COMPACT DESIGN

BUS COMMUNICATION

Nemo

RECEIVER

The Nemo radio receiver provides solutions to the broad range of functional needs of secure applications, through a wide variety of industrial network communication buses. This highly flexible product integrates today's cutting edge technology for optimum performance.

MAIN FEATURES

> Configurable, smart bi-directional radio link exchanges information while adapting to the radio environment.

> Internal, unique SIM card contains all the receiver and transmitter parameters linked to the application, and:
- allows a transmitter to associate to a receiver by recovering the application configuration,
- allows quick replacement of a receiver if necessary.

> Quick and easy setup of the product by mini-B USB connector and **iDialog** software setup (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Cable glands, circular connectors M12 on receiver for easy installation.

> Spring-type terminal strips to withstand vibrations.

> Communication with the equipment on **RS485 Modbus RTU Network, CANopen, DeviceNet, PROFIBUS, PROFINET, EtherCAT, Modbus TCP/IP, EtherNet/IP, or realtime deterministic Ethernet POWERLINK industrial network.**

FULLY COMPLIANT WITH EUROPEAN DIRECTIVES:

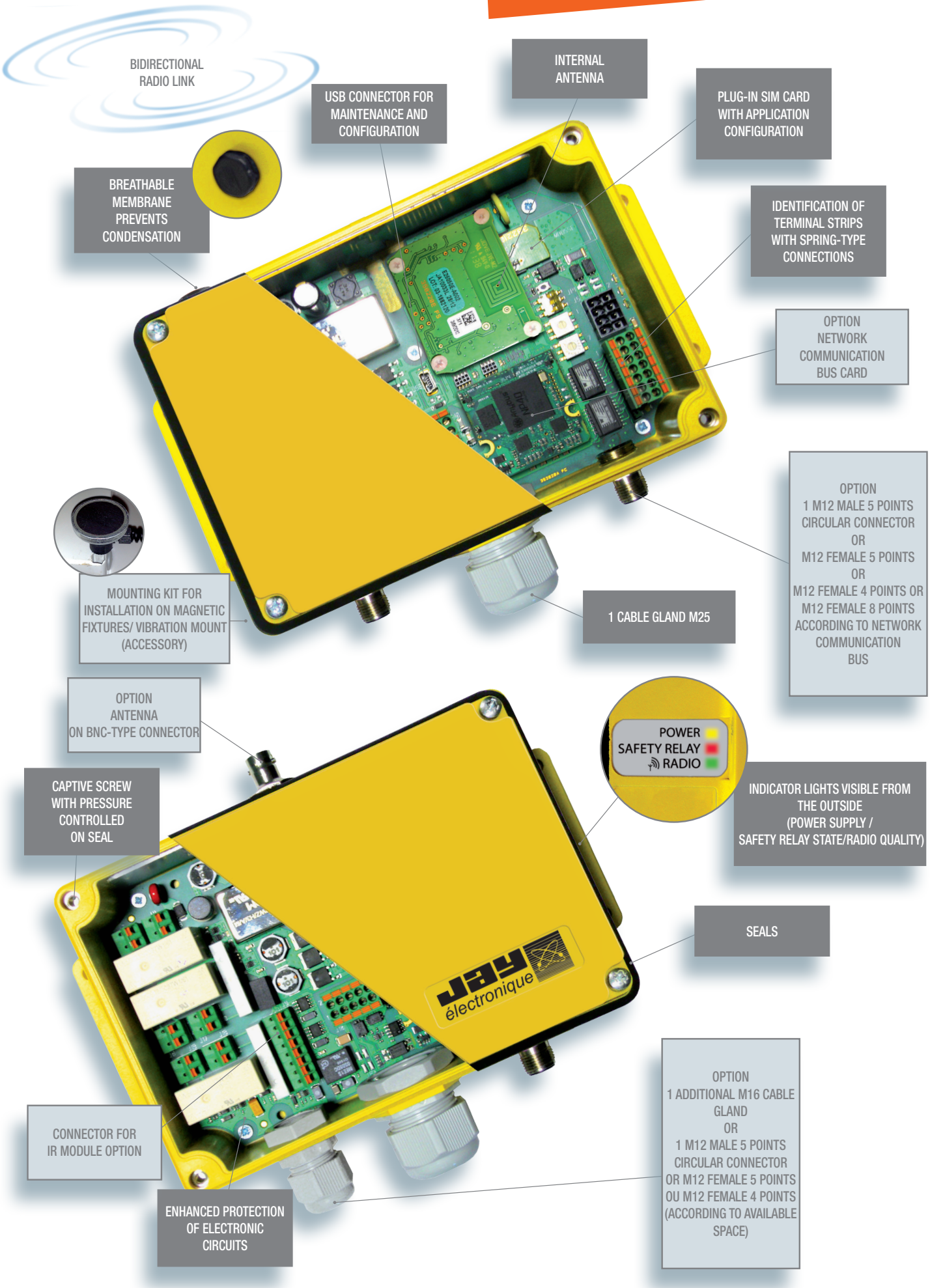
Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

TÜV NORD
TÜV NORD CERT GmbH
Type Tested

Radio equipment
(low voltage, electromagnetic compatibility, radio spectrum)
2014/53/EU

TRANSCEIVER

Nemo



TRANSCEIVER

Nemo

DESCRIPTION

The Nemo receiver is formed by a motherboard comprising:

> 2 safety relays (RS1& RS2) (active when the «On /Validation » button on the transmitter is pressed; self-holding up to shutdown)

> **2 function relays secured by wiring and safety relay RSF3 PL d according to EN13849-1 and -2, SIL 3 according to EN61508**

> 1 logic input

> **1 RS485 Modbus RTU interface**

> **1 CANopen interface**

> 1 terminal strip to connect up to two infrared modules (optional) with possibility of differentiating the activation of a module over the other.

Wireless HMI Control (WHC)

Text messages or graphic images can be send from CANopen or Modbus Network or communication bus (option) and write on transmitter display screen.

Compatibility:

These treceivers operate with **Beta**, **Gama**, **Pika**, **Moka** transmitter, to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	Fiberglass polyamide
Tightness	IP 65
Weight	600 g
Dimensions	190 x 120 x 60 mm max (not including antenna)
Operating temperature range	-20 °C to +60 °C
Storage temperature range	-30 °C to +70 °C
Cable lead-out	- via 1 or 2 cable glands - via 1 or 2 M12 circular connectors
Cable connections	Spring-type terminal strips

RADIO CHARACTERISTICS

Frequency choice	64 frequencies for 433-434 MHz band 12 frequencies for 869 MHz band 64 frequencies for 911-918 MHz band 64 frequencies for 2.4 GHz
Transmit power	< 10 mW (license free)
Modulation	FM or LoRa with 2.4 GHz
Antenna	2.4 GHz : 2x external antennas (SMA) Other frequency: internal antenna (option: plug-in antenna on BNC connector)
Average range [1]	External antenna: 250 m in congested environment [1] 300 m in clear environment [1] 80 m-300 m band 2.4 GHz in industrial environment [1] 800 m-2 Km band 2.4 GHz in open space [1] Internal antenna (except 2.4 GHz): 50 m in clear environment [1]

ELECTRICAL CHARACTERISTICS

Power supply voltage	9 to 30 VDC
Maximum consumption	18 W
Power supply protection	- against polarity inversions - against overcurrents by fuse
Response time	On startup: 0.5 s max On command: 300 ms max
Active stop time	100 ms
Passive stop time adjustable	between 0.5 to 2 s
Indication	- 1 green indicator light: Radio status and quality (visible with housing closed) - 1 yellow indicator light: Power on (visible with housing closed) - 1 red indicator light: Safety relay status (visible with housing closed) - 2 red indicator lights: malfunction and diagnostic (visible with housing open) - 1 red indicator light: function relay status (visible with housing open) - 2 green indicator lights + 2 red indicator lights: communication bus status (visible with housing open)

[1] Range varies according to environment conditions around transmitter and reception antenna (steel works, metal walls …).

SECURE RELAY OUTPUTS

Type of contacts	2 relays with linked contacts
Contacts and connections	2 connection points, potential free, by contact Spring-type terminal strips
Characteristics of contacts	Max. current 6 A

AVAILABLE FUNCTIONS

Relay outputs

Type of contacts	1 relay with linked contacts 2 relays with NO contacts
Contacts and connections	2 connection points, potential free, by contact Spring-type terminal strips
Outputs	- Max. Interrupting capacity. 6 A / output - Max. admissible current for all outputs 12 A - Max. voltage 230 VAC

Logic input

Connection	2 connection points Spring-type terminal strips
High level on input	> 3 VDC
Low level on input	< 2 VDC
Voltage	0-30 VDC max
Active input consumption	< 20 mA

Modbus RTU Slave	1 RS 485 serial link
Contacts and connections	2 connection points spring-type terminal strips
Protection (D+/D-)	ESD/EMI
Data rate	1200, 2400, 4800, 9600, 19200 (default), 38400, 57600, 115200 bits/s
Parity	- none - even (default) - odd
Slave addressing	1 to 247 (100, default)

Bus CANopen Slave	CIA401 compatible
Contacts and connections	2 connection points spring-type terminal strips
Data rate	20, 50, 100, 125, 250, 500, 800 kbits/s and 1 Mbits/s
Slave addressing	1 to 127

ADDITIONAL OPTIONS

STARTUP BY IR VALIDATION

ACTION AREA LIMITATION BY IR

TRANSMITTER / RECEIVER ASSOCIATION BY IR

SYNCHRONISATION OF EQUIPMENT

- Master / Master
- Tandem
- Pitch and Catch

EMERGENCY BY WIRE CONNECTION (UNDER DEVELOPMENT)

Compatible with Pika and Moka transmitters (in this case, the Modbus RTU communication is unavailable)

COMMUNICATION BUS OPTIONS

RS485 PROFIBUS/PROFINET

RS485 DEVICENET

ETHERNET POWERLINK

ETHERNET/IP

ETHERCAT

MODBUS TCP/IP

ACCESSORIES: antennas

Description	Reference for use in 418 and 433 MHz frequency bands (A)	Reference for use in 869 and 915 MHz frequency bands (B)	Picture
Straight antenna, 1/4 wave, BNC [1]	VUA001A	VUA001B	approximate length : A = 190 mm ; B = 90 mm
Straight antenna, 1/2 wave, BNC	VUA002A	VUA002B	approximate length : A = 335 mm ; B = 250 mm
Through insulated remote antenna, 1/2 wave, with 0.5 m BNC cable	VUA100AH	VUA100BH	
Through insulated remote antenna, 1/2 wave, with 2 m BNC cable	VUA102AH	VUA102BH	
Through insulated remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AH	VUA105BH	approximate length : A = 320 mm ; B = 190 mm Required drill hole Ø15 mm
Through insulated remote antenna, 1/2 wave, with 10 m BNC cable	VUA110AH	VUA110BH	
Insulated and magnetic remote antenna, 1/2 wave, with 3 m BNC cable	VUA103AM	VUA103BM	
Insulated and magnetic remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AM	VUA105BM	approximate length : A = 440 mm ; B = 320 mm
Through uninsulated remote antenna, 1/4 wave, with 3 m BNC cable	VUA103AV	VUA103BV	
Through uninsulated remote antenna, 1/4 wave, with 5 m BNC cable	VUA105AV	VUA105BV	(antenna to be mounted on a not grounded metal surface approximate length : A = 180 mm ; B = 100 mm Required drill hole Ø12 mm or Ø19 mm (according mounting type)

(1): antenna supplied as standard with the receiver (except 2.4 GHz option).

ACCESSORIES: antennas

Description	Reference for use in 2.4 GHz	Picture
Straight antenna 2.4 GHz orientable 0-180 deg, gain 2 dBi - SMA(2)	VUC001C	Approximate length 136 mm, Ø12.5 mm
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 0.5 m cable - SMA	VUC100CH	Approximate length 48 mm, Ø50 mm
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 3 m cable - SMA	VUC103CH	
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 8 m cable - SMA	VUC108CH	
Uninsulated antenna 2.4 GHz IP65 UV, 5 m cable - SMA Mat collar fixing diam 22 to 52 mm	VUC105CC	Approximate length 180 mm, Ø60 mm
Uninsulated antenna 2.4 GHz IP65 UV, 10 m cable - SMA Mat collar fixing diam 22 to 52 mm	VUC110CC	
Uninsulated antenna 2.4 GHz gain 2 dBi, 3 m cable - SMA magnetic attachment	VUC103CM	Approximate length 120 mm, Ø30 mm
Uninsulated antenna 2.4 GHz gain 2 dBi, 8 m cable - SMA magnetic attachment	VUC108CM	

CAUTION : In 2.4 GHz, the receiver is equipped with 2 antennas.

(2): 2 antennas supplied as standard with the receiver.

OTHER ACCESSORIES

Reference	Description	Picture
PWT01	Cable gland kit PE M25 with 2 wire grommets	
UDWR14	2 m cable + 16-pin male connector	Transceiver Elio wiring side
UDWR13	2 m cable + 24-pin male connector	Transceiver Elio wiring side
PWT20	**1 IR module** (10 m cable and plastic M16 cable gland included) for options: startup by IR validation or limitation of action area by IR system	
UDWR10	**10m cable extension + connector** for PWT20 IR module	
PWL010	**Cable for wire connection between operator module and receiver** Length : 10 meters	
UDWR38	Receiver mounting kit using magnetic fixtures	

P-005-EN-E

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COMPACT DESIGN

COMMUNICATING SYSTEM

Timo

RECEIVER

Timo radio receiver provides solutions to the broad range of functional needs of secure mobile applications, through a wide variety of input/output interfaces. This highly flexible product integrates today's cutting edge technology for optimum performance.

MAIN FEATURES

> Configurable, intelligent bi-directional radio link exchanges information while adapting to the radio environment.

> Internal, unique SIM card contains all the receiver and transmitter parameters linked to the application, and :
- allows a transmitter to associate to a receiver by recovering the application configuration,
- allows you to quickly replace a receiver if necessary.

> Quick and easy setup of the product by mini-B USB connector and **iDialog** software setup (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Cable glands, circular connector (M12, C16) or industrial connector (10, 16 contacts) on receiver for easy i nstallation.

> Spring-type terminal strips ensuring a good vibration withstand capacity.

FULLY COMPLIANT WITH EUROPEAN DIRECTIVES:

Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

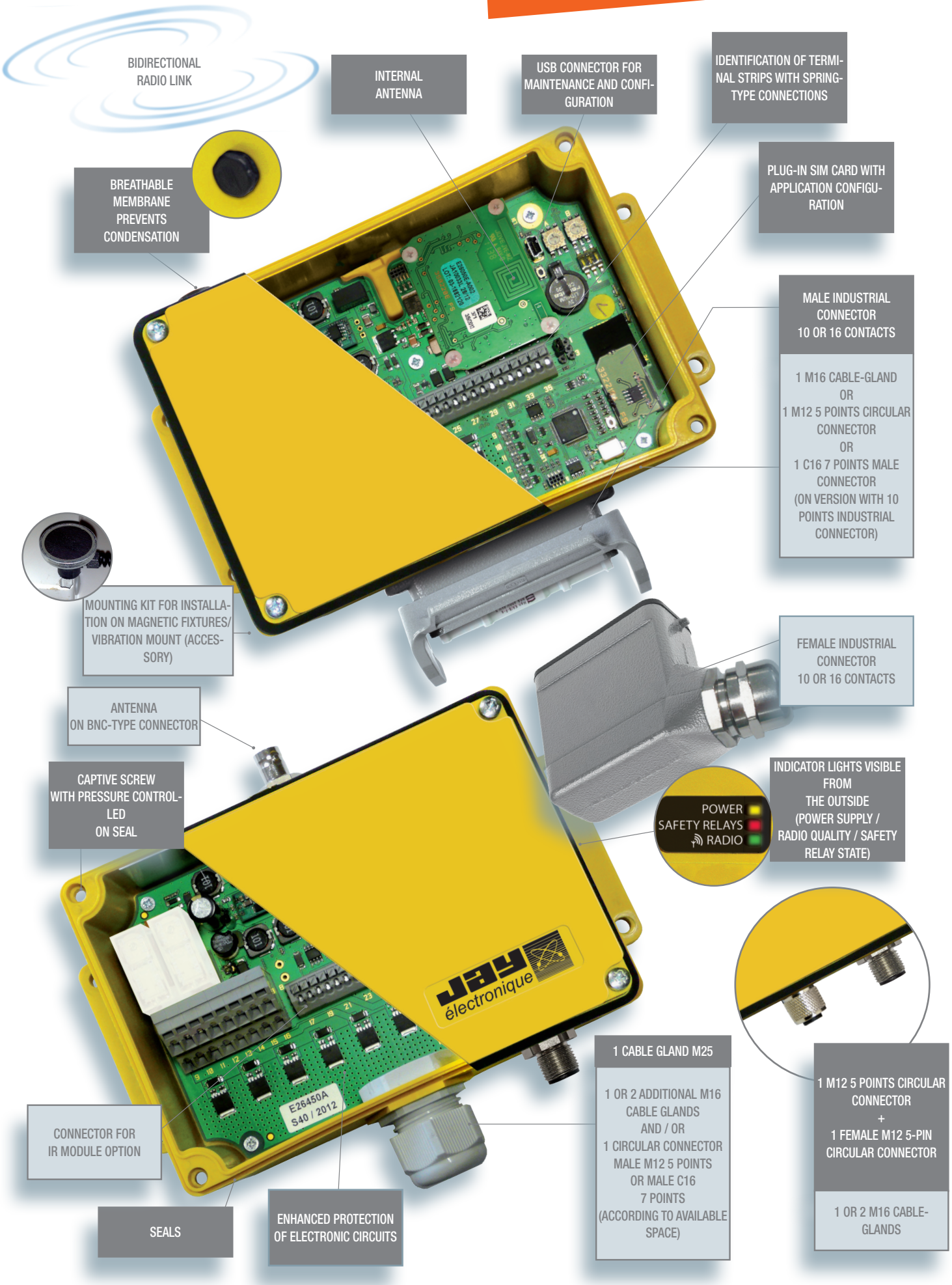
Certificate E13 vehicle marking:
Approval granted by SNCH

E13 10R - 04 13347

Radio and telecommunication terminal equipment
(low voltage, electromagnetic compatibility, radio spectrum)
R&TTE 99/5/EC

RECEIVER

Timo



RECEIVER

Timo

DESCRIPTION

The Timo REceiver is formed by a motherboard comprising:

> 2 safety relays (RS1& RS2) (active when the «On /Validation » button on the transmitter is pressed; self-holding up to shutdown)

> 6 transistor outputs with common contact independent with respect to power supply, type logic or PWM

> 2 analog outputs

> 2 logic inputs

> 1 analog input

> 1 RS485 Modbus interface

> 1 CANopen interface

> 1 terminal strip to connect up to two infrared modules (optional) with possibility of differentiating the activation of a module over the other.

Wireless HMI Control (WHC)

Text messages or graphic images can be send from CANopen or Modbus Network and write on transmitter display screen

Compatibility:

These receivers operate with **Beta**, **Gama**, **Pika**, **Moka** transmitters, to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	Fiberglass polyamide
Tightness	IP 65
Weight	585 g
Dimensions	190 x 120 x 60 mm max (not including attachment fittings and antenna)
Operating temperature range	-20 °C to +60 °C
Storage temperature range	-30 °C to +70 °C
Cable lead-out	Several possibilities: - via 1 or several cable gland lead-outs - via a plug-in industrial connector, 10 or 16-contacts - via a M12 or C16 circular connector
Cable connections	Spring-type terminal strips

RADIO CHARACTERISTICS

Frequency choice	64 frequencies for 433-434 MHz band 12 frequencies for 869 MHz band 64 frequencies for 911-918 MHz band 64 frequencies for 2.4 GHz
Transmit power	< 10 mW (license free)
Modulation	FM or LoRa with 2.4 GHz
Antenna	2.4 GHz: 2x external antennas (SMA) Other frequency: Internal antenna (option: plug-in antenna on BNC connector)
Average range [1]	External antenna : 250 m in congested environment [1] 300 m in clear environment [1] 80 m-300 m band 2.4 GHz in industrial environment [1] 800 m-2 Km band 2.4 GHz in open space [1] Internal antenna (except 2.4 GHz): 100 m in clear environment [1]

ELECTRICAL CHARACTERISTICS

Power supply voltage	9 to 30 VDC
Maximum consumption	4 W
Power supply protection	- against polarity inversions - against overcurrents by fuse
Response time	On startup : 0.5 s max On command : 300 ms max
Active stop time	100 ms
Passive stop time adjustable	between 0.5 to 2 s
Indication	- 1 green indicator light: Radio status and quality (visible with housing closed) - 1 yellow indicator light: Power on (visible with housing closed) - 1 red indicator light: Safety relay status (visible with housing closed) - 2 red indicator lights: malfunction and diagnostic (visible with housing open) - 1 red indicator light: indicates activation of transistor outputs (visible with housing open)

[1] Range varies according to environment conditions around transmitter and reception antenna (steel works, metal walls …).

SECURE RELAY OUTPUTS

Type of contacts	2 relays with linked contacts
Contacts and connections	2 connection points, potential free, by contact Spring-type terminal strips
Characteristics of contacts	Max. current 6 A

AVAILABLE FUNCTIONS

Transistor outputs

Contacts and connections	1 connection point per output + 1 power supply common contact spring-type terminal strips
Outputs	- Max. Interrupting capacity 4 A/output - Max. admissible current for all outputs 12 A - Max. voltage 30 VDC - Max. power 1/4 W - PWM (frequency of 1 to 1000 Hz, duty cycle of 1 to 90 %, 2 possible frequencies)

Logic inputs

Contacts and connections	2 connection points per input Spring-type terminal strips
High level on input	> 6.5 VDC
Low level on input	< 1.5 VDC
Voltage	0-30 VDC Max
Active input consumption	< 20 mA

Analog outputs

Contacts and connections	1 connection point per output + common contact spring-type terminal strips
Type of signal	0-10 V
Max. output current	< 10 mA

Analog input

Contacts and connections	1 connection point + common contact spring-type terminal strips
Type of signal	0-30 V
Active voltage input consumption	< 10 mA

Modbus RTU Slave	1 RS 485 serial link
Contacts and connections	2 connection points spring-type terminal strips
Protection (D+/D-)	ESD/EMI
Data rate	1200, 2400, 4800, 9600, 19200 (default), 38400, 57600, 115200 bits/s
Parity	- none - even (default) - odd
Slave addressing	1 to 247 (100, default)

Bus CANopen Slave	CIA401 compatible
Contacts and connections	2 connection points spring-type terminal strips
Data rate	20, 50, 100, 125, 250, 500, 800 kbits/s and 1Mbits/s
Slave addressing	1 to 127

ADDITIONAL OPTIONS

STARTUP BY IR VALIDATION

ACTION AREA LIMITATION BY IR

TRANSMITTER / RECEIVER ASSOCIATION BY IR

SYNCHRONISATION OF EQUIPMENT

- Master / Master
- Tandem
- Pitch and Catch

ACCESSORIES: antennas and antenna extensions

Description	Reference for use in 418 and 433 MHz frequency bands (A)	Reference for use in 869 and 915 MHz frequency bands (B)	Picture
Straight antenna, 1/4 wave, BNC (1)	VUA001A	VUA001B	approximate length: A = 190 mm ; B = 90 mm
Straight antenna, 1/2 wave, BNC	VUA002A	VUA002B	approximate length: A = 335 mm ; B = 250 mm
Through insulated remote antenna, 1/2 wave, with 0.5 m BNC cable	VUA100AH	VUA100BH	
Through insulated remote antenna, 1/2 wave, with 2 m BNC cable	VUA102AH	VUA102BH	approximate length: A = 320 mm ; B = 190 mm Required drill hole Ø15 mm
Through insulated remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AH	VUA105BH	
Through insulated remote antenna, 1/2 wave, with 10 m BNC cable	VUA110AH	VUA110BH	
Insulated and magnetic remote antenna, 1/2 wave, with 3 m BNC cable	VUA103AM	VUA103BM	approximate length: A = 440 mm ; B = 320 mm
Insulated and magnetic remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AM	VUA105BM	
Through uninsulated remote antenna, 1/4 wave, with 3 m BNC cable	VUA103AV	VUA103BV	(antenna to be mounted on a not grounded metal surface approximate length: A = 180 mm ; B = 100 mm Required drill hole Ø12 mm or Ø19 mm (according mounting type)
Through uninsulated remote antenna, 1/4 wave, with 5 m BNC cable	VUA105AV	VUA105BV	

(1): antenna supplied as standard with the receiver (except 2.4 GHz option).

ACCESSORIES: antennas

Description	Reference for use in 2.4 GHz	Picture
Straight antenna 2.4 GHz orientable 0-180 deg, gain 2 dBi - SMA(2)	VUC001C	Approximate length 136 mm, Ø12.5 mm
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 0.5 m cable - SMA	VUC100CH	Approximate length 48 mm, Ø50 mm
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 3 m cable - SMA	VUC103CH	
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 8 m cable - SMA	VUC108CH	
Uninsulated antenna 2.4 GHz IP65 UV, 5 m cable - SMA Mat collar fixing diam 22 to 52 mm	VUC105CC	Approximate length 180 mm, Ø60 mm
Uninsulated antenna 2.4 GHz IP65 UV, 10 m cable - SMA Mat collar fixing diam 22 to 52 mm	VUC110CC	
Uninsulated antenna 2.4 GHz gain 2 dBi, 3 m cable - SMA magnetic attachment	VUC103CM	Approximate length 120 mm, Ø30 mm
Uninsulated antenna 2.4 GHz gain 2 dBi, 8 m cable - SMA magnetic attachment	VUC108CM	

CAUTION : In 2.4 GHz, the receiver is equipped with 2 antennas.

(2): 2 antennas supplied as standard with the receiver.

OTHER ACCESSORIES

Reference	Description	Picture
PWT01	Cable gland kit PE M25 with 2 wire grommets	
UDWR14	2 m cable + 16-pin male connector	Transceiver Elio wiring side
UDWR13	2 m cable + 24-pin male connector	Transceiver Elio wiring side
PWT15 (10 points) PWT16 (16 points)	Female industrial connector kit	
PWM203	C16 screw-type female circular connector with 7 contacts	
PWT20	1 IR module (10 m cable and plastic M16 cable gland included) for options: startup by IR validation or limitation of action area by IR system	
UDWR10	10m cable extension + connector for PWT20 IR module	
PWT17	M12 female circular connector with 5 contacts + 2m cable	
UDWR38	Receiver mounting kit using magnetic fixtures	

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OPTIMISED

OPEN-ENDED

Elio

RECEIVER

Elio radio receiver provides solutions to the wide range of functional needs involved in secure industrial applications. This highly flexible product integrates today's cutting edge technology for optimum performance.

MAIN FEATURES

> Configurable, intelligent bi-directional radio link exchanges information while adapting to the radio environment.

> Internal, unique SIM card contains all the receiver and transmitter parameters linked to the application, and :
- allows a transmitter to associate to a receiver by recovering the application configuration,
- allows you to quickly replace a receiver if necessary.

> Quick and easy setup of the product by mini-B USB connector and **iDialog** software setup (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Cable glands or industrial connector (not supplied) on receiver for easy installation.

> Spring-type, plug-in terminal strips facilitate wiring and maintenance.

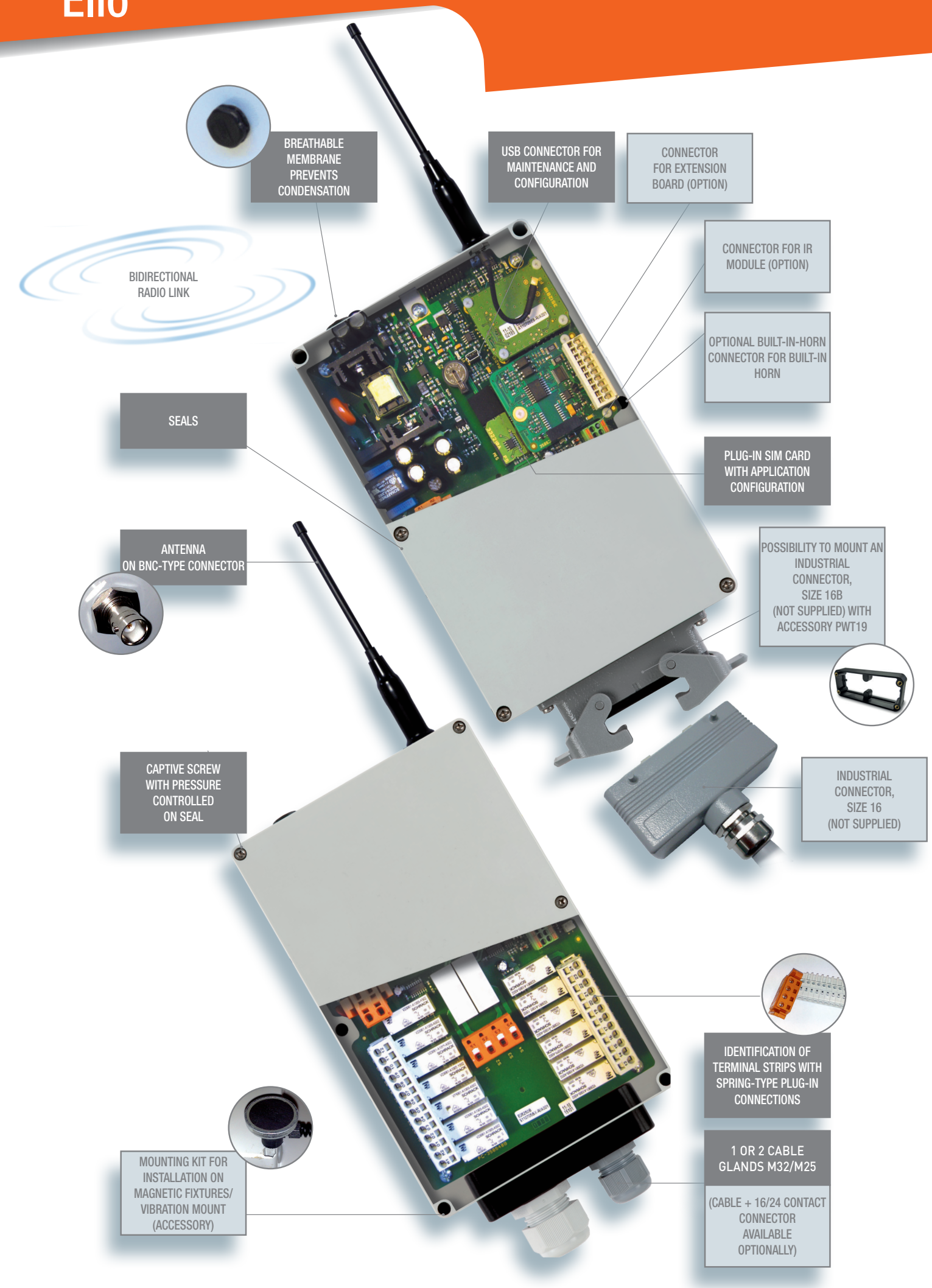
FULLY COMPLIANT WITH SAFETY AND SECURITY STANDARDS:

Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e
per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

Radio and telecommunication terminal equipment
(low voltage, electromagnetic compatibility, radio spectrum)
FCC part 15
ARCEP certificate
Radio Equipment Directive (RED)

RECEIVER

Elio



RECEIVER

Elio

DESCRIPTION

The Elio receiver is formed by a motherboard comprising:

> 1 «On» relay (RM) (active when the «On/Validation» button on the transmitter is pressed; not self-holding)

> 2 safety relays (RS1& RS2) (active when the «On/Validation» button on the transmitter is pressed; self-holding up to shutdown).

> 12 function relays (R1 to R12)

> 1 connector for connection up to 3 IR cells (optional). It is possible to increase this number to 9 with UDWR40 wiring interfaces (accessory).

> 1 auxiliary connector for an extension board (optional)

> 1 connector for connection of the internal horn

Wireless HMI Control (WHC)

Text messages or graphic images can be send from CANopen or Modbus Network and write on transmitter display screen

Compatibility:

These receivers operate with **Beta**, **Gama**, **Pika**, **Moka** transmitters, to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	ABS,
Tightness	IP 65
Weight	2Kg (approx.)
Dimensions	160 x 250 x 120 mm max (not including antenna)
Operating temperature range	- 20 °C to +60 °C
Storage temperature range	- 30 °C to 70 °C
Cable lead-out	- by 2 cable gland lead-outs - by industrial connector (not supplied, requires mounting accessory PWT19)
Cable connections	Spring-type plug-in connectors

RADIO CHARACTERISTICS

Frequency choice	11 frequencies for 418-419 MHz band 64 frequencies for 433-434 MHz band 12 frequencies for 869 MHz band 64 frequencies for 911-918 MHz band 64 frequencies for 2.4 GHz
Transmit power	< 10 mW (license free)
Modulation	FM or LoRa with 2.4 GHz
Antenna	plug-in antenna ref: VUA001A (bands 418-419 MHz or 433-434 MHz) ref: VUA001B (bands 869 MHz or 911-918 MHz) ref: 2x VUC001C (bands 2.4 GHz) Other antennas available as accessories
Average range [1]	100 m in industrial environment [1] 300 m in open space [1] 80 m-300 m band 2.4 GHz in industrial environment [1] 800 m-2 Km band 2.4 GHz in open space [1]

ELECTRICAL CHARACTERISTICS

Power supply voltage	- 12 VDC - 12 % to 24 VDC +25 % - 12 VDC - 5 % to 24 VDC +25 % and 24/48 VAC ± 25 % - 115/230 VAC ± 15 %
Maximum consumption	8 W

SECURE RELAY OUTPUTS

Type of contacts	2 relays with linked contacts
Contacts and connections	2 connection points, potential free, by contact Spring-type plug-in connectors
Characteristics of contacts	Max. current 6 A

SECURE RELAY OUTPUTS

Contacts and connections	2 relays with linked contacts Spring-type plug-in connectors
Command	1 «On» relay + 12 function relays
Outputs	Independent NO relays - Category DC13 0.5 A / 24 VDC, AC15 2 A / 230 VAC - Interrupting capacity 2000 VA max. - Max. current 8 A - Min. current 10 mA (12 V min.) - Max. voltage. 250V AC
Response time	- On startup: 0.5 s max - On command: 300 ms max
Active stop time	100 mst
Passive stop time	adjustable between 0.5 and 2 s
Indication	- 1 green indicator light: Radio status and quality - 1 yellow indicator light: Power on - 1 red indicator light: fault and diagnostic
Power supply protection	- Against polarity inversions - Against overcurrents by fuse

[1] Range varies according to environment conditions around transmitter and reception antenna (steel works, metal walls …).

ADDITIONAL OPTIONS

EXTENSION BOARD TO COMMUNICATE WITH EQUIPMENT USING OTHER COMPLEMENTARY ELECTRICAL SIGNALS

Galvanic insulation	> 2.5 kV
2 logic inputs:	
Contacts and connections	4 connection points with spring-type plug-in connectors
Active input consumption	< 20 mA
High level on input	> 3 VDC
Low level on input	< 2 VDC
Voltage	0-30 VDC Max
1 analogue input:	
Contacts and connections	2 connection points with spring-type plug-in connectors
Type of signal	0-10 V or 4-20 mA
Active voltage input consumption	< 10 mA
1 analogue output:	
Contacts and connections	2 connection points with spring-type plug-in connectors
Type of signal	0-10 V or 4-20 mA
Voltage output max. current	< 10 mA
1 RS 485 serial link:	
Contacts and connections	2 connection points with spring-type plug-in connectors
Protocol	Modbus RTU slave
Data rate	1200, 2400, 4800, 9600, 19200 (default), 38400, 57600, 115200 bit/s
Parity	none / even (default) / odd
Slave addressing	1 to 247

STARTUP BY IR VALIDATION

ACTION AREA LIMITATION

BUILT-IN HORN

Power 100 dB

SYNCHRONIZATION OF EQUIPMENT

- Master / Master
- Tandem
- Pitch and Catch

TRANSMITTER / RECEIVER SELECTION AND ASSOCIATION BY INFRARED

ACCESSORIES: antennas

Description	Reference for use in 418 and 433 MHz frequency bands (A)	Reference for use in 869 and 915 MHz frequency bands (B)	Picture
Straight antenna, 1/4 wave, BNC (1)	VUA001A	VUA001B	approximate length: A = 190 mm ; B = 90 mm
Straight antenna, 1/2 wave, BNC	VUA002A	VUA002B	approximate length: A = 335 mm ; B = 250 mm
Through insulated remote antenna, 1/2 wave, with 0.5 m BNC cable	VUA100AH	VUA100BH	
Through insulated remote antenna, 1/2 wave, with 2 m BNC cable	VUA102AH	VUA102BH	approximate length: A = 320 mm ; B = 190 mm Required drill hole Ø15 mm
Through insulated remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AH	VUA105BH	
Through insulated remote antenna, 1/2 wave, with 10 m BNC cable	VUA110AH	VUA110BH	
Insulated and magnetic remote antenna, 1/2 wave, with 3 m BNC cable	VUA103AM	VUA103BM	approximate length: A = 440 mm ; B = 320 mm
Insulated and magnetic remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AM	VUA105BM	
Through uninsulated remote antenna, 1/4 wave, with 3 m BNC cable	VUA103AV	VUA103BV	(antenna to be mounted on a not grounded metal surface approximate length: A = 180 mm ; B = 100 mm Required drill hole Ø12 mm or Ø19 mm (according mounting type)
Through uninsulated remote antenna, 1/4 wave, with 5 m BNC cable	VUA105AV	VUA105BV	

(1): antenna supplied as standard with the receiver (except 2.4 GHz option).

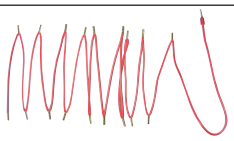
ACCESSORIES: antennas

Description	Reference for use in 2.4 GHz	Picture
Straight antenna 2.4 GHz orientable 0-180 deg, gain 2 dBi - SMA(2)	VUC001C	Approximate length 136 mm, Ø12.5 mm
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 0.5 m cable - SMA	VUC100CH	Approximate length 48 mm, Ø50 mm
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 3 m cable - SMA	VUC103CH	
Through insulated remote antenna 2.4 GHz, gain 3 dBi, IP65, 8 m cable - SMA	VUC108CH	
Uninsulated antenna 2.4 GHz IP65 UV, 5 m cable - SMA Mat collar fixing diam 22 to 52 mm	VUC105CC	Approximate length 180 mm, Ø60 mm
Uninsulated antenna 2.4 GHz IP65 UV, 10 m cable - SMA Mat collar fixing diam 22 to 52 mm	VUC110CC	
Uninsulated antenna 2.4 GHz gain 2 dBi, 3 m cable - SMA magnetic attachment	VUC103CM	Approximate length 120 mm, Ø30 mm
Uninsulated antenna 2.4 GHz gain 2 dBi, 8 m cable - SMA magnetic attachment	VUC108CM	

CAUTION : In 2.4 GHz, the receiver is equipped with 2 antennas.

(2): 2 antennas supplied as standard with the receiver.

OTHER ACCESSORIES

Reference	Description	Picture
PWT01	Cable gland kit PE M25 with 2 wire grommets	
UDWR14	2 m cable + 16-pin male connector	Transceiver Elio wiring side
UDWR13	2 m cable + 24-pin male connector	Transceiver Elio wiring side
PWT02	Wiring accessories for common points	
PWT19	Mounting accessory for industrial connector	
PWT20	**1 IR module** (10 m cable and plastic M16 cable gland included) for options: startup by IR validation or limitation of action area by IR system	
UDWR10	**10 m cable extension + connector** for PWT20 IR module	
UDWR40	**Wiring interface to connect 3 infrared IR modules PWT20 on a receiver IR input** (delivered with 10 m cable to be connected to the receiver IR input and mounting kit using 2 magnetic fastening pads)	
UDWR38	Receiver mounting kit using magnetic fixtures	

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P-007-EN-H

MODULAR

MULTIFUNCTION

Alto

RECEIVER

Alto radio receiver provides solutions to the wide range of functional needs involved in secure industrial applications. This highly flexible product integrates today's cutting edge technology for optimum performance.

MAIN FEATURES

> Modular unit with a large choice of functions

> Configurable, intelligent bi-directional radio link exchanges information while adapting to the radio environment.

> Internal, unique SIM card contains all the receiver and transmitter parameters linked to the application, and :
- allows an operator module to associate to a receiver by recovering the application configuration,
- allows you to quickly replace a receiver if necessary.

> Quick and easy setup of the product by mini-B USB connector and **iDialog** software setup (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Cable glands or industrial connector (not supplied) on receiver for easy installation.

> Spring-type, plug-in terminal strips facilitate wiring and maintenance.

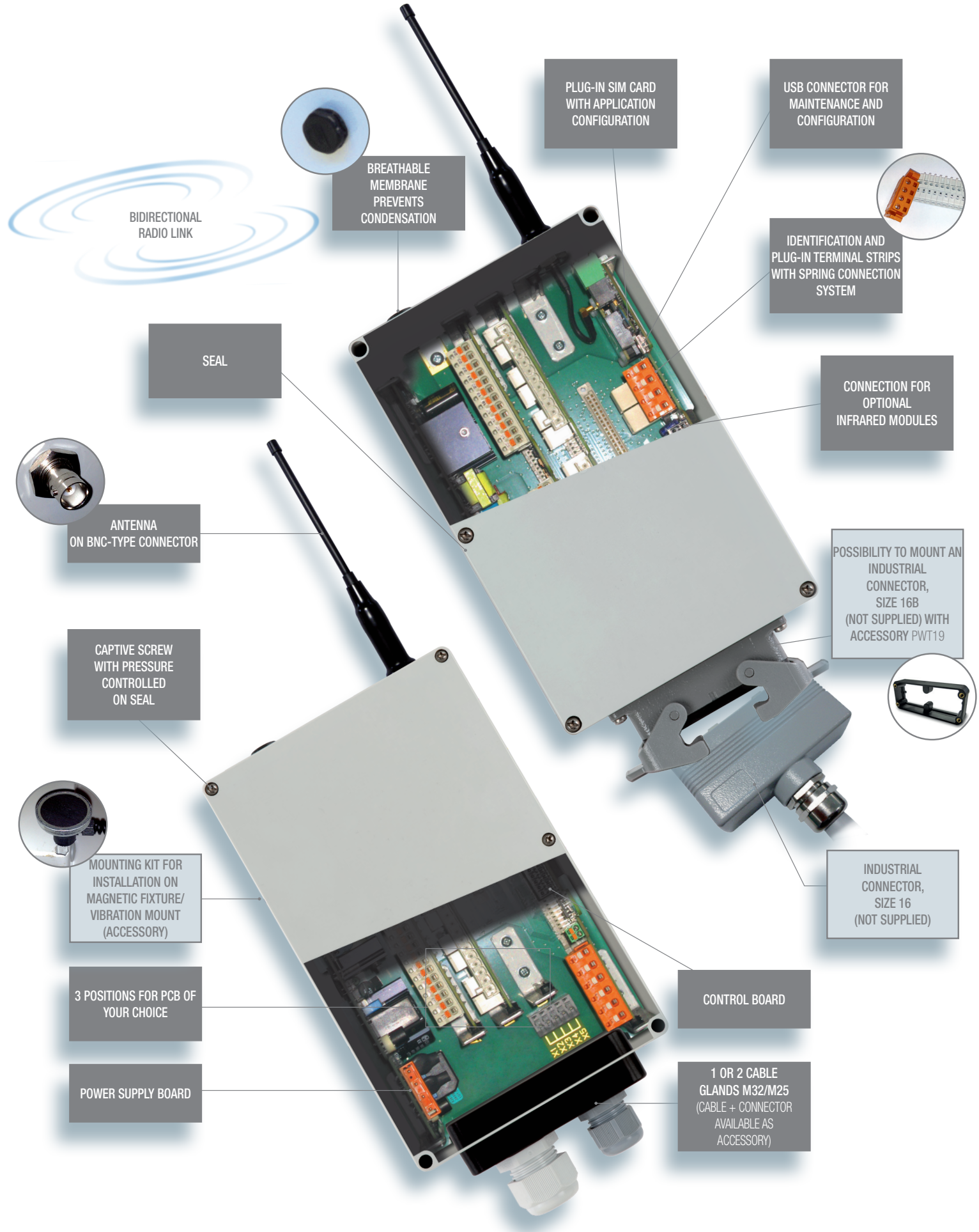
FULLY COMPLIANT WITH SAFETY AND SECURITY STANDARDS:

Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

Radio and telecommunication terminal equipment
(low voltage, electromagnetic compatibility, radio spectrum)
FCC part 15
ARCEP certificate
Radio Equipment Directive (RED)

RECEIVER

Alto



RECEIVER

Alto

DESCRIPTION

The modular receiver is formed by PCBs which connect into the unit's motherboard.

The unit is systematically equipped with :

> 1 power supply board

> 1 control board containing safety relays RS1 & RS2 / On-Horn relay / 3 inputs for infrared module. It is possible to increase this number to 9 with UDWR40 wiring interfaces (accessory) / 1 logic input / 1 analog input / 1 RS485 Modbus serial link

3 positions are provided to receive, in accordance with your application :

> 1 board with 12 On/Off relays

> 1 board with 12 logic inputs + 2 analog inputs

> 1 board with 6 analog outputs + 1 bypass output

Wireless HMI Control (WHC)

Text messages or graphic images can be send from Modbus Network and write on transmitter display screen

Compatibility:

These receivers operate with **Beta**, **Gama**, **Pika**, **Moka** transmitters, to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY	
Housing material	ABS
Tightness	IP 65
Weight	2 Kg (approx.)
Dimensions	160 x 250 x 120 mm max (not including antenna)
Operating temperature range	-20 °C to +60 °C
Storage temperature range	-30 °C to 70 °C
Cable lead-out	- by 2 cable glands (size M32/M25) - by industrial connector (not supplied, requires mounting accessory PWT19)
Wiring connection	Spring-type plug-in connectors

RADIO CHARACTERISTICS	
Frequency choice	11 frequencies for 418-419 MHz
Manual / automatic	64 frequencies for 433-434 MHz 12 frequencies for 869 MHz 64 frequencies for 911-918 MHz 64 frequencies for 2.4 GHz
Transmit power	< 10 mW (license free)
Modulation	FM or LoRa with 2.4 GHz
Antenna	Plug-in antenna ref: VUA001A (bands 418-419 MHz or 433-434 MHz) ref: VUA001B (bands 869 MHz or 911-918 MHz) ref: 2x VUC001C (bands 2.4 GHz) Other antennas available as accessories
Average range [1]	100 m in industrial environment [1] 300 m in open space [1] 80 m-300 m band 2.4 GHz in industrial environment [1] 800 m-2 Km band 2.4 GHz in open space [1]

ELECTRICAL CHARACTERISTICS OF POWER SUPPLY BOARD	
Power supply voltage	12-24 VDC ±15 %/ 24-48 VAC ±25 % /115-230 VAC ±15 %
Maximum consumption	15 W
USB Interface	mini-B 5-contact USB connector
Indication	- yellow indicator lights : power on
Number of relays controllable according to power supply without or with 1 IR module connected	30

ELECTRICAL CHARACTERISTICS OF CONTROL BOARD	
Contact type	2 relays with linked contacts
Contacts and connection	3 connection points, 1 Contact Spring-type plug-in connectors
Indication	- 1 green indicator light: Radio status and quality - 1 yellow indicator light: Power on - 1 red indicator light: fault and diagnostic
Active stop time	100 ms
Passive stop time	adjustable 0.5 to 2 s

ON CONTROL BOARD	
1 Logic input	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
1 active input consumption	< 10 mA
Voltage	0 to 30 VDC
Lowlevel on input	< 2 VDC
Highlevel on input	> 3 VDC
1 Analog input	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
Max. input level	10 V or 4-20 mA
1 active input consumption	< 12 mA
1 RS485 serial link	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
Protocol	Modbus RTU slave
Data rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bit/s
Parity	none / even / odd
Slave addressing	1 to 247

[1] Range varies according to environment conditions around transmitter and reception antenna (steel works, metal walls …).

ADDITIONAL OPTIONS

ELECTRICAL CHARACTERISTICS OF BOARD WITH 12 CONTROL RELAY OUTPUTS	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
Outputs	Independent relays - Category DC13 0.5 A / 24 VDC , AC15 2 A / 230 VAC - Interrupting capacity, 2000 VA max. - Max. current 8 A (control relay), 6 A (safety relay) - Min. current 10 mA (12 V min.) - Max. voltage 250 VAC
Response time	- On startup: 0.5 s max - On command: 200 ms typical

ELECTRICAL CHARACTERISTICS OF BOARD WITH 12 LOGIC INPUTS + 2 ANALOG INPUTS	
Logic inputs	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
Consumption of an active input	< 10 mA
Voltage	0 to 30 VDC
Low level on input	< 2 Vdc
High level on input	> 3 Vdc
Analog inputs	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
Max. input level	10 V or 4-20 mA
Consumption of an active input	< 12 mA

ELECTRICAL CHARACTERISTICS OF BOARD WITH 6 ANALOG OUTPUTS + 1 BYPASS OUTPUT	
Analog outputs	
Contacts and connection	2 connection points, 1 Contact Spring-type plug-in connectors
Output level	0 / 10 V -10 V / 0 / +10 V 3 V / 6 V / 9 V 6 V / 12 V / 18 V
Voltage output max. current	10 mA

ELECTRICAL CHARACTERISTICS OF BOARD WITH BUS	
CANopen slave CiA 401 compatible	
Contacts and connection	2 connection points on spring terminals
Data rate	20, 50, 100, 125, 250, 500, 800 kbits/s and1 Mbits/s
Slave addressing	1 to 127

EMERGENCY BY WIRE CONNECTION

SYNCHRONIZATION OF EQUIPMENT

- Master / Master
- Master / Slave
- Tandem
- Pitch and Catch

STARTUP BY IR VALIDATION

ACTION AREA LIMITATION BY INFRARED

TRANSMITTER / RECEIVER SELECTION AND ASSOCIATION BY INFRARED

ACCESSORIES: antennas

Description	Reference for use in 418 and 433 MHz frequency bands (A)	Reference for use in 869 and 915 MHz frequency bands (B)	Picture
Straight antenna, 1/4 wave, BNC (1)	VUA001A	VUA001B	approximate length: A = 190 mm ; B = 90 mm
Straight antenna, 1/2 wave, BNC	VUA002A	VUA002B	approximate length: A = 335 mm ; B = 250 mm
Through insulated remote antenna, 1/2 wave, with 0.5 m BNC cable	VUA100AH	VUA100BH	
Through insulated remote antenna, 1/2 wave, with 2 m BNC cable	VUA102AH	VUA102BH	
Through insulated remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AH	VUA105BH	approximate length: A = 320 mm ; B = 190 mm Required drill hole Ø15 mm
Through insulated remote antenna, 1/2 wave, with 10 m BNC cable	VUA110AH	VUA110BH	
Insulated and magnetic remote antenna, 1/2 wave, with 3 m BNC cable	VUA103AM	VUA103BM	
Insulated and magnetic remote antenna, 1/2 wave, with 5 m BNC cable	VUA105AM	VUA105BM	approximate length: A = 440 mm ; B = 320 mm
Through uninsulated remote antenna, 1/4 wave, with 3 m BNC cable	VUA103AV	VUA103BV	
Through uninsulated remote antenna, 1/4 wave, with 5 m BNC cable	VUA105AV	VUA105BV	(antenna to be mounted on a not grounded metal surface approximate length: A = 180 mm ; B = 100 mm Required drill hole Ø12 mm or Ø19 mm (according mounting type)

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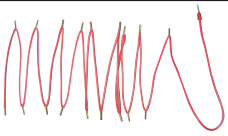
PWT02	Wiring accessories for common points	
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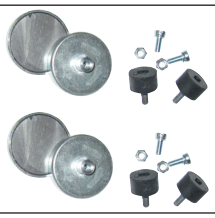
UDWR38	Receiver mounting kit using magnetic fixtures	
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UDWR40	**Wiring interface to connect 3 infrared IR modules PWT20 on a receiver IR input** (delivered with 10 m cable to be connected to the receiver IR input and mounting kit using 2 magnetic fastening pads)	
PWL010	**Cable for wire connection between operator module and receiver** Length: 10 meters	

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