100 #5 Trip	0x0F-129-1	PT100 #5 Trip, 0=OFF 1=ON	BOOL		0...1	0
130	#5 Trip Temp	0x0F-130-1	PT100 #5 Trip, Temperature	USINT	°C	50...200	50
131	PT100 #6 Trip	0x0F-131-1	PT100 #6 Trip, 0=OFF 1=ON	BOOL		0...1	0
132	#6 Trip Temp	0x0F-132-1	PT100 #6 Trip, Temperature	USINT	°C	50...200	50
133	PT100 #1-6 Relay	0x29-1-135	PT100 #1...#6 Trip, Relay Assignment	USINT		0...4, 7	0
134	PT100 #1-6 Reset	0x0F-134-1	PT100 #1...#6 Trip Reset, 0=Manual 1=Automatic	BOOL		0...1	0
136	#1 Warning	0x0F-136-1	PT100 #1 Warning, 0=Off 1=On	BOOL		0...1	0
137	#1 Warning Temp	0x0F-137-1	PT100 #1 Warning, temperature	USINT	°C	50...200	50
138	#2 Warning	0x0F-138-1	PT100 #2 Warning, 0=Off 1=On	BOOL		0...1	0
139	#2 Warning Temp	0x0F-139-1	PT100 #2 Warning, temperature	USINT	°C	50...200	50
140	#3 Warning	0x0F-140-1	PT100 #3 Warning, 0=Off 1=On	BOOL		0...1	0
141	#3 Warning Temp	0x0F-141-1	PT100 #3 Warning, temperature	USINT	°C	50...200	50
142	#4 Warning	0x0F-142-1	PT100 #4 Warning, 0=Off 1=On	BOOL		0...1	0
143	#4 Warning Temp	0x0F-143-1	PT100 #4 Warning Temperature	USINT	°C	50...200	50
144	#5 Warning	0x0F-144-1	PT100 #5 Warning, 0=Off 1=On	BOOL		0...1	0
145	#5 Warning Temp	0x0F-145-1	PT100 #5 Warning, temperature	USINT	°C	50...200	50
146	#6 Warning	0x0F-146-1	PT100 #6 Warning, 0=Off 1=On	BOOL		0...1	0
147	#6 Warning Temp	0x0F-147-1	PT100 #6 Warning, temperature	USINT	°C	50...200	50
148	#1-6 Warning Rel	0x29-1-136	PT100 #1-#6 Warning Relay 1=alarm 2=Aux #1 3=Aux #2 4=Aux #3 7=None	USINT		1...4, 7	1
150	T amb in Image	0x0F-150-1	PT100 #7 Include Ambient Temperature in Thermal Image, 0=OFF 1=ON	BOOL		0...1	0
151 ®	Device MAC ID	0x03-1-1	Device MAC ID	USINT		0...63	63
152 ®	Baud Rate	0x03-1-2	Communication Baud Rate 0=125kB 1=250kB 2=500kB	USINT		0...2	0
154	Trip Reset	0x29-1-12	Remote Trip Reset Via Communications 0=No Reset 1=Reset	BOOL		0...1	0

Parameters Supported, Continued

Parameter No. Ⓜ=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
155	Factory Reset	0x0F-155-1	Reset to Factory Settings 0=No Reset 1=Reset	BOOL		0...1	0
156 Ⓜ	Main Time Hrs	0x0F-156-1	Total 825 Running Time, Hours	UINT	Hours	0...65535	0
157 Ⓜ	Main Time Min	0x0F-157-1	Total 825 Running Time, Minutes	UINT	Minutes	0...59	0
158 Ⓜ	Mot Running Hrs	0x0F-158-1	Motor Running Time, Hours	UINT	Hours	0...65535	0
159 Ⓜ	Mot Running Min	0x0F-159-1	Motor Running Time, Minutes	UINT	Minutes	0...59	0
160 Ⓜ	Since Last Start	0x0F-160-1	Time Since Last Start, Hours	UINT	Hours	0...65535	0
161 Ⓜ	Since Last Start	0x0F-161-1	Time Since Last Start, Minutes	UINT	Minutes	0...59	0
162 Ⓜ	Since 1Prv Start	0x0F-162-1	Hours since 1 previous start	UINT	Hours	0...65535	0
163 Ⓜ	Since 1Prv Start	0x0F-163-1	Minutes since 1 previous start	UINT	Minutes	0...59	0
164 Ⓜ	Since 2Prv Start	0x0F-164-1	Hours since 2 previous starts	UINT	Hours	0...65535	0
165 Ⓜ	Since 2Prv Start	0x0F-165-1	Minutes since 2 previous starts	UINT	Minutes	0...59	0
166 Ⓜ	Since 3Prv Start	0x0F-166-1	Hours since 3 previous starts	UINT	Hours	0...65535	0
167 Ⓜ	Since 3Prv Start	0x0F-167-1	Minutes since 3 previous starts	UINT	Minutes	0...59	0
168 Ⓜ	Since 4Prv Start	0x0F-168-1	Hours since 4 previous starts	UINT	Hours	0...65535	0
169 Ⓜ	Since 4Prv Start	0x0F-169-1	Minutes since 4 previous starts	UINT	Minutes	0...59	0
170 Ⓜ	Since Last Trip	0x0F-170-1	Time since Last Trip, Hours	UINT	Hours	0...65535	0
171 Ⓜ	Since Last Trip	0x0F-171-1	Time since Last Trip, Minutes	UINT	Minutes	0...59	0
172 Ⓜ	Since 1Prv Trip	0x0F-172-1	Hours since 1 Previous Trip	UINT	Hours	0...65535	0
173 Ⓜ	Since 1Prv Trip	0x0F-173-1	Minutes since 1 Previous Trip	UINT	Minutes	0...59	0
174 Ⓜ	Since 2Prv Trip	0x0F-174-1	Hours since 2 Previous Trips	UINT	Hours	0...65535	0
175 Ⓜ	Since 2Prv Trip	0x0F-175-1	Minutes since 2 Previous Trips	UINT	Minutes	0...59	0
176 Ⓜ	Since 3Prv Trip	0x0F-176-1	Hours since 3 Previous Trips	UINT	Hours	0...65535	0
177 Ⓜ	Since 3Prv Trip	0x0F-177-1	Minutes Since 3 Previous Trips	UINT	Minutes	0...59	0
178 Ⓜ	Since 4Prv Trip	0x0F-178-1	Hours since 4 Previous Trips	UINT	Hours	0...65535	0
179 Ⓜ	Since 4Prv Trip	0x0F-179-1	Minutes since 4 Previous Trips	UINT	Minutes	0...59	0
180 Ⓜ	Cause Last Trip	0x0F-180-1	Cause of last trip - Bitstring	UINT		0...0xffff	0
181 Ⓜ	Cause 1Prv Trip	0x0F-181-1	Cause of first previous trip	UINT		0...0xffff	0
182 Ⓜ	Cause 2Prv Trip	0x0F-182-1	Cause of second previous trip	UINT		0...0xffff	0
183 Ⓜ	Cause 3Prv Trip	0x0F-183-1	Cause of third previous trip	UINT		0...0xffff	0
184 Ⓜ	Cause 4Prv Trip	0x0F-184-1	Cause of fourth previous trip	UINT		0...0xffff	0
185 Ⓜ	Since Emg Start	0x0F-185-1	Time Since Last Emergency Start, Hours	UINT	Hours	0...65535	0
186 Ⓜ	Since Emg Start	0x0F-186-1	Time Since Last Emergency Start, Minutes	UINT	Minutes	0...59	0
187 Ⓜ	Since Power Off	0x0F-187-1	Time Since Last Power Failure, Hours	UINT	Hours	0...65535	0
188 Ⓜ	Since Power Off	0x0F-188-1	Time Since Last Power Failure, Minutes	UINT	Minutes	0...59	0

Parameters Supported, Continued

Parameter No. ®=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
189 ®	Duration Pow Off	0x0F-189-1	Duration of Power Failure, Hours	UINT	Hours	0...255	0
190 ®	Duration Pow Off	0x0F-190-1	Duration of Last Power Failure, Minutes	UINT	Minutes	0...59	0
191 ®	I Bef Last Trip	0x0F-191-1	Motor Current Before Last Trip	UINT	%	0...1200	0
192 ®	As Bef Last Trip	0x0F-192-1	Asymmetry Before Last Trip	UINT	%	0...100	0
193 ®	EF H Bef Last Trip	0x0F-193-1	Earth Fault Current Before Last Trip, Holmgreen	UINT	%	0...100	0
194 ®	Max T Bef L Trip	0x0F-194-1	Maximum Temperature Before Last Trip, PT100 #1...#6	UINT	°C	0...200	0
195 ®	Number of Starts	0x0F-195-1	Total Number of Motor Starts	UINT		0...65535	0
196 ®	Number Th Trip	0x0F-196-1	Total Number of Thermal Trips	UINT		0...65535	0
197 ®	Number As Trip	0x0F-197-1	Total Asymmetry Trips	UINT		0...65535	0
198 ®	Number OC Trip	0x0F-198-1	Total Over-Current/Locked Rotor Trips	UINT		0...65535	0
199 ®	Number EF Trip	0x0F-199-1	Total Earth Fault Trips	UINT		0...65535	0
200 ®	Number SC Trip	0x0F-200-1	Total Short Circuit Trips	UINT		0...65535	0
201 ®	Number UL Trip	0x0F-201-1	Total Underload Trips	UINT		0...65535	0
202 ®	Number PTC Trip	0x0F-202-1	Total Over-Temperature Trips	UINT		0...65535	0
203 ®	Number PR Trip	0x0F-203-1	Total Phase Sequence Trips	UINT		0...65535	0
204 ®	Number PL Trip	0x0F-204-1	Total Phase Failure Trips	UINT		0...65535	0
205 ®	Numb PT100 Trip	0x0F-205-1	Total Over-Temperature (PT100) Trips	UINT		0...65535	0
206	Primary CT Used	0x2C-1-162	Primary Current Transformer Used 0=No 1=Yes	BOOL		0...1	0
207	Primary CT Ratio	0x2C-1-163	Primary to Secondary Current Ratio	UINT		1...2000	1
208	Isolation Class	0x2C-1-164	Motor Insulation Class, 0=ClassB 1=ClassE =ClassF	UINT		0...2	0
209 ®	Language	0x0F-0-10	LCD Language Display	USINT		0...4	0
210 ®	EF C Bef Trip	0x0F-210-1	Earth Current before Last Trip	UINT	mA	0...55,000	0
211 ®	Faulted/Trip	0x29-1-10	1=Tripped, 0=Not Tripped	BOOL		0...1	0
212 ®	Warning Present	0x29-1-11	1=Warning Present 0=No Warning	BOOL		0...1	0
213 ®	Fault Code	0x29-1-13	ODVA Starter Profile Fault Code	UINT		0...0xffff	0
214 ®	Warning Code	0x29-1-14	ODVA Starter Profile Warning Code	UINT		0...0xffff	0
215	Output Assembly	0xB4-1-16	Output Assembly instance number	USINT		0, 2, 5	2
216	Input Assembly	0xB4-1-17	Input Assembly instance number	USINT		0,50,51, 100...104	103

Parameters Supported, Continued

Parameter No. Ⓜ=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
217	Assembly Word 0	0xB4-1-7	Used when Param #216 = 100	USINT		0...214	1
218	Assembly Word 1	0xB4-1-8	Used when Param #216 = 100	USINT		0...214	0
219	Assembly Word 2	0xB4-1-9	Used when Param #216 = 100	USINT		0...214	0
220	Assembly Word 3	0xB4-1-10	Used when Param #216 = 100	USINT		0...214	0
221Ⓜ	Hdw. Installed	0x0F-221-1	Option Cards Installed bit-string bit0 - 825-MST bit1 - not used bit2 - 825-MLV bit3 - 825-MMV bit4 - 825-MDN (DeviceNet)	WORD		0...31	
222Ⓜ	Current Convert.	0x0F-222-1	Current Converter bit-string bit0 - 2.5 A bit1 - 20 A bit2 - 180 A bit3 - 630 A	WORD		1...8	
223	Default DN IO	0xB4-1-21	Sets parameters 215...220 to their factory defaults. 0=no action, 1=reset to defaults	WORD		0...1	0
224Ⓜ❶	TH Bef Last Trip	0x0F-224-1	Thermal Utilization Before Last Trip	UINT	%	0...100	0
225❶	Aux #2 Cmd	0x29-1-138	Turns Aux #2 relay ON or OFF when p231 is enabled. 0=OFF, 1=ON, 2=no comm control	USINT		0...2	0
226❶	Aux #3 Cmd	0x29-1-139	Turns Aux #3 relay ON or OFF when p231 is enabled. 0=OFF, 1=ON, 2=no comm control	USINT		0...2	0
227❶	2nd Prim CT Used	0x2C-1-168	Second primary CT enable	BOOL		0...1	0
228❶	2nd Prim CT Rat	0x2C-1-169	Second primary-to-secondary CT ratio	UINT		1...2000	1
229❶	Core CT Ratio	0x2C-1-170	Core balance CT primary-to-secondary ratio	UINT		1...2000	100
230❶	Analog Out Cfg	0x29-1-140	0=Thermal Utilization (0...100%) 1=PT100max (0...200°C) 2=Motor current (0...200%)	USINT		0...2	0
231❶	Aux Relay Remote	0x29-1-141	Control relays Aux #2 and #3 via DeviceNet	BOOL		0...1	0

❶ Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination only.

Parameters Supported, Continued

Parameter No. ®=read-only	Parameter Name	Object Mapping	Description	Data Type	Units	Min/Max	Default
232®	Sp Sw Trip Delay	0x2C-1-171	Speed Switch Trip Delay	USINT	0.1 s	1...50	5
233®	SMM Revision	0xB4-1-12	SMM/CET4 firmware revision	UINT			
234	Aux2 Pr FltState	0x29-1-142	Aux relay #2 behavior on a trip condition. 0 = "Go to Value", 1 = "Hold Last State"	BOOL		0...1	0
235	Aux2 Pr FltValue	0x29-1-143	Go To Value setting for parameter #234. 0 = OFF, 1 = On	BOOL		0...1	0
236	Aux2 Dn FltState	0x29-1-144	Aux relay #2 behavior on a comm. fault condition. 0 = "Go to Value", 1 = "Hold Last State"	BOOL		0...1	0
237	Aux2 Dn FltValue	0x29-1-145	Go To Value setting for parameter #236. 0 = OFF, 1 = On	BOOL		0...1	0
238	Aux2 Dn IdlState	0x29-1-146	Aux relay #2 behavior on a comm. idle condition. 0 = "Go to Value", 1 = "Hold Last State"	BOOL		0...1	0
239	Aux2 Dn IdlValue	0x29-1-147	Go To Value setting for parameter #238. 0 = OFF, 1 = On	BOOL		0...1	0
240	Aux3 Pr FltState	0x29-1-148	Aux relay #3 behavior on a trip condition. 0 = "Go to Value", 1 = "Hold Last State"	BOOL		0...1	0
241	Aux3 Pr FltValue	0x29-1-149	Go To Value setting for parameter #240. 0 = OFF, 1 = On	BOOL		0...1	0
242	Aux3 Dn FltState	0x29-1-150	Aux relay #3 behavior on a comm. fault condition. 0 = "Go to Value", 1 = "Hold Last State"	BOOL		0...1	0
243	Aux3 Dn FltValue	0x29-1-151	Go To Value setting for parameter #242. 0 = OFF, 1 = On	BOOL		0...1	0
244	Aux3 Dn IdlState	0x29-1-146	Aux relay #3 behavior on a comm. idle condition. 0 = "Go to Value", 1 = "Hold Last State"	BOOL		0...1	0
245	Aux3 Dn IdlValue	0x29-1-153	Go To Value setting for parameter #244. 0 = OFF, 1 = On	BOOL		0...1	0

Common Services Supported:

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	No	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single
0x4B	No	Yes	Get_Enumerated_Sting

Parameter Group Object

Class Code 0x10

Class Attributes:

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Revision	UINT	1
2	Get	Max Instances	UINT	25
8	Get	Native Language	USINT	0 ^❶

❶ Adjusted to the actual language.

Instance 1 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Main Values"
2	Get	Number of Members	UINT	4
3-6	Get	Parameter Numbers	UINT	1, 3, 4, 5

Instance 2 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Prot. Values"
2	Get	Number of Members	UINT	5
3-7	Get	Parameter Numbers	UINT	2, 6, 7, 8, 9

Instance 3 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Sensor Values"
2	Get	Number of Members	UINT	8
3-10	Get	Parameter Numbers	UINT	10,11,12,13,14,15,16,17

Instance 4 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Faults"
2	Get	Number of Members	UINT	7
3-9	Get	Parameter Numbers	UINT	18,180,181,182,183,184,213

Instance 5 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Warnings"
2	Get	Number of Members	UINT	2
3-4	Get	Parameter Numbers	UINT	19, 214

Instance 6 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Thermal Prot."
2	Get	Number of Members	UINT	9
3-11	Get	Parameter Numbers	UINT	21,206,207,22, 23,24,25,26,27

Instance 7 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Asymmetry Prot."
2	Get	Number of Members	UINT	7
3-9	Get	Parameter Numbers	UINT	28,29,30,31,32,33,34

Instance 8 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Overcurrent Pr."
2	Get	Number of Members	UINT	7
3-9	Get	Parameter Numbers	UINT	35,36,37,38,39,40,41

Instance 9 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Earth-Fault Pr."
2	Get	Number of Members	UINT	12
3-14	Get	Parameter Numbers	UINT	42,43,44,45,46,47,48, 49,50,51,52,53

Instance 10 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Short Circ.Pr."
2	Get	Number of Members	UINT	4
3-6	Get	Parameter Numbers	UINT	54,55,56,57

Instance 11 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Underload Prot."
2	Get	Number of Members	UINT	7
3-9	Get	Parameter Numbers	UINT	58,59,60,61,62,63,64

Instance 12 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Starting Ctrl."
2	Get	Number of Members	UINT	11
3-13	Get	Parameter Numbers	UINT	76,77,78,65,66,67,68,69,73,74,75

Instance 13 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Warm Start"
2	Get	Number of Members	UINT	3
3-5	Get	Parameter Numbers	UINT	70,71,72

Instance 14 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"PTC Protect."
2	Get	Number of Members	UINT	3
3-5	Get	Parameter Numbers	UINT	83,84,85

Instance 15 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Temp Protect."
2	Get	Number of Members	UINT	30
3-32	Get	Parameter Numbers	UINT	120,121,122, 123,124,125, 126,127,128, 129,130,131, 132,133,134, 136,137,138, 139,140,141, 142,143,144, 145,146,147, 148,150,208

Instance 16 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Phase Protect."
2	Get	Number of Members	UINT	4
3-6	Get	Parameter Numbers	UINT	116,117,118, 119

Instance 17 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Special Setting"
2	Get	Number of Members	UINT	4
3-6	Get	Parameter Numbers	UINT	79,80,81,82

Instance 18 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Control Input 1"
2	Get	Number of Members	UINT	15
3-17	Get	Parameter Numbers	UINT	86,87,88,89,90,91,92,93, 94,95,96,97,98,99,100

Instance 19 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Control Input 2"
2	Get	Number of Members	UINT	15
3-17	Get	Parameter Numbers	UINT	101,102,103,104,105,106, 107,108,109,110,111,112, 113,114,115

Instance 20 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Communications"
2	Get	Number of Members	UINT	9
3-11	Get	Parameter Numbers	UINT	151,152,209, 215, 216, 217, 218, 219, 220

Instance 21 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Remote Control"
2	Get	Number of Members	UINT	3
3-5	Get	Parameter Numbers	UINT	223,154,155

Instance 22 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Running Times"
2	Get	Number of Members	UINT	30
3-32	Get	Parameter Numbers	UINT	156,157,158,159,160, 161,162,163,164,165, 166,167,168,169,170, 171,172,173,174,175, 176, 177,178,179, 185,186,187,188,189, 190

Instance 23 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Last Trip Hist."
2	Get	Number of Members	UINT	5
3-6	Get	Parameter Numbers	UINT	191,192,193,194,210

Instance 24 Attributes


Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"History"
2	Get	Number of Members	UINT	11
3-13	Get	Parameter Numbers	UINT	195,196,197,198, 199,200,201,202, 203, 204,205


Instance 25 Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Misc. Params"
2	Get	Number of Members	UINT	4
3-6	Get	Parameter Numbers	UINT	211,212,221,222


Instance 26 Attributes 

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"Contractor Contr."
2	Get	Number of Members	UINT	15
3-17	Get	Parameter Numbers	UINT	231,225,226,234, 235,236,237,238, 239,240,241,242, 243,244,245

 This instance exists only for 825-SMM revision 3.001 and above.

Instance 27 Attributes 

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Group Name String	SHORT_STRING	"825-SMM V3.xx"
2	Get	Number of Members	UINT	8
3-11	Get	Parameter Numbers	UINT	20,224,227,228,229, 230,232,233

 This instance exists only for 825-SMM revision 3.001 and above.

Control Supervisor Object **Class Code 0x29**

Class Attributes

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Revision	UINT	1
2	Get	Max Instances	UINT	1
6	Get	Max ID Number of Class Attributes	UINT	Number of last class attribute implemented
7	Get	Max ID Number of Instance Attributes	UINT	Number of last instance attribute implemented

Number of Instances: 1

Instance Attributes

Attribute ID	Access Rule	Name (param #)	Data Type	Min/Max	Default	Description
1	Get	num Attributes	USINT			See Run/Stop Event Matrix
2	Get	Attributes	Array of USINT			List of Attributes supported by Control Supervisor
10	Get	Faulted/Trip (#211)	BOOL	0...1	0	1=Fault Latched 0=No Faults present
11	Get	Warning (#212)	BOOL	0...1	0	1= Warning (not latched) 0=No Warnings present
12	Get/Set	FaultRst (#154)	BOOL	0...1	0	0 -> 1 = Fault Reset 0 = No Action
*13	Get	FaultCode (#213)	UINT	0...8116hex	0	In Faulted state, FaultCode indicates the fault that caused the transition to Faulted . If not in Faulted state, FaultCode indicates the fault that caused the last transition to the Faulted state. Fault codes are listed in appendix C
*14	Get	WarningCode (#214)	UINT	0...8116hex	0	In Warning state, WarningCode indicates the warning that caused the transition to Warning . If not in Warning state, WarningCode indicates the warning that caused the last transition to the Warning state. Warning codes are listed in appendix C

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Specific Instance Attributes

Attribute ID	Access Rule	Name (param. #)	Data Type	Min/Max	Default	Description
100	Get/Set	rel_th_t (#24)	USINT	0, 7	0	Thermal trip, relay assignment
101	Get/Set	th_al_re (#27)	USINT	1...7	1	Thermal warning, relay assignment
102	Get/Set	as_tr_re (#31)	USINT	0...7	0	Asymmetry trip, relay assignment
103	Get/Set	as_al_re (#34)	USINT	1...7	1	Asymmetry warning, relay assignment
104	Get/Set	ol_tr_re (#38)	USINT	0...7	0	Overcurrent/locked rotor, trip relay
105	Get/Set	ol_al_re (#41)	USINT	1...7	1	Overcurrent/locked rotor, warning relay assignment
106	Get/Set	efh_tr_r (#46)	USINT	0...7	0	Earth-fault (Holmgreen), trip relay
107	Get/Set	efs_tr_r (#50)	USINT	0...7	0	Earth-fault (Core balance), trip relay assignment
108	Get/Set	efs_al_r (#53)	USINT	1...7	1	Earth-fault (Core balance), warning relay assignment
109	Get/Set	sc_tr_re (#57)	USINT	2, 7	2	Short circuit, trip relay assignment
110	Get/Set	ul_tr_re (#61)	USINT	0...7	0	Underload, trip relay assignment
111	Get/Set	ul_al_re (#64)	USINT	1...7	1	Underload, warning relay assignment
112	Get/Set	star/del (#65)	BOOL	0...1	0	Star-delta starting, on/off
113	Get	st_relai (#66)	USINT	5	5	Star-delta starting, star relay
114	Get	delta_re (#67)	USINT	6	6	Star-delta starting, delta relay
115	Get/Set	star_tim (#68)	BOOL	0...1	0	Star-delta starting, max. star time on/off
116	Get/Set	star_tmx (#69)	USINT	1...240	10	Star-delta starting, max. star time
117	Get/Set	st/h_rel (#75)	USINT	0...7	0	Maximum starts/h, relay assignment
118	Get/Set	st_ti_re (#78)	USINT	0...7	0	Starting time exceeded, relay assignment
119	Get/Set	arb/ruhe (#79)	BOOL	0...1	0	Main relay and warning relay connection: non-failsafe (0), electrically held (1)
120	Get/Set	ptc_tr_r (#84)	USINT	0, 7	0	PTC trip, relay assignment
121	Get/Set	sp_in_#1 (#86)	BOOL	0...1	0	Control Input #1, on/off
122	Get/Set	spin1_tr (#87)	BOOL	0...1	0	Time delay of aux. Relay #2, on/off
123	Get/Set	sp1_t_on (#88)	USINT	0...240	1	On-delay of auxiliary relay #2
124	Get/Set	sp1_t_of (#89)	USINT	0...240	2	Off-delay of auxiliary relay #2
125	Get/Set	speed_sw (#90)	BOOL	0...1	0	Speed switch/stop indicator on/off
126	Get/Set	sp_sw_re (#91)	USINT	0...7	0	Speed switch/stop indicator, trip relay
127	Get/Set	dis_fct1 (#92)	BOOL	0...1	0	Disable protection functions from Control Input #1 on/off
128	Get/Set	sp_in_#2 (#101)	BOOL	0...1	0	Control Input #2, on/off
129	Get/Set	spin2_tr (#102)	BOOL	0...1	0	Time delay of aux. Relay #3, on/off
130	Get/Set	sp2_t_on (#103)	USINT	0...240	1	On-delay of auxiliary relay #3

● Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination only.

Specific Instance Attributes, Continued

Attribute ID	Access Rule	Name (param. #)	Data Type	Min/Max	Default	Description
131	Get/Set	sp2_t_of (#104)	USINT	0...240	2	Off-delay of auxiliary relay #3
132	Get/Set	dis_fct2 (#107)	BOOL	0...1	0	Disable protection functions from Control Input #2 on/off
133	Get/Set	drs_tr_r (#117)	USINT	0...7	0	Phase reversal trip, relay assignment
134	Get/Set	pas_tr_r (#119)	USINT	0...7	0	Phase loss trip, relay assignment
135	Get/Set	pt_tr_re (#133)	USINT	0...4, 7	0	Pt100 #1...#6 trip, relay assignment
136	Get/Set	pt_al_re (#148)	USINT	1...4, 7	1	Pt100 #1...#6 warning, relay assignment
137●	Get	sp_in_st (#20)	UINT	0...3	0	Status of Control inputs #1 and #2; bit 0=Input 1 status, bit 8=Input 2 status; 0=OFF, 1=ON
138●	Get/Set	re2_comm (#225)	BOOL	0...1	0	Aux #2 relay ON/OFF command
139●	Get/Set	re3_comm (#226)	BOOL	0...1	0	Aux #3 relay ON/OFF command
140●	Get/Set	anout_us (#230)	USINT	0...2	0	Analog output configuration: 0=Thermal utilization (0-100%) 1=PT100max (0-200°C) 2=Motor current (0-200%)
141●	Get/Set	rel_remt (#231)	BOOL	0...1	0	Control relays #2 and #3 via DeviceNet
142	Get/Set	Aux2 Pr FltState (#234)	BOOL	0...1	0	Aux relay #2 behavior on a trip condition. 0 = "Go to Value", 1 = "Hold Last State"
143	Get/Set	Aux2 Pr FltValue (#235)	BOOL	0...1	0	Go To Value setting for parameter #234. 0 = OFF, 1 = On
144	Get/Set	Aux2 Dn FltState (#236)	BOOL	0...1	0	Aux relay #2 behavior on a comm. fault condition. 0 = "Go to Value", 1 = "Hold Last State"
145	Get/Set	Aux2 Dn FltValue (#237)	BOOL	0...1	0	Go To Value setting for parameter #236. 0 = OFF, 1 = On
146	Get/Set	Aux2 Dn IdlState (#238)	BOOL	0...1	0	Aux relay #2 behavior on a comm. idle condition. 0 = "Go to Value", 1 = "Hold Last State"
147	Get/Set	Aux2 Dn IdlValue (#239)	BOOL	0...1	0	Go To Value setting for parameter #238. 0 = OFF, 1 = On
148	Get/Set	Aux3 Pr FltState (#240)	BOOL	0...1	0	Aux relay #3 behavior on a trip condition. 0 = "Go to Value", 1 = "Hold Last State"
149	Get/Set	Aux3 Pr FltValue (#241)	BOOL	0...1	0	Go To Value setting for parameter #240. 0 = OFF, 1 = On
150	Get/Set	Aux3 Dn FltState (#242)	BOOL	0...1	0	Aux relay #3 behavior on a comm. fault condition. 0 = "Go to Value", 1 = "Hold Last State"
151	Get/Set	Aux3 Dn FltValue (#243)	BOOL	0...1	0	Go To Value setting for parameter #242. 0 = OFF, 1 = On
152	Get/Set	Aux3 Dn IdlState (#244)	BOOL	0...1	0	Aux relay #3 behavior on a comm. idle condition. 0 = "Go to Value", 1 = "Hold Last State"
153	Get/Set	Aux3 Dn IdlValue (#245)	BOOL	0...1	0	Go To Value setting for parameter #244. 0 = OFF, 1 = On

● Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination only.

Common Services

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	No	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single

Overload Object**Class Code 0x2C***Class Attributes*

Attribute ID	Access Rule	Name	Data Type	Value
1	Get	Revision	UINT	1
2	Get	Max Instances	UINT	1
6	Get	Max ID Number of Class Attributes	UINT	Number of last class attribute implemented
7	Get	Max ID Number of Instance Attributes	UINT	Number of last instance attribute implemented

Number of Instances: 1

Instance Attributes

Attribute ID	Access Rule	Name (param. #)	Data Type	Min/Max	Units	Default	Description
1	Get	numAttr	USINT				Number of Attributes supported
2	Get	Attributes	Array USINT				List of attributes supported by the Overload
3 ②	Set/Get	le_____ (#21)	UDINT	30...200,000	10 mA	2000	FLC Setting Value
3 ③	Set/Get	le_____ (#21)	UINT	50...63,000	10 mA	2000	FLC Setting Value
165	Set/Get	t_block_ (#23)	UINT	1...600	seconds	10	Max Stall Time
5	Get	Imotor_ (#1)	INT	0...1200	% FLC	0	Average Motor Current
6	Get	Asymetry (#7)	USINT	0...100	%	0	% Asymmetry
7	Get	Th.Util_ (#2)	USINT	0...100	%	0	% Thermal Utilization
8	Get	Imot__L1 (#3)	INT	0...1200	% FLC	0	I phase L1
9	Get	Imot__L2 (#4)	INT	0...1200	% FLC	0	I phase L2
10	Get	Imot__L3 (#5)	INT	0...1200	% FLC	0	I phase L3
11	Get	learth_S (#9)	UINT	0...55000	.005 Amps	0	Earth Core
102	Get	Time_to_ (#6)	UINT	1...9999	seconds	9999	Time to Trip/Reset
103	Get	learth_H (#8)	USINT	0...100	%	0	Earth-fault current (Holmgreen)
104 ①	Get	iAUSL___ (#18)	WORD	0...0xffff	bits	0	Actual Trip Bit String (Bit Pattern)
105 ①	Get	iVORW___ (#19)	WORD	0...0xffff	bits	0	Actual Warning Bit String (Bit Pattern)
106	Get/Set	lbl/le__ (#22)	USINT	25...120	times 0.1*FLC	60	Locked rotor current (2.5...12.0 times FLC)
107	Get/Set	th_alarm (#25)	BOOL	0...1	0=OFF	0	Thermal warning, on/off
108	Get/Set	th_al_le (#26)	USINT	50...99	%	75	Thermal warning level

① Bit definitions given on page A-40.

② Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination.

③ Available with SMM version 2.xx (and lower).

Instance Attributes, Continued

Attribute ID	Access Rule	Name (param. #)	Data Type	Min/Max	Units	Default	Description
109	Get/Set	as_prot_ (#28)	BOOL	0...1	1=ON	1	Asymmetry-protection, on/off
110	Get/Set	as_tr_le (#29)	USINT	5...80	%	35	Asymmetry, trip level
111	Get/Set	as_tr_ti (#30)	USINT	10...250	0.1 s	25	Asymmetry, trip delay (1.0...25.0 s)
112	Get/Set	as_alarm (#32)	BOOL	0...1	0=OFF	0	Asymmetry warning, on/off
113	Get/Set	as_al_le (#33)	USINT	5...80	%	20	Asymmetry, warning level
114	Get/Set	ol_prot_ (#35)	BOOL	0...1	1=ON	1	Overcurrent/locked rotor trip, on/off
115	Get/Set	ol_tr_le (#36)	USINT	10...60	times 0.1*FLC	24	Overcurrent/locked rotor, trip level (1.0...6.0 times FLC)
116	Get/Set	ol_tr_ti (#37)	USINT	1...50	0.1 s	5	Overcurrent/locked rotor, trip delay (0.1...5.0 s)
117	Get/Set	ol_alarm (#39)	BOOL	0...1	0=OFF	0	Overcurrent/locked rotor warning on/off
118	Get/Set	ol_al_le (#40)	USINT	10...60	times 0.1*FLC	20	Overcurrent/locked rotor warning level (1.0...6.0 times FLC)
119	Get/Set	ef_prot_ (#42)	BOOL	0...1	1=ON	1	Earth-fault protection, on/off
120	Get/Set	efh_prot (#43)	BOOL	0...1	1=ON	1	Earth-fault prot., (Holmgreen) on/off
121	Get/Set	efh_tr_l (#44)	USINT	10...100	% Current	50	Earth fault (Holmgreen), trip level
122	Get/Set	efh_tr_t (#45)	USINT	1...50	0.1 s	5	Earth fault (Holmgreen), trip delay (0.1...5.0 s)
123	Get/Set	efs_prot (#47)	BOOL	0...1	0=OFF	0	Earth-fault protection (core balance), on/off
124	Get/Set	efs_tr_l (#48)	UINT	5...50000	0.005 A	1000	Earth-fault (core balance), trip level
125	Get/Set	efs_tr_t (#49)	USINT	1...50	0.1 sec	5	Earth-fault (core balance), trip delay (0.1...5.0 s)
126	Get/Set	efs_al___ (#51)	BOOL	0...1	0=OFF	0	Earth-fault (core balance), warning on/off
127	Get/Set	efs_al_l (#52)	UINT	5...50000	0.005 A	500	Earth-fault (core balance), warning level
128	Get/Set	sc_prot_ (#54)	BOOL	0...1	0=OFF	0	Short circuit protection, on/off
129	Get/Set	sc_tr_le (#55)	USINT	40...120	times 0.1*FLC	100	Short circuit, trip level (4.0...12.0 times FLC)
130	Get/Set	sc_tr_ti (#56)	USINT	2...99	10 ms	5	Short circuit, trip delay (20...990 ms)
131	Get/Set	ul_prot_ (#58)	BOOL	0...1	0=OFF	0	Underload protection, on/off
132	Get/Set	ul_tr_le (#59)	USINT	25...100	% FLC	75	Underload, trip level
133	Get/Set	ul_tr_ti (#60)	USINT	1...60	seconds	10	Underload, trip delay
134	Get/Set	ul_del_t (#62)	USINT	0...240	seconds	0	Underload trip, start delay
135	Get/Set	ul_alarm (#63)	BOOL	0...1	0=OFF	0	Underload warning, on/off

Instance Attributes, Continued

Attribute ID	Access Rule	Name (param. #)	Data Type	Min/Max	Units	Default	Description
136	Get/Set	warm_st_ (#70)	BOOL	0...1	0=OFF	0	Warm start, on/off
137	Get/Set	warm_tim (#71)	USINT	4...60	minutes	60	Warm start allowed every ... minutes
138	Get/Set	wa_trip_ (#72)	USINT	50...100	%	70	Warm start tip time, % trip time from cold
139	Get/Set	start_in (#73)	BOOL	0...1	0=OFF	0	Limiting the number of starts/h, on/off
140	Get/Set	start/h_ (#74)	USINT	1...10	starts/hr	2	Maximum starts/h
141	Get/Set	st_contr (#76)	BOOL	0...1	0=OFF	0	Monitoring start time (start inhibit) on/off
142	Get/Set	st_time_ (#77)	USINT	1...240	seconds	10	Maximum starting time
143	Get/Set	autrs_th (#80)	BOOL	0...1	0=man.	0	Thermal trip reset, automatic/manual
144	Get/Set	th_res_l (#81)	USINT	10...100	%	50	Thermal trip reset at ... % of therm. utilize.
145	Get/Set	cool_rat (#82)	USINT	10...50	0.1	25	Cooling constant ratio, motor off/on (1.0...5.0)
146	Get/Set	dis_ass1 (#93)	BOOL	0...1	1=disabl	0	Asymmetry protection, enabled/disabled
147	Get/Set	dis_ol_1 (#94)	BOOL	0...1	1=disabl	0	Overcurrent/locked rotor protection, enabled/disabled
148	Get/Set	dis_ess1 (#95)	BOOL	0...1	1=disabl	0	Earth fault protection, enabled/disabled
149	Get/Set	dis_kss1 (#96)	BOOL	0...1	1=disabl	0	Short circuit protection, enabled/disabled
150	Get/Set	dis_uls1 (#97)	BOOL	0...1	1=disabl	0	Underload protection, enabled/disabled
151	Get/Set	dis_sti1 (#98)	BOOL	0...1	1=disabl	0	Limiting the starts per hour, enabled/disabled
152	Get/Set	new_flg_ (#105)	BOOL	0...1	0=OFF	0	2 nd rated motor current, on/off
153 ❶	Get/Set	new_le__ (#106)	UDINT	50...200,000	10 mA	2000	2 nd rated motor current, value (0.50...2000.00 A)
153 ❷	Get/Set	new_le__ (#106)	UINT	50...63,000	10 mA	2000	2 nd rated motor current, value (0.50...630.00 A)
154	Get/Set	dis_ass2 (#108)	BOOL	0...1	1=disabl	0	Asymmetry protection, enabled/disabled
155	Get/Set	dis_ol_2 (#109)	BOOL	0...1	1=disabl	0	Overcurrent/locked rotor protection, enabled/disabled
156	Get/Set	dis_ess2 (#110)	BOOL	0...1	1=disabl	0	Earth fault protection, enabled/disabled
157	Get/Set	dis_kss2 (#111)	BOOL	0...1	1=disabl	0	Short circuit protection, enabled/disabled
158	Get/Set	dis_uls2 (#112)	BOOL	0...1	1=disabl	0	Underload protection, enabled/disabled
159	Get/Set	dis_sti2 (#113)	BOOL	0...1	1=disabl	0	Limiting the starts per hour, enabled/disabled

❶ Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination only.

❷ Available with SMM version 2.xx (and lower).

Instance Attributes, Continued

Attribute ID	Access Rule	Name (param. #)	Data Type	Min/Max	Units	Default	Description
160	Get/Set	drs_prot (#116)	BOOL	0...1	0=OFF	0	Phase reversal trip, on/off
161	Get/Set	pas_prot (#118)	BOOL	0...1	0=OFF	0	Phase loss trip, on/off
162	Get/Set	prim_ct_ (#206)	BOOL	0...1	0=NO	0	Primary current transformer used, no/yes
163	Get/Set	ct_ratio (#207)	UINT	1...2000		1	Current ratio of primary current transformer
164	Get/Set	isol_cl_ (#208)	USINT	0...2		0	Motor insulation class 0=B, 1=E, 2=F
168 ❶	Get/Set	prim2_CT (#227)	BOOL	0...1	0=NO	0	Second primary CT enable
169 ❶	Get/Set	CT2_ratio (#228)	UINT	1...2000		1	Second primary-to-secondary CT ratio
170 ❶	Get/Set	corCTrat (#229)	UINT	1...2000		1	Core balance CT primary-to-secondary ratio
171 ❶	Get	sp_sw_ti (#232)	USINT	1...50	0.1 sec.	5	Speed switch trip delay

❶ Available with SMM version 3.11 (or higher) / 825-MDN version 6.001 (or higher) product combination only.

Fault/Trip Cause Word Bitstring

Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
wrong setting	0	short circuit trip	current transformer	phase loss	locked rotor	Asymmetry	phase reverse	thermal	earth fault	underload	thermistor	PT100	start inhibit	over starting time	fault in actual values

Warning Cause Word Bitstring

Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
wrong setting	0	0	0	0	overcurrent	asymmetry	0	thermal	earth fault	underload	0	PT100	0	0	0

DeviceNet Interface Object Class Code 0xB4

A single instance (instance 1) of the DeviceNet Interface Object will be supported. The following instance attributes will be supported.

Attribute ID	Access Rule	Name	Data Type	Min/Max	Default	Description
1	Get	ZeroByte	USINT	0	0	Returns Zero
2	Get	ZeroWord	UINT	0	0	Returns Zero
7	Get/Set	Assy Word 0 Parm	USINT	0...21	21	Parameter numbers whose value is used as the first word in Input Assembly 100
8	Get/Set	Assy Word 1 Parm	USINT	0...21	1	Parameter numbers whose value is used as the second word in Input Assembly 100
9	Get/Set	Assy Word 2 Parm	USINT	0...21	2	Parameter numbers whose value is used as the third word in Input Assembly 100
10	Get/Set	Assy Word 3 Parm	USINT	0...21	3	Parameter numbers whose value is used as the fourth word in Input Assembly 100
12	Get	DN Firmware Rev	UINT	0...65.535		Firmware revision in EDS viewable format
16	Get/Set	OutputAssembly	USINT	2, 101, 103, 104, 105	103	Output Assembly instance that is active
17	Get/Set	InputAssembly	USINT	50, 51, 100, 106, 107	100	Input Assembly instance that is active
18	Get/Set	Program Lock	BOOL	0...1	0	0=unlocked; 1=locked
19	Get/Set	Set To Defaults	BOOL	0...1	0	0=No action; 1=Reset
21	Get/Set	Reset DN10	BOOL	0...1	0	0=No action; 1=Reset to defaults

Common Services Supported:

Service Code	Implemented for:		Service Name
	Class	Instance	
0x0E	No	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single

ODVA Drive Profile Fault and Warning Codes Supported

ODVA Fault Code (hex)	ODVA Fault Indication	SMM LCD Indication	Possible Causes	Corrective Action
0000	No Fault		The drive is currently not faulted	No action required
14 hex	Current Trip	OC WARNING OC TRIP	<ol style="list-style-type: none"> 1. Overloaded 2. Transport material jammed 3. Pickup threshold set too low 4. Mech. damage to bearings 5. Stalling during running 	<ol style="list-style-type: none"> 1. Reduce load or raise pickup threshold 2. Switch off system, remedy cause 3. Raise pickup threshold 4. Repair damage 5. Switch off system, remedy cause
15 hex	Thermal Overload	THERMAL WARNING THERMAL TRIP	<ol style="list-style-type: none"> 1. Overloaded 2. Transport material jammed 3. Mech. damage to bearings 4. Settings of rated current or tripping time too short 5. Interrupted start 6. More than one warm start/h 7. Ambient temperature too high 8. Very high third harmonic 	<ol style="list-style-type: none"> 1. Reduce load or raise pickup threshold 2. Switch off system, remedy cause 3. Repair damage 4. Raise full load current or max stall time 5. Wait until motor is cooled 6. If possible, raise warm starts/h setting 7. If possible, reduce load 8. Raise IE setting accordingly
16 hex	Phase Loss	PHASE LOSS TRIP	<ol style="list-style-type: none"> 1. Faulty fuse: Short circuit/ earth fault 2. Failure during start 3. Broken lead 	<ol style="list-style-type: none"> 1. Remedy damage, replace fuse 2. Redimension fuse. 3. Check cables and terminal connections
1A hex	Phase Imbalance	AS WARNING ASYMMETRY TRIP	<ol style="list-style-type: none"> 1. Mains unbalanced 2. Blown fuse 3. Motors idling (e.g. pumps) 4. Poor contact (terminals etc.) 5. Phase lead broken (motor, 825-MCM) 6. Asymmetry motor winding 7. Main current transformer error 	<ol style="list-style-type: none"> 1. Raise threshold in 825-SMM or call Power Co. 2. Repair trouble and replace fuse 3. Raise threshold in 825-SMM 4. Repair trouble 5. Replace or repair cable 6. Raise threshold or replace motor 7. Replace the current transformer
1B hex	Ground Fault	EF H TRIP EF C WARNING EF C TRIP	<ol style="list-style-type: none"> 1. Earth fault in motor or cable 2. Primary current transformer wrongly wired 3. Primary current transformer saturated 4. High 3rd harmonic in star-delta 5. Long motor cable 	<ol style="list-style-type: none"> 1. Repair damage 2. Correct wiring 3. Raise pickup threshold 4. Raise pickup threshold to 50% or more 5. Raise pickup threshold
1D hex	Underload	UL C WARNING UNDERLOAD TRIP	<ol style="list-style-type: none"> 1. Under water pump running dry 2. Faulty fan blades 3. Torn conveyor belt 4. Broken transmission elements 5. Pumping against a closed valve 	1 - 5. Eliminate cause
36 hex	Phase Reversal	PHASE REVER PROT	<ol style="list-style-type: none"> 1. Wrong phase sequence of supply to 825-MCM 	<ol style="list-style-type: none"> 1. Connect phase leads in correct sequence

ODVA Drive Profile Fault and Warning Codes Supported, Continued

ODVA Fault Code (hex)	ODVA Fault Indication	SMM LCD Indication	Possible Causes	Corrective Action
49 hex	Trips/Hour Exceeded	START INHIB TRIP		1. Wait until a further start is permissible. Release will be automatic
65 hex	Tripping Time Exceeded	START CONTR TRIP	1. Overloaded 2. Transport material jammed 3. Viscous material	1. Reduce load or raise max. starting time 2. Eliminate cause 3. Raise max. starting time
66 hex	Transducer	MCM NOT CONNECT FAULT MCM	1. Cable SMM <-> MCM broken or not connected 2. Fault in 825-SMM or 825-MCM	1. Check connections, test cable 2. Send 825-SMM or 825-MCM back for repair
2250 hex	Short Circuit	SHORT CIRC PROT	1. Short circuit or earth fault in motor or cable 2. Trip when motor switched on, due to inrush current 3. Pickup threshold is < I _a	1. Repair damage 2. Increase trip delay to >0.1 s 3. Set pickup threshold to > I _a
4310 hex	Excess Motor Temperature	PT100 #...WARNING PT100 #...TRIP PTC TRIP	1. Stator winding overheated 2. PT100/PT100 leads or PTC/PTC leads shorted or broken	1. Wait for motor to cool 2. Check leads or switch off PTC monitoring
8114 hex	Illegal FLC Setting	IE OUT OF RANGE	1. Rated current MCM does not agree with SMM setting 2. Wrong MCM 3. Wrong setting	1. Check setting of "FULL LOAD CURR" and MCM 2. Install a correct MCM 3. Change FULL LOAD CURR setting
8116 hex	Command Outside Window	ERROR ACTUAL VAL		

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