

DNP V3.0 Communication Database

Rev. 5.0a

**M-3425A Firmware Version
Integrated Protection System
Device I.D. = 205**



M-3425A DNP V3.0 COMMUNICATION DATABASE

Integrated Protection System

DEVICE I.D. = 205

Specifications Presented Herein Are Thought To Be Accurate At The Time Of Publication But Are Subject To Change Without Notice.

NO WARRANTIES OF ANY KIND ARE IMPLIED ON THE INFORMATION CONTAINED IN THIS DOCUMENT.

REV	1.0	12/23/08 Preliminary release
REV	2.0	2009 Removed Analog Input Events as it is not supported
REV	3.0	2011 Corrected Binary Input Points 32-47
REV	4.0	2011 Corrected revision record.
REV	5.0	2011 Added Binary Output Points 3783-3798.
REV	5.0a	08/01/2024 Updating logos and removing "Co. Inc.". No updates to points.

Specifications

The following definitions apply to the data tables in this specification:

SCALE FACTOR – Scale Factor is the factor by which an integer value read from the control is divided to get the value the variable in the indicated **UNITS**.

U – Points marked with a **(U)** appended to the scale factor field should be taken as unsigned value (0-65535) before scaling.

UNITS – Unit of measure for the described data point.

NOT USED – All points defined as “Not Used” can be read and will return 0 for data.

The communication database profile in the M-3425A with the DNPV3.0 protocol is grouped into seven object types. These are:

- **Single-Bit Binary Inputs (Status)** (object 01, variation 01, 02):
They are considered class 0 data.
- **16-Bit Analog Output Block/Status** (object 40, variation 01, 02 /object 41, variation 01, 02):
With these points, you can write and read all the setpoints and system setup.
- **Binary Outputs and Control Relay Output Block (Direct Control)** (object 10, variation 02/
object 12, variation 02): With these points, you can write all the configuration points.
- **16-Bit Analog Inputs** (object 30, variation 01, 02, 03, 04):
These points represent demand metering, voltage and currents.
- **Data and Time** (Read and Write Time using object 50, variation 01):
Represents the system time and date.
- **Static (Class 0) Data** (object 60, variation 01):
These points represent all the binary inputs, control information, demand metering, target information and counters.
- **Events (Class 2) Data** (object 60, variation 03):
These points represent the binary and analog inputs.

DNP Configuration Parameters:

M-3425A relays support DNP through the Rear Ethernet (COM2) communication port.

M-3425A Slave address:

DNP3 Slave IED Address range is from 0 to 255. The communication address can be set through the HMI (Front panel).

DNP V3.0 DEVICE PROFILE DOCUMENT					
Vendor Name: Beckwith Electric Co., Inc.					
Device Name: Generator Protection System					
Highest DNP Level Supported:			Device Function:		
For Requests: Level 2			Master		
For Responses: Level 2			x Slave		
Notable objects, functions, and/or qualifiers supported in addition to the Highest DNP Levels Supported (the complete list is described in the attached table): The read function code for Object 50 (Time and Date), variation 1, is supported.					
Maximum Data Link Frame Size (octets):			Maximum Application Fragment Size (octets):		
Transmitted: 292			Transmitted: 3K		
Received 64			Received 3K		
Maximum Data Link Re-tries:			Maximum Application Layer Re-tries:		
None			x None		
x Fixed at 2			Configurable		
Configurable from 0 to 255					
Requires Data Link Layer Confirmation:					
x Never					
Always					
Sometimes					
Configurable as: Never, Only for multi frame messages					
Requires Application Layer Confirmation:					
x Never					
Always					
When reporting Event Data					
When sending multi-fragment responses					
Sometimes					
Configurable					
Timeouts while waiting for:					
Data Link Confirm:	x	None	Fixed at 3S_____	Variable	Configurable
Complete Appl. Fragment:	x	None	Fixed at _____	Variable	Configurable
Application Confirm:		None	x Fixed at _5S____	Variable	Configurable
Complete Appl. Response:	x	None	Fixed at _____	Variable	Configurable
Others:					

Table 1 – DNP V3.0 Device Profile Document (1 of 2)

DNP V3.0 DEVICE PROFILE DOCUMENT – Cont.					
Sends/Executes Control Operations:					
WRITE Binary Outputs	x Never	Always	Sometimes	Configurable	
SELECT/OPERATE	Never	x Always	Sometimes	Configurable	
DIRECT OPERATE	Never	x Always	Sometimes	Configurable	
DIRECT OPERATE – NO ACK	Never	x Always	Sometimes	Configurable	
Count > 1	x Never	Always	Sometimes	Configurable	
Pulse On	x Never	Always	Sometimes	Configurable	
Pulse Off	x Never	Always	Sometimes	Configurable	
Latch On	Never	x Always	Sometimes	Configurable	
Latch Off	Never	x Always	Sometimes	Configurable	
Queue	x Never	Always	Sometimes	Configurable	
Clear Queue	x Never	Always	Sometimes	Configurable	
Reports Binary Input Change Events when no specific variation requested:			Reports time-tagged Binary Input Change Events when no specific variation requested:		
x Never Only time-tagged Only non-time-tagged Configurable			x Never Binary Input Change With Time Binary Input Change With Relative Time Configurable (Attach explanation)		
Sends Unsolicited Responses:			Sends Static Data in Unsolicited Responses:		
x Never Configurable Only certain objects Sometimes (attach explanation) ENABLE/DISABLE UNSOLICITED Function codes supported			x Never When Device Restarts When Status Flags Change No other options are permitted.		
Default Counter Object/Variation:			Counters Roll Over at:		
			x No Counters Reported Configurable (Attach explanation) 16 Bits 32 Bits Point-by-point list attached		
Sends Multi-Fragment Responses:					
x Yes No					
Sequential File Transfer Support:					
Append File Mode	Yes	x No			
Custom Status Code Strings	Yes	x No			
Permissions Field	Yes	x No			
File Events Assigned to Class	Yes	x No			
File Events Poll Specifically	Yes	x No			
File Events Send Immediately	Yes	x No			
Multiple Blocks in a Fragment	Yes	x No			
Max Number of Files Open					

Table 1 – DNP V3.0 Device Profile Document (2 of 2)

DNP V3.0 IMPLEMENTATION						
OBJECT			REQUEST		RESPONSE	
OBJECT NUMBER	VARIATION NUMBER	DESCRIPTION	FUNCTION CODES (dec)	QUALIFIER CODES (hex)	FUNCTION CODES (dec)	QUALIFIER CODES (hex)
1	1 (default – see Note 1)	Binary Input	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
1	2	Binary Input with Status	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
10	2 (default – see Note 1)	Binary Output Status	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
2	2 (default – see Note 1)	Binary Input Change with Time	1 (read)	06 (no range, or all) 07, 08 (limited qty)	129 (response)	17, 28 (index)
12	1	Control Relay Output Block	5 (direct op) 6 (dir. op, no ack)	00, 01 (start-stop) 07, 08 (limited qty) 17, 28 (index)	129 (response)	echo of request
20	2	16-Bit Binary Counter				
20	5	32-Bit Binary Counter without Flag				
20	6 (default – see Note 1)	16-Bit Binary Counter without Flag				

■ NOTE:

1. A Default variation refers to the variation responded when variation 0 is requested and/or in class 0, 1, 2, or 3 scans.
2. For static (non-change-event) objects, qualifiers 17 or 28 are only responded when a request is sent with qualifiers 17 or 28, respectively. Otherwise, static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qualifiers 00 or 01. (For change-event objects, qualifiers 17 or 28 are always responded except for object 70 which responds with qualifier 1b or 5b.)
3. For a Cold, restart is implemented as a warm restart – the executable is not restarted, but the DNP process is restarted.
4. Writes of Internal Indications are only supported for index 7 (Restart IIN1-79, and indices 16 and beyond (user-defined indications).

Table 2 – DNP V3.0 Implementation (1 of 4)

DNP V3.0 IMPLEMENTATION						
OBJECT			REQUEST		RESPONSE	
OBJECT NUMBER	VARIATION NUMBER	DESCRIPTION	FUNCTION CODES (dec)	QUALIFIER CODES (hex)	FUNCTION CODES (dec)	QUALIFIER CODES (hex)
30	1	32-Bit Analog Input	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
30	2 (default – see Note 1)	16-Bit Analog Input	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
30	3	32-Bit Analog Input without Flag	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
30	4	16-Bit Analog Input without Flag	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
40	1	32-Bit Analog Output Status	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
40	2 (default – see Note 1)	16-Bit Analog Output Status	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)

■ NOTE:

1. A Default variation refers to the variation responded when variation 0 is requested and/or in class 0, 1, 2, or 3 scans.
2. For static (non-change-event) objects, qualifiers 17 or 28 are only responded when a request is sent with qualifiers 17 or 28, respectively. Otherwise, static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qualifiers 00 or 01. (For change-event objects, qualifiers 17 or 28 are always responded except for object 70 which responds with qualifier 1b or 5b.)
3. For a Cold, restart is implemented as a warm restart – the executable is not restarted, but the DNP process is restarted.
4. Writes of Internal Indications are only supported for index 7 (Restart IIN1-79, and indices 16 and beyond (user-defined indications).

Table 2 – DNP V3.0 Implementation (2 of 4)

DNP V3.0 IMPLEMENTATION						
OBJECT			REQUEST		RESPONSE	
OBJECT NUMBER	VARIATION NUMBER	DESCRIPTION	FUNCTION CODES (dec)	QUALIFIER CODES (hex)	FUNCTION CODES (dec)	QUALIFIER CODES (hex)
41	1	32-Bit Analog Output Block	5 (direct op) 6 (dir. op, no ack)	00, 01 (start-stop) 07, 08 (limited qty) 17, 28 (index)	129 (response)	echo of request
41	2	16-Bit Analog Output Block	5 (direct op) 6 (dir. op, no ack)	00, 01 (start-stop) 07, 08 (limited qty) 17, 28 (index)	129 (response)	echo of request
50	0	Time and Date			129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
50	1 (default – see Note 1)	Time and Date	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07 (limited qty=1) 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
			2 (write)	00, 01 (start-stop) 07 (limited qty=1) 08 (limited qty) 17, 28 (index)		
52	2	Time Delay Fine			129 (response)	07 (limited qty) (qty = 1)

■ **NOTE:**

1. A Default variation refers to the variation responded when variation 0 is requested and/or in class 0, 1, 2, or 3 scans.
2. For static (non-change-event) objects, qualifiers 17 or 28 are only responded when a request is sent with qualifiers 17 or 28, respectively. Otherwise, static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qualifiers 00 or 01. (For change-event objects, qualifiers 17 or 28 are always responded except for object 70 which responds with qualifier 1b or 5b.)
3. For a Cold, restart is implemented as a warm restart – the executable is not restarted, but the DNP process is restarted.
4. Writes of Internal Indications are only supported for index 7 (Restart IIN1-79, and indices 16 and beyond (user-defined indications).

Table 2 – DNP V3.0 Implementation (3 of 4)

DNP V3.0 IMPLEMENTATION						
OBJECT			REQUEST		RESPONSE	
OBJECT NUMBER	VARIATION NUMBER	DESCRIPTION	FUNCTION CODES (dec)	QUALIFIER CODES (hex)	FUNCTION CODES (dec)	QUALIFIER CODES (hex)
60	0	Class 0, 1, 2, and 3 Data				
60	1	Class 0 Data	1 (read)	06 (no range, or all)		
60	2	Class 1 Data				
60	3	Class 2 Data	1 (read)	06 (no range, or all) 07, 08 (limited qty)		
60	4	Class 3 Data				
70	1	File Identifier				
70	3	File Command				
70	4	File Command Status				
70	5	File Transfer				
70	6	File Transfer Status				
70	7	File Descriptor				
80	0	Internal Indications (Variation 0 is used to request default variation)				
80	1	Internal Indications	1 (read)	00, 01 (start-stop) 06 (no range, or all) 07, 08 (limited qty) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index – see Note 2)
			2 (write) (see Note 4)	00 (start-stop) 01 (start-stop) 07, 08 (limited qty) 17, 28 (index)		
112	string length	Virtual Terminal Output Block				
113	string length	Virtual Terminal Event Data				
No Object (function code only) – See Note 3			13 (cold restart)			
No Object (function code only)			14 (warm restart)			
No Object (function code only)			23 (delay meas.)			

■ NOTE:

1. A Default variation refers to the variation responded when variation 0 is requested and/or in class 0, 1, 2, or 3 scans.
2. For static (non-change-event) objects, qualifiers 17 or 28 are only responded when a request is sent with qualifiers 17 or 28, respectively. Otherwise, static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qualifiers 00 or 01. (For change-event objects, qualifiers 17 or 28 are always responded except for object 70 which responds with qualifier 1b or 5b.)
3. For a Cold, restart is implemented as a warm restart – the executable is not restarted, but the DNP process is restarted.
4. Writes of Internal Indications are only supported for index 7 (Restart IIN1-79, and indices 16 and beyond (user-defined indications)).

Table 2 – DNP V3.0 Implementation (4 of 4)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
0	Input status bit 0 input 1(52b)	1 / 1	0
1	Input status bit 1	1 / 1	0
2	Input status bit 2	1 / 1	0
3	Input status bit 3	1 / 1	0
4	Input status bit 4	1 / 1	0
5	Input status bit 5	1 / 1	0
6	Bit 6 Fuse Loss	1 / 1	0
7	Bit 7 NA	1 / 1	0
8	Input status Ext In 7	1 / 1	0
9	Input status Ext In 8	1 / 1	0
10	Input status Ext In 9	1 / 1	0
11	Input status Ext In 10	1 / 1	0
12	Input status Ext In 11	1 / 1	0
13	Input status Ext In 12	1 / 1	0
14	Input status Ext In 13	1 / 1	0
15	Input status Ext In 14	1 / 1	0
16-31	Output status Bit 0 Out 1 Bit 1 Out 2 Bit 2 Out 3 Bit 3 Out 4 Bit 4 Out 5 Bit 5 Out 6 Bit 6 Out 7 Bit 7 Out 8 Bit 8-15 NA		
32	Time sync	1 / 1	0
33	Breaker closed	1 / 1	0
34	Osc triggered	1 / 1	0
35	Target	1 / 1	0
36-47	Not used		

Table 3 – Binary Input Points (1 of 7)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
48-63	Output status extended Bit 0 Out 9 Bit 1 Out 10 Bit 2 Out 11 Bit 3 Out 12 Bit 4 Out 13 Bit 5 Out 14 Bit 6 Out 15 Bit 7 Out 16 Bit 8 Out 17 Bit 9 Out 18 Bit 10 Out 19 Bit 11 Out 20 Bit 12 Out 21 Bit 13 Out 22 Bit 14 Out 23 Bit 15 Not used	1 / 1	
64-79	Function status (picked up) Least significant word [0] Bit 0 21 #1 Bit 1 21 #2 Bit 2 24DT #1 Bit 3 24DT #2 Bit 4 24IT Bit 5 27 #1 Bit 6 27 #2 Bit 7 27TN #1 Bit 8 27TN #2 Bit 9 32 #1 Bit 10 32 #2 Bit 11 40 #1 Bit 12 40 #2 Bit 13 46DT Bit 14 46IT Bit 15 50		
80-95	Function status (picked up) Next significant word [1] Bit 0 5027 Bit 1 50BF Bit 2 50DT #1 Bit 3 50DT #2 Bit 4 50N Bit 5 51N Bit 6 21 #3 Bit 7 51V Bit 8 59 #1 Bit 9 59 #2 Bit 10 59N #1 Bit 11 59N #2 Bit 12 60FL Bit 13 64B Bit 14 64F #1 Bit 15 64F #2	1 / 1	0

Table 3 – Binary Input Points (2 of 7)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
96-111	Function status (picked up) Next significant word [2] Bit 0 64S Bit 1 78 Bit 2 81 #1 Bit 3 81 #2 Bit 4 81 #3 Bit 5 81 #4 Bit 6 81R #1 Bit 7 81R #2 Bit 8 87 Bit 9 87GD Bit 10 25S Bit 11 25D Bit 12 Not used Bit 13 Not used Bit 14 27 #3 Bit 15 32 #3	1 / 1	0
112-127	Function status (picked up) Next significant word [3] Bit 0 50 #2 Bit 1 59 #3 Bit 2 59D Bit 3 59N #3 Bit 4 67NDT Bit 5 67NIT Bit 6 87 #2 Bit 7 49 #1 Bit 8 49#2 Bit 9 Breaker Monitor Bit 10 Not used Bit 11 Trip Circuit Monitor Bit 12 81A #1 Bit 13 81A #2 Bit 14 81A #3 Bit 15 81A #4	1 / 1	0
128-143	Function status (picked up) Next significant word [4] Bit 0 IPS LOGIC #1 Bit 1 IPS LOGIC #2 Bit 2 IPS LOGIC #3 Bit 3 IPS LOGIC #4 Bit 4 IPS LOGIC #5 Bit 5 IPS LOGIC #6 Bit 6 F40VC #1 Bit 7 F40VC #2 Bit 8 F59VX_1 Bit 9 F59VX_2 Bit 10 F81A #5 Bit 11 F81A #6 Bit 12 Not used Bit 13 Not used Bit 14 Not used Bit 15 Not used	1 / 1	0

Table 3 – Binary Input Points (3 of 7)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
144-159	Function status (timed out) Least significant word [0] Bit 0 21 #1 Bit 1 21 #2 Bit 2 24DT #1 Bit 3 24DT #2 Bit 4 24IT Bit 5 27 #1 Bit 6 27 #2 Bit 7 27TN #1 Bit 8 27TN #2 Bit 9 32 #1 Bit 10 32 #2 Bit 11 40 #1 Bit 12 40 #2 Bit 13 46DT Bit 14 46IT Bit 15 50	1 / 1	0
160-175	Function status (timed out) Next significant word [1] Bit 0 5027 Bit 1 50BF Bit 2 50DT #1 Bit 3 50DT #2 Bit 4 50N Bit 5 51N Bit 6 21 #3 Bit 7 51V Bit 8 59 #1 Bit 9 59 #2 Bit 10 59N #1 Bit 11 59N #2 Bit 12 60FL Bit 13 64B Bit 14 64F #1 Bit 15 64F #2	1 / 1	0
176 – 191	Function status (timed out) Next significant word [2] Bit 0 64S Bit 1 78 Bit 2 81 #1 Bit 3 81 #2 Bit 4 81 #3 Bit 5 81 #4 Bit 6 81R #1 Bit 7 81R #2 Bit 8 87 Bit 9 87GD Bit 10 25S Bit 11 25D Bit 12 Not Used Bit 13 Not used Bit 14 27 #3 Bit 15 32 #3	----	----

Table 3 – Binary Input Points (4 of 7)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
192 – 207	Function status (timed out) Next significant word [3] Bit 0 50 #2 Bit 1 59 #3 Bit 2 59D Bit 3 59N #3 Bit 4 67NDT Bit 5 67NIT Bit 6 87 #2 Bit 7 49 #1 Bit 8 49#2 Bit 9 Breaker Monitor Bit 10 Not used Bit 11 Trip Circuit Monitor Bit 12 81A #1 Bit 13 81A #2 Bit 14 81A #3 Bit 15 81A #4	1 / 1	0
208-223	Function status (timed out) Next significant word [4] Bit 0 IPS LOGIC #1 Bit 1 IPS LOGIC #2 Bit 2 IPS LOGIC #3 Bit 3 IPS LOGIC #4 Bit 4 IPS LOGIC #5 Bit 5 IPS LOGIC #6 Bit 6 F40VC #1 Bit 7 F40VC #2 Bit 8 F59VX_1 Bit 9 F59VX_2 Bit 10 F81A #5 Bit 11 F81A #6 Bit 12 Not used Bit 13 Not used Bit 14 Not used Bit 15 Not used	1 / 1	0
224-239	Remote target led status Least significant word [0] Bit 0 21 #1 Bit 1 21 #2 Bit 2 24DT #1 Bit 3 24DT #2 Bit 4 24IT Bit 5 27 #1 Bit 6 27 #2 Bit 7 27TN #1 Bit 8 27TN #2 Bit 9 32 #1 Bit 10 32 #2 Bit 11 40 #1 Bit 12 40 #2 Bit 13 46DT Bit 14 46IT Bit 15 50	1 / 1	0

Table 3 – Binary Input Points (5 of 7)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
240-255	Remote target led status Next significant word [1] Bit 0 5027 Bit 1 50BF Bit 2 50DT #1 Bit 3 50DT #2 Bit 4 50N Bit 5 51N Bit 6 21 #3 Bit 7 51V Bit 8 59 #1 Bit 9 59 #2 Bit 10 59N #1 Bit 11 59N #2 Bit 12 60FL Bit 13 64B Bit 14 64F #1 Bit 15 64F #2	1 / 1	0
256-271	Remote target led status Next significant word [2] Bit 0 64S Bit 1 78 Bit 2 81 #1 Bit 3 81 #2 Bit 4 81 #3 Bit 5 81 #4 Bit 6 81R #1 Bit 7 81R #2 Bit 8 87 Bit 9 87GD Bit 10 25S Bit 11 25D Bit 12 Not Used Bit 13 Not used Bit 14 27 #3 Bit 15 32 #3	1 / 1	0
272-287	Remote target led status Next significant word [3] Bit 0 50 #2 Bit 1 59 #3 Bit 2 59D Bit 3 59N #3 Bit 4 67NDT Bit 5 67NIT Bit 6 87 #2 Bit 7 49 #1 Bit 8 49#2 Bit 9 Breaker Monitor Bit 10 Not used Bit 11 Trip Circuit Monitor Bit 12 81A #1 Bit 13 81A #2 Bit 14 81A #3 Bit 15 81A #4	1 / 1	0

Table 3 – Binary Input Points (6 of 7)

BINARY INPUT POINTS Static (Steady –State) Object Number: 1 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 1 (Binary Input Without Status)			
POINT INDEX	DESCRIPTION	OBJECT/ VARIATION	STATIC CLASS
288-303	Remote target led status Next significant word [4] Bit 0 IPS LOGIC #1 Bit 1 IPS LOGIC #2 Bit 2 IPS LOGIC #3 Bit 3 IPS LOGIC #4 Bit 4 IPS LOGIC #5 Bit 5 IPS LOGIC #6 Bit 6 F40VC #1 Bit 7 F40VC #2 Bit 8 F59VX_1 Bit 9 F59VX_2 Bit 10 F81A #5 Bit 11 F81A #6 Bit 12 Not used Bit 13 Not used Bit 14 Not used Bit 15 Not used	1 / 1	0

Table 3 – Binary Input Points (7 of 7)

BINARY OUTPUT STATUS POINTSObject Number: **10**Request Function Codes Supported: **1 (Read)**Default Variation Reported When Variation 0 Requested: **2 (Binary Output Status)****Control Relay Output Blocks**Object Number: **12**Request Function Codes Supported: **3, 4, 5 and 6**

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
0-15	21 #1 Phase distance enable Outputs/Blocking Bit 0 Out 1 Bit 1 Out 2 Bit 2 Out 3 Bit 3 Out 4 Bit 4 Out 5 Bit 5 Out 6 Bit 6 Out 7 Bit 7 Out 8 Bit 8 In 1 Bit 9 In 2 Bit 10 In 3 Bit 11 In 4 Bit 12 In 5 Bit 13 In 6 Bit 14 Fuse Loss Bit 15 Enable Function	10/2	12/1
16-31	21 #2 Phase distance (See 0-15)	10/2	12/1
32-47	21 #3 Phase distance (See 0-15)	10/2	12/1
48-63	24DT #1 Volts per Hertz (See 0-15)	10/2	12/1
64-79	24DT #2 Volts per Hertz (See 0-15)	10/2	12/1
80-95	24IT Volts per Hertz (See 0-15)	10/2	12/1
96-111	25D Dead Check (See 0-15) Can't write these points if 59D line side voltage is set to VX! Can't write these points if 67N polarizing quantity is set to VX!	10/2	12/1
112-127	25S Sync Check (See 0-15) Can't write these points if 59D line side voltage is set to VX! Can't write these points if 67N polarizing quantity is set to VX!	10/2	12/1

Table 4 – Binary Output Points (1 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
128-143	27 #1 RMS Undervoltage (See 0-15)	10/2	12/1
144-159	27 #2 RMS Undervoltage (See 0-15)	10/2	12/1
160-175	27 #3 RMS Undervoltage (See 0-15)	10/2	12/1
176-191	27TN #1 3 rd Harmonic Neutral Undervoltage (See 0-15)	10/2	12/1
192-207	27TN #2 3 rd Harmonic Neutral Undervoltage (See 0-15)	10/2	12/1
208-223	32 #1 Directional power (See 0-15)	10/2	12/1
224-239	32 #2 Directional power (See 0-15)	10/2	12/1
240-255	32 #3 Directional power (See 0-15)	10/2	12/1
256-271	40 #1 Loss of Field (See 0-15)	10/2	12/1
272-287	40 #2 Loss of Field (See 0-15)	10/2	12/1
288-303	46DT Negative sequence overcurrent (See 0-15)	10/2	12/1
304-319	46IT Negative sequence overcurrent (See 0-15)	10/2	12/1
320-335	49 #1 Thermal protection (See 0-15)	10/2	12/1
336-351	49 #2 Thermal protection (See 0-15)	10/2	12/1

Table 4 – Binary Output Points (2 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
352-367	50 #1 Instantaneous phase overcurrent (See 0-15)	10/2	12/1
368-383	50 #2 Instantaneous phase overcurrent (See 0-15)	10/2	12/1
384-399	50/27 Inadvertent Energizing (See 0-15)	10/2	12/1
400-415	50BF Breaker Failure (See 0-15)	10/2	12/1
416-431	50DT #1 Time overcurrent (See 0-15)	10/2	12/1
432-447	50DT #2 Time overcurrent (See 0-15)	10/2	12/1
448-463	50N Instantaneous neutral overcurrent (See 0-15)	10/2	12/1
464-479	51N Inverse time neutral overcurrent (See 0-15)	10/2	12/1
480-495	51V Inverse time phase overcurrent (See 0-47)	10/2	12/1
496-511	59#1 Phase Overvoltage (See 0-15)	10/2	12/1
512-527	59#2 Phase Overvoltage (See 0-15)	10/2	12/1
528-543	59#3 Phase Overvoltage (See 0-15)	10/2	12/1
544-559	59N #1 Neutral Overvoltage (See 0-47)	10/2	12/1
560-575	59N #2 Neutral Overvoltage (See 0-47)	10/2	12/1
576-591	59N #3 Neutral Overvoltage (See 0-47)	10/2	12/1
592-607	59D 3 rd Harmonic Voltage diff. (See 0-47) Can't enable this function if 59D line side voltage is set to Vx and 25 function is enabled! Can't be enable this function if 59D line side voltage is set to 3V0 and V.T. config is not Line to Ground	10/2	12/1

Table 4 – Binary Output Points (3 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
608-623	60FL VT Fuse loss (See 0-15)	10/2	12/1
624-639	64B Brush lift off (See 0-15)	10/2	12/1
640-655	64F #1 Field Ground (See 0-15)	10/2	12/1
656-671	64F #2 Field Ground (See 0-15)	10/2	12/1
672-687	64S 100% Stator Ground (See 0-15) If this function is enabled then 67N function will be disabled, 59N 20 Hz injection mode will be enabled	10/2	12/1
688-703	67NDT Resid. Directional overcurrent Definite Time (See 0-15) This function can't be enabled if 67N operationg current is set to IN and 87GD is enabled This function can't be enabled if 67N polarizor is set to 3V0 and V.T. config is not Line to Ground	10/2	12/1
704-719	67NIT Resid. Directional overcurrent Inverse Time (See 0-47) This function can't be enabled if 67N operationg current is set to IN and 87GD is enabled This function can't be enabled if 67N polarizor is set to 3V0 and V.T. config is not Line to Ground	10/2	12/1
720-735	78 Out of Step (See 0-47)	10/2	12/1
736-751	81 #1 Over/under frequency (See 0-47)	10/2	12/1
752-767	81 #2 Over/under frequency (See 0-47)	10/2	12/1
768-783	81 #3 Over/under frequency (See 0-47)	10/2	12/1
784-799	81 #4 Over/under frequency (See 0-47)	10/2	12/1

Table 4 – Binary Output Points (4 of 33)

BINARY OUTPUT STATUS POINTSObject Number: **10**Request Function Codes Supported: **1 (Read)**Default Variation Reported When Variation 0 Requested: **2 (Binary Output Status)****Control Relay Output Blocks**Object Number: **12**Request Function Codes Supported: **3, 4, 5 and 6**

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
800-815	81A #1 Over/under frequency accumulator * (See 0-47)	10/2	12/1
816-831	81A #2 Over/under frequency accumulator * (See 0-47)	10/2	12/1
832-847	81A #3 Over/under frequency accumulator * (See 0-47)	10/2	12/1
848-863	81A #4 Over/under frequency accumulator * (See 0-47)	10/2	12/1
864-879	81R #1 Rate of change of frequency (See 0-47)	10/2	12/1
880-895	81R #2 Rate of change of frequency (See 0-47)	10/2	12/1
896-911	87 #1 Phase Differential (See 0-47)	10/2	12/1
912-927	87 #2 Phase Differential (See 0-47)	10/2	12/1
928-943	87GD Ground Differential (See 0-47) This function can't be enabled if 67N is enabled and operating current is set to IN	10/2	12/1
944-959	IPS LOGIC #1 (See 0-47)	10/2	12/1
960-975	IPS LOGIC #2 (See 0-47)	10/2	12/1
976-991	IPS LOGIC #3 (See 0-47)	10/2	12/1
992-1007	IPS LOGIC #4 (See 0-47)	10/2	12/1
1008-1023	IPS LOGIC #5 (See 0-47)	10/2	12/1
1024-1039	IPS LOGIC #6 (See 0-47)	10/2	12/1
1040-1055	TC Trip coil monitor (See 0-47)	10/2	12/1
1056-1071	BM Breaker monitor (See 0-47)	10/2	12/1
1072-1087	40VC #1 Loss of Field (See 0-47)	10/2	12/1
1088-1103	40VC #2 Loss of Field (See 0-47)	10/2	12/1
1104-1119	59X #1 Overvoltage (See 0-47)	10/2	12/1
1120-1135	59X #2 Overvoltage (See 0-47)	10/2	12/1
1136-1151	81A #5 Over/under frequency accumulator * (See 0-47)	10/2	12/1
1152-1167	81A #6 Over/under frequency accumulator * (See 0-47)	10/2	12/1

Table 4 – Binary Output Points (5 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
1168-1183	21 #1 Phase distance ext outputs Bit 0 Out 9 Bit 1 Out 10 Bit 2 Out 11 Bit 3 Out 12 Bit 4 Out 13 Bit 5 Out 14 Bit 6 Out 15 Bit 7 Out 16 Bit 8 Out 17 Bit 9 Out 18 Bit 10 Out 19 Bit 11 Out 20 Bit 12 Out 21 Bit 13 Out 22 Bit 14 Out 23 Bit 15 Not used	10/2	12/1
1184-1199	21 #1 Phase distance ext blocking (See 0-47) Bit 0 In 7 Bit 1 In 8 Bit 2 In 9 Bit 3 In 10 Bit 4 In 11 Bit 5 In 12 Bit 6 In 13 Bit 7 In 14	10/2	12/1
1200-1215	21 #2 Phase distance ext outputs (See 1168-1183)	10/2	12/1
1216-1231	21 #2 Phase distance ext blocking (See 1184-1199)	10/2	12/1
1232-1247	21 #3 Phase distance ext outputs (See 1168-1183)	10/2	12/1
1248-1263	21 #3 Phase distance ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (6 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
1264-1279	24DT #1 Volts per Hertz ext outputs (See 1168-1183)	10/2	12/1
1280-1295	24DT #1 Volts per Hertz ext blocking (See 1184-1199)	10/2	12/1
1296-1311	24DT #2 Volts per Hertz ext outputs (See 1168-1183)	10/2	12/1
1312-1327	24DT #2 Volts per Hertz ext blocking (See 1184-1199)	10/2	12/1
1328-1343	24IT Volts per Hertz ext outputs (See 1168-1183)	10/2	12/1
1344-1359	24IT Volts per Hertz ext blocking (See 1184-1199)	10/2	12/1
1360-1375	25D Dead Check ext outputs (See 1168-1183)	10/2	12/1
1376-1391	25D Dead Check ext blocking (See 1184-1199)	10/2	12/1
1392-1407	25S Sync Check ext outputs (See 1168-1183)	10/2	12/1
1408-1423	25S Sync Check ext blocking (See 1184-1199)	10/2	12/1
1424-1439	27 #1 RMS Undervoltage ext outputs (See 1168-1183)	10/2	12/1
1440-1455	27 #1 RMS Undervoltage ext blocking (See 1184-1199)	10/2	12/1
1456-1471	27 #2 RMS Undervoltage ext outputs (See 1168-1183)	10/2	12/1
1472-1487	27 #2 RMS Undervoltage ext blocking (See 1184-1199)	10/2	12/1
1488-1503	27 #3 RMS Undervoltage ext outputs (See 1168-1183)	10/2	12/1
1504-1519	27 #3 RMS Undervoltage ext blocking (See 1184-1199)	10/2	12/1
1520-1535	27TN #1 3 rd Harmonic Neutral Undervoltage ext outputs (See 1168-1183)	10/2	12/1
1536-1551	27TN #1 3 rd Harmonic Neutral Undervoltage ext blocking (See 1184-1199)	10/2	12/1
1552-1567	27TN #2 3 rd Harmonic Neutral Undervoltage ext outputs (See 1168-1183)	10/2	12/1
1568-1583	27TN #2 3 rd Harmonic Neutral Undervoltage ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (7 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
1584-1599	32 #1 Directional power ext outputs (See 1168-1183)	10/2	12/1
1600-1615	32 #1 Directional power ext blocking (See 1184-1199)	10/2	12/1
1616-1631	32 #2 Directional power ext outputs (See 1168-1183)	10/2	12/1
1632-1647	32 #2 Directional power ext blocking (See 1184-1199)	10/2	12/1
1648-1663	32 #3 Directional power ext outputs (See 1168-1183)	10/2	12/1
1664-1679	32 #3 Directional power ext blocking (See 1184-1199)	10/2	12/1
1680-1695	40 #1 Loss of Field ext outputs (See 1168-1183)	10/2	12/1
1696-1711	40 #1 Loss of Field ext blocking (See 1184-1199)	10/2	12/1
1712-1727	40 #2 Loss of Field ext outputs (See 1168-1183)	10/2	12/1
1728-1743	40 #2 Loss of Field ext blocking (See 1184-1199)	10/2	12/1
1744-1759	46DT Negative sequence overcurrent ext outputs (See 1168-1183)	10/2	12/1
1760-1775	46DT Negative sequence overcurrent ext blocking (See 1184-1199)	10/2	12/1
1776-1791	46IT Negative sequence overcurrent ext outputs (See 1168-1183)	10/2	12/1
1792-1807	46IT Negative sequence overcurrent ext blocking (See 1184-1199)	10/2	12/1
1808-1823	49 #1 Thermal protection ext outputs (See 1168-1183)	10/2	12/1
1824-1839	49 #1 Thermal protection ext blocking (See 1184-1199)	10/2	12/1
1840-1855	49 #2 Thermal protection ext outputs (See 1168-1183)	10/2	12/1
1856-1871	49 #2 Thermal protection ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (8 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
1872-1887	50 #1 Instantaneous phase overcurrent ext outputs (See 1168-1183)	10/2	12/1
1888-1903	50 #1 Instantaneous phase overcurrent ext blocking (See 1184-1199)	10/2	12/1
1904-1919	50 #2 Instantaneous phase overcurrent ext outputs (See 1168-1183)	10/2	12/1
1920-1935	50 #2 Instantaneous phase overcurrent ext blocking (See 1184-1199)	10/2	12/1
1936-1951	50/27 Inadvertent Energizing ext outputs (See 1168-1183)	10/2	12/1
1952-1967	50/27 Inadvertent Energizing ext blocking (See 1184-1199)	10/2	12/1
1968-1983	50BF Breaker Failure ext outputs (See 1168-1183)	10/2	12/1
1984-1999	50BF Breaker Failure ext blocking (See 1184-1199)	10/2	12/1
2000-2015	50DT #1 Time overcurrent ext outputs (See 1168-1183)	10/2	12/1
2016-2031	50DT #1 Time overcurrent ext blocking (See 1184-1199)	10/2	12/1
2032-2047	50DT #2 Time overcurrent ext outputs (See 1168-1183)	10/2	12/1
2048-2063	50DT #2 Time overcurrent ext blocking (See 1184-1199)	10/2	12/1
2064-2079	50N Instantaneous neutral overcurrent ext outputs (See 1168-1183)	10/2	12/1
2080-2095	50N Instantaneous neutral overcurrent ext blocking (See 1184-1199)	10/2	12/1
2096-2111	51N Inverse time neutral overcurrent ext outputs (See 1168-1183)	10/2	12/1
2112-2127	51N Inverse time neutral overcurrent ext blocking (See 1184-1199)	10/2	12/1
2128-2143	51V Inverse time phase overcurrent ext outputs (See 1168-1183)	10/2	12/1
2144-2159	51V Inverse time phase overcurrent ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (9 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
2160-2175	59 #1 Phase Overvoltage ext outputs (See 1168-1183)	10/2	12/1
2176-2191	59 #1 Phase Overvoltage ext blocking (See 1184-1199)	10/2	12/1
2192-2207	59 #2 Phase Overvoltage ext outputs (See 1168-1183)	10/2	12/1
2208-2223	59 #2 Phase Overvoltage ext blocking (See 1184-1199)	10/2	12/1
2224-2239	59 #3 Phase Overvoltage ext outputs (See 1168-1183)	10/2	12/1
2240-2255	59 #3 Phase Overvoltage ext blocking (See 1184-1199)	10/2	12/1
2256-2271	59N #1 Neutral Overvoltage ext outputs (See 1168-1183)	10/2	12/1
2272-2287	59N #1 Neutral Overvoltage ext blocking (See 1184-1199)	10/2	12/1
2288-2303	59N #2 Neutral Overvoltage ext outputs (See 1184-1199)	10/2	12/1
2304-2319	59N #2 Neutral Overvoltage ext blocking (See 1184-1199)	10/2	12/1
2320-2335	59N #3 Neutral Overvoltage ext outputs (See 1184-1199)	10/2	12/1
2336-2351	59N #3 Neutral Overvoltage ext blocking (See 1184-1199)	10/2	12/1
2352-2367	59D 3 rd Harmonic Voltage diff. ext outputs (See 1184-1199)	10/2	12/1
2368-2383	59D 3 rd Harmonic Voltage diff. ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (10 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
2384-2399	60FL VT Fuse loss ext outputs (See 1184-1199)	10/2	12/1
2400-2415	60FL VT Fuse loss ext blocking (See 1184-1199)	10/2	12/1
2416-2431	64B Brush lift off ext outputs (See 1184-1199)	10/2	12/1
2432-2447	64B Brush lift off ext blocking (See 1184-1199)	10/2	12/1
2448-2463	64F #1 Field Ground ext outputs (See 1184-1199)	10/2	12/1
2464-2479	64F #1 Field Ground ext blocking (See 1184-1199)	10/2	12/1
2480-2495	64F #2 Field Ground ext outputs (See 1184-1199)	10/2	12/1
2496-2511	64F #2 Field Ground ext blocking (See 1184-1199)	10/2	12/1
2512-2527	64S 100% Stator Ground ext outputs (See 1184-1199)	10/2	12/1
2528-2543	64S 100% Stator Ground ext blocking (See 1184-1199)	10/2	12/1
2544-2559	67NDT Resid. Directional overcurrent Definite Time ext outputs (See 1184-1199)	10/2	12/1
2560-2575	67NDT Resid. Directional overcurrent Definite Time ext blocking (See 1184-1199)	10/2	12/1
2576-2591	67NIT Resid. Directional overcurrent Inverse Time ext outputs (See 1184-1199)	10/2	12/1
2592-2607	67NIT Resid. Directional overcurrent Inverse Time ext blocking (See 1184-1199)	10/2	12/1
2608-2623	78 Out of Step ext outputs (See 1184-1199)	10/2	12/1
2624-2639	78 Out of Step ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (11 of 33)

BINARY OUTPUT STATUS POINTSObject Number: **10**Request Function Codes Supported: **1 (Read)**Default Variation Reported When Variation 0 Requested: **2 (Binary Output Status)****Control Relay Output Blocks**Object Number: **12**Request Function Codes Supported: **3, 4, 5 and 6**

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
2640-2655	81 #1 Over/under frequency ext outputs (See 1184-1199)	10/2	12/1
2656-2671	81 #1 Over/under frequency ext blocking (See 1184-1199)	10/2	12/1
2672-2687	81 #2 Over/under frequency ext outputs (See 1184-1199)	10/2	12/1
2688-2703	81 #2 Over/under frequency ext blocking (See 1184-1199)	10/2	12/1
2704-2719	81 #3 Over/under frequency ext outputs (See 1184-1199)	10/2	12/1
2720-2735	81 #3 Over/under frequency ext blocking (See 1184-1199)	10/2	12/1
2736-2751	81 #4 Over/under frequency ext outputs (See 1184-1199)	10/2	12/1
2752-2767	81 #4 Over/under frequency ext blocking (See 1184-1199)	10/2	12/1
2768-2783	81A #1 Over/under frequency accumulator ext outputs (See 1184-1199)	10/2	12/1
2784-2799	81A #1 Over/under frequency accumulator ext blocking (See 1184-1199)	10/2	12/1
2800-2815	81A #2 Over/under frequency accumulator ext outputs (See 1184-1199)	10/2	12/1
2816-2831	81A #2 Over/under frequency accumulator ext blocking (See 1184-1199)	10/2	12/1
2832-2847	81A #3 Over/under frequency accumulator ext outputs (See 1184-1199)	10/2	12/1
2848-2863	81A #3 Over/under frequency accumulator ext blocking (See 1184-1199)	10/2	12/1
2864-2879	81A #4 Over/under frequency accumulator ext outputs (See 1184-1199)	10/2	12/1
2880-2895	81A #4 Over/under frequency accumulator ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (12 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
2896-2911	81R #1 Rate of change of frequency ext outputs (See 1184-1199)	10/2	12/1
2912-2927	81R #1 Rate of change of frequency ext blocking (See 1184-1199)	10/2	12/1
2928-2943	81R #2 Rate of change of frequency ext outputs (See 1184-1199)	10/2	12/1
2944-2959	81R #2 Rate of change of frequency ext blocking (See 1184-1199)	10/2	12/1
2960-2975	87 #1 Phase Differential ext outputs (See 1184-1199)	10/2	12/1
2976-2991	87 #1 Phase Differential ext blocking (See 1184-1199)	10/2	12/1
2992-3007	87 #2 Phase Differential ext outputs (See 1184-1199)	10/2	12/1
3008-3023	87 #2 Phase Differential ext blocking (See 1184-1199)	10/2	12/1
3024-3039	87GD Ground Differential ext outputs (See 1184-1199)	10/2	12/1
3040-3055	87GD Ground Differential ext blocking (See 1184-1199)	10/2	12/1
3056-3071	IPS LOGIC #1 ext outputs (See 1184-1199)	10/2	12/1
3072-3087	IPS LOGIC #1 ext blocking(See 1184-1199)	10/2	12/1
3088-3103	IPS LOGIC #2 ext outputs (See 1184-1199)	10/2	12/1
3104-3119	IPS LOGIC #2 ext blocking(See 1184-1199)	10/2	12/1
3120-3135	IPS LOGIC #3 ext outputs (See 1184-1199)	10/2	12/1
3136-3151	IPS LOGIC #3 ext blocking(See 1184-1199)	10/2	12/1
3152-3167	IPS LOGIC #4 ext outputs(See 1184-1199)	10/2	12/1
3168-3183	IPS LOGIC #4 ext blocking(See 1184-1199)	10/2	12/1
3184-3199	IPS LOGIC #5 ext outputs (See 1184-1199)	10/2	12/1
3200-3215	IPS LOGIC #5 ext blocking(See 1184-1199)	10/2	12/1
3216-3231	IPS LOGIC #6 ext outputs (See 1184-1199)	10/2	12/1
3232-3247	IPS LOGIC #6 ext blocking(See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (13 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3248-3263	TC Trip coil monitor ext outputs (See 1184-1199)	10/2	12/1
3264-3279	TC Trip coil monitor ext blocking (See 1184-1199)	10/2	12/1
3280-3195	BM Breaker monitor ext outputs (See 1184-1199)	10/2	12/1
3296-3311	BM Breaker monitor ext blocking (See 1184-1199)	10/2	12/1
3312-3327	40VC #1 Loss of Field ext outputs (See 1184-1199)	10/2	12/1
3328-3343	40VC #1 Loss of Field ext blocking (See 1184-1199)	10/2	12/1
3344-3359	40VC #2 Loss of Field ext outputs (See 1184-1199)	10/2	12/1
3360-3375	40VC #2 Loss of Field ext blocking (See 1184-1199)	10/2	12/1
3376-3391	59X #1 Overvoltage ext outputs (See 1184-1199)	10/2	12/1
3392-3407	59X #1 Overvoltage ext blocking (See 1184-1199)	10/2	12/1
3408-3423	59X #2 Overvoltage ext outputs (See 1184-1199)	10/2	12/1
3424-3439	59X #2 Overvoltage ext blocking (See 1184-1199)	10/2	12/1
3440-3455	81A #5 Over/under frequency accumulator ext outputs (See 1184-1199)	10/2	12/1
3456-3471	81A #5 Over/under frequency accumulator ext blocking (See 1184-1199)	10/2	12/1
3472-3487	81A #6 Over/under frequency accumulator ext outputs (See 1184-1199)	10/2	12/1
3488-3503	81A #6 Over/under frequency accumulator ext blocking (See 1184-1199)	10/2	12/1

Table 4 – Binary Output Points (14 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3504-3519	50BF ext input initiate Bit 0 Input 7 Bit 1 Input 8 Bit 2 Input 9 Bit 3 Input 10 Bit 4 Input 11 Bit 5 Input 12 Bit 6 Input 13 Bit 7 Input 14	10/2	12/1
3520-3535	50BF ext output initiate Bit 0 Out 9 Bit 1 Out 10 Bit 2 Out 11 Bit 3 Out 12 Bit 4 Out 13 Bit 5 Out 14 Bit 6 Out 15 Bit 7 Out 16 Bit 8 Out 17 Bit 9 Out 18 Bit 10 Out 19 Bit 11 Out 20 Bit 12 Out 21 Bit 13 Out 22 Bit 14 Out 23 Bit 15 Not used	10/2	12/1
3536-3551	60FL ext input initiate Bit 0 Input 7 Bit 1 Input 8 Bit 2 Input 9 Bit 3 Input 10 Bit 4 Input 11 Bit 5 Input 12 Bit 6 Input 13 Bit 7 Input 14	10/2	12/1

Table 4 – Binary Output Points (15 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3552-3567	IPS LOGIC #1 ext input initiate Bit 0 Input 7 Bit 1 Input 8 Bit 2 Input 9 Bit 3 Input 10 Bit 4 Input 11 Bit 5 Input 12 Bit 6 Input 13 Bit 7 Input 14	10/2	12/1
3568-3583	IPS LOGIC #1 ext output initiate Bit 0 Out 9 Bit 1 Out 10 Bit 2 Out 11 Bit 3 Out 12 Bit 4 Out 13 Bit 5 Out 14 Bit 6 Out 15 Bit 7 Out 16 Bit 8 Out 17 Bit 9 Out 18 Bit 10 Out 19 Bit 11 Out 20 Bit 12 Out 21 Bit 13 Out 22 Bit 14 Out 23 Bit 15 Not used	10/2	12/1
3584-3599	IPS LOGIC #2 ext input initiate (See 3552-3567)	10/2	12/1
3600-3615	IPS LOGIC #2 ext output initiate (See 3568-3583)	10/2	12/1
3616-3631	IPS LOGIC #3 ext input initiate (See 3552-3567)	10/2	12/1
3632-3647	IPS LOGIC #3 ext output initiate (See 3568-3583)	10/2	12/1
3648-3663	IPS LOGIC #4 ext input initiate (See 3552-3567)	10/2	12/1
3664-3679	IPS LOGIC #4 ext output initiate (See 3568-3583)	10/2	12/1
3680-3695	IPS LOGIC #5 ext input initiate (See 3552-3567)	10/2	12/1
3696-3711	IPS LOGIC #5 ext output initiate (See 3568-3583)	10/2	12/1
3712-3727	IPS LOGIC #6 ext input initiate (See 3552-3567)	10/2	12/1
3728-3743	IPS LOGIC #6 ext output initiate (See 3568-3583)	10/2	12/1

Table 4 – Binary Output Points (16 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status) Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3744-3759	25D dead input initiate extended Bit 0 Input 7 Bit 1 Input 8 Bit 2 Input 9 Bit 3 Input 10 Bit 4 Input 11 Bit 5 Input 12 Bit 6 Input 13 Bit 7 Input 14	10/2	12/1
3760-3766	25D Dead input initiate Bit 0 Input 1 Bit 1 Input 2 Bit 2 Input 3 Bit 3 Input 4 Bit 4 Input 5 Bit 5 Input 6 Bit 6-15 not used	10/2	12/1
3767-3782	27TN Blocks config Bit 0 - #1 Fwd. power block Bit 1 - #1 Rev. power block Bit 2 - #1 Lead VAR block Bit 3 - #1 Lag VAR block Bit 4 - #1 Lead PF block Bit 5 - #1 Lag PF block Bit 6 - #1 Pos seq voltage block Bit 7 - #1 Fwd power band en. Bit 8 - #2 Fwd. power block Bit 9 - #2 Rev. power block Bit 10 - #2 Lead VAR block Bit 11 - #2 Lag VAR block Bit 12 - #2 Lead PF block Bit 13 - #2 Lag PF block Bit 14 - #2 Pos seq voltage block Bit 15 - #2 Fwd power band en.	10/2	12/1
3783-3798	50BF Input initiate Bit 0 Input 1 Bit 1 Input 2 Bit 2 Input 3 Bit 3 Input 4 Bit 4 Input 5 Bit 5 Input 6 Bit 6-15 Not used (0)	10/2	12/1
3799-3814	50BF Output initiate Bit 0 Out 1 Bit 1 Out 2 Bit 2 Out 3 Bit 3 Out 4 Bit 4 Out 5 Bit 5 Out 6 Bit 6 Out 7 Bit 7 Out 8 Bit 8-15 Not used (0)	10/2	12/1

Table 4 – Binary Output Points (17 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status) Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3815-3830	59 Input voltage select Bit 0 – 59 #1 element Bit 1 – 59 #2 element Bit 2 – 59 #3 element 0 - phase voltage select 1 - pos. seq. voltage select Bit 3 – 59 #1 element Bit 4 – 59 #2 element Bit 5 – 59 #3 element Bit 6 – 7 Not used 0 - phase or pos. seq. select 1 - neg. seq. voltage select	10/2	12/1
3831-3837	60FL Input initiate Bit 0 Input 1 Bit 1 Input 2 Bit 2 Input 3 Bit 3 Input 4 Bit 4 Input 5 Bit 5 Input 6 Bit 6 Fuse loss Bit 7-15 Not used (0)	10/2	12/1
3838-3845	81A reset accumulators Bit 0 – reset #1 element acc. Bit 1 – reset #2 element acc. Bit 2 – reset #3 element acc. Bit 3 – reset #4 element acc. Bit 4 – reset #5 element acc. Bit 5 – reset #6 element acc. Bits 6-7 – Not used	10/2	12/1
3846-3861	Pulse relay extended Bit 0 Out 9 Bit 1 Out 10 Bit 2 Out 11 Bit 3 Out 12 Bit 4 Out 13 Bit 5 Out 14 Bit 6 Out 15 Bit 7 Out 16 Bit 8 Out 17 Bit 9 Out 18 Bit 10 Out 19 Bit 11 Out 20 Bit 12 Out 21 Bit 13 Out 22 Bit 14 Out 23 Bit 15 Not used Pulse and latched outputs can't be enabled at the same time	10/2	12/1

Table 4 – Binary Output Points (18 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3862-3877	Latched outputs extended Bit 0 – Out 9 Bit 1 – Out 10 Bit 2 – Out 11 Bit 3 – Out 12 Bit 4 – Out 13 Bit 5 – Out 14 Bit 6 – Out 15 Bit 7 – Out 16 Bit 8 – Out 17 Bit 9 – Out 18 Bit 10 – Out 19 Bit 11 – Out 20 Bit 12 – Out 21 Bit 13 – Out 22 Bit 14 – Out 23 Bit 15 – Not used Pulse and latched outputs can't be enabled at the same time	10/2	12/1
3878-3885	Pulse relay Bit 0 Out 1 Bit 1 Out 2 Bit 2 Out 3 Bit 3 Out 4 Bit 4 Out 5 Bit 5 Out 6 Bit 6 Out 7 Bit 7 Out 8 Pulse and latched outputs can't be enabled at the same time	10/2	12/1
3886-3901	Input status active state Bit0 = 0 IN1 active closed Bit0 = 1 IN1 active open Bit1-bit5 same as above for IN2-IN6 Bit8-Bit15 same as above for IN7-IN14 Bit6-Bit7 not used(0)	10/2	12/1
3902-3909	Latched outputs Bit 0 – Out 1 Bit 1 – Out 2 Bit 2 – Out 3 Bit 3 – Out 4 Bit 4 – Out 5 Bit 5 – Out 6 Bit 6 – Out 7 Bit 7 – Out 8 Pulse and latched outputs can't be enabled at the same time	10/2	12/1

Table 4 – Binary Output Points (19 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3910-3925	IPS LOGIC #1 Timed out functions initiate mask Least significant word[0] Bit 0 21 #1 Bit 1 21 #2 Bit 2 24DT #1 Bit 3 24DT #2 Bit 4 24IT Bit 5 27 #1 Bit 6 27 #2 Bit 7 27TN #1 Bit 8 27TN #2 Bit 9 32 #1 Bit 10 32 #2 Bit 11 40 #1 Bit 12 40 #2 Bit 13 46DT Bit 14 46IT Bit 15 50 #1	10/2	12/1
3926-3941	IPS LOGIC #1 Timed out functions initiate mask Next significant word[1] Bit 0 5027 Bit 1 50BF Bit 2 50DT #1 Bit 3 50DT #2 Bit 4 50N Bit 5 51N Bit 6 21 #3 Bit 7 51V Bit 8 59 #1 Bit 9 59 #2 Bit 10 59N #1 Bit 11 59N #2 Bit 12 60FL Bit 13 64B Bit 14 64F #1 Bit 15 64F #2	10/2	12/1

Table 4 – Binary Output Points (20 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3942-3957	IPS LOGIC #1 Timed out functions initiate mask Next significant word[2] Bit 0 64S Bit 1 78 Bit 2 81 #1 Bit 3 81 #2 Bit 4 81 #3 Bit 5 81 #4 Bit 6 81R #1 Bit 7 81R #2 Bit 8 87 #1 Bit 9 87GD Bit 10 25S Bit 11 25D Bit 12 Not used Bit 13 Not used Bit 14 27 #3 Bit 15 32 #3	10/2	12/1
3958-3973	IPS LOGIC #1 Timed out functions initiate mask Next significant word[3] Bit 0 50 #2 Bit 1 59 #3 Bit 2 59D Bit 3 59N #3 Bit 4 67NDT Bit 5 67NIT Bit 6 87 #2 Bit 7 49 #1 Bit 8 49 #2 Bit 9 Breaker monitor Bit 10 Not used Bit 11 Trip Circuit Monitor Bit 12 81A #1 Bit 13 81A #2 Bit 14 81A #3 Bit 15 81A #4	10/2	12/1

Table 4 – Binary Output Points (21 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
3974-3989	IPS LOGIC #1 Timed out functions initiate mask Most significant word[4] Bit 0 IPS LOGIC #1 Bit 1 IPS LOGIC #2 Bit 2 IPS LOGIC #3 Bit 3 IPS LOGIC #4 Bit 4 IPS LOGIC #5 Bit 5 IPS LOGIC #6 Bit 6 F40VC #1 Bit 7 F40VC #2 Bit 8 F59VX_1 Bit 9 F59VX_2 Bit 10 F81A #5 Bit 11 F81A #6 Bit 12 Not used Bit 13 not used Bit 14 not used Bit 15 not used	10/2	12/1
3990-4005	IPS LOGIC #2 Timed out functions initiate mask Least significant word[0] (See 3910-3925)	10/2	12/1
4006-4021	IPS LOGIC #2 Timed out functions initiate mask Next significant word[1] (See 3926-3941)	10/2	12/1
4022-4037	IPS LOGIC #2 Timed out functions initiate mask Next significant word[2] (See 3942-3957)	10/2	12/1
4038-4053	IPS LOGIC #2 Timed out functions initiate mask Next significant word[3] (See 3958-3973)	10/2	12/1
4054-4069	IPS LOGIC #2 Timed out functions initiate mask Most significant word[4] (See 3974-3989)	10/2	12/1

Table 4 – Binary Output Points (22 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4070-4085	IPS LOGIC #3 Timed out functions initiate mask Least significant word[0] (See 3910-3925)	10/2	12/1
4086-4101	IPS LOGIC #3 Timed out functions initiate mask Next significant word[1] (See 3926-3941)	10/2	12/1
4102-4117	IPS LOGIC #3 Timed out functions initiate mask Next significant word[2] (See 3942-3957)	10/2	12/1
4118-4133	IPS LOGIC #3 Timed out functions initiate mask Next significant word[3] (See 3958-3973)	10/2	12/1
4134-4149	IPS LOGIC #3 Timed out functions initiate mask Most significant word[4] (See 3974-3989)	10/2	12/1
4150-4165	IPS LOGIC #4 Timed out functions initiate mask Least significant word[0] (See 3910-3925)	10/2	12/1
4166-4181	IPS LOGIC #4 Timed out functions initiate mask Next significant word[1] (See 3926-3941)	10/2	12/1
4182-4197	IPS LOGIC #4 Timed out functions initiate mask Next significant word[2] (See 3942-3957)	10/2	12/1
4198-4213	IPS LOGIC #4 Timed out functions initiate mask Next significant word[3] (See 3958-3973)	10/2	12/1
4214-4229	IPS LOGIC #4 Timed out functions initiate mask Most significant word[4] (See 3974-3989)	10/2	12/1

Table 4 – Binary Output Points (23 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4230-4245	IPS LOGIC #5 Timed out functions initiate mask Least significant word[0] (See 3910-3925)	10/2	12/1
4246-4261	IPS LOGIC #5 Timed out functions initiate mask Next significant word[1] (See 3926-3941)	10/2	12/1
4262-4277	IPS LOGIC #5 Timed out functions initiate mask Next significant word[2] (See 3942-3957)	10/2	12/1
4278-4293	IPS LOGIC #5 Timed out functions initiate mask Next significant word[3] (See 3958-3973)	10/2	12/1
4294-4309	IPS LOGIC #5 Timed out functions initiate mask Most significant word[4] (See 3974-3989)	10/2	12/1
4310-4325	IPS LOGIC #6 Timed out functions initiate mask Least significant word[0] (See 3910-3925)	10/2	12/1
4326-4341	IPS LOGIC #6 Timed out functions initiate mask Next significant word[1] (See 3926-3941)	10/2	12/1
4342-4357	IPS LOGIC #6 Timed out functions initiate mask Next significant word[2] (See 3942-3957)	10/2	12/1
4358-4373	IPS LOGIC #6 Timed out functions initiate mask Next significant word[3] (See 3958-3973)	10/2	12/1
4374-4389	IPS LOGIC #6 Timed out functions initiate mask Most significant word[4] (See 3974-3989)	10/2	12/1

Table 4 – Binary Output Points (24 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4390-4397	IPS LOGIC reset/dropout timer config Bit 0 – IPS LOGIC #1 Bit 1 – IPS LOGIC #2 Bit 2 – IPS LOGIC #3 Bit 3 – IPS LOGIC #4 Bit 4 – IPS LOGIC #5 Bit 5 – IPS LOGIC #6 Bit 6 – not used Bit 7 – not used 0 – Reset timer 1 – Dropout timer	10/2	12/1
4398-4413	IPS LOGIC #1 Input initiate Bit 0 Input 1 Bit 1 Input 2 Bit 2 Input 3 Bit 3 Input 4 Bit 4 Input 5 Bit 5 Input 6 6-15 Not used (0)	10/2	12/1
4414-4429	IPS LOGIC #1 Output initiate Bit 0 Output 1 Bit 1 Output 2 Bit 2 Output 3 Bit 3 Output 4 Bit 4 Output 5 Bit 5 Output 6 Bit 6 Output 7 Bit 7 Output 8 Bit 8-15 Not used (0)	10/2	12/1
4430-4437	IPS LOGIC #1 Gate config Bit 0 Output initiate gate Bit 1 Picked up functions initiate gate Bit 2 Input initiate gate Bit 3 Blocking inputs gate Bit 4 Inputs main gate Bit 5-6 Not used (0) Bit 7 Picked up functions initiate gate NOT element enable/disable Bit 7=0 NOT disabled Bit 7=1 NOT enabled 0 – gate configured for “OR” 1 - gate configured for “AND”	10/2	12/1

Table 4 – Binary Output Points (25 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4438-4453	IPS LOGIC #1 Picked up functions initiate mask Least significant word[0] Bit 0 21 #1 Bit 1 21 #2 Bit 2 24DT #1 Bit 3 24DT #2 Bit 4 24IT Bit 5 27 #1 Bit 6 27 #2 Bit 7 27TN #1 Bit 8 27TN #2 Bit 9 32 #1 Bit 10 32 #2 Bit 11 40 #1 Bit 12 40 #2 Bit 13 46DT Bit 14 46IT Bit 15 50 #1	10/2	12/1
4454-4469	IPS LOGIC #1 Picked up functions initiate mask Next significant word[1] Bit 0 5027 Bit 1 50BF Bit 2 50DT #1 Bit 3 50DT #2 Bit 4 50N Bit 5 51N Bit 6 21 #3 Bit 7 51V Bit 8 59 #1 Bit 9 59 #2 Bit 10 59N #1 Bit 11 59N #2 Bit 12 60FL Bit 13 64B Bit 14 64F #1 Bit 15 64F #2	10/2	12/1

Table 4 – Binary Output Points (26 of 33)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4470-4485	IPS LOGIC #1 Picked up functions initiate mask Next significant word[2] Bit 0 64S Bit 1 78 Bit 2 81 #1 Bit 3 81 #2 Bit 4 81 #3 Bit 5 81 #4 Bit 6 81R #1 Bit 7 81R #2 Bit 8 87 #1 Bit 9 87GD Bit 10 25S Bit 11 25D Bit 12 Not used Bit 13 Not used Bit 14 27 #3 Bit 15 32 #3	10/2	12/1
4486-4501	IPS LOGIC #1 Picked up functions initiate mask Next significant word[3] Bit 0 50 #2 Bit 1 59 #3 Bit 2 59D Bit 3 59N #3 Bit 4 67NDT Bit 5 67NIT Bit 6 87 #2 Bit 7 49 #1 Bit 8 49 #2 Bit 9 Breaker monitor Bit 10 Not used Bit 11 Trip Circuit Monitor Bit 12 81A #1 Bit 13 81A #2 Bit 14 81A #3 Bit 15 81A #4	10/2	12/1

Table 4 – Binary Output Points (27 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4502-4517	IPS LOGIC #1 Picked up functions initiate mask Most significant word[4] Bit 0 IPS LOGIC #1 Bit 1 IPS LOGIC #2 Bit 2 IPS LOGIC #3 Bit 3 IPS LOGIC #4 Bit 4 IPS LOGIC #5 Bit 5 IPS LOGIC #6 Bit 6 F40VC #1 Bit 7 F40VC #2 Bit 8 F59VX_1 Bit 9 F59VX_2 Bit 10 F81A #5 Bit 11 F81A #6 Bit 12 Not used Bit 13 not used Bit 14 not used Bit 15 not used	10/2	12/1
4518-4533	IPS LOGIC #2 Input initiate (See 4398-4413)	10/2	12/1
4534-4549	IPS LOGIC #2 Output initiate (See 4414-4429)	10/2	12/1
4550-4557	IPS LOGIC #2 Gate config (See 4430-4437)	10/2	12/1
4558-4573	IPS LOGIC #2 Picked up functions initiate mask Least significant word[0] (See 4438-4453)	10/2	12/1
4574-4589	IPS LOGIC #2 Picked up functions initiate mask Next significant word[1] (See 4454-4469)	10/2	12/1
4590-4605	IPS LOGIC #2 Picked up functions initiate mask Next significant word[2] (See 4470-4485)	10/2	12/1
4606-4621	IPS LOGIC #2 Picked up functions initiate mask Next significant word[3] (See 4486-4501)	10/2	12/1
4622-4637	IPS LOGIC #2 Picked up functions initiate mask Most significant word[4] (See 4502-4517)	10/2	12/1

Table 4 – Binary Output Points (28 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4638-4653	IPS LOGIC #3 Input initiate (See 4398-4413)	10/2	12/1
4654-4669	IPS LOGIC #3 Output initiate (See 4414-4429)	10/2	12/1
4670-4677	IPS LOGIC #3 Gate config (See 4430-4437)	10/2	12/1
4678-4693	IPS LOGIC #3 Picked up functions initiate mask Least significant word[0] (See 4438-4453)	10/2	12/1
4694-4709	IPS LOGIC #3 Picked up functions initiate mask Next significant word[1] (See 4454-4469)	10/2	12/1
4710-4725	IPS LOGIC #3 Picked up functions initiate mask Next significant word[2] (See 4470-4485)	10/2	12/1
4726-4741	IPS LOGIC #3 Picked up functions initiate mask Next significant word[3] (See 4486-4501)	10/2	12/1
4742-4757	IPS LOGIC #3 Picked up functions initiate mask Most significant word[4] (See 4502-4517)	10/2	12/1
4758-4773	IPS LOGIC #4 Input initiate (See 4398-4413)	10/2	12/1
4774-4789	IPS LOGIC #4 Output initiate (See 4414-4429)	10/2	12/1
4790-4797	IPS LOGIC #4 Gate config (See 4430-4437)	10/2	12/1

Table 4 – Binary Output Points (29 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4798-4813	IPS LOGIC #4 Picked up functions initiate mask Least significant word[0] (See 4438-4453)	10/2	12/1
4814-4829	IPS LOGIC #4 Picked up functions initiate mask Next significant word[1] (See 4454-4469)	10/2	12/1
4830-4845	IPS LOGIC #4 Picked up functions initiate mask Next significant word[2] (See 4470-4485)	10/2	12/1
4846-4861	IPS LOGIC #4 Picked up functions initiate mask Next significant word[3] (See 4486-4501)	10/2	12/1
4862-4877	IPS LOGIC #4 Picked up functions initiate mask Most significant word[4] (See 4502-4517)	10/2	12/1
4878-4893	IPS LOGIC #5 Input initiate (See 4398-4413)	10/2	12/1
4894-4909	IPS LOGIC #5 Output initiate (See 4414-4429)	10/2	12/1
4910-4917	IPS LOGIC #5 Gate config (See 4430-4437)	10/2	12/1
4918-4933	IPS LOGIC #5 Picked up functions initiate mask Least significant word[0] (See 4438-4453)	10/2	12/1
4934-4949	IPS LOGIC #5 Picked up functions initiate mask Next significant word[1] (See 4454-4469)	10/2	12/1
4950-4965	IPS LOGIC #5 Picked up functions initiate mask Next significant word[2] (See 4470-4485)	10/2	12/1
4966-4981	IPS LOGIC #5 Picked up functions initiate mask Next significant word[3] (See 4486-4501)	10/2	12/1
4982-4997	IPS LOGIC #5 Picked up functions initiate mask Most significant word[4] (See 4502-4517)	10/2	12/1

Table 4 – Binary Output Points (30 of 33)

BINARY OUTPUT STATUS POINTSObject Number: **10**Request Function Codes Supported: **1 (Read)**Default Variation Reported When Variation 0 Requested: **2 (Binary Output Status)****Control Relay Output Blocks**Object Number: **12**Request Function Codes Supported: **3, 4, 5 and 6**

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
4998-5013	IPS LOGIC #6 Input initiate (See 4398-4413)	10/2	12/1
5014-5029	IPS LOGIC #6 Output initiate (See 4414-4429)	10/2	12/1
5030-5037	IPS LOGIC #6 Gate config (See 4430-4437)	10/2	12/1
5038-5053	IPS LOGIC #6 Picked up functions initiate mask Least significant word[0] (See 4438-4453)	10/2	12/1
5054-5069	IPS LOGIC #6 Picked up functions initiate mask Next significant word[1] (See 4454-4469)	10/2	12/1
5070-5085	IPS LOGIC #6 Picked up functions initiate mask Next significant word[2] (See 4470-4485)	10/2	12/1
5086-5101	IPS LOGIC #6 Picked up functions initiate mask Next significant word[3] (See 4486-4501)	10/2	12/1
5102-5117	IPS LOGIC #6 Picked up functions initiate mask Most significant word[4] (See 4502-4517)	10/2	12/1

Table 4 – Binary Output Points (31 of 33)

BINARY OUTPUT STATUS POINTSObject Number: **10**Request Function Codes Supported: **1 (Read)**Default Variation Reported When Variation 0 Requested: **2 (Binary Output Status)****Control Relay Output Blocks**Object Number: **12**Request Function Codes Supported: **3, 4, 5 and 6**

POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
5118-5133	BM Input initiate Bit 0 Input 1 Bit 1 Input 2 Bit 2 Input 3 Bit 3 Input 4 Bit 4 Input 5 Bit 5 Input 6 Bit 6-15 Not used (0)	10/2	12/1
5134-5149	BM Output initiate Bit 0 Out 1 Bit 1 Out 2 Bit 2 Out 3 Bit 3 Out 4 Bit 4 Out 5 Bit 5 Out 6 Bit 6 Out 7 Bit 7 Out 8 Bit 8-15 Not used (0)	10/2	12/1
5150-5157	BM Input initiate extended Bit 0 Input 7 Bit 1 Input 8 Bit 2 Input 9 Bit 3 Input 10 Bit 4 Input 11 Bit 5 Input 12 Bit 6 Input 13 Bit 7 Input 14	10/2	12/1

Table 4 – Binary Output Points (32 of 33)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)			
Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6			
POINT INDEX	DESCRIPTION	OBJECT/VARIATION (READ)	OBJECT/VARIATION (WRITE)
5158-5173	BM Output initiate extended Bit 0 Out 9 Bit 1 Out 10 Bit 2 Out 11 Bit 3 Out 12 Bit 4 Out 13 Bit 5 Out 14 Bit 6 Out 15 Bit 7 Out 16 Bit 8 Out 17 Bit 9 Out 18 Bit 10 Out 19 Bit 11 Out 20 Bit 12 Out 21 Bit 13 Out 22 Bit 14 Out 23 Bit 15 Not used	10/2	12/1
5174-5181	Breaker monitor timing method select Bit 0 – BM Bits 1-7 - Not Used 0 – I ¹ t method selected 1 – I ² *t method selected	10/2	12/1
5182-5189	IPS Logic functions gate config Bit 0 – IPS LOGIC #1 Bit 1 – IPS LOGIC #2 Bit 2 – IPS LOGIC #3 Bit 3 – IPS LOGIC #4 Bit 4 – IPS LOGIC #5 Bit 5 – IPS LOGIC #6 Bit 6 – not used Bit 7 – not used 0 – gate configured for “OR” 1 - gate configured for “AND”	10/2	12/1

Table 4 – Binary Output Points (33 of 33)

ANALOG INPUTS Static (Steady –State) Object Number: 30 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 2 (16-Bit Analog Input)					
POINT INDEX	DESCRIPTION	STATIC CLASS	OBJECT/ VARIATION	UNITS	SCALE FACTOR
0	VX Voltage	0	30/02	VOLTS	10
1	Phase A voltage	0	30/02	VOLTS	10
2	Phase B voltage	0	30/02	VOLTS	10
3	Phase C voltage	0	30/02	VOLTS	10
4	Phase N voltage	0	30/02	VOLTS	10
5	Positive sequence voltage	0	30/02	VOLTS	10
6	Negative sequence voltage	0	30/02	VOLTS	10
7	Zero sequence voltage	0	30/02	VOLTS	10
8	Third harmonic neutral voltage	0	30/02	VOLTS	100
9	Third harmonic diff ratio (59D) This point will be equal to 1000 if metering value is greater than 10.00 (1000 unscaled)	0	30/02		100
10	Third harmonic VX/3V0 voltage (59D)	0	30/02	VOLTS	100
11	Phase A line side current	0	30/02	AMPS	1000
12	Phase B line side current	0	30/02	AMPS	1000
13	Phase C line side current	0	30/02	AMPS	1000
14	Phase N line side current	0	30/02	AMPS	1000
15	Phase a neutral side current	0	30/02	AMPS	1000
16	Phase b neutral side current	0	30/02	AMPS	1000
17	Phase c neutral side current	0	30/02	AMPS	1000
18	Positive sequence current	0	30/02	AMPS	1000
19	Negative sequence current	0	30/02	AMPS	1000
20	Zero sequence current	0	30/02	AMPS	1000
21	Ground differential current (signed)	0	30/02	AMPS	100
22	Rotor Insulation Most significant word	0	30/02	OHMS	1
23	Rotor Insulation Least significant word See 1-22 if 1-22 and 23 = 0 then insulation is less then 5K else if 1-22 = 16383 (3FFF) then insulation is greater then 100K			OHMS	

Table 5 – Analog Inputs (1 of 3)

ANALOG INPUTS Static (Steady –State) Object Number: 30 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 2 (16-Bit Analog Input)					
POINT INDEX	DESCRIPTION	STATIC CLASS	OBJECT/ VARIATION	UNITS	SCALE FACTOR
24	Brush voltage	0	30/02	mV	1.639
25	Frequency 0 = Disabled (unmeasurable)	0	30/02	Hz	100
26	Power factor lead/lag 0 – LEAD 1 – LAG	0	30/02		1
27	Rate of change of frequency	0	30/02	HZ/Sec	100
28	Volts per Hertz	0	30/02	%	10
29	Stator Injection Voltage	0	30/02	VOLTS	10
30	Stator Injection Current	0	30/02	AMPS	10
31	Power Factor	0	30/02		100
32	Real power Most significant word	0	30/02	PU	10000
33	Real power Least significant word NOTE: Both least and most significant words must be combined to form a signed long integer for example: 1-32 = 65534 or fffeHEX 1-33 = 25804 or 64ccHEX would be –10.5268 PU	0	30/02	PU	
34	Reactive power Most significant word	0	30/02	PU	10000
35	Reactive power Least significant word NOTE: Both least and most significant words must be combined to form a signed long integer for example: 1-34 = 0 or 0000HEX 1-35 = 21589 or 5455HEX would be 2.1589 PU	0	30/02	PU	

Table 5 – Analog Inputs (2 of 3)

ANALOG INPUTS Static (Steady –State) Object Number: 30 Request Function Codes Supported: 1 (Read) Static Variation Reported When Variation 0 Requested: 2 (16-Bit Analog Input)					
POINT INDEX	DESCRIPTION	STATIC CLASS	OBJECT/ VARIATION	UNITS	SCALE FACTOR
36	Apparent power Most significant word	0	30/02	PU	10000
37	Apparent power Least significant word NOTE: 1-36 and 1-37 must be combined to form a signed long integer.	0	30/02	PU	
38	F49 #1 thermal current	0	30/02	AMPS	100
39	F49 #2 thermal current	0	30/02	AMPS	100
40	Delta volts	0	30/02	VOLTS	10
41	Delta frequency	0	30/02	Hz	10000
42	Phase angle -180.0 to +180.0	0	30/02	DEGREES	10
43	Phase A Most significant word Breaker monitoring arc current acc.	0	30/02		1
44	Phase A Least significant word Breaker monitoring arc current acc.	0	30/02		1
45	Phase B Most significant word Breaker monitoring arc current acc.	0	30/02		1
46	Phase B Least significant word Breaker monitoring arc current acc.	0	30/02		1
47	Phase C Most significant word Breaker monitoring arc current acc.	0	30/02		1
48	Phase C Least significant word Breaker monitoring arc current acc.	0	30/02		1
49	Relay internal temperature	0	30/02	C'	2
50	Stator Real Component**^	0	30/02	mA	10

Table 5 – Analog Inputs (3 of 3)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: **1 (Read)****16 BIT/32 BIT ANALOG OUTPUT BLOCK**

Object 41, Variation 02, 01

Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
0	10	OHMS	if C.T. secondary rating == 5Amp 1-1000 / 1 if C.T. secondary rating == 1Amp 5-5000 / 1	21 #1 Diameter
1	1	CYCLES	1-8160 / 1	21 #1 Delay
2	10	OHMS	if C.T. secondary rating == 5Amp (-1000)-1000 / 1 if C.T. secondary rating == 1Amp (-5000)-5000 / 1	21 #1 Offset
3	1	DEGREE	0-90 / 1	21 #1 Impedance angle
4	1	DEGREE	1-90 / 1	21 #1 Load Angle
5	10	OHMS	1-1000 / 1	21 #1 Load R reach
6	10	OHMS	If C.T. secondary rating == 5Amp 1-1000 / 1 if C.T. secondary rating == 1Amp 5-5000 / 1	21 #2 Diameter
7	1	CYCLES	1-8160 / 1	21 #2 Delay
8	10	OHMS	If C.T. secondary rating == 5Amp (-1000)-1000 / 1 if C.T. secondary rating == 1Amp (-5000)-5000 / 1	21 #2 Offset
9	1	DEGREE	0-90 / 1	21 #2 Impedance angle
10	1	DEGREE	1-90 / 1	21 #2 Load Angle
11	10	OHMS	1-1000 / 1	21 #2 Load R reach

■ NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (1 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
12	10	OHMS	If C.T. secondary rating == 5Amp 1-1000 / 1 if C.T. secondary rating == 1Amp 5-5000 / 1	21 #3 Diameter
13	1	CYCLES	1-8160 / 1	21 #3 Delay
14	10	OHMS	If C.T. secondary rating == 5Amp (-1000)-1000 / 1 if C.T. secondary rating == 1Amp (-5000)-5000 / 1	21 #3 Offset
15	1	DEGREE	0-90 / 1	21 #3 Impedance angle
16	1	DEGREE	1-90 / 1	21 #3 Load Angle
17	10	OHMS	1-1000 / 1	21 #3 Load R reach
18	1	CYCLES	1-8160 / 1	21 #3 Out of step delay
19	1	%	100-200 / 1	24DT #1 Pickup
20	1	CYCLES	30-8160 / 1	24DT #1 Delay
21	1	%	100-200 / 1	24DT #2 Pickup
22	1	CYCLES	30-8160 / 1	24DT #2 Delay
23	1	%	100-200 / 1	24IT Pickup
24	1		1/4/2001	24IT Curve **
25	10		if curve=1 10-1000 / 10 else if curve= 2,3,4 0-90	24IT Time dial **
26	1	SEC	1-999 / 1	24IT Reset rate

■ NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (2 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
27	1	DEGREES	0-90 / 1	25S Phase Angle Window
28	1	VOLTS	60-140 / 1	25S Upper voltage limit
29	1	VOLTS	40-120 / 1	25S Lower voltage limit
30	1		0-1 / 1	25S Delta voltage enable 0 – disabled 1 – enabled
31	10	VOLTS	10-500 / 1	25S Delta voltage limit
32	1		0-1 / 1	25S Delta Frequency enable 0 – disabled 1 – enabled
33	1000	HERTZ	1-500 / 1	25S Delta Frequency Limit
34	1	VOLTS	0-60 / 1	25D Dead Voltage Limit
35	1			25D Dead V1 Hot VX 0 – disabled 1 – enabled
36	1		0-1 / 1	25D Dead VX Hot V1 0 – disabled 1 – enabled
37	1		0-1 / 1	25D Dead V1 Dead VX 0 – disabled 1 – enabled
38	1	CYCLES	1-8160 / 1	25D Dead time delay
39	1	CYCLES	1-8160 / 1	25S Sync check time delay
40	1		0-2 / 1	25S Sync check phase 0 – phase A 1 – phase B 2 – phase C

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (3 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
41	1	VOLTS	5-180 / 1	27 #1 Pickup
42	1	CYCLES	1-8160 / 1	27 #1 Delay
43	1	VOLTS	5-180 / 1	27 #2 Pickup
44	1	CYCLES	1-8160 / 1	27 #2 Delay
45	1	VOLTS	5-180 / 1	27 #3 Pickup
46	1	CYCLES	1-8160 / 1	27 #3 Delay
47	100	VOLTS	10-1400 / 1	27TN #1 Pickup
48	1	VOLTS	5-180 / 1	27TN #1 Positive sequence voltage block
49	100	PU	1-100 / 1	27TN #1 Forward power block
50	100	PU	(-100) – (-1) / 1	27TN #1 Reverse power block
51	100	PU	(-100) – (-1) / 1	27TN #1 Lead VAR block
52	100	PU	1-100 / 1	27TN #1 Lag VAR block
53	100	LEAD	1-100 / 1	27TN #1 Lead power factor block
54	100	LAG	1-100 / 1	27TN #1 Lag power factor block
55	100	PU	1-100 / 1	27TN #1 Low band forward power block
56	100	PU	1-100 / 1	27TN #1 Hi band forward power block
57	1	CYCLES	1-8160 / 1	27TN #1 Delay
58	100	VOLTS	10-1400 / 1	27TN #2 Pickup
59	1	VOLTS	5-180 / 1	27TN #2 Positive sequence voltage block
60	100	PU	1-100 / 1	27TN #2 Forward power block
61	100	PU	(-100) – (-1) / 1	27TN #2 Reverse power block
62	100	PU	(-100) – (-1) / 1	27TN #2 Lead VAR block
63	100	PU	1-100 / 1	27TN #2 Lag VAR block
64	100	LEAD	1-100 / 1	27TN #2 Lead power factor block
65	100	LAG	1-100 / 1	27TN #2 Lag power factor block
66	100	PU	1-100 / 1	27TN #2 Low band forward power block
67	100	PU	1-100 / 1	27TN #2 Hi band forward power block
68	1	CYCLES	1-8160 / 1	27TN #2 Delay

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (4 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: **1 (Read)****16 BIT/32 BIT ANALOG OUTPUT BLOCK**

Object 41, Variation 02, 01

Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
69	1000	PU	(-3000)-3000 / 1 excluding 1, 0,	32 #1 Pickup
70	1		0 – 1 / 1	32 #1 Under/Over power option 0= over power 1=under power
71	1		0-1 / 1	32 #1 Target led enable 0 – disabled 1 – enabled
72	1	CYCLES	1-8160 / 1	32 #1 Delay
73	1000	PU	(-3000)-3000 / 1 excluding 1, 0,	32 #2 Pickup
74	1		0 – 1 / 1	32 #2 Under/Over power option 0= over power 1= under power
75	1		0-1 / 1	32 #2 Target led enable 0 – disabled 1 – enabled
76	1	CYCLES	1-8160 / 1	32 #2 Delay
77	1000	PU	(-3000)-3000 / 1 excluding 1, 0,	32 #3 Pickup
78	1		0 – 1 / 1	32 #3 Under/Over power option 0= over power 1=under power
79	1		0-1 / 1	32 #3 Target led enable 0 – disabled 1 – enabled
80	1	CYCLES	1-8160 / 1	32 #3 Delay

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (5 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: **1 (Read)**

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
81	10	OHMS	if C.T. secondary rating == 5Amp 1-1000 / 1 if C.T. secondary rating == 1Amp 5-5000 / 1	40 #1 Diameter
82	10	OHMS	if C.T. secondary rating == 5Amp -500-500 / 1 if C.T. secondary rating == 1Amp -2500-2500 / 1	40 #1 Offset
83	1	CYCLES	1-8160 / 1	40 #1 Delay
84	1	CYCLES	1-8160 / 1	40 #1 Delay with Voltage control
85	10	OHMS	if C.T. secondary rating == 5Amp 1-1000 / 1 if C.T. secondary rating == 1Amp 5-5000 / 1	40 #2 Diameter
86	10	OHMS	if C.T. secondary rating == 5Amp -500-500 / 1 if C.T. secondary rating == 1Amp -2500-2500 / 1	40 #2 Offset
87	1	CYCLES	1-8160 / 1	40 #2 Delay
88	1	CYCLES	1-8160 / 1	40 #2 Delay with Voltage control
89	1	VOLTS	5-180 / 1	40 Voltage control
90	1	%	3 – 100 / 1	46DT Pickup
91	1	CYCLES	1-8160 / 1	46DT Delay
92	1	%	3-100 / 1	46IT Pickup
93	1		1-95 / 1	46IT Time dial
94	1U	CYCLES	600-65500 / 1	46IT Definite max time
95	1	SECONDS	1-600 / 1	46IT Reset time

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (6 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
96	10	MINUTES	10-9999 / 1	49 #1 Time constant
97	100	AMPS	if C.T. secondary rating == 5Amp 100-1000 / 1 if C.T. secondary rating == 1Amp 20-200 / 1	49 #1 Max overload current
98	10	MINUTES	10-9999 / 1	49 #2 Time constant
99	100	AMPS	if C.T. secondary rating == 5Amp 100-1000 / 1 if C.T. secondary rating == 1Amp 20-200 / 1	49 #2 Max overload current
100	10	AMPS	if C.T. secondary rating == 5Amp 1-2400 / 1 if C.T. secondary rating == 1Amp 1-480 / 1	50 #1 Phase pickup
101	1	CYCLES	1-8160 / 1	50 #1 Delay
102	10	AMPS	if C.T. secondary rating == 5Amp 1-2400 / 1 if C.T. secondary rating == 1Amp 1-480 / 1	50 #2 Phase pickup
103	1	CYCLES	1-8160 / 1	50 #2 Delay
104	100	AMPS	if C.T. secondary rating == 5Amp 50-1500 / 1 if C.T. secondary rating == 1Amp 10-300 / 1	50/27 Pickup
105	1	VOLTS	5-130 / 1	50/27 Voltage control
106	1	CYCLES	1-8160 / 1	50/27 Pickup delay
107	1	CYCLES	1-8160 / 1	50/27 Dropout delay

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (7 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: **1 (Read)****16 BIT/32 BIT ANALOG OUTPUT BLOCK**

Object 41, Variation 02, 01

Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
108	1		0 - 1 / 1	50BF Phase initiate 0 = disable / 1 = enable
109	100	AMPS	if C.T. secondary rating == 5Amp 10-1000 / 1 if C.T. secondary rating == 1Amp 2-200 / 1	50BF Phase pickup
110	1		0 - 1 / 1	50BF Neutral initiate 0 = disable / 1 = enable Can't enable if 64S is purchased
111	100	AMPS	if C.T. secondary rating == 5Amp 10-1000 / 1 if C.T. secondary rating == 1Amp 2-200 / 1	50BF Neutral pickup
112	1	CYCLES	1-8160 / 1	50BF Delay
113	100	AMPS	if C.T. secondary rating == 5Amp 20-24000 / 1 if C.T. secondary rating == 1Amp 4-4800 / 1	50DT #1 Phase A pickup
114	100	AMPS	if C.T. secondary rating == 5Amp 20-24000 / 1 if C.T. secondary rating == 1Amp 4-4800 / 1	50DT #1 Phase B pickup
115	100	AMPS	if C.T. secondary rating == 5Amp 20-24000 / 1 if C.T. secondary rating == 1Amp 4-4800 / 1	50DT #1 Phase C pickup
116	1	CYCLES	1-8160 / 1	50DT #1 Delay
117	100	AMPS	if C.T. secondary rating == 5Amp 20-24000 / 1 if C.T. secondary rating == 1Amp 4-4800 / 1	50DT #2 Phase A pickup

NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (8 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
118	100	AMPS	if C.T. secondary rating == 5Amp 20-24000 / 1 if C.T. secondary rating == 1Amp 4-4800 / 1	50DT #2 Phase B pickup
119	100	AMPS	if C.T. secondary rating == 5Amp 20-24000 / 1 if C.T. secondary rating == 1Amp 4-4800 / 1	50DT #2 Phase C pickup
120	1	CYCLES	1-8160 / 1	50DT #2 Delay
121	10	AMPS	if C.T. secondary rating == 5Amp 1-2400 / 1 if C.T. secondary rating == 1Amp 1-480 / 1	50N Neutral pickup
122	1	CYCLES	1-8160 / 1	50N Delay
123	100	AMPS	if C.T. secondary rating = 5Amp 25-1200 / 1 if C.T. secondary rating = 1Amp 5-240 / 1	51N Pickup
124	1		1-11 / 1	51N Curve type ** 1 = Beco Definite time 2 = Beco Inverse 3 = Beco Very inverse 4 = Beco Extremely inverse 5 = IEC Inverse 6 = IEC Very Inverse 7 = IEC Extremely inverse 8 = IEC Long time inverse 9 = IEEE Inverse 10 = IEEE Very Inverse 11 = IEEE Extremely inverse
125	100		if curve = 1->4 50- 1100 / 10 if curve = 5->8 5 - 110 / 1 if curve =9->11 50 - 1500 / 10	51N Time dial **
126	100	AMPS	if C.T. secondary rating = 5Amp 50-1200 / 1 if C.T. secondary rating = 1Amp 10-240 / 1	51V Pickup

■ NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (9 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: **1 (Read)**

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
127	1		1-11 / 1	51V Curve type ** 1 = Beco Definite time 2 = Beco Inverse 3 = Beco Very inverse 4 = Beco Extremely inverse 5 = IEC Inverse 6 = IEC Very Inverse 7 = IEC Extremely inverse 8 = IEC Long time inverse 9 = IEEE Inverse 10 = IEEE Very Inverse 11 = IEEE Extremely inverse
128	100		if curve = 1->4 50- 1100 / 10 if curve = 5->8 5 - 110 / 1 if curve =9->11 50 - 1500 / 10	51V Time dial **
129	1		1 - 3 / 1	51V Voltage control 1 = Disable 2 = Voltage control 3 = Voltage restraint
130	1	VOLTS	5 - 180 / 1	51V Voltage control level If Voltage control = 2
131	1	VOLTS	5-180 / 1	59 #1 Pickup
132	1	CYCLES	1-8160 / 1	59 #1 Delay
133	1	VOLTS	5-180 / 1	59 #2 Pickup
134	1	CYCLES	1-8160 / 1	59 #2 Delay
135	1	VOLTS	5-180 / 1	59 #3 Pickup
136	1	CYCLES	1-8160 / 1	59 #3 Delay
137	10	VOLTS	50-1800 / 1	59N #1 Pickup
138	1	CYCLES	1-8160 / 1	59N #1 Delay
139	10	VOLTS	50-1800 / 1	59N #2 Pickup
140	1	CYCLES	1-8160 / 1	59N #2 Delay
141	10	VOLTS	50-1800 / 1	59N #3 Pickup
142	1	CYCLES	1-8160 / 1	59N #3 Delay

■ NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (10 of 23)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status) Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6				
POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
143	10		1-50 / 1	59D Ratio
144	1	CYCLES	1-8160 / 1	59D Delay
145	1		0-1 / 1	59D Line side voltage 0 – 3V0 1 – Vx Can't set to Vx if 25 function is enabled Can't set to 3V0 if V.T. config is not set to Line to Ground
146	1	CYCLES	1-8160 / 1	60FL Delay
147	1	mV	0-5000 / 1	64B Pickup
148	1	CYCLES	1-8160 / 1	64B Delay
149	1	kOHMS	5-100 / 1	64F #1 Pickup
150	1	CYCLES	1-8160 / 1	64F #1 Delay
151	1	kOHMS	5-100 / 1	64F #2 Pickup
152	1	CYCLES	1-8160 / 1	64F #2 Delay
153	100	Hz	10 - 100 / 1	64F Injection Frequency
154	10	mA	20 – 750 / 1	64S Pickup
155	1		0 – 15 / 1	64S Inhibit* bit 0 – Voltage Restraint inhibit bit 1 – Underfrequency Inhibit bit 2 - Total Current inhibit bit 3 - Real Component inhibit
156	1	mA	20 – 750 / 1	64S Real Component Pickup
157	1	CYCLES	1-8160 / 1	64S Delay

■ **NOTE:**

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (11 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
158	10	AMPS	if C.T. secondary rating == 5Amp 5-2400 / 1 if C.T. secondary rating == 1Amp 1-480 / 1	67NDT Pickup
159	1		0-1 / 1	67NDT Directional element 0 – Disabled 1 - Enabled
160	1	CYCLES	1-8160 / 1	67NDT Time delay
161	100	AMPS	if C.T. secondary rating == 5Amp 25-1200 / 1 if C.T. secondary rating == 1Amp 5-240 / 1	67NIT Pickup
162	1		1-11 / 1	67NIT Curve type ** 1 = Beco Definite time 2 = Beco Inverse 3 = Beco Very inverse 4 = Beco Extremely inverse 5 = IEC Inverse 6 = IEC Very Inverse 7 = IEC Extremely inverse 8 = IEC Long time inverse 9 = IEEE Inverse 10 = IEEE Very Inverse 11 = IEEE Extremely inverse
163	100		if curve = 1->4 50– 1100 / 10 if curve = 5->8 5 – 110 / 1 if curve =9->11 50 – 1500 / 10	67NIT Time dial **
164	1		0-1 / 1	67NIT Directional element enable 0 – disabled 1 – enabled
165	1	DEGREES	0-359 / 1	67NIT Max sensivity angle

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (12 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
166	1	CYCLES	1-8160 / 1	78 Reset time for pole slip count
167	10	OHMS	If C.T. secondary rating == 5Amp 1-1000 / 1 if C.T. secondary rating == 1Amp 5-5000 / 1	78 Diameter
168	10	OHMS	If C.T. secondary rating == 5Amp (-1000)-1000 / 1 if C.T. secondary rating == 1Amp (-5000)-5000 / 1	78 Offset
169	1	DEGREE	0-90 / 1	78 Impedance angle
170	10	OHMS	If C.T. secondary rating == 5Amp 1-500 / 1 if C.T. secondary rating == 1Amp 5-2500 / 1	78 Blinder
171	1		0 – 1 / 1	78 Trip on MHO exit
172	1	CYCLES	1-8160 / 1	78 Delay
173	1		1 – 20 / 1	78 Pole slip counter
174	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81 #1 Pickup
175	1U	CYCLES	3-65500 / 1	81 #1 Delay

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (13 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: **1 (Read)**

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
176	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81 #2 Pickup
177	1U	CYCLES	3-65500 / 1	81 #2 Delay
178	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81 #3 Pickup
179	1U	CYCLES	3-65500 / 1	81 #3 Delay
180	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81 #4 Pickup
181	1U	CYCLES	3-65500 / 1	81 #4 Delay

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (14 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: **1 (Read)****16 BIT/32 BIT ANALOG OUTPUT BLOCK**

Object 41, Variation 02, 01

Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
182	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81A #1 Low pickup
183	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81A #1 High pickup
184	1		0-1 / 1	81A #1 Band enable 0 – band disabled 1 – band enabled
185	1U	CYCLES	0-5 / 1	81A #1 Delay. Most significant word
186	1U	CYCLES	0-65535 / 1 ***	81A #1 Delay. Least significant word
187	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81A #2 Low pickup
188	1U	CYCLES	0-5 / 1	81A #2 Delay. Most significant word
189	1U	CYCLES	0-65535 / 1 ***	81A #2 Delay. Least significant word
190	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81A #3 Low pickup
191	1U	CYCLES	0-5 / 1	81A #3 Delay. Most significant word
192	1U	CYCLES	0-65535 / 1 ***	81A #3 Delay. Least significant word

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (15 of 23)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status) Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6				
POINT INDEX	SCALE FACTOR	UNITS	RANGE/INCREMENT	DESCRIPTION
193	100	HZ	If nominal frequency = 60Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50Hz 4000-5700 / 1 excluding 5000	81A #4 Low pickup
194	1U	CYCLES	0-5 / 1	81A #4 Delay. Most significant word
195	1U	CYCLES	0-65535 / 1 ***	81A #4 Delay. Least significant word
196	100	Hz/Sec	10-2000 / 1	81R #1 Rate of change of frequency
197	1	CYCLES	3-8160 / 1	81R #1 Delay
198	100	Hz/Sec	10-2000 / 1	81R #2 Rate of change of frequency
199	1	CYCLES	3-8160 / 1	81R #2 Delay
200	1	%	0 – 99 / 1	81R Inhibit
201	100	AMPS	if C.T. secondary rating == 5Amp 20-300 / 1 if C.T. secondary rating == 1Amp 4-60 / 1	87 #1 Pickup
202	1	%	1-100 / 1	81R #2 Delay
203	1	CYCLES	1-8160 / 1	81R Inhibit
204	100	AMPS	if C.T. secondary rating == 5Amp 20-300 / 1 if C.T. secondary rating == 1Amp 4-60 / 1	87 #1 Pickup
205	1	%	1-100 / 1	87 #2 Slope
206	1	CYCLES	1-8160 / 1	87 #2 Delay
207	100	AMPS	50-200 / 1	87 CT correction
208	100	AMPS	if C.T. secondary rating = 5Amp 20-1000 / 1 if C.T. secondary rating = 1Amp 4-200 / 1	87GD Pickup
209	1	CYCLES	1-8160 / 1	87GD Delay
210	100		10-799 / 1	87GD CT Ratio Correction

■ **NOTE:**

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (16 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
211	1	DEGREES	0-20 / 1	40 Directional element
212	1		0-1 / 1	21 #1 Out of step block enable 0 – disabled / 1 – enabled
213	1		0-1 / 1	21 #2 Out of step block enable 0 – disabled / 1 – enabled
214	1		0-1 / 1	21 #3 Out of step block enable 0 – disabled / 1 – enabled
215	1		0-1 / 1	21 #1 Load encroachment enable 0 – disabled / 1 – enabled
216	1		0-1 / 1	21 #2 Load encroachment enable 0 – disabled / 1 – enabled
217	1		0-1 / 1	21 #3 Load encroachment enable 0 – disabled / 1 – enabled
218	1		0-1 / 1	21 #1 Overcurrent supervision enable 0 – disabled / 1 – enabled
219	1		0-1 / 1	21 #2 Overcurrent supervision enable 0 – disabled / 1 – enabled
220	1		0-1 / 1	21 #3 Overcurrent supervision enable 0 – disabled / 1 – enabled
221	100	AMPS	If C.T. secondary rating == 5 Amp 10-2000 / 10 If C.T. secondary rating == 1 Amp 2-400 / 1	21 #1 Overcurrent supervision
222	100	AMPS	If C.T. secondary rating == 5 Amp 10-2000 / 10 If C.T. secondary rating == 1 Amp 2-400 / 1	21 #2 Overcurrent supervision
223	100	AMPS	If C.T. secondary rating == 5 Amp 10-2000 / 10 If C.T. secondary rating == 1 Amp 2-400 / 1	21 #3 Overcurrent supervision

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (17 of 23)

BINARY OUTPUT STATUS POINTS Object Number: 10 Request Function Codes Supported: 1 (Read) Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status) Control Relay Output Blocks Object Number: 12 Request Function Codes Supported: 3, 4, 5 and 6				
POINT INDEX	SCALE FACTOR	UNITS	RANGE/INCREMENT	DESCRIPTION
224	1		0-1 / 1	32 #3 Directional power sensing 0 – Real / 1 – Reactive
225	1		0-1 / 1	67N Operating current 0 – 3I0 1 – IN Operating current can't be set to IN if 87GD is enabled or 64S is purchased
226	1		0-2 / 1	67N Polarizing quantity 0 – 3V0 1 – VN 2 – VX Can't write if 25S or 25D is enabled and Polarizing quantity going to be set to VX! Can't set to 3V0 if V.T configuration is not Line to Ground Can't set to VN if 64S is purchased
227	1	VOLTS	5-180 / 1	59X #1 Pickup
228	1	CYCLES	1-8160 / 1	59X #1 Delay
229	1	VOLTS	5-180 / 1	59X #2 Pickup
230	1	CYCLES	1-8160 / 1	59X #2 Delay
231	1		0-1 / 1	60FL 3 phase enable 0 – disabled / 1 – enabled
232	100	HZ	if nominal frequency = 60 Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50 Hz 4000-5700 / 1 excluding 5000	81A #5 Low pickup
233	1U	CYCLES	0-5 / 1	81A #5 Delay. Most significant word
234	1U	CYCLES	0-65535 / 1 ***	81A #5 Delay. Least significant word
235	100	HZ	if nominal frequency = 60 Hz 5000-6700 / 1 excluding 6000 else if nominal frequency = 50 Hz 4000-5700 / 1 excluding 5000	81A #6 Low pickup
236	1U	CYCLES	0-5 / 1	81A #6 Delay. Most significant word
237	1U	CYCLES	0-65535 / 1 ***	81A #6 Delay. Least significant word

■ **NOTE:**

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (18 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
238	1		0-1 / 1	59D Positive sequence voltage block enable/disable 0 – disabled 1 - enabled
239	1	VOLTS	5-180 / 1	59D Positive sequence voltage block
240	10	VOLTS	500 – 1400 / 1	Nominal voltage
241	100	AMPS	50 – 600 / 1	Nominal current
242	1		0 – 2 / 1	V.T. Configuration 0 = Line to Line 1 = Line to Ground 2 = Line to Ground-to-Line to Line Line to Line or Line to Ground-to-Line to Line V.T. config can be set only if 67N and 59D polarization is not 3V0
243	1		0 – 1 / 1	Phase rotation 0 = ACB 1 = ABC
244	1		0 – 1 / 1	59/27 Magnitude select 0 = RMS 1 = DFT
245	1		0 – 1 / 1	50DT Split Phase Operation 0=disable 1=enable
246	1	CYCLES	2-8160 / 1	Seal in delay relay 1
247	1	CYCLES	2-8160 / 1	Seal in delay relay 2
248	1	CYCLES	2-8160 / 1	Seal in delay relay 3
249	1	CYCLES	2-8160 / 1	Seal in delay relay 4
250	1	CYCLES	2-8160 / 1	Seal in delay relay 5
251	1	CYCLES	2-8160 / 1	Seal in delay relay 6
252	1	CYCLES	2-8160 / 1	Seal in delay relay 7
253	1	CYCLES	2-8160 / 1	Seal in delay relay 8

■ NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (19 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: **1 (Read)**

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
254	10U		10-65500 / 1	V.T. Phase ratio
255	10U		10-65500 / 1	V.T. Neutral ratio
256	1U		1-65500 / 1	C.T. Phase ratio
257	1U		1-65500 / 1	C.T. Neutral ratio
258	1		0-2 / 1	Delta-Y Transform 0 = Disable 1 = Lead 30 degrees 2 = Lag 30 degrees
259	1			Nominal frequency 0 = 50Hz 1 = 60Hz
260				CT secondary rating 0 = 1Amp 1 = 5Amp
261	1			Injection frequency for F64S 0 = 12.5Hz 1 = 15 Hz 2 = 20 Hz
262	1	CYCLES	2-8160 / 1	Seal in delay relay 9
263	1	CYCLES	2-8160 / 1	Seal in delay relay 10
264	1	CYCLES	2-8160 / 1	Seal in delay relay 11
265	1	CYCLES	2-8160 / 1	Seal in delay relay 12
266	1	CYCLES	2-8160 / 1	Seal in delay relay 13
267	1	CYCLES	2-8160 / 1	Seal in delay relay 14
268	1	CYCLES	2-8160 / 1	Seal in delay relay 15
269	1	CYCLES	2-8160 / 1	Seal in delay relay 16
270	1	CYCLES	2-8160 / 1	Seal in delay relay 17
271	1	CYCLES	2-8160 / 1	Seal in delay relay 18
272	1	CYCLES	2-8160 / 1	Seal in delay relay 19
273	1	CYCLES	2-8160 / 1	Seal in delay relay 20
274	1	CYCLES	2-8160 / 1	Seal in delay relay 21
275	1	CYCLES	2-8160 / 1	Seal in delay relay 22
276	1	CYCLES	2-8160 / 1	Seal in delay relay 23

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (20 of 23)

BINARY OUTPUT STATUS POINTS

Object Number: 10

Request Function Codes Supported: 1 (Read)

Default Variation Reported When Variation 0 Requested: 2 (Binary Output Status)

Control Relay Output Blocks

Object Number: 12

Request Function Codes Supported: 3, 4, 5 and 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/INCREMENT	DESCRIPTION
277	1	CYCLES	0-65500 / 1	IPS LOGIC #1 dropout delay
278	1	CYCLES	0-65500 / 1	IPS LOGIC #2 dropout delay
279	1	CYCLES	0-65500 / 1	IPS LOGIC #3 dropout delay
280	1	CYCLES	0-65500 / 1	IPS LOGIC #4 dropout delay
281	1	CYCLES	0-65500 / 1	IPS LOGIC #5 dropout delay
282	1	CYCLES	0-65500 / 1	IPS LOGIC #6 dropout delay
283	1U		0-4 / 1	EXT #1 Switch profile 0 – not activated 1 – switch to profile 1 2 – switch to profile 2 3 – switch to profile 3 4 – switch to profile 4
284	1	CYCLES	1-8160 / 1	IPS LOGIC #1 Delay
285	1U			IPS LOGIC #2 Switch profile See 283
286	1	CYCLES	1-8160 / 1	IPS LOGIC #2 Delay
287	1U		0-4 / 1	IPS LOGIC #3 Switch profile
288	1	CYCLES	1-8160 / 1	IPS LOGIC #3 Delay
289	1U		0-4 / 1	IPS LOGIC #4 Switch profile
290	1	CYCLES	1-8160 / 1	IPS LOGIC #4 Delay
291	1U		0-4 / 1	IPS LOGIC #5 Switch profile
292	1	CYCLES	1-8160 / 1	IPS LOGIC #5 Delay
293	1U			IPS LOGIC #6 Switch profile See 283
294	1	CYCLES	1-8160 / 1	IPS LOGIC #6 Delay
295	1	CYCLES	1-8160 / 1	TC (Trip Circuit) Delay
296	1	kA CYCLES	0-50000 / 1	BM Pickup
297	10	CYCLES	1-40959 / 1	BM Delay
298	1	kA CYCLES	0-50000 / 1	Phase A Breaker monitoring arc current acc.
299	1	kA CYCLES	0-50000 / 1	Phase B Breaker monitoring arc current acc.
300	1	kA CYCLES	0-50000 / 1	Phase C Breaker monitoring arc current acc.

NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (21 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01
Request Function Codes Supported: **1 (Read)**

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01
Request Function Codes Supported: **3, 4, 5 (Selexe), 6**

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
301	1		0-1 / 1	59D fundamental enable 0 – disbaled 1 –enabled
302	1		0-1 / 1	27TN #1 overvoltage select 0 – undervoltage selected 1 – overvolatge selected
303	1		0-1 / 1	27TN #2 overvoltage select 0 – undervoltage selected 1 – overvolatge selected
304	1		0-1 / 1	59N 20 Hz injection mode 0 – disabled 1 – enabled The injection mode can't be disabled if 64S function is enabled
305	1U		0-1 / 1	IPS LOGIC #1 Communication initiate
306	1U		0-1 / 1	IPS LOGIC #1 Communication block
307	1U		0-1 / 1	IPS LOGIC #2 Communication initiate
308	1U		0-1 / 1	IPS LOGIC #2 Communication block
309	1U		0-1 / 1	IPS LOGIC #3 Communication initiate
310	1U		0-1 / 1	IPS LOGIC #3 Communication block
311	1U		0-1 / 1	IPS LOGIC #4 Communication initiate
312	1U		0-1 / 1	IPS LOGIC #4 Communication block
313	1U		0-1 / 1	IPS LOGIC #5 Communication initiate
314	1U		0-1 / 1	IPS LOGIC #5 Communication block
315	1U		0-1 / 1	IPS LOGIC #6 Communication initiate
316	1U		0-1 / 1	IPS LOGIC #6 Communication block

■ NOTE:

- ** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.
- *** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.
- *^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (22 of 23)

16 BIT/32 BIT ANALOG OUTPUT WITH STATUS

Object 40, Variation 02, 01

Request Function Codes Supported: 1 (Read)

16 BIT/32 BIT ANALOG OUTPUT BLOCK

Object 41, Variation 02, 01

Request Function Codes Supported: 3, 4, 5 (Selexe), 6

POINT INDEX	SCALE FACTOR	UNITS	RANGE/ INCREMENT	DESCRIPTION
317	1	CYCLES	0-5 / 1	81A #1 Preset accumulator value (most significant word). Write only
318	1	CYCLES	0-65535 / 1 ***	81A #1 Preset accumulator value (least significant word). Write only
319	1	CYCLES	0-5 / 1	81A #2 Preset accumulator value (most significant word). Write only
320	1	CYCLES	0-65535 / 1 ***	81A #2 Preset accumulator value (least significant word). Write only
321	1	CYCLES	0-5 / 1	81A #3 Preset accumulator value (most significant word). Write only
322	1	CYCLES	0-65535 / 1 ***	81A #3 Preset accumulator value (least significant word). Write only
323	1	CYCLES	0-5 / 1	81A #4 Preset accumulator value (most significant word). Write only
324	1	CYCLES	0-65535 / 1 ***	81A #4 Preset accumulator value (least significant word). Write only
325	1	CYCLES	0-5 / 1	81A #5 Preset accumulator value (most significant word). Write only
326	1	CYCLES	0-65535 / 1 ***	81A #5 Preset accumulator value (least significant word). Write only
327	1	CYCLES	0-5 / 1	81A #6 Preset accumulator value (most significant word). Write only
328	1	CYCLES	0-65535 / 1 ***	81A #6 Preset accumulator value (least significant word). Write only

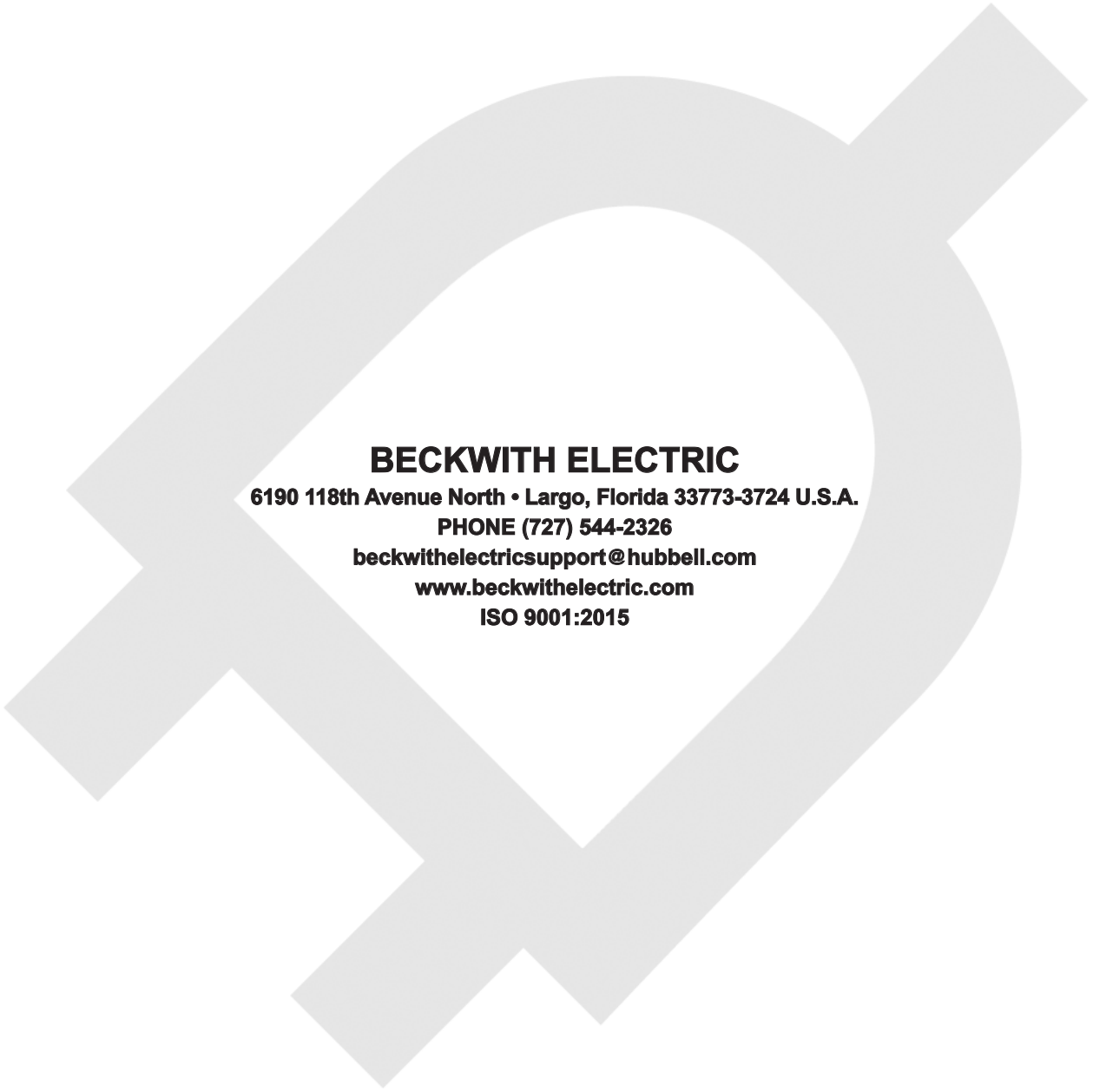
■ NOTE:

** When writing these points, curve should always proceed time dial as range checking is dependent on curve selection.

*** Combined with most significant word the value should not exceed 360,000 and must be greater than 3.

*^ This point is only available in firmware version: D150V03.00.01 and later.

Table 6 – Analog Output with Status (23 of 23)



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