RCB 7000

Wireless industrial data transmission RCB7000

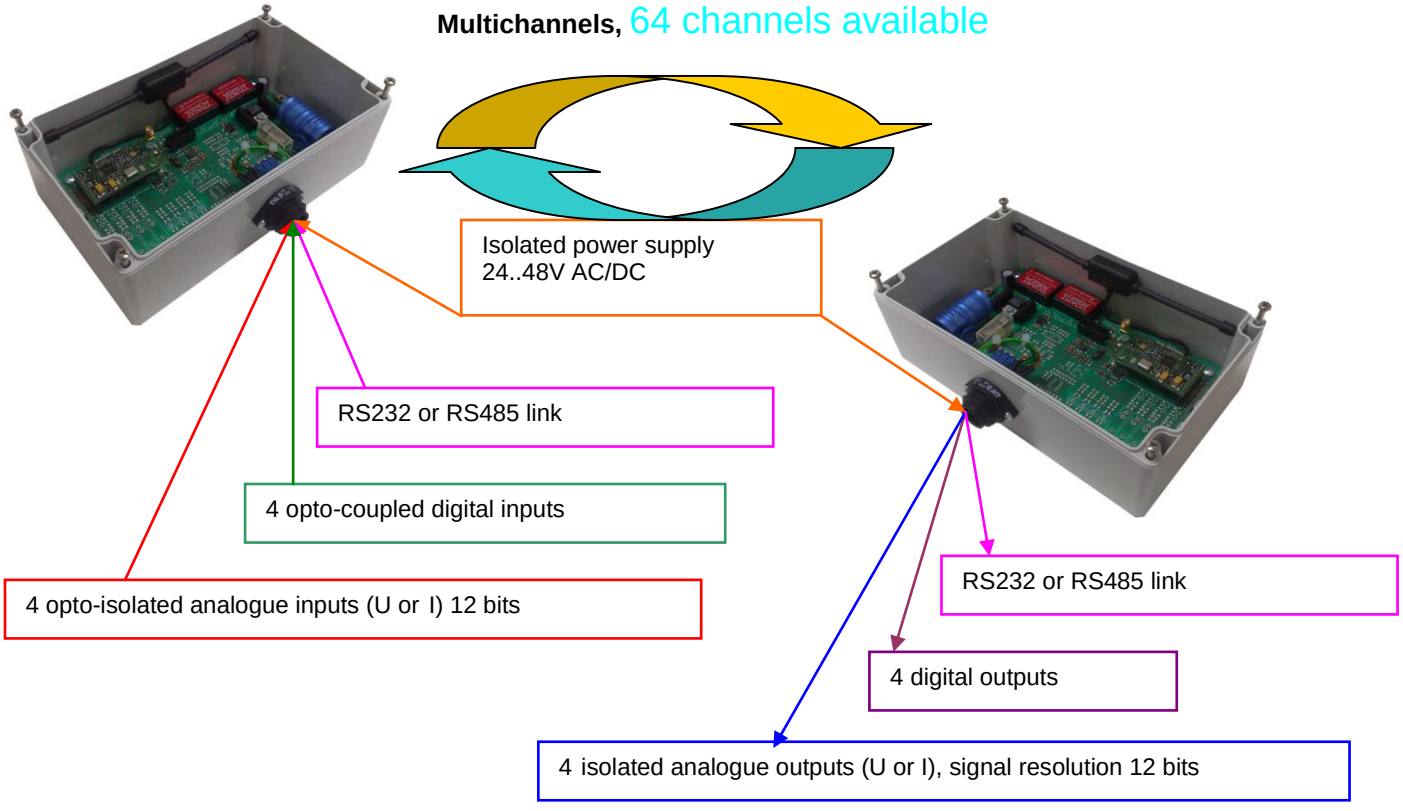
System description

JMEI multichannel wireless transmission systems RCB7000, are designed for a reliable transmission of all types of digital or analogue signal over distances of **up to 5000 m in industrial environment**, thus enabling a significant reduction in all types of control and measurement cables between units and the PLC/automatic controller and between units themselves.
RCB7000 transmission systems can be used to exchange all types of signal, whether RS232 or 485 or others.
Principle
The basic RCB7000 transmission system includes a transmitter unit and a receiver unit.
These units can be used to send or receive all types of digital signal, and also analogue signals, using radio frequencies.
The radio units can communicate in unidirectional or bi-directional mode using a single frequency (technology based on a transceiver).
The transmission systems use a technology based on our extensive experience in this field (+/- 15 years), i.e. tried and tested in **industrial applications such as steel works and foundries and in an environment where the electromagnetic interference may be very strong.**
They operate either in the frequency band 434 MHz or 868 MHz (license-free frequency) using a low power output (less than 10mW) as standard, in order not to interfere with other radio controlled applications on the client's site.

Specifications:

Unidirectional or bi-directional transmission

Multichannels, 64 channels available



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Transmission reliability and safety in use

The JMEI /RCB7000 units have control systems and codes designed to ensure a high level of reliability against interference or interruptions, which could be caused by other radio frequency sources on the site, by means of the following:

Address codes identifying the JMEI receiver and transmitter (32-bit codes)
Frame coding sent by 16-bit CRC /JMEI code.
Continuous re-reading by internal protocol and message verification.
In the event of interference, the transmission channel can easily be re-programmed by PC on site, 64 channels are available.
In bi-directional mode, there is also the option to check if the digital contact signals have executed properly.

System components

2 transmitter or receiver units in polycarbonate (or aluminium, as an option)
IP65 waterproof housing can be installed outside or inside buildings, may also be installed in an electrical cabinet.
24 or 48 V AC/DC power supply (powered by batteries also possible).
Unit supplied with fixing screws and rubber bushing.
Omni-directional aerial fixed inside the unit, no particular installation requirements, i.e. not sensitive to the presence of a metal mass in the propagation field.
Option to connect several transmitters and receivers together to create a network.
Option: Receiver type RCB 7000, can be connected with Profibus, Ethernet, CAN bus or any other fieldbus connection to the PLC customer application.

Applications

Remote wireless transmission of all types of analogue measurement signal, for example weight, pressure, temperature, speeds, etc. to a central PC or automatic controller.
Transmission of all digital or analogue signals, for example position of mobile machinery, zoning of overhead cranes or other mobile plant, remote control of machinery, pumps, motors etc., transmission of information between a mobile machine (Clark/or equivalent industrial forklift) and a fixed unit.
Transmission of information of all types from display screens.
Control and access authorisation management, remote barrier opening and closing, transmission of access badge information, access control.

References for equipment of this type

Equipment of this type has recently been installed by: ArcelorMittal Steel plant, Sidmar Steel plant, Riva Steel plant, Corus steel plant, Manoir industries, Burgo Ardenne paper plant , Automotive Group Peugeot/PSA, Glaverbel glass industry application, Airbus industrie, Caterpillar, SNCF railways applications.

Mechanical and electrical properties:
-Transmitter/Receiver:
Unit dimensions: 120x 200 x70mm (excluding aerial and rubber bushings)
Protection rating: IP65
Weight: 1.5 kg
Operating temperature: - 20 °C to + 55 °C
24 to 48V AC/DC power supply or 12V DC (option)
Digital inputs: opto-coupled (from 12 to 24V AC or DC) (on potential-free inputs or via isolated power supply)
Digital outputs: 8A (resistive) 250V AC max
Analogue I/O: 0-10V, -10/0/+10V, 0-5V, 0-20mA, 4-20mA,..
The RCB7000 system can also convert magnitudes
(e.g.: 0-10V to 4-20mA, 0-5V to RS232, etc.)

Radio unit:
UHF (433.125 to 434.750 MHz)– 64 channel frequency synthesiser programmable by PC
Output: < 10 mW (range from 100 to 5000 m depending on the environment)
Modulation: FM : FSK
Transmission coding: 32-bit address and 16-bit CRC.

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