Q.brixx A104 TCK

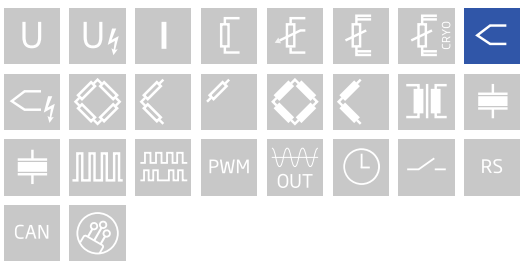
Thermocouple and Low Voltage Measurement Module

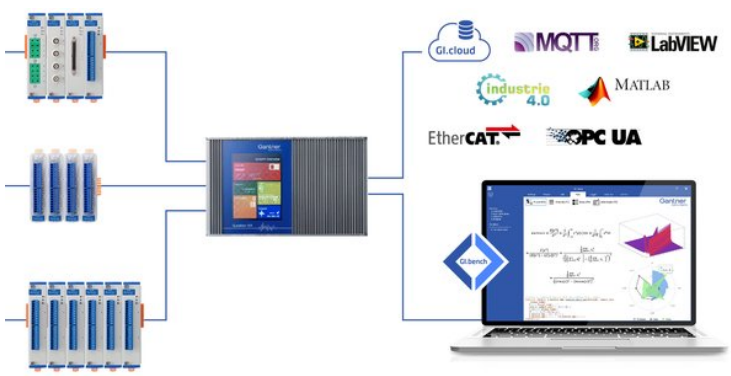
Q.brixx brings the performance and functionality of Q.bloxx into a scalable, portable, and rugged form factor. Q.brixx DAQ systems can consist of up to 16 measurement modules and an integrated, high-performance controller for communication, control, and data logging purposes. With a robust aluminum housing 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

- 8 analog input channels
  thermocouple (type B / E / J / K / L / N / R / S / T / U), voltage (±80 mV)
- High-accuracy digitization
  24-bit ADC, 100 Hz sample rate per channel, 50/60 Hz mains rejection
- Automatic linearization correction
  optimal position of the interpolation points adjusted to the input range
- Simplified wiring
  direct connectivity with mini-TC plugs, built-in cold junction compensation
- Open thermocouple detection
  detect broken wire, loose connection or thermocouple burnout
- 3-Way galvanic isolation
  100 VDC channel to channel, 500 VDC channel to power supply and bank
- Electromagnetic compatibility (EMC)
  according to IEC 61000-4 and EN 55011





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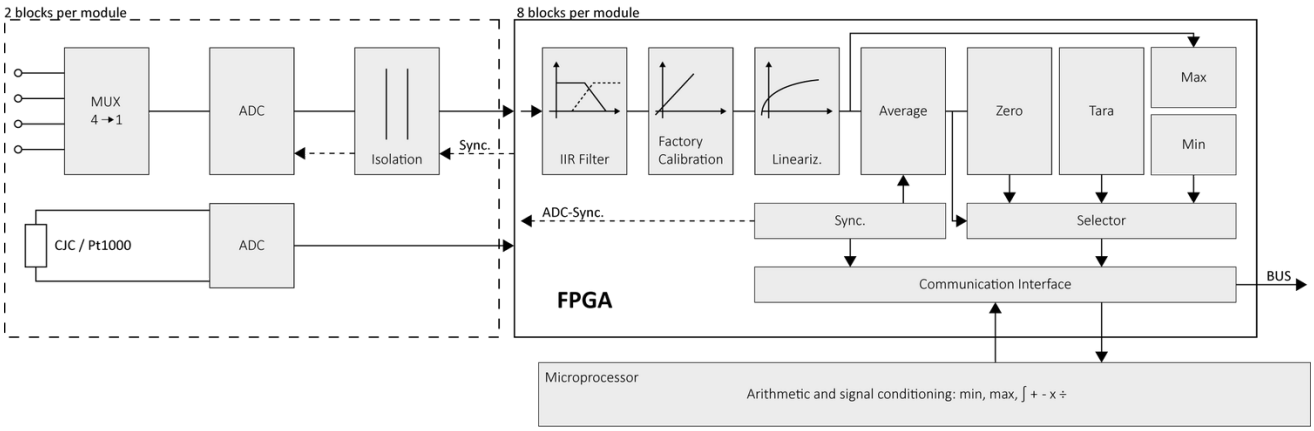
Block diagram



Technical Data

Analog Input

Channels	8
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 hrs)
Input impedance	>10 MΩ
Isolation voltage	100 VDC channel to channel 500 VDC to power supply, channel to bus [3]

[1] according to EN 61326 2006: appendix B
[2] according to EN 61326 2006: appendix A
[3] noise pulses up to 1000 VDC, continuous up to 250 VDC

Voltage Measurement

Input range	±80 mV	
Margin of error	±10 µV	
Resolution	10 nV	
Long-term stability	<1 µV / 24 hrs	<10 µV / 8000 hrs
Temperature drift	<20 µV / 10 K Offset drift	<0.02 % / 10 K Gain drift
Signal-to-noise ratio	>100 dB at 100 Hz	

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Thermocouple Measurement

	Type	Range	Adjusted with cold junction compensation
Deviation in the relevant Temperature range The specifications are valid with enabled mains frequency rejection 50 Hz resp. 60 Hz	Type B	400°C to 1820°C	< ±1.5 °C
	Type E, J, K	-100 to 1000°C	< ±0.5°C
	Type E	-270°C to 1000°C	< ±0.8°C
	Type K	-270°C to 1372°C	< ±0,8°C
	Type L	-200°C to 900°C	< ±0.5°C
	Type N	-100°C to 1000°C	< ±0.5°C
	Type N	-270°C to 1300°C	< ±0.8°C
	Type R, S	-50°C to 1768°C	< ±1°C
	Type T, U	-100°C to 400°C	< ±0.5°C
	Type T	-270°C to 400°C	< ±0.8°C
Long-term drift	<0.025°C / 24 h	<0.05°C / 8000 h	
Temperature influence	Offset drift	Gain drift	
	<0.05°C / 10 K	<0.02% / 10 K	
Uncertainty CJC	<0.3°C		

Analog-to-Digital Conversion

Resolution	24-bit
Sample rate	100 Hz per channel fast mode 10 Hz per channel with 60 Hz mains frequency rejection 6 Hz per channel with 50 Hz mains frequency rejection
Modulation method	sigma-delta
Digital filters	Infinite impulse response (IIR), low-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 10 Hz (adjustable via software)
Averaging	configurable or automatic according to the user-defined 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

Input Power

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

Environmental Specifications

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

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Remarks

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

Mechanical information

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

Ordering Information

Article number	521521

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