iARM

intelligent Active Radio Module

The interoperable ISM-RF-MESH communication module iARM is suitable for mounting on a luminaire pole and communicates with the iLC-RS and iPC-RS luminaire controllers via RS-485 (half-duplex) using the Modbus protocol, thus ensuring integration into the standardised 2.4 GHz frequency band.

The iARM in combination with the RS luminaire controllers allows the simple supplementation of existing powerline street lighting systems to radio controls. The iARM also serves as an RF MESH interface for the iDC-SOC edge controller.

Data transmission is in accordance with ANSI/CTA 709.11 and EN 14908-11. It is possible to operate either as part of a lighting management system using the LonMark® OLC profile or as a stand-alone system with predefined lighting profiles.

The iARM takes over the function of wireless transmission of information from controller to controller and each unit can be programmed and updated OTA (over-the-air).

Typical Applications

- Radio-controlled data transmission in combination with RS luminaire controllers for controlling the lighting of
  - Streets
  - Car parks
  - Bus stops and stations
  - Industrial facilities and warehouses
  - Sports facilities

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Product Benefits

- Integrated light sensor
- Location positioning and synchronisation via GPS/GNSS
- LON node with OLC profile
- Mesh repeater/LON router on demand
- RS-485(half-duplex) interface with termination
- Management functions
- Power consumption: 500 mW
- Connection of Modbus devices from other manufacturers possible
- 2 years warranty

Interoperable Communication Technology for Smart Cities and Buildings

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Technical Details

Active Radio Module for RF-Mesh	For Luminaire Controller iLC-RS or iPC-RS	For Edge Controller iDC
Type	iARM	iARM-I
Ref. No.	200071	200072
Input voltage	9–24 V DC via the connected RS luminaire controller or a separate 12 V/24 V power supply unit – both not included in the scope of delivery	
Power consumption	500 mW	
Communication	• RF mesh full-duplex (simultaneous transmission and reception on two channels by means of dynamic selection of up to 80 channels) • Frequency range: 2.4 GHz • Power range: 10 dBm • Modulation: LoRa according to ISO-OSI Layer 1 and 2 • Data transmission: according to LON protocol and ANSI/CTA 709.1/.11 and EN 14908-1/-11 (in preparation) according to ISO-OSI Layer 1 and 2 • Organisation of communication: CDMA/FDMA (Collision/Frequency Detection Multiple Access) • Data rate: up to 100 kB/s net • Communication types: Unicast, Broadcast, Groupcast • Communication services: un- / soft- / -acknowledged • Encrypted data transmission: AES 128	
Supported frequencies	2400-2480 MHz ISM band	
Mesh network	Up to 100 hops; latency: < 1 second, constant data rate up to 100 kBit/s	
Network organisation	According to ISO-OSI layer model Layer 2 or 3, self-configuring	
Software interfaces / Control output electronic operating device	RS-485 (half-duplex), compatible with the LonMark® OLC profile	
Light sensor	Integrated, 0-120 k lux	
External sensors	Connection of any wired modbus sensors/actuators	
GPS/GNSS receiver	Integrated	
Antennas	Integrated	
Firmware update / parameter configuration	OTA (over-the-air) via radio	OTA (over-the-air) via radio and via Modbus
Capture of measured data	Brightness	
Connection	4-pin bayonet connector, male	
Operating temperature range tc	-25 to +85 °C	
Storage temperature range	-25 to +85 °C	
Humidity	5 to 95% non-condensing	
Degree of protection	IP67, UV resistant material	
Impact resistance	IK09 (vertical) / IK07 (lateral)	
Compliant standards	CE, RoHS 2011/65/EU, EN 61547, EN 55015, EN 61000-6-2/6-3/4-2/4-3/4-4/4-5/4-6/4-11, EN 301489-1/3, EN 300328	
Casing material	Casing: Fillamentum ASA Extrafill; Sight glass: Acrylic	
Dimensions (ØxH)	Ø 25 x 153.1 mm (iARM casing inkl. sight glass and electrical connection plug at the bottom)	
Fastening	Mounting plate made of Fillamentum ASA Extrafill with 2 mounting holes Ø 4 mm, hole distance 33 mm; pole mounting plate included in delivery	
Weight	70 g	
Custom tariff number	8517 6200	
Certification	CE	

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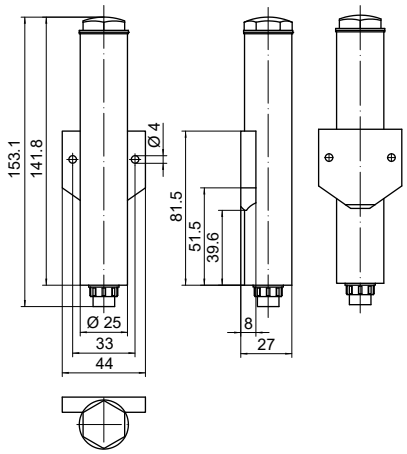
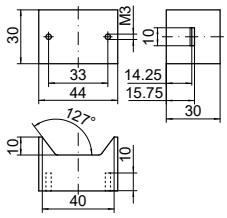
Dimensions (mm)

iARM

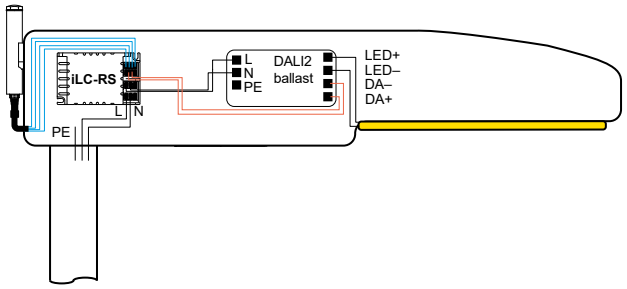


iARM Pole mounting plate

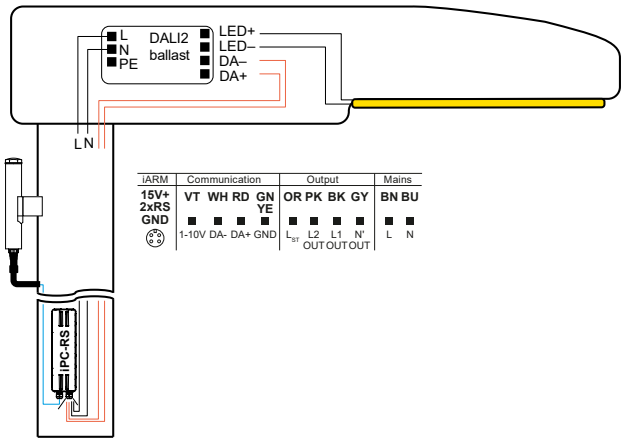


Circuit Diagrams

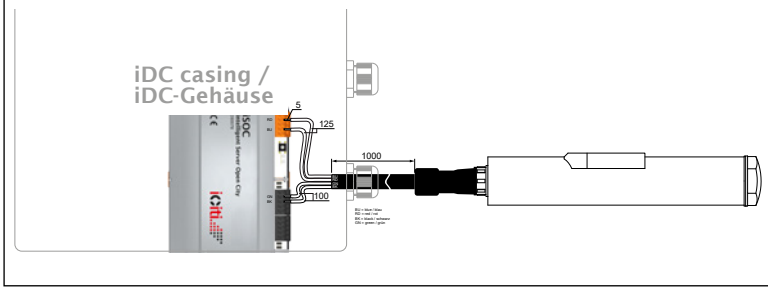
iARM – With luminaire controller iLC-RS



iARM – With luminaire controller iPC-RS

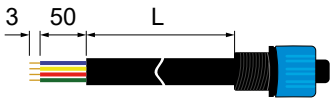


iARM-I – For edge controller iDC-SOC

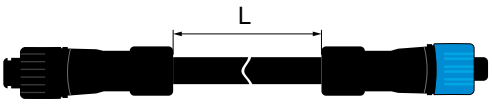


Accessories

SA12-4P connector plug
with 4 connection cables,
cable ends stripped 50 mm, 3 mm tinned



Extension cable with male/female plug
for electrical connection of the iARM module
to the iLC-RS/iPC-RS light controllers
or the iDC edge controller



	Connector plug	Extension cable		
Type	iSA12-4P	iSA12-4P-1m	iSA12-4P-2m	iSA12-4P-8m
Ref. No.	**200110**	**200111**	**200112**	**200113**
Cable length L	1000 mm	1000 mm	2000 mm	8000 mm
Connector series	SA12			
Connector type	female	female and male		
Number of poles	4			
Cables	Material: Cu tinned, cross-section: 0.3 mm², quantity: 4			
Insulation	Rubber sheathing			
Cable outer diameter	6.8 mm			
Rated voltage	300 V			
Rated current	5 A			
Operating temperature	–40 to +105 °C			
Protection class	IP67			
Locking mechanism	Internal bayonet; push-pull			
Country of origin	China			
Customs tariff number	85069090			

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