



# EXPLOSION PROOF MODBUS RTU RADIOMODEMS

The Solexy MODBUS RTU radiomodem is a VHF/ UHF high quality 500 mW radiomodem operating on 12,5 or 25 kHz channels available in 169 MHz and 868 MHz band in according to European Decision 2005/928/CE.

These products are develop in order to be a **licence free device**.

The Solexy MODBUS RTU radiomodems are supply complete with 4 digital input, 2 digital output plus 2 analog input and 2 analog output 4-20 mA that allows to has an Modbus RTU node. The RS485 interface permit also the connection up to 4 Modbus module.

The SWA and SWS anclosure thanks to its rugged construction combined to Atex and IECEx certificate achieves to have an Modbus RTU data transmission in classified area Ex.



## FEATURES

- ✓ **MODBUS RTU**  
The Solexy MODBUS RTU radiomodem can be used on all Modbus RTU application
- ✓ **WIDE RANGE OF TRANSMISSION OPTION**  
Mirror (point to point), Modbus RTU, Modbus multi master and standard Radiomodem option completely transparent to the user also in case of complex route
- ✓ **MODBUS RTU NODE**  
4 PNP digital input combinet to 2 relay output plus 2 analog input and 2 optoisolated analog output 4-20 mA allows to use the radiomodem as a complete Modbus RTU node.
- ✓ **LOW POWER**  
Low power consumption in both RX and TX mode and bistable relay on digital output allows the Solexy radiomodem suitable to battery operation
- ✓ **ADAPTIVE FREQUENCY AGILITY**  
Adaptive Frequency Agility on 2 or 3 channels
- ✓ **SOFTWARE CONFIGURATION**  
Complete configuration by PC through dedicated software
- ✓ **ENCRYPTION TRANSMISSION DATA**  
Secure transmission data thanks to AES (Advanced Encryption Standard) at 128 bit

## APPROVALS

### ATEX / IECEx CERTIFICATION

Zone 1, 2, 21 & 22

- ⊕ I M2(M1) Ex db mb [ia Ma] I Mb (SWS only)
- II 2(1) G Ex db mb [ia Ga] IIC T6...T5 Gb
- II 2(1) D Ex mb tb [ia Da] IIIC T80°C...T100°C Db

## NOMENCLATURE

### a - Enclosure

SWA Aluminum polyester powder coated  
SWS Stainless steel AISI 316 (CF8M)  
electropolish

### b - Device

510 Modbus RTU Radiomodem  
VHF 169 MHz, 500 mW RF power output  
540 Modbus RTU Radiomodem UHF 868 MHz,  
500 mW RF power output

### c - Antenna connection <sup>(1)</sup>

01 n° 1 RXN antenna coupler (N Female) <sup>(2)</sup>  
02 n° 1 RXF antenna coupler (RP-SMA Female) <sup>(2)</sup>

### d - Cable entries

42 n° 4 3/4" npt-f (one used for antenna connection)  
44 n° 4 M25x1.5 (one used for antenna connection)

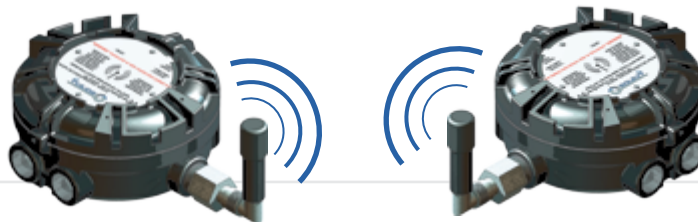
### e - Approvals

X0 IECEx & ATEX Gas and Dust (SWA only) <sup>(3)</sup>  
M0 IECEx & ATEX Gas, Dust and Mining (SWS only) <sup>(3)</sup>

SWA	510	01	-	42	0	X0
a	b	c		d		e

4 digital IN  
2 digital OUT  
2 analog IN 4-20 mA  
2 analog OUT 4-20 mA  
RS485 Modbus RTU port

MODBUS



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## SPECIFICATIONS

		DEVICE	
GENERAL		510	540
Operating band		169.400 MHz 169.475 MHz	868.000 MHz 869.650 MHz
Canalization		12.5   25   50 kHz	25   50 kHz
Modulation		9K00F1D or 18K0F1D	
Radio data rate (Tx/Rx)		4800 bps @ 12.5 kHz   9600 bps @ 25 kHz   19200 bps @ 50 kHz	
Frequency stability		±2 ppm	± 1 ppm
Supply voltage		9-32 VDC or 3.3 - 4.8 battery operated	
Rx consumption (@12 VDC)		≈ 30 mA (RS232/485 relè off)	
Tx consumption (@12 VDC)		≈ 200 mA	
Sleep consumption		Battery operated < 10 µA   12 VCD operated < 150 µA	
Digital outputs rating		n° 2 1A@24V AC/DC resistive load (Normally Open)	
Digital inputs		n° 4 PNP	
Digital counter		n° 1 PNP (max frequency input 10 Hz)	
Analog inputs		n° 2 4-20 mA (passive)	
Analog outputs		n° 2 4-20 mA (passive)	
Ambient temp. range		SWA series: -30°C (-22°F) +63°C (+145°F) SWS series: -30°C (-22°F) +57°C (+134°F)	
Housing material		SWA series: die cast aluminum polyester powder coated SWS series: AISI 316 (CF8M) electropolished	
Weather proof		IP 66/68	
Housing material		SWA: 2,3 kg (without antenna) SWS: 5,0 kg (without antenna)	
TRANSMITTER		510	540
Output power		25/150/500 mW	25/150/500 mW
Frequency deviations		± 1.8 kHz @ 12.5 kHz ± 3.6 kHz @ 25 kHz ± 4.8 kHz @ 50 kHz	
Output power stability		± 1.5 dB	
RECEIVER		510	540
Type		CLASS 1 - LBT and AGILITY	CLASS 2 - LBT and AGILITY
Sensibility @ BER < 10 <sup>-2</sup>	12.5 kHz 25 kHz 50 kHz	< -110 dBm < -107 dBm < -105 dBm	< -107 dBm < -105 dBm
INTERFACE		510	540
Type		RS485	
Data rate		from 1200 to 57600 bps	
Data format		Asynchronous 8, N, 1 - 8, E, 1 - 8, O, 1 - 7, E, 1 - 7, O, 1 - 7, N, 2	
Operative modality		Simplex or half-duplex	

Notes:

- <sup>(1)</sup> Antenna not included
- <sup>(2)</sup> Layout 2 (Consult dimensional drawings for specific layout)
- <sup>(3)</sup> Zone 1, 2, 21 & 22

## AVAILABLE ACCESSORIES

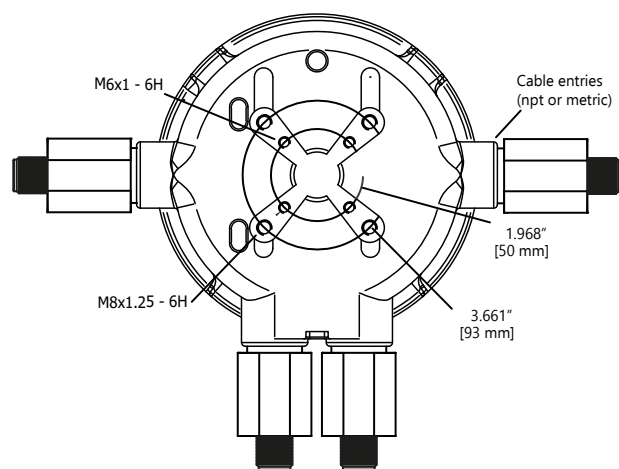
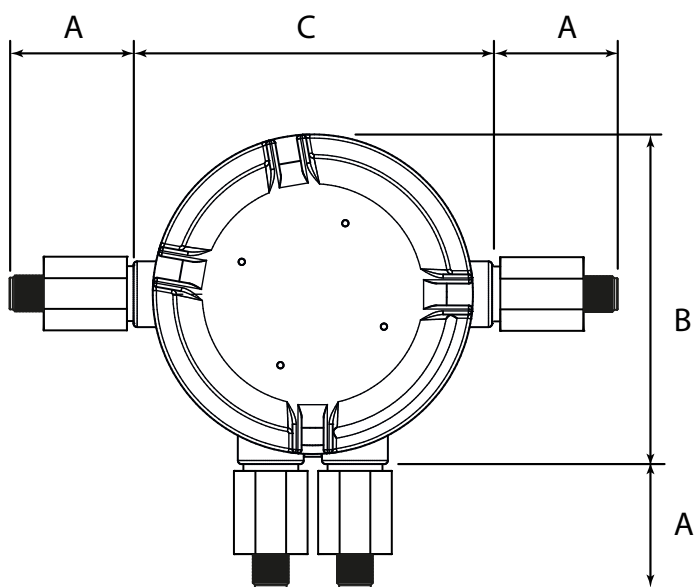
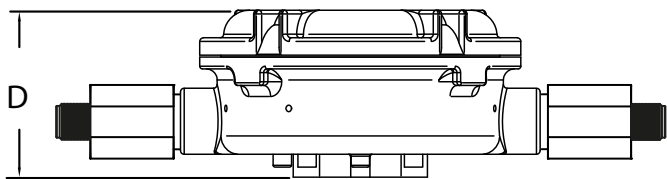
**MOUNTING BRACKET:** KM-01: mounting kit for 2" pipe  
(see dedicated data sheet) KM-02: universal mounting kit



# DIMENSIONAL DRAWINGS

In order to determine overall dimension of a specific unit pls follow instructions:

- 1) Select the specific layout (you can find it in the product nomenclature)
- 2) Consider only the antenna coupler dimension (A) that you find in the layout

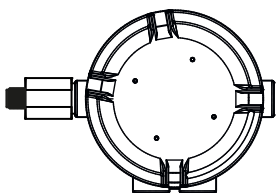


Model	A (*)	B	C	D
SWA HWA	58,5 mm [2.30"] metric coupler 70 mm [2.76"] npt coupler	179,8 mm [7.08"]	180 mm [7.09"]	89,5 mm [3.52"]
SWS HWS	58,5 mm [2.30"] metric coupler 70 mm [2.76"] npt coupler	180,5 mm [7.11"]	196 mm [7.72"]	90 mm [3.54"]

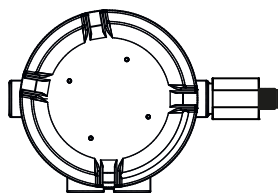
(\*) max dimension related to RX or SX coupler with N female antenna connector

## TYPICAL LAYOUTS \*\*

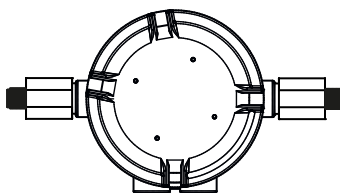
Layout 1



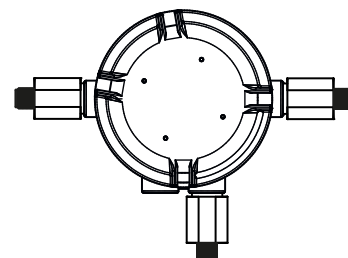
Layout 2



Layout 3



Layout 4



(\*\*) layout type specified in device datasheet

