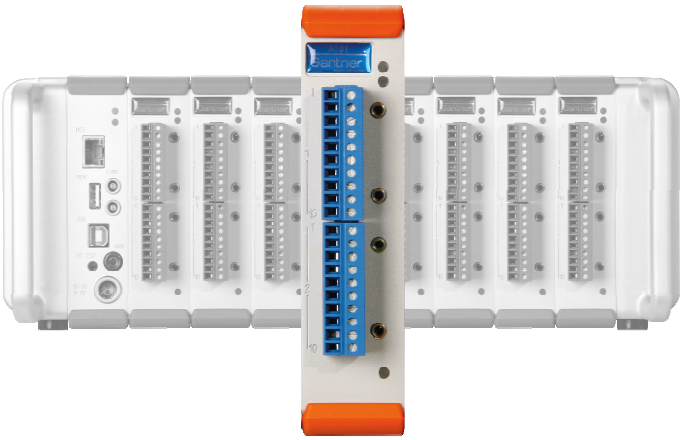
Q.brixx D101

Digital Measurement Module



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

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 module D101:

- **8 digital inputs and 8 digital outputs**
  configurable as counter, frequency, PWM and time inputs,
  frequency or PWM output, state in or output
- **State in and outputs**
  process- and host controlled
- **Frequency in and outputs, time measurement**
  frequency measurement up to 1 MHz (Chronos method),
  frequency output up to 10 kHz
- **Counter**
  for/backward counter, quadrature counter with reference zero recognition (reset/enable), up to 1 MHz
- **PWM in and outputs**
  measurement of duty cycle and frequency, output with variable frequency and/or duty cycle

DEWESoft™ 7 compatible

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Digital Inputs	
Input voltage	max. 30 VDC
Input current	max. 2 mA
Threshold (programmable)	TTL or
Signal voltage „0“	-3… 5 VDC (EN61131-2, Type1)
Signal voltage „1“	11… 30 VDC (EN61131-2, Type1)
Galvanic isolation	500 Veff group/group and against power supply and interface
Function	
State	
Reaction time	10 µs
8-fold Bit-Set	specification such as simple state-input, but the BCD coded information of 8 inputs can be transmitted as a single variable. This functionality covers all 8 inputs even if they are already used by other functionalities such as counter or frequency measurement. In case of a conflict the Bit-Set is lower prior
Frequency measurement	
Method	Chronos
	optimized by combination of time measurement and pulse counting Recognition of the direction of rotation (0°, 90°)
Frequency range	1 Hz up to 1 MHz
Time base	0.001 up to 1 s
Counter frequency (reference)	48 MHz
Resolution	0.002 %
Frequency measurement with recognition ot the direction of rotation	specification like frequency measurement. For the recognition of the direction of rotation the phasing of both inputs is being used.
PWM measurement	
Input frequency	1 Hz up to 1 MHz
Resolution	21 ns
Configuration of the measurement type	counter for duty cycle, frequency
Counter	
Counter	32 bit
Counter frequency	1 MHz
Back/forward counter	specification like counter but with an additional input fort he direction of counting
Quadrature counter	specification like counter. For the recognition of the direction the phasing of both inputs is being used.
Quadrature counter with zero reference and reset/enable	specification like quadrature counter but with an additional input for the „0“ reference recognition and an additional input to activate the counter functionality individually.
Time measurement	
Function	Measuring of time between two edges, measuring of high time, low time and high/low relation
Time range	1 µs up to 32 s
Resolution	21 ns

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With a Q.bloxx D101 8 connectors for digital inputs are available. Those will accept all mentioned signals as it is required. The following combinations are possible

Clamp 8	Clamp 7	Clamp 6	Clamp 5	Clamp 4	Clamp 3	Clamp 2	Clamp 1
State	State	State	State	State	State	State	State
State	State	State	State	State	State	2 channel signal [1]	
State	State	State	State	2 channel signal [1]		2 channel signal [1]	
State	State	State	State	4 channel signal [2]			
State	State	2 channel signal [1]		2 channel signal [1]		2 channel signal [1]	
State	State	2 channel signal [1]		4 channel signal [2]			
2 channel signal [1]		2 channel signal [1]		4 channel signal [2]			
2 channel signal [1]		2 channel signal [1]		2 channel signal [1]		2 channel signal [1]	
4 channel signal [2]				4 channel signal [2]			

[1] all digital input functionalities except state and „quadrature counter with reference zero and reset/enable“

[2] Quadrature counter with reference zero and reset/enable

Digital Outputs

Number	8
Contact	open drain p-channel MOSFET (short circuit proof)
Load	30 VDC/500 mA (ohmic Load)

Function

State	
Reaction time	100 µs
8-fold Bit-Set	Specification such as a simple state output but 8 outputs can be set with only one variable in BCD coding. This functionality covers all 8 outputs even if they are used by other functionalities such as frequency or PWM output. In case of a conflict the Bit-Set is lower prior
Frequency output	
Frequency range	0.1 Hz up to 10 kHz
Accuracy	0.01 %
PWM output	
Frequency range	0.1 Hz up to 10 kHz
Resolution	21 ns

With a Q.bloxx D101 8 connectors for digital outputs are available. Those will accept all mentioned signals as it is required. The functionalities frequency output and PWM output can be used 4 times in maximum.

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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_D101_E_12.doc

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