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Advanced Test Equipment Rentals
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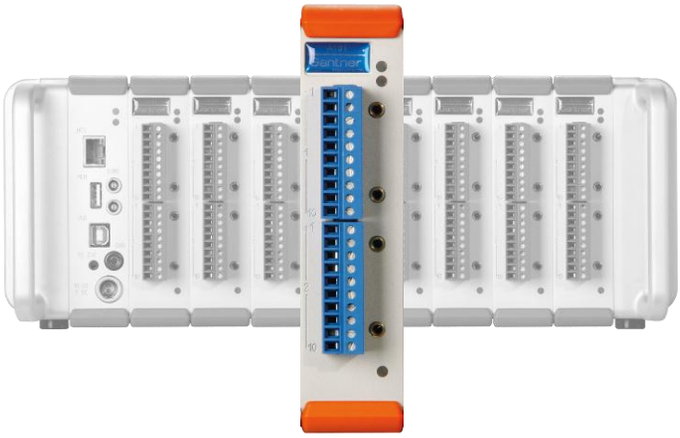
Gantner instruments

Q.brixx D101

Digital 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,
  90 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 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

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Q.brixx D101

Digital Measurement Module

Digital Inputs	
Number	8
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)
Isolation voltage	500 VDC group/group and against power supply and interface[1]
Function	
State	
Reaction time	10 µs
8-fold Bit-Set	specification such as simple state-input, but the binary 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	0.1 Hz up to 1 MHz
Time base	0.001 up to 10 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	0.1 Hz up to 1 MHz
Resolution	21 ns
Configuration of the measurement type	counter for duty cycle, frequency
Counter	
Counter	32 bit (±31 bit)
Counter frequency	1 MHz
Back/forward counter	specification like counter but with an additional input for the 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

[1] Noise pulses up to 1000 VDC, permanent up to 250 VDC

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Digital Measurement Module

With a Q.brixx D101 2 x 4 connectors for digital inputs are available. Those will accept all mentioned signals as it is required. The following combinations are possible

Connector 1				Connector 2			
Terminal 1.6	**Terminal 1.7**	**Terminal 1.8**	**Terminal 1.9**	**Terminal 2.6**	**Terminal 2.7**	**Terminal 2.8**	**Terminal 2.9**
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 (depending on load)	>0.5 A	>0.1 A	<0.1 A
	10 µs	100 µs	1000 µs
8-fold Bit-Set	Specification such as a simple state output but 8 outputs can be set with only one variable in binary 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 1 kHz / 10 kHz depending on load		
Accuracy	0.1 %		
Resolution	1 µs		
PWM output			
Frequency range	0.1 Hz up to 1 kHz / 10 kHz depending on load		
Accuracy	0.1 %		
Resolution	1 µs		

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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.

Specification subject to change without notice
gantner-q.brixx-d101.pdf (Version 1012)

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