Q.station 101

Preliminary Data Sheet

Test Controller

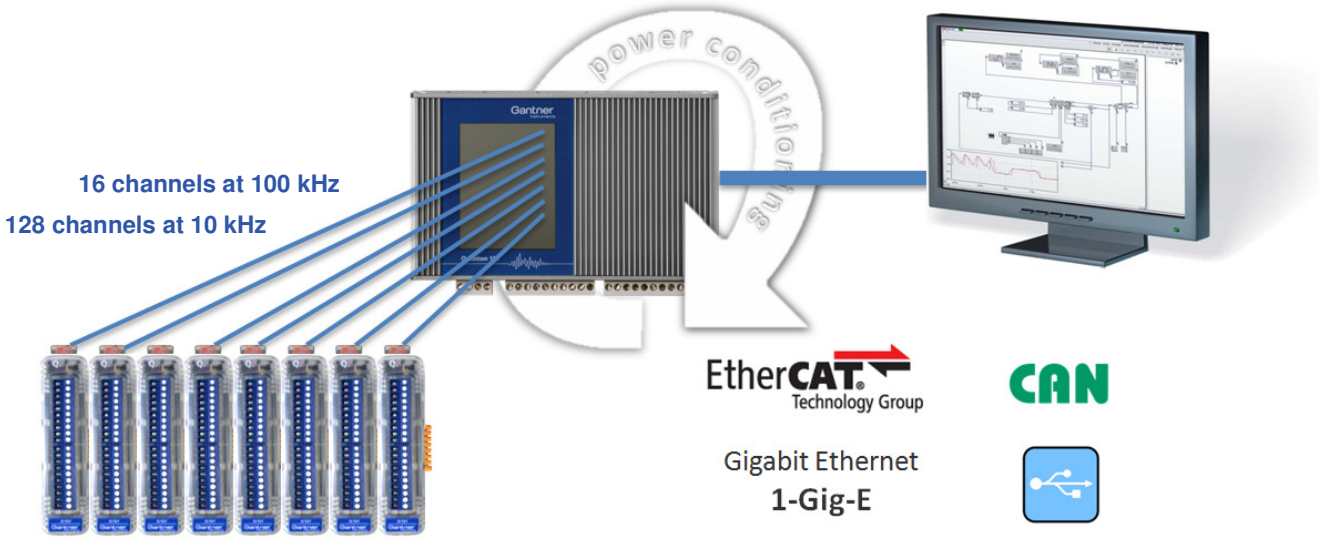
The Q.series has been designed for demanding measurements found in today's most industrial measuring and testing environments. The range of applications starts from single stand-alone solutions up to networked multi-channel applications in the field of component testing, engine testing, process performance testing and structural monitoring.

The range and flexibility of the modules allows an optimized solution for each single task:
Dynamic signal acquisition up to 100 kHz, in/outputs for all types of signals, galvanic isolation of in/outputs, multi-channel solutions, high density packaging and intelligent signal conditioning.

Data exchange between Test Controller and automation level is communicated via Ethernet TCP/IP, CAN or fieldbus system EtherCAT as well as master or slave. Further Ethernet-based industrial standards are in preparation.

Most important features:

- **Very high data rates up to 100 kHz each channel**
  100 kHz at 16 channels, 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, 256 variables read and write at 10 kHz
  EtherCAT-Master according specification ETG
  2 x CAN, 2 x USB 2.0, 1 MB/s
- **Synchronization and time stamp of measurement values**
  IRIG 2 based master slave principle on RS485 standard
  system synchronization ±1 µs applicable
- **Data buffer memory dyn. 500 MByte, stat. 4 GByte**
  expandable over USB (256000 measurements/s) and SD card
- **PAC functionality with extensive function block library**
  fast PID-controller, sequences, data logger, transfer functions, mathematic, numeric, Boolean combinations, functions generator
- **8 digital I/O**
  direct connection of encoder for fast angle measurement
  state signals
- **Display (optional)**
  3.5" full VGA 480 x 640 dots
  capacitive touch screen, programmable content
  VNC support
- **C programmable**
  adding customized functionality



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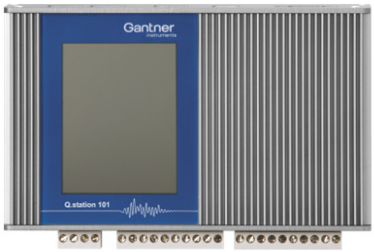
Micro Controller	
Type	Atom Z530, 1.6 GHz
RAM	1 GByte, 500 MByte available for data storage
Flash	4 GByte
Real Time Clock RTC	Battery buffered
Watchdog	programmable
OS	Real Time Linux
User space for customized text programming	
Ethernet Interface	
Number of channels	256 Byte data
Baud rate	1 Gigabit/s (1-Gig-E)
Data rate	Online and block transfer p to 16 MByte/s (32 variables at 100 kHz)
Protocols	TCP/IP, UDP, Modbus/TP/IP, ASCII, high speed port
	Web-server and web-client
Isolation voltage	500 V
EtherCAT Interface - Slave	
Standard	Ethernet
Number of channels	1024 Byte data (256 variables read and 256 variables write)
Baud rate	100 Mbps
Cycle time	≥100 µs
Isolation voltage	500 V
EtherCAT Interface - Master	
Kind	EtherCAT simple master
Connectivity	all slaves from Gantner Instruments as well as 3rd party products
CAN Interface	
Number	2
Kind	pure CAN
Configuration	per DBC files
Optional	CANOpen
RS 485 Slave Interfaces	
Number	4
Baud rate	9,6 kbps up to 48 Mbps (500000 measurements/s)
Connectable devices	max. 16 modules at one UART line
Isolation voltage	500 V

```
DeviceDividedSync[pDevice->GlobalIndex].CycleStep_Safe = 2*i;
DeviceDividedSync[pDevice->GlobalIndex].CycleStep_AtLeast = i;
pDevice = pDevice->pNext;
}
// counter handling
pDevice = SettingsStruct.Meas.pFirstChild;
while (pDevice != NULL)
{
Device_HasErrorneousTransportsWhichNeedToBeInputBufferFilled = false;
Device_HasErrorneousTransportsWhichNeedToBeConfigured = false;
DeviceAccessIndex = pDevice->FPGA.AccessIndex;
if (DeviceAccessIndex >= 0)
{
Addr = 0;                    // offset of "should be" counter of device
```

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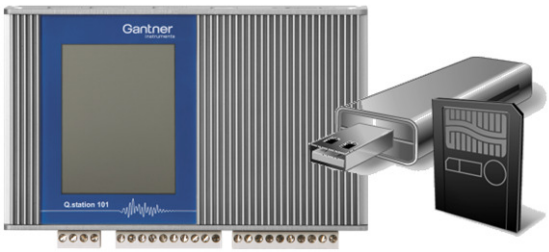
USB Interface	
Number	2
Version	USB 2.0
Data rate	Typ. 1 MByte/s (256000 measurements/s)
SD-Card Reader	
Use	Interface for data logging, Interface for firmware update
Logging without limits	 **500 MByte RAM** **4 GByte Flash** **2 x USB; 1MByte/s** **SD Card**
Digital Inputs	
Number	8
Function	configurable digital encoders focusing with angle synchronous measurement
Input voltage	max. 30 VDC
Input current	max. 1,5 mA
Upper switching threshold	>3,5 V (high)
Lower switching threshold	<1,0 V (low)
Digital Outputs	
Number	4
Function	configurable watchdog and dead man function
Type of output	Open Drain p-channel MOSFET
Output voltage	max. 30 VDC
Output current	max. 100 mA
Synchronization of a Multi Test Controller System	
Interface	RS485 Standard
Mode	Master Slave principle, IRIG 2 standard
	Synch. master and slave
Accuracy	System synchronization ±1 µs
Power Supply	
Power supply	10 to 30 VDC, over voltage and overload protection
Power consumption	approx. 6 W

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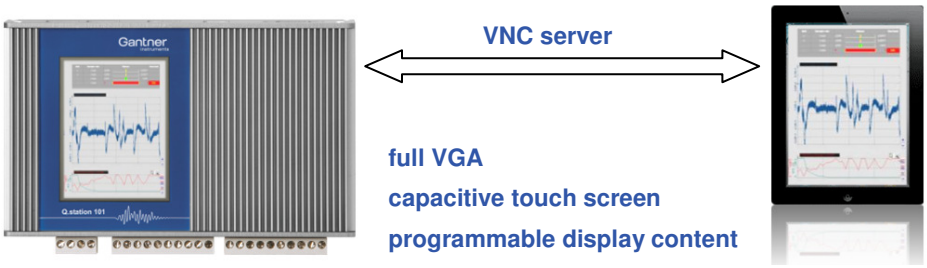
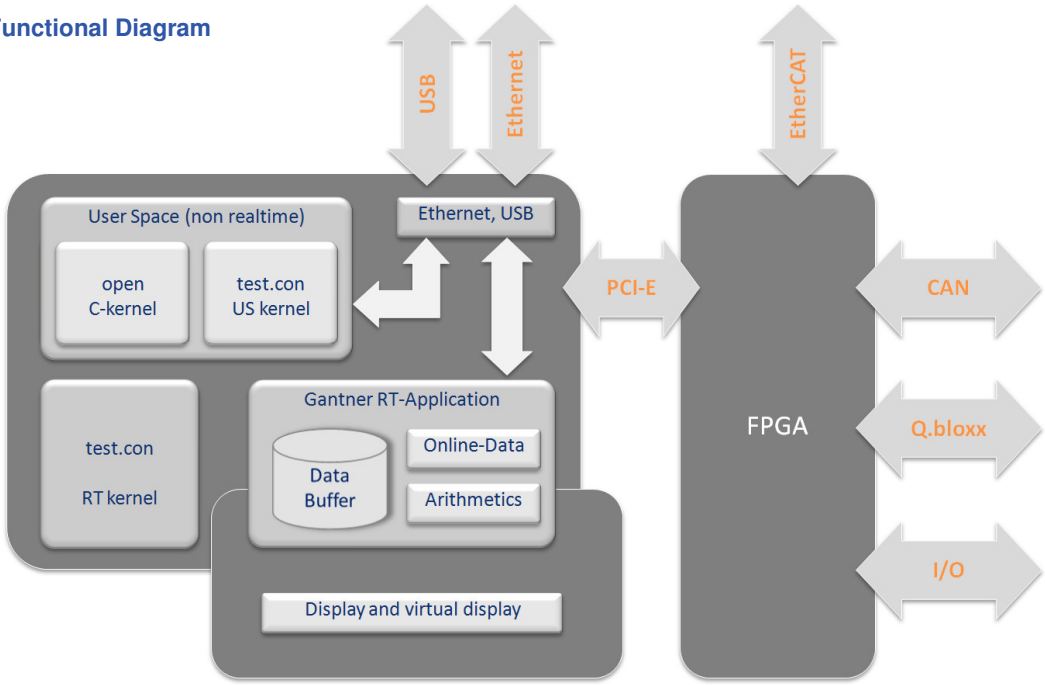
Display (optional)	
Display	3.5“ full VGA, 480 x 640 dots
Screen	Capacitive touch screen behind real glass
Configurable	Programmable display content by using test.con
VNC support external display connection optionally	
Environmental	
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 % to 95 % at 50°C, non condensing
Mechanical	
Case	Aluminum
Dimensions (W x H x D)	(175 x 110 x 55) mm
Weight	900 g
Mounting	DIN EN rail

Functional Diagram



Valid from Mai 15th 2011. Specification subject to change without notice

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