WEB SENSORS
On-line monitoring and alarm indication
Temperature | Humidity | Dewpoint | Bar. pressure | CO₂ | Current | Events

- A solution for every need and every budget – economy and premium web sensors
- High quality, accurate and stable sensors
- Internal or external probes on the cable
- Power over Ethernet (PoE)
- Relay outputs in selected models
Applications

These days there is a high demand for on-line monitoring and uninterrupted records of different type of values. 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.

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

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

Schools and interior spaces
Protect your children’s health with timely control of air quality in buildings. With COMET CO₂ sensors you always see the exact CO₂ concentration.

Food industry
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.

For more information visit www.cometsystem.com
On-line measurement and monitoring
Temperature * Humidity * Dew point * Atm. Pressure * CO₂ * Current * Events

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, CO₂ concentration, atmospheric pressure, events and the 4-20mA signal. The last one allows measuring other physical quantities with third party sensors.

Measured values are accessible via powerful embedded web server which is accessible from personal computer or mobile devices like smartphones and tablets. 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 e-mail attachment.

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.

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

Alarm Indication
Graphically * Remotely via e-mail * Via texts (with CDB software)

Upper and lower limits can be set for each channel. In case the limits are exceeded these critical situation is indicated remotely. It can be indicated by red field, e-mail or texts if data are transmitted to central COMET Database software. E-mails are also sent when values return back into safe range. SMTP authentication is supported, but SSL not. E-mails with CSV file attachment can be sent at selected intervals.

Minimum, maximum and alarm values together with a time stamp are recorded by the Event Log.

Alarm statuses and alarm parameters. Via SNMP protocol it is also possible to get last 1000 measured values from the history table. MIB tables with OID description are available.

Device settings
Web browser interface for settings * Possibility of integration to third party systems

The device setup can be made by the TSensor software which can be downloaded for free from the manufacturer’s website. The advantage of Web Sensors is possibility to providing of settings via web interface.

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.

Device communication
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.

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 it is also possible to get last 1000 measured values from the history table. MIB tables with OID description are available.

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 e-mail, unable to deliver SOAP message, etc.

SOAP protocol
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 e-mail, unable to deliver SOAP message, etc.

SNTP protocol - time synchronization
Time synchronization 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.
**Premium Web Sensors**

Premium Web Sensors with Ethernet connection are designed for very accurate measurement of temperature, relative humidity, CO₂, 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. Premium Web Sensor are equipped with LCD display where current values can be displayed. Devices with PoE (page 10) or relay outputs (page 14) are also available.

### Measured values

<table>
<thead>
<tr>
<th>Sensor Model</th>
<th>Temperature</th>
<th>Temperature, Relative Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4511</td>
<td>200 to +600 °C</td>
<td>80-2 °C without temp. probe</td>
</tr>
<tr>
<td>T0510</td>
<td>-30 to +80 °C</td>
<td>80-6 °C</td>
</tr>
<tr>
<td>T3510</td>
<td>-30 to +80 °C</td>
<td>80-6 °C</td>
</tr>
<tr>
<td>T3511</td>
<td>-30 to +105 °C</td>
<td>80-6 °C</td>
</tr>
</tbody>
</table>

### Accuracy

- Temperature range: ±0.2 °C without temp. probe
- Temperature range: ±0.6 °C
- Relative humidity: ±2.5 % RH
- Computed humidity: ±2.5 % RH
- Supply voltage: 9-30 V
- Recommended calibration interval: two years
- Protection class of the case with electronics: IP30
- Protection class of the sensor cover: IP30
- Temperature range of the measuring element: -30 to +80 °C
- Humidity range: 0 to 100 % RH
- Barometric pressure range: 0 to 2.5 MPa

### Specifications

- **Without PoE**
  - Connector for power adapter with output voltage 9-30 Vdc
  - Display for current measured values
  - Air intakes for CO₂ measurements
  - External mounting holes for easy and fast mounting without the need to take off lid cover
  - Case of sensor is made of ABS which is very resistant to mechanical damage

- **With PoE**
  - Connector for power adapter with output voltage 9-30 Vdc
  - Display for current measured values
  - Air intakes for CO₂ measurements
  - External mounting holes for easy and fast mounting without the need to take off lid cover
  - Case of sensor is made of ABS which is very resistant to mechanical damage

### Premium Web Sensor Features

- **RTD Pt1000 temperature sensor** together with state-of-the-art capacitive polymer sensor
- **Filtering ability** 0.025 mm
- **Limits of LED indication** may be changed by user
- **Probe for compressed air measurement**

### Solution for Compressed Air Measurements

**SH-PP** - Flow chamber (see number 4 at picture) 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. The picture shows the basic layout of the sampling system with chamber SH-PP.
### Measured values

<table>
<thead>
<tr>
<th>Measured values</th>
<th>Temperature, relative humidity, atm. pressure</th>
<th>Atm. pressure</th>
<th>Temperature, relative humidity, CO₂</th>
<th>CO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SENSOR MODEL</strong></td>
<td><strong>T7510</strong></td>
<td><strong>T7511</strong></td>
<td><strong>T2514</strong></td>
<td><strong>T6540</strong></td>
</tr>
<tr>
<td><strong>temperature</strong></td>
<td>range</td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-</td>
</tr>
<tr>
<td><strong>accuracy</strong></td>
<td>±0.6 °C</td>
<td>±0.4 °C</td>
<td>±0.6 °C</td>
<td>±0.6 °C</td>
</tr>
<tr>
<td><strong>relative humidity</strong></td>
<td>range</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>-</td>
</tr>
<tr>
<td><strong>accuracy</strong></td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
</tr>
<tr>
<td><strong>atm. pressure</strong></td>
<td>range</td>
<td>600 to 1100 hPa</td>
<td>600 to 1100 hPa</td>
<td>600 to 1100 hPa</td>
</tr>
<tr>
<td><strong>accuracy</strong></td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
</tr>
<tr>
<td><strong>CO₂</strong></td>
<td>range</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>accuracy</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>computed humidity values</strong></td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td><strong>supply voltage</strong></td>
<td>9-30 V</td>
<td>9-30 V</td>
<td>9-30 V</td>
<td>9-30 V</td>
</tr>
<tr>
<td><strong>recommended calibration interval</strong></td>
<td>one year</td>
<td>one year</td>
<td>one year</td>
<td>one year</td>
</tr>
<tr>
<td><strong>protection class of the case with electronics</strong></td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
</tr>
<tr>
<td><strong>protection class of the sensor cover</strong></td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
</tr>
<tr>
<td><strong>temperature operating range of the case with electronics</strong></td>
<td>-30 to +80 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +60 °C</td>
<td>-30 to +60 °C</td>
</tr>
<tr>
<td><strong>temperature operating range of the measuring element</strong></td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +60 °C</td>
<td>-30 to +60 °C</td>
</tr>
<tr>
<td><strong>humidity operating range without condensation</strong></td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>5 to 95 % RH</td>
</tr>
<tr>
<td><strong>barometric pressure operating range</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>850 to 1100 hPa</td>
</tr>
</tbody>
</table>

* custom range 10000 ppm for an extra fee
** accuracy of relative humidity in range 5 % to 95 % and of atmospheric pressure at 23 °C
*** accuracy of CO₂ concentration of measurement at 25 °C and 1013 hPa

### Computed values

#### Specific humidity

**Accuracy:** ±2.1 g/m³ at ambient temperature T < 35 °C  
**Range:** 0 to 500 g/m³

#### Dew point temperature

**Accuracy:** ±1.5 °C at ambient temperature T<35 °C and relative humidity RH >30 %, for more details see manual  
**Range:** -60 to +80 °C  
(-76 to 176 °F)

#### Mixing ratio

**Accuracy:** ±4 kg/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 995 kg/m³  

#### Absolute humidity

**Accuracy:** ±3 g/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 400 g/m³  

#### Specific enthalpy

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

#### Specific humidity

**Accuracy:** ±2.1 g/m³ at ambient temperature T < 35 °C  
**Range:** 0 to 500 g/m³

**Accuracy:** ±4 kg/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 995 kg/m³  

**Accuracy:** ±3 g/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 400 g/m³  

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

**Accuracy:** ±2.1 g/m³ at ambient temperature T < 35 °C  
**Range:** 0 to 500 g/m³

**Accuracy:** ±4 kg/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 995 kg/m³  

**Accuracy:** ±3 g/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 400 g/m³  

**Accuracy:** ±4 kJ/kg at ambient temperature T < 25 °C  
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**Accuracy:** ±2.1 g/m³ at ambient temperature T < 35 °C  
**Range:** 0 to 500 g/m³

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**Accuracy:** ±3 g/m³ at ambient temperature T < 25 °C  
**Range:** 0 to 400 g/m³  

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

#### Device without PoE - connection procedure

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*For more information visit www.cometsystem.com*
Premium Web Sensors

With PoE

The Ethernet RJ45 connector for cable connection. Where power over Ethernet is used, the network infrastructure must be compatible with IEEE 802.3af standard.

Connector for power adapter with output voltage 4.9 - 6.1 Vdc.

Case of sensor is made of ABS which is very resistant to mechanical damage.

Display for current measured values.

Mounting holes for mounting the unit on the wall.

Sensor protection caps.

RTD Pt1000 temperature sensor together with state-of-the-art capacitive polymer sensor.

1.Sensor cover FS200 (FS200B - black) with filter from stainless steel mesh. Filtering ability is 25μm.

2. FS300 - Teflon (PTFE) sensor cover (white colour), with increased resistance against splashing water, non-absorbent surface, does not rust. Porous size 25μm. Temperature range -40°C to +125°C.

3. F0000 - sintered bronze sensor cover for moderate aggressive environments. Filtering ability 25μm.

For more information visit www.cometsystem.com
### Measured values

<table>
<thead>
<tr>
<th>SENSOR MODEL</th>
<th>T7610</th>
<th>T7611</th>
<th>T7613D</th>
<th>T5640</th>
<th>T5641</th>
<th>T6640</th>
<th>T6641</th>
</tr>
</thead>
<tbody>
<tr>
<td>temperature range</td>
<td>-20 to +60 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +105 °C</td>
<td>-20 to +60 °C</td>
<td>-30 to +105 °C</td>
<td>-20 to +60 °C</td>
<td>-30 to +105 °C</td>
</tr>
<tr>
<td>accuracy</td>
<td>±0.6 °C</td>
<td>±0.4 °C</td>
<td>±0.6 °C</td>
<td>±0.6 °C</td>
<td>±0.6 °C</td>
<td>±0.6 °C</td>
<td>±0.6 °C</td>
</tr>
<tr>
<td>relative humidity* range</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
</tr>
<tr>
<td>accuracy</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
</tr>
<tr>
<td>atm. pressure* range</td>
<td>600 to 1100 hPa</td>
<td>600 to 1100 hPa</td>
<td>600 to 1100 hPa</td>
<td>850 to 1100 hPa</td>
<td>850 to 1100 hPa</td>
<td>850 to 1100 hPa</td>
<td>850 to 1100 hPa</td>
</tr>
<tr>
<td>accuracy</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
</tr>
<tr>
<td>CO₂ range</td>
<td></td>
<td></td>
<td></td>
<td>± (50 ppm+2 % of measured value)</td>
<td>± (100 ppm+5 % of measured value)</td>
<td>± (50 ppm+2 % of measured value)</td>
<td>± (100 ppm+5 % of measured value)</td>
</tr>
<tr>
<td>accuracy</td>
<td></td>
<td></td>
<td></td>
<td>2000 ppm</td>
<td>10000 ppm</td>
<td>2000 ppm</td>
<td>10000 ppm</td>
</tr>
<tr>
<td>computed humidity values</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>supply voltage</td>
<td>4.9 - 6.1 V</td>
<td>4.9 - 6.1 V</td>
<td>4.9 - 6.1 V</td>
<td>5.0 - 6.1 V</td>
<td>5.0 - 6.1 V</td>
<td>5.0 - 6.1 V</td>
<td>5.0 - 6.1 V</td>
</tr>
<tr>
<td>Power over Ethernet (PoE) according to IEEE 802.3af</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>recommended calibration interval</td>
<td>one year</td>
<td>one year</td>
<td>one year</td>
<td>five years</td>
<td>five years</td>
<td>one year</td>
<td>one year</td>
</tr>
<tr>
<td>protection class of the case with electronics</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
</tr>
<tr>
<td>protection class of the sensor cover</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
</tr>
<tr>
<td>temperature operating range of the case with electronics</td>
<td>-20 to +60 °C</td>
<td>-20 to +60 °C</td>
<td>-20 to +60 °C</td>
<td>-20 to +60 °C</td>
<td>-20 to +60 °C</td>
<td>-20 to +60 °C</td>
<td>-20 to +60 °C</td>
</tr>
<tr>
<td>temperature operating range of the RH sensor</td>
<td>-20 to +60 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +105 °C</td>
<td>-20 to +60 °C</td>
<td>-30 to +105 °C</td>
<td>-20 to +60 °C</td>
<td>-30 to +105 °C</td>
</tr>
<tr>
<td>humidity operating range without condensation</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 95 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 95 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
</tr>
</tbody>
</table>

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

### Computed values

#### 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 %,
- **Range:** -60 to +80 °C (-76 to 176 °F)

#### Absolute humidity
- **Accuracy:** ±3 g/m³ at ambient temperature T < 25 °C
- **Range:** 0 to 400 g/m³

#### Mixing ratio
- **Accuracy:** ±2.2 g/kg at ambient temperature T < 25 °C
- **Range:** 0 to 995 g/kg

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

### Device with PoE - connection procedure

**Ethernet interface with PoE**

**Universal holder for probes**

MP047 Universal holder for probes for easy mounting to rack 19".
Premium Web Sensors

With relays & three two-states inputs

- Ethernet RJ45 connector for cable connection
- Mounting holes for mounting the unit on the wall
- Glands for the cable to the output relay
- Connector for power adapter with output voltage 9-30 Vdc
- Two relays for alarm indication or control of external devices. Each relay can be assigned to any of the measured value. The relay can also be controlled remotely via the communication protocol ModbusTCP
- The lid cover of device with keypad for control
- 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
- Display with keypad for setting
- RTD Pt1000 temperature sensor together with state-of-the-art capacitive polymer sensor
- Glands for cables
- Mounting brackets to rack 19"
- Ethernet RJ45 connector for cable connection
- Terminals for input and output signal
- Connector for power adapter with output voltage 9-30 Vdc

Limits of LED indication may be changed by user

CO2 module

Air intakes for CO2 measurement.
Three two-state inputs with devices without CO2 measurement

1. Sensor cover with filter from stainless steel mesh. Filtering ability is 25μm

2. FS300 - Teflon (PTFE) sensor cover (white colour), with increased resistance against splashing water, non-absorbent surface, does not rust. Porous size 25μm. Temperature range -40°C to +125°C

3. F0000 - sintered bronze sensor cover for moderate aggressive environments. Filtering ability 25μm

Two-state detectors

SD-283ST
LD12
SA200A
JS-20
SP008

smoke detector
flood detector
door contact
motion detector
voltage detector
<table>
<thead>
<tr>
<th>Measured values</th>
<th>Temperature</th>
<th>Temperature, relative humidity</th>
<th>Temperature, relative humidity, atm. pressure</th>
<th>Temperature, relative humidity, CO₂</th>
<th>CO₂</th>
<th>Temperature</th>
<th>Temperature, relative humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSOR MODEL</td>
<td>H4531</td>
<td>H0530</td>
<td>H3530</td>
<td>H3531</td>
<td></td>
<td>H7530</td>
<td>H5520</td>
</tr>
<tr>
<td>temperature</td>
<td>H5524</td>
<td>H5521</td>
<td>H4531R</td>
<td>H3531R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>range</td>
<td>-200 to +600 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-200 to +600 °C</td>
<td>-30 to +105 °C</td>
</tr>
<tr>
<td>accuracy</td>
<td>±0.2 °C without temp. probe</td>
<td>±0.4 °C</td>
<td>±0.4 °C</td>
<td>±0.4 °C</td>
<td>±0.4 °C</td>
<td>±0.4 °C</td>
<td>±0.4 °C</td>
</tr>
<tr>
<td>relative humidity**</td>
<td>-</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td></td>
</tr>
<tr>
<td>range</td>
<td>-</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
<td>±2.5 % RH</td>
</tr>
<tr>
<td>accuracy</td>
<td>-</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
<td>±1.3 hPa</td>
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</tr>
<tr>
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<tr>
<td>CO₂***</td>
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<td>-</td>
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<tr>
<td>computed humidity values</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>recommended calibration interval</td>
<td>two years</td>
<td>two years</td>
<td>one year</td>
<td>one year</td>
<td>one year</td>
<td>five years</td>
<td>five years</td>
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<tr>
<td>protection class of the case with electronics</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
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<tr>
<td>protection class of the sensor cover</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP40</td>
<td>IP65</td>
<td>IP40</td>
</tr>
<tr>
<td>temperature operating range of the case with electronics</td>
<td>-30 to +80 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +80 °C</td>
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<td>temperature operating range of the measuring element</td>
<td>-30 to +80 °C</td>
<td>-30 to +105 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +80 °C</td>
<td>-30 to +80 °C</td>
<td>-40 to +60 °C</td>
<td>-30 to +10 5°C</td>
</tr>
<tr>
<td>humidity operating range without condensation</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
<td>0 ±100 % RH</td>
<td>0 to 95 % RH</td>
<td>5 to 95 % RH</td>
<td>0 to 100 % RH</td>
<td>0 to 100 % RH</td>
</tr>
<tr>
<td>barometric pressure operating range</td>
<td>-</td>
<td>-</td>
<td>up to 2.5 MPa</td>
<td>-</td>
<td>850 to 1100 hPa</td>
<td>850 to 1100 hPa</td>
<td>850 to 1100 hPa</td>
</tr>
</tbody>
</table>

** Custom range 10000 ppm for an extra fee
*** accuracy of CO₂ concentration of measurement at 25 °C and 1013 hPa

Electrical wiring

Connection via PoE adapter TL - PoE 10R

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: -56 to +80 °C
(-76 to 176 °F)

Absolute humidity
Accuracy: ±1.5 g/m³ at ambient temperature T < 25 °C
Range: 0 to 400 g/m³

Mixing ratio
Accuracy: ± 2 g/kg at ambient temperature T < 25 °C
Range: 0 to 995 g/kg

Specific enthalpy
Accuracy: ± 3 kJ/kg at ambient temperature T < 25 °C
Range: 0 to 995 kJ/kg

For more information visit www.cometsystem.com
Economy Web Sensors

With PoE

The Ethernet RJ45 connector for cable connection

Connector for power adapter with output voltage 4.9V - 6.1 Vdc

External mounting holes for easy and fast mounting without the need to take off lid cover

Three two-state inputs for detectors connection

Connectors for connection external temperature and humidity probes

Case of sensor is made of ABS which is very resistant to mechanical damage

Sensor models:

- **MEASUREMENT VALUES**
  - without PoE**
  - with PoE**

<table>
<thead>
<tr>
<th></th>
<th>without PoE**</th>
<th>with PoE**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>P8510</td>
<td>P8610</td>
</tr>
<tr>
<td>Temperature + relative humidity*</td>
<td>P8511, P8541</td>
<td>P8641, P8611</td>
</tr>
<tr>
<td>Temperature + relative humidity* + two - state inputs</td>
<td>P8552</td>
<td>P8652</td>
</tr>
<tr>
<td>0–20mA (4–20 mA)</td>
<td>F2520</td>
<td></td>
</tr>
</tbody>
</table>

* With the attached temperature and humidity probe - type DSRH (max. length 10 metres)  ** Please see page 20 - 21 for sensor specification

External digital temperature probes

Temperature probes on the cable are designed to measure the temperature in specific applications. Probes are supplied in lengths of 1, 2, 5 and 10 meters (15 and 20 meters for DSTR162/C). The maximum sum of the lengths of all probes is 40m which can be connected to one device.

** Fast response air probe with without protection against moisture.

- **DSR/C**
  - range (0°C to +50°C)
  - accuracy ±0.5°C

** Multi-purpose watertight probe with IP67.

- **DSTGL40/C**
  - range (-30°C to +60°C)
  - accuracy ±0.5°C from -10°C to +80°C; otherwise ±2°C

** Universal temperature watertight probe for monitoring higher temperature.

- **DSTGB/C**
  - range (-50°C to +125°C)
  - accuracy ±0.5°C from -10°C to +80°C; otherwise ±2°C

** Inexpensive probe with plastic housing, slow response and with IP67.

- **DSTR162/C**
  - range (-30°C to +80°C)
  - accuracy ±0.5°C from -10°C to +80°C; otherwise ±2°C

External temperature/humidity probes

Fast response probe without protection against moisture.

** DSRH/C**

- temperature range (0°C to +50°C)
  - accuracy ±0.5°C
- humidity range (0 to 100 % RH)
  - accuracy ±3.5 % RH

The external probe with cable length 1,2,5 and 10 meters. The probe with interchangeable sensor covers.

**F5200** - sensor cover with filter from stainless steel mesh, suitable for moderately dusty environment. Filtering ability 25μm.

**F5300** - Teflon (PTFE) sensor cover (white colour), with increased resistance against splashing water, non-absorbent surface, does not rust. Porous size 25μm.

**FS200** - sensor cover with filter from stainless steel mesh, suitable for moderately dusty environment.
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.
- 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.

### Measured values

<table>
<thead>
<tr>
<th>SENSOR MODEL</th>
<th>Temperature</th>
<th>Temperature, relative humidity</th>
<th>Current - mA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>temperature</td>
<td>range</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td></td>
<td>-30 to +80 °C/ -20 to +60 °C</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td>accuracy</td>
<td>±0.8 °C (&gt;-10 °C) ±2 °C (&lt; -10 °C)</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td>relative humidity</td>
<td>range</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td>accuracy</td>
<td>-</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td>two - state input, no galvanic isolation</td>
<td>-</td>
<td>-</td>
<td>3</td>
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<tr>
<td>configuration Dry contact/ Voltage input</td>
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<td>current measuring range</td>
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<tr>
<td>accuracy of current measurement</td>
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</tr>
<tr>
<td>resolution</td>
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<tr>
<td>input impedance</td>
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</tr>
<tr>
<td>power over Ethernet (PoE) according to IEEE 802.3af</td>
<td>-</td>
<td>/ YES</td>
<td>-</td>
</tr>
<tr>
<td>recommended calibration interval</td>
<td>two years</td>
<td>according to the used probe*</td>
<td>according to the used probe*</td>
</tr>
<tr>
<td>protection class of the case with electronics</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
</tr>
<tr>
<td>temperature operating range of the case with electronics</td>
<td>-30 to +80 °C / -20 to +60 °C</td>
<td>-30 to +80 °C / -20 to +60 °C</td>
<td>-30 to +80 °C / -20 to +60 °C</td>
</tr>
<tr>
<td>humidity operating range without condensation</td>
<td>0 do 100 % RV</td>
<td>0 do 100 % RV</td>
<td>0 do 100 % RV</td>
</tr>
</tbody>
</table>

### Solution for third party sensors

P2520

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

Universal holder for P8xxx and Tx6xx Web Sensors for easy mounting to rack 19".

Web Sensors for easy mounting to rack 19".

Switching power supply unit for Web Sensors P8xxx and Tx6xx.
COMET Cloud and Database software
Data storage place for COMET sensors

For users of Web Sensors a solution for data collection to one central place is available. It can be software solution based on MS SQL and installed on customer’s server or personal computer. The second option how to collect measured data is COMET Cloud which accessible from any device with web browser.

- 24 - hour supervision
- unlimited data storage
- simple and clear access to your measured values
- single repository for all devices COMET
- alarm SMS texts and e-mails
- acoustic and visual signalization of alarms

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.

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

- COMET Cloud is the internet storage of data measured by COMET sensors. Data are accessible in the internet and displayed in an internet browser.
- Every user has the access to his account COMET Cloud, protected by password.
- COMET Cloud enables to add sensors, creates or organisational structures such sensor groups and user groups. The different rights can be set up for displaying and administration for each user.
- Easy report creating
- E-mail alarming
- Unlimited space for data

For more information visit www.cometsystem.com
WEB SENSORS
On-line monitoring and alarm indication

Temperature | Humidity | Dewpoint | Bar. pressure | CO₂ | Current | Events

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