

GE Lighting Control

[LIGHT SWEEP CLC340X SOFTWARE GUIDE]

Contents

Software Installation	2
Configuring Navigator	3
Configuring BACnet communication	4
Configuring CLCBnet	7
System Configuration	9
Lighting BACnet Objects1	0
Relay properties1	.1
Configure the Lighting Group – LC	2
Assigning Time Schedules1	.5
Dimming Objects and properties1	.7

Software Installation

GE LC software is used to setup the BACnet communication parameters to interface with BMS and to program proprietary objects or create custom programming.

1. Software installation:

Install the Sentinel System Driver – located in Third party Software folder

Plug in the Sentinel Rainbow key – containing the software license

Run the GELC Suite Setup to install the appropriate software – according to the license key.

2. Establishing communication to the CLCBnet device

Once the software is installed, connect to the CLCBnet controller using the Ethernet port and launch the application.

At the Login screen select the Ethernet port under the Advanced Tab – the interface name will be displayed in the Connection line as per below window. Make sure this is the internal port and not the wireless or virtual port created by other applications.

Log	jon		×
	æ	Logon to the network	OK
	Username		Cancel
	Password		Help
	Site	GEDemoSite 🔹	Advanced >>
	Connection	Intel(R) 82579LM Gigabit Network Connection	n
	Connect Using	Ethernet : Intel(R) 82579LM Gigabit Network Ethernet : Microsoft Ethernet : Intel(R) 82579LM Gigabit Network Ethernet : Juniper Network Connect Virtual A Ethernet : Microsoft Serial : BACnet PTP Serial : BACnet PTP Serial : BACnet PTP UDP/IP : 3.58.224.153	Connection

Configuring Navigator

CLCBnet device will show in the navigator – (with the default address 100).

1. Setting the CLCBnet communication parameters

The default view of the navigator will show only the Lighting Objects. To adjust the communication parameters this will require changing the filter to Show All option:

- Right click on the lower right corner of the Navigator window and select Show All. This will allow you to see all BACnet objects to make changes for communication type of controller and speed.

havigator - CLCBnet 100 (100)		
	Cancel	
□ 🚳 Network	Name	
Access Access Access CLCBnet 100 (100) CSC (127) Active Alarms Reports Graphics	Intervent Image: Second State Image: Second State	
170 object(s)		
		Show Lighting Objects Show Advanced Lighting
		Show All
		Active Alarms

Configuring BACnet communication

The object used to adjust the communication parameters is called BACnet Settings 100 (where 100 is the device address). Changes required to the BACnet Settings only required if integrating to building automation systems or accessing lighting control system over TCP/IP network.

Avigator - CLCBnet 100 (100)		
		- Cancel
	Name	Object 🔺
Access Access Access Access Access Access CLCBnet 100 (100) CSC (127) Active Alarms Reports Graphics	GE BBMD List1 100 Data Exchange Settings 100 DER1_200_DEV200_1122_R Event and Alarm Settings 100 Access Control Alarm Log Priority Names 100 BACnet Settings 100 Slave Device List 100 Administrator Internet Protocol Settings	100.SUA1 100.BMD1 100.DES1 100.EVS1 100.EVS1 100.FVL1 100.PAN1 100.NET1 100.SDL1 100.SUG1 100.JPS1
	I IO Mapping DimmingModule31 AO1 DimmingModule31 AO2 DimmingModule31 AO3	100.IOM1 100.AO403101 100.AO403102 100.AO403103
1 object(s) selected		

Double clicking on the BACnet Settings icon will bring the network protocol setting dialog box as seen below.

Communication parameters:

- MS/TP Port 2 Using the twisted shielded pair labeled on the controller as NET2 RS-485.
 - Adjust the Baud rate required by the BMS controller
 - Change the MAC address to a unique number default is setup to 0.

recup	Advanced	MS/TP Slaves	Descr	iption		
Port	Туре		Enabled	Status	Status Reference	
1	MS/TP			Driver Disa	bled	
2	MS/TP			Active	BACnet Settings 100 (NET1)	
3	PTP		V	Active	BACnet Settings 100 (NET1)	
5	Ethernet		•	Active	BACnet Settings 100 (NET1)	
7	UDP/IP			Driver Disa	bled	
Bau Ma:	ud Rate x Master	76800		▼	Force Speed Change	
- Ma.	- I (- F	127		×		
- ma.		2				
MA	C Address	0		÷		
Nel	work	59999		A		

- Ethernet enabled as default.
 - Allows changing the Speed to Auto or one of the available values: 10 or 100 Mbps with half or Full Duplex.

Setup	Advanced	MS/TP Slaves	Descript	tion	
Port	Туре	E	nabled	Status	Status Reference
1	MS/TP			Driver Disabled	
2	MS/TP			Active	BACnet Settings 100 (NET1)
3	PTP			Active	BACnet Settings 100 (NET1)
	Ethernet			Active	BACnet Settings 100 (NET1)
7	UDP/IP			Driver Disabled	
Ethe	work ernet Address			00-40-ae	-02-4d-65
Spe	ed			Auto Auto 10Mbps - Ha 10Mbps - Ful 100Mbps - H	f Duplex Duplex dif Duplex dif Duplex

- UDP/IP disabled by default.
 - Set the IP address, Subnet Mask and Gateway.
 - Configure the UDP Port to match the BMS controller (default is 47808).
 - If the device is in a different network than the BMS controller/computer, set the device type as BBMD. If the device is in the same network, set the type as Regular.

ecup	Advanced MS	/TP Slaves D	escriptio	n			
Port	Туре	Enat	oled St	atus	Status Rel	erence	-
1	MS/TP	1	Dri	ver Disabled			
2	MS/TP	I	🗸 Ac	ive	BACnet Se	tings 100 (NET1)	E
3	PTP	I	Ac	ive	BACnet Se	tings 100 (NET1)	
5	Ethernet	I	Ac	ive	BACnet Se	tings 100 (NET1)	
7	UDP/IP	ſ	🗌 Dri	ver Disabled			-
Setup Dev UD	Statistics BB vice Type P Port	MD List BBMD Device 47808	•	Use DHCP IP Address		003.058.224.152	
Pro	xy (NAT) Address	000.000.000.00	10	Subnet Mas	k	255.255.252.000	
BBP	MD Address	000.000.000.00	0	Gateway Ad	dress	003.058.224.001	
Reg	gistration Timeout	60 Seconds	* *				

To enable or disable any of the ports, double click the square box and apply.

Important Notes: If the device will use the UDP/IP communication, disable the Ethernet port; else the device will create a circular network communication.

Reset the device after changing the communication parameters. To reset the device from the navigator left click on the CLCBnet controller in the network list and select Command - \rightarrow Reset and seen below.

🛕 Navigator - CLC	Bnet 100 (100)		20100
Network	: Protocol	Na	GE
	Open	Ctrl-O	BMD List1 100
	Command	+	Load From Flash
	Find Object Connect		Save To Flash Clear Database
<mark>ஜ</mark> CL 	Reload	+	Update Active Alarm List
- Active	Object Security	+	Communication Control
Hand Graphi	New		Remove Area
a 🚅 ordhu	Paste	Ctrl-V	Reconfigure
	Load		immingModule20 Direct AO3
	Save As		immingModule20 Direct AO4
	Print	Ctrl-P	immingModule20 SetPoint AO5 immingModule20 SetPoint AO6
	Properties	Alt-P	immingModule20 SetPoint AO7
		5.	DimmingModule20 SetPoint AO8

Configuring CLCBnet

Setting the CLCBnet device name and BACnet address
 Right click on CLCBnet 100 in the Navigator window and select Open.

🏠 Navigator - CLCBnet 100 (100))	_	-
⊡		Name	
CLCBnet 100 (Open	Ctrl-O	rol Event
CLCBnet 200 (Command	۰.	rol Alarm
	Find Object Connect		insfer File
CLCTSI (2000)	Reload	+	ics.txt
Active Alarms	Object Security New	y ►	ormation 100 ion Feedback
Graphics	Paste	Ctrl-V	0-200 ppm AI
	Load Save As		0-10 A AIC 0-120 A AIC
	Print	Ctrl-P	0-50 A AIC
_	Properties	Alt-P	20mA 0-100 %

- o Description tab:
 - Name
 - Software Address
 - Latitude and Longitude used for Astronomical clock function

atabase	Scan Rate /Sec	32.7	1/0 Scan	Rate /Sec	32.73
scription	Configuration	Time Info	Time Sync	Product Pro	tocol Interne
ame			CLCBnet	100	
oltware A	ddress		100		1
ocation					
atitude			0.0*	North	-
ongitude			0.0 *	÷ East	•
	tion		0.0	Meters	-
ite Eleva					

- o Time Info tab:
 - Universal Time Coordinate (Enable or Disable). Used in conjunction with location parameters for Astronomic clock. UTC offset = time zone value in minutes with "-" sign (Eastern time zone = -300 minutes, Pacific time zone = -480 minutes).
 - DST Enable or Disable. Allow to select the relative dates and the transition time.

Operational Last Reset Time Last Restore Time Database Scan Rate #	10:15:42 10-Dec- 	2012 Reset Count Reset Reason	۷
Database Scan Rate /	/Sec 32.7		
		1/O Scan Rate /Se	c 32.73
Description Configurati	ion Time Info	Time Sync Product	Protocol Internet
Time Date	14:36:54 10:Dec-2012	GCLTimeout Save/Load Timeout	20.0 Seconds
Universal Time Co-ordi UTCEnable	nated	UTC Offset	0 Minutes
Daylight Savings (DST) ———		
Enable 🛛	/	Time Adjustment	60 Minutes 🚔
Standard 👔	North America 🔷 🔻	Status	FALSE
Transition Time	2:00:00 🔶	Туре	Week and Day
V Start DST on	Veek D. Second ▼ Su	ay Month nday v March	On and After
End DST on	First ▼∫Su	nday 🔻 November	-

System Configuration

All network objects will be displayed in the Navigator screen. To make it easier to program the system, change the filter to Show Lighting Objects.

Network Access Access CCS (127) Active Alarms Reports Graphics Name * RelayMi *	odule Panel(00) Relay(00) - CAN02 BO1 odule Panel(00) Relay(00) - CAN02 BO2 odule Panel(00) Relay(00) - CAN02 BO3 odule Panel(00) Relay(00) - CAN02 BO5 odule Panel(00) Relay(00) - CAN02 BO5 odule Panel(00) Relay(00) - CAN81 BO1 odule Panel(00) Relay(00) - CAN81 BO2 odule Panel(00) Relay(00) - CAN81 BO3 odule Panel(00) Relay(00) - CAN81 BO5 odule Panel(00) Relay(00) - CAN81 BO5 odule Panel(00) Relay(00) - CAN81 BO5 odule Panel(00) Relay(00) - CAN81 BO5	Object 100.80400201 100.80400202 100.80400202 100.80400204 100.80400205 100.80400205 100.80408101 100.80408103 100.80408103 100.80408104 100.80408105 100.8040816	Value OFF OFF OFF OFF ON ON ON ON ON ON	Units		Status	Can Object Type Binary Output Binary Output
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◆S) GroupS (*S) GroupS ◆S) GroupS (*S) GroupS ◆S) GroupS (*S) GroupS	witch10 Photocell All		39.9	°C	8		Analog Input
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+⊠ GroupSi +⊠ GroupSi +⊠ GroupSi +⊠ GroupSi	witch10 Photocell AI2	100.AI401002	0	%	8	Fault	Analog Input
♦% GroupSi ♦% GroupSi ♦% GroupSi	witch10 Photocell AI3	100.AI401003	0	%	8	Fault	Analog Input
♦S GroupSt	witch10 Photocell AI4	100.AI401004	0	%	8	Fault	Analog Input
*S GroupS	witch10 Photocell AI5	100.AI401005	0	ft-c	8		Analog Input
	witch10 Photocell AI6	100.AI401006	0	ft-c	8		Analog Input
Image: Strate Strat	witch10 Photocell AI7	100.AI401007	0	%	8	Fault	Analog Input
*S GroupS	witch10 Photocell AI8	100.AI401008	0	%	8	Fault	Analog Input
*S Dimmin	ngModule20 All	100.AI402001	0	ft-c	8		Analog Input
*® Dimmin	gModule20 AI2	100.AI402002	0	ft-c	8		Analog Input
*® Dimmin	ngModule20 AI3	100.AI402003	0	ft-c	8		Analog Input
*S Dimmin	gModule20 AI4	100.AI402004	0	ft-c	8		Analog Input
♦@ Run Cle	ar Button	100.BI80	OFF		8		Binary Input
🔊 Unused	Button	100.BI81	OFF		8		Binary Input
*@ GroupS	witch10 Occupancy Bl1	100.BI401001	Unoccupied		8	Fault	Binary Input
*@ GroupSt	witch10 Occupancy BI2	100.BI401002	Unoccupied		8	Fault	Binary Input
		100 0101000			ň		
iect(s) selected							

Based on type the lighting objects are categorized as:

- Analog Outputs AO dimming channels
- Binary Outputs BO relays
- Analog Inputs AI inputs defined as analog objects- dimming module inputs or group switch inputs
- Binary inputs BI- inputs on GSM module defined as Occupancy sensors.
- Analog Values AV for CLCDIM module allow to setup the dimming parameters
- Binary Values BV Virtual objects on CLCBnet controller. Can be used as triggers for LC groups
- Schedules SCH eight objects on CLCBnet controller. Each CLCDLS touchscreen has also 8 schedules.
- Lighting Control Groups LC sixteen local groups on CLCBnet and 8 groups on each group switch module CLCGSM8 or dataline switch CLCSWT. The lighting groups are used to create different control scenarios.

Lighting BACnet Objects

2. Dimming Module DIM4 - Channel Objects				
Name	Object	Object ID	Description	
	type/Offset			
Dimming level output	AO 1-4	DEV.AO40xx01	Controls the 0-10V dimming output	
		DEV.AO40xx04	Manual control - used for scenes.	
Dimming level Setpoint	AO 5-8	DEV.AO40xx05	Setpoint for closed loop photocell connected	
		DEV.AO40xx08	to corresponding Analog Input (AI)	
Photocell input	AI 1-4	DEV.AI40xx01	This value indicates the light level read by a	
		DFV_AI40xx04	photocell attached to this input.	
			The value is used to adjust the SETPOINT (for	
			close loop photocell) or dimming thresholds	
			(for an open loop sensor).	

Group Switch Module GSM8 - Channel Objects					
Name	Object	Units of	Description		
	type/Offset	Measure			
Photocell		DEV.AI40xx01	If the input is defined as Photocell, this value indicates the light level read by a photocell		
	AI 1-8	DEV.AI40xx08	attached to this input.		
Occupancy		DEV.BI40xx01	If the input is defined as an Occupancy sensor, this value will show if the sensor		
	BI 1-8	DEV.BI40xx08	detect occupancy: Occupied; Unoccupied.		
Туре		DEV.MV40xx01	Defines the input type (Switch, Photocell or		
	MV 1-8	DEV.MV40xx08	Occupancy Sensor)		
Lighting Group		DEV.LC40xx01	List of relay circuits controlled by the group, control type and triggers associated to the		
	LC 1-8	DEV.LC40xx08	group.		

Relay Module RMS6- Channel Objects					
Name	Object	Units of	Description		
	type/Offset	Measure			
Relay Output	BO 1-6		Control the lighting circuit power relay		
		DEV_BO40xx01	Priority 15 - Schedule - includes the Flick		
		02010010001	Warning		
		DEV.BO40xx06	Priority 16 ON/OFF.		

Where:

DEV is the BACnet ID of the controller – CLCBnet

xx – CAN ID – setup using the dials on each module. xx = 01 to 99

If the relay modules are configured as belonging to a panel, the BO id's will be:

DEV.BO41yy01 – to – DEV.BO41yy48 – where yy is the panel number defined using the touchscreen.

Relay properties

To adjust relay for flick warn and duration amount this is done through the relay properties dialog box for each individual relay. To access the dialog box double click on relay.

- Lighting tab: Flick Warning: Enable/Disable and Flick time the time between the relay flicker and the OFF transition.
- o The relay will flick only if the OFF command received is a flick type command.
- The Setup tab allows changing the relay name.

• 🕐 DFF 🕎 Auto 🖌 🔛 🙆	OFF 👰 Auto 🖌 🔛 🖨
Control Signal OFF at Priority 16 from	Control Signal OFF at Priority 16 from
Feedback Disabled Min On/Off Delay O Seconds	Feedback Disabled Min On/Off Delay 0 Seconds
Last ON 18:06:16:24-Feb-2013 Last OFF 06:20:18:25-Feb-2013	Last ON 18:06:16:24:Feb-2013 Last OFF 06:20:18:25:Feb-2013
Description Setup Device Priority Array Lighting Alarming Alarm Text Flick Warning Enable Image: Compared to the set of the	Description Setup Device Priority Array Lighting Alarming Alarm Text Name Carel(00) Fielsy(00) - CAN02_B01 Carel(00) Fielsy(00) - CAN02_B01
Time 1 Minutes A	HVAC Access Lighting
	Manual Override at Priority Level 5 ▼ Default Value OFF ▼
	Timers Minimum On Time 0.0 Minutes & Minimum Off Time 0.0 Minutes & After ON don't turn on next output for 0 Seconds &
OK Cancel Apply ?	OK Cancel Apply ?

Configure the Lighting Group – LC

The LC objects are used to create the control logic:

- 1. Grouping multiple relays for the same type of control
- 2. Assigning trigger points schedules, occupancy sensors, photocells
- 3. Create the control logic for each trigger point ON only, ON/OFF or OFF only mode.
- 4. Define control scenes when relays and dimming outputs are combined.
- 1. Assign relays or analog outputs to a lighting group using the **Outputs** Tab.

GroupSwitch10 LC1 (100.LC401001) Lighting Control			
		2	
Current Priority 0.0			
Summary Setup Outputs Triggers			
Lighting Output RelayModule Panel(00) Relay(00) - CAN02 B01 RelayModule Panel(00) Relay(00) - CAN02 B02 RelayModule Panel(00) Relay(00) - CAN02 B03 RelayModule Panel(00) Relay(00) - CAN02 B04 DimmingModule20 Direct A01 Dimonetodule20 Direct A01	Active Value On On On Direct Control (65%) Direct Control (155%)	Inactive Value Off Off Off Off N/A	
	Direct Control (13%)	IN78	i
		OK Cancel A	Apply 🧖 💡

2. Assign the trigger points – under **Triggers** tab

💡 GroupSwi	tch10 LC1 (100.LC401	001) Lighting Cont	trol		
	All Off				L
Current P	riority	0.0			
Summary	Setup Outputs Tri	ggers			
Trigger 1 2 3 4	Type Switch Schedule Astro None	Input MI401001 Scheduler99 SC	241	Click to edit pro	perties
Sweep E	nable 🔲	Sweep Time	1 minutes	Flick Warn	
Switch Typ Timeout	be Standa 0 minu	ird 🔹	On/Off ▼ Flick Warn ☑		
Enable Rel	f Schedu	uler99 SCH1	▼ Reverse		
				ОК С	ancel Apply 🧖

- 3. Select the type from the drop down Type list:
- Schedule time schedule
- Astro based on sunrise and sunset
- Photocell
- Occupancy sensor
- Switch
- Sweep Enable if lights are turned ON by local override and all triggers are OFF, the sweep will turn lights OFF after the Sweep Time. If the Flick Warn is enabled, the lights will flick at the end of the Sweep Time

- 4. Edit the trigger properties:
- Schedule enable the ON & OFF action and select the offset. The offset allows to utilize same schedule for multiple groups store scheduler for retail applications. Enable the Flick warning.
- Astro select the offset for ON and OFF based on sunrise and sunset time
- Photocell Set the high and low light levels to turn lights ON and OFF. For indoor lighting use a dead-band equivalent to the amount of artificial lighting provided by the luminaires in order to avoid the ON/OFF oscillations.
- Occupancy sensor allow to setup a time delay through the software. This time delay will add to the time delay configured at sensor level. Recommended is to use a sensor with time delay less than 1 minute.
- Switch can select a reference schedule to enable/disable the switch functionality either in direct mode (switch enabled when schedule is ON) or reverse (switch is enabled when the schedule is OFF).

GroupSwitch10 LC1 (200.LC401001) Lighting Control	
All Off		L
Current Priority	1.0	
Summary Setup Outputs Trigge	218	
Trigger Type 1 Switch 2 Schedule 3 Photocell 4 None	Input MI401001 CLCBnet127 SCH1 GroupSwitch10 Photocell Al1	Click to edit properties
Sweep Enable	Sweep Time	Flick Warn
Lights Off 🛛 when light rises Lights On 📝 when light falls I	above 60 ft-c A	

Assigning Time Schedules

📆 CLCE	8net127 SCH1 (100.SCH40	0001) Schedule		-				x
• 1	0	🕎 Auto	Controll	er Time/Date 12:33:30	25-Feb-2013		۷	
Main	Setup Details Desc	ription						
€	Select a date 15	Sunday, Februar	y 24, 2013 to Satur	day, March 02, 2013				
	Sunday 24	Monday 25	Tuesday 26	Wednesday 27	Thursday 28	Friday 1	Saturday 2	
700								- ^
8 ⁰⁰								
900								
1000)							
10								
1100	·							-11
12 ⁰⁰								
13 ⁰⁰								=
1400)							-11
1 = 00								
15								
16 ⁰⁰	2							_
17 ⁰⁰								
18 ⁰⁰	2							
								T

To define a time schedule:

- Double click the schedule object: For example CLCBnetxxx SCH1 -
- Select the day of the week to update -
- Click the start time and drag to end time -
- In the box that pops up select the weekly schedule -
- Enter check marks for all days with similar schedule -

	M Add Weekly/Exception Sch	nedule
	Exceptions Weekly Schedu	le
Add Weekly/Exception Schedule	Exception Type	Single Date
Exceptions Weekly Schedule	Date	2/25/2013
Vednesday Vednesday Vednesday	Thursday Priority (i.e. 1-High, 16-Low) Neekdays	8
Start Time 09:00	End Time	15:30 ×
Value On	Value Value	On 🔻
Close	Add	Close Add

Exceptions - holidays - must be defined for each schedule used in the system, creating a bigger flexibility in case a custom event must be assigned to a particular zone, without affecting the other schedules.

×

ال المراجع (CLCBnet127 SCH1 (100,SCH400001) Schedule							
0	Auto	Contro	Iller Time/Date 13:03:2	26 25-Feb-2013		۷	
ain Setup Details De	escription						
Select a date 15	Sunday, Februa	ry 24, 2013 to Satu	ırday, March 02, 201	.3			2
Sunday 24	Monday 25	Tuesday 26	Wednesday 27	Thursday 28	Friday 1	Saturday 2	
500		106:30 - 19:301	106:30 - 19:301	[06:30 - 19:30]	106:30 - 19:301		
700							
- 00							
900	08:45 - 15:15]						
000							
100							
200							
00							
3**							
400							
5 00							
.6 ⁰⁰							
00							

On the schedule screen, the exception is in darker color than the regular schedule.

Dimming Objects and properties

Each dimming module CLCDIM4 - has 4 channels.

Below is a detail showing dimming objects and the default names for dimming module with **CAN** address 16:

- Direct Output read/write changing this value will adjust the channel voltage 100% = 10.5V (maximum); 0% = 0.5V (minimum). Most fixtures will not dim below 10% even though the control signal goes to 0.
 DimmingModule16 Direct A01
 DimmingModule16 Direct A02
 DimmingModule16 Direct A03
 DimmingModule16 Direct A04
 DinAO401603
 DimmingModule16 Direct A04
- Setpoint used with a close loop photocell. The internal PID will change the output level based on the photocell readings to maintain a constant output – daylight harvesting. Setpoint AO5 corresponds to channel 1

St DimmingModule16 SetPoint AO5	100.AO401605
St DimmingModule16 SetPoint AO6	100.AO401606
St DimmingModule16 SetPoint A07	100.AO401607
S+ DimmingModule16 SetPoint AO8	100.AO401608

- Analog Inputs – Photocells – Read only – light level detected by the sensor

♦S DimmingModule16 Al1	100.AI401601	141	ft-c
♦ DimmingModule16 AI2	100.AI401602	0	ft-c
♦ DimmingModule16 AI3	100.AI401603	0	ft-c
♦S DimmingModule16 AI4	100.AI401604	0	ft-c

- Properties for the AI object:

- Calibration using a light meter can calibrate the AI to display a very close light level reading, Indoor photocells are reading the floor reflected light, and based on the floor color this reading can be lower than the light level on desk level. Calibration allows to adjust from 0.5 (-100) to 2 (+100) times the reading of the sensor
- Filter the higher value, the slower the light level changes (filters out reading values)

Sensor			Indoor				
escription	Setup	Sensor	Alarming	g Alarm	Text		
Name			Dimmir	gModule1	6 AI1		
Fixed Poin	it.		Decim	als	0	÷	
Calibration			100.00	0	1ì		
Filter			20	4. T	19		
Last Value			141 ft-c	2]		
COV Minin	num Incre	ement	Ĩ			A T	
HVAC	E	A	ccess	8		Lighting	

- Analog Values for channel 1 module 16:
 - AV40xx11 Setpoint saved in Flash Memory, The AV Setpoint is used when the system operates in stand-alone mode without BACnet controller. Changing the AV setpoint requires controller power cycle.
 - Channel Min regardless of the control signal value the channel output will not go below this value.
 - Channel Max regardless of the control signal value, the channel output will not go above this level.

🛞 DimmingModule16	Channel1	Setpoint	100.AV401611	50	ft-c
🛞 DimmingModule16	Channel1	Min	100.AV401612	0	%
🛞 DimmingModule16	Channel1	Max	100.AV401613	100	%

- Ramp Rate the Ramp UP and Ramp Down rate when the Ramp command is issued via the programmable switches (though the LC object).
- Fade time how long it takes to change the output level between two values for example Fade Time can be setup up to 1 hour, simulating sunrise or sunset.
- Input reference read only which input is associated to this dimming channel. Can be changed only via the touchscreen. Bu default is the physical input on the DIM module.

🍪 DimmingModule16	Channel1	RampRate	100.AV401617	20	%/s
🛞 DimmingModule16	Channel1	InputRef: AI401601	100.AV401618	0	
🛞 DimmingModule16	Channel1	FlickWarnPeriod	100.AV401619	10	min
🛞 DimmingModule16	Channel1	LocalFadeTime	100.AV401620	0	sec