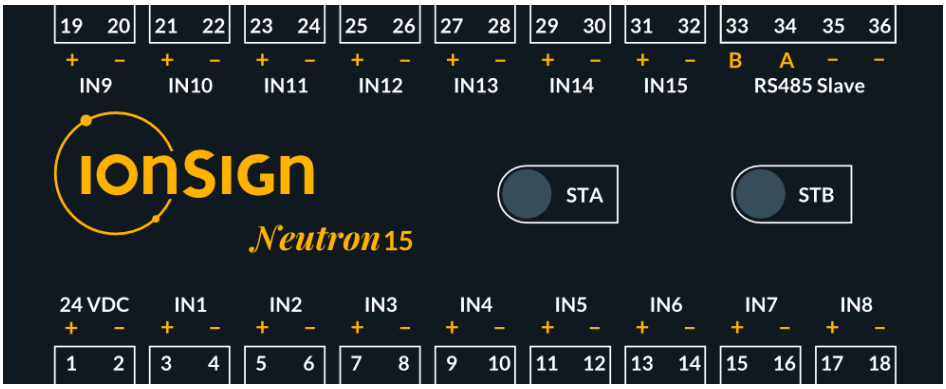
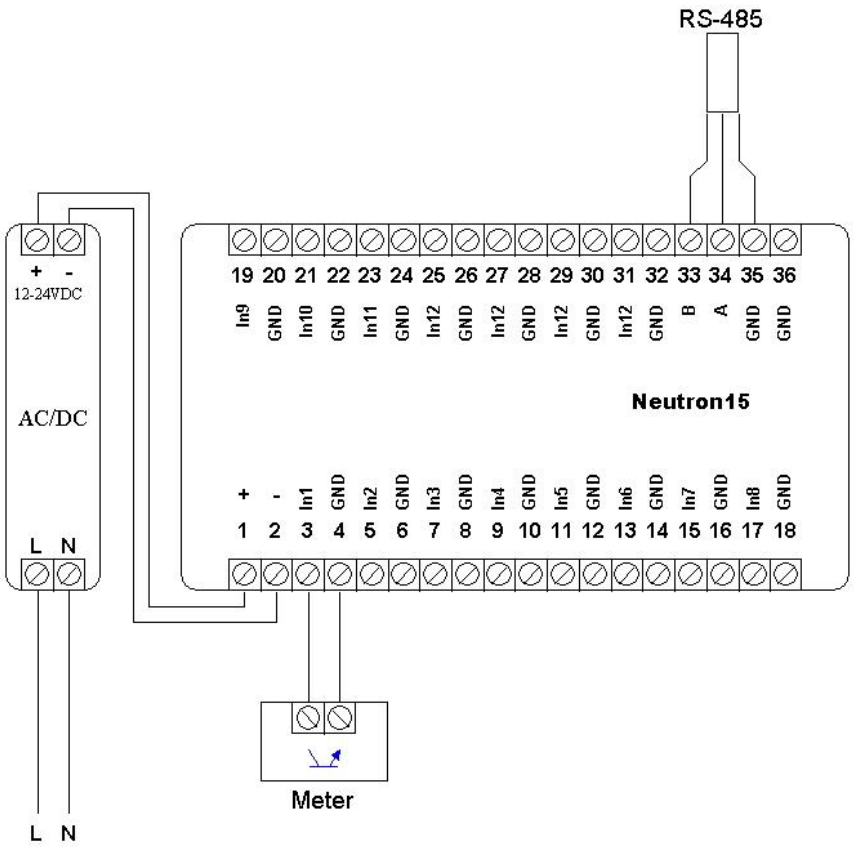
Quick Guide

Neutron15 Remote Pulse Collector

Introducing Neutron15:

1. Connect a power supply and the recorded meter(s) as in the enclosed diagram.
2. Power up the device, the STB led turns on with green light.
3. Configure the Modbus master device to read the Neutron15 Modbus registers. Change the default ID (45), if needed, with the special command
4. The STB led blinks red with every received pulse.
5. The STA led blinks green with every successful receipt of a Modbus message. A red blink indicates a faulty message.





For example JAMAK 2x(2+1)x0,5mm2 instrumentation cable can be used between the meter and Neutron15. The open collector or relay output of a single meter is connected to Neutron15 as shown in the diagram.

User and Installation Guide

Neutron15 Remote Pulse Collector

1 General

Neutron15 is a remote pulse logger designed for collecting and reporting pulses from varying kinds of consumption meters with a pulse output, e.g. electricity, gas, heat or water meters. Pulses are stored locally and can be fetched by a Modbus master device via an RS485 connection.

Default Modbus ID is 45. It can be changed with the Special Command.

2 Indicator Lights

STA led blinks green	Modbus message received successfully
STA led blinks red	Modbus message was faulty
STB led is green	The device has power
STB led blinks red	Pulses are being received

3 Communication Parameters

Modbus ID	45	(1-127)
Baud rate	9600	(9600/19200)
Start bits	1	
Data bits	8	
Parity	none	(None/Even)
Stop bits	1	(1/2)

4 Modbus Configuration

Supported ModBus commands:

ModBus command	att	ModBus command name	Description
0x2B	r	READ_DEVICE_IDENTIFICATION	Read device ID (Basic)
0x04	r	READ_INPUT_REGISTERS	Read input registers (16 bit)
0x03	r	READ_HOLDING_REGISTERS	Read holding registers (16 bit)
0x10	w	WRITE_MULTIPLE_REGISTERS	Write multiple registers (16 bit)

Input registers:

Register		Description	Notes
30001	0	IN1 / Pulse	32 bit / High word
30002	1	IN1 / Pulse	32 bit / Low word
30003	2	IN2 / Pulse	32 bit / High word
30004	3	IN2 / Pulse	32 bit / Low word
30005	4	IN3 / Pulse	32 bit / High word
30006	5	IN3 / Pulse	32 bit / Low word
30007	6	IN4 / Pulse	32 bit / High word
30008	7	IN4 / Pulse	32 bit / Low word
30009	8	IN5 / Pulse	32 bit / High word
30010	9	IN5 / Pulse	32 bit / Low word
30011	10	IN6 / Pulse	32 bit / High word
30012	11	IN6 / Pulse	32 bit / Low word
30013	12	IN7 / Pulse	32 bit / High word
30014	13	IN7 / Pulse	32 bit / Low word
30015	14	IN8 / Pulse	32 bit / High word
30016	15	IN8 / Pulse	32 bit / Low word
30017	16	IN9 / Pulse	32 bit / High word
30018	17	IN9 / Pulse	32 bit / Low word
30019	18	IN10 / Pulse	32 bit / High word
30020	19	IN10 / Pulse	32 bit / Low word
30021	20	IN11 / Pulse	32 bit / High word
30022	21	IN11 / Pulse	32 bit / Low word
30023	22	IN12 / Pulse	32 bit / High word
30024	23	IN12 / Pulse	32 bit / Low word
30025	24	IN13 / Pulse	32 bit / High word
30026	25	IN13 / Pulse	32 bit / Low word
30027	26	IN14 / Pulse	32 bit / High word
30028	27	IN14 / Pulse	32 bit / Low word
30029	28	IN15 / Pulse	32 bit / High word
30030	29	IN15 / Pulse	32 bit / Low word

Register		Description	Notes
30101	100	IN1 / Status	0 = low / 1 = high
30102	101	IN2 / Status	0 = low / 1 = high
30103	102	IN3 / Status	0 = low / 1 = high
30104	103	IN4 / Status	0 = low / 1 = high
30105	104	IN5 / Status	0 = low / 1 = high
30106	105	IN6 / Status	0 = low / 1 = high
30107	106	IN7 / Status	0 = low / 1 = high
30108	107	IN8 / Status	0 = low / 1 = high
30109	108	IN9 / Status	0 = low / 1 = high
30110	109	IN10 / Status	0 = low / 1 = high
30111	110	IN11 / Status	0 = low / 1 = high
30112	111	IN12 / Status	0 = low / 1 = high
30113	112	IN13 / Status	0 = low / 1 = high
30114	113	IN14 / Status	0 = low / 1 = high
30015	114	IN15 / Status	0 = low / 1 = high

Holding registers:

Communication parameters			
Register		Description	Notes
40101	100	Baud rate	'9600' = 9600 Baud, '19200' = 19200 Baud
40102	101	Data bits	'8' = 8 data bits
40103	102	Parity	'N' = No parity, 'E' = Even parity
40104	103	Stop bits	'1' = 1 stop bit, '2' = 2 stop bits
40105	104	Activation	'W' - Activate new parameters

5 Pulse Counter Reset *

Register		Description	Notes
40201	200	'R'	
40202	201	'S'	
40203	202	'T'	

*** Must be written with one command.**

6 Modbus ID Special Command

Command can be written with ID = '0' (No response) **			
Register		Description	Notes
40501	500	Modbus ID	Value range: 1 - 127
40502	501	Activation	W' - Activate new ID

**** Must be written with one command. Don't use the special command if more devices use the Modbus ID in question.**

7 Neutron15 Technical Specifications

- Inputs: 4 pulse inputs for open collector or relay outputs of meters. Open collector or relay output sourcing voltage 12 VDC, maximum sourcing current 5mA.
- Operating voltage: 12…24 VDC.
- Current consumption 97 mA.
- Size: WxHxD 105 x 90 x 52 mm (6 module wide DIN rail enclosure).
- Protection class: IP20.
- Operating temperature: -25 °C...+55 °C.
- RH: 5 % - 95 % non-condensing.

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 otherwise inflicted by the Finnish law.

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