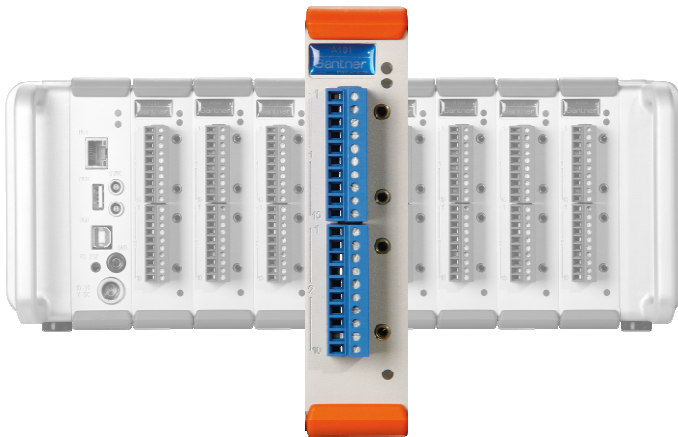




Q.brixx A101

Universal Measurement Module



The Q.brixx product line is designed for portable measurements with a high level of flexibility, reliability and accuracy. The range of applications starts from small stand-alone solutions up to networked multi-channel applications in the field of mobile and stationary performance testing and structural monitoring.

The wide range of available modules and the flexibility of the system configuration allows an optimized solution for each single task. Up to 16 modules in one system plus a Controller Unit provide a powerful package with PAC functionality, logging possibilities and an Ethernet TCP/IP interface.

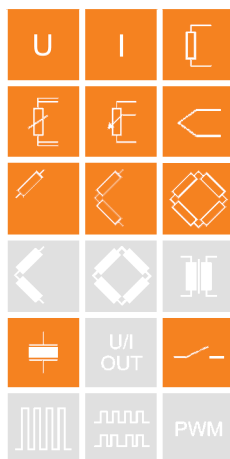
Conclusion: Dynamic signal acquisition up to 100 kHz, inputs and outputs for all types of signals, galvanic isolation of inputs and outputs, multi-channel solutions, high density packaging and intelligent signal conditioning for mobile application.

Most important 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, 12 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

Most important 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
- **Signal conditioning**
virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- **TEDS**
class 1 and class 2, according IEEE 1541.4
- **Galvanic isolation**
of I/O-signals, power supply and interface, isolation voltage 500 VDC



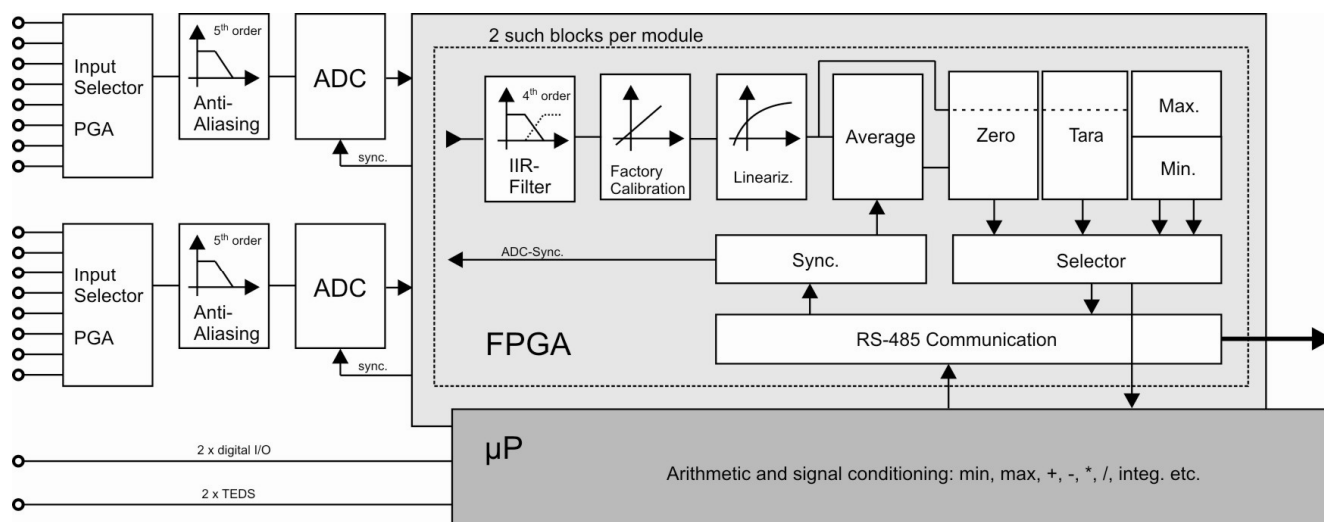
DEWESoft™ 7 compatible



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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)		
Sensor identification	TEDS		
Measurement Voltage	Range	max. Deviation	Resolution
	±60 V	±12 mV	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; ±60 V = 3 MΩ)		
Noise voltage	<50 µVpp		range ±10 V
Long term drift	<1 µV/24 h		
Perm. common mode voltage	500 V permanent		
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

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Measurement Current (internal shunt 50 Ω)	Range	max. Deviation		Resolution
	0...25 mA	±5 µA		3.0 nA
Long term drift	<0.1 µA/24 h			
Perm. common mode voltage	500 V permanent			
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	±0.5°C		0.2 m°C
Pt1000, 2- and 4-wire*	-200 up to +850°C	±1 °C		0.2 m°C
Linearity error	<0.05% of final value at range 100 kΩ			
Measuring Bridge				
Accuracy class	0.05			
Bridge Type	full bridge, half bridge, 5-/6-wire connection, quarter bridge with completion terminal			
Sensor resistance	>100 Ω			
Supply	2.5 V			
Measurement range	±2.5 mV/V	±50 mV/V		±500 mV/V
Temperature influence	on zero		on sensitivity	
	<10 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			
Perm. common mode voltage	500 V permanent			
Temperature influence	on zero		on sensitivity	
	<1 µV/10 K		<0.02%/10 K	
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	

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Analog/Digital-Conversion	
Resolution	24 bit
Sample rate	100 kHz
Conversion method	Sigma-Delta (group delay time 380 µs)
Antialiasing filter	20 kHz, 6 th order
Digital filter	FIR, low pass, high pass, 6 th order
	1 Hz up to 10 kHz in steps 1, 2, 5, automated sample reduction for lower frequencies
Digital In/Outputs	
Number	2 (1 digital I/O per channel)
Response 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.

Valid from April 15th 2010. Specification subject to change without notice
DB_Q.brixx_A101_E_12.doc