

Q.bloxx is the ideal DAQ solution for widely distributed installations, electrical panels, and environmental enclosures. Q.bloxx measurement modules provide integrated signal conditioning and arithmetic functions, packaged in modular, DIN Rail mountable enclosures that easily snap together for quick system expansion. Flexibility in distribution allows for highly synchronized data that is less prone to noise due to shorter sensor cable runs to the actual point of measurement.

- RS 485 fieldbus interface up to 24 Mbps: LocalBus up to 115.2 kbps: Modbus-RTU, ASCII
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Connectable to any Controller, e.g. Q.station, Q.gate or Q.pac
- Power supply 10 ... 30 VDC
- DIN rail mounting (EN60715)



Key Features

- Very high data rates up to 100 kHz each channel
100 kHz at 8 channels (2 each UART line), 10 kHz at 128 channels
- 64 Q.bloxx modules connectable
- Ethernet interface for configuration and data output
1 Gig-E, TCP/IP, UDP, up to 16 MB/s Modbus TCP/IP, ASCII, High Speed Port
Web server, web client and e-mail
- Fieldbus interface
EtherCAT-Slave, 1024 variables read and write at 10 kHz
1 x CAN (CAN-FD), 2 x USB 2.0, 4 MB/s
- Synchronization and time stamp of measurement values
IRIG 2 based master slave principle on RS485 standard system
synchronization $\pm 1 \mu\text{s}$ applicable
- Data buffer memory dyn. 500 MByte, stat. 4 GByte
expandable over USB (up to 1000000 measurements/s) and SD card
- 8 digital inputs / 4 digital outputs
direct connection of encoder for fast angle measurement frequency, PWM
and counter measurements, state signals
- Display 3,5" full VGA 480 x 640 pixel
- PAC functionality with extensive library
fast PID controllers, process control, data logging, transfer functions,
mathematics, Boolean combinations, function generators



Technical Data

Micro Controller

Typ	Atom Z530; 1,6 GHz
RAM	1 GByte, 500 MByte available for data storage
Flash	4 GByte
Real Time Clock (RTC)	Battery buffered
Watchdog	Programmable
OS	Real-time Linux

Ethernet Interface

Number of channels	4096 Byte Data (1024 variables read and 1024 variables write)
Baud rate	1 Gigabit/s (1-Gig-E)
Data rate	Online and Block transfer to 16 MByte/s (32 variables at 100 kHz)
Protocols	TCP/IP, UDP, Modbus TCP (Master and Slave), ASCII, High Speed Port Webserver and WebClient
Isolation voltage	500 V

EtherCAT Interface-Slave

Electrical standard	Ethernet
Number of channels	1024 Byte Data (253 variables read and 253 variables write)
Baud rate	100 Mbps
Cycle time	≥100 μs
isolation voltage	500 V

CAN-Interface

Channels	1
Electrical standard	CAN2.0
Baud rate	1 Mbps
Configuration	CAN DBC files
CAN-FD	Optional, with USB-Adapter

Module Slave Interface (UART)

Channels	4
Baud rate	9,6 kbps, to 48 Mbps (100.000 measurements/s)
Connectable devices	max. 16 modules at one UART
isolation voltage	500 V

USB Interface

Channels	2
Version	USB 2.0
Data rate	To 4 MByte/s (to 1.000.000 measurements/s)

Q.station 101DT

Controller

SD-Card Slot

Use	Interface for data logging, Interface for firmware update
	500 MByte RAM, 4 GByte Flash, 2 x USB, 4 MByte/s SD Card

Digital Inputs

Channels	8
Function	configurable counter, frequency-, PWM- and status Measuring, encoder input for measurement synchronization
Input voltage / Input current	max. 30 VDC / max. 1,5 mA
Lower / upper logic levels	< 1 V (low) / > 3,5 V (high)

Digital Outputs

Channels	4
Function	configurable, watchdog and dead-man function
Type of output	Open Drain p-channel MOSFET
Output voltage / Input voltage	max. 30 VDC / max. 100 mA

Synchronization of a Multi Controller System

Interface	RS485 Electrical standard
Mode	Master Slave Prinzip, IRIG 2 Electrical standard
	Synch. Master and Slave
Accuracy	System synchronization $\pm 1 \mu\text{s}$

Power Supply

Input voltage	10 to 30 VDC. overvoltage and overcurrent protection
Power consumption	approx.. 12W

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

Display

Display	3,5" full VGA, 480 x 640 dots
Screen	Capacitive touch screen behind real-glass
Configurable	Programmable display content

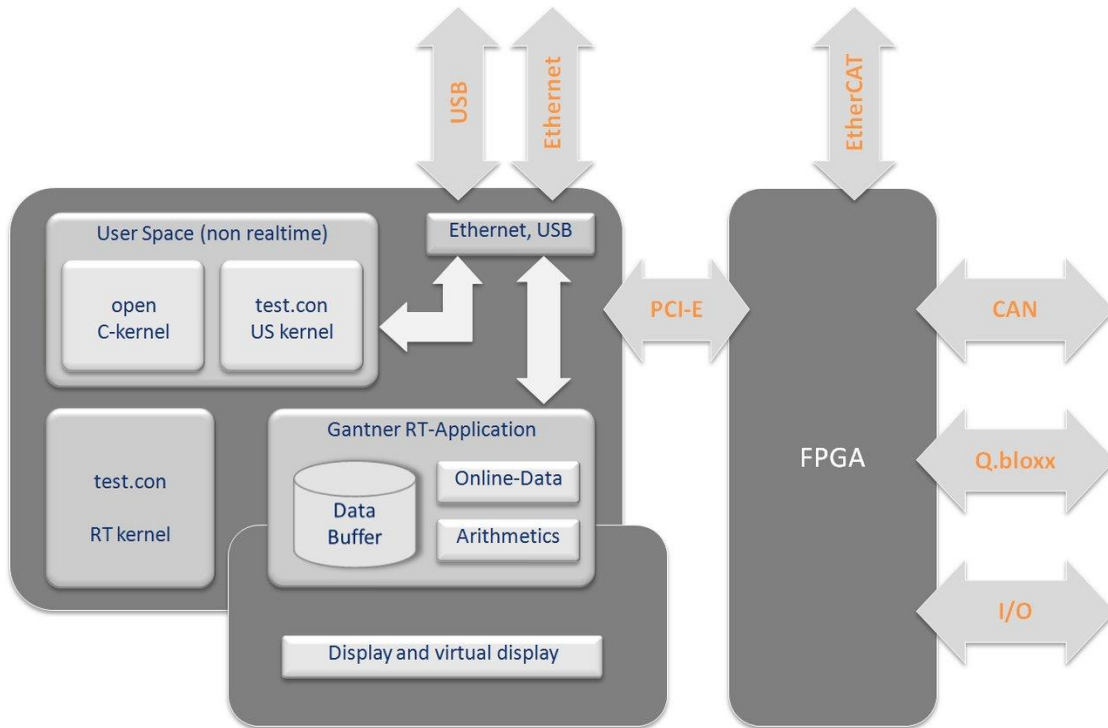
Electromagnetic Compatibility

According to	EN 61000-4 and EN 55011
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Q.station 101DT

Controller

Functional Diagram



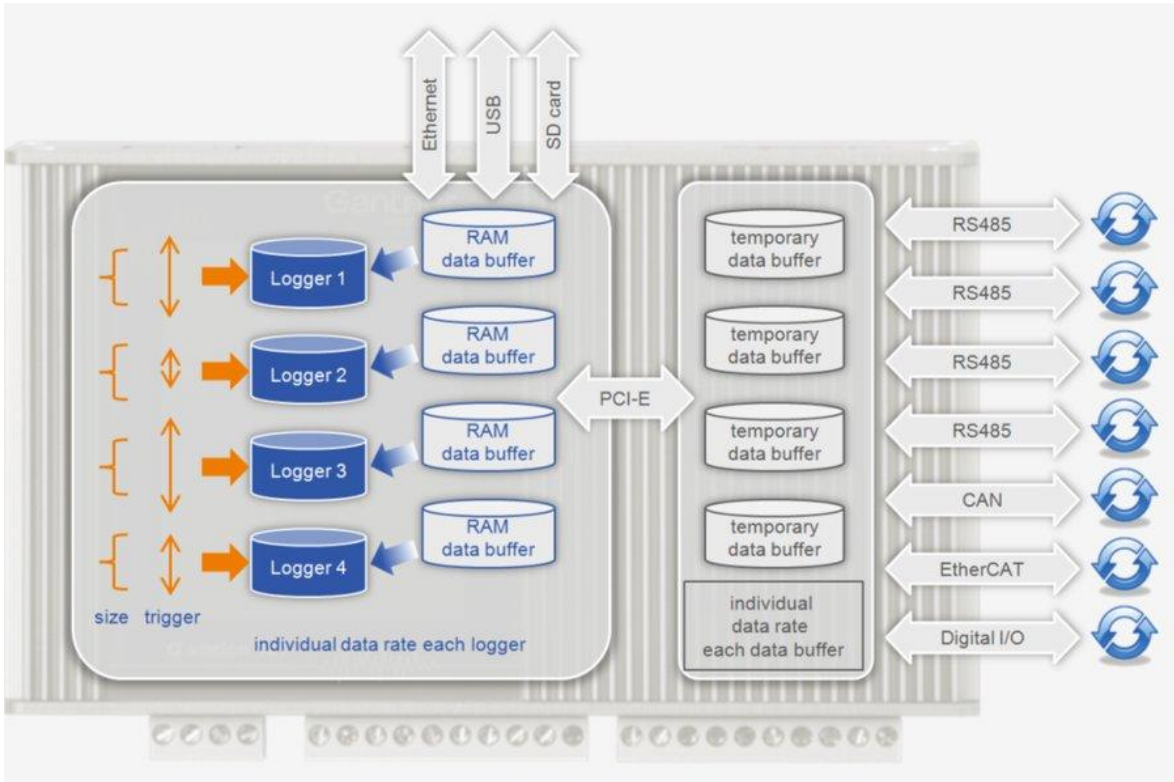
Q.station 101DT

Controller

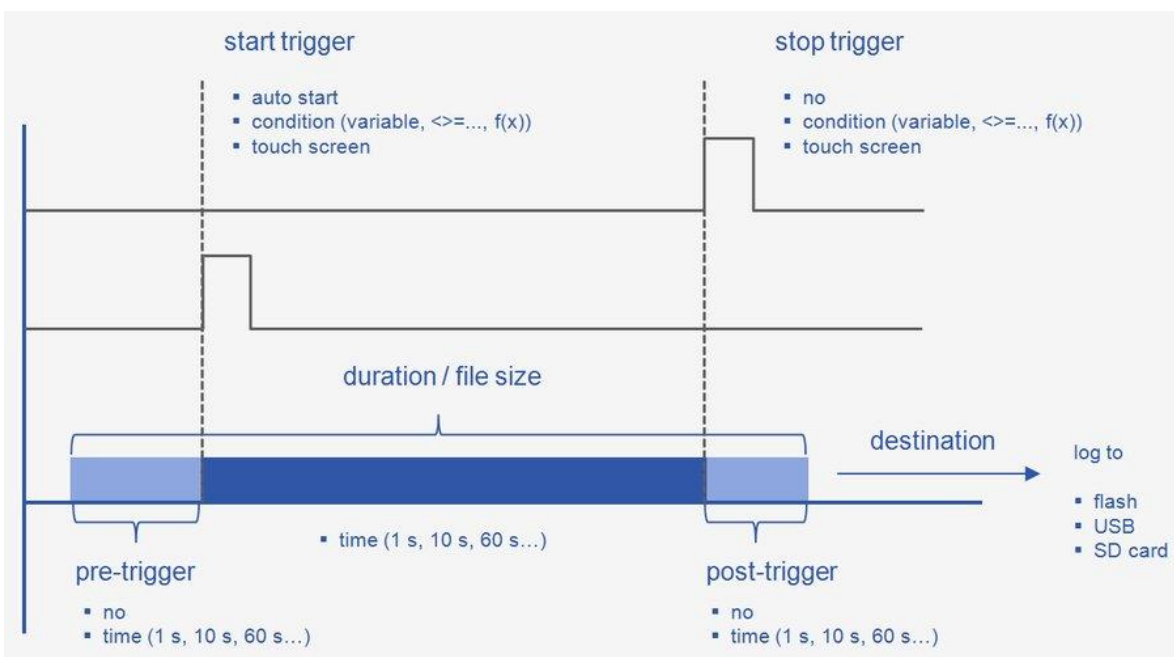
Logging function

With Controller Q.station a very flexible and powerful data logging is possible.

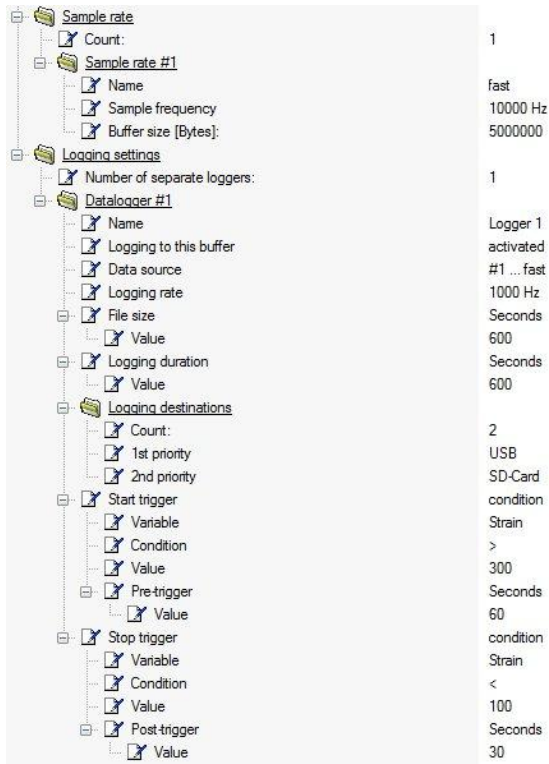
Four data buffers (RAM) with different configurable data rates can be assigned to the measurement and I/O signals.



According to the configuration of up to 20 loggers occurs the logging of the buffer data at a selectable medium (intern. Flash, USB, SD-Card) with selectable logging rates, storage duration, start and stop trigger (auto start, condition, touch) with or without pre- and post-trigger.



Exemplary logger configuration with the software test.commander



Software Add-On

Matlab	Available for 32/64-bit Versions, read buffer data
DasyLab	For DasyLab Versions >= 15, read buffer data, read/write online values
LabView	For Versions >= 2016 (older versions upon request), Available in 32/64-bit, read buffer data, read/write online values
test.con	Simple graphical programming for edge computing devices

Plug-ins

Available plug-ins need Gl.monitor for configuration, output files can be send automatically to configured receivers	
Rainflow	Cycle counting algorithm Rainflow HCM according to Colormann See
FFT	Frequency analysis with selectable window type, frequency range

Mechanical Information

Material	Aluminum
Measurements (W x H x D)	175 x 110 x 55 mm
Weight	approx. 900 g

Ordering Information

Article number	465128
Accessories	Gl.bench, article number -
	Gl.cloud, article number -

Q.station 101DT

Controller

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