

## 04WRS485

This is an autonomous wireless module designed to provide transparent data transmission received from RS-485 interface via radio channel. Wireless RS-485 converter works within unlicensed ISM frequency range of 433 MHz and has extremely low power consumption and was specifically developed for applications required RS-485 data communication. Wireless communication allows applying these devices as a replacement of wired paths where usage of wires may be impossible or ineffective due to environment limitations.

High performance of MCU and internal non-volatile memory provide additional functionality when on-board data processing and data storage are required. This functionality especially important when there is a need to create intellectual data acquisition and monitoring systems. Wireless converter can be applied practically in any industrial solution or systems developed based on devices with RS-485 interface and using different data transmission protocols.

Its extremely low power consumption provides operation lifetime up to **10 years powered by single battery\***.

Internal DC/DC-converter allows using external power supply or external battery.

\* Applicable for the following scenario – data acquisition from RS-485 interface, and data storage in the non-volatile memory are performed once per 24 hours. Data transmission via radio channel of all collected information is performed once per month.

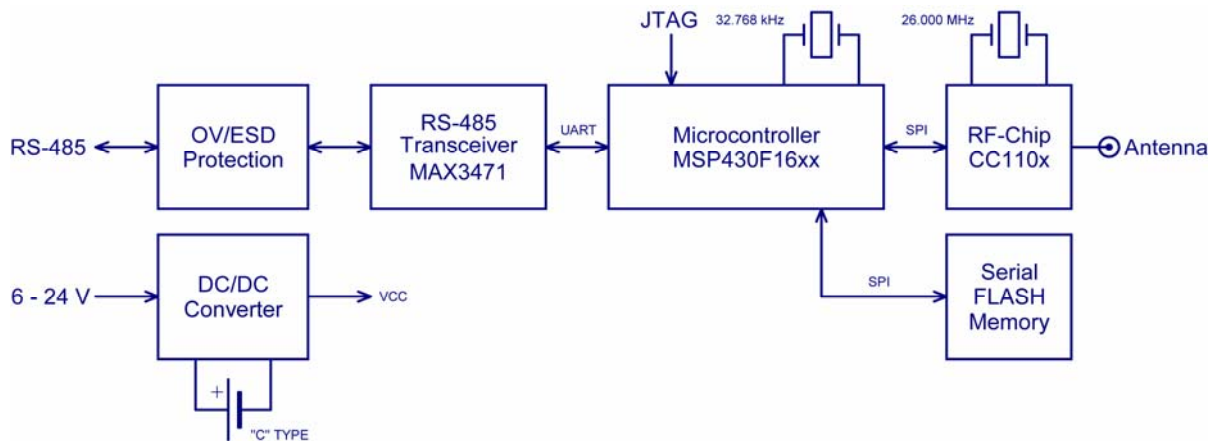


### APPLICATIONS

- Industrial automation
- Security systems
- Utilities metering systems (AMR)
- Telemetry systems
- Building automation
- Intellectual house
- Precision farming
- Engineering systems monitoring
- Transport monitoring
- Robotics
- Pipes monitoring
- Ecological monitoring
- Seismic control

### FEATURES

- Unlicensed ISM frequency range of 433 MHz
- Long communication distance up to 500 m
- Extremely low power consumption
- Internal non-volatile memory for data storage
- Half-duplex RS-485 interface with protection from static electricity
- Dip-switch with protection from vibration
- Possibility to use internal battery or external power supply
- Two-color LED indicator
- JTAG interface
- Industrial temperature range



## GENERAL CHARACTERISTICS

Frequency range	433.075 - 434.790 MHz
Signal modulation	FSK / MSK
Maximal signal output power	+10 dBm
Radio transmission data rate	Up to 500 kbit/s
High-frequency connector type, impedance	MMCX, 50 Ω
RS-485 interface data transmission	Up to 64 kbit/s <sup>1</sup>
Level of protection of RS-485 interface from overloading	-7/+12 V
Level of protection of RS-485 interface from static electricity	15 kV
Non-volatile memory size	4 Mbit <sup>2</sup>
Time of data storage in the non-volatile memory	Up to 100 years
Battery type	C
Supply voltage from battery	0.8 – 3.0 V <sup>3</sup>
Supply voltage from external power source (DC)	5.5 – 32.0 V
Current consumption «sleep»/«active» mode	10 μA / 48 mA (+10 dBm)
Temperature range	-40 ... +70 °C
Size	70.0 x 31.5 x 32.3 mm

1. Optional – up to 250 kbit/s
2. Optional – 8 Mbit или 16 Mbit
3. Recommended to use either alkaline battery, with 1.5 V voltage nominal or NiCd/NiMH accumulator with nominal voltage of 1.2 V when lifetime of the battery is not critical. If long life time of battery is required it's recommended to use lithium battery with nominal voltage of 3.0 V.

## SERVICES

- Software customization according to customer requirements
- Wireless module integration into the end product/systems
- Embedded and system level software development

About company: «FR-Systems» ® was founded in early 2007, specializes in wireless technology. Company develops complete wireless based solutions for such domain areas as: industrial automation, building and home automation.

[www.fr-systems.com](http://www.fr-systems.com)