Gantner instruments

Q.monixx A117

MANUAL

Vers. No. 1.1

Contents

1 Safety Information

Before performing any installation, operation or maintenance processes, it is essential to carefully read and understand the appropriate warning and safety information provided in this manual. Please ensure that these tasks are performed as intended (i.e., as directed in this manual and the technical data sheets for the relevant modules or devices). Failure to do so may result in damage to the connected modules or devices. If you require assistance for any reason, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner.

1.1 Intended Use

Gantner Instruments products are intended for use in test engineering (experimental and industrial) as well as process monitoring (production and assembly) applications. Transducers (sensors) can be connected to Gantner products for the control, acquisition, manipulation, and storage of physical quantities such as voltage, current, resistance, temperature, force, displacement, torque, mass, strain, and pressure (data). Gantner products, especially the measurement modules, are intended to be used exclusively for these purposes. Any application that extends beyond the scope as mentioned above does not fall within the intended use of Gantner products.

To ensure safe operation, make sure to select the appropriate Gantner product(s) for each application (i.e., select modules for purposes that align with their respective intended use). All additional details regarding each product and their intended uses are available in their respective manuals and technical data sheets.

Always carefully follow all necessary legal and safety guidelines pertinent to your application, especially for applications in which high voltage measurement modules, e.g., the Q.series X A121, A123, A124, A127 or A128, are utilized as these modules allow for voltage inputs of up to 1200 VDC.

1.2 Checking for Damage in Transit

Upon receipt of goods, visually confirm that the packaging and all included items are intact and not damaged. Please also confirm the completeness of the order shipment (i.e., all expected accessory parts, documentation, and auxiliary aids are included). If you suspect the packaging or any included items have been damaged in transit, do not put them into operation. Instead, contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner immediately for further instruction.

1.3 Personnel

The installation, operation, and maintenance of Gantner products should only be performed by appropriately trained personnel. Such individuals should possess the necessary professional education, experience within their respective field and be aware of all applicable national occupational safety regulations and engineering practices.

Personnel assigned to the operation of Gantner products must be able to reliably assess the results of their work, be familiar with the contents of this manual as well as be aware of all the support options available to them. As always, electrical connections should only be performed by specialist personnel with sufficient training and certifications.

In particular, please pay attention to the following topics while referencing this manual:

- national installation regulations,
- generally accepted engineering rules and methods,
- information regarding transport, installation, operation, maintenance, repair and disposal of Gantner products,
- the characteristic functionality, parameter limits and intended operating and ambient conditions of Gantner products.

1.4 Special Risks

The Gantner Instruments A121, A123, A124, A127, and A128 measurement modules are specially designed for high voltage measurements. Up to 1200V can be applied to these modules. Touching the sensor connection contacts or any exposed wires in the connected sensor cables can result in serious bodily injury or even death. Therefore, it is crucial that only qualified personnel have access to these modules and that they ensure the modules have been de-energized via a power switch or similar device before maintenance is performed.

1.5 Installation Environment

All Gantner products are at least IP20 (i.e., protected against water, dirt and small parts or debris). If the environmental conditions of your application require additional protection, consider installing the Q.monixx and any additional modules in water-protected or waterproof enclosures.

Please note the permissible ambient conditions for each product specified in this manual or their respective technical datasheet. If you have any questions regarding permissible ambient conditions for Gantner products, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for more information.

1.6 Modifications

Gantner Instruments does not permit the modification or disassembly of Gantner modules or devices, except as expressly stated within this manual. The various protective housings of Gantner modules or devices may only be removed for maintenance and service purposes by Gantner Instruments. If you have questions regarding permissible modifications for Gantner products, please contact Gantner Instruments or your local Gantner Instruments Sales and Service partner for more information.

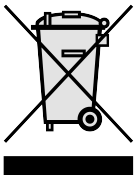
1.7 Maintenance and Cleaning

Gantner products are designed to be maintenance-free. However, if it is required, cleaning should only be performed when modules and devices are in a de-energized state. Please follow the instructions below if you would like to clean your modules or devices:

- Power down and de-energize all Gantner modules and devices
- Remove all electrical connections to Gantner modules and devices before cleaning
- Clean the housing of Gantner modules and devices with a soft, slightly damp cloth (e.g. microfiber). Do not use solvents of any kind when cleaning as they can damage the housing
- When cleaning with a slightly damp cloth, ensure that no liquid gets into the housing or any electrical connections

Never attempt to repair a Gantner module or device if you detect defects, faults or damage of any kind. If you detect any of these, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for assistance.

1.8 Disposal



For the disposal of old or no longer functional Gantner products, please follow all applicable national and local environmental protection and raw material recovery regulations for the disposal of electronic devices and components. Electronic components of any kind should never be disposed of with regular waste. The aluminum housings of Gantner products are recyclable.

Gantner Instruments recommends that the original packaging of each Gantner product is kept until the end of their warranty period for proper storage and shipping of additional or faulty Gantner products, respectively.

1.9 General hazards due to improper operation

All Gantner products are designed for reliability, stability, and safe operation. However, improper operation of Gantner products by untrained personnel may introduce hazards that could otherwise be avoided.
The installation, operation, and maintenance of Gantner products should only be performed by appropriately trained personnel who are familiar with the contents of this manual and aware of all the support options available to them.

Should you have any questions regarding recommended methods for installation, operation, and maintenance of Gantner products, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for more information.

2 Warnings and Labels

2.1 Warnings in this Manual

To prevent personal injury and damage to property, follow the warning and safety information given in this operating manual.

⚠ DANGER	**Indicates a directly threatening hazard. If it is not prevented, the consequence will be fatal or serious injuries.**
⚠ WARNING	Indicates a possibly hazardous situation. If it is not prevented, the consequence may be fatal or serious injuries
⚠ CAUTION	Indicates a possibly hazardous situation. If it is not prevented, the consequence may be injuries of slight or medium severity.
NOTICE	Indicates a situation in which the consequence may be property damage if the information is not followed.

2.2 Labels on Modules

Symbol: CE

Meaning: This is the official CE mark. With this mark, we guarantee that our products meet the requirements of the relevant EC directives.

Symbol: **CAT I, CAT II, CAT III**

Meaning: Modules with a measurement category symbol are intended for the connection of high voltage. The maximum permissible voltage of such modules is indicated by the measurement category rating it is assigned.

Symbol: 

Meaning: There may be high voltage at the terminals of this module. Connections may only be performed with the insulated terminals provided by Gantner Instruments.

2.3 Labels in this Manual

This manual utilizes the following labels and notation in addition to the warnings listed above:

IMPORTANT
Paragraphs with this label give important information relevant to the topic or product discussed in that section.

Tip
Paragraphs with this label provide tips and other particularly useful information relevant to the topic discussed in that section.

Symbol: 

Meaning: Before connecting or disconnecting, make sure that all electrical lines are de-energized.

Italic Font	indicates importance or the name of an official Gantner Instruments software tool or feature
Interface	indicates necessary user input: target menu items or clicks; target entry fields in interfaces
Options	indicates menu items (sequence), program interfaces (general or non-target)
>	notation that denotes a sequence of menu items (e.g., **Options > *Settings***)
➡	indicates special features, restrictions, and recommendations to the user, i.e. Please Note

3 Introduction

Dear Customer,

Thank you for purchasing your very own Q.monixx developed by Gantner Instruments. We are confident you will be pleased with your purchase of a professional quality product that enables fast, accurate and reliable data acquisition.

We at Gantner Instruments, an international and customer oriented test and measurement technology company, are always interested in knowing your experience while using our products. It is our primary focus and the main driver behind our continuous innovation. Should you discover any technical faults within our products, errors in our support documentation or if you want to provide feedback, please contact your domestic Gantner Instruments Sales and Service partner or our corporate headquarters. You can find the contact information for your domestic Gantner Instruments Sales and Service partner as well as our corporate headquarters on our website at https://www.gantner-instruments.com.

The scope of your delivery also includes this manual. Please keep this manual in a safe place for constant reference. You may download the latest version of this manual from our website. To avoid personal injury and property damage, please review and follow the Safety Information & Warnings and Labels sections in this manual. Should you ever get stuck despite studying this manual, please contact our corporate headquarters or your domestic Gantner Instruments Sales and Service partner for information.

You can also find additional technical information in the Technical Information section of the Gantner Instruments Wiki at:

https://dev.gantner-instruments.com/dokuwiki.

Please use the following login information to gain access.

Username: *support* Password: *gins*

(Note: Not all sections of the wiki are open to the public).

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3.1 Documentation for Q.monixx A117

The supporting documentation for the Q.monixx A117 consists of a manual and technical data sheet. Updated documentation is always available for download in PDF format on our website at www.gantner-instruments.com.

3.2 About this Manual

This manual serves to describe the installation, commissioning, and configuration of the Q.monixx A117 via the software package *GI.bench* developed by Gantner Instruments.

This manual is structured as follows:

- Safety Information is available in Chapter 1, page 7.
- A description of Q.monixx A117 Warnings and Labels utilized throughout this manual can be found in Chapter 2, page 11.
- An overview of the features available to the Q.monixx A117 can be found in Chapter 3, page 13.
- Descriptions of pin assignments for inputs and outputs on the Q.monixx A117 can be found in Chapter 4, page 17.
- Information regarding Connect Q.monixx to a PC can be found in Chapter 5, page 31.
- Descriptions of the basic configuration options for the Q.monixx A117 via *GI.bench* can be found in Chapter 6, page 41.
- Settings and configuration examples for recording data using the data loggers available on the Q.monixx A117 can be found in Chapter 7, page 65.
- Appendices containing technical data for the Q.monixx A117 can be found in Chapter 8, page 79.
- Contact information for Gantner Instruments as well as an additional resource for technical information can be found in Chapter 9, page 83.

3.3 System Description

The Q.monixx was developed for industrial and experimental measurement and testing purposes. It is specifically designed for multi-channel measurements of electrical, mechanical and thermal signals on engine and component test benches as well as long-term process monitoring applications.

The Q.monixx contains analog technology for connecting sensors, A/D converters (24-bit ADC), and a test automation controller with which you can define data loggers for capture. This manual serves to describe the connection and the configuration of the Q.monixx for basic measurement applications only. For further assistance with the system setup process, contact your domestic Gantner Instruments Sales and Service partner.

For tailored assistance with the optional Programmable Automation Controller (PAC) functionality for test automation, configurable via Gantner Instruments' software tool *test.con*, contact your domestic Gantner Instruments Sales and Service partner.

➡ Download *test.con* (version 6.2.0 or higher for Q.monixx A117) for free on our website at www.gantner-instruments.com.

About the Q.monixx A117

The Q.monixx is a programmable test controller that can be configured for a wide range of functionality and includes an vivid graphical display customizable via *test.con*. Several variations of the Q.monixx will exist and their functionality will vary from one another based on the suffix appearing in their name (e.g., A117).

The Q.monixx A117 is capable of connecting up to 8 channels of voltage, current, resistance, and temperature (Pt100 or Pt1000) measurements. In addition to the above, a Q.monixx A117 is also capable of connecting multiple USB devices, up to 6 galvanically isolated serial interfaces (e.g., Modbus-RTU master or slave) in addition to 8 digital inputs, 4 digital outputs, and 2 relays.

The entire measurement process of the Q.monixx, including signal conditioning, runs either time controlled by the internal clock or synchronized over GPS. Data storage is possible through the use of the data loggers available via the Q.monixx, configurable via *GI.bench*. It will be necessary to provide the Q.monixx with additional memory (e.g., USB or SD card) for data storage to be possible.

Measuring Rate 100 Hz / 24 bit	8 Channels
Interfaces	Ethernet, 6x RS-485, Modbus via RS-485, SD card, 2x USB 2.0
Galvanic Isolation	All RS-485 interfaces are galvanically isolated from one another (Digital Isolator SI8631BB-B-IS1).

4 Connections and Displays

This chapter serves to describe the connections and pin assignments for the Q.monixx. Also included are details regarding the functionality and operation of the integrated LCD display.

4.1 Mounting the Q.monixx

The Q.monixx Test Controller can be mounted directly onto DIN rail (35 mm according to DIN EN 60715).

4.2 Pin Assignments for the Q.monixx A117

The Q.monixx A117 is capable of connecting up to 8 digital inputs, 4 digital outputs, 2 relays, 2 USB 2.0 devices in addition to an SD card for memory extension. The connections for the digital inputs and outputs are distributed across two 10-pin terminal blocks, see Fig. 4-4 and Fig. 4-5, page 19. The supply voltage is connected via a 6-pin plug, Fig. 4-2, page 18.

Connections (Top view)

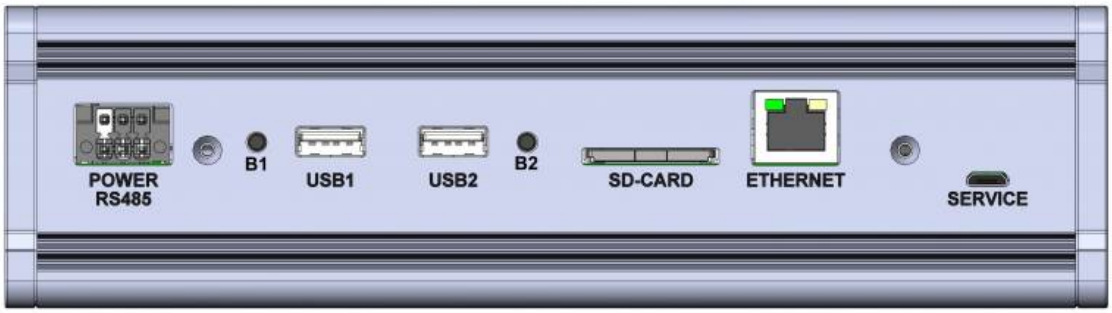


Fig. 4-1 Available ports on the Q.monixx (top); ports B1 and B2 are pushbuttons labeled for easy distinction

IMPORTANT

You can only use one of the USB ports for data storage at a time. Connecting a second storage medium into the alternate USB port will deactivate the first (previous) storage medium if it is still plugged in. In settings, the port for the currently active storage medium will be displayed as USB1. When accessing the Q.monixx via FTP, the active storage medium will be displayed as USB0.

Press the pushbutton labeled B1 before disconnecting a storage medium from ports USB1 or USB2 (see Fig. 4-1, page 17). Alternatively, press the pushbutton labeled B2 before disconnecting a storage medium in the SD card slot.

After pressing either pushbutton (B1 or B2), the LOGGING LED will flash rapidly (see Fig. 4-3). Once the LOGGING LED stops flashing, you may remove the applicable storage medium.

Supply Voltage

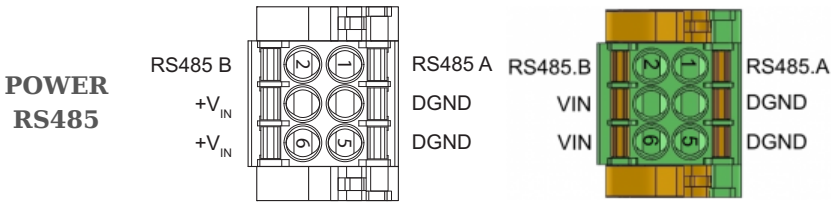


Fig. 4-2 Pin assignments for the power supply plug; The RS-485 interfaces are intended for bus extension for the inclusion of additional modules

There are two interconnected pins available for supply voltage; you can occupy either connection or both. An unregulated DC voltage between 12 and 30 volts is needed.

The power needed for the Q.monixx A117 to operate is between 0.1W (for slow data acquisition without display; low power mode) and approximately 8W (100Hz data acquisition and display).

The required power of the Q.monixx A117 will remain almost constant over the entire voltage range (12-30VDC) and will scale based on the configured functionality of the Q.monixx A117.

Connections (Front view)

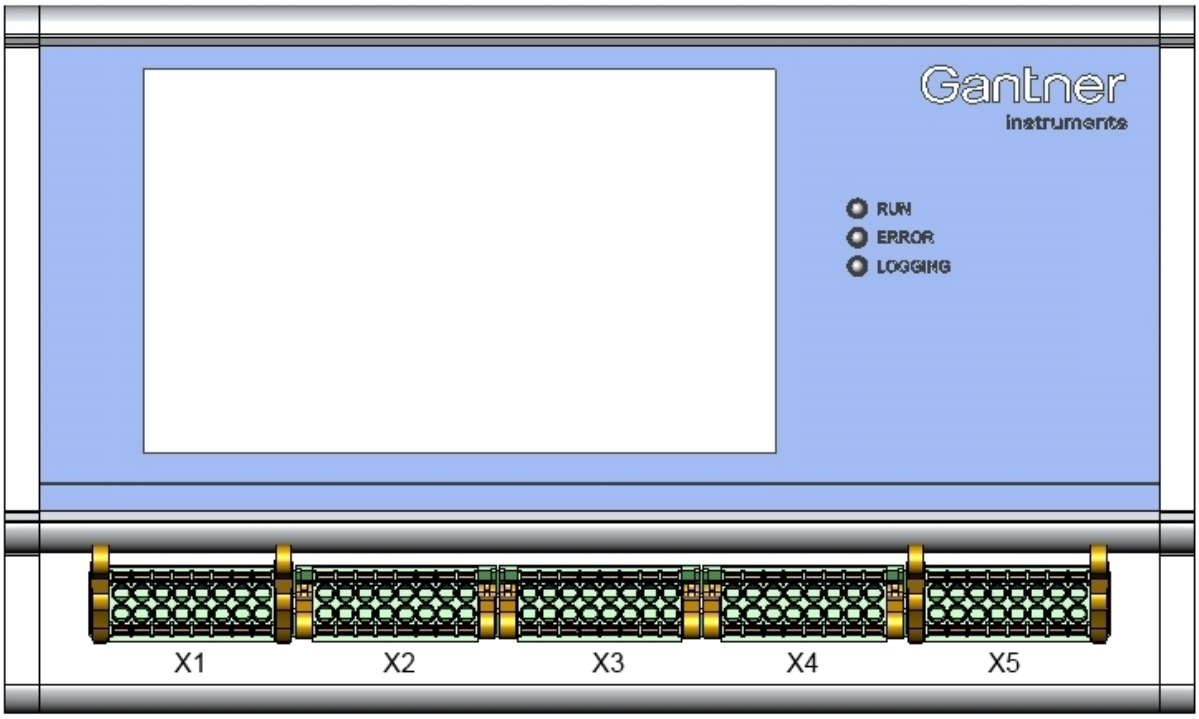


Fig. 4-3 Connections for inputs and outputs on Q.monixx (front)

The analog inputs, analog outputs, and digital outputs on the Q.monixx A117 are not galvanically isolated; neither from one another nor amongst themselves. Only the digital inputs on the Q.monixx A117 are galvanically isolated.

Analog Inputs

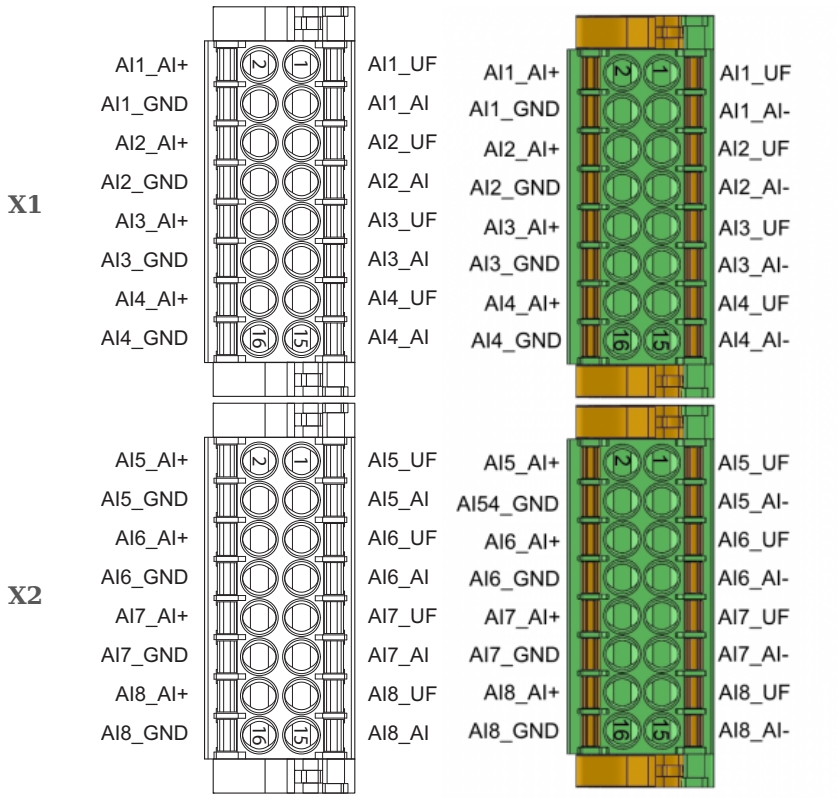


Fig. 4-4 Pin assignments for plug-in terminal blocks X1 and X2, for the position of power strip see Fig. 4-3, page 18

Digital Inputs

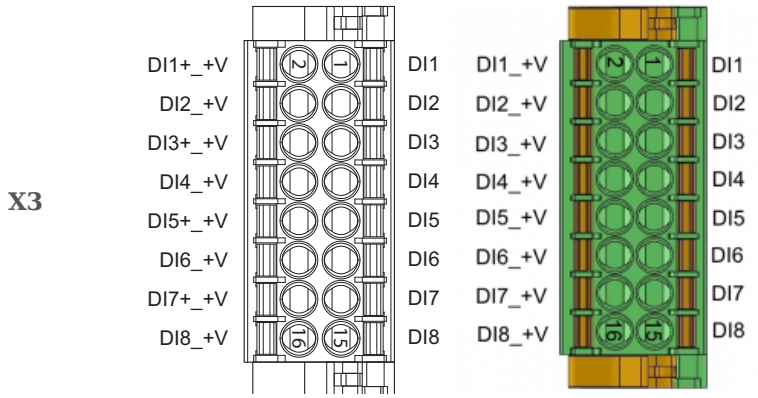


Fig. 4-5 Pin assignments for plug-in terminal block X3, for digital inputs

Digital Outputs, Relays

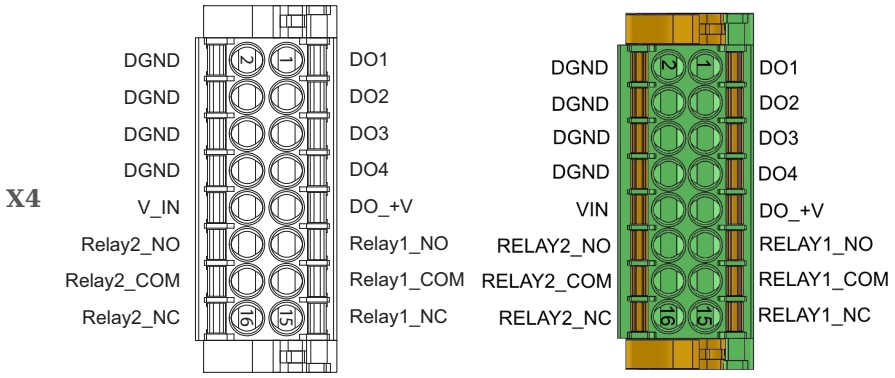


Fig. 4-6 Pin assignments for plug-in terminal block X4, for digital outputs 1 through 4 as well as relays 1 and 2 (digital outputs 5 and 6)

RS-485 Interfaces

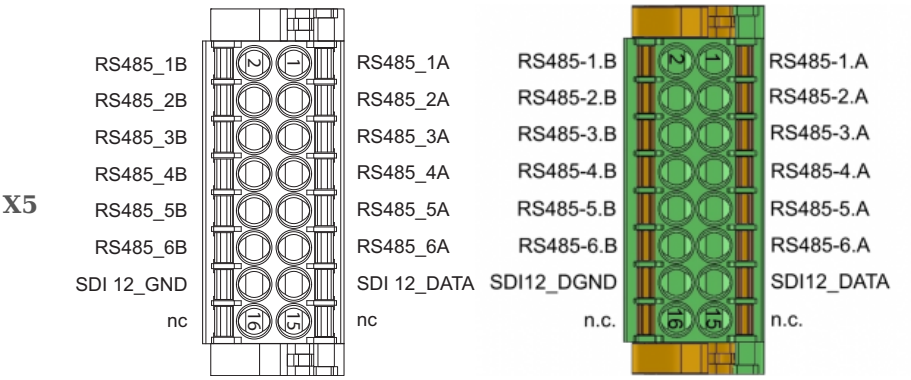


Fig. 4-7 Pin assignments for plug-in terminal block X5, for serial interfaces; serial interfaces are galvanically isolated from one another

Plug-in Terminal Blocks

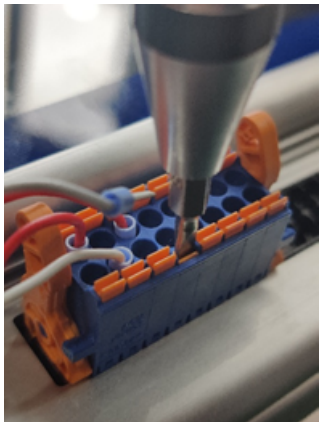


Fig. 4-8 Connect wires to the plug-in terminal block by pushing down on the orange push pins with a screwdriver and inserting the correct wires into the corresponding holes

4.3 Interfaces, SD card

4.3.1 Ethernet port

The Ethernet port utilizes standard contact pin assignments so it is possible to directly insert any standard Ethernet (RJ45) cable.

Cross Ethernet cables are not necessary for a Q.monixx, however if a cross cable is required for an application, the switchover occurs automatically within the Q.monixx.

We recommend Ethernet cables of Category 5 (Cat-5) or better.

4.3.2 USB 2.0 Ports

The pin assignments for the USB 2.0 ports are standard and can accept any USB 2.0 data storage medium. The USB data storage medium must be formatted as EXT2, EXT3 or FAT32; any other formats, such as NTFS, are not compatible.

NOTICE

The USB interface may be subjected to a maximum total current of 500 mA; useful for USB devices with higher power consumption or starting current (e.g., external hard drives). The USB interface is electronically protected against overcurrent and overvoltage.

IMPORTANT

You can only use one of the USB ports for data storage at a time. Connecting a second storage medium into the alternate USB port will deactivate the first (previous) storage medium if it is still plugged in.
In settings, the port for the currently active storage medium will be displayed as USB1.
When accessing the Q.monixx via FTP, the active storage medium will be displayed as USB0.

4.3.3 SD Card Port

You can use all standard, commercially available SD cards as data storage medium. The SD card must be formatted as EXT2, EXT3 or FAT32; any other formats, such as NTFS, are not compatible.

➡ We recommend SDHC Class 10 SD cards from SanDisk or PNY, with a writing speed of more than 30 MB per second (e.g., the PNY 32GB SD card has a data rate of up to 95 MB per second). Note that any speed indicated on an SD card is only the top potential speed for that task. This information would say nothing about the continuous transfer rate, or whether you can store with this speed over longer periods. Often the speeds for reading and writing (usually smaller) are given separately.

4.4 Flash Sequences of the LEDs

4.4.1 Flashing sequences of the Q.monixx

4.4.1.1 No configuration mistakes, Device working as expected

Blue RUN LED is on and solid (not flashing). ERROR LED is off.

4.4.1.2 Storage to external device is running (active)

Orange LOGGING LED flashes while saving to a USB device or SD card.

Press the pushbutton labeled B1 before disconnecting a USB device from ports USB1 or USB2 (see Fig. 4-1, page 17). Alternatively, press the pushbutton labeled B2 before disconnecting an SD card. In either case, the LOGGING LED will flash orange quickly. As soon as the flashing stops, it is safe to remove the data storage medium.

4.4.1.3 Error

Orange ERROR LED flashes when there is a fault.

Read the error info via *GI.bench* for more information.

➡ If the error status does not indicate the nature of the fault or if you do not know how to correct the fault, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for technical support.

4.5 LCD Display

The capacitive touchscreen can be operated directly by tapping the desired option(s) with a finger or capacitive stylus.

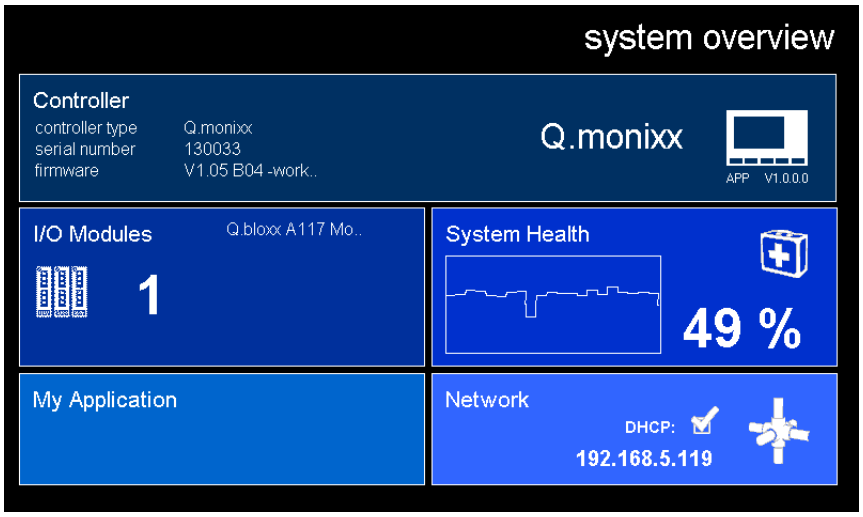


Fig. 4-9 Home screen of the Q.monixx LCD display

Some basic settings for the Q.monixx, such as its IP address, are configurable via the LCD display.

With the factory default settings, there are five tiles visible on the home screen of the Q.monixx LCD display (see Fig. 4-9 above):

- ***Controller*** displays information including controller type, serial number and firmware version. Tap this tile to see some additional information, including all active measurement channels and their current measurement readings.
- ***I/O Modules*** displays the internal module A117, as well as any connected modules via the serial RS-485 bus extension. Tap on this tile to bring up the overview. Here you can select individual modules or channels for graphical display.
- ***System Health*** displays the Q.monixx processor usage over time, both graphically and as a digital value. Tap on this tile for an overview.
- ***My Application*** displays applicable information regarding your custom *test.con* application. Tap on this tile to navigate your custom *test.con* application. Typically there is no custom *test.con* application installed by default.
- ***Network*** displays the current IP address of the Q.monixx and contains the settings for the network interface. Tap on this tile to view or change the IP address, subnet mask, and the gateway address of the Q.monixx directly.

The above tiles are available with the factory default settings of the Q.monixx. With use of *test.con*, it is possible to modify these tiles or create new tiles per your needs.

4.6 Connecting Analog Inputs

The following diagrams for pin assignments use an “x” to denote the identifying number of the relevant input or output signal (e.g., AIx, where x can be any of analog inputs 1 through 8).

4.6.1 Voltage

For voltage measurements, you can connect signals up to ±10V.

IMPORTANT

Attempting to measure voltages which exceed the admissible limitations will produce incorrect measurement data as inputs are protected against overvoltage.

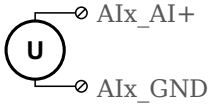


Fig. 4-10 A117, terminal wiring for measurement of voltage

4.6.2 Current

For current measurements, an internal shunt resistance of 50Ω is included in the Q.monixx A117. The internal shunt resistor will facilitate the measurement of currents of up to 25mA. To perform current measurements exceeding 25mA, configure the Q.monixx for voltage measurement and use an external shunt resistance.

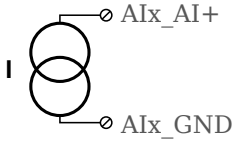


Fig. 4-11 A117, terminal wiring for measurement of current; use external shunt resistance for signals exceeding 25mA

4.6.3 Resistance, Pt100, Pt1000

For resistance type and RTD (Pt100/Pt1000) measurements, you may connect sensors using either 2-wire or 4-wire configuration. Make sure to specify the configuration used while configuring the channel variable within *GI.bench* (see **Analog input type**).

Fig. 4-12 A117, terminal wiring for measurement with resistance and Pt100/1000 probes

4.7 Connecting Digital Inputs and Outputs

4.7.1 Digital Inputs

On terminal block X3 (see Fig. 4-3, page 18 & Fig. 4-5, page 19), there are eight contacts available for digital inputs. Due to channel-to-supply electrical isolation, you must connect digital inputs to a supply voltage (+V). The supply voltage can be sourced from the Q.monixx 6-pin power supply plug (see Fig. 4-2, page 18) or for a floating signal, an external supply voltage can be utilized.

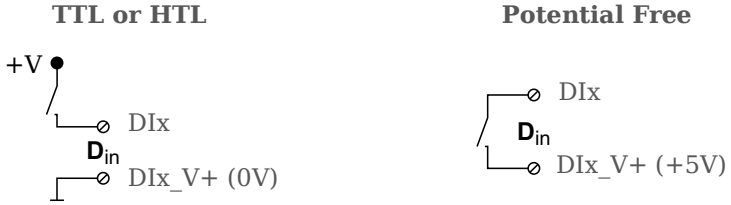


Fig. 4-13 A117, terminal wiring for digital inputs

The digital input is active (ON state) when the applied voltage signal exceeds the programmable threshold (see ***dig.input Level*** configurable in *GI.bench* via *Internal module settings* dialog).

4.7.2 Digital Outputs and Relays

On terminal block X4 (see Fig. 4-3, page 18 & Fig. 4-6, page 20), are four contacts available for digital outputs and two contacts available for relays. Due to channel-to-supply electrical isolation, you must connect digital outputs to a supply voltage (+V). The supply voltage can be sourced from the Q.monixx 6-pin power supply plug (see Fig. 4-2, page 18) or an external supply voltage can be utilized.

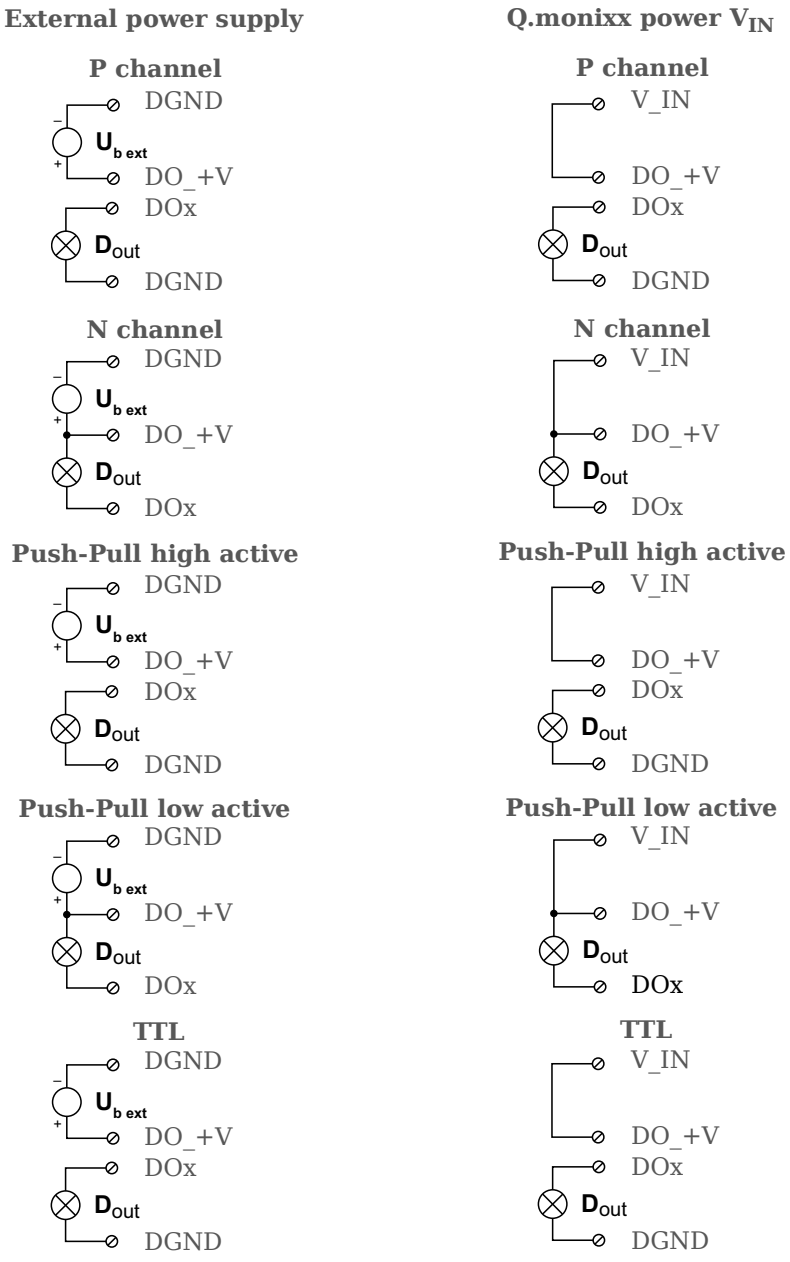


Fig. 4-14 A117, terminal wiring for digital outputs organized by supply voltage source and signal Type

4.8 Adding Additional Modules to Q.monixx

The Q.monixx possesses a single RS485 interface that allows for the connection of Q.series and Q.series X measurement modules. Connect up to a maximum of 4 Q.series or Q.series X I/O modules to the RS485 (Localbus) Interface of the Q.monixx.

Refer to Fig. 4-2, page 18 for the locations of the *RS485 A* and *RS485 B* communication and power supply connections to wire additional modules to the RS485 #1 UART.

For any of the following configurations, you must disconnect the Q.monixx from the power supply and wait until all LEDs are off.

4.8.1 Preparing Q.series & Q.series X Module Sockets

To add additional measurement modules to the Q.monixx, you must first prepare the Q.series or Q.series X module sockets.

You will need to assign an address to each module on the UART. With the Q.monixx A117, the first address (1) is already assigned to the internal A117 module. The added modules must begin with the address 2 and the last module needs to have the terminating resistor DIP switch pins set.

Q.bloxx Classic Modules

In the Q.bloxx socket (Art. Nr. 757486), you will need to adjust the DIP switch terminals pin positions as shown below for address 2. For further module addresses, see Chapter 4.8.2, *Configuring Module Addresses via DIP Switch*, page 27. ***Only the last module*** needs the terminating resistor DIP switch pins 9+10 ON.

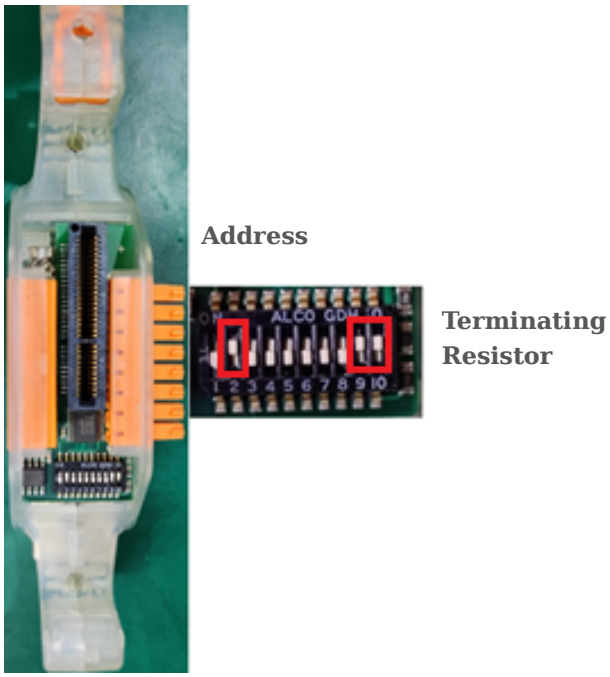


Fig. 4-15 DIP switch settings for adding a Q.bloxx module

Q.series X Modules

With Q.series X measurement modules, you have to change two DIP switch terminals instead of just one. The first DIP switch terminal is on the module socket and the other is on the processor board within the module's casing.

Adjust the DIP switch terminal pin positions in the module socket as shown below for address 2. For further module addresses, see Chapter 4.8.2, *Configuring Module Addresses via DIP Switch*. ***Only the last module*** needs the terminating resistor DIP switch pins 9+10 ON (set via the processor board within the module casing).

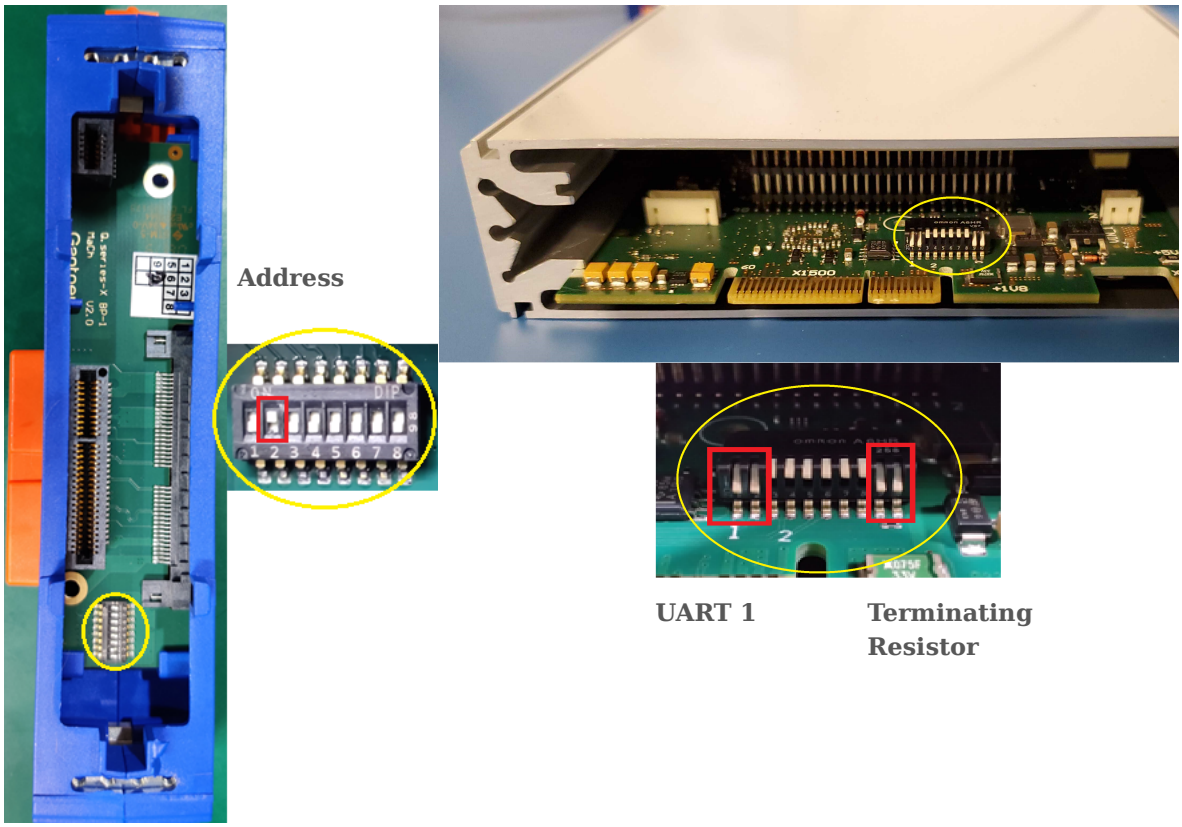


Fig. 4-16 DIP switch settings for adding a Q.bloxx X module

4.8.2 Configuring Module Addresses via DIP Switch

Module addresses can be set in binary form via the first seven DIP switch positions located on each socket. Setting addresses in this manner is optional.

Modules are shipped from Gantner Instruments with a default address of "1" set via the DIP switch on the socket. It is imperative that all modules be assigned an appropriate address via the socket DIP switch terminal (see Fig. 4-17, page 28).

IMPORTANT

If modules share the same address within a UART, measurement will *not* be possible.

Module Address	S1	S2	S3	S4	S5	S6	S7
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	**ON**	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	**ON**	OFF	OFF	OFF	OFF	OFF
3	**ON**	**ON**	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	**ON**	OFF	OFF	OFF	OFF
5	**ON**	OFF	**ON**	OFF	OFF	OFF	OFF
…	…	…	…	…	…	…	…

Fig. 4-17 DIP switch terminal module addressing assignments

4.8.3 Connecting Additional Modules to the Q.monixx

Whether you are adding Q.series classic or Q.series X modules to the Q.monixx, you must wire power supply and UART connections as shown in the following sections.

Wiring Q.bloxx Classic Modules to Q.monixx

Make sure to wire the left most Q.bloxx socket to the Q.monixx terminal block seen in Fig. 4-2, page 18 as shown in Fig. 4-18.

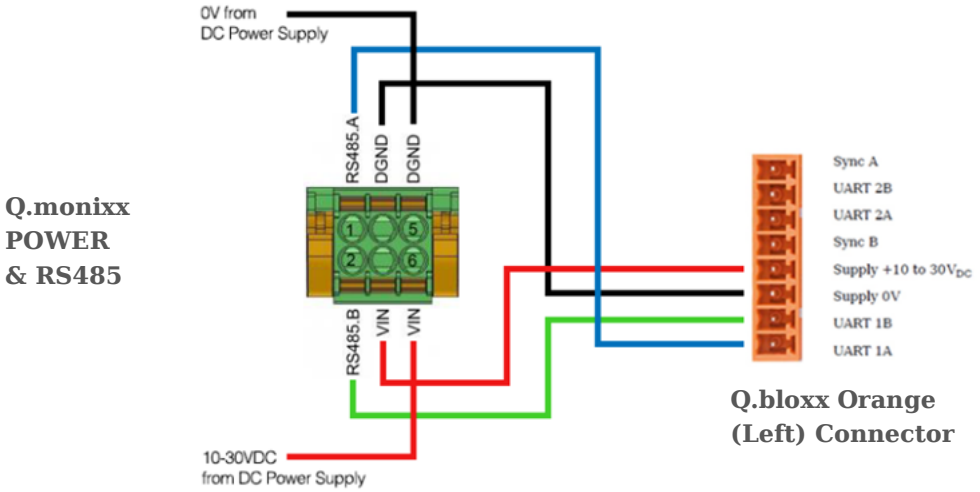


Fig. 4-18 Pin assignments for connecting Q.bloxx modules

Wiring Q.series X Modules to Q.monixx

To connect a Q.series X module to the Q.monixx, you need a Q.bloxx X Extension Socket (QXES) (Art. Nr. 544021 (left)).

Connector X10			
1		RS485 1 P	Communication UART 1
2		RS485 1 N	
3		RS485 2 P	Communication UART 2
4		RS485 2 N	
5		RS485 3 P	Communication UART 3
6		RS485 3 N	
7		RS485 4 P	Communication UART 4
8		RS485 4 N	
Connector X11			
1		RS485 ACYCL P	Communication Service Interface
2		RS485 ACYCL N	
3		DIG slot	Not used
4		VSI	Sensor excitation V+
5		VS_GND	Sensor excitation Ground
6		VIN	Power supply 10 – 30 VDC
7		DGND	Power supply Ground
8		Chassi	Chassi

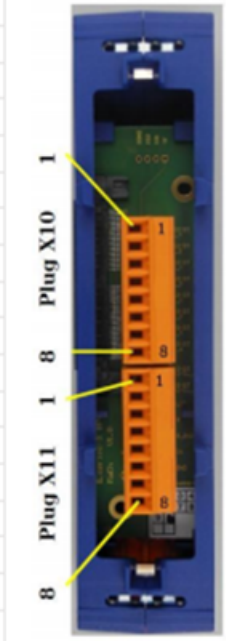


Fig. 4-19 Pin assignments for connecting Q.bloxx X modules

Make sure to wire the Q.monixx terminal block seen in Fig. 4-2, page 18 as described below:

- Connect **VIN** on the Q.monixx to **VIN** on the QXES (*Plug X11-6* as shown in Fig. 4-19, page 29),
- Connect **DGND** on the Q.monixx to **DGND** on the QXES (*Plug X11-7* as shown in Fig. 4-19, page 29),
- Connect **RS485A** on the Q.monixx to **RS485 1 P** on the QXES (*Plug X10-1* as shown in Fig. 4-19, page 29),
- Connect **RS485B** on the Q.monixx to **RS485 1 N** on the QXES (*Plug X10-2* as shown in Fig. 4-19, page 29).

If you require assistance for any reason, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for free technical support.

5 Connect Q.monixx to a PC

The Q.monixx A117 can be assigned a static IP address or it can utilize automatic IP address assignment via DHCP (default).

5.1 Connect to an Ethernet network via DHCP

The factory default setting for the network interface on the Q.monixx A117 test controller is DHCP (Dynamic Host Configuration Protocol). With DHCP enabled, the Q.monixx A117 receives a valid network address from a server within the network. If a PC is connected to an Ethernet switch on the same network, an IP address is assigned automatically to the Q.monixx A117 allowing for direct connection to the Q.monixx A117 via *GI.bench*.

Tip

Industrial Ethernet switches are recommended for use with the Q.monixx A117 as it supports autonegotiation and can operate at 100Mbps if available with full-duplex data transmission.

5.2 Connect to an Ethernet network via Static IP

If you are not connected to a network or if there is no DHCP server on your network, you have the following options for establishing a connection with the Q.monixx:

1. You can assign your PC a static IP address in the range of 192.168.1.x.
   In principle, you can use the static IP address on your PC to establish a direct connection with the Q.monixx. The static IP address on your PC must be within the same address range as the IP address seen on the Q.monixx LCD display. If the Q.monixx does not receive an IP address from a DHCP server within a few seconds, it will then set itself back to the IP address seen on the Q.monixx LCD display.
   The factory default setting for the static IP address on the Q.monixx is 192.168.1.28. To establish a direct connection with the Q.monixx, assign your PC a static IP address within the same address range (e.g., 192.168.1.10).
2. You can assign the Q.monixx a static IP address.
   On the Q.monixx LCD display, tap on the Network tile. On the following screen, enter an IP address within the same address range as your PC. Disable DHCP if it is enabled. A direct connection between your PC and Q.monixx will then be possible.

The LCD display can be referenced to determine if the Q.monixx is currently configured for static IP address or DHCP.

Fig. 5-1 The IP address of the Q.monixx with DHCP enabled, as seen on the Q.monixx A117 D LCD display

Tip

See also Section 5.5, *Ethernet on the PC*, on page 37 to modify the IP address of your PC.

5.3 *GI.bench:* Configuration Software

GI.bench is the latest software package developed by Gantner Instruments. It consists of multiple software components, which handle different “core” tasks, with each providing application programming interfaces for 3rd party programming.

The key concept here is to remove most of the intelligence (business logic) out of the graphical user interface and put it into an independent piece of software, that can easily be integrated in any overlying GUI software using standard interfaces.

Additionally, *GI.bench* provides a graphical user interface called *GI.benchUI* which is typically used for configuration of Gantner Instruments systems and simple data acquisition or visualization.

Advantages of *GI.bench* include:

- The main components containing configuration logic/intelligence are neither bound to platform specific components nor to a graphical interface.
- The APIs decouple system components as much as possible.
- No limiting pre-compiled library but automatically generated source code is available for the interfaces.

You may define Q.monixx configurations from within a project in *GI.bench*. Projects can be created *off-line* or without connecting hardware to the network or PC. Creating an *off-line* configuration project can help simulate the configuration of an entire system without needing the physical hardware. For the first time using *GI.bench*, we recommend the Q.monixx be connected physically.

If connecting Q.series or Q.series X measurement modules to the Q.monixx, ensure all addresses are properly specified, either via the DIP switch terminals on module sockets or via *GI.bench*.

5.3.1 *GI.bench* Projects

A *GI.bench* project is a digital blueprint used to define all aspects of a Q.series, Q.series X, or Q.monixx system (excluding *test.con* programs), including the sensor and I/O settings available within modules as well as system data streams for data visualization, loggers for the storage of data, and virtual variables which can consist of custom computations, system statuses, or outputs.

The following method can be used to create a *GI.bench* project:

Method

1. Opening *GI.bench* by default creates the project: ***unnamed***. Projects cannot be saved with the name "*unnamed*." Unsaved changes made to the default project are automatically stored to that instance of the default project. If *GI.benchUI* is closed before renaming the default project, that instance of the default project will reopen when *GI.benchUI* is rebooted. Any changes made to the default project immediately overwrite the previously unsaved project settings but are only cached within the *last project opened* memory of *GI.service*, i.e., any configuration changes within project "*unnamed*" are only stored until another new project is created in *GI.benchUI* or the next time *GI.service* restarts. If *GI.service* restarts before the "*unnamed*" project is saved with a unique name, then the *unsaved* changes are refreshed to default configurations.
2. In **Configuration** tab of *GI.bench*, click on ***New*** in toolbar: By clicking on ***New***, *GI.bench* will create a new instance of the default "*unnamed*" project mentioned in Method #1 above.

➡ Ensure to promptly save the default "*unnamed*" project with a unique name or overwrite an already existing project save file. Save projects to avoid loss of configuration data. Changes made to a project are only local on the PC until written to the Q.monixx.

When using ***Read*** to add a Q.monixx to a project, a prompt will request that you select data streams for visualization within the project (e.g., Fig. 5-2). Data streams will be selectable in this window if they exist. For instructions on how to connect Gantner measurement modules to a Q.monixx, refer to Chapter 4.8, *Adding Additional Modules to Q.monixx*, page 26.

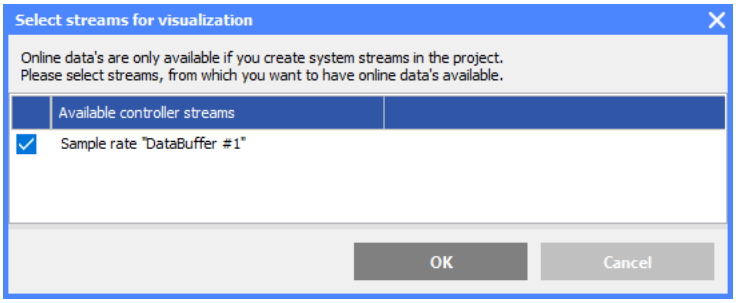


Fig. 5-2 Select data streams for Online visualization

The project tree structure displays the read devices and existing variables within the system. In the project tree are collapsible categories for system configuration such as *Data logging*, *Sample rates*, *System Variables*, *Physical variables*, *Virtual variables*, and *RS-485 interfaces*.

Tip

In *GI.bench*, each item within the project configuration tree can be clicked (i.e., to select), double-clicked (i.e., to open settings also accessible via context menu), and right-clicked (i.e., to access the context menu for additional options). Some settings are only accessible via the context menu. Use the context menu to either ***Append***, ***Insert***, or ***Delete variable***(s) as needed.

You can open the *Controller settings* window by double-clicking on the Q.monixx within the *GI.bench* project tree or by selecting ***Edit controller*** in the context menu of the Q.monixx.

You can open the *Module settings* window by double-clicking on the Q.monixx A117 module in the *GI.bench* project tree or by selecting ***Edit module*** in the context menu of that module.

You can open the *Variable settings* window by double-clicking on a variable within the *GI.bench* project tree or by selecting ***Edit variable*** in the context menu of the desired variable.

IMPORTANT

In *GI.bench*, a is displayed next to any items within the project configuration tree that have received changes. To commit updated settings on the Q.monixx A117, in *GI.bench* select **Write** from the toolbar. Project files are saved to your PC automatically when written to the Q.monixx A117.

5.3.2 Establish a Connection with *GI.bench*

Adding a Q.monixx to a *GI.bench* project establishes a connection between the Q.monixx and your PC. Projects in *GI.bench* contain all the information pertinent to the Q.monixx, e.g., sensor types, I/O settings, and calculations used. Existing project data can be downloaded from a Q.monixx within a *GI.bench* project for reconfiguration and viewing Online measurement values.

Procedure

1. Make sure that the installation of *GI.bench* on your PC is the most up-to-date version (at least *V1.3.2 B02*).
   The most up-to-date version of *GI.bench* can be found in the **Downloads** section on our website. If necessary, install the most up-to-date version (see Section 5.4, page 36).
2. Start *GI.bench* and select ***New*** in the toolbar.

3. Right-click on **Project “unnamed” @myComputer** and select ***Edit project*** to access the *Project settings* window.
4. In the **Description** field, enter a name for the project, then click ***OK***.
5. Click the top menu options **Read**. The controller network scanner window will appear.

➡ If this is your first time using *GI.bench* on your PC, you may need to grant *GI.bench* and all related programs access to the network (e.g., both network and PC firewall access; can require network administrator rights).

6. In this window, select the Q.monixx from the list to add it to the new project. You may use the following features when attempting to select the Q.monixx in the list:
   a) ***Re-scan***; select if the Q.monixx is not available in the list and all potential points of communication failure have been checked. The factory default setting for the Q.monixx is ***DHCP enabled***.
   b) ***Enter manually***, allows you to attempt a direct connection with a Q.monixx by entering the static IP address; the factory default static IP address of the Q.monixx is 192.168.1.28.
7. In either case of the above, *GI.bench* will notify the user if incorrect network setting settings are detected on the connected PC, and will offer the user an opportunity to change the settings of the Q.monixx to match accordingly (including the deactivation of ***DHCP enabled***).

➡ To troubleshoot a connection, make sure that a standard CAT5 or better Ethernet cable is plugged into the network interface of the Q.monixx and the Q.monixx is powered on.

8. Wait for the Q.monixx to appear in the list. If the Q.monixx is not displayed in the window, verify the IP address set on the PC. Also confirm the network DHCP server has assigned a network address to the Q.monixx. It may also be necessary to check whether the appropriate port on the network switch is active. Click ***Re-scan*** to try again.
9. Once the Q.monixx is selectable, you may change its network settings. If necessary, select the Q.monixx and click ***Change settings***, or click ***OK***.

The project window will populate with a tree for the Q.monixx test controller, the Q.monixx A117 I/O module, and all connected Gantner Instruments measurement modules, e.g., Q.series X.

With the Q.monixx read into a *GI.bench* project, it is possible to make configuration changes and view the Online values of the measurement channels.

5.4 Install *GI.bench*

➡ We recommend closing all open programs before installation. Administrator rights will be required for installation.

The latest version of *GI.bench* is available on our website www.gantner-instruments.com in the **Downloads** section. Use the search filter to navigate to the *GI.bench* file quickly.

Procedure

- Determine if your Operating System (OS) is *32-bit* or *64-bit*. Right click **Computer > *Properties*** (see Fig. 5-3).
- Locate the appropriate download link based on your OS, i.e., *64-bit* or *32-bit*, and unzip the contents.
- Follow the instructions in the setup program to select the installation directory for the software.

  GI.bench Setup.exe, if necessary, will re-create the directory you have defined and copy all files there.

The first time you start *GI.bench*, you have to specify a language for the program interface. To change language at any time, select **Settings > *Language***.

GI.bench requires that a license number be entered in order to utilize the full software package. *GI.bench* license numbers are purchased and assigned to you when requested via email upon initial installation.

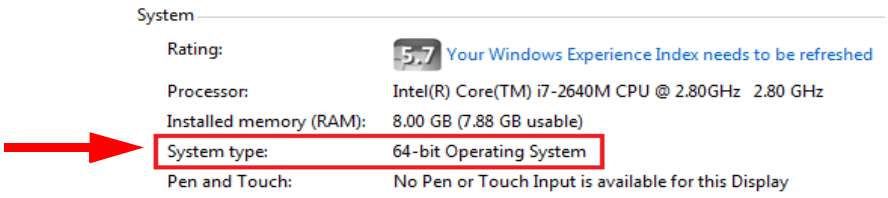


Fig. 5-3 Determine the type of operating system of connected PC

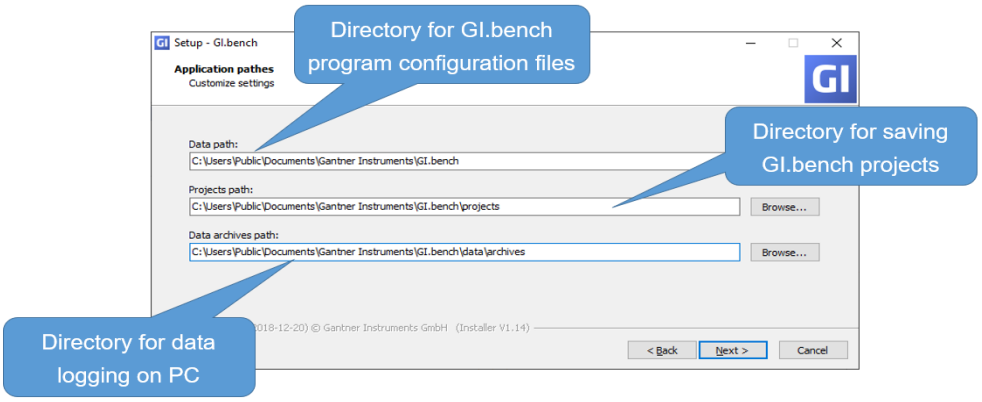


Fig. 5-4 Specifying GI.bench directories during initial program installation; can edit via the GI.service context menu

5.5 Ethernet on the PC

This chapter details the various settings you may need to adjust on your PC to establish a connection with the Q.monixx.

Tip

Screenshots provided within Chapter 5.5 are from both Windows 7/8 and Windows 10. The menu selections that would otherwise be made in other versions of Windows would be similar in name and context. Should you ever get stuck despite following the instructions within this chapter, contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for further assistance.

5.5.1 Determine the IP address and subnet mask of the PC

In Windows 10, open the **Network and Internet Settings**.
In Windows 7 or 8, open the **Network and Sharing Center**, e.g., via  at the bottom right of your screen in the taskbar.
In Windows 10, click ***Open Network and Internet Settings*** and ***Change Connection Properties***.
In Windows 7 or 8, click on the **LAN connection** (name may vary) that is connecting the test controller to the PC (Fig. 5-5, page 38). In the following status window (also in Fig. 5-5, page 38), click on ***Details***.

The current IP address is displayed in the next window under ***IPv4 address***.

The subnet mask determines which addresses are reachable from the PC, i.e., only addresses whose digits are identical at the locations containing 255 in the subnet mask can be reached. The IP addresses of the PC and the Q.monixx should be in the same Ethernet segment (only the last digit grouping of the IP address should differ); otherwise, the subnet mask must be 255.255.0.0 so that the last two groups of digits in each address may be different. In Windows 10 you can see the subnet mask if you access the status of the LAN connection from the **Network and Sharing Center** and click ***Details***.

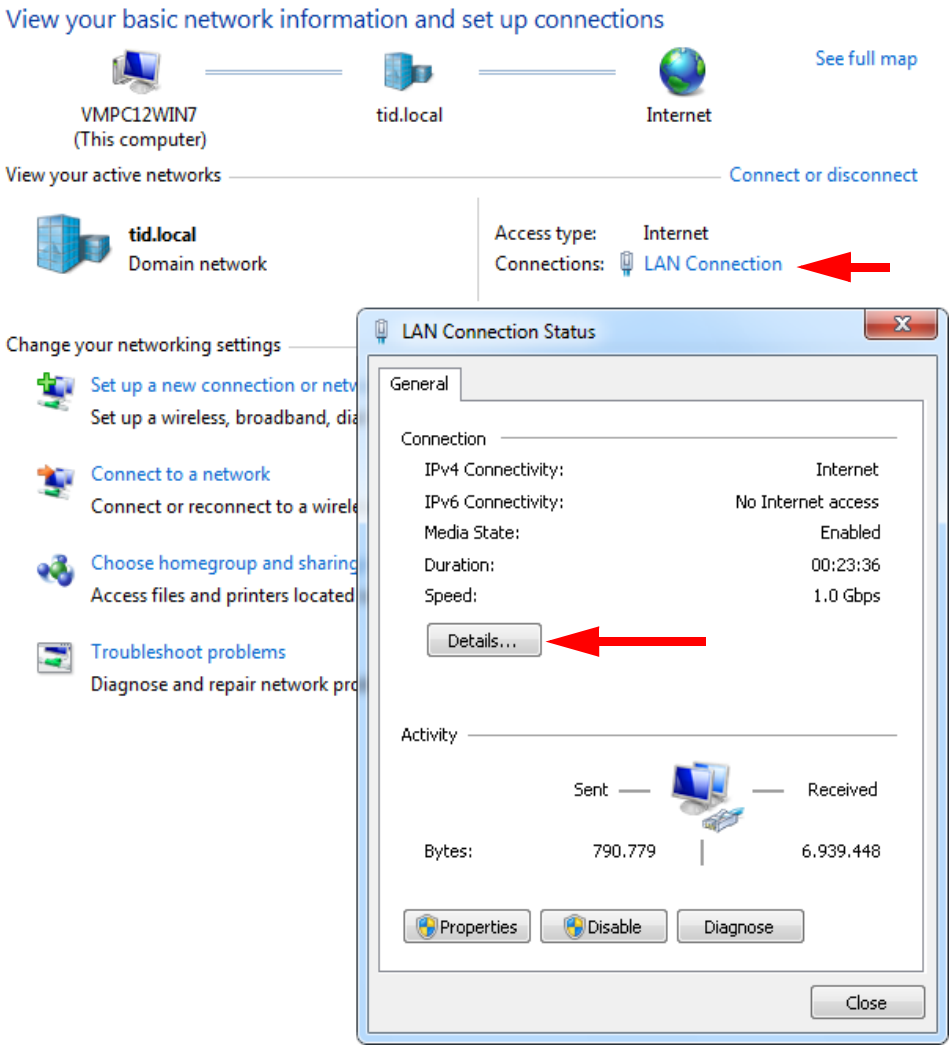


Fig. 5-5 View or change the IP address of the PC in Windows 7/8

Example 1

Subnet mask 255.255.255.0, IP address 192.168.1.26

Only addresses that begin with 192.168.1.x will be reachable (i.e., the first three groups of numbers must be identical, only the fourth denoted by “x” may differ from one another).

Example 2

Subnet mask 255.255.0.0, IP address 192.168.1.26

Only addresses that begin with 192.168.x.x will be reachable (i.e., the third and fourth groups of numbers denoted by “x” in the IP addresses of PC and Q.monixx may differ from one another).

5.5.2 Set the IP address of the PC

If you want to connect directly to the Q.monixx, you must assign the PC a static IP address.

➡ We recommend setting up a static IP address on your PC, as this generally does not negatively impact network connectivity of the PC for typical use cases. If you have an *alternative configuration* for your network, you must note the existing settings to restore them after completing the configuration process on the Q.monixx.

In Windows 10, open the **Network and Internet Settings**.
In Windows 7 or 8, open the **Network and Sharing Center**, e.g., via  at the bottom right of your screen in the taskbar.
In Windows 10, click ***Change adapter settings***. Right-click on the **LAN connection** (the name may be different), which connects the test controller to the PC and select ***Properties*** (requires administrator rights).

In Windows 7 or 8, click on the **LAN connection** (the name may be different) connecting the test controller to the PC (Fig. 5-5, page 38). In the following status window, click on ***Properties*** (requires administrator rights).

Highlight **Internet Protocol Version 4** and click ***Properties*** (see Fig. 5-6).

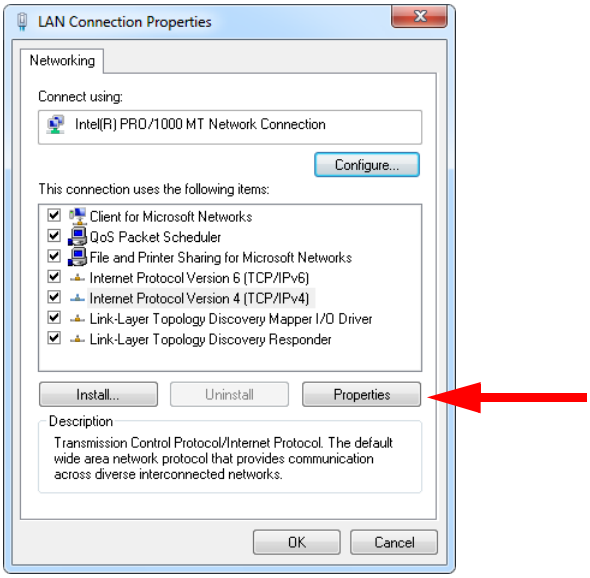


Fig. 5-6 Properties of the LAN connection

Go to the **Alternative Configuration** tab and specify the IP address (e.g., 192.168.100.5) and the subnet mask (e.g., 255.255.255.0) for the PC (see Fig. 5-7, page 40).

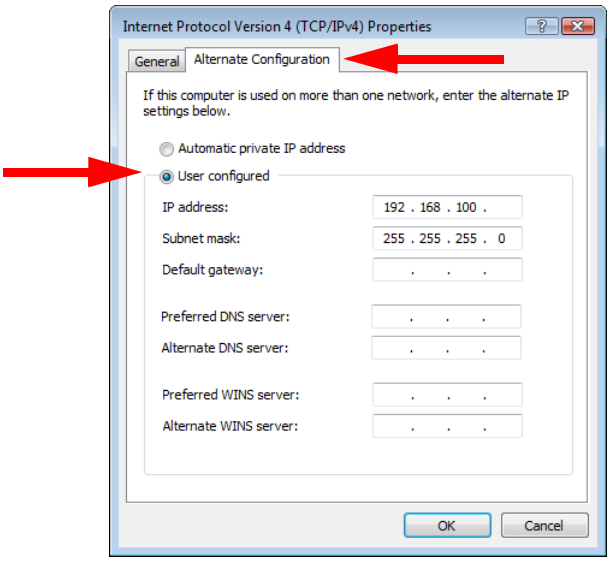


Fig. 5-7 Specifying the IP address and subnet mask for an alternative (temporary) configuration

5.5.3 Allow Access to the Network (Windows Firewall)

Most modern PCs have a firewall installed, which monitors the PC's access to a connected network and vice versa. Usually upon the first connection attempt, you will receive a prompt similar to that shown in. Click ***Unblock*** or ***Allow access*** to allow the connection (Fig. 5-8).

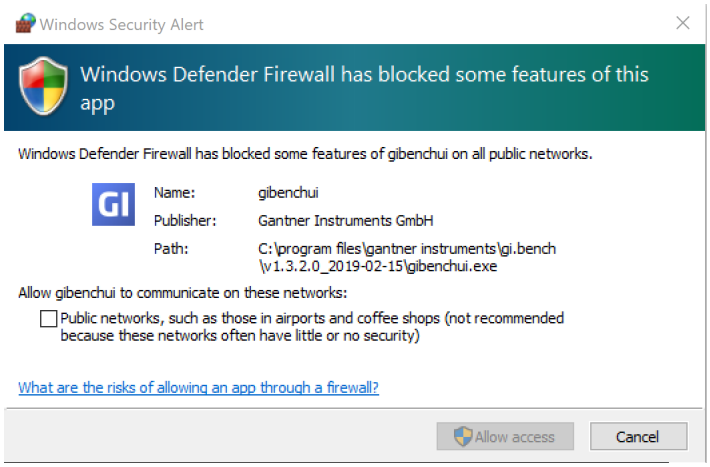


Fig. 5-8 Allowing administrators access for GI.bench components during initial program installation,e.g., gibenchui

IMPORTANT

You must have administrator privileges on the PC to be able to allow network access. Otherwise, ask your administrator to allow access. You must enable all programs related to *GI.bench* used to connect to the Q.monixx A117 over Ethernet.

6 Configure the Q.monixx

To make configuration changes, you must first create a new *GI.bench* project and establish a connection with the Q.monixx; refer to Chapter 5, *Connect Q.monixx to a PC*, page 31.

Possible connection types for configuration of the Q.monixx include network interfaces (e.g., Ethernet), serial interfaces (e.g., USB), or TCP-IP based communication via a web browser.

This chapter details the most important settings for a Q.monixx. The following is a basic description of the general procedure for configuring the Q.monixx:

Procedure Overview

1. Establish a connection between the PC and the Q.monixx, see Chapter 5, *Connect Q.monixx to a PC*, page 31.
2. Begin configuration in *GI.bench* by double-clicking on the Q.monixx within the project configuration tree.
3. Configure the analog inputs for sensors. Ensure the scaling settings are appropriate in order to obtain meaningful data from the measured physical quantities.
4. Configure analog outputs, calculations, digital inputs/outputs, alarm monitoring, and other virtual variables.
5. Designate what data should be recorded and how it is to be recorded; see Chapter 7, *Record with Data Logging*, page 65.
6. Activate new configurations for the Q.monixx by writing the *GI.bench* project configuration changes to the Q.monixx.

Tip

In *GI.bench*, each item within the project configuration tree can be clicked (i.e., to select), double-clicked (i.e., to open settings also accessible via context menu), and right-clicked (i.e., to access the context menu for additional options).

IMPORTANT

Some settings can be only be accessed via the *context menu*. Right-click an item in the project configuration tree to bring up the *context menu*. Use the *context menu* to Append, Insert, or Delete variables and modules as needed.

6.1 Configuration Settings in *GI.bench*

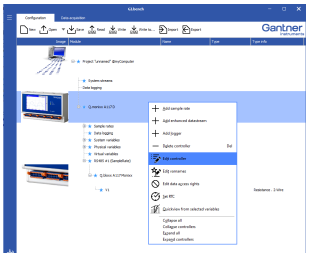
The following sections detail only the most important settings for general use, i.e., for measurement to be possible; please note that additional settings are explained in other chapters throughout this manual, but are clearly referenced within this chapter.

Covered topics in this chapter include settings such as naming the Q.monixx (i.e., Location), activating PAC kernel mode for automation and plug-ins for custom functionality, buffer pre-initialization, and digital switching thresholds. Also included are Controller settings for Watchdogs, Lifesignal, slave interfaces, host interfaces, serial interfaces, USB devices of the Q.monixx.

IMPORTANT

In *GI.bench*, a ★ is displayed next to any items within the project configuration tree that have received changes. Commit changed settings to the Q.monixx by clicking **Write** in the toolbar. Project files are also saved to your PC automatically when written to the Q.monixx.

6.2 Controller Settings



This configuration dialog in *GI.bench* encompasses all the relevant settings for the Q.monixx controller, e.g., General settings such as controller location (i.e., name), Network for defining the IP address of the controller, and Life Signal settings.

Open the controller settings window by double clicking on the Q.monixx within the *GI.bench* project tree or by selecting ***Edit controller*** in the context menu of the Q.monixx.

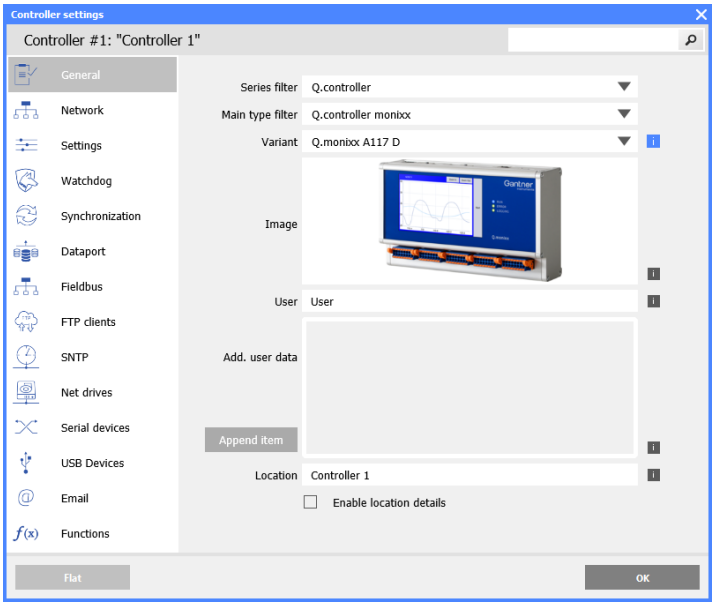


Fig. 6-1 Controller settings window for Q.monixx in GI.bench

You can make all the necessary configuration changes to the Q.monixx from within this window. The settings are available in either a *Structured* view with alternating screens or a *Flat* view with drop down menus. Switch between views by clicking the button on the bottom left corner of the window, e.g., see Fig. 6-1, page 42. In either view, settings are organized into parameter groups. Expand each grouping by clicking on the name of the parameter group as needed.

The following section details the configurable fields within the *Controller settings* window organized by option categories.

6.2.1 General

Series Filter — Select the series of Test Controller, e.g., ***Q.controller***.

Main Type Filter — Select the type of Test Controller, e.g., ***Q.controller monixx***.

Variant — Select the specific device from the filtered list of products based on the above two filter selections made, e.g., ***Q.monixx A117 D***.

User — Enter a name for the user here if necessary. The default is ***User***.

Location — Enter a name for the test controller here, e.g., the location of the device. The default is ***Controller 1***.

Enable location details — By selecting the box “Enable location details”, access to user defined additional description fields is granted (e.g., country, city, and geographic coordinates).

6.2.2 Network

Use this section to assign the fixed **IP address**, **Subnet mask**, and **Gateway address** of the Q.monixx or set ***use DHCP***.

The **IP address** is only effective when *no* DHCP server is used, i.e., when ***use DHCP*** is *not selected*.

6.2.3 Settings

Buffer pre-init. type — In the ***Fast fill*** preset, any reading transmitted with a bit error results in an error: the reading becomes -1 (default ***Fill pattern***) and the error counter is set. As a result, the test stand is usually stopped.
In the ***Deactivated*** preset, the previous measured value is also used for the current value. If the next measured value is correct again, normal measurement continues. The error is counted however no alarm is triggered.
In the ***Slow fill*** preset, for 2 seconds behaves as described in the ***Deactivated*** preset procedure, then behaves as in the preset ***Fast fill***. The ***Slow fill*** preset ignores short disturbances.

Fill Pattern
(*Fast fill* or *Slow fill*)

Value used for a faulty measured value (**Buffer Pre-init. Type**). This field is only available for ***Fast fill*** and ***Slow fill*** presets.

PAC kernel mode

PAC functionality allows you to use the graphical programming software *test.con* to develop arbitrary functions for several measured variables and I/O, including but not limited to calculations, links, time and transfer elements and can be operated either automatically or manually (both independently from a PC).

Activated grants general data access (read & write) for *test.con* applications (for both *Real-time* and *UserSpace* kernels) to variables of the Q.monixx. The default factory setting for the controller's PAC functionality is ***Stopped***.

Plugin Mode

Defining this as ***Activated*** allows for the installation and usage of customer-specific programmed extensions (e.g., to read data from other systems such as ARINC or a Moog Test Controller). If plugins are necessary for your application, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for more details.

6.2.4 Watchdog

If the system stops responding, the watchdog is capable of restarting the Q.monixx.

Watchdog Type

Enable (***Reset on retrigger timeout***) or disable (***Off***) the Watchdog feature. If enabled, additional configuration settings appear.

Watchdog Start delay
(*Reset on retrigger timeout*)

The watchdog needs at least ***30*** seconds after system start (after measuring mode is initiated) to activate. You can extend the start delay period beyond 30 seconds here.

Watchdog Retrigger time
(*Reset on retrigger timeout*)

The time period in which the Q.monixx must report to the watchdog in order not to trigger a restart. The minimum interval is ***10*** seconds. Extend the interval here for applications with slow measurements to save energy.

Lifesignal Type

Here you specify how the life signal should be generated. You can have a ***Static*** signal output which will change state only in case of an error, or you can use a ***Dynamic*** signal which will change state between high and low at a specified frequency.

Lifesignal Toggle Time
(*Lifesignal Type: Dynamic*)

The frequency or half cycle time is entered here in seconds. The default is ***0*** seconds as there is not a required minimum value.

Lifes. Output Variable
(*Use variable as output*)

Selectable if the option for ***Use variable as output*** is enabled. The output variable to be used for the Lifesignal is selected here.

IMPORTANT

For both **Lifesignal Types**, you can select any combination of the additional conditions for how an error may or should be signaled. Note that the conditions change if you switch from ***Static*** to ***Dynamic*** (read text carefully); depending on the signal type that is selected, the available additional conditions are combined with either an *AND* (***Dynamic***) or an *OR* (***Static***).

6.2.5 Synchronization

Type

Default is ***None***; Q.monixx operates with its internal time and can be synchronized via SNTP (see Section 6.2.8, *SNTP*, page 47).

System sample rate

The **System sample rate** is the *base sample rate* of the Q.monixx and defines *Sample rate #1* (Data buffer #1).

System sample rate also provides the synchronization basis for the **CPU calculation rate**. The maximum rate is 100Hz.

CPU calculation rate

The **CPU calculation rate** provides the (internal) clock for the processing of virtual variables and *test.con* applications in the Q.monixx. The **CPU calculation rate** of the Q.monixx is equal to the **System sample rate**. The maximum rate is 100Hz.

IMPORTANT

When changing *Sample rate #1* via **System sample rate** (e.g., see Fig. 6-2), the **CPU calculation rate** changes as well.

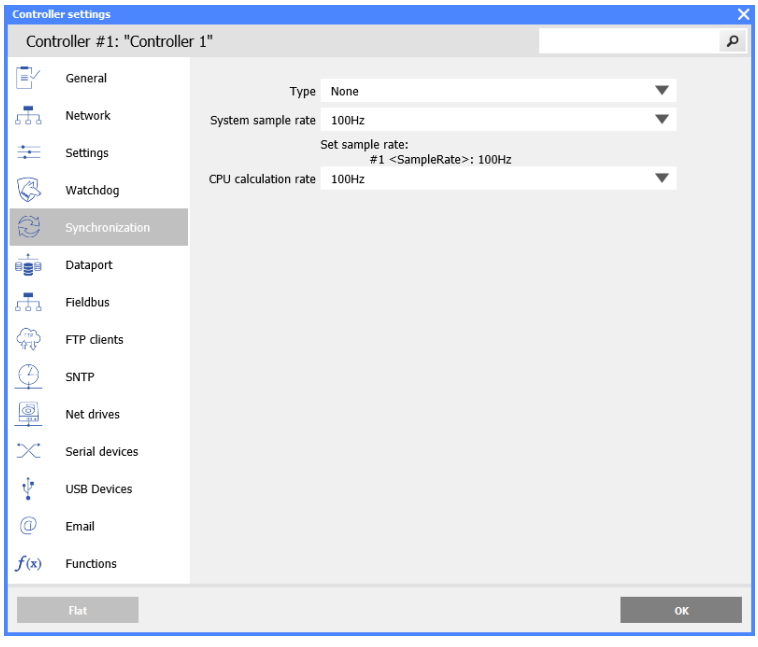


Fig. 6-2 Synchronization (sample rate) settings in GI.bench

6.2.6 Dataport

This section contains the settings for Modbus if this is being used via TCP/IP (Modbus-TCP/IP). Protocol options include ***Modbus***, ***Modbus (word swapped)***, and ***ASCII***.

IMPORTANT
If the Q.monixx is used as a Modbus (either TCP/IP or RTU) slave, the user will need to know the Modbus registers and Variable Types for each desired channel.

6.2.7 FTP Clients

Logged data files can be sent directly to defined FTP servers.

Connection settings

Create new FTP client connections by defining an amount in the **Connection count** field (see Fig. 6-3, page 46).

You can change the settings for all FTP server connections: **Connection timeout**, **Timeout**, **Keep alive interval**, **Connection retries**, and **Handling interval** as needed for your application.

Client settings

Define the FTP server(s) in which the Q.monixx will connect as a client by entering the **Address**, **Port**, **Username**, and **Password**.

IMPORTANT
You have to set up an FTP server appropriately on a PC. There are many programs which facilitate this, e.g. *FileZilla*.

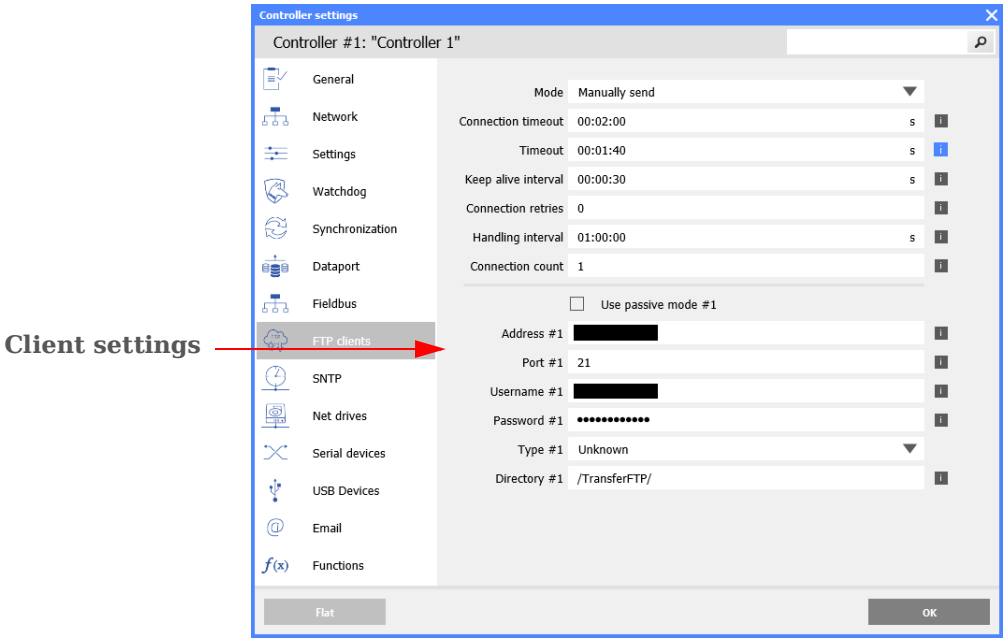


Fig. 6-3 Setting up an FTP server so the Q.monixx can access it as a client for data storage

Use Passive Mode #1

With passive FTP, the client sends a command that causes the server to open and send a port and IP address back to the client. The client then uses a port over 1023 in addition to the port just submitted by the server. This technique is necessary if the server itself can not connect to the client (e.g., if the client is behind a router or if a firewall shields the client from access).

Type #1

Since the FTP server can reside on any operating system, a client would need to know what an answer to a query of the directory would look like. Unfortunately, that process is not standardized. Depending on the operating system of the FTP server, the file information can be transmitted in various formats to the client, e.g., ***Unix***, ***MS-DOS***, ***SFTP***.
Selecting ***Unknown*** only checks whether a file with the same name of the transferred file exists within the destination directory. It cannot check if the file is the right size, i.e., check if all data has been transferred successfully.

Directory

This option allows you to define a subdirectory on the FTP server. If you want to save the data of several loggers in different directories, simply create the same FTP server with different subdirectories, e.g., ***/Data1*** and ***/Data2***.

IMPORTANT
The spelling of the **Directory** entered is *Case-Sensitive*.

Tip
Within the specified directory you can have the logger create further subdirectories by using *placeholders* within the file name. The *placeholders* available for use are described in Section 7.3.1, *Logger Settings*, page 71 in **Name**.

6.2.8 SNTP

Select the desired NTP mode: ***Standard NTP*** or ***Legacy SNTP***.

If ***Standard NTP*** is selected, enter the IP address of the NTP server in **Server address** if you want to set up a synchronization via NTP. If you select ***Legacy SNTP***, included is an entry available for **Timezone offset**, anywhere from ***-57600*** to ***57600*** seconds (*-16* to *16* hours).

6.2.9 Net Drives

Using a network drive as the storage destination for a logger is an alternative to recording to a storage medium on the Q.monixx internal storage (e.g., USB or SD). You can make the necessary configurations via this settings dialog (see Fig. 6-4, page 48).

Description #1 Enter here the name referenced in the logger to indicate this storage destination.

Address #1 Enter the IP address or name of the PC on which the directory resides (requires a DNS server).

Username #1 Enter the user name for the storage destination if the directory is shared.

Password #1 Password for the user name.

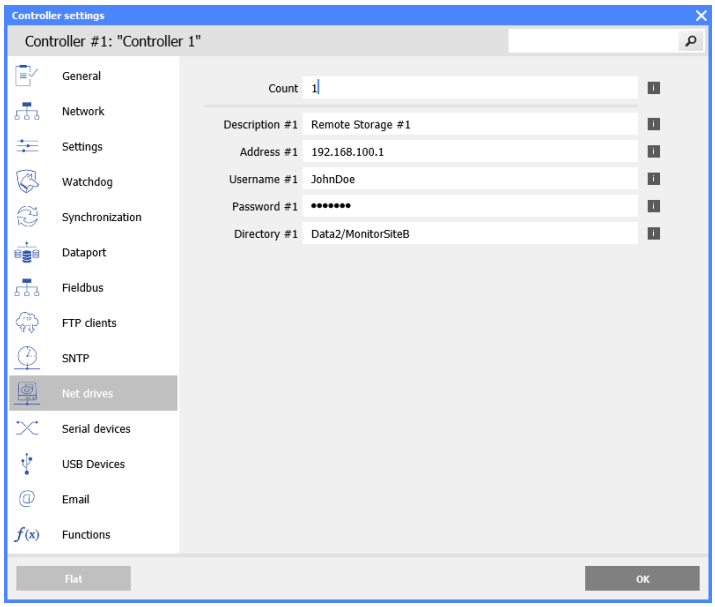


Fig. 6-4 Specifying network drives

Directory #1 Enter the directory path, e.g., ***/Data2/MonitorSiteB***, in Fig. 6-4. The path name corresponds to the directory path from the released folder of the network drive.

For example, with a DataFiles sub folder in the Testing folder on the D:\ drive. The directory path will then be ***/DataFiles***, as this is (at least by default) the name of the shared folder on the PC (**Address #1**) concerned.

6.2.10 Serial devices (RS485, SDI12)

Connect up to 6 serial devices via the plug-in terminal block X5. Select the desired serial device(s) in the available fields.

RS485: Type #1 to #6

- Modbus-RTU master
- Modbus-RTU slave
- Modbus-RTU slave (word swapped)
- NMEA-0183 receiver (GPS)

SDI12: Type #1

- SDI12 master

6.2.10.1 RS485: Type #1 to #6 (Modbus-RTU, NMEA-0183)

Time Zone Offset (***NMEA-0183 receiver***)
Because GPS devices provide UTC time (equivalent to Greenwich Mean Time), you can specify the offset to your time zone here to get the local time.

Address (***Modbus-RTU slaves***)
Address of the device on the bus.

Baudrate (***Modbus-RTU***)
The baud rate of the serial bus.

Format (***All RS845 types***)
Indicate which parity should be used: none (***n***), even (***e***) or odd (***o***). There are always 8 data bits and 1 stop bit used, so there are only the settings ***8n1***, ***8e1*** (default) and ***8o1***.

Watchdog Timeout (***Modbus-RTU slaves, NMEA-0183 receiver***)
If the value is >0, the error status becomes active after this time, if there is no communication from the connected device to the Q.monixx.

Timeout (***Modbus-RTU master***)
With a value >0, the error status becomes active for a connected device after this time if there is no response to a request from the Q.monixx.

Answer Delay (***Modbus-RTU slaves***)
This parameter allows you to specify an additional time to wait before communication monitoring reports an error.

6.2.10.2 SDI12: Type #1 (SDI12 master)

Timeout (***SDI12 master***)
With a value >0, the error status becomes active for a connected device after this time if there is no response to a request from the Q.monixx.

6.2.11 USB devices (GPS, Modbus-RTU, CAN, CAN FD)

In this section, you can define a special USB 2.0 compatible device in the USB port #1 as shown on Fig. 4-1, page 17:

- Modbus-RTU interface via a converter,
- PCAN-USB adapter; see Section 6.2.11.3, *CAN or CAN FD via USB 2.0 Converter (CAN node, CAN FD node)*, page 51,
- see above as well for CAN-FD-Bus,
- Garmin USB GPS device., e.g. Garmin GPS receiver or an NMEA-0183-compatible GPS receiver.

Tip
You can set up a Modbus-RTU connection via the Gantner *ISK 103, USB to RS-485* converter. The drivers for the converter are available in the Q.monixx, but you can also connect many other conventional converters.

Device count

Specify the **Device count** as ***1*** to define a USB device connected to USB port #1 as shown on Fig. 4-1, page 17.

Port #1

Locked by default to ***USB 1***.

Type #1

Select the appropriate USB device type:

- Modbus-RTU master
- Modbus-RTU slave
- Modbus-RTU slave (word swapped)
- NMEA-0183 receiver (GPS)
- CAN node
- CAN FD node
- Garmin USB-GPS receiver

6.2.11.1 Modbus-RTU (master, slave, slave word swapped)

If ***Modbus RTU master, Modbus RTU slave*** or ***Modbus RTU slave (word swapped)*** is selected for **Type #1**, then enter the settings for your bus system.

Address #1 (*Modbus-RTU slaves*)

Address of the device on the bus.

Baudrate #1

The baud rate of the serial bus.

Data baudrate #1

The data baud rate of the serial bus.

Format #1

Indicate which parity should be used: none (***n***), even (***e***) or odd (***o***). There are always 8 data bits and 1 stop bit used, so there are only the settings ***8n1***, ***8e1*** (default) and ***8o1***.

Timeout #1 (*Modbus-RTU master*)

With a value >0, the error status becomes active for a connected device after this time if there is no response to a request from the Q.monixx.

Answer Delay #1 (*Modbus-RTU slaves*)

This parameter allows you to specify an additional time to wait before communication monitoring reports an error.

Watchdog Timeout #1 (*Modbus-RTU slaves*)

If the value is >0, the error status becomes active after this time, if there is no communication from the connected device to the Q.monixx.

Tip

In a configuration where the Q.monixx is ***master***, you can, e.g., receive data from a *Meteo-40 Ammonit* data logger or transmit Modbus-RTU data via two *Phoenix RAD-2400-IFS* radio modules. In a configuration where the Q.monixx is used as a Modbus ***slave***, either TCP/IP or RTU, the user will need all the Modbus registers and Variable Types for each desired channel.

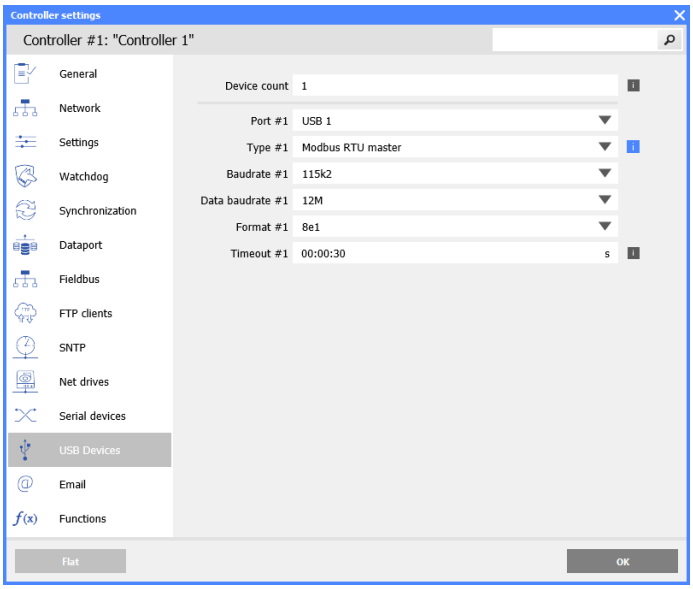


Fig. 6-5 Defining Modbus RTU master as the interface type for the ISK 103, USB to RS-485 serial converter

The other settings can be carried out via the details for the virtual variables which are to receive data from this interface or send data to it; see Section 6.6.3.3, *Configuring Modbus RTU Signals*, page 61.

6.2.11.2 GPS (NMEA-0183 receiver, Garmin USB-GPS receiver)

If ***NMEA-0183 receiver*** or ***Garmin USB-GPS receiver*** is selected for **Type #1**, then enter the settings for your bus system.

Baudrate #1 (*NMEA-0183 receiver*)

The baud rate of the serial bus.

Format #1 (*NMEA-0183 receiver*)

Indicate which parity should be used: none (***n***), even (***e***) or odd (***o***). There are always 8 data bits and 1 stop bit used, so there are only the settings ***8n1***, ***8e1*** (default) and ***8o1***.

Watchdog Timeout #1

If the value is >0, the error status becomes active after this time, if there is no communication from the connected device to the Q.monixx.

Time Zone Offset #1

This setting is available when **Enable time sync. #1** is activated. Because GPS devices provide UTC time (equivalent to Greenwich Mean Time), you can specify the offset to your time zone here to get the local time.

6.2.11.3 CAN or CAN FD via USB 2.0 Converter (CAN node, CAN FD node)

If required, you can use CAN bus interface converter, e.g., the *PCAN-USB adapter* from PEAK-System Technik GmbH (http://www.peak-system.com). If available, a variant for CAN FD is acceptable.

If ***CAN node*** or ***CAN FD node*** is selected for **Type #1**, then enter the following settings for your CAN bus.

Baudrate #1

The baud rate of the CAN or CAN FD bus.

Data baudrate #1 (*CAN FD node*)

If the **Enable data baudrate #1** check box is selected, then this option appears with a selectable range of ***2M*** to ***12M***(Baud).

Watchdog Timeout #1

If the value is >0, the error status becomes active after this time, if there is no communication from the connected device to the Q.monixx.

6.2.12 E-mail

In order for a logger to be capable of sending e-mails, you must specify entries for the **Email addresses**, **Email subjects**, and **Email bodies** fields shown in Fig. 6-6.

You can specify up to 10 separate Email addresses, subjects, and bodies. A recommendation for the **Email signature**, for example, specify the location of the Q.monixx system. With a setup like this, the Q.monixx location is always shown at the end of E-mails sent by loggers, i.e., clearly indicates the source of the E-mails.

For more information regarding configuring Email settings, refer to Section 7.3.5, *Send e-mail*, page 77.

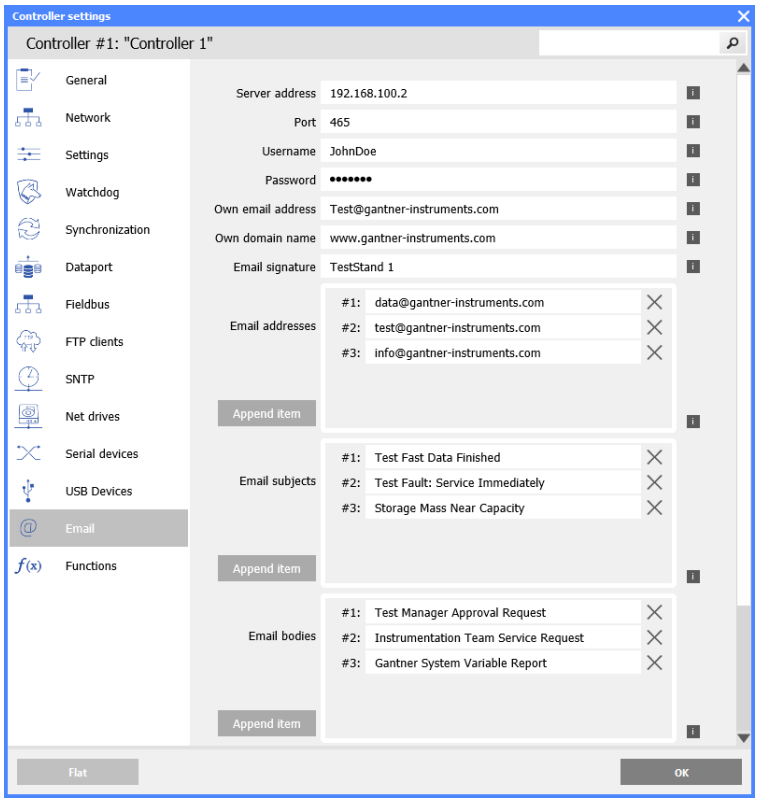


Fig. 6-6 User defined selections for E-mailed logger reports

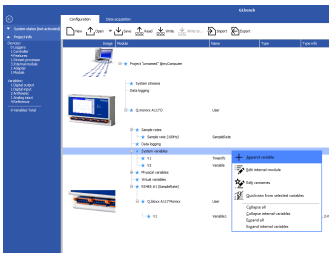
6.3 Sample Rates and Data Logging Settings

The Q.monixx can only have one configured sample rate. Refer to Chapter 6.2.5, *Synchronization*, page 45 for instructions on how to set the sample rate of the Q.monixx.

With the Q.monixx you can configure up to 6 data loggers that can manage the permanent storage of data to multiple storage destinations, at the same time.

On a data logger, you define which data is to be saved, how often and where. Logger settings are described in Chapter 7, *Record with Data Logging*, page 65.

6.4 System (Time) Variables



To add a system (time) variable to a *GI.bench* project, right-click on *System variables* in the project configuration tree to open the context menu and select ***Append variable***. Enter the quantity of system variables you wish to add to the project and select ***OK***.

IMPORTANT

The default system variable ***Timeinfo*** *(V1)*, is a system cycle counter and must not be deleted. You can rename the variable ***Timeinfo*** if necessary. Time format is defined with **µs** resolution.

Double-click on a system variable or right-click on a variable to access the context menu and select **Edit variable**. Navigate to the **Formula** tab and select the desired **System variables** type (***Cycle counter*** or ***Time in EtherCAT DC format***). Define the associated variable in the **Available variables** field (e.g., Fig. 6-7). Click on the **Format** tab to configure data format settings **Data direction**, **Data format**, **Fieldlength**, and **Precision**.

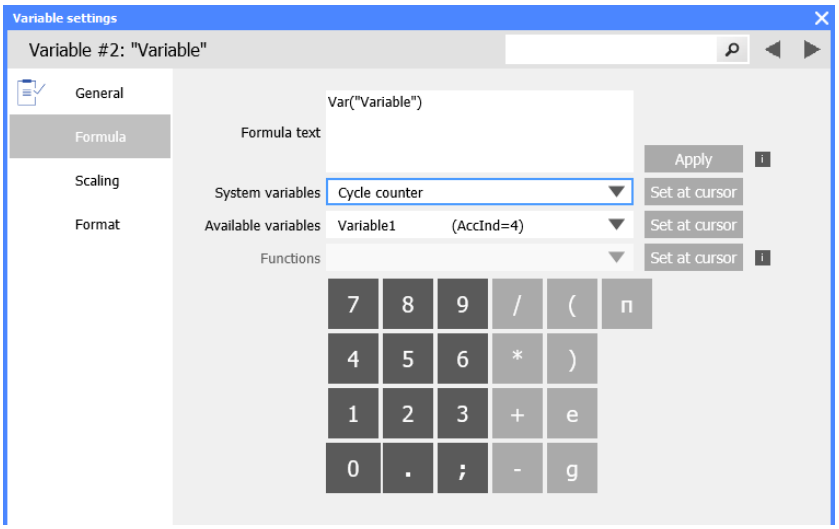
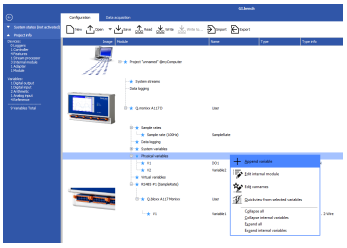


Fig. 6-7 System variable formula settings in GI.bench

6.5 Physical Variables (Digital Inputs/Outputs)



Create variables for the digital inputs under *Physical variables* within the project tree in *GI.bench*.

Right-click on *Physical variables* in the project tree to access the context menu and select ***Append variable*** to create a variable. Double-click on a variable or right-click it to access the context menu, and select ***Edit variable*** to open the variable settings.

The Q.monixx supports up to eight digital inputs. Additional digital inputs must be supplied via attached measurement modules.

6.5.1 Digital Input/Output Configuration (*GI.bench*)

Each digital signal (input/output) on the Q.monixx A117 is configurable in the *GI.bench* configuration tree (via *Physical variables*).

Configure the digital channel(s) by double-clicking a variable to open the *Variable settings* dialog. Give the variable(s) a unique **Name** and define the **Type** as ***Digital input*** or ***Digital output***.

Digital Inputs

For **Digital input type**, you must define ***State*** or ***Input set***. For the ***State*** dig. input type, define the **Terminal** or connector where the digital input state signal is connected (***DIn1 - DIn8***). Only terminal ***DIn1*** is available for the ***Input set*** dig. input type.

Digital Outputs

For **Digital output type**, you must define ***State*** or ***Output set***.

For the ***State*** dig. output type, define the **Terminal** where the digital output state signal is connected (***DOut1 - DOut6***). Only terminal ***DOut1*** is available for the ***Output set*** dig. input type.

For either ***State*** or ***Output set*** dig. output types, define either ***NPN***, ***PNP***, ***Push/Pull***, or ***TTL*** (see Fig. 6-8).

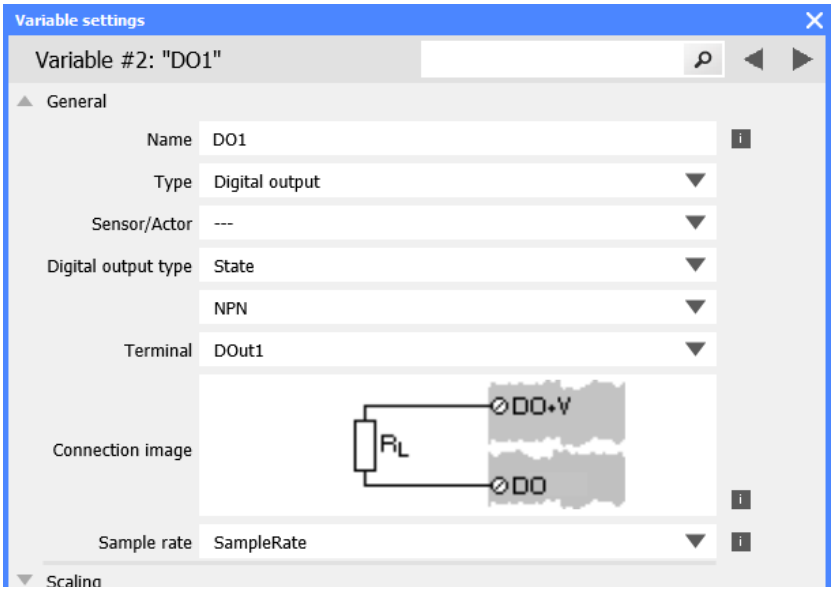


Fig. 6-8 Example of configuring dig. output variable in GI.bench

Internal Module Settings (DI Switching Thresholds)

The Q.monixx digital inputs can use TTL level (5V) or HTL level (24V). The switching thresholds are <1V and >3.5V (PNP) for ***TTL*** levels, <7V and >8V (PNP) for ***HTL*** levels.

Right-click *Physical variables* in the project configuration tree to access the context menu, then select ***Edit internal module***. In the *Internal module settings* window, you may define the **dig. input Level** as ***HTL level (PNP)***, ***TTL level (PNP), TTL level (NPN)***, e.g., see Fig. 6-9 below.

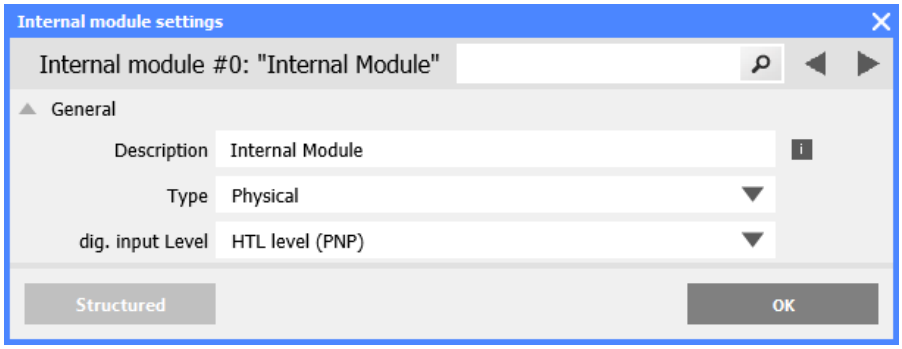


Fig. 6-9 Configuration dialog for a digital input

6.5.2 Digital Outputs

With the digital outputs, you can choose between ***State*** (single input, high or low) and ***Output Set*** (several linked inputs). Enter a unit or scaling information for ***Output Set*** if necessary.

In the ***Output Set*** setting, DO2 is used for 2^2, DO3 for 2^1, and DO4 for 2^0 (see Fig. 4-6, page 20). You do not have to assign all these outputs, only DO1 must be assigned the type ***Output Set***.

IMPORTANT

Access the context menu of the Q.monixx in the project tree, and click ***Edit data access rights*** to grant ***WRITE permissions*** for the output (see Fig. 6-10).

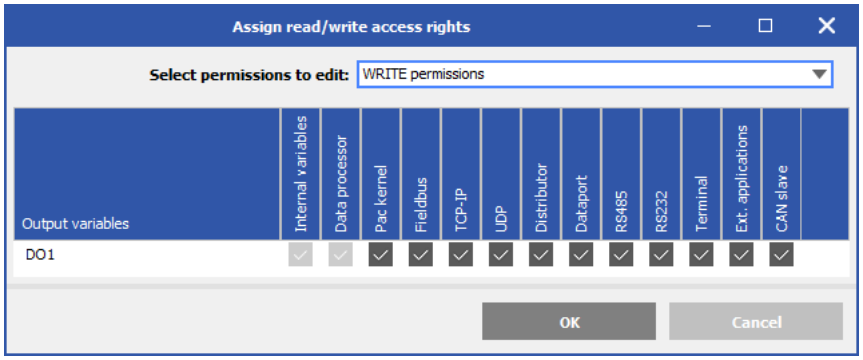


Fig. 6-10 Grant the digital output custom write access permissions

6.5.3 Relays

On front connector X4, you can connect up to two relays.

- Switching Voltage: < 60 VDC
- Switching Current: < 1 A
- Switching Power: < 60 W

Relays are configured as digital outputs within *GI.bench*. Select ***Digital output*** as the physical variable **Type**, and select ***State*** for the **Digital output type**. Make sure to assign the **Terminal** to ***DOut5*** for Relay 1 and ***DOut6*** for Relay 2 (see Fig. 6-11).

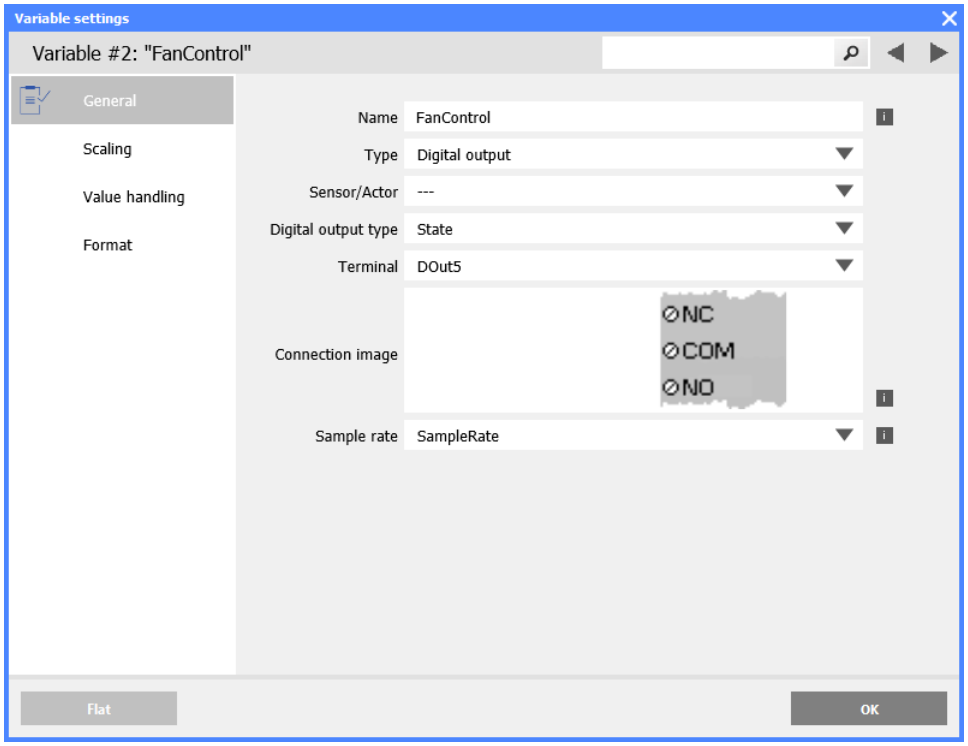
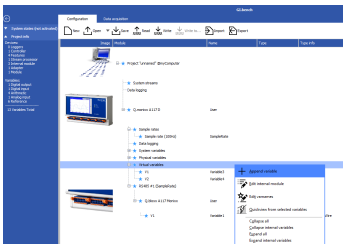


Fig. 6-11 Configuring a physical variable for relay 1 on Q.monixx

6.6 Virtual Variables



With *Virtual variables*, you can perform calculations, evaluate trigger conditions, make assessments, or define Modbus signals for input or output. Virtual variables can be output as measured values or you can link them to other virtual variables, measured values or digital I/Os. Virtual variables are also required if you want to use calculation results of a logger over Modbus-TCP/IP. The maximum processing speed for virtual variables is 100 Hz.

Below are descriptions for the basic settings regarding *Virtual variables*. To add a system time variable to a *GI.bench* project, right-click on *Virtual variables* in the project tree to open the context menu and select ***Append variable***. Enter the quantity of virtual variables you wish to add to the project and select ***OK***.

6.6.1 Virtual Variable Types

Double-click on the desired virtual variable or right-click it to open the context menu and select ***Edit variable***.

You can either specify a formula for computation, define an event to be monitored (i.e., for a trigger), or specify the data format to be used (Fig. 6-12, page 58).

In any case, define the virtual variable's **Name**. The variable **Type** can be defined as either ***Arithmetic***, ***Setpoint***, or ***Remote***.

Arithmetic Used for arithmetic calculations, i.e., enables the **Formula** field.

Setpoint Used as a destination variable for formula calculations (e.g., an FFT processor resultant value) and can also be defined manually.

Remote Used for ***Loggers*** (e.g., Section 6.6.3.1, page 59), and ***Modbus-RTU*** (e.g., Section 6.2.11.1, page 50), and ***SDI12***.

6.6.2 Arithmetic Virtual variables

To define an arithmetic calculation, select ***Arithmetic*** for **Type** then navigate click on the **Formula** tab.

Formula By default, **Formula text** is defined as, e.g., ***Var("Variable3")*** if the virtual variable is named "Variable3". This formula text will result in the virtual variable reporting the value of Variable3, i.e., itself. Therefore, if calculations are desired, **Formula text** must be cleared for the desired formula(s) to be entered instead.

Once the Formula text has been cleared, select a desired formula from the drop down menu in the **Functions** field. With a desired function selected, click on ***Set at cursor*** to input the function into **Formula text**. Next, you must define the input parameter (i.e., variable) within the new function entry in **Formula text**.

Select the desired variable from **Available variables** and select ***Set at cursor*** to enter the variable into the input parameter as mentioned above. To commit a **Formula text**, click ***Apply***.

Depending on the formula text applied, various settings tabs will become available in the *Variable settings* dialog.

Event

If an **Event** settings tab is available, define ***Event on host*** for manual activation and ***Event on variable*** for either manual or automatic activation. Define the variable in the variable field.

Reset

Similarly, if a **Reset** settings tab is available, define ***Reset on host*** for manual activation or ***Reset on variable*** for either manual or automatic activation (e.g., Fig. 6-12, page 58). Define the variable in the variable field.

Tip

When '... ***on host***' is selected, the functionality is manually activated via a button in the **Data acquisition** tab in *GI.bench*.

When done, close *Variable settings* window by clicking on ***OK***.

Fig. 6-12 Defining an arithmetic virtual variable with reset on host

6.6.3 Remote Virtual Variables

6.6.3.1 Creating Logger Status Variables

A virtual variable can be utilized to determine logger status.

Double-click on the desired virtual variable or right-click it to open the context menu and select ***Edit variable***.

Select ***Remote*** for the virtual variable **Type** and configure the **Remote type** as ***StreamProcessor***.

In the **Remote** settings tab, the only **Value type** available is ***State***, but you can define the **Value state type** field (Fig. 6-13). At least one logger must exist under *Data logging* in the project tree for a **Stream processor** variable to be selectable.

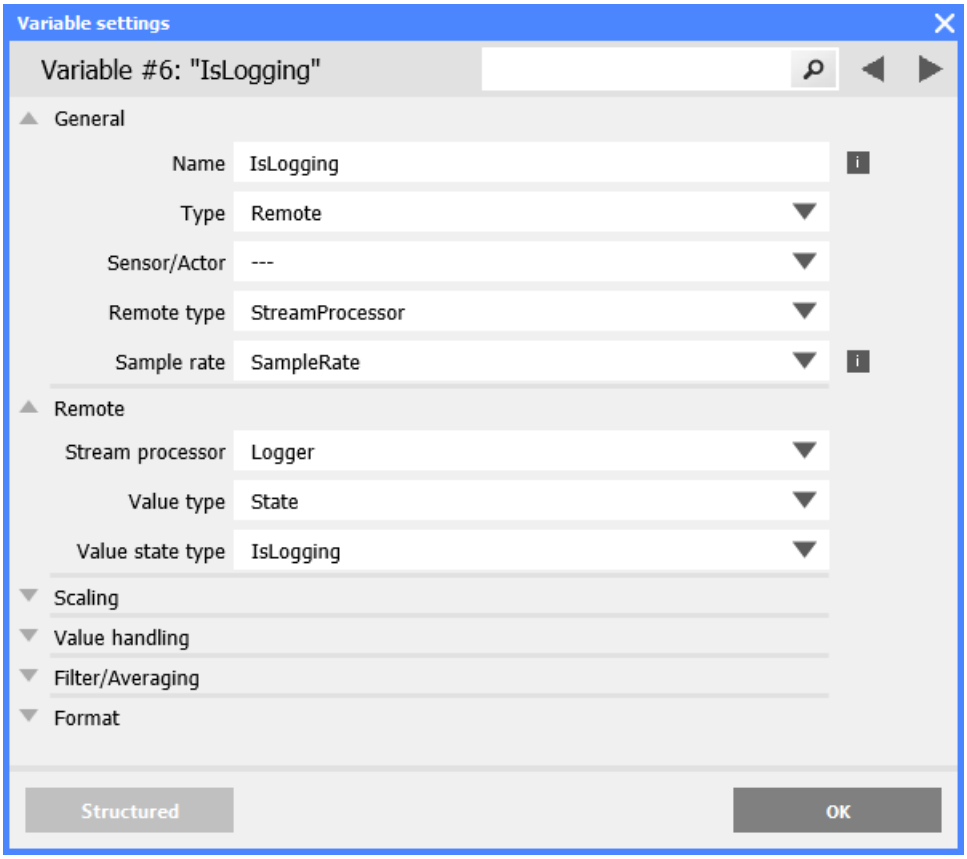


Fig. 6-13 Setting up IsLogging status virtual variable for a logger

There are numerous **Value state type**s available to choose, e.g., you can use the variable to determine whether the logger is active (enabled), whether the start or stop trigger has occurred, how many files have been saved, or how much storage space is still available on a target drive (see the table in Section 6.6.3.2, *StreamProcessor Value State Types*, page 60).

6.6.3.2 StreamProcessor Value State Types

Status	Explanation	Parameter
IsEnabled	Indicates whether a data logger is activated	1 = Data logger saved 0 = Data logger not saved
IsLogging	Indicates whether the data logger is currently saved	1 = Storage process is active 0 = Storage does not take place
IsStartTriggerActive	Indicates whether a start trigger is active	1 = Start trigger is active 0 = Start trigger is not active
IsStopTriggerActive	Indicates whether a stop trigger is currently active	1 = Stop trigger is active 0 = Stop trigger is not active
FilesStoredCount	States how many files the data logger has saved since the function was activated. This is not the number of files which the data logger has created since switch-on or shipment.	–
FileProgress	Filling level of the current file (0 - 100%). 100% signifies that the file is complete (setting of ***File length***).	–
TriggerProgress	***Logging length*** of the current logger file in percent (0 - 100%)	–
MailSent	Number of mails sent since the function was activated	–
FTPSent	Number of files sent by FTP since the function was activated	–
DestinationIndex	Index of the target memory (from the list of target memories) on which storage is currently taking place. The index of individual target memories is shown with the status information of the test controller. In the mode ***Automatic drive selection*** you can find out to which memory writing is currently taking place.	Example: SD0 = Index 0 USB0 = Index 1 USB1 = Index 2
DestinationSize	Total capacity of the memory in bytes. This is a fixed size which only changes when you connect another memory. Refer also to the following parameters.	–

Status	Explanation	Parameter
DestinationRemaining	This indicates how many bytes are still free on the memory medium to which writing is taking place.	–
DestinationLoad	This indicates how much space is already taken up on the current target memory (0 - 100%).	–
DataSourceOverrunCount	Here, the value ***0*** should always be read. Otherwise (***≥1***) the data are lost. The value states the number of overflows of the ring buffer.	–
DataSourceActualSize	This indicates how many bytes were in the ring buffer the last time the data logger wrote to it. The indication should always stay the same. If it becomes larger, then an overflow of the buffer memory is imminent.	–
DataSourceCapacity	Maximum capacity of the ring buffer in bytes. This is a fixed size.	–
DataSourceMaximumSize	This shows the size of the largest packet that has been fetched from the ring buffer by the data logger. The value remains valid as long as no buffer overflow occurs. The value is reset when the data logger is deactivated.	–

6.6.3.3 Configuring Modbus RTU Signals

Double-click on the desired virtual variable within the *GI.bench* project tree or right-click it to open the context menu and select ***Edit variable*** to open the *Variable settings* window.

Select ***Remote*** for the virtual variable **Type** and configure the **Remote type** as ***Modbus***.

Under the **Remote** settings tab, define the settings related to your Modbus-RTU signals.

Port

In Fig. 6-14 the USB-to-RS-485 converter ISK 103 is used to access the Modbus interface: ***USB 1*** (refer to Section 6.2.11, *USB devices (GPS, Modbus-RTU, CAN, CAN FD)*, page 49).

Command

Select either ***ReadHoldingRegister***, ***ReadInputRegister***, or ***WriteMultipleRegisters***.

Address

Address of the receiving or transmitting bus device.

Register

Specify the register address to be used.

Data Format

Specify the format of the value to be transferred via Modbus. The FLOAT formats require four bytes and therefore two registers. Define in which format the value is provided in the Q.monixx and whether the Modbus RTU variable is an ***Input***, ***Output***, or both (**Data direction**). For example, you can convert a FLOAT value on the Modbus into DOUBLE, i.e. a ***Floating point 64-bit*** value (double precision). Note that the formats must have at least two bytes in order to be able to transfer Modbus information.

Action Control Type

Specify how values are to be read and written:
With ***Fast***, values are processed at the ***CPU calculation rate*** (refer to Section 6.2.5, page 45 for more details).

With ***Cyclic***, values are processed only with a change of the value or on request (***via host***). If you select ***Cyclic***, you then have to define the ***Cyclic time*** in ms.

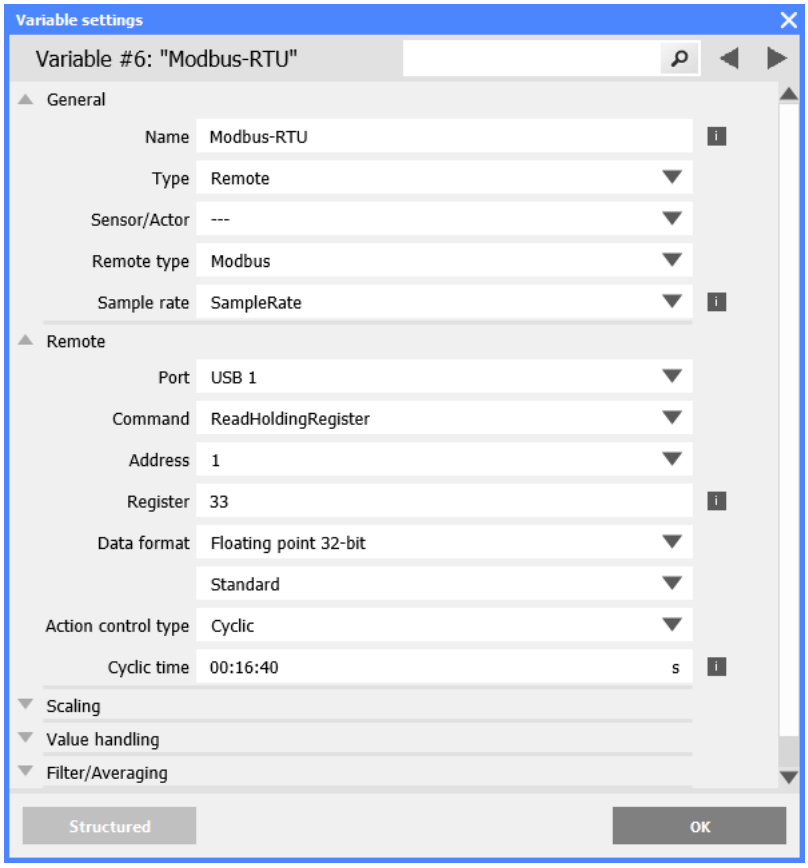


Fig. 6-14 Virtual variable settings for Modbus-RTU signal

6.7 Adapter Settings (RS485 #1)

Methods of data transmission with controllers, e.g., the RS485 interface of the Q.monixx, are called adapters in *GI.bench*. There is only one adapter available to the Q.monixx: an RS485 interface (UART) for connecting additional modules and includes the A117 measurement module.

6.7.1 RS485 #1 (UART) Adapter Settings

Adapters have their own *Adapter settings* window accessible by double-clicking on the adapter in the project configuration tree or by selecting ***Edit adapter*** in the adapter's context menu.

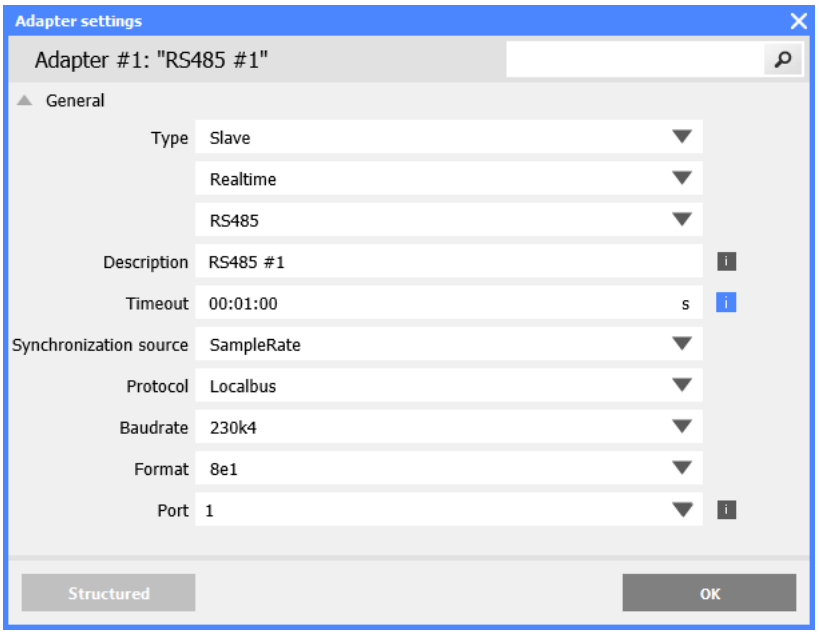


Fig. 6-15 Q.monixx RS485 #1 Adapter settings

Select the required baud rate (transmission speed). The default (fixed) setting for RS485 #1 Baudrate projects is ***230k4*** *(Baud)*.

6.7.2 Configuring Modules Connected to RS485 #1

Please refer to the supporting documentation for configuring Q.series classic or Q.series X measurement modules, e.g., the *Q.series XL manual*. Updated documentation is always available for download from our website at www.gantner-instruments.com.

For information on how to connect Q.series classic or Q.series X measurement modules to the Q.monixx, see Section 4.8, *Adding Additional Modules to Q.monixx*, page 26.

If you require assistance for any reason, please contact Gantner Instruments or your domestic Gantner Instruments Sales and Service partner for free technical support.

6.8 Firmware Updates

You should keep the Q.monixx updated with the latest firmware, especially before connecting Q.series or Q.series X modules with the Q.monixx, i.e., you must update the firmware for all outdated devices.

The standard update process for the Q.monixx is performed with *GI.bench*. Therefore, it is essential to keep *GI.bench* updated to the latest version as well. Failure to do so can, on rare occasion, cause disturbances, e.g., communication failure with devices during operation.

If required, download the latest versions of the Gantner software *GI.bench* from our web site: www.gantner-instruments.com.

6.8.1 Firmware Updates for Q.monixx via GI.bench

The Q.monixx firmware updated can be performed in *GI.bench*, and this method should be considered the default procedure:

Procedure

1. Contact your local Gantner Instruments Sales and Service partner for the most up-to-date controller firmware package. Included in the firmware package will be the latest firmware for the Q.monixx.
2. Install the controller firmware package provided by Gantner Instruments. The firmware package will automatically install itself in the correct directory.
   Don’t change the install path from, e.g., C:\Users\Public\Documents\Gantner Instruments\GI.bench\firmware\.
3. After installing the controller firmware package, run the *GI.bench* program.
4. Scan your network in *GI.bench* (***Read***) for connected devices. If no device is found, you may need to enter the IP address manually or set the IP address of your PC to the segment used by the Q.monixx; see Chapter 5, *Connect Q.monixx to a PC*, page 31.
5. Once the Q.monixx is loaded into a project, right-click it in the project tree and click ***Firmware update*** in the context menu.
6. Select the new firmware version in the window and click ***OK***. If prompted that the measurement mode will be interrupted, click ***Yes*** to continue.
7. Allow the update process to complete without interruption, i.e., do not power down or unplug the system until prompted to do so after the update process has completed.

➡ The firmware version of the Q.monixx will change to the newly installed version after restarting the device in the last step of the firmware update process.

7 Record with Data Logging

For the capture and storage of data, a Q.monixx can be configured to have up to 6 active internal data loggers at a time. Q.monixx data loggers continuously measure configured input signals and can calculate derived values using arithmetic functions, if required.

Each data logger on the Q.monixx can be assigned a logging rate within the range of 100Hz to 2h and each input signal can be assigned to multiple data loggers at their individually specified logging rates. Asynchronous signals from serial (USB) sensors and devices will only be detected by the Q.monixx at the point of receiving said signals.

The setup of a data logger can be quick and simple, but in any case, you must perform the following steps in order to log data:

1. First, you must define the data buffer (sample rate) of the Q.monixx.
2. Next, you must create the necessary system data stream per data buffer to be assigned to the logger(s) for data storage.
3. Lastly, you must define the settings for each data logger.

➡ You can record data at any rate equal to or less than the **System sample rate** (i.e., **CPU calculation rate**) configured in Step 1 above (e.g., see Section 6.2.5, *Synchronization*, page 45).

The aforementioned steps required for data logging are available within the *GI.bench* project configuration tree via the following *context menu* options (i.e., right-click item in *[brackets]*):

- ***Add system datastream*** [*System streams*] to create a stream processor. A datastream can be either be internally sourced (e.g., data buffer #1) or externally sourced (e.g., data from external devices). Define settings and select the variables for each data stream. Data streams are necessary for settings elsewhere in *GI.bench*, e.g., Data logger settings.
- ***Add logger*** [*Data logging*] for the creation and configuration of data loggers; note that loggers require existing data streams:
  - **Available variables** in *Data logger settings* depend on the variables previously assigned to the *System stream(s)* defined in the **Data source** field within the same settings.
  - **Available variables** in *Stream processor settings* depend on the variables previously assigned to the *Sample rate(s)* defined in the **Stream** field within *the Datastream* options of the *Stream processor settings* window.

7.1 Configure Sampling Rate (Data Buffer)

You must define the data buffer, i.e., the sampling rate of the Q.monixx, before logging is possible.

To do this, right-click on the Q.monixx within a *GI.bench* project tree to access the context menu and select ***Edit controller*** in the context menu (see Fig. 7-1 below and Section 6.2.5, page 45).

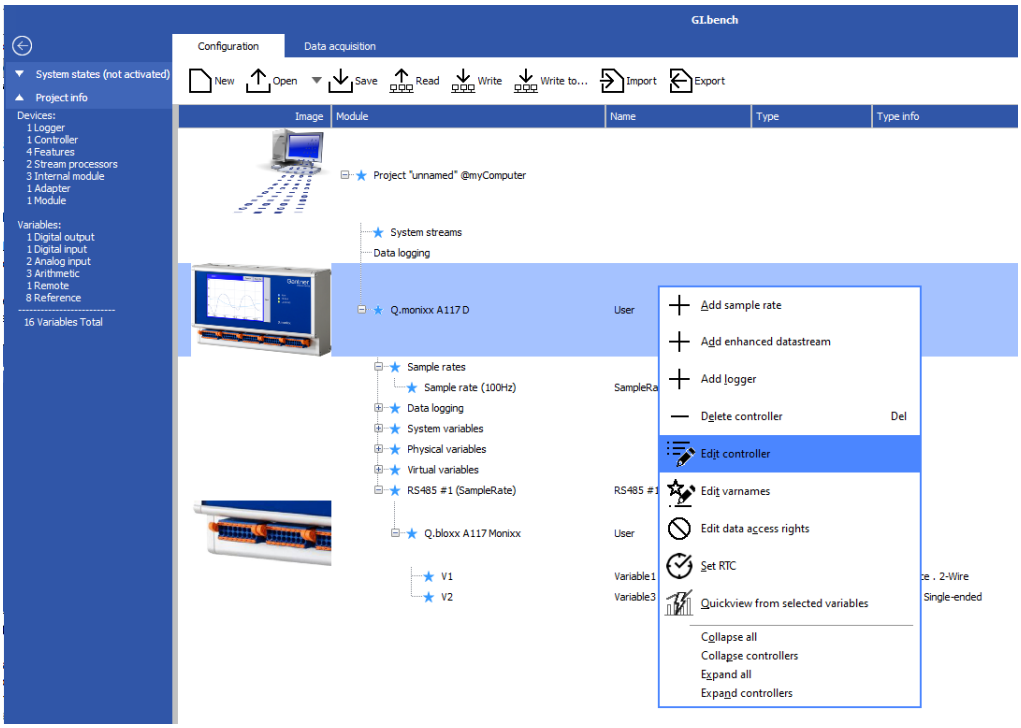


Fig. 7-1 Access controller settings to change the sample rate of the Q.monixx in GI.bench

Change the **System sample rate** in the **Synchronization** settings tab of the *Controller settings* dialog. Double-clicking on the sample rate variable in the project tree, *Sample rate (100Hz)*, to access the *Sample rate settings* window will direct you to change the **System sample rate** via *Controller settings* (see Fig. 7-2).

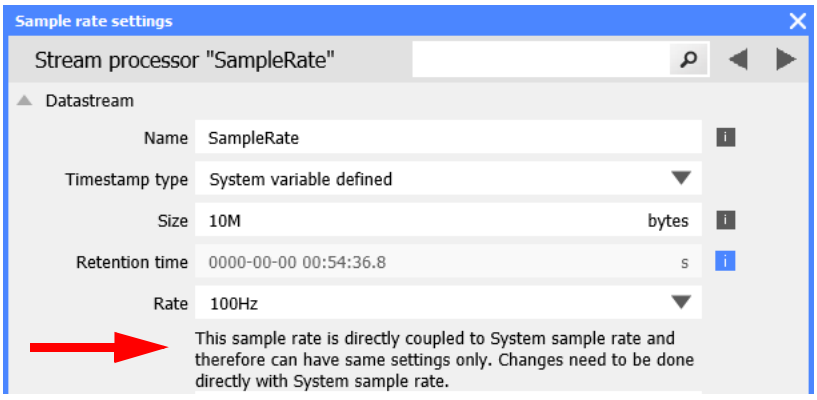


Fig. 7-2 Sample rate settings in GI.bench for Sample rate #1

Within the *Sample rate settings* window, are some fields you can define as well as some fixed aspects of *Sample rate #1*. The fields include the following:

- the **Name** of the data buffer (e.g., *100Hz_Measurement*),
- the **Size** of the data buffer in MB (maximum 30MB),
- the **Rate**, i.e., *Sample rate #1* is fixed to System sample rate
  - Sample rate #1 is set via Q.monixx context menu: **Edit controller > Synchronization > *System sample rate***,
- the **Synchronization source** is Q.monixx internal clock.

Sample Rate #1

Sample rate #1 (Data buffer #1; default name: *SampleRate*) serves as the system sample rate and CPU calculation rate of the Q.monixx. *Sample rate #1* provides the synchronization basis for all connected modules, i.e., modules are either synchronized to the same as or scaled to be lower than *Sample rate #1* such that all measurements are taken at time points when measurements take place for *Sample rate #1* as well.

Sample rate #1 will always be limited to the **Synchronization source: *Internal*** (in Sample rate settings, see Fig. 7-2, page 66) operating mode as it is the base sampling rate of the system.

Therefore, in order to adjust the sampling rate of Data buffer #1, access the *Controller settings* via the Q.monixx context menu: ***Edit controller*** > **Synchronization** tab > **System sample rate** (e.g., refer to Fig. 7-3).

IMPORTANT

Changing *Sample rate #1* via **System sample rate** (e.g., see Fig. 7-3), changes **CPU calculation rate** as well. For example, reducing **System sample rate** from 100Hz to 10Hz will reduce **CPU calculation rate** from 100Hz to 10Hz, as well.

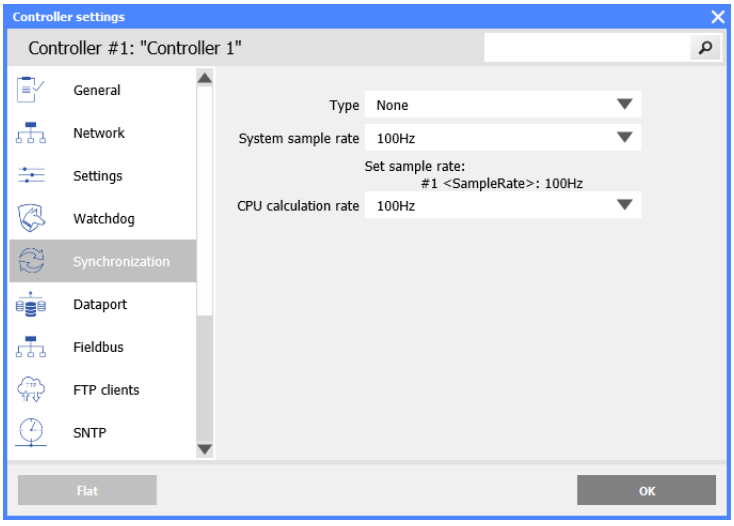


Fig. 7-3 System sample rate in Controller settings in GI.bench

7.1.1 Sample Rate Settings

Name

You can leave the default name or create a useful identifier, e.g., an indicator for the sample rate used, e.g., *100Hz_Measurement*.

Timestamp Type

Sample rate #1 can only be assigned the **Timestamp type > *System variable defined*** (i.e., defined by the *System variable*, ***V1***; default name: ***Timeinfo***).

Size

The data buffer functions as a circular buffer, i.e., oldest values are overwritten after the data buffer is filled once wholly. The data buffer can be read from several places at the same time; up to 10 connections are via Ethernet possible for example.

In total, you have a maximum of 30 MB of buffer size available.

➡ The size must always be specified in bytes, so check the number of zeros in each entry, e.g., max. entry ***30M*** bytes. Entries in seconds or similar units are not acceptable for **Size**.

Rate

Sample rate or the frequency at which measured values are read into the Q.monixx. Note, the settings for a data buffer are independent of a logger's storage rate (**Logging rate**).

All connected modules are sampled at the rate of *Sample rate #1*.

➡ The updating of virtual and system variables is not determined by the sample rate, but rather the cycle frequency of the CPU; refer to **CPU calculation rate** in Section 6.2.5, page 45.

Synchronization Source

Sample rate #1 is always limited to **Synchronization source: *Internal*** operating mode, because its sample rate is the base cycle frequency of the system.

7.2 System Streams

The appropriate *System stream(s)* is required within a project for data visualization and logging to be possible. Data loggers can be created on the controller level and on the PC level for the incorporation of additional sources of data.

When using ***Read*** to add a connected Q.monixx to a project, a prompt will request that you *Select streams for visualization*. All available data streams will be selectable within this window if connected (e.g. *DataBuffer #1* in Fig. 7-4, page 69).

- **Available variables** in *Internal Q.monixx Data loggers* depend on the variables assigned to *Sample rate #1*.
- **Available variables** in *PC Level Data loggers* depend on the variables previously assigned to the *System Streams* defined as the **Data source**.

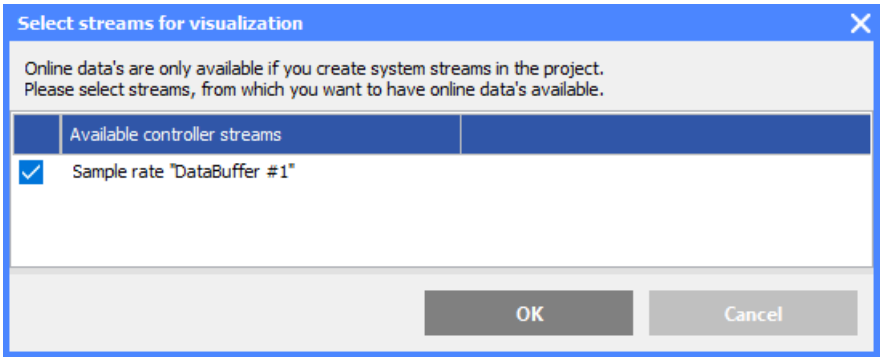


Fig. 7-4 Select data streams for Online visualization

If changes are made to the project after using ***Read***, additional *System streams* may be necessary. To do this, select ***Add system datastream*** from the *System streams* context menu and refer to Section 7.2.1, *Selecting Logger Variables* for more details.

After adding all the necessary data streams to the project, the streams are selectable within **Data source** field within the **Available variables** tab of the *Data logger settings* dialog (i.e. allowing you to select variables within loggers).

Right-click on *Data logging* in the project configuration tree and from the context menu, select ***Add logger***. Double-click on the newly created logger, e.g., *Logger1*, for *Data logger settings*.

7.2.1 Selecting Logger Variables

The variables listed within the **Available variables** tab in *Data logger settings* are the variables assigned to *SystemDataStream* defined in the **Data source** field shown in Fig. 7-5. Select from the **Available variables** list the channels to be logged then click **OK** to commit your changes.

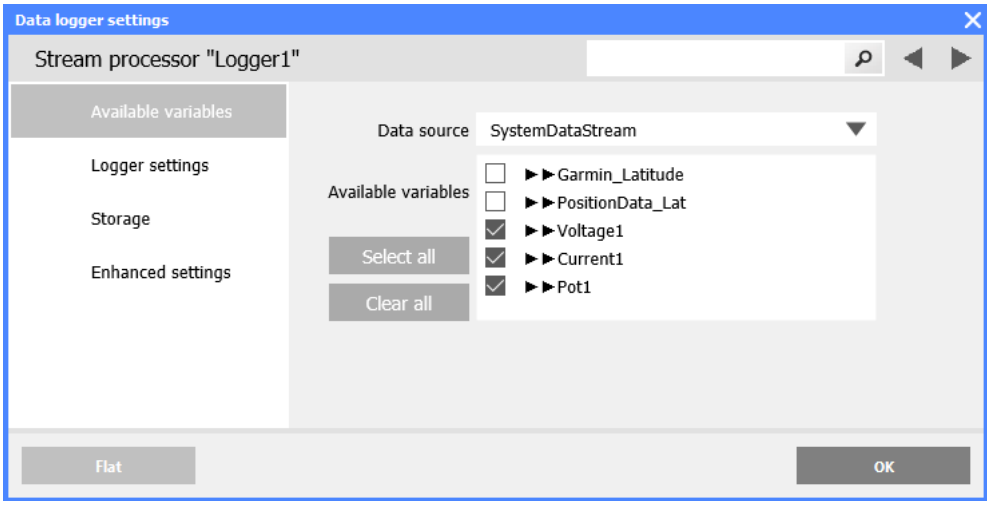


Fig. 7-5 Selection of only 3 variables for a logger

7.3 Data Logger Configuration

Q.monixx data loggers can store recorded data in ASCII format to multiple file destinations. The rate at which data files are stored does not have to equal the configured sample rate. Recorded values can be stored either internally or externally, as you can set the desired file storage destination during configuration. Data transmission to a host controller runs via Ethernet FTP (client and server) whereas the direct data extraction is best via the USB serial port. The automatic transfer of calculated data sets via serial or Ethernet FTP is possible in parallel to active internal data storage (data logging).

Once the desired logger(s) are configured, access logger controls via the **Data acquisition** tab, ***Logger (F6)*** in *GI.bench*.

Create and Delete Loggers

Right-click on *Data logging* in a *GI.bench* project configuration tree to bring up the context menu and select ***Add logger***. You may add up to 6 internal data loggers to the Q.monixx.

To delete a logger, access the context menu of the desired logger and select ***Delete logger***.

Double-click on a data logger to adjust its settings. You can click the ***Flat*** button to swap to ***Structured*** view and vice versa.

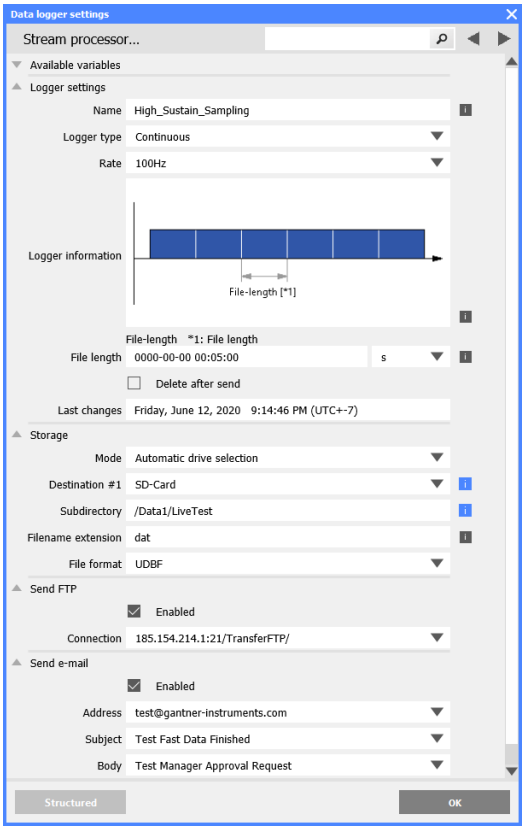


*Fig. 7-6 Example of a **Continuous** logger with redundant storage destinations in parallel with FTP and email data packages sent from the Q.monixx*

7.3.1 Logger Settings

Available Variables

Available variables in *Data logger settings* depends on variables previously assigned to the **Data source** defined within the same settings. Select which **Data stream** should be used for this logger then the variables you wish to log.

Logger Type

Choose between ***Continuous***, ***Triggered*** and ***Event based***. After selecting either ***Triggered*** or ***Event Based***, additional options are displayed so that you can set the **Trigger** conditions.

The specific settings for ***triggered*** or ***event-based*** loggers can be found in Section 7.3.2, *Trigger and Event Settings*, page 74.

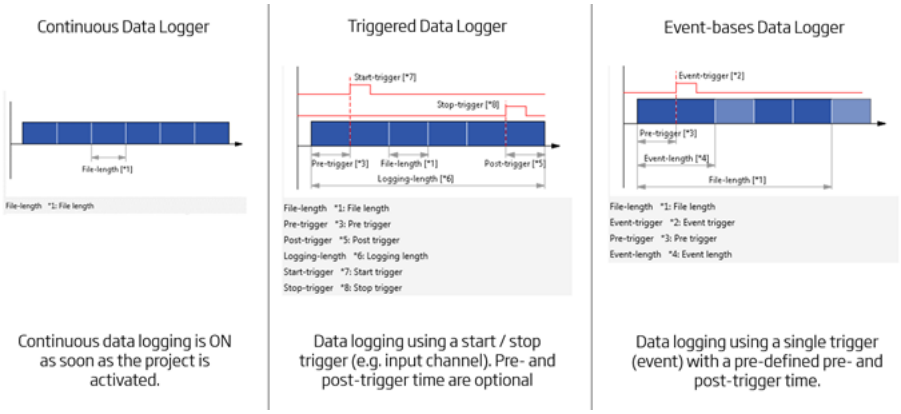


Fig. 7-7 Comparison of available logger types within GI.bench

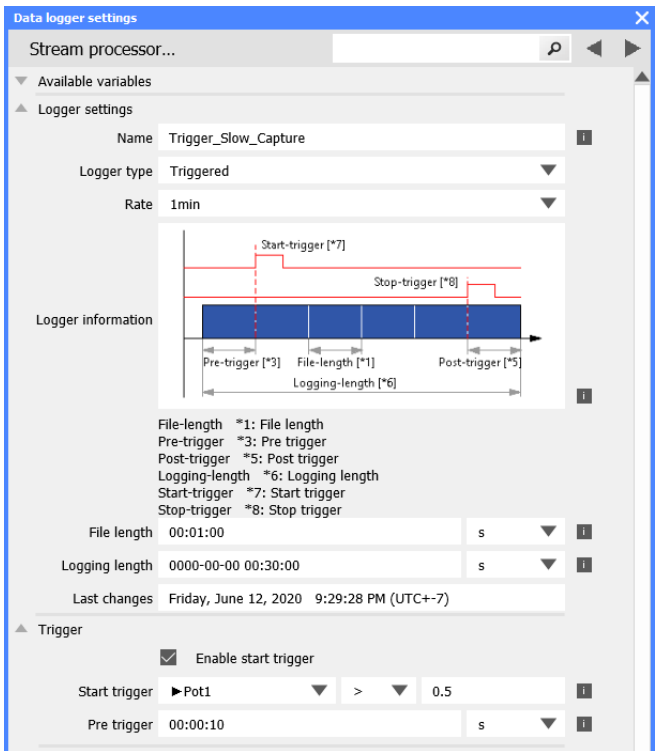


Fig. 7-8 Configuring a logger of type: Triggered

Name

We recommend assigning a name that characterizes the purpose of the logger, e.g., ***Slow_measurement*** or ***Force_trigger***.

By using placeholders in the logger name you can customize a suitable folder structure for your files. Specifying ***%YYYY-%mm-%dd/%HH/SlowMeasurement*** creates the following folder structure if the *first* measurement of the *first* file was acquired at 8am on 25.01.2014:
\2014-01-25\08\SlowMeasurement...

Available Placeholders

Place-holder	Definition	Example
%a	Weekday (abbreviated)	Thu
%A	Weekday	Thursday
%b or %h	Month name (abbreviated)	Aug
%B	Month name	August
%c	Date and Time	Thu Aug 13:55:02 2014
%C	Year (first two digits)	20
%d	Day (two digits)	23
%D	Date (short form)	02/23/14
%e	Day (two digits, leading space)	1
%F	Date (long form)	2014-02-23
%g	Year, week-based (last 2 digits)	14
%G	Year, week-based	2014
%H	Hour, 24-hour format	13
%I	Hour, 12-hour format	01
%j	Day of the year	235
%m	Month (two digits)	02
%M	Minute	55
%p	AM or PM	PM
%r	Time, 12-hour format	01:55:02 pm
%R	Time, 24-hour format	13:55
%S	Seconds	02
%T	Time according to ISO 8601	13:55:02

Place-holder	Definition	Example
%u	Day of the week according to ISO 8601 (Monday = 1)	4
%U	Calendar week (Sunday of the first week = 1)	33
%V	Calendar week according to ISO 8601	34
%w	Day of the week as a number (Sunday = 0)	4
%W	Calendar week (Monday of the first week = 1)	34
%y	The last two digits of the year	14
%Y	Date	2014
%z	Time offset from UTC time to ISO 8601 in minutes	+100
%Z	Time zone (name or abbreviation)	CDT
%%	Percent sign	%

File Length

Depending on the logger type, you can specify the size of a file as the number of data records, in seconds, bytes or as a number of events. A data record corresponds to *one* measurement over *all* channels activated at **Available variables**. When the specified value is reached, a new file is started if the recording has not yet finished.

IMPORTANT
Up to 10,000 files can be saved on a storage medium.

The file name is formed from the logger name and the date and time of the *first* measurement. Using placeholders in the logger name, you can define a suitable folder structure for your files; refer to **Name** on page 72.

Event Length (*Event based loggers*)

This setting is only available with the ***Event based*** logger type.

You define over how many data records, how long or how many bytes per event are to be logged. A data record corresponds to *one* measurement over *all* channels activated at **Available variables**.

Logging Length (*Triggered loggers*)

This setting is only available with the ***Triggered*** logger type.

You specify the total time over which logging is to occur. The setting is independent of the size of the single file, i.e. it can be smaller or larger. If the value for the **Logging length** is greater than the size of the single file, then several files are written.

7.3.2 Trigger and Event Settings

IMPORTANT
You must select the channel used for the trigger condition or the event or the condition variable with the logger sample rate (same data stream). The channel must therefore be listed and activated in the section **Available variables**.

The difference between ***Event based*** and ***Triggered*** is that with *Triggered*, both start and stop occur via a trigger event, whereas with ***Event based*** only the start is initiated by an event (triggered) and a stop trigger does not exist: The quantity of data specified under ***Event length*** is always recorded.

Start-Trigger, Event

Click on ***Enable start trigger*** to activate start trigger settings.

You can specify a variable as the ***Condition*** for the trigger. Click on the entry field to call a dialog for input. The field is displayed with a red font as long as no condition or an invalid one is specified. Specify whether the variable has to exceed (**>**), undercut (**<**), be greater than or equal to (**>=**), be less than or equal to (**<=**), be identical to (**==**) or only not the same as (***!=***) the specified value, so that the trigger or event is initiated.

IMPORTANT
The start trigger must also be recorded.

Stop-Trigger

Click on ***Enable stop trigger*** to activate stop trigger settings.

You can specify a channel or a computation as the ***Condition***. This can also be a channel, for which writing into the variable occurs, e.g. from *test.con*. Click on the entry field to call a dialog for input. The field is displayed with a red font as long as no condition or an invalid one is specified. Specify whether the variable has to exceed (**>**), undercut (**<**), be greater than or equal to (**>=**), be less than or equal to (**<=**), be identical to (**==**) or only not the same as (***!=***) the specified value, so that the trigger is initiated.

IMPORTANT
The stop trigger must also be recorded.

Pre-Trigger

Using a pre-trigger you can define a certain time is also recorded before the occurrence of the above defined start trigger or event. The figure can be given in seconds or as a number of data records.

IMPORTANT
The pre-trigger must fit into the buffer specified for the sample rate; refer to **Size**, page 68.

When you specify a pre-trigger, values are continuously recorded in internal memory. If the condition is fulfilled, the data present here is stored in the logger file.

Post-Trigger

Specify whether recording is to continue after the stop trigger or event. The figure can be given in seconds or as a number of data records.

IMPORTANT
With repeated measurements the pre-trigger condition is only evaluated again after the post-trigger has run.

7.3.3 Storage Settings

The type of storage determines how and in what sequence writing occurs to the target memories specified in the following. Now you have basically four options when selecting a **Mode**:

Store to New Connected Drive

Storage of the data occurs on the first available data medium with the file size specified under **File length**. If no further space is available here, the oldest two files are deleted and overwritten with new data (one file more is always deleted than written new in order to maintain a reserve).
When you connect a second data medium, the storage on the active data medium is terminated immediately and is written to the new data medium. You can remove the old data medium once the LED (LOGGING) no longer flashes rapidly (storage has then terminated), otherwise the copied files may be damaged.

Automatic Drive Selection

Storage of the data occurs on the first available data medium in the list with the file size specified under **File length**. If no further space is available here, the next data medium in the list is used. If all available data media are full, the oldest two files in all data media are sought. They are then deleted and the relevant data medium is used further. The oldest files of this data medium are always deleted and overwritten with new data (one file more is always deleted than written new in order to maintain a reserve). With this option all the specified data media are used like a single large ring buffer. To prevent the loss of data you have to read out the data *via the network* before overwriting.

Moving Files

Storage of the data occurs on the specified data medium with the file size specified under **File length**. If no further space is available here, the oldest two files on this data medium are deleted and overwritten with new data (one file more is always deleted than written new in order to maintain a reserve).
When you connect another data medium, the data are moved onto this data medium, i.e. they are deleted on the original data medium. The transfer is indicated by rapid flashing of the LED (LOGGING). You can remove the data medium once the LED no longer flashes rapidly, otherwise copied files may be damaged.

Copying Files

Storage of the data occurs on the specified data medium with the file size specified under **File length**. If no further space is available here, the oldest two files on this data medium are deleted and overwritten with new data (one file more is always deleted than written new in order to maintain a reserve).
When you connect another data medium, the data are copied onto this data medium, i.e. they are retained on the original data medium and are not deleted as in the case of . With the selection of ***only new data*** only the data which has not yet been copied are copied onto the newly connected data medium.
The copying process is indicated by rapid flashing of the LED (LOGGING). You can remove the data medium once the LED no longer flashes rapidly, otherwise copied files may be damaged.

Protected Move/Copy

The protected mode prevents unauthorized reading of your data. For this you need a special data medium (USB which is coded to the Q.monixx).
If this is required, contact (refer to Chapter 9, *Sales & Service Information*, page 83), who will then produce an appropriate file for your storage medium using the details you provide. After selecting this option, the data are only transferred when a data medium coded in this way is connected. No data is transferred when another data medium is connected.

Destination #1

Storage of the data always takes place on the specified data medium or on the first available medium when there are several media.

Select a fast SD card, USB drive, or network drive to maximize storage rates.

IMPORTANT
If only one medium is specified, this medium must not be removed as long as one of the loggers is active. Otherwise data may be lost. With storage on USB make sure that the correct USB interface (USB 1) specified (refer to Fig. 4-1, page 17).

As in Section 6.2.9, page 47, if you have defined one or several network drives, you can also define them as the target memory.

7.3.4 Send FTP

In order to be able to send data to an FTP server, you must first define the data for the FTP server(s) within *Controller settings*; refer to *Client settings* in Section 6.2.7, *FTP Clients*, page 46. The data are sent when the **File length** is reached.

Select the FTP server **Connection** after activating (***Enabled***) in the **Send FTP** settings tab within *Data logger settings*.

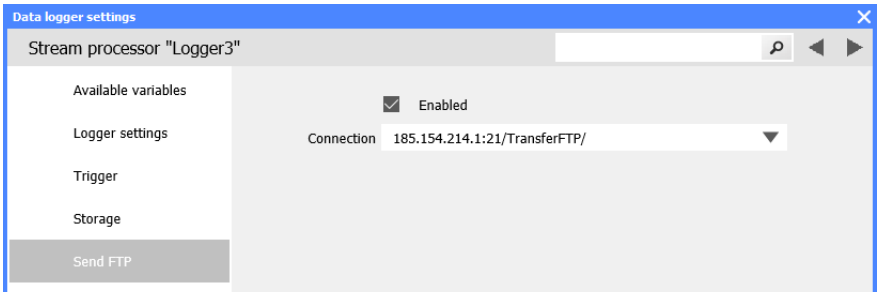


Fig. 7-9 Send data to an FTP server

Tip

Using the variable *SendFTPVirtualBufferFile*, you can trigger the sending of a file to an FTP server. In this case you can leave the entry shown in Fig. 7-9 blank.

7.3.5 Send e-mail

In order to be able to send e-mails you must pre-configure E-mail selections that would be available in fields **Address**, **Subject** and **Body**; see Section 6.2.12, *E-mail*, page 52. The e-mail is sent if the **File length** is reached; the file is sent as an attachment.

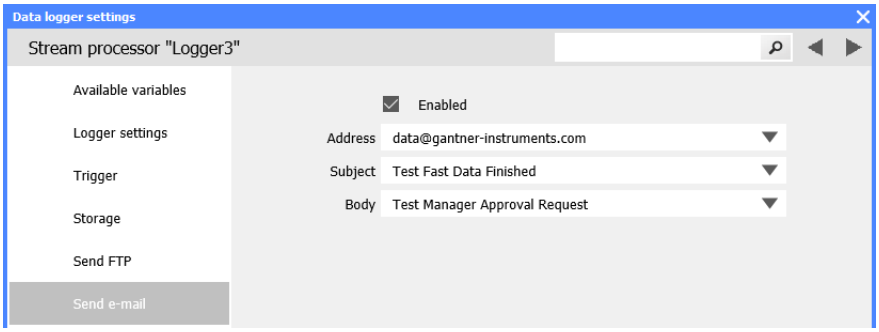


Fig. 7-10 Configuring logger to send an e-mail

Activate email functionality via ***Enabled*** and select one of the pre-configured settings for the **Address**, **Subject** and **Body** (e.g., Fig. 7-10).

7.3.6 Enhanced Settings

With the enhanced settings you have access to additional configurations for any data logger. The default settings are suitable for most applications, so only change Enhanced settings if necessary.

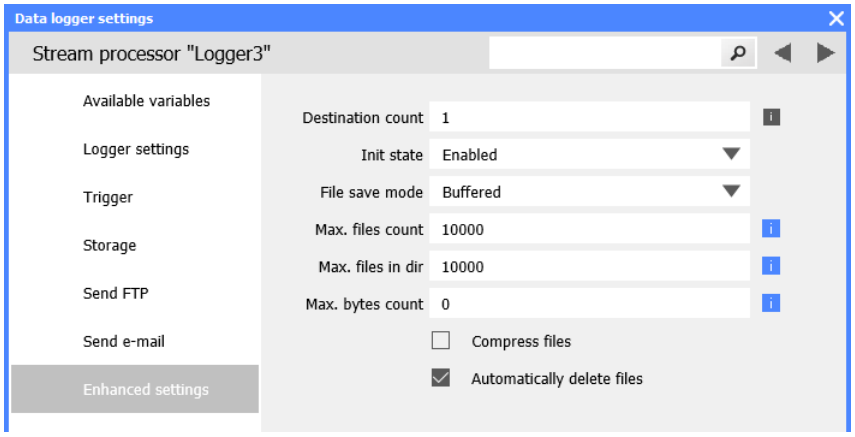


Fig. 7-11 Enhanced settings (loggers) in GI.bench

File save mode

The ***Buffered*** setting offers the fastest speed, but the operating system decides when writing is to occur. In the settings with ***O-direct***, writing takes place directly without a buffer where possible, ***Sync*** synchronizes the complete file system directly after every time writing to a file occurs (directory structure) and ***F-sync*** only synchronizes the written file (updating where the file is located on the storage medium).

Init state

This basically corresponds to the setting of the logger status. In the ***Single shot enabled*** mode the logger is only activated once at the trigger event. Depending on the setting for the Size, several files are also recorded as long as the trigger event is present. After recording, the logger is deactivated in this mode and another trigger event is not awaited.

➡ You can also activate or deactivate the logger (again) in ***Single shot*** mode via arithmetic function ***InternetLoggerControl***.

Max. files count

This defines how many files can be created as a maximum by this logger (0 (disabled) to 2,147,483,646). The default is 10,000.

Max. files in dir

This restricts the number of files which can be created in a directory. The default and max setting is 10,000 and 0 is disabled.

Max. bytes count

With this setting you can restrict the space in bytes available to this logger. Specifying 0 (default setting) corresponds to no restriction.

Automatically Delete Files

This deletes the oldest files once the space available on the storage medium has been occupied.

8 Appendix

8.1 Technical Data

This chapter contains the technical details of the Q.monixx A117.

8.1.1 Analog Inputs

Channels	8
Input signal	Voltage, resistance (2-/4-wire), Potentiometer, RTD
Input kind	single ended
ADC resolution	24-bit Sigma delta
Update rate	0.01s to 24h
Linearity deviation	< 0.01% full-scale
Temperature influence offset drift	< 1µV / 10K
Temperature influence on span	< 0.02%/ 10K (< 20 ppm / K)

8.1.2 Digital Inputs

Channels	8
Input function	status
Input voltage	< 30 VDC (TTL, HTL)
TTL logic voltage	< 0.8 VDC (low) > 3 VDC (high)
HTL logic voltage	-3 to 5 VDC (low) 11 to 30 VDC (high)
Input current	< 0.3 mA
Input frequency	0 to 2 kHz

8.1.3 Measurement Mode Voltage

	Range	**Max. Error**
Error	±10 V	±2 mV
	±1 V	±200 µV
	±100 mV	±20 µV

8.1.4 Measurement Mode Current

	Range	**Max. Error**
Error	0 to 25 mA	±5 µA

8.1.5 Measurement Mode Resistance / RTD

Error	Range	Max. Error
Resistance	400 Ω	±0.1 Ω
Resistance	4 kΩ	±1 Ω
Pt100	-200 to +850˚C	±0.25˚C
Pt1000	-200 to +850˚C	±1˚C

8.1.6 Relays

Channels	8
Relay type	TQ Relay
Relay function	change over contact (open active, closed active)
Switching voltage	< 60 VDC
Switching current	< 1 A
Switching power	< 60 W

8.1.7 Serial Channels

Channels of RS485	1x Localbus (Data rate up to 230 kbps) for max. 4 Q.series I/O modules, 6x Modbus-RTU, ASCII-Protocols, NMEA
Galvanic Isolation	500 VDC, all interfaces
Data rate RS485	2400 to 115200 bps
Format	Configurable (1E, 8N1)

8.1.8 Ethernet

Data rate	100 Mbit/s
Protocol	TCP/IP, UDP, PPP, Modbus-TCP, ASCII
Connector	RJ45
Services and functions	Telnet, http/https, SMTP, NTPO, FTP (client and server), DNS

8.1.9 Data Memory

RAM	64 MByte
SD-card	< 16 GByte, SD, miniSD, microSC
USB	full speed 12 MByte/s, Hi-speed 480 MByte/s

8.1.10 Display

Type	TFT with touch panel
Size and resolution	5”, WVGA 800 x 480
Power save mode	auto off selectable 10 s to 10 min

8.1.11 RTC

Type	battery buffered crystal controlled real time clock RTC
Accuracy	25 ppm within the entire specified range
Synchronization	external synchronization possible, NTP

8.1.12 Power Supply

Input voltage	10 to 30 VDC
Power consumption	8 W with display, 4 W standard mode
Buffer at power fail	buffer time 10 s (save closing of all file operations)

8.1.13 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

8.1.14 Mechanical Information

Material	Aluminium
Measurements (W x H x D)	210 x 125 x 60 mm
Weight	approx. 1200g

8.1.15 Ordering Information

Article number	475327

9 Sales & Service Information

The contact information for your domestic Gantner Instruments Sales and Service partner as well as our corporate headquarters, Gantner Instruments, can be found on our website at: https://www.gantner-instruments.com.

You can find additional technical information in the Technical Information section of the Gantner Instruments Wiki at:

https://dev.gantner-instruments.com/dokuwiki.

Please use the following login information to gain access.

Username: *support*

Password: *gins*
(Note: Not all sections of the wiki are open to the public).

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