JAY

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
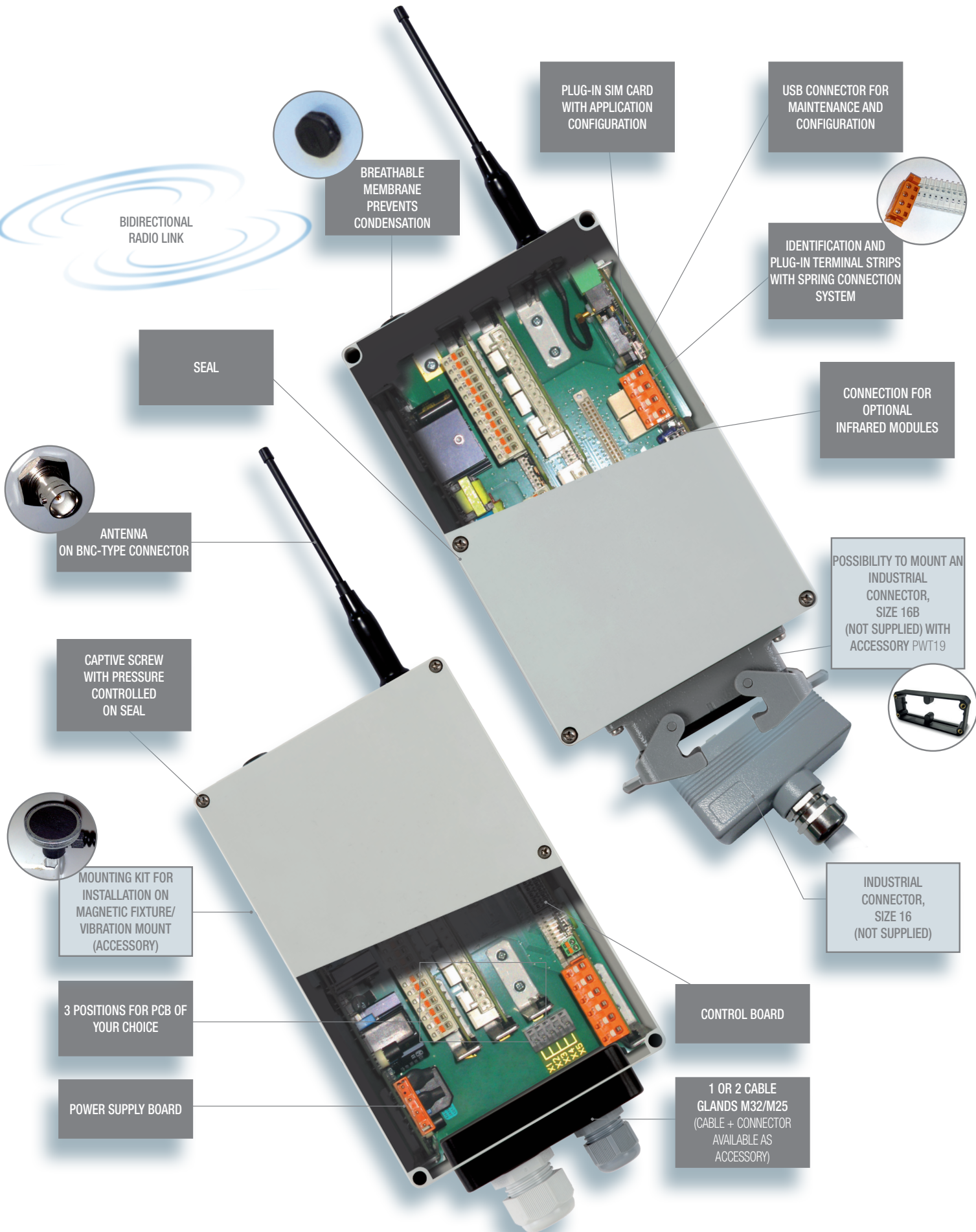
TÜV NORD
TÜV NORD CERT GmbH
Type Tested

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

BIDIRECTIONAL
RADIO LINK

BREATHABLE
MEMBRANE
PREVENTS
CONDENSATION

PLUG-IN SIM CARD
WITH APPLICATION
CONFIGURATION

USB CONNECTOR FOR
MAINTENANCE AND
CONFIGURATION

IDENTIFICATION AND
PLUG-IN TERMINAL STRIPS
WITH SPRING CONNECTION
SYSTEM

SEAL

CONNECTION FOR
OPTIONAL
INFRARED MODULES

ANTENNA
ON BNC-TYPE CONNECTOR

POSSIBILITY TO MOUNT AN
INDUSTRIAL
CONNECTOR,
SIZE 16B
(NOT SUPPLIED) WITH
ACCESSORY PWT19

CAPTIVE SCREW
WITH PRESSURE
CONTROLLED
ON SEAL

MOUNTING KIT FOR
INSTALLATION ON
MAGNETIC FIXTURE/
VIBRATION MOUNT
(ACCESSORY)

INDUSTRIAL
CONNECTOR,
SIZE 16
(NOT SUPPLIED)

3 POSITIONS FOR PCB OF
YOUR CHOICE

CONTROL BOARD

POWER SUPPLY BOARD

1 OR 2 CABLE
GLANDS M32/M25
(CABLE + CONNECTOR
AVAILABLE AS
ACCESSORY)

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).

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.

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	