



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



Alarms

- email
- email as SMS
- SNMP
- syslog

Relay outputs 2x

- GSM dialer
- fan
- siren
- ...



database server



Software:

software Comet:
DBS Sensor Monitor

other necessary freeware:
- database server MySQL or Microsoft SQL



DBV Database Viewer



DBV Database Viewer

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 authentication 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.

Monitoring systems

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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 atmospheric pressure measurement:	±1.3hPa at 23 °C, range from 600 to 1100hPa
Supported pressure units:	hPa, kPa, mbar, mmHg, inHg, inH ₂ O, 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 +0.2 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

Monitoring systems

AVAILABLE MODELS:

MODEL	MEASURED VALUE	MAXIMUM RANGES OF MEASURED VALUES	DESCRIPTION
H4531R	temperature+ 3 binary inputs	-200 to +600 °C	Temperature transducer for RTD Pt1000 probes (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, inH ₂ O, 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 /O.

Other accessories - see further in catalogue.

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Optional accessories:

	<p>DBS</p>	<p>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 * MySQL or Microsoft SQL database server (third party freeware) * one licence of DBV Database Viewer. More information at page 72.</p>
	<p>Pt1000 probes</p>	<p>Temperature probes with Pt1000 RTD sensor without connector - there is a symbol /O behind probe name. Recommended is watertight probe Pt1000TR160/O on the shielded PVC cable 2 x 0.14mm². Specify required cable length 1, 2, 5, 10, 15 or 20 meters. Enclosure diameter 6mm, length 20mm. Diameter of the cable 3.5mm.</p>
	<p>MPO47</p>	<p>Universal holder for probes for easy mounting to rack 19" (probes not included)</p>
	<p>SP008</p>	<p>AC voltage presence sensor, connectable to binary Hx531R inputs.</p>
	<p>LD12</p>	<p>Water leakage detector, two-state output, connectable to binary Hx531R inputs. With 3 meters cable. Powered from Hx531R 12Vdc output.</p>
	<p>SD280</p>	<p>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.</p>
	<p>JS20</p>	<p>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.</p>
	<p>SA200A</p>	<p>Magnetic door contact, connectable to binary Hx531R inputs, without cable.</p>
	<p>SA200A-2 SA200A-5 SA200A-10 SA200A-20 SA200A-30</p>	<p>Magnetic door contact, connectable to binary Hx531R inputs with cable lengths 2, 5, 10, 20, 30 meters.</p>
	<p>A1515</p>	<p>AC/DC adapter 230V-50Hz/12V.</p>