Low cost rack mount server environment monitor Hx531R

Server monitoring system is designed for 19-inch rack mounting, the height is one rack unit - 1U.

Model H4531R is prepared for connection of external Pt1000 temperature probe and models H3531R, H7534R are equipped with 1 meter temperature + humidity probe. Unit contains three binary inputs for detection of two-state events - e.g. power presence, water, smoke, airflow, glass break detection, door contact.

Rack unit provides 5Vdc and 12dc power supply for external all sensors and detectors.

Large dual line LCD for simultaneous display of temperature, humidity is an advantage. Parameters are easy adjustable from transmitter keyboard or from the computer.

Environmental monitor is equipped with two relay outputs for alarm indication or control of external devices. Each relay can be assigned to any measured value.

Binary inputs 3x
- power - UPS
- flood
- smoke
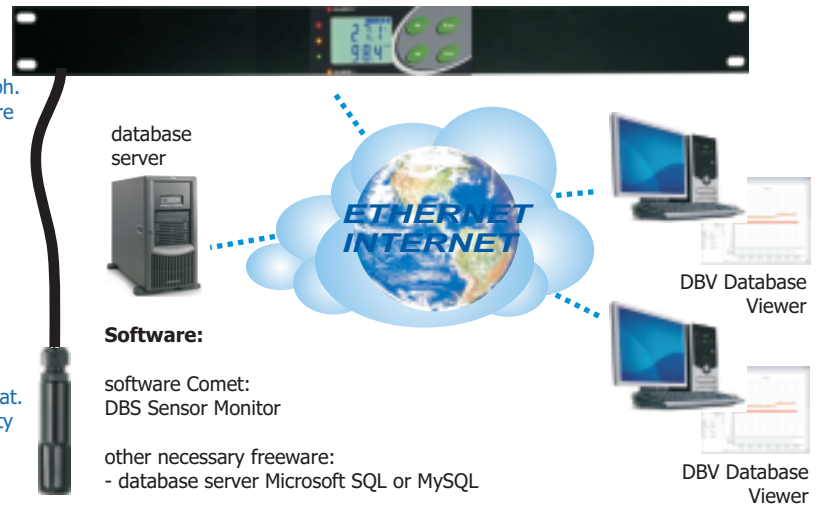- doors
- ...

atmosph. pressure

hPa mbar

temperat. humidity

%RH
C

Alarms
- email
- email as SMS
- SNMP
- syslog

Relay outputs 2x

OUT
OUT

database server

ETHERNET INTERNET

DBV Database Viewer

DBV Database Viewer

Software:

software Comet:
DBS Sensor Monitor

other necessary freeware:
- database server Microsoft SQL or MySQL

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.
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:	Online system enables to send actual measured data in the format of SOAP message to selected web server in preset interval 10-65535 s.

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 temperature, humidity, pressure + computed value limits or binary input states active alarm is displayed on www page.
SNMP:	In case of exceeding of adjusted temperature, humidity, pressure + computed value limits or binary input states alarm is activated and warning trap is sent to user specified IP addresses (maximum 3 addresses).
syslog:	Online system enables to send text messages to selected syslog server after different events appear. E.g. after transmitter restart, alarm activation, communication error with SNTP, after firmware change, after alarm termination, after communication error with SOAP server.

Low cost rack mount server environment monitor Hx531R

TECHNICAL PARAMETERS

Maximum switching voltage, current, power of relay output:	50V, 2A, 60VA, resistive load
Audible alarm indication:	from built-in acoustic converter - switchable
Operating relative humidity range:	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
Accuracy and range of atmospher.pressure measurement:	±1.3hPa at 23°C, range from 600 to 1100hPa
Supported pressure units:	hPa, kPa, mbar, mmHg, inHg, inH_2O, PSI, oz/in^2
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:	-30 to +80°C
Filtering ability of sensor cover:	0.025mm
Protection:	IP30, T+H probe IP40
LAN connection:	RJ-45 connector
Power:	12Vdc, maximum consumption 250mA
Power connector:	axial, diameter 5.5 x 2.1 mm
Dimensions of the case (W x H x D):	483 x 44 x 45 mm, one rack unit 1U

AVAILABLE MODELS:

MODEL	MEASURED VALUE	MAXIMUM RANGES OF MEASURED VALUES	DESCRIPTION
H4531R	temperature+ 3 binary inputs	-200 to +600°C	Temperature transducer for RTD Pt1000probes (not included). Accuracy of the input without probe ±0.2°C
H3531R	temperature+ humidity+ 3 binary inputs	-30 to +105°C*probe including cable relative humidity 0 to 100%	Thermometer-hygrometer. T+RH probe with 1m cable. Cable lengths 2m or 4m available optionally.
H7531R	temperature+ humidity+ atmospheric pressure+ 3 binary inputs	-30 to +105°C*probe including cable relative humidity 0 to 100% pressure: 600 to 1100hPa accuracy: ±1,3hPa at 23°C	Thermometer-hygrometer-barometer. T+RH probe with 1m cable. Cable lengths 2m or 4m available optionally. Humidity values available also as dew-point temperature, absolute humidity, specific humidity, mixing ratio, specific enthalpy. Reading and pressure output in these units: hPa, kPa, mbar, mmHg, inHg, inH2O, PSI, oz/in^2. Barometer enables to measure sea level pressure by setting of correction to altitude above sea level.

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 necessary components for monitoring of sensors, including one licence of DBV Database Viewer.
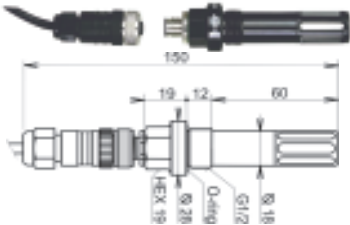
Probes with RTD Pt1000 sensors are directly compatible with H4531R transducer - see end of catalogue for Comet probes without connector - probe marking is followed by symbol /0.

Other accessories - see further in catalogue.

Monitoring systems

Optional accessories:		
	DBS	**DBS Sensor Monitor** - database program - enables online data acquisition and analysis of actually measured and stored values from unlimited number of Comet sensors connected to Ethernet - it is a data acquisition system of client-server type - it contains: *software for server computer: *SOAP server for data acquisition *Administration program database *Microsoft SQL or MySQL database server (third party freeware) *one licence of DBV Database Viewer. More information at page 72.
	Pt1000 probes	Temperature probes with Pt1000 RTD sensor without connector - there is a symbol /0 behind probe name. Recommended is watertight probe Pt1000TR160/0 on the shielded PVC cable 2 x 0.14mm2. Specify required cable length 1, 2, 5, 10, 15 or 20 meters.
	MP047	Universal holder for probes for easy mounting to rack 19" (probes not included)
	SP008	AC voltage presence sensor, connectable to binary Hx531R inputs.
	LD12	Water leakage detector, two-state output, connectable to binary Hx531R inputs. With 3 meters cable. Powered from Hx531R 12Vdc output.
	SD280	Optical smoke detector, relay output, connectable to binary Hx531R inputs, powered from Hx531R 12Vdc output. The SD280 detector combines an optical smoke sensor with a heat sensor. Both sensors have their outgoing signals processed digitally, resulting in higher false alarm immunity.
	JS20	P.I.R. motion detector is for interior protection. It detects object movement having a human body temperature. The JS-20 distinguishes itself with excellent RF immunity. The signal from the sensor is electronically analyzed. This ensures that the detector provides excellent sensitivity and false alarms are basically eliminated. The detection analysis rate can be adjusted to increase its immunity if the JS20 is installed in a problem location. It can be mounted on a flat wall or in a corner. Connectable to binary Hx531R inputs, powered from Hx531R 12Vdc output.
	SA200A	Magnetic door contact, connectable to binary Hx531R inputs, without cable.
	SA200A-2 **SA200A-5** **SA200A-10** **SA200A-20** **SA200A-30**	Magnetic door contact, connectable to binary Hx531R inputs with cable lengths 2, 5, 10, 20, 30 meters.
	A1515	AC/DC adapter 230V-50Hz/12V.

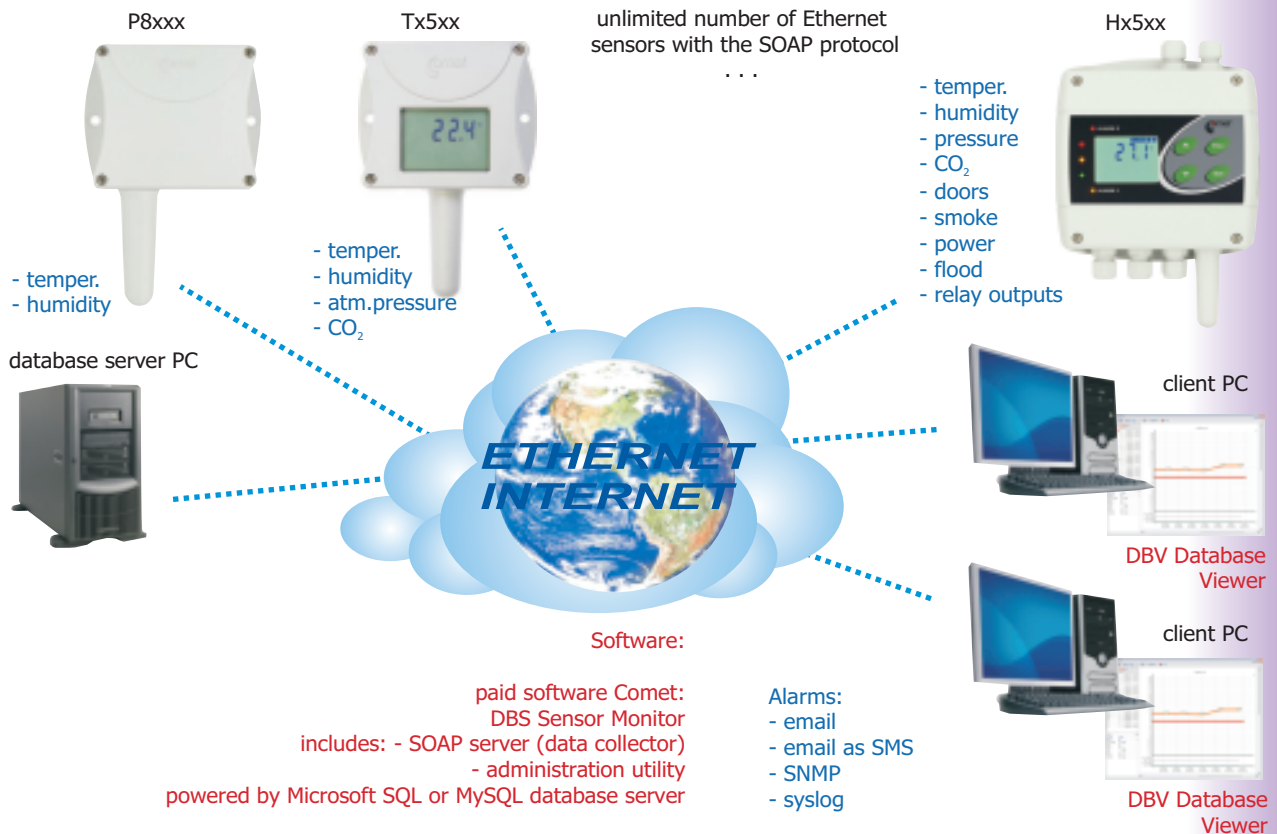| New - probe for compressed air	Order code	
	TxxxxP **Hxxx1P**	Optional temperature, humidity, dew-point probe designed for compressed air measurement up to 25 bars. Cable lengths 1, 2 or 4m available. Length 110mm, diameter 18mm, G1/2 thread. Available with TxxxxP, HxxxxP transmitters.
	SH-PP	Flow 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.
	TxxxxL **HxxxxL**	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
	K1427	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.
	without LCD	Transmitter version with blind lid without LCD. Specify please the requirement in your order.
	OEM	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.
	F8000	Solar radiation shield for transmitters with T+RH probe on a cable.

Accessories

Accessories

	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	**ACCESSORIES FOR EASY RELATIVE HUMIDITY CALIBRATION AND ADJUSTMENT** anodized duraluminum vessel for relative humidity calibration and adjustment
	HM023	set of 5 humidity standards 10% RH with 5 application pads
	HM024	set of 5 humidity standards 80% RH with 5 application pads

Accessories

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.

P8xxx
- temper.
- humidity

database server PC

Tx5xx
- temper.
- humidity
- atm.pressure
- CO_2

unlimited number of Ethernet sensors with the SOAP protocol
. . .

Hx5xx
- temper.
- humidity
- pressure
- CO_2
- doors
- smoke
- power
- flood
- relay outputs

ETHERNET INTERNET

client PC

DBV Database Viewer

client PC

DBV Database Viewer

Software:

paid software Comet:
DBS Sensor Monitor
includes: - SOAP server (data collector)
- administration utility
powered by Microsoft SQL or MySQL database server

Alarms:
- email
- email as SMS
- SNMP
- syslog

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.
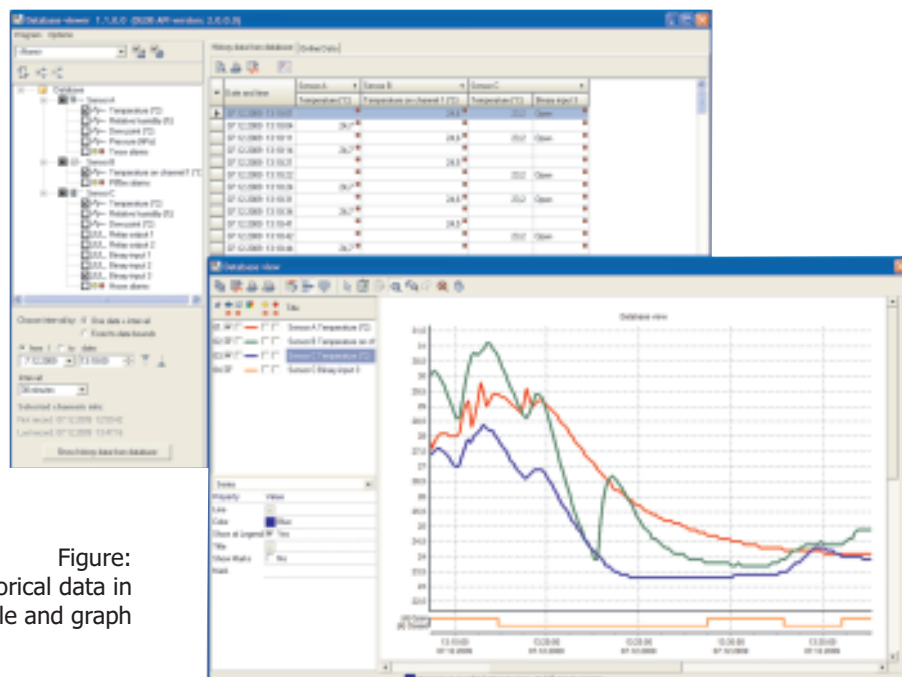

Figure:
historical data in
table and graph

Accessories

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

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.
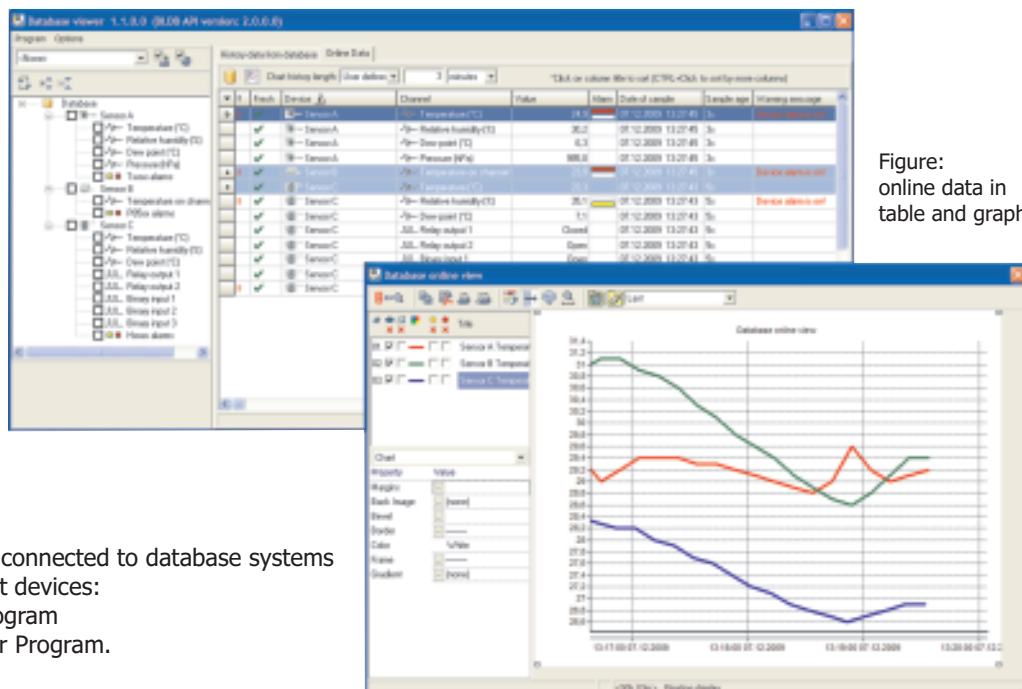

Figure: online data in table and graph

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