S7021 PULSE LOGGER
WITH COUNTING AND BINARY INPUTS

● **recording of pulses from water meter, gas meter, electrometer, flow meter, revolution counter**

● **time event record from binary signal (e.g. door opening/closing ..)**

● **production monitoring**

● **long term field measurement**

Logger is designed for counting of pulses, optionally for logging of time events from binary signal. Counter reading and actual state of binary input are displayed on dual line LCD display. Counter status is stored in adjustable time interval into logger's non-volatile memory. Time of event (change of binary input state) is stored immediately after event. 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.

● Counter reading is possible to display in real value, range of the LCD display is 19999, after exceeding of displayable value only lowest places are displayed with warning symbol.
● Counter has two modes enabled: after counting of maximum value counter stops or overflows and counts again.
● Counter reset enabled from the PC.
● In the record is possible to indicate counter state or counter state increment between logging intervals.
● Record from binary input contains date and time (resolution of 1 s) when change of input logic level appeared and its logic state.
● Record from binary input is possible to disable.
  It is possible from the PC to assign both logic states of binary input a description, which is displayed on the record.
● On the LCD logic states are always displayed as ON (contact closed) and OFF (contact opened).
● Variability of connection to the computer - USB, RS232, Ethernet, GSM modem.
● Permanent connection to the PC enabled, data is possible to download even during logging.
● Logging start/stop is enabled: at certain time and date programmed from computer, by signal connected to binary input or by delivered magnet.
● Also special logging mode is enabled, when logging runs only, if counter reading is out of adjusted alarm limits.
● Input pulse 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 maximum 16 characters, each logger with text of 32 characters.
● Password protection enabled to prevent unauthorized manipulation.
● Extremely low consumption from the battery, indication of remaining battery life, easy battery replacement.
● Robust watertight case, easy installation, locking enabled.

TECHNICAL PARAMETERS

Counter range – user selectable:	in 16bit mode: 0 to 61 695 pulses, memory of 32 504 records in non-cyclic mode
	in 32bit mode: 0 to 2 021 654 527 pulses, memory of 16 252 records in non-cyclic mode
Input signals:	from potential-less contact or two state voltage signal
Parameters of counting input:	minimum pulse duration: 1 ms (shorter pulses may not be recorded)
	maximum frequency: 500 Hz
Parameters of binary input:	current through closed contact: 30microA, maximum voltage across opened contact: 3.6V
	LOW voltage level: 0 to +0.2V (current from input max 30microA)
	HIGH voltage level: +3.0 to +30V (current to input max 100nA)
	minimum pulse duration: 500 ms (shorter pulses may not be recorded)
	maximum frequency: 0.5Hz (i.e. maximum 5 pulses in 10s)
	current through closed contact: 3microA, maximum voltage across opened contact: 3.6V
	LOW voltage level: 0 to +0.2V (current from input max 3microA)
	HIGH voltage level: +3.0 to +30V (current to input max 100nA)
Operational temperature range:	-30 to +70°C
Real time clock:	year, leap year, month, day, hour, minute, second
Data logging interval of counting input:	adjustable from 10s to 24hours
Refresh of display and alarm state:	every 10 s
Data logging modes:	noncyclic – logging stops after filling the memory
	cyclic – after filling memory oldest data is overwritten by new
Built-in connector for input signals:	male Canon 9 pins
Dimensions without connector, weight:	93x64x29mm, 130g
Power:	Lithium battery 3,6V, size AA, typical life 3 years, indication of remaining life
Protection:	IP67- protected against influence of temporary immersion into water

No accessories are 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 or external binary signal. Also connector for input signals connection is necessary to order.

Included accessories: 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 recorded data in numerical and simple graphical 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 zooming 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 cable 50cm for communication with the PC via Ethernet, including ac/dc adapter
- LP005-5 - LAN adapter with cable 5m 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, size AA, no leads

Warranty: 2 years

K0945 Adapter for input signals
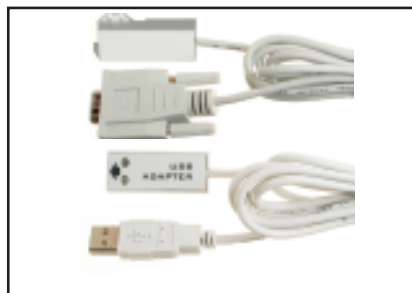
LP012 COM and LP003 USB adapter for communication with PC
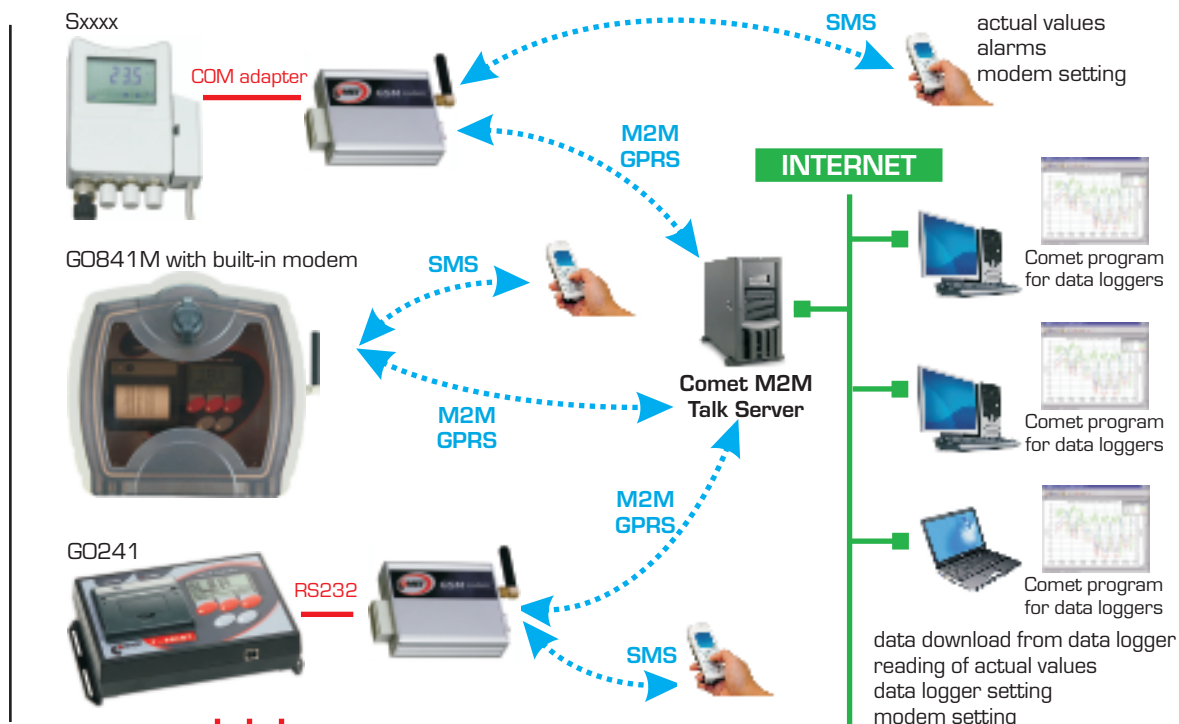

K0921 watertight connector

LP005 LAN adapter

LP004 start/stop magnet

F9000 wall holder with lock

Sxxxx Rxxxx Gxxxx

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)
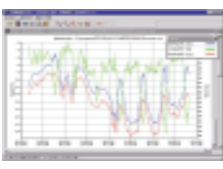
4. Setting of modem
a) Local - service setting via RS232 link from user program:
- Setting of configuration
- Download and erasing of diagnostic log file from modem
- Upload of new firmware to modem

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.

Sxxxx Rxxxx Gxxxx

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.