

EXPLOSION PROOF MODBUS RTU RADIOMODEMS

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

These products are developed in order to be a free use device.

The Solexy MODBUS RTU radiomodems are supplied complete with 4 digital input, 2 digital output plus 2 analog input and 2 analog output 4-20 mA that allows to have a Modbus RTU node. The RS485 interface permits also the connection up to 4 Modbus modules.

The WA and WS enclosure thanks to its rugged construction combined to ATEX and IECEx certificate achieves to have a Modbus RTU data transmission in classified area Ex.



FEATURES

Modbus RTU

The Solexy MODBUS RTU radiomodem can be used on all Modbus RTU applications.

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 combined 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 for 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.

Heavy duty construction

Explosion proof Ex d IIC enclosure made in aluminum (WA series) or stainless steel (WS series) weather proof IP66/68.



Modbus

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



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





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SPECIFICATIONS

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 with limited source power 3.3 - 4.8 battery operated	
Rx consumption (@12 VDC)	≈ 30 mA (RS232/485 relè off)	
Tx consumption (@12 VDC)	max 270 mA	
Sleep consumption	< 10 µA	
Reference directive	EN 300 220-1/2 v.2.3.1	
Digital outputs rating	n° 2 28VAC@0.5A o 32VDC@1A (normaly Open)	
Digital inputs	n° 4 PNP	
Digital counter	n° 1 PNP (max frequency input 10 Hz)	
Analog inputs	n° 2 4-20 mA	
Analog outputs	n° 2 4-20 mA	

TRANSMITTER

Output power	50/150/500 mW	25/150/500 mW
Frequency deviations	± 1.8 kHz @ 12.5 kHz ± 3.6 kHz @ 25 kHz	
Output power stability	± 1.5 dB	
Power and power transitory on adjacent channel compliant to EN 300 220-1 v.2.3.1		

RECEIVER

	CLASS 2 - LBT and AGILITY	
Sensibility @ BER < 10 ⁻²		
12.5 kHz	< -110 dBm	-
25 kHz	< -107 dBm	< -107 dBm
50 kHz	< -105 dBm	< -105 dBm


Adjacent channel attenuation and blocking compliant to EN 300 220-1 v.2.3.1

INTERFACE

Data rate	RS232 and RS485 from 1200 to 38400 bps
Data format	Asynchronous 8,N,1 - 8,E,1 - 8,O,1 - 7,E,1 - 7,O,1 - T,N,2
Operative modality	Simplex or half-duplex
Ambient temperature range	WA series -30°C +70°C WS series -30°C +65°C
Housign material	WA series : die cast aluminium polyester powder coated WS series: AISI 316 (CF8M) electropolished



APPROVAL

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)
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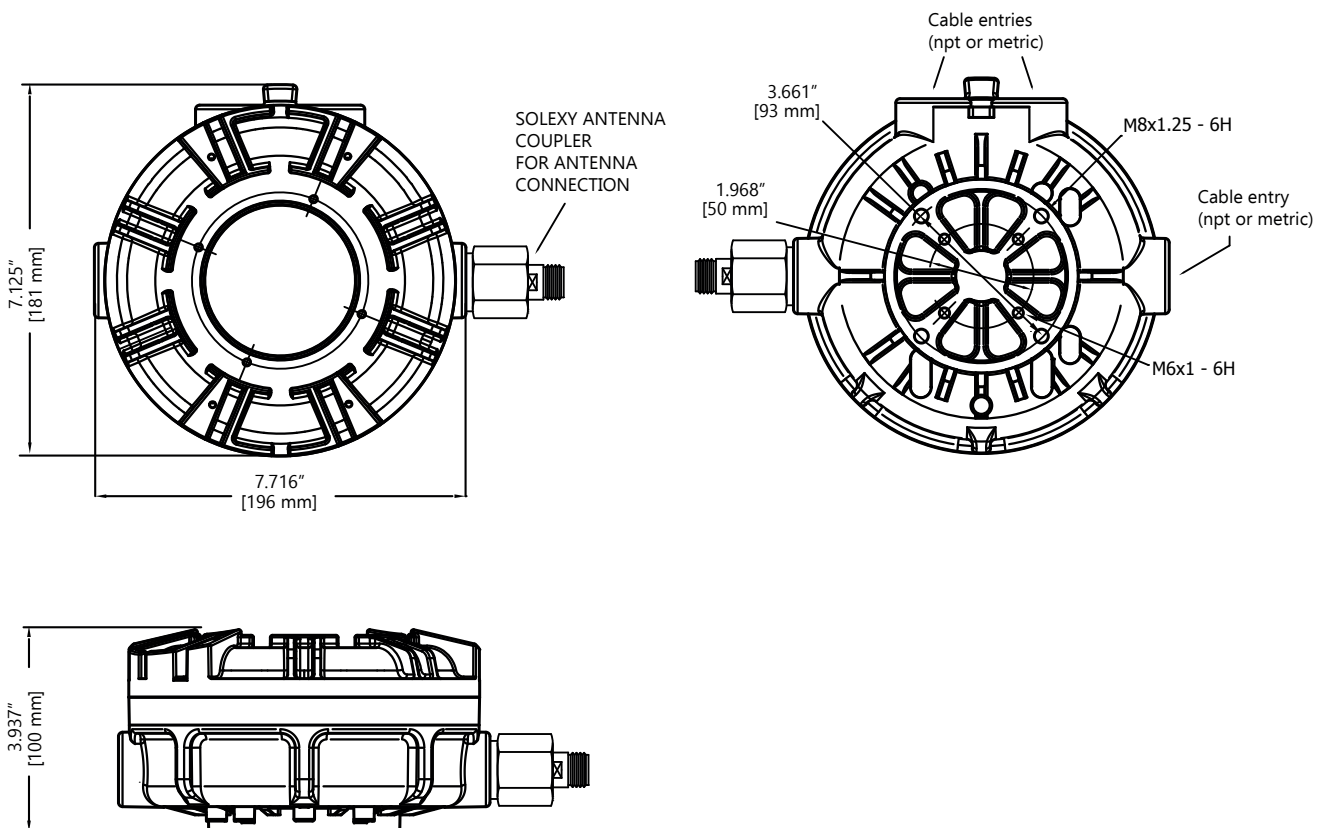
NOMENCLATURE

S WA 510 01 - 42 0 X3

a
b
c
d
e

- | | |
|--|--|
| <p>a Enclosure</p> <p>WA Aluminum polyester powder coated</p> <p>WS Stainless steel AISI 316 (CF8M) electropolish</p> | <p>d Cable entries</p> <p>42 n° 4 3/4" npt-f
(one used for antenna coupler)</p> <p>44 n° 4 M25x1.5
(one used for antenna coupler)</p> |
| <p>b Device</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>e Approval</p> <p>X3 IECEx and ATEX Gas and Dust (WA only)</p> <p>X4 IECEx and ATEX Gas, Dust and Mining (WS only)</p> |
| <p>c Antenna coupler</p> <p>01 n° 1 AXN series</p> <p>02 n° 1 AXF series</p> | |

DIMENSIONAL DRAWINGS



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