

**Description of the MODBUS (RTU) protocol for
SEAK modulators
v3.8.5.5**

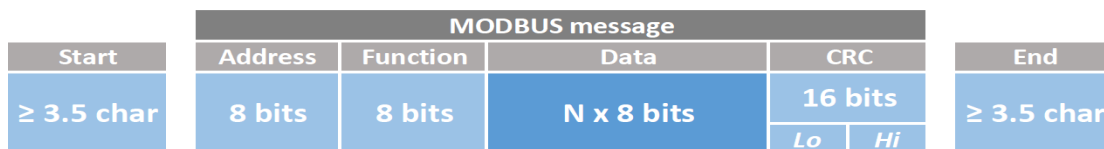
Version compatibility

MODULATOR TYPE	FIRMWARE VERSION	POWERLINE COMMUNICATION
PANTER	2.02 - 2.04	QM-50-SSI1
LUMiBOX	2.08 - 2.34	QM-50-SSI1 / QM-50-SSI3

If you have higher version of firmware, check www.seakenergetics.com for new version of protocol.

LUMiBOX FIRMWARE	MODBUS VERSION	POWERLINE COMMUNICATION
2.08	3.8.2	QM-50-SSI1 / QM-50-SSI3
2.11	3.8.3	QM-50-SSI1 / QM-50-SSI3
2.13	3.8.4	QM-50-SSI1 / QM-50-SSI3
2.14 - 2.16	3.8.4.1 - 3.8.4.6	QM-50-SSI1 / QM-50-SSI3
2.21	3.8.4.7	QM-50-SSI1 / QM-50-SSI3
2.22	3.8.5.0	QM-50-SSI1 / QM-50-SSI3
2.27	3.8.5.2	QM-50-SSI1 / QM-50-SSI3
2.30	3.8.5.3	QM-50-SSI1 / QM-50-SSI3
2.31	3.8.5.4	QM-50-SSI1 / QM-50-SSI3
2.34	3.8.5.5	QM-50-SSI1 / QM-50-SSI3

Modbus RTU frame



Modbus functions

FUNCTION	ACCESS	DESCRIPTION
0x03	READ	Read holding registers
0x10	WRITE	Write multiple registers

Control instructions

REGISTRY ADDRESS	FUNCTION	DESCRIPTION	PNT	LUMiBOX									PAGE
				2.11	2.13 - 2.17	2.21	2.22	2.25	2.28	2.30	2.31 - 2.34		
0X0000	0X10	Dimming of all luminaires (BROADCAST)	•	•	•	•	•	•	•	•	•	•	4
0X0001	0X10	Dimming of group	•	•	•	•	•	•	•	•	•	•	4
0X0002	0X10	Dimming of luminaire	•	•	•	•	•	•	•	•	•	•	4
0X0003	0X10	Add group to luminaire	•	•	•	•	•	•	•	•	•	•	5
0X0004	0X10	Delete one group from luminaire	•	•	•	•	•	•	•	•	•	•	5
0X0005	0X10	Delete all groups from luminaire	•	•	•	•	•	•	•	•	•	•	5
0X0006	0X10	Set luminaire reference		•	•	•	•	•	•	•	•	•	6
0X0007	0X10	Store luminaire reference in memory		•	•	•	•	•	•	•	•	•	6
0X0008	0X10	Assign ID to luminaire		•	•	•	•	•	•	•	•	•	6
0X0009	0X10	Change luminaire ID		•	•	•	•	•	•	•	•	•	7
0X000A	0X10	Set electricity meter value	•										7
0X000B	0X10	Set active/connected phases	•										7
0X000C	0X10	Set consecutive phases modulation	•										8
0X000D	0X10	Set UART setup**	•	•	•	•	•	•	•	•	•	•	8
0X000E	0X10	Set modulator address and terminator setup		•	•	•	•	•	•	•	•	•	8
0x000F	0X10	Send request for getting status from range of luminaires IDs		•	•	•	•	•	•	•	•	•	9
0X0010	0X10	Send request for status of luminaire		•	•	•	•	•	•	•	•	•	9
0X0011	0X10	Set modulator response bottom reference		•	•	•	•	•	•	•	•	•	9
0X0012	0X10	Start current measurement		•	•	•	•	•	•	•	•	•	10
0x0014	0x10	Set depth of modulation		•	•	•	•	•	•	•	•	•	10
0x0015	0x10	Send echo data		•	•	•	•	•	•	•	•	•	10
0x0016	0X10	EcoStreet - install sequence for control over night for all luminaires		•	•	•	•	•	•	•	•	•	11
0X0017	0X10	EcoStreet - install sequence for control over night for group		•	•	•	•	•	•	•	•	•	12
0X0018	0X10	EcoStreet - install sequence for control over night for one luminaire		•	•	•	•	•	•	•	•	•	13
0X0019	0X10	EcoStreet - install sequence for fixed control for all luminaires		•	•	•	•	•	•	•	•	•	14
0x001A	0X10	EcoStreet - install sequence for fixed control for one group		•	•	•	•	•	•	•	•	•	15
0x001B	0X10	EcoStreet - install sequence for fixed control for one luminaire		•	•	•	•	•	•	•	•	•	16
0x001C	0X10	EcoStreet - remove sequence for all luminaires		•	•	•	•	•	•	•	•	•	17
0x001D	0X10	EcoStreet - remove sequence for group		•	•	•	•	•	•	•	•	•	17
0x001E	0X10	EcoStreet - remove sequence for one luminaire		•	•	•	•	•	•	•	•	•	17
0x001F	0X10	Check sequence identification number		•	•	•	•	•	•	•	•	•	18
0x0020	0X10	Check presence of any sequence in luminaire		•	•	•	•	•	•	•	•	•	18
0x0021	0X10	Set limit of maximal power input		•	•	•	•	•	•	•	•	•	18
0x0022	0X10	Set constant light output (CLO)		•	•	•	•	•	•	•	•	•	19

Control instructions

REGISTRY ADDRESS	FUNCTION	DESCRIPTION	PNT	LUMiBOX								PAGE
				2.11	2.13 - 2.17	2.21	2.22	2.25	2.28	2.30	2.31 - 2.34	
0x0023	0X10	Transfer data for all luminaires		•	•	•	•	•	•	•	•	19
0x0024	0X10	Transfer data for one group		•	•	•	•	•	•	•	•	20
0x0025	0X10	Transfer data for one luminaire		•	•	•	•	•	•	•	•	20
0x0026	0X10	Send request for getting data from one luminaire		•	•	•	•	•	•	•	•	21
0x0027	0X10	Set SSI protocol type		•	•	•	•	•	•	•	•	21
0x0028	0X10	Set luminaire depth of modulation		•	•	•	•	•	•	•	•	21
0x0029	0X10	Set modulator response bottom and top reference		•	•	•	•	•	•	•	•	22
0x002A	0x10	Send request for level and status of luminaire		•	•	•	•	•	•	•	•	22
0x002B	0x10	Send request for getting level and status from range of luminaires IDs		•	•	•	•	•	•	•	•	22
0x002C	0x10	Set motion mode settings (all luminaires - old version)		•	•	•	•	•	•	•	•	23
0x002D	0X10	Set luminaire fade time / step		•	•	•	•	•	•	•	•	23
0x002E	0x10	Set DALI driver mode			•	•	•	•	•	•	•	24
0x002F	0X10	Set response asynchro mode				•	•	•	•	•	•	24
0x0030	0x10	Set motion mode settings for all luminaires or group				•	•	•	•	•	•	25
0x0031	0X10	Set motion mode settings for one luminaire					•	•	•*	•*	•*	26
0x0032	0x10	Configure scene for all luminaires or group					•	•	•*	•*	•*	27
0x0033	0X10	Configure scene for one luminaire					•	•	•	•	•	28
0x0034	0x10	Remove scene (all scenes) for all luminaires or group					•	•	•	•	•	29
0x0035	0X10	Remove scene (all scenes) for one luminaire					•	•	•	•	•	29
0x0036	0x10	Activate scene for all luminaires or group					•	•	•	•	•	29
0x0037	0X10	Activate scene for one luminaire					•	•	•	•	•	30
0x0039	0x10	Set SSR initial state					•	•	•	•	•	30
0x003A	0X10	Set response reference mode						•	•	•	•	30
0x003C	0x10	Send request for motion and status of luminaire							•	•	•	31
0x003D	0x10	Send request for getting motion and status from range of luminaires IDs							•	•	•	31
0x003E	0x10	Set luminaire type for all luminaires or group								•	•	32
0x003F	0x10	Set luminaire type for one luminaire								•	•	32
0x0040	0x10	Configure SSR-500 lamp error mode for all luminaires or group									•	33
0x0041	0x10	Configure SSR-500 lamp error mode for one luminaire									•	34
0x0042	0x10	Prepare SSR-500 powermeter measured data in response buffer for all luminaires or group									•	35
0x0043	0x10	Prepare SSR-500 powermeter measured data in response buffer for one luminaire									•	36
0x0044	0x10	Save reference values in SSR-500 for all luminaires or group									•	36
0x0045	0x10	Save reference values in SSR-500 for one luminaire									•	37
0x0046	0x10	Reset SSR-500 lamp error mode for all luminaires or group									•	37
0x0047	0x10	Reset SSR-500 lamp error mode for one luminaire									•	37
0x0107	0x10	Prepare luminaire parameters in response buffer		•	•	•	•	•	•	•	•	38

* changed control instruction (added new parameters)

** changed baudrates (added new baudrates from FW 2.32)

0x0400 - 0x450 - reserved registers for control instructions for Eneltec CDC device

Request instructions

REGISTRY ADDRESS	FUNCTION	DESCRIPTION	PNT	LUMiBOX								PAGE
				2.11	2.13 - 2.17	2.21	2.22	2.25	2.28	2.30	2.31 - 2.34	
0X0064	0X03	Request state and type of the modulator		•	•	•	•	•	•	•	•	40
0x0065	0X03	Request consumed energy		•								40
0x0066	0X03	Request firmware version		•	•	•	•	•	•	•	•	40
0X0067	0X03	Request count of set phases		•								41
0X0068	0X03	Request modulator temperature		•	•	•	•	•	•	•	•	41
0X0069	0X03	Request consecutive modulation setup		•								41
0X006B	0X03	Request stored luminaire status			•	•	•	•	•	•	•	42
0x006C	0x03	Request stored luminaire status from luminaires			•	•	•	•	•	•	•	42
0X006D	0X03	Request measured current			•	•	•	•	•	•	•	42
0X006E	0X03	Request modulator response bottom reference			•	•	•	•	•	•	•	43
0X006F	0X03	Request uptime counter			•	•	•	•	•	•	•	43
0X0070	0X03	Request voltage			•	•	•	•	•	•	•	43
0x0075	0x03	Request depth of modulation			•	•	•	•	•	•	•	44
0x0076	0x03	Request modulator address and terminator setup			•	•	•	•	•	•	•	44
0x0077	0x03	Request stored echo data			•	•	•	•	•	•	•	44
0x0078	0x03	Request stored data from one luminaire			•	•	•	•	•	•	•	45
0x0079	0x03	Request full range modulator temperature			•	•	•	•	•	•	•	45
0x007A	0x03	Request SSI protocol type			•	•	•	•	•	•	•	45
0x007B	0x03	Request modulator bottom and top reference			•	•	•	•	•	•	•	46
0x007C	0x03	Request stored level and status from one luminaire			•	•	•	•	•	•	•	46
0x007D	0x03	Request stored level and status from luminaires			•	•	•	•	•	•	•	47
0x007E	0x03	Request asynchro data from buffer				•	•	•	•	•	•	47
0x007F	0x03	Request response asynchro mode				•	•	•	•	•	•	48
0x0080	0x03	Request response reference mode						•	•	•	•	48
0x0082	0x03	Request stored motion and status from one luminaire							•	•	•	48
0x0083	0x03	Request stored motion and status from luminaires							•	•	•	49

0x0451 - 0x4FF - reserved registers for request instructions for Eneltec CDC device

Control instructions

Dimming of all luminaires (BROADCAST)				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0000			Dimming of all luminaires (BROADCAST)
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	Level	0 - 100 %
Crc	Value			

Instruction for dimming all luminaires.

Dimming of group				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0001			Dimming of group
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Group	1 - 199
		Lo		
	2	Hi	Level	0 - 100 %
		Lo		
Crc	Value			

Instruction for dimming luminaires within the group.

Dimming of luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0002			Dimming of luminaire
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	ID	ID (see Table of ID range)
		Lo		
	2	Hi	Level	0 - 100 %
		Lo		
Crc	Value			

Instruction for dimming a single luminaire with this ID.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0000	Dimming of all luminaires (BROADCAST)
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0001	Dimming of group
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0002	Dimming of luminaire
Registry count	0x0002	
Crc	Value	

Control instructions

Add group to luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0003			Add group to luminaire
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	ID	ID (see Table of ID range)
		Lo		
	2	Hi	Group	1 - 199
		Lo		
Crc	Value			

Instruction to add a luminaire to a group.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0003	Add group to luminaire
Registry count	0x0002	
Crc	Value	

Delete one group from luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0004			Delete one group from luminaire
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	ID	ID (see Table of ID range)
		Lo		
	2	Hi	Group	1 - 199
		Lo		
Crc	Value			

Instruction to remove a luminaire from a group.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0004	Delete one group from luminaire
Registry count	0x0002	
Crc	Value	

Delete all groups from luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0005			Delete all groups from luminaire
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi	ID	ID (see Table of ID range)
		Lo		
Crc	Value			

Instruction to remove a luminaire from all groups.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0005	Delete all groups from luminaire
Registry count	0x0001	
Crc	Value	

Control instructions

Set luminaire reference			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0006		Set luminaire reference
Registry count	0x0001		
Byte count	0x02		
Data	1	HiLo	Reference10 - 38
Crc	Value		

Instruction for setting demodulation reference.

Reference will be set temporarily. Value will be lost after power supply reset of luminaire. For permanent setting use Instruction Store luminaire reference in memory.

WARNING! Setting the reference too low may cause wrong data recognition.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0006	Set luminaire reference
Registry count	0x0001	
Crc	Value	

Store luminaire reference in memory				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0007			Store luminaire reference in memory
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi	0x0000	-
		Lo		
Crc	Value			

Instruction for saving the reference.

Reference that was set using Instruction Set luminaire reference will be stored in luminaire memory permanently.

WARNING! Setting the reference too low may cause wrong data recognition.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0007	Store luminaire reference in memory
Registry count	0x0001	
Crc	Value	

Assign ID to luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0008		Assign ID to luminaire
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	ID
			ID (see Table of ID range)
Crc	Value		

Instruction to assign an ID to the luminaire.

It is only possible to assign ID to a luminaire with ID=0 (blank).

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0008	Assign ID to luminaire
Registry count	0x0001	
Crc	Value	

Control instructions

Change luminaire ID			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0009		Change luminaire ID
Registry count	0x0002		
Byte count	0x04		
Data	1	Hi	Actual ID
		Lo	
	2	Hi	New ID
		Lo	
Crc	Value		

Instruction for changing luminaire ID.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0009	Change luminaire ID
Registry count	0x0002	
Crc	Value	

Set electricity meter value			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x000A		Set electricity meter value
Registry count	0x0002		
Byte count	0x04		
Data	1	Hi	Value
		Lo	
	2	Hi	Value
		Lo	
Crc	Value		

Instruction for setting the electricity meter value.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x000A	Set electricity meter value
Registry count	0x0002	
Crc	Value	

Set active/connected phases			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x000B		Set active/connected phases
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi	Number of connected phases
		Lo	
Crc	Value		

Instruction for setting number of active/connected phases.

For PNT device it is possible to set number of phases, which are connected. For example if 3 phases are set and only 2 are used, modulator will report an error.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x000B	Set active/connected phases
Registry count	0x0001	
Crc	Value	

Control instructions

Set consecutive phases modulation				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x000C		Set consecutive phases modulation	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	value	0 - simultaneous 1 - consecutive
Crc	Value			

Instruction for setting the consecutive phases modulation.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x000C	Set consecutive phases modulation
Registry count	0x0001	
Crc	Value	

Set UART setup				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x000D		Set UART setup	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	Baud rate Parity and stopbits	See table UART setup See table UART setup
Crc	Value			

Instruction for setting the UART parameters.

New UART settings will take effect after power supply RESET.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x000D	Set UART setup
Registry count	0x0001	
Crc	Value	

Set modulator address and terminator setup				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x000E		Set modulator address and terminator setup	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	Termination resistor Address	LUMiBOX v1.04: 1 - active, 0 - inactive LUMiBOX v2.08: 0 - active, 1 - inactive New address: 1 - 31
Crc	Value			

Instruction for changing modulator address.

New address settings will take effect after power supply RESET.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x000E	Set modulator address and terminator setup
Registry count	0x0001	
Crc	Value	

Control instructions

Send request for getting status from range of luminaires Ids			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x000F		Send request for getting status from luminaires
Registry count	0x0002		
Byte count	0x04		
Data	1	Hi	Luminaire start ID
		Lo	
	2	Hi	Luminaire end ID
		Lo	
Crc	Value		

Instruction for sending a request to get actual luminaire status from a set of (up to 100) luminaires. To retrieve the statuses returned use read instruction (0x006C).

Send request for status of luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0010		Send request for status of luminaire
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi	ID
		Lo	
Crc	Value		

Instruction for sending a request to get status of a luminaire. To retrieve the luminaire status (once Lumibox is in OK status) use request instruction (0x006C).

Set modulator response bottom reference			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0011		Set modulator response bottom reference
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi	Bottom reference
		Lo	
Crc	Value		

Instruction for setting modulator response bottom reference.

WARNING! Setting too high or too low reference may cause wrong data recognition.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x000F	Send request for getting status from luminaires
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0010	Send request for status of luminaire
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0011	Set modulator response bottom reference
Registry count	0x0001	
Crc	Value	

Control instructions

Start current measurement			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0012		Start current measurement
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi	0x0000
		Lo	
Crc	Value		

Instruction to start current measurement in Lumibox. To retrieve the measured current use request Instruction (0x006D).

Set depth of modulation			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0014		Set depth of modulation
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi	Depth of modulation
		Lo	
Crc	Value		0 - low; 1 - high

Instruction for setting depth of modulation.

Send echo data			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0015		Send echo data
Registry count	0x0002		
Byte count	0x04		
Data	1	Hi	ID
		Lo	
	2	Hi	Echo byte
		Lo	
Crc	Value		

Instruction for testing response from luminaire. To retrieve the testing echo byte, use request Instruction (0x0077). Use luminaire ID=0 to test 2-way communication of luminaire with no ID assigned yet.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0012	Start current measurement
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0014	Set depth of modulation
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0015	Send echo data
Registry count	0x0002	
Crc	Value	

Control instructions

EcoStreet - install sequence for control over night for all luminaires			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0016		Install sequence for control over night for all luminaires
Registry count	0x0003 + 2n + 2m		
Byte count	0x06 + 4n + 4m		
Data	1	Hi Lo	Sequence ID
			1 - 255
	2	Hi Lo	Number of intervals (n)
			Number (n) of intervals before middle of night: 2 - 5
	(1*2) + 1	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + 2	Hi Lo	Intensity of 1st interval
			0 - 100
	...		
	(n*2) + 1	Hi Lo	Length of nth interval
			1 - 240
	(n*2) + 2	Hi Lo	Intensity of nth interval
			0 - 100
	(n*2) + 3	Hi Lo	Number of intervals (m)
			Number (n) of intervals after middle of night: 1 - 5
Data	(1*2) + (n*2) + 2	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + (n*2) + 3	Hi Lo	Intensity of 1st interval
			0 - 100
	...		
	(m*2) + (n*2) + 2	Hi Lo	Length of mth interval
			1 - 240
	(m*2) + (n*2) + 3	Hi Lo	Intensity of mth interval
			0 - 100
	...		
	(m*2) + (n*2) + 2	Hi Lo	Length of mth interval
			1 - 240
	(m*2) + (n*2) + 3	Hi Lo	Intensity of mth interval
			0 - 100
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0016	Install sequence for control over night for all luminaires
Registry count	0x0003 + 2n + 2m	
Crc	Value	

Instruction for installing sequence for control over night for all luminaires.

ID of sequence – unique identification number of sequence (for testing presence of sequence)

Intervals – Sum of intervals lengths before middle of night must be exactly 480 min. Sum of intervals lengths after middle of night must be max 480 min. Length of the last interval must be exactly 1 min. For example, the sequence may consist 4 intervals before middle of night (75, 60, 135, 90, 120) and 2 intervals after middle of night (175, 1).

Control instructions

EcoStreet - install sequence for control over night for one group					
Name	Value		Description		
Address	Address				
Function	0x10				
Registry address	0x0017		Install sequence for control over night for one group		
Registry count	0x0004 + 2n + 2m				
Byte count	0x08 + 4n + 4m)				
Data	1	Hi Lo	Group	1 - 199	
	2	Hi Lo	Sequence ID	1 - 255	
	3	Hi Lo	Number of intervals (n)	Number (n) of intervals before middle of night: 2 - 5	
	(1*2) + 2	Hi Lo	Length of 1st interval	1 - 240	
	(1*2) + 3	Hi Lo	Intensity of 1st interval	0 - 100	
	...				
	(n*2) + 2	Hi Lo	Length of nth interval	1 - 240	
	(n*2) + 3	Hi Lo	Intensity of nth interval	0 - 100	
	(n*2) + 4	Hi Lo	Number of intervals (m)	Number (n) of intervals after middle of night: 1 - 5	
	(1*2) + (n*2) + 3	Hi Lo	Length of 1st interval	1 - 240	
	(1*2) + (n*2) + 4	Hi Lo	Intensity of 1st interval	0 - 100	
	...				
	(m*2) + (n*2) + 3	Hi Lo	Length of nth interval	1 - 240	
	(m*2) + (n*2) + 4	Hi Lo	Intensity of nth interval	0 - 100	
	Crc	Value			

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0017	Install sequence for control over night for one group
Registry count	0x0004 + 2n + 2m	
Crc	Value	

Instruction for installing sequence for control over night for luminaire with this group.

ID of sequence – unique identification number of sequence (for testing presence of sequence)

Intervals – Sum of intervals lengths before middle of night must be exactly 480 min. Sum of intervals lengths after middle of night must be max 480 min. Length of the last interval must be exactly 1 min. For example, the sequence may consist 4 intervals before middle of night (75, 60, 135, 90, 120) and 2 intervals after middle of night (175, 1).

Control instructions

EcoStreet - install sequence for control over night for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0018		Install sequence for control over night for one luminaire
Registry count	0x0004 + 2n + 2m		
Byte count	0x08 + 4n + 4m		
Data	1	Hi Lo	Luminaire ID
			ID (see Table of ID range)
	2	Hi Lo	Sequence ID
			1 - 255
	3	Hi Lo	Number of intervals (n)
			Number (n) of intervals before middle of night: 2 - 5
	(1*2) + 2	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + 3	Hi Lo	Intensity of 1st interval
			0 - 100
	...		
	(n*2) + 2	Hi Lo	Length of nth interval
			1 - 240
	(n*2) + 3	Hi Lo	Intensity of nth interval
			0 - 100
	(n*2) + 4	Hi Lo	Number of intervals (m)
			Number (n) of intervals after middle of night: 1 - 5
	(1*2) + (n*2) + 3	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + (n*2) + 4	Hi Lo	Intensity of 1st interval
			0 - 100
	...		
	(m*2) + (n*2) + 3	Hi Lo	Length of nth interval
			1 - 240
	(m*2) + (n*2) + 4	Hi Lo	Intensity of nth interval
			0 - 100
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0018	Install sequence for control over night for one luminaire
Registry count	0x0004 + 2n + 2m	
Crc	Value	

Instruction for installing sequence for control over night for luminaire with this ID.

ID of sequence – unique identification number of sequence (for testing presence of sequence)

Intervals – Sum of intervals lengths before middle of night must be exactly 480 min. Sum of intervals lengths after middle of night must be max 480 min. Length of the last interval must be exactly 1 min. For example, the sequence may consist 4 intervals before middle of night (75, 60, 135, 90, 120) and 2 intervals after middle of night (175, 1).

Control instructions

EcoStreet - install sequence for fixed control for all luminaires			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0019		Install sequence for fixed control for all luminaires
Registry count	0x0002 + 2n		
Byte count	0x04 + 4n		
Data	1	Hi Lo	Sequence ID
			1 - 255
	2	Hi Lo	Number of intervals (n)
			1 - 10
	(1*2) + 1	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + 2	Hi Lo	Intensity of 1st interval
			0 - 100
Data	...		
	(n*2) + 1	Hi Lo	Length of nth interval
			1 - 240
	(n*2) + 2	Hi Lo	Intensity of nth interval
			0 - 100
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0019	Install sequence for fixed control for all luminaires
Registry count	0x0002 + 2n	
Crc	Value	

Instruction for installing sequence for fixed control for all luminaires.

ID of sequence – unique identification number of sequence (for testing presence of sequence)

Intervals – Sum of intervals lengths must be max 960 min. Length of the last interval must be exactly 1 min. For example, the sequence only with one interval will have only one 1 min length interval.

For example, lengths of intervals for sequence with 5 intervals: 60, 120, 75, 240, 1.

Control instructions

EcoStreet - install sequence for fixed control for one group			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x001A		Install sequence for fixed control for one group
Registry count	0x0003 + 2n		
Byte count	0x06 + 4n		
Data	1	Hi Lo	Group
			1 - 199
	2	Hi Lo	Sequence ID
			1 - 255
	3	Hi Lo	Number of intervals (n)
			1 - 10
	(1*2) + 2	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + 3	Hi Lo	Intensity of 1st interval
			0 - 100
Data	...		
	(n*2) + 2	Hi Lo	Length of nth interval
			1 - 240
	(n*2) + 3	Hi Lo	Intensity of nth interval
			0 - 100
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x001A	Install sequence for fixed control for one group
Registry count	0x0003 + 2n	
Crc	Value	

Instruction for installing sequence for fixed control for luminaire in this group.

ID of sequence – unique identification number of sequence (for testing presence of sequence)

Intervals – Sum of intervals lengths must be max 960 min. Length of the last interval must be exactly 1 min. For example, the sequence only with one interval will have only one 1 min length interval.

For example, lengths of intervals for sequence with 5 intervals: 60, 120, 75, 240, 1.

Control instructions

EcoStreet - install sequence for fixed control for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x001B		Install sequence for fixed control for one luminaire
Registry count	0x0003 + 2n		
Byte count	0x06 + 4n		
Data	1	Hi Lo	Luminaire ID
			ID (see Table of ID range)
	2	Hi Lo	Sequence ID
			1 - 255
	3	Hi Lo	Number of intervals (n)
			1 - 10
	(1*2) + 2	Hi Lo	Length of 1st interval
			1 - 240
	(1*2) + 3	Hi Lo	Intensity of 1st interval
			0 - 100
Data	...		
	(n*2) + 2	Hi Lo	Length of nth interval
			1 - 240
	(n*2) + 3	Hi Lo	Intensity of nth interval
			0 - 100
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x001B	Install sequence for fixed control for one luminaire
Registry count	0x0003 + 2n	
Crc	Value	

Instruction for installing sequence for fixed control for luminaire with this ID.

ID of sequence – unique identification number of sequence (for testing presence of sequence)

Intervals – Sum of intervals lengths must be max 960 min. Length of the last interval must be exactly 1 min. For example, sequence only with one interval will have only one 1 min length interval. For example, lengths of intervals for sequence with 5 intervals: 60, 120, 75, 240, 1.

Control instructions

EcoStreet - remove sequence for all luminaires			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x001C		EcoStreet - remove sequence for all luminaires
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	0x0000
Crc	Value		

Instruction for removing a sequence from all luminaires.

EcoStreet - remove sequence for group			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x001D		EcoStreet - remove sequence for group
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	Group
Crc	Value		1 - 199

Instruction for removing a sequence from the luminaire in this group.

EcoStreet - remove sequence for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x001E		EcoStreet - remove sequence for one luminaire
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	Luminaire ID
Crc	Value		ID (see Table of ID range)

Instruction for removing a sequence from the luminaire with this ID.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x001C	EcoStreet - remove sequence for all luminaires
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x001D	EcoStreet - remove sequence for group
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x001E	EcoStreet - remove sequence for one luminaire
Registry count	0x0001	
Crc	Value	

Control instructions

Check sequence identification number				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x001F		Check sequence identification number	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	Sequence ID	0 - 255
Crc	Value			

Instruction for sending identification number to check presence of the sequence.
If luminaire contains sequence with this sequence ID, it goes to STANDBY.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x001F	Check sequence identification number
Registry count	0x0001	
Crc	Value	

Check presence of any sequence in luminaire				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0020		Check presence of any sequence in luminaire	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	0x0000	0
Crc	Value			

Instruction for checking presence of any sequence in the luminaire.
If luminaire contains some sequence, it goes to STANDBY.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0020	Check presence of any sequence in luminaire
Registry count	0x0001	
Crc	Value	

Set limit of maximal power input				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0021		Set limit of maximal power input	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	Limit of maximal power input	50 - 100 %
Crc	Value			

Instruction for setting the maximal power input for all luminaires.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0021	Set limit of maximal power input
Registry count	0x0001	
Crc	Value	

Control instructions

Set constant light output (CLO)				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0022			Set constant light output (CLO)
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Period to achieve 100% power input	1 - 20 (years)
		Lo		
	2	Hi	Initial power input	60 - 100 %
		Lo		
Crc	Value			

Instruction for setting the constant light output (CLO) for all luminaires.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0022	Set constant light output (CLO)
Registry count	0x0002	
Crc	Value	

Transfer data for all luminaires				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0023		Transfer data for all luminaires	
Registry count	0x0001 + n			
Byte count	0x02 + 2n			
Data	1	Hi	Number of data (n)	1 - 20
		Lo		
	1 + 1	Hi	1st value	0 - 255
		Lo		
	...			
	1 + n	Hi	Nth value	0 - 255
		Lo		
Crc	Value			

Instruction for sending the data for all luminaires.

This function is reserved for future use.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0023	Transfer data for all luminaires
Registry count	0x0001 + n	
Crc	Value	

Control instructions

Transfer data for one group			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0024		Transfer data for one group
Registry count	0x0002 + n		
Byte count	0x04 + 2n		
Data	1	Hi Lo	Group 1 - 199
	2	Hi Lo	Number of data (n) 1 - 20
	2 + 1	Hi Lo	1st value 0 - 255
	...		
	2 + n	Hi Lo	Nth value 0 - 255
Crc	Value		

Instruction for sending the data for the luminaire in this group.
This function is reserved for future use.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0024	Transfer data for one group
Registry count	0x0002 + n	
Crc	Value	

Transfer data for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0025		Transfer data for one luminaire
Registry count	0x0002 + n		
Byte count	0x04 + 2n		
Data	1	Hi Lo	Luminaire ID 1 - 255
	2	Hi Lo	Number of data (n) 1 - 20
	2 + 1	Hi Lo	1st value 0 - 255
	...		
	2 + n	Hi Lo	Nth value 0 - 255
Crc	Value		

Instruction for sending the data for the luminaire with this ID.
This function is reserved for future use.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0025	Transfer data for one luminaire
Registry count	0x0002 + n	
Crc	Value	

Control instructions

Send request for getting data from one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0026		Send request for getting data from one luminaire
Registry count	0x0003		
Byte count	0x06		
Data	1	Hi Lo	Luminaire ID 1 - 255
	2	Hi Lo	Start register 1 - 16
	3	Hi Lo	End register 1 - 16
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0026	Send request for getting data from one luminaire
Registry count	0x0003	
Crc	Value	

Instruction for sending a request for getting data from one luminaire. To retrieve requested data use request instruction (0x0078).

It is possible to set different range of registers (1 - 6, 5 - 8, ..) or set only one register (1 - 1, 5 - 5). This function is not implemented in luminaires yet.

Set SSI protocol type			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0027		Set SSI protocol type
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	SSI protocol type 1 - activate SSI 1 2 - activate SSI3
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0027	Set SSI protocol type
Registry count	0x0001	
Crc	Value	

Instruction for setting SSI protocol type in Lumibox.

Set luminaire depth of modulation			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0028		Set luminaire depth of modulation
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	Depth of modulation 0 - Low, 1 - Middle, 2 - High
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0028	Set luminaire depth of modulation
Registry count	0x0001	
Crc	Value	

Instruction for setting luminaire depth of modulation.

WARNING! Changing depth of modulation without changing modulator response bottom and top reference may cause wrong data recognition.

Control instructions

Set modulator response bottom and top reference				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0029			Set modulator response bottom reference
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Bottom reference	20 - 255
		Lo		
	2	Hi	Top reference	40 - 255 (must be greater than bottom reference at least 20)
		Lo		
Crc	Value			

Instruction for setting modulator response bottom and top reference.

WARNING! Setting too high or too low reference may cause wrong data recognition.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0029	Set modulator response bottom reference
Registry count	0x0002	
Crc	Value	

Send request for level and status of luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x002A			Send request for level and status of luminaire
Registry count	0x0001			
Byte count	0x02			
Data	1	HiLo	ID	1 - 255
Crc	Value			

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x002A	Send request for level and status of luminaire
Registry count	0x0001	
Crc	Value	

Instruction for sending a request to get actual dimming level and status of a luminaire. To retrieve the actual dimming level and status of luminaire, use request instruction (0x007C).

Send request for getting level and status from range of luminaires Ids				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x002B			Send request for getting level and status from luminaires
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Luminaire start ID	1 - 255
		Lo		
	2	Hi	Luminaire end ID	1 - 255
		Lo		
Crc	Value			

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x002B	Send request for getting status from luminaires
Registry count	0x0002	
Crc	Value	

Instruction for sending a request to get actual dimming level and status from a set of (up to 100) luminaires. To retrieve dimming level and status from requested luminaires use request instruction (0x007D).

Control instructions

Set motion mode settings (all luminaires - old version)				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x002C		Set motion mode settings (all luminaires - old version)	
Registry count	0x0004			
Byte count	0x08			
Data	1	Hi	Enable / disable motion mode	Enable = 1
		Lo		Disable = 0
	2	Hi	Level	0 - 100%
		Lo		
	3	Hi	Motion level type	Direct level = 0
		Lo		Additional level = 1
	4	Hi	Hold on time	0 - 120
		Lo		time = (0 - 120) * 5s
Crc	Value			

Instruction for setting motion mode parameters.

Direct motion level type - luminaire after capturing motion goes to Level directly.

Additional motion level type - luminaire after capturing motion adds Level to current level.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x002C	Set motion mode settings (all luminaires - old version)
Registry count	0x0004	
Crc	Value	

Set luminaire fade time / step				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x002D			Set luminaire fade step
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi	Fade time / step	DALI fade (for dali drivers): 0 - No fade, 1 - 0.7s, 2 - 1.0s, 3 - 1.4s, 4 - 2.0s, 5 - 2.8s, 6 - 4.0s, 7 - 5.7s, 8 - 8.0s, 9 - 11.3s, 10 - 16.0s, 11 - 22.6s, 12 - 32.0s, 13 - 45.3s, 14 - 64.0s, 15 - 90.5s SSI fade (for other drivers): 0 - 20 (step = (0 - 20) * 10ms)
		Lo		
Crc	Value			

Instruction for setting luminaire fade step.

DALI fade time is standard DALI fade which is set directly to DALI driver

SSI fade step determines time which luminode waits between two dimming steps. Set 0 to set no fade.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x002D	Set luminaire fade step
Registry count	0x0001	
Crc	Value	

Control instructions

Set DALI driver mode				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x002E			Set DALI driver mode
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	ID	0 - All luminaires
		Lo		1 - 255 - ID
	2	Hi	DALI driver mode	0 - one DALI driver mode
		Lo		1 - two DALI drivers mode
Crc	Value			

Instruction for setting DALI driver mode. Set ID 0 to send command to all luminaires.

DALI driver mode means how many drivers are connected to LUMiNODE.

It is possible to connect 1 or 2 DALI drivers. If 2 DALI drivers are connected to LUMiNODE, they must have DALI address set to 0 and 1.

Set response asynchro mode				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x002F			Set response asynchro mode
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi	ID	0 - disabled
		Lo		1 - enabled
Crc	Value			

Instruction for setting response asynchro mode.

If enabled, LUMiBOX receives incoming response data (only special commands) from devices (LUMiCHARGER) all the time.

If disabled, LUMiBOX receives response data only defined time after requested command.

WARNING! Asynchro response supports LUMiBOX SLM-160A and SLM-140A with firmware version higher than 2.21 (including).

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x002E	Set DALI driver mode
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x002F	Set response asynchro mode
Registry count	0x0001	
Crc	Value	

Control instructions

Set motion mode settings for all luminaires or group			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0030		Set motion mode settings for all luminaires or group
Registry count	0x0005		
Byte count	0x0A		
Data	1	Hi	All luminaire / group
		Lo	
	2	Hi	Enable / disable motion mode
		Lo	
	3	Hi	Level
		Lo	
	4	Hi	Motion level type
		Lo	
	5	Hi	Hold on time
		Lo	
	6	Hi	Asynchro mode
		Lo	
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0030	Set motion mode settings for all luminaires or group
Registry count	0x0005	
Crc	Value	

Instruction for setting motion mode parameters.

Direct motion level type - luminaire after capturing motion goes to Level directly.

Additional motion level type - luminaire after capturing motion adds Level to current level.

In FW version 2.28 added new parameter: Asynchro mode.

Control instructions

Set motion mode settings for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0031		Set motion mode settings for one luminaire
Registry count	0x0005		
Byte count	0x0A		
Data	1	Hi	Luminaire ID
		Lo	
	2	Hi	Enable / disable motion mode
		Lo	
	3	Hi	Level
		Lo	
	4	Hi	Motion level type
		Lo	
	5	Hi	Hold on time
		Lo	
	6	Hi	Asynchro mode
		Lo	
	7	Hi	Asynchro ID
		Lo	
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0031	Set motion mode settings for one luminaire
Registry count	0x0005	
Crc	Value	

Instruction for setting motion mode parameters.

Direct motion level type - luminaire after capturing motion goes to Level directly.

Additional motion level type - luminaire after capturing motion adds Level to current level.

In FW version 2.28 added new parameters: Asynchro mode and Asynchro ID

Control instructions

Configure scene for all luminaires or group				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0032		Configure scene for all luminaires or group	
Registry count	0x000A			
Byte count	0x14			
Data	1	Hi Lo	All luminaires / group	0 - All luminaires 1 - 199 - Group
	2	Hi Lo	Scene number	0 1 - 15
	3	Hi Lo	Mode	1 - Level 2 - Tc 3 - RGB-XY 4 - RGBWAF
	4	Hi Lo	Level	0 - 100 %
	5	Hi Lo	Data 1	See Table of scene data
	6	Hi Lo	Data 2	See Table of scene data
	7	Hi Lo	Data 3	See Table of scene data
	8	Hi Lo	Data 4	See Table of scene data
	9	Hi Lo	Data 5	See Table of scene data
	10	Hi Lo	Data 6	See Table of scene data
	Crc		Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0032	Configure scene for all luminaires or group
Registry count	0x000A	
Crc	Value	

Instruction for configuring scenes in LUMiNODE for all luminaires or group of luminaires.

Set scene number to 0 for trying configuration in driver. Scene activation is not needed. This configuration will not be saved permanently.

For each scene can be configured one of 4 modes.

Mode 1 - Level: in this mode is set only dimming level of luminaire (all other data is set to 0).

Mode 2 - Tc: in this mode it is possible to set color temperature of light (color temperature adjusting) Tc is set in Kelvin units.

Mode 3 - XY: in this mode it is possible to set color using XY coordinates of chromaticity diagram (CIE color space chromaticity diagram 1931).

Mode 4 - RGBWAF: in this mode it is possible to set color mixing 1 - 6 channels (Red, Green, Blue, White, Amber, Freecolor).

In all color modes it is possible to change intensity of color by setting Level value.

Control instructions

Configure scene for one luminaire				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0033		Configure scene for one luminaire	
Registry count	0x000A			
Byte count	0x14			
Data	1	Hi Lo	Luminaire ID	1 - 255
	2	Hi Lo	Scene number	0 1 - 15
	3	Hi Lo	Mode	1 - Level 2 - Tc 3 - XY 4 - RGBWAF
	4	Hi Lo	Level	0 - 100 %
	5	Hi Lo	Data 1	See Table of scene data
	6	Hi Lo	Data 2	See Table of scene data
	7	Hi Lo	Data 3	See Table of scene data
	8	Hi Lo	Data 4	See Table of scene data
	9	Hi Lo	Data 5	See Table of scene data
	10	Hi Lo	Data 6	See Table of scene data
	Crc		Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0033	Configure scene for one luminaire
Registry count	0x000A	
Crc	Value	

Instruction for configuring scenes in LUMiNODE for all luminaires or group of luminaires.

Set scene number to 0 for trying configuration in driver. Scene activation is not needed. This configuration will not be saved permanently.

For each scene can be configured one of 4 modes.

Mode 1 - Level: in this mode is set only dimming level of luminaire (all other data is set to 0).

Mode 2 - Tc: in this mode it is possible to set color temperature of light (color temperature adjusting) Tc is set in Kelvin units.

Mode 3 - XY: in this mode it is possible to set color using XY coordinates of chromaticity diagram (CIE color space chromaticity diagram 1931).

Mode 4 - RGBWAF: in this mode it is possible to set color mixing 1 - 6 channels (Red, Green, Blue, White, Amber, Freecolor).

In all color modes it is possible to change intensity of color by setting Level value.

Control instructions

Remove scene from all luminaires or group				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0034			Remove scene from all luminaires or group
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	All luminaires / group	0 - All luminaires
		Lo		1 - 199 - Group
	2	Hi	Scene number	0 - Remove all scenes
		Lo		1 - 15 - Scene number to remove
Crc	Value			

Instruction for removing scene (all scenes) from LUMiNODE for all luminaires or group of luminaires.

Remove scene from one luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0035			Remove scene from one luminaire
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Luminaire ID	1 - 255
		Lo		
	2	Hi	Scene number	0 - Remove all scenes 1 - 15 - Scene number to remove
		Lo		
Crc	Value			

Instruction for removing scene (all scenes) from LUMiNODE for one luminaire.

Activate scene for all luminaires or group				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0036			Activate scene for all luminaires or group
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	All luminaires / group	0 - All luminaires
		Lo		1 - 199 - Group
	2	Hi	Scene number	1 - 15 - Scene number to activate
		Lo		
Crc	Value			

Instruction for activating scene in LUMiNODE for all luminaires or group of luminaires.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0034	Remove scene from all luminaires or group
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0035	Remove scene from one luminaire
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0036	Activate scene for all luminaires or group
Registry count	0x0002	
Crc	Value	

Control instructions

Activate scene for one luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0037			Activate scene for one luminaire
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Luminaire ID	1 - 255
		Lo		
	2	Hi	Scene number	1 - 15 - scene number to activate
		Lo		
Crc	Value			

Instruction for activating scene in LUMiNODE for one luminaire

Set SSR initial state				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x0039			Set SSR initial state
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Luminaire ID	1 - 255
		Lo		
	2	Hi	Initial state	0 - OFF
		Lo		1 - ON
Crc	Value			

Instruction for setting initial state of LUMiNODE SSR-1000

Set response reference mode				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x003A			Set response reference mode
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi	SSI protocol type	0 - negative
		Lo		1 - positive
				2 - auto
Crc	Value			

Instruction for setting response reference mode in LUMiBOX.

It is possible to set different mode according to load characteristic.

Auto mode automatically evaluates actual load characteristic and chooses between positive and negative mode.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0037	Activate scene for one luminaire
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0039	Set SSR initial state
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x003A	Set response reference mode
Registry count	0x0001	
Crc	Value	

Control instructions

Send request for motion and status of luminaire				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x003C			Send request for motion and status of luminaire
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	ID	1 - 255
Crc	Value			

Instruction for sending a request to get actual status of motion input and status of a luminaire. To retrieve status of motion input and status from requested luminaires use request instruction (0x0082).

Send request for getting motion and status from range of luminaires Ids				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x003D			Send request for getting level and status from luminaires
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Luminaire start ID	1 - 255
		Lo		
	2	Hi	Luminaire end ID	1 - 255
		Lo		
Crc	Value			

Instruction for sending a request to get actual status of motion input and status of luminaire from a set of (up to 100) luminaires. To retrieve status of motion input and status from requested luminaires use request instruction (0x0083).

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x003C	Send request for motion and status of luminaire
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x003D	Send request for getting status from luminaires
Registry count	0x0002	
Crc	Value	

Control instructions

Set luminaire type for all luminaires or group				
Name	Value			Description
Address	Address			
Function	0x10			
Registry address	0x003E			Set luminaire type for all luminaires or group
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	All luminaires / group	0 - All luminaires
		Lo		1 - 199 - Group
	2	Hi	Luminaire type	0 - DALI
		Lo		1 - 0-10V 2 - auto DALI detection
Crc	Value			

Instruction for setting type of luminaire connected to LUMiNODE (using this instruction is possible with multiple-output LUMiNODE SDM-110DA) for all luminaires or group of them. Auto DALI detection sets DALI type only for the LUMiNODEs which have connected luminaire to DALI interface (luminaire has to communicate with LUMiNODE). Otherwise 0-10V type is set to LUMiNODE.

Set luminaire type for one luminaire				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x003F		Set luminaire type for one luminaire	
Registry count	0x0002			
Byte count	0x04			
Data	1	Hi	Luminaire ID	1 - 255
		Lo		
	2	Hi	Luminaire type	0 - DALI
		Lo		1 - 0-10V 2 - auto DALI detection
Crc	Value			

Instruction for setting type of luminaire connected to LUMiNODE (using this instruction is possible with multiple-output LUMiNODE SDM-110DA) for one luminaire. Auto DALI detection sets DALI type only for the LUMiNODEs which have connected luminaire to DALI interface (luminaire has to communicate with LUMiNODE). Otherwise 0-10V type is set to LUMiNODE.

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x003E	Set luminaire type for all luminaires or group
Registry count	0x0002	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x003F	Set luminaire type for one luminaire
Registry count	0x0002	
Crc	Value	

Control instructions

Configure SSR-500 lamp error mode for all luminaires or group			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0040		Configure SSR-500 lamp error mode for all luminaires or group
Registry count	0x000F		
Byte count	0x1E		
Data	1	Hi Lo	All luminaires / group 0 - All luminaires 1 - 199 - Group
	2	Hi Lo	Mode 0 - Lamp error detection is disabled 1 - One of selected parameter is out of tolerance 2 - All selected parameters are out of tolerance 3 - HID lamp error detection
	3	Hi Lo	Detection start time 0 - 255 time = (0 - 255) * 10s
	4	Hi Lo	Switch off after error detection 0 - disabled 1 - 15 - enabled (lamp errors count for permanent switch off)
	5	Hi Lo	Power factor check 0 - Disabled 1 - Enabled (default in mode 3)
	6	Hi Lo	Power factor tolerance 0 - 100%
	7	Hi Lo	Active power check 0 - Disabled 1 - Enabled (default in mode 3)
	8	Hi Lo	Active power tolerance 0 - 100%
	9	Hi Lo	Voltage check 0 - Disabled 1 - Enabled
	10	Hi Lo	Voltage tolerance 0 - 100%
	11	Hi Lo	Current check 0 - Disabled 1 - Enabled
	12	Hi Lo	Current tolerance 0 - 100%
	13	Hi Lo	Reactive power check 0 - Disabled 1 - Enabled
	14	Hi Lo	Reactive power tolerance 0 - 100%
	15	Hi Lo	Apparent power check 0 - Disabled 1 - Enabled
	16	Hi Lo	Apparent power tolerance 0 - 100%
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0040	Configure SSR-500 lamp error mode for all luminaires or group
Registry count	0x000F	
Crc	Value	

Instruction for setting of lamp error detection for SSR-500 modules for all luminaires or group.

Mode 0 - lamp error detection is disabled. All other parameters has to be 0.

Mode 1 - lamp error is detected if one of selected parameters is out of tolerance

Mode 2 - lamp error is detected if all of selected parameters are out of tolerance

Mode 3 - it is special mode for HID lamps, which has custom algorithm for lamp error detection. For this mode is necessary to set Power factor tolerance and Active power tolerance. All other parameters has to be 0.

Permanent switch off - SSR-500 will not switch on its output, because count of detected lamp errors is higher than set value. This counter is reseted after sending this command.

Control instructions

Configure SSR-500 lamp error mode for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0041		Configure SSR-500 lamp error mode for one luminaire
Registry count	0x000F		
Byte count	0x1E		
Data	1	Hi Lo	Luminaire ID
	2	Hi Lo	Mode
	3	Hi Lo	Detection start time
	4	Hi Lo	Switch off after error detection
	5	Hi Lo	Power factor check
	6	Hi Lo	Power factor tolerance
	7	Hi Lo	Active power check
	8	Hi Lo	Active power tolerance
	9	Hi Lo	Voltage check
	10	Hi Lo	Voltage tolerance
	11	Hi Lo	Current check
	12	Hi Lo	Current tolerance
	13	Hi Lo	Reactive power check
	14	Hi Lo	Reactive power tolerance
	15	Hi Lo	Apparent power check
	16	Hi Lo	Apparent power tolerance
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0041	Configure SSR-500 lamp error mode for one luminaire
Registry count	0x000E	
Crc	Value	

Instruction for setting of lamp error detection for SSR-500 modules for one luminaire.

Mode 0 - lamp error detection is disabled. All other parameters has to be 0.

Mode 1 - lamp error is detected if one of selected parameters is out of tolerance

Mode 2 - lamp error is detected if all of selected parameters are out of tolerance

Mode 3 - it is special mode for HID lamps, which has custom algorithm for lamp error detection. For this mode is necessary to set Power factor tolerance and Active power tolerance. All other parameters has to be 0.

Permanent switch off - SSR-500 will not switch on its output, because count of detected lamp errors is higher than set value. This counter is reseted after sending this command.

Control instructions

Prepare SSR-500 powermeter measured data in response buffer for all luminaires or group				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0042		Prepare SSR-500 powermeter measured data in response buffer for all luminaires or group	
Registry count	0x0007			
Byte count	0x0E			
Data	1	Hi Lo	All luminaires / group	0 - All luminaires 1 - 199 - Group
	2	Hi Lo	Power factor	0 - Not selected 1 - Selected
	3	Hi Lo	Active power	0 - Not selected 1 - Selected
	4	Hi Lo	Voltage	0 - Not selected 1 - Selected
	5	Hi Lo	Current	0 - Not selected 1 - Selected
	6	Hi Lo	Reactive power	0 - Not selected 1 - Selected
	7	Hi Lo	Apparent power	0 - Not selected 1 - Selected
	Value			
Crc	Value			

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0042	Prepare SSR-500 powermeter measured data in response buffer for all luminaires or group
Registry count	0x0007	
Crc	Value	

Instruction for preparing powermeter measured data in SSR-500 response buffer for all luminaires or group.

For getting requested data it is necessary to use 0x0026 - Send request for getting data from one luminaire (start register is 1 and end register is count of selected parameter).

After that, read received data with 0x0078 - Request stored data from one luminaire.

Control instructions

Prepare SSR-500 powermeter measured data in response buffer for one luminaire				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0043		Prepare SSR-500 powermeter measured data in response buffer for one luminaire	
Registry count	0x0007			
Byte count	0x0E			
Data	1	Hi Lo	Luminaire ID	1 - 255
	2	Hi Lo	Power factor	0 - Not selected 1 - Selected
	3	Hi Lo	Active power	0 - Not selected 1 - Selected
	4	Hi Lo	Voltage	0 - Not selected 1 - Selected
	5	Hi Lo	Current	0 - Not selected 1 - Selected
	6	Hi Lo	Reactive power	0 - Not selected 1 - Selected
	7	Hi Lo	Apparent power	0 - Not selected 1 - Selected
Crc	Value			

Instruction for preparing powermeter measured data in SSR-500 response buffer for one luminaire.

For getting requested data it is necessary to use 0x0026 - Send request for getting data from one luminaire (start register is 1 and end register is count of selected parameter).

After that, read received data with 0x0078 - Request stored data from one luminaire.

Save reference values in SSR-500 for all luminaires or group				
Name	Value		Description	
Address	Address			
Function	0x10			
Registry address	0x0044		Save reference values in SSR-500 for all luminaires or group	
Registry count	0x0001			
Byte count	0x02			
Data	1	Hi Lo	All luminaires / group	0 - All luminaires 1 - 199 - Group
	Value			

Instruction for saving reference values in SSR-500 for evaluating lamp error for all luminaires or group.

This instruction is necessary to use when luminaire is in stable condition (after preheating). SSR-500 saves reference values into its memory.

Actual measured values are compared with saved referencial values to evaluate lamp error.

Response			
Name	Value	Description	
Address	Address		
Function	0x10		
Registry address	0x0043	Prepare SSR-500 powermeter measured data in response buffer for one luminaire	
Registry count	0x0007		
Crc	Value		

Response			
Name	Value	Description	
Address	Address		
Function	0x10		
Registry address	0x0044	Save reference values in SSR-500 for all luminaires or group	
Registry count	0x0001		
Crc	Value		

Control instructions

Save reference values in SSR-500 for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0045		Save reference values in SSR-500 for one luminaire
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	Luminaire ID 1 - 255
Crc	Value		

Instruction for saving reference values in SSR-500 for evaluating lamp error for all luminaires or group.
This instruction is necessary to use when luminaire is in stable condition (after preheating). SSR-500 saves reference values into its memory.
Actual measured values are compared with saved referencial values to evaluate lamp error.

Reset SSR-500 lamp error mode for all luminaires or group			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0046		Reset SSR-500 lamp error mode for all luminaires or group
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	All luminaires / group 0 - All luminaires 1 - 199 - Group
Crc	Value		

Instruction for resetting variables in SSR-500 for evaluating lamp error for all luminaires or group.
This instruction only resets all variables (switch off after lamp error and counters for evaluating lamp error)

Reset SSR-500 lamp error mode for one luminaire			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0047		Reset SSR-500 lamp error mode for one luminaire
Registry count	0x0001		
Byte count	0x02		
Data	1	Hi Lo	All luminaires / group 0 - All luminaires 1 - 199 - Group
Crc	Value		

Instruction for resetting variables in SSR-500 for evaluating lamp error for one luminaire.
This instruction only resets all variables (switch off after lamp error and counters for evaluating lamp error)

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0045	Save reference values in SSR-500 for one luminaire
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0046	Reset SSR-500 lamp error mode for all luminaires or group
Registry count	0x0001	
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0047	Reset SSR-500 lamp error mode for one luminaire
Registry count	0x0001	
Crc	Value	

Control instructions

Prepare luminaire parameters in response buffer			
Name	Value		Description
Address	Address		
Function	0x10		
Registry address	0x0107		Prepare luminaire parameters in response buffer
Registry count	0x0002		
Byte count	0x04		
Data	1	Hi	Luminaire ID
		Lo	
	2	Hi	Parameters mode
		Lo	
Crc	Value		

Response		
Name	Value	Description
Address	Address	
Function	0x10	
Registry address	0x0107	Prepare luminaire parameters in response buffer
Registry count	0x0002	
Crc	Value	

Instruction for preparing luminaire parameters in LUMiNODE response buffer.

For getting requested data it is necessary to use 0x0026 - Send request for getting data from one luminaire and after that read received data with 0x0078 - Request stored data from one luminaire.

It is possible to request range of registers for getting requested parameters (see Table of luminaire parameters).

Error response for control instruction

Error response		
Name	Value	Description
Address	Address	
Function	0x10 + 0x80	Function + 0x80
Error code	Error code	See Table of error codes
Crc	Value	

Request instructions

Request state and type of device		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0064	Request state and type of device
Registry count	0x0001	
Crc	Value	

Instruction for getting actual state of device and device type.

Response			
Name	Value	Description	
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi	Device type
		Lo	State of device
Crc	Value		

Request consumed energy		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0065	Request consumed energy
Registry count	0x0003	
Crc	Value	

Instruction for getting consumed energy from modulator electricity meter.

Response				
Name	Value			Description
Address	Address			
Function	0x03			
Byte count	0x06			
Data	1	Hi	State of device	See Table of modulator states
		Lo		
Data	2	Hi	Energy upper bytes	
		Lo		
Data	3	Hi	Energy lower bytes	
		Lo		
Crc	Value			

Request firmware version		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0066	Request firmware version
Registry count	0x0001	
Crc	Value	

Instruction for getting firmware version of the modulator.

Response			
Name	Value	Description	
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi	Version
		Lo	Sub-version
Crc	Value		

Request instructions

Request count of set phases		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0067	Request count of set phases
Registry count	0x0001	
Crc	Value	

Instruction for getting count of active phases set in the modulator (it is not count of connected phases).

Request modulator temperature		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0068	Request modulator temperature
Registry count	0x0003	
Crc	Value	

Instruction for getting the temperature of each phase of the modulator.
Instruction is for 3-phase device such as PNT modulator and temperature is non negative value.

Request consecutive modulation setup		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0069	Request consecutive modulation setup
Registry count	0x0001	
Crc	Value	

Instruction for getting the consecutive modulation settings.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Connected phases
Crc	Value		Count of set phases

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x06		
Data	1	Hi Lo	L1 temperature
Data	2	Hi Lo	L2 temperature
Data	3	Hi Lo	L3 temperature
Crc	Value		Temperature in Celsius degrees. Temperature is measured for each modulated phase separately.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Modulation setup
Crc	Value		0 - simultaneous modulation 1 - consecutive modulation

Request instructions

Request stored luminaire status		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x006B	Request stored luminaire status
Registry count	0x0001	
Crc	Value	

Instruction for getting received status from the luminaire.
Use this Instruction after control instruction 0X0010.

Request stored luminaire status from luminaires		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x006C	Request stored luminaire status from luminaires
Registry count	n	Luminaires count (1 - 100)
Crc	Value	

Instruction for getting received status from the set of luminaires (up to 100).
Use this Instruction after control instruction 0x000F.
In this instruction you don't need to set range of luminaires, but only its count.
Range of luminaires is set in control instruction 0x000F.

Request measured current		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x006D	Request measured current
Registry count	0x0001	
Crc	Value	

Instruction for getting measured current from the modulator.
Use this Instruction after control instruction 0X0012.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi	Full info byte
		Lo	Short info byte
Crc	Value		See tables Response info bytes

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02 * n		
Data	1	Hi	Full info byte
		Lo	Short info byte
	...		See tables Response status info bytes
	n	Hi	Full info byte
Crc		Lo	Short info byte
Crc	Value		See tables Response status info bytes

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi	Current (A)
		Lo	Current (mA)
Crc	Value		Measured current in ampers Fractional part of value (0x03 = 300 mA)

Request instructions

Request modulator response bottom reference		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x006E	Request modulator response bottom reference
Registry count	0x0001	
Crc	Value	

Instruction for getting modulator response bottom reference.

Response			
Name	Value	Description	
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Reference
Crc	Value	Bottom reference of response channel (20 - 255)	

Request uptime counter		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x006F	Request uptime counter
Registry count	0x0002	
Crc	Value	

Instruction for getting actual value of uptime counter.
Uptime counter is 32bit counter, which is equal to zero at device power-on and increment every second by 1.

Response			
Name	Value	Description	
Address	Address		
Function	0x03		
Byte count	0x04		
Data	1	Hi Lo	Counter - Hi
Data	2	Hi Lo	Counter - Lo
Crc	Value	Uptime counter (in seconds)	

Request voltage		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0070	Request measured voltage
Registry count	0x0001	
Crc	Value	

Instruction for getting actual mains voltage measured by modulator (tolerance +/- 5%).

Response			
Name	Value	Description	
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Voltage (V)
Crc	Value	Measured voltage	

Request instructions

Request depth of modulation		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0075	Request depth of modulation
Registry count	0x0001	
Crc	Value	

Instruction for getting modulator depth of modulation.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Depth of modulation
			1 - high, 0 - low
Crc	Value		

Request modulator address and terminator setup		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0076	Request modulator address and terminator setup
Registry count	0x0001	
Crc	Value	

Instruction for getting modulator address and terminator setup.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Terminator
			LUMiBOX v1.04: 1 - active, 0 - inactive LUMiBOX v2.08: 0 - active, 1 - inactive
			Address
Crc	Value		

Request stored echo data		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0077	Request stored echo data
Registry count	0x0001	
Crc	Value	

Instruction for getting modulator address and terminator setup.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Echo byte
			Received echo byte (0 - 255)
			Data info byte
			See tables Response data info byte
Crc	Value		

Request instructions

Request stored data from one luminaire		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0078	Request stored data from one luminaire
Registry count	n	Data count (1 - 16)
Crc	Value	

Instruction for getting stored data from one luminaire. Use this Instruction after control instruction 0x0026.
This function is reserved for future use.

Response				
Name	Value			Description
Address	Address			
Function	0x03			
Byte count	0x02 * n			
	1	Hi	Data byte	Received data byte (0 - 255)
		Lo	Data info byte	See tables Response data info byte
	...			
Data	n	Hi	Full info byte	Received data byte (0 - 255)
		Lo	Short info byte	See tables Response data info byte
Crc	Value			

Request full range modulator temperature		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0079	Request full range modulator temperature
Registry count	0x0001	
Crc	Value	

Instruction for getting the temperature of modulator.
Temperature is full range value (it could be also negative value).

Response				
Name	Value			Description
Address	Address			
Function	0x03			
Byte count	0x02			
Data	1	Hi	Temperature	Full range temperature of modulator (data type: signed short)
		Lo		
Crc	Value			

Request SSI protocol type		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x007A	Request SSI protocol type
Registry count	0x0001	
Crc	Value	

Instruction for getting SSI protocol type set in the modulator.

Response				
Name	Value			Description
Address	Address			
Function	0x03			
Byte count	0x02			
Data	1	Hi	SSI protocol type	1 - activated SSI 1
		Lo		2 - activated SSI3
Crc	Value			

Request instructions

Request modulator response bottom and top reference		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x007B	Request modulator response bottom and top reference
Registry count	0x0002	
Crc	Value	

Instruction for getting modulator response bottom and top reference.

Request stored luminaire level and status from luminaire		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x007C	Request stored level and status from luminaire
Registry count	0x0001	
Crc	Value	

Instruction for getting received actual dimming level and status from the luminaire.

Use this Instruction after control instruction 0x002A.

WARNING! Received actual level may be inaccurate. Accepted tolerance between set and received level is max 3%.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x04		
Data	1	Hi Lo	Bottom reference
Data	2	Hi Lo	Top reference
Crc	Value		Bottom and top reference of response channel (20 - 255)

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02		
Data	1	Hi Lo	Actual level byte Short info byte
Crc	Value		See tables Response info bytes

Request instructions

Request stored level and status from luminaires		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x007D	Request stored level and status from luminaires
Registry count	n	Luminaires count (1 - 100)
Crc	Value	

Instruction for getting received actual dimming level and status from the set of luminaires (up to 100).

Use this Instruction after control instruction 0x002B.

In this instruction you don't need to set range of luminaires, but only its count.

Range of luminaires is set in control instruction 0x002B.

WARNING! Received actual level may be inaccurate. Accepted tolerance between set and received level is max 3%.

Request asynchro data from buffer		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x007E	Request asynchro data from buffer
Registry count	0x0006	
Crc	Value	

Instruction for getting asynchro data from buffer.

LUMiBOX stores received asynchro data in buffer. If buffer is empty, all received data is 0.

In LUMiCHARGER RFID mode (2) asynchro data contains ID of LUMiCHARGER and user's card ID for authorisation.

Received asynchro data has to be processed immediately, because buffer may contains multiple asynchro data from different devices, which are waiting for processing.

Asynchro data are removed from buffer after reading.

WARNING! Asynchro response supports LUMiBOX SLM-160A and SLM-140A with firmware version higher than 2.21 (including).

Response				
Name	Value			Description
Address	Address			
Function	0x03			
Byte count	0x02 * n			
Crc	1	Hi	Actual level byte	See tables Response status info bytes
		Lo	Short info byte	
	...			
	n	Hi	Actual level byte	See tables Response status info bytes
		Lo	Short info byte	
	Value			

Response				
Name	Value		Description	
Address	Address			
Function	0x03			
Byte count	0x0C			
Data	1	Hi	Asynchro mode	0 - No data
		Lo		1 - Motion group mode (not yet implemented) 2 - LUMiCHARGER RFID mode
Data	2	Hi	Group / ID	Group (in mode 1)
		Lo		LUMiCHARGER ID (in mode 2)
Data	3	Hi	Data	0 (in mode 1)
		Lo		RFID ID byte (in mode 2)
Data	4	Hi	Data	0 (in mode 1)
		Lo		RFID ID byte (in mode 2)
Data	5	Hi	Data	0 (in mode 1)
		Lo		RFID ID byte (in mode 2)
Data	6	Hi	Data	0 (in mode 1)
		Lo		RFID ID byte (in mode 2)
Crc	Value			

Request instructions

Request response asynchro mode		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x007F	Request response asynchro mode
Registry count	0x0001	
Crc	Value	

Instruction for getting response asynchro mode set in the modulator.

WARNING! Asynchro response supports LUMiBOX SLM-160A and SLM-140A with firmware version higher than 2.21 (including).

Request response reference mode		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0080	Request response reference mode
Registry count	0x0001	
Crc	Value	

Instruction for getting response reference mode set in the modulator.

Reference mode - set determines reference mode which is set in modulator. Actual reference mode shows which reference mode is actual in use (it is relevant only in auto reference mode)

WARNING! Asynchro response supports LUMiBOX SLM-160A and SLM-140A with firmware version higher than 2.24 (including).

Request stored motion and status from luminaire		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0082	Request stored motion and status from luminaire
Registry count	0x0001	
Crc	Value	

Instruction for getting received actual status of motion input and status of luminaire from the luminaire.

Use this Instruction after control instruction 0x003C.

Response		
Name	Value	Description
Address	Address	
Function	0x03	
Byte count	0x02	
Data	1	Hi Lo
		Reponse mode
		0 - disabled 1 - enabled
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x03	
Byte count	0x04	
Data	1	Hi Lo
		Reference mode - set
		0 - negative 1 - positive 2 - auto
Data	2	Hi Lo
		Actual reference mode
		0 - negative 1 - positive
Crc	Value	

Response		
Name	Value	Description
Address	Address	
Function	0x03	
Byte count	0x02	
Data	1	Hi Lo
		Actual level byte Short info byte
		See tables Response info bytes
Crc	Value	

Request instructions

Request stored motion and status from luminaires		
Name	Value	Description
Address	Address	
Function	0x03	
Registry address	0x0083	Request stored motion and status from luminaires
Registry count	n	Luminaires count (1 - 100)
Crc	Value	

Instruction for getting received actual status of motion input and status of luminaire from the set of luminaires (up to 100).
 Use this Instruction after control instruction 0x003D.
 In this instruction you don't need to set range of luminaires, but only its count.
 Range of luminaires is set in control instruction 0x003D.

Response			
Name	Value		Description
Address	Address		
Function	0x03		
Byte count	0x02 * n		
	1	Hi	Motion byte
		Lo	Short info byte
	...		
	n	Hi	Motion byte
		Lo	Short info byte
Crc	Value		

Error response for request instruction

Error response		
Name	Value	Description
Address	Address	
Function	0x03 + 0x80	Function + 0x80
Error code	Error code	See Table of error codes
Crc	Value	

Table of device types

DEVICE TYPE ID	DEVICE TYPE
0x00	3 - phase modulator PANTER PNT340 or PNT360
0x80	1 - phase modulator LUMiBOX SLM
0xFF	LUMiCHARGER RS485

Table of device states

STATE CODE	STATE	DESCRIPTION
0x01	Ok	The device is ready for coding.
0x02	Ok after coding	This code is returned at the first request on state of successful coding.
0x03	Overheat during coding	This code is returned if the device was overheated during coding, thus the coding was not successful.
0x04	Coding	This code is returned if the coding has not finished yet and there is no error.
0x05	Overheat	Information of an overheated device. It is necessary to wait for its cool-down.
0x06	Missing power supply	Information that there is no power supply connected to the power modulators.
0x07	Other error	Other specified problem.
0x08	Modulator error	Detected hardware problem with modulator. This status remains until reset.
0x09	Measuring	Device is measuring current or receiving luminaire response.
0x0A	Overheat after coding	This code is returned if the device was overheated after successful coding. After read, state changes to 0x0005 - Overheat.
0x0B	Overvoltage	Information that was measured overvoltage (voltage over 260V). It is necessary to wait for normal voltage
0x0C	Overvoltage after coding	This code is returned if the device measured overvoltage after successful coding. After read, state changes to 0x000B - Overvoltage.
0x0D	Modulation error after coding	Modulator detected problem during modulation and command was not modulated correctly.

Table of error codes

1. If the device received a CRC error code, it will not send a response.
2. If the device is unable to perform an instruction, it will send one of the following codes:

ERROR CODE	ERROR	DESCRIPTION
0x01	Illegal function	Master has sent a function different than 0x03 or 0x10. Other instructions are not accepted.
0x02	Illegal data address	Master has sent an invalid address for the data writing. It is possible to write data only on addresses stated in the table of supported commands.
0x03	Illegal data value	Master has sent invalid data. It is necessary to hold onto ranges of data stated in the table of supported commands.
0x04	Slave device failure	Error of a component in the PANTER modulator basically means overheat or other error of a modulator. In this case it is necessary to verify the state of the device by sending the instruction for verifying state.

Response info status bytes

FULL INFO BYTE

Bit	7	6	5	4	3	2	1	0
Value	LUMiNODE ID <7:0>							

ACTUAL LEVEL BYTE

Bit	7	6	5	4	3	2	1	0
Value	ACTUAL LUMINODE LEVEL (+/- 3%) <7:0>							

MOTION BYTE

Bit	7	6	5	4	3	2	1	0
Value	ACTUAL STATUS OF MOTION INPUT(0 - no motion, 1 - motion captured) <7:0>							

SHORT INFO BYTE

Bit	7	6	5	4	3	2	1	0
Value	-	-	-	-	-	Short status <2:0>		

SHORT STATUS <2:0>

000	No data received from LUMiNODE
001	Luminaire OK
010	Luminaire error
011	Wrong data received from LUMiNODE
100	No luminaire connected to LUMiNODE
101	DALI communication error

Response info data byte

DATA INFO BYTE

Bit	7	6	5	4	3	2	1	0
Value	-	-	-	-	-	-	Short info <1:0>	

SHORT INFO <2:0>

00	No data received from LUMiNODE
01	Data OK
11	Wrong data received from LUMiNODE

Table of scene data

MODE				
DATA	LEVEL	Tc	XY coordinates	RGBWAF
1	0	Tc value (1000K- 20000K)	X coordinate (1 - 65534)	Red color (0 - 254)*
2	0	0	Y coordinate (1 - 65534)	Green color (0 - 254)*
3	0	0	0	Blue color (0 - 254)*
4	0	0	0	White color (0 - 254)*
5	0	0	0	Amber color (0 - 254)*
6	0	0	0	Free color (0 - 254)*

* 255 is MASK value

Table of LUMiNODE parameters

PARAMETERS								
BYTE	1	2	3	4	5	6	7	8
DATA	FW version 1 (Major)	FW version 2 (Minor1)	FW version 3 (Minor2)	FW version 4 (Config.)	Reference	Depth of modulation	Temperature	Motion type / level
BYTE	9	10	11	12	13	14	15	16
DATA	Motion enabled / hold on time	Max limit	CLO years	CLO reduced power	CLO actual level	Sequence ID	Luminaire type	

It is possible to request range of bytes (for example byte 1 - 4 to get firmware version of LUMiNODE or for example 11 - 13 to get CLO settings)

GROUPS								
BYTE	1	2	3	4	5	6	7	8
DATA	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
BYTE	9	10	11	12	13	14	15	16
DATA	Group 9	Group 10	Group 11	Group 12	Group 13	Group 14	Group 15	Group 16

UART setup

HIGH BYTE VALUE	BAUD RATE
0	1200
1	1800
2	2400
3	4800
4	9600
5	19200
6	28800
7	38400
8	57600
9	115200

PARITY AND STOP BITS SETUP

Bit	7	6	5	4	3	2	1	0
Value	-	-	-	-	-	Stop bits	Parity <1:0>	

PARITY SETUP (BIT 1-0):

00	<i>None parity</i>
01	<i>Even parity</i>
10	<i>Odd parity</i>

STOP BITS SETUP (BIT 2):

0	<i>1 stop bit</i>
1	<i>2 stop bits</i>

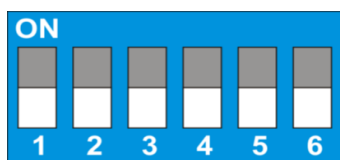
Table of ID range

MODULATOR TYPE	ID RANGE
3 - phase modulator PANTER PNT340 or PNT360	1 - 65535
1 - phase modulator LUMiBOX SLM	1 - 255

Device address

DEVICE ADDRESS (DIP SWITCH) <4:0>								
Bit	7	6	5	4	3	2	1	0
PANTER	0	0	0	x	x	x	x	x
BROADCAST	0	0	0	0	0	0	0	0

DIP switch



Switches at the position of 1 – 5 define the address of the device on the RS-485 line. DIP 1 is the least significant bit of the address and DIP 5 is the most significant bit of the address.

The switch at position 6 is used for connecting/disconnecting a termination resistor.

The modulator responds only on the address which is set on the switches. For changing the address, it is necessary to set a new address and restart the modulator.

Maximum of 31 PANTER modulators can be addressed on one line with addresses: 0x01 to 0x1F.

Setup when all DIP switches are off on PANTER unit is reserved for setup with initial RS485 parameters. When you have PANTER with unknown RS485 setup, use reserved switch setup 00000 and PANTER will react on address 0x01 on initial RS485 setup parameters shown at the top of this document.

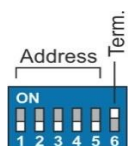
Address calculation according to DIP SWITCH setting

Calculation based on the position of switches on the position 1 – 5 (bit 1 - 5)

$$\text{Device address} = (\text{bit } 1) \times 2^0 + (\text{bit } 2) \times 2^1 + (\text{bit } 3) \times 2^2 + (\text{bit } 4) \times 2^3 + (\text{bit } 5) \times 2^4$$

Address 1	Setting ON	Address 7	Setting ON	Address 13	Setting ON	Address 19	Setting ON	Address 25	Setting ON	Address 31	Setting ON
2	ON	8	ON	14	ON	20	ON	26	ON		
3	ON	9	ON	15	ON	21	ON	27	ON		
4	ON	10	ON	16	ON	22	ON	28	ON		
5	ON	11	ON	17	ON	23	ON	29	ON		
6	ON	12	ON	18	ON	24	ON	30	ON		

Terminator setting:



Example of using some functions

Dimming of luminaire procedure

1. Send command **Dimming of luminaire (0x0002)**.
2. **Read state (0x0064)** until it changes from **CODING** to **OK AFTER CODING** and after that to **OK**.

Current measurement procedure

1. Send command **Start current measurement (0x0012)**.
2. **Read state (0x0064)** until changes from **MEASURING** to **OK AFTER CODING** and after that to **OK**.
3. Read measured current with command **Request measured current (0x006D)**

Receiving luminaire status procedure

1. Send command **Send request for status of luminaire (0x0010)**.
2. **Read state (0x0064)** until changes from **MEASURING** to **OK AFTER CODING** and after that to **OK**.
3. Read received data **Request stored luminaire status (0x006C)**.

Procedure consists of modulating request command to powerline, receiving response from luminaire and reading luminaire status from SLM unit.

Check 2-way communication procedure

1. Send command **Send echo data (0x0015)**
2. **Read state (0x0064)** until changes from **MEASURING** to **OK AFTER CODING** and after that to **OK**.
3. Read received data **Request for stored echo data (0x0077)**

Procedure for checking powerline 2-way communication by sending „echo data“ and receiving it back.