Universal monitoring system with data logger MS6D, MS6-Rack, MS6R

COMPLETE SOLUTION FOR MONITORING OF TEMPERATURE, HUMIDITY AND OTHER SIGNALS

Main advantage - user configurable inputs from PC program without any need to open the data logger unit. Each data logger contains 16 inputs for measurement and record of both analog and two-state values. Each input is individually configurable from user PC program to one from 17 measuring ranges.
Also signals from sensors working on RS485 bus with ModBus or Advantech protocol can be recorded.
Universal sixteen channel data logger is designed for data acquisition from sensors of variety values, alarm state indication, optionally for control of consecutive processes.
Data is possible to download to the PC via USB, RS232, Ethernet interfaces or GSM modem for processing.

Available models:

MS6D
* for wall mounting or to the switch board
* enables mounting to the optional watertight case MP033, MP034
* dual line illuminated alphanumeric display
* four control buttons
* 32 alarm LEDs

MS6-Rack
* for mounting to 19" rack - one rack unit 1U
* enables to build in the optional MP018 output relays module with 16 relays
* dual line illuminated alphanumeric display
* four control buttons
* 32 alarm LEDs

MS6R
* for mounting to 19" rack - one rack unit 1U
* for desktop use with rubber feet
* dual line illuminated alphanumeric display
* four control buttons
* 32 alarm LEDs

Data logger enables to:

- Configure inputs for different input signal types from the PC program without any need to open the data logger unit.
- Individully configure each input channel for measurement, alarm evaluation and data logging , including individual logging interval for each input.
- Individually program each input channel for different modes of record (continuous record, time dependent record, record only if specified logic conditions are matched, record triggered by external signal, etc.).
- Set up to four different logic conditions for each channel to active alarm. Each condition compares measured values from inputs with set limits. It is possible to set hysteresis and delay of condition validity.
- Indicate alarm state after matching defined combination up to four alarms from any inputs.
- Activate selected relays depending on alarm states by means of output relays module.
- Receive information from monitoring system by means of SMS messages via GSM modem - actual values, alarms, memory occupation etc.
- Assign to each input channel name of actual recorded process to identify monitored object (e.g. type of monitored product). It is enabled to select this name from data logger keyboard during the operation.
- Connect several data loggers via RS485 bus or Ethernet network.
- Power external sensors and detectors directly from input terminals **12Vdc or 24Vdc.**

Universal monitoring system with data logger MS6D, MS6-Rack, MS6R

TECHNICAL PARAMETERS	
Total memory capacity:	2MB (up to 480 000 values)
Memory type:	internal backed-up SRAM memory
Data logging modes:	noncyclic - logging stops after filling the memory cyclic - after filling memory oldest data is overwritten by new
Data logging intervals:	adjustable individually for all input channels from 1 second to 24 hours
Real time clock:	year, leap year, month, day, hour, minute, second, backed-up by Lithium battery
Input signals:	16 user configurable channels - see parameters in the table below
AD converter (analog chanells):	16 bits, conversion duration approximately 60ms/channel
Supported interface for communication with computer:	RS232, cable up to 15 m. Enables direct connection with the PC or via GSM modem, including sending/reception of SMS messages - **included** USB interface - **included** RS485 - cable up to 1200 m, galvanically isolated, enables to connect several data loggers to one communication line - **included** Ethernet interface LAN - communication via: SNMP, SOAP, www pages - **optionally**
Communication speed:	9600, 19200, 57600, 115200 Bd
Outputs for alarm indication:	Red LED at the side of the case, 32 LEDs Relay max. 8A/250Vac, switching-over contact Voltage signal 0V/4.8V, maximum current 50mA. Alarm SMS messages E-mails, SNMP traps - see optional accessory
Power:	24Vdc, consumption of data logger itself approximately 80 mA
Power of connected sensors and detectors:	Switchable voltage +12Vdc or +24Vdc available at sixteen input terminals
Operating temperature range:	0 to +50˚C
Dimensions with plugged connectors - MS6D:	215 x 225 x 44 mm (W x H x D)
Dimensions with plugged connectors - MS6-Rack:	483 x 190 x 44 mm (W x H x D) - one rack unit 1U
Dimensions with plugged connectors - MS6R:	483 x 230 x 44 mm (W x H x D) - one rack unit 1U
Dimensions without rack holders - MS6R:	225 x 230 x 44 mm (W x H x D)
Protection:	IP20

PARAMETERS OF CONFIGURABLE INPUTS		
MEASURED VALUE	**ACCURACY**	**NOTE**
dc current 4 to 20 mA dc voltage -10V to +10V	±0.1% FS (±0.02 mA)	either from active source connected to COM and GND terminals or passive sensor across terminals +24V and COM
dc voltage -1V to +1V	±0.1% FS (±10 mV)	input resistance appr. 10 MOhms, input terminals IN and COM
dc voltage -100mV to +100mV	±0.1% FS (±1 mV)	input resistance appr. 10 MOhms, input terminals IN and COM
dc voltage -18mV to +18mV	±0.1% FS (±100 uV)	input resistance appr. 10 MOhms, input terminals IN and COM
thermocouple K (NiCr-Ni)	±0.1% FS (±18 uV)	input resistance appr. 10 MOhms, input terminals IN and COM
-200 to +1300˚C thermocouple J (Fe-Co)	±0.3% from reading + 1.5˚C	linearized, cold junction compensation, input terminals IN and COM
-200 to +750˚C thermocouple S (Pt10%Rh-Pt)	±0.3% from reading + 1.5˚C	linearized, cold junction compensation, input terminals IN and COM
0 to +1700˚C thermocouple B (Pt30%Rh-Pt)	±0.3% from reading + 1.5˚C	linearized, cold junction compensation, input terminals IN and COM
+100 to +1800˚C thermocouple T (Cu-CuNi)	±0.3% from reading + 1.0˚C from +300 to +1800˚C	linearized, without cold junction compensation, input terminals IN and COM
-200 to +400˚C Platinum RTD sensor Pt100	±0.3% from reading + 1.5˚C	linearized, cold junction compensation, input terminals IN and COM
-200 to +600˚C Platinum RTD sensor Pt1000	±0.2˚C from -200 to +100˚C ±0.2% from +100 to +600˚C	two-wire connection, measuring current appr. 0.8mA in 50ms pulse, input terminals IN and COM
-200 to +600˚C Nickel RTD sensor Ni1000/	±0.2˚C from -200 to +100˚C ±0.2% from +100 to +600˚C	two-wire connection, measuring current appr. 0.5mA in 50ms pulse, input terminals IN and COM
6180ppm -50 to +250˚C two-wire measuring of resistance	±0.2˚C from -50 to +100˚C ±0.2% from +100 to +250˚C	two-wire connection, measuring current appr. 0.5mA in 50ms pulse, input terminals IN and COM
0 to 300 Ohms two-wire measuring of resistance	0.1% FS (±0.3 Ohms)	two-wire connection, measuring current appr. 0.8mA in 50ms pulse, input terminals IN and COM
0 to 3000 Ohms two-wire measuring of resistance	0.1% FS (±3 Ohms)	two-wire connection, measuring current appr. 0.5mA in 50ms pulse, input terminals IN and COM
0 to 10000 Ohms	0.1% FS (±10 Ohms)	two-wire connection, measuring current appr. 0.1mA in 50ms pulse, input terminals IN and COM
Binary input for two-state signal	Input voltage for state "L" (IN-COM) < 0.8 V (Rin < 1 kOhm). resistance of closed contact for state "L" (IN-COM) < 1 kOhm. input voltage for state "H" (IN-COM) > 2 V. resistance of closed contact for state "H" (IN-COM) > 10 kOhm. minimum duration for sensing of change: 200ms.	
RS485IN - input for serial signal RS485 - optionally	E.g. data acquisition from temperature, humidity, pressure sensors Tx41x, Hx43x. input serves for reading from devices supporting protocol ModBus RTU or Advantech. Connected to terminals next to terminals for channel 15 and 16. Input can work with 16 devices. Maximum speed 115200Bd. Galvanically isolated.	

Universal monitoring system with data logger MS6D, MS6-Rack, MS6R

Included Accessories:

Traceable calibration certificate from the manufacturer with declared metrological ethalon traceability in accordance with EN ISO/IEC 17025.
Calibration certificate contains calibration of 16 inputs 4-20mA, if it is not defined required configuration of inputs by the user.
If required configuration of inputs is defined by the user, calibration certificate proves calibration of inputs in accordance with this required configuration - maximum one range for each of 16 inputs.
Calibration of other ranges is optional.

Included is also USB communication cable of approximately 1.8 meter length and free program for Windows.
Free program is available to download anytime. Program enables to control all logger functions and view and print the record in numerical format. It is possible to export recorded data to dbf or xls formats for further analysis, e.g. in MS Excel.
For work with graphs and other functions is possible to order optional program SWR006 or
DBM MS Logger Program - database program - see Optional Accessories.

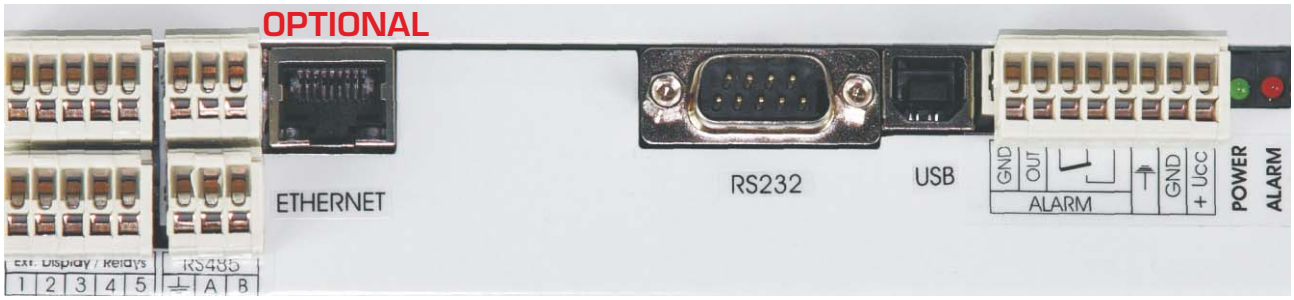


Figure: communication interface, alarm outputs, connection of power - Ethernet interface is optional

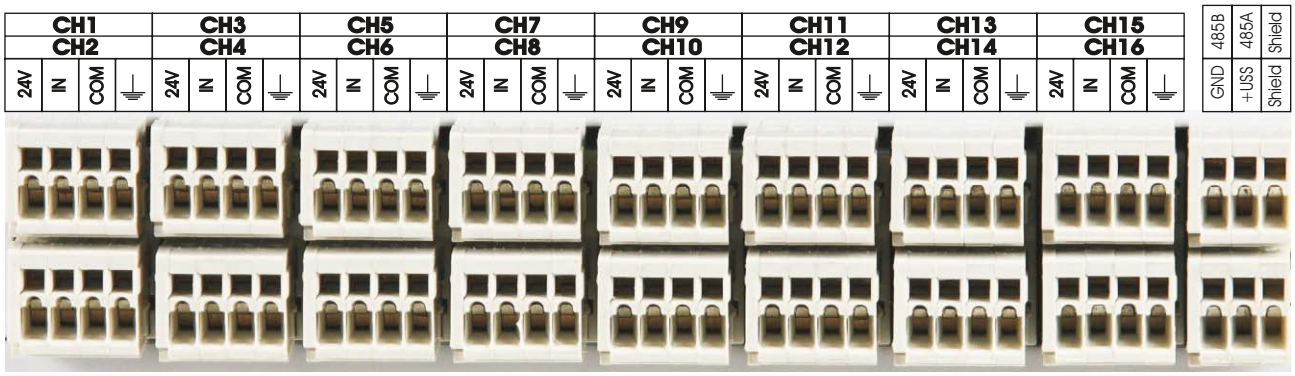


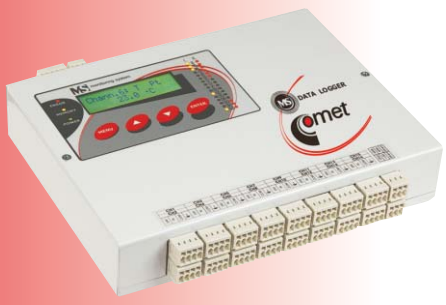
Figure: data logger inputs. Serial input RS485IN is optional. **RS485IN**

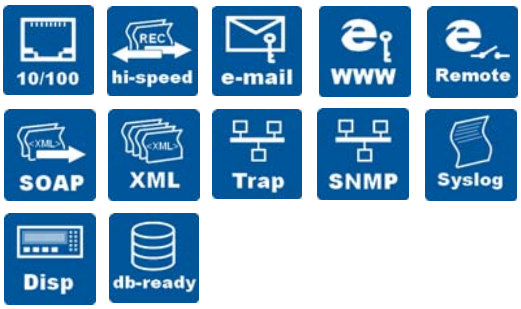
DIFFERENCES IN FEATURES OF DATA LOGGERS MS6D AND MS5D		
Feature:	**MS6D**	**MS5D**
Character of inputs:	inputs configurable by the user from PC program	fixed - depends of installed HW input modules
Maximum measured dc current:	20 mA dc	5 A dc
Maximum measured dc voltage:	10 V dc	75 V dc
Most sensitive measuring range of dc voltage:	18 mV dc	100 mV dc
Maximum measured ac voltage:	-	50 V ac
Maximum measured ac current:	-	5 A ac
Input for measurement of frequency:	-	0 to 5 kHz
Input for counting of pulses:	-	yes
Possibility of galvanical isolation of inputs:	only serial input RS485IN, analog inputs cannot be isolated	yes
SMS port for sending/reception of SMS:	included	optional
Dimensions including connectors:	215 x 225 x 44 mm	215 x 225 x 60 mm

For more details including accessories see further - together also for data loggers MS5.

Universal monitoring system with data logger MS6D, MS6-Rack, MS6R

Features of Optional Ethernet Interface:





Ethernet interface
Data logger is designed for connection to standard computer network. The 10 and 100Mb/s Ethernet is supported.
No need to build new data lines. Thanks this installation cost are essentially reduced and instant easy start of monitoring system operation is enabled.

Fast data download
Record download speed was increased four-times from previous MS5 data logger generation.

E-mail
Data logger sends warning emails up to three different addresses. E-mail is immediately sent after alarm state of monitored technological process appears. User is also informed on error states of device itself (measuring channel error, fulfilling of internal memory, self-test error).
SMTP servers requiring autentization are also supported.

Secured WEB server
WWW server is built in the device. Here it is possible to monitor actual values, alarm states and information on data logger.
Also access password for www pages can be entered.
WWW pages are user modifiable. Free SDK description is available to create own www pages.

WWW remote conditions
Control of remote condition and relays is enabled also via www interface.

SOAP protocol
Protocol designed for data logger integration to own www infrastructure. Available actual values can be captured by www server (Apache, IIS) and processed by the user.
Communication protocol SOAP version 1.1. is supported. By means of this protocol data logger sends actual values in preset intervals to specified server.

XML file
Actual values can be downloaded to XML file. This option is suitable for data logger integration to SCADA systems.

SNMP Trap
SNMP Traps are sent after alarm state or device error appears.

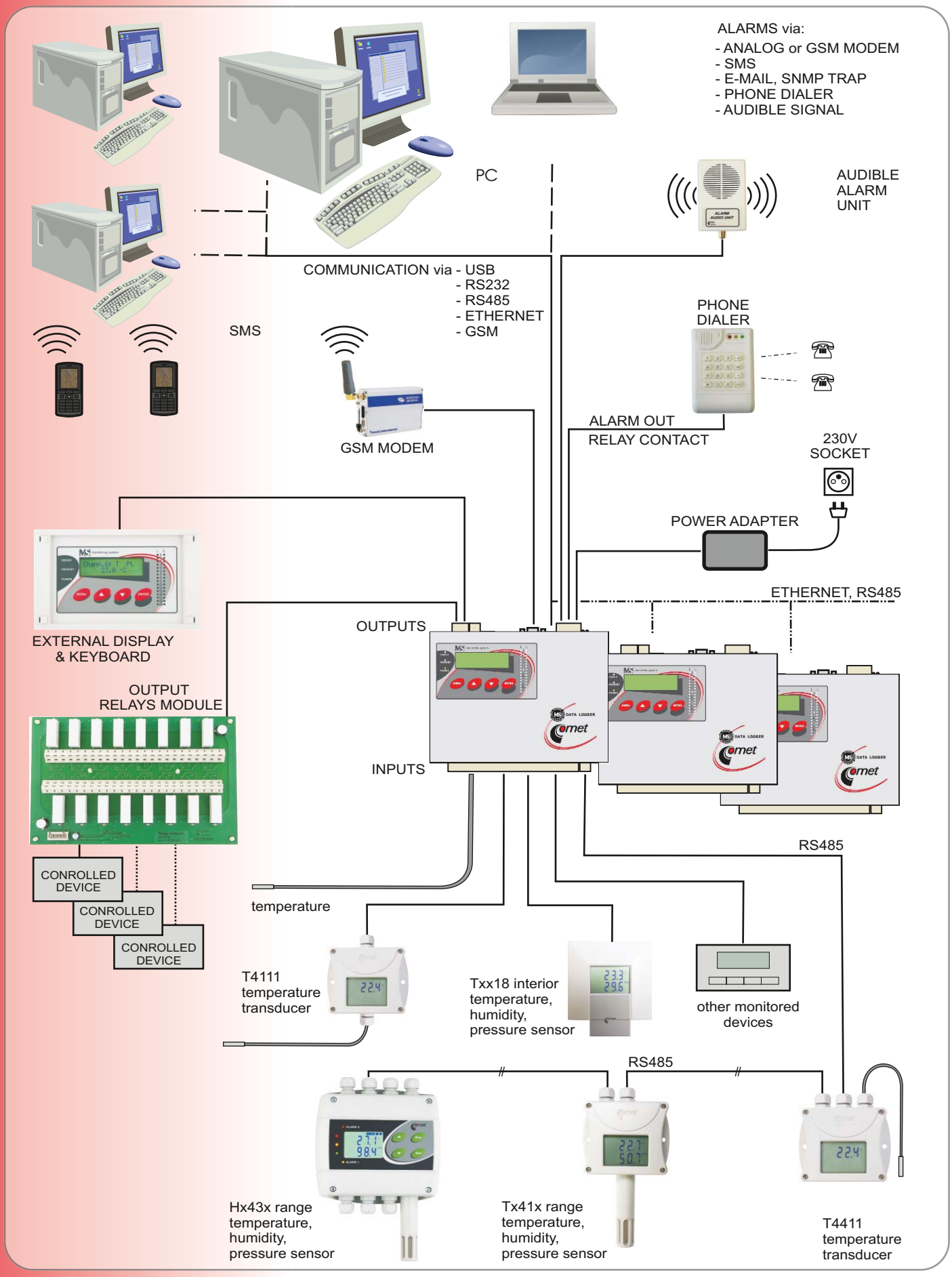
SNMPv1 protocol
Actually measured values can be acquired by means of SNMPv1 protocol. MIB tables are available for free.
Designed especially for IT applications and use in “managed” computer networks.

Syslog protocol
Syslog message is sent after alarm state or data logger error appears. Syslog is compatible with RFC5424.

Data logger display
Basic network parameters can be set directly from data logger display. It is possible to change IP address, subnetwork mask and initial gate.

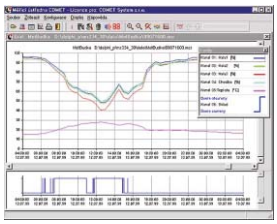
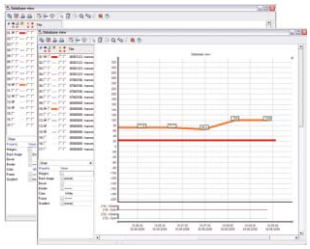
Database system
Prepared for connection to database system including online values transfer.

Architecture of monitoring system with data loggers MS5D, MS6D



Monitoring system MSx - optional accessories

Common optional accessories for data loggers MS6 and MS5

Software:  	**SWR006** **DBM**	Optional software for Windows - comfort graphic environment data acquisition, including online graph, automatic data download, remote Display mode on Internet-Ethernet network, storing data on the network, administration of users and passwords and many others . . DBM MS Logger Program for work with data from Comet MSx loggers. This database program enables i.a.: - To view selected channels from any Comet logger together with selected channels of other Comet loggers. - Measurement from different Comet devices is possible to combine in one table or graph. - To choose any time interval for analysis. - Print, export to PDF - table and graph. Other freeware needed for operation: database server MySQL or Microsoft SQL. For database viewing by other users at the network it is necessary to buy proper number of licences of DBV Database Viewer.
Optional input for serial RS485 signal: 	**RS485IN** only MS6	E.g. data acquisition from temperature humidity pressure sensors Tx41x, Hx43x. Input is designed for reading from devices supporting protocol ModBus RTU or Advantech. Signal is connected to MS6 terminals right from terminals for channel 15 and 16. Input can work wit up to 16 devices. Maximum speed 115200Bd. Galvanically isolated.
Accessories for data logger mounting:    	**MP013** **MP012** **MP041** only MS6	Universal metal wall holders for data logger wall mounting. Package contains a pair of holders and 4 screws. Holder for data logger mounting to DIN 35mm rail. Package contains the holder and 6 screws. Only for data logger MS6R. Four rubber feet with screews for desktop use of data logger MS6R.

Monitoring systems

PEWA
Messtechnik GmbH

Weidenweg 21
58239 Schwerte

Tel.: 02304-96109-0
Fax: 02304-96109-88
E-Mail: info@pewa.de
Homepage : www.pewa .de