



[Docs] NetPing Converter 0-20mA, 886A02

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[ENG] [886A02] Introduction

This manual will help you get acquainted with the specialities and features of the **NetPing Converter 0-20mA, 886A02 model**, get an idea of its functionality and technical characteristics and prepare the sensor for operation.

A User Guide is designed for network administrators and users, who set up or operate a device. To work with a device properly, a user must have an idea about the principles of building and functioning of local networks as well as possess the next knowledge and skills:

- Basic knowledge in the area of local and global networks;
- Basic knowledge in the area of architecture and principles of work of TCP/IP networks;
- Basic knowledge in the area of architecture and principles of work of Ethernet networks.

[ENG] [886A02] Limitation of Liability and Copyright

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Developer and manufacturer:

NetPing east Co Ltd.

[ENG] [886A02] Overview and Main Features

The External View of The Sensor



Main features

Sensor Specifications	Values
Current measurement range	-30...30 mA ±3%
Moltage measurement range	0...30 VDC ±3%
Resistance measurement range	0...29 999 Ohm ±3%
Current sensor connection type	High side (positive polarity), Low side (negative polarity) drop on the intrumental shunt up to 1V
Loop power supply	Built-in 12V with short circuit current 100mA + 24V with output current up to 30 mA
Power supply	From the host device. "Hot" connection to the host is not provided - it is allowed to reboot the host during the "hot" connection
Operating Temperature Range	-30 °C...+50 °C (without moisture condensation, at normal air humidity)
Sensor dimentions	95 x 28 x 25

Sensor Specifications	Values
Sensor weight	70 g

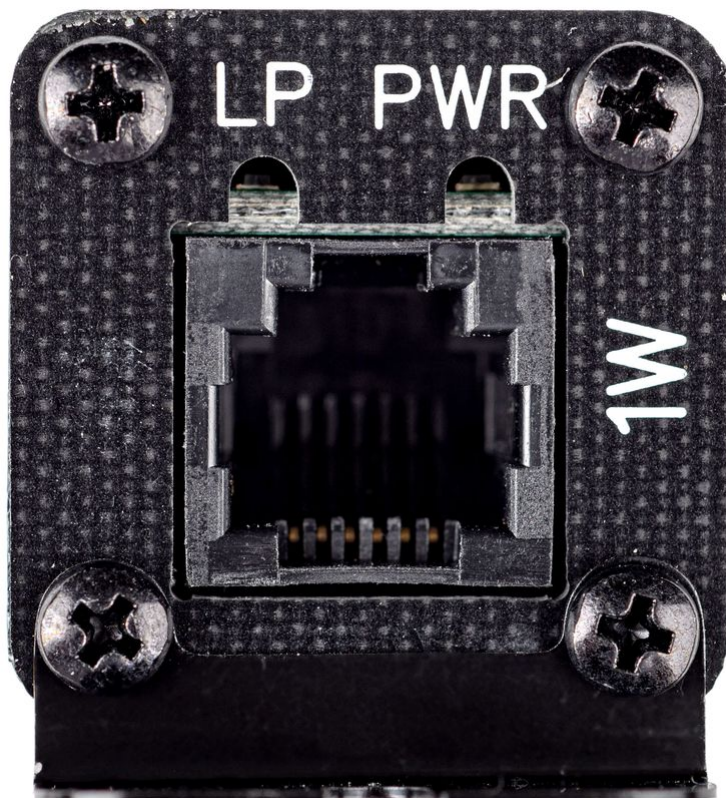
[ENG] [886A02] Connectors and Indications Elements

Front Panel



Element	Function
GND	Common connector
RS- / RS+	Current loop connectors
+12V	Power connector +12V
+24V	Power connector +24V

Back Panel



Element	Function
LP	Loop power indicator
PWR	Sensor power indicator
1W	Host connector

[ENG] [886A02] Installation and Connection

The converter can be mounted on a horizontal or vertical surface. There are mounting holes.

When you install the converter pay attention to the next restrictions:

- Do not expose the converter to direct sunlight.
- Do not install the converter near heat sources.
- Do not open the converter case.
- Avoid getting liquid on the converter particularly on the connectors.

The sequence of connection:

Step 1.

Remove the converter 886A02 from its packaging. Put it onto the place you need.

Step 2.

Connect the converter to the 1-wire port of the device (or through an extension-splitter) to which you are connecting it. The host device must be disconnected at the time of connection, otherwise it can be rebooted.



Step 3.

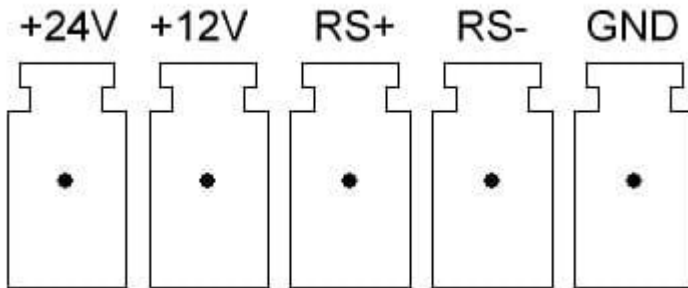
Connect the sensor to the converter.



The configuration of the sensor and notifications you can see in a description of a built-in firmware on a connected host device.

[ENG] [886A02] Loop/Sensor Connection to the Converter

Functions of the converter`s connectors

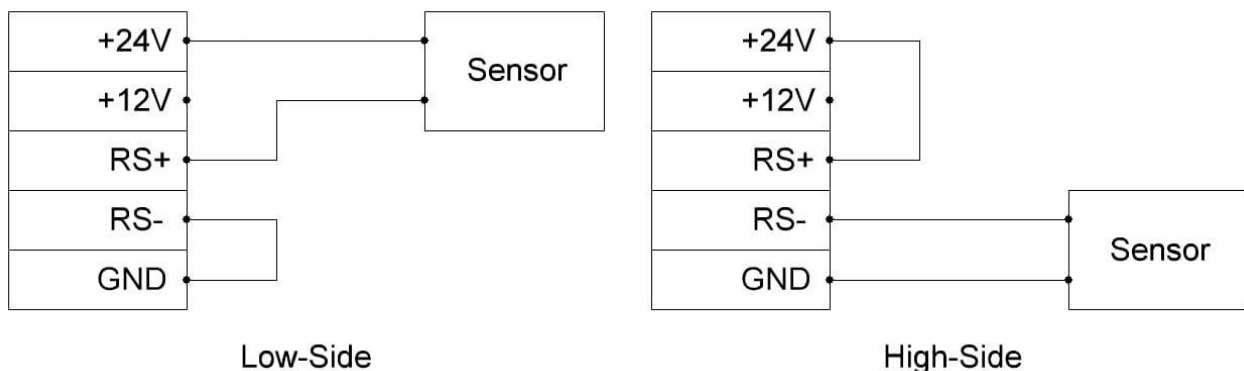


- +24V and +12V – connectors which can give power to the sensor or loop;
- RS+ and RS- – «meter» connectors;
- GND – common connector.

General information

The main purpose of the converter is to measure the current flowing in the loop. Additionally, the converter can measure the voltage on RS + and calculate the resistance based on the obtained values.

There are two possible schemes of connection:



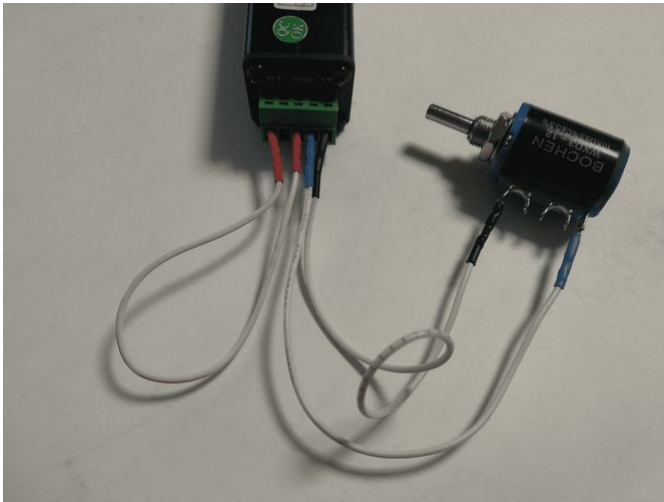
Low-side – measuring only the flowing current. Voltage is not measured, resistance is not calculated. The loop is closer to the power connector, the shunt is on the GND side.

High-side – measuring the flowing current and voltage, calculation of resistance. Voltage measurement error is up to 60 mV at 30 mA. The loop is closer to GND, the shunt is on the side of the power connector. This scheme is preferred.

The loop connection must always be in direct polarity - current must flow from RS+ to RS-. Reverse polarity connection will not damage the device, but the measurement will be incorrect.

The example of connection

For convenience and clarity, we take a 10 kOhm variable resistor as a sensor, connected according to the High-side scheme.



Thus, with the "middle" position of the resistor handle: $23,900 \text{ mV} / 4.86 \text{ mA} = 4918 \text{ Ohm}$.

Status	Normal
Current, mA	4.86
Voltage, V	23.9
Resistance Ω	4915

At the "ultimate" right position: $24,000 \text{ mV} / 2.4 \text{ mA} = 10,000 \text{ Ohm}$.

Status	Normal
Current, mA	2.41
Voltage, V	24.0
Resistance Ω	10010

Attention!

In case of a short circuit at the output of the current loop power of the converter, it goes into protection. No further recovery is possible without a power reset.

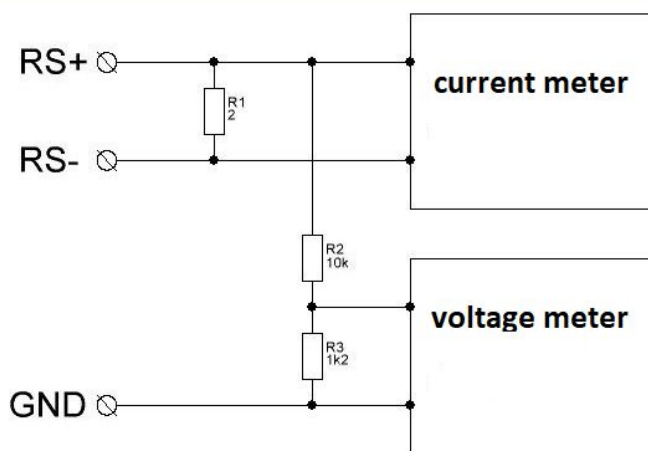
It is possible to measure voltage (0...30V) by connecting the + of the power supply to the RS + connector and connecting the GND of the power supply and the converter.



If you connect it this way, only voltage will be measured.

Current, mA	-0.04
Voltage, V	5.04
Resistance Ω	29999

Equivalent circuit scheme of a meter input



[ENG] [886A01] Delivery Package

The delivery package consists of:

- a NetPing Converter with the analogue interface 0–20mA, 886A02 model — 1 pc.;
- a Quick Start Guide brochure — 1 pc.;
- a flat connecting cable, 6-wire, AWG24, with RJ12 connectors at the ends, 2 meters - 1 pc. ;
- a terminal block STK-15EDG K-3.5-5P - 1 pc.

[ENG] [886A02] Warranty

The manufacturer guarantees normal operation of the product within 24 months from the date specified on the warranty sticker if a buyer follows operating and storage conditions. Manufacturer warranty applies only to failure of a device which occurred because of defects in manufacturing process of products and components used. If during a warranty period the manufacturer receives a notice of such defects, it will repair or exchange the product (by its own discretion). If the manufacturer is unable to repair or replace a flawed item during a period of time determined by the current legislation, the manufacturer according to a customer's wish can return the amount paid for the product at the time of purchase. The manufacturer provides a limited warranty on firmware and device configuration software. In case of detecting any errors in the software which became known to the manufacturer on its own or from a customer, the manufacturer will fix these errors within a reasonable time and provide an update for the customer. Only the errors that block normal use of the device at conditions and for performing functions described in this User Guide are a subject to mandatory fix. This warranty does not apply to cases when defects appear because of: a misuse of a device, any modifications of a device without a written permission of the manufacturer, opening up a device (a warranty sticker on the case of a device is damaged) except cases foreseen by this description; repairing by unauthorized personnel, using or storing a device out of the range of allowable temperature and humidity, pressure, a software modification, and the reasons, listed below:

- A device failed because of the problems in a public electric network, plugging a device into power supply networks with invalid parameters, absence of grounding, etc. (power fluctuations and surges, overloading, etc.);
- A device failed because of having liquid inside;
- A device failed as a result of extreme temperatures;
- A device failed because of mechanical damage;
- A device failed because of connecting a power supply unit with invalid output voltage or a defective power supply unit;
- There are foreign objects, insects, etc inside the enclosure;
- During operation a voltage bigger than an allowable voltage range by the Ethernet standard has been supplied to the ports of a device.

[ENG] [886A02] Operating and storage conditions

The converter is designed for continuous round-the-clock operation in closed spaces. In operating conditions the converter is resistant to air temperature from -30°C up to $+50^{\circ}\text{C}$ (without moisture condensation, at normal humidity). The converter should be protected from direct sunlight and moisture.

The converter design provides reliable trouble-free operation during a long time without the necessity of special maintenance.

The storage of converters is carried out at temperatures from -40°C up to $+70^{\circ}\text{C}$.

The content of dust, vapors of acids and alkalis, corrosive gases and other harmful impurities that cause corrosion should not exceed the content of corrosive agents for type 1 atmosphere in storage rooms.

[ENG] [886A02] Additional Documents and Weblinks

The page of the converter 886A02: <http://www.netpingdevice.com/products/886a02>

Manufacturer's website: <http://www.netpingdevice.com>

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