



LUMISYS

BUILT FOR INTEGRATION



Lx5 BACnet Integration Guide

021209308CDS

Table of Contents

Overview	3
Lx5 Network Addressing	4
Network Topology	5
Lx5 Internal Panel Features	5
Point List Format, Definitions and Valid Ranges of Values	6
Group Information	7
<i>Group Command</i>	7
<i>Group Status</i>	7
<i>Group Timer (in seconds)</i>	7
<i>Relay Status - Direct</i>	8
<i>Relay Status - Range</i>	8
<i>Sensor Information</i>	8
Bad Relay Range	9
BACnet Point List	10-22

Overview

About This Document

This document provides point list information for networking Lx5 lighting panel controllers to a building automation system using the BACnet® data communication protocol.

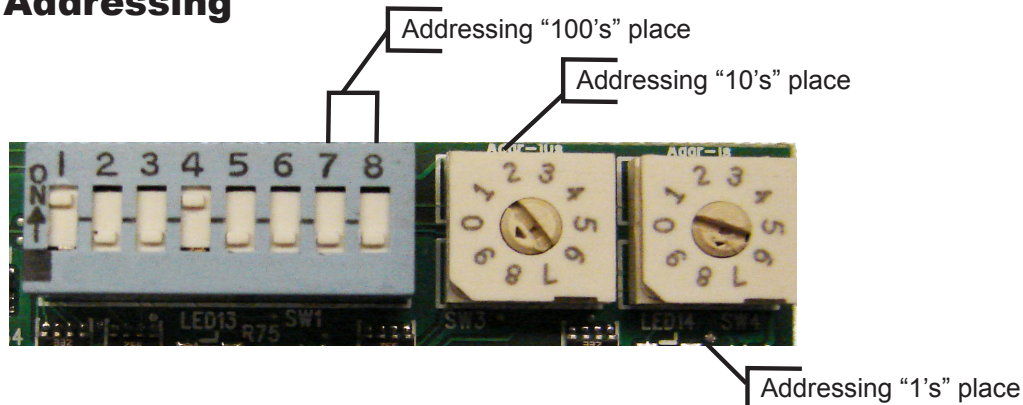
BACnet® is a data communication protocol governing data exchange externally between digitally controlled building equipment devices and a building automation system. Digital functions within the equipment that are not part of the communication function are beyond the scope of BACnet. For *internal* configuration of the Lx5 controller's advanced features, one must use the Lumisys® LP-PK programming tool. The features and programming instructions are covered in the LX5 companion documents:

Lumisys® Lx5 Lighting Panel Controller, User's Guide - Hardware

Lumisys® Lx5 Lighting Panel Controller, User's Guide - LP-PK Software

For physical installation of panels or retrofits kits, refer to the appropriate product Lumisys Series *Installation Guide*.

Lx5 Network Addressing



Using BACnet Device ID:

The Lx5 will pick-up the rotary switch setting (located in the top right hand corner of the Lx5) and append that value to the end of the Lumisys BACnet Vendor ID of 132:

1 3 2 0 X X

Valid Values for X X are 01 to 99.

Example:

Rotary switches are set to 1 and 2, respectively.

BACnet Device ID = 132012

Using Lx5 MAC Address:

The Lx5 will pick-up the rotary switch setting (located in the top right hand corner of the Lx5):

X X

Valid Values for X X are 01 to 99.

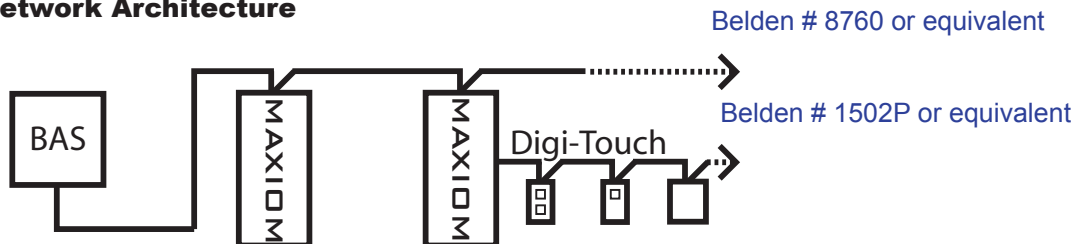
Using a custom BACnet Device ID:

The Lx5 supports the use of a custom BACnet Device ID. Contact factory for details.

Network Topology

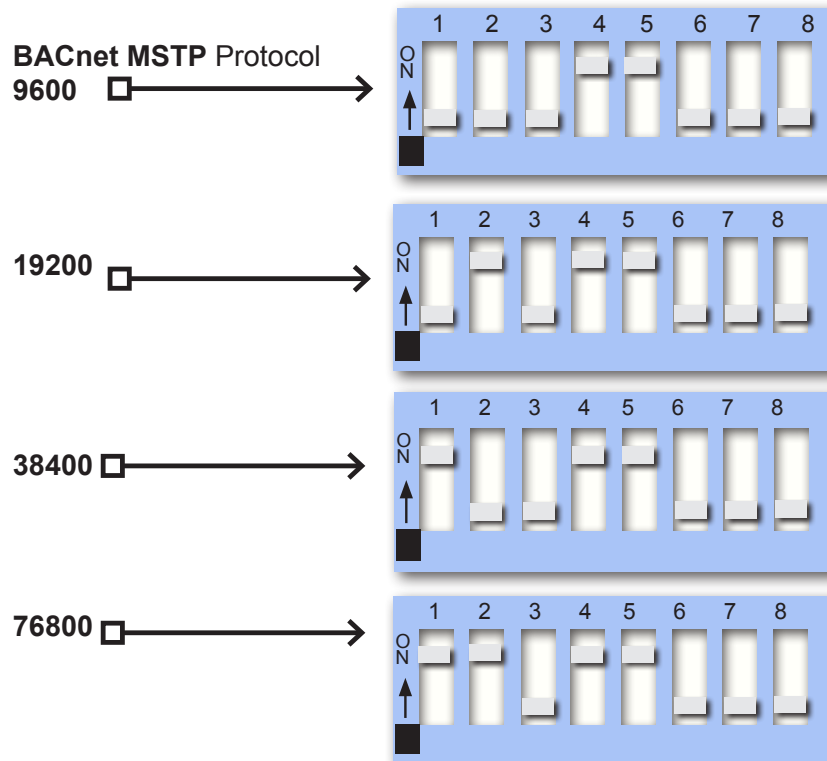
The LX5's multiple protocols including BACnet enable it to communicate with almost any BAS. The LX5 controller in your Lumisys panel was factory-enabled with the mode specified at the time of order for your building automation system. All the point list information in this document is for BACnet MS/TP. BACnet MS/TP runs on an EIA-485 twisted pair network connecting the Lumisys panels in a daisy chain topology without stars or t-taps.

Network Architecture



LX5 Internal Panel Features

The internal panel features are configured using the LP-PK programming tool. An example of this is assigning relays to Groups. Actions taken on the panel Groups via BACnet communications will treat each Group as a whole and not be concerned with what has been configured "inside" the panel Group.



Point List Format, Definitions and Valid Ranges of Values

The BACnet points listed represent a standard BACnet control program with 60 lighting control zones. Each point named is described with a BACnet Type, Object ID, and Object Name. The Device ID is the BACnet device ID for the LX5 panel controller. "132" is the Lumisys BACnet Vendor ID assigned by ASHRAE.

Location	Equipment	Name	Type	Object ID	Object Name
Group 1					
		Group Command - Binary	BBV	BV:1	schedule_1
		Group Status - Binary	BBV	BV:101	b_groupstat_1
		Group Command - MSV	BMSV	MSV:1	cmd_1
		Group Status - MSV	BMSV	MSV:101	ms_groupstat_1
		Group Timer	BAV	AV:1	timer_1

The Lx5 has 5 standard communication objects:

- Group Command
- Group Status
- Group Timer
- Sensor Values
- Relay status

The Lx5 may also support the following communication object if those features are available in the product:

- Bad Relay Status

Group Information:

Group Command

The Lx5 supports BACnet Binary (BV) or Multi State Values (MSV) for this communication object.

Binary (BV)

0 = OFF

1 = ON

Multi-State Value (MSV)

1 = Do nothing (SS1)

2 = OFF with flash / blink warning (SS2)

3 = OFF

4 = ON

Notes:

SS1 - This command is typically used for two reasons, scheduled OFF sweeps or manual ON / scheduled OFF control sequences.

Scheduled OFF sweeps - Prior to sending a BV of MSV for OFF to a group that has already received an OFF, sending the MSV for "Do nothing" allows the group to be swept away.

Manual ON / Schedule OFF - Allowing the occupants to manually turn on the lighting as they enter the space rather than scheduling it on is becoming common place. The MSV "DO Nothing" allows the building automation system to schedule "DO Nothing" rather than ON.

SS2 - This command is typically used by the BAS to execute a scheduled OFF function that includes "flash / blink warning" for the occupants, Upon receipt of this MSV, the Lx5 will turn the group OFF for 1 second and start the "on-time after flash" timer. The "on time after flash" timer is set using LPPK, and is typically set to 10 minutes. When the "on time after flash" timer expires the group will turn OFF, unless the occupant has actuated a local override switch for that group

Group Status:

Binary (BV)

0 = OFF

1 = ON

Multi-State Value (MSV)

1 = OFF due to serial command

2 = On due to serial command

3 = OFF due to override switch

4 = ON due to override switch

5 = ON due to override switch with timer count

6 = ON due to manual override switch on Lx5

7 = OFF due to manual override switch on Lx5

Group Timer (in seconds):

Analog (AV)

Valid Values are 0 to 64,800

Note: Lx5 controller supports Group Timers up to 18 hours (64,800 seconds).

Relay Status - Direct:

Multi-State Value (MSV)

1 = OFF

2 = ON

3 = OFF and bad*

4 = ON and bad*

* Note: Requires product with feedback hardware

Relay Status - Range:

Analog Value:

Valid values are 0 to 255

Example of de-multiplexed version:

An analog value of 123 is returned by the Lx5

That value converts to the following 8 bits:

Bit#	1	2	3	4	5	6	7	8
Bit value	1	2	4	8	16	32	64	128

Converted value 1 1 0 1 1 1 1 0

Relay status = 1, 2, 4, 5, 6 and 7 are ON
= 3 and 8 are OFF

Note: Requires demultiplexer method to decompose analog value to relay status.
Refer to page 21 for more information.

Sensor Information:

Sensor Values

Analog (AV)

Valid Values are 0 to 1024

Bad Relay - Range:

Analog Value:

Valid values are 0 to 255

Example of de-multiplexed version:

An analog value of 123 is returned by the Lx5

That value converts to the following 8 bits:

Bit#	1	2	3	4	5	6	7	8
Bit value	1	2	4	8	16	32	64	128
Converted value	1	1	0	1	1	1	1	0

Relay status = 1, 2, 4, 5, 6 and 7 are BAD
= 3 and 8 are GOOD

Note: Requires demultiplexer method to decompose analog value to relay status.

Lx5 BACnet MS/TP Point List

Location	Equipment	Name	Type	Object ID	Object Name
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Common Alarms / Module Halted	EVT	BV:4000000	Module Halted Alarm
Common Alarms / All Programs Stopped	EVT	BV:4000001	All Programs Stopped Alarm
Common Alarms / Duplicate Address	EVT	BV:4000002	Duplicate Address Alarm
Common Alarms / Locked I/O	EVT	BV:4000003	Locked I/O Alarm
Common Alarms / Control Program	EVT	BV:4000004	Control Program Alarm
Common Alarms / Program Stopped	EVT	BV:4000005	Program Stopped Alarm

Group 1

Group Command Binary	BBV	BV:1	schedule_1
Group Status Binary	BBV	BV:101	b_groupstat_1
Group Command Multi State Value	BMSV	MSV:1	cmd_1
Group Status Multi State Value	BMSV	MSV:101	ms_groupstat_1
Group Timer	BAV	AV:1	timer_1

Group 2

Group Command Binary	BBV	BV:2	schedule_2
Group Status Binary	BBV	BV:102	b_groupstat_2
Group Command Multi State Value	BMSV	MSV:2	cmd_2
Group Status Multi State Value	BMSV	MSV:102	ms_groupstat_2
Group Timer	BAV	AV:2	timer_2

Group 3

Group Command Binary	BBV	BV:3	schedule_3
Group Status Binary	BBV	BV:103	b_groupstat_3
Group Command Multi State Value	BMSV	MSV:3	cmd_3
Group Status Multi State Value	BMSV	MSV:103	ms_groupstat_3
Group Timer	BAV	AV:3	timer_3

Group 4

Group Command Binary	BBV	BV:4	schedule_4
Group Status Binary	BBV	BV:104	b_groupstat_4
Group Command Multi State Value	BMSV	MSV:4	cmd_4
Group Status Multi State Value	BMSV	MSV:104	ms_groupstat_4
Group Timer	BAV	AV:4	timer_4

Group 5

Group Command Binary	BBV	BV:5	schedule_5
Group Status Binary	BBV	BV:105	b_groupstat_5
Group Command Multi State Value	BMSV	MSV:5	cmd_5
Group Status Multi State Value	BMSV	MSV:105	ms_groupstat_5
Group Timer	BAV	AV:5	timer_5

Group 6

Group Command Binary	BBV	BV:6	schedule_6
Group Status Binary	BBV	BV:106	b_groupstat_6
Group Command Multi State Value	BMSV	MSV:6	cmd_6
Group Status Multi State Value	BMSV	MSV:106	ms_groupstat_6
Group Timer	BAV	AV:6	timer_6

Group 7

Group Command Binary	BBV	BV:7	schedule_7
Group Status Binary	BBV	BV:107	b_groupstat_7
Group Command Multi State Value	BMSV	MSV:7	cmd_7
Group Status Multi State Value	BMSV	MSV:107	ms_groupstat_7
Group Timer	BAV	AV:7	timer_7

Group 8

Group Command Binary	BBV	BV:8	schedule_8
Group Status Binary	BBV	BV:108	b_groupstat_8
Group Command Multi State Value	BMSV	MSV:8	cmd_8
Group Status Multi State Value	BMSV	MSV:108	ms_groupstat_8
Group Timer	BAV	AV:8	timer_8

Group 9

Group Command Binary	BBV	BV:9	schedule_9
Group Status Binary	BBV	BV:109	b_groupstat_9
Group Command Multi State Value	BMSV	MSV:9	cmd_9
Group Status Multi State Value	BMSV	MSV:109	ms_groupstat_9
Group Timer	BAV	AV:9	timer_9

Group 10

Group Command Binary	BBV	BV:10	schedule_10
Group Status Binary	BBV	BV:110	b_groupstat_10
Group Command Multi State Value	BMSV	MSV:10	cmd_10
Group Status Multi State Value	BMSV	MSV:110	ms_groupstat_10
Group Timer	BAV	AV:10	timer_10

Group 11

Group Command Binary	BBV	BV:11	schedule_11
Group Status Binary	BBV	BV:111	b_groupstat_11
Group Command Multi State Value	BMSV	MSV:11	cmd_11
Group Status Multi State Value	BMSV	MSV:111	ms_groupstat_11
Group Timer	BAV	AV:11	timer_11

Group 12

Group Command Binary	BBV	BV:12	schedule_12
Group Status Binary	BBV	BV:112	b_groupstat_12
Group Command Multi State Value	BMSV	MSV:12	cmd_12
Group Status Multi State Value	BMSV	MSV:112	ms_groupstat_12
Group Timer	BAV	AV:12	timer_12

Group 13

Group Command Binary	BBV	BV:13	schedule_13
Group Status Binary	BBV	BV:113	b_groupstat_13
Group Command Multi State Value	BMSV	MSV:13	cmd_13
Group Status Multi State Value	BMSV	MSV:113	ms_groupstat_13
Group Timer	BAV	AV:13	timer_13

Group 14

Group Command Binary	BBV	BV:14	schedule_14
Group Status Binary	BBV	BV:114	b_groupstat_14
Group Command Multi State Value	BMSV	MSV:14	cmd_14
Group Status Multi State Value	BMSV	MSV:114	ms_groupstat_14
Group Timer	BAV	AV:14	timer_14

Group 15

Group Command Binary	BBV	BV:15	schedule_15
Group Status Binary	BBV	BV:115	b_groupstat_15
Group Command Multi State Value	BMSV	MSV:15	cmd_15
Group Status Multi State Value	BMSV	MSV:115	ms_groupstat_15
Group Timer	BAV	AV:15	timer_15

Group 16

Group Command Binary	BBV	BV:16	schedule_16
Group Status Binary	BBV	BV:116	b_groupstat_16
Group Command Multi State Value	BMSV	MSV:16	cmd_16
Group Status Multi State Value	BMSV	MSV:116	ms_groupstat_16
Group Timer	BAV	AV:16	timer_16

Group 17

Group Command Binary	BBV	BV:17	schedule_17
Group Status Binary	BBV	BV:117	b_groupstat_17
Group Command Multi State Value	BMSV	MSV:17	cmd_17
Group Status Multi State Value	BMSV	MSV:117	ms_groupstat_17
Group Timer	BAV	AV:17	timer_17

Group 18

Group Command Binary	BBV	BV:18	schedule_18
Group Status Binary	BBV	BV:118	b_groupstat_18
Group Command Multi State Value	BMSV	MSV:18	cmd_18
Group Status Multi State Value	BMSV	MSV:118	ms_groupstat_18
Group Timer	BAV	AV:18	timer_18

Group 19

Group Command Binary	BBV	BV:19	schedule_19
Group Status Binary	BBV	BV:119	b_groupstat_19
Group Command Multi State Value	BMSV	MSV:19	cmd_19
Group Status Multi State Value	BMSV	MSV:119	ms_groupstat_19
Group Timer	BAV	AV:19	timer_19

Group 20

Group Command Binary	BBV	BV:20	schedule_20
Group Status Binary	BBV	BV:120	b_groupstat_20
Group Command Multi State Value	BMSV	MSV:20	cmd_20
Group Status Multi State Value	BMSV	MSV:120	ms_groupstat_20
Group Timer	BAV	AV:20	timer_20

Group 21

Group Command Binary	BBV	BV:21	schedule_21
Group Status Binary	BBV	BV:121	b_groupstat_21
Group Command Multi State Value	BMSV	MSV:21	cmd_21
Group Status Multi State Value	BMSV	MSV:121	ms_groupstat_21
Group Timer	BAV	AV:21	timer_21

Group 22

Group Command Binary	BBV	BV:22	schedule_22
Group Status Binary	BBV	BV:122	b_groupstat_22
Group Command Multi State Value	BMSV	MSV:22	cmd_22
Group Status Multi State Value	BMSV	MSV:122	ms_groupstat_22
Group Timer	BAV	AV:22	timer_22

Group 23

Group Command Binary	BBV	BV:23	schedule_23
Group Status Binary	BBV	BV:123	b_groupstat_23
Group Command Multi State Value	BMSV	MSV:23	cmd_23
Group Status Multi State Value	BMSV	MSV:123	ms_groupstat_23
Group Timer	BAV	AV:23	timer_23

Group 24

Group Command Binary	BBV	BV:24	schedule_24
Group Status Binary	BBV	BV:124	b_groupstat_24
Group Command Multi State Value	BMSV	MSV:24	cmd_24
Group Status Multi State Value	BMSV	MSV:124	ms_groupstat_24
Group Timer	BAV	AV:24	timer_24

Group 25

Group Command Binary	BBV	BV:25	schedule_25
Group Status Binary	BBV	BV:125	b_groupstat_25
Group Command Multi State Value	BMSV	MSV:25	cmd_25
Group Status Multi State Value	BMSV	MSV:125	ms_groupstat_25
Group Timer	BAV	AV:25	timer_25

Group 26

Group Command Binary	BBV	BV:26	schedule_26
Group Status Binary	BBV	BV:126	b_groupstat_26
Group Command Multi State Value	BMSV	MSV:26	cmd_26
Group Status Multi State Value	BMSV	MSV:126	ms_groupstat_26
Group Timer	BAV	AV:26	timer_26

Group 27

Group Command Binary	BBV	BV:27	schedule_27
Group Status Binary	BBV	BV:127	b_groupstat_27
Group Command Multi State Value	BMSV	MSV:27	cmd_27
Group Status Multi State Value	BMSV	MSV:127	ms_groupstat_27
Group Timer	BAV	AV:27	timer_27

Group 28

Group Command Binary	BBV	BV:28	schedule_28
Group Status Binary	BBV	BV:128	b_groupstat_28
Group Command Multi State Value	BMSV	MSV:28	cmd_28
Group Status Multi State Value	BMSV	MSV:128	ms_groupstat_28
Group Timer	BAV	AV:28	timer_28

Group 29

Group Command Binary	BBV	BV:29	schedule_29
Group Status Binary	BBV	BV:129	b_groupstat_29
Group Command Multi State Value	BMSV	MSV:29	cmd_29
Group Status Multi State Value	BMSV	MSV:129	ms_groupstat_29
Group Timer	BAV	AV:29	timer_29

Group 30

Group Command Binary	BBV	BV:30	schedule_30
Group Status Binary	BBV	BV:130	b_groupstat_30
Group Command Multi State Value	BMSV	MSV:30	cmd_30
Group Status Multi State Value	BMSV	MSV:130	ms_groupstat_30
Group Timer	BAV	AV:30	timer_30

Group 31

Group Command Binary	BBV	BV:31	schedule_31
Group Status Binary	BBV	BV:131	b_groupstat_31
Group Command Multi State Value	BMSV	MSV:31	cmd_31
Group Status Multi State Value	BMSV	MSV:131	ms_groupstat_31
Group Timer	BAV	AV:31	timer_31

Group 32

Group Command Binary	BBV	BV:32	schedule_32
Group Status Binary	BBV	BV:132	b_groupstat_32
Group Command Multi State Value	BMSV	MSV:32	cmd_32
Group Status Multi State Value	BMSV	MSV:132	ms_groupstat_32
Group Timer	BAV	AV:32	timer_32

Group 33

Group Command Binary	BBV	BV:33	schedule_33
Group Status Binary	BBV	BV:133	b_groupstat_33
Group Command Multi State Value	BMSV	MSV:33	cmd_33
Group Status Multi State Value	BMSV	MSV:133	ms_groupstat_33
Group Timer	BAV	AV:33	timer_33

Group 34	Group Command Binary	BBV	BV:34	schedule_34
	Group Status Binary	BBV	BV:134	b_groupstat_34
	Group Command Multi State Value	BMSV	MSV:34	cmd_34
	Group Status Multi State Value	BMSV	MSV:134	ms_groupstat_34
	Group Timer	BAV	AV:34	timer_34
Group 35	Group Command Binary	BBV	BV:35	schedule_35
	Group Status Binary	BBV	BV:135	b_groupstat_35
	Group Command Multi State Value	BMSV	MSV:35	cmd_35
	Group Status Multi State Value	BMSV	MSV:135	ms_groupstat_35
	Group Timer	BAV	AV:35	timer_35
Group 36	Group Command Binary	BBV	BV:36	schedule_36
	Group Status Binary	BBV	BV:136	b_groupstat_36
	Group Command Multi State Value	BMSV	MSV:36	cmd_36
	Group Status Multi State Value	BMSV	MSV:136	ms_groupstat_36
	Group Timer	BAV	AV:36	timer_36
Group 37	Group Command Binary	BBV	BV:37	schedule_37
	Group Status Binary	BBV	BV:137	b_groupstat_37
	Group Command Multi State Value	BMSV	MSV:37	cmd_37
	Group Status Multi State Value	BMSV	MSV:137	ms_groupstat_37
	Group Timer	BAV	AV:37	timer_37
Group 38	Group Command Binary	BBV	BV:38	schedule_38
	Group Status Binary	BBV	BV:138	b_groupstat_38
	Group Command Multi State Value	BMSV	MSV:38	cmd_38
	Group Status Multi State Value	BMSV	MSV:138	ms_groupstat_38
	Group Timer	BAV	AV:38	timer_38
Group 39	Group Command Binary	BBV	BV:39	schedule_39
	Group Status Binary	BBV	BV:139	b_groupstat_39
	Group Command Multi State Value	BMSV	MSV:39	cmd_39
	Group Status Multi State Value	BMSV	MSV:139	ms_groupstat_39
	Group Timer	BAV	AV:39	timer_39

Group 40

Group Command Binary	BBV	BV:40	schedule_40
Group Status Binary	BBV	BV:140	b_groupstat_40
Group Command Multi State Value	BMSV	MSV:40	cmd_40
Group Status Multi State Value	BMSV	MSV:140	ms_groupstat_40
Group Timer	BAV	AV:40	timer_40

Group 41

Group Command Binary	BBV	BV:41	schedule_41
Group Status Binary	BBV	BV:141	b_groupstat_41
Group Command Multi State Value	BMSV	MSV:41	cmd_41
Group Status Multi State Value	BMSV	MSV:141	ms_groupstat_41
Group Timer	BAV	AV:41	timer_41

Group 42

Group Command Binary	BBV	BV:42	schedule_42
Group Status Binary	BBV	BV:142	b_groupstat_42
Group Command Multi State Value	BMSV	MSV:42	cmd_42
Group Status Multi State Value	BMSV	MSV:142	ms_groupstat_42
Group Timer	BAV	AV:42	timer_42

Group 43

Group Command Binary	BBV	BV:43	schedule_43
Group Status Binary	BBV	BV:143	b_groupstat_43
Group Command Multi State Value	BMSV	MSV:43	cmd_43
Group Status Multi State Value	BMSV	MSV:143	ms_groupstat_43
Group Timer	BAV	AV:43	timer_43

Group 44

Group Command Binary	BBV	BV:44	schedule_44
Group Status Binary	BBV	BV:144	b_groupstat_44
Group Command Multi State Value	BMSV	MSV:44	cmd_44
Group Status Multi State Value	BMSV	MSV:144	ms_groupstat_44
Group Timer	BAV	AV:44	timer_44

Group 45

Group Command Binary	BBV	BV:45	schedule_45
Group Status Binary	BBV	BV:145	b_groupstat_45
Group Command Multi State Value	BMSV	MSV:45	cmd_45
Group Status Multi State Value	BMSV	MSV:145	ms_groupstat_45
Group Timer	BAV	AV:45	timer_45

Group 46

Group Command Binary	BBV	BV:46	schedule_46
Group Status Binary	BBV	BV:146	b_groupstat_46
Group Command Multi State Value	BMSV	MSV:46	cmd_46
Group Status Multi State Value	BMSV	MSV:146	ms_groupstat_46
Group Timer	BAV	AV:46	timer_46

Group 47

Group Command Binary	BBV	BV:47	schedule_47
Group Status Binary	BBV	BV:147	b_groupstat_47
Group Command Multi State Value	BMSV	MSV:47	cmd_47
Group Status Multi State Value	BMSV	MSV:147	ms_groupstat_47
Group Timer	BAV	AV:47	timer_47

Group 48

Group Command Binary	BBV	BV:48	schedule_48
Group Status Binary	BBV	BV:148	b_groupstat_48
Group Command Multi State Value	BMSV	MSV:48	cmd_48
Group Status Multi State Value	BMSV	MSV:148	ms_groupstat_48
Group Timer	BAV	AV:48	timer_48

Group 49

Group Command Binary	BBV	BV:49	schedule_49
Group Status Binary	BBV	BV:149	b_groupstat_49
Group Command Multi State Value	BMSV	MSV:49	cmd_49
Group Status Multi State Value	BMSV	MSV:149	ms_groupstat_49
Group Timer	BAV	AV:149	timer_49

Group 50

Group Command Binary	BBV	BV:50	schedule_50
Group Status Binary	BBV	BV:150	b_groupstat_50
Group Command Multi State Value	BMSV	MSV:50	cmd_50
Group Status Multi State Value	BMSV	MSV:150	ms_groupstat_50
Group Timer	BAV	AV:50	timer_50

Group 51

Group Command Binary	BBV	BV:51	schedule_51
Group Status Binary	BBV	BV:151	b_groupstat_51
Group Command Multi State Value	BMSV	MSV:51	cmd_51
Group Status Multi State Value	BMSV	MSV:151	ms_groupstat_51
Group Timer	BAV	AV:51	timer_51

Group 52

Group Command Binary	BBV	BV:52	schedule_52
Group Status Binary	BBV	BV:152	b_groupstat_52
Group Command Multi State Value	BMSV	MSV:52	cmd_52
Group Status Multi State Value	BMSV	MSV:152	ms_groupstat_52
Group Timer	BAV	AV:52	timer_52

Group 53

Group Command Binary	BBV	BV:53	schedule_53
Group Status Binary	BBV	BV:153	b_groupstat_53
Group Command Multi State Value	BMSV	MSV:53	cmd_53
Group Status Multi State Value	BMSV	MSV:153	ms_groupstat_53
Group Timer	BAV	AV:53	timer_53

Group 54

Group Command Binary	BBV	BV:54	schedule_54
Group Status Binary	BBV	BV:154	b_groupstat_54
Group Command Multi State Value	BMSV	MSV:54	cmd_54
Group Status Multi State Value	BMSV	MSV:154	ms_groupstat_54
Group Timer	BAV	AV:54	timer_

Group 55

Group Command Binary	BBV	BV:55	schedule_55
Group Status Binary	BBV	BV:155	b_groupstat_55
Group Command Multi State Value	BMSV	MSV:55	cmd_55
Group Status Multi State Value	BMSV	MSV:155	ms_groupstat_55
Group Timer	BAV	AV:55	timer_55

Group 56

Group Command Binary	BBV	BV:56	schedule_56
Group Status Binary	BBV	BV:156	b_groupstat_56
Group Command Multi State Value	BMSV	MSV:56	cmd_56
Group Status Multi State Value	BMSV	MSV:156	ms_groupstat_56
Group Timer	BAV	AV:56	timer_56

Group 57

Group Command Binary	BBV	BV:57	schedule_57
Group Status Binary	BBV	BV:157	b_groupstat_57
Group Command Multi State Value	BMSV	MSV:57	cmd_57
Group Status Multi State Value	BMSV	MSV:157	ms_groupstat_57
Group Timer	BAV	AV:57	timer_57

Group 58

Group Command Binary	BBV	BV:58	schedule_58
Group Status Binary	BBV	BV:158	b_groupstat_58
Group Command Multi State Value	BMSV	MSV:58	cmd_58
Group Status Multi State Value	BMSV	MSV:158	ms_groupstat_58
Group Timer	BAV	AV:58	timer_58

Group 59

Group Command Binary	BBV	BV:59	schedule_59
Group Status Binary	BBV	BV:159	b_groupstat_59
Group Command Multi State Value	BMSV	MSV:59	cmd_59
Group Status Multi State Value	BMSV	MSV:159	ms_groupstat_59
Group Timer	BAV	AV:59	timer_59

Group 60

Group Command Binary	BBV	BV:60	schedule_60
Group Status Binary	BBV	BV:160	b_groupstat_60
Group Command Multi State Value	BMSV	MSV:60	cmd_60
Group Status Multi State Value	BMSV	MSV:160	ms_groupstat_60
Group Timer	BAV	AV:60	timer_60

Relay Status - Direct

Relay 1 Status	BMSV	MSV:201	msrelay1stat_61
Relay 2 Status	BMSV	MSV:202	msrelay2stat_61
Relay 3 Status	BMSV	MSV:203	msrelay3stat_61
Relay 4 Status	BMSV	MSV:204	msrelay4stat_61
Relay 5 Status	BMSV	MSV:205	msrelay5stat_61
Relay 6 Status	BMSV	MSV:206	msrelay6stat_61
Relay 7 Status	BMSV	MSV:207	msrelay7stat_61
Relay 8 Status	BMSV	MSV:208	msrelay8stat_61
Relay 9 Status	BMSV	MSV:209	msrelay9stat_61
Relay 11 Status	BMSV	MSV:210	msrelay11stat_61
Relay 10 Status	BMSV	MSV:211	msrelay10stat_61
Relay 12 Status	BMSV	MSV:212	msrelay12stat_61
Relay 13 Status	BMSV	MSV:213	msrelay13stat_61
Relay 14 Status	BMSV	MSV:214	msrelay14stat_61
Relay 15 Status	BMSV	MSV:215	msrelay15stat_61

Relay 16 Status	BMSV	MSV:216	msrelay16stat_61
Relay 17 Status	BMSV	MSV:217	msrelay17stat_61
Relay 19 Status	BMSV	MSV:218	msrelay19stat_61
Relay 18 Status	BMSV	MSV:219	msrelay18stat_61
Relay 20 Status	BMSV	MSV:220	msrelay20stat_61
Relay 21 Status	BMSV	MSV:221	msrelay21stat_61
Relay 23 Status	BMSV	MSV:222	msrelay23stat_61
Relay 22 Status	BMSV	MSV:223	msrelay22stat_61
Relay 24 Status	BMSV	MSV:224	msrelay24stat_61
Relay 25 Status	BMSV	MSV:225	msrelay25stat_61
Relay 27 Status	BMSV	MSV:226	msrelay27stat_61
Relay 26 Status	BMSV	MSV:227	msrelay26stat_61
Relay 28 Status	BMSV	MSV:228	msrelay28stat_61
Relay 29 Status	BMSV	MSV:229	msrelay29stat_61
Relay 31 Status	BMSV	MSV:230	msrelay31stat_61
Relay 30 Status	BMSV	MSV:231	msrelay30stat_61
Relay 32 Status	BMSV	MSV:232	msrelay32stat_61
Relay 33 Status	BMSV	MSV:233	msrelay33stat_61
Relay 35 Status	BMSV	MSV:234	msrelay35stat_61
Relay 34 Status	BMSV	MSV:235	msrelay34stat_61
Relay 36 Status	BMSV	MSV:236	msrelay36stat_61
Relay 37 Status	BMSV	MSV:237	msrelay37stat_61
Relay 39 Status	BMSV	MSV:238	msrelay39stat_61
Relay 38 Status	BMSV	MSV:239	msrelay38stat_61
Relay 40 Status	BMSV	MSV:240	msrelay40stat_61
Relay 41 Status	BMSV	MSV:241	msrelay41stat_61
Relay 43 Status	BMSV	MSV:242	msrelay43stat_61
Relay 42 Status	BMSV	MSV:243	msrelay42stat_61
Relay 44 Status	BMSV	MSV:244	msrelay44stat_61
Relay 45 Status	BMSV	MSV:245	msrelay45stat_61
Relay 47 Status	BMSV	MSV:246	msrelay47stat_61
Relay 46 Status	BMSV	MSV:247	msrelay46stat_61
Relay 48 Status	BMSV	MSV:248	msrelay48stat_61
Relay 49 Status	BMSV	MSV:249	msrelay49stat_61
Relay 50 Status	BMSV	MSV:250	msrelay50stat_61
Relay 51 Status	BMSV	MSV:251	msrelay51stat_61

	Relay 52 Status	BMSV	MSV:252	msrelay52stat_61
	Relay 53 Status	BMSV	MSV:253	msrelay53stat_61
	Relay 55 Status	BMSV	MSV:254	msrelay55stat_61
	Relay 54 Status	BMSV	MSV:255	msrelay54stat_61
	Relay 56 Status	BMSV	MSV:256	msrelay56stat_61
	Relay 57 Status	BMSV	MSV:257	msrelay57stat_61
	Relay 59 Status	BMSV	MSV:258	msrelay59stat_61
	Relay 58 Status	BMSV	MSV:259	msrelay58stat_61
	Relay 60 Status	BMSV	MSV:260	msrelay60stat_61
Relay Status - Range	Relays Status 1-8	BAV	AV:201	relays_1-8_61
	Relays Status 9-16	BAV	AV:202	relays_9-16_61
	Relays Status 17-24	BAV	AV:203	relays_17-24_61
	Relays Status 25-32	BAV	AV:204	relays_25-32_61
	Relays Status 33-40	BAV	AV:205	relays_33-40_61
	Relays Status 41-48	BAV	AV:206	relays_41-48_61
	Relays Status 49-56	BAV	AV:207	relays_49-56_61
	Relays Status 57-60	BAV	AV:208	relays_57-60_61
Sensor Values	Analog Input 1	BAV	AV:101	ai1_61
	Analog Input 2	BAV	AV:102	ai2_61
	Analog Input 3	BAV	AV:103	ai3_61
	Analog Input 4	BAV	AV:104	ai4_61
	Analog Input 5	BAV	AV:105	ai5_61
	Analog Input 6	BAV	AV:106	ai6_61
BAD Relay - Range	BAD Relays 1-8	BAV	AV:301	bad_1-8_61
	BAD Relays 9-16	BAV	AV:302	bad_9-16_61
	BAD Relays 17-24	BAV	AV:303	bad_17-24_61
	BAD Relays 25-32	BAV	AV:304	bad_25-32_61
	BAD Relays 33-40	BAV	AV:305	bad_33-40_61
	BAD Relays 41-48	BAV	AV:306	bad_41-48_61
	BAD Relays 49-56	BAV	AV:307	bad_49-56_61
	BAD Relays 57-60	BAV	AV:308	bad_57-60_61
	reset	BBV	BV:200	reset_61
Bad Relay	BBV	BV:201		