LINORTEK ITRIXX NHM IoT Controller and Runtime Meter Instruction Manual

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LINORTEK

LINORTEK ITRIXX NHM IoT Controller and Runtime Meter

Thank you for purchasing the Linortek ITrixx NHM. The NHM is an IoT controller and runtime meter. The NHM is equipped with two digital inputs (524VDC), two relay outputs capable of tracking runtime hours of up to two different pieces of equipment. For the complete setting instructions, please refer to the iTrixx NHM User Manual, which can be downloaded here: **https://www.linortek.com/downloads/documentations/**

PRODUCT CHECKLIST

Each product kit box contains the following

- One iTrixx NHM SERVER
- One 12VDC Power Supply
- One CAT5 Patch Cord
- One DIN rail mount clip
- One 2.2k Ohm Resistor Kit
- iTrixx NHM Quick Setting Instruction

HOW TO TRIGGER THE METER

- The NHM may be activated in a number of different ways: power input, digital input and analog input.

Power input

In the simplest setup the NHM may be activated whenever power is applied to the unit. In this case, if the NHM is on, it is counting. A voltage threshold is provided so the NHM may stop counting as power is lost to prevent

memory corruption. In this way, you only need to connect the NHM to the same power source of the equipment you wish to collect running data, no other wiring required.

Digital input

You may also use one of the inputs to turn to count on and off. There are two digital inputs in the NHM. The digital inputs allow NHM to detect an external on/off state of a sensor. When you use the digital inputs to trigger the meter, you will need to enable the digital inputs first. For instructions on how to enable the digital inputs from the webpage, please check the Configuring the Digital Input section on Page 10 of the iTrixx NHM User Manual. There are two modes of operation for the digital inputs, PULL UP(PU) and ISOLATED(ISO). The NHM is set in ISO by default.This mode is selected by the switch on the NHM marked ISO and PU isolated or PULL UP respectively. Put the switch up for ISO and down for PU. When in PU mode, the inputs are working as a dry contact so that a switch may be used. The ISO mode allows you to directly drive the NHM's optoisolator with an external voltage through the internal 1K resistor. This voltage may be in the range of 5VDC to 24VDC supplying a minimum of 2mA or a maximum of 30mA to the optoisolator diode.

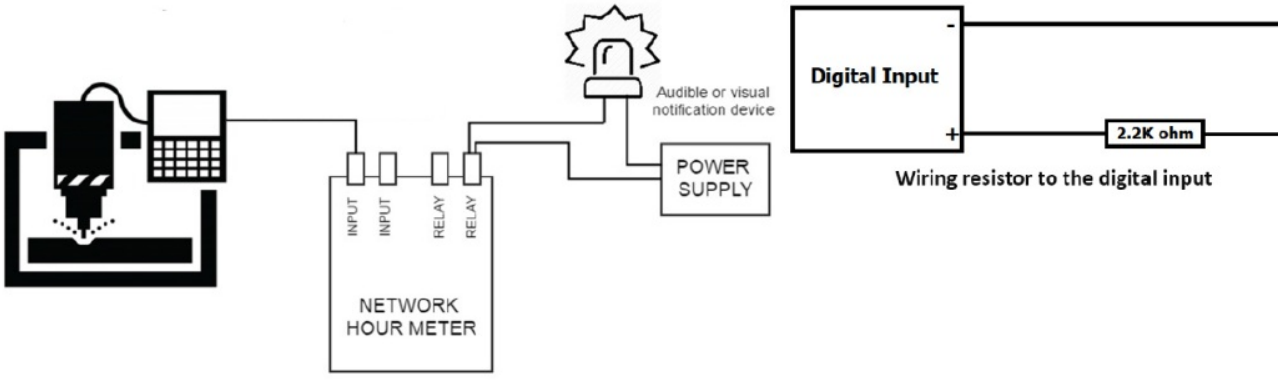
Note: If using a voltage above 12VDC for digital input, you must use the external resistor included in the packaging. Please see the

wiring instruction below. The two inputs are labeled as IN1 and IN2 on the NHM cover. Each input has a PC terminal, P is for positive and C for common. A note of CAUTION: The NHM units are ground isolated. Always connect so that the power loop is only connected to the NHM unit. Do NOT use external ground connections. Doing so may damage the NHM or POE originating device.

Relay output

The meter can be configured to follow one of the relays such that when the relay is activated the NHM will count. There are two removeable 2 position connectors (1 for each relay) and are simply numbered "1" and "2" on the NHM. These relays are normally open. For more information on how to wire your iTrixx NHM, please refer to the Wiring your ITrixx NHM section on the iTrixx NHM User Manual.

Typical Equipment Hook-up



ACCESSING YOUR ITRIXX NHM SOFTWARE

Finding your IP Address with Linortek Discoverer

The Discoverer program will automatically locate your ITrixx NHM SERVER. The Discoverer is a Java program and requires Java Runtime to be installed to use this feature. Java can be found here: **http://java.com/en/download/index.jsp.**

To download the Discover program, please go to: https://www.linortek.com/downloads/support¬programming/ Use of Chrome & Firefox browsers is recommended. Please note: If you prefer to use Internet Explorer, Internet Explorer saves Linortek Discoverer as a Zip file by default. In order to use the Discoverer, you will need to select Save as and rename the file as Linortek Discoverer.jar when you download.

When downloading the Discover program, sometimes you will see a popup warning message depending on your browser security settings, asking if you want to keep or discard this file, please click the Keep button as this is a Java program, it won't harm your computer. Click the device you want to use shown on the Discoverer program to launch the SERVER web pages in your browser. Click the Login button on the homepage. Default Username/password is: admin/admin. You may change these as you desire or disable this feature in the settings menu.

Connecting your ITrixx NHM Directly to Your PC

You can also plug your NHM directly into your PC in case there is no network connection available. If you plug your NHM into your PC's Ethernet port it will use the default IP address: 169.254.1.1 unless you have previously configured your NHM to use a static IP. Enter 169.254.1.1 into your web browser to connect. No internet connection is required. Once configured, you can then install your NHM where desired.

SERVER CONFIGURATION

Landing Page

After you connect your equipment to the NHM, download the Discover program from our website to identify the meter's IP address. Click the device shown on the Discover program, launch the meter web pages in a browser, you will be able to monitor your equipment run hours from the NHM's landing page without signing in.

The landing page displays the following settings

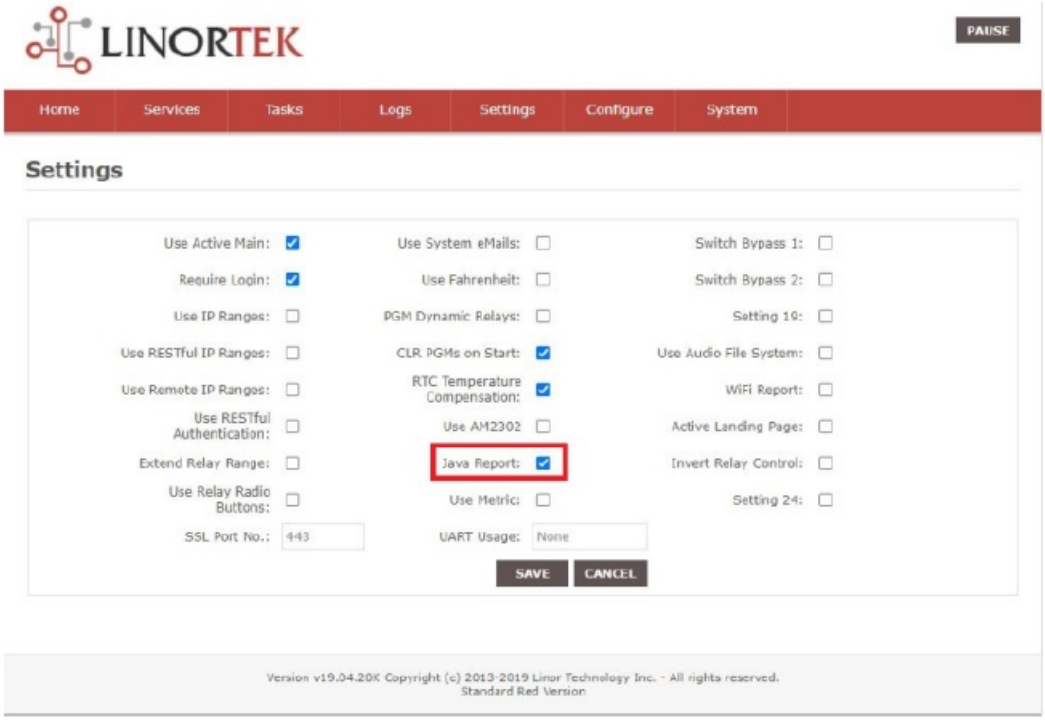
1. Two meters: Each Network Hour Meter includes two separate hour meters with independent triggers.
2. Each meter can record 999999.99 hours, decimal hours with 1/100 hour.
3. Running indicator: Spins if all conditions are met and counting hours.

Setting Time and Date

When first configuring your NHM you will need to verify the time and date on your home page. Your NHM is configured by default to use Eastern Standard Time (GMT5) and will apply a correction for daylight savings time. To change these settings, navigate to the Settings Time/ Date page. You can then change your time zone by adjusting the value in the third box labeled Time Zone. If you intend to keep your NHM off your network after configuring, you will need to uncheck Use Daylight Savings Time and Use NTP Update. You will then have to manually set the time to account for daylight savings, and adjust the time period to account for time creep.

Setting Data Report

In order to have your NHM send its data to the Hour Collector desktop app (introduced in the next section), navigate to Settings Settings. For the NHM ensure Java Report is enabled.



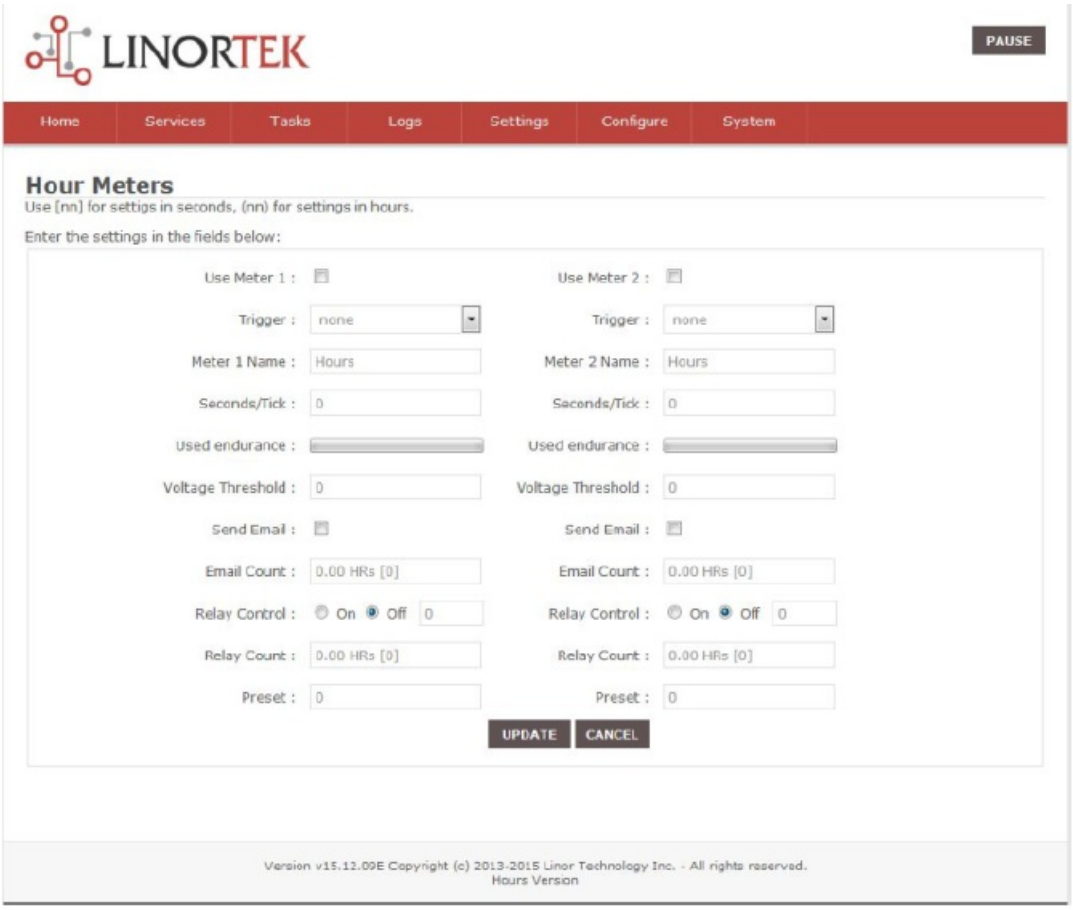
Configuring the Hour Meter

After enabling the Data Report, you now need to configure the hour meter. To reach the Hour Meter page, navigate to the Services Hours. On this page there are two identical columns; one for each hour meter.

- **Use Meter:** The hour counter will not run unless the “Use Meter” is checked.
- **Trigger:** The trigger selects the condition to start and stop the counter meter. You can select an INPUT or a RELAY. If those conditions are met such that the device is ON, the meter will start running. You may additionally select to have the INPUT.
- VOLTAGE starts the counter. For example, if the Network Hour Meter Hour is powered the counter runs.
- **Meter Name:** Give the meter a name to identify what is being metered.
- **Seconds/Tick:** The ticks set the counting resolution. The smaller the number the faster the memory is used up. Usually set to 2.
- **Used Endurance:** Because the number of memory writes is finite, the Endurance indicator gives an idea of the memory’s condition. It will wear out. (Tick*512*100000 = memory endurance in seconds.)
- **Voltage Threshold:** The Voltage Threshold condition must be satisfied along with the trigger condition to make the meter count. This is useful to stop the counter should the unit start to lose power. For example: by setting a threshold of 20 volts on a 24volt system, the Hour Meter will assume that the power is declining and shut off to prevent a counter-memory error.
- **Send Email:** Using the Email checkbox and the Count, the unit will send an email when this value is exceeded. (Not compatible with SSL/TLS email server, there are 3rd party SMTP delivery servers that do not require SSL and can be used. For instructions on how to use a 3rd party SMTP delivery service, please refer to Appendix 1 of the iTrixx NHM User Manual)
- **Email Count:** Hour meter value to send email notifications. This value may be entered in [seconds] or (hours).
- **Relay Control:** By using a Relay Number and a Count, the unit will activate a relay when the value is exceeded. This is useful for turning on a maintenance light or buzzer on a machine that requires a look.
- **Relay Count:** Hour meter value to trigger relay. This value may be entered in [seconds] or (hours).
- **Preset:** The Preset is used to ZERO the meter or set it to any value you like. This value may be entered in

[seconds] or (hours).

- **Push Report Interval:** You can change how often to send the hour report out to the HourCollector App, it's set for 2 minutes by default. If you want to change the frequency, you can enter the number here (by minutes).



DATA COLLECTION APP

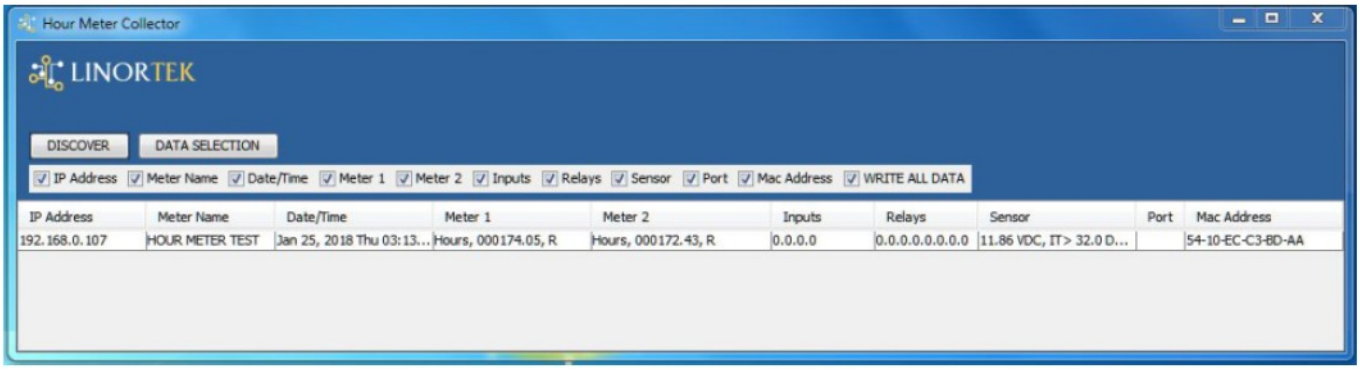
Hour Meter Collector

Linortek HourCollector is a Java program. It was developed for use with any Linortek IoTMeter, This app is free to download at: **https://www.linortek.com/downloads/supportprogramming/**

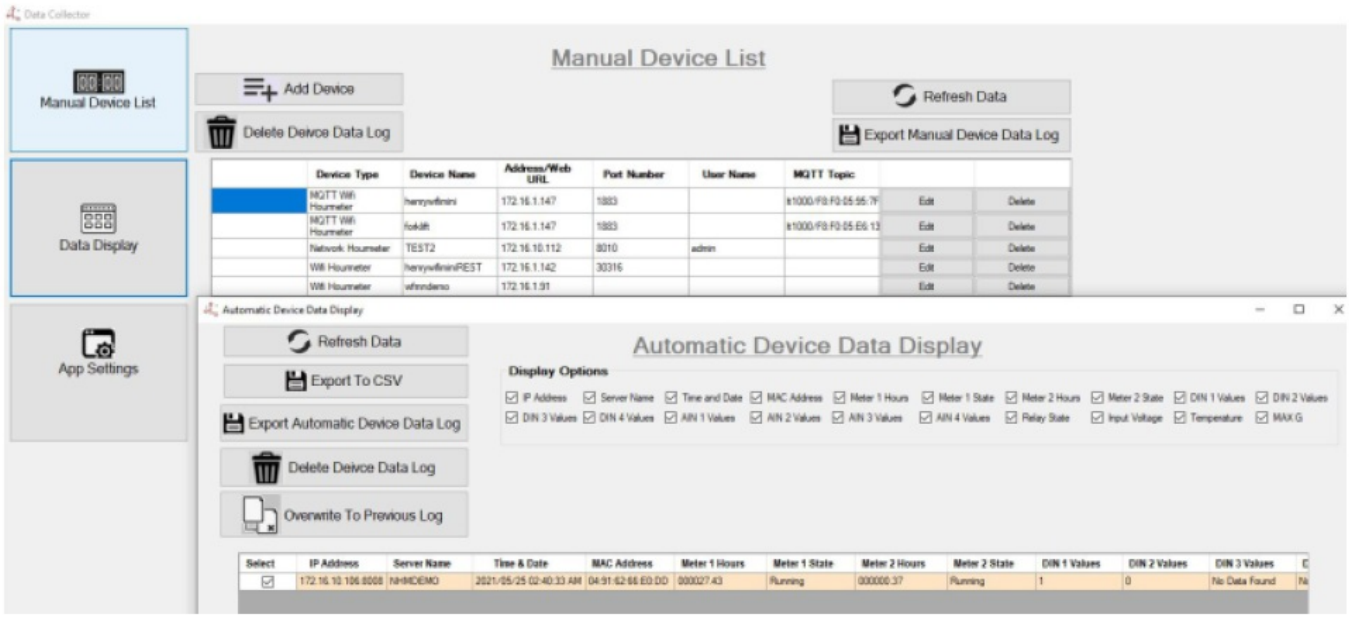
The Collector program is a zip file that you download it from our website. You need to extract the file before using it. The Collector has two parts: a Jar file and a lib folder. Both of these files MUST have the same name and be in the same directory. The Linortek_HourMeter is an executable Jar file, you can open it once you have Java enabled on your computer. When you run the HourMeter Collector for the first time, it wil generate a CSV_FILE folder with your Hour Meter Logs details. If you rename this file or delete it, it will just create another folder name CSV_FILE.

DataCollector Pro App

The DataCollector Pro app is an upgraded version of the HourCollector app. It can not only display the hour readings and status, as well as the digital/analog input data for each meter but also allows you to select manually/automatically collecting/exporting the data. The Datacollector Pro App can be downloaded here: **https://www.linortek.com/downloads/supportprogramming.**



HourCollector App



DataCollector App

For more information on how to use the data collection apps, please refer to the iTrixx NHM User Manual.

RESTFUL API

Here are the available APIs that you can export the data from the device directly (**Note:** These API commands are for software REV. 427 and above)

Meter 1: your_IP_address/api/hourmeter/1/getcount
Meter 2: your_IP_address/api/hourmeter/2/getcount

For pulling the hours out, there are two XML commands built-in:

- your_IP_address/hours.xml
- your_IP_address/hourdetail.xml

For other ways to integrate the hour readings to your system, please refer to the iTrixx NHM User Manual, or email our technical support team at **support@linortek.com** for assistance.

For complete product documentation, current software, web pages and various utilities, visit

https://www.linortek.com/downloads/. The product manual, as well as software updates, are available for download.

FURTHER NOTICE FOR LIMITATION OF USE

When wiring a line voltage device you MUST either be a qualified electrician or use the services of a qualified electrician. Additionally, local codes must be followed including but not limited to wire gauge size and suitable housing. Linortek cannot assume any responsibility for harm to the user or third parties for improperly using our product. This liability remains with the user. Linortek cannot assume any responsibility for damage to the device for improperly using our SERVER product. See the product manual on our website for a full Disclaimer and User Agreement.

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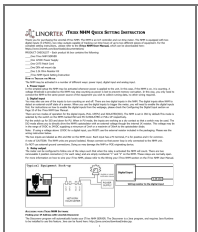
Documents / Resources

	LINORTEK ITRIXX NHM IoT Controller and Runtime Meter [pdf] Instruction Manual ITRIXX NHM, IoT Controller and Run time Meter, ITRIXX NHM IoT Controller and Run time Meter, IoT Controller, Run time Meter