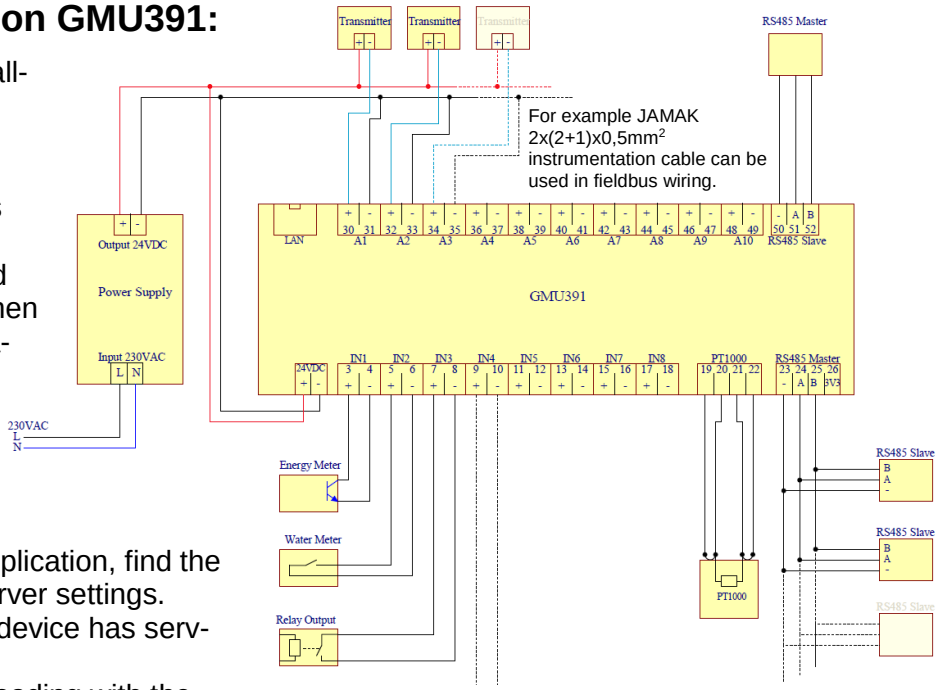
Quick Guide

GMU391 Process monitor

Commissioning the Gluon GMU391:

1. Install Lantronix DeviceInstaller to your work station.
2. Connect the Ethernet cable and power supply.
3. Connect necessary Modbus devices, see picture.
4. When the device is powered up, STA led flashes once, then both leds flash once simultaneously.
5. Connect the device to your work station or to the the same local area network with it.
6. Open the DeviceInstaller application, find the device and configure the server settings. STA led lights up when the device has server connection.
7. Configure Modbus master reading with the server application (e.g. ionSign Cloud) and the data collection commences.



Connecting to the device

DeviceInstaller can be found: https://www.lantronix.com/products/deviceinstaller/. If the LAN has an active DHCP server, the device assumes an IP address from the LAN, when powered up with default settings. Also a fixed IP address may be used.

The device appears on the device list, on the left side of the window. Firmware version (v6.10.0.1) and device IP address (192.168.100.31) can also be found here. If the device is not visible, click the *Search* button.

Click on the device IP address and choose the Web configuration tab on the right side of the application window. If a Lantronix configuration page appears, do not make any changes there.

To access the configuration page, set 10001 as the port for the IP address (write ":10001" after the IP in the address field) and click on the white arrow on the right side of the field. The device Login window appears. Log in with the default ID "1234", the device configuration window appears.

When the device IP is known, any browser may also be used for configuration. In the example case, the address to browse is http://192.168.100.31:10001.

Operating Instructions

GMU391 Process monitor

1 General

The GMU391 Process monitor is designed for collecting and transmitting measurement data from device's own inputs and meters connected to it with Modbus field bus. Data is transmitted to a server and may also be read from Modbus slave port of the device. After commission of the device, unit collects and transmits data spontaneously without separate queries. The server connection is established via Ethernet/LAN.

2 Indication lights

STA is ON	The device has settings and a server connection.
STA vilkkuu	Factory settings are being restored.
STA ei pala	Factory settings have been restored.
STB palaa	All Modbus devices are responding.
STB vilkkuu	At least one Modbus device is not responding.
STB ei pala	No Modbus device is responding or Modbus master reading has not been configured.

3 Settings

Device settings include the following. Close by clicking on **Save**.
Device ID defines a unique, user defined ID for each device. The range is 1 - 1 000 000. Zero as a value indicates that the device is not in use.
Modbus slave ID defines the Modbus slave ID for the device. The range is 1 - 255. Zero as a value indicates that the Modbus slave is not in use.
Update interval defines how often the device reads and transmits the measurement data. The range is 1-500 minutes.
Operation hour measurements defines the measurement for digital inputs IN1 – IN8 "on" time. Input is interpreted as "on" when its state is closed. Time is reported with 100 millisecond resolution.
Analog max/min measurements defines the measurements for analogue inputs A1 – A10 maximum and minimum values. Values are reported as percentage value from 4 mA to 20 mA. Value 0% indicates the value 4mA and value 100% indicates the value 20mA. Percentage value is reported in one decimal resolution.
If the interval is between 10…60 minutes, and 60 is divisible by the interval, transmission is synchronized to the next full hour. Also, if the interval is over 60 minutes, and divisible by 30, transmission is synchronized to the next full hour.

Update interval, min	Update interval, h:min	Transmission timing example, when the settings are made at 11:55.
12	0h 12m	12:00 12:12 12:24 12:36 …
15	0h 15m	12:00 12:15 12:30 12:45 …
30	0h 30m	12:00 12:30 13:00 13:30 …
480	8h 0m	12:00 20:00 04:00 12:00 …

Server settings include the following. Close by clicking on **Save**.
Server address defines the server address to transmit the data. It may be entered as an IP address or in DNS format. Maximum length is 40 characters.
Server port defines the port, to which the server is expecting communication. The range is 1 - 65535.
Server path defines the server folder to which data is transmitted. Maximum length is 30 characters.

Modbus settings include the following. Close by clicking on **Save**.
Master defines the settings for master bus: Baud rate, parity, number of data bits and number of stop bits.
Slave defines the settings for slave bus: Baud rate, parity, number of data bits and number of stop bits.

Maintenance settings include the following:
Update firmware updates the device firmware.
Factory reset restores the default settings and resets all settings and measurements.

4 Modbus slave

Values of measurements made by the device can be read from Modbus slave port registers. In addition some settings can be set to these registers. Device's default Modbus slave ID is 1 and there is separate operating insctruction for usage of device specific registers.

5 Modbus master reading

In addition to measurements from the device's own inputs, data collection can be supplemented by readings from meters connected to the device's Modbus master port and with values written to the device's Modbus slave registers. These values are sent to the server together with measurements from the device's own inputs. Modbus master reading settings can set to Modbus slave registers or they can be given with server application.

6 Failure Recovery

The device has no built-in backup power, so data is not collected nor sent during power failures. When power supply resumes however, the device assumes all prior settings and starts collecting and sending data without any need for user intervention.

For data transmission network failures, the device has a built-in local buffer for keeping collected data stored for later transmission. The buffer stores up to 13 000 data series. With a 15 minute update interval, the buffer stores data series for 135 days. When the network resumes service, the device automatically purges the buffer to the server and continues transmitting new data.

7 GMU391 technical specifications

- Integrated web server with LAN connection.
- 8 open collector or relay inputs for digital inputs or collecting pulse data.
- 10 current (4-20 mA) or voltage (2-10 V) inputs.
- PT1000 temperature measurement input.
- 2 RS485 connections (Modbus master and slave).
- Operating voltage: 12…24 VDC.
- Power consumption: 100 mA.
- Real-time clock with battery backup.
- Size: WxHxD 156 x 115 x 58 mm (9 module wide DIN enclosure).
- Protection class: IP20.
- Operating temperature: -25°C...+50°C.
- Relative humidity: 5% - 95%, non-condensing.
- Data storage capacity: 13 000 data series (own measurements and 250 Modbus registers). With 15 minute update interval, memory buffer can hold 135 days of data series.
- Data communication: LAN / TCP-IP.

8 Warranty

ionSign grants a warranty of two (2) years for all delivered devices and software services. The warranty starts on the date of the delivery and it covers material and manufacturing defects. The warranty does not cover defects caused by improper use or installation nor does it cover defects caused by factors out of ionSign's control. These would be for instance grid malfunction or service changes of network operators services. ionSign delivers a new device to replace the defected one, without cost. Alternatively, ionSign may repair the defected device. The defected device must be returned to ionSign, if required, at ionSign's cost. The warranty does not cover dismantling, installation, and introduction costs and the like. ionSign warrants that the provided software essentially manage with their designed tasks, at the time of delivery. All significant software defects are covered by the warranty. The defects will be resolved without unnecessary delay. The resolution may be an instruction to circumvent the defect. If the delivery includes third party products or services, these are only covered by the applicable warranty provided by that third party. Title to the delivered goods transfers to the client, when the invoiced price is paid in full. All immaterial rights related to devices and services remain the property of ionSign. If the service was a design assignment, the client assumes the right to use and further develop the assignment results. ionSign is eligible to use the client's name as a reference in its marketing. ionSign is not eligible to disclose the order details without prior consent. In case of a force majeure, preventing to act according to the purchase agreement, the affected party will start immediate negotiations to assess the effects of the obstacle on the scope and schedule of the purchase agreement. ionSign appropriately backs up client's data residing on its servers. In spite of this, ionSign assumes no responsibility of possible damage due to loss of data. ionSign assumes no responsibility of direct or indirect damage to property or people, nor work or travel expenses, caused by using its services or devices, unless due to gross negligence. ionSign's financial liability is always limited to the value of the delivered goods and services, unless other-wise inflicted by the Finnish law.

ionSign Oy
P.O. Box 246 | Paananvahe 4 | FI-26100
Rauma | Finland | t. +358 2 822 0097
sales@ionsign.fi | ionsign.fi | VAT FI21174499

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