

SELECTION TABLE OF TEMPERATURE, HUMIDITY, PRESSURE CO₂ TRANSMITTERS Hxxxx

MEASURED VALUE / OUTPUT	2 x Relay	2 x Relay RS485	2 x Relay RS232	2 x Relay Ethernet
temperature + 3 binary inputs		H0430 fig.2 page 70 H4431 fig.1 page 70	H4331 fig.1 page 72	H0530 fig.2 page 74 H4531 fig.1 page 74 H4531R page 24
temperature + humidity	H3060 fig.3 page 68 H3061 fig.5 page 68 H3020 fig.3 page 68 H3021 fig.5 page 68 H3023 fig.4 page 68			
temperature + humidity + 3 binary inputs		H3430 fig.3 page 70 H3431 fig.5 page 70 H3433 fig.4 page 70	H3331 fig.5 page 72	H3530 fig.3 page 74 H3531 fig.5 page 74 H3531R page 24
temperature + humidity + atmos. pressure + 3 binary inputs		H7430 fig.3 page 70 H7431 fig.5 page 70	H7331 fig.5 page 72	H7530 fig.3 page 74 H7531 fig.5 page 74 H7531R page 24
CO ₂ concentration	H5024 fig.1 page 68 H5021 fig.5 page 68	H5424 fig.1 page 70 H5421 fig.5 page 70	H5324 fig.1 page 72 H5321 fig.5 page 72	H5524 fig.1 page 74 H5521 fig.5 page 74
CO ₂ + temperature + humidity	H6020 fig.3 page 68	H6420 fig.3 page 70	H6320 fig.3 page 72	H6520 fig.3 page 74

fig. 1



fig. 2



fig. 3



fig. 4



fig. 5



Illustrative pictures of mechanical construction of Hxxxx transmitters
- number of cable glands of particular models may differ



H4531
H5524



H0530



H3530
H7530
H6520



H3531
H7531
H5521

Measured temperature and relative humidity is recalculated to other humidity interpretations - dew point temperature, absolute humidity, specific humidity, mixing ratio or specific enthalpy.

Reading and pressure output available in these units: hPa, kPa, mbar, mmHg, inHg, inH₂O, PSI, oz/in².

Degrees Celsius and Fahrenheit are user selectable.

State-of-the-art capacitive polymer sensor ensures excellent calibration long term stability.

Transmitter is equipped with two relay outputs for alarm indication or control of external devices. Each relay can be assigned to any measured or computed value. For each relay setting of delay, hysteresis, audible alarm is enabled.

Transmitters, except CO₂ transmitters are equipped with three binary inputs for detection of two-state events - e.g. water, smoke, glass break detection, door contact. Transmitter is equipped with internal terminals for powering of connected external detectors.

NEW The CO₂ - carbon dioxide level is recently regarded as an important parameter that substantially determines the quality of the interior climate. Especially in buildings where many people gather, such meeting rooms, hospitals, schools, cinemas, theatres and care centres. With the help of CO₂ sensor engineers, technical advisors, environmental experts and health specialists can optimize the ventilation for creation of a healthy interior climate.

The CO₂ measurement is based on a 2-source, 2-beam process. CO₂ measurement with long-term stability is guaranteed thanks to the proven non-dispersive infrared (NDIR) CO₂ measurement cell.

The unique patented auto-calibration procedure compensates for aging of the infrared source and guarantees high reliability, long term stability and eliminates the need of periodical recalibration in the field.

MODES OF COMMUNICATION

ModBus TCP:	Modbus TCP protocol enables to read measured values and binary input states, set alarm limits, adjust the probe.
Telnet:	Port 9999 enables to set alarm limits (lower, upper limits, hysteresis for measured values and time delay), e-mail addresses, SNMP addresses, probe description, refresh of www pages (10s to 65535s), set storing interval to history (10s to 65535s), enable each communication channel. Capacity of the history memory is 100 sets of temperature, humidity, pressure + computed values. Password protection of this port is enabled. Automatic IP address assignment from DHCP server is also enabled.
www pages:	User selectable design of www pages enabling to display curve of measurement history and binary input states. User can design the look of www pages and recorded values history.
SNMP:	It is possible to read actual values, alarm limits and binary input states. In case of alarm creation warning message (trap) is sent to addresses defined by the user (maximum three addresses).
SOAP:	Transmitter enables to send actual measured data in the format of SOAP protocol. Transmitter can send measured values in XML with selected period to selected www server.

ALARM INDICATION OPTIONS

E-mail:	In case of alarm creation warning e-mail message is sent to addresses defined by the user (maximum three addresses) or via e-mail to SMS message. Basic SMTP autentization is supported.
www pages:	In case of exceeding of adjusted measured value limit or binary input states active alarm is displayed on www page.
SNMP:	In case of exceeding of adjusted measured value limit or binary input states alarm is activated and warning trap is sent to user specified IP addresses (maximum 3 addresses).
syslog:	Online transmitter enables to send text messages to selected syslog server after different events appear.

ETHERNET TEMPERATURE, HUMIDITY, PRESSURE CO₂ SENSORS Hx5xx WITH RELAY OUTPUTS

TECHNICAL PARAMETERS

Maximum switching voltage, current, power:	50V, 2A, 60VA, resistive load
Audible alarm:	from built-in beeper - switchable
Range of relative humidity measurement:	0 to 100%
Accuracy of relative humidity measurement:	±2.5% relative humidity from 5 to 95% at 23°C
Accuracy of temperature measurement:	±0.4°C from -30 to +100°C, ±0.4% from reading over +100°C
Accuracy and range of dew point temperature:	±1.5 °C at ambient temperature <25°C and RH>30%, range -60 to +80°C
Accuracy and range of absolute humidity:	±3g/m ³ at ambient temperature T < 40°C, range 0 to 400 g/m ³
Accuracy and range of specific humidity:	±2g/kg at ambient temperature T < 35°C, range 0 to 550 g/kg
Accuracy and range of mixing ratio:	±2g/kg at ambient temperature T < 35°C, range 0 to 995 g/kg
Accuracy and range of specific enthalpy:	± 3kJ/kg at ambient temperature T < 25°C, range: 0 to 995 kJ/kg
Accuracy and range of atmospheric pressure:	±1.3hPa at 23°C, range 600 to 1100hPa
Supported pressure units:	hPa, kPa, mbar, mmHg, inHg, inH ₂ O, PSI, oz/in ²
Accuracy and range of CO ₂ level H5524, H6520:	±(50ppm +2% from reading) 0 to 2000ppm at 25°C and 1013hPa NEW ±(100ppm +5% from reading) 0 to 10000ppm at 25°C and 1013hPa
Signal for binary inputs:	from voltage-less contact, open collector or two-state voltage signal. Inputs are not galvanically isolated.
Minimum pulse length at binary input:	500 ms (shorter pulse may not be detected)
Voltage at open contact:	3.3 V
Low voltage level:	0 to +0.5 V
High voltage level:	+3.0 to +30V
Operating temperature range of the case:	-30 to +80°C (-30 to +60°C for CO ₂ transmitters H5524, H6520).
Operating temperature range of the LCD display:	readable to operating temperature +70°C
Temperature range of RH sensor compensation:	-30 to +105°C
Filtering ability of humidity sensor cover:	0.025mm, filter from stainless steel mesh
Protection:	case with electronics IP30, protection of T+H probe IP40
LAN connector:	connector RJ-45, 10Base-T or 100Base-TX
Power:	9-30Vdc, maximum consumption approximately 1W
Power connector:	co-axial, diameter 5.5 x 2.1 mm
Mechanical dimensions of the case (W x H x D):	135 x 136 x 45 mm

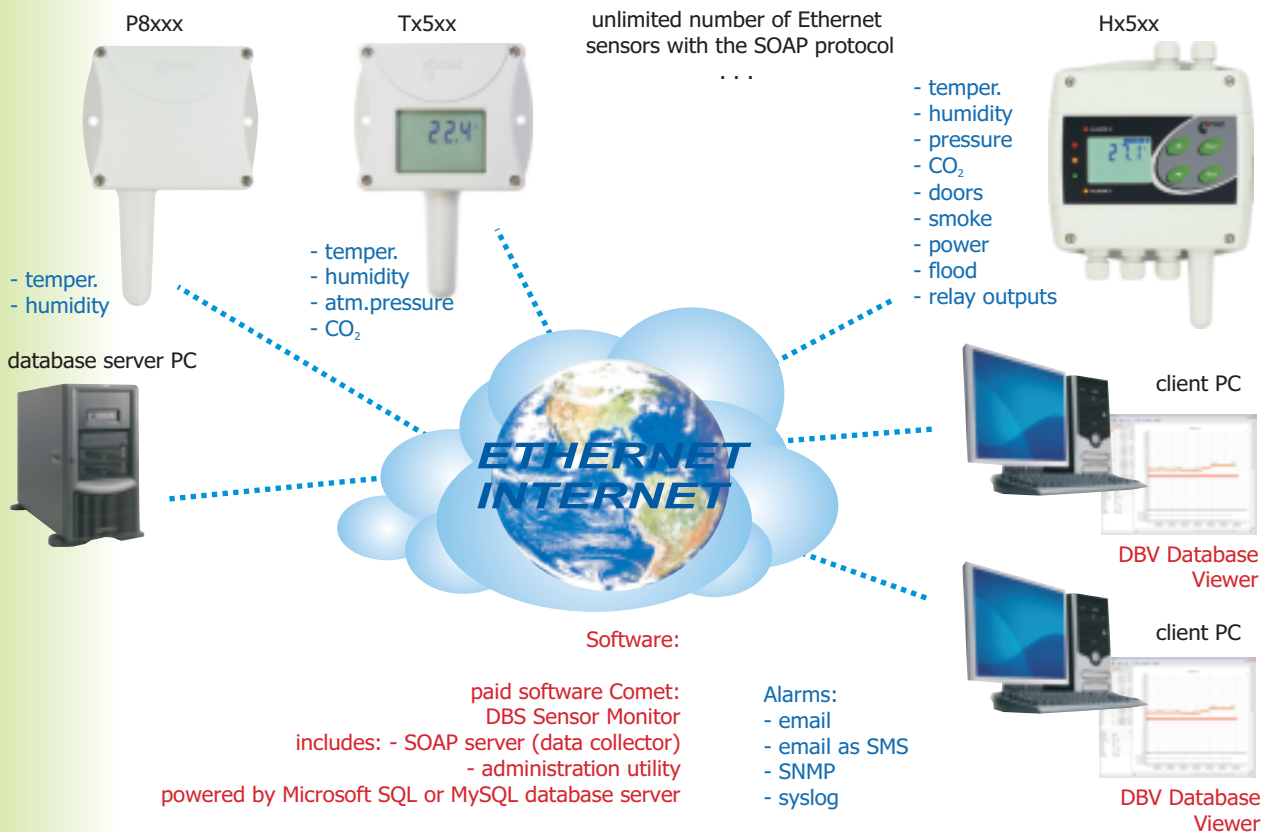
AVAILABLE MODELS:

TYPE	MEASURED VALUE	MAXIMUM RANGE OF MEASURED VALUES	DESCRIPTION
H0530	temperature + 3 binary inputs	-30 to +80°C	Thermometer - for outdoor/indoor use.
H4531	temperature+ 3 binary inputs	-200 to +600°C	Temperature transducer - for external probe Pt1000 sensor (not included). Accuracy of the input ±0.2°C
H3530	temp.+humidity +3 binary inputs	-30 to +80°C relative humidity 0 to 100%	Thermometer - hygrometer - for outdoor/indoor use.
H3531	temp.+humidity +3 binary inputs	-30 to +105°C*probe including cable relative humidity 0 to 100%	Thermometer - hygrometer - T+RH probe of 18mm diameter, 88mm length with 1m cable. Cable lengths 2m or 4m available optionally.
H7530	temp.+humidity +atmospheric pressure + 3 binary inputs	-30 to + 80°C relative humidity 0 to 100% pressure: 600 to 1100hPa	Thermometer - hygrometer - barometer - for outdoor/indoor use.
H7531	temp.+humidity +atmospheric pressure + 3 binary inputs	-30 to +105°C*probe including cable relative humidity 0 to 100% pressure: 600 to 1100hPa	Thermometer - hygrometer - barometer. T+RH probe of 18mm diameter, 88mm length with 1m cable. Cable lengths 2m or 4m available optionally. Barometer enables to measure sea level pressure by setting of correction to altitude above sea level.
H5524	CO ₂ level	0 to 2000ppm	CO₂ concentration transmitter , built-in sensor.
H5521	CO ₂ level	0 to 10000ppm	CO₂ concentration transmitter , probe with 1 m cable, diameter 18.5mm. Available also with cable lengths 2m or 4m.
H6520	CO ₂ level+ temperature+	0 to 2000ppm	Temperature, humidity, CO₂ concentration transmitter.

* Maximum temperature range for models with T+RH probe on the cable is valid for the whole T+RH probe including the cable. Near plastic case with electronics maximum temperature is +80°C (+60°C for CO₂ transmitters H5524, H6520). RH at temperature over +85°C is limited in accordance with the graph.

ETHERNET TEMPERATURE, HUMIDITY, PRESSURE CO₂ SENSORS Hx5xx WITH RELAY OUTPUTS

Online data acquisition system from transmitters connected to Ethernet/Internet can be easily built by means of Comet software **Database Sensor Monitor**.



Included accessories:

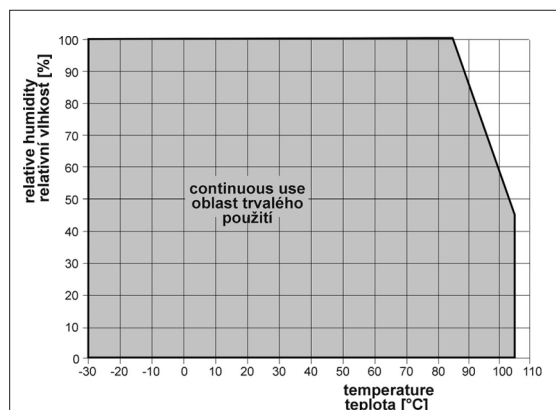
Traceable calibration certificate from the manufacturer; instruction manual. Calibration certificate with declared metrological traceability of etalons is based on requirements of EN ISO/IEC 17025 standard.

Free program TSensor for configuring of the transmitter is ready to download from www.cometsystem.cz

SensorReader - freeware for online logging values from one transmitter to a PC disk file is also ready to download.

Program enables to alarm acoustically the PC user if adjusted alarm limits are exceeded.

Recorded values in CSV format are easy to process in e.g. Excel.



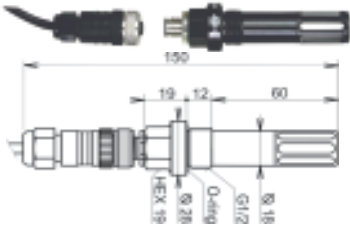






Optional accessories:

DBS Sensor Monitor - database program for online data acquisition and analysis from Comet sensors. It contains all components for monitoring of sensors, including one licence of DBV Database Viewer.

Probes with RTD Pt1000 sensors are directly compatible with H4531 transducer - see end of catalogue for Comet probes without connector - probe marking is followed by symbol /0.

Other accessories - see further in catalogue.

OPTIONAL ACCESSORIES FOR HUMIDITY TRANSMITTERS

<p>New - probe for compressed air</p>	<p>Order code</p>	
	<p>TxxxxP Hxxxx1P</p>	<p>Optional temperature, humidity, dew-point probe designed for compressed air measurement up to 25 bars. Cable lengths 1, 2 or 4m available. Length 110mm, diameter 18mm, G1/2 thread. Available with TxxxxP, HxxxxP transmitters.</p>
	<p>SH-PP</p>	<p>Flow chamber for compressed air measurement up to 25 bars - stainless steel DIN 1.430. Inlet and outlet connection - G1/8 thread. Humidity probe connection - G1/2 thread. Screw-coupling not included.</p>
	<p>TxxxxL HxxxxL</p>	<p>Transmitter version with watertight male connector IP67 Lumberg RSFM4 instead of cable gland for easy connection/disconnection of the output. Specify please your order with letter L behind model code - e.g. T3110L or H3020L</p>
	<p>K1427</p>	<p>Female connector ELKA 4012PG7 for TxxxxL, HxxxxL transmitters with male connector Lumberg for easy connection/disconnection of the output. Cable is easily connected to screw terminals of the connector. IP67 protection.</p>
	<p>without LCD</p>	<p>Transmitter version with blind lid without LCD. Specify please the requirement in your order.</p>
	<p>OEM</p>	<p>Transmitters are also available without Comet logo as OEM products. Specify please the requirement in your order. Minimum order of OEM transmitters without Comet logo is 100 pcs.</p>
	<p>F8000</p>	<p>Solar radiation shield for transmitters with T+RH probe on a cable.</p>

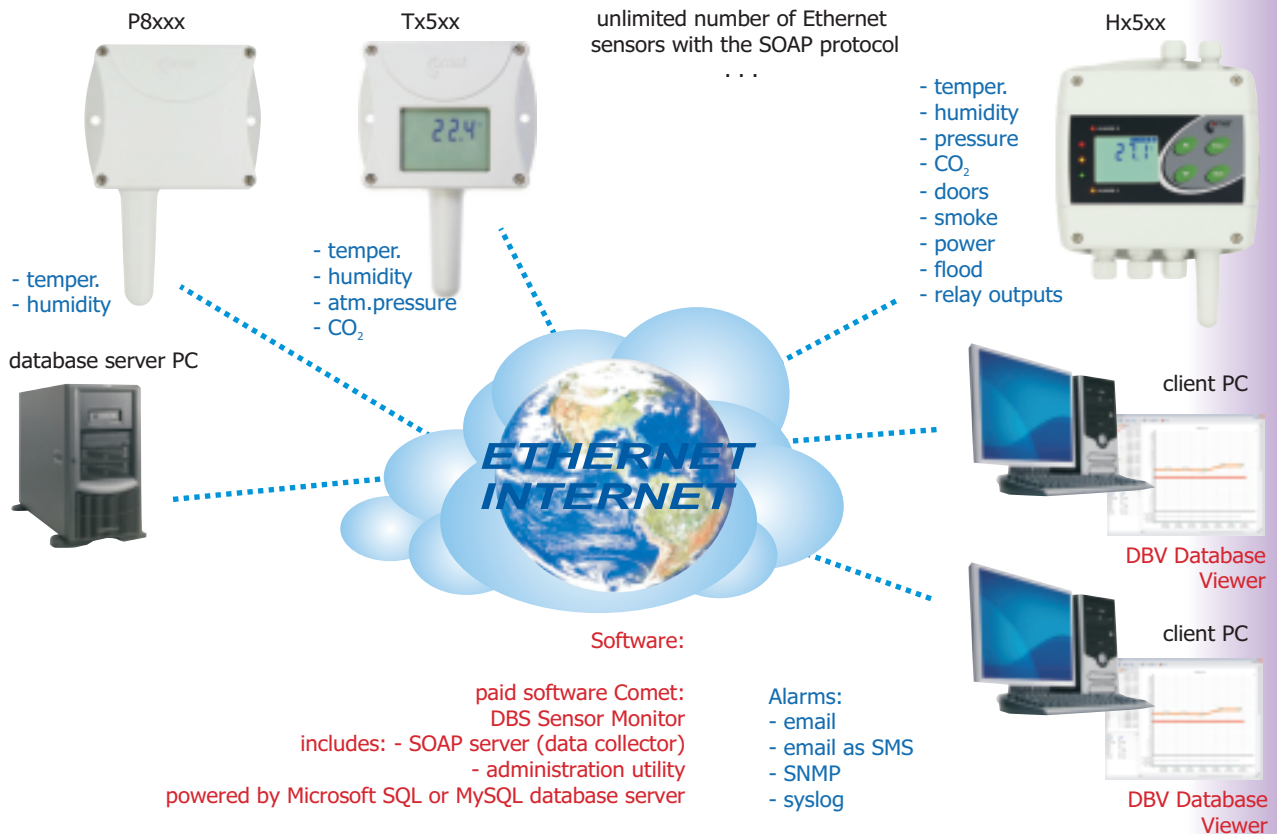
OPTIONAL ACCESSORIES FOR HUMIDITY TRANSMITTERS

	Order code	
	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 0,025mm
	SP003	Cable for transmitter adjustment via USB port - for models Tx1xx, Tx2xx with analog outputs and models Hx0xx.
	PP4	flat plastic circular flange for duct mounting
	PP90	right-angled stain-less steel flange for wall mounting
	SP004	plastic gland for direct mounting of the humidity probe to a 29 mm diameter hole
	SP005	tool for easy wire connection to WAGO terminals Wago - for transmitters with current and voltage output
	SP006	tool for easy wire connection to WAGO terminals Wago - for Txxxx transmitters with serial output RS485 and RS232 and Hxxxx transmitters
	MD036	self adhesive Dual Lock for easy installation
	A1515	ac/dc adapter 230V-50Hz/12Vdc for Ethernet transmitters Tx5xx, Hx5xx - with co-axial connector
	A1510	ac/dc adapter 230V-50Hz/12Vdc for serial output Txxxx transmitters and Hxxxx transmitters - for connection to terminals
	MD046 HM023 HM024	<p>ACCESSORIES FOR EASY RELATIVE HUMIDITY CALIBRATION AND ADJUSTMENT</p> <p>anodized duraluminum vessel for relative humidity calibration and adjustment</p> <p>set of 5 humidity standards 10% RH with 5 application pads</p> <p>set of 5 humidity standards 80% RH with 5 application pads</p>

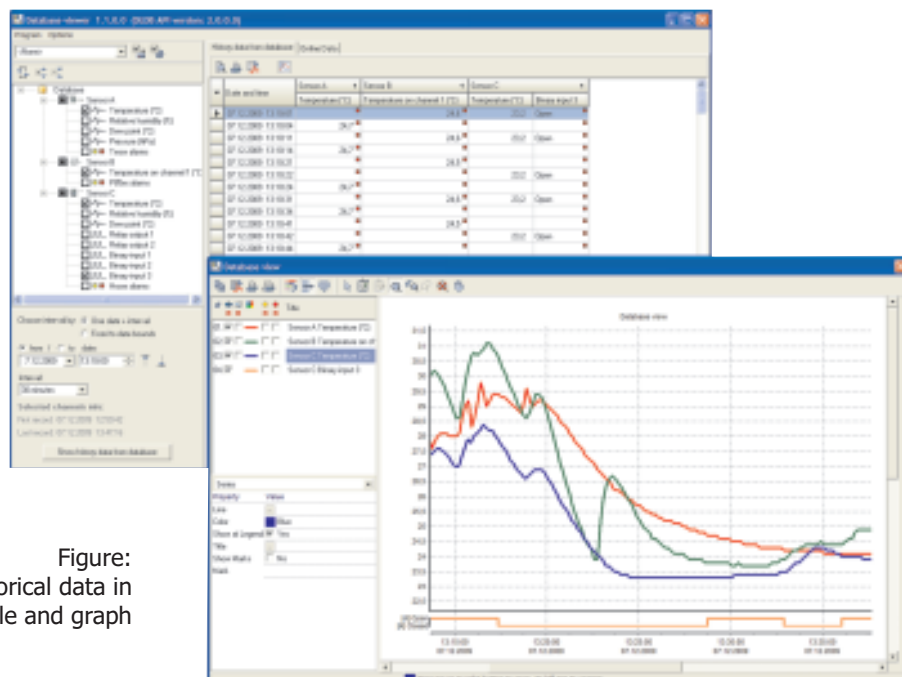
ONLINE MONITORING SYSTEM WITH SENSORS CONNECTED TO ETHERNET- DBS Sensor Monitor

New

Easy creation of online data acquisition system from Ethernet temperature, humidity, pressure sensors by using low cost database software Comet DBS Sensor Monitor.



Database program DBS Sensor Monitor for online data acquisition and analysis from Comet sensors is a client-server data acquisition system. It contains all necessary components for monitoring of sensors, incl. one licence of DBV Database Viewer.



System enables i.a.:

- * Data acquisition from Comet sensors connected to Ethernet network.
- * To view selected channels from any Comet sensor together with selected channels of other Comet sensors (i.e. comparing/monitoring of values from different measurement points).
- * Measurement from different Comet devices is possible to combine in one table or graph.
- * To present data (temperature, humidity, pressure, binary state, etc.), alarm status.
- * To choose any time interval for analysis.
- * Print, export to PDF - table and graph. Export to other formats for subsequent processing.
- * Online visualization of actual values and alarms.
- * Online graphic visualization of measurement in curves. I.e. graph presenting actual data e.g. for last hour. The length of history is selectable. Graph is automatically updated.
- * Compression of on-line data
 - optimizes data storing
 - in usual use reduces volume of recorded data down to 4%
 - speeds up recorded data viewing
 - database server is not overloaded even after long term operation

The advantage is a simple system expanding:

- * Connection of sensors is very easy thanks to the used communication protocol SOAP. Needed is only to enter server address and connect sensor to intranet/ethernet.
- * It is possible to build large data acquisition system. SOAP protocol is commonly used in internet. Data acquisition from sensors located anywhere in the world is enabled.
- * System can be expanded with other and other devices without any charge. Buying DBS Sensor Monitor enables to capture data from unlimited number of sensors - 2, 10 or 100 sensors.
- * Low cost browsers DBV Database Viewer can be bought in successive steps as necessary. It enables several **clients to view database from different places on network/internet.**

Administration of system enables i.a.:

- * To name device in database (e.g. „sensor at warehouse“).
- * To backup database.
- * To diagnose error states.
- * To administrate user accounts. DBV Database Viewers use for connection to database read-only accounts. Database is thus protected against damage by unauthorized person.

System is based on stable and world-wide popular freeware platform Microsoft SQL or MySQL.

System installation and administration is simple. Instruction Manual guides installation of the system step by step, including all needed freeware.

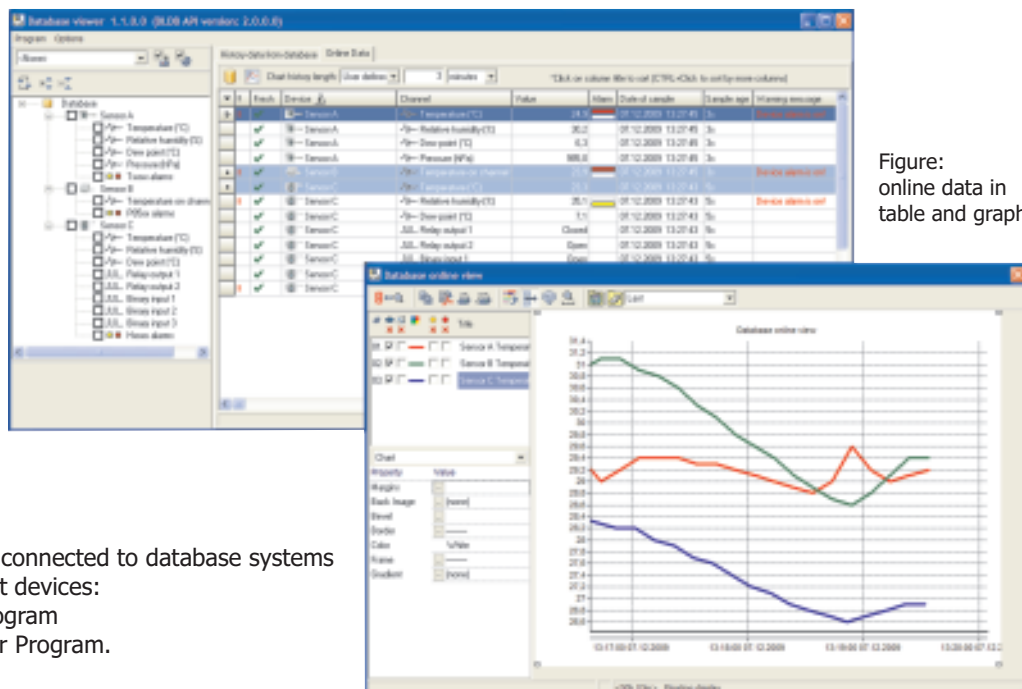


Figure: online data in table and graph

System can be connected to database systems for other Comet devices:
 DBL Logger Program
 DBM MS Logger Program.