QUBI-RIO 110
Concept Datasheet

- 24 Signal Relays 2 A
- Compact design
- 100BASE-TX
- USB2.0
- Power supply 10-60 V DC
- DIN rail mounting
- -40°C to 80°C

Description

The Qubi RIO 100 includes 24 signal relays. The relays are configured as normally open (switch). The power supply 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 2A
› 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 signal relays
› 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	2 A signal relay, SPST-NO
Realy arrangement	24 normaly open
Nominal switching capacity	max. 2 A at 30 V DC, 60 W (per relay)
Switching and feed-through voltage (DC)	max. 60 V DC
Switching speed communication	2 ms
Switching speed incl. contact bounce	on time 4 ms, off time 4 ms
Switching frequency	max. 100 Hz
Guaranteed switching cycles	max. 100.000 switching cycles
Contact resistance (feed-through)	max. 0,5 Ω
Break down voltage between contacts	max. 1000 V DC (condition: 10 mA for 1 minute)
Isolation resistance relay contacts	min. 1 MΩ (test voltage 500 V DC)
Isolation relay contacts to control	min. 1500 V DC (test parameters 10mA/1minute)
Recommended load	min. 10 µA 10 mV 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. 2 W, max. 6 W
Power consumption, no relay switched	typ. 47 mA, max. 56 mA (condition: U_{power}=24V)
Power consumption, all relay switched	typ. 200 mA, max. 300 mA (condition: U_{power}=24V)
Peak inrush current	typ. 1000 mA, max. 1500 mA (condition: 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 reference design
Manual	Online support

Versions	Order Number
Open frame	QUBI-RIO-110-OF
Aluminium Housing	QUBI-RIO-110-AG
Aluminium Housing DIN rail mounting	QUBI-RIO-110-AH