Q.station 101T

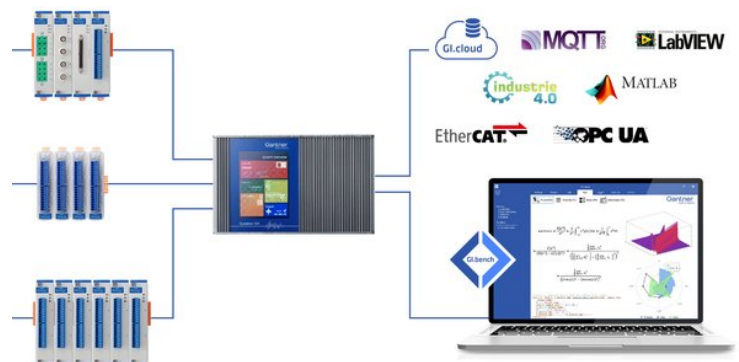## Controller with PAC functionality

Gantner instruments

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

- Connectable to any Controller, e.g. Q.station, Q.gate or Q.pac

- Electromagnetic Compatibility according to EN61000-4 and EN55011

- Power supply 10 … 30 VDC

- DIN rail mounting (EN60715)

Key Features

- **High-performance controller for high-speed data acquisition**
  100 kHz with 8 channels, 10 kHz with 128 channels

- **Scalable to 64 DAQ modules**
  4 UARTs for connecting 4 x 16 DAQ modules

- **Configurable Ethernet interface**
  1 GigE, TCP/IP, UDP, Modbus TCP, ASCII, web client and server

- **Fieldbus interfaces**
  EtherCAT Slave, CAN bus, CAN-FD, 2 x USB 2.0

- **8 Digital inputs and 4 digital outputs**
  status, frequency measurement, pulse counting, PWM measurement, and encoder input for
  measurement synchronization

- **Internal high-speed data buffer**
  500 MByte (SRAM) and 4 GByte (Flash), expandable via USB (1 Msample/s) and SD card

- **Multi-Controller Synchronization**
  IRIG-B with an accuracy of ±1 µs

- **PAC functionality with extensive library**
  PID controllers, process control, data logging, transfer functions, mathematics, Boolean combinations, and function generators

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Technical Data

Microcontroller

Type	Intel Atom® Processor Z530 (1.60 GHz)
SRAM	1 GB (500 MB available for data storage)
Flash memory	4 GB
Real-time clock	battery buffered
Watchdog	Programmable
Operating system	RTLinux

Ethernet

Frame size	2048 Byte (512 variables read and 512 variables write)
Baud rate	1 Gbps
Data transfer rate	16 MB/s, online or block transfer (32 variables at 100 kHz)
Protocols	TCP/IP, UDP, Modbus TCP (Master and Slave), ASCII, High Speed Port
Isolation voltage	500 VDC

EtherCAT Slave

Specification	ETG.2000 EtherCAT Slave Information
Frame size	1024 bytes (253 variables read and 253 variables write)
Baud rate	100 Mbps
Cycle time	≥100 µs
Isolation voltage	500 VDC

CAN bus

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 UARTs
Baud rate	9.6 kbps to 48 Mbps (100.000 measurements/s)
Max. slave modules	16 per UART
Isolation voltage	500 VDC

USB

Channels	2
Specification	USB 2.0
Data transfer rate	4 MB/s (1 Msample/s)

SD Card

Use	4 MB/s interface for data logging and firmware update

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Digital Input

Channels	8
Mode(s) of operation	status, frequency measurement, pulse counting, PWM measurement, encoder input for measurement synchronization
Logic voltage	<1 VDC (Low) >3.5 VDC (High)
Input voltage	30 VDC max.
Input current	1.5 mA max.

Digital Output

Channels	4
Function	status, watchdog and dead-man function
Output voltage	10 - 30 VDC (external supply required)
Contact	open drain p-channel MOSFET
Load capacity	30 VDC / 100 mA (ohmic load)

Multi-Controller Synchronization

Protocol	IRIG-B
Accuracy	1 µs
Electrical standard	ANSI/TIA/EIA-485-A, 2-wire

Input Power

Input voltage	10 - 30 VDC, overvoltage and overcurrent protection
Power consumption	12 W (approx.)

Environmental Specifications

Electromagnetic compatibility	according to IEC 61000-4 and EN 55011
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 - 95 % at 50°C (non-condensing)

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Functional Diagram
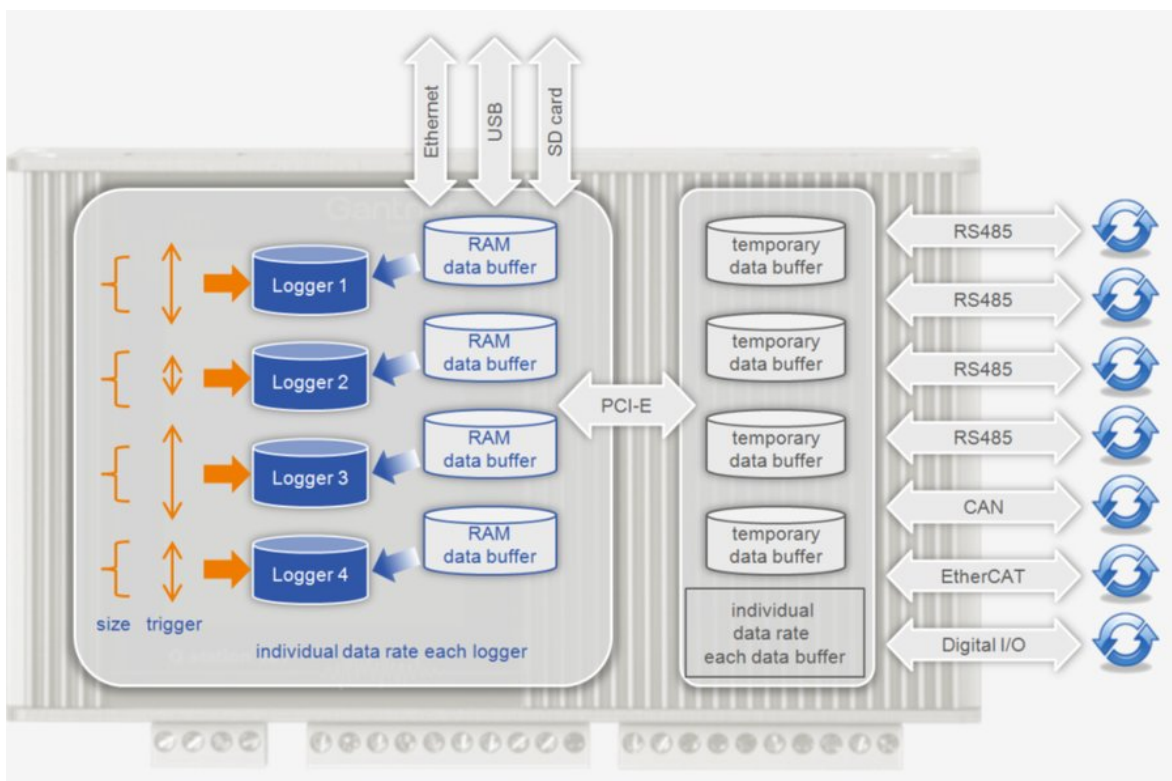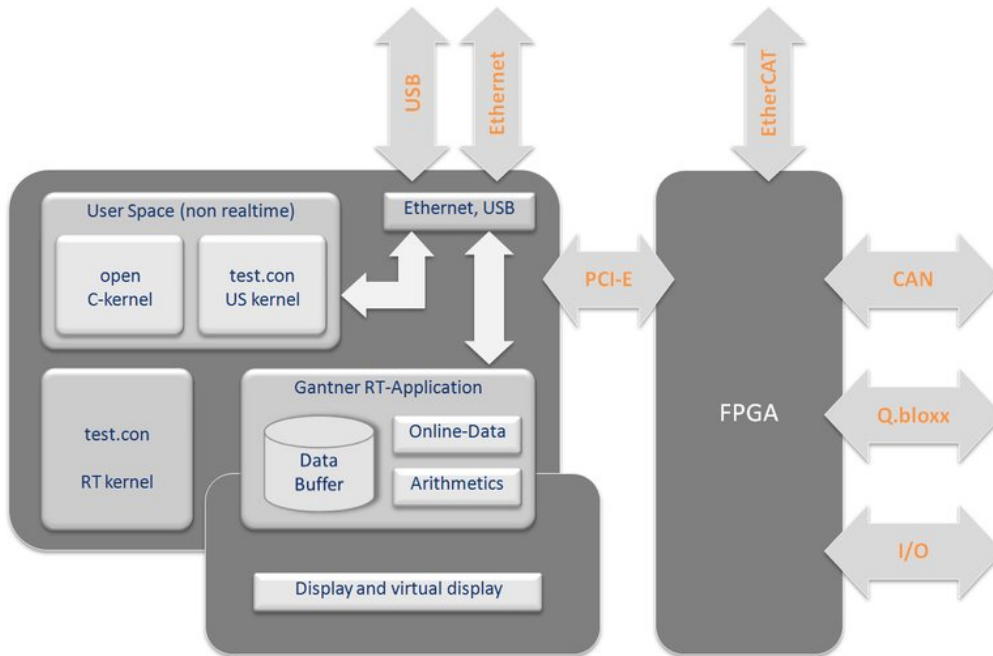
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Software Add-On

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

Ordering Information

Article number	465027