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POWR-GARD®
Motor Protection
PGR-6200 SERIES
Motor Protection System

PGR-6200 DEVICENET INTERFACE

MAY 21, 2009

REVISION 1

QUICK SETUP

- Use the operator interface to access the *Setup* | *Hardware* | *Network Comms* menu. Set the *Network ID* for the device and set the *Baud Rate* as *DN 125K, DN 250K,* or *DN 500K*. Select the DeviceNet producing assembly from the *DeviceNet Produce* menu and the DeviceNet consuming assembly from the *DeviceNet Consume* menu. Select *DeviceNet* from the *Network Type* menu.

- Configure the scanner's polled connections for the selected assembly sizes. The scanner may issue a configuration warning if an I/O size other than the default is used. Disregard the warning. Use "Edit I/O Parameters" to enable the connection and adjust the byte size to match the assembly size.

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1. GENERAL

This document describes the DeviceNet features supported by the PGR-6200. The PGR-6200 supports Explicit and Polled I/O. It does not support the Unconnected Message Manager (UCMM).

The PGR-6200 is an isolated node and requires both control power for its operation and DeviceNet power for network operation.

2. DEVICENET INTERFACE

2.1 Connections and Power Requirements

Connection to the PGR-6200 is made through the 5-pin, open style, terminal block, plug-in connector as defined by the DeviceNet standard:

Terminal 1: V-
Terminal 2: CAN-L
Terminal 3: DRAIN
Terminal 4: CAN-H
Terminal 5: V+

The interface requires 30 mA from the 24 Vdc DeviceNet supply.

2.2 Network Settings

The DeviceNet MAC ID and baud rate is set using the PGR-6200 menu setting. Default settings are MAC ID equal to 63 and baud rate of 125 kb. Settings are located in the *Setup* | *Hardware* | *Network Comms* menu. MAC ID and baud rate can also be set using the DeviceNet object.

Note: Changing network settings using the menus or PGW-Comm will restart the DeviceNet driver.

2.3 Product Manual Changes

Appendix E, Register 379/380: Network ID range is 0 to 63. Values greater than 63 will be forced to 63.

2.4 Network Status Display

The DeviceNet communication status can be viewed using the *Metering* | *Network Status* menu.

This menu indicates “ACTIVITY” or “NO CNXNS”. The last communication status is also displayed. The PGR-6200 can be programmed to trip if there is no network activity.

2.5 Network Errors

The PGR-6200 can be configured to trip or alarm on a loss of connection by using the *Setup* | *Hardware* | *Network Comms* menu, or by using attribute 0x64 of the DeviceNet object.

The *Net Trip/Alarm* set point selects the action to be taken when the module has no connections. The latest communication status is displayed in the *Metering* | *Network Status* menu. Communication status displays are listed in Table 2.1.

TABLE 2.1 DeviceNet Status Display

DISPLAY	DESCRIPTION
Rx OVR	Receive Q Overrun (1)
Tx OVR	Transmit Q Overrun (1)
CAN OVR	CAN Overrun (1)
Dup MAC	Duplicate MAC (2)
Bus Sense	DeviceNet Power Off (3)
MAC Set	MAC Was Set (1)
ID Rst 0	ID Reset 0 (1)
ID Rst 1	ID Reset 1 (4)
Bus Off	Error on the Bus (2)
Expl T/O	Explicit Timeout
IO T/O	I/O Timeout (5)
IO Delete	I/O Connection Deleted
Drv Error	Driver Error (1)

(1) Driver is restarted.
(2) Faulted state with NS RED LED ON. Driver will attempt a restart after 120 seconds.
(3) NS LED off. Driver halted until DeviceNet power is applied.
(4) PGR-6200 is restarted with address 63 and baud rate of 125 kB.
(5) NS flashes RED until a new connection is established.

2.6 Configuration Using RSNetWorx

Use the EDS Wizard to register the EDS file. The device will register as a Motor Starter named PGR-6200. Select device properties to view Device Parameters. When there is a request to upload from device, select this option. This will load the present configuration from the PGR-6200.

Parameters accessible using RSNetWorx have a DeviceNet parameter number listed in the DeviceNet Objects sections of this manual. The corresponding Comm Register number is also shown where applicable.

PGR-6200 firmware revisions may also require a revision change to the EDS file. RSNetWorx will indicate an error if the Major Rev number of the EDS file does not match the value read from the PGR-6200. Select the EDS file that matches the PGR-6200 revision number.

TABLE 2.2 EDS File Revisions

FILE REV	MAJOR REV	PGR-6200 REV
1.2	01 (1.1)	< 1.50
1.4	02 (2.001)	1.50 to 1.59
1.5, 1.6	03 (3.001)	1.60 to 1.69
1.7	04 (4.001)	≥ 1.70

2.7 LED Indication

Two LED’s on the rear panel of the PGR-6200 indicate Network Status (NS) and Module Status (MS). The MS LED is ON when the DeviceNet driver is enabled in the PGR-6200, and OFF when the driver is disabled. The NS LED is OFF when DeviceNet power is off and also OFF during the

Duplicate MAC check, when there are no other nodes on the network. The NS LED flashes green after the Duplicate MAC check is complete and is steady green when a connection is established. The NS LED flashes red when an I/O connection has timed out and is steady red if a Duplicate MAC or Bus Off condition exists.

Note: On loss of an I/O connection, the NS LED remains flashing red until a new connection is established.

2.8 Conformance Tests

Conformance tested to Version A-19

Hardware passes the Physical Layer Test Version B4

The EDS file passes EDS file Test Version 2.17

The module supports the following objects:

TABLE 3.1 DeviceNet Objects

CLASS	DESCRIPTION
0x01	Identity (1)
0x02	Message Router (1)
0x03	DeviceNet (1)
0x04	Assembly (1)
0x05	Connection (1)
0x29	Control Supervisor (1)
0x2C	Overload (1)
0x64	Set Point
0x65	RTD Module
0x66	RTC
0x67	User Defined Registers
0x68	Data Logging

(1) Conformance tested using DeviceNet Protocol Conformance Test Software Version A-17.

3. DEVICENET OBJECTS

(In Order of Class Number)

3.1 Identity Object

Identity Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

Identity Class 1, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum number of instances	1	UINT

Identity Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.

Set_Attribute_Single: Modify the specified attribute.

Reset: Performs reset services based on the parameter. Reset is to Class 1, Instance 1.

No Parameter or Parameter = 0: The DeviceNet driver is reset with the existing MACID and baud rate.

Parameter = 1: The MACID is set to 63 and the baud rate is set to 125 kb. The PGR-6200 will then perform a reset that emulates cycling control power.

Identity Class 1, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA	COMM REGISTER
1		Vendor ID	Get	Littelfuse vendor number	1145	UINT	
2		Device Type	Get	Motor starter	22	UINT	
3		Product Code	Get	Hardware platform number	1301	UINT	0
4		Revision	Get	Major revision must match the eds value (Major.Minor)		A2 02 C6 C6	

Identity Class 1, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA	COMM REGISTER
5		Status	Get	Summary Status of the device	0, 0, 255	WORD	
6	1	Serial Number	Get	Unit Serial Number.	N/A, 0, 999999999	UDINT	2/3
7		Product Name	Get	Human readable identification	"POWR-GARD PGR-6200"	SHORT_STRING	
100 (0x64)	2	Revision	Get	Revision of Firmware 100 = 1.00	N/A, 100, N/A	UINT	1
101 (0x65)	3	System Name	Get/Set	22 characters. Only 20 significant.	"POWR-GARD PGR-6200"	SHORT_STRING	600
102 (0x66)	4	Password	Get/Set	22 characters. Only 4 significant.	"1111"	SHORT_STRING	590
103 (0x67)	5	Password timeout	Get/Set	Password timeout in minutes.	10, 1, 60	REAL	239

3.2 Message Router

No attributes supported for this object.

3.3 DeviceNet Object

DeviceNet Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

DeviceNet Class 3, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of the DeviceNet object class. Definition upon which the implementation is based.	1	UINT

DeviceNet Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.

Set_Attribute_Single: Modify specified attribute.

Allocate_Master/Slave_Connection_Set.

Release_Master/Slave_Connection_Set.

DeviceNet Class 3, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1		MAC ID	Get/Set(1)	Node address	63, 0, 63	USINT	
2		Baud Rate	Get/Set	The baud rate of the device 0 – 125 kb 1 – 250 kb 2 – 500 kb	0, 0, 2	USINT	

DeviceNet Class 3, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
3		Bus-Off Interrupt	Get/Set(1)	Define processing of BOI 0 = Hold CAN in reset 1 = Automatic CAN reset, connections are lost. Value set to 0 when driver is started.	0, 1, 0	BOOL	
4		Bus-Off Counter	Get/Set(1)	Number of times CAN went to the bus-off state. Writing any value clears counter. Count held at 255. Count cleared when driver is started.	0, 0, 255	USINT	
5		Allocation Information	Get	Master/Slave allocation indication	Array	BYTE, USINT	
100 (0x64)	6	Net Trip Action	Get/Set	Trip Action taken on communication error. 0 = Disable 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	0, 0, 7	UINT	381
101 (0x65)	7	Net Alarm Action	Get/Set	Action taken on communication error. 0 = Disable 1 = Alarm1 2 = Alarm2 3 = Alarm3 4 = Alarm1 & Alarm2 5 = Alarm1 & Alarm3 6 = Alarm1 & Alarm2 & Alarm3 7 = Alarm2 & Alarm3	0, 0, 7	UINT	382
102 (0x66)	8	Net Count	Get	Count the number of network trips		UINT	1191

(1)Takes effect on power-up reset or by a reset request to the Identity Object. Does not conform to A19.

3.4 DeviceNet Connection Object

Connection Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

Set_Attribute_Single: Modify specified attribute.

DeviceNet Connection Class 5, Instance 0 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1		Revision	Get	Revision of this Connection Object Class.	1	UINT
100 (0x64)	10	Polled Cons ID	Get/Set	Specifies output assembly ID for polled connection. (1) 0 = None (empty EPATH) 1 = Basic Overload (0x02) 2 = Basic Motor Starter (0x03)	2, 0, 2	UINT
101 (0x65)	11	Polled Prod ID	Get/Set	Specifies Input assembly ID for polled connection. (2) 0 = None (empty EPATH) 1 = Basic Overload (0x32) 2 = Extended Overload (0x33) 3 = Basic Motor Starter (0x34) 4 = Extended Motor Starter (0x35) 5 = User Registers (0x64)	5, 0, 5	UINT

(1) Can also be set using Class 5, Instance 2, Attribute 16 path.
(2) Can also be set using Class 5, Instance 2, Attribute 14 path.

Connection Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.

Set_Attribute_Single: Modify specified attribute.

Delete: Delete specified connection instance.

Reset: Reset the connection instance.

DeviceNet Connection Class 5, Explicit Connection Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1		State	Get	State of the object 0 = nonexistent 1 = configuring 3 = established 4 = timed out 5 = deferred delete	1, 0, 5	USINT
2		Instance Type	Get	Indicates either IO or messaging connection	0, 0, 0	USINT
3		Transport Class Trigger	Get	Defines behavior of the connection	0x83	BYTE
4		Produced Cnxn ID	Get	Placed in CAN Identifier field when the Connection Transmits		UINT
5		Consumed Cnxn ID	Get	CAN Identifier Field value that denotes message to be received		UINT
6		Initial Comm Characteristics	Get	Defines the Message Group(s) across which productions and consumptions associated with this Connection occur		BYTE
7		Produced Connection Size	Get	Maximum number of bytes transmitted across this Connection	254	UINT
8		Consumed Connection Size	Get	Maximum number of bytes received across this Connection	254	UINT

DeviceNet Connection Class 5, Explicit Connection Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
9		Expected Packet Rate	Get/Set	Defines timing (ms) associated with this Connection. Resolution is 10 ms.	2500, 0, 65535, N/A	UINT
12 (0x0C)		Watchdog Timeout Action	Get/Set	Defines how to handle inactivity/Watchdog timeouts 1 – Auto Delete 3 – Deferred Delete	1, 1, 3 Set to 1 or 3	USINT
13 (0x0D)		Produced Connection Path Length	Get	Number of bytes in the produced_connection_path length attribute	0	UINT
14 (0x0E)		Produced Connection Path	Get	Application Object producing data on this connection	{}	EPATH
15 (0x0F)		Consumed Connection Path Length	Get	Number of bytes in the consumed_connection_path length attribute	0	UINT
16 (0x10)		Consumed Connection Path	Get	Specifies the Application Object(s) that are to receive the data consumed by this Connection Object	{}	EPATH
17 (0x11)		Production Inhibit Time	Get/Set	Defines minimum time (ms) between new data production	0	UINT

DeviceNet Connection Class 5, Polled I/O Connection Instance 2 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1		State	Get	State of the object 0 = nonexistent 1 = configuring 3 = established 4 = timed out	0, 0, 4	USINT
2		Instance Type	Get	Indicates either IO or messaging connection 0 = Explicit message 1 = I/O message	1, 0, 1	USINT
3		Transport Class Trigger	Get	Defines behavior of the connection	0x83	BYTE
4		Produced Cnxn ID	Get	Placed in CAN Identifier field when the Connection Transmits		UINT
5		Consumed Cnxn ID	Get	CAN Identifier Field value that denotes message to be received		UINT
6		Initial Comm Characteristics	Get	Defines the Message Group(s) across which productions and consumptions associated with this Connection occur		BYTE
7		Produced Connection Size	Get	Maximum number of bytes transmitted across this Connection	Defined by Assembly Instance	UINT
8		Consumed Connection Size	Get	Maximum number of bytes received across this Connection	Defined by Assembly Instance	UINT
9		Expected Packet Rate	Get/Set	Defines timing (ms) associated with this Connection.	0, 0, 65535, N/A, N/A	UINT

DeviceNet Connection Class 5, Polled I/O Connection Instance 2 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
12 (0x0C)		Watchdog Timeout Action	Get	Defines how to handle inactivity/Watchdog timeouts 0 – Transition to time out 1 – Auto Delete 2 – Auto Reset	0, 0, 0	USINT
13 (0x0D)		Produced Connection Path Length	Get	Number of bytes in the produced_connection_path length attribute. Symbolic notation.	3, 3, 3	UINT
14 (0x0E)		Produced Connection Path	Get/Set	Application Object producing data on this connection	62 33 33	EPATH
15 (0x0F)		Consumed Connection Path Length	Get	Number of bytes in the consumed_connection_path length attribute. Symbolic notation.	3	UINT
16 (0x10)		Consumed Connection Path	Get/Set	Specifies the Application Object(s) that are to receive the data consumed by this Connection Object	{}	EPATH
17 (0x11)		Production Inhibit Time	Get/Set	Defines minimum time (ms) between new data production	0	UINT

3.5 Assembly Object

Assembly Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

Assembly Class 4, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum instance of assembly	0x64	UINT

Assembly Object Instance Services

Get_Attribute_Single: Returns assembly-instance data. Applies to both output and input instances.

Set_Attribute_Single: Set assembly instance data. Applies to output instances only. Service not supported for input instances.

The following static input instances can be selected by setting DeviceNet Parameter 11 to the desired ID:

PRODUCING ASSEMBLY ID	INSTANCE	DESCRIPTION	DATA SIZE IN BYTES	SYMBOLIC IO CONNECTION PATH
5	100 (0x64)	User Registers (Default)	64	62 36 34
1	50 (0x32)	Basic Overload	1	62 33 32
2	51 (0x33)	Extended Overload	1	62 33 33
3	52 (0x34)	Basic Motor Starter	1	62 33 34
4	53 (0x35)	Extended Motor Starter 1	1	62 33 35

The following static output instance can be selected by setting DeviceNet Parameter 10 to the desired ID:

CONSUMING ASSEMBLY ID	INSTANCE	DESCRIPTION	DATA SIZE IN BYTES	SYMBOLIC IO CONNECTION PATH
1	2 (0x02)	Basic Overload	1	62 30 32
2	3 (0x03)	Basic Motor Starter (Default)	1	62 30 33

Assemblies are configured using attributes 0x64 and 0x65 of Class 5, by selected by setting the Produced and Consumed connection path attribute in the Polled I/O connection instance, or by the *Setup* | *Hardware* | *Network Comms* menu. Setting the path to empty (no data), will disable production or consumption and the corresponding connection size will be zero.

Assemblies are accessed using Polled I/O or can be read using Explicit Messaging. For explicit messaging, use class, instance, and attribute as indicated in Table 3.2.

TABLE 3.2 Explicit Messaging

INSTANCE	SERVICES	CLASS_INSTANCE_ ATTRIBUTE
0x02	Get/Set	04_02_03
0x03	Get/Set	04_03_03
0x32	Get	04_32_03
0x33	Get	04_33_03
0x34	Get	04_34_03
0x35	Get	04_35_03
0x64	Get	04_64_03

I/O Assembly Instance Attributes

The following are the attributes that are supported as part of the Control Supervisor. These can be individually accessed and are also part of the pre-defined DeviceNet assemblies.

Faulted

This bit is "1" when there is a Trip1, Trip2, or Trip3 condition on the PGR-6200 or "0" when there are no trips. Trips are reset using Explicit Messaging commands using 29-01-64, 29-01-0C or by using the FaultReset bit of the output assembly.

Warning

This bit is "1" when there is an Alarm1, Alarm2, or Alarm3 and "0" when there are no alarms.

Running1

This bit is "1" when motor current is detected and "0" when there is no motor current.

Ready

This bit is "1" when there are no trips and the PGR-6200 Remote Alarm set point is enabled.

CtrlFromNet

This bit is "1" when one of the PGR-6200 output relays is assigned to *Network Run1*. The assigned relay will follow the state of the Run1 bit of the Control Supervisor attribute 3. This bit is also bit 1 of output assembly instance 3.

Run1

When CtrlFromNet is "1", Run1 determines the state of the relay assigned to *Network Run 1*. When Run1 is "0", the relay is de-energized and when Run1 is "1" the relay is energized. Using this feature the PLC can provide remote start/stop control using the PGR-6200.

Note: When the DeviceNet protocol starts or if an internal protocol error occurs, the Run1 bit is cleared.

FaultReset

This bit is used to reset PGR-6200 trips. A transition from "0" to "1" will issue a reset to the PGR-6200.

This attribute is also updated when a "Reset Trips" command is issued using 29-01-64. When using
29-01-64 commands, a transition on the command or the FaultReset bit is not required.

Assembly Class 4, Instance 0x64, Attribute 3

Produced Connection Path = "62 36 34"

This assembly is used to access any combination of 32 user-defined registers in the PGR-6200. Assembly size is fixed at 64 bytes. User defined registers are programmed in the PGR-6200 using the *Setup* | *Hardware* | *Network Comms* | *User Registers* menu, or by explicit messaging to Class 0x64 via the configuration tool. Register values are not DeviceNet parameter numbers but are the register numbers defined in Appendix E of the PGR-6200 manual. Each PGR-6200 register in Appendix E defines a 16-bit value. For 32-bit float types (DeviceNet REAL), a register pair needs to be entered. For example, to configure an assembly to read the first four RTD temperatures in RTD Module 1, enter register numbers 902, 903, 904, 905, 906, 907, 908, 909 in order.

The first 16 bytes of the assembly will contain the RTD data and the remaining bytes do not contain any valid data.

Build assemblies so that REAL types fall on a 32-bit boundry. This simplifies access and type conversions within the PLC's DeviceNet scanner.

Note: Byte order follows the DeviceNet convention and is not the same as indicated in Appendix E of the PGR-6200 manual, however 32-bit values are specified as 2 registers in order as per the above example.

Input Assemblies

INPUT ASSEMBLY BIT	NAME	CLASS NAME	CLASS	INSTANCE	ATTRIBUTE
Bit 0	Faulted/Trip	Control Supervisor	0x29	1	10
Bit 1	Warning	Control Supervisor	0x29	1	11
Bit 2	Running 1	Control Supervisor	0x29	1	7
Bit 4	Ready	Control Supervisor	0x29	1	9
Bit 5	Control From Net	Control Supervisor	0x29	1	15

Assembly Class 4, Instance 0x32, Attribute 3 – Input – Basic Overload
Produced Connection Path = "62 33 32"

BYTE	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Faulted/ Trip

Assembly Class 4, Instance 0x33, Attribute 3 – Input – Extended Overload
Produced Connection Path = "62 33 33"

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/ Trip

Assembly Class 4, Instance 0x34, Attribute 3 – Input – Basic Starter
Produced Connection Path = "62 33 34"

BYTE	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	Running1	Reserved	Faulted/ Trip

Assembly Class 4, Instance 0x35, Attribute 3 – Input – Extended Motor Starter 1
Produced Connection Path = "62 33 35"

BYTE	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	Reserved	Reserved	CtrlfromNet	Ready	Reserved	Running1	Warning	Faulted/ Trip

Output Assemblies

OUTPUT ASSEMBLY BIT	NAME	CLASS NAME	CLASS	INSTANCE	ATTRIBUTE
Bit 0	Run1	Control Supervisor	0x29	1	3
Bit 2	Fault Reset	Control Supervisor	0x29	1	12

Assembly Class 4, Instance 0x02, Attribute 3 – Output – Basic Overload
Consumed Connection Path = "62 30 32"

BYTE	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	FaultReset	Reserved	Reserved

Assembly Class 4, Instance 0x03, Attribute 3 – Output – Basic Motor Starter
Consumed Connection Path = "62 30 33"

BYTE	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	Reserved	Reserved	Reserved	Reserved	Reserved	FaultReset	Reserved	Run1

3.6 Control Supervisor Object

Control Supervisor Class 0x29, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum number of instances	1	UINT

Supervisor Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute.
Reset: Resets attributes 3, 12, 100

Supervisor Class 0x29, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
3		Run1 (1)	Get/Set	Run 1 input to PGR-6200	0, 0, 1	BOOL	
7		Running	Get	Motor current detected	0, 0, 1	BOOL	
9		Ready	Get	No trips and Run1 enabled	0, 0, 1	BOOL	
10 (0x0A)		Faulted	Get	PGR-6200 is tripped	0, 0, 1	BOOL	
11 (0x0B)		Warning	Get	PGR-6200 in alarm	0, 0, 1	BOOL	
12 (0x0C)		FaultReset	Get/Set	Reset issued on 0 - >1 transition	0, 0, 1	BOOL	
15 (0x0F)		CtrlFromNet	Get	1 = Relay assigned to "Network Run1"	N/A	BOOL	
100 (0x64)	15	PGR-6200 Command	Get/Set	A command "Set" will cause the requested command to be issued to the PGR-6200. A "Get" will read the last command. 0 = Reserved 1 = Reserved 2 = Reserved 3 = Reset Trips 4 = Set RTC 5 = Clear Data Logging Records 6 = Clear Trips Counters 7 = Reserved 8 = Clear Running Time 9 = Emergency I²t Reset 10 = Reserved 11 = Reserved 12 = Re-enable Temperature Protection 13 = Remote/Net Trip Set 14 = Remote/Net Trip Clear 15 = Remote/Net Alarm Set 16 = Remote/Net Alarm Clear 17 = Run1 Set 18 = Run1 Clear	0, 0, 18	USINT	
101 (0x65)	16	TA Summary	Get	Trip, Alarm, Status Summary Bit 4: 1 = Trip1 Bit 5: 1 = Trip2 Bit 6: 1 = Trip3 Bit 7: 1 = Alarm1 Bit 8: 1 = Alarm2 Bit 9: 1 = Alarm3	0, 0, 512	WORD	1096
102 (0x66)	17	PGR-6200 Status	Get	Bit 0: 1 = I > Threshold Bit 1: 1 = In run mode Bit 2: 1 = Reduced OC on Bit 3: 1 = I > 125% FLA Bit 4: 1 = ETR on Bit 5: 1 = PTC open Bit 8: 1 = Digital Input valid Bit 9: 1 = RY1 energized Bit 10: 1 = RY2 energized Bit 11: 1 = RY3 energized	0, 0, 2048	WORD	1097

(1) At least one relay must be assigned to "Network Run1".

Supervisor Class 0x29, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
103 (0x67)	18	Trip/Alarm Group 0	Get	Trip and Alarm, Bits 15..0, T45 See PGR-6200 Manual, Appendix F		UINT	1104
104 (0x68)	19	Trip/Alarm Group 1	Get	Trip and Alarm, Bits 31..16, T46 See PGR-6200 Manual, Appendix F		UINT	1105
105 (0x69)	20	Trip/Alarm Group 2	Get	Trip and Alarm, Bits 47..32, T47 See PGR-6200 Manual, Appendix F		UINT	1106
106 (0x6A)	21	Trip/Alarm Group 3	Get	Trip and Alarm, Bits 63..48, T48 See PGR-6200 Manual, Appendix F		UINT	1107
107 (0x6B)	22	Trip/Alarm Group 4	Get	Trip and Alarm, Bits 79..64, T49 See PGR-6200 Manual, Appendix F		UINT	1108
108 (0x6C)	23	Trip/Alarm Group 5	Get	Trip and Alarm, Bits 95..80, T50 See PGR-6200 Manual, Appendix F		UINT	1109
109 (0x6D)	24	Trip/Alarm Group 6	Get	Trip and Alarm, Bits 111..96, T51 See PGR-6200 Manual, Appendix F		UINT	1110
110 (0x6E)	25	Trip/Alarm Group 7	Get	Trip and Alarm, Bits 127..112, T52 See PGR-6200 Manual, Appendix F		UINT	1111
111 (0x6F)	26	RY1 Function	Get/Set	Function Assigned to Relay 1 0 = None 1 = Trip1 2 = Trip2 3 = Trip3 4 = Alarm1 5 = Alarm2 6 = Alarm3 7 = Current Detected 8 = Run Mode 9 = Start Inhibit 10 = Trip1 Pulse 11 = Watchdog 12 = Network Run1 13 = Reduced Overcurrent	0, 0, 12	UINT	334
112 (0x70)	27	RY1 Mode	Get/Set	0 = Fail Safe, 1 = Non Fail Safe	0, 0, 1	UINT	335
113 (0x71)	28	RY2 Function	Get/Set	See Attribute 0x6F	0, 0, 18	UINT	336
114 (0x72)	29	RY2 Mode	Get/Set	0 = Fail Safe, 1 = Non Fail Safe	0, 0, 1	UINT	337
115 (0x73)	30	RY3 Function	Get/Set	See Attribute 0x6F	0, 0, 18	UINT	338
116 (0x74)	31	RY3 Mode	Get/Set	0 = Fail Safe, 1 = Non Fail Safe	0, 0, 1	UINT	339
117 (0x75)	32	RY Pulse Time	Get/Set	Specifies the duration of the trip pulse when the RY function is set to “Trip1 Pulse”	0.25, 0.25, 10	REAL	344/ 345
118 (0x76)	33	Din Function	Get/Set	Digital Input function selection 0 = Input not used 1 = Trip1 2 = Reset 3 = Program Enable 4 = Reduced Overcurrent	0, 0, 3	UINT	264

Supervisor Class 0x29, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
119 (0x77)	34	Din Bypass	Get/Set	Applies when Trip1 is selected. 0 = Enable, 1 = Disable	1, 0, 1	UINT	265
120 (0x78)	35	Din Bypass Delay	Get/Set	Applies when Trip1 is selected. Sets the bypass delay on start.	5, 0.5, 100	REAL	266/ 267
121 (0x79)	36	Din Trip Delay	Get/Set	Applies when Trip1 is selected.	0.1, 0.01, 100	REAL	268/ 269
122 (0x7A)	37	Din Trip Count	Get	Number of times the Digital Input has tripped		UINT	1149
123 (0x7B)	38	Aout Param	Get/Set	Specifies the Analog Output parameter. 0 = Phase Current (%CT) 1 = Earth Leakage (CT measured) 2 = Earth Leakage (calculated) 3 = Used I^2t 4 = Local RTD 5 = Max Module Stator RTD 6 = Max Module Bearing RTD 7 = Max Module Load RTD 8 = Max Module Ambient RTD 9 = Unbalance 10 = Zero 11 = Full Scale 12 = Differential Current 13 = Phase Current (%FLA)	0, 0, 11	UINT	373
124(0x7C)	39	DF Enable	Get/Set	Differential module enable 0 = Enable 1 = Disable	0, 1, 0	UINT	160
125 (0x7D)	40	OPI Trip Action	Get/Set	0 = Disable 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	0, 0, 7	UINT	237
126 (0x7E)	41	OPI Trip Count	Get	Number of OPI □omm. trips		UINT	1185
127 (0x7F)	42	Local Sensor	Get/Set	Selects the Local Temperature Sensor 0 = Disabled 1 = RTD 2 = PTC	0, 0, 2	UINT	143
128 (0x80)	43	Local Sensor Count	Get	Counts the number of times that the RTD Sensor Trip has occurred.		UINT	1195
129 (0x81)	44	Remote Trip Action	Get/Set	0 = Disable 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	0, 0, 7	UINT	140

Supervisor Class 0x29, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
130 (0x82)	45	Remote Alarm Action	Get/Set	0 = Disable 1 = Alarm1 2 = Alarm2 3 = Alarm3 4 = Alarm1 & Alarm2 5 = Alarm1 & Alarm3 6 = Alarm1 & Alarm2 & Alarm3 7 = Alarm2 & Alarm3	0, 0, 7	UINT	141
131 (0x83)	46	Remote Trip Count	Get	Number of Remote Trips		UINT	1197
132 (0x84)	47	UPI Select	Get/Set	Selects UPI Function 0 = None 1 = Trip1 2 = Trip2 3 = Trip3 4 = Alarm1 5 = Alarm2 6 = Alarm3 7 = Relay1 8 = Relay2 9 = Relay3 10 = Digital Input 11 = Current Detected 12 = Current > 125% FLA 13 = In Run Mode 14 = ETR State 15 = Start Inhibit 16 = Network Run1 17 = Net Activity 18 = Reduced Overcurrent	0, 0, 17	UINT	241
133 (0x85)	48	DF MOD Trip Action	Get/Set	0 = Disable 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	0, 0, 7	UINT	161
134 (0x86)	49	DF MOD Alarm Action	Get/Set	0 = Disable 1 = Alarm1 2 = Alarm2 3 = Alarm3 4 = Alarm1 & Alarm2 5 = Alarm1 & Alarm3 6 = Alarm1 & Alarm2 & Alarm3 7 = Alarm2 & Alarm3	0, 0, 7	UINT	162
135 (0x87)	99	DF Mod Count	Get	Differential Module Communications Trip Count		UINT	1138
136 (0x88)	14	Trip/Alarm Group 8	Get	Trip and Alarm Bits 143 .. 128 T53 See PGR-6200 Manual, Appendix F		UINT	1112

Supervisor Class 0x29, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
137 (0x89)	13	Default Menu	Get/Set	Default Menu 0 = Main 1 = Current 2 = Unbalance 3 = Earth Leakage 4 = Thermal Capacity 5 = Differential 6 = RTD Module 7 = Local Sensor 8 = I/O Status 9 = System Status 10 = Network Status	0,0,10	UINT	242

3.7 Overload

Overload Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

Overload Class 0x2C, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum number of instances	1	UINT

Overload Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modify specified attribute.

Overload Class 0x2C, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
100 (0x64)	50	Trip Action	Get/Set	0 = Disable 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	1, 0, 7	UINT	8
101 (0x65)	51	Thermal Model	Get/Set	0 = NEMA 1 = I^2t	0, 0, 1	UINT	9
	52	Reserved					
102 (0x66)	53	K-Factor	Get/Set	Used in I^2t Algorithm	6, 1, 10	REAL	11/12
103 (0x67)	54	LR Current	Get/Set	Locked Rotor Current (x FLA)	6, 1, 10	REAL	13/14
104 (0x68)	55	LR Time Cold	Get/Set	Locked Rotor Time Cold (s)	10, 0.1, 100	REAL	15/16
105 (0x69)	56	LR Time Hot	Get/Set	Locked Rotor Time Hot (s)	5, 0.1, 100	REAL	17/18
106 (0x6A)	57	Cooling Factor	Get/Set	Multiples of running time constant	2, 0.1, 10	REAL	19/20
107 (0x6B)	58	Inhibit Level	Get/Set	Thermal Reset/Inhibit Level per unit	0.3, 0.1, 0.9	REAL	21/22
108 (0x6C)	59	Alarm Level	Get/Set	Level where alarm occurs	1.0, 0.5, 1.0	REAL	23/24

Overload Class 0x2C, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
109 (0x6D)	60	Alarm Action	Get/Set	0 = Disable 1 = Alarm1 2 = Alarm2 3 = Alarm3 4 = Alarm1 & Alarm2 5 = Alarm1 & Alarm3 6 = Alarm1 & Alarm2 & Alarm3 7 = Alarm2 & Alarm3	1, 0, 7	UINT	25
110 (0x6E)	61	Inhibit Trip Action	Get/Set		0, 0, 7	UINT	26
111 (0x6F)	62	Inhibit Alarm Action	Get/Set		0, 0, 7	UINT	27
112 (0x70)	63	Inhibit Trip Count	Get			UINT	1196
113 (0x71)	64	EF Source		Earth Fault protection source 0 = Calculated ($3I_0$) 1 = Measured (Ict)	1, 0, 1	UINT	208
114 (0x72)	65	PH-CT Primary	Get/Set	Phase CT Primary Rating (A)	100, 1, 5000	REAL	210
115 (0x73)	66	EF-CT Primary	Get/Set	EF-CT Primary Rating (A)	5, 1, 5000	REAL	212
116 (0x74)	67	Run-Mode Delay	Get/Set		10, 5, 60	REAL	216
117 (0x75)	68	Frequency	Get/Set	System Frequency 0 = 50, 1 = 60 Hz, 2 = Variable	1, 0, 1	UINT	224
118 (0x76)	69	FLA Rating	Get/Set	Full-Load Current	100, 1, 5000	REAL	225/ 226
119 (0x77)	70	DF-CT Primary	Get/Set	Differential CT Primary Rating	100, 1, 5000	REAL	218/219
120 (0x78)	71	Service Factor	Get/Set	Motor Service Factor	1, 1, 1.25	REAL	233/ 234
121 (0x79)	72	Trip Count	Get	Counts overload trips		UINT	1132
122 (0x7A)	73	Starts / Hour Trip Action	Get-Set	0 = Disable 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	0, 0, 7	UINT	1270
123 (0x7B)	74	Starts / Hour Alarm Action	Get/Set	0 = Disable 1 = Alarm1 2 = Alarm2 3 = Alarm3 4 = Alarm1 & Alarm2 5 = Alarm1 & Alarm3 6 = Alarm1 & Alarm2 & Alarm3 7 = Alarm2 & Alarm3	0, 0, 7	UINT	1271
124 (0x7C)	75	Number of Starts / Hour	Get/Set	1 to 10 Starts per Hour 0 = 1 Start 9 = 10 Starts	0, 0, 9	UINT	1272
125 (0x7D)	76	Time between Starts	Get/Set	0 to 500 minutes between starts	0, 0, 500m	REAL	1273/ 1274
126 (0x7E)	77	Starts / Hour Trip Count	Get	Number of Starts/Hour trips		UINT	1193

Overload Class 0x2C, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
144 (0x90)	78	I_A	Get	Phase A Current (A)		REAL	860/861
145 (0x91)	79	I_B	Get	Phase B Current (A)		REAL	862/863
146 (0x92)	80	I_C	Get	Phase C Current (A)		REAL	864/865
147 (0x93)	81	Ict	Get	Ground-Fault Current (A) from CT		REAL	866/867
148 (0x94)	82	$3I_0$	Get	Ground-Fault Current (A) calculated		REAL	868/869
149 (0x95)	83	+Seq Current	Get	Positive Sequence Current (Pu)		REAL	870/871
150 (0x96)	84	-Seq Current	Get	Negative Sequence Current (Pu)		REAL	872/873
151 (0x97)	85	Unbalance Current	Get	Current Unbalance (Pu)		REAL	874/875
152 (0x98)	86	Used I^2t	Get	Used Thermal Capacity (pu). Scaled to %		REAL	876/877
153 (0x99)	87	Thermal Trend	Get	Thermal Trend (pu). Scaled to %		REAL	878/879
154 (0x9A)	88	Frequency	Get	Frequency (from Ia)		REAL	880/881
155 (0x9B)	89	Local RTD	Get	Load RTD Reading		REAL	900/901
156 (0x9C)	90	Run Time	Get	Motor Run Time in seconds. Scaled by 1/3600 for display in hours.		UDINT	1210/ 1211
157 (0x9D)	91	Overload Reset Type	Get/Set	0 = Normal 1 = Auto Reset 2 = Multiple Motor Sequence		UINT	28
158 (0x9E)	92	I^2t Reset Time	Get	I^2t Reset/Inhibit Time (m)		REAL	882/883
159 (0x9F)	93	DFa	Get	Differential Current A		REAL	884/885
160 (0xA0)	94	DFb	Get	Differential Current B		REAL	886/887
161 (0xA1)	95	DFc	Get	Differential Current C		REAL	888/889

3.8 Set Point Class 0x64

Set Point Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

Set Point Class 0x64, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	5	UINT
2	Max Instance	Get	Maximum number of instances	12	UINT

Set Point Object Instances

Set Point Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute.

The set point class consists of seven attributes. Each set-point instance may use some or all of these attributes.

Attribute 1 - Trip Action
Specifies the action to take on a trip.
0 = Disable
1 = Trip1
2 = Trip2
3 = Trip3
4 = Trip1 & Trip2
5 = Trip1 & Trip3
6 = Trip1 & Trip2 & Trip3
7 = Trip2 & Trip3

Attribute 2 - Alarm Action
Specifies the action to take on an alarm.
0 = Disable
1 = Alarm1
2 = Alarm2
3 = Alarm3
4 = Alarm1 & Alarm2
5 = Alarm1 & Alarm3
6 = Alarm1 & Alarm2 & Alarm3
7 = Alarm2 & Alarm3

Attribute 3 - Trip Level
Attribute 4 - Trip Delay
Attribute 5 - Alarm Level
Attribute 6 - Alarm Delay
Attribute 7 - Trip Counter for the set point

Class 0x64, Instance 1 - Overcurrent

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	100	Trip Action	Get/Set	1, 0, 7	UINT	32
3	101	Trip Level	Get/Set	10, 1, 15	REAL	33/34
4	102	Trip Delay	Get/Set	0.1, 0, 10	REAL	35/36
7	103	Trip Count	Get		UINT	1130

Class 0x64, Instance 2 - Aux. Overcurrent

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	104	Trip Action	Get/Set	1, 0, 7	UINT	40
3	105	Trip Level	Get/Set	10, 1, 15	REAL	41/42
4	106	Trip Delay	Get/Set	0.1, 0, 10	REAL	43/44
7	107	Trip Count	Get		UINT	1131

Class 0x64, Instance 3 - Earth Fault

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	108	Trip Action	Get/Set	1, 0, 7	UINT	48
2	109	Alarm Action	Get/Set	1, 0, 7	UINT	58
3	110	Trip Level	Get/Set	0.4, 0.05, 1	REAL	50/51
4	111	Trip Delay	Get/Set	0.25, 0, 100	REAL	52/53
5	112	Alarm Level	Get/Set	0.20, 0.05, 1	REAL	54/55
6	113	Alarm Delay	Get/Set	1, 0, 100	REAL	56/57
7	114	Trip Count	Get		UINT	1133

Class 0x64, Instance 4 – Jam

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	115	Trip Action	Get/Set	1, 0, 7	UINT	64
2	116	Alarm Action	Get/Set	1, 0, 7	UINT	73
3	117	Trip Level	Get/Set	6, 1, 10	REAL	65/66
4	118	Trip Delay	Get/Set	5, 1, 100	REAL	67/68
5	119	Alarm Level	Get/Set	3, 1, 10	REAL	69/70
6	120	Alarm Delay	Get/Set	5, 1, 100	REAL	71/72
7	121	Trip Count	Get		UINT	1136

Class 0x64, Instance 5 - Current Unbalance

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	122	Trip Action	Get/Set	1, 0, 7	UINT	80
2	123	Alarm Action	Get/Set	1, 0, 7	UINT	89
3	124	Trip Level	Get/Set	0.25, 0.05, 1	REAL	81/82
4	125	Trip Delay	Get/Set	15, 1, 100	REAL	83/84
5	126	Alarm Level	Get/Set	0.10, 0.05, 1	REAL	85/86
6	127	Alarm Delay	Get/Set	10, 1, 100	REAL	87/88
7	128	Trip Count	Get		UINT	1134

Class 0x64, Instance 6 - Phase Reverse

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	129	Trip Action	Get/Set	0, 0, 7	UINT	96
2	130	Alarm Action	Get/Set	0, 0, 7	UINT	93
4	131	Trip Delay	Get/Set	2, 1, 100	REAL	97/98
6	132	Alarm Delay	Get/Set	2, 1, 100	REAL	94
7	133	Trip Count	Get		UINT	1144

Class 0x64, Instance 7 - Phase Loss

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	134	Trip Action	Get/Set	1, 0, 7	UINT	99
2	135	Alarm Action	Get/Set	1, 0, 7	UINT	102
4	136	Trip Delay	Get/Set	5, 1, 100	REAL	100
6	137	Alarm Delay	Get/Set	5, 1, 100	REAL	103
7	138	Trip Count	Get		UINT	1143

Class 0x64, Instance 8 – Undercurrent

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	139	Trip Action	Get/Set	0, 0, 7	UINT	128
2	140	Alarm Action	Get/Set	0, 0, 7	UINT	137
3	141	Trip Level	Get/Set	0.5, 0.1, 1	REAL	129
4	142	Trip Delay	Get/Set	10, 1, 100	REAL	131
5	143	Alarm Level	Get/Set	0.8, 0.1, 1	REAL	133
6	144	Alarm Delay	Get/Set	20, 1, 100	REAL	135
7	145	Trip Count	Get		UINT	1137

Class 0x64, Instance 9 - PTC Temperature

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	146	Trip Action	Get/Set	0, 0, 7	UINT	144
2	147	Alarm Action	Get/Set	0, 0, 7	UINT	145
7	148	Trip Count	Get		UINT	1142

Class 0x64, Instance 0x0A – Local RTD Sensor

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	149	Trip Action	Get/Set	1, 0, 7	UINT	146
2	150	Alarm Action	Get/Set	1, 0, 7	UINT	151
3	151	Trip Level	Get/Set	130, 40, 200	REAL	147
5	152	Alarm Level	Get/Set	110, 40, 200	REAL	149
7	153	Trip Count	Get		UINT	1194

Class 0x64, Instance 0x0B – Reduced Overcurrent

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	154	Trip Action	Get/Set	0, 0, 7	UINT	45
3	155	Trip Level	Get/Set	1, 1, 15	REAL	46/47
7	156	Trip Count	Get		UINT	1140

Class 0x64, Instance 0x0C – Differential Overcurrent

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	465	Trip Action	Get/Set	0, 0, 7	UINT	170
2	466	Alarm Action	Get/Set	0, 0, 7	UINT	179
3	467	Trip Level	Get/Set	1, 0.1, 15	REAL	171/172
4	468	Trip Delay	Get/Set	0.1, 0, 10	REAL	173/174
5	469	Alarm Level	Get/Set	0.5, 0.1, 15	REAL	175/176
6	470	Alarm Delay	Get/Set	0.1, 0, 10	REAL	177/178
7	471	Trip Count	Get		UINT	1139

3.9 RTD Module Class 0x65

RTD Module Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute.

Class 0x65, Instance 0, Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1		Revision Number	Get	Revision number of this class	1	UINT	
2		Max Instance	Get	Maximum number of RTD modules	3	UINT	
100 (0x64)	160	Modules Used	Get/Set	Specifies the number of RTD modules used	0, 0, 3	UINT	390
101 (0x65)	161	Sensor Trip Action(1)	Get/Set	Specifies trip action to take on a sensor error. 0 = Disable Trips 1 = Trip1 2 = Trip2 3 = Trip3 4 = Trip1 & Trip2 5 = Trip1 & Trip3 6 = Trip1 & Trip2 & Trip3 7 = Trip2 & Trip3	0, 0, 7	UINT	388
102 (0x66)	162	Sensor Alarm Action(1)	Get/Set	Specifies alarm action to take on a sensor error. 0 = Disable Alarms 1 = Alarm1 2 = Alarm2 3 = Alarm3 4 = Alarm1 & Alarm2 5 = Alarm1 & Alarm3 6 = Alarm1 & Alarm2 & Alarm3 7 = Alarm2 & Alarm3	1, 0, 7	UINT	389
103 (0x67)	163	Module Error Trip Action	Get/Set	Specifies trip action to take on a module error. Action list is the same as Attribute 9.	0, 0, 7	UINT	387

Class 0x65, Instance 0, Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
104 (0x68)	164	Module Error Alarm Action	Get/Set	Specifies alarm action to take on a module error. Action list is the same as Attribute A.	1, 0, 7	UINT	386
105 (0x69)	165	Module1 Comm Trip Count	Get	Number of module1 communication-error trips.		UINT	1180
106 (0x6A)	166	Module2 Comm Trip Count	Get	Number of module2 communication-error trips.		UINT	1181
107 (0x6B)	167	Module3 Comm Trip Count	Get	Number of module3 communication-error trips.		UINT	1182
108 (0x6C)	168	Module Sensor Trip Count	Get	Number of RTD sensor trips		UINT	1183
109 (0x6D)	169	HMC Enable(1)	Get/Set	Hot Motor Compensation control. 0 = Enable, 1 = Disable		UINT	550
110 (0x6E)	170	HMC Max Bias(1)	Get/Set	Stator temperature (°C) where compensation ends at 100% I²t.	150, 40, 200	REAL	551/ 552
111 (0x6F)	171	HMC Min Bias(1)	Get/Set	Stator temperature (°C) where compensation begins at 0% I²t.	40, 40, 200	REAL	553/ 554
112 (0x70)	172	Max Stator Temp	Get	Maximum stator temperature (°C)		REAL	950/ 951
113 (0x71)	173	Max Bearing Temp	Get	Maximum bearing temperature (°C)		REAL	952/ 953
114 (0x72)	174	Max Load Temp	Get	Maximum load temperature (°C)		REAL	954/ 955
115 (0x73)	175	Max Amb Temp	Get	Maximum ambient temperature (°C)		REAL	956/ 957
116 (0x74)	176	Min Stator Temp	Get	Minimum stator temperature (°C)		REAL	958/ 959
117 (0x75)	177	Min Bearing Temp	Get	Minimum bearing temperature (°C)		REAL	960/ 961
118 (0x76)	178	Min Load Temp	Get	Minimum load temperature (°C)		REAL	962/ 963
119 (0x77)	179	Min Ambient Temp	Get	Minimum ambient temperature (°C)		REAL	964/ 965

(1)Also applies to local RTD sensor

RTD Module Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute.

Object Instance Attributes 1 to 8 define the RTD type. Selecting an RTD will enable trip and alarm set points. The trip action is fixed as Trip1 and the alarm action is fixed as Alarm1.

0 = RTD Disabled
1 = Platinum 100 ohm
2 = Nickel 100 ohm
3 = Nickel 120 ohm
4 = Copper 10 ohm

Object Instance Attributes 0x09 to 0x10 define the RTD function.

0 = Stator
1 = Bearing

2 = Load
3 = Ambient

Object Instance Attributes 0x11 to 0x20 define the trip and alarm settings in degrees C. The trip action is fixed as Trip1 and the alarm action is fixed as Alarm1.

Object Instance Attributes 0x21 to 0x28 define an 18-character name.

Object Instance Attributes 0x29 to 0x30 are temperature readings.

Object Instance Attributes 0x31 to 0x38 are the trip counters for each of the RTD's.

Class 0x65, Instance 1

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	190	RTD #1 Type	Get/Set	0, 0, 4	UINT	391
2	191	RTD #2 Type	Get/Set	0, 0, 4	UINT	392
3	192	RTD #3 Type	Get/Set	0, 0, 4	UINT	393
4	193	RTD #4 Type	Get/Set	0, 0, 4	UINT	394
5	194	RTD #5 Type	Get/Set	0, 0, 4	UINT	395
6	195	RTD #6 Type	Get/Set	0, 0, 4	UINT	396
7	196	RTD #7 Type	Get/Set	0, 0, 4	UINT	397
8	197	RTD #8 Type	Get/Set	0, 0, 4	UINT	398
9	198	RTD #1 Function	Get/Set	0, 0, 3	UINT	415
10 (0x0A)	199	RTD #2 Function	Get/Set	0, 0, 3	UINT	416
11 (0x0B)	200	RTD #3 Function	Get/Set	0, 0, 3	UINT	417
12 (0x0C)	201	RTD #4 Function	Get/Set	0, 0, 3	UINT	418
13 (0x0D)	202	RTD #5 Function	Get/Set	0, 0, 3	UINT	419
14 (0x0E)	203	RTD #6 Function	Get/Set	0, 0, 3	UINT	420
15 (0x0F)	204	RTD #7 Function	Get/Set	0, 0, 3	UINT	421
16 (0x10)	205	RTD #8 Function	Get/Set	0, 0, 3	UINT	422
17 (0x11)	206	RTD #1 Trip Level	Get/Set	130, 40, 200	REAL	446/447
18 (0x12)	207	RTD #1 Alarm Level	Get/Set	110, 40, 200	REAL	448/449
19 (0x13)	208	RTD #2 Trip Level	Get/Set	130, 40, 200	REAL	450/451
20 (0x14)	209	RTD #2 Alarm Level	Get/Set	110, 40, 200	REAL	452/453
21 (0x15)	210	RTD #3 Trip Level	Get/Set	130, 40, 200	REAL	454/455
22 (0x16)	211	RTD #3 Alarm Level	Get/Set	110, 40, 200	REAL	456/457
23 (0x17)	212	RTD #4 Trip Level	Get/Set	130, 40, 200	REAL	458/459
24 (0x18)	213	RTD #4 Alarm Level	Get/Set	110, 40, 200	REAL	460/461
25 (0x19)	214	RTD #5 Trip Level	Get/Set	130, 40, 200	REAL	462/463
26 (0x1A)	215	RTD #5 Alarm Level	Get/Set	110, 40, 200	REAL	464/465
27 (0x1B)	216	RTD #6 Trip Level	Get/Set	130, 40, 200	REAL	466/467
28 (0x1C)	217	RTD #6 Alarm Level	Get/Set	110, 40, 200	REAL	468/469
29 (0x1D)	218	RTD #7 Trip Level	Get/Set	130, 40, 200	REAL	470/471
30 (0x1E)	219	RTD #7 Alarm Level	Get/Set	110, 40, 200	REAL	472/473
31 (0x1F)	220	RTD #8 Trip Level	Get/Set	130, 40, 200	REAL	474/475
32 (0x20)	221	RTD #8 Alarm Level	Get/Set	110, 40, 200	REAL	476/477
33 (0x21)	222	RTD #1 Name	Get/Set	RTD M1 #1	SHORT_ STRING	610
34 (0x22)	223	RTD #2 Name	Get/Set	RTD M1 #2	SHORT_ STRING	620
35 (0x23)	224	RTD #3 Name	Get/Set	RTD M1 #3	SHORT_ STRING	630
36 (0x24)	225	RTD #4Name	Get/Set	RTD M1 #4	SHORT_ STRING	640
37 (0x25)	226	RTD #5 Name	Get/Set	RTD M1 #5	SHORT_ STRING	650
38 (0x26)	227	RTD #6 Name	Get/Set	RTD M1 #6	SHORT_ STRING	660
39 (0x27)	228	RTD #7 Name	Get/Set	RTD M1 #7	SHORT_ STRING	670

Class 0x65, Instance 1 (continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
40 (0x28)	229	RTD #8 Name	Get/Set	RTD M1 #8	SHORT_ STRING	680
41 (0x29)	230	RTD #1 Temp RDG	Get		REAL	902/903
42 (0x2A)	231	RTD #2 Temp RDG	Get		REAL	904/905
43 (0x2B)	232	RTD #3 Temp RDG	Get		REAL	906/907
44 (0x2C)	233	RTD #4 Temp RDG	Get		REAL	908/909
45 (0x2D)	234	RTD #5 Temp RDG	Get		REAL	910/911
46 (0x2E)	235	RTD #6 Temp RDG	Get		REAL	912/913
47 (0x2F)	236	RTD #7 Temp RDG	Get		REAL	914/915
48 (0x30)	237	RTD #8 Temp RDG	Get		REAL	916/917
49 (0x31)	238	RTD #1 Trip Cntr	Get		UINT	1156
50 (0x32)	239	RTD #2 Trip Cntr	Get		UINT	1157
51 (0x33)	240	RTD #3 Trip Cntr	Get		UINT	1158
52 (0x34)	241	RTD #4 Trip Cntr	Get		UINT	1159
53 (0x35)	242	RTD #5 Trip Cntr	Get		UINT	1160
54 (0x36)	243	RTD #6 Trip Cntr	Get		UINT	1161
55 (0x37)	244	RTD #7 Trip Cntr	Get		UINT	1162
56 (0x38)	245	RTD #8 Trip Cntr	Get		UINT	1163

Class 0x65, Instance 2

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	250	RTD #1 Type	Get/Set	0, 0, 4	UINT	399
2	251	RTD #2 Type	Get/Set	0, 0, 4	UINT	400
3	252	RTD #3 Type	Get/Set	0, 0, 4	UINT	401
4	253	RTD #4 Type	Get/Set	0, 0, 4	UINT	402
5	254	RTD #5 Type	Get/Set	0, 0, 4	UINT	403
6	255	RTD #6 Type	Get/Set	0, 0, 4	UINT	404
7	256	RTD #7 Type	Get/Set	0, 0, 4	UINT	405
8	257	RTD #8 Type	Get/Set	0, 0, 4	UINT	406
9	258	RTD #1 Function	Get/Set	0, 0, 3	UINT	423
10 (0x0A)	259	RTD #2 Function	Get/Set	0, 0, 3	UINT	424
11 (0x0B)	260	RTD #3 Function	Get/Set	0, 0, 3	UINT	425
12 (0x0C)	261	RTD #4 Function	Get/Set	0, 0, 3	UINT	426
13 (0x0D)	262	RTD #5 Function	Get/Set	0, 0, 3	UINT	427
14 (0x0E)	263	RTD #6 Function	Get/Set	0, 0, 3	UINT	428
15 (0x0F)	264	RTD #7 Function	Get/Set	0, 0, 3	UINT	429
16 (0x10)	265	RTD #8 Function	Get/Set	0, 0, 3	UINT	430
17 (0x11)	266	RTD #1 Trip Level	Get/Set	130, 40, 200	REAL	478/479
18 (0x12)	267	RTD #1 Alarm Level	Get/Set	110, 40, 200	REAL	480/481
19 (0x13)	268	RTD #2 Trip Level	Get/Set	130, 40, 200	REAL	482/483
20 (0x14)	269	RTD #2 Alarm Level	Get/Set	110, 40, 200	REAL	484/485
21 (0x15)	270	RTD #3 Trip Level	Get/Set	130, 40, 200	REAL	486/487
22 (0x16)	271	RTD #3 Alarm Level	Get/Set	110, 40, 200	REAL	488/489
23 (0x17)	272	RTD #4 Trip Level	Get/Set	130, 40, 200	REAL	490/491
24 (0x18)	273	RTD #4 Alarm Level	Get/Set	110, 40, 200	REAL	492/493
25 (0x19)	274	RTD #5 Trip Level	Get/Set	130, 40, 200	REAL	494/495
26 (0x1A)	275	RTD #5 Alarm Level	Get/Set	110, 40, 200	REAL	496/497
27 (0x1B)	276	RTD #6 Trip Level	Get/Set	130, 40, 200	REAL	498/499
28 (0x1C)	277	RTD #6 Alarm Level	Get/Set	110, 40, 200	REAL	500/501
29 (0x1D)	278	RTD #7 Trip Level	Get/Set	130, 40, 200	REAL	502/503
30 (0x1E)	279	RTD #7 Alarm Level	Get/Set	110, 40, 200	REAL	504/505
31 (0x1F)	280	RTD #8 Trip Level	Get/Set	130, 40, 200	REAL	506/507
32 (0x20)	281	RTD #8 Alarm Level	Get/Set	110, 40, 200	REAL	508/509

Class 0x65, Instance 2 (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
33 (0x21)	282	RTD #1 Name	Get/Set	RTD M2 #1	SHORT_ STRING	690
34 (0x22)	283	RTD #2 Name	Get/Set	RTD M2 #2	SHORT_ STRING	700
35 (0x23)	284	RTD #3 Name	Get/Set	RTD M2 #3	SHORT_ STRING	710
36 (0x24)	285	RTD #4Name	Get/Set	RTD M2 #4	SHORT_ STRING	720
37 (0x25)	286	RTD #5 Name	Get/Set	RTD M2 #5	SHORT_ STRING	730
38 (0x26)	287	RTD #6 Name	Get/Set	RTD M2 #6	SHORT_ STRING	740
39 (0x27)	288	RTD #7 Name	Get/Set	RTD M2 #7	SHORT_ STRING	750
40 (0x28)	289	RTD #8 Name	Get/Set	RTD M2 #8	SHORT_ STRING	760
41 (0x29)	290	RTD #1 Temp RDG	Get		REAL	918/919
42 (0x2A)	291	RTD #2 Temp RDG	Get		REAL	920/921
43 (0x2B)	292	RTD #3 Temp RDG	Get		REAL	922/923
44 (0x2C)	293	RTD #4 Temp RDG	Get		REAL	924/925
45 (0x2D)	294	RTD #5 Temp RDG	Get		REAL	926/927
46 (0x2E)	295	RTD #6 Temp RDG	Get		REAL	928/929
47 (0x2F)	296	RTD #7 Temp RDG	Get		REAL	930/931
48 (0x30)	297	RTD #8 Temp RDG	Get		REAL	932/933
49 (0x31)	298	RTD #1 Trip Cntr	Get		UINT	1164
50 (0x32)	299	RTD #2 Trip Cntr	Get		UINT	1165
51 (0x33)	300	RTD #3 Trip Cntr	Get		UINT	1166
52 (0x34)	301	RTD #4 Trip Cntr	Get		UINT	1167
53 (0x35)	302	RTD #5 Trip Cntr	Get		UINT	1168
54 (0x36)	303	RTD #6 Trip Cntr	Get		UINT	1169
55 (0x37)	304	RTD #7 Trip Cntr	Get		UINT	1170
56 (0x38)	305	RTD #8 Trip Cntr	Get		UINT	1171

Class 0x65, Instance 3

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	310	RTD #1 Type	Get/Set	0, 0, 4	UINT	407
2	311	RTD #2 Type	Get/Set	0, 0, 4	UINT	408
3	312	RTD #3 Type	Get/Set	0, 0, 4	UINT	409
4	313	RTD #4 Type	Get/Set	0, 0, 4	UINT	410
5	314	RTD #5 Type	Get/Set	0, 0, 4	UINT	411
6	315	RTD #6 Type	Get/Set	0, 0, 4	UINT	412
7	316	RTD #7 Type	Get/Set	0, 0, 4	UINT	413
8	317	RTD #8 Type	Get/Set	0, 0, 4	UINT	414
9	318	RTD #1 Function	Get/Set	0, 0, 3	UINT	431
10 (0x0A)	319	RTD #2 Function	Get/Set	0, 0, 3	UINT	432
11 (0x0B)	320	RTD #3 Function	Get/Set	0, 0, 3	UINT	433
12 (0x0C)	321	RTD #4 Function	Get/Set	0, 0, 3	UINT	434
13 (0x0D)	322	RTD #5 Function	Get/Set	0, 0, 3	UINT	435
14 (0x0E)	323	RTD #6 Function	Get/Set	0, 0, 3	UINT	436
15 (0x0F)	324	RTD #7 Function	Get/Set	0, 0, 3	UINT	437
16 (0x10)	325	RTD #8 Function	Get/Set	0, 0, 3	UINT	438
17 (0x11)	326	RTD #1 Trip Level	Get/Set	130, 40, 200	REAL	510/511
18 (0x12)	327	RTD #1 Alarm Level	Get/Set	110, 40, 200	REAL	512/513

Class 0x65, Instance 3 (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
19 (0x13)	328	RTD #2 Trip Level	Get/Set	130, 40, 200	REAL	514/515
20 (0x14)	329	RTD #2 Alarm Level	Get/Set	110, 40, 200	REAL	516/517
21 (0x15)	330	RTD #3 Trip Level	Get/Set	130, 40, 200	REAL	518/519
22 (0x16)	331	RTD #3 Alarm Level	Get/Set	110, 40, 200	REAL	520/521
23 (0x17)	332	RTD #4 Trip Level	Get/Set	130, 40, 200	REAL	522/523
24 (0x18)	333	RTD #4 Alarm Level	Get/Set	110, 40, 200	REAL	524/525
25 (0x19)	334	RTD #5 Trip Level	Get/Set	130, 40, 200	REAL	526/527
26 (0x1A)	335	RTD #5 Alarm Level	Get/Set	110, 40, 200	REAL	528/529
27 (0x1B)	336	RTD #6 Trip Level	Get/Set	130, 40, 200	REAL	530/531
28 (0x1C)	337	RTD #6 Alarm Level	Get/Set	110, 40, 200	REAL	532/533
29 (0x1D)	338	RTD #7 Trip Level	Get/Set	130, 40, 200	REAL	534/535
30 (0x1E)	339	RTD #7 Alarm Level	Get/Set	110, 40, 200	REAL	536/537
31 (0x1F)	340	RTD #8 Trip Level	Get/Set	130, 40, 200	REAL	538/539
32 (0x20)	341	RTD #8 Alarm Level	Get/Set	110, 40, 200	REAL	540/541
33 (0x21)	342	RTD #1 Name	Get/Set	RTD M3 #1	SHORT_ STRING	770
34 (0x22)	343	RTD #2 Name	Get/Set	RTD M3 #2	SHORT_ STRING	780
35 (0x23)	344	RTD #3 Name	Get/Set	RTD M3 #3	SHORT_ STRING	790
36 (0x24)	345	RTD #4Name	Get/Set	RTD M3 #4	SHORT_ STRING	800
37 (0x25)	346	RTD #5 Name	Get/Set	RTD M3 #5	SHORT_ STRING	810
38 (0x26)	347	RTD #6 Name	Get/Set	RTD M3 #6	SHORT_ STRING	820
39 (0x27)	348	RTD #7 Name	Get/Set	RTD M3 #7	SHORT_ STRING	830
40 (0x28)	349	RTD #8 Name	Get/Set	RTD M3 #8	SHORT_ STRING	840
41 (0x29)	350	RTD #1 Temp RDG	Get		REAL	934/935
42 (0x2A)	351	RTD #2 Temp RDG	Get		REAL	936/937
43 (0x2B)	352	RTD #3 Temp RDG	Get		REAL	938/939
44 (0x2C)	353	RTD #4 Temp RDG	Get		REAL	940/941
45 (0x2D)	354	RTD #5 Temp RDG	Get		REAL	942/943
46 (0x2E)	355	RTD #6 Temp RDG	Get		REAL	944/945
47 (0x2F)	356	RTD #7 Temp RDG	Get		REAL	946/947
48 (0x30)	357	RTD #8 Temp RDG	Get		REAL	948/949
49 (0x31)	358	RTD #1 Trip Cntr	Get		UINT	1172
50 (0x32)	359	RTD #2 Trip Cntr	Get		UINT	1173
51 (0x33)	360	RTD #3 Trip Cntr	Get		UINT	1174
52 (0x34)	361	RTD #4 Trip Cntr	Get		UINT	1175
53 (0x35)	362	RTD #5 Trip Cntr	Get		UINT	1176
54 (0x36)	363	RTD #6 Trip Cntr	Get		UINT	1177
55 (0x37)	364	RTD #7 Trip Cntr	Get		UINT	1178
56 (0x38)	365	RTD #8 Trip Cntr	Get		UINT	1179

3.10 RTC Class 0x66

RTC Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

RTC Class 0x66, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum number of instances	1	UINT

RTC Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute.

RTC Class 0x66, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	370	RTC Date	Get	Number of days since 1972-01-01		DATE	574
2	371	RTC Time	Get	Number of milliseconds since 00:00:00:00.000		TIME OF DAY	576
3	372	RTC Set	Get/Set (1)	String used to set the date and time YY/MM/DD-HH:MM:SS		SHORT_ STRING	580

(1) Time value is also set with a SET RTC command issued using Class 0x29, Instance 1, Attribute 0x64.

3.11 User-Defined Register Class 0x67

This object defines the PGR-6200 registers that generate the data for Assembly Class 4, Instance 0x64, Attribute 3. Register values are defined in Appendix E of the PGR-6200 Manual and also listed in the PGR-6200 Register column in this manual. Enter the register number for the required parameter data. Parameter data is 16 bits and two registers must be defined to retrieve a 32-bit float value. For example, to configure an assembly to read the first four RTD temperatures in RTD Module 1, enter register numbers 902, 903, 904, 905, 906, 907, 908, 909.

The first 16 bytes of the assembly will contain the RTD data and the remainder of the assembly will not contain any valid data. Register definitions resulting in more than 64 bytes of data will be ignored.

User-Defined Register Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

User-Defined Register Class 0x67, Instance 0 Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum number of instances	1	UINT

User-Defined Register Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute.

User-Defined Register Class 0x67, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	380	Register 0	Get/Set	User Register 0	0, 0, 1274	UINT	1400
2	381	Register 1	Get/Set	User Register 1	0, 0, 1274	UINT	1401
3	382	Register 2	Get/Set	User Register 2	0, 0, 1274	UINT	1402
4	383	Register 3	Get/Set	User Register 3	0, 0, 1274	UINT	1403
5	384	Register 4	Get/Set	User Register 4	0, 0, 1274	UINT	1404
6	385	Register 5	Get/Set	User Register 5	0, 0, 1274	UINT	1405
7	386	Register 6	Get/Set	User Register 6	0, 0, 1274	UINT	1406
8	387	Register 7	Get/Set	User Register 7	0, 0, 1274	UINT	1407
9	388	Register 8	Get/Set	User Register 8	0, 0, 1274	UINT	1408
10	389	Register 9	Get/Set	User Register 9	0, 0, 1274	UINT	1409
11	390	Register 10	Get/Set	User Register 10	0, 0, 1274	UINT	1410
12	391	Register 11	Get/Set	User Register 11	0, 0, 1274	UINT	1411
13	392	Register 12	Get/Set	User Register 12	0, 0, 1274	UINT	1412
14	393	Register 13	Get/Set	User Register 13	0, 0, 1274	UINT	1413
15	394	Register 14	Get/Set	User Register 14	0, 0, 1274	UINT	1414
16	395	Register 15	Get/Set	User Register 15	0, 0, 1274	UINT	1415
17	396	Register 16	Get/Set	User Register 16	0, 0, 1274	UINT	1416
18	397	Register 17	Get/Set	User Register 17	0, 0, 1274	UINT	1417
19	398	Register 18	Get/Set	User Register 18	0, 0, 1274	UINT	1418
20	399	Register 19	Get/Set	User Register 19	0, 0, 1274	UINT	1419
21	400	Register 20	Get/Set	User Register 20	0, 0, 1274	UINT	1420
22	401	Register 21	Get/Set	User Register 21	0, 0, 1274	UINT	1421
23	402	Register 22	Get/Set	User Register 22	0, 0, 1274	UINT	1422
24	403	Register 23	Get/Set	User Register 23	0, 0, 1274	UINT	1423
25	404	Register 24	Get/Set	User Register 24	0, 0, 1274	UINT	1424
26	405	Register 25	Get/Set	User Register 25	0, 0, 1274	UINT	1425
27	406	Register 26	Get/Set	User Register 26	0, 0, 1274	UINT	1426
28	407	Register 27	Get/Set	User Register 27	0, 0, 1274	UINT	1427
29	408	Register 28	Get/Set	User Register 28	0, 0, 1274	UINT	1428
30	409	Register 29	Get/Set	User Register 29	0, 0, 1274	UINT	1429
31	410	Register 30	Get/Set	User Register 30	0, 0, 1274	UINT	1430
32	411	Register 31	Get/Set	User Register 31	0, 0, 1274	UINT	1431

3.12 Data Logging Class 0x68

This data logging class is used to access one of 100 data records. Data records are stored in a circular queue numbered from 0 to 99. Record Head contains the value of the next queue entry where a new record is stored. The last record is stored in Record Head – 1. The queue functions as a FIFO memory and Record Head wraps from 99 to 0. When the queue is full, the oldest record is replaced by the newest record.

Data Logging Object Class Services

Get_Attribute_Single: Returns contents of specified attribute.

Data Logging Class (0x68), Instance (0) Attributes

ATTRIBUTE NUMBER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE
1	Revision	Get	Revision of this object	1	UINT
2	Max Instance	Get	Maximum number of instances	1	UINT

Data Logging Object Instance Services

Get_Attribute_Single: Returns contents of specified attribute.
Set_Attribute_Single: Modifies specified attribute

Data Logging Class 0x68, Instance 1 Attributes

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
1	420	Record Count	Get	Number of captured records since the last time the event records were cleared	0, 0, 65535	UINT	973
2	421	Record Head	Get	Points to next record. Latest record at Record Head - 1	0, 0, 99	UINT	974
3	422	Record ID	Get/Set	Selects the record for which the data is displayed in this instance	0, 0, 99	UINT	975
4	423	Record Date	Get	The date when the record was captured	0, 0, 65535	DATE	976/977
5	424	Record Time	Get	Time-of-Day the record was captured	0, 0, 86399999	TOD	978/979
6	425	Record Type	Get	Specifies the trigger source 0 = Record Empty 1 = Triggered by trip 2 = Triggered by start 3 = ETR Record	0, 0, 3	UINT	980
7	426	Trip Code	Get	See PGR-6200 Manual, Appendix F T27 for a list of trip codes. 255 = No Trip or Alarm	0, 0, 255	UINT	981
8	427	I_A	Get	Phase A Current (A) [1]		REAL	982/983
9	428	I_B	Get	Phase B Current (A) [1]		REAL	984/985
10 (0x0A)	429	I_C	Get	Phase C Current (A) [1]		REAL	986/987
11 (0x0B)	430	Ig	Get	Ground-Fault Current (A) [1, 3]		REAL	988/989
12 (0x0C)	431	DFa	Get	Differential Current Phase A		REAL	990/991
13 (0x0D)	432	DFb	Get	Differential Current Phase B		REAL	992/993
14 (0x0E)	433	DFc	Get	Differential Current Phase C		REAL	994/995
15 (0x0F)	434	Reserved	Get				996/997
16 (0x10)	435	Unbalance	Get	Current Unbalance (pu) [1]		REAL	998/999
17 (0x11)	436	Local RTD	Get	Local RTD Reading		REAL	1000/1001
18 (0x12)	437	Start Time	Get	Start time in seconds. Only valid for start-type records		UINT	1002
19 (0x13)	438	I²t Used	Get	For start records this is the I²t (pu) used during a start. Scaled to %		REAL	1003/1004
20 (0x14)	439	M1 RTD1	Get	RTD Temperature reading (ºC)		REAL	1005/1006
21 (0x15)	440	M1 RTD2	Get	RTD Temperature reading (ºC)		REAL	1007/1008
22 (0x16)	441	M1 RTD3	Get	RTD Temperature reading (ºC)		REAL	1009/1010
23 (0x17)	442	M1 RTD4	Get	RTD Temperature reading (ºC)		REAL	1011/1012
24 (0x18)	443	M1 RTD5	Get	RTD Temperature reading (ºC)		REAL	1013/1014
25 (0x19)	444	M1 RTD6	Get	RTD Temperature reading (ºC)		REAL	1015/1016
26 (0x1A)	445	M1 RTD7	Get	RTD Temperature reading (ºC)		REAL	1017/1018
27 (0x1B)	446	M1 RTD8	Get	RTD Temperature reading (ºC)		REAL	1019/1020
28 (0x1C)	447	M2 RTD1	Get	RTD Temperature reading (ºC)		REAL	1021/1022
29 (0x1D)	448	M2 RTD2	Get	RTD Temperature reading (ºC)		REAL	1023/1024
30 (0x1E)	449	M2 RTD3	Get	RTD Temperature reading (ºC)		REAL	1025/1026
31 (0x1F)	450	M2 RTD4	Get	RTD Temperature reading (ºC)		REAL	1027/1028
32 (0x20)	451	M2 RTD5	Get	RTD Temperature reading (ºC)		REAL	1029/1030
33 (0x21)	452	M2 RTD6	Get	RTD Temperature reading (ºC)		REAL	1031/1032
34 (0x22)	453	M2 RTD7	Get	RTD Temperature reading (ºC)		REAL	1033/1034
35 (0x23)	454	M2 RTD8	Get	RTD Temperature reading (ºC)		REAL	1035/1036
36 (0x24)	455	M3 RTD1	Get	RTD Temperature reading (ºC)		REAL	1037/1038

Data Logging Class 0x68, Instance 1 Attributes (Continued)

ATTRIBUTE NUMBER	DEVICENET PARAMETER	ATTRIBUTE NAME	SERVICES	DESCRIPTION	DEFAULT, MINIMUM, MAXIMUM	DATA TYPE	COMM REGISTER
37 (0x25)	456	M3 RTD2	Get	RTD Temperature reading (ºC)		REAL	1039/1040
38 (0x26)	457	M3 RTD3	Get	RTD Temperature reading (ºC)		REAL	1041/1042
39 (0x27)	458	M3 RTD4	Get	RTD Temperature reading (ºC)		REAL	1043/1044
40 (0x28)	459	M3 RTD5	Get	RTD Temperature reading (ºC)		REAL	1045/1046
41 (0x29)	460	M3 RTD6	Get	RTD Temperature reading (ºC)		REAL	1047/1048
42 (0x2A)	461	M3 RTD7	Get	RTD Temperature reading (ºC)		REAL	1049/1050
43 (0x2B)	462	M3 RTD8	Get	RTD Temperature reading (ºC)		REAL	1051/1052

(1) For start records, current and unbalance are maximum values recorded during the start.

(2) RTD sensor codes are: -100 = Unused, -90 = Open RTD, -80 = Shorted RTD

(3) I_g from EF-CT if *EF Source* is *Measured (Ict)* and calculated value if *EF Source* is *Calculated ($3I_0$)*.