IOT 101

IOT 011

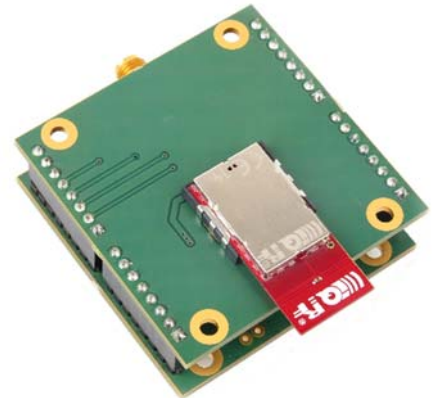**IOT 021**

IOT 101

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IOT 021

Description

IOT modular system is a universal HW platform designed for IoT devices development. It consists of the following parts:

- IOT 101 – basic module ensuring communication with SIGFOX network. According to assembly variants and use of peripheral modules it provides galvanic isolated inputs (4x), outputs with open collector (6x), UART (1x), I2C (1x), SPI (1x), GPIO (10x), analog inputs (2x).

- IOT 011 – sensor peripheral module with GNSS receiver (GPS, GLONASS, QZSS, SBAS), accelerometer, thermometer, hygrometer, light sensor, real time clock and additional analog inputs.

- IOT 021 – peripheral module for connection to IQMESH network or P2P communication in 868 MHz or 916 MHz band over distances of tens to hundreds of meters. It allows to use wide variety of wireless sensors of third parties (thermometers, hygrometers, gas detectors, motion detectors, lighting controls, parking sensors, …).

Technical Specifications
IOT 101

Parameter	Value
Radio network	SIGFOX (ISM 868 MHz)
Power supply voltage range	3.5 ÷ 6 V
Power consumption	< 4 µA in Power-down mode *
Inputs / Outputs	4 optically isolated inputs and 6 outputs (500 mA max.) or 10 GPIO **
Analog inputs	2 (10 bit), option of a comparator using **
PWM	up to 5 channels **
Communication interface	UART (1x), SPI (1x), I2C (1x) **
Antenna connection	SMA connector
FW variants	GNSS tracker (activation by accelerometer or periodically) vibration detector / tilt detector / light detector thermometer / hygrometer / pulse counter / IQMESH gateway customized FW ***
Temperature range	-30 to +75 °C
Dimensions w × h	50 × 50 mm

*   Power consumption depends on the number of active peripherals. It is necessary to know expected scenario of device usage to determine the battery life.

**   All these interfaces may not be available at the same time. Some interfaces and input-output lines can be utilized by peripheral boards.

*** It is possible to create customized FW for IOT system according to customer's requirement.

IOT 011

Parameter		Value
Power supply voltage range		3.5 ÷ 6 V
GNSS receiver	Antenna	integrated ceramic antenna 18x18 mm, option of external antenna connection (U.FL connector)
	Acquisition mode power consumption	26 mA for GPS, 30 mA for GPS + GLONASS *
	Tracking mode power consumption	22 mA for GPS, 26 mA for GPS + GLONASS *
	Saving mode power consumption	1 mA / 7 µA *
	Acquisition time	< 1 s (HOT START, max 3 days from last fix) < 5 s (WARM START, more than 3 days from last fix) < 35 s (COLD START)
	Other features	position logger (15 s / 16 hours) integrated LNA intelligent power management mode
Accelerometer	Range of measurable acceleration	±2g / ±4g / ±8g / ±16g
	Basic features	measurement of acceleration, vibration and tilt in three axes free fall detection built-in temperature sensor
Light sensor	Available range of light intensity (illuminance)	10 ÷ 10 000 lx
	Wavelength range	450 ÷ 610 nm
Thermometer / Hygrometer	Relative humidity measurement – range / accuracy	0 ÷ 100 % / ± 2 %
	Temperature measurement – range / accuracy	-30 to +75 °C / ± 0.2 °C
	Measurement resolution	8 / 11 / 14 bits
Temperature range		-30 to +75 °C
Dimensions w × h		50 × 50 mm

* Power consumption depends on current mode of the receiver. Active and saving modes of the receiver can be combined to achieve an average consumption in units of mA.

IOT 021

Parameter	Value
RF band	ISM 868 or ISM 916
Power supply voltage range	3.5 ÷ 6 V
Power consumption in sleep mode	< 4 µA
Tx power consumption	8.3 ÷ 19 mA (according to RF output power – 12.5 mW max)
Rx power consumption (STD / LP / XLP)	< 13 mA / < 240 µA / < 15 µA
RF range in open space	approx. 100 m *
Other features	integrated thermometer **, RSSI measurement compatible with IQRF Alliance products
Temperature range	-30 to +75 °C
Dimensions w × h	50 × 50 mm

* RF range can be influenced by many factors (obstacles, weather conditions, position).
** The variant with thermometer on request.