QUBI-RIO 100
Ethernet Relay Module

- 24 Power Relay 10A
- Compact design
- 100BASE-TX
- USB2.0
- Power supply 10-60VDC
- DIN rail mounting
- -40°C to 80°C

Description

The Qubi RIO 100 includes 24 power relays. The relays are configured as normally open (switch). The input voltage can be chosen between 10 VDC and 60 VDC. The robust module is designed for laboratory and industrial applications. The module communicates via USB2.0 (HID) and via Ethernet (TCP / IP, UDP, HTTP). The device has a built-in diagnostics, this allows the detection of the relay switching cycles and the monitoring of operating voltages. For quick diagnostics and initial startup, the device has a web interface. The PC-based control system is via standard high-level languages and scripts (C, C + +, C #, Visual Basic, Python). LabVIEW drivers are also available.

Operation modes

› Operating in standalone (time-limit switch)
› Network operation mode
› Daisy chain of multiple QUBI modules
› Open frame
› DIN rail mounting

Applications

› Switching current up to 10A
› Automated Testing
› Multiplexing of power and signals
› Simulation cable breaks/electrical shorts
› Testing of safety-related functions

Features

› open application programming interface
› Protocols: TCP/IP, UDP, HTTP, HID
› C/C++,C#, Java,Visual Basic, Python
› LabVIEW driver

› Spring-loaded terminals
› 24 high-quality power relay
› Extended temperature range
› Compact and rugged design

› Time switch in standalone mode
› Web interface and diagnostics
› Firmware update via Ethernet/USB
› IP Recovery via USB

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Relay specification	
Relay	10 A power relay, SPST-NO
Realy arrangement	24 normaly open ($R_{OFF} \geq 1M\Omega$; $R_{on} \leq 1\Omega$)
Switching speed communication	2 ms
Galvanic isolation	2000 V DC between primary/secondary circuit
Switching and feed-through current	max. 10 A (per relay)
Switching and feed-through voltage (DC)	max. 60 V DC
Switching and feed-through power (DC)	max. 230 W
Switching speed incl. contact bounce	1.0 seconds
Switching frequency	max. 2 Hz
Guaranteed switching cycles	max. 100.000 switching cycles
Contact resistance (feed-through)	max. 0,5 Ω
Isolation resistance relay contacts	min. 1 MΩ (test voltage 500 V DC)
Isolation relay contacts to control	min. 2000 V AC (test parameters 1mA/50-60Hz/1min)
Recommended load	min. 2 mA at 5 V DC

Electrical specification	
Supply voltage (U_{power})	min. +9,6 V DC, typ. +24 V DC, max. +60 V DC
Supply voltage trip level	9,2 V DC
Reverse polarity protection	min. 60 V DC
Power consumption	min. 1 W, typ. 5 W, max. 14 W
Power consumption, no relay switched	typ. 47 mA, max. 56 mA (Requirement: U_{power}=24V)
Power consumption, all relay switched	typ. 460 mA, max. 550 mA (Requirement: U_{power}=24V)
Peak inrush current	typ. 1000 mA, max. 1500 mA (Requirement: U_{power}=24V for 2ms)

Mechanical specification	
Dimension Open Frame (H x W x D)	160 x 100 x 25 mm
Dimension housing (H x W x D)	170 x 115 x 44 mm
Housing IP protection class	IP 20
Relay contacts connector	Spring-loaded terminals

Environment specification	
Storage temperature	-40°C to +85°C
Humidity non-condensing	35% to 85%
Operating temperature	-40°C to +80°C (regard derating note in the manual)

EMC	
Immunity	DIN EN 61000-6-2 : 2006
Emmission	DIN EN 61000-6-4 : 2011

Scope of delivery	Guarantee and support
QUBI-RIO 100	1 year guarantee
Connectors	Software examples
Manual	Online support

Versions	Order Number
Open frame	QUBI-RIO-100-OF
Aluminium Housing	QUBI-RIO-100-AG
Aluminium Housing DIN rail mounting	QUBI-RIO-100-AH