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:

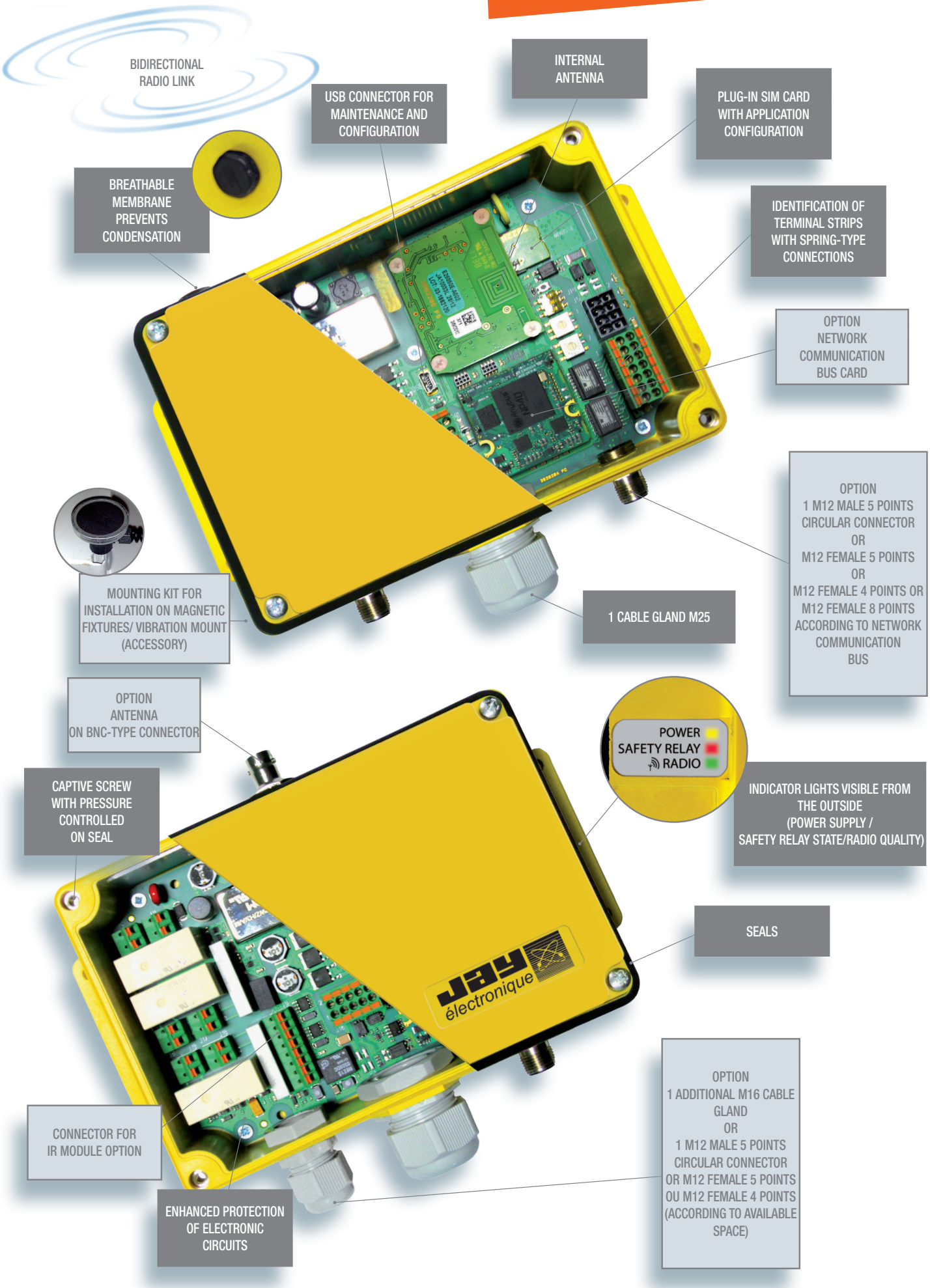
Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

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	

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