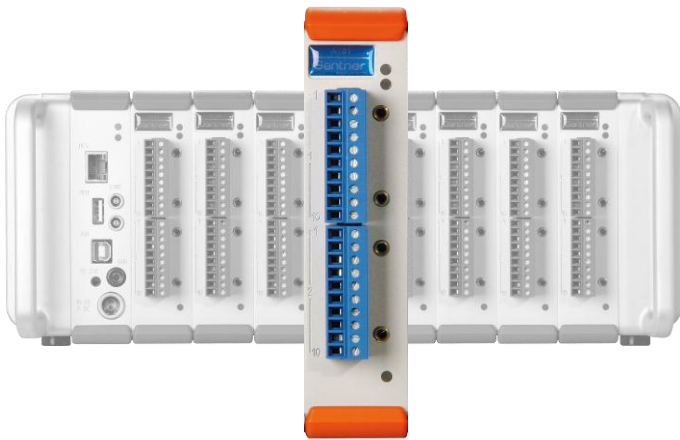


Q.brixx A101

Universal Measurement Module



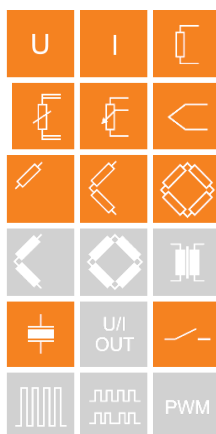
The Q.brixx series takes the performance of the Q.bloxx modules and delivers them in an integrated, rugged, scalable, and portable form factor. More than a dozen I/O modules types are available allowing you to 'mix and match' measurement features with your application requirements. Each Q.brixx module is individually housed in a rugged aluminum housing that handles data acquisition (up to 100 kHz per channel), channel-to-channel isolation (up to 1200 VDC), sensor conditioning, filtering, linearization, and conversion to engineering units – all at the I/O measurement level. The integrated Q.gate test controller handles the data synchronization, buffering, time stamping, and communication to the automation system or PC over Ethernet (TCP, UDP, FTP Modbus, etc.). The overall result is a portable measurement system that's up to the test.

Key Features of the System:

- **High density and flexibility**
up to 16 modules in one system in any constellation, flexible plug selection
- **Test Controller inclusive**
Ethernet TCP/IP for configuration and data transfer, 16 MByte data memory, expandable by USB device, logging features, PAC functionality, IRIG synchronization
- **Robust and reliable**
stable and compact aluminum housing, easy to carry
electromagnetic compatibility according EN 61000-4 and EN 55011
Temperature range -20 up to +60°C
power supply 10 up to 30 VDC

Key Features of the Module A101:

- **2 universal analog input channels**
voltage, current, resistance, potentiometer, Pt100, Pt1000, thermocouples, full and half bridges, IEPE-sensors
- **Fast high accuracy digitalization**
24 bit ADC, 100 kHz sample rate per channel
- **1 digital in or output per channel**
input: state, tare, memory reset, alarm, threshold
output: state alarm, thresh hold
- **Signal conditioning**
virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- **TEDS**
class 1 and class 2, according IEEE 1451.4
- **Galvanic isolation**
channel to channel to power supply and to interface, V_{iso} 500 VDC

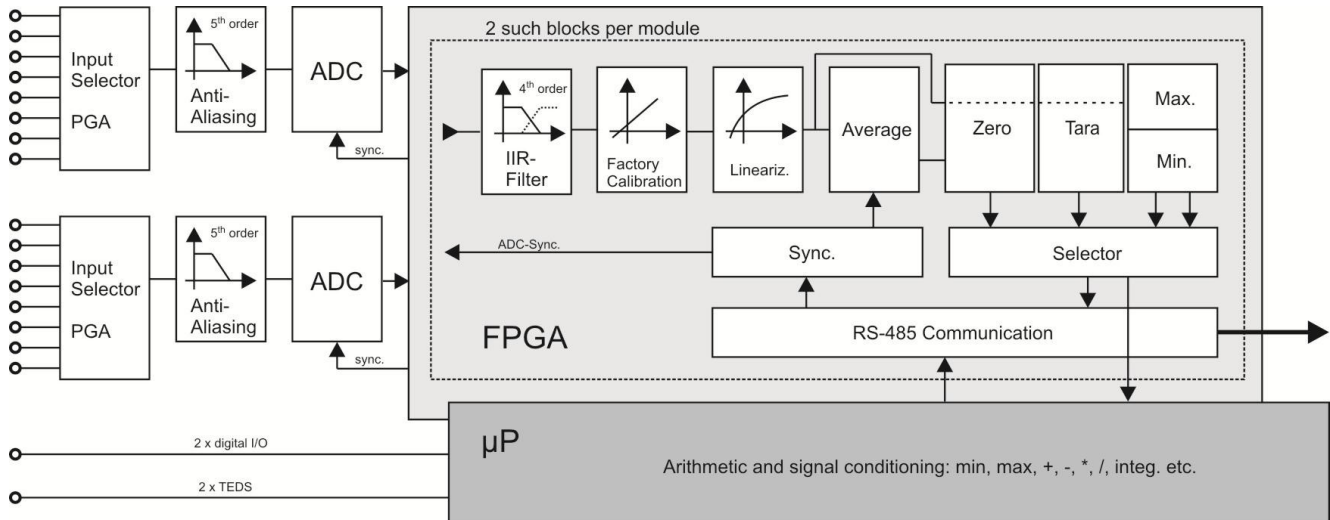




Q.brixx A101

Universal Measurement Module

Block Diagram



Analog Inputs			
Number	2		
Accuracy	0.01 % typical		
	0.02 % in controlled environment ¹		
	0.05 % in industrial area ²		
Linearity error	0.01 % of the final value typical		
Repeatability	0.003 % typical (within 24 h)		
Isolation voltage	500 VDC channel to channel to power supply to interface ³		
Sensor identification	TEDS		
Measurement Voltage	Range	max. Deviation	Resolution
	±60 V	±0.2 V	7.2 µV
	±10 V	±2 mV	1.2 µV
	±1 V	±0.2 mV	120 nV
	±100 mV	±20 µV	12 nV
Input resistance	>10 MΩ (range ±10 V = 1 MΩ; range ±60 V = 3 MΩ)		
Long term drift	<10 µV / 24 h; < 25 µV / 8000 h		range ±1 V
Temperature influence	on zero	on sensitivity	
	<1 µV / 10 K	<0.05 % / 10 K	
Signal-noise-ratio	> 90 dB at 1 kHz	>120 dB at 1 Hz	

¹ according EN 61326: 1997, appendix B

² according EN 61326: 1997, appendix A

³ noise pulses up to 1000 VDC, permanent up to 250 VDC



Q.brixx A101

Universal Measurement Module

Measurement Current	Range	max. Deviation	Resolution
(internal shunt 50 Ω)	±25 mA	±5 µA	3.0 nA
Long term drift	<0.2 µA / 24 h, <0.5 µA / 8000 h		
Temperature influence	on zero		on sensitivity
	<0.1 µA / 10 K		<0.03 % / 10 K
Measurement Resistance / RTD	Range	max. Deviation	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 up to +850°C	±0.25°C	0.2 m°C
Pt1000, 2- and 4-wire	-200 up to +850°C	±1°C	0.2 m°C
Long term drift	<0.02°C / 24 h; <0.05°C / 8000 h		
Temperature influence	on zero (range 400 Ω)		on sensitivity
	<0.4 mΩ / 10 K		<0.03 % / 10 K
Measuring Potentiometer	Relative measurement		
Zulässiger Potentiometer-Widerstand	1 kΩ bis 10 kΩ		
Long term drift	<0.02 % / 24 h, <0.05 % / 8000 h		
Temperature influence	on zero (range 1)		on sensitivity
	<0.0001 / 10 K		<0.03 %/10 K
Measuring Bridge	Full and half bridge, 5-/6-wire, quarter bridge with completion terminal 3-wire		
Accuracy class	0.05		
Sensor resistance	>100 Ω		
Supply	2.5 V, nominal		
Measurement range	±2.4 mV/V	±50 mV/V	±500 mV/V
Long term drift	<1 µV/V / 24 h, <2.5 µV/V / 8000 h		
Temperature influence	on zero		on sensitivity
	<1 µV/V / 10 K		<0.05 % / 10 K
Measurement Thermo Couple	Whole range	-100°C...upper limit	
Type B	better than ±5°C	better than ±2.5°C	
Type E, J, K, L, T, U	better than ±1°C	better than ±0.5°C	
Type N	better than ±2°C	better than ±1°C	
Type R, S	better than ±3°C	better than ±1.5°C	
Input resistance	>10 MΩ		
Langzeitdrift	<0.05°C / 24 h, <0.15°C / 8000 h		
Temperature influence	on zero		on sensitivity
	<0.025°C / 10 K		<0.02% / 10 K
Uncertainty cold junction compens.	<0.3°C		



Q.brixx A101

Universal Measurement Module

Measurement IEPE sensor	Range	max. Deviation	Resolution
	±10 V	±10 mV	1.2 µV
Supply	Constant current 4 mA		
Minimum input frequency	2 Hz		
Limit frequency	10 kHz		
Temperature influence	on zero	on sensitivity	
	<10 µV / 10 K	<0.05 % / 10 K	
Analog/Digital-Conversion			
Resolution	24 bit		
Sample rate	100 kHz (measurement thermocouple 10 Hz)		
Conversion method	Sigma-Delta (group delay time 380 µs)		
Anti-aliasing filter	20 kHz, 5 th order		
Digital filter	IIR, low pass, high pass, band pass, 4 th order, 1 Hz up to 10 kHz in steps 1, 2, 5		
Averaging	configurable or automated according the selected data rate		
Digital In/Outputs			
Number	2 (1 digital I/O per channel)		
Respond time	0.2 ms		
Input	state, tare, reset		
Input voltage	max. 30 VDC		
Input current	max. 0.5 mA		
Upper threshold	>10 V (high)		
Lower threshold	<2.0 V (low)		
Output	state, alarm		
Contact	open drain p-channel MOSFET		
Load	30 VDC / 100 mA (ohmic load)		
Power Supply			
Power supply	10 up to 30 VDC, overvoltage and overload protection		
Power consumption	approx. 2 W		
Influence of the voltage	<0.001 %/V		
Environmental			
Operating temperature	-20°C up to +60°C		
Storage temperature	-40°C up to +85°C		
Relative humidity	5 % up to 95 % at 50°C, non condensing		

Warm Up Time

All declarations are valid after a warm up time of 45 minutes.

Specification subject to change without notice

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