LOGGERS for current 0-20mA, voltage 0-5Vdc and binary signal

- **locations with no electric power**
- **technological processes and laboratories**
- **long term field measurement**

Loggers are designed for recording of voltage signal 0 - 5V (optionally 0 - 10V) or current signal 0 - 20mA. Values are stored to a non volatile electronic memory. Data transfer to the personal computer for further analysis is performed via serial interface RS232, USB or Ethernet by means of a proper adapter or GSM modem.

Advantages:

- included traceable calibration certificate
- variability of connection to the computer - USB, RS232, Ethernet, GSM modem
- fast data transfer to the PC - full memory for approximately 30s
- permanent connection to the PC enabled, data is possible to download even during logging
- large data memory 32000 values
- large dual line display with special symbols
- optional display of minimum and maximum measured values (reset of min/max memory from PC or by magnet)
- dual level alarm is enabled for each channel, alarm is indicated by blinking of the value on the LCD display
- two alarm modes are enabled: instant or with memory (detected alarm is indicated permanently till alarm
- memory is cleared)
- robust watertight case, easy installation, locking enabled
- low power consumption, battery life up to 6 years, indication of remaining battery life, easy battery replacement
- logging start/stop is enabled: at certain time and date programmed from computer or by delivered magnet
- also special logging mode is enabled, when logging runs only, if some of measured values are out of adjusted
- alarm limits
- input signal is recalculated and displayed in real measured physical units by means of the PC software
- each channel is possible to describe with text of 16 characters, each logger with text of maximum 32 characters password protection enabled to prevent unauthorized manipulation

TECHNICAL PARAMETERS

Measurement accuracy:	±0.2% FS
Resolution of voltage input:	13 bits (8192 levels)
Resolution of current input:	7900 levels
Signal character at binary input:	from potential-less contact or two-state voltage signal
Minimum pulse duration at binary input:	500 ms (shorter pulses may not be recorded)
Maximum frequency at binary input:	0.5 Hz (i.e. maximum 5 pulses for 10 s)
Power current through contact at binary input:	3 uA (contact closed)
Voltage accross open contact at binary input:	maximum 3.6 V
Low voltage level at binary input:	0 to +0.2 V (maximum current from the input 3 uA)
High voltage level at binary input:	+3.0 to +30 V (maximum current to the input 100 nA)
Logging interval:	adjustable from 10s to 24hours
Display refresh and alarm state refresh:	every 10 s
Total memory capacity:	32000 values (in non cyclic mode)
Logging modes:	noncyclic logging stops after filling the memory cyclic after filling memory oldest data is overwritten by new
Operation temperature range:	-30 to +70°C
Real time clock:	year, leap year, month, day, hour, minute, second
Dimensions without connectors, weight:	93x64x29mm, 130g
Power:	Lithium battery 3.6V, size AA
Typical battery life:	6 years
Battery life in on-line mode with interval 1min:	4 years
Battery life in on-line mode with interval 10s:	1 year
Protection:	IP67 - protected against influence of temporary immersion into water

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Model	DESCRIPTION	measuring range
S5011	Single channel voltage logger	0-5V dc + binary signal
S5021	Dual channel voltage logger. Input channels are not galvanic isolated and have common ground.	0-5V dc + binary signal, optionally range 0-10V dc
S6011	Single channel current logger. The current loops should be powered from external power supply.	0-20mA dc + binary signal
S6021	Dual channel current logger. The current loops should be powered from external power supply. Input channels are not galvanic isolated and have common ground.	0-20mA dc + binary signal

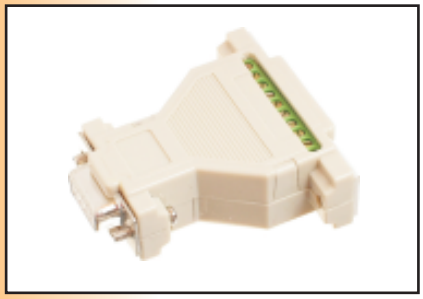
No accessory is included. For basic use it is necessary to order USB adapter or COM adapter for communication with computer, optionally start/stop magnet, if needed to control logging the other way than directly from computer. Also connector for input signals connection is necessary to order.

Included accessories:

Traceable calibration certificate from the manufacturer with declared metrological traceability of etalons is based on requirements of EN ISO/IEC 17025 standard. Included is also battery. Free program for Windows is ready to download from www.cometsystem.cz. Program enables to control all logger functions and viewing and printing of record in numerical and simple graphic format. It is possible to export logged values to dbf or txt formats for further analysis.

Optional accessories:

- SWR004 - optional software for Windows - color print, vertical and time zoom of graphs and other functions
- DBL Logger Program - database program for work with data from Comet loggers. Program enables i.a.:
  - To set locally the GSM modem via RS232 link by means of QMS2901 cable.
  - 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 or export to PDF - table and graph - see also page 23.
- SW100 - CD with free PC program
- LP012 - COM adapter for communication with personal computer via RS232 serial port
- LP003 - USB adapter for communication with personal computer via USB port
- LP005 - LAN adapter with 50cm cable for communication with the PC via Ethernet, including ac/dc adapter
- LP005-5 - LAN adapter with 5m cable for communication with the PC via Ethernet, including ac/dc adapter
- Accessories for wireless communication with loggers via GSM - see further
- LP004 - start/stop magnet
- MD036 - self adhesive Dual Lock for easy installation
- K0921 - watertight female connector Canon 9 pins with cover for connection of input signal, protection IP67
- K0925 - female connector Canon 9 pins with cover for connection of input signal, no protection (IP20)
- K0945 - adapter with terminals for easy connection of input signals, protection IP20
- F9000 - wall holder secured against unauthorized removal
- A4203 - spare Lithium battery 3.6V, no leads, size AA



K0945 Adapter for input signals

LP012 COM and LP003 USB adapter for communication with PC

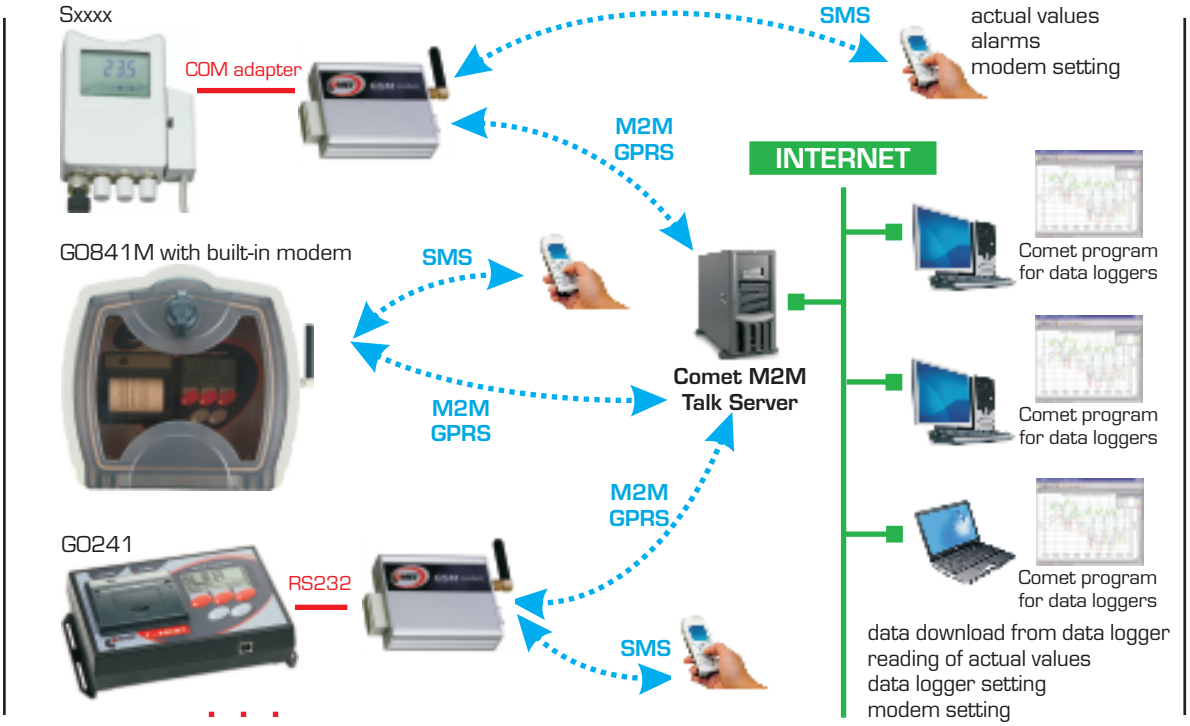
K0921 watertight connector

LP005 LAN adapter

LP004 start/stop magnet

F9000 wall holder with lock

WIRELESS COMMUNICATION WITH LOGGERS VIA GSM



FEATURES:

1. Wireless communication with Sxxxx, Rxxxx loggers via GPRS

- Remote data download from logger
- Logger configuration (setting, erasing of data, etc.)
- Reading of actual values (online display mode)
- All actions available as via COM/USB adapter
- Connection realized via M2M Talk server
- Communication via M2M server can be disabled, if data download is not required = saving of cost (no need to pay GPRS data tariff)

2. SMS queries about actual values

- Sending of SMS query to modem phone number returns actual values. After receiving of SMS query modem sends required info in SMS.
- It is possible to limit phone numbers SMS commands are sent from. Same it is also for configuration-service SMS commands.

3. Alarm SMS messages - modem sends to phone numbers alarm SMS messages:

- If upper/lower limit of measured value is exceeded
- Information on filling of the logger memory (90% and 100%)
- Information on low logger battery or end of estimated battery approaches.
- Information on logger on/off.
- Error messages (communication error with logger, internal clock error, measured value error)

4. Setting of modem

a) Local - service setting via RS232 link from user program:

- Setting of configuration
- Download and erasing of diagnostic log file from modem
- Upload of new firmware to modem

b) Remote - via M2MTalk server from user program

- Setting of configuration
- Download and erasing of diagnostic log file from modem
- Log out from M2MTalk server
- Restart of modem

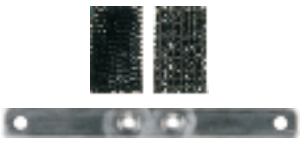
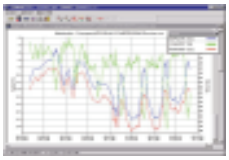
c) By means of SMS message

- Update of application in modem
- Detection of description and firmware version in GPRS modem
- Detection of GSM status
- Enable/disable of alarm evaluation
- Setting of GPRS parameters for connection
- Setting of parameters of M2MTalk server
- Log in and log out with M2MTalk server
- Halting or restart of application in modem

Every Sxxxx or Rxxxx datalogger in monitoring system is connected via COM adapter to "its" GSM modem LP040. It is necessary to order several items from accessories. Minimum set of one logger connected to GSM contains: Sxxxx or Rxxxx logger, LP002 COM adapter for logger connection to modem, GSM modem LP040, GSM antenna, Ac/dc adapter 230V-50Hz/24Vdc/24W, QMS2901
cable for modem setting, SWR004 Optional PC program for data loggers or DBL Logger Program - database program for work with data from Comet data loggers, fee for using M2M server - see further.

WIRELESS COMMUNICATION WITH LOGGERS VIA GSM

Optional accessories for communication with loggers:

	**LP040**	GSM/GPRS modem with SIM card holder - without accessories. Enables full communication with data logger via GPRS - data download, logger configuration .. Data logger can be controlled by means of SMS messages from mobile phone. Actual values and alarm status can be received as SMS.
	**MP001/1**	GSM antenna 3dB for modem, right angled.
	**A1940**	Power adapter 230V-50Hz/24Vdc/24W for modem.
	**QMS2901**	Cable for modem setting via serial RS232 link by means of optional PC program for data loggers SWR001. Needed only for local setting of modem during configuration of the operation.
	**MP006** **MD036**	RS232/USB converter to QMS2901 cable for modem setting via USB. Needed only for local setting of modem during configuration of the operation. Self adhesive Dual Lock for modem easy installation.
	**MP036**	Modem wall holder.
	**MP037**	Modem DIN rail 35mm holder.
	**LP012**	COM adapter for Sxxxx, Rxxxx logger connection to modem via serial link RS232.
	**DBL**	DBL Logger Program - database program. Program enables i.a.: - To set locally the GSM modem via RS232 link by means of the QMS2901 cable. - To view selected channels from any Comet logger together with selected channels of other Comet loggers. - Measurement from different devices is possible to combine in one table or graph. - To choose any time interval for analysis. - Print, export to PDF - table and graph.
	**SWR004** **M2M server**	Optional program for data loggers enables * local GSM modem setting via serial link RS232 by means of QMS2901 cable * numerical list of recorded values * comfortable work with graphs * export to dbf or txt format One time fee for using M2M server - applied for each data logger with modem.