

# Q.station 101

## Controller

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



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### 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	2048 Byte Data (512 variables read and 512 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
Data rate	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)

### 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

### Electromagnetic Compatibility

According to	EN 61000-4 and EN 55011
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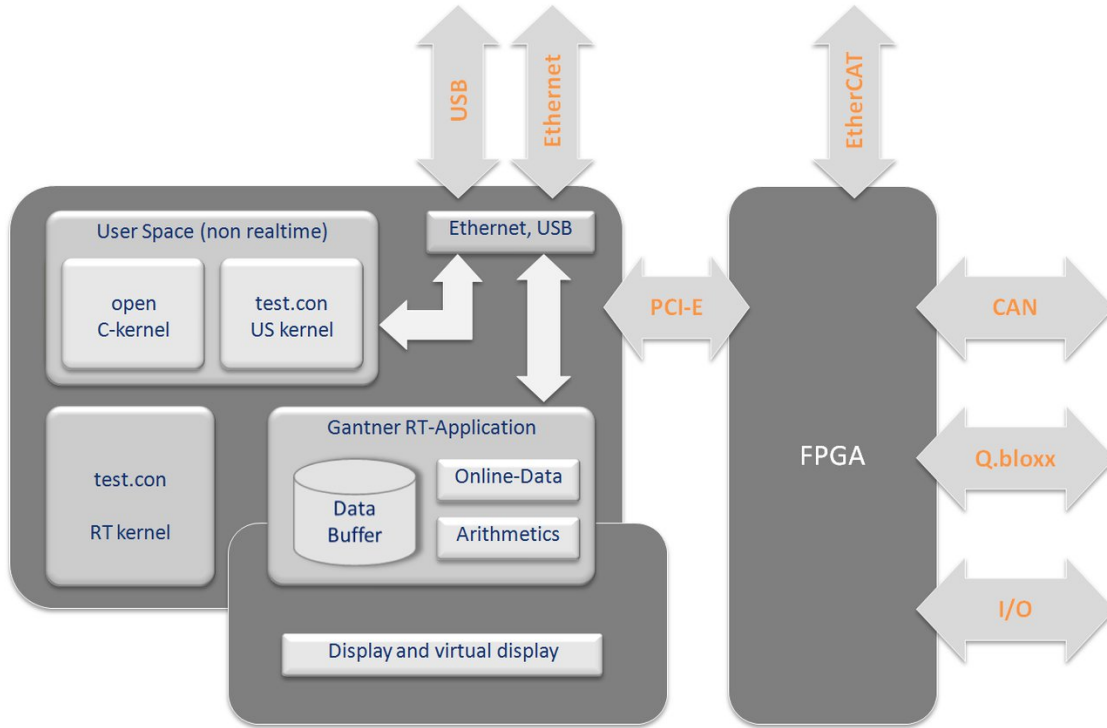
### Environmental

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

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## Functional Diagram



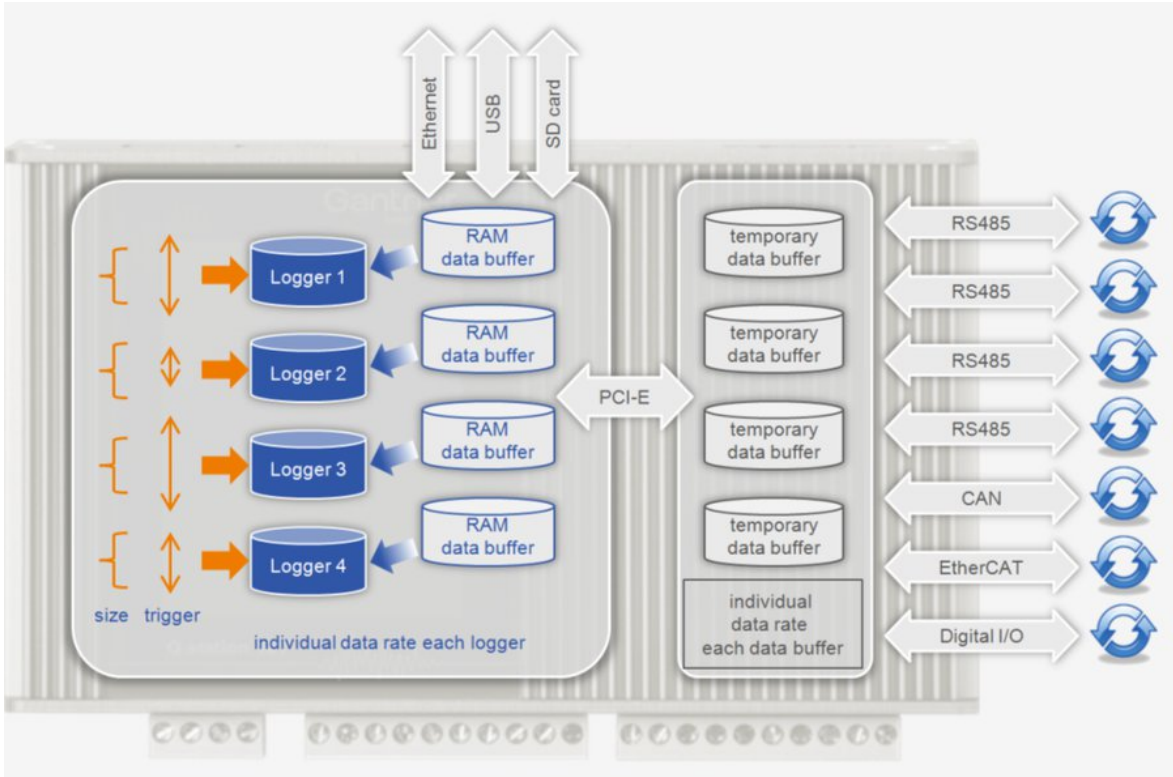
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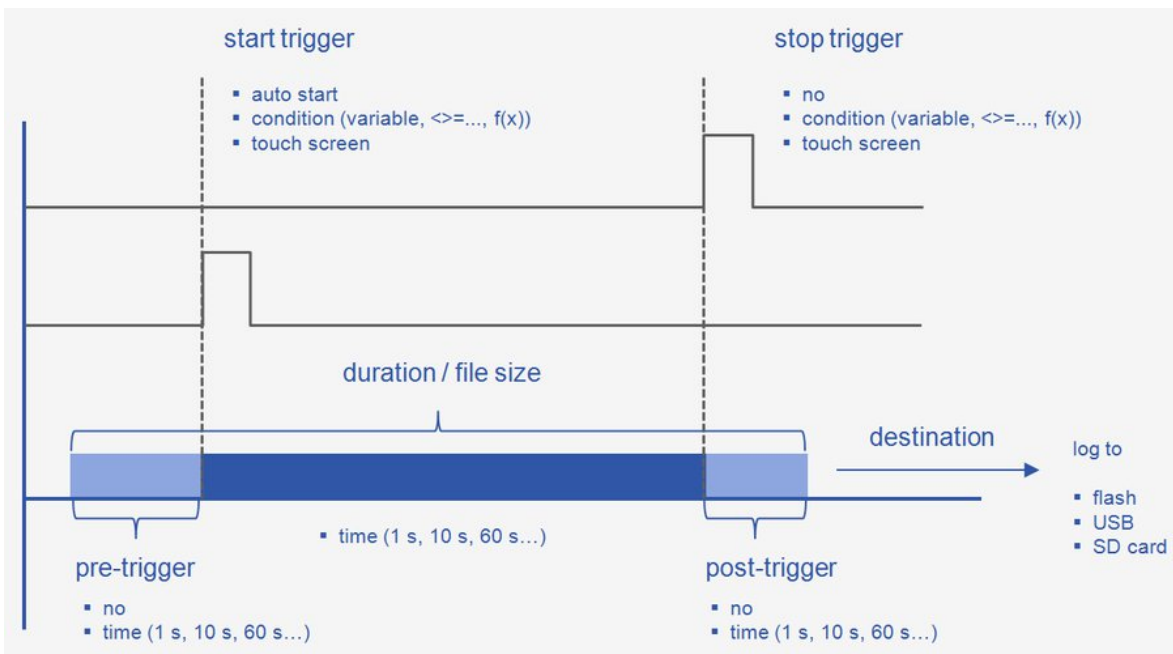
### Logging function

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

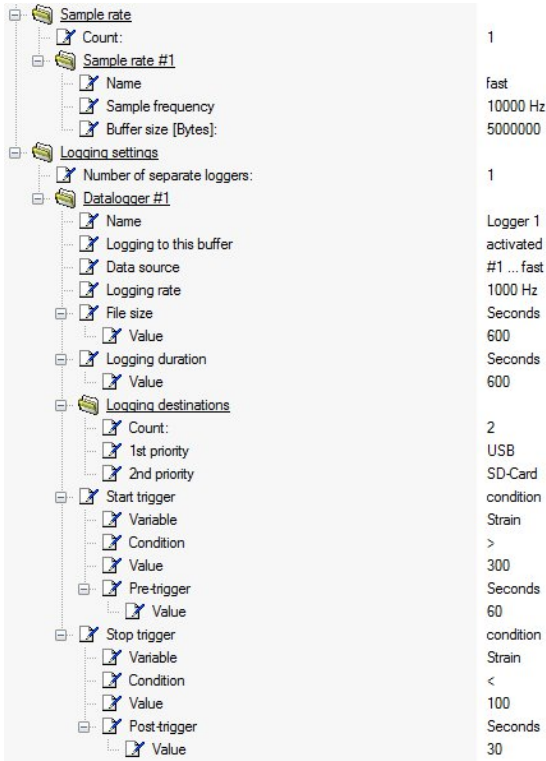
Four data buffers (RAM) with different configurable data rates can be assigned to the measurement and I/O signals.



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 per 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 Seeger with matrix in .scv format
FFT	Frequency analysis with selectable window type, frequency range and channels of bins (resolution) with output in .scv format

### Mechanical Information

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

### Ordering Information

Article number	290124
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