

B00013-00

# 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 WA and WS 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

II 2 (1) G Ex db mb [ia Ga] IIA/IIB/IIC T6 Gb  
 II 2 (1) D Ex mb tb [ia Da] IIIC T85°C Db  
 I M2 (M1) Ex db mb [ia Ma] I Mb (WS only)

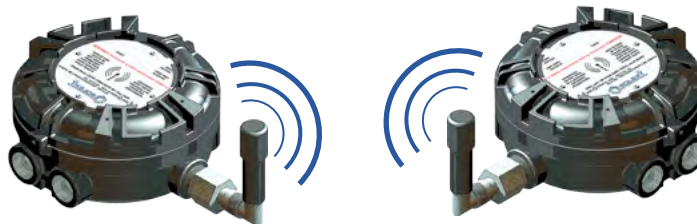
## NOMENCLATURE

<p><b>a Enclosure</b></p> <p>WA Aluminum polyester powder coated</p> <p>WS Stainless steel AISI 316 (CF8M) electropolish</p>	<p><b>b Device</b></p> <p>510 Modbus RTU Radiomodem VHF 169 MHz, 500 mW RF power output</p> <p>540 Modbus RTU Radiomodem UHF 868 MHz, 500 mW RF power output</p>	<p><b>c Antenna connection</b></p> <p>01 n° 1 AXN antenna coupler (N Female)</p> <p>02 n° 1 AXF antenna coupler (RP-SMA Female)</p>	<p><b>d Cable entries</b></p> <p>42 n° 4 3/4" npt-f (one used for antenna connection)</p> <p>44 n° 4 M25x1.5 (one used for antenna connection)</p>	<p><b>e Approval</b></p> <p>X3 IECEx and ATEX Gas and Dust (WA only)</p> <p>X4 IECEx and ATEX Gas, Dust and Mining (WS only)</p>
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<b>S</b>	<b>WA</b>	<b>510</b>	<b>01</b>	<b>-</b>	<b>42</b>	<b>0</b>	<b>X3</b>
	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>			<b>e</b>

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		WA series WS series	-30°C (-22°F) +70°C (+158°F) -30°C (-22°F) +65°C (+149°F)
Housing material		WA series WS series	die cast aluminium polyester powder coated AISI 316 (CF8M) electropolished
Weather proof		IP 66/68	
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	

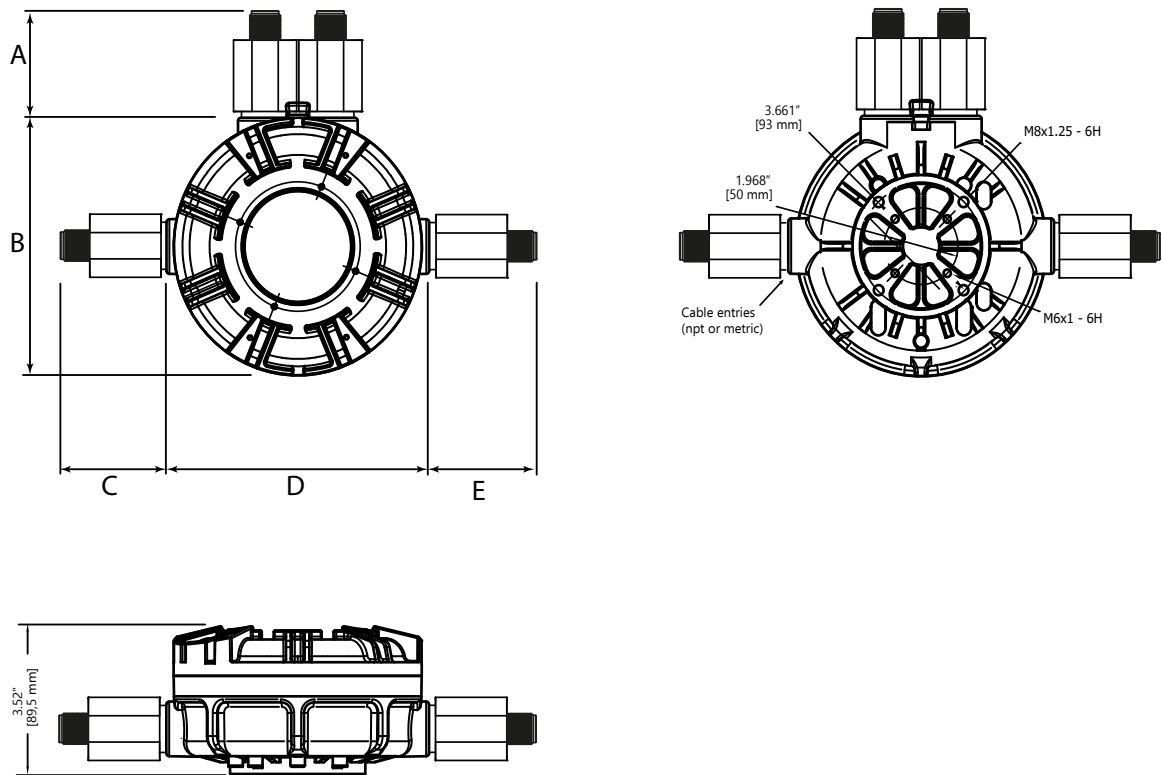
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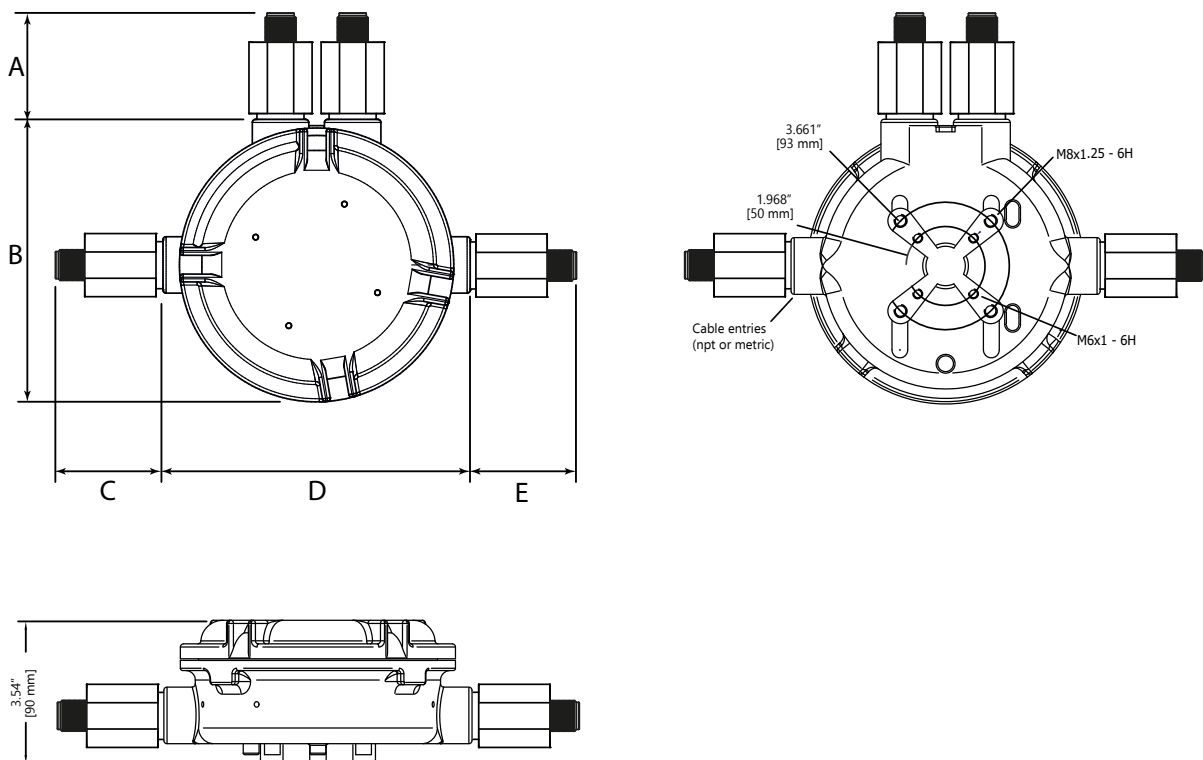
# DIMENSIONAL DRAWINGS



WA



WS



# SPECIFICATIONS

Device	Model	A (*)	B (*)	C (*)	D (*)	E (*)
<b>Explosion proof VHF &amp; UHF radiomodems</b>						
512 542	S WA	-	179,8 mm [7.08"]	58,5 mm [2.30"]	180 mm [7.09"]	-
	S WS	-	180,5 mm [7.11"]	58,5 mm [2.30"]	196 mm [7.72"]	-
<b>Explosion proof Modbus RTU radiomodems</b>						
510 540	S WA	-	179,8 mm [7.08"]	58,5 mm [2.30"]	180 mm [7.09"]	-
	S WS	-	180,5 mm [7.11"]	58,5 mm [2.30"]	196 mm [7.72"]	-
51E 54E	S WA	-	179,8 mm [7.08"]	70 mm [2.76"]	180 mm [7.09"]	-
	S WS	-	180,5 mm [7.11"]	70 mm [2.76"]	196 mm [7.72"]	-
<b>Explosion proof Router WiFi access point</b>						
U_0 L_0 M_0 H_0 G_0	S WA	58,5 mm [2.30"]	179,8 mm [7.08"]	-	180 mm [7.09"]	-
	S WS	58,5 mm [2.30"]	180,5 mm [7.11"]	-	196 mm [7.72"]	-
U_1 L_1 M_1 H_1 G_1	S WA	58,5 mm [2.30"]	179,8 mm [7.08"]	-	180 mm [7.09"]	-
	S WS	58,5 mm [2.30"]	180,5 mm [7.11"]	-	196 mm [7.72"]	-
<b>Explosion proof WiFi access point</b>						
A01	S WA	-	179,8 mm [7.08"]	70 mm [2.76"]	180 mm [7.09"]	-
	S WS	-	180,5 mm [7.11"]	70 mm [2.76"]	196 mm [7.72"]	-
<b>Explosion proof WiFi MIMO access point</b>						
A02	S WA	-	179,8 mm [7.08"]	70 mm [2.76"]	180 mm [7.09"]	70 mm [2.76"]
	S WS	-	180,5 mm [7.11"]	70 mm [2.76"]	196 mm [7.72"]	70 mm [2.76"]
<b>Explosion proof Bluetooth serial adapter</b>						
B10 B11	S WA	-	179,8 mm [7.08"]	58,5 mm [2.30"]	180 mm [7.09"]	-
	S WS	-	180,5 mm [7.11"]	58,5 mm [2.30"]	196 mm [7.72"]	-
<b>Explosion proof RF junction box</b>						
001 002 003 004 007 008 009 010 011 012	H WA	-	179,8 mm [7.08"]	70 mm [2.76"]	180 mm [7.09"]	-
	H WS	-	180,5 mm [7.11"]	70 mm [2.76"]	196 mm [7.72"]	-

(\*) dimension related to N female antenna connector