

GW-QVGA-01A

Visual Control Panel

User's Guide



Description

GW-QVGA-01A is a programmable control panel with QVGA display / touchscreen adaptable to user specific functionality.

It can also be used as a user programmable gateway for an interface between a human operator and an IQRF wireless network.

GW-QVGA-01A is a generic equipment, i.e. the hardware is fixed and the user can realize specific functionality by software only. It is intended for final production while applications should be developed using the DS-QVGA-01 development set.



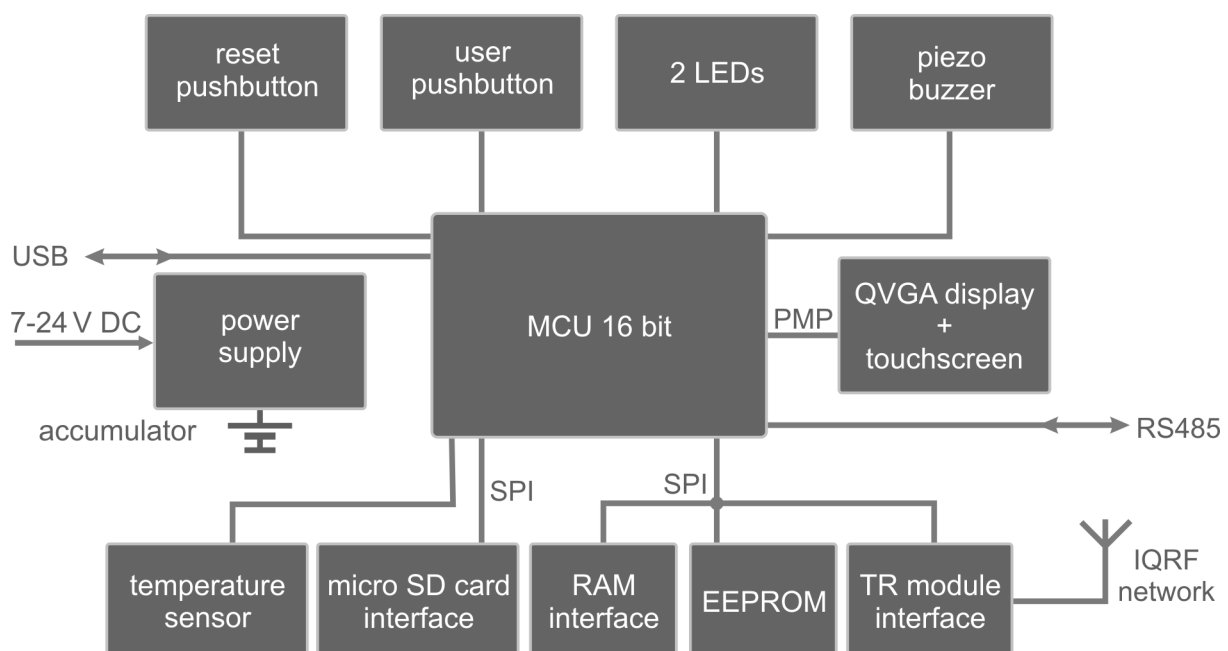
Applications

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

Key features

- Display / touchscreen 3.2", 320 x 240 pixels, 256 K colors
- 16b microcontroller
- Serial RAM (optional) and EEPROM memories
- Temperature sensor
- Piezo buzzer
- RTCC (real time clock/calendar)
- Interface to IQRF transceiver module
- RS-485, USB and SD card 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 (micro USB) 7V–24V DC (clamp connector)
Accumulator	LI14500-700-1L, 3.7 V, 700 mAh, Li-Ion, AA
Display	TFT LCD 3.2", 320 x 240 pixels, 256K colors Used type: DI-QVGA-3.2-03 in GW-QVGA-01A(1) version
Supply current:	
operational	47 mA ¹ (display backlight off) 130 mA ¹ (display backlight on)
standby	20 µA ²
accumulator charging	450 mA max.
Temperature range	0 °C to +70 °C
Frequency range	868 MHz or 916 MHz (SW selectable)
RF output power	According to the TR module
Supported TR modules	TR-52BA or higher, with integrated PCB antenna
Dimensions	120 mm x 80 mm x 28 mm
Viewing display size	81 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, without TR module and 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):	30 V DC (clamp connector), 5.5 V DC (micro USB)
Storage temperature:	-30 °C to +80 °C

Hardware

Power supply

GW-QVGA-01A is intended to be supplied from external stabilized 7 V – 24 V DC connected to clamp or 5V DC to micro USB connector. 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 to 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. **Use this pushbutton to switch the GW on.**

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, the Sleep mode is used instead.

QVGA display

Display / touchscreen 3.2" diagonal, 320x240 pixels RGB, 262144 colors (graphic library uses 65535 colors only), QVGA TFT LCD, transmissive, with LED backlight and 16b data bus.

Used type: DI-QVGA-3.2-03 in GW-QVGA-01A(1) version.

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

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

RAM memory (optional)

64 kb, serial interface SPI.

RS-485 interface

The RS-485 circuitry is supplied directly from external source. Thus, it works with external supply only.

TR module and antenna

The TR-52BA or higher wireless IQRF transceiver module in SIM card format with integrated PCB antenna can be used.

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
	2	Clamp connector
USB	4	Micro USB
TR module	8 + 1	SIM connector + through hole soldering for possible mechanical fixation
RS-485	2	Clamp connector
SD card	8	DM3AT-SF-PEJ (Hirose). Delivered separately on request.
Accumulator	2	Soldering stripes

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

Refer to the DS-QVGA-01 development set for detailed description and demo software.

Product information

Pack list

- GW-QVGA-01A, with Demo SW programmed, in Sleep mode
- Accumulator (soldered)
- Power source TY-A6-microUSB (5V DC, 500 mA, stabilized, with micro USB connector)
- No TR module, no serial RAM and no SD connector included

Ordering codes

- GW-QVGA-01A IQVCP visual control panel with USB connectivity

Recommended option

- TR-52BA TR module with integrated antenna (other suitable types are also supported)
- 23K640-I/ST Serial RAM memory (Microchip)
- DM3AT-SF-PEJ SD card connector (Hirose)
- DS-QVGA-01 Development set for GW-QVGA-01 and GW-QVGA-01A

Document history

- 110426 GW-QVGA-01A(1) version with display DI-QVGA-3.2-03
- 101207 First release.

Sales and Service

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

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