Modbus Server

Digitally Addressable Lighting Interface (DALI-2)

Important User Information

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Gateway for integration of DALI devices into Modbus (RTU and TCP) systems.

ORDER CODE
INMBSDAL0640200
INMBSDAL1280200

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1   Description

1.1   *Introduction*

This document describes the integration of DALI-2 lighting ballasts and sensors into Modbus compatible devices and systems using the Intesis Modbus Server to DALI-2 communication gateway.

The aim of this integration is to monitor and control DALI-2 lighting ballasts and sensors (see section 2 for specific DALI parts), remotely, from your Control Center using any commercial SCADA or monitoring software that includes a Modbus Master driver (RTU and/or TCP). To do it so, Intesis performs as a Modbus Server, allowing poll and write requests from any Modbus master device.

Up to 64 addresses for DALI lighting devices (ECGs), and another 64 addresses for Sensors can be fitted in a single DALI channel, and therefore controlled and monitored from Intesis gateway. Depending on the version of the gateway, 1 line (64 addresses for ECG and 64 addresses for Sensors) or 2 lines (128 addresses for ECG and 128 addresses for Sensors) are supported.

Version supporting 2 DALI channels does not have support for Modbus RTU – it's a Modbus TCP-only device.

Intesis needs to be configured using Intesis MAPS software configuration tool. In the software, Modbus and DALI lighting device parameters must be configured and downloaded to the Intesis gateway.

This document assumes the user is familiar with Modbus and DALI technologies and technical terms.

> ⚠️ **NOTE:** Intesis is compatible with Ballasts and sensors implementing the DALI-2 standard and certified under the DiiA guidelines for testing and certification. Use only DALI-2 devices having the DALI-2 logo with Intesis.
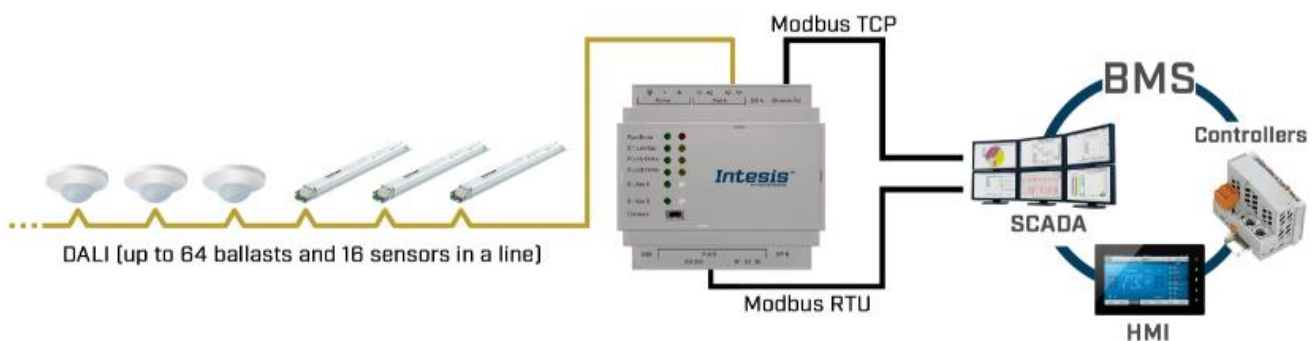
Integration of DALI into
Modbus TCP / Modbus RTU control systems (product version supporting 1 DALI channel)
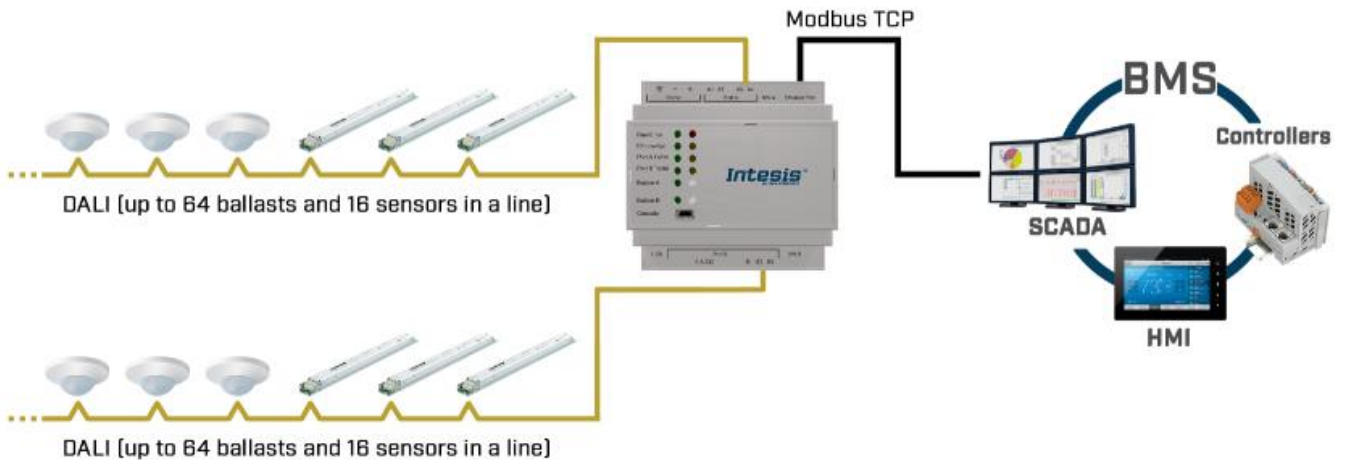
**Integration of DALI into
Modbus TCP / Modbus RTU control systems (product version supporting 2 DALI channels)**

1.2 *Functionality*

Intesis® continuously polls (reads) all the signals of the DALI ECGs and sensors in each line and maintains the updated values to be served in Modbus.

When a write is done from Modbus in a gateway's Modbus writeable address, the corresponding command is sent to the corresponding DALI device.

In the continuous polling process of the DALI channel, if there is no answer, it is indicated with a virtual signal of communication error for this device in its line.

The IP address and communication parameters for Modbus side of the gateway (TCP or RTU) must be set in the MAPS configuration tool.

From the configuration tool, it is also possible to scan each DALI channel for available ECGs and/or sensors, add them in configuration, and configure its individual parameters (short address, preset levels, scenes, etc), according to their device type or instance.

1.3 *Gateway's capacity*

Intesis capacity is listed below:

Element	Max.	Notes
Number of DALI channels	2	Number of independent DALI channels
Number DALI ECGs addresses per line	64	64 DALI ECGs addresses are supported per line
Number DALI Sensors addresses per line	64	64 DALI Sensors addresses are supported per line *The maximin number of devices is limited by the guaranteed power supply of the DALI network. Keep in mind when dimensioning each DALI channel. See Section 2 for more details.*
Max number of Modbus variables per DALI device	61	Number of available signals will vary according to device type
Max number of Modbus variables per DALI group	16	Number of available signals will vary according to device type
Max number of variables per LINE	4176	16 broadcast signals + 16 signals/DALI group + 61 signals/DALI device
Number of incoming sockets at Modbus TCP side	6	6 simultaneous TCP sockets are supported

There are 2 different models of *Intesis® Modbus Server – DALI* with different capacity. The table above shows the capacity for the top model (with maximum capacity).

The 2 different models allow integrating respectively: 1 or 2 DALI channels.

Their **order codes** are:

- **INMBSDAL0640200**. Model supporting 1 DALI channel (up to 64 DALI ECGs and 64 DALI sensors)
- **INMBSDAL1280200**. Model supporting 2 DALI channels (up to 64 DALI ECGs and 64 DALI sensors per channel)

2   DALI Inteface

Intesis gateway and its DALI interface complies with the new DALI-2 (IEC62386) standard thanks to its DALI-2 certification.

Intesis gateway enables the conection of up to 64 DALI/DALI-2 ECGs and 64 DALI-2 sensors. In current version of the device, the following device types are supported:

- General requirements (Part 101)
  - Part 201: DALI Fluorescent lamps (DALI type 0)
  - Part 202: Self-contained Emergency lighting (DALI type 1)
  - Part 207: LED modules (DALI type 6)
  - Others (Multiple DALI types)

- Sensors (Part 103):
  - Part 303: DALI-2 Occupancy sensors
  - Part 304: DALI-2 Light sensors

The maximum number of DALI devices (ECGs and/or input devices) depends on the sum current consumption of the specific devices. Intesis gateway supplies bus power of 235 mA for power supply of the DALI devices, so if all input devices (sensors) in the bus consumed 5 mA then we could connect 64 ECGs (standard defines max. consumption allowed for these devices is 2mA) and 16 sensors.

$$64 \text{ ECGs} * 2 \text{ mA} + 16 \text{ sensors} * 5 \text{ mA} = 208 \text{ mA} < 235 \text{ mA} * 90\%$$

As the standard recommends, don't use the guaranteed current to calculate the maximum number of DALI devices, leave 10% of the current for dynamic processes into account.

2.1   *Caracteristhics*

Element	Values
DALI voltage (V)	14 V – 17 V; typically, 16V
Guaranteed current (mA) available per line	235
Maximum Current (mA) available per line	250
Start-up time (ms)	1500
Shutdown time (sec)	7
Data transfer rate (bauds)	1200

3 Modbus interface

3.1 *Functions supported*

This part is common for Modbus RTU and TCP.

Modbus functions 03 and 04 (*Read Holding Registers* and *Read Input Registers*) can be used to read Modbus registers.

Modbus functions 06 and 16 (*Single Multiple Holding Registers* and *Write Multiple Holding Registers*) can be used to write Modbus registers.

Configuration of poll records is possible between Modbus addresses 0 and 20000. Addresses that are not defined in section 2.4 (Modbus map of the device) are read-only and will always report 0.

Modbus error codes are supported, they will be sent whenever a non-valid Modbus address is queried.

All registers are 16-bit signed integer, in standard Modbus Big Endian (MSB/LSB) format.

Intesis supports Modbus RTU and Modbus TCP and both interfaces can be used simultaneously.

3.2 *Modbus RTU*

Modbus RTU is only available in version of the product supporting 1 DALI channel. Product version supporting 2 DALI channels provides support for Modbus TCP only.

When present, both EIA485 and EIA232 physical layers are supported. Only the lines RX, TX and GND of the EIA232 connector are used (TX and RX for EIA485).

Baud rate can be selected between 1200, 2400, 4800, 9600, 19200, 38400, 56700 and 115200. Parity (none, even or odd) and stop bits (1 or 2) can be selected as well.

Modbus slave number must be configured and the physical connection (RS232 or RS485) can also be selected.

3.3 *Modbus TCP*

TCP port to use (default is 502) and keep alive period must be configured.

IP settings of Intesis (DHCP status, own IP, net mask and default gateway) must be configured as well.

3.4   *Modbus Address Map*

Note that this map only applies when **Modbus Addresses** parameter is set to **Fixed**. For more information about configuration of Modbus Addresses parameter see Intesis MAPS Modbus Server User Manual.

3.4.1   Single DALI device signals

There are up to 94 signals for each DALI device. Their Modbus addresses can be obtained applying the following formula:

$$\text{Modbus Address} = 7000 \times \text{CHANNEL} + (100 \times \text{ECG}) + \text{SIGNAL NUMBER}$$

Where:

CHANNEL NUMBER;   0..1 (always 0 if using version with support for 1 DALI channel)
BALLAST NUMBER: 0..63 (ballast short address)
SIGNAL NUMBER: 0..93, see following table

Modbus address from the formula is expressed in link layer format. This is, first register address is 0.

Supported signals vary according to device type. Following abbreviations are done in the table:

- FL: Fluorescent light (device type 0)
- EML: Emergency light (device type 1)
- LED: LED module (device type 6)
- Other.

Modbus Address First Address is 0	ECG type			Read/Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 0 *channel stands for DALI channel and is 0 or 1* *sa stands for short address and is 0 to 63*	x	x	x	R	Ballast / Lamp Failure bit fields (ECG15-ECG0)	0-OK, 1-Ballast / Lamp Failure bi [i = sa - (16 * (line-1))]
7000 x channel + (100 x sa) + 1	x	x	x	R	Ballast / Lamp Failure bit fields (ECG31-ECG16)	0-OK, 1-Ballast / Lamp Failure bi [i = sa - (16 * (line-1))]
7000 x channel + (100 x sa) + 2	x	x	x	R	Ballast / Lamp Failure bit fields (ECG47-ECG32)	0-OK, 1-Ballast / Lamp Failure bi [i = sa - (16 * (line-1))]

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Modbus Address First Address is 0	ECG type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 3	x	x	x	R	Ballast / Lamp Failure bit fields (ECG63-ECG48)	0-OK, 1-Ballast / Lamp Failure bi [i = sa - (16 * (line-1))]
7000 x channel + (100 x sa) + 4	x	x	x	R/W	Update All ECG Status	0-Update Finished, 1-Trigger Update
7000 x channel + (100 x sa) + 5	x	x	x	R	Ballast Status	b7-PwrCycle, b6-MissShAdd, b5-ResetSt, b4-FadeRun, b3-BallLimErr, b2-LampPwrOn, b1-LampFail, b0-BallFail
7000 x channel + (100 x sa) + 6	x	x	x	R	Actual Level	0 to 100 %
7000 x channel + (100 x sa) + 7	x	x	x	R	Device Type	0-Fluorescent, 1-Emergency, 2 Discharge, 3-Halogen, 4-Incandescent, 5-Digital signal, 6-LED, 7-Switching, 8-Colour Control
7000 x channel + (100 x sa) + 8	x	x	x	R	Physical Minimum Level	0 to 100 %
7000 x channel + (100 x sa) + 9	x	x	x	R	Min Level	0 to 100 %
7000 x channel + (100 x sa) + 10	x	x	x	R	Max Level	0 to 100 %
7000 x channel + (100 x sa) + 11	x	x	x	R	Power On Level	0 to 100 %
7000 x channel + (100 x sa) + 12	x	x	x	R	System Failure Level	0 to 100 %
7000 x channel + (100 x sa) + 13	x	x	x	R	Fade Time	0 to 15
7000 x channel + (100 x sa) + 14	x	x	x	R	Fade Rate	1 to 15
7000 x channel + (100 x sa) + 15	x	x	x	R/W	Arc Power Level	0 to 100 %

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| Modbus Address
First Address is 0 | ECG type | | | Read/Write | Register/signal name | Possible values |
	FL	EML	LED			
7000 x channel + (100 x sa) + 16	x	x	x	R/W	Arc Power Off / On	0-Off; 1-100 %
7000 x channel + (100 x sa) + 17	x	x	x	R/W	Step Down / Up	0-Step Down, 1-Step Up
7000 x channel + (100 x sa) + 18	x	x	x	W (trigger)	Recall Min Level	1-Recall Min Level
7000 x channel + (100 x sa) + 19	x	x	x	W (trigger)	Recall Max Level	1-Recall Max Level
7000 x channel + (100 x sa) + 20	x	x	x	R/W	Go to Scene	0 to 15
7000 x channel + (100 x sa) + 21	x	x	x	R/W	Store Current Level as Scene	0 to 15
7000 x channel + (100 x sa) + 22	x	x	x	R/W	Clear/Remove Scene	0 to 15
7000 x channel + (100 x sa) + 23	x	x	x	R/W	Set Fade Time	0 to 15
7000 x channel + (100 x sa) + 24	x	x	x	R/W	Set Fade Rate	1 to 15
7000 x channel + (100 x sa) + 25	x	x	x	R/W	Set Min Level	0 to 100 %
7000 x channel + (100 x sa) + 26	x	x	x	R/W	Set Max Level	0 to 100 %
7000 x channel + (100 x sa) + 27	x	x	x	R/W	Set Power-on Level	0 to 100 %
7000 x channel + (100 x sa) + 28	x	x	x	R/W	Set System-failure Level	0 to 100 %

Modbus Address First Address is 0	ECG type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 29				R	Not used	Default to 0
7000 x channel + (100 x sa) + 30				R	Not used	Default to 0
7000 x channel + (100 x sa) + 31				R	Multicontrol	0-Off, 1-100%, 2-StpUp, 3-StpDwn, 1XX-GoScn, 2XX-StoreScn, 3XX-RmvScn, 1XXX-FdRate, 2XXX-FdTime, 3XXX-MinLvl, 4XXX-MaxLvl, 5XXX-PwrOnLvl, 6XXX-SysFailLvl
7000 x channel + (100 x sa) + 32				R	Not used	Default to 0
7000 x channel + (100 x sa) + 33				R	Not used	Default to 0
7000 x channel + (100 x sa) + 34				R	Not used	Default to 0
7000 x channel + (100 x sa) + 35	x			R/W	Set System-failure Level	0 to 100 %
7000 x channel + (100 x sa) + 36				R	Not used	Default to 0
7000 x channel + (100 x sa) + 37				R	Not used	Default to 0
7000 x channel + (100 x sa) + 38				R	Not used	Default to 0
7000 x channel + (100 x sa) + 39				R	Not used	Default to 0
7000 x channel + (100 x sa) + 40				R	Not used	Default to 0
7000 x channel + (100 x sa) + 41				R	Not used	Default to 0

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Modbus Address First Address is 0	ECG type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 42		x		R	Failure Status	b7-FunctFail, b6-DurFail, b5-DurTestDelay, b4-FunctTestDelay, b3-EmLampFail, b2-BattFail, b1-BattDurFail, b0-CircFail
7000 x channel + (100 x sa) + 43		x		R	Emergency Mode	b7-HardSwOn, b6-HardInhibit, b5-DurTestProg, b4-FunctTestProg, b3-ExtdEmMode, b2-EmMode, b1-NormMode, b0-RestMode
7000 x channel + (100 x sa) + 44		x		R	Emergency Status	b7-PhysicSel, b6-Ident, b5-DurTestPend, b4-FunctTestPend, b3-BattFull, b2-DurTestDone, b1-FunctTestDone, b0-InhibitMode
7000 x channel + (100 x sa) + 45		x		R	Emergency Battery Charge	0 to 100 %
7000 x channel + (100 x sa) + 46		x		R	Next Function Test	0 to 16384 hours
7000 x channel + (100 x sa) + 47		x		R	Next Duration Test	0 to 16384 hours
7000 x channel + (100 x sa) + 48		x		R	Function Test Interval	0-Disabled, 1 to 255 days
7000 x channel + (100 x sa) + 49		x		R	Duration Test Interval	0-Disabled, 1 to 97 weeks
7000 x channel + (100 x sa) + 50		x		R	Test Execution Timeout	0 to 255 days
7000 x channel + (100 x sa) + 51		x		R	Prolong Time	0 to 127,5 minutes
7000 x channel + (100 x sa) + 52		x		R	Duration Test Result	0 to 510 minutes
7000 x channel + (100 x sa) + 53		x		R	Lamp Total Operation Time	0 to 1016 hours
7000 x channel + (100 x sa) + 54		x		R	Emergency Level	0 to 100 %

Modbus Address First Address is 0	ECG type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 55		x		R	Emergency Min Level	0 to 100 %
7000 x channel + (100 x sa) + 56		x		R	Emergency Max Level	0 to 100 %
7000 x channel + (100 x sa) + 57		x		R	Rated Duration	0 to 510 minutes
7000 x channel + (100 x sa) + 58		x		R	Features	b7-RelightRestSup, b6-PhysicSelSup, b5-HardInSup, b4-AdjsEmLvl, b3-AutoTestCap, b2-SwitchMainCG, b1-MainCG, b0-IntegralEmCG
7000 x channel + (100 x sa) + 59		x		R	Lamp Emergency Time	0 to 254 hours
7000 x channel + (100 x sa) + 60		x		W	Rest	1-Extinguish Lamp
7000 x channel + (100 x sa) + 61		x		W	Inhibit	1-Start Inhibit mode
7000 x channel + (100 x sa) + 62		x		W	Re-Light/Reset Inhibit	1-Cancel Inhibit Mode
7000 x channel + (100 x sa) + 63		x		W	Start Function Test	1-Start Function Test
7000 x channel + (100 x sa) + 64		x		W	Start Duration Test	1-Start Duration Test
7000 x channel + (100 x sa) + 65		x		W	Stop Test	1-Stop Function/Duration Test
7000 x channel + (100 x sa) + 66		x		W	Reset Function Test Done Flag	1-Reset Function Flag
7000 x channel + (100 x sa) + 67		x		W	Reset Duration Test Done Flag	1-Reset Duration Flag

Modbus Address First Address is 0	ECG type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 68		x		W	Reset Lamp Time	1-Lamp Emergency Time Reset
7000 x channel + (100 x sa) + 69		x		R/W	Store Test Execution Timeout	0 to 255 days
7000 x channel + (100 x sa) + 70		x		R/W	Store Prolong Time	0 to 127,5 minutes
7000 x channel + (100 x sa) + 71		x		R/W	Store Function Test Interval	0-Disabled, 1 to 255 days
7000 x channel + (100 x sa) + 72		x		R/W	Store Duration Test Interval	0-Disabled, 1 to 97 weeks
7000 x channel + (100 x sa) + 73		x		R/W	Store Emergency Level	0 to 100 %
7000 x channel + (100 x sa) + 74				R	Not used	Default to 0
7000 x channel + (100 x sa) + 75				R	Not used	Default to 0
7000 x channel + (100 x sa) + 76				R	Not used	Default to 0
7000 x channel + (100 x sa) + 77				R	Not used	Default to 0
7000 x channel + (100 x sa) + 78				R	Not used	Default to 0
7000 x channel + (100 x sa) + 79				R	Not used	Default to 0
7000 x channel + (100 x sa) + 80			x	R	Failure Status	b7-RefMeasurFail, b6-ThermLightLvl, b5-ThermShut, b4-CurrProtAct, b3-LoadInc, b2-LoadDec, b1-OpenC, b0-ShortC

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Modbus Address First Address is 0	ECG type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 x channel + (100 x sa) + 81			x	R	Gear Type	b3-dcSuppPoss, b2-acSuppPoss, b1-LEDModInt, b0-LEDPowerSInt
7000 x channel + (100 x sa) + 82			x	R	Dimming Curve	0-Standard Logarithmic Dim Curve, 1-Linear Dim Curve
7000 x channel + (100 x sa) + 83			x	R	Possible Operating Modes	b3-HighCurrPulMod, b2-OutCurrContr, b1-AMModePoss, b0-PWMModePoss
7000 x channel + (100 x sa) + 84			x	R	Features	b7-PhysicSelSupp, b6-LightLvlRedReq, b5-ThermShutReq, b4-CurrProtActReq, b3-LoadIncReq, b2-LoadDecReq, b1-OpenCQ, b0-ShortCQ
7000 x channel + (100 x sa) + 85			x	R	Reference Running	0-No, 1-Yes
7000 x channel + (100 x sa) + 86			x	R	Current Protector	0-Disabled, 1-Enabled
7000 x channel + (100 x sa) + 87			x	R	Operating Mode	b4-NonLogDimCurveAct, b3-HighCurrPulModeAct, b2-OutCurrContr, b1-AMModeAct, b0-PWMModeAct
7000 x channel + (100 x sa) + 88			x	R	Fast Fade Time	0 to 27
7000 x channel + (100 x sa) + 89			x	R	Min Fast Fade Time	0 to 27
7000 x channel + (100 x sa) + 90			x	W	Reference System Power	1-Trigger DALI Power Referencing
7000 x channel + (100 x sa) + 91			x	R/W	Enable/Disable Current Protector	0-Disable, 1-Enable
7000 x channel + (100 x sa) + 92			x	R/W	Select Dimming Curve	0-Standard Logarithmic Dim Curve, 1-Linear Dim Curve
7000 x channel + (100 x sa) + 93			x	R/W	Store Fast Fade Time	0 to 27

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3.4.2 DALI groups' signals

DALI supports group addressing of ballasts. Up to 16 groups can be defined in a DALI channel. In Intesis, there are up to 16 signals for each DALI group. Their Modbus addresses can be obtained applying the following formula:

Modbus Address = 7000 x LINE NUMBER + (20 x GROUP NUMBER) + SIGNAL NUMBER

Where:

LINE NUMBER;   0..1 (always 0 if using version with support for 1 DALI channel)
GROUP NUMBER: 0..15 (ballast group)
SIGNAL NUMBER: 6400..6415, see following table

Modbus address from the formula is expressed in link layer format. This is, first register address is 0.

Supported signals vary according to device type. Following abbreviations are done in the table:

- FL: Fluorescent light (device type 0)
- EML: Emergency light (device type 1)
- LED: LED module (device type 6)
- Other

| Modbus Address
First Address is 0 | Ballast /
Device type | | | Read/
Write | Register/signal name | Possible values |
	FL	EML	LED			
7000 * line + (20 * gr) + 6400 *line stands for DALI channel and is 0 or 1* *gr stands for DALI group and is 0 to 15*	x	x	x	R/W	Arc Power Level	0 to 100 %
7000 * line + (20 * gr) + 6401	x	x	x	R/W	Arc Power Off / On	0-Off; 1-100 %
7000 * line + (20 * gr) + 6402	x	x	x	R/W	Step Down / Up	0-Step Down, 1-Step Up
7000 * line + (20 * gr) + 6403	x	x	x	W	Recall Min Level	1-Recall Min Level
7000 * line + (20 * gr) + 6404	x	x	x	W	Recall Max Level	1-Recall Max Level

Modbus Address First Address is 0	Ballast / Device type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 * line + (20 * gr) + 6405	x	x	x	R/W	Go to Scene	0 to 15
7000 * line + (20 * gr) + 6406	x	x	x	R/W	Store Current Level as Scene	0 to 15
7000 * line + (20 * gr) + 6407	x	x	x	R/W	Clear/Remove Scene	0 to 15
7000 * line + (20 * gr) + 6408	x	x	x	R/W	Set Fade Time	0 to 15
7000 * line + (20 * gr) + 6409	x	x	x	R/W	Set Fade Rate	1 to 15
7000 * line + (20 * gr) + 6410	x	x	x	R/W	Set Min Level	0 to 100 %
7000 * line + (20 * gr) + 6411	x	x	x	R/W	Set Max Level	0 to 100 %
7000 * line + (20 * gr) + 6412	x	x	x	R/W	Set Power-on Level	0 to 100 %
7000 * line + (20 * gr) + 6413	x	x	x	R/W	Set System-failure Level	0 to 100 %
7000 * line + (20 * gr) + 6414	x			R/W	Burn-in time Status	0-Stopped, 1-Running
7000 * line + (20 * gr) + 6415	x			R/W	Burn-in time	0-Stop, 1-Start

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3.4.3   Broadcast signals

Broadcast signals allow to control all ballasts in the same line from an individual signal. Their Modbus addresses can be obtained applying the following formula:

$$\text{Modbus Address} = 7000 \times \text{channel} + \text{SIGNAL NUMBER}$$

Where:

LINE NUMBER;   0..1 (always 0 if using version with support for 1 DALI channel)
SIGNAL NUMBER: 6800..6815, see following table

Modbus address from the formula is expressed in link layer format. This is, first register address is 0.

Supported signals vary according to device type. Following abbreviations are done in the table:

- FL: Fluorescent light (device type 0)
- EML: Emergency light (device type 1)
- LED: LED module (device type 6)
- Other

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Modbus Address First Address is 0	Ballast / Device type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 * line + 6800 *line stands for DALI channel and is 0 or 1*	x	x	x	R/W	Arc Power Level	0 to 100 %
7000 * line + 6801	x	x	x	R/W	Arc Power Off / On	0-Off; 1-100 %

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Modbus Address First Address is 0	Ballast / Device type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 * line + 6802	x	x	x	R/W	Step Down / Up	0-Step Down, 1-Step Up
7000 * line + 6803	x	x	x	W	Recall Min Level	1-Recall Min Level
7000 * line + 6804	x	x	x	W	Recall Max Level	1-Recall Max Level
7000 * line + 6805	x	x	x	R/W	Go to Scene	0 to 15
7000 * line + 6806	x	x	x	R/W	Store Current Level as Scene	0 to 15
7000 * line + 6807	x	x	x	R/W	Clear/Remove Scene	0 to 15
7000 * line + 6808	x	x	x	R/W	Set Fade Time	0 to 15

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Modbus Address First Address is 0	Ballast / Device type			Read/ Write	Register/signal name	Possible values
	FL	EML	LED			
7000 * line + 6809	x	x	x	R/W	Set Fade Rate	1 to 15
7000 * line + 6810	x	x	x	R/W	Set Min Level	0 to 100 %
7000 * line + 6811	x	x	x	R/W	Set Max Level	0 to 100 %
7000 * line + 6812	x	x	x	R/W	Set Power-on Level	0 to 100 %
7000 * line + 6813	x	x	x	R/W	Set System-failure Level	0 to 100 %
7000 * line + 6814	x			R/W	Broadcast Multicontrol	0-Off, 1-100%, 2-StpUp, 3-StpDwn, 1XX-GoScn, 2XX-StoreScn, 3XX-RmvScn, 1XXX-FdRate, 2XXX-FdTime, 3XXX-MinLvl, 4XXX-MaxLvl, 5XXX-PwrOnLvl, 6XXX-SysFailLvl

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3.4.4 Input Devices

Input device signals offer information of the status of each sensor.

$$\text{Modbus Address} = 14000 + (640 * \text{LINE NUMBER}) + (10 * \text{SENSOR INDEX}) + \text{INSTANCE INDEX}$$

Where:

LINE NUMBER;   0..1 (always 0 if using version with support for 1 DALI channel)
SENSOR INDEX: 0..63
INSTANCE INDEX: 0..9

Modbus address from the formula is expressed in link layer format. This is, first register address is 0.

Modbus Address First Address is 0	Read/Write	Register/signal name	Possible values
14000 + (640 * line) + (10 * SensorIDX) + InstanceIDX *line stands for DALI channel and is 0 or 1*	R	Occupancy InputValue / Light InputValue	[0, 1, 2, 3] - [Vacant + No Mov, Vacant + Mov, Occupied + No Mov, Occupied + Mov] / Lux

4   Connections

Find below information regarding the Intesis connections available.

INMBSDAL0640200 (1 DALI channel)   **INMBSDAL1280200 (2 DALI channels)**
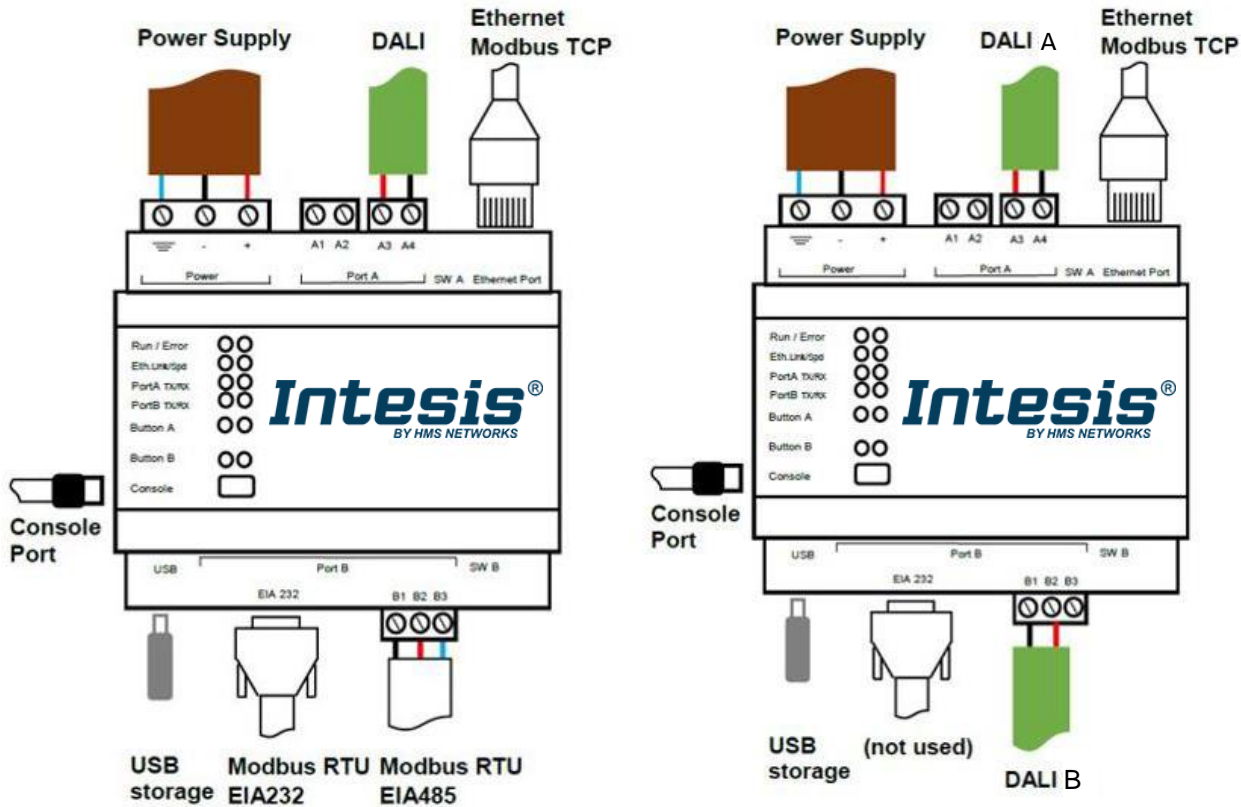
Figure 4.1 Gateway's connections

Power Supply
Must use NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply. Respect polarity applied of terminals (+) and (-). Be sure the voltage applied is within the range admitted (check section 7). The power supply can be connected to earth but only through the negative terminal, never through the positive terminal.

Ethernet / Modbus TCP
Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 cable. If communicating through the LAN of the building, contact the network administrator and make sure traffic on the port used is allowed through all the LAN path (check the gateway user manual for more information). With factory settings, after powering up the gateway, DHCP will be enabled for 30 seconds. After that time, if no IP is provided by a DHCP server, the default IP 192.168.100.246 will be set.

PortA / DALI #0
Connect the DALI bus to connectors A3 (DA+) A4 (DA-) of gateway's PortA. Intesis provides 16VDC (+/-2%) DALI voltage to the bus.

PortB / Modbus RTU *(INMBSDAL0640200 / 1 DALI channel)*
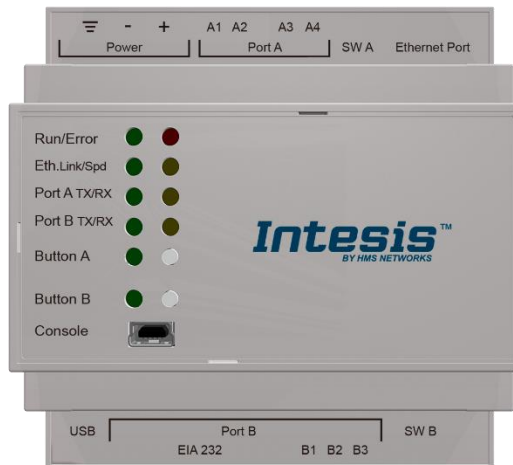*Connect the EIA485 bus to connectors B1 (B+), B2 (A-) and B3 (SNGD) of gateway's PortB. Respect the polarity.*

Remember the characteristics of the standard EIA485 bus: maximum distance of 1200 meters, maximum 32 devices connected to the bus, and in each end of the bus it must be a termination resistor of 120 Ω. The gateway has an internal bus biasing circuit that incorporates the termination resistor. If you install the gateway in one of the ends of the bus, then do not install an additional termination resistor in that end.

PortB / DALI #1 *(INMBSDAL1280200 / 2 DALI channels)*
Connect the DALI bus to connectors B1 (DA-) B2 (DA+) of gateway's PortA. Intesis provides 16VDC (+/-2%) DALI voltage to the bus.

Console Port
Connect a mini-type B USB cable from your computer to the gateway to allow communication between the Configuration Software and the gateway. Remember that Ethernet connection is also allowed.

USB
Connect a USB storage device (not a HDD) if required. Check port caractheristics on section 7.

Ensure proper space for all connectors when mounted (see section 8).

4.1 Powering the device

A power supply working with any of the voltage range allowed is needed (check section 7). Once connected the RUN led (Figure above) will turn on.

WARNING! In order to avoid earth loops that can damage the gateway and/or any other equipment connected to it, we strongly recommend the use of DC power supplies, floating or with the negative terminal connected to earth. **Never use a DC power supply with the positive terminal connected to earth**.

4.2 Connection to DALI channel.

Connect + and – terminals of the DALI bus of your DALI channel to Intesis' DALI port. Bus has polarity, but most DALI devices are polarity insensitive.

Having your DALI channel powered up, you can perform a quick DALI connectivity test by pressing Port A / Port B buttons:

- When pressing Port A / Port B button, a broadcast command that will toggle the ballasts between 100% and 0% level will be sent.
- After 30s timeout of not pressing the button, ballasts will return back to its original level.

DALI commands coming from Modbus will continue to be executed while doing this test.

4.3 Connection to Modbus

4.3.1 Modbus TCP
Connect the communication cable coming from the network hub or switch to the Ethernet port of Intesis. The cable to be used shall be a straight Ethernet UTP/FTP CAT5 cable.

4.3.2 Modbus RTU
Connect the communication cable coming from the Modbus network to the port marked as Port B of Intesis. Connect the EIA485 bus to connectors B1 (-), B2 (+) and B3 (SNGD) of gateway's PortB. Respect the polarity.

Remember the characteristics of the standard EIA485 bus: maximum distance of 1200 meters, maximum 32 devices (without repeaters) connected to the bus, and in each end of the bus it must be a termination resistor of 120 Ω. The gateway has an internal bus biasing circuit that incorporates the termination resistor. Bus biasing and termination resistor for EIA485 can be enabled for PortB by means of a dedicated DIP switch.

4.4 Connection to PC (Configuration tool)

This action allows the user to have access to configuration and monitoring of the device. Two methods to connect to the PC can be used:

- **Ethernet**: Using the Ethernet port of the Intesis.

- **USB cable**: To connect the device to the PC, the USB cable supplied should be plugged to the USB Console port.

5 Status LEDs and push buttons

LED	Colour	Indication
Run	Off	No power
	Green	Device powered and working.
Error	Off	No error
	Red	Error
Port A (Tx/Rx) – DALI #0	Off	There is no activity on this port.
	Tx - Blinking green	Every data packet sent to UFO device it blinks
	Rx – Blinking yellow	Every data packet received from UFO device it blinks
Port B (Tx/Rx) – DALI #1 (INMBSDAL1280200 – 2 Channels)	Off	There is no activity on this port.
	Tx - Blinking green	Every data packet sent to UFO device it blinks
	Rx – Blinking yellow	Every data packet received from UFO device it blinks
Port B (Tx/Rx) – Modbus RTU (INMBSDAL0640200 – 1 Channel)	Off	There is no activity on this port.
	Tx - Blinking green	Every data packet sent to the network it blinks
	Rx – Blinking yellow	Every data packet received from an slave device it blinks
Button A – DALI #0	Off / Red	Indicates status of last command sent from the button (On-RECALL_MAX_LEVEL, Off-OFF) After 30 secs of not pushing the button, the LED turns OFF and next time the button is pushed it will begin with RECALL_MAX_LEVEL
Button B – DALI #1 (INMBSDAL1280200 – 2 Channels)	Off / Red	Indicates status of last command sent from the button (On-RECALL_MAX_LEVEL, Off-OFF) After 30 secs of not pushing the button, the LED turns OFF and next time the button is pushed it will begin with RECALL_MAX_LEVEL
Button B – Modbus RTU (INMBSDAL0640200 – 1 Channel)	Off / Red	It doen't have any functionality

Push button	Functionality
Button A – DALI #0	Sends to broadcast, alternatively: RECALL_MAX_LEVEL, OFF
Button B – DALI #1 (INMBSDAL1280200 – 2 Channels)	Sends to broadcast, alternatively: RECALL_MAX_LEVEL, OFF
Button B – Modbus RTU (INMBSDAL0640200 – 1 Channel)	It doesn't have any functionality. It can be configured from Intesis MAPS software

6 Set-up process and troubleshooting

6.1 *Pre-requisites*

It is necessary to have the Modbus RTU or TCP master/client device (BMS side device) operative and properly connected to the corresponding port of the gateway. It is also required to have a DALI installation connected to the gateway, in its respective DALI port/s.

Connectors, connection cables, PC for the usage of the Configuration Tool and other auxiliary material, if needed, are not supplied by Intesis for this standard integration.

Items supplied with this product for this integration are:

- Intesis gateway.
- Link to download the configuration tool.
- USB Console cable to communicate with Intesis.
- Product documentation.

6.2 *Intesis MAPS. Configuration & monitoring tool for Intesis*

6.2.1 Introduction

Intesis MAPS is a Windows® compatible software developed specifically to monitor and configure Intesis new generation gateways.

The installation procedure and main functions are explained in the *Intesis MAPS User Manual*. This document can be downloaded from the link indicated in the installation sheet supplied with the Intesis device or in the product website at www.intesis.com

In this section, only the specific case of DALI to Modbus will be covered.

Please check the Intesis MAPS user manual for specific information about the different parameters and how to configure them.

6.2.2 Connection

To configure the Intesis connection parameters press on the **Connection** button in the *menu bar*.
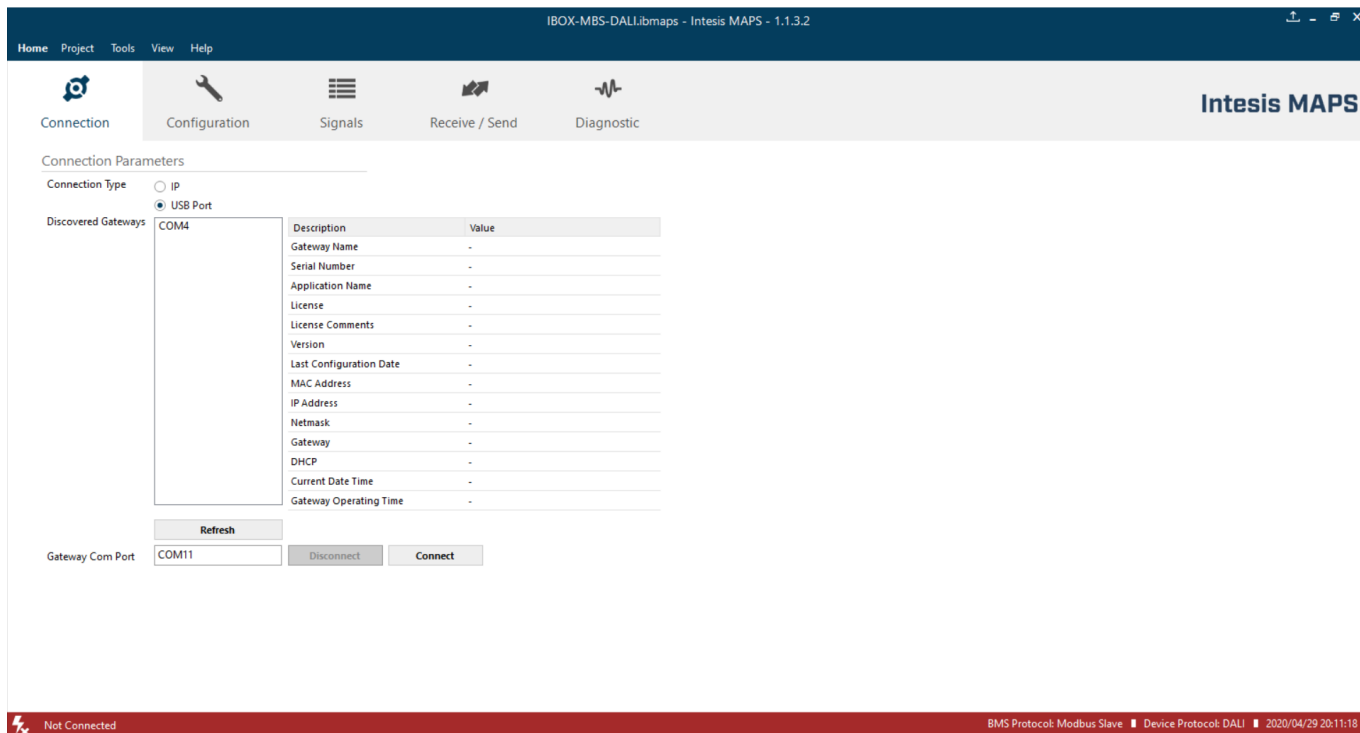
<p align="center">Figure 6.1 MAPS connection</p>

6.2.3 Configuration tab

Select the **Configuration** tab to configure the connection parameters. Three subsets of information are shown in this window: General (Gateway general parameters), Modbus Slave (Modbus interface configuration) and DALI (DALI channel/s and DALI devices configuration).
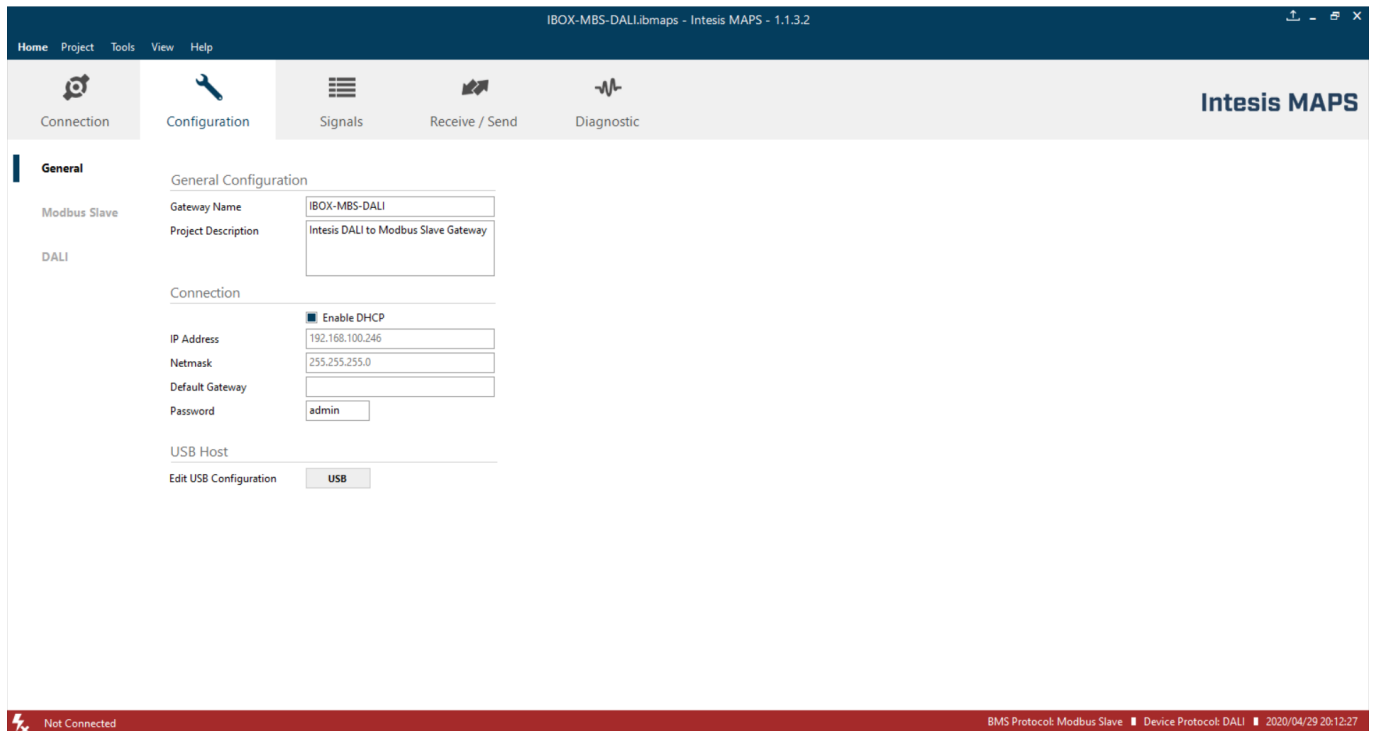
Figure 6.2 Intesis MAPS configuration tab

General, *Modbus Slave* and *DALI* tabs are explained in Intesis MAPS user manual for Intesis Modbus Server Series.

6.2.4 Signals

All available registers, its corresponding description and other main parmaters are listed in the signals tab. Depending on the configuration of the Modbus Addresses parameter, on the Modbus Slave tab, active signals may vary, and edition may be allowed or not.

For more information about configuration of Modbus Addresses parameter, see Intesis MAPS Modbus Server User Manual on:

https://www.intesis.com/docs/intesis-maps-modbus-server_user-manual
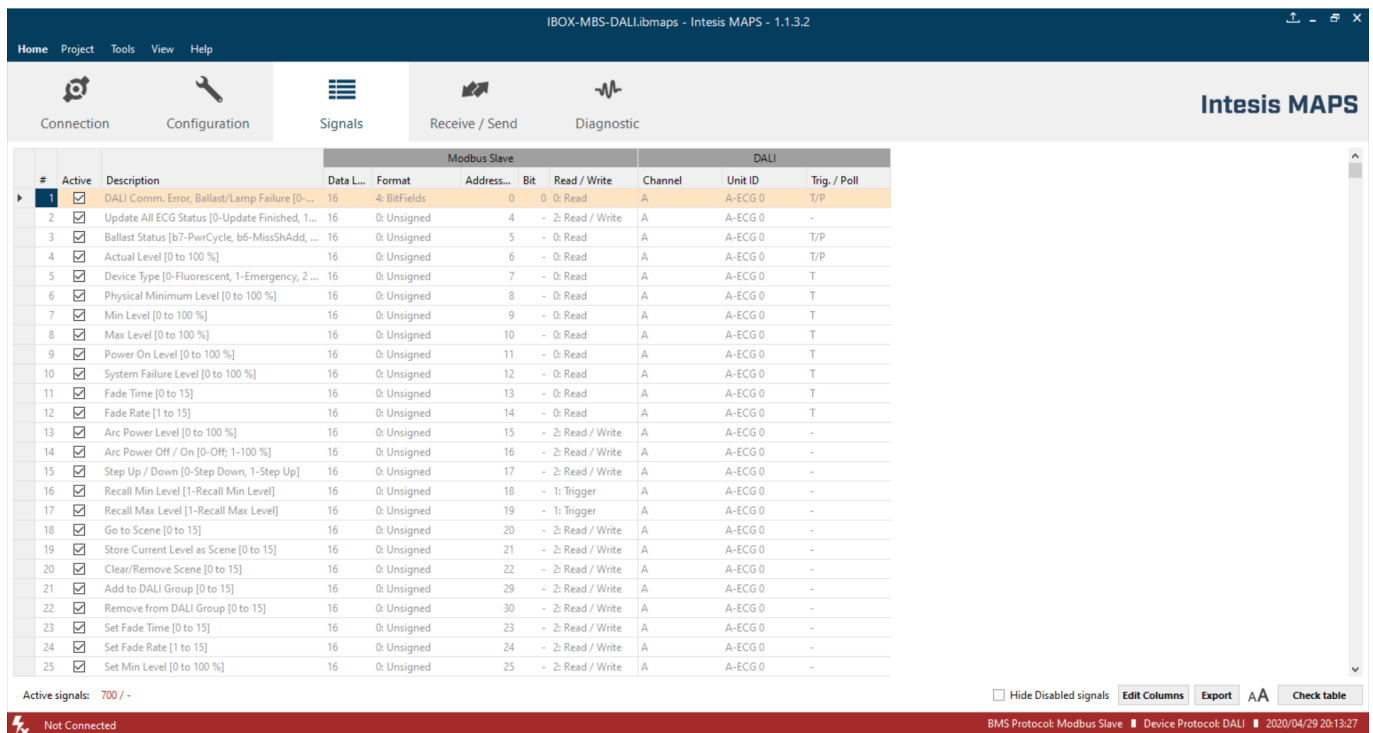
Figure 6.3 Intesis MAPS Signals tab

6.2.5 Sending the configuration to Intesis

When the configuration is finished, follow the steps to program the gateway.

1.- Click on **Save** button to save the project to the project folder on your hard disk (more information in Intesis MAPS User Manual).

2.- You will be prompted to generate the configuration file to be sent to the gateway.
   a.- If **Yes** is selected, the file containing the configuration for the gateway will be generated and saved also into the project folder.

   b.- If **NO** is selected, remember that the binary file with the project needs to be generated before the Intesis starts to work as expected.

3.- Press the **Send File** button to send the binary file to the Intesis device. The process of file transmission can be monitored in the Intesis Communication Console window. Intesis will reboot automatically once the new configuration is loaded.
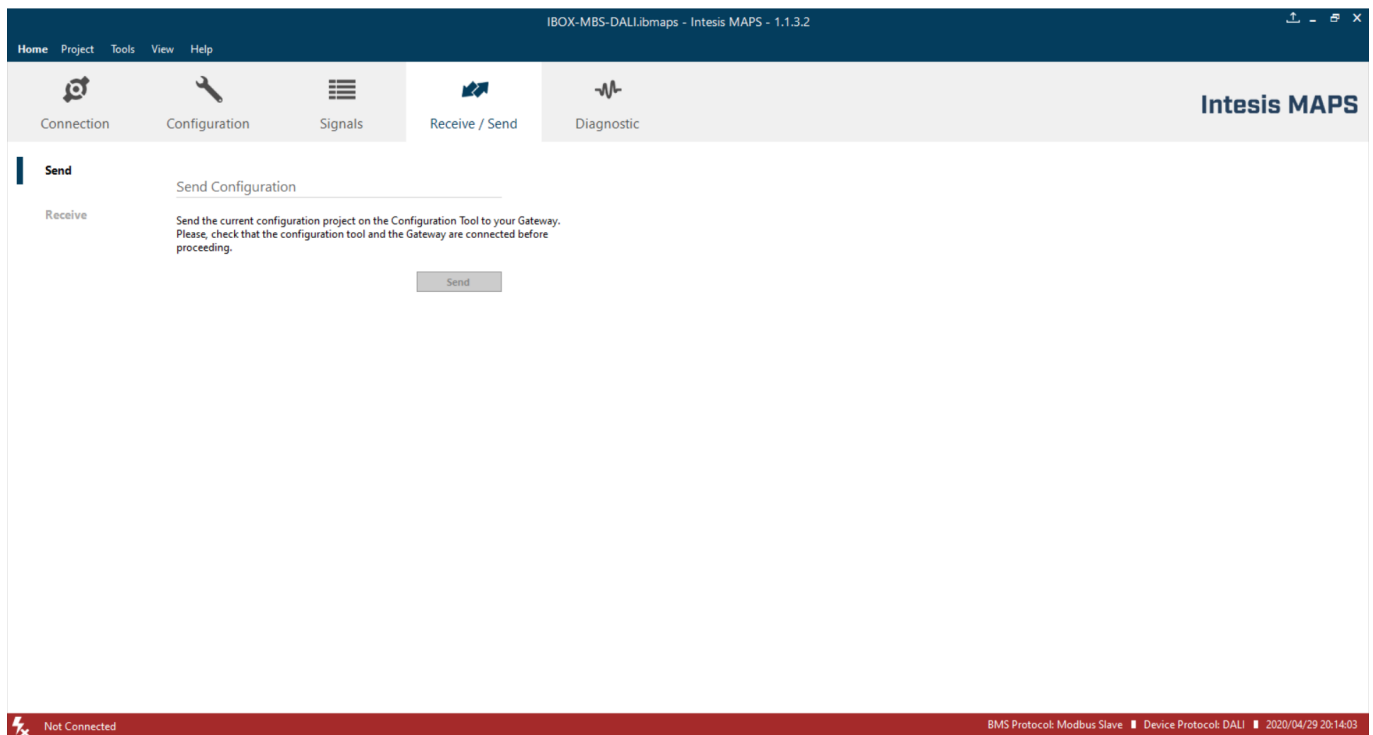
Figure 6.4 Intesis MAPS Receive/Send tab

> **After any configuration change, do not forget to send the configuration file to the Intesis using the button "Send".**

6.2.6 Diagnostic

To help integrators in the commissioning tasks and troubleshooting, the Configuration Tool offers some specific tools and viewers.

In order to start using the diagnostic tools, the connection with the Gateway must be stablished.

The Diagnostic section is composed by two main parts: Tools and Viewers.

- **Tools**
  Use the tools section to check the current hardware status of the box, log communications into compressed files to be sent to the support, change the Diagnostic panels' view or send commands to the gateway.

- **Viewers**
  In order to check the current status, viewer for the Internal and External protocols are available. It is also available a generic Console viewer for general information about communications and the gateway status. User can use a Signals Viewer to simulate the BMS behavior or to check the current values in the system.
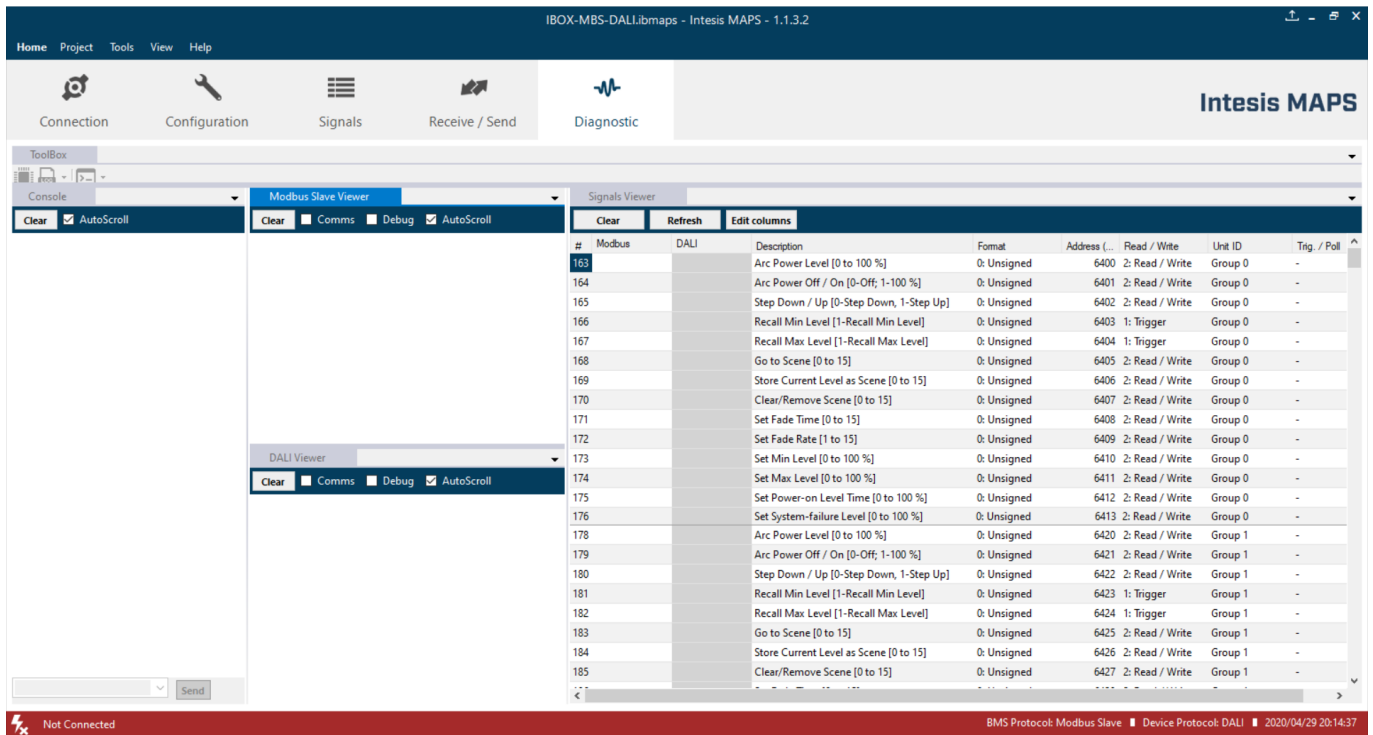
Figure 6.5 Diagnostic

More information about the Diagnostic section can be found in Intesis MAPS user manual for Intesis Modbus Server Series.

6.3 *Set-up procedure*

1. Install Intesis MAPS on your laptop, use the setup program supplied for this and follow the instructions given by the Installation wizard.

2. Install Intesis in the desired installation site. Installation can be on DIN rail or on a stable not vibrating surface (DIN rail mounted inside a metallic industrial cabinet connected to ground is recommended).

3. If using Modbus RTU, connect the communication cable coming from the EIA485 port of the Modbus RTU installation to the port marked as Port B of Intesis (More details in section 4).

   If using, Modbus TCP, connect the communication cable coming from the Ethernet port of the Modbus TCP installation to the port marked as Ethernet Port of Intesis (More details in section 4).

4. Connect the communication cable coming from DALI network to the port marked as Port A of Intesis (More details in section 4).

5. If using two DALI channels, connect communication cable coming from second DALI network to the port marked as Port B of Intesis (More details in section 4).

6. Power up Intesis. The supply voltage should be any of the voltage range allowed (check section 7). Take care of the polarity of the supply voltage applied.

   WARNING! In order to avoid earth loops that can damage Intesis and/or any other equipment connected to it, we strongly recommend the use of DC power supplies, floating or with the negative terminal connected to earth. **Never use a DC power supply with the positive terminal connected to earth**.

7. If you want to connect using IP, connect the Ethernet cable from the laptop PC to the port marked as Ethernet of Intesis (More details in section 4).

   If you want to connect using USB, connect the USB cable from the laptop PC to the port marked as Console of Intesis (More details in section 4).

8. Open Intesis MAPS, create a new project for Modbus and select the INMBSDAL---0200-Template project.

9. Modify the configuration as desired, save it and download the configuration file to Intesis as explained in section 6.2.5 .

10. Visit the Diagnostic section, enable COMMS and check that there is communication activity, some TX frames and some other RX frames. This means that the communication with the Centralized Controller and Modbus Master devices is OK. In case there is no communication activity between Intesis and the Centralized Controller and/or Modbus devices, check that those are operative: check the baud rate, the communication cable used to connect all devices and any other communication parameter.
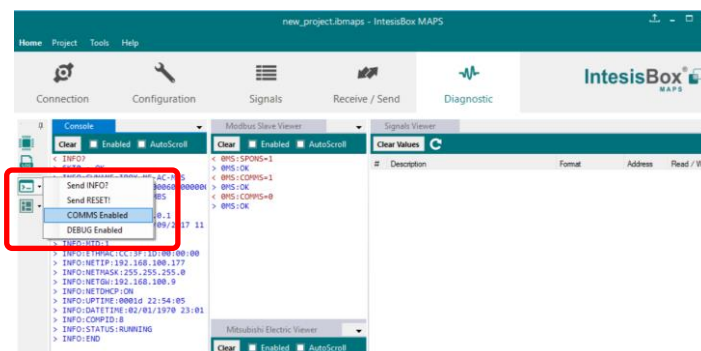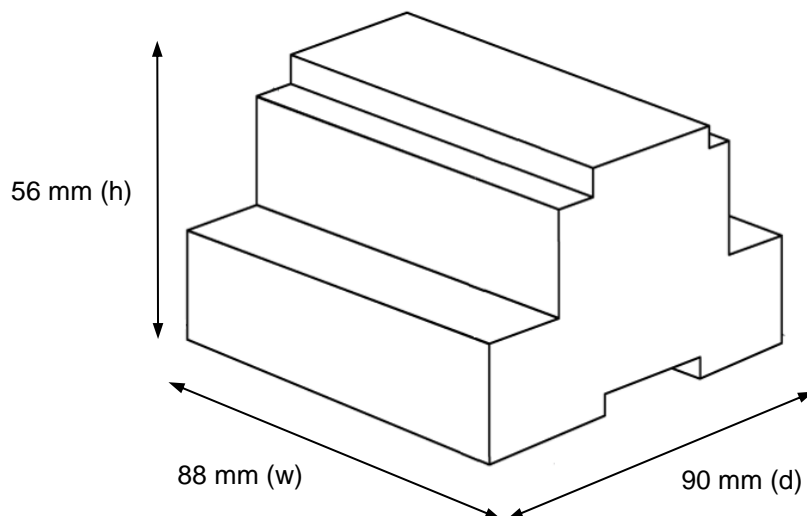

Figure **6**.**6** Enable COMMS

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# 7 Electrical & Mechanical Features

Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (dxwxh): 90x88x56 mm Recommended space for installation (dxwxh): 130x100x100mm Color: Light Grey. RAL 7035
Mounting	Wall. DIN rail EN60715 TH35.
Terminal Wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm^2… 2.5mm^2 2 cores: 0.5mm^2… 1.5mm^2 3 cores: not permitted
Power	1 x Plug-in screw terminal block (3 poles) Positive, Negative, Earth 24VDC +/-10%
Ethernet	1 x Ethernet 10/100 Mbps RJ45 2 x Ethernet LED: port link and activity
Port A	1 x DALI port (Plug-in screw terminal block orange 2 poles) 1500VDC isolation from other ports DALI power consumption: 240mA Voltage rating: 16VDC 1 x Plug-in screw terminal block green (2 poles) Reserved for future use
Switch A (SWA)	1 x DIP-Switch for serial EIA485 configuration: Reserved for future use
PORT B	*INMBSDAL0640200* 1 x Serial EIA232 (SUB-D9 male connector) Pinout from a DTE device 1500VDC isolation from other ports (except PORT B: EIA485) 1 x Serial EIA485 Plug-in screw terminal block (3 poles) A, B, SGND (Reference ground or shield) 1500VDC isolation from other ports (except PORT B: EIA232) *INMBSDAL1280200* 1 x DALI port (Plug-in screw terminal block green 2 poles) 1500VDC isolation from other ports DALI power consumption: 240mA Voltage rating: 16VDC
Switch B SWB)	1 x DIP-Switch for serial EIA485 configuration: Position 1: **ON:** 120 Ω termination active **Off:** 120 Ω termination inactive Position 2-3: **ON:** Polarization active **Off:** Polarization inactive

Battery	Size: Coin 20mm x 3.2mm Capacity: 3V / 225mAh Type: Manganese Dioxide Lithium
Console Port	Mini Type-B USB 2.0 compliant 1500VDC isolation
USB port	Type-A USB 2.0 compliant Only for USB flash storage device (USB pen drive) Power consumption limited to 150mA (HDD connection not allowed)
Push Button	Button A: Check the user manual Button B: Check the user manual
Operation Temperature	0°C to +50°C
Operational Humidity	5 to 95%, no condensation
Protection	IP20 (IEC60529)
LED Indicators	10 x On board LED indicators 1 x Error LED 1 x Power LED 2 x Ethernet Link/Speed 2 x Port A TX/RX 2 x Port B TX/RX 1 x Button A indicator 1 x Button B indicator

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8   Dimensions

Recommended available space for its installation into a cabinet (wall or DIN rail mounting), with space enough for external connections
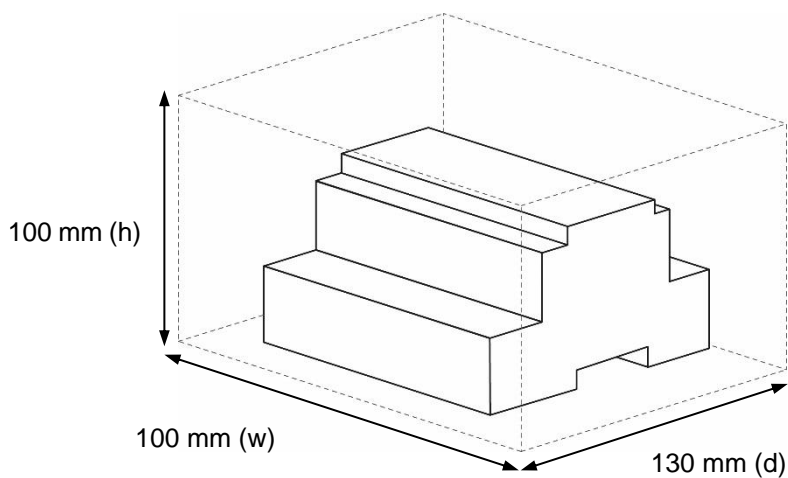
Annex A – Quick setup and commissioning of a DALI network

This section provides a brief summary on commissioning a DALI channel using MAPS software tool. The process of commissioning involves:

- Scanning the existing ballasts (ECGs) and sensors (Input Devices) in the DALI network
- Identifying their physical location
- Obtaining or setting up device short addresses
- Obtaining or editing devices configuration parameters (preset levels, scenes, groups addressing…)

In that process, using MAPS, two workflows are possible for the commissioning:

1. "Device declaration first": First declaring or instantiating in MAPS the envisaged (planned) devices in the installation, setting up values for all their configuration parameters, and then scanning the network for existing devices. Process finalizes with assignation and download of planned configuration parameters (including short addresses) with existing devices in the installation.

2. "Existing devices scan first": Aternatively, and more common, it is possible to scan first the DALI network for existing devices, obtain their existing configuration (which will be default/factory if the devices are new), then change these parameters to match the desired ones (short address, preset levels, scenes…) and load the devices with the new configuration.

Typically, "Existing devices scan first" method will be used when all commissioning is done in the installation itself, as it starts with a DALI bus scan. "Device declaration first" allows to do some work in advance, defining the configuration parameters for the ballasts and sensors before accessing the actual installation. It is possible to understand the "Device declaration first" as a previous step that can (but not must) be done before effectively scanning the network for devices ("Existing devices scan first"), in order to advance configuration work (definition of preset levels, DALI groups, scene values, …).

It is perfectly possible to mix the two methods. This is, configure a certain number of ballasts declaring them in MAPS ("Device declaration first"), and once in the installation, assign their parameters to existing ballasts and sensors. Whenever more devices are installed, they can be added by scanning them in the network ("Existing devices scan first") and changing its configuration parameters to match the desired ones (without previous instantiation of them in MAPS).

8.1 *Create project*

You will need to create a new project, to do so, select 'Create New project' in MAPS start screen, and choose the appropriate template according to your device model (1 or 2 DALI channels / 64 or 128 max DALI devices):
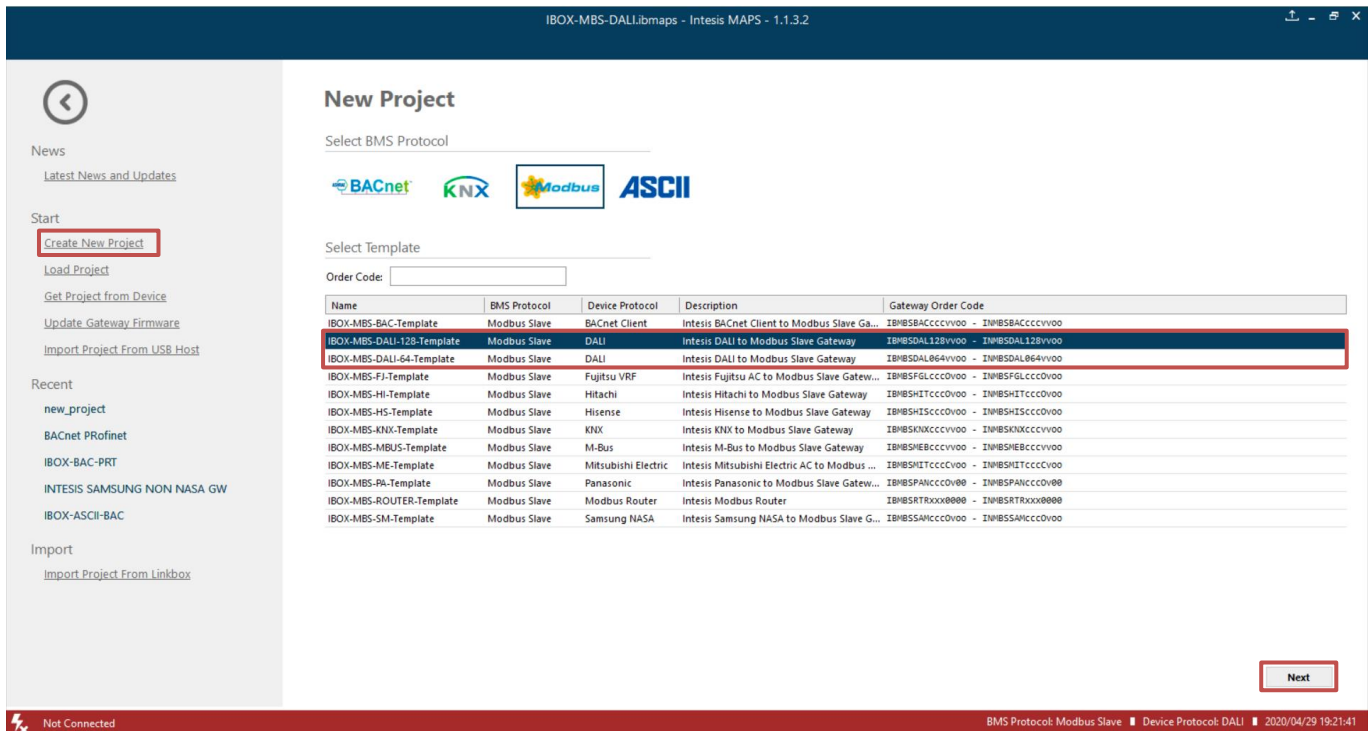

Figure **A.1** New project creation

8.2 *Device declaration in project*

Once new project has been created, DALI devices can be added to the configured project, without the need of scanning them in bus.

As mentioned above, this allows defining its configuration parameters (preset values, groups, scenes, …) before having actual access to the installation.

To do so, go to the 'Configuration' tab of MAPS, and select the 'DALI' section.

In it, choose the channel where you want to instantiate the devices (A or B are possible in case of having the product version supporting 2 DALI channels), then select ECG node to add new ballasts, or select Sensors node to add new sensors.
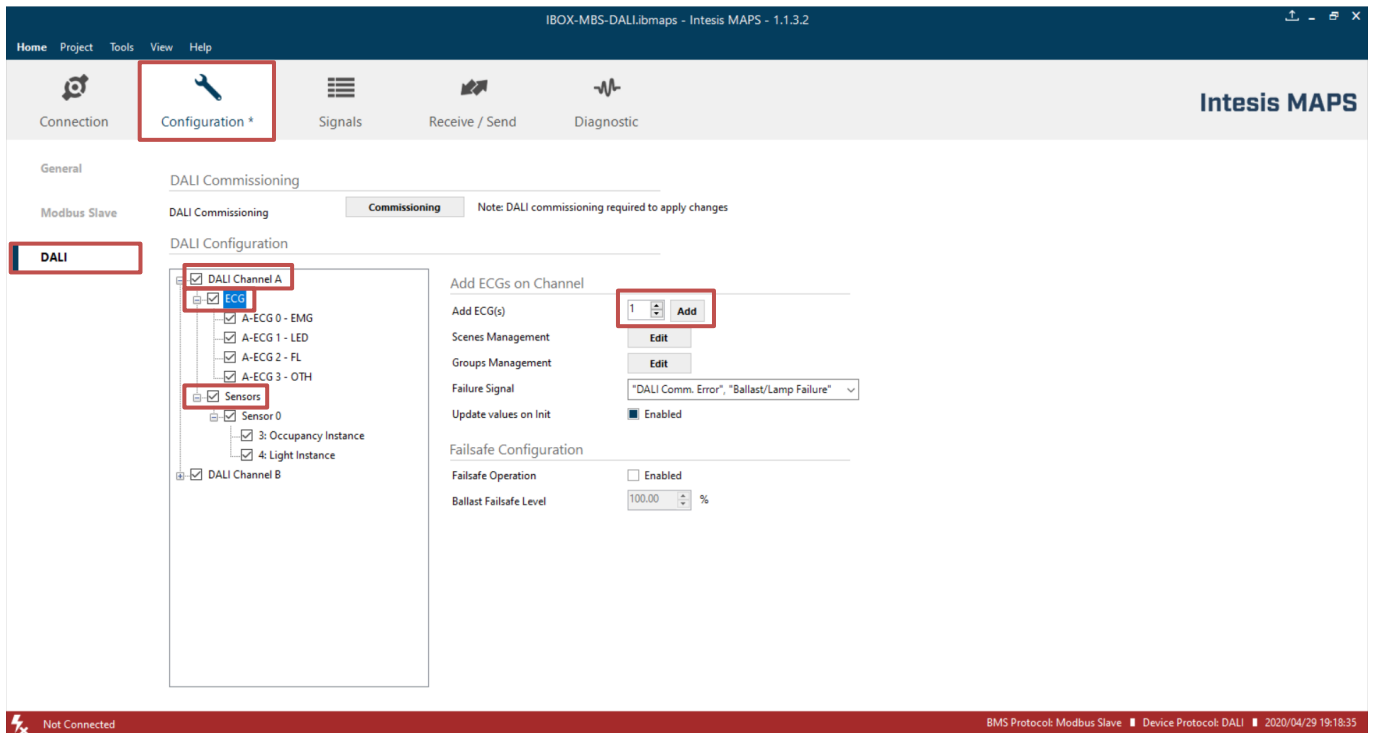
Figure **A.2** Add new devices

With suitable DALI channel selected, enter in 'Add ECG(s)'/'Add Sensor(s)' field the number of ECGs/Sensors to instantiate, and click button Add.

Number of desired devices will appear:
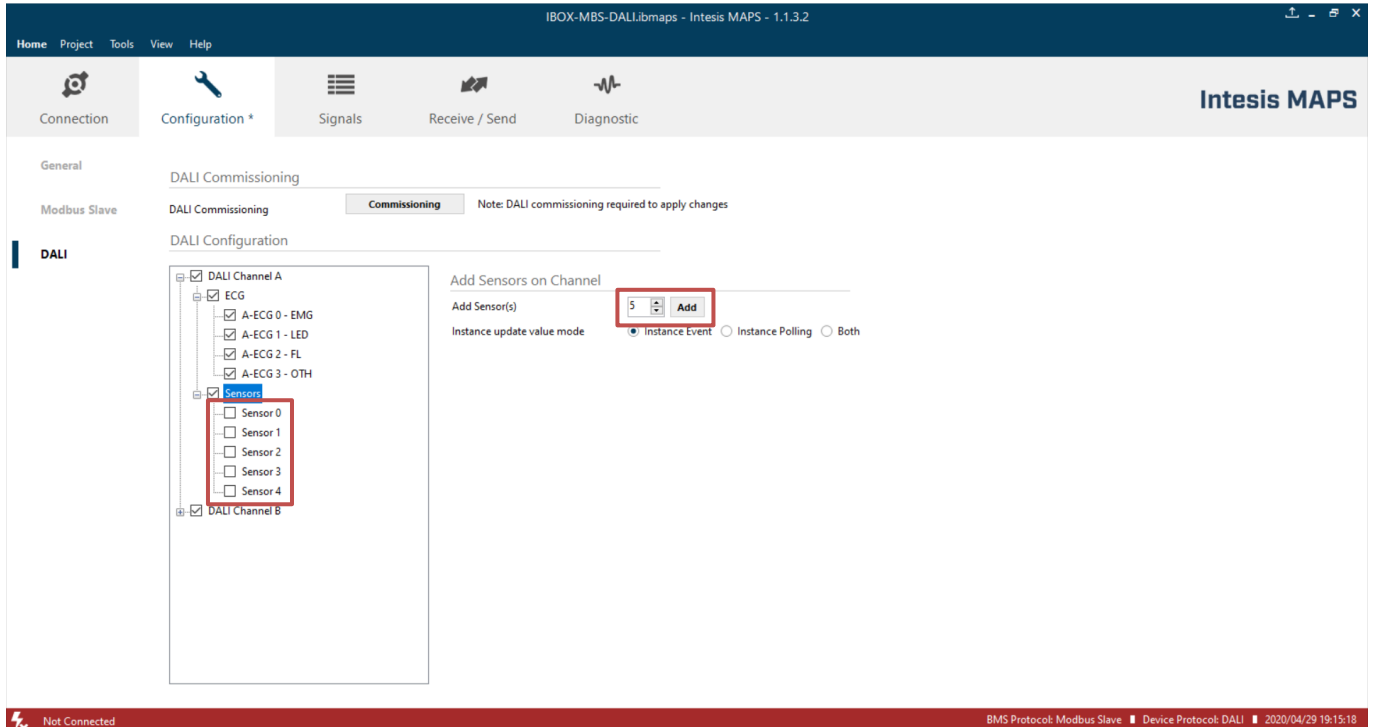
Figure **A.3** Adding new sensors

If too many devices have been instantiated, they can be deleted by selecting them, and pressing button 'Delete ECG(s)'. Multiple selection is also possible.
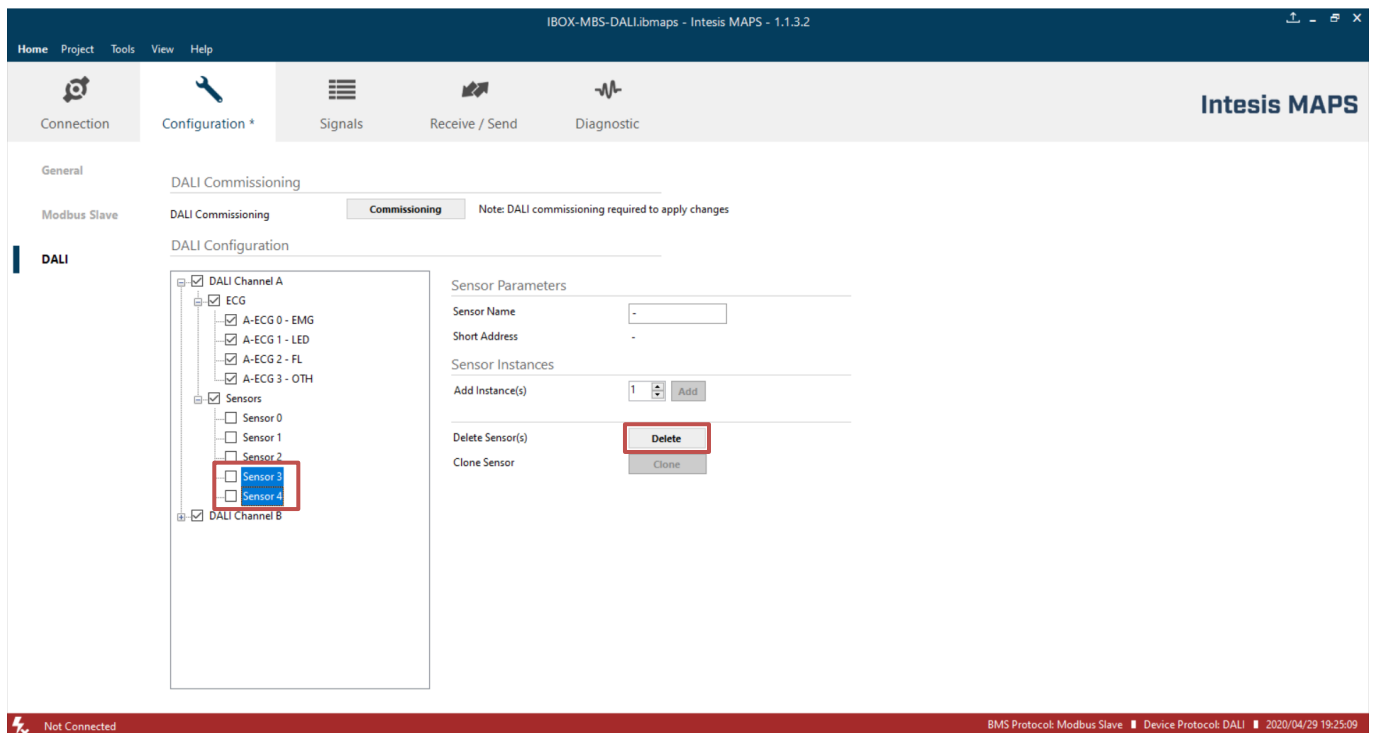
Figure **A.4** Deleting devices

Finally, for all devices in configuration, you will need to define:

- For ballasts:

  o **ECG Name** (optional): Name to ease its identification in the network
  o **Device type**: It's important that this field is suitably chosen and according to existing ballast in the network (device type 0: Fluorescent Light, device type 1: Emergency Light, device type 6: LED module or 'Other' (default) if none of the above matches the device type).

  o **Commitable ECG Parameters**: This includes all preset values for the ballasts (min level, max level, power on level, etc), as well as group assignation and scene configuration.

- For Input Devices (Sensors):

  o **Sensor Name** (optional): Name to ease its identification in the network.

  o **Add required Instances**: Each input device can include up to 32 different instance types (i.e. instance type 4: Light sensor; instance type 3: Motion sensor; and so on…)

8.3 *Scan and commissioning of devices*

First you need to get MAPS connected to the Intesis device. To do so, go to 'Connection' tab of MAPS. There, select appropriate connection mode (IP or USB). Select your device from the list of scanned devices (IP) or suitable COM port (USB).
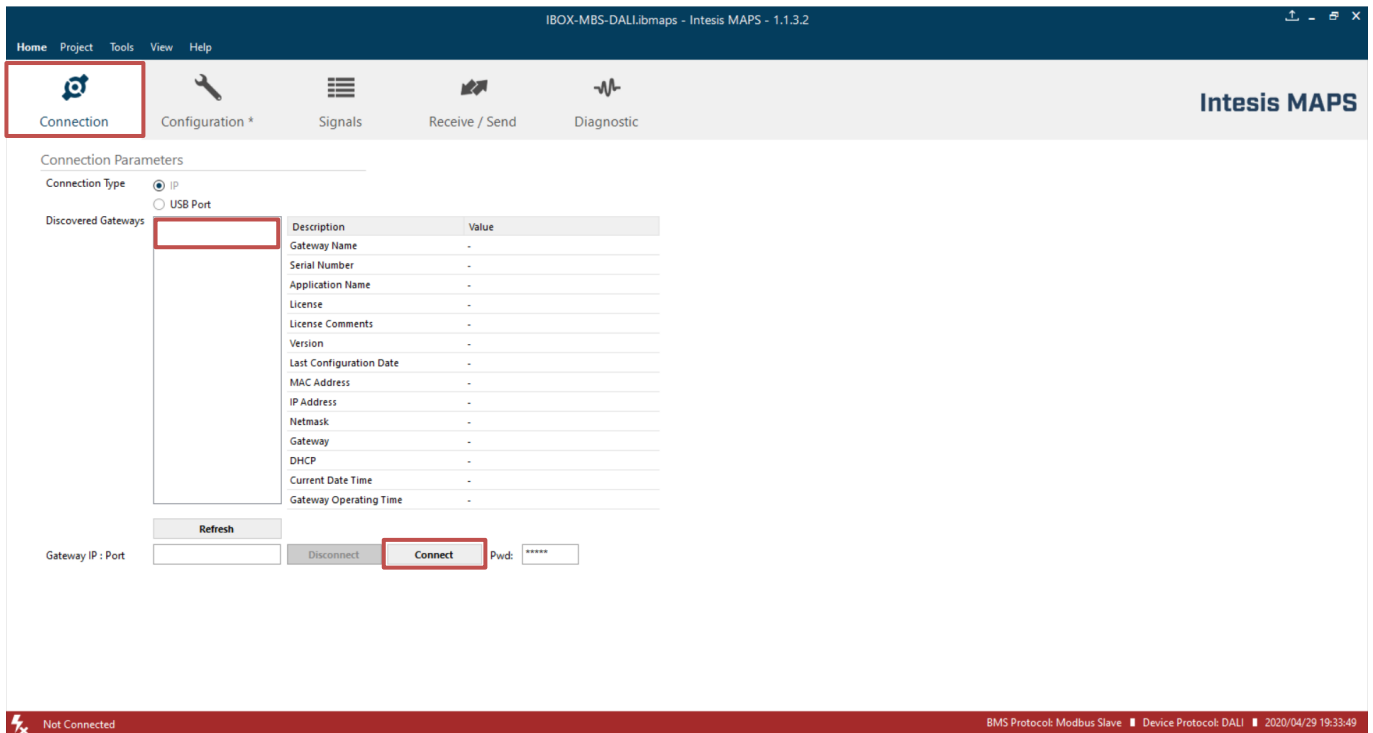
Figure **A.5** Connecting MAPS to the Intesis

Finally, click on button 'Connect' in order to establish connection. Bar at the bottom in MAPS main window will become green, switching from 'Not Connected' to 'Connected'.

Now go back to 'Configuration' tab of MAPS, and click on button 'Commissioning':
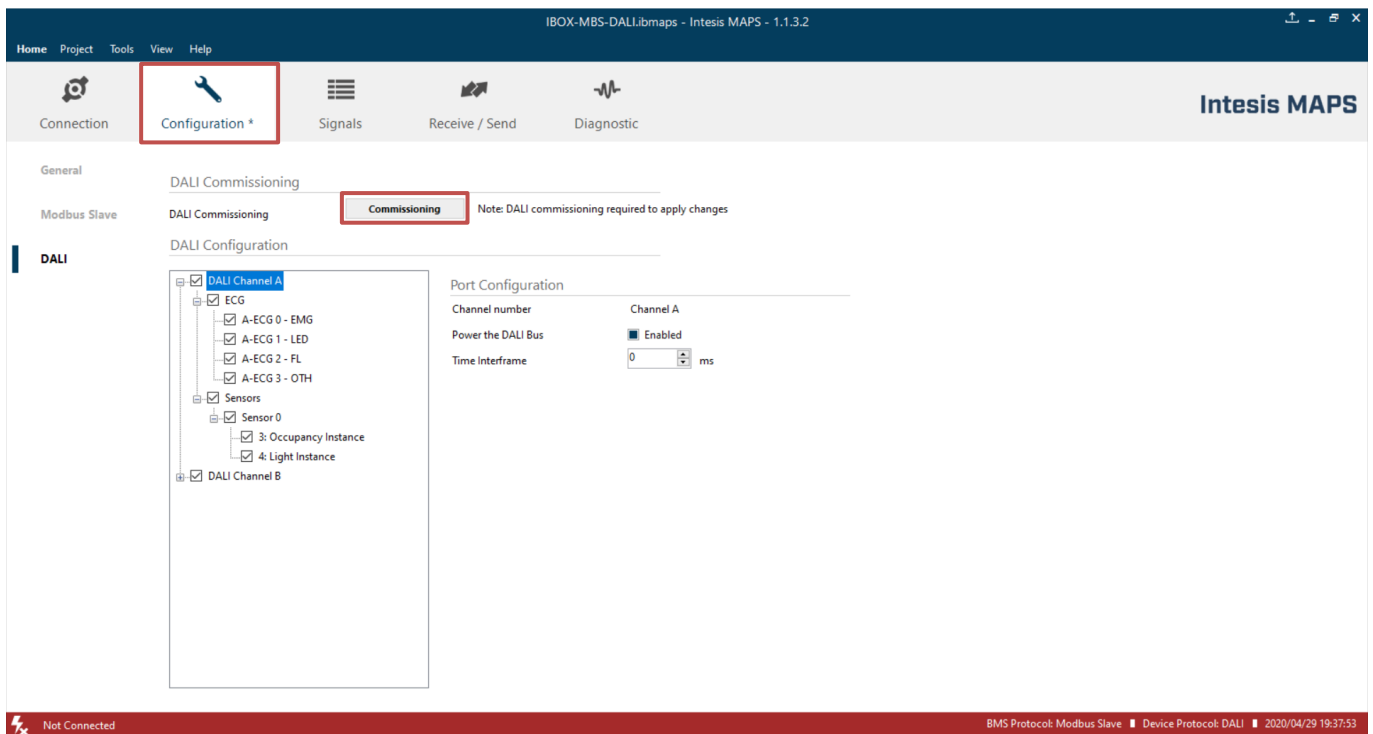
Figure **A.6** DALI commissioning button

URL https://www.intesis.com
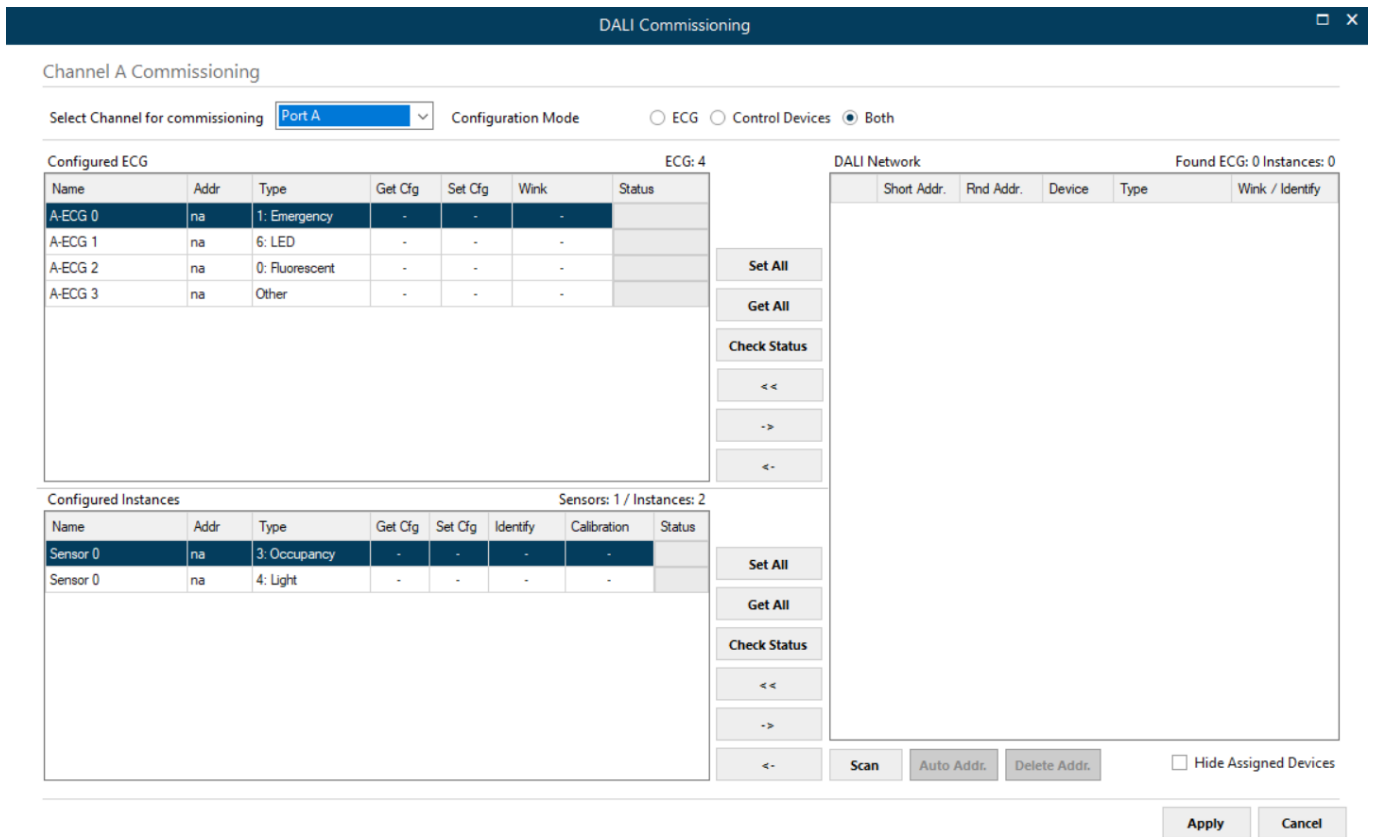
Commissioning window will appear:

Figure **A.7** DALI commissioning window

If having product version / template project supporting 2 DALI channels, channel to commission must be selected between 'Port A' (top of the device) or 'Port B' (bottom of the device). In case of version supporting single DALI channel, no selection is possible.

If devices have been added to the configuration (see previous section 'Device declaration in project') a list of ballasts will appear in Configured ECG and a list of instances will appear in Configured Instances.

There is also a 'DALI network' area that will show DALI scan results, empty by now.

In order to start a DALI network scan, select suitable DALI channel (if applicable) and then click on button 'Scan':

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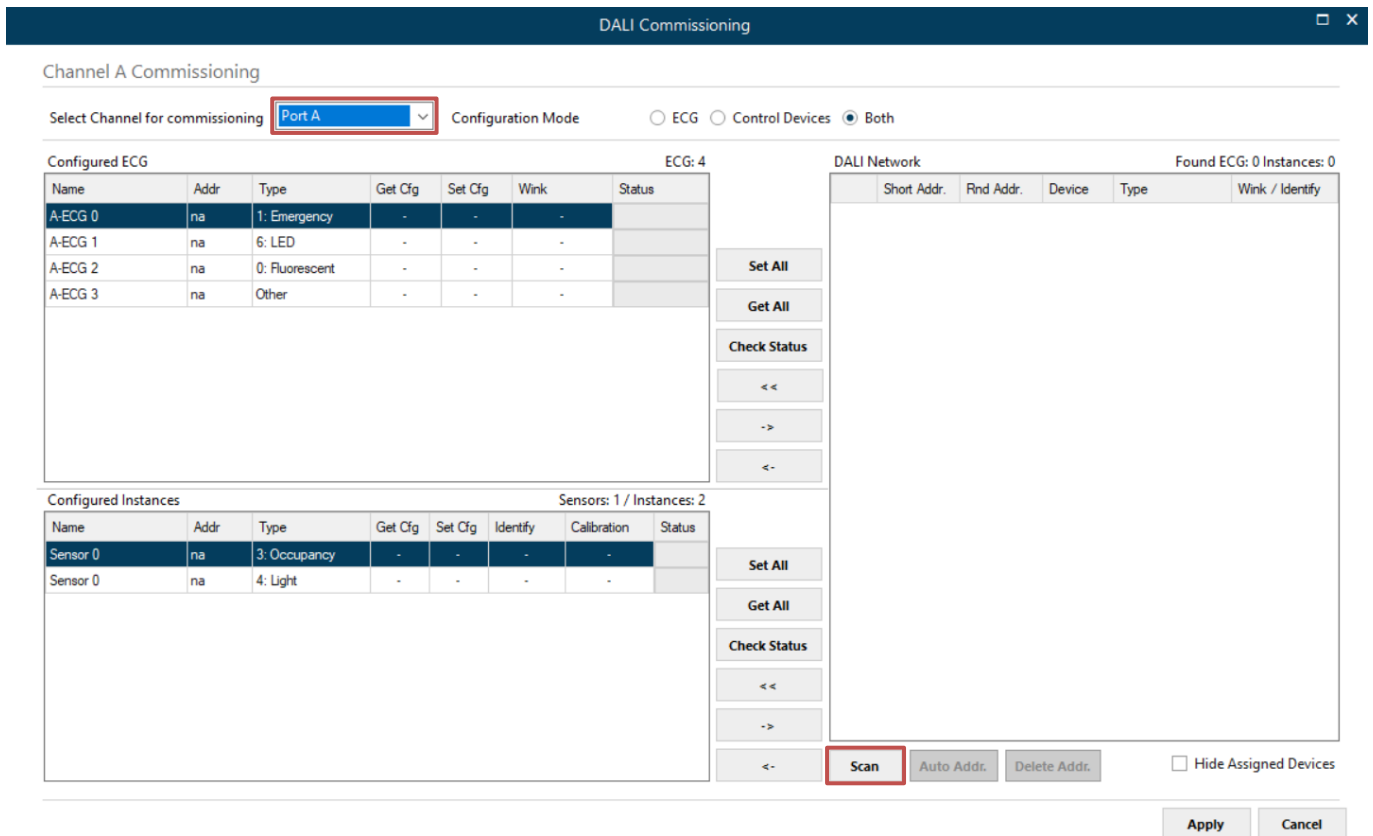
Figure **A.8** Starting DALI scan process

Discovered devices will appear in the 'DALI Network' area, as soon as they are scanned. Network scan might take from several seconds up to a few minutes, depending on number of devices to scan.

Field 'Addr' in list of 'DALI Network' will indicate 'na' if device has no associated group address (typical for new devices/factory settings) or a 0..63 value for its short address if device has already been given a short address.

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Figure **A.9** Example of scan results

After scan is done, total number of found devices will be shown in 'DALI Network:' label. Note that type column will fill only if device has a short address assigned, if not, type cannot be read.

Next step is associating a short address between 0 to 63 to each found ballast. To do so, following options are possible:

1. Identify the device in the installation with the Wink button, and then double click in short address field of the device in DALI Network window, and assign it an address 0..63.
2. Use the Auto Addr. Button to automatically assign a correlative address to each ballast.

Address of each ballast can be deleted at any time, using button Delete Addr. Multiple selection is possible (using Shift and Control keys together with mouse-clicks).
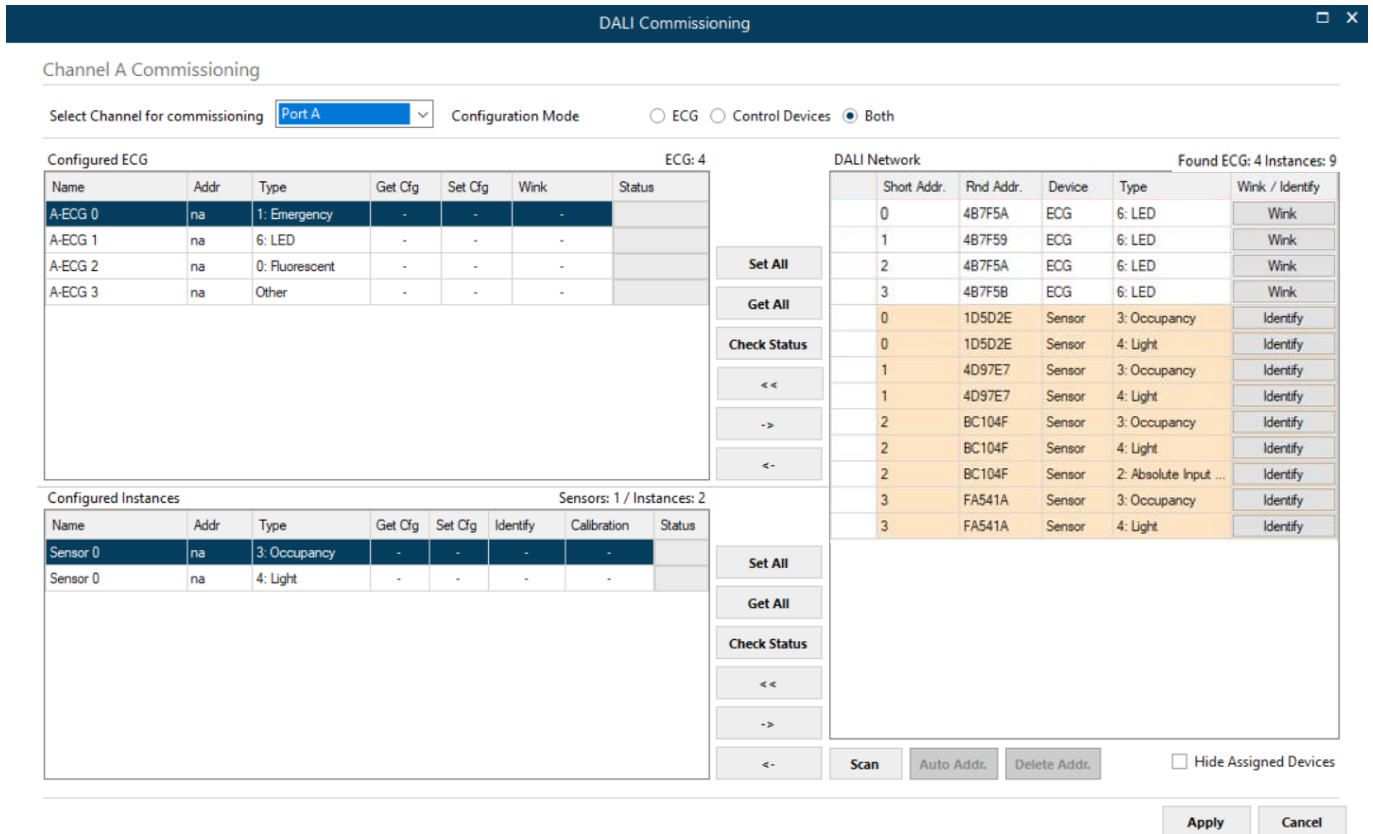
Figure **A.10** Shot address association

Once each device has a short address, 'Wink' functionality in "DALI Network' window is available for each one. Wink functionality sets the ballast at maximum and minum level while it is actived, allowing to identify the physical location of the ballast in the installation. After identifying it in the installation, change in short address might be desired.

After address association, devices can be added in config. There is two ways for doing that:

- Button '<<': Selected ballast or ballasts in 'DALI Network' window will be added as a new ballast in 'Configured ECG' window. It allows multiple selection of ballasts from DALI Network window (using 'shift' or 'control' keys).
- Button '<-': Selected ballast in 'DALI Network' window will be associated to existing/configured ballast in 'Configured ECG' window.
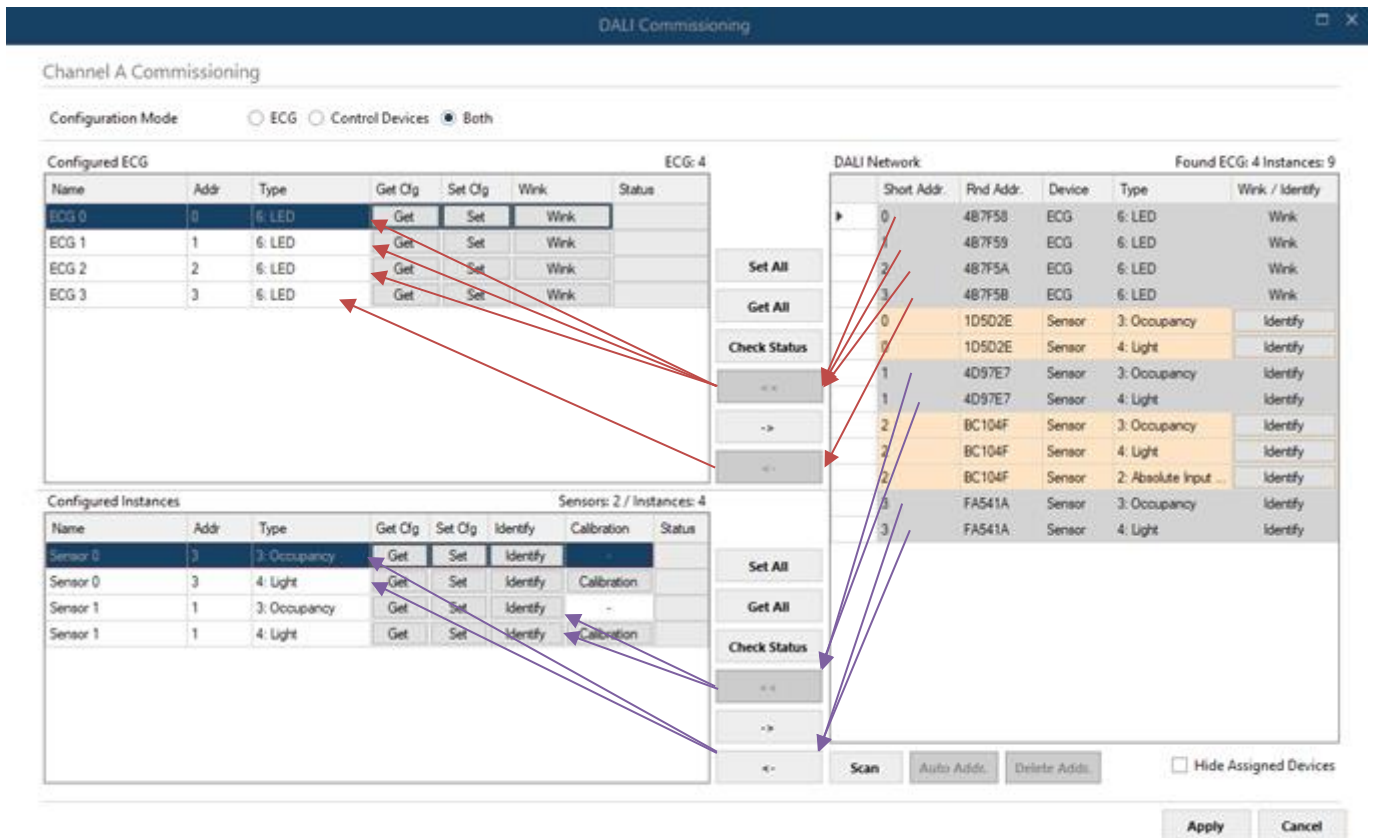
Figure **A.11** Functionality of '<<' and '<-' buttons

In Figure's example, we'll associate LED ballasts with short addres 0, 1 and 2 to existing ballasts (with '<-' button), and add ballast from short addresses 3 as new ballasts in the configuration (with '<<' button). Then we'll associate instances of sensor with short address 3 to existing instances (with '<-' button), and add instances from short addresses 1 as new ones in the configuration (with '<<' button).

Figure above shows the result. Now configured ECG's and configured Instances contains actual ballasts and sensor instances in the installation, each with its own short addres. At this point, it's possible to:

- **Remove the ballast from configuration** (button '->'). This will move them back to 'DALI Network' area.
- **Wink the ballast to identify it in the installation** (button 'Wink', on each ECG).
- **Get the ballast configuration parameters** (button 'Get' on each ECG, or 'Get All' below the window). Warning, getting the configuration of a ballast will overwrite all configured parameters in MAPS config for that ballast (preset levels, group addressing, scenes, …)
- **Set the ballast configuration parameters for each ballast** (button 'Set' on each ECG, or 'Set All' below the window).
- **Calibrate** (only for lighting sensors) to calibrate sensor measures with real lux measurement in the surface area.

Finally, pressing button 'Apply' will apply all changes to actual configuration in MAPS, and close the window.

Keep in mind that process done at window DALI commissioning changes configuration of parameters in DALI network, but it's still necessary to configure further parameters in Intesis and sending configuration file to Intesis using 'Send/Receive' tab of configuration section.