Jay Radio Remote Controls
Beta | Gama | Pika | Moka Series

CONDUCTIX wampfler

COMPACT

EASY TO HANDLE

FLEXIBLE

Beta

TRANSMITTER

Beta transmitter adapts to the application to make the process more efficient. This easy-to-use handheld remote control gives incomparable freedom of movement, high motion accuracy and higher productivity while providing best operators' safety. With Beta transmitter, experience today's cutting-edge technology.

MAIN FEATURES

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

> User-friendly screen for look-up, selection, validation, configuration…

> Compact, easy-to handle casing for one-hand control.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (screen message, iDialog analysis software).

> 2 charging modes on Beta 6 + 4 model:
- Rugged industrial charger for operator module,
- Rugged industrial charger for battery.

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)

TRANSMITTER

Beta

OPTIONAL STARTUP VALIDATION BY IR

OR

OPTIONAL IR WORK AREA LIMITATION (A)

OR

OPTIONAL PUSHBUTTON

OR

OPTIONAL M12 INDUSTRIAL CONNECTOR TO CONNECT TWO DRY CONTACTS

OR

OPTIONAL BNC ANTENNA CONNECTOR

OR

BREATHABLE MEMBRANE TO PREVENT CONDENSATION

BIDIRECTIONAL RADIO LINK

OPTIONAL BUZZER 80 DBA

TOUGH BACKLIT SCREEN WITH ANTI-REFLECTION, SHOCK-PROOF, ANTI-SCRATCHING FEATURES

MULTIMODES OPTION

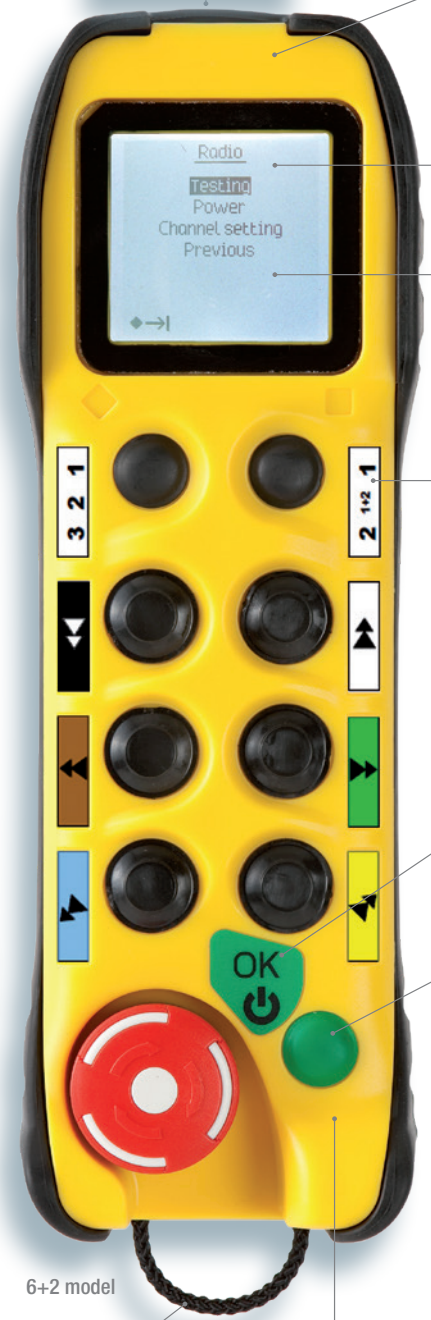
INTEGRATED REINFORCED ABS AND PROTECTIVE FOAM

SEALS

NAVIGATION BUTTONS

CASING SHAPED TO PREVENT UNINTENTIONAL ACTIONS

2+2 model



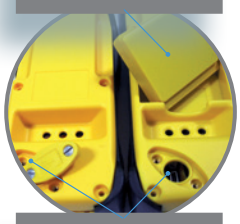
6+2 model

LABELS FOR IDENTIFYING FUNCTIONS

OPTIONAL IR WORK AREA LIMITATION (B)

ON / VALIDATION BUTTON

HIGH-CAPACITY PLUG-IN BATTERY (6+2 MODEL)



SEALED USB INTERFACE FOR DIAGNOSIS, CONFIGURATION

EMERGENCY STOP PALMSWITCH SIL 3 - PL e

OPTION AUTOMATIC DETECTION OF INACTIVITY «DEAD MAN»

CARRYING STRAP

OPTIONAL VIBRATOR (ALARM)

TRANSMITTER

Beta

DESCRIPTION

The transmitter comes in two versions:

> « 2+2(a) »[a] transmitter with 2 function buttons[b]:

- 2 single-action pushbuttons

OR 2 double-action pushbuttons

> « 6+2 »[a] transmitter with 6 function buttons[b]:

- 6 single-action pushbuttons

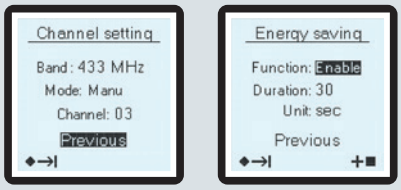
OR 6 double-action pushbuttons

OR 4 double-action pushbuttons + 2 single-action pushbuttons (under the navigation buttons)

[a] Each version has 2 navigation pushbuttons

[b] The single-action pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

The screen on the transmitter allows configurating easily and choosing items such as:



> Screen language

> Receiver which you want to use

> Radio transmit frequency and power

> Duration of the « standby » time delay (automatically stops operator module and associated receiver if not used for a defined period of time)

> Operating modes of the equipment (32 max.)

It also displays:

- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbacks max with 10 labels / feedback - 48 labels max in total)
- Alarms (8 for application use + 8 for system)

Compatibility:

These transmitters work with **Elio, Alto, Timo, Nemo** receivers to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	shock-resistant reinforced ABS
Water tightness	IP65
Weight (with battery)	2 buttons: 400 g
	6 buttons: 485 g
Dimensions	2 buttons: 182 x 75 x 50 mm
	6 buttons: 235 x 75 x 50 mm
Storage	on charger support
Carrying	in carrying sleeve
	by 2-point shoulder strap
	by 3-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature	-20 °C to +50 °C
Storage temperature without battery	-20 °C to +70 °C
Battery storage temperature	-20 °C to +50 °C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Li-ion battery
Autonomy (25 °C) radio with activated	
100 % time	10 hours
Frequency selection	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
Emission power	< 10 mW (license free)
Range limitation	Selectable 10 levels of power
Modulation	FM or LoRa with 2.4 GHz
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]
Charging time (autonomy > 80 %)	3 hr (20 mn of charge provides 1 hr autonomy)
Charging temperature range	0 °C to +40 °C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD, 128 x 128 pixels
	42 mm (W) x 40 mm (H)
USB interface for configuration and	mini-B 5-point USB connector
diagnostics	Easy access in a compartment on the backside
	of the transmitter
Operating indications	Displayed on screen (radio link status,
	battery status, status of buttons,
	information feedbacks…)
Function buttons	2 or 6 pushbuttons (available as single
	or double-action buttons
	and configurable as selectors with n positions)
Navigation and	2 pushbuttons
buttons	configure the product
	1 On / Validation button (for startup
	and validation of menus on screen)
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay
	(from 1 s to infinity)

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

ADVANCED OPTIONS

STARTUP VALIDATION BY IR

Startup of the remote-controlled equipment can be secured by adding an IR startup feature.

- To start the equipment, the operator must point the module in the direction of the PWT20 IR module(s) mounted on the equipment to control. The "Transmitter / Equipment controlled" match-up takes place with no possibility of error.
- The IR startup feature has a range of 0 to 20 m (see fig. A).

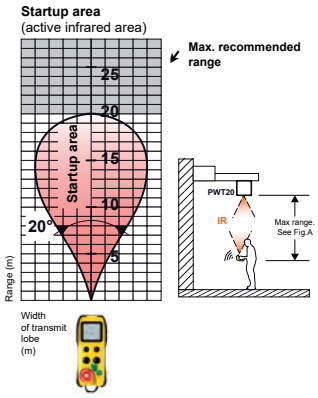


Fig. A

LIMITATION OF ACTION AREA BY INFRARED

The transmitter work features with an IR emission function which detects an operator in the IR working area. Operator safety is ensured since the operator is required to work in the IR area.

The maximum guaranteed work distance between PWT20 IR modules and the transmitter is 20 meters (see fig.A) or 8 meters (see fig.B).

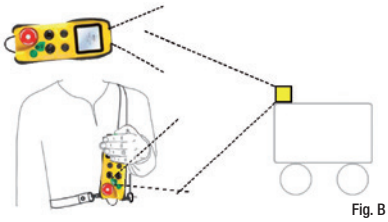


Fig. B

C16 INDUSTRIAL CONNECTOR FOR 2 DRY CONTACTS

- 4 connection terminals
- switching capacity < 10 mA
- female socket
- supplied with cap

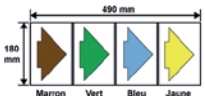
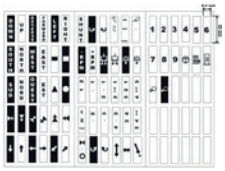
ACCESSORIES

Reference	Description	Picture
UWE102	Removable 2-points shoulder strap	
UWE104	Removable 3 points shoulder strap for thorax protective case for PWM109 (Beta2) or PWM102 (Beta 6)	
PWM102	Carrying and Protection cover for Beta 6. Used with shoulder strap UWE102 (2 points) or UWE104 (3 points)	
PWM106	Protection cover for Beta 6	
PWM107	Carrying sleeve for Beta 2 transmitter	
PWM108	Carrying sleeve for Beta 6 transmitter	
PWM109	Thorax protective case for Beta 2 transmitter. Used with removable strap UWE102 (2-points) or UWE104 (3-points)	
PWM111	Wrist strap for transmitter	

ACCESSORIES

Reference	Description	Picture
PWC	Charger for PWB plug-in battery Dimensions : 170 x 65 x 36 mm Power supply 12/24 Vdc, 7 W	
PWCB020	Standard charger for Beta2 transmitter Dimensions : 220 x 82 x 76 mm Power supply 12/24 Vdc, 7 W	
PWCB021	Docking charger Beta2 with 2 Relays + 1 logical input + Buzzer Dimensions : 220 x 82 x 76 mm Power supply 12/24 Vdc, 7 W	
PWCB022	Docking charger Beta2 with 1 Relay + 4 logicals inputs + Buzzer Dimensions : 220 x 82 x 76 mm Power supply 12/24 Vdc, 7 W	
PWCB06M	Mechanical support for Beta6 Dimensions : 272 x 82 x 76 mm	
PWCB060	Standard charger for Beta6 transmitter Dimensions : 272 x 82 x 76 mm Power supply 12/24 Vdc, 7W	
PWCB061	Docking charger Beta6 with 2 Relays +1 logical input + Buzzer Dimensions : 272 x 82 x 76 mm Power supply 12/24 Vdc, 7 W	
PWCB062	Docking charger Beta6 with 1 Relay + 4 logicals inputs + Buzzer Dimensions : 272 x 82 x 76 mm Power supply 12/24 Vdc, 7W	
PWB	Supplementary plug-in battery 3.7 V 2200 mA lithium Ion (for Beta 6) Dimensions : 57 x 56 x 16 mm Voltage: 3.7 V Capacity: 1900 mAh	

ACCESSORIES

Reference	Description	Picture
UBCU	110-240 Vac / 12 Vdc Adapter with European, UK and US plugs For charger PWC, PWCB02x, PWCB06x	
PWA4	Cigarette lighter socket 12-24 Vdc. For charger PWC, PWCB02x, PWCB06x	
PWT17	Female M12 connector 4/5 pins with 2 m cable - Auxiliary Beta plug - M12 Timo Plug	
UWE002	4 Self-adhesive directional colored arrows (4 x 122 x 180 mm)	
UWE202	6 label kit arrows color	
UWE205	48 blank label kit	
UWE207	Kit 90 labels buttons black & white	

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ROBUST

ERGONOMIC

SECURE

Gama

TRANSMITTER

Gama transmitter adapts to the application to make the process more efficient. This easy-to-use handheld module gives incomparable freedom of movement, and higher productivity while providing best high motion accuracy operators' safety. With Gama transmitter, experience today's cutting-edge technology.

MAIN FEATURES

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

> User-friendly screen for look-up, selection, validation, configuration…

> Ergonomic casing and buttons, even when wearing thick gloves.

> Function buttons designed to SIL 2 per EN 61508 and PL d per EN ISO 13849.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (on screen message, iDialog analysis software).

> 2 charging modes on Gama:
- Rugged industrial charger for operator module,
- Rugged industrial charger for battery.

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)

TRANSMITTER

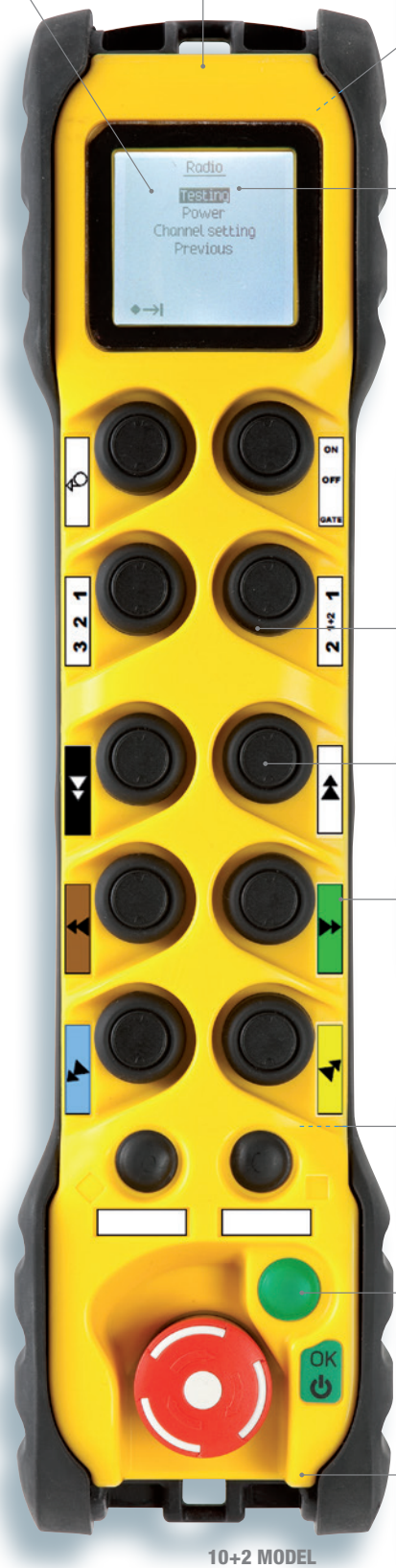
Gama

MULTIMODES OPTIONS

OPTIONAL STARTUP VALIDATION BY IR

SEALED USB PORT FOR DIAGNOSIS, CONFIGURATION

BIDIRECTIONAL RADIO LINK



TOUGH BACKLIT SCREEN WITH ANTI-REFLECTION, SHOCK-PROOF, ANTI-SCRATCHING FEATURES

2 ATTACHMENT POINTS FOR SHOULDER STRAPS

INTEGRATED REINFORCED ABS AND PROTECTION FOAM

SEALS

FUNCTION BUTTON SIL 2 - PL d

CASING SHAPED TO PREVENT UNINTENTIONAL ACTIONS

NAVIGATION BUTTONS

LARGE-SIZED EASY-TOUCH CONTROL BUTTONS: FOR EASY USE WITH GLOVES TO PREVENT MUSCULO-SKELETAL DISORDER (MSD)

OPTIONAL ANTI-ZAPPING FUNCTION

LABELS FOR IDENTIFYING FUNCTIONS

BREATHABLE MEMBRANE TO PREVENT CONDENSATION

6+2 MODEL

HIGH-CAPACITY PLUG-IN BATTERY

EMERGENCY STOP PALMSWITCH SIL 3 - PL e

ON / VALIDATION BUTTON

OPTIONAL VIBRATOR (ALARM)

10+2 MODEL

TRANSMITTER

Gama

DESCRIPTION

The transmitter comes in two versions:

> **«6+2»[a] transmitter** with 6 function buttons[b]:

- 6 single-action pushbuttons

OR 6 double-action pushbuttons

OR 4 double-action pushbuttons + 2 single-action pushbuttons (under the display)

> **«10 +2»[a] transmitter** with 10 function buttons[b]:

- 10 single-action pushbuttons
- 10 double-action pushbuttons

OR 6 double-action pushbuttons

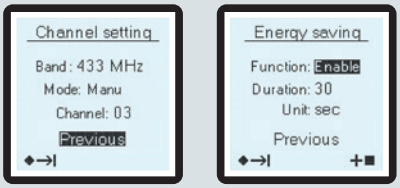
OR + 4 single-action pushbuttons (under the display)

OR 8 double-action pushbuttons + 2 single-action pushbuttons (under the display)

[a] Each version has 2 navigation pushbuttons.

[b] The single-action pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

The screen on the transmitter allows configurating easily and choosing items such as:



> Screen language

> Receiver which you want to use

> Radio transmit frequency and power

> Duration of the « standby » time delay (automatically stops transmitter and associated receiver if not used for a defined period of time)

> Operating modes of the equipment (32 max.)

It also displays:

- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbacks max with 10 labels / feedback - 48 max labels in total)
- Alarms (8 for application use + 8 for system)

Compatibility:

These transmitters work with **Elio, Alto, Timo Nemo** receivers to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	shock-resistant reinforced ABS
Water tightness	IP65
Weight (with battery)	6 buttons: 768 g
	10 buttons: 893 g
Dimensions	6 buttons: 290 x 93 x 64 mm
	10 buttons: 360 x 93 x 64 mm
Storage	on charger support
Carried	by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature range	-20 °C to +50 °C
Storage temperature without battery	-20 °C to +70 °C
Battery storage temperature	-20 °C to +50 °C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Li-ion battery
Autonomy (25 °C) with radio link activated 100 % time	10 hours
Frequency selection	64 frequencies for 433-434 MHz
Manual / automatic	12 frequencies for 869 MHz
	64 frequencies for 911-918 MHz
	64 frequencies for 2.4 GHz
Emission power	< 10 mW (license free)
Range limitation	10 selectable levels of power
Modulation	FM or LoRa with 2.4 GHz
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]
Charging time (endurance > 80 %)	3 hr (20 mn of charge provides 1hr autonomy)
Charging temperature range	0 °C to +40 °C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD, 128 x 128 pixels
	42 mm (W) x 40 mm (H)
USB interface for configuration and diagnosis	mini-B 5-contact USB connector
	Easy access in a compartment on the backside of transmitter
Operating indications	Displayed on screen (radio link status, battery status, status of buttons, information feedbacks…)
Function buttons	6 or 10 pushbuttons (available as single or double-action buttons and configurable as selectors with n positions)
	Ø 14 mm - travel 7 mm
	Endurance :
	1 million cycles for 1st level pushbutton action
	500 000 cycles for 2nd level pushbutton action
Navigation and startup buttons	2 pushbuttons to configure the product (above the emergency stop palmswitch) On / Validation button (for startup and validation of menus on screen)
	Endurance: 500 000 cycles
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay (from 1 s to infinity)

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

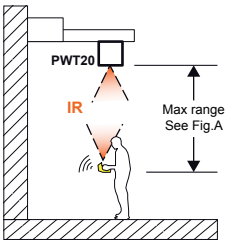
ADDITIONAL OPTIONS

STARTUP VALIDATION BY IR

Startup of the remote-controlled equipment can be secured by adding an IR startup feature.

- To start the equipment, the operator must point the module in the direction of the PWT20 IR module(s) mounted on the equipment to control. The “transmitter / Equipment controlled” match-up takes place with no possibility of error.

- The IR startup feature has a range of 26 m (see fig. A).



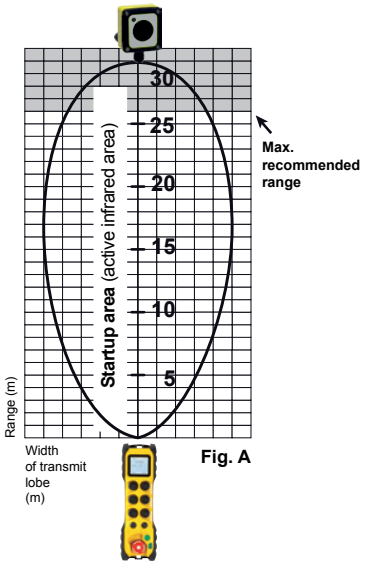
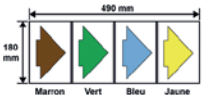
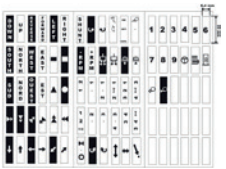


Fig. A

ACCESSORIES

Reference	Description	Picture
UWE102	Removable 2-points shoulder strap	
PWC	Charger for PWB plug-in battery Dimensions : 170 x 65 x 36 mm Power supply 12/24 Vdc, 7 W	
PWCG060	Standard charger for Beta2 transmitter Dimensions: 355 x 94 x 96 mm Power supply 12/24 Vdc, 7 W	
PWCG061	Docking charger Beta2 with 2 Relays + 1 logical input + Buzzer Dimensions: 355 x 94 x 96 mm Power supply 12/24 Vdc, 7 W	
PWCG100	Standard charger for Beta6 transmitter Dimensions: 428 x 94 x 96 mm Power supply 12/24 Vdc, 7 W	
PWCG101	Docking charger Beta6 with 2 Relays + 1 logical input + Buzzer Dimensions :428 x 94 x 96 mm Power supply 12/24 Vdc, 7 W	
PWB	Supplementary plug-in battery 3.7 V 2200 mA lithium Ion (for Beta 6) Dimensions : 57 x 56 x 16 mm Voltage: 3.7 V Capacity: 1900 mAh	
UBCU	110-240 Vac / 12 Vdc Adapter with European, UK and US plugs For charger PWC, PWCB02x, PWCB06x	
PWA4	Cigarette lighter socket 12-24 Vdc. For charger PWC, PWCB02x, PWCB06x	
UWE002	4 self-adhesive directional colored arrows (4 x 122 x 180 mm)	
UWE202	6 label kit arrows color	
UWE205	48 blank label kit	
UWE207	Kit 90 labels buttons black & white	

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COMPACT

ERGONOMIC

Pika

TRANSMITTER

Pika transmitter adapts to the application to make the process more efficient. This easy-to-use remote control gives incomparable freedom of movement, high motion accuracy, and higher productivity while providing best operators' safety. With Pika transmitter, experience today's cutting-edge technology.

MAIN FEATURES

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

> User-friendly screen display for look-up, selection, validation, configuration…

> Compact, super-ergonomic unit.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (on screen message, iDialog analysis software).

> Plug-in battery and industrial charger.

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)

TRANSMITTER

Pika

TRANSMITTER

Pika

DESCRIPTION

The transmitter comes with:

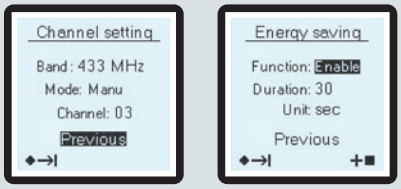
> **Transmitter[a] with 1 joystick or 2 joysticks:**
4 function pushbuttons[b]
+ 2 positions for additional switches[c]

[a] Each version has 2 navigation pushbuttons, 1 «On/Validation» pushbutton and 1 emergency stop palmswitch.

[b] The single-action pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

[c] You can choose from among the following control components :
- key selector switches
- selector switches with 2 fixed positions
- 2-position buttons with return to initial position
- selector switches with 3 fixed positions
- 3-position buttons with return to initial position
- 3-position buttons with 2 fixed positions + 1 return to initial position
- rotary selector switches with 4 to 12 positions
- potentiometer

The screen on the transmitter allows configurating easily and choosing items such as:



> Screen language

> Transceiver which you want to use

> Radio transmit frequency and power

> Duration of the « standby » time delay (automatically stops transmitter and associated receivers if not used for a defined period of time)

> Operating modes of the equipment (32 max.)

It also displays:

- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbacks max with 10 labels / feedback - 48 labels max in total)
- Alarms (8 for application use + 8 for system)

Compatibility:

These transmitters work with **Elio, Alto, Timo, Nemo** receivers to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	shock-resistant polyamide
Water tightness	IP65
Weight (with battery)	1 joystick: 1300 g 2 joysticks: 1400 g
Dimensions	243 x 180 x 170 mm
Carried	by carrying belt by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature	-20 °C to +50 °C
Storage temperature without battery	-20 °C to +70 °C
Battery storage temperature	-20 °C to +50 °C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Li-ion battery
Autonomy (25 °C) with radio, activated 100 % time	10 hours
Frequency selection 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
Emission power	< 10 mW (license free)
Range limitation	10 selectable levels of power
Modulation	FM or LoRa with 2.4 GHz
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]
Charging time (autonomy > 80 %)	3 hr (20 mn of charge get 1hr autonomy)
Charging temperature range	0 °C to +40 °C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD display, 128 x 128 pixels 42 mm (W) x 40 mm (H)
USB interface for configuration and diagnosis	mini-B 5-point USB connector Easy access in a compartment on the level side of transmitter
Operating indications	On screen (radio link status, battery status, status of buttons, information feedbacks…)
Function buttons	4 pushbuttons (mounted around the screen) + 2 positions for switches
Navigation and startup buttons	2 pushbuttons to configure the product 1 On/Validation button (for startup and validation of menus on screen)
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay (from 1 s to infinity)

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

ADDITIONAL OPTIONS

STARTUP VALIDATION BY IR

Startup of the remote-controlled equipment can be secured by adding an IR startup feature.

- To start the equipment, the operator must point the module in the direction of the PWT20 IR module(s) mounted on the equipment to control. The “Transmitter / Equipment controlled” match-up takes place with no possibility of error.

- The IR startup feature has a range of 35 m (see fig. A).

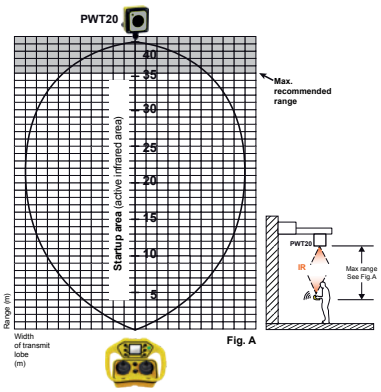
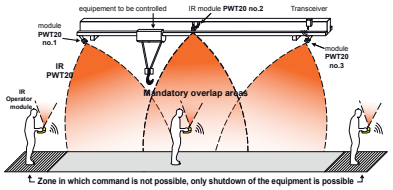


Fig. A

LIMITATION OF ACTION AREA BY INFRARED

The transmitter features an IR emission function which detects an operator in the IR working area. Operator safety is ensured since the operator is required to work in the IR area.

The maximum guaranteed work distance between PWT20 IR modules and the transmitter is 35 meters.



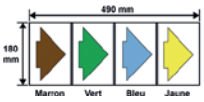
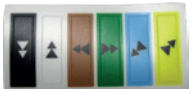
C16 INDUSTRIAL CONNECTOR FOR 2 DRY CONTACTS

- 4 connection terminals
- switching capacity < 10 mA
- female socket
- supplied with cap

C16 INDUSTRIAL CONNECTOR FOR WIRE CONNECTION

- 7 connection terminals
- male socket
- supplied with cap

ACCESSORIES

Reference	Description	Picture
UWE102	Removable 2-points shoulder strap	
PWM103	Carrying belt	
PWM112	Carrying harness for Pika or Moka transmitter	
PWC	Charger for PWB plug-in battery Dimensions : 170 x 65 x 36 mm Power supply 12/24 Vdc, 7 W	
PWCPM01	Docking Station Pika/Moka with 2 Relays + 1 logical input + Buzzer Dimensions : 274 x 159 x 170 mm Power supply 12/24 Vdc, 7W Warning, compatible with all Pika & Moa transmitter equipped with charging contacts	
PWB	Supplementary plug-in battery 3.7 V 2200 mA lithium Ion (for Beta 6) Dimensions : 57 x 56 x 16 mm Voltage: 3.7 V Capacity: 1900 mAh	
UBCU	110-240 Vac / 12 Vdc Adapter with European, UK and US plugs For charger PWC, PWCPM01	
PWA4	Cigarette lighter socket 12-24 Vdc. For charger PWC, PWCPM01	
PWL010	10 m cable for wired link	
PWT17	Female M12 connector 4/5 pins with 2 m cable - Auxiliary Beta plug - M12 Timo Plug	
PWE01	Rotary switches 2 positions with standard metal key "Pika-Moka" for metal box	
UWE002	4 self-adhesive directional colored arrows (4 x 122 x 180 mm)	
UWE202	6 label kit arrows color	
UWE205	48 blank label kit	
UWE207	Kit 90 labels buttons black & white	

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MODULAR

MULTIFUNCTION

Moka

TRANSMITTER

Moka transmitter adapts to the application to make the process more efficient. This easy-to-use remote control gives incomparable freedom of movement, high motion accuracy, and higher productivity while providing best operators' safety. With Moka transmitter, experience today's cutting-edge technology.

MAIN FEATURES

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

> User-friendly screen display for look-up, selection, validation, configuration…

> Modular unit with wide ranging choice of functions.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (on screen message, iDialog analysis software).

> Plug-in battery and rugged industrial charger.

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)

TRANSMITTER

Moka

OPTIONAL STARTUP VALIDATION BY IR
OPTIONAL WORK AREA LIMITATION

MULTIMODES OPTION

EMERGENCY STOP PALMSWITCH SIL 3 - PL e

TOUGH BACKLIT SCREEN WITH ANTI-REFLECTION, SHOCK-PROOF, ANTI-SCRATCHING FEATURES

BIDIRECTIONAL RADIO LINK

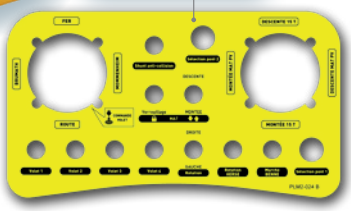
FUNCTION LABELS

OPTIONAL CROSS-LOCKING SYSTEM

2-JOYSTICK MODEL

OPTIONAL PERSONALIZED FRONT PLATE

STANDARD JOYSTICKS WITH 1 TO 4 NOTCHES OR PROPORTIONAL CONTROL



OPTIONAL INTENTIONAL-ACTION JOYSTICKS

POSITIONS FOR SWITCHES IN THE CHOICE

4 FUNCTION BUTTONS

3-JOYSTICK MODEL

ON / VALIDATION BUTTON

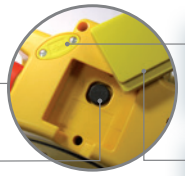
NAVIGATION BUTTONS

OPTIONAL AUXILIARY PUSHBUTTON

OPTIONAL C16 4 POINTS CONNECTOR TO CONNECT TWO DRY CONTACTS

OPTIONAL C16 7 POINTS INDUSTRIAL CONNECTOR FOR WIRE CONNECTION

6-PROPORTIONAL LEVERS MODEL



SEALED USB PORT FOR DIAGNOSIS, CONFIGURATION

OPTIONAL AUTOMATIC DETECTION OF INACTIVITY «DEAD MAN»

OPTIONAL VIBRATOR (ALARM)

BREATHABLE MEMBRANE TO PREVENT CONDENSATION

HIGH-CAPACITY PLUG-IN BATTERY

TRANSMITTER

Moka

DESCRIPTION

The transmitter comes with:

→ **Transmitter[a] with 2 joysticks:**
4 function pushbuttons[b]
+ 12 positions additional switches[c]

→ **Transmitter[a] with 3 joysticks:**
4 function pushbuttons[b]
+ 8 positions for cadditional switches[c]

→ **Transmitter[a] with 6 proportional levers:**
4 function pushbuttons[b]
+ 8 positions for additional switches[c]

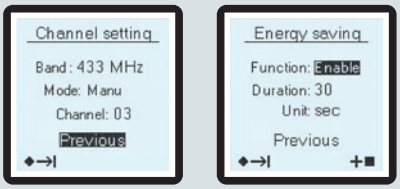
→ **Autres configurations en spécial**

[a] Each version has 2 navigation pushbuttons, 1 On / Validation» pushbutton and 1 emergency stop palmswitch.

[b] The pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

[c] Choose among the following control components:
- key selector switches
- selector switches with 2 fixed positions
- 2-position buttons with return to initial position
- selector switches with 3 fixed positions
- 3-position buttons with return to initial position
- 3-position buttons with 2 fixed positions + 1 return to initial position
- rotary selector switches with 4 to 12 positions
- potentiometer (for 2-joystick model)

The screen on the transmitter allows configurating easily and choosing items such as:



> Screen language
> Receiver which you want to use
> Radio transmit frequency and power
> Duration of the « standby » time delay (automatically stops transmitter and associated receiver if not used for a defined period of time)
> Operating modes of the equipment (32 max.)

It also allows to view:

- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbacks max with 10 labels / feedback - 48 labels max in total)
- Alarms (8 for application use + 8 for system)

Compatibility:

These transmitters work with **Elio, Alto, Timo** and **Nemo** receivers to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	shock-proof polyamide
Water tightness	IP65
Weight (with battery)	from 1700 g to 1800 g depending on configurations
Dimensions	297 x 215 x 170 mm
Carried	by carrying belt
	by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature	-20 °C to +50 °C
Storage temperature without battery	-20 °C to +70 °C
Battery storage temperature	-20 °C to +50 °C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Li-ion battery
Autonomy (25 °C) with radio activated 100 % time	10 hours
Frequency selection	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
Emission power	<10 mW (license free)
Range limitation	10 selectable levels of power
Modulation	FM or LoRa with 2.4 GHz
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]
Charging time (autonomy > 80 %)	3 hr (20 mn of charge get 1hr autonomy)
Charging temperature range	0 °C to +40 °C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD display, 128 x 128 pixels
	42 mm (W) x 40 mm (H)
USB interface for configuration and diagnosis	mini-B 5-point USB connector
	Easy access in a compartment on the back side of the transmitter
Operating indications	On screen (radio link status, battery status, status of buttons, information feedbacks…)
Function buttons	4 pushbuttons (mounted around the screen)
	+ up to 12 positions
	for switches depending on number of joysticks
Navigation and startup buttons	2 pushbuttons to configure the product
	1 On / Validation button (for startup and validation of menus on screen)
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay
	(from 1 s to infinity)

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

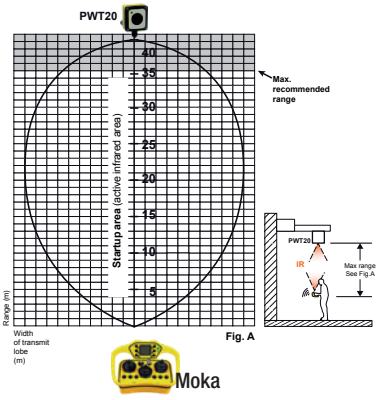
ADDITIONAL OPTIONS

STARTUP VALIDATION BY IR

Startup of the remote-controlled equipment can be secured by adding an IR startup feature.

- To start the equipment, the operator must point the module in the direction of the PWT20 IR module(s) mounted on the equipment to control. The "Transmitter / Equipment controlled" match-up takes place with no possibility of error.

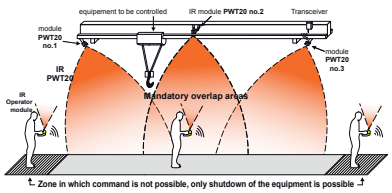
- The IR startup feature has a range of 35 m (see fig. A).



LIMITATION OF WORK AREA BY INFRARED

The transmitter features an IR emission function which detects an operator in the IR working area. Operator safety is ensured since the operator is required to work in the IR area.

The maximum guaranteed work distance between the PWT20 IR modules and the operator module is 35 meters.



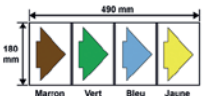
C16 INDUSTRIAL CONNECTOR FOR 2 DRY CONTACTS

- 4 connection terminals
- switching capacity < 10 mA
- female socket
- supplied with cap

C16 INDUSTRIAL CONNECTOR FOR WIRE CONNECTION

- 7 connection terminals
- male socket
- supplied with cap

ACCESSORIES

Reference	Description	Picture
UWE102	Removable 2-points shoulder strap	
PWM103	Carrying belt	
PWM112	Carrying harness for Pika or Moka transmitter	
PWC	Charger for PWB plug-in battery Dimensions : 170 x 65 x 36 mm Power supply 12/24 Vdc, 7 W	
PWCPM01	Docking Station Pika/Moka with 2 Relays + 1 logical input + Buzzer Dimensions : 274 x 159 x 170 mm Power supply 12/24 Vdc, 7W Warning, compatible with all Pika & Moa transmitter equipped with charging contacts	
PWB	Supplementary plug-in battery 3.7 V 2200 mA lithium Ion (for Beta 6) Dimensions : 57 x 56 x 16 mm Voltage: 3.7 V Capacity: 1900 mAh	
UBCU	110-240 Vac / 12 Vdc Adapter with European, UK and US plugs For charger PWC, PWCPM01	
PWA4	Cigarette lighter socket 12-24 Vdc. For charger PWC, PWCPM01	
PWL010	10 m cable for wired link	
PWT17	Female M12 connector 4/5 pins with 2 m cable - Auxiliary Beta plug - M12 Timo Plug	
PWE01	Rotary switches 2 positions with standard metal key "Pika-Moka" for metal box	
UWE002	4 self-adhesive directional colored arrows (4 x 122 x 180 mm)	
UWE202	6 label kit arrows color	
UWE205	48 blank label kit	
UWE207	Kit 90 labels buttons black & white	

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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:

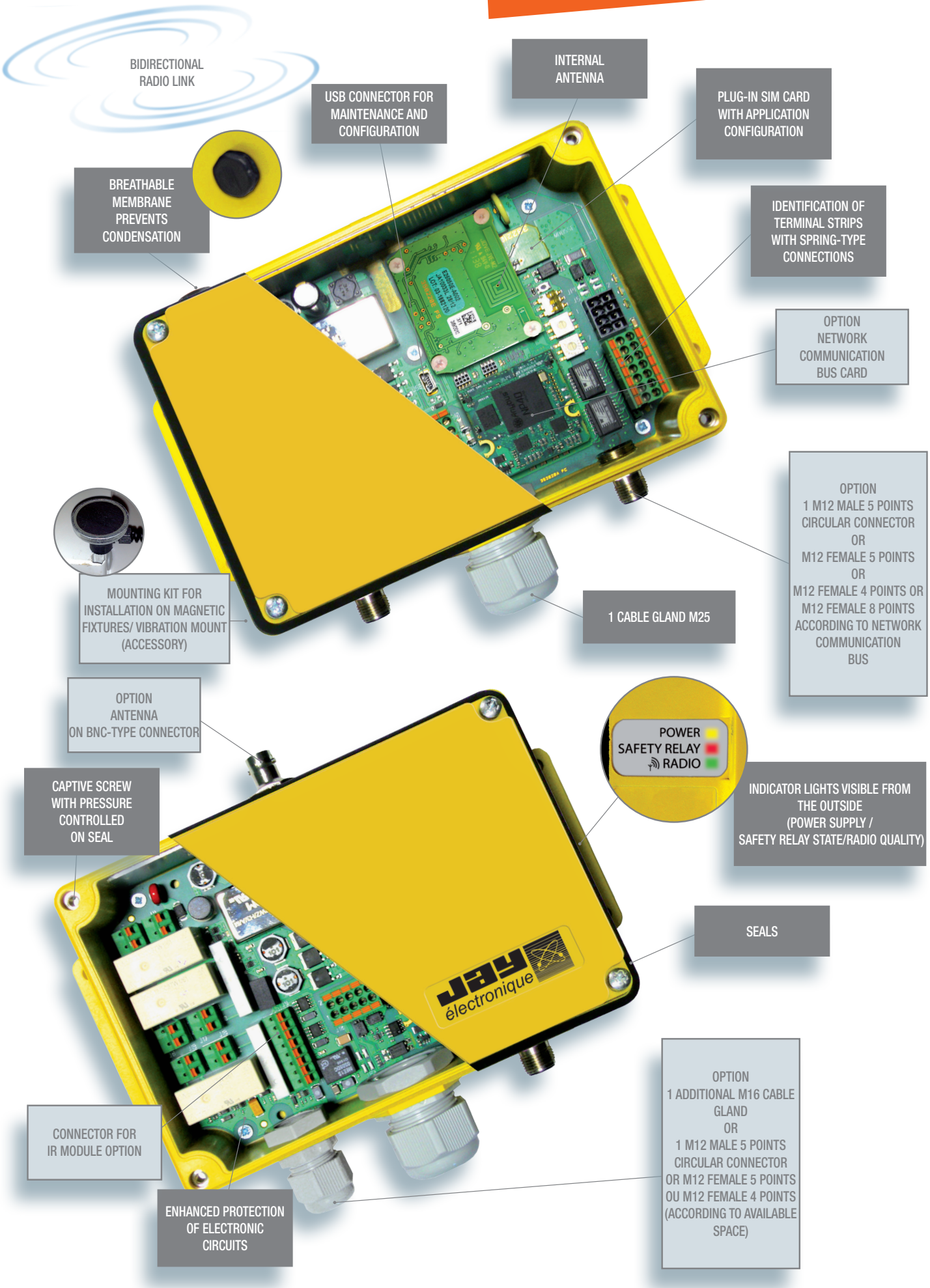
Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

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

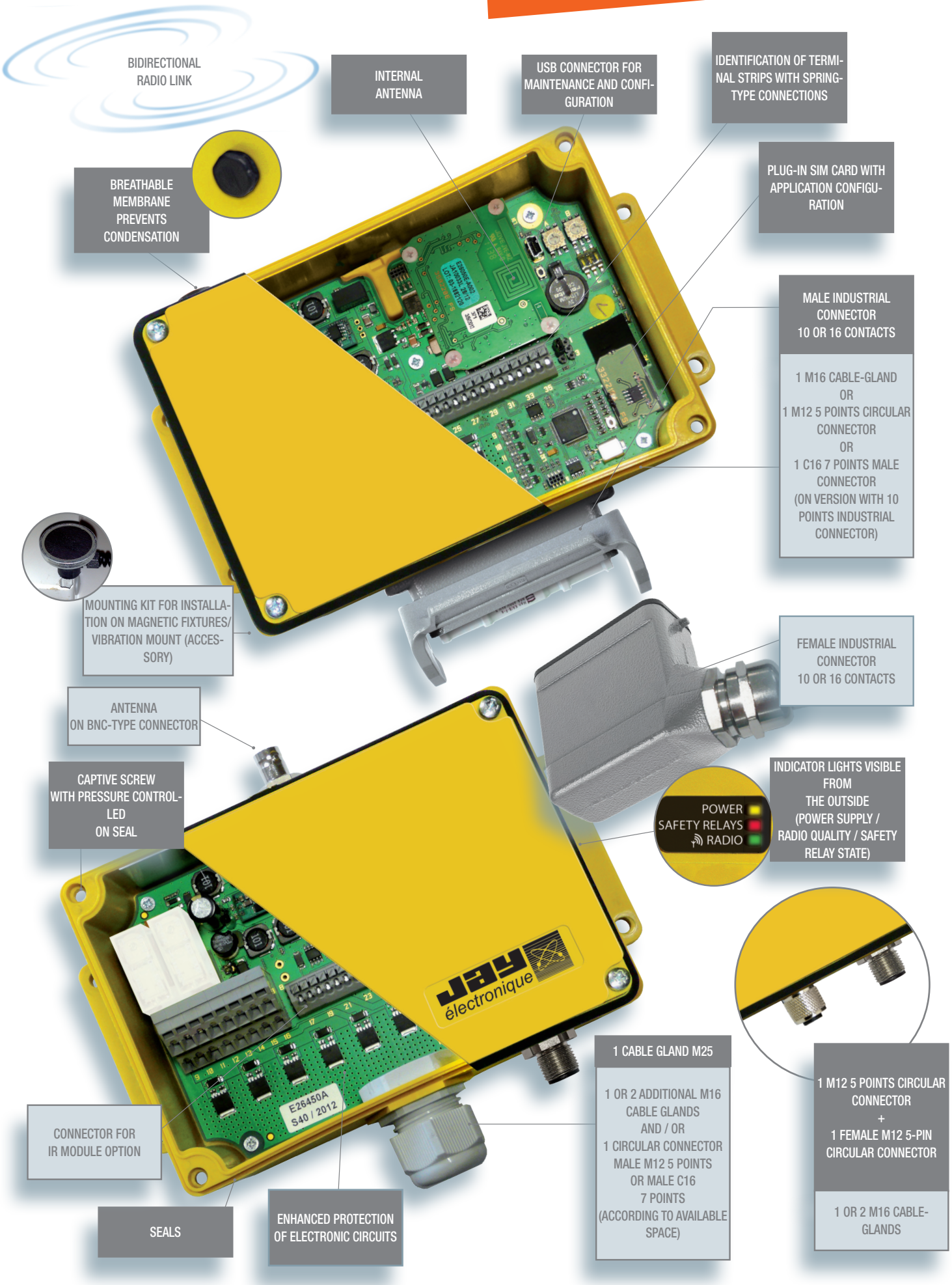
Certificate E13 vehicle marking:
Approval granted by SNCH

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.

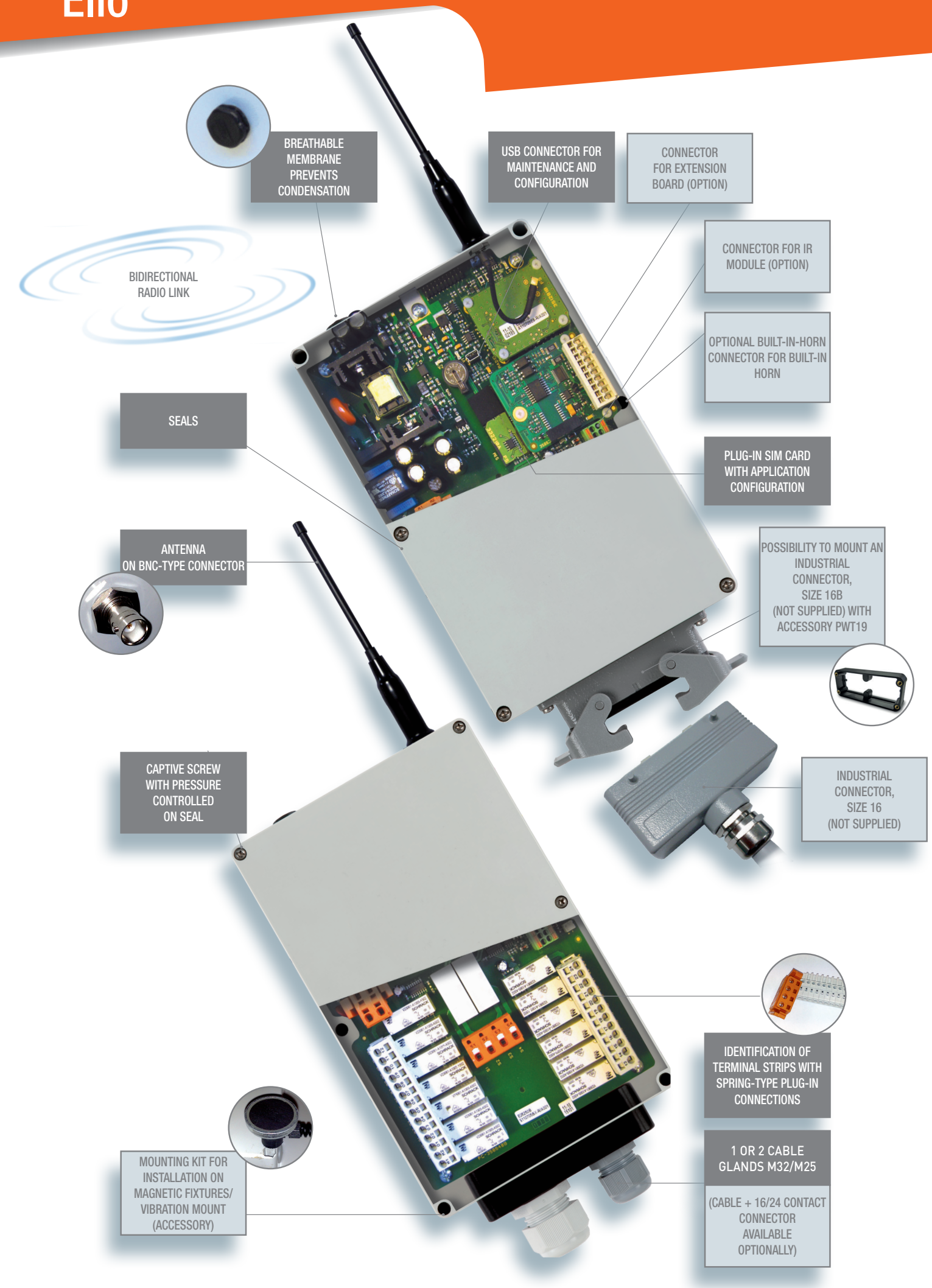
FULLY COMPLIANT WITH SAFETY AND SECURITY STANDARDS:

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).

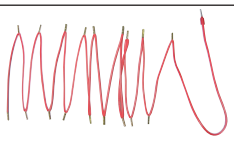
ACCESSORIES: antennas

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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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.

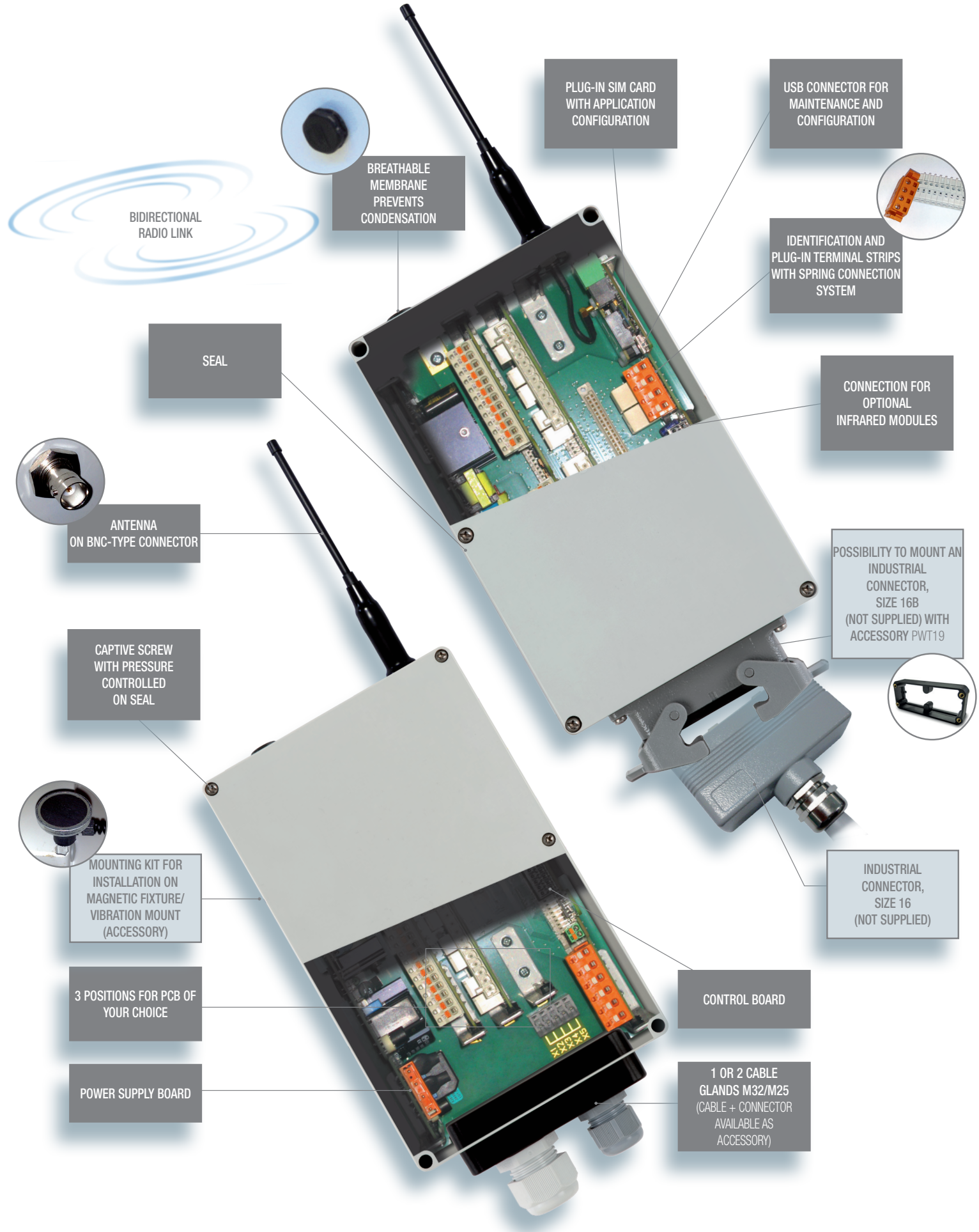
FULLY COMPLIANT WITH SAFETY AND SECURITY STANDARDS:

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)

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

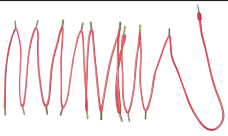
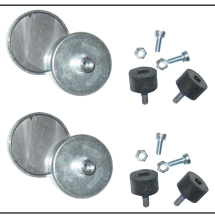
ACCESSORIES: antennas

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	
UDWR38	Receiver mounting kit using magnetic fixtures	
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	
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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A company of

Not all products shown on this leaflet may be available in your area: please contact your Conductix-Wampfler office.

COMPACT

EASY TO HANDLE

FLEXIBLE

Beta

TRANSMITTER

For Ex-hazardous areas

Beta transmitter adapts to the application to make the process more efficient. This easy-to-use handheld remote controm gives incomparable freedom of movement, high lotion accuracy and higher productivity while providing best operators' safety. With Beta transmitter, experience today's cutting-edge technology.

This transmitter is designed for use in potentially explosive gases atmospheres classified 0, 1, 2, dust classified 20, 21, 22 and mines.

MAIN FEATURES

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

> User-friendly screen display for look-up, selection, validation, configuration...

> Compact, easy-to handle casing for one-hand control.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (screen message, iDialog analysis software).

ATEX manufacturer
2014/34/EU

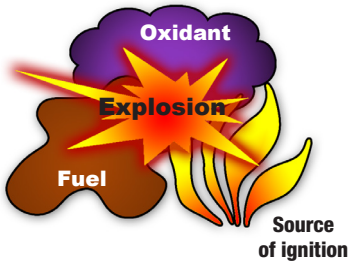
EC type certificate issued by LCIE

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)

DEFINITION OF A POTENTIALLY EXPLOSIVE ATMOSPHERE



HOW AN EXPLOSION HAPPENS

An explosion is formed by an association of the following 3 elements:

- **An oxidant:**
  in our case, the oxygen in the air.
- **A fuel:**
  - A gas (methane, acetylene, …)
  - A fume (gasoline, solvent, …)
  - A dust (wood, sugar, grain, …).
- **A source of ignition:**
  - An electric arc
  - A mechanical spark
  - A high temperature

CONSEQUENCES OF AN EXPLOSION

Explosions are responsible every year for around 6 deaths and 387 persons with permanent disability (IP) out of 379 accidents.
These can produce major catastrophes, such as the explosion at the «AZF» plant at Toulouse (France) in 2001 or the «Blaye silo» near Bordeaux (France) in 1997, resulting in a large number of deaths and injuries, and destruction of the sites.

PROTECTION AGAINST EXPLOSIONS

It is necessary to evaluate the specific hazards created by explosible atmospheres, keeping in mind :

- the probability that **explosible atmospheres will** occur and persist,
- the probability that **sources of ignition**, including **electrostatic discharges**, are present and will become active and effective,
- the **installations**, **substances** and **methods** used, and their possible **interactions**,
- the extent of the **foreseeable consequences**.

The explosion hazards must be evaluated globally.

In practice, this requires:

➠ Identification of zones representing a hazard and substances which could create explosible atmospheres.

➠ Classification of the explosive atmospheres in zones where there is an explosion hazard, assisted if necessary, by an outside organization.

➠ Definition of the equipment required to carry out the project.

With reference to user ATEX directive 99/92/CE.

The zones are standardised in accordance with their degree of dangerousness.

- **Definition of explosion hazard zones linked to:**

GASES, FUMES AND FOG

ZONE 0: location where an explosive atmosphere, consisting of a mixture with the air of combustible material in the form of gases, fumes or fog, is present continuously or over extended periods of time, or frequently.

ZONE 1: location where an explosive atmosphere, consisting of a mixture with the air of combustible materials in the form of gases, fumes or fog, is likely to form occasionally under normal operation.

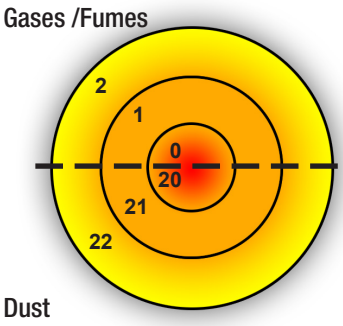
ZONE 2: location where an explosive atmosphere, consisting of a mixture with the air of combustible materials in the form of gases, fumes or fog, is not likely to form during normal operation, or should such **a formation occur, is nonetheless only of short duration.**

DUST

ZONE 20: location where an explosive atmosphere in the form of a cloud of combustible dust is present in the air continuously, or over extended periods of time, or frequently.

ZONE 21: location where an explosive atmosphere in the form of a cloud of combustible dust may occasionally form in the air during operation.

ZONE 22: location where an explosive atmosphere in the form of a cloud of combustible dust is not likely to form in the air during normal operation, or should such a formation occur, is nonetheless only of short duration.



- Continuous hazard
- Hazard present during normal operating conditions
- Limited hazard in the event of failure of a system (limited in time)

DEFINITION OF MARKINGS ON
ATEX - IECEx PRODUCTS

Since April 20, 2016, all Ex products must satisfy the requirements of the directive ATEX 2014/34/UE, the evolution of the standard 60079-0 leads to a new product marking presented in the following tables :

Transmitter Beta ATEX:

Beta 2 ATEX

Beta 6 ATEX

CE 0081 Ex
(1) (2) (3)
II 1 G D
(4) (5) (6) (7)
Ex ia IIB T4 or 145°C Ga (1)
(8) (9) (10) (7)
Ex ia IIIC T135°C or T145°C Da (1)
(1) (2) (3)
II 2 G D
(4) (5) (6) (7)
Ex ia IIC T4 or 145°C Gb (1)
(8) (9) (10) (7)
Ex ia IIIC T135°C or T145°C Db (1)
(1)
I M1
Ex ia I Ma
(11)
LCIE 14 ATEX 3055 X
(12)
IECEx LCIE 14.0049 X

(1) Temperature classes depending on Tamb :
-20°C ≤ Tamb ≤ +40°C, temperature classes are T4 for gas and T135°C for dust.
+40°C ≤ Tamb ≤ +50°C, temperature classes are 145°C for gas and T145°C for dust.

■ Below are the tables to understand the ATEX marquing :

1 Device group

Device group	Application
Group I	Electrical devices intended for use in firedamp mines. (underground work in the mines and parts of ground installations) => Protection against firedamp
Group II	Electrical devices intended for all other explosible atmospheres than firedamp mines (ground industries) => Protection against explosions

2 3 ATEX classification

Category of equipment	Flammable substances	Degree of protection	Description
1	G Gas D Dust	Very high level	Devices capable of operating in the atmospheres where the risk of explosion is permanent or almost permanent (zones 0, 1, 2 and 20, 21, 22)
2	G Gas D Dust	High level	Devices capable of operating in the atmospheres where the risk of explosion is frequent (zones 1, 2 and 21, 22)
3	G Gas D Dust	Normal	Devices capable of operating in the atmospheres where the risk of explosion is occasional (zones 2 and 22)

4 Protection modes for electrical equipment in gaseous atmospheres

Protection mode			Standard	Basic principle	Application in ZONE		
					0	1	2
d	Explosion proof enclosure		EN/IEC 60079-1	The extremely heavy duty enclosure contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●
e	Enhanced safety		EN/IEC 60079-7	The components inside the enclosure must not produce arcs, sparks or dangerous temperatures under normal utilization conditions. The enclosure must be tight to IP 54 and withstand impacts.		●	●
i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into “ia” resists 2 defects: suitable for zone 0, and “ib” resists 1 defect: suitable for zones 1 and 2.	●	●	●
		ib	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into “ia” resists 2 defects: suitable for zone 0, and “ib” resists 1 defect: suitable for zones 1 and 2.		●	●
m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
n	Zone 2		EN/IEC 60079-15	This protection mode is only suitable for devices intended for zone 2 where the risk of explosion is low. It combines the enhanced safety mode “e” with lower protection requirements.			●
o	Immersion in oil		EN/IEC 60079-6	The material or the electrical circuit is immersed in oil. The explosive mixture is located above the liquid and cannot be ignited by the electrical circuit.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
q	Powdery filler		EN/IEC 60079-5	For this protection mode, all the electronics is encapsulated in an inert powdery material to prevent electrical arcs or electrical sparks.		●	●

5 Classification of gases and fumes by explosion groups (non-exhaustive list)

Group IIA		Group IIB		Group IIC
Propane	Acetone	Ethylene	Ethyl oxide	Acetylene
Ethane	Hexane	Diethylene	Sulphuretted hydrogen	Hydrogen
Butane	Methanol	Ethyl ether	Ethanol	Carbon disulfide
Benzene	Paint thinners	Cycloprodene		
Pentane	Natural gas	Butadiene 1-3		
Heptane		Propylene oxide		

6 Gas temperature classes

The safe use of equipment in dangerous areas requires knowledge of the gas group and compare the temperature auto-ignition of gaseous mixtures treated to the temperature of equipment marking.
The maximum surface temperature of the material must always be less than the autoignition temperature of the gas present in the dangerous area.

Temperature class	MAXIMUM surface temperature of electrical equipment	Ignition temperatures of FLAMMABLE materials
T1	450°C	> 450°C
T2	300°C	> 300°C
T3	200°C	> 200°C
T4	135°C	> 135°C
T5	100°C	> 100°C
T6	85°C	> 85°C

7 Equipment protection level (EPL)

Traditional relationship between level of protection and areas / categories (without additional risk assessment).

Equipment protection level (EPL)	Normal range of application	Category (2014/34/UE)
Ga	0 (and 1 and 2)	1G
Gb	1 (and 2)	2G
Gc	2	3G
Da	20 (and 21 and 22)	1D
Db	21 (and 22)	2D
Dc	22	3D
Ma / Mb	mines	M1 / M2

8 Protection modes for electrical equipment in dusty atmospheres

Protection mode			Standard	Basic principle	Application in ZONE		
					20	21	22
i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.	●	●	●
		ib	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.		●	●
m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
t	Explosion proof enclosure		EN/IEC 60079-31	The extremely heavy duty envelope contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●

9 Classification of dust by explosion groups

Explosion groups	Type of dust	Fundamental principle
Group IIIA	Combustible dust in suspension	Very fine solid particles of nominal size of about 500 microns or less, can be suspended in the air, which can be deposited because of their own weight and that can burn or be consumed in the air and are suceptible to form explosive mixtures with air under conditions of atmospheric pressure and normal temperature.
Group IIIB	Non-conductive dust	Combustible dust electrical resistivity greater than 10^3 Ω.m. Size < 500 µm
Group IIIC	Conductive dust	Combustible dust electrical resistivity at or below 10^3 Ω.m. Size < 500 µm

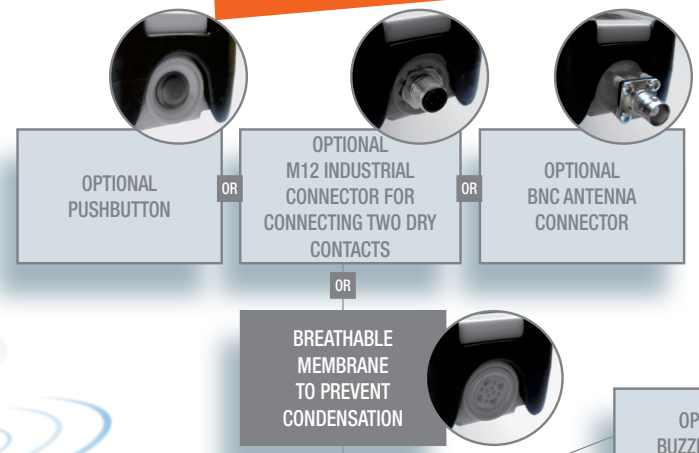
10 Maximum surface temperature for dusty atmospheres

11 LCIE : certificate of EC type examination number

12 LCIE : IECEx certificate number

TRANSMITTER

Beta ATEX



TRANSMITTER

Beta ATEX

DESCRIPTION

The transmitter comes in two versions:

> « **2+ 2(a) »[a] transmitter** with 2 function buttons[b]:

- 2 single-action pushbuttons

OR 2 double-action pushbuttons

> « **6 + 2 »[a] transmitter** with 6 function buttons[b]:

- 6 single-action pushbuttons

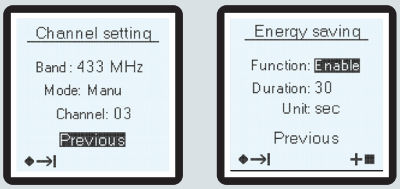
OR 6 double-action pushbuttons

OR 4 double-action pushbuttons
+ 2 single-action pushbuttons
(under the navigation buttons)

[a] Each version has 2 navigation pushbuttons

[b] The single-action pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

The screen on the transmitter allows configurating easily and choosing items such as:



> Screen language

> Receiver which you want to use

> Radio transmit frequency and power

> Duration of the « standby » time delay (Automatically stops operator module and associated receiver if not used for a defined period of time)

> Operating modes of the equipment (32 max.)

It also displays:

- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbacks max with 10 labels / feedback - 48 labels max in total)
- Alarms (8 for application use + 8 for system)

Compatibility:

These transmitters work with Elio, Alto, Timo, Nemo receivers to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	shock-resistant reinforced ABS with anti-static charge
Water tightness	IP65
Weight (with battery)	2 + 4 buttons: 400 g 6 + 4 buttons: 485 g
Dimensions	2 + 4 buttons: 182 x 75 x 50 mm 6 + 4 buttons: 235 x 75 x 50 mm
Storage	2 + 4 buttons: on charger support for transmitter 6 + 4 buttons: on mechanical support
Carrying	by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature	-20°C to + 50°C
Storage temperature without battery	-20°C to + 70°C
Battery storage temperature	-20°C to + 50°C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Li-ion battery 2 + 4 buttons: internal battery 6 + 4 buttons: plug-in battery
Mode de charge de la batterie	2 + 4 buttons: on charger support for transmitter 6 + 4 buttons: on charger for battery
Autonomy (25°C) radio radio activated 100% time	10 hours
Frequency selection Manual / automatic	64 frequencies for 433-434 MHz 12 frequencies for 869 MHz 64 frequencies for 911-918 MHz
Emission power	< 10 mW (license free)
Range limitation	Selectable 10 levels of power
Modulation	FM
Average range [1]	100 m in industrial envirnment [1] 300 m in open space [1]
Charging time (autonomy > 80%)	3 hr (20 mn of charge provides 1 hr autonomy)
Charging temperature range	0°C to + 40°C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD display, 128 x 128 pixels 42mm (W) x 40mm (H) Black / White
USB interface for configuration and diagnostics	mini-B 5-point USB connector Easy access in a compartment on the backside of transmitter
Operating indications	Displayed on screen (radio link status, battery status, status of buttons, information feedbacks…)
Function buttons	2 or 6 pushbuttons (available as single or double-action buttons and configurable as selectors with n positions)
Navigation and startup buttons	2 pushbuttons to configure the product 1 On / Validation button (for startup and validation of menus on screen)
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay (from 1 s to infinity)

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

ADVANCED OPTIONS

M12 INDUSTRIAL CONNECTOR FOR 2 DRY CONTACTS

- 4 connection terminals
- switching capacity < 10 mA
- male socket
- supplied with cap

ACCESSORIES

IMPORTANT
The battery shall not be charged in potentially explosive area.

Standard charger support for Beta 2+2 transmitter

Standard version references

PWCB020
Dimensions: 220 x 82 x 76 mm
Power supply: 12/24 Vdc
Power: 7 W

References for version with 2 relays + 1 logic input + buzzer

PWCB021

References version with 1 relay + 4 logic inputs + buzzer

PWCB022

Battery charger

Reference: PWC
Dimensions: 170 x 65 x 36 mm
Power supply: 12/24 Vdc
Power: 7 W

Plug-in Li-ion battery for Beta 6+2 transmitter

Reference: PYB
Dimensions: 57 x 56 x 16 mm
Voltage: 3,7 V
Capacity: 1900 mAh
Technology: lithium Ion

Mains power adapter for battery charger

Reference: UBCU
Dimensions: 41 x 72 x 39 mm
Power supply: 100-240 Vac
Output: 12 Vdc
Power: 7 W

Cigarette lighter plug adapter for battery charger

Reference: PWA4
Dimensions: 90 x 20 x 20 mm
Power supply: 12-24 Vdc
Output: Power supply

Removable 2-point shoulder strap

Reference: PYM110

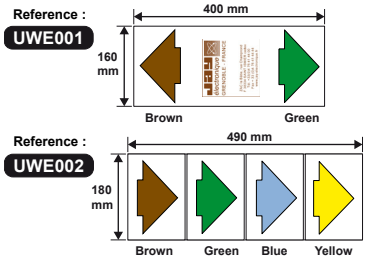
M12 female 4/5 points cable

Reference: PWM201
Length: 2 m

Mechanical support for Beta 6+2 transmitter

Reference: PWCB06M
Dimensions: 272 x 82 x 76 mm

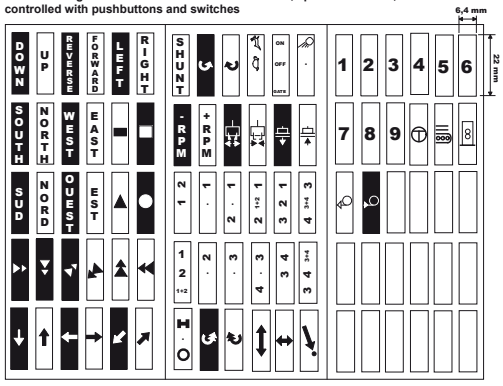
Sheet of adhesive labels for 5 mobile equipment



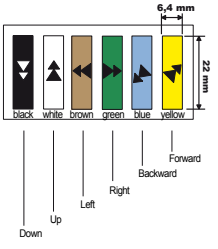
Sheet of adhesive labels for transmitters

The buttons function are identified by adhesive labels in the recesses in the transmitter casing next to the pushbuttons.

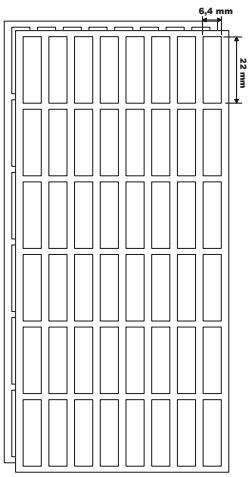
Reference : UWE207 *
Kit containing 90 black/white labels for «movement, special functions, customization» controlled with pushbuttons and switches



Reference : UWE202 *
Kit of 6 colored labels «movements» for double-action pushbuttons



Reference : UWE205
Kit containing 48 white blank labels + 48 transparent protecting labels for customised markings



* = standard sheet of labels supplied with operator module

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www.jay-electronique.com

A company of Conductix wampfler

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MODULAR

MULTIFUNCTION

Moka

TRANSMITTER

For Ex-hazardous areas

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MAIN FEATURES

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

> User-friendly screen display for look-up, selection, validation, configuration...

> Modular unit with wide ranging choice of functions.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes)..

> Easy to maintain thanks to its diagnosis aid system (information on screen display, iDialog analysis software).

> Plug-in battery and rugged industrial charger.

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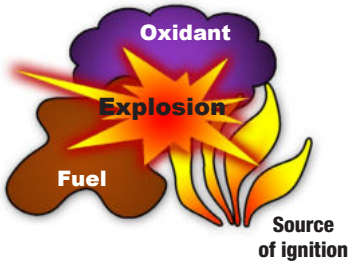
TRANSMITTER

Moka ATEX

DEFINITION OF A POTENTIALLY EXPLOSIVE ATMOSPHERE



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  - A dust (wood, sugar, grain, …).
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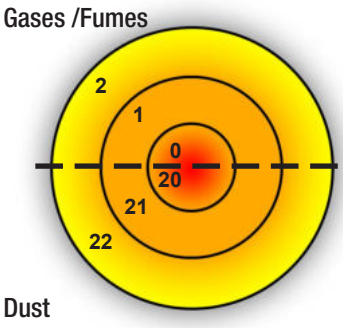
DUST

ZONE 20: location where an explosive atmosphere in the form of a cloud of combustible dust is present in the air continuously, or over extended periods of time, or frequently.

ZONE 21: location where an explosive atmosphere in the form of a cloud of combustible dust may occasionally form in the air during operation.

ZONE 22: location where an explosive atmosphere in the form of a cloud of combustible dust is not likely to form in the air during normal operation, or should such a formation occur, is nonetheless only of short duration.



Continuous hazard

Hazard present during normal operating conditions

Limited hazard in the event of failure of a system (limited in time)

Moka ATEX

DEFINITION OF MARKINGS ON
ATEX - IECEx PRODUCTS

Since April 20, 2016, all Ex products must satisfy the requirements of the directive ATEX 2014/34/UE, the evolution of the standard 60079-0 leads to a new product marking presented in the following tables:

Transmitter Moka ATEX/IECEx without cable link	Transmitter Moka ATEX/IECEx with cable link
CE0081 (1)(2)(3) Ex II 1 G (4)(5)(6)(7) Ex ia IIB T4 Ga (1) I M1 Ex ia I Ma (11) LCIE 14 ATEX 3014 X (12) IECEx LCIE 14.0015X WARNING - THE USB CONNECTION MUST NOT BE USED IN HAZARDOUS AREAS WARNING - USE ONLY THE PYB2 BATTERY PACK	CE0081 (1)(2)(3) Ex II 1 G (4)(5)(6)(7) Ex ia IIB T4 Ga (1) I M1 Ex ia I Ma (13) Ui: 5.9V, Ii: 70mA, Pi: 103mW, Ci: 96,78 µF, Li: 0.6µH (11) LCIE 14 ATEX 3014 X (12) IECEx LCIE 14.0015X WARNING - THE USB CONNECTION MUST NOT BE USED IN HAZARDOUS AREAS WARNING - USE ONLY THE PYB2 BATTERY PACK

■ Below are the tables to understand the ATEX marquing:

(1) Device group

Device group	Application
Group I	Electrical devices intended for use in firedamp mines. (underground work in the mines and parts of ground installations) => Protection against firedamp
Group II	Electrical devices intended for all other explosible atmospheres than firedamp mines (ground industries) => Protection against explosions

(2)(3) ATEX classification

Category of equipment	Flammable substances	Degree of protection	Description
1	G Gas D Dust	Very high level	Devices capable of operating in the atmospheres where the risk of explosion is permanent or almost permanent (zones 0, 1, 2 and 20, 21, 22)
2	G Gas D Dust	High level	Devices capable of operating in the atmospheres where the risk of explosion is frequent (zones 1, 2 and 21, 22)
3	G Gas D Dust	Normal	Devices capable of operating in the atmospheres where the risk of explosion is occasional (zones 2 and 22)

4 Protection modes for electrical equipment in gaseous atmospheres

Protection mode			Standard	Basic principle	Application in ZONE		
					0	1	2
d	Explosion proof enclosure		EN/IEC 60079-1	The extremely heavy duty enclosure contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●
e	Enhanced safety		EN/IEC 60079-7	The components inside the enclosure must not produce arcs, sparks or dangerous temperatures under normal utilization conditions. The enclosure must be tight to IP 54 and withstand impacts.		●	●
i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into “ia” resists 2 defects: suitable for zone 0, and “ib” resists 1 defect: suitable for zones 1 and 2.	●	●	●
		ib	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into “ia” resists 2 defects: suitable for zone 0, and “ib” resists 1 defect: suitable for zones 1 and 2.		●	●
m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
n	Zone 2		EN/IEC 60079-15	This protection mode is only suitable for devices intended for zone 2 where the risk of explosion is low. It combines the enhanced safety mode “e” with lower protection requirements.			●
o	Immersion in oil		EN/IEC 60079-6	The material or the electrical circuit is immersed in oil. The explosive mixture is located above the liquid and cannot be ignited by the electrical circuit.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
q	Powdery filler		EN/IEC 60079-5	For this protection mode, all the electronics is encapsulated in an inert powdery material to prevent electrical arcs or electrical sparks.		●	●

5 Classification of gases and fumes by explosion groups (non-exhaustive list)

Group IIA		Group IIB		Group IIC
Propane	Acetone	Ethylene	Ethyl oxide	Acetylene
Ethane	Hexane	Diethylene	Sulphuretted hydrogen	Hydrogen
Butane	Methanol	Ethyl ether	Ethanol	Carbon disulfide
Benzene	Paint thinners	Cycloprodene		
Pentane	Natural gas	Butadiene 1-3		
Heptane		Propylene oxide		

6 Gas temperature classes

The safe use of equipment in dangerous areas requires knowledge of the gas group and compare the temperature auto-ignition of gaseous mixtures treated to the temperature of equipment marking.
The maximum surface temperature of the material must always be less than the autoignition temperature of the gas present in the dangerous area.

Temperature class	MAXIMUM surface temperature of electrical equipment	Ignition temperatures of FLAMMABLE materials
T1	450°C	> 450°C
T2	300°C	> 300°C
T3	200°C	> 200°C
T4	135°C	> 135°C
T5	100°C	> 100°C
T6	85°C	> 85°C

7 Equipment protection level (EPL)

Traditional relationship between level of protection and areas / categories (without additional risk assessment).

Equipment protection level (EPL)	Normal range of application	Category (2014/34/UE)
Ga	0 (and 1 and 2)	1G
Gb	1 (and 2)	2G
Gc	2	3G
Da	20 (and 21 and 22)	1D
Db	21 (and 22)	2D
Dc	22	3D
Ma / Mb	mines	M1 / M2

8 Protection modes for electrical equipment in dusty atmospheres

Protection mode			Standard	Basic principle	Application in ZONE		
					20	21	22
i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.	●	●	●
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m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
t	Explosion proof enclosure		EN/IEC 60079-31	The extremely heavy duty envelope contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●

9 Classification of dust by explosion groups

Explosion groups	Type of dust	Fundamental principle
Group IIIA	Combustible dust in suspension	Very fine solid particles of nominal size of about 500 microns or less, can be suspended in the air, which can be deposited because of their own weight and that can burn or be consumed in the air and are suceptible to form explosive mixtures with air under conditions of atmospheric pressure and normal temperature.
Group IIIB	Non-conductive dust	Combustible dust electrical resistivity greater than 10^3 Ω.m. Size < 500 µm
Group IIIC	Conductive dust	Combustible dust electrical resistivity at or below 10^3 Ω.m. Size < 500 µm

10 Maximum surface temperature for dusty atmospheres

11 LCIE : certificate of EC type examination number

12 LCIE : IECEx certificate number

13 Intrinsic safety parameters of cable link

TRANSMITTER

Moka ATEX

BIDIRECTIONAL RADIO LINK

MULTIMODES OPTION

EMERGENCY STOP PALMSWITCH SIL 3 - PL e

POSITIONS FOR CONTROL DEVICES IN THE CHOICE

TOUGH BACKLIT SCREEN WITH ANTI-REFLECTION, SHOCK-PROOF, ANTI-SCRATCHING FEATURES

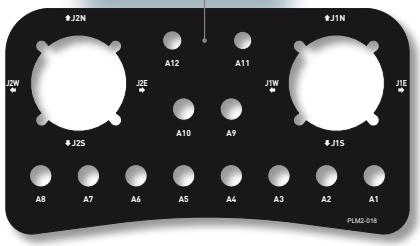
2-JOYSTICK MODEL

OPTIONAL CROSS-LOCKING SYSTEM

STANDARD JOYSTICKS WITH 1 TO 4 NOTCHES OR PROPORTIONAL CONTROL

OPTIONAL INTENTIONAL-ACTION JOYSTICKS

CUSTOMIZED FACE PLATE

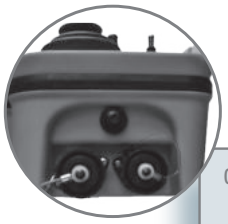


3-JOYSTICK MODEL

4 FUNCTION BUTTONS

ON / VALIDATION BUTTON

NAVIGATION BUTTON



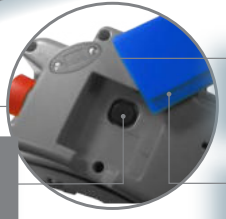
OPTIONAL AUXILIARY PUSHBUTTON

OPTION C16 INDUSTRIAL CONNECTOR 2 DRY CONTACTS CONNECTION

OPTION C16 INDUSTRIAL CONNECTOR FOR CABLE LINK

OPTIONAL « DEADMAN » DETECTION OPTIONAL ISOLATED WORKER ALARM SYSTEM

6-PROPORTIONAL LEVERS MODEL



SEALED USB PORT FOR DIAGNOSIS, CONFIGURATION

BREATHABLE MEMBRANE TO PREVENT CONDENSATION

HIGH-CAPACITY PLUG-IN BATTERY

TRANSMITTER

Moka ATEX

DESCRIPTION

The transmitter comes with:

> Transmitter[a] with 2 joysticks:
4 function pushbuttons[b]
+ 12 positions for control components of your choice[c]

> Transmitter[a] with 3 joysticks:
4 function pushbuttons[b]
+ 8 positions for control components of your choice[c]

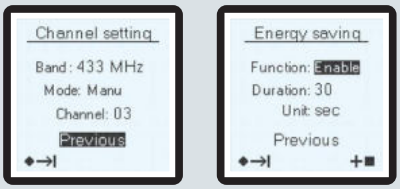
> Transmitter[a] with 6 proportional levers:
4 function pushbuttons[b]
+ 8 positions for control components of your choice[c]

[a] Each version has 2 navigation pushbuttons, 1 On / Validation» pushbutton and 1 emergency stop palmswitch.

[b] The pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

[c] Choose among the following control devices :
- key selector switches
- selector switches with 2 fixed positions
- 2-position buttons with return to initial position
- selector switches with 3 fixed positions
- 3-position buttons with return to initial position
- 3-position buttons with 2 fixed positions + 1 return to initial position
- rotary selector switches with 4 to 12 positions
- potentiometer (on operator module 2-joystick model)

The screen on the transmitter allows you to easily configure and choose items such as:



> Screen language
> Receiver which you want to use
> Radio transmit frequency and power
> Duration of the « standby » time delay (automatically stops transmitter and associated receiver if not used for a defined period of time)
> Various operating modes of the equipment (32 max.)

It also allows you to view:

- Battery charge level
- Radio link status
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbackx max with 10 labels / feedback - 48 labels max in total)
- Alarms (8 for the use + 8 for the system)

Compatibility:

These transmitters work with receivers **Elio**, **Alto**, **Timo** and **Nemo** be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	Modified shock-proof polyamide with anti-static charge
Water tightness	IP65
Weight (with battery)	From 1700 g to 1800 g depending on configurations
Dimensions	297 x 215 x 170 mm
Carried	by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature	-20°C to + 50°C
Storage temperature without battery	-20°C to + 70°C
Battery storage temperature	-20°C to + 50°C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Plug-in Li-ion battery
Autonomy (25°C) with radio activated	10 hours
Frequency selection manual / auto	64 frequencies for 433-434 MHz band 12 frequencies for 869 MHz band 64 frequencies for 911-918 MHz band 64 frequencies for 2.4GHz
Emission power	< 10 mW (license free)
Range limitation	10 selectable levels of power
Modulation	FM or LoRa with 2.4GHz
Average range [1]	100 m in industrial space [1] 300 m in open space [1] 80m-300m band 2.4GHz in industrial environment [1] 800m-2Km band 2.4GHz in open space [1]
Charging time (autonomy > 80%)	3 hr (20 min of charge get 1hr autonomy)
Charging temperature range	0°C to + 40°C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD display, 128 x 128 pixels 42mm (W) x 40mm (H) Black / White
USB interface for configuration and diagnosis	mini-B 5-point USB connector Easy access in a compartment on the back side of the transmitter
Operating indications	On screen (radio link status, battery status, status of buttons, information feedbacks…)
Function buttons	4 pushbuttons (mounted around the screen) + up to 12 positions for switches depending on number of joysticks
Navigation and startup buttons	2 pushbuttons to configure the product 1 On / Validation button (for startup and validation of menus on screen)
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay (from 1 s to infinity)

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

ADDITIONAL OPTIONS

C16 INDUSTRIAL CONNECTOR FOR CABLE LINK WITH ALTO ATEX RECEIVER

- 7 connection terminals

ACCESSORIES

IMPORTANT
The battery shall not be charged in potentially explosive area.

Battery charger

Reference: PWC
Dimensions: 170 x 65 x 36 mm
Power supply: 12 / 24 Vdc
Power: 7 W

Plug-in battery for transmitter

Reference: PYB2
Dimensions: 57 x 56 x1 6 mm
Voltage: 3,7 V
Capacity: 1900 mAh
Technology: lithium Ion

Voltage adapter for battery charger

Reference: UBCU
Dimensions: 41 x 72 x 39 mm
Power supply: 115 - 230 Vac
Voltage output: 12 Vdc
Power: 7 W

Car lighter adapter for battery charger

Reference: PWA4
Dimensions: 90 x 20 x 20 mm
Power supply: 12 - 24 Vdc
Voltage output: Power supply

Key switch No. 2D138 for cabinet

Reference: PWE01

Removable shoulder strap

Reference: PYM110

Cable link connection between the transmitter and receiver

Reference: PWLY40
Length: 40 meters

ZAC La Bâtie
Rue Champrond
F 38334 SAINT-ISMIER France

Tel. +33 (0)4 76 41 44 00

www.jay-electronique.com

A company of

Not all products shown on this leaflet may be available in your area: please contact your Conductix-Wampfler office.

ROBUST

ERGONOMIC

SECURE

Gama

TRANSMITTER

For Ex-hazardous areas

Gama transmitter adapts to your application to make the process more efficient. This easy-to-use handheld module gives incomparable freedom of movement, precise and higher productivity while providing best high motion accuracy operators' safety. With Gama transmitter, experience today's cutting-edge technology.

This transmitter is designed for use in potentially explosive gases atmospheres classified 0, 1, 2, dust classified 20, 21, 22 and mines.

MAIN FEATURES

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

> User-friendly screen for look-up, selection, validation, configuration…

> Ergonomic casing and buttons, even when wearing thick gloves.

> Function buttons designed to SIL 2 per EN 61508 and PL d per EN ISO 13849.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (on screen message, iDialog analysis software).

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

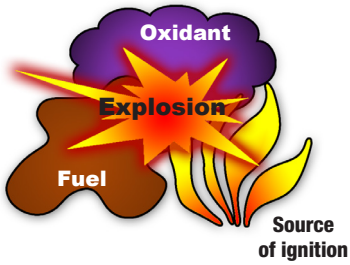
Radio and telecommunication terminal equipment
(low voltage, electromagnetic compatibility, radio spectrum)
FCC part 15
ARCEP certificate
Radio Equipment Directive (RED)

No 44 250 11 382580 002

ATEX manufacturer 2014/34/EU

EC type certificate issued by LCIE

DEFINITION OF A POTENTIALLY EXPLOSIVE ATMOSPHERE



HOW AN EXPLOSION HAPPENS

An explosion is formed by an association of the following 3 elements:

- **An oxidant:**
  in our case, the oxygen in the air.
- **A fuel:**
  - A gas (methane, acetylene, …)
  - A fume (gasoline, solvent, …)
  - A dust (wood, sugar, grain, …).
- **A source of ignition:**
  - An electric arc
  - A mechanical spark
  - A high temperature

CONSEQUENCES OF AN EXPLOSION

Explosions are responsible every year for around 6 deaths and 387 persons with permanent disability (IP) out of 379 accidents.
These can produce major catastrophes, such as the explosion at the «AZF» plant at Toulouse (France) in 2001 or the «Blaye silo» near Bordeaux (France) in 1997, resulting in a large number of deaths and injuries, and destruction of the sites.

PROTECTION AGAINST EXPLOSIONS

It is necessary to evaluate the specific hazards created by explosible atmospheres, keeping in mind :

- the probability that **explosible atmospheres will** occur and persist,
- the probability that **sources of ignition**, including **electrostatic discharges**, are present and will become active and effective,
- the **installations**, **substances** and **methods** used, and their possible **interactions**,
- the extent of the **foreseeable consequences**.

The explosion hazards must be evaluated globally.

In practice, this requires:

➠ Identification of zones representing a hazard and substances which could create explosible atmospheres.

➠ Classification of the explosive atmospheres in zones where there is an explosion hazard, assisted if necessary, by an outside organization.

➠ Definition of the equipment required to carry out the project.

With reference to user ATEX directive 99/92/CE.

The zones are standardised in accordance with their degree of dangerousness.

- **Definition of explosion hazard zones linked to:**

GASES, FUMES AND FOG

ZONE 0: location where an explosive atmosphere, consisting of a mixture with the air of combustible material in the form of gases, fumes or fog, is present continuously or over extended periods of time, or frequently.

ZONE 1: location where an explosive atmosphere, consisting of a mixture with the air of combustible materials in the form of gases, fumes or fog, is likely to form occasionally under normal operation.

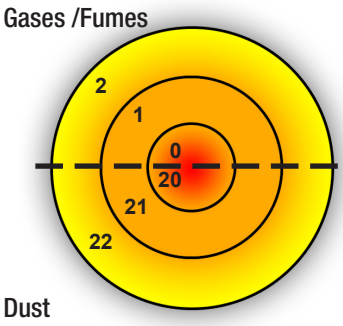
ZONE 2: location where an explosive atmosphere, consisting of a mixture with the air of combustible materials in the form of gases, fumes or fog, is not likely to form during normal operation, or should such **a formation occur, is nonetheless only of short duration.**

DUST

ZONE 20: location where an explosive atmosphere in the form of a cloud of combustible dust is present in the air continuously, or over extended periods of time, or frequently.

ZONE 21: location where an explosive atmosphere in the form of a cloud of combustible dust may occasionally form in the air during operation.

ZONE 22: location where an explosive atmosphere in the form of a cloud of combustible dust is not likely to form in the air during normal operation, or should such a formation occur, is nonetheless only of short duration.



- Continuous hazard
- Hazard present during normal operating conditions
- Limited hazard in the event of failure of a system (limited in time)

TRANSMITTER

Gama ATEX

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Operator modules Gama ATEX :

Gama 6+4 ATEX

Gama 10+4 ATEX

CE 0081 Ex

(1) (2) (3)
II 1 G D

(4) (5) (6) (7)
Ex ia IIB T4 or 145°C Ga (1)

(8) (9) (10) (7)
Ex ia IIIC T135°C or T145°C Da (1)

(1) (2) (3)
II 2 G D

(4) (5) (6) (7)
Ex ia IIC T4 or 145°C Gb (1)

(8) (9) (10) (7)
Ex ia IIIC T135°C or T145°C Db (1)

(1)
I M1

Ex ia I Ma

(11)
LCIE 15 ATEX 3055 X

(12)
IECEx LCIE 15.0045 X

(1) Temperature classes depending on Tamb :
-20°C ≤ Tamb ≤ +40°C, temperature classes are T4 for gas and T135°C for dust.
+40°C ≤ Tamb ≤ +50°C, temperature classes are 145°C for gas and T145°C for dust.

■ Below are the tables to understand the ATEX marquing :

1 Device group

Device group	Application
Group I	Electrical devices intended for use in firedamp mines. (underground work in the mines and parts of ground installations) => Protection against firedamp
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Protection mode			Standard	Basic principle	Application in ZONE		
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Benzene	Paint thinners	Cycloprodene		
Pentane	Natural gas	Butadiene 1-3		
Heptane		Propylene oxide		

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Db	21 (and 22)	2D
Dc	22	3D
Ma / Mb	mines	M1 / M2

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i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.	●	●	●
		ib	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.		●	●
m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
t	Explosion proof enclosure		EN/IEC 60079-31	The extremely heavy duty envelope contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●

9 Classification of dust by explosion groups

Explosion groups	Type of dust	Fundamental principle
Group IIIA	Combustible dust in suspension	Very fine solid particles of nominal size of about 500 microns or less, can be suspended in the air, which can be deposited because of their own weight and that can burn or be consumed in the air and are suceptible to form explosive mixtures with air under conditions of atmospheric pressure and normal temperature.
Group IIIB	Non-conductive dust	Combustible dust electrical resistivity greater than 10^3 Ω.m. Size < 500 µm
Group IIIC	Conductive dust	Combustible dust electrical resistivity at or below 10^3 Ω.m. Size < 500 µm

10 Maximum surface temperature for dusty atmospheres

11 LCIE : certificate of EC type examination number

12 LCIE : IECEx certificate number

TRANSMITTER

Gama ATEX

BIDIRECTIONAL RADIO LINK

MULTIMODES OPTION

SEALED USB PORT FOR DIAGNOSIS, CONFIGURATION

TOUGH BACKLIT SCREEN WITH ANTI-REFLECTION, SHOCK-PROOF, ANTI-SCRATCHING FEATURES

2 ATTACHMENT POINTS FOR SHOULDER STRAPS

INTEGRATED REINFORCED ABS AND PROTECTION FOAM

SEALS

FUNCTION BUTTON SIL 2 - PL d

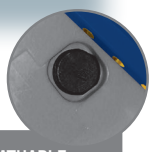
CASING SHAPED TO PREVENT UNINTENTIONAL ACTIONS

NAVIGATION BUTTON

LARGE-SIZED EASY-TOUCH CONTROL BUTTONS: FOR EASY USE WITH GLOVES TO PREVENT MUSCULO-SKELETAL DISORDER (MSD)

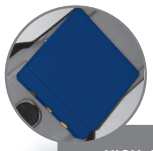
OPTIONAL ANTI-ZAPPING FUNCTION

LABELS FOR IDENTIFYING FUNCTIONS



BREATHABLE MEMBRANE TO PREVENT CONDENSATION

ON / VALIDATION BUTTON



HIGH-CAPACITY PLUG-IN BATTERY

EMERGENCY STOP PALMSWITCH SIL 3 - PL e

6+4 MODEL

10+4 MODEL

TRANSMITTER

Gama ATEX

DESCRIPTION

The transmitter comes in two housing versions:

> « **6 + 4** »[a] **transmitter** with 6 function buttons[b]:
- 6 single-action pushbuttons

OR 6 double-action pushbuttons

OR 4 double-action pushbuttons
+ 2 single-action pushbuttons (under the display)

> « **10 + 4** »[a] **transmitter** with 10 function buttons[b]:
- 10 single-action pushbuttons

OR 10 double-action pushbuttons

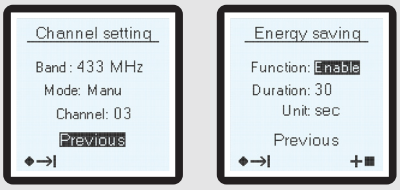
OR 6 double-action pushbuttons
+ 4 single-action pushbuttons (under the display)

OR 8 double-action pushbuttons
+ 2 single-action pushbuttons (under the display)

[a] Each version has 2 navigation pushbuttons.

[b] The single-action pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

The screen on the transmitter allows you to easily configure and choose items such as:



> Screen language

> Receiver which you want to use

> Radio transmit frequency and power

> Duration of the « standby » time delay (automatically stops transmitter and associated receiver if not used for a defined period of time)

> operating modes of the equipment (32 max.)

It also displays:
- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbacks max with 10 labels / feedback - 48 max labels in total)
- Alarms (8 for application use + 8 for system)

Compatibility:

These transmitters work with **Elio, Alto, Timo, Nemo** receivers to be defined according the application.

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY	
Housing material	shock-resistant reinforced ABS with anti-static charge
Water tightness	IP65
Weight (with battery)	6+4 buttons: 768 g 10+4 buttons: 893g
Dimensions	6+4 buttons: 290 x 93 x 64 mm 10+4 buttons: 360 x 93 x 64 mm
Carried	by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY	
Operating temperature range	-20°C to + 50°C
Storage temperature rwithout battery	-20°C to + 70°C
Battery storage temperature	-20°C to + 50°C

ELECTRICAL AND RADIO CHARACTERISTICS	
Power supply	Li-ion battery
Autonomy (25°C) with radio link activated 100% time	10 hours
Frequency selection Manual / automatic	64 frequencies for 433-434 MHz band 12 frequencies for 869 MHz band 64 frequencies for 911-918 MHz band
Emission power	<10 mW (license free)
Range limitation	10 selectable levels of power
Modulation	FM
Average range [1]	100 m in industrial space [1] 300 m in open space [1]
Charging time (endurance > 80%)	3 hr (20 mn of charge get 1 hr autonomy)
Charging temperature range	0°C to + 40°C

FUNCTIONAL CHARACTERISTICS	
Display	Backlit LCD, 128 x 128 pixels 42 mm (W) x 40 mm (H)
USB interface for configuration and diagnosis	mini-B 5-contact USB connector Easy access in a compartment on the backside of transmitter
Operating indications	Visible on screen (radio link status, battery status, status of buttons, information feedback…)
Function buttons	6 or 10 pushbuttons (available as single or double-action buttons and configurable as selectors with n positions) Ø 14 mm - travel 7 mm Endurance : 1 million cycles for 1st level pushbutton action 500 000 cycles for 2nd level pushbutton action
Navigation and startup buttons	2 pushbuttons to configure the product (above the emergency stop palmswitch) On / Validation button (for startup and validation of menus on screen) Endurance: 500 000 cycles
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay (from 1 s to infinity)

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

ACCESSORIES

IMPORTANT
The battery shall not be charged in potentially explosive area.

Battery charger

Reference: PWC
Dimensions: 170 x 65 x 36 mm
Power supply: 12/24 Vdc
Power: 7 W

Plug-in battery for transmitter

Reference: PYB
Dimensions: 57 x 56 x 16 mm
Voltage: 3,7 V
Capacity: 1900 mAh
Technology: lithium Ion

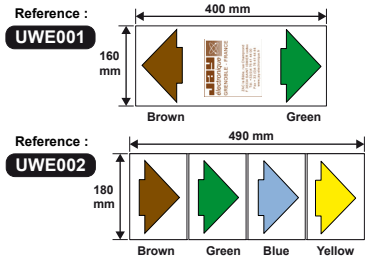
Mains power adapter for battery charger

Reference: UBCU
Dimensions: 41 x 72 x 39 mm
Power supply: 100-240 Vac
Output: 12 Vdc
Power: 7 W

Cigarette lighter plug adapter for battery charger

Reference: PWA4
Dimensions: 90 x 20 x 20 mm
Power supply: 12-24 Vdc
Output: Power supply

Sheet of adhesive labels for mobile equipments



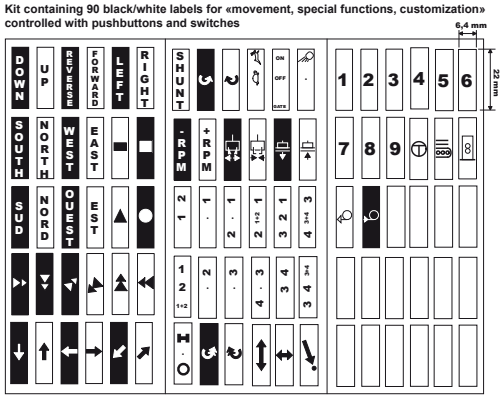
Removable 2-point shoulder strap

Reference: PYM110

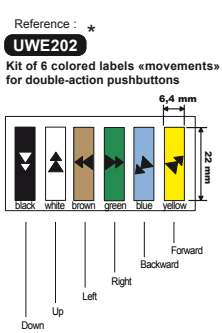
Sheet of adhesive labels for transmitters

The function buttons are identified by adhesive labels in the recesses in the transmitter casing next to the pushbuttons.

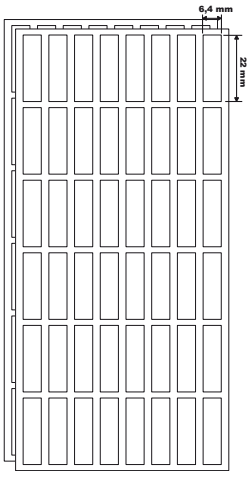
Reference : UWE207 *
Kit containing 90 black/white labels for «movement, special functions, customization» controlled with pushbuttons and switches



Reference : UWE202 *
Kit of 6 colored labels «movements» for double-action pushbuttons



Reference : UWE205
Kit containing 48 white blank labels + 48 transparent protecting labels for customised markings



* = standard sheet of labels supplied with operator module

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CONDUCTIX wampfler

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COMPACT

ERGONOMIC

Pika

TRANSMITTER

For Ex-hazardous areas

Pika transmitter adapts to your application to make the process more efficient. This easy-to-use remote control gives incomparable freedom of movement, high motion accuracy, and higher productivity while providing best operators' safety. With Pika transmitter, experience today's cutting-edge technology.

This transmitter is designed for use in potentially explosive gases atmospheres classified 0, 1, 2, dust classified 20, 21, 22 and mines.

MAIN FEATURES

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

> User-friendly screen display for look-up, selection, validation, configuration…

> Compact, super-ergonomic unit.

> Quick and easy setup for application configuration thanks to **iDialog** software (labels, feedback, alarms, mapping actuators/outputs, interlocks, network features, access by PIN codes).

> Easy to maintain thanks to its diagnosis aid system (information on screen, iDialog analysis software).

> Plug-in battery and industrial charger.

FULLY COMPLIANT WITH SAFETY AND SECURITY STANDARDS:

ATEX manufacturer
2014/34/EU

EC type certificate issued by LCIE

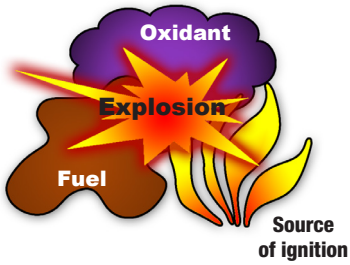
Machinery directive 2006/42/EC:
Emergency stop
> SIL 3 per EN 61508
> Performance level PL e per EN ISO 13849-1 and -2
EC type certificate issued by TÜV NORD

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

TRANSMITTER

Pika ATEX

DEFINITION OF A POTENTIALLY EXPLOSIVE ATMOSPHERE



HOW AN EXPLOSION HAPPENS

An explosion is formed by an association of the following 3 elements:

- **An oxidant:**
  in our case, the oxygen in the air.
- **A fuel:**
  - A gas (methane, acetylene, …)
  - A fume (gasoline, solvent, …)
  - A dust (wood, sugar, grain, …).
- **A source of ignition:**
  - An electric arc
  - A mechanical spark
  - A high temperature

CONSEQUENCES OF AN EXPLOSION

Explosions are responsible every year for around 6 deaths and 387 persons with permanent disability (IP) out of 379 accidents.
These can produce major catastrophes, such as the explosion at the «AZF» plant at Toulouse (France) in 2001 or the «Blaye silo» near Bordeaux (France) in 1997, resulting in a large number of deaths and injuries, and destruction of the sites.

PROTECTION AGAINST EXPLOSIONS

It is necessary to evaluate the specific hazards created by explosible atmospheres, keeping in mind :

- the probability that **explosible atmospheres will** occur and persist,
- the probability that **sources of ignition**, including **electrostatic discharges**, are present and will become active and effective,
- the **installations**, **substances** and **methods** used, and their possible **interactions**,
- the extent of the **foreseeable consequences**.

The explosion hazards must be evaluated globally.

In practice, this requires:

➠ Identification of zones representing a hazard and substances which could create explosible atmospheres.

➠ Classification of the explosive atmospheres in zones where there is an explosion hazard, assisted if necessary, by an outside organization.

➠ Definition of the equipment required to carry out the project.

With reference to user ATEX directive 99/92/CE.

The zones are standardised in accordance with their degree of dangerousness.

- **Definition of explosion hazard zones linked to:**

GASES, FUMES AND FOG

ZONE 0: location where an explosive atmosphere, consisting of a mixture with the air of combustible material in the form of gases, fumes or fog, is present continuously or over extended periods of time, or frequently.

ZONE 1: location where an explosive atmosphere, consisting of a mixture with the air of combustible materials in the form of gases, fumes or fog, is likely to form occasionally under normal operation.

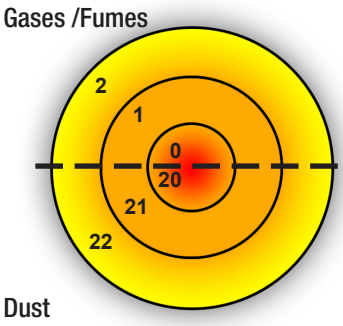
ZONE 2: location where an explosive atmosphere, consisting of a mixture with the air of combustible materials in the form of gases, fumes or fog, is not likely to form during normal operation, or should such **a formation occur, is nonetheless only of short duration.**

DUST

ZONE 20: location where an explosive atmosphere in the form of a cloud of combustible dust is present in the air continuously, or over extended periods of time, or frequently.

ZONE 21: location where an explosive atmosphere in the form of a cloud of combustible dust may occasionally form in the air during operation.

ZONE 22: location where an explosive atmosphere in the form of a cloud of combustible dust is not likely to form in the air during normal operation, or should such a formation occur, is nonetheless only of short duration.



Continuous hazard

Hazard present during normal operating conditions

Limited hazard in the event of failure of a system (limited in time)

TRANSMITTER

Pika ATEX

DEFINITION OF MARKINGS ON
ATEX - IECEx PRODUCTS

Since April 20, 2016, all Ex products must satisfy the requirements of the directive ATEX 2014/34/UE, the evolution of the standard 60079-0 leads to a new product marking presented in the following tables:

Pika 2 joysticks ATEX

Pika 1 joystick ATEX

Transmitters Pika ATEX :

CE 0081 Ex

(1)(2) II 1 G (3) D

Ex ia (4) IIB (5) T4 or 145°C (6) Ga (1) (7)

Ex ia (8) IIIC (9) T135°C or T145°C (10) Da (1) (7)

(1)(2) II 2 G (3) D

Ex ia (4) IIC (5) T4 or 145°C (6) Gb (1) (7)

Ex ia (8) IIIC (9) T135°C or T145°C (10) Db (1) (7)

(1) I M1

Ex ia I Ma

LCIE 15 ATEX 3058X (11)

IECEx LCIE 15.0047X (12)

Transmitters Pika ATEX + cable link option :

CE 0081 Ex

(1)(2) II 1 G (3) D

Ex ia (4) IIB (5) T4 or 145°C (6) Ga (1) (7)

Ex ia (8) IIIC (9) T135°C or T145°C (10) Da (1) (7)

(1) I M1

Ex ia I Ma

Ui : 8V; Pi : 310mW;

Ci : 96.2µF; Li : 0.54µH; (13)

LCIE 15 ATEX 3058X (11)

IECEx LCIE 15.0047X (12)

(1) Temperature classes depending on Tamb :
-20°C ≤ Tamb ≤ +40°C, temperature classes are T4 for gas and T135°C for dust.
+40°C ≤ Tamb ≤ +50°C, temperature classes are 145°C for gas and T145°C for dust.

■ Below are the tables to understand the ATEX marquing:

(1) Device group

Device group	Application
Group I	Electrical devices intended for use in firedamp mines. (underground work in the mines and parts of ground installations) => Protection against firedamp
Group II	Electrical devices intended for all other explosible atmospheres than firedamp mines (ground industries) => Protection against explosions

(2) (3) ATEX classification

Category of equipment	Flammable substances	Degree of protection	Description
1	G Gas D Dust	Very high level	Devices capable of operating in the atmospheres where the risk of explosion is permanent or almost permanent (zones 0, 1, 2 and 20, 21, 22)
2	G Gas D Dust	High level	Devices capable of operating in the atmospheres where the risk of explosion is frequent (zones 1, 2 and 21, 22)
3	G Gas D Dust	Normal	Devices capable of operating in the atmospheres where the risk of explosion is occasional (zones 2 and 22)

4 Protection modes for electrical equipment in gaseous atmospheres

Protection mode			Standard	Basic principle	Application in ZONE		
					0	1	2
d	Explosion proof enclosure		EN/IEC 60079-1	The extremely heavy duty enclosure contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●
e	Enhanced safety		EN/IEC 60079-7	The components inside the enclosure must not produce arcs, sparks or dangerous temperatures under normal utilization conditions. The enclosure must be tight to IP 54 and withstand impacts.		●	●
i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into “ia” resists 2 defects: suitable for zone 0, and “ib” resists 1 defect: suitable for zones 1 and 2.	●	●	●
		ib	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into “ia” resists 2 defects: suitable for zone 0, and “ib” resists 1 defect: suitable for zones 1 and 2.		●	●
m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
n	Zone 2		EN/IEC 60079-15	This protection mode is only suitable for devices intended for zone 2 where the risk of explosion is low. It combines the enhanced safety mode “e” with lower protection requirements.			●
o	Immersion in oil		EN/IEC 60079-6	The material or the electrical circuit is immersed in oil. The explosive mixture is located above the liquid and cannot be ignited by the electrical circuit.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
q	Powdery filler		EN/IEC 60079-5	For this protection mode, all the electronics is encapsulated in an inert powdery material to prevent electrical arcs or electrical sparks.		●	●

5 Classification of gases and fumes by explosion groups (non-exhaustive list)

Group IIA		Group IIB		Group IIC
Propane	Acetone	Ethylene	Ethyl oxide	Acetylene
Ethane	Hexane	Diethylene	Sulphuretted hydrogen	Hydrogen
Butane	Methanol	Ethyl ether	Ethanol	Carbon disulfide
Benzene	Paint thinners	Cycloprodene		
Pentane	Natural gas	Butadiene 1-3		
Heptane		Propylene oxide		

6 Gas temperature classes

The safe use of equipment in dangerous areas requires knowledge of the gas group and compare the temperature auto-ignition of gaseous mixtures treated to the temperature of equipment marking.
The maximum surface temperature of the material must always be less than the autoignition temperature of the gas present in the dangerous area.

Temperature class	MAXIMUM surface temperature of electrical equipment	Ignition temperatures of FLAMMABLE materials
T1	450°C	> 450°C
T2	300°C	> 300°C
T3	200°C	> 200°C
T4	135°C	> 135°C
T5	100°C	> 100°C
T6	85°C	> 85°C

7 Equipment protection level (EPL)

Traditional relationship between level of protection and areas / categories (without additional risk assessment).

Equipment protection level (EPL)	Normal range of application	Category (2014/34/UE)
Ga	0 (and 1 and 2)	1G
Gb	1 (and 2)	2G
Gc	2	3G
Da	20 (and 21 and 22)	1D
Db	21 (and 22)	2D
Dc	22	3D
Ma / Mb	mines	M1 / M2

8 Protection modes for electrical equipment in dusty atmospheres

Protection mode			Standard	Basic principle	Application in ZONE		
					20	21	22
i	Intrinsic safety	ia	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.	●	●	●
		ib	EN/IEC 60079-11	The actual design of the circuit, where the energy is limited at the entry by a Zener barrier or a galvanic insulator makes it impossible for arcs or electrical sparks to form, subdivided into "**ia**" resists 2 defects: suitable for zone 0, and "ib" resists 1 defect: suitable for zones 1 and 2.		●	●
m	Encapsulation		EN/IEC 60079-18	For this protection mode, all the electronics is encapsulated in an insulating material to prevent electrical arcs or electrical sparks.		●	●
p	Internal overpressure		EN/IEC 60079-2	A pressurized gas is introduced in the enclosure to prevent the possibly-explosive surrounding atmosphere from entering the enclosure.		●	●
t	Explosion proof enclosure		EN/IEC 60079-31	The extremely heavy duty envelope contains the explosion inside the device. The explosion proof seals of the device prevent any propagation of the flame outside the enclosure. The seals are regularly serviced.		●	●

9 Classification of dust by explosion groups

Explosion groups	Type of dust	Fundamental principle
Group IIIA	Combustible dust in suspension	Very fine solid particles of nominal size of about 500 microns or less, can be suspended in the air, which can be deposited because of their own weight and that can burn or be consumed in the air and are suceptible to form explosive mixtures with air under conditions of atmospheric pressure and normal temperature.
Group IIIB	Non-conductive dust	Combustible dust electrical resistivity greater than 10^3 Ω.m. Size < 500 µm
Group IIIC	Conductive dust	Combustible dust electrical resistivity at or below 10^3 Ω.m. Size < 500 µm

10 Maximum surface temperature for dusty atmospheres

11 LCIE : certificate of EC type examination number

12 LCIE : IECEx certificate number

TRANSMITTER

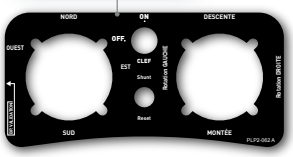
Pika ATEX

BIDIRECTIONAL RADIO LINK

OPTIONAL CROSS-LOCKING SYSTEM

PERSONALIZED FRONT PLATE

STANDARD JOYSTICKS WITH 1 TO 4 NOTCHES OR PROPORTIONAL CONTROL



OPTIONAL SECURE INTENTIONAL-ACTION JOYSTICKS

TOUGH BACKLIT SCREEN WITH ANTI-REFLECTION, SHOCK-PROOF, ANTI-SCRATCHING FEATURES

EMERGENCY STOP PALMSWITCH SIL 3 - PL e

MULTIMODES OPTION

4 FUNCTION BUTTONS

ON / VALIDATION BUTTON

NAVIGATION BUTTONS

POSITIONS FOR « TOGGLE » SWITCHES

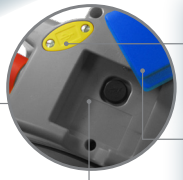
1-JOYSTICK MODEL

OPTIONAL INDUSTRIAL CONNECTOR C16 / 4 POINTS TO CONNECT 2 DRY CONTACTS OR C16 / 7 POINTS FOR WIRE CONNECTION WITH TIMO, NEMO, ALTO

OPTIONAL AUXILIARY PUSHBUTTON

OPTIONAL AUTOMATIC DETECTION OF INACTIVITY «DEAD MAN»

2-JOYSTICK MODEL



SEALED USB INTERFACE FOR DIAGNOSIS, CONFIGURATION

HIGH-CAPACITY PLUG-IN BATTERY

BREATHABLE MEMBRANE TO PREVENT CONDENSATION

TRANSMITTER

Pika ATEX

DESCRIPTION

The transmitter comes with:

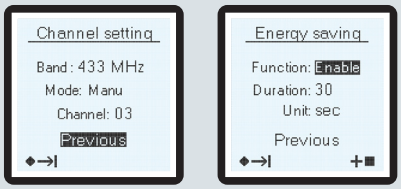
4 function pushbuttons[b]
+ 2 positions for additional switches[c]

[a] Each version has 2 navigation pushbuttons,
1 «On / Validation» pushbutton and 1 emergency stop palmswitch.

[b] The single-action pushbuttons can be configured as selectors for 2, 3 or «n» positions with status indication on the screen.

[c] You can choose from among the following control components:
- key selector switches with 2 fixed positions
- selector switches with 2 fixed positions
- 2-position buttons with return to initial position
- selector switches with 3 fixed positions
- 3-position buttons with return to initial position
- 3-position buttons with 2 fixed positions + 1 return to initial position
- rotary selector switches with 4 to 12 positions
- potentiometer

The screen on the transmitter allows configuration easily and choosing items such as:



> Screen language

> Receiver which you want to use

> Radio transmit frequency and power

> Duration of the « standby » time delay (automatically stops transmitter and associated receiver if not used for a defined period of time)

> Operating modes of the equipment (32 max.)

It also allows to view:

- Battery charge level
- Radio communication
- Equipment labels and controlled functions (max 96 different labels for selectors)
- Equipment feedback (16 feedbackx max with 10 labels / feedback - 48 labels max in total)
- Alarms (8 for application use + 8 for system)

TECHNICAL CHARACTERISTICS

MECHANICAL CHARACTERISTICS AND ENVIRONMENTAL WITHSTAND CAPACITY

Housing material	shock-resistant reinforced ABS with anti-static charge
Water tightness	IP65
Weight (with battery)	1 joystick: 1300 g 2 joysticks: 1400 g
Dimensions	243 x 180 x 170 mm
Carried	by carrying belt by 2-point shoulder strap

ENVIRONMENTAL WITHSTAND CAPACITY

Operating temperature	-20°C to + 50°C
Storage temperature without battery	-20°C to + 70°C
Battery storage temperature	-20°C to + 50°C

ELECTRICAL AND RADIO CHARACTERISTICS

Power supply	Li-ion battery
Autonomy (25°C) with radio activated 100% time	10 hours
Frequency selection Manual / automatic	64 frequencies for 433-434 MHz band 12 frequencies for 869 MHz band 64 frequencies for 911-918 MHz band
Emission power	<10 mW
Range limitation	10 selectable levels of power
Modulation	FM
Average range [1]	100 m in industrial space [1] 300 m in open space [1]
Charging time (autonomy > 80%)	3 hr (20 mn of charge get 1hr autonomy)
Charging temperature range	0°C to + 40°C

FUNCTIONAL CHARACTERISTICS

Display	Backlit LCD display, 128 x 128 pixels 42 mm (W) x 40 mm (H) Black / White
USB interface for configuration and diagnosis	mini-B 5-point USB connector Easy access in a compartment on the level side of transmitter
Operating indications	On screen (radio link status, battery status, status of buttons, information feedbacks…)
Function buttons	4 pushbuttons (mounted around the screen) + 2 positions for switches of your choice according to number of joysticks
Navigation and startup buttons	2 pushbuttons to configure the product 1 On/Validation button (for startup and validation of menus on screen)
Emergency stop	2 positions with rotary unlock system
Standby function	User-defined time delay (from 1 s to infinity)

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

ADDITIONAL OPTIONS

C16 INDUSTRIAL CONNECTOR FOR 2 DRY CONTACTS

- 4 connection terminals
- switching capacity < 10 mA
- female socket
- supplied with cap

C16 INDUSTRIAL CONNECTOR FOR WIRE CONNECTION

- 7 connection terminals
- male socket
- supplied with cap

ACCESSORIES

IMPORTANT
The battery shall not be charged in potentially explosive area.

Battery charger

Reference: PWC
Dimensions: 170 x 65 x 36 mm
Power supply: 12/24 Vdc
Power: 7 W

Plug-in battery for transmitter

Reference: PYB
Dimensions: 57 x 56 x 16 mm
Voltage: 3,7 V
Capacity: 1900 mAh
Technology: lithium Ion

Mains power adapter for battery charger

Reference: UBCU
Dimensions: 41 x 72 x 39 mm
Power supply: 100 - 240 Vac
Output: 12 Vdc
Power: 7 W

Cigarette lighter plug adapter for battery charger

Reference: PWA4
Dimensions: 90 x 20 x 20 mm
Power supply: 12 - 24 Vdc
Output: Power supply

Key switch No. 2D138 for cabinet

Reference: PWE01

Removable 2-point shoulder strap

Reference: PYM110

Cable link connection between the transmitter and receiver

Reference: PWLY40
Length: 40 meters

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A company of

Not all products shown on this leaflet may be available in your area: please contact your Conductix-Wampfler office.

Your Applications – our Solutions

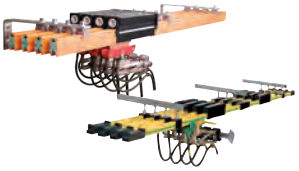
The solutions we deliver for your applications are based on your specific requirements. In many cases, a combination of several different Conductix-Wampfler systems can prove advantageous. You can count on Conductix-Wampfler for hands-on engineering support together with the optimum solution to safely meet your needs.

Cable and Hose Reels

Motor driven and spring driven reels by Conductix-Wampfler provide energy, data and media over a variety of distances, in all directions, fast and safe.

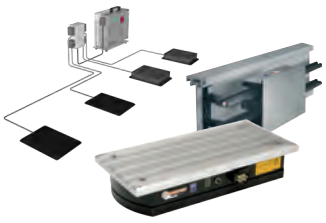
Festoon Systems

Conductix-Wampfler cable trolleys can be used in virtually every industrial application. They are reliable, robust and available in an enormous variety of dimensions and designs.



Conductor rails

Available as enclosed or multiple unipole systems, Conductix-Wampfler conductor rails reliably move people and material.



Inductive Power Transfer IPT®

The no-contact system for transferring energy and data. For all tasks that depend on high speeds and absolute resistance to wear. Flexible installation when used with Automated Guided Vehicles.

Energy guiding chains

Covering a wide range, energy guiding chains are the ideal solution for transferring energy, data, air and fluids for many industrial applications.

Radio Remote Controls

Safety remote control solutions customized to meet our customer needs with modern ergonomic design.

Reels, retractors and balancers

Available for hoses and cables, as classical reels or high-precision positioning aids for tools, we offer a complete range of reels and spring balancers.

Jib booms

Complete with tool transporters, reels or an entire media supply system – safety and flexibility are key to the completion of difficult tasks.

Non-insulated conductor rails

Robust, non-insulated aluminum conductor rails with stainless steel cap provide the ideal basis for power supply of people movers and transit networks.

Slip ring assemblies

Whenever things are really “moving in circles”, the proven slip ring assemblies by Conductix-Wampfler ensure the flawless transfer of energy and data. Here, everything revolves around flexibility and reliability!

Mobile Control Systems

Mobile control solutions for your plant – wether straightforward or intricate. Control and communication systems from LJU have been tried and tested in the automotive industry for decades.

ProfiDAT

This data transfer system is a compact slotted waveguide and furthermore can be used as Grounding rail (PE) as well as positioning rail at the same time.

www.conductix.com

Conductix-Wampfler
has just one critical mission:
To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365.

To contact your nearest sales office, please refer to:
www.conductix.com/en/contact-search

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