

Web Sensors Monitoring of temperature, humidity, atm. pressure and CO₂ via Ethernet

Web Sensors of temperature, humidity, atmospheric pressure and CO₂ with two-state inputs and relay outputs • high quality, accurate and stable sensors • values computed from ambient temperature and relative humidity • traceable calibration certificate in ACC_17025

*

OMET

BRS

enso



Applications

These days there is a high demand for on-line monitoring and uninterruptable records of different type of values. With very fast development of computer technologies, it is still easier and easier to connect different kind of monitoring devices directly to Ethernet lines, to the places where it was not possible before. If the Ethernet net has direct connection to the internet, then all data could be sent immediately around the world without the need for any additional costs. This high requirements could be done easily by Web Sensors and sensors with Ethernet output which can ensure long term reliability, stable parameters and very easy installation and usage. The devices can be protected against blackouts and data loss at the customer's site. Of course PoE supply is an option.

Continuous monitoring of critical parameters such as temperature and relative humidity can be very easily done by the help of Web Sensors. This production line consists of sensors for measuring temperature, relative humidity, CO, concentration, atmospheric pressure, and the 4-20mA signal. Most sensors are equipped with an LCD display and can be easily incorporated into the existing network infrastructure.

The Web Sensors evaluate the measured values and in case of exceeding the alarm limits, the unit will send an email to a pre-set address, so this ensures that you are always informed of the conditions in your offices, server rooms, warehouses and factories, and everywhere where is necessary to monitor the supported values.

By connecting directly to a computer network the thermometer or humidity meter can be integrated into the control systems of different manufacturers using SNMP, MODBUS TCP, SOAP, syslog. Of course data in many formats is also available, for example XML and so on.

Applications of Web Sensors:

- » Server rooms
- » Offices and residential premises
- >> Building management
- » Storage of food and drugs
- » Museums and galleries
- » Technological processes and production
- >> Industry

Measured values



Dew point temperature (°C or °F) Absolute humidity (g/m3) Specific humidity (g/kg) Mixing ratio (g/kg) Specific enthalpy (kJ/kg)

Computed values:

Temperature

Temperature is measured by RTD sensor Pt1000/3850 ppm which can be integrated into the housing of transducer, into the duck stem or can be used on the cable as well. The measured temperature can be displayed in °C or °F, according to the settings of the sensor.



Relative humidity

State-of-the-art capacitive polymer sensor ensures excellent long term calibration stability and inertia against water and condensation. Transmitters are available in wall-mount, duct mount.



Barometric pressure

Transmitter for measuring of barometric pressure is equipped with an absolute pressure sensor of high accuracy which ensures excellent long term stability. The display reading and pressure output is user selectable in these units: hPa, kPa, mbar, mmHg, inHg, inH2O, PSI, oz/in2.



Carbon dioxide level - CO,

A multiple point CO₂ and temperature adjustment procedure leads to excellent CO₂ measurement accuracy over the entire temperature working range; this is a must for process control and outdoor applications. The dual wavelength NDIR CO, sensing procedure compensates automatically for ageing effects. The CO, module is highly insensitive to pollution and offers maintenance free operation and outstanding long term stability.



Current - mA

Transfer of current loops 0-20 mA (4-20 mA) to the Ethernet network. Ethernet network reduces installation costs and accelerates deployment.



Two - state inputs

Selected devices feature up to three two - state inputs for connecting smoke detectors, floodings, breaking glass, door contacts, etc. A voltage-free contact, open collector or two-state voltage signal can be connected.

Pharmaceuticals and laboratories

Monitoring of areas and places for storage of drugs at temperatures down to - 200 °C.



Server rooms

Monitoring of conditions in the data centers and in 19" racks, including detection of the state of flooding, opening / closing doors (windows), movement and smoke, etc.



Technological processes and production

Monitoring of storage conditions and production processes in the temperature range from - 200 °C to + 600 °C.

Food industry

OMET

Monitoring of critical variables in relation to HACCP regulations with the possibility of immediate alert to unforeseen events that could lead to the devaluation of goods.



Common parameters of Web Sensors

Web interface for the device setup

Web Sensors with Ethernet connection are designed to measure current 4 - 20mA (0-20mA), temperature, relative humidity, CO, and barometric pressure of air in non-aggressive environments. Measured values are according to device type. Devices with relative humidity measurement can show one of computed values: dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. Temperature units are °C or °F.

The visual indication of the CO, concentration is provided by three-colour LED.

Web Sensor of T-line is equipped with LCD display where current values can be displayed.

The device setup can be made by the TSensor software or web interface. TSensor software can be downloaded for free from the manufacturer's website.

The latest version of firmware for your device with new features and even for older devices is available on the producer's site www.cometsystem.com/support/firmware-update.



WWW server

Actual measured values are accessible via powerful embedded web server. Web pages are ready for access from mobile devices like smartphones and tablets. Device configuration via web pages is possible too. Web Sensors allow to user customize the design of web pages.



History values memory

Graphs with history values are accessible via web pages. Modern HTML5 canvas graphic component allows to use graphs from thousands of devices. It is not a problem to show graphs on tablets or smartphones. All modern web browsers are supported - Firefox, Opera, Chrome or Internet Explorer 9.



Email

Warning emails are sent when measured value exceed selected limits. Emails are also sent when values return back into safe range. SMTP authentication is supported, but SSL not. Emails with CSV file attachment can be sent at selected intervals.

History export to CSV

History values can be exported for further processing by the CSV file. CSV file can be processed inside spreadsheet application like Microsoft Excel or OpenOffice Calc. CSV file can be downloaded from web pages or periodically sent as email attachment.



CSV

history

ModbusTCP protocol

Modbus protocol for communication with SCADA systems or third party software. Devices use Modbus TCP protocol version. Two Modbus clients can be connected to the device at one moment.



Actual values via XML

XML protocol for actual measured values reading. This protocol is suitable for Web Sensors integration into 3rd party SCADA systems.



SNMP protocol

SNMP version 1 protocol for IT infrastructure. Using SNMP protocol you can read actual measured values, alarm statuses and alarm parameters. Via SNMP protocol is also possible to get last 1000 measured values from the history table. MIB tables with OID description are available.



SOAP

SNMP Trap

SNMP Trap for IT infrastructure. Web Sensors allow sending Traps to selected Trap receiver server. Traps are sent in case of alarm on channel or at error states like unable to send email, unable to deliver SOAP message, etc.



Web Sensors allow to send currently measured values via SOAP v1.1 protocol. The device sends values in XML format to the web server. The advantage of this protocol is that communication is initialized by the device side. Therefore it is not necessary to use port forwarding.



Syslog protocol

Syslog protocol for IT infrastructure monitoring systems. Web Sensors allow sending text messages to selected Syslog server. Messages are sent in case of alarm on channel or at error states like unable to send email, unable to deliver SOAP message, etc.



SNTP protocol - time synchronization

Time synchronisation with SNTP server. Actual time is shown at web pages and is necessary for timestamps inside CSV files. Synchronisation interval can be set to one day or to one hour.

Current measured values and sensor settings can be accessed directly through the web interface from your web browser. TSensor software, which is available on our website in the section Software, can be also used for setting the sensor.

| P + C I HARREN IN | | | | 0.0 |
|--|---------------------|----------------|---|--------------------|
| trt Settings | Alarm li | mits | | |
| total | 1000124 | 272 2 2 2 2 | 100000000000000000000000000000000000000 | |
| Martin of the second standard | Indian and | | | |
| 500 500 | imple local (PC) | Low Beet [15] | Hydroren (*C) | Three defers (sec) |
| the state of the second se | Status Incolds | - | | |
| State of Contract | mark Innet (Parties | Los Inel Paler | Hotherson (%de | Time datas (sec) |
| tread | - | | | S |
| Contraction of the second | High limit [*1] | Los Belt (*G | Permanen (*13) | Time dalay (set) |
| | 88 | 34 | 14 | |
| Per | | Aug 100.00 | Canal Starget | |
| WWW and breathy | | | | |
| Party of the local division of the local div | | | | |

Graphs of actual values can also be displayed through a Web browser. You can display up to one thousand measured values.





Sensor settings can also be done directly in a web browser in your PC, smartphone or tablet. All you need to do is enter the IP address of the sensor, open Settings and set up everything from communication to alarm e-mails.

| Web Sensor | | Tank Sale | | |
|--------------------------|-------------------------|------------------|------------------|--|
| Warehouse AL2 | Oran man | All and a second | Events JOIN | |
| alarm high | alarm roose | theory | Corners JEANN | |
| Warehouse door closed | Preserve memory FAIL | man | **** | |
| Hall kick open | | viewer | web | |
| | | Settings | Alexand | |
| | | * | ? | |

Current measured values are available on-line directly on a web browser from anywhere, all you need to do is enter the IP address. Alarms are indicated by a red field.



Sensor models:

| MEASURED VALUES | without PoE* | with PoE** |
|--|----------------------|----------------------|
| atmospheric pressure | T2514 | |
| relative humidity + temperature | T3510, T3511, T3511P | T3610, T3611 |
| relative humidity + temperature + atmospheric pressure | T7510, T7511 | T7610, T7611, T7613D |
| temperature | T0510, T4511 | T0610, T4611 |
| CO2 | T5540, T5541 | |
| CO ₂ + relative humidity + temperature | T6540 | |

* Please see page 8 - 9 for sensor specification

** Please see page 10 - 11 for sensor specification

Sensor models:

| MEASURED VALUES | without PoE** | with PoE** |
|---|---------------|--------------|
| temperature | P8510 | P8610 |
| temperature + relative humidity* | P8511, P8541 | P8641, T8611 |
| temperature + relative humidity* + two - state inputs | P8552 | P8652 |
| 0-20mA (4-20 mA) | P2520 | |
| With the attached temperature and humidity probe | | |

tv prod - type DSRH (max. length 5 metres)

ee page 12 - 13 for sensor specification



Web Sensor &-Ume without PoE and their specification

| Measured v | alues | Tempo | erature | Temperature, r | elative hun | nidity | Temperature, rel pr | ative humidity, atm. essure | Atm. pressure | Temperature, relative humidity, CO ₂ | | C0 ₂ | |
|---|-------------------------|-----------------------------|---------------|----------------|-------------|---------------|------------------------|--------------------------------|-----------------|--|----------------------------------|-----------------------------------|-------------------------------------|
| SENSOR M | ODEL | T4511 | T0510 | T3510 | T3511 | T3511P | T7510 | T7511 | T2514 | T6540 | T5540 | T5541 | T5545 |
| temperature | range | -200 to +600 °C | -30 to +80 °C | -30 to +80 °C | -30 to +1 | 105 °C | -30 to +80 °C | -30 to +105 °C | - | -30 to +80 °C | - | - | - |
| | accuracy | ±0.2 °C without temp. probe | ±0.6 °C | ±0.6 °C | ±0.4 °C | | ±0.6 °C | ±0.4 °C | - | ±0.6 °C | - | - | - |
| relative humidity | range | - | - | 0 to 100 % RH | 0 to 100 | % RH | 0 to 100 % RH | 0 to 100 % RH | - | 0 to 100 % RH | - | - | - |
| ** | accuracy | - | - | ±2.5 % RH | ±2.5 % F | RH | ±2.5 % RH | ±2.5 % RH | - | ±2.5 % RH | - | - | - |
| atm. pressure | range | - | - | - | | - | 600 to 1100 hPa | 600 to 1100 hPa | 600 to 1100 hPa | - | - | - | - |
| ** | accuracy | - | - | - | | - | ±1.3 hPa | ±1.3 hPa | ±1.3 hPa | - | - | - | - |
| C0 ₂ | range | - | - | - | | - | - | - | - | 0 to 2000 ppm* | 0 to 2000 ppm* | 0 to 10000 ppm | 0 to 2000 ppm* |
| *** | accuracy | | | - | | - | - | - | - | ± (50 ppm+2 % of measured value) | ± (50 ppm+2 % of measured value) | ± (110 ppm+5 % of measured value) | ± (50 ppm+2 % of measured value) |
| computed humidity | y values | NO | NO | YES | YES | | YES | YES | NO | YES | NO | ON NO NO | |
| supply voltage | | 9-30 V | 9-30 V | 9-30 V | 9-30 V | | 9-30 V | 9-30 V | 9-30 V | 9-30 V | 9-30 V | 9-30 V | 9-30 V |
| recommended calil interval | bration | two years | two years | one year | one year | | one year | one year | one year | one year | five years | five years | five years |
| protection class of with electronics | the case | IP30 | IP30 | IP30 | IP30 | | IP30 | IP30 | IP30 | IP30 | IP30 | IP30 | IP30 |
| protection class of cover | the sensor | - | - | IP40 | IP40 | | IP40 | IP40 | - | IP40 | - | IP 65 | IP20 |
| temperature opera of the case with ele | ting range ectronics | -30 to +80 °C | -30 to +80 °C | -30 to +80 °C | -30 to +8 | 30 °C | -30 to +80 °C | -30 to +80 °C | -30 to +80 °C | -30 to +60 °C | -30 to +60 °C | -30 to +80 °C | -30 to +60 °C |
| temperature opera of the measuring e | ting range element | - | - | -30 to +80 °C | -30 to +1 | 105 °C | -30 to +80 °C | -30 to +105 °C | - | -30 to +80 °C | - | -40 to +60 °C | - |
| humidity operating without condensat | range ion | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 | % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 %RH | 5 to 95 % RH | 5 to 95 % RH | 0 to 100 % RH | 5 to 95 % RH |
| barometric pressur range | re operating | - | - | - | - | to 2,5 MPa | - | - | - | 850 to 1100 hPa | 850 to 1100 hPa | 850 to 1100 hPa | 850 to 1100 hPa |

* custom range 10000 ppm for an extra fee





T4511

Device without PoE connection procedure







ε

(2;4)

22

** accuracy of relative humidity in range 5 % to 95 % and of atmospheric pressure at 23 °C





Dew point temperature Accuracy: ±1.5 °C at ambient temperature T<25 °C and relative humidity RH >30 %, for more details see manual Range: -60 to +80 °C (-76 to 176 °F)

Mixing ratio

Accuracy: ± 2.2 g/kg at ambient temperature T < 35 °C Range: 0 to 995 g/kg

Absolute humidity Accuracy: ±3 g/m3 at ambient temperature T < 25 °C for more details see manual Range: 0 to 400 g/m3

Computed values Specific humidity Accuracy: ±2.1 g/kg at ambient

temperature T < 35 °C

Range: 0 to 550 g/kg

*** accuracy of CO_2 concetration of measurement at 25 °C and 1013 hPa







air flow direction

Specific enthalpy Accuracy: ± 4 kJ/kg at ambient temperature T < 25 °C Range: 0 to 995 kJ/kg

9



Web Sensor &-Ume with PoE and their specification

Common parameters:



| Measured va | Measured values | | erature | Temperature, r | elative humidity | Temperature | Temperature, relative humidity, atm. pressure T7610 T7611 T76130 20 to +60 °C -30 to +105 °C -30 to +105 °C 20 to +60 °C ±0.4 °C ±0.6 °C ±0.6 °C ±0.4 °C ±0.6 °C 0 to 100 % RH 0 to 100 % RH 0 to 100 % RH 20 to 1100 hPa 600 to 1100 hPa 600 to 1100 hPa 500 to 1100 hPa 600 to 1100 hPa 600 to 1100 hPa 4.9 - 6.1 V 4.9 - 6.1 V 4.9 - 6.1 V YES YES YES one year one year one year | | |
|---|--------------------------|-----------------------------------|---------------|----------------|------------------|-----------------|--|-----------------|--|
| SENSOR MO | DEL | T4611 | T0610 | T3610 | T3611 | T7610 | T7611 | T7613D | |
| | range | -200 to +600 °C | -20 to +60 °C | -20 to +60 °C | -30 to +105 °C | -20 to +60 °C | -30 to +105 °C | -30 to +105 °C | |
| temperature | accuracy | ±0.2 °C without temperature probe | ±0.6 °C | ±0.6 °C | ±0.4 °C | ±0.6 °C | ±0.4 °C | ±0.6 °C | |
| relative | range | - | - | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | |
| humidity* | accuracy | - | - | ±2.5 %RH | ±2.5 % RH | ±2.5 % RH | ±2.5 % RH | ±2.5 % RH | |
| atm. pressure* - computed humidity supply voltage | range | - | - | | | 600 to 1100 hPa | 600 to 1100 hPa | 600 to 1100 hPa | |
| aun, pressure | accuracy | - | - | - | - | ±1.3 hPa | 00 hPa 600 to 1100 hPa 600 to 110 ±1.3 hPa ±1.3 hPa YES YES V 4.9 - 6.1 V 4.9 - 6.1 V YES YES | ±1.3 hPa | |
| computed humidit | y values | NO | NO | YES | YES | YES | YES | YES | |
| supply voltage | supply voltage | | 4.9 - 6.1 V | 4.9 - 6.1 V | 4.9 - 6.1 V | 4.9 - 6.1 V | 4.9 - 6.1 V | 4.9 - 6.1 V | |
| Power over Ethern according to IEEE | et (PoE) 802.3af | YES | YES | YES | YES | YES | YES | YES | |
| recommended cali interval | bration | two years | two years | one year | one year | one year | one year | one year | |
| protection class of with electronics | the case | IP30 | IP30 | IP30 | IP30 | IP30 | IP30 | IP30 | |
| protection class of sensor cover | the | - | - | IP40 | IP40 | IP40 | IP40 | IP40 | |
| temperature opera of the case with el | ating range ectronics | -20 to +60 °C | -20 to +60 °C | -20 to +60 °C | -20 to +60 °C | -20 to +60 °C | -20 to +60 °C | -20 to +60 °C | |
| temperature operators of the measuring e | ating range element | - | - | -20 to +60 °C | -30 to +105 °C | -20 to +60 °C | -30 to +105 °C | -30 to +105 °C | |
| humidity operating without condensat | range | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | |

* accuracy of relative humidity in range 5 % to 95 % and of atmospheric pressure at 23 °C







Computed values

Range: 0 to 400 g/m3

Absolute humidityMAccuracy: $\pm 3 \text{ g/m}^3$ at ambientAtemperature T < 25 °C</td>temperature Tfor more details see manualR

Power over Ethernet (PoE) according to IEEE 802.3af
measured values - temperature, relative humidity,

- atmospheric pressure, computed values
- » highly accurate and stable sensors
- > traceable calibration certificate with traceability with EN ISO/IEC 17025

Device with PoE - connection procedure



Specific humidity

Accuracy: ±2.1 g/kg at ambient temperature T < 35 °C Range: 0 to 550 g/kg

Dew point temperature

Accuracy: ±1.5 °C at ambient temperature T<25 °C and relative humidity RH >30 %, for more details see manual Range: -60 to +80 °C (-76 to 176 °F)







Mixing ratio Accuracy: ±2.2 g/kg at ambient temperature T < 35 °C Range: 0 to 995 g/kg **Specific enthalpy** Accuracy: ± 4kJ/kg at ambient temperature T < 25 °C Range: 0 to 995 kJ/kg



Web Sensor p-line and their specification

| Measured value | S | Temperature | | Temperature, relative humidity | 1 | Current - mA | Temperature | external probes | DSTG8/C | DSTGL40/C | DSTR162/C | |
|----------------------------------|-----------------------------|----------------------------------|----------------------------------|----------------------------------|---------------------------------|---|---|---|--|-----------------|-------------------------------|--|
| SEN | SOR MODEL | P8510/ P8610 | P8511/P8611 | P8541/P8641 | P8552/P8652 | P2520 | | range | -50 to +100 °C | -30 to +80 °C | -30 to +80 °C | |
| | range | -30 to +80 °C/ -20 to +60 °C | according to the used probe* | according to the used probe* | according to the used probe* | - | temperature | accuracy | ±0.5 °C from ±0.5 °C from -10 to +80 °C -10 to +80 | | ±0.5 °C from -10 to +80 °C | |
| temperature | accuracy | ±0.8 °C (> -10 °C) | according to the | according to the used | according to the | _ | | | otherwise ±2 °C | otherwise ±2 °C | otherwise ±2 °C | |
| | | ±2 °C (< -10 °C) | used probe* | probe* | used probe* | | recommended ca | libration interval | two years | two years | two years | |
| relative | range | - | according to the used probe* | according to the used probe* | according to the used probe* | - | IP class of case v | vith electronics | IP67 | IP67 | IP67 | |
| humidity | accuracy | - | according to the used probe* | according to the used probe* | according to the used probe* | - | condensation | humidity operating range without condensation | | 0 to 100 % RH | 0 to 100 % RH | |
| two - state inp isolation | ut, no galvanic | - | - | - | 3 | - | sensor dimensions (diameter x length)5.7 x 40 mm | | | 5.7 x 40 mm | 6 x 20 mm | |
| configuration D input | Ory contact/ Voltage | - | - | - | YES | - | 20 | | | | 20 | |
| current measu | ring range | - | - | - | - | 0-25mA(max.30mA) | The maximum sur | n of the lengths of all | 40 V | _ | | |
| accuracy of cu | rrent measurement | - | - | - | - | ±0.1 % FS from (0 °C do +50 °C) ±0.3 % FS from (-30 °C do+80 °C) | probes is 40m. | | | | | |
| resolution | | - | - | - | - | 1uA | Temperature humidity external probes DSRH | | DSRH/C | | | |
| input impedance | ce | - | - | - | - | 20Ω | | range | 0 to +50 °C | | 0 to +50 °C | |
| supply voltage | | 9-30 V / 4,9 - 6,1V | 9-30 V / 4,9 - 6,1V | 9-30 V / 4,9 - 6,1V | 4,9 - 6,1V | 9-30 V | temperature | accuracy | ±2 °C | | ±0,5 °C | |
| power over Eth to IEEE 802.3a | ernet (PoE)according f | - / YES | - | - / YES | - / YES | - | | range | 0 to 100 % RH | | 0 to 100 % RH | |
| recommended | calibration interval | two years | according to the used probe* | according to the used probe* | according to the used probe* | two years | relative | Accuracy of Relative humidity | | | | |
| protection clas electronics | s of the case with | IP30 | IP30 | IP30 | IP30 | IP30 | number | (10% – 90% RH) at 25°C | ±3.5 % RH | | ±3.5 % RH | |
| | | | | | | | recommended ca | libration interval | one year | | one year | |
| case with elect | perating rangeof the ronics | -30 to +80 °C / -20 to +60 °C | -30 to +80 °C / -20 to +60 °C | -30 to +80 °C / -20 to +60 °C | -20 to +60 °C | -30 to +80 °C | IP class of case with electronics | | IP40 | | IP20 | |
| | | | | | | | humidity operating range without condensation | | 0 to 100 % RH | | 0 to 100 % RH | |
| humidity opera condensation | ting range without | 0 do 100 % RV | 0 do 100 % RV | 0 do 100 % RV | 0 do 100 % RV | 0 do 100 % RV | sensor dimensior (diameter x lengt | ıs h) | 18 x 88 mm | | 14 x 100 mm | |
| | | | | | | | | | | | | |

CMET 73 Φ4,2 76,5









signal input 0 - 20 mA

signal output 0 - 20 mA

power supply

-

P2520

P2520 two channel current loop converter is designed to connect sensors with output 4-20mA / 0-20 mA into Ethernet network. The current signal can be recalculated to physical values measured by the connected sensors. Sensors can be powered directly from the P2520 converter.

>> Measured values can be read by means of Ethernet connection.

QMET

- » The instrument may also send a warning message if the measured value exceeds adjusted limit.
- » The device setup can be made by the www interface.







Multi-channel unit allows the combination of several humidity and temperature probes.



Common parameters of sensors with Ethernet and relay outputs

Programmable regulators with Ethernet connection are designed to measure temperature and relative humidity of air, to measure concentration of CO, in the air, to signal alarms and control external devices. Regulators can be used in a chemically non-aggressive environment. Measured values are according to device type. Devices with relative humidity measurement can show one of computed values: dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. Temperature units are °C or °F. The CO, concentration is measured using the maintenance free sensor. The unique patented auto-calibration procedure compensates ageing of the measuring element and guarantees outstanding high reliability and long-term stability.

The sensors are equipped with two relay outputs for alarm indication or control of external devices. Each relay can be assigned to any input value, set up the comparing limit, delay, hysteresis and audible alarm. As an option you can remotely change its status via Modbus communication protocol. Sensors are also equipped with three two - state inputs for detection of two-state signals, e.g. flood detection, smoke detection, door contacts and so on.

The device can be used to check measured values. In case of going over the limits set up by the user it can send a warning message to the user's chosen destination.

The device is internally divided into two blocks, the first one takes care of measuring and output relays. It is possible to set up these parameters directly from the keyboard or from the free to download program TSensor. This software can be downloaded from www.cometsystem.cz The second block will ensure all Ethernet services. Its configuration can be done by the help of TELNET software or from the free to download program TSensor. Warning, this set up cannot be changed by the device's own keyboard.



Releay outputs

Two relay output for alarming or external device control. It is possible to assign any input value to each relay. Relay can be remotely controlled using ModbusTCP communication protocol.



Two - state inputs

It is possible to read three two - state inputs statuses for detection of two-state events - e.g. smoke, water leak detectors, door contact. Supported two - state inputs: dry contact, open collector or two-state voltage signal.



e

www

Acoustic alarms

Acoustic signalisation can be activated after exceeding set limits. Alarm can be confirmed (deactivated) from the device keyboard.

WWW server

Current values are available via embedded web server. Design of the web pages can be changed according to user requirements.



Email

Warning emails are sent when measured value exceed selected limits. SMTP authentication is supported, but SSL not.



History export to CSV

History values can be exported for next processing by the CSV file. CSV file can be processed inside spreadsheet application like Microsoft Excel or OpenOffice Calc.



ModbusTCP protocol

Modbus protocol for communication with SCADA systems or third party software. Device use version of Modbus TCP protocol.

SNMP protocol

SNMP version 1 protocol for IT infrastructure. Using SNMP protocol you can read actual measured values, alarm statuses and alarm parameters. MIB tables with OID description are available.



Ċ. SNMP

SNMP Trap

SNMP Trap for IT infrastructure. The device allows sending Traps to selected Trap receiver server. Traps are sent in case of alarm on channel or at error states.



The device allows to send currently measured values via SOAP v1.1 protocol. The device sends values in XML format to the web server. The advantage of this protocol is that communication is initialized by the device side. Therefore it is not necessary to use port forwarding.



SOAP

Syslog protocol

Syslog protocol for IT infrastructure monitoring systems. The device allows sending text messages to selected Syslog server. Messages are sent in case of alarm on channel or at error states.

SNTP

SNTP protocol - time synchronization

Time synchronisation with SNTP server. Actual time is shown at web pages and is necessary for timestamps inside CSV files.





Electrical wiring of Hxxxx









motion detector

| J2 | В | BIN3/U3 Output | | | tput | | ure | | Relay 1 | | | Relay 2 | | | |
|---------------------|---|----------------|---|-----|------|------|------|---------------|---------|-----|---------------|---------|---|--|-----|
| Ť | + | GND | Ť | +5V | GND | Pt1k | Pt1k | Ť | | | [| • | ٦ | | • 7 |
| inputs | | | | | | | | output relays | | | | | | | |
| nsors and detectors | | | | | | | | | | | output foldyo | | | | |
| | | | | | | | Ľ | | Pt10 | 000 | | | | | |

Sensors of temperature, relative humidity, atm. pressure, CO₂ with Ethernet and relay outputs

Common parameters:



Sensor models:

| MEASURED VALUES | unit designation* |
|--|----------------------|
| temperature + 3 two - state inputs | H0530, H4531 |
| temperature + relative humidity + 3 two - state inputs | H3530, H3531, H3531P |
| temperature + relative humidity + atm. pressure + 3 two - state inputs | H7530, H7531 |
| CO ₂ | H5521, H5524 |
| CO ₂ + relative humidity + temperature | H6520 |

* Please see page 18 - 19 for sensor specification

Common parameters:

Visualization of two - state inputs is done by three LED diodes. Each relay status is indicated with other two LED diodes described as ALARM1 and ALARM2 shown also on LCD.



» designed for 19" rack mounting

- » measured values temperature, relative humidity, computed values
- >> traceable calibration certificate with traceability with EN ISO/IEC 17025

Sensor models:

MEASURED VALUES temperature + 3 two - state inputs temperature + relative humidity + 3 two - state inputs

* Please see page 19 for sensor specification

...into 19"rack

| unit designation* |
|-------------------|
| H4531R |
| H3531R |
| |



Sensors with Ethernet and relay outputs and their specification

| Measured values | | Temp | erature | Tem | perature, relative hu | midity | Temperature, re atm. p | Temperature, relative humidity, atm. pressure | | C | 0, | Temperature | Temperature, relative humidity |
|---|----------|-----------------------------------|---------------------|---------------------|-----------------------|---------------|---------------------------|--|-------------------------|---------------------|--|--|-----------------------------------|
| SENSOR MODEL | | H4531 | H0530 | H3530 | H3531 | H3531P | H7530 | H7531 | H6520 | H5524 | H5521 | H4531R | H3531R |
| | range | -200 to +600 °C | -30 to +80 °C | -30 to +80 °C | -30 to +105 °C | | -30 to +80 °C | -30 to +105 °C | -30 to +80 °C | - | - | -200 to +600 °C | -30 to +105 °C |
| temperature | accuracy | ±0.2 °C without temp. probe | ±0.4 °C | ±0.4 °C | ±0.4 °C | | ±0.4 °C | ±0.4 °C | ±0.4 °C | - | - | ±0,2 °C without tempera- ture probe | ±0.4 °C |
| rolativo humidity** | range | - | - | 0 to 100 % RH | 0 to 100 % RH | | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | - | - | - | 0 to 100 % RH |
| | accuracy | - | - | ±2.5 % RH | ±2.5 % RH | | ±2.5 % RH | ±2.5 % RH | ±2.5 % RH | - | - | - | ±2.5 % RH |
| atmospheric pressure** | range | - | - | - | | | 600 to 1100 hPa | 600 to 1100 hPa | - | - | - | - | - |
| | accuracy | - | - | - | - | - | ±1.3 hPa | ±1.3 hPa | - | - | - | - | - |
| | range | - | - | - | | | - | - | 0 to 2000 ppm | 0 to 2000 ppm | 0 to 10 000 ppm | - | - |
| C0 ₂ *** | accuracy | - | - | - | - | - | - | - | ± (50 ppm+2 % value) | o of measured | ± (110 ppm +5 % of mea- sured value) | - | - |
| relay output max. switching vol current, power | tage, | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA | 50 V, 2 A, 60 VA |
| computed humidity values | | NO | NO | YES | YES | | YES | YES | YES | NO | NO | NO | YES |
| supply voltage | | 9-30 V | 9-30 V | 9-30 V | 9-30 V | | 9-30 V | 9-30 V | 9-30 V | 9-30 V | 9-30 V | 9-30 V | 9-30 V |
| recommended calibration interv | al | two years | two years | one year | one year | | one year | one year | one year | five years | five years | two years | one year |
| protection class of the case with electronics | ۱ | IP40 | IP40 | IP40 | IP40 | | IP40 | IP40 | IP30 | IP30 | IP30 | IP30 | IP30 |
| protection class of the sensor cover | | - | - | IP40 | IP40 | | IP40 | IP40 | IP40 | - | IP65 | - | IP40 |
| temperature operating range of the case with electronics | | -30 to +80 °C | -30 to +80 °C | -30 to +80 °C | -30 to +80 °C | | -30 to +80 °C | -30 to +80 °C | -30 to +60 °C | -30 to +60 °C | -30 to +80 °C | -30 to +80 °C | -30 to +80 °C |
| temperature operating range of the measuring element | | - | - | -30 to +80°C | -30 to +105°C | | -30 to +80 °C | -30 to +105 °C | -30 to +80 °C | - | -40 to +60 °C | - | -30 to +10 5°C |
| humidity operating range witho densation | ut con- | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 až 100 % RH | | 0 to 100 % RH | 0 to 100 % RH | 0 to 95 % RH | 5 to 95 % RH | 0 to 100 % RH | 0 to 100 % RH | 0 to 100 % RH |
| barometric pressure operating range | | - | - | - | - | up to 2.5 MPa | - | - | 850 to 1100 hPa | 850 to 1100 hPa | 850 to 1100 hPa | - | - |

* Custom range 10000 ppm for an extra fee





Electrical wiring



Connection via PoE adapter



• •

Ø18

ک

0 G

Specific humidity

06

88 Φ18



HEX 19

Dew point temperature Accuracy: ±1.5°C at ambient temperature T<25 °C and relative humidity RH >30 %, for more details see manual Range: -60 to +80 °C (-76 to 176 °F)

Absolute humidity Accuracy: $\pm 1.5 \text{ g/m}^3$ at ambient temperature T < 25 °C for more details see manual Range: 0 to 400 g/m³



** accuracy of relative humidity in range 5 % to 95 % $\,$ and of atmospheric pressure at 23 °C $\,$







Computed values

*** accuracy of $\rm CO_2$ concetration of measurement at 25 °C and 1013 hPa

Mixing ratio

Accuracy: ±2 g/kg at ambient temperature T < 35 °C Range: 0 to 995 g/kg

Specific enthalpy Accuracy: $\pm 3 \text{ kJ/kg}$ at ambient temperature T < 25 °C Range: 0 to 995 kJ/kg

Optional accessories

PP90 - Right-angled stainless steel flange.





SP004 - Plastic gland for direct mounting of the humidity probe to a 29 mm diameter hole.

sampling

SH-PP

.. closing valve probe

flow chamber

closing valve

outlet tube

Mounting accessories

4.

5

6.

(4)



FNSC

SH-PP - Flow chamber for compressed air measurement up to 25 bars stainless steel DIN 1.4301 inlet and outlet connection - G1/8 thread humidity probe connection - G1/2 thread screw-coupling not included.

The probe for measuring the moisture of compressed air should be placed directly on the pressure pipelines to achieve higher measurement accuracy and faster response times. But there are cases where such placement is not possible. The reason is the high air speed, high temperature, high pollution, small diameter pipes, etc. Such situation can be solved by placing the probe into the flow measuring chamber.



MP046 Universal holder for P8xxx and Tx5xx Web Sensors for easy mounting to rack 19".





F8100 - Solar radiation shield for transmitters with T+RH probe on a

F5200 - Grey sensor cover with filter from stainless steel mesh, filtering ability 0.025mm.

F5200B - Black sensor cover with filter from stainless steel mesh, filtering ability

F0000 - Sintered bronze sensor cover. Filtering ability 0.025mm.

JS-20 - P.I.R. motion detector is for interior protection. It detects object movement having human body temperature. The signal from the sensor is electronically analyzed. This ensures that the detector provides excellent sensitivity and false alarms are basically eliminated.

SA200A

-

Magnetic door contact for detecting opening / closing windows, doors and so on.



Universal holder for probes for easy mounting to rack 19".







MP047

F5300 - Teflon (PTFE) sensor cover (white colour), with increased resistan-ce against splashing water, non-absorbent surface, does not rust.

Detectors





SP008 AC voltage presence sensor.

LD-12 Water leakage detector.







Comet Database - Monitoring of temperature, relative humidity, atmospheric pressure and CO, by means of Ethernet

For users of Web Sensors a solution for data collection to one central database is available. It is based on MS SQL or MySQL. Software system is suitable for users who want to analyze data from multiple loggers MS or other products of Comet System.

Comet Database offers:

- data stored in one place and accessible with Comet Database Viewer
- to provide data in table and graph
- to print and export data
- alarms via SMS texts and emails
- acoustic and visual signalization of alarmscompatibility with all Comet System devices
- and 3rd party devices
- displaying of online values

TSensor

Free configuration software for sensors with Ethernet output.

SensorReader

Freeware software for displaying and logging data from one COMET sensor. The software stores measured values to a CSV file which can be processed in MS Excel. The software allows acoustic signalization of exceeded limits or sensor failure. Sensors

What does Comet Database offer?

- » 24 hours supervision
- » storage place for your data
- » simple and clear access to your measured values

SM mode

kit-GSM-W

Lemore

comet Database

Pccess to Comet Da

- » storage place for all Comet System devices
- » alarm SMS texts and e-mails

If you already have Comet database there is no need to purchase any additional software for running your Web Sensors with Comet Database.

Comet Database also exists in 30 days trial version. So you can test it without any worries.

Comet Database Viewer

Rah supervision

Alarm SMS

Each purchased Comet Database already contains one licence of Database Viewer. This low cost browser enables several clients to view database from different places on internal network or internet. Other viewer licences can be purchased separately for other users of Comet Database. **Cometeo** radiation shield is designed for no chemically aggressive environments. The meteo shield protects the measuring sensor and equipment that is hidden under the roof. Compact size, light weight and resistant plastic material make this shield useful for many applications. A variety of temperature and humidity probes are available.







Can be used together with temperature and humidity sensors with cable gland and LCD display positioned perpendicular to stem such types T7613D



Can be used together with temperature and humidity dataloggers, sensors or regulators with external probe on the cable such T3511, T7511, T3611, H3531, H7531.



COMET SYSTEM, s.r.o. 1.maje 1220 756 61 Roznov pod Radhostem CZECH REPUBLIC Tel: +420-571653990 E-mail: info@cometsystem.com www.cometsystem.com