Q.brixx A121

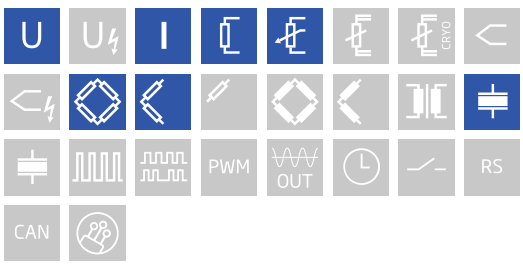
High Isolation Multi-Purpose Module

Q.brixx brings the performance and functionality of Q.bloxx into a scalable, portable, and rugged form factor. Q.brixx DAQ systems can consist of up to 16 measurement modules and an integrated, high-performance controller for communication, control, and data logging purposes. With a robust aluminum housing capable of withstanding severe shock and vibration, Q.brixx is ideal for on-the-go applications in potentially harsh environments.

- Ectromagnetic compatibility according EN 61000-4 and EN 55011
- Robust and reliable
  stable and compact aluminum housing, easy to carry
- Power supply 10 ... 30 VDC
- Temperature range -20 up to +60°C
- High density and flexibility
  up to 16 modules in one system in any constellation

Key Features

- 2 high galvanic isolated input channels
  voltage, current, Pt100, potentiometer, full- and half bridges, IEPE, isolation voltage 1200 VDC permanent
- Signal conditioning
  linearization, digital filter, average, scaling, min/max storage, arithmetic, alarm
- Fast high accuracy digitalization
  24 bit ADC, 100 kHz sample rate each channel
- Galvanic isolation
  channel to channel to power supply and to interface
  isolation voltage 1200 VDC / 848 VACrms
  test voltage 5 kVDC over 1 minute
- Categories
  1000 V CAT II and 600 V CAT III



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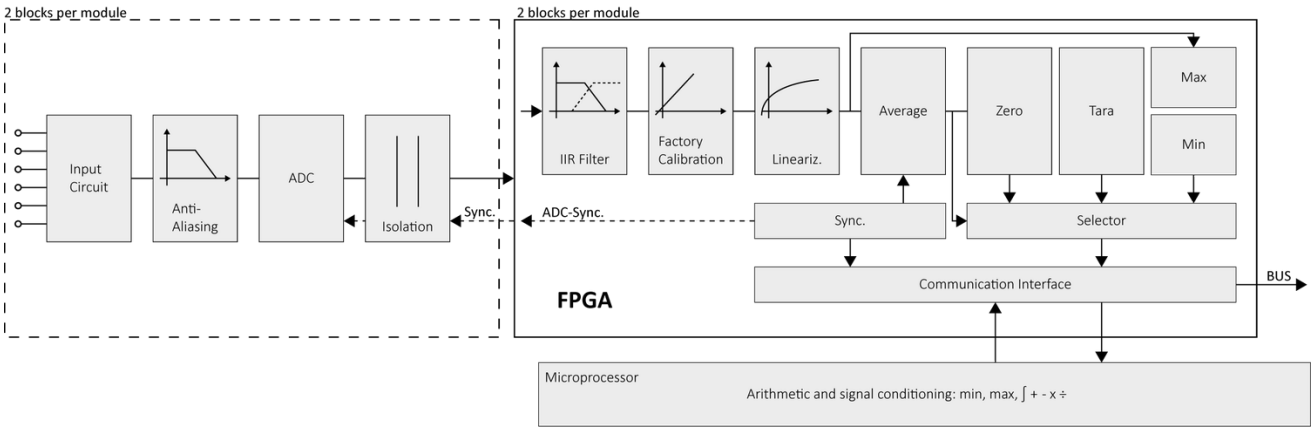
Block diagram



Technical Data

Analog Inputs

Channels	2
Accuracy	0.01 % typical
	0.025 % in controlled environment[1]
	0.05 % in industrial area[2]
Linearity error	0.01 % typical full-scale
Repeatability	0.003 % typical (within 24 h)
Isolation voltage	1200 VDC continuous, channel to channel to power supply channel to bus

[1] according to EN 61326 2006: appendix B
[2] according to EN 61326 2006: appendix A

Measurement Mode Voltage

Error	range	max. error	resolution
	±10 V	±2 mV	1.2 µV
	±1 V	±0,2 mV	120 nV
	±100 mV	±20 µV	12 nV
Input impedance	>10 MΩ		
Long-term drift	< 20 µV / 24 h	< 200 µV / 8000 h	
Temperature influence	Offset drift	Gain drift	
	<50 µV / 10 K	<0.02 % / 10 K	
Signal-to-noise ratio	>100 dB at 100 Hz		

Measurement Mode Current

Error Internal shunt resistor 50 Ω	range	max. error	resolution
	±25 mA	±5 µA	3.0 nA
Long-term drift	<0.5 µA / 24 h	<5 µA / 8000 h	
Temperature influence	Offset drift	Gain drift	
	<1 µA / 10 K	<0.025 % / 10 K	

Measurement Mode Resistance / RTD

Error	range	max. error	resolution
Resistance, 2-wire	100 kΩ	±100 Ω	12 mΩ
Resistance, 2- and 4-wire	4 kΩ	±1 Ω	0.5 mΩ
Resistance, 2- and 4-wire	400 Ω	±0.1 Ω	48 µΩ
Pt100, 2- and 4-wire	-200 to +850°C	±0.25°C	0.2 m°C
Pt1000, 2- and 4-wire	-200 to +850°C	±1°C	0.2 m°C
Long-term drift	<0.01°C / 24 h	<0.1°C / 8000 h	
Temperature influence	Offset drift (range 400 Ω)	Gain drift	
	<10 mΩ / 10 K	<0.025 % / 10 K	

Measurement Mode Potentiometer

Allowable potentiometer resistance	1 kΩ to 10 kΩ	
Long-term drift	<0.01 % / 24 h	<0.1 % / 8000 h
Temperature influence	Offset drift	Gain drift
	<0.0001 / 10 K	<0.02 % / 10 K

Measurement Mode Bridge

Bridge configuration(s)	half- and full-bridge, 5-/6-wire, quarter-bridge with completion terminal, 3-wire	
Accuracy class	0.05	
Bridge resistance	>100 Ω	
Bridge excitation	2.5 VDC, nominal	
Measurement range	±2.5 mV/V, ±5 mV/V, ±10 mV/V, ±25 mV/V, ±500 mV/V	
Long-term drift	<0.12 µV/V / 24 h	<1.2 µV/V / 8000 h
Temperature influence	Offset drift	Gain drift
	<0.2 µV/V / 10 K	<0.05 % / 10 K

Measurement Mode IEPE Sensor

Error	range	max. error	resolution
	±10 V	±10 mV	1.2 µV
	±1 V	±1 mV	120 nV
Supply	constant current 4 mA		
Input frequency range	0.5 Hz to 10 kHz		
Temperature influence	Offset drift (range 10 V)	Gain drift	
	<10 µV / 10 K	<0.025 % / 10 K	

Analog/Digital Conversation

Resolution	24-bit
Update rate	100 kHz (measurement thermocouple 8 Hz)
Modulation method	Sigma-Delta
Anti-aliasing filter	20 kHz, 3rd order
Digital filters	Infinite impulse response (IIR), low-pass, high-pass, band-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 10 kHz (adjustable via software)
Averaging	configurable or automatic according to the selected data rate

Communication Interface

Protocols	proprietary Localbus (115200 bps to 24 Mbps, latency <100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU Profibus-DP (19200 bps to 12 Mbps) (special Firmware required)
Data format	8E1
Electrical standard	ANSI/TIA/EIA-485-A, 2-wire

Power Supply

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	approx.. 2 W
Input voltage influence	<0.001 %/V

Environmental

Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 % to 95 % at 50°C, non-condensing

Remarks

Warm-up time	Validity of all listed specifications are subject to a warm-up period of at least 45 minutes
	Specifications subject to change without notice

High Voltage Warnings

- Attention High voltage device, Danger for life and health in case of non regular use.
- Only special and sufficient educated persons are permitted to handle this device only.
- all metal housing parts must be safely and continuous connected to protected earth (PE)
- Only contact protection plugs and cables may be used. All parts must be approved for voltages up to 1200 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations must be considered.

Base is the european standard EN61010-1

Mechanical information

Material	Aluminum
Measurements (W x H x D)	30 x 125 x 155 mm
Weight	approx. 200 g

Ordering Information

Article number	504421

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