Quick Guide

Neutron Smart Gateway Remote Data Collector

For example JAMAK 2x(2+1)x0,5mm2 instrumentation cable can be used between the meter and Gateway.

## Introducing Neutron Smart Gateway:

1. Install Lantronix DeviceInstaller to your workstation (http://bit.ly/2FIXaJD).

2. Connect the power supply, meter(s), and LAN cable as in the diagram. Connect the device to the mains, the STA LED lights for a moment, after which the STA and STB LEDs blink simultaneously.

3. Use the LAN cable to connect the device to your workstation or the same LAN.

4. Open the DeviceInstaller application, find the device and make necessary settings.

5. Data logging has commenced. Hourly meter data is sent once a day to the server.

Connecting to the Device

The device is configured with the Lantronix DeviceInstaller. The application should be installed to a PC connected either to the same LAN with the device, or directly to the device. If the LAN has an active DHCP server, Neutron Smart Gateway assumes an IP address from the LAN, when powered up with default settings. Also a fixed IP address may be used.

The device appears in the device list on the left, see picture. Firmware version v6.10.0.1 and device IP address 192.168.100.18 can also be found here. If the device does not appear, 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.
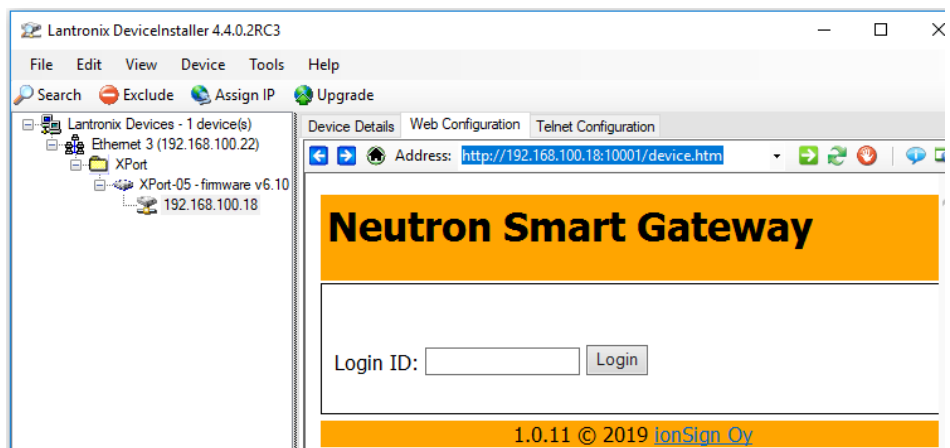

In the address field, set 10001 as the port of the device IP address (write ":10001" after the IP in the address field) and click on the white arrow on the right side of the field. Login page appears below the address, as in the picture. Log in with the default ID "1234", the device configuration window appears. When the device IP is known, any browser may also be used for configuration. In the example case, the address is http://192.168.100.18:10001.

1 General

Neutron Smart Gateway is designed to collect data from different types of energy and utility consumption meters. It directly reads meters connected to it with a Modbus fieldbus connection. Also pulse meters may be read via ionSign's Neutron15 pulse reader. After setup, the unit automatically collects and transmits data to the server, without server or user induced queries, via the Ethernet/LAN network.

2 Indicator lights

The STA led indicates the Modbus reading status. STA is off, when none of the devices is responding, or when Modbus master reading has not been configured. STA blinks, when at least one Modbus device is not responding. STA is on to indicate that all devices are responding.
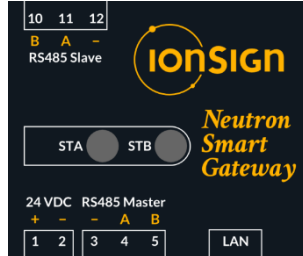
The STB led indicates the configuration status. When lit, all settings are OK, and a server connection is established. Fast blinking indicates that the device is restoring factory settings. Slow blinking indicates communication to the server.

When only STA is lit, the device has no settings.

3 Device Settings

The settings menu has eight sections: **Device**, **Server**, **Sending**, **Modbus**, **Maintenance**, **Security**, **Configuration** and **MB Config**. Click on **Save** in each section after entering the values.

In the **Device** section, following parameters are given:
Device ID defines a unique identifier for each device. Range is 1 – 1 000 000. A zero value (0) indicates that the device is not operational.
Modbus slave ID is needed for Modbus slave communications. Range is 1 - 254. A zero value (0) indicates that the Modbus slave is not in use.

In the **Server** section, following parameters are given:
Host address defines the server address, where the device transmits data. It may be input either as an IP address or in DNS format. Maximum address length is 50 characters.
Host port defines the port to connect at the server. Range is 1 – 65535.
Host path defines the server folder to store the data. Maximum path length is 50 characters.

In the **Sending** section, following parameters are given:
Periodic mode interval sets the unit to send the data *of a specific moment in time* to the server, at specified intervals.
Periodic mode periodic sets the unit to send the data *of a specific time period* to the server, at specified intervals.
Periodic interval sets the time between consecutive transmissions for both periodic modes. Range is 0 – 60 min. Periodic transmission occurs in addition to the default daily transmission of hourly data. With a zero value (0), no periodic data is transmitted, only the default hourly data.
Daily send delay sets the delay after midnight in starting the daily transmission. This enables staggered transmissions to avoid server jamming in case of a large number of transmitting devices. Range is 0 – 60 min. With a zero value (0), transmission takes place at midnight sharp.
Send now button can be used to transmit the data immediately.

Modbus settings define the master and slave bus communications: Baud rate, parity, number of data bits and number of stop bits.

In the **Maintenance** section, following parameters are given:
Factory reset restores factory settings.
Update firmware activates the remote update of firmware.

Security settings include the following:
Credential string defines the Base64 encoded string for Basic HTTP authentication. Empty setting disables authentication. Maximum string length is 50 characters.
Login ID sets the ID for logging into the device.

In the **Configuration** section, following parameters are given:
Device slot sets the slave position of the device to be configured.
Modbus Id sets the Modbus Id of this slave position.
Slave type sets the type of this slave position.
Slave list lists the existing device configuration.

Neutron Smart Gateway collects and transmits the measurement data from the configured Modbus devices. An updated list of supported devices can be found at the device page on www.ionsign.fi.

4 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 Ethernet network failures, the device has a built-in local buffer for keeping collected data stored for later transmission. When all 32 Modbus device slots are in use, the buffer has a capacity to store 134 days of hourly data. If there are unused device slots, the buffer capacity will be longer, respectively. When the transfer network is restored after a failure, the unit automatically starts sending new data and clearing the buffer to the server.

5 Neutron Smart Gateway Specifications

- Integrated web server with LAN connection.
- 2 RS-485 connections (Modbus master and slave).
- Operating voltage: 12…24 VDC.
- Current consumption: 100 mA.
- Real-time clock: 4 days backup.
- Size: WxHxD 51x115x58mm (2 module DIN rail enclosure).
- Protection class: IP20.
- Operating temperature: -25°C...+50°C.
- Relative humidity: 5% - 95% non-condensing.
- Local buffer capacity: 134 - 4628 days of hourly consumption data, depending the number of configured devices.
- Data transfer capability: LAN / TCP-IP

6 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 otherwise inflicted by the Finnish law.