R-GWR

LORA RADIO HUB FOR WIRELESS SENSORS

Highlights

- **Interface and measurement system for industrial and environmental parameters**
- **Sensor power supplied by lithium batteries**
- **Min measuring interval: 30 s**
- **Nr. max radio sensors (LoRa) supported: 32**
- **Nr. 1 RS485/RS232 ModBUS RTU Slave port**
- **Nr. 1 Ethernet port- Configuration via Web Server**
- **External radio antenna**
- **Room and building monitoring**
- **Reduced installation costs**

R-GWR is an interface and measurement system for industrial, civil or environmental variables. In fact, the device creates a network of remote sensors connected with LoRa radio technology (863-865 MHz) and accessible via protocol Mod-BUS RTU/TCP-IP protocol. R-GWR operates as a radio hub capable of managing up to 32 sensors, each capable of acquiring 1) a temperature signal/ humidity integrated, 2) a generic digital input / analog (0-30 Vdc) terminal or alternatively a counter @16bit with maximum frequency 1Hz. The power supply of the sensors is provided by lithium batteries (900 or 1.650mAh) whose duration can vary up to a maximum of 36 months depending on the configuration of use.
The data transmission from the sensor to the device occurs1) by programmed time, 2) by event, 3) by integrated pairing button.
LoRa technology ensures low power consumption, longer battery life, lower powers involved, reduced installation and sensor costs. The communication range is dependent on the conditions of use, however LoRa provides deep penetration in urban, rural or indoor areas up to ranges of many kilometers.
The minimum update range of measured values is 30 seconds. R-GWR supports Ethernet and ModBUS TCP-IP protocol for the connection with remote management systems and in general up to 8 TCP-IP client nodes.
The device is easily programmable via web server.
Main applications are remote transmission of industrial and civil measures, as well as monitoring of production sites, environments, industrial and residential buildings.

LoRa Modbus ETHERNET

100% Made & Designed in Italy

SENECA
www.seneca.it

R-GWR

LORA RADIO HUB FOR WIRELESS SENSORS

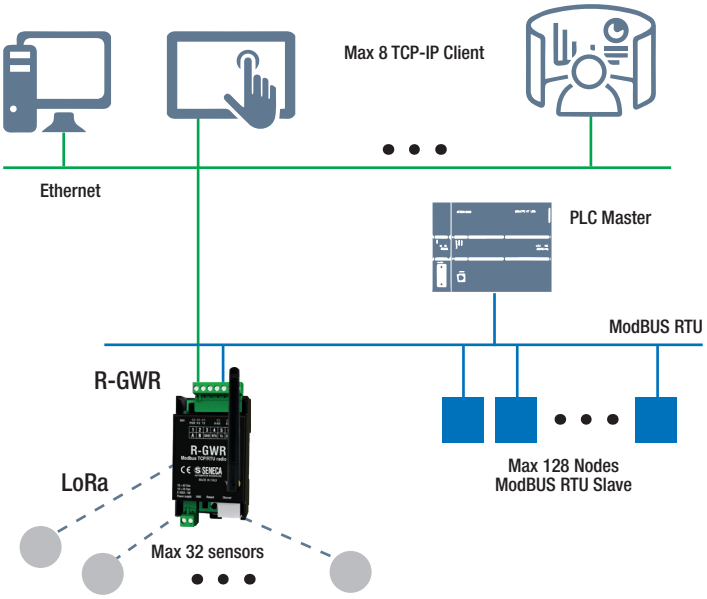
TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc; 19..28 Vac
Power consumption	Max 1 W
Status indicators	Power supply Rx-Tx serial communications Assigned sensors Sensors in error
Protection degree	IP20
Operating temperature	-20..+70°C
Connections	Screw terminals, removable 7-way screw terminals, pitch 5 mm Screw terminals, removable 2-way screw terminals, 5 mm pitch Ethernet connector
Dimensions (wxhxd)	53.3 x 90 x 32.2
Weight	80 g
Case	PC / ABS self-extinguishing UL94-V0
Mounting	DIN-rail IEC EN 60715 or wall-mounted
COMMUNICATION	
Ethernet Ports	Nr. 1 Fast Ethernet 100 Tx, RJ45 port on front side Up to 8 TCP-IP Clients / Up to 10 TCP/IP Servers
Serial Ports	Nr. 1 RS232 / RS485 serial port switchable, baud rate max 115k on connector
Protocols	ModBUS TCP-IP, ModBUS RTU
Max. number of TCP-IP Clients (Server Mode)	8
WIRELESS	
Radio Technology	LoRa
Minimum Measurement Range	30 s
Security	AES 128bit
Frequency	Frequency band: 865-865 MHz, Rated frequency: 863,110 MHz, 25 KHz bandwidth Max power +14 DBm
Sensitivity	Up to -146 dBm
Modulation	DSSS-LoRa
Irradiated Power	Max 25 mW
Power level	+ 14 dBm
Max number of coupled sensors	32
SETTTINGS & ADVANCED FUNCTIONS	
DIP switches	Yes
Web server	Yes
SDD (Seneca Discovery Device)	Yes
Firmware update	Web Server
Advanced diagnostic	Yes
STANDARDS	
Approvals	CE
Norms	ETSI EN 301 489-1 v.2.2.3, ETSi EN 301 409-3 v.2.1.1, EN 60950

ORDER CODES

Code	Description
R-GWR	ModBUS Gateway / Radio Hub for wireless sensors
SENSORS	
R-GWR-IP-1	Industrial sensor with digital / analog input
R-GWR-S-1	Home automation sensor with digital / analog input and anti-flooding
ACCESSORIES	
CE-RJ45-RJ45-R	RJ45-RJ45 Ethernet cable with 1.5 m length
ALIM-MY2	Optional power supply 230 V / 12 V

APPLICATION SCHEME



MATCHING SENSORS

	R-GWR-IP-1	R-GWR-S-1
		
	Industrial sensor with digital / analog input	Home automation sensor with digital / analog input and anti-flooding
GENERAL DATA		
Power Supply	3 V	3 V
Battery	Lithium, 1,650 mAh, approximate life span 2 years	Lithium, 900 mAh, approximate life 1 year
Protection degree	IP40	IP20
Status LED	Sending / Receiving data from / to R-GWR	Sending / Receiving data from / to R-GWR
Operating temperature	-25..+70 °C	-25..+70 °C
Storage temperature	-40..+85 °C	-40..+85 °C
Humidity	10% ÷ 90% non condensing	10% to 90% non-condensing
Dimensions (wxhxd)	80 x 60 x 45 mm	65 x 45 x 30 mm
Weight	150 g	45 g
Case	Material PC / ABS self-extinguishing UL94-V0	Material PC / ABS self-extinguishing UL94-V0
Connections	Screw terminals, 2-way extractable screw, pitch 3,5 mm	Screw terminals, 2-way extractable screw, pitch 3,5 mm Anti-flooding probe connector
Mounting	Wall mounting by means of screws or double-sided adhesive tape	Wall mounting by means of screws or double-sided adhesive tape
Programming	Web Server - Pairing button	Web Server - Pairing button
Standards	ETSI EN 301 489-1 v.2.2.3, ETSi EN 301 409-3 v.2.1.1, EN 60950, ETSI 300 220-2 v3.2.1	ETSI EN 301 489-1 v.2.2.3, ETSi EN 301 409-3 v.2.1.1, EN 60950, ETSI 300 220-2 v3.2.1
RADIO COMMUNICATION		
Technology	LoRa, Data encrypted according to AES 128-bit	LoRa, Data encrypted according to AES 128-bit
Frequency band	863..865 MHz	863..865 MHz
Rated frequency	863,11 MHz	863,11 MHz
Bandwidth	25 kHz	25 kHz
Sensitivity	Up to -146 dBm	Up to -146 dBm
Max RF Power	+ 14 dBm	+ 14 dBm
Max number of coupled sensors	32	32
INPUTS		
Built-in temperature / humidity sensor	Temperature detection: -25..70 °C; Accuracy: 0,5 °C between 5..60 °C Humidity measurement: 0..100%; Accuracy: 3% between 20 ÷ 80% R.H.	Temperature detection: -25..70 °C; Accuracy: 0,5 °C between 5..60 °C Humidity measurement: 0..100%; Accuracy: 3% between 20 ÷ 80% R.H.
Analog / Digital Input / Counter (IN0)	Configurable analog input (measuring range 0-30V; accuracy: ±0.15V) or digital input (dry contact) or counter @16bit, max frequency 1Hz	Configurable analog input (measuring range 0-30V; accuracy: ±0.15V) or digital input (dry contact) or counter @16bit, max frequency 1Hz
Digital Input (IN1)	-	Reed relay to control opening of compartments and rooms
Water Sensor input (alternative to IN0 and IN1)	-	Level 1, Level 2, Anti-flooding probe (optional)
Digital Input (IN2)	-	Tamper contact (tamper) opening cover

21C0144 - Publication R-GWR – March 2021

SENECA
Via Austria, 26 • 35127 Padova - (I) - Tel. +39 049 87.05.359
Fax +39 049 87.06.287 • www.seneca.it • info@seneca.it