

Q1 controller

Uninterruptible power supply systems controller



Q1 is a modern solution that uses advanced methods of control and supervision of power supply systems.

Thanks to the CAN bus and a wide range of additional modules, system is fully scalable and allows to cooperate with systems of various powers and sizes.

GENERAL DESCRIPTION

The device offers a rich set of communication options, including built-in Ethernet interface, integrated HTTP server or SNMP agent.

Alarms are sent via SNMP TRAP to a remote monitoring center, e.g. WinCN2 or relay contacts.

The controller is shipped with a default configuration file or a special file, tailored to individual customer needs, which ensures fast and seamless installation of the system. Additional configuration changes can be done from the control panel (with the help of a USB stick or a Micro-SD card) or through software configuration from a laptop (using the Ethernet port).

Comprehensive system functions, including built-in, configurable PLC type functionality, allow for flexibility in monitoring and controlling of the infrastructure.

APPLICATION

Support, control and alarm systems in areas such as:

- +24V or -48V power supply systems
- Telecommunications systems
- Industrial automation systems

KEY FEATURES

- ✓ Front panel with color display and four-button keyboard for easy local operation
- ✓ Integrated HTTP server
- ✓ Remote supervision via a network server, SNMP agent or MODBUS protocol
- ✓ Easy scalability of the number of inputs / outputs and measurement channels due to the possibility of using additional modules
- ✓ Simple system or configuration update via portable memory (USB / Micro-SD) or the Ethernet port
- ✓ Integrated PLC functionality (Programmable Logic) providing flexibility for infrastructure monitoring and control
- ✓ Advanced testing and battery handling methods
- ✓ Comprehensive system supervision options
- ✓ Simple installation (replacement) during operation (hot-swap)
- ✓ Designed for +24V and -48V systems
- ✓ Complies with international standards



TECHNICAL SPECIFICATION

Input Parameters:

Rated voltage	VDC	18÷60
Rated current	ADC	0,2 (max.)
Protection	-	built-in fuse 0,5A
Switch	-	no

General parameters:

Dimensions	mm (in)	75 × 43 × 206 (3 × 1.7 × 8.1)
Weight	kg(lb)	< 1 (2.2)
Mounting method	-	hot-plug
Cooling	-	passive
Operating temperature range	°C(°F)	-40 ÷ +70 (-40 ÷ +158)
Relative humidity	-	95%, no condensation

Design standards

Electrical safety	PN-EN 60950-1
Ingress protection	IP20
EMC	PN-ETSI EN 300 386
Battery operation	PN-T-83102
PCB	IPC-2221A

Functions: system

Possibility to use external extension modules on I2C or CAN buses to increase the number of input / output or measurement channels
Integrated programmable PLC for configurable control and supervision functions
Measurements of AC and DC parameters, currents, consumed electricity, power loss detection and alarming
Advanced system and battery algorithms
Configurable system for recording event and alarm history
Local and remote software and configuration update (via Ethernet or USB / Micro-SD memory stick)
Real time clock with emergency power backup

Functions: batteries

Temperature compensated float voltage, supervised charging, equalization and automatic charging
Charging current limitation
Advanced algorithms for managing load groups during battery operation
Prediction of the backup time during battery operation
Automatic battery capacity test
Battery symmetry supervision
Battery types used: AGM, gel, classic lead-acid

Functions: rectifiers

Individual supervision and control of operating parameters of each rectifier
"Soft start" the system
Rectifier power management (efficiency optimization)

User interfaces:

Local interface	Three configurable light emitting diodes, color LCD display (resolution: 128 x 160 px, technology: TFT), keyboard (4 buttons)
Remote interface (http server)	Graphic user interface using HTML, Java Script, AJAX. 4 configurable access levels, login control, user profiles, the ability to set settings remotely, displaying the current operating parameters of the system
Remote interface (SNMP)	Remote parameter control, remote alarming via SNMP
Portable memory (USB / Micro-SD)	Software or configuration upgrade and backup of event / alarm history
languages	English (default), Polish or German available for download

Extensions

Number of rectifiers	Up to 64 (connected to CAN bus)
Digital inputs / outputs	From 8 to 128 (voltage range: 0 ÷ 5V)
Analogue inputs	From 6 to 70 (voltage range: 0 ÷ 5V)
Relay outputs	4 to 132 (NO-C-NC, max. Switched power: 62.5VA / 60W, max. Switched voltage: 250VAC / 220VDC)
Temperature measurement channels	From 3 to 67 (temperature range: -55 ÷ + 125°C / -67 ÷ 257°F)
Battery / system voltage measurement channels	From 5 to 69 (voltage range: -60 ÷ + 30V)
Battery current measuring channels	4 to 12 (voltage range: -0.256 ÷ + 0.256V)
Insulated open-collector outputs	2 (max. Current: 0.1ADC)
Outputs controlling load contactors	4 (max. Current: 1.75ARMS / 2.5APEAK)
Frequency measurement channels	1 (voltage range: 0 ÷ 3.3V, max frequency: 2kHz, built-in pull-up to 3.3V)
Number of batteries	Up to 12 strings
Local supervision	Front panel display, web server
Remote supervision	Network server, SNMP agent, MODBUS protocol (via RS232 / RS485 / Ethernet)
Remote alarms	Potential-free contacts, SNMP traps, WinCN2 supervision center
USB interface	1 (USB type C, DRP (dual-role port), USB2.0 OTG compatible)
RS232 interfaces	2 (first port: only RX / TX lines, isolated output, second port: full - all lines)
Ethernet interface	1 (10/100 Ethernet compliant, HP Auto-MDIX)
RS485 interfaces	2 (first port: unipolar output, second port: isolated, unipolar output)
CAN interfaces	2 (CAN 2.0B compliant)
I2C interface	1 (master mode, clock: 100kHz, voltage level: 5V)
1-wire interfaces	3 (standard speed, voltage level: 3.3V)
Micro-SD card slot	1