

Inveo Nano In

Date: 11/02/2025

Revision: 3

Contents

1	Back	sground	. 2					
2	Con	Configuring the Nano In						
	2.1	Networking	. 2					
	2.2	Wiring	.4					
3	Con	figuring the impHub	. 5					
	3.1	Adding the Device	. 5					
	3.2	Metering Hierarchy	.6					
	3.3	Control Block Metering	.6					

Gridimp Ltd Company No: 07832551 Registered in England & Wales

Address:

Unit 7, The Sidings, Cathedral Park, Wells, Somerset, BA5 1LJ, UK

Phone: +44 (0)1749 372198

Prepared By:

Name: Edward Ross

Email: support@gridimp.com

© Gridimp Ltd. 2025



1 Background

This equipment note describes how to use an impHub to collect pulse data using the Inveo Nano In and Inveo Nano In PoE.

The Nano In uses a PoE injector (12-24VDC), supplied with the device. However, it does not work with standard PoE voltage. It shows pulse activity with an indicator light.

The Nano In PoE can work with as standard PoE voltage (33-57V POE IEEE 802.3af). Alternatively, it can be powered from a DC power supply (10-24VDC) connected to the terminal blocks at the top of the device. It shows pulse activity on the LED display on the front of the device. It can also show the IP address on this display.



Nano Digital Input

The Nano In PoE variant is slightly more expensive, but is more versatile, so we recommend this variant.

Relevant Links

Manufacturer: https://inveo.com.pl/input-output-modules/compact-modules/nano-in-en/

Web Shop: <u>https://www.audon.co.uk/ethernetrelay/nano_in_poe-ethernet-digital-input-unit-with-pulse-counting-web-snmp-modbus-tcp-led-display-poe.html</u>

2 Configuring the Nano In

2.1 Networking

The nano in needs to be configured with password and network settings. You will need to either get as fixed IP or a DHCP reserved IP address for the Nano In. Contact your network administrator, for as reserved IP you will need to supply the MAC address of the device. You can read the MAC address from the "Network" page of the Inveo web interface, which we come to later in this section.

The Nano In comes with default settings:

IP: 192.168.111.15 User: admin Pass: admin00



Make a direct ethernet connection from your PC to the Nano In. Set your PC ethernet address to a fixed IP of 192.168.111.1 with subnet mask 255.255.255.0. Use a web browser, such as Chrome, and navigate to 192.168.111.15.

Go to the "Administration Page". Update the password to secure password and store that in your secure password vault. Enable ModBUS TCP Protocol, this will be used for communication with the impHub.

	Inveo Nano	In SV:1.
	Home Channel Network SNMP Administration	
dminis	tration	
s page allows	ne configuration of the device's access settings.	
Current	assword:	
New Pas	word:	
Re-type	'assword:	
	Enable Program Access	
	Enable MODBUS TCP Protocol	
	Enable SNMP	
	Enable Destination Client	
	Enable MQTT Inveo [Show Info]	
	Enable Remote Network Config	
	Enable TFTP Bootloader	
	Save Config	

Goto the Network page. Update the network settings, either setting the Inveo Nano to the allocated fixed IP or configuring DHCP.



inv	'eo 📚 💻		1	Inveo Nano Temperature SV:1.17							
	Home	Channel Network	SNMP	Administration							
Ne	twork Con	figuration									
This page allows the configuration of the device's network settings.											
			1								
	MAC Address:										
	Host Name:	NANO									
	TP Address	192 168 111 17									
	Gateway:	192.168.111.1									
	Subnet Mask:	255.255.255.0									
	Primary DNS:	8.8.8.8									
	Secondary DNS:	8.8.4.4									
			•								
	Destination IP:	0.0.0.0									
	Destination Port:	0]								
		Save Config									
l l											

2.2 Wiring

All electrical wiring must be undertaken by a qualified electrician. You need to identify the pulse output terminals from the meter. The Nano In requires a voltage free input, it will detect impedance changes for the pulses. Therefore, it needs to be connected to a meter with a passive pulse output, which is usually the type of pulse on meters. If the meter you are connecting to has an active pulse output, with a voltage, then you will need to use that output to switch a relay before connecting to the Nano In.

Note that the Nano In positive voltage is on the left hand input pin, so where the pulse output of the meter is includes any directional components, like a diode you may need to switch the direction of the connection. Once connected, you should see the input indicator flashing or the LED display showing "ON/OFF". If this doesn't happen then check the wiring and polarity.



Nano Digital Input



3 Configuring the impHub

You will need to first add a new device with the correct IP and pulses per kWh configuration. Then you need to add the new meter to the metering hierarchy and any control blocks that need it for plant metering.

3.1 Adding the Device

From the impHub engineering console navigate to "Devices > Device List" and click on "New Device". Choose the driver "Inveo Nano Energy Meter".

gridimp Home Metering Monitoring Microgrid		Timezone: Europe/London V:6.4.0 gridimp139 🍄 Logout
🗄 Device List 🛛 😤 Device Gateways 🥥 BACnet Explorer		
New Device		
Name		
Solar Meter		`_
Description		
		h
Driver		
Investmenter wetch		N
Device Properties		
Polling Mode* 🚯	FASTER_5S	×
Remember Control State* 🕚		
Connection Type* 🕚	Ib	~ 〕
Host 🕚		
Port* 🕚	502	
-		
		Cancel Reset Submit

As you scroll down the page you access the list of properties. Use the following settings:

Setting	Recommended Value
Polling Mode	FASER_5S
Remember Control State	True
Connection Type	IP
Host	The IP of the Inveo
Port	502
Keep Alive	True
Baud Rate	N/A
Data bits	N/A
Stop bits	N/A
Parity	N/A
Unit Id	1
Pulses Per Kwh	Number of pulses recorded by the counter for each KwH. For
	this look at the meter specification.
Sub Meters	None
Energy Flow Direction	Select IMPORTED/EXPORTED depending on the direction of the
	meter that is being monitored. For energy loads this will be
	IMPORTED for generation meters this will be EXPORTED.
Power Every Minute	AUTO
Power Smoothing Minutes	1



3.2 Metering Hierarchy

Next you need to configure the metering hierarchy. Navigate to the page "Metering" and select the parent meter, the parent meter is the meter directly above the new metering. Then add below this the meter that you created.

The metering hierarchy below is one example, so for example if the meter you just added was to monitor solar generation, then you would add it underneath the grid meter.

grik	limp	Home	Metering	Monitoring	Microgrid	Control	Devices	Plan View	Load Shifts	Live View	Forecast View	V:6.2.1 gri	dimp152 🏟	Logout
Metering Hierarchy														
Conf	Configure one or more meters to measure the electricity usage across the site. More													
	Grid	Meter	≣.	Battery Me	eter ≡•									Ì
	Site m	leter	-	Solar Generation	, ≡ -									
The following meter hierarchies and individual meters are available to be added to the hierarchy above:									\sum					
	Plan	t meter	≡3	Battery Me	ter ≡•									
-	Plant r - Add a	neter <mark>I new m</mark> e	eter											

3.3 Control Block Metering

If the new meter you just added is a plant meter for a control block, then navigate to "Control", select the relevant control block and add this meter as the meter for the control block. For example, if the new meter is monitoring solar generation, then add it as the meter for the solar control block.

gridimp Home Metering Monitoring	Microgrid Control Devices Plan View Load Shif	fts Live View Forecast View	Timezone: Europe/London V:6.4.0 gr	ridimp139 🍄 Logout
New SOLAR Control Bloc	-k		Delete	Disable List All
Configuration	Edit Save Reset Cancel	Meter View		
ID	4	1.0		
Туре	SOLAR	0.9	Loading Data	
Purpose	Solar Control Block has a pv meter and panel	0.8		
	type, it also has inverters; Which contain information about specific configurations of	0.6		
	panels And sensors that monitor the	0.5		
	environment.	0.4		
Name* i	Name	0.3		
Description i	Description	0.2		
	4	0		
Meter* i	Add device	12:46	Timo	12:47
			THIR	
Forecast Name i				
Latitude* i				
Langitudat i				
Longitude* 1				