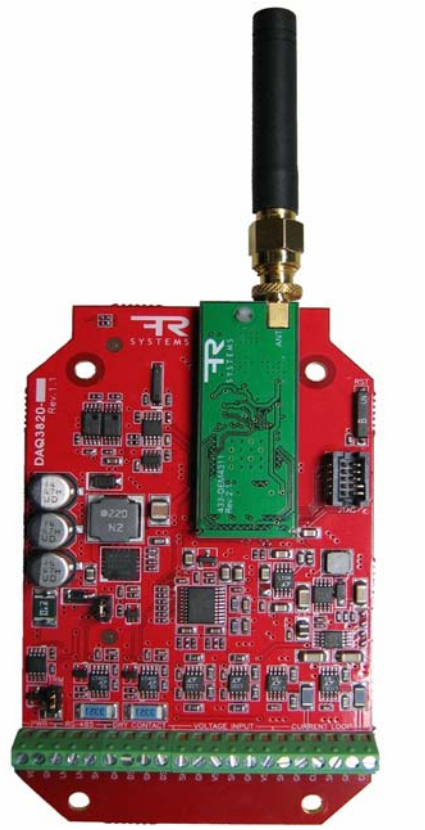
433-DAQ3820



Multifunctional data acquisition device designed to work within unlicensed ISM-range of 433 MHz. This device was specially developed to be integrated with industrial sensors, providing additional data pre-processing capabilities on the board and transferring gathered data via radio channel to the central server. It can be used as data acquisition unit within complex monitoring systems, utilities metering systems or industrial automation systems.

This wireless data collection unit designed to work with several types of analog sensors having volt output (±5/10V), «current loop» (4 - 20mA), and «dry contact». The half-duplex RS485 interface gives additional data communication capabilities allowing organize integration with external devices supporting RS485 interface.

High performance of MCU and internal non-volatile memory provide additional flexibility when on-board data processing required such as analog to digital data conversion, calculation of complex formulas, or threshold limits monitoring. Non-volatile memory allows organizing data storage if it is required by application. These features are especially useful when developing industrial data collection systems, remote control and monitoring solutions, crucial parameters monitoring and alarming in case of threshold is exceeded, systems requiring data preservation and any industrial applications using RS-485 interface.

Low power consumption was one of the key criteria when wireless data acquisition unit was designed. There are several additional actions can be considered to reduce power consumption during unit operation such as programmable control of the operation mode (ON/OFF) of major components, duty cycle configuration, external sensors power supply mode, switching between power supply external or from battery.

FEATURES

- Unlicensed ISM frequency range of 433 MHz
- Long communication distance up to 500 m
- Internal nonvolatile memory up to 1 Mbit
- Supported sensors types– voltage output, «current loop», «dry contact»
- Two sensors of one type can be connected to the unit
- Half-duplex RS-485 interface with protection from input overload and static electricity
- 24-bit high precision Sigma-Delta ADC
- Internal DC/DC-converter supporting output voltage up to 24 V to supply power for the external sensors
- Watchdog-timer
- Two-color LED indicator
- Supported wide range of power supply from 6 to 36 VDC, with protection from over voltage and reverse power polarity
- Industrial temperature range

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

Multi-Type Data Acquisition Unit

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
Input voltage range, for sensors with voltage output	± 10 V [1]
Input current range, for sensors with «current loop»	4 – 20 mA [2]
Upper limit of the operation threshold of the sensor «dry contact»	Up to 1 kΩ [3]
Measurement precision (environment temperature 25 ºC)	Less then 0.1 %
Measurement precision (working temperature range)	Less then 0.5 %
RS-485 interface data transmission	Up to 64 kbit/s [4]
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	1 Mbit [5]
Time of data storage in the non-volatile memory	Up to 100 years
Number of write to non-volatile memory	More then 100 000
Supply voltage range from external power source (DC)	6 – 36 VDC
Working temperature range	-40 … +70 °C
Size without antenna	55.0 x 93.0 x 12.0 mm [6]

1. **Optional – voltage ± 5 V, 0 – 5 V, 0 – 10 V**
2. **Optional – current 0 – 10 mA, 0 – 20 mA**
3. **Optional – change of operational threshold 100 Ω – 10 kΩ**
4. **Optional – up to 250 kbit/s**
5. **Optional – memory size 1 Mbit**
6. **Size is given with provided without enclosure.**

Note: Production of the unit with enclosure is planned in 2nd quarter of 2009.

SERVICES

- Software customization according to customer requirements
- Integration of data collection unit into customer system
- Production of units with enhanced or customized configuration
- 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