

GW-QVGA-01

IQRF Gateway for a Human Operator

User's Guide

- GW-QVGA-01-868
- GW-QVGA-01-916



Simple way to smarter wireless solutions

Description:

GW-QVGA-01 is a gateway intended as an interface between human operator and an IQRF network. It allows to visualise and setup parameters in given application.

Main components are: 16b microcontroller, display with touchscreen, EEPROM memory, temperature sensor, IQRF transceiver module, RS485 interface, micro SD card interface, piezo buzzer and backup accumulator.

GW-QVGA-01 is a generic equipment, i.e. the hardware is fixed and the user can realize specific functionality by software only. Applications should be developed using the DK-GW-QVGA-01 development kit.



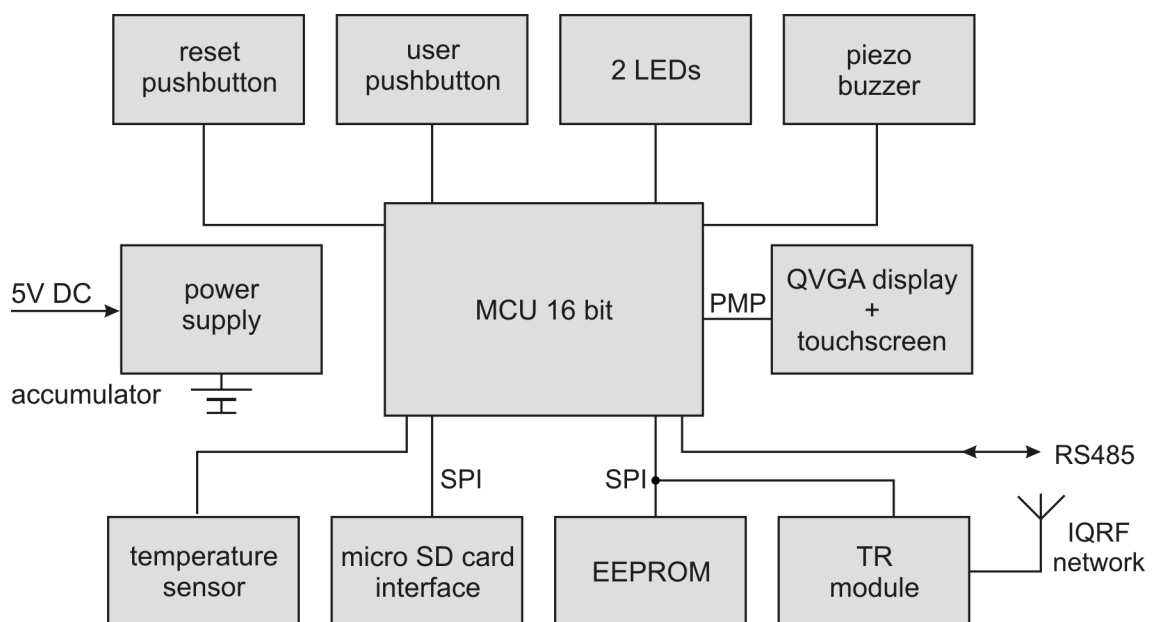
Applications:

- Home automation
- Access control
- Security systems
- Heating systems
- IQRF control panel
- Portable service tool for IQRF networks
- Control panel for arbitrary use (not for IQRF only)

Key features:

- Display/touchscreen 3.2", 320 x 240 pixels, 65535 colors
- RTCC (real time clock/calendar)
- Micro SD card interface
- RS485 interface
- Backup accumulator
- Internal antenna
- Very low power consumption in Sleep mode
- Wall assembly option

Block schematics:



Electrical specifications*(typical values unless otherwise stated)*

Power supply:	5.0 ± 0.35 V DC
Accumulator:	AL14500-700-1L, 3.7 V, 700 mAh, Li-Ion, AA
Display:	DI-QVGA-3.2-01 TFT LCD 3.2", 320 x 240 pixels, 256K colors
Supply current:	
operational:	47 mA ¹ (display backlight off) 135 mA ¹ (display backlight on)
standby:	24 µA ²
accumulator charging:	450 mA max.
Temperature range:	0 °C to +70 °C
Frequency range:	868 MHz or 916 MHz (according to the TR module)
RF output power:	1.3 mW
Supported TR modules:	TR-868-31BA, TR-916-31BA with on-board PCB antenna
Temperature sensor accuracy:	±1 °C typ., ±4 °C max. (not calibrated) ±0.1 °C min. (calibrated)
Dimensions:	120 mm x 80 mm x 28 mm
Display size:	8.1 mm (diagonal)
Weight:	140 g ³

Note 1: This current is increased due to charging in case of external supply (depended on the accumulator state).

Note 2: All peripherals shut down.

Note 3: Including accumulator and TR module, without micro SD card.

Absolute maximum ratings

Stresses above those values may cause permanent damage to the device. Exposure to maximum rating conditions for extended periods may affect device reliability.

Supply voltage (VCC):	5.5 V
Storage temperature:	-30 °C to +80 °C

Power supply

GW-QVGA-01 is intended to be supplied from external stabilized 5 V DC connected to clamp or to micro USB connector. If both are connected, the internal logic gives priority to the supply from the clamp. Accumulator serves as a backup for external power source and should be charged from it. Use only the proper power source and keep proper polarity according the PCB print for the clamp connector.

Reset

GW reset (initialization/starting-up) can be invoked by the pushbutton on the side of the case.

Sleep mode

This standby mode is intended for current consumption minimizing, especially in idle or while supplied from the accumulator. It can be invoked by the program and terminated by the reset pushbutton. GW power is not switched off, disactivation is realized by the Sleep mode.

QVGA display

Display / touchscreen DI-QVGA-3.2-01 with diagonal 3.2", 320x240 pixels RGB, 65535 colors, QVGA TFT LCD, transmissive, with LED backlight and 16b data bus.

Proper display functionality requires a calibration (setting the touch sensors in accordance to display pixels) to compensate variations in parameters due to temperature, tolerance of parts and so on. The GW has the display factory calibrated and this can also be done in application software whenever needed (3x3 touches in places indicated by an arrow). The calibration is stored to the EEPROM.

LED backlight can be switched on/off by the application software.

EEPROM memory

Capacity: 64 kb, serial interface SPI, 1 000 000 erase/write cycles (typ.).

RS485 interface

The RS485 circuitry is supplied directly from external source. Thus, it works with external supply only.

TR module and antenna

The TR-31BA wireless IQRF transceiver module in SIM card format with built-in PCB antenna.

User pushbutton

Functionality of the pushbutton on the front panel is fully depended on the user application.

Connectors

connector	pins	type
External power	2	Micro USB and the clamp connector
Accumulator	2	Soldering stripes
TR module	8 + 1	SIM connector + through hole soldering for possible mechanical fixation
RS485	2	Clamp connector
SD card	8	DM3AT-SF-PEJ (Hirose). Delivered separately on request.

The cable to the clamp connector can be connected after breaking the molded cover at the bottom of the case.

For information about functionality refer to User's guide of specific application.

Pack list

- GW-QVGA-0, in Sleep mode
- TR module in requested frequency band
- Accumulator (soldered)
- Power source TY-A6-microUSB (5V DC, 500 mA, stabilized, with micro USB connector)

Ordering codes

- | | | |
|------------------|---------------------|------------------------------------------------|
| • GW-QVGA-01-868 | Gateway for 868 MHz | Development kit recommended: DK-GW-QVGA-01-868 |
| • GW-QVGA-01-916 | Gateway for 916 MHz | Development kit recommended: DK-GW-QVGA-01-916 |

Document history

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|----------|-------------------------------------------------------------------------------------------|
| • 100114 | Product codes slightly simplified |
| • 090826 | Minor improvements. |
| • 090504 | More accurate information about SD card interface.
Storage temperature range adjusted. |
| • 090418 | First release |

Sales and Service

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Partners and distribution

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Quality management

ISO 9001 : 2000 certified

*Complies with ETSI directives EN 30279 V.1.2.1:99, ETS 30683:97, ETSI EN 301489-1:00,
ETSI EN 300220-1:00, ETSI EN 300390-2V.1.1.1:00*

Complies with FCC directives FCC CFR, Title 47, Part 15, Section 15.209, FCC CFR, Title 47, Part 15, Section 15.249

Complies with Directive 2002/95/EC (RoHS)



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The IQRF products utilize several patents (CZ, EU, US)

On-line support: <http://iq-esupport.com>



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