Poseidon 2250

Short Manual

Safety information

The device complies with regulations and industrial standards in force in the Czech Republic and the European Union. The device has been tested and is supplied in working order. To keep the device in this condition, it is necessary to adhere to the following safety and maintenance instructions.

In particular, the device must not be used under any of the following conditions:

- The device is noticeably damaged
- The device does not function properly
- Unfastened parts can move inside the device
- The device has been exposed to moisture or rain
- The device has been serviced by unauthorized personnel
- The power adapter or power supply cable are noticeably damaged

The manufacturer warrants the device only if it is powered by the supplied power adapter or an approved power supply.

Starting Guide – Poseidon 2250
Start measuring temperature with Poseidon

1)   Poseidon connections

1.1) DIP switch settings. For installation, DIP switches must be set as shown:

- DIP1=**Off**   *(On = RS-232 setup mode. Quickly toggle the DIP 3 times within 5 seconds after power up to restore factory defaults.)*
- DIP2=**Off**
- DIP3=**Off**   *(On = HW protection mode, no configuration changes allowed)*
- DIP4=**Off**

1.2) Plug the power adapter to a mains outlet (230 / 110V) and connect it to the Poseidon 12V power connector.

1.3) Dry contact **inputs** for connecting contacts. Dry contact sensors (pushbuttons, relay contacts, door contacts).

1.4) Connect the unit to the Ethernet (with a patch cable to a switch, cross-over cable to a PC).
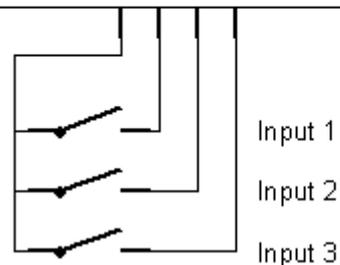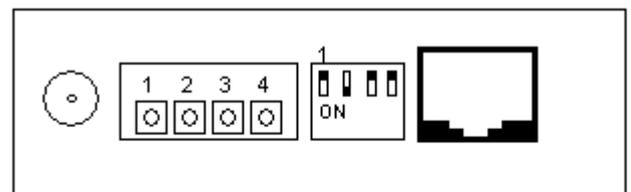
1.5) Temperature/humidity sensor (**1W bus** interface) (Temp-1Wire or Humid-1Wire). **The RJ12 jack must click in**.

1.6) RS-485 sensor connections. Observe the following rules.
- A single sensor can be connected directly to the RJ45 jack.
- Multiple sensors can be daisy-chained, or connected via a S-Hub or Spider.

2) Configuring the IP address – UDP Config

UDP Config utility – root directory of the supplied CD (Windows and Linux versions).

Available for download at www.HW-group.com Software > UDP Config.

- Click the icon to launch **UDP Config**. The program automatically looks for connected devices.

- To search for devices, click the **Find Devices** icon.
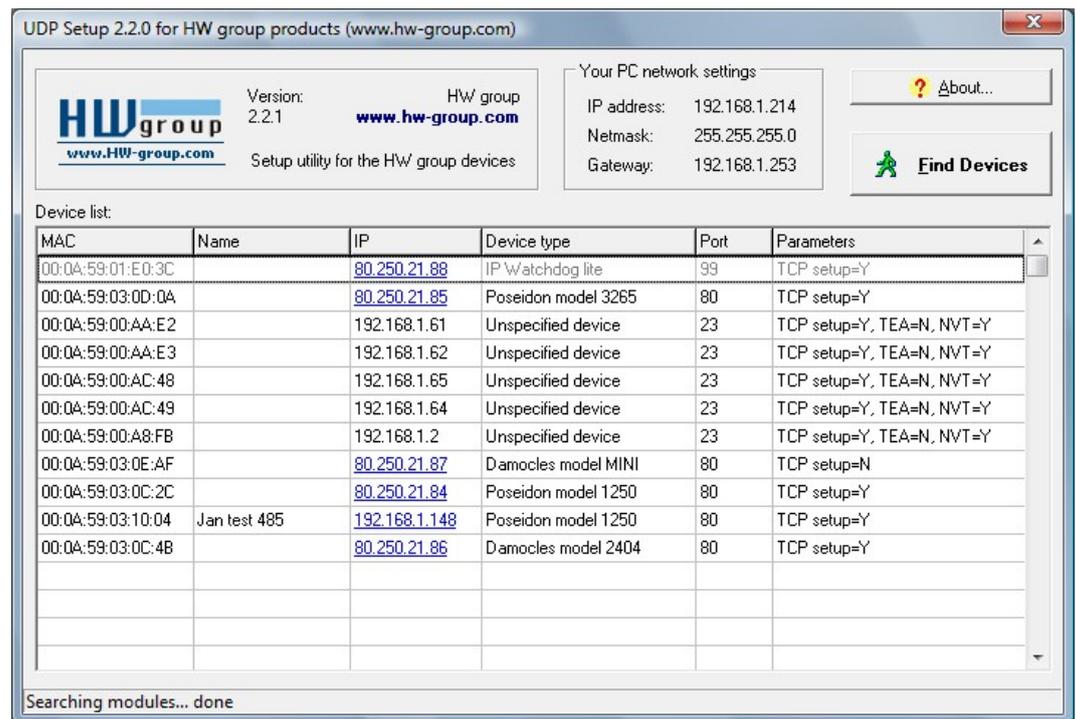
The program looks for devices on your local network. Individual Poseidon units are identified by their MAC addresses (printed on the label at the bottom side of the unit).

Double-click a MAC address to open a basic configuration dialog.

Configure network parameters

- IP address / HTTP port (80 by default)
- Network mask
- Gateway IP address for your network
- Device name (optional)

Click the **Apply Changes** button to save the settings.

Notes:

- *To reset the device to factory defaults, toggle DIP1 several times within 5 seconds after power-up.*
- *While DIP3=On, no configuration changes can be stored. To change the IP address, set DIP3=Off.*
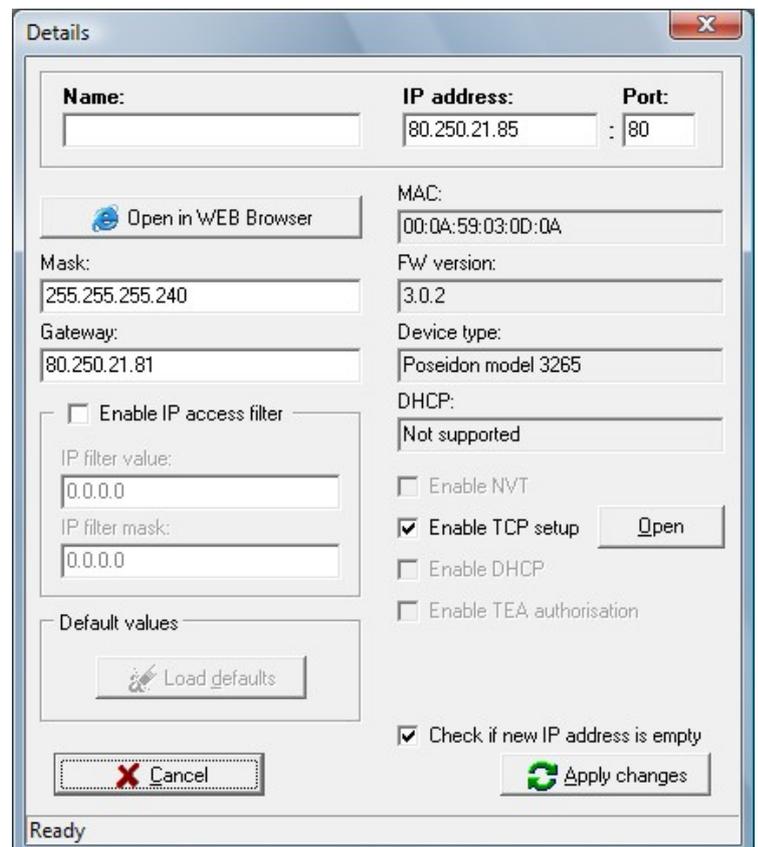
3) Poseidon configuration in a Web browser

Type the IP address of the device in your browser's address bar, or run **UDP Config** and double-click the underlined IP address in the list of discovered devices.

Retrieving current readings

- **XML** – **/values.xml** file, described in a XSD - downloadable from the main page, detailed comments to the XML structure are in the manual.

- **Modbus/TCP** – description of the structure is in the manual or in application examples. Standard port 502 is open for reading by default.

4) Configuration in Flash Setup

Click the **Flash Setup** link at the web page to open a graphic version of the setup utility. **Adobe Flash player** plug-in must be installed in your web browser. You can find it on the supplied CD (`\Poseidon\install flash player 7.msi`), or download the latest version from the Internet.
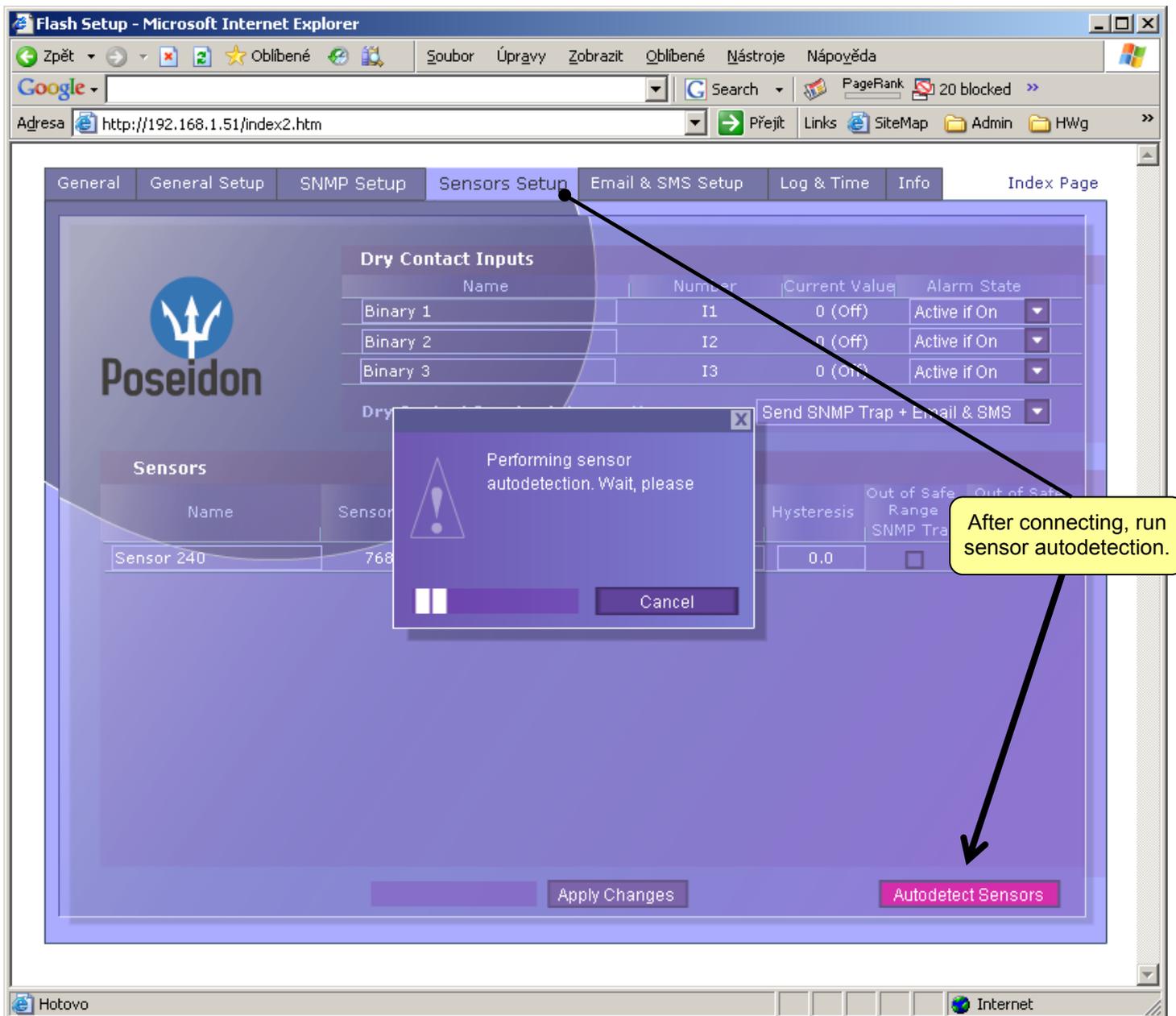
Flash Setup allows you to:

- Set sensor names and corresponding alarm thresholds ("safe range")
- Select units for displaying temperature (°C, °F, °K)
- Watch current sensor readings (refreshed automatically at predefined intervals)
- Set SNMP parameters (Community names & rights), define targets for SNMP traps
- Set device name, password, and secure IP address range

5) Connecting the sensors

1Wire Bus (RJ11)

Local bus for connecting sensors

- Connect the sensor before powering up the Poseidon – **the connector must click in.**

- Sensors can be daisy-chained. Maximum distance is 30m.

- Sensors can be also connected using a star topology with the T-Box (TBox2) hub. In this case, the maximum wiring length is 10m.

- If you change the sensor topology, the sensors must be auto-detected again.
  (Web interface > Flash Setup > Sensor Setup > **Autodetect Sensors**)
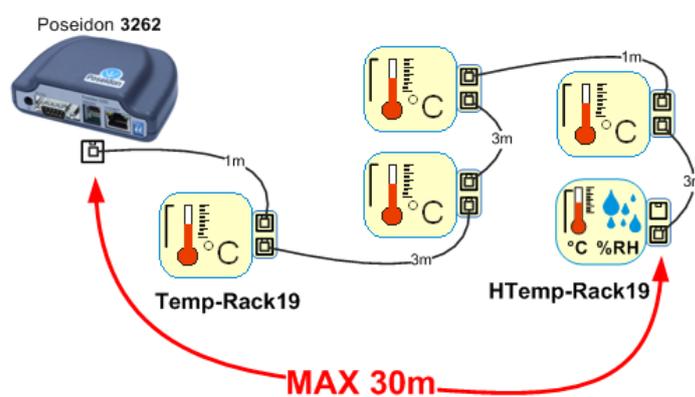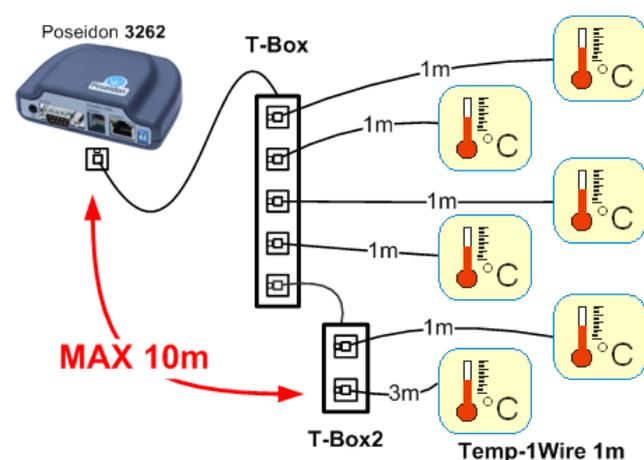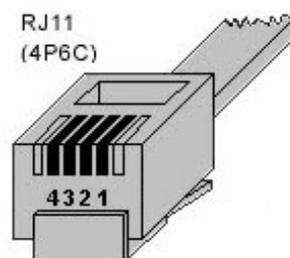
Industrial Bus sensors (RS-485)

Industrial bus for connecting sensors over longer distances

- Connect the sensors before powering up the unit.

- Sensors can be daisy-chained, or connected to a virtual star using the "**S-Hub**" unit.

- **Terminate the RS485 line** with a 120 Ω to 470 Ω terminator. Some sensors contain a built-in, jumper- or DIP-controlled terminator. See the sensor manual.

- Check or set the sensor address. Each sensor on the RS-485 bus must have **an unique address**. The address (ID) is expressed as a letter (A..Z / a..z) or a number (65..122). The numbers correspond to the ASCII codes of the letters, A=65, Z=90, a=97, z=122. For details about address configuration, see the sensor manual.

- If you change the sensor topology, the sensors must be auto-detected again. (Web interface > Flash Setup > Sensor Setup > **Autodetect Sensors**)
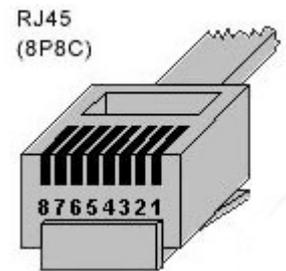
Sensors are shipped with non-conflicting addresses whenever possible. The preconfigured address is written on the label.

Note: *A particular sensor is identified by its RS-485 address. Sensors with the same address can be swapped without the need for a new detection.*

TIP	• For details about connecting sensors, see the description of the interfaces. • For more information about connecting sensors and wiring lengths, see the **detailed manual for the Poseidon line of products**.

6) Software
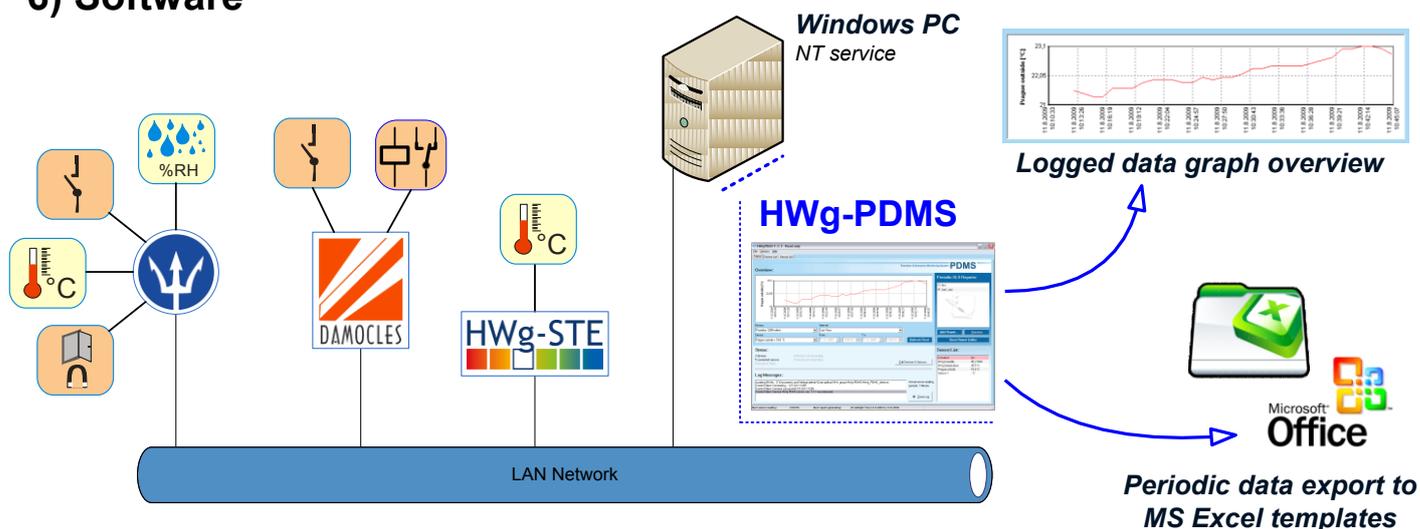
Poseidon 2250 and HWg-PDMS

After installation from the CD, the HW group > Poseidon 2250 >> HWg-PDMS you can get data in two ways:

- **HTTP XML** – direct access to the unit
- **E-MAIL Pop3** – download data from the email (Poseidon unit have to send email first)
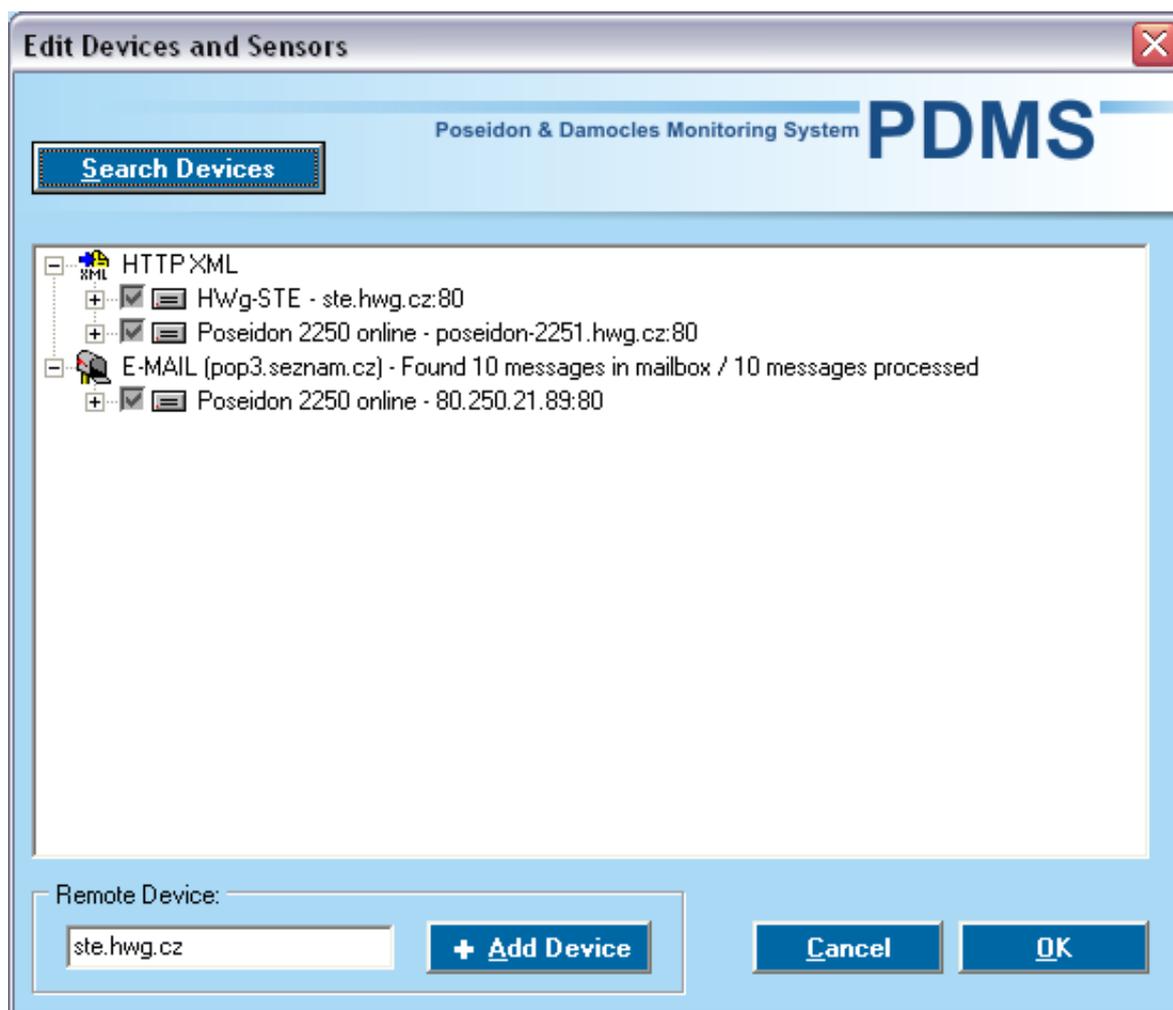
Note: Search Devices find only local network devices. You can add remote devices on public IP address. You can use online demos from HWg or our distributors.

This is free version of HWg-PDMS with graph of values loaded from internal memory.

Note: *To Export data to MS Excel, click to* <u>Add Report</u>*, check which sensors do you want to have in Excel and click to* <u>Save & Preview</u>*. It call your MS Excel,* <u>Enable marcos</u> *and you get data to the first sheet "***Report***". Data can be generated automatically on background.*

- You have to enable Macros
- You have to use MS Office 2007 or higher
- This function can't be implemented to Open Office

HWg-PD Trigger

To react to alarms and to control outputs, the PD Trigger application can be used. It reacts to incoming Alarm alerts by, for instance, activating a networked relay. (Available for download at our website.)
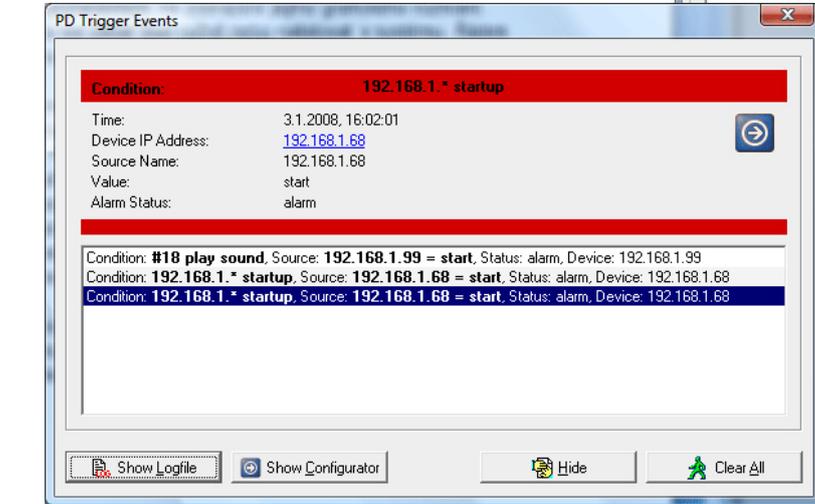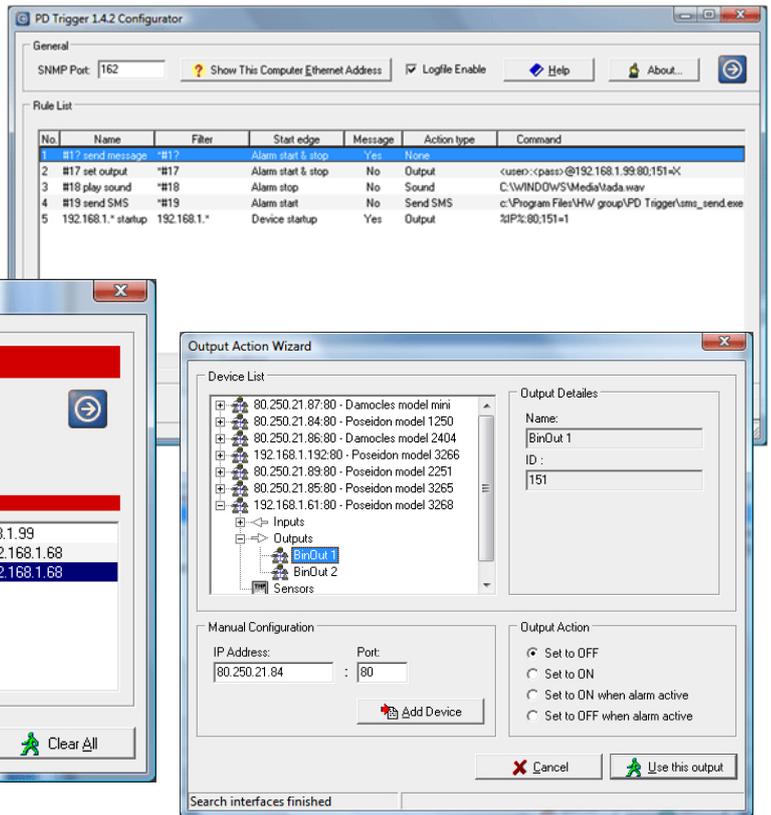
HWg-PD Trigger: Free version for 2 conditions available for your trial.

PosDamIO

Poseidon Damocles I/O is a command-line utility for Windows and Linux that lets you control Poseidon and Damocles units over the XML interface. It can display the states of sensors, inputs and outputs, as well as set an output high or low.

CapTemp

CapTemp and MonTemp is a pair of utilities to monitor production processes. The programs can supervise all sensors from HW group (temperature and humidity sensors, contacts, etc) as well as sensors by other manufacturers.

CapTemp logs the readings into an internal database, displays several most recent ones, and processes conditions and alarms. Alerts to readings within an alarm range are sent by e-mail, or by SMS via a GSM modem connected to the PC.
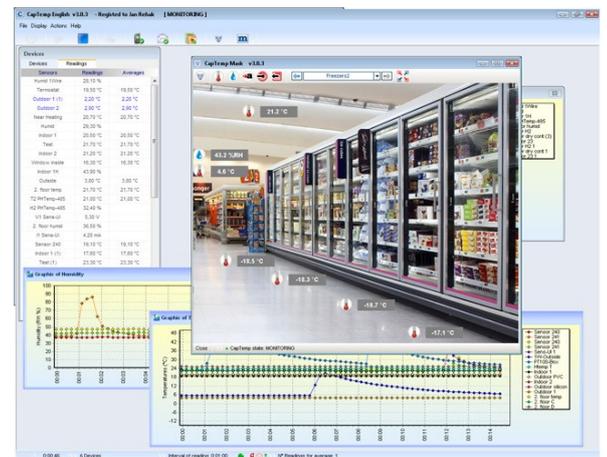
- CapTemp supports Poseidon, Damocles and I/O Controller products

- Alarm alerts are sent by e-mail or SMS (GSM modem)

- Concise graphical environment

- Supports conditions and rules for simple control tasks

- Evaluation version functions for 21 days without restrictions

Poseidon probes calibrator

- Each sensor can be calibrated by specifying a linear offset.
- The calibration value can be written over calibrator utility (a menu invoked by a right-click) or by XML.
- Programmers can use **EX104** in the **HWg SDK**

Calibration examples

- Calibration value = +3 → sensor measures 0.5°C → Poseidon shows +3.5°C
- Calibration value = -3 → sensor measures 0.5°C → Poseidon shows -2.5°C
- Calibration value = -10 → sensor measures 27% RH → Poseidon shows 17% RH

Click right mouse button for value calibration menu

Common features of the Poseidon product line

Displayed readings

- The Poseidon unit displays current readings from all connected sensors.

- Dry contact inputs are scanned approximately every 200ms.

- Values from all sensors on both buses (RS-485 and 1W bus) are read in a single loop that repeats once per second; however, the actual time needed to read the sensors may vary from 1 to 30 seconds

- All values are in the "integer/10" format, range is ±999.9.

- **A value of 999.9** is out of range for all supported sensors and indicates that the sensor was not found.

    - If you have disconnected or replaced a sensor, run sensor autodetection, or remove the sensor from the list.

    - When the Poseidon unit is overloaded with network requests (as is sometimes the case, for example, with our public online demo), -999.9 can sometimes appear even though the sensor works properly. This is due to limited computing performance of the unit. Try to reduce the load.

- Units are assigned to values automatically according to the detected sensor type. Supported units include:

    - Temperature: °C, °K, °F
    (please note that Safe Range thresholds can be set in °C only)

    - Humidity: %RH

    - Voltage: V, current: A or mA

    - Other units: %, etc...

Input / sensor in alarm state

- Alarm state can be set independently for every input (contact) / sensor.

- For a sensor, "Alarm" occurs whenever the reading is outside of the specified Safe Range, as long as alarm alerting is enabled for at least one notification method (SNMP / e-mail & SMS).

- **Response to a sensor being disconnected**

    - -999.9 is displayed

    - The value evaluates as an "Alarm" (reading out of the specified Safe Range). If alarm alerting is enabled for the given sensor, e-mail or SNMP trap is sent.

> TIP
> - For more information about data formats, variable identification and the SDK, see the **detailed manual for Poseidon product line**.

Sensor hysteresis

The **Hysteresis** setting defines a tolerance band for alarm alerts. This feature prevents multiple alarm alerts if the reading oscillates around the specified threshold. See the graph for an explanation.
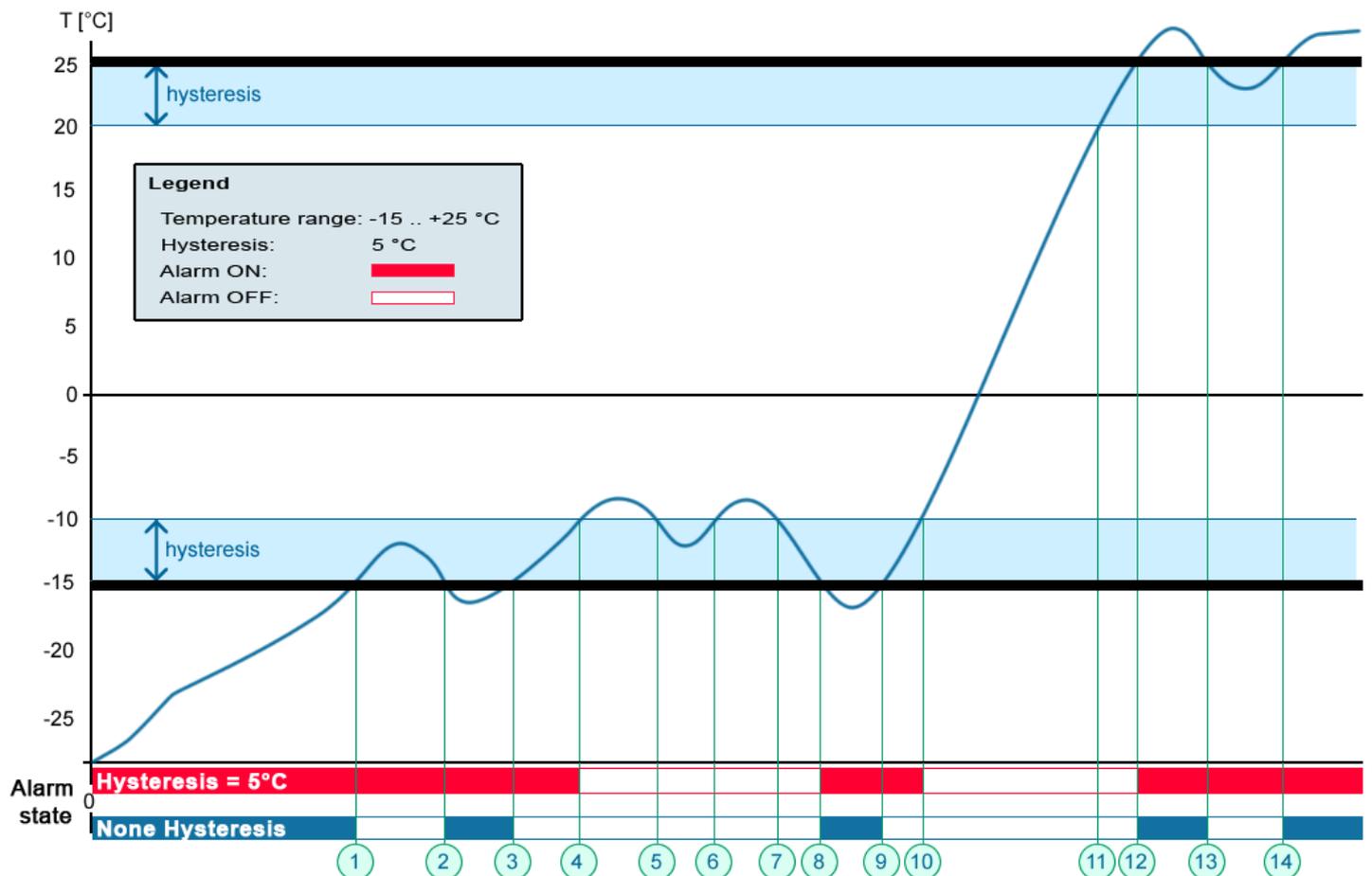
Without a hysteresis of 5°C, the alarm raised at **point 8** would end at **point 9**. With the hysteresis function, the alarm continues until the temperature rises above the tolerance band (**point 10**), that is, 5°C + (-15°C) = -10°C.

- **Hysteresis = 5°C:**   The unit sends **3 e-mails (SMS)**
                                                        Alarm at points **0..4, 8..10, 12 and beyond**

- **No hysteresis (0°C):**   The unit sends **8 e-mails (SMS)**
                                                        Alarm at points **0..1, 2..3, 8..9, 12..13, 14 and beyond**

TIP	• For more information about data formats, variable identification and the SDK, see the **detailed manual for Poseidon product line**.

Technical specifications
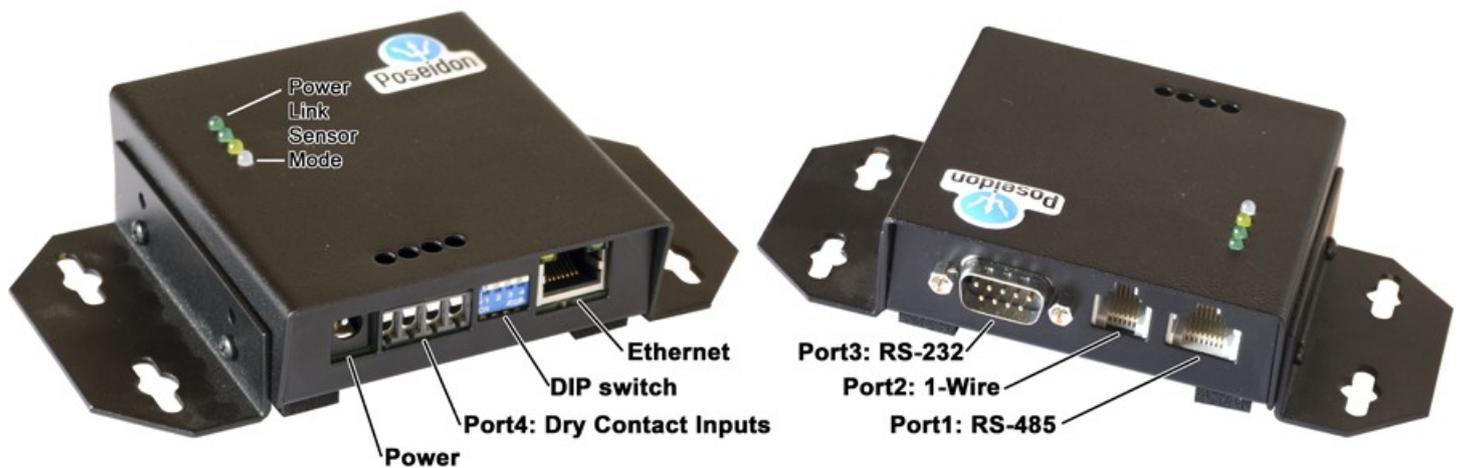
- **Ethernet**: RJ45 – 10BASE-T/10 Mbit/s

- **Port 1**: RS-485 bus (RJ45 jack)

- **Port 2**: 1-Wire bus (RJ12 jack)

- **Port 3**: RS-232 (D-sub 9M connector)

- **Port4**: Dry contact input terminals for **3 contacts** (0 to 500 Ω)

- **Device setup**:

    - **Restoring factory defaults**
      Toggling DIP1 3x down and up right after powering up the unit erases all settings including passwords (configuration can be backed-up with UDP Config)

    - **RS-232**
      Sensor configuration and initialization, IP address configuration, ...

    - **UDP Setup**
      Remote IP address configuration over a local network segment

    - **HTTP** – **graphical Flash interface**
      Protected with a password and a specified IP address range

- **Power supply:** +12V / 250 mA

- **Dimensions:** 25 x 82 x 90 [mm]

- **LED indicators:** Power, LINK, Sensor, Mode

Ethernet port	
+ Interface	RJ45 (10BASE-T) – 10 Mbit/s Compatible with 10/100 Mbit/s networks
+ Supported protocols	IP: ARP, TCP/IP (HTTP, Modbus over TCP), UDP/IP
+ SNMP compatibility	Version 1.00 compatible, partial version 2.0 implementation

Port 1 – RJ12 – 1-Wire bus (Dallas Microlan)	
+ Type	HWg original accessories: 1-Wire or 1-Wire UNI
+ Connector	RJ11 (1-Wire Bus)
+ Sensors / distance	Max. 10 sensors, up to 20m (single sensor) or 10m in total (star topology)

Port 2 – RJ45 – Industrial Bus (RS-485)	
+ Connector	RJ45 (8 pins)
+ Sensors / distance	Max. 31 sensors, up to 1000m
+ Bus termination	Internal termination in Poseidon (place Poseidon to beginning or the end of the bus)
+ Supplied power	12V / max 120 mA – **Max 4 external RS-485 sensors without external power**

Port 3 – DB9M – RS-232	
+ Connector	D-sub 9-pin male connector (DB9M)
+ Pinout	IBM PC standard (RxD, TxD, RTS, CTS, DTR, DSR, GND)
+ Usage	Serial Setup, extra pins
+ Sensors	No sensors support
+ GSM modem	Supported, require special cable (Rxd, TxD and GND only)
+ Outputs	2 additional outputs (1/0): RTS(+10V/-10V), DTR(+10V/0V)

Port 4 – Dry Contact Inputs	
+ Contact inputs	3 digital inputs, accept NO/NC dry contacts
+ Input type	One common pin, all inputs opto-coupled, max. distance 30m, logic H = 0…500 Ω

LED Status indicators	
+ POWER	**Green** – Power OK
+ LINK & Activity	**Green** – Ethernet connectivity
+ SENSOR RS-485	**Yellow** slow – No RS-485 sensors found **Yellow** fast – RS-485 sensors read, value valid
+ MODE & RS-232	**Red** – Device is in the **RS-232 Setup** mode **Red** lit – One or more sensors out of the defined Safe Range **Green** – fast once – Sensor reading, value valid

DIP SWITCH configuration	
+ DIP1 – RS-232 Setup	ON = RS-232 Setup mode (RS-232 mode only), OFF = Normal mode, network active
+ DIP2	Not used
+ DIP3 – Security	ON = Secure mode (HW protection) – no configuration changes possible OFF = Unsecure mode – configuration not protected by HW
+ DIP4 – RS-485 Echo	ON = RS-485 bus Echo mode – communication forwarded to the RS-232 port

Physical	
+ Supply voltage	12VDC / 250 mA (Min 9V, Max 25V) cylindrical (barrel) power connector, GND on the shielding
+ Dimensions	25 x 82 x 90 [mm] (H x W x D)
+ Weight	450 g
+ Temperature range	Operating: -10 to 60 °C / Storage: -25 to 85 °C
+ MTBF	> 80 000 hours

Mechanical dimensions

POWER SUPLY 2,1mm
OR
TERMINAL BLOCK

TERMINAL BLOCK
0,5mm² ÷ 2,5mm²

DIP SWITCH

ETHERNET

RJ45

RJ12

RS-232 (CAN9-M)

90

96

27,3

22,5

7,3

9,3

25

6x ø4,2

5x5(=25)

1,7

4x LED ø3

23

3x5(=15)

10

25

16

8

25

7,5

26

3,5

9,5

Wall mount – "L" bracket

45

4x ø3

21,5

7

8,5

75

ø7,5

R

4

16,5

32

19

40
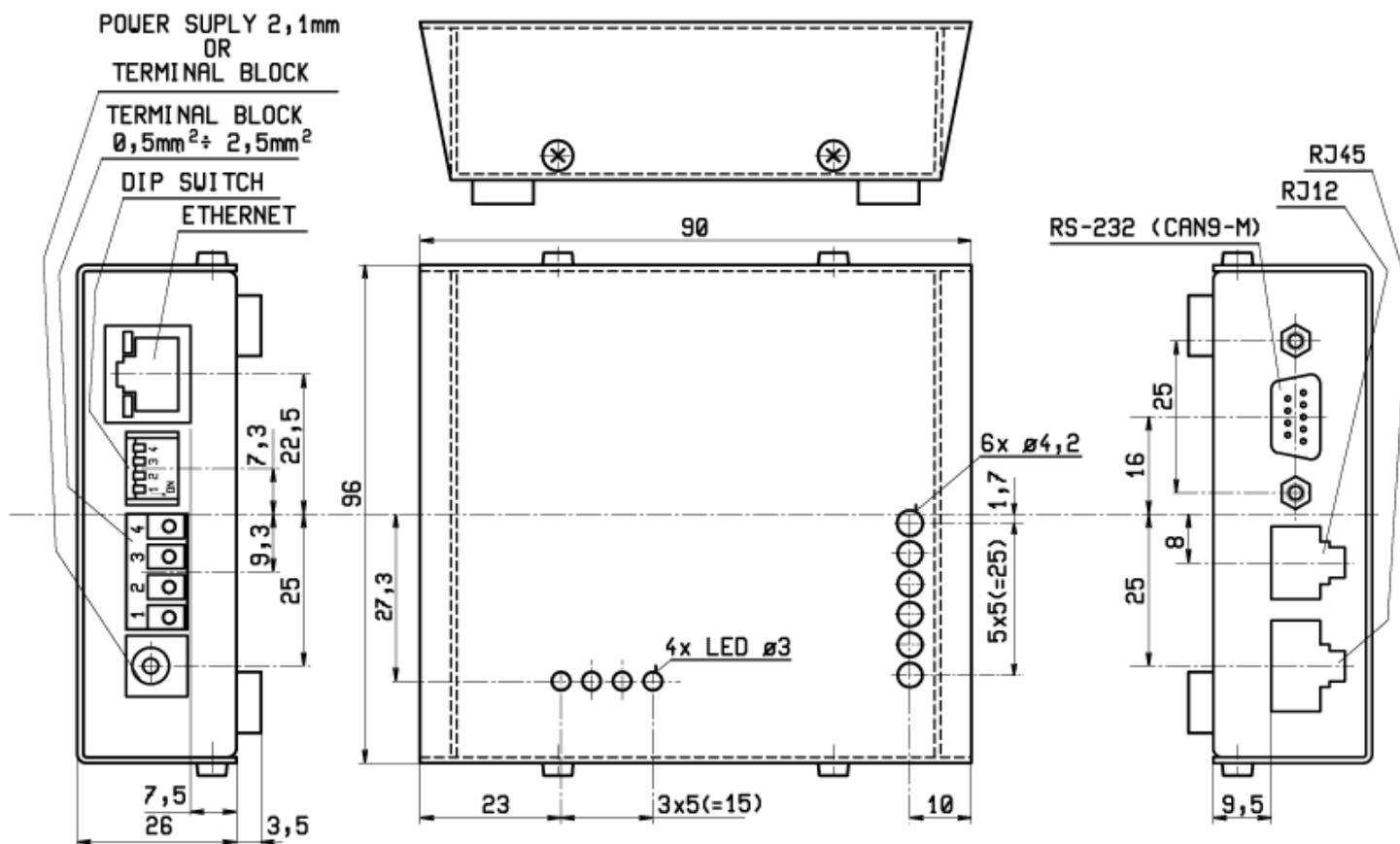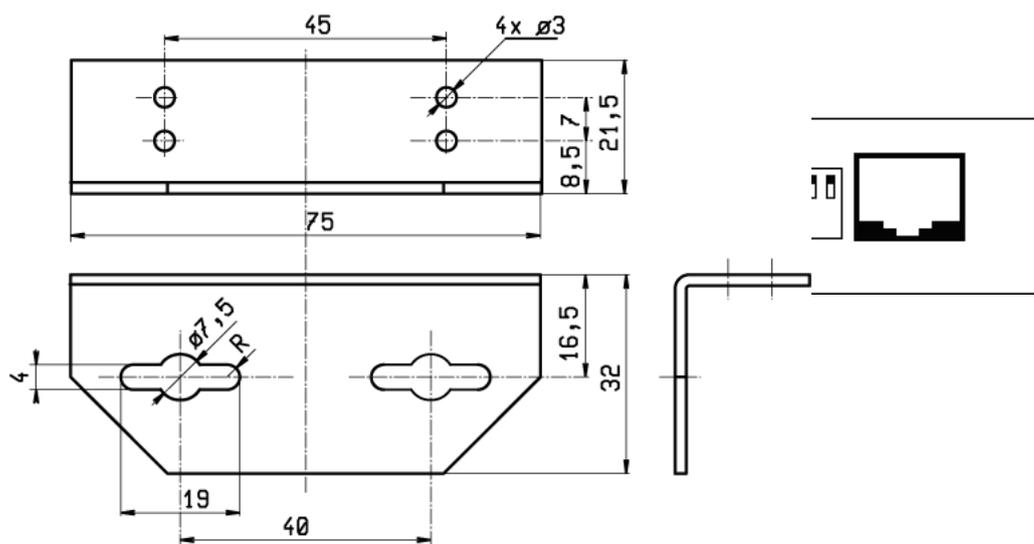
Detailed device description

Power connector

The usual DC plug – 2,5mm coaxial barrel connector – is used to connect the power. Negative terminal is connected to the outer body of the plug.
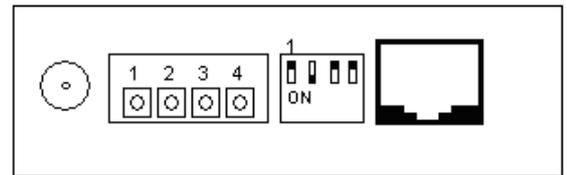
Ethernet

Ethernet network connects via the standard RJ45 jack next to the power connector. Use a Twisted Pair (TP) patch cable to connect to a switch, or a cross-over cable to connect directly to a PC.
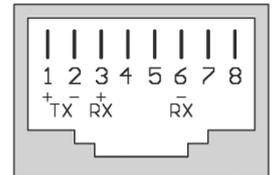
The device has a 10 Mbps Ethernet interface => it only works in **10 Mbps** or **10/100 Mbps** networks.

Note: *The device cannot be directly connected to a 100 Mbps-only network. If you need to connect it to a 100 Mbps (or faster) network, use a 10/100 Mbps Ethernet switch.*

MAC address

MAC address is a unique number identifying the device. It is printed on the label at the bottom side of the unit. It consists of six hexadecimal number pairs, the first three pairs are always **00:0A:59**.

With the MAC address, you can distinguish individual devices in the UDP setup utility when assigning IP addresses.

Configuration with DIP switches

DIP switches control the following functions. If you change the settings, it is recommended to reset the device by disconnecting and reconnecting the power.

Factory default configuration is:
DIP1=Off, DIP2=Off, DIP3=Off, DIP4=Off.
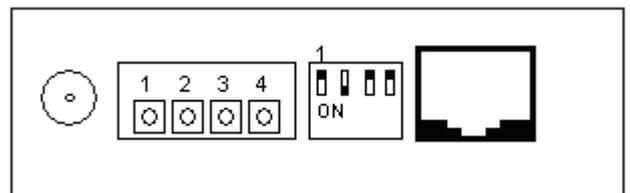
DIP SWITCH configuration	
+ DIP1 – RS-232 Setup	ON = RS-232 Setup mode (RS-232 mode only), OFF = Normal mode, network active **LOAD DEFAULTS**: Toggle the switch 3 times within 5 seconds after powering up.
+ DIP2	Not used
+ DIP3 – Security	ON = Secure mode (HW protection) – no configuration changes possible OFF = Unsecure mode – configuration not protected by HW
+ DIP4 – RS-485 Echo	ON = RS-485 bus Echo mode – communication forwarded to the RS-232 port

DIP1 - RS-232 Setup mode

DIP1 activates the RS-232 Setup mode. If DIP1=ON when the device is powered up, the RS-232 Setup mode is activated and the red MODE LED blinks. The Ethernet is disabled in this mode!

To restore factory default settings: Toggle the DIP switch at least 3 times within 5 seconds after powering up the device.

DIP3 – HW security protection

When **DIP3=ON**, the **HW-Security protection** mode is active. Any configuration changes are ignored in this mode:

- No settings can be changed with **UDP Setup** (using *UDP Config* or *Herkules* utilities)
- **Flash Setup** still opens in the browser but no settings can be changed
- **TCP Setup** (at port 99 by default) is not available
- No parameters can be changed over **SNMP**

LED indicators

LEDs indicate the current mode, power being supplied, Ethernet activity and sensors being read.

- **POWER** (green)
  Indicates that the power supply is on.

- **LINK** (green)
  Indicates that the Ethernet connection is functional.

- **SENSOR RS-485** (yellow)
  Quick flashing indicates that a valid value has been received over the RS-485 bus.

  Slow flashing means that some sensors on the RS-485 bus were not found.

- **MODE & RS-232** (red/green)

  - Red slowly flashing – Device is in the **RS-232 Setup** mode = Ethernet is disabled (check DIP1).
  - Red continuously on – At least one sensor or input is in alarm.
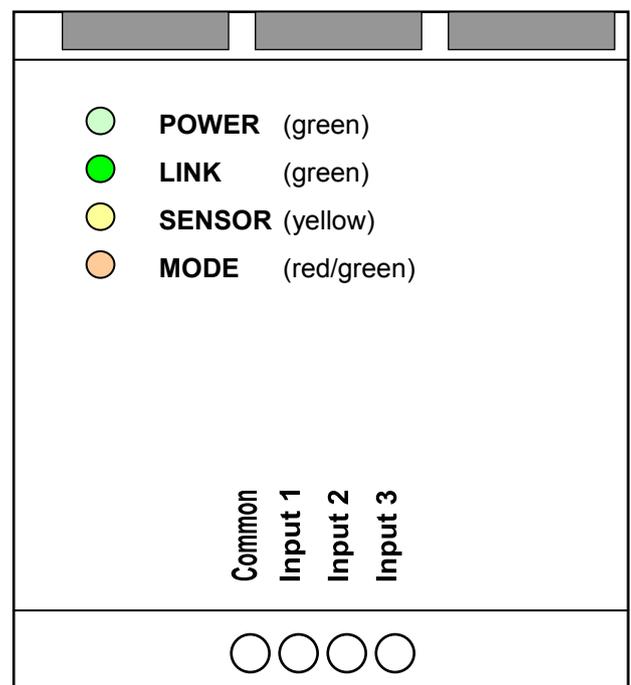
Problem	LED indication
Ethernet disconnected	Green LED (LINK) turns off
RS-485 sensor torn off (alarm inactive)	Yellow LED (SENSOR) blinks slowly
RS-485 sensor torn off (alarm active)	Red LED (MODE) is on
IT bus sensor torn off (alarm active)	Red LED (MODE) is on

Port 3 DB9M - RS-232

The interface is intended for setting up the device (RS-232 Setup when DIP1=ON) and for updating the firmware.

The **DTR** and **RTS** outputs can be controlled from the **Flash setup** interface, tied to an alarm state, or controlled over the network.

Voltages corresponding to logic levels on these outputs:

RTS

- **0** (**Off**) = **-10V** (-12..-6V)
- **1** (**On**) = **+10V** (6..12V)

DTR

- **0** (**Off**) = **0V**
- **1** (**On**) = **+10V** (6..12V)

	Port 3 - DB9M		
1	-	-	Not used
2	**RxD**	<--	Receive Data
3	**TxD**	-->	Transmit Data
4	**DTR**	-->	Data Terminal Ready
5	**GND**	---	System Ground
6	**DSR**	<--	Data Set Ready
7	**RTS**	-->	Request to Send
8	**CTS**	<--	Clear to Send
9	-	-	Not used

States of outputs after device restart: RTS = Off (-10V), DTR = Off (0V).

Using the RTS and DTR outputs
Port 3 complies with the RS-232 specification. If needed, the **P1250 RC** converter (designed for connecting two 12VDC rated relays to Poseidon 1250 over RS-232) can be used to connect two external relays. The converter applies approximately 10V to the relay coil, making it possible to control 9VDC or 12VDC rated relays.

P1250 RC (Relay Cable)   - ordering No. 600 244
Relay coils connect directly to a small terminal block. Polarity is shown on the label, closed state is indicated by a LED lighting up.

Port 4 – Dry contact inputs

Three volt-free contacts can be connected to the terminal block against a single common pin.
The inputs are electrically connected to the power supply.

- Unconnected inputs read as "**0 (Off)**".
- Activated inputs (closed contacts) read as "**1 (On)**", resistance against the Common pin must not exceed 500Ω.
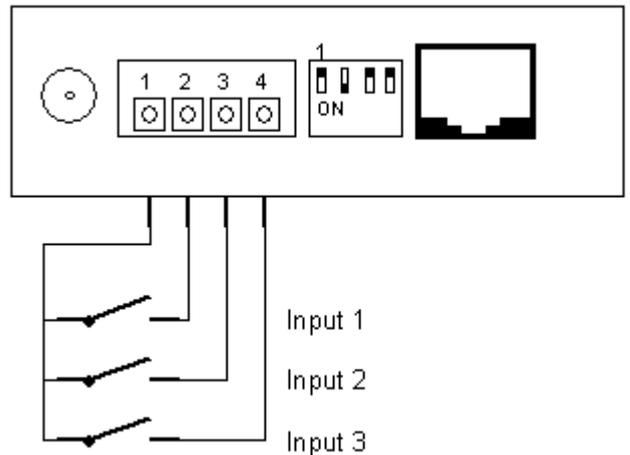
Specifications:

- **Maximum wiring length:** 50m
- **Supported sensors:** Any contact without external voltage
- **Per-input alarm settings:** Alarm activation and state (0/1), configured over WWW - Poseidon Flash setup.
    - Alarm inactive
    - Alarm when the contact is opened or closed
    - Alarm whenever the contact is open

- **Possible alarm responses:** Common setting for all inputs
    - No response
    - Alarm alert sent as a SNMP trap
    - Alarm alert sent by e-mail or text message (SMS)
    - Alarm alert sent as a SNMP trap as well as by e-mail or SMS

- **Polling period:** 800ms
- **Range of sensor IDs:** Inputs use IDs from 1 to 9.
- **Sensor names:** Sensors can be named using up to 12 characters
- **Disconnected sensor detection:** None, disconnected sensor reads as "**O (Off)**".

Port 1 (RJ11) 1-Wire bus / 1-Wire UNI

1W or 1-Wire bus is a bus invented by Dallas Semiconductor and designed to connect several sensors over a short wiring. The bus carries power and a single data wire; it is not suitable for long distances or environments with EMC interference.

We recommend to keep the total wiring length under **10m**, although functionality has been achieved over tens to hundreds of meters in experimental settings.

Port 1 – RJ12		
1	**+5V**	Power
2	-	Not used
3	**Data**	Transmit Data
4	**GND**	Ground
5	**+5V**	Power
6	-	Not used

The manufacturer guarantees correct bus operation under the following conditions:

- **Up to 10m** <u>total wiring length</u> when using the star topology. (T-Box is used.)
- **Up to 30m** <u>total wiring length</u> when using the daisy-chain topology.
  (No T-Box is used, units are daisy-chained using two RJ11 jacks on the sensors)

For longer than specified wirings, **error-free operation is not guaranteed** and depends on the cabling, topology and environment.

- **Maximum wiring length:** 10m / 30m in total
- **Supported sensors:** Temperature, humidity sensors (see the overview of available sensors)
- **Number of sensors on the bus:** Up to 10 sensors
- **Power to sensors:** 5V/50mA available at the RJ12 jack
- **Sensor power consumption:** Power supplied over the bus is sufficient for all connected sensors
- **Communication cable:** 4-wire telephone cable (2-wire in special circumstances)
- **Alarm settings:** Checking the reading against its Safe Range, configuration over WWW – Poseidon Flash setup
- **Polling period:** 800ms to 10s (depending on the number of connected sensors, 10s for 41 sensors)
- **Sensor address assignment:** Automatic, each sensor has a unique address
- **Range of sensor IDs:** Sensors use IDS from 257 to 65535
- **Sensor names:** Sensors can be independently named using up to 12 characters, the name is tied to the sensor ID
- **Disconnected sensor detection:** Yes, disconnected sensors read as "-999.9"
- **Alarm if sensor is disconnected:** If the sensor is set to alarm whenever its reading is outside of the safe range, disconnection triggers the alarm

Remember: *All 1W bus sensors have their unique serial numbers. These are stored with sensor names during autodetection and expressed using the sensor IDs. If you change the sensors on the bus, you must re-run **Autodetection** in the Flash SETUP.*

Examples of 1W bus connections
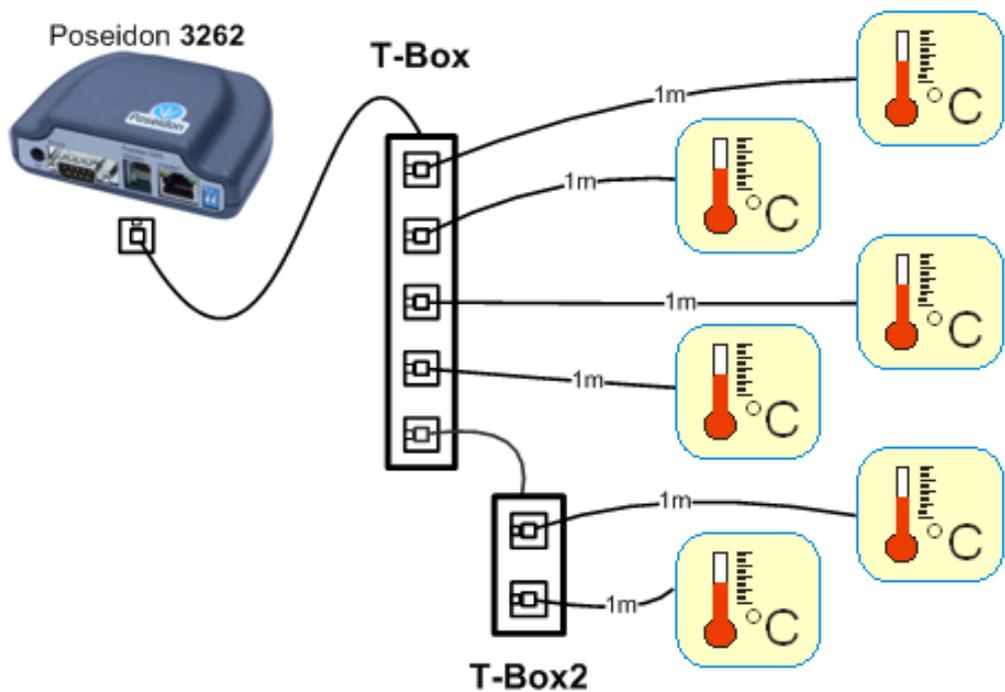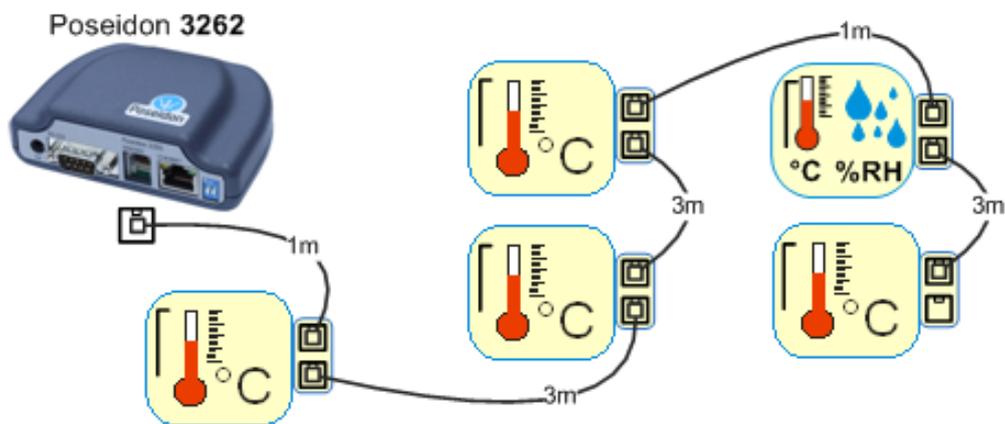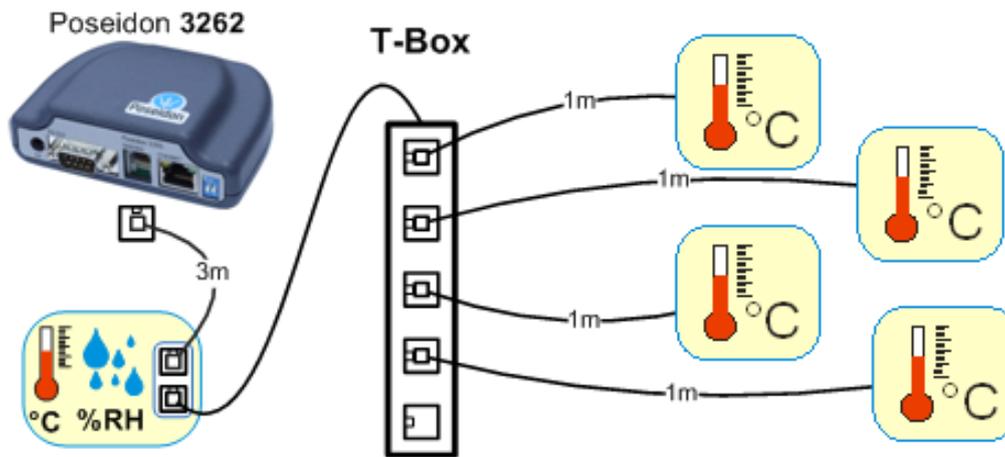
Special accessories for the 1W bus

Poseidon T-Box2 – RJ11 hub for 2 sensors

- **Cable length:** 1m
- **Maximum number of connected sensors:** 2
- **Connectors:** RJ11
- **Bus type:** 1W bus (1-Wire)

Poseidon T-Box – RJ11 hub for 5 sensors

- **Cable length:** 10cm
- **Maximum number of connected sensors:** 5
- **Connectors:** RJ11
- **Bus type:** 1W bus (1-Wire)
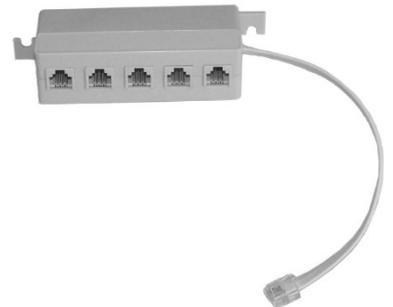
Poseidon Spider – Bridges 1W bus to Industrial bus

- The Spider unit connects to the Poseidon over the Industrial bus (RS-485)
- Up to **four 1W bus** sensors (temperature, humidity, dry contacts) can be connected to the Spider unit
- Each sensor is connected to a separate connector and may be located **up to 25m** away.
- **Maximum number of connected sensors:** 4
- **Connectors:**
    - RJ11 for 1W bus sensors
    - RJ45 for the Industrial bus to connect the Spider to the Poseidon unit

- **Sensor types:** 1W bus (1-Wire)
- **Connects to:** Industrial bus (RS-485)

Warning: *The Poseidon unit warranty explicitly excludes failures caused by connecting sensors made by other manufacturers or with excessively long wiring.*

Port 2 - RJ45 - Industrial Bus (RS-485)

The RS-485 bus can be used to connect up to 31 sensors over up to 1000m, even in industrial environments. For convenience and ease of use, TP cables and RJ45 modular jacks are used to wire the RS485 industrial bus.

The **RS-485 bus** uses the **blue pair** of wires (pins 4 and 5), labeled A and B. The **brown pair** (pins 7, 8) is used to supply 12V to **power the sensors**.

If you use the S-Hub unit and the B-Cable module, the **green pair** of wires (pins 3, 6) is used for the **return RS-485 connection**. The green pair of wires is not connected at the Poseidon 1250 unit.
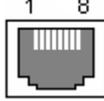
Port 1 – RJ45		
	1 8	
1	-	Not used
2	-	Not used
3	-	485 B return
4	B (-)	RS-485 Industrial bus
5	A (+)	
6		485 A return
7	GND	Ground
8	+12V	Power
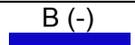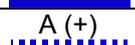
- **Maximum wiring length:** Up to 1000m in total

- **Supported sensors:** Temperature, humidity, current, voltage, and more (see the overview of available sensors)

- **Number of sensors on the RS-485 bus:** Up to 31 physical sensors

- **Power:** 12V/120 mA, available at the RJ45 jack. Power supplied by the bus is sufficient for up to 3 external sensors, an **S-Hub** can be added to power more sensors

- **Communication cable:** UTP, in some cases 4-wire phone cable

- **Alarm settings:** Checking the reading against its Safe Range, configuration in Poseidon Flash setup

- **Polling period:** 800 ms to 10 s (depending on the number of sensors, 10 seconds for 41 sensors)

- **Sensor address assignment:** Manual, each sensor must have a unique address (see sensor manual)

- **Range of sensor IDs:** Sensors use IDs from 48 to 122, the address corresponds to the ASCII code of 0..9, A..Z, a..z characters.

- **Disconnected sensor detection:** Yes, disconnected sensors read as **"-999.9"**

- **Alarm if sensor is disconnected:** If the sensor is set to alarm whenever its reading is outside of the safe range, disconnection triggers the alarm
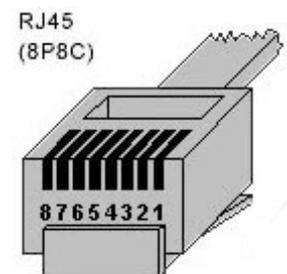
General RS-485 characteristics

- Maximum wiring length 1000 m

- Up to 32 devices on the bus (Poseidon unit + 31 sensors)

- High resistance to noise in industrial environments

- Daisy chain topology is necessary (as opposed to star topology)

- Each device must have a unique address

- Wire polarity must be respected

- Line must be terminated at the beginning and at the end

Line (Daisy chain) RS-485 topology
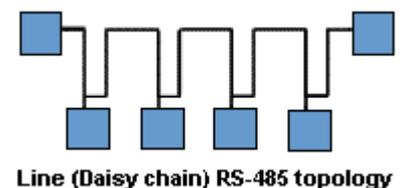
Termination

The RS-485 bus must be terminated at its end. The following options are available:

- **Internal jumper** on certain sensors (jumper named TERM or TERMINATOR) – for example Temp-485 or HTemp-485

- **B-Cable adaptor** with "LAST" configuration selected using the switches

- **External resistor** to terminate the bus at the "last" sensor, if the sensor has no jumpers or DIP switches (Temp-485-Pt100). Connect the resistor between the A and B terminals of the last sensor.
  The resistance of this resistor should be 120Ω, For short wirings, 470Ω can be used to reduce the current consumption of the sensors.

Note: *A disadvantage is that it is necessary to have a wiring topology **with a single beginning and a single terminated end**, as opposed to the popular star topology with a single interconnection point.*

Special accessories for the RS-485 bus

B-Cable - RJ45 / 4-wire connection
The B-Cable module is an adapter that converts a RJ45 jack connection to a block of 4 terminals **A,B,+,–**.

Some of the available RS-485 sensors already have a RJ45 jack; however, some only have 4 terminals labeled **A,B,+,-** . Such sensors can be connected to the Poseidon 1250 unit or to an S-Hub using either a TP cable (4 or 6 wires) or the B-Cable module.

- The 4-wire connection length should not exceed 20cm.

- Sensor position on the RS-485 bus (MIDDLE / LAST) is selected with jumpers; see the picture for details.
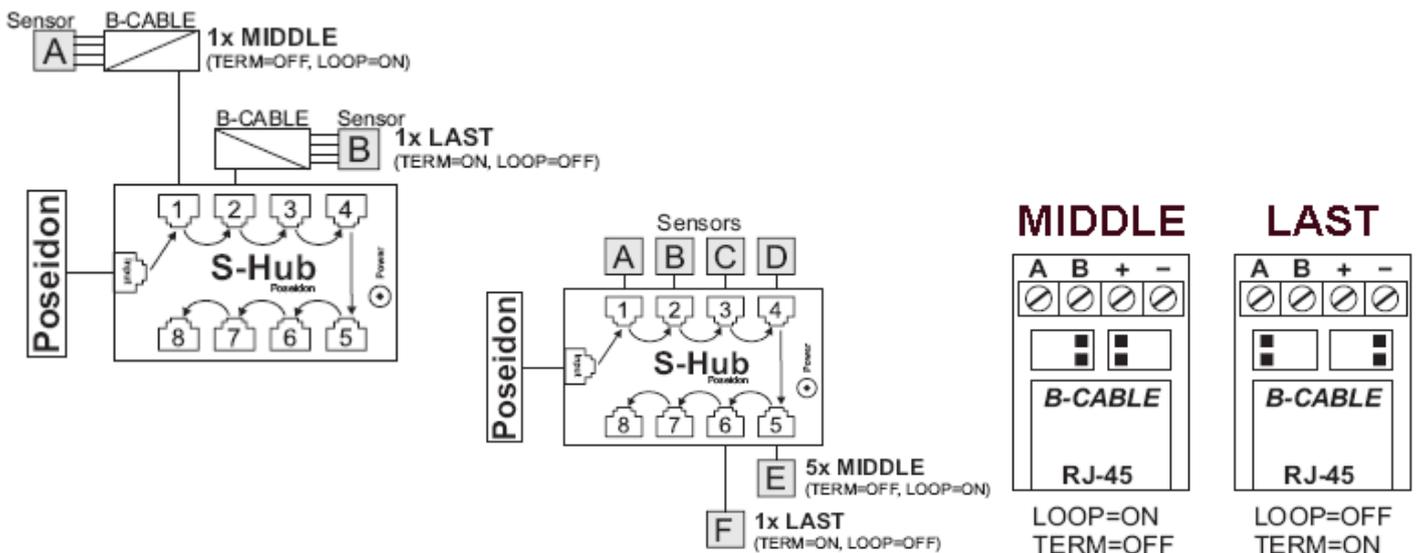
Sensor RJ45 MIDDLE cable

RS-485 cable, 0.5m, RJ45/4 pins. Connects 4 terminals (A, B, +, -) to a RJ45 modular jack (uses 3 pairs).

This cable is used to connect all sensors except for the last one in the chain. Sensors connected with this table **must not terminate** the RS-485 bus.

	RJ45		RS-485
1	-	Or/W	Not used
2	-	Or	Not used
3	R B (-)	G/W	RS-485
4	B (-)	Bl	RS-485
5	A (+)	Bl/W	
6	R A (+)	G	RS-485
7	GND	Br/W	Ground
8	+12V	Br	Power
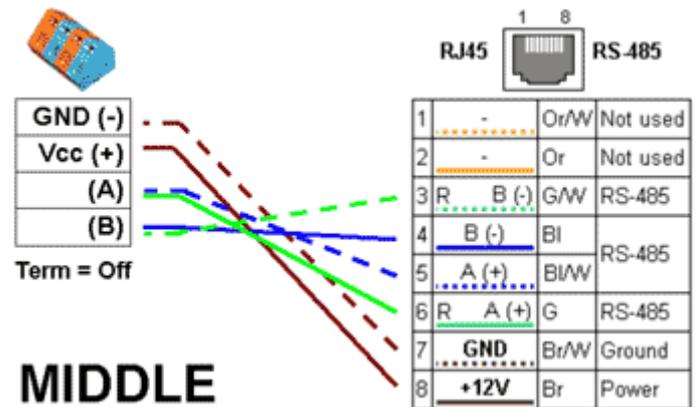
Sensor RJ45 LAST cable

RS-485 cable, 0.5m, RJ45/4 pins. Connects 4 terminals (A, B, +, -) to a RJ45 modular jack (2 pairs only).

This cable is used to connect the last sensor in the chain.

The sensor connected with this cable **MUST TERMINATE** the RS-485 bus in one of the following ways:

	RJ45		RS-485
1	-	Or/W	Not used
2	-	Or	Not used
3	R B (-)	G/W	RS-485
4	B (-)	Bl	RS-485
5	A (+)	Bl/W	
6	R A (+)	G	RS-485
7	GND	Br/W	Ground
8	+12V	Br	Power

- **External 120Ω resistor**
- **Jumper or DIP switch at the sensor set to TERM=ON**
- **For other options, see the sensor manual**
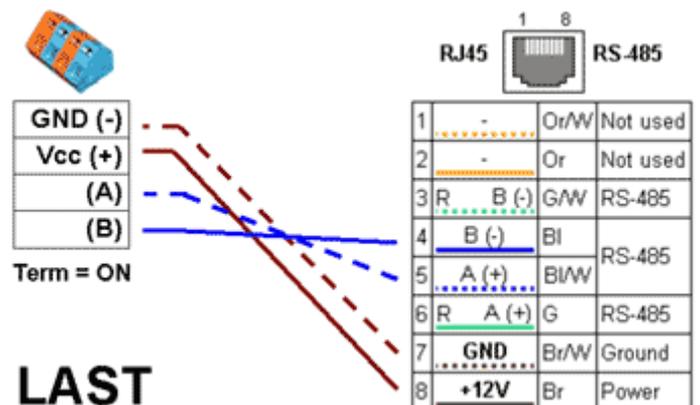
Poseidon Spider

A converter to connect four 1W bus (1-Wire) sensors to the Industrial bus(RS-485).

Each 1W bus sensor connects to a separate connector to enable a greater distance (up to 1000 meters, as defined by the Industrial bus specification).

Supports:

- Temperature sensors
- Humidity sensors
- Dry contacts (two central pins)
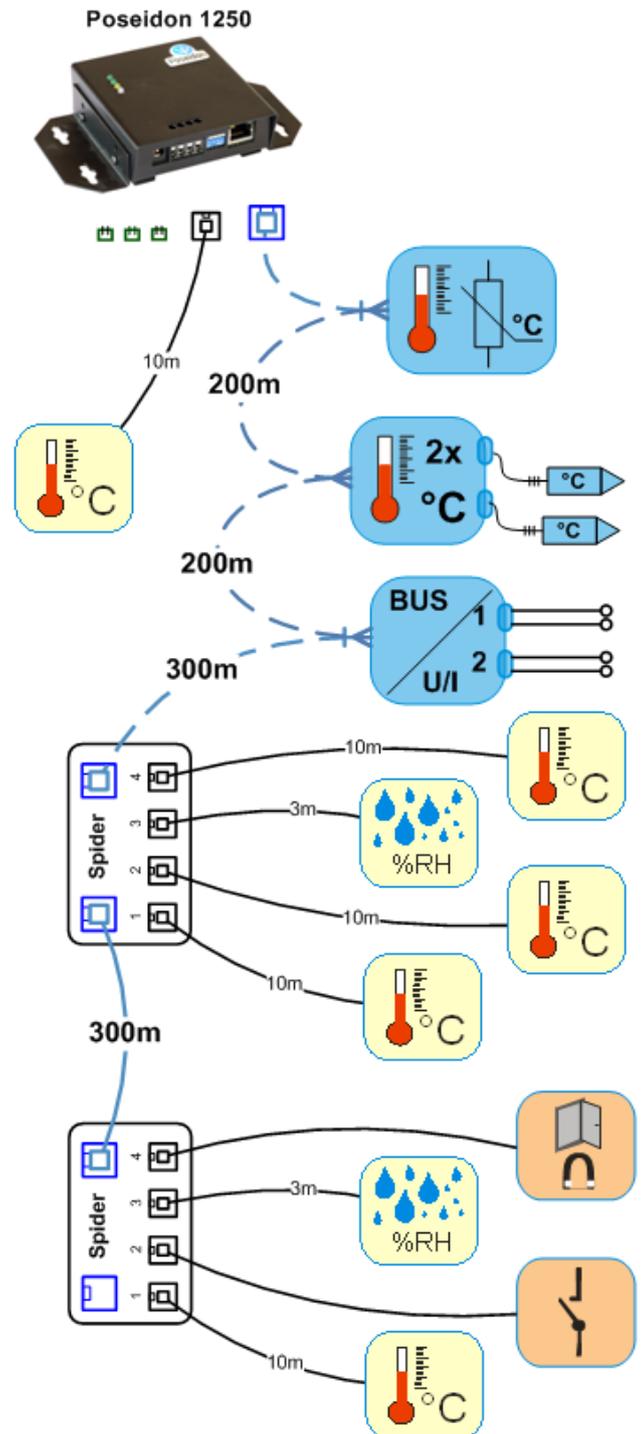
S-Hub – 8x RJ45 TP hub
The S-Hub unit with one input and 8 output ports is used
to connect up to eight RS-485 sensors with TP cables.

- Makes it possible to connect sensors in a star
  topology (sensors must be connected using TP
  cables)

- Simpler and faster connection of sensors

- Makes expanding an installation easier

- Simplifies supplying power to the sensors – a
  standard power adapter connects directly to the S-Hub unit
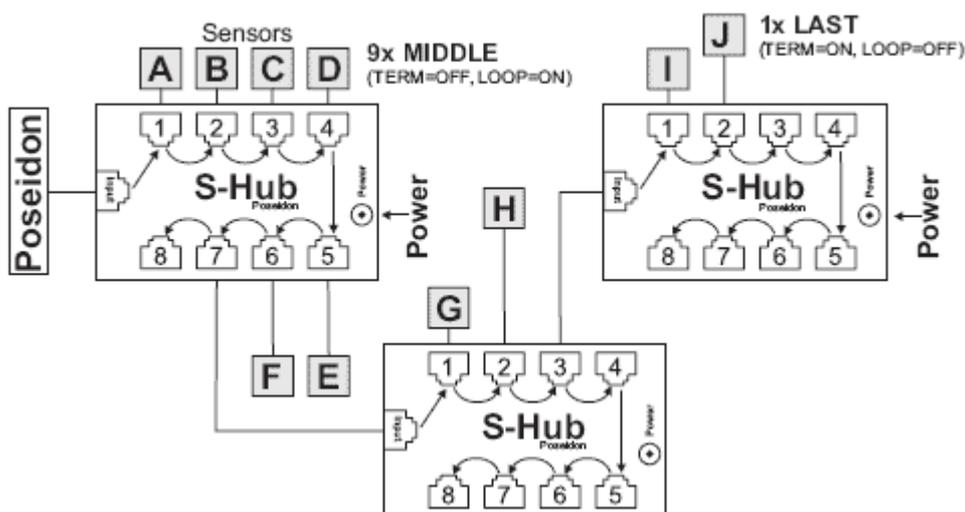
Note: *It is possible to mix the star / daisy-chain topologies with S-Hub, see the
examples in the following chapter.*

Industrial Bus (RS-485) wiring example

Poseidon 1250

S-Hub

Mode=MIDDLE

IN Spider OUT

Temp-485

HTemp-485

Temp-1Wire

10m

10m

10m

Door Contact

Term=ON

°C %RH

°C

°C %RH

°C

RJ45

4 pins

RJ12

RJ45 Patch Straight Cable

4 pins, LAST (Terminated)

2 wires cable

RJ45, MIDDLE cable

RJ45, LAST cable

Cat5 TP cable, 3 pairs used   Cat5 TP cable, 2 pairs used   Telephone cable, 2/3 wires used
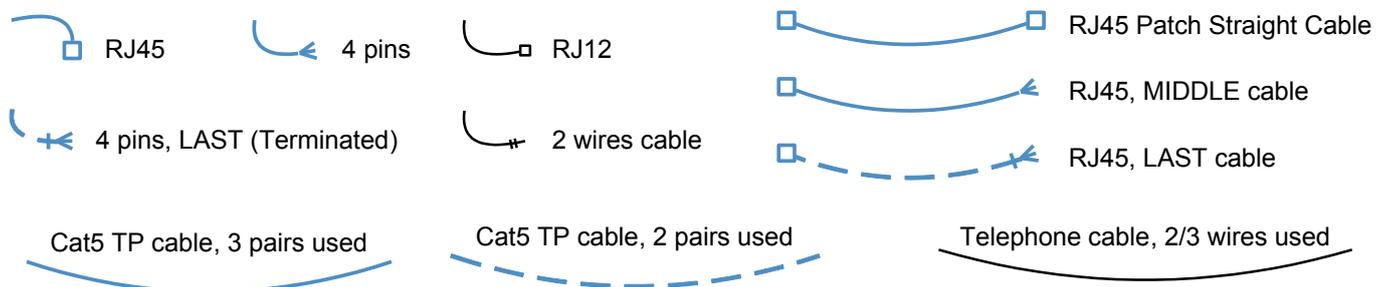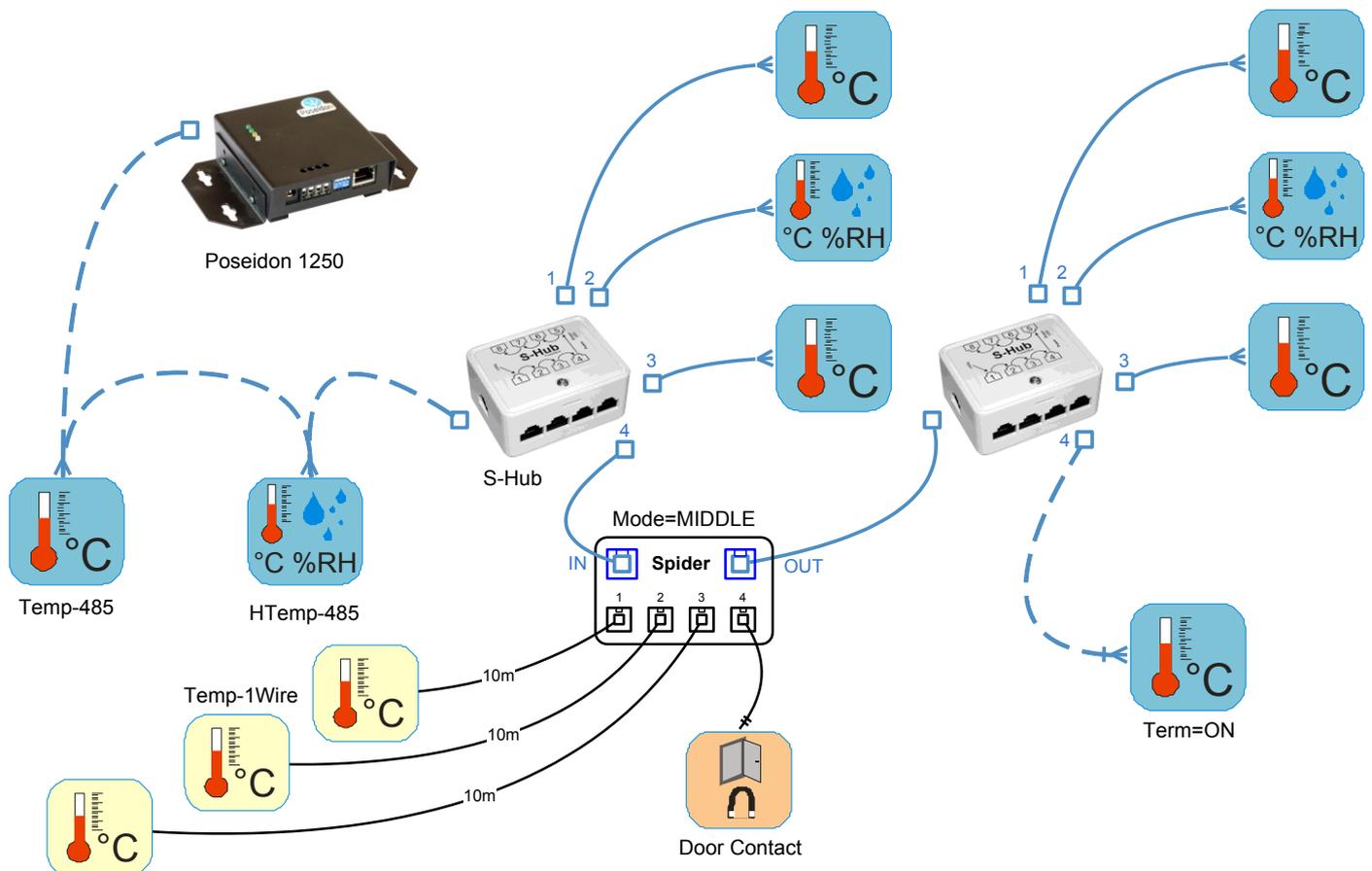
- The bus leads via a 4-wire connection (two twisted pairs) from a Poseidon 1250 unit to two daisy-chained sensors, **Temp-485** and **HTemp-485**.

- An **S-Hub** unit is daisy-chained via the RJ45 jack to the second **HTemp-485** sensor using a 4-wire connection. The brown pair carries power, the blue pair is used for data.

- **Temp-485** and **HTemp-485** sensors are connected to S-Hub connectors 1 through 3 using 6-wire connections (brown pair for power, blue pair leads the bus to the device, green pair back from the device).

- Connector 4 of the first **S-Hub** unit is used to connect a **Spider** converter with a patch cable. The **Spider** unit is used to connect three **Temp-1Wire 10m** temperature sensors and one door contact (the contact is connected to the blue pair of the RJ45).

- **Temp-485** and **HTemp-485** sensors are connected to S-Hub connectors 1 through 3 using 6-wire connections (brown pair for power, blue pair leads the bus to the device, green pair back from the device).

- Connector 4 connects a **Temp-485** sensor over a 4-wire connection (brown pair to power the sensor, blue pair for the A/B signals of the bus).
The **Temp-485** sensor is configured to terminate the bus using the **TERM** jumper.

User interface

The product can be configured in various ways which are described in this section together with the parameters.

- **UDP Config**
  Simple utility for configuring IP addresses (for Windows and Linux).

- **Web interface**
  Primary communication interface that invokes other links and the Flash setup.

- **Flash setup**
  Detailed user interface for configuring all features of the device.

- **Telnet setup**
  Configuration of special features, troubleshooting.

- **Backing up and restoring configuration**
  How to save and restore product configuration.

For automated configuration or polling values in third-party software, use the open communication interfaces described in the following chapter, *Using Poseidon units in your programs*.

UDP Config

UDP Config is a freeware utility for assigning IP addresses and changing network settings over the Ethernet.

- Windows and Linux version
- IP address is assigned to a product with a specific MAC address
- No installation is necessary, simply run the EXE file
- Provides a clear overview of device names and parameters
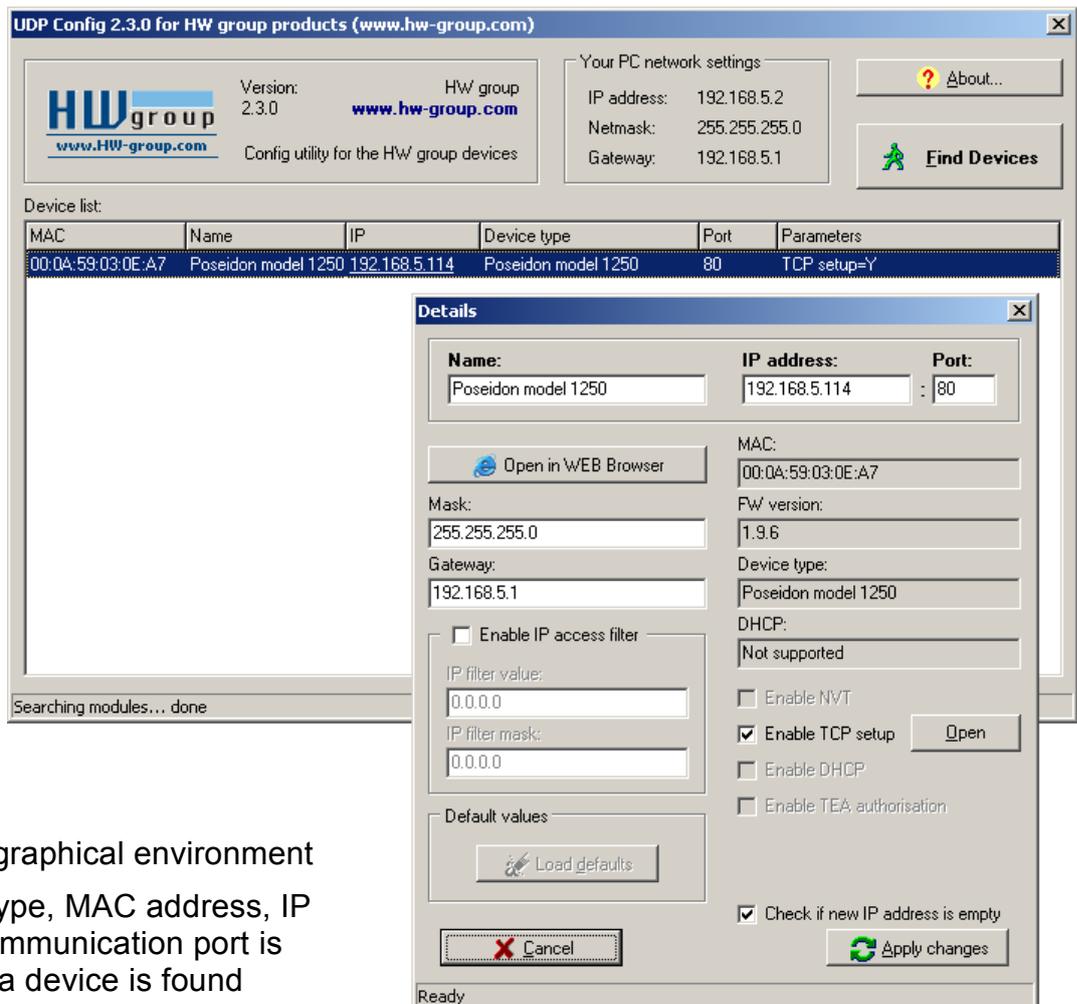
Main features

- Well-designed graphical environment
- Device name, type, MAC address, IP address and communication port is displayed after a device is found
- Compatible with all HW group products (Poseidon, Damocles, PortBox, PortStore, I/O Controller, IP relay and other product lines)
- Windows and Linux versions available
- Displays current network settings of your computer
- Verifies whether the IP address is available before assigning it
- Single-click access to the product web page
- Ability to open a Telnet session for TCP Setup
- Ability to restore factory-default settings

Detailed program description as well as an instructional video clip are available on the CD supplied with the device, or at our website: http://www.hw-group.com/software/udp_config/index_en.html

WEB interface

The Web interface shows an overview of the device status. Configuration takes place in Flash Setup.

The main page with the overview of sensor and input readings automatically reloads every 15 seconds.

Dry Contact Inputs

This section displays current states of dry contact inputs, including alarm status and settings. Active alarm is indicated by a **red background** of the corresponding line.

- **Name**
  Textual name of the input, assigned by user in the Flash Setup

- **Number**
  Unique input ID, as marked on the unit

- **Current Value**

    - **0 (Off)** – Open contact

    - **1 (On)** – Closed contact

- **Alarm Alert**
  List of alarm alert settings for each input (triggered by value out of safe range)

- Line background color:

    - **White / no color =** Input is not in alarm

    - **Red =** Input is in alarm

Sensors

The Sensors table displays information (valid at the time of the last refresh) about detected and activated sensors, including their states.

- **Name**
  Textual name of the input, assigned by user in the Flash Setup

- **ID**
  16-bit ID of the sensor, unique within a particular device

- **Current Value**
  Current sensor reading, including the unit
  Note: If a sensor is not connected, -999.9 is displayed.

- **Safe Range**
  As long as the reading stays within this range, alarm is inactive

- **Alarm Alert**
  List of alarm settings for each sensor (alarm is triggered by reading out of the safe range)

- Line background color:

    - **White / no color =** Input is not in alarm

    - **Red =** Input is in alarm

    - **Yellow =** Alarming is disabled for this input but the value is out of the safe range

Miscellaneous information

- **Device name**
  Device name assigned by the user in Flash Setup

- **Web Configuration**
  Link to the Flash Setup

- **Terminal Configuration (TCP Setup)**
  Link containing the IP address and the port to open a terminal session for TCP Setup

- **Firmware**
  Firmware version, option to upgrade over the web (<u>update</u> link)

  - <u>**XSD**</u> links to the XML definition file for **values.xml**
    (right-click the link and select *"Save Target as…"* to save the file to disk)

- **Text and link** "For more information try www.HW-group.com"
  Customizable link to the supplier or service provider. The text can be changed in TCP Setup, see the detailed description of **TCP Setup**.

Note: *The design of the main page can be changed only after consulting the manufacturer; we offer a "Customization" program. For more information, please contact your dealer.*

TIP • For details about interfaces, data formats, variable identification and the SDK, see the **detailed manual for Poseidon product line**.

Flash setup

*Flash setup for configuring the device. To open it, click the **Web Configuration: <u>Flash Setup</u>** link at the bottom of the main web page.*

Note: To open a FLASH page, FLASH support needs to be installed on your PC. If the PC is connected to the Internet, the plug-in is downloaded automatically. Alternatively, you can install the **plug-in** from the supplied CD – ***\Poseidon\install_flash_player_7.msi***

Flash menu: General

- **Values reloaded** X **times** – shows how many times were the readings reloaded
- **Reload values every** – interval for reloading the values, in seconds
- **Start/Stop** button – enable/disable periodic reloading of values from the Poseidon unit

Flash menu: General Setup

Flash menu: SNMP

Flash menu: Email & SMS

| General | General Setup | SNMP | Email & SMS | Log & Time | Sensors | Inputs | Outputs | System | Index Page |

Email Settings

SMTP Server	mail.hw.cz	[IP
Port	25	
Email Sender Address	Pos2251@hw.cz	
Authentication	No	
Name/Password		/
Email Subject Text	Poseidon2251:	
Alarm Email Recipient		
Alarm Email Copy	hwg.poseidon@seznam.cz	
Periodic Log Recipient	hwg.poseidon@seznam.cz	
		Send Test Email

Log file with values is sent every few hours to this recipient

String inserted to the subject of every e-mail

Test whether your e-mail setup works.

GSM SMS Interface   Enable ☑

RS-232 GSM Module	Waiting for modem
SMS + Ring when Alarm	
SMS Center Number	
Alarm SMS Recipient 1	
Alarm SMS Recipient 2	

Send Test SMS

Apply Changes

Flash menu: Log & Time

| General | General Setup | SNMP | Email & SMS | Log & Time | Sensors | Inputs | Outputs | System | Index Page |

Actual Date / Time

Current Date   19.04.2010   [dd.mm.yyyy]

Current Time   18:50:38   [24 hour format]

Periodic Status Settings

Periodical Status ☑   Period 1   [minutes]

Alarm Reminder ☐   Period 1   [minutes]

Periodical email every XX minutes

Remind alarm status by email every XX minutes.

Time Synchronization   [Synchronize Time]

SNTP Server   time.nist.gov   [IP Address or DNS Na

Time shift to server time (GMT)   +1 Hour ▼   [If you are in different

Interval for logging sensor readings.

Device Logger Settings

Store all actual sensor values to the logfile every   15   [s]

Total estimated logfile capacity is   0 days,   0 hours and   0 minutes

Report Log Period [h]   1   Erase log after e-mail ☐

[Open logfile]   [Clear logfile]

Log file with values is e-mailed every X hours.

[Apply Changes]

Flash menu: Sensors

Unique sensor ID

When out of this range, e-mail or SMS is sent.

Enables sending e-mail or SMS or SNMP Trap because of this sensor.

Sensors

Name	Sensor ID	Current Value	Safe Range		Hysteresis Idle Range	Delay [s]	Out of Safe Range SNMP Trap	Out of Safe Range Email & SMS
Indoor 1	5550	23.8 °C	18.0	-	32.0	0.0	0	☐	☐
Indoor 2	53889	24.8 °C	10.0	-	60.0	0.0	0	☐	☐
Test probe 1	31265	20.9 °C	10.0	-	60.0	0.0	0	☐	☐
Humid 1	52079	26.8 %RH	20.0	-	60.0	0.0	0	☐	☐
Switch 1	77 (M)	0.0 s	0.0	-	1.0	0.0	0	☐	☐
Test probeF 2	78 (N)	22.1 °C	0.0	-	25.0	0.0	0	☐	☐
Humid 2	79 (O)	35.1 %RH	10.0	-	85.0	10.0	0	☐	☑
Temp 1	80 (P)	25.9 °C	10.0	-	75.0	10.0	0	☐	☑
Sensor 20	81 (Q)	30.0 %RH	10.0	-	60.0	0.0	0	☐	☑

Name the sensor according to location and function.

Every e-mail contains this name.

Tolerance (hysteresis) band – prevents false alarms.

Automatic detection after a change in connected sensors.

Apply Changes   Autodetect Sensors
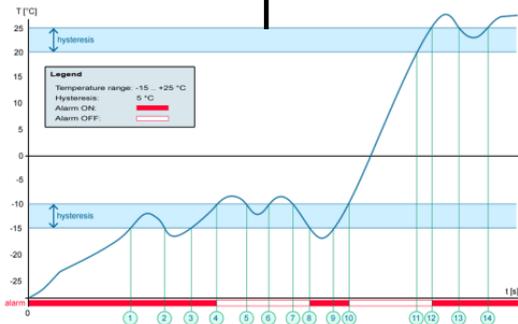
Are you sure you want to stop other functions and run sensor autodetection? It'll take around 2 minutes.

OK   Cancel

Flash Menu: Inputs & Outputs

| General | General Setup | SNMP | Email & SMS | Log & Time | Sensors | Inputs | Outputs | System | Index Page |

Dry Contact Inputs

Name	ID	Current Value	Alarm State	Delay[s]	Out of Safe Range SNMP Trap	Out of Safe Range Email & SMS
Binary 1	1	0 (Off)	Active if On ▼	0	☐	☐
Binary 2	2	0 (Off)	Active if On ▼	0	☐	☐
Test contacts	3	1 (On)	Active if Off ▼	0	☐	☑
Comm Monitor 1	123	0 (Off)	Inactive ▼	0	☐	☐

Apply Changes

| General | General Setup | SNMP | Email & SMS | Log & Time | Sensors | Inputs | Outputs | System | Index Page |

Outputs Settings

Name	ID	Current Value	Output Control	Target Value	Dependent on
RTS	151	Off(0)	○ Manual ○ Local Condition On if any alarm ▼	0.0	
DTR	152	Off(0)	○ Manual Change to On ○ Local Condition	0.0	

HW Security Protection Disabled

Apply Changes

Flash menu: System

Communication Monitor

Virtual input with ID 123 indicates if device received question on one of defined protocols within defined time. You can detect central monitoring system doesn't work.

0 = OK, Communication on defined port OK.
1 = Alarm, Communication timeout

- With Communication Monitor you can send email, when central monitoring system stop polling the device.

- Communication Monitor can help you indicate by output, when network connectivity failure.

TIP	• For details about the **Flash Setup** user interface, see the **detailed manual for the Poseidon product line**.

Updating Firmware

Updating firmware over the Web

Upload the firmware in a **.hwg** file over http to **http://x.x.x.x/upload/**.
Connection problems etc. must be avoided during file transfer. If the update fails, upload the firmware over RS-232.
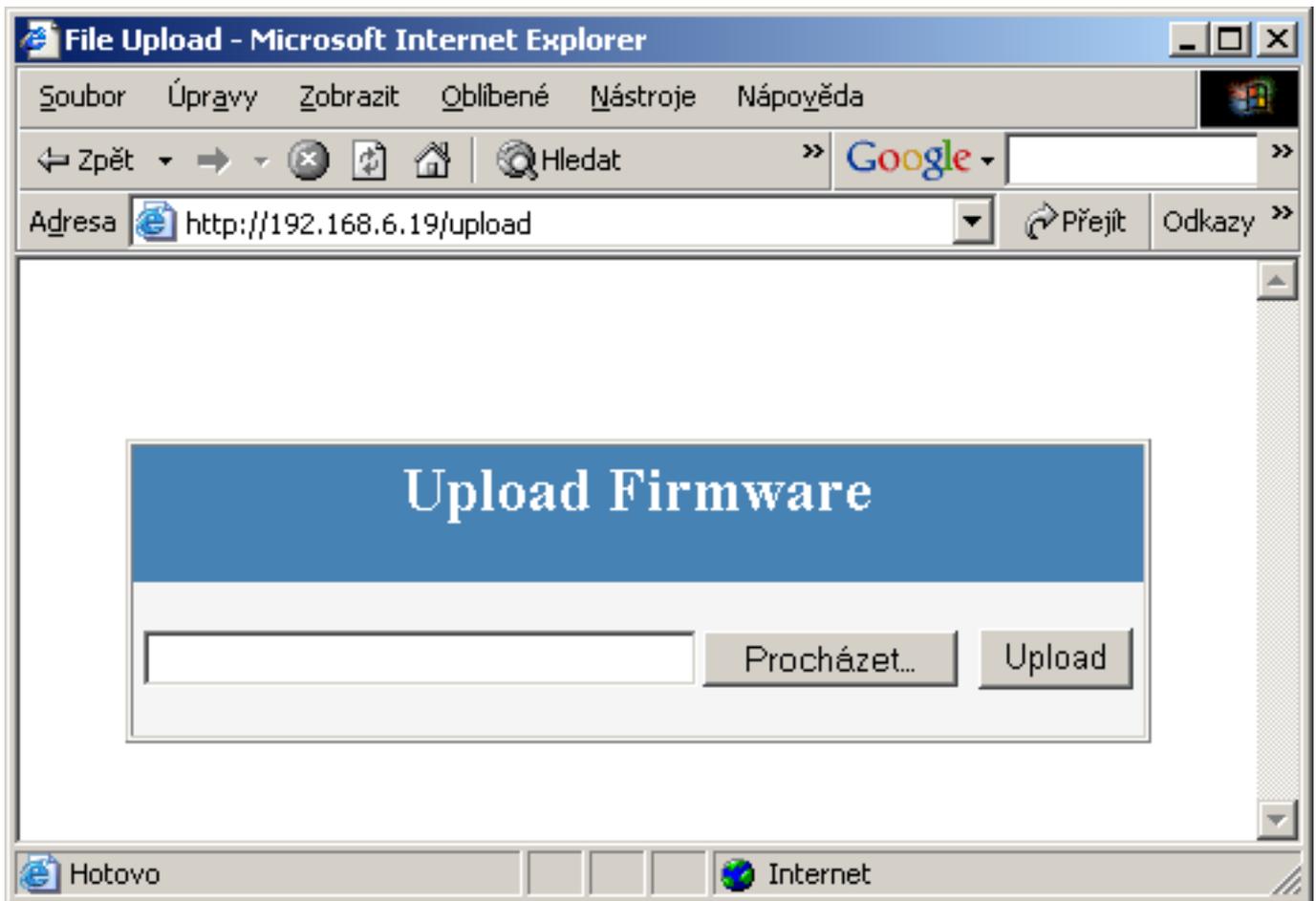
Firmware in the .HWg format is available at the Poseidon website, or on the supplied CD.

Sensors and accessories

Accessories

T-Box2
600 280
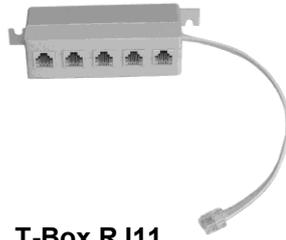
T-Box RJ11
600 356

B-Cable
600 044

Poseidon S-Hub
600 041

T-Box2
600 280

GSM Modemcom G10
600 312

12V power adapter 3pin ATX
600 079

Spider
600 273

Temperature sensors

1W bus (1-Wire RJ11)

- Several sensors with a single Poseidon:
    - Use a T-Box / T-Box2 hub
    - Daisy-chain the sensors (if they have two RJ11 jacks)
- Maximum total wiring length is 10 / 30m.

Temp-1Wire 1m
600 242

Indoor

Temp-1Wire 3m
600,005

Indoor

Temp-1Wire 10m
600,056

Indoor

Temp-1Wire-Outdoor 3m
600 242

Outdoor, IP67, stainless steel, silicon cable

Temp-1Wire Rack19
600 329

19" Rack / Cabinet

HTemp-1Wire Rack19
600 330

19" Rack / Cabinet

HTemp-1Wire Box2
600 344

Indoor

Temp-1Wire-Flat 3m
600 337

Fridge probe IP67, stainless steel, flat cable

Industrial bus (RS-485 RJ45)

- Several sensors with a single Poseidon:
    - Use an S-Hub
    - Daisy-chain the sensors
    - Use the Spider converter to connect four 1Wire sensors / dry contacts
- Maximum total wiring length is 1000m.

Important: *A unique address on the RS-485 bus must be assigned to each sensor.*
For details, see the description of individual sensors.
For resolution of conflicting addresses, see the Poseidon family manual, chapter
"TCP Setup", section "Configuring temperature sensors in TCP Setup".

Temp-485 Box2
600 342

Indoor

Temp-485-Pt100 "Box"
600 113

Outdoor, IP67

Temp-485-Pt100 "Cable"
600 114

Indoor / outdoor, can
measure up to 650 °C

Temp-485-Pt100 "Frost"
600 309

For subzero temperatures
as low as -100°C
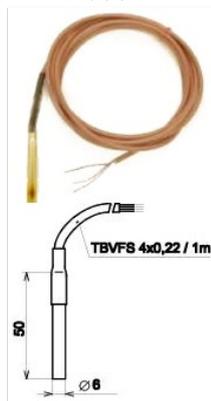
Pt30 - 2m Pt100
600 115

External Pt100
sensor, IP67,
stainless steel, 2m
silicon cable

Temp-485-2xPt100 "DIN"
600 112

DIN rail mount converter for
two external PT100 sensors

Temp-485-Pt100 "Cable2"
600150

Boxed converter for an
external PT100 sensor

Temp-485-Pt100 "DIN"
600 111

DIN rail mount converter for
two external PT100 sensors

Temp-485-Pt100 "Head"
600 110

Head type A converter for
an external PT100 sensor

HWg HTemp-485 T3411
600 368

Indoor

HWg HTemp-485 T3419
600 369

Indoor / 1m cable

HWg PHTemp-485 T7410
600 370

Indoor

Humidity sensors

1W bus (1-Wire RJ11)

- Several sensors with a single Poseidon:
    - Use a T-Box / T-Box2 hub
    - Daisy-chain the sensors (if they have two RJ11 jacks)
- Maximum total wiring length is 10 / 30m.

HTemp-1Wire Box2
600 344

Indoor

Humid-1Wire 3m
600 279

Indoor

HTemp-1Wire Rack19
600 330

19" Rack / Cabinet

Industrial bus (RS-485 RJ45)

- Several sensors with a single Poseidon:
    - Use an S-Hub
    - Daisy-chain the sensors
    - Use the Spider converter to connect four 1Wire sensors / dry contacts
- Maximum total wiring length is 1000m.

Important: *A unique address on the RS-485 bus must be assigned to each sensor.*
For details, see the description of individual sensors.
For resolution of conflicting addresses, see the Poseidon family manual, chapter "TCP Setup", section "Configuring temperature sensors in TCP Setup".

HTemp-485 Box2
600 343

Indoor temperature
& humidity

HWg HTemp-485 T3419
600 369

Indoor / 1m cable

HWg HTemp-485 T3411
600 368

Indoor

HWg PHTemp-485 T7410
600 370

Indoor

Voltage and current sensors

1-Wire UNI (RJ11)

30A Current probe 1W-UNI
600 437 – Current probe with a clamp-on transformer

Sens-1W-UDI86
600 432 – Eight analog inputs (0..15V) and six dry contact inputs

Industrial bus (RS-485 RJ45)

When using multiple sensors with a single Poseidon unit, daisy-chain the sensors, use a Spider converter, or use an S-Hub unit. Maximum wiring length is 1000m. An address must be assigned to each sensor if the factory-preset addresses are in conflict.
For details, see the "TCP Setup" chapter, section "Configuring temperature sensors in TCP Setup".

Sens-485-UI
600 116 - Voltage + current converter, DIN rail

Dry Contact inputs

Connect directly to the Poseidon unit to one of its input terminals.
See sensor documentation for details.

PowerEgg
600 237 - Power 110/230V detector / controller

Outputs

Relay control outputs (RS-232 DB9)

Poseidon 1250 supports two outputs for controlling two external relays. For easier relay connection, we supply RS-232 to terminal block adapters.

Poseidon 1250 Relay cable
600 244

Converter to connect 2 relays
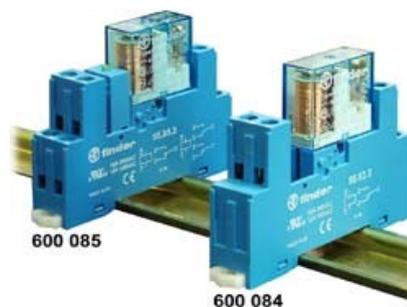
DIN Relay 1s
600 084

DIN Rail 12V relay,
SPTD contact

DIN Relay 2s
600 085

DIN Rail 12V relay,
DPDT contact

"On/Off" sensors

Dry Contact inputs

Connect directly to the Poseidon unit to one of its input terminals. See the sensor documentation for details.

Door Contact
600 119

Door position sensor

Flood detector
600 240

Water level sensor,
battery powered

AirFlow sensor 5101
600 304

Airflow speed sensor

Gas Leak Detector
600 239

Battery powered

Smoke detector SD-212SP
600 310

Battery powered

Motion PIR detector
600 236

Battery powered

Special accessories

- **2x L profile, "A" size** *[600 023]*
  2x sidewise "L" brackets for wall mounting. See the Poseidon housing drawing for mechanical dimensions.

- **DB9 Prolong cable 2m** *[600 064]*
  DB9 extension cord – wired 1:1, 2m long. Used for connecting sensors to Port1.

- **DB9 LapLink cable 2m** *[600 063]*
  RS-232 communication cable, "LapLink" wiring, for connecting a PC to **Port2** (necessary for updating firmware over RS-232).

- **12V power adaptor 3pin ATX** [600 079]
  Strong power supply for powering Poseidon and several sensors over RS-485

- **12V Wall plug adaptor – EU** [600 080]

- **12V Wall plug adaptor – USA** [600 081]

- **12V Wall plug adaptor – UK** [600 082]

Connectors and connections

DIP1 = on
Serial setup

DIP3 = on
HW protection
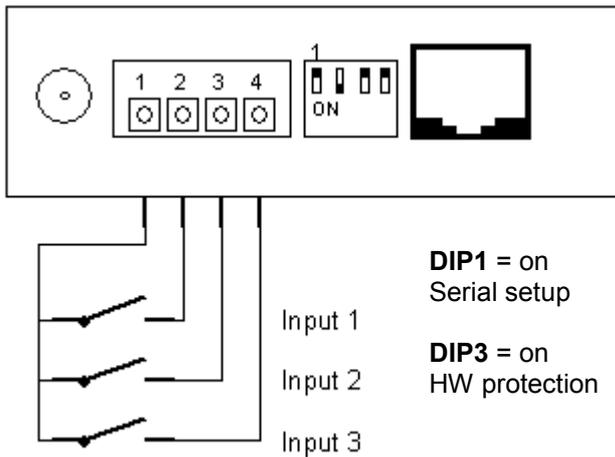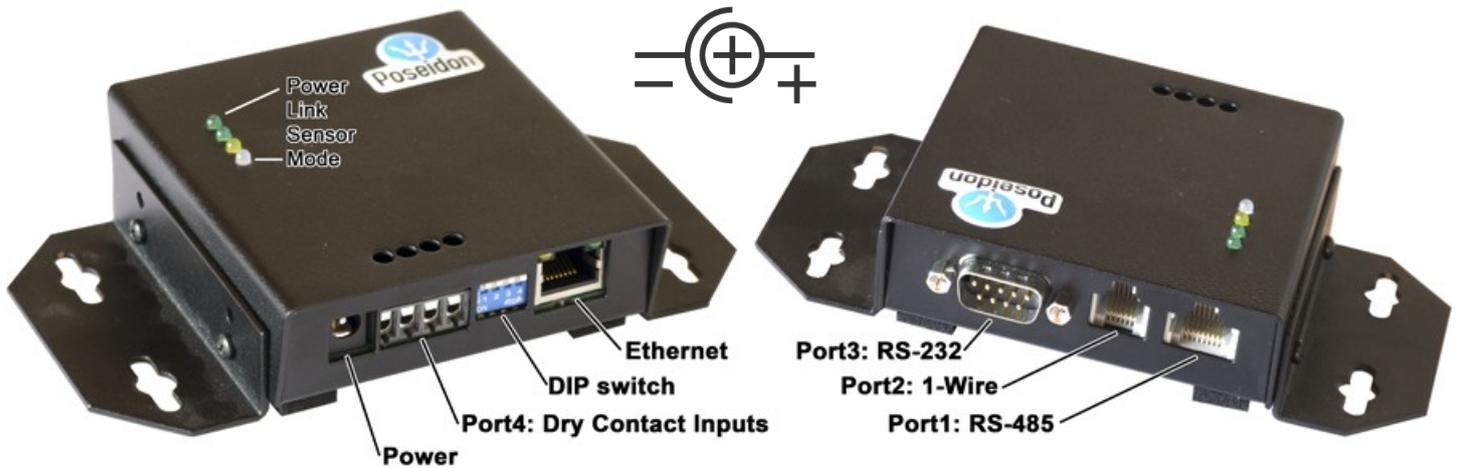
Port 3 – RS-232 – DB9M			
1	-	-	Not used
2	**RxD**	<--	Receive Data
3	**TxD**	-->	Transmit Data
4	**DTR**	-->	Data Terminal Ready
5	**GND**	---	System Ground
6	**DSR**	<--	Data Set Ready
7	**RTS**	-->	Request to Send
8	**CTS**	<--	Clear to Send
9	-	-	Not used

Port 1 – RJ12		
1	**+5V**	Power
2	-	Not used
3	**Data**	Transmit Data
4	**GND**	Ground
5	**+5V**	Power
6	-	Not used

Port 1 – RJ45		
1	-	Not used
2	-	Not used
3	-	485 B back
4	B (-)	RS-485
5	A (+)	Industrial bus
6		485 A back
7	**GND**	Ground
8	**+12V**	Power

RJ45

(7) – brown/white → **GND**

(8) - brown → **PWR (Vcc)**

(4+3) – blue + green/white → **B – RS485**

(5+6) – green + blue/white → **A – RS485**
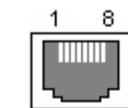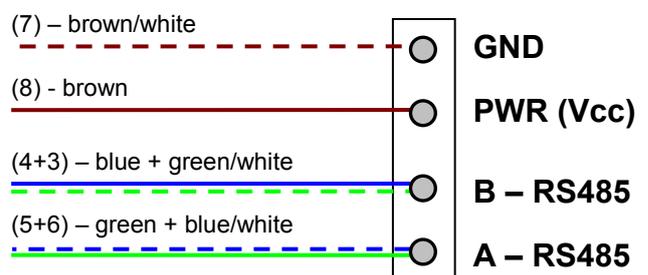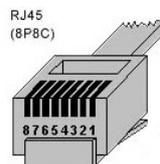
Industrial Bus (RS-485) connections

Connecting the 4-terminal block to the RJ45 jack
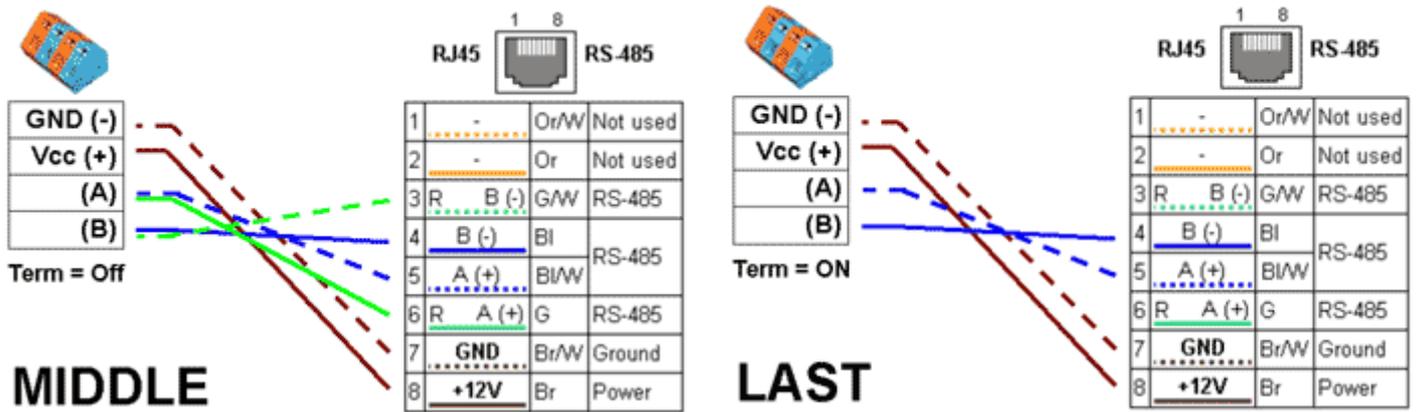
Connecting certain sensors
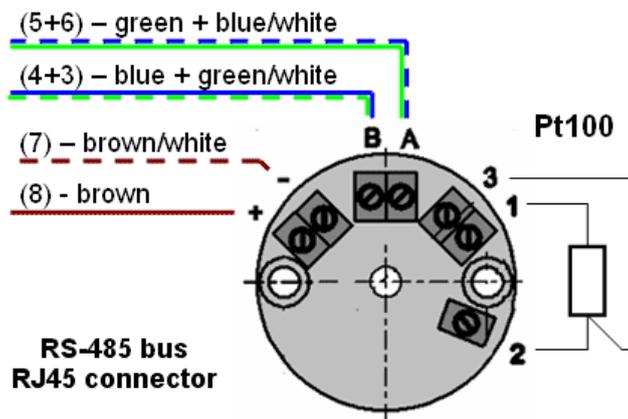
Pt100 & Pt1000 wiring methods
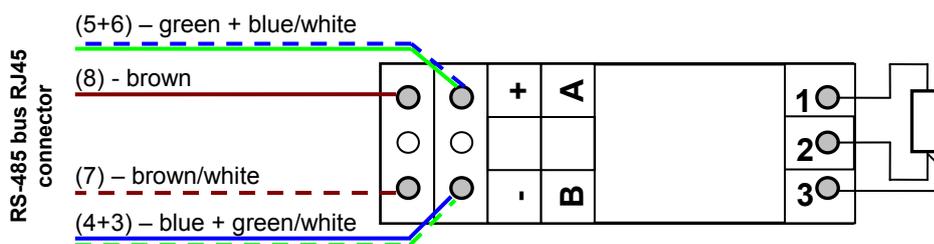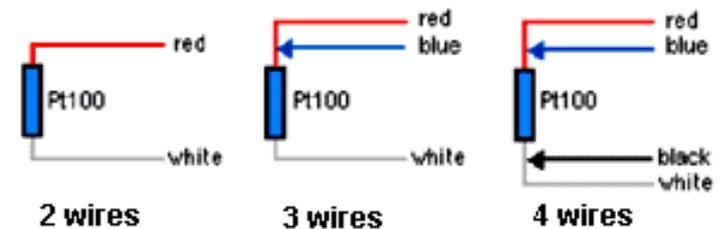
Connecting Pt100 sensors

- Pt100 and Pt1000 sensors are usually connected using 3 wires
  - All three wires must have the same properties (diameter, …)
- When connecting a Pt100 using two wires only, connect the third terminal locally

Addresses of Temp-485 sensors with Pt100 elements

- When shipped, the configured sensor address is in the A..Z range and shown on the label.
- Address on the RS-485 bus can be changed in the TCP setup mode, see the "Configuring temperature sensors in TCP Setup" chapter.

Temp-485 and HTemp-485 address configuration (RS-485)

A4	A3	A2	A1	A0	Address
X	X	X	X	X	Adr by SETUP
X	X	X	X	O	**A**
X	X	X	O	X	**B**
X	X	X	O	O	**C**
X	X	O	X	X	**D**
X	X	O	X	O	**E**
X	X	O	O	X	**F**
X	X	O	O	O	**G**
X	O	X	X	X	**H**
X	O	X	X	O	**I**
X	O	X	O	X	**J**

A4	A3	A2	A1	A0	Address
X	O	X	O	O	**K**
X	O	O	X	X	**L**
X	O	O	X	O	**M**
X	O	O	O	X	**N**
X	O	O	O	O	**O**
O	X	X	X	X	**P**
O	X	X	X	O	**Q**
O	X	X	O	X	**R**
O	X	X	O	O	**S**
O	X	O	X	X	**restricted**
O	X	O	X	O	**U**

A4	A3	A2	A1	A0	Address
O	X	O	O	X	**V**
O	X	O	O	O	**W**
O	O	X	X	X	**X**
O	O	X	X	O	**Y**
O	O	X	O	X	**Z**
O	O	X	O	O	Adr by SETUP
O	O	O	X	X	Adr by SETUP
O	O	O	X	O	Adr by SETUP
O	O	O	O	X	Adr by SETUP
O	O	O	O	O	Adr by SETUP

Note: O (open) =no jumper,   X (closed) = jumper in place
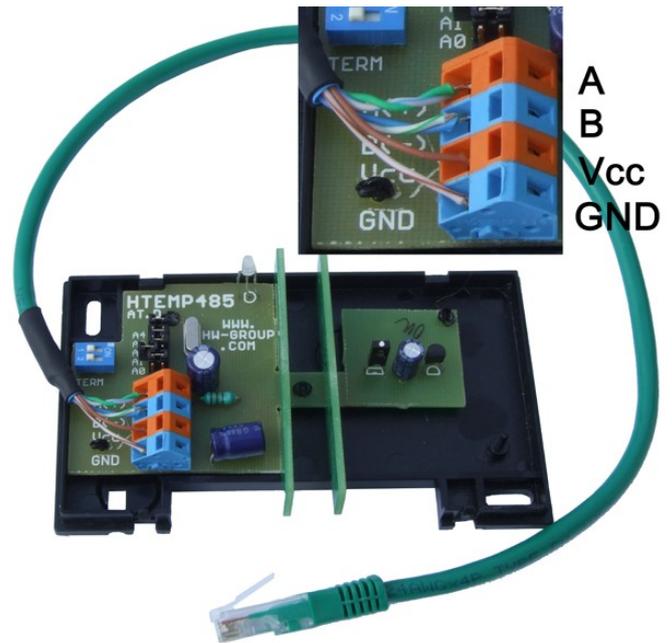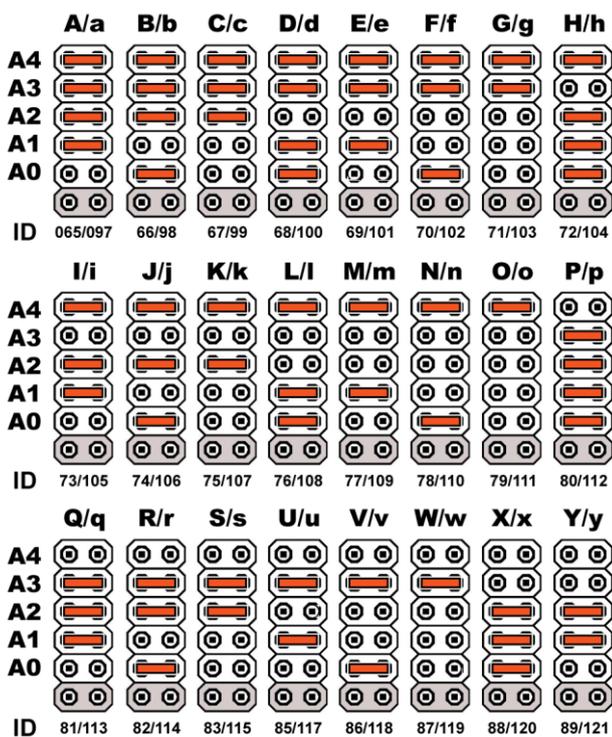
Connecting HTemp-485 directly to RJ45

Connecting supplied accessories

Connecting the optical smoke detector

- The relay output connects to the dry contact inputs.

- Power can be supplied with any polarity.

- Power can be shared with the Poseidon unit.