e.bloxx D1

Multi-Channel Digital Module

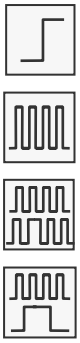
Gantner instruments

Ethernet TCP/IP | PROFIBUS | EtherCAT Technology Group | USB

The e.bloxx series is designed for industrial and experimental test systems requiring precise high speed measurement of electrical, thermal, and mechanical quantities in engine and component test beds.

All units are based on a clean modular design, and easily connect to the wide variety of field devices used in today's test beds. Sample rates up to 5000 Hz and resolutions up to 19 bit are possible depending on the module and signal type used. Standardized communication protocols (Profibus-DP and Modbus-RTU) allow the e.bloxx family to work with a wide variety of application hardware and software.

Adding an e.series Test Controller dramatically increases the system's throughput and connectivity options. An e.series Test Controller is a data concentrator, communication gateway, and optionally a Programmable Automation Controller (PAC) with 100Mbps Ethernet, Profibus-DP, EtherCAT, or USB ports.



e.bloxx D1-1

e.bloxx D1-4

8 or 32 configurable digital inputs / outputs

Status in/outputs

Process or host controlled (each point can be configured as In or Out)

Frequency in/outputs

Frequency measurement up to 2 MHz and frequency output up to 10 kHz

Counter inputs

Quadrature counter, up/down counter, up to 400 kHz

PWM in/outputs, time measurement

Measurement of duty cycle and frequency

RS 485 fieldbus interface

Profibus-DP, Modbus-RTU, ASCII

Order Information

Product	Article No.
e.bloxx D1-1	907218
e.bloxx D1-4	941822
Accessories	
Configuration Software	
ICP 100	633214
Galvanic isolated I/O	
e.bloxx Terminal 4ISO-V2	331575
Interface Converter	
RS232 / RS485	
ISK 200	229682
ISK 101	689326

Additional Features

- 4 or 16 frequency or counter inputs
- Chronos method for precise frequency measurement
- Pulse width modulated (PWM) inputs and outputs

- Data transmission up to 1.5 Mbps
- Up to 32 modules on a single two wire RS-485 interface
- PC-Software (ICP 100) for easy configuration of the modules

- Galvanic isolation of I/O signals, power supply, and communication interface
- Power supply 10 to 30 VDC
- DIN rail mounting (EN 50022 rail)
- Pluggable screw terminals for field, power, and communication connections
- Electromagnetic Compatibility according to EN 61000-4 and EN 55011

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e.bloxx D1 Technical Data

Digital Inputs

Function per terminal strip	8 x status inputs/outputs or 4 x frequency or 4 x quadrature counter or 4 x up/down counter
Status	
Response time	1 ms
Frequency measurement	
Time base	0.01 to 10 s
Max. frequency	400 kHz
Counter	
Counter depth	32 bit
Counter frequency	400 kHz
Input voltage	max. 30 VDC
Input current	max. 1.5 mA
Upper switching threshold	>3.5 V (logical “Low“)
Lower switching threshold	<1.0 V (logical “High“)
Reference frequency	6 MHz
Accuracy	0.01 %
Temperature drift	0.01 %/10 K

Digital Outputs

Function	Process or host controlled
Type of output	Open-Collector
Output Voltage	max. 30 VDC
Output Current	max. 100 mA

Communication Interface

Standard	RS 485, 2-wire
Data format	8E1
Protocols	ASCII, Modbus-RTU, Profibus-DP Local-Bus
Baud rate	
ASCII and ModBus-RTU	19.2; 38.4; 57.6; 93.75; 115.2 kBaud
Profibus-DP	19.2; 93.75; 187.5; 500; 1500 kBaud
Local-Bus	19.2; 38.4; 57.6; 93.75; 115.2; 187.5; 500; 1500 kBaud
Connectable devices	up to 32
Galvanic isolation	500 V

Power Supply

Power supply	10 to 30 VDC overvoltage and overload protection
Power consumption	
e.bloxx D1-1	approx. 1.5 W
e.bloxx D1-4	approx. 6 W
Influence of the voltage	0.001 %/V

Mechanical

Case	Aluminium and ABS
Dimensions (W x H x D) and weight	
e.bloxx D1-1	45 x 90 x 83 mm (1.77 x 3.54 x 3.27 in), 160 g (0.35 lb)
e.bloxx D1-4	104 x 90 x 83 mm (4.10 x 3.54 x 3.27 in), 500 g (1.1 lb)
Protective system	IP20
Mounting	DIN EN-Rail

Environmental

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

Firmware-Variant (included)

Chronos

Function	frequency measurement
Method	Chronos, optimization by the combination of time measurement and edge counting direction detection (0°, 90°)
Number of input channels	4
Max. frequency	400 kHz
Time base	0.01 to 1 s
Reference frequency	6 MHz
Accuracy	0.01 %
Temperature drift	0.01 %/10 K

Chronos Fast

Function	frequency measurement (s. above)
Number of input channels	2
Frequency range	1 Hz to 2 MHz
Time base	0.001 to 1 s
Reference frequency	48 MHz
Resolution	0,002 %
Accuracy	0.01 %
Temperature drift	0.01 %/10K
Refresh rate	1 ms at 1 channel 2 ms at 2 channels

Chronos PWM

Function	frequency measurement (s. above)
Number of input channels	2
Function	frequency output pulse width modulation
Frequency range	0.1 Hz to 10 kHz (Accuracy 0.15 %)
Number of output channels	2 x frequencies or 2 x PWM

PWM Measure

Function	measurement of a pulse width modulated signal
Number of PWM channels	2 x PWM signal 0 to 1 2 x frequency of the PWM signal
Signal frequency	1 Hz to 60 kHz
Resolution	83.3 ns
Configuration Meas. type	Duty cycle: Counter, frequency measurement

Time Measure

Function	measurement of time between Start and stop signal (each one I/O)
Number of time channels	2
Time range	1 µs to 16 s
Time resolution	1 µs
Configuration Meas. type	frequency measurement

Warm Up Time

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

Valid from January 2008. Specification subject to change without notice.

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