WIRELESS SIGNAL CONDITIONER WRX900 SERIES

WRX900 DIN Rail Receiver

- RECEIVES SIGNALS FOR UP TO 16 WTX700 TRANSMITTERS
- ISM BAND 868.4 MHZ FOR EUROPEAN USE
- UP TO 300 m RANGE
- PROGRAMMABLE CURRENT OR VOLTAGE AND 2 RELAY O/P
- RS485 MODBUS OUTPUT
- PUSH BUTTON OR PC PROGRAMMABLE
- LCD DISPLAY
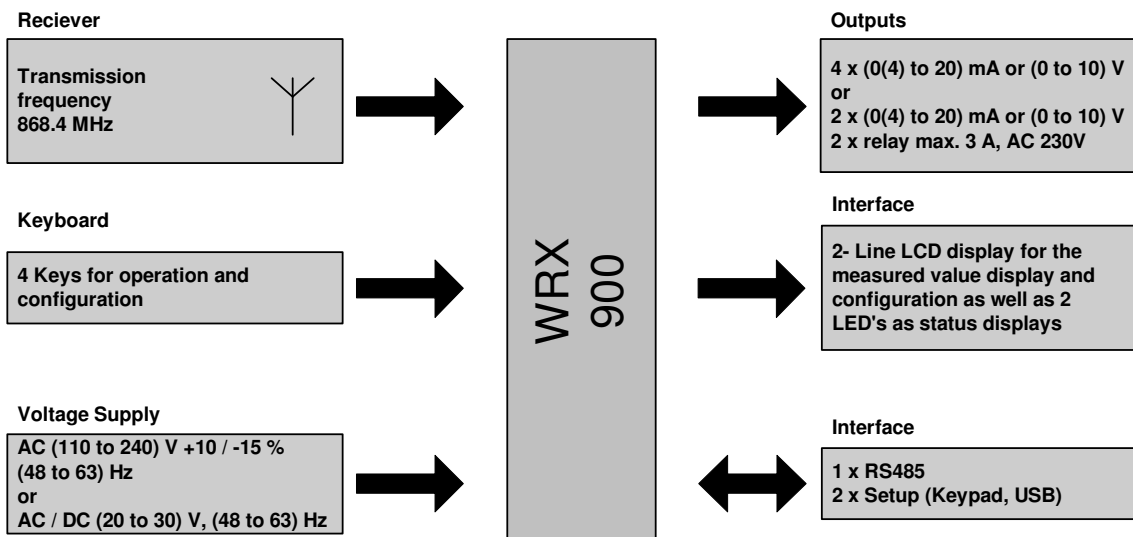- LOW TRANSMITTER BATTERY WARNING / ALARM

INTRODUCTION

The WRX900 receiver is used together with the WTX700 in head temperature transmitter for wireless temperature measurement. The product converts the measured temperature values received into isolated current or voltage signals (0(4) to 20) mA, (0 to 10V) as well as making them available via a digital RS485 interface. The WRX900 will accept wireless signals from up to 16 WTX700 in head transmitters. Any one of the temperature values received can be linked to any one of the analogue or relay outputs and all are available via the RS485 digital interface.

The product operates using the ISM (Industrial Scientific and Medical) band of 868.4 MHz. This frequency is virtually insensitive to external interferences and allows transmission even in a harsh industrial environment. The antenna screws into the top of the DIN rail module but for use in cabinets or to gain a better signal, we also offer an antenna extension lead together with an antenna mounting bracket.

Programming is possible by using the Wireless configuration kit. Alternatively it is possible to programme the product manually using the push buttons and information on the LCD screen.

Reciever		Outputs
Transmission frequency 868.4 MHz	→	4 x (0(4) to 20) mA or (0 to 10) V or 2 x (0(4) to 20) mA or (0 to 10) V 2 x relay max. 3 A, AC 230V
Keyboard		**Interface**
4 Keys for operation and configuration	→	2- Line LCD display for the measured value display and configuration as well as 2 LED's as status displays
Voltage Supply		**Interface**
AC (110 to 240) V +10 / -15 % (48 to 63) Hz or AC / DC (20 to 30) V, (48 to 63) Hz	→	1 x RS485 2 x Setup (Keypad, USB)

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Input

Number of transmitters	Max. 16 probes can be received per receiver.
Receiving frequency	868.4 MHz (Europe)
Open air range	Max. 300 m when using the antenna wall holder and 10 m long antenna extension cable. When installing the antenna directly onto the receiver, a reduced range of approx. 40 % must be taken into account.
Measuring range limits	Depending on the sensor set
Configuration	Using the front panel push buttons or using PC with our free software
Engineering Units	°C, °F, various units for potentiometer and voltage, can be set on the device or using the setup program

Analogue Outputs

Number	4 analogue outputs for WRX900/04, 2 analogue outputs for WRX900/22
Output signal: - Current - Voltage	Adjustable using the front panel push buttons or using our free software and PC (0 to 20) mA or (4 to 20) mA (0 to 10) V
Transmission behaviour	Linear, freely scalable. User linearization available when transmitter WTX700 is configured with potentiometer or mV (current) sensors.
Load (at current output)	500 Ohm
Load (at voltage output)	10 k Ohm
Setting time for temperature changes	The setting time depends on the transmission interval set in the probe.
Setting time after switching on or reset	5 s
Accuracy	±0.1%[1] (accuracy includes adjustment, linearisation, load influence and voltage supply influence)
Residual ripple	±0.2%[1]
electrical isolation	The analogue outputs are electrically isolated from each other and the interfaces.
Isolation voltage	50 V DC

[1] All accuracy specifications in % from the measuring range end value of 20 mA or 10 V

Relay outputs

Number	2 relay outputs for WRX900/22
Relay	N/O, configurable as an N/C
Contact rating	max. 3 A at AC 230 V resistive load
Contact life	150 000 operations at 3 A / AC 230 V resistive load 350 000 operations at 1 A / AC 230 V resistive load 310 000 operations at 1 A / AC 230 V and cos phi > 0.7
Electrical isolation	Relay to analogue outputs and interface; test voltage AC 3700 V (reinforced insulation) Relay to relay; test voltage AC 2300 V (basic insulation) Combined operation of mains voltage AC 230 V and SELV or PELV voltage is not admissible due to the basic insulation between the relays.

General

Voltage supply	AC (110 to 240) V (+10 / -15) %, (48 to 63) Hz or AC / DC (20 to 30) V, (48 to 63) Hz
Amperage	12 VA
Electrical connection	Screw-type terminals up to 2.5 mm²
Electrical safety	as per DIN EN 61010, Part 1 Overvoltage category III, pollution degree 2, for installation into a switch cabinet as per DIN EN 50178
Electrical isolation	The voltage supply and the analogue outputs, relays and interfaces are electrically isolated. To 3.7 kV

Environmental influences

Ambient temperature range	(-20 to +50) °C without condensation (even with close mounting)
Storage temperature range	(-30 to +70) °C
Temperature coefficient	±0.005%[1]/°C; per °C deviation from the reference temperature 22 °C (±3 °C)
Ambient conditions	Rel. humidity 85% without condensation as per DIN EN 60721-3-3 3K3
Vibration resistant	Max. 1 g at (10 to 55) Hz as per DIN IEC 60068-2-6
EMC - emitted interference - interference resistance - radio frequency spectrum	DIN EN 61326-1 Class A - Only for industrial use - Industrial requirements ETSI EN 300220-1, V 1.3.1

[1] All accuracy specifications in % from the measuring range end value of 20 mA or 10 V

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Mechanical

Material	Polyamide
Flammability class	UL 94 V-2
Dimensions with antenna screw-type connection (W x H x D)	22.5 mm x 115.0 mm x 117.8 mm
Installation	Top hat rail 35 mm x 7.5 mm as per EN 60715
Protection type	IP20 as per DIN EN 60529
Weight	Approx. 200 g

PC Configuration Interface

Setup interface	
- Baud rate	9600
- PC interface	WLESS/CNFG/KIT

RS485 interface

| - Protocol	Modbus
- Baud rate	9600, 19200, 38400
- Device address	1 to 254
- Minimum response time	(0 to 500) ms

LCD display

top line	4-digit 7-segment display, 4.5 mm high
bottom line	5-digit 16-segment display, 4.0 mm high

Radio transmission range

The max. open air range is 300 m. To achieve this max. receiving quality and for an optimum adaptation of the lambda/4-antenna, use the antenna wall holder with 10 m long antenna cable available under accessories. When installing the antenna directly onto the receiver, a reduced range of approx. 40% must be taken into account. The transmission range may be additionally reduced by buildings, concrete ceilings, walls and other structural works.

Dimensions
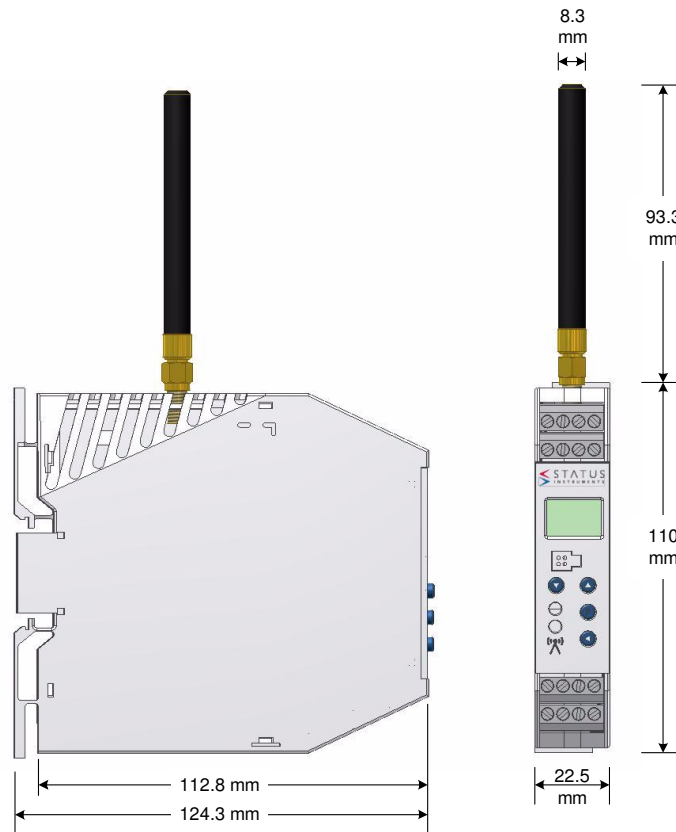
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Connection diagram

Connection for	Connection assignment			
Voltage supply as per type plate: **L1 and N at AC (110 to 240) V** **L+ and L- at AC/DC (20 to 30) V**	L1 (L+) N (L-) L1 (L+) N (L-)			
Outputs				
Type WRX900/04	Analog output 1	Analog output 2	Analog output 3	Analog output 4
Current (0(4) to 20) mA **or** **Voltage (0 to 10) V**	1 2 + -	3 4 + -	5 6 + -	7 8 + -
Type WRX900/22	Relay output 1	Relay output 2	Analog output 3	Analog output 4
Current (0(4) to 20) mA **or** **Voltage (0 to 10) V**			5 6 + -	7 8 + -
Relay **N/O, configurable as an N/C**	1 2	3 4		
Digital Interface				
RS485	9 10 11	9 TxD+/RxD+ 10 GND 11 TxD-/RxD-	Transmit / Receive Data + Ground Transmit / Receive Data -	

OnlineChart

The OnlineChart extension serves to graphically display and save the measured values of eight analog and four binary channels

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ORDER CODE:

WRX900/04/S1	RADIO RECEIVER 4 x mA, POWER SUPPLY (110 to 240)V AC
WRX900/04/S2	RADIO RECEIVER 4 x mA, POWER SUPPLY (20 to 30)V DC or AC
WRX900/22/S1	RADIO REC 2 x mA & 2 RLY, POWER SUPPLY (110 to 240)V AC
WRX900/22/S2	RADIO REC 2 x mA & 2 RLY, POWER SUPPLY (20 to 30)V DC or AC

Accessories	Part No
PC interface with USB/TTL converter	WLESS/CNFG/KIT
ANTENNA 10 m extension cable with wall mount bracket	WRX900/ANTENNA
Data Acquisition Software	M-SCADA-PRO
USB to RS 485 PC Isolated Convertor	MED2923

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