

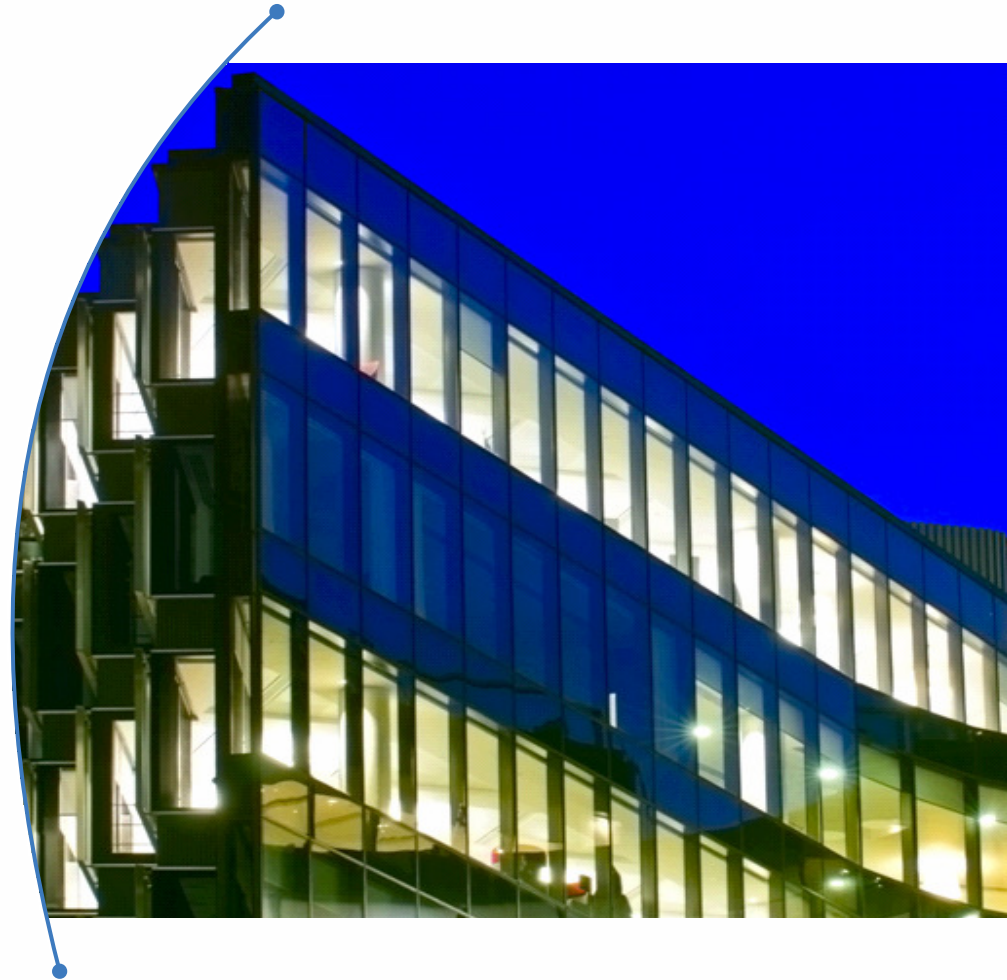
Rollout-Package DALI Multi Master Module 753-647

AUTOMATION



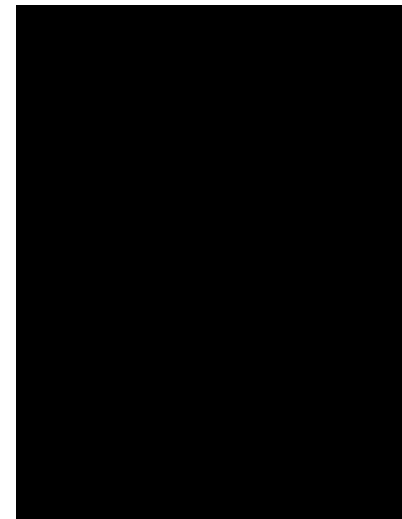
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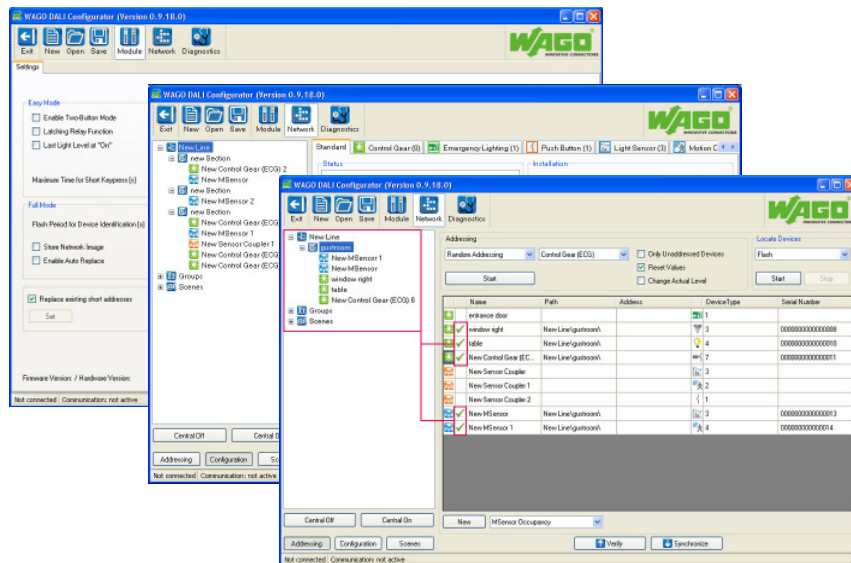
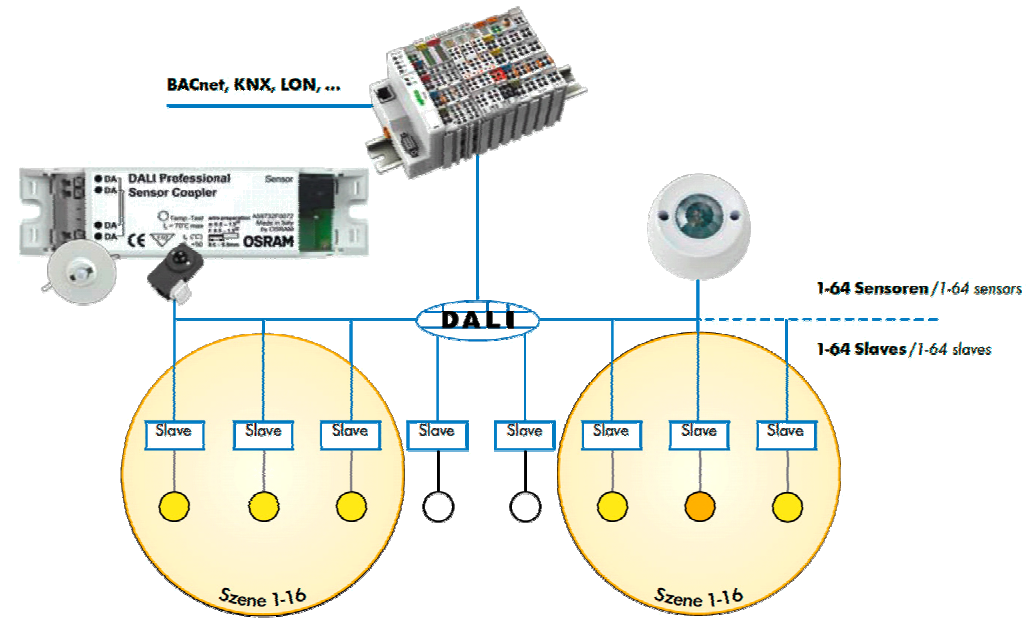
Motivation/Technology

- Why do we need a new DALI Module?
 - DALI Technology is an increasing market in the area of complex light installations and solutions
 - Offering a solution to optimize the installation and to integrate DALI sensors via one and the same bus installation
 - Conformity to the latest IEC62386 standard
 - Flexible power supply concept
 - Efficient engineering and optimized workflow



DALI Multi Master Module 753-647

- IEC-62386-conform
- Support of up to 64 control gears (ECGs) and 64 addresses for control devices (sensors)
- Easy-mode for lighting functions without complex programming



- Simplified project view and optimized device addressing
- Efficient mass operation
- Comprehensive backup/restore functionality



Product features DALI Multi Master Module 753-647

Features I:

- DALI-Multi-Master-Module 753-647 (IEC62386 conformity)
- DALI interface to 750 series controller/modules (BACnet, KNX, EnOcean, LON, Modbus,....)
- Bus power supply: 18V DC/200 mA (power supply for any DALI bus devices)
 - Power supply concept 24V DC: 753-620 for 1 DALI Module 753-647
 - Power supply concept 230V AC: 787-1007 for up to min. 5 DALI Modules 753-647 in full expansion
- Multi-Master support (collision detection and avoidance)
- 64 addresses for control gears (ECGs)
- 64 addresses for DALI sensors
- Support of several addressing methods (e.g. physical selection, barcode scanning) and detection of address conflicts (e.g. double addresses)

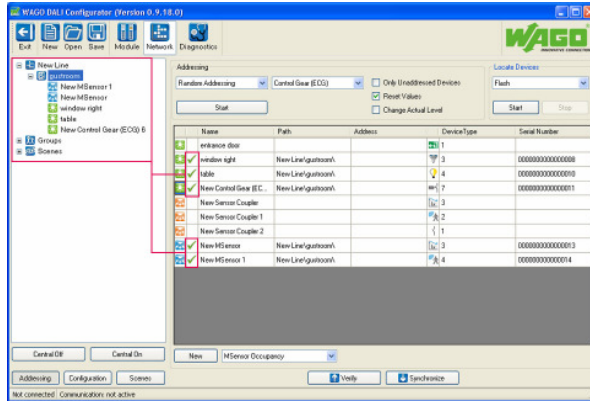
Product features DALI Multi Master Module 753-647

Features II:

- 16 groups/16 scenes + 16 virtual groups
- Comprehensive and easy to use software tool for commissioning and service. Stand alone or function call from I/O-CHECK
- Easy-Mode: easy function call and easy lighting control by combination of pushbutton and sensor signalling with switch function or dimmer
(Together with Easy Mode the DALI Module can also be used with couplers)
- Comprehensive backup & restore functionality of the DALI configuration
- Auto replace: Automatic reconfiguration of control gears (ECGs) in case of replacement
- Internal data base for controlling gear status information (reduction of DALI bus load)
- Logging of operating hours (switch-on time of lights)
- Firmware update capability via field bus (via Ethernet connection or service interface)

WAGO DALI Configurator

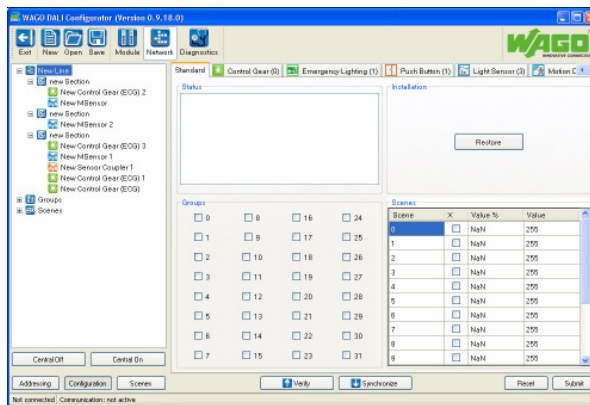
Simplified project view



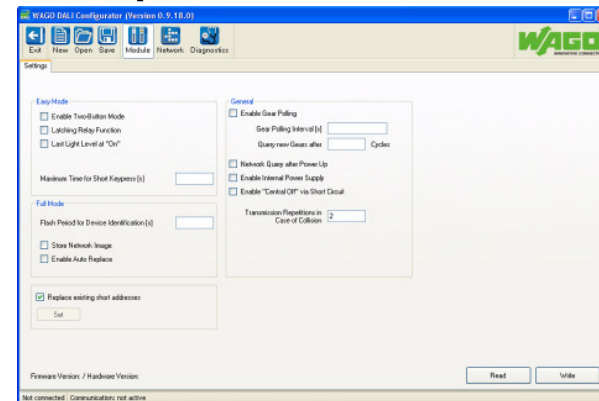
Features:

- Drag & Drop
- Backup & Restore
- Multiselect (e.g. room selection)
- Auto Replace of devices

Effizient mass operation



Comprehensive configuration incl. Backup & Restore functionality



DALI Easy Mode

Easy Mode:



Each bit of the 24 byte process image represents a certain function: e.g. byte 12/bit 6 to switch-on the DALI device 43.

This provides DALI functionality without complex programming (also for couplers via e.g. modbus)

Table 1: Overview output process image (Easy Mode)					
Byte	0	1	2 ... 17	18 ... 21	22 ...23
Output process image (PA)	Broadcast On/Off and Broadcast switching	reserved	Short address switching; dimming up/down	Group address switching; dimming up/down	Scene selection

Table 2: Overview input process image (Easy Mode)					
Byte	0	1	2 ... 17	18 ... 21	22 ... 23
Input process image (PA)	Status Broadcast switching	reserved	status short address switching	Status group address switching	Not used







Accessories: Power Supply

	Power supply		Input	Output	Power supply for # DALI Modules 753-647	Modul width
Option 1	DALI Multi-Master DC/DC Converter 753-620		24V DC	18 V DC 200 mA	1	12 mm
Option 2	Power supply 787-1007		100-240 V AC	18V DC 1100 mA	1 to minimum 5	54 mm

Remark: Both products are compatible with 753-647 only.
No use with 750-641 allowed (no CE-conformity).





Accessories: Power Supply

Power supply		DALI Multi Master Module 753-647 	DALI/DSI Module 750-641 
DALI Multi-Master DC/DC Converter 753-620 18 V DC, 200 mA		1 DALI Multi Master Module	---
Power supply 787-1007 18V DC, 1100 mA		1 minimum 5 DALI Multi Master	---
Rail assembly DC-/DC-Converter 288-895 DC 24 V / DC 18 V, 0,4 A		---	Up to 3 DALI Modules at 64 ECGs for each DALI bus (3x128mA) Up to 2 DALI Modules in combination with sensors (2x200mA)
Power supply Compact power 787-1002 DC 24V, 1300 mA		---	Up to 5 DALI Modules



Accessories: DALI Sensors

The DALI Multi-Master-Module 753-647 supports the following DALI sensors:

Manufacturer	Typ	Comment	Current consumption [mA]	Sensor addresses [#]
OSRAM	DALI Professional Sensor Coupler (from Version: AA434900072) 	One single sensor per sensor coupler. Sensor includes signals for: - Presence detection - brightness	< 7mA	2
TRIDONIC	DALI M sensor (+ optional remote control) 	Sensor includes signals for: - Presence detection - brightness - remote control	6mA	3

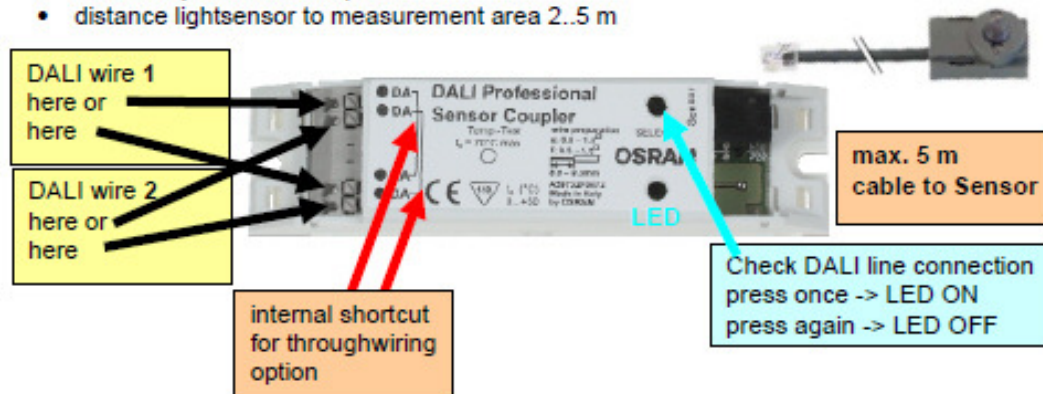
Max. 64 sensor addresses are available. Please consider, that some sensors consist of more than one address!



DALI Professional Sensor Coupler

Sensor Coupler wiring

- Mains voltage on DALI wires can destroy the device
- 1 Sensor per Sensorcoupler
- distance lightsensor to measurement area 2..5 m



Alternative Sensoren



Calculation of DALI bus load

[Calculation Excel](#)

The power consumption of DALI devices and the number of addresses need to be considered for the calculation of the DALI bus load.




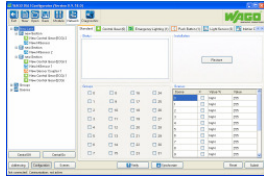
Example 1:	64 ECGs 12 Tridonic MSensors	$64 * 2 \text{ mA} = 128 \text{ mA}$ $12 * 6 \text{ mA} = 72 \text{ mA}$ ----- 200 mA	64 ECG addresses 36 Sensor addresses (12*3)
Example 2:	64 ECGs 16 Tridonic MSensors	$64 * 2 \text{ mA} = 128 \text{ mA}$ $16 * 6 \text{ mA} = 96 \text{ mA}$ ----- 224 mA	64 ECG addresses 48 Sensor addresses (16*3)
Correction example 2:	50 ECGs 16 Tridonic MSensors	$50 * 2 \text{ mA} = 100 \text{ mA}$ $16 * 6 \text{ mA} = 96 \text{ mA}$ ----- 188 mA	50 ECG addresses 48 Sensor addresses (16*3)

The mentioned examples above are theoretical calculations to show the factors and the dependencies.

The number of supported sensors depends also on the DALI bus load. Please ask the manufacturer or Wago for valid recommendations.


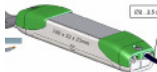









Ordering information

DALI-Modul + Accessories		Item number
DALI-Multi-Master-Modul incl. plug		753-647
DALI-Multi-Master-DC/DC-Converter		753-620
Power Supply		787-1007
DALI Configurator		Stand alone version: www.wago.com or integrated into WAGO-I/O-Check with charge



Ordering information (OSRAM Accessories)

Compatible OSRAM Sensors		OSRAM Item number
OSRAM DALI Professional Sensor Coupler	From version: AA434900072	 4008321379269
Eco Ci Kit	Strain relief for independent installation Sensor Coupler	 400832139209
LS/PD MULTI3 CI	Light&Motion Sensor for ceiling installation (ceiling installation)	 4008321916648 £77.59
LS/PD MULTI3	Standard light & Motion Sensor (luminaire installation)	 4050300802138
LS/PD MULTI3 B	Movable light & Motion sensor Grey (luminaire installation)	 4050300803081
LS/PD MULTI3 B-w	Movable light & Motion sensor white (luminaire installation)	 4008321710918
LS/PD MULTI3 FL	Flat light & Motion sensor (luminaire installation)	 4008321047342
LS/PD MULTI 3 A	Light & Motion Retrofit sensor Grey (luminaire installation)	 4008321653581
LS/PD MULTI 3 A-w	Light & Motion Retrofit sensor white with louvre clip (luminaire installation)	 4008321653604


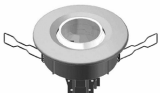





£59.40

WAGO
INNOVATIVE CONNECTIONS



Ordering information (Tridonic Accessories)

Compatible Tridonic Sensors		Tridonic Item number
TRIDONIC Atco DALI M Sensor 2	Luminaire Installation 	86459305
	Ceiling Installation 	86459303
	Flush Mounting 	86459304
	Surface Mounting 	86459302
Optional remote control		86451922 oder 86458263

Compatibility

- The DALI-Multi-Master-Module 753-647 is not backwards compatible to 750-641
 - Changed process image, because of higher functionality
 - Use of a different power supply (753-620 or 787-1007)
 - The new functions need new IEC61131 function blocks and a reengineering
- The DALI-Module 750-641 will be continued
 - For customers, who do not want to change their application at the moment
 - The phase out is planned after the new DALI Module has been accepted on the market
- Tridonic MSensor
 - For the DALI Module 753-647 the Tridonic MSensor 02 has to be used
 - The Tridonic MSensor (previous version) is only compatible with the DALI module 750-641.



Appendix: DALI Modus according to IEC 62386

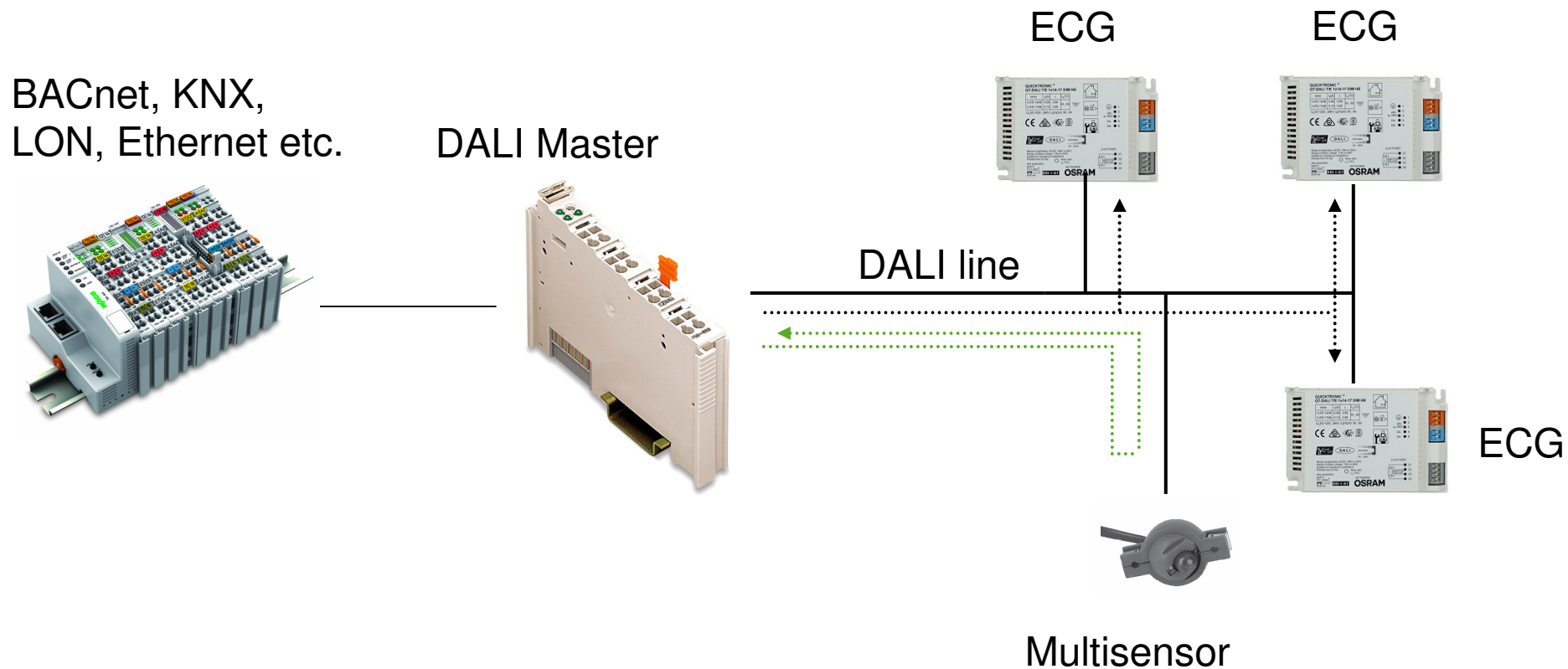
- **Passive Mode**
 - Periodic polling of sensor signals (passive sensors)
 - DALI Module (Master) sends signals to the control gears (ECGs)
- **Direct Mode**
 - Multi-Master Control Device (sensors) communication directly to the control gears
 - The DALI-Module can “listen” and write on ECGs
 - It works on the principle “The last one wins“. It means the sensors overwrite the value transmitted from the module.
- **Indirect Mode**
 - DALI sensors sending the values only to the Central Master, e.g. WAGO DALI Multi Master Module
 - DALI Multi Master Module sends to the control gears

The WAGO DALI Multi Master Module 753.647 uses by default the “Indirect Mode“.
When configuring the DALI Network with the DALI Configurator, the OSRAM and TRIDONIC sensors are automatically set to the “Indirect Mode“



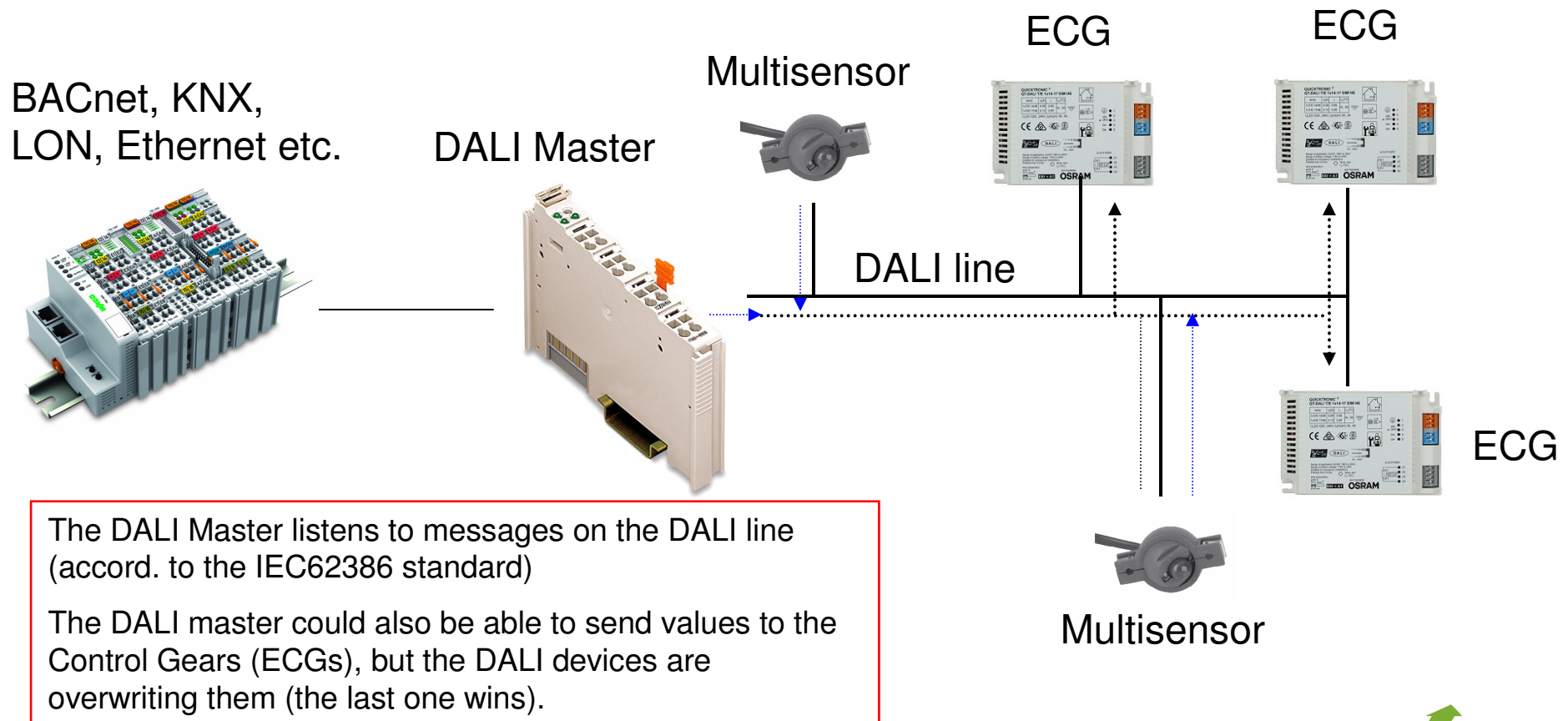
Passive Mode according to IEC 62386

- Periodic polling of sensor signals by DALI Master (Passive sensors)
- Sending of signals to the Control Gears (ECVs) by DALI Master



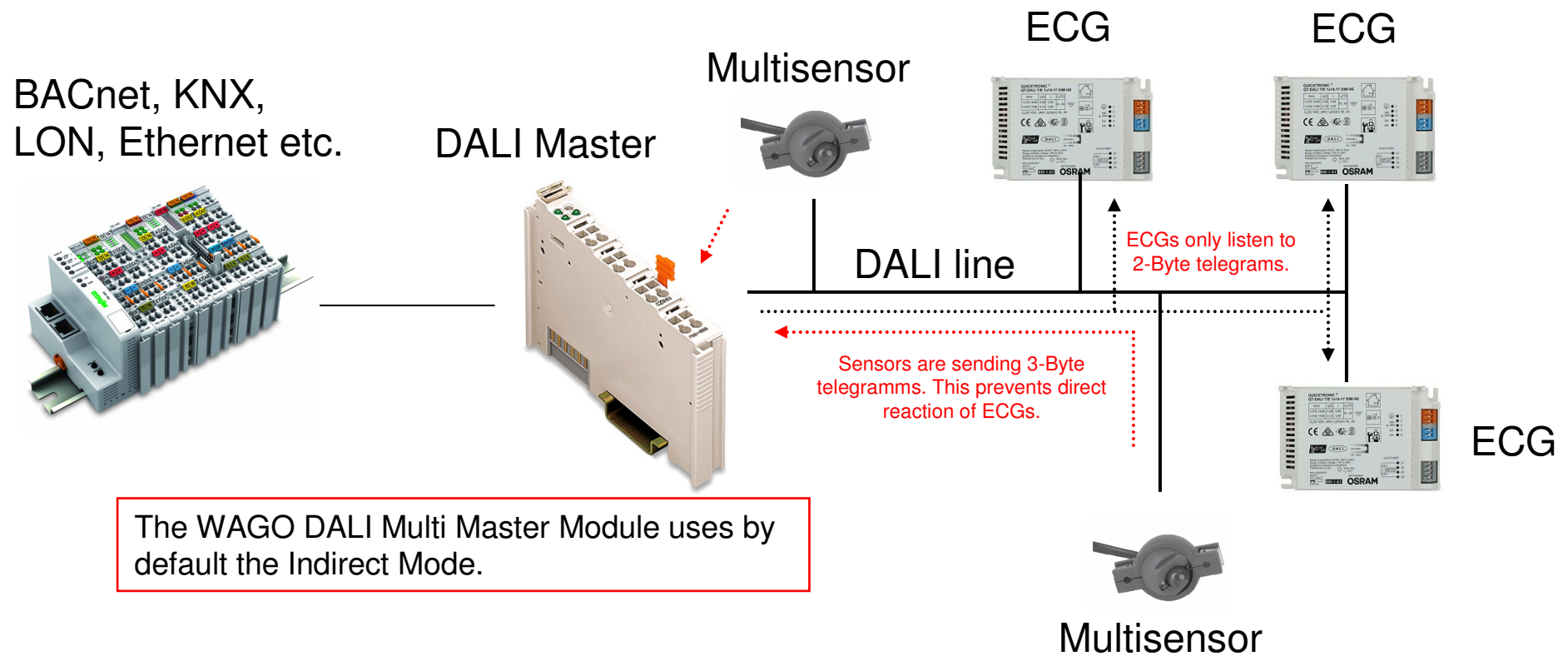
Direct Mode according to IEC 62386

- Direct communication between Multi-Master Control Device (sensors) and Control Gears (optional communication to Central Master).



Indirect Mode according to IEC 62386

- Communication between Multi-Master Control Devices (sensors) to Central Master.
- The Central Master communicates with Control Gears (ECGs).



Direct / Indirect Mode

Passive Mode

Direct Mode

Indirect Mode



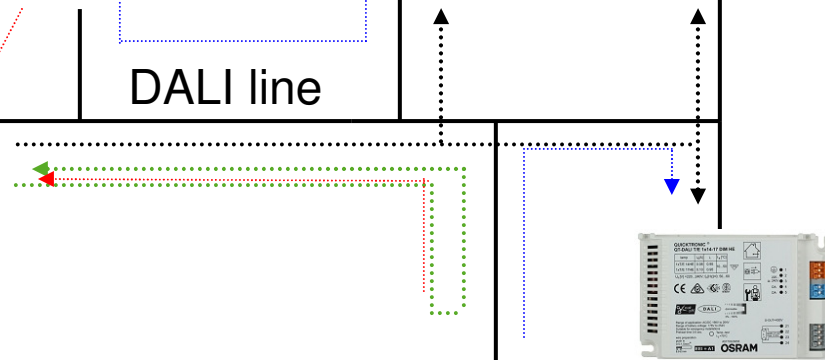
BACnet, KNX,
LON, Ethernet etc.

DALI Master

Multisensor

ECG

ECG



ECG



Multisensor

Mixed mode with Control Devices in direct Mode and indirect mode is possible, but not recommended!



Thank you very much for your interest!

