TEMPERATURE DATA LOGGERS

Data logger S0141 (S0541, S0841, S0842) with USB adapter

- **transport of food**
- **warehouses**
- **technological processes**
- **museums, archives, galleries**

Type approval certificate accordingly with EN 12830 - Temperature recorders for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream.

Data loggers are designed for recording of temperature only or temperature in combination with other signals. Values are stored to a non volatile memory. Data transfer to the PC is performed via serial interface USB, RS232 or Ethernet by means of a proper adapter or GSM modem.

Advantages:

- included traceable calibration certificate
- fast data transfer to the PC - full memory of 32 000 readings for approximately 30s
- 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
- 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 or LED
- two alarm modes: 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 7 years, indication of remaining battery life, easy battery replacement
- standard temperature sensor is Pt1000, switchable to Ni1000/6180ppm at range -50 to +150°C
- models S0841, S0842 enable to combine temperature measurement with logging of contact state - e.g.door contact
- logging start/stop is enabled in several ways: at certain time and date programmed from computer, by delivered magnet or depending on binary input state (S0841, S0842 model)
  also special logging mode is enabled, when logging runs only, if some of measured values are out of adjusted alarm limits
- each logger is possible to describe with text of maximum 32 characters
- each channel is possible to describe with text of maximum 16 characters
- password protection is enabled to prevent unauthorized manipulation with logger

COMMON TECHNICAL PARAMETERS:

Operating temperature range - models R0110 no display:	-30 to +80°C, -40 to +80°C logger R0110
Operating temperature range - models S0xxx with display:	-30 to +70°C
Accuracy of temperature measurement - internal sensor:	±0.4°C (not valid for economy loggers S0110E and R0110E)
Accuracy of Pt1000 temperature input without probe:	±0.2°C from -50 to +100°C
	±0.2% from reading from +100 to +260°C
	±0.4% from reading from -90 to -50°C
Resolution:	0.1°C
Real time clock:	year, leap year, month, day, hour, minute, second
Logging interval:	adjustable from 10s to 24h
LCD display and alarm state refresh:	every 10 s
Total memory capacity:	32000 values in non-cyclic mode
Logging modes:	non-cyclic – logging stops after filling the memory
	cyclic – after filling memory oldest data is overwritten by new
Dimensions without connectors:	loggers with display 93x64x29mm
	loggers without display 93x64x26mm
Power:	Lithium battery 3.6V, size AA
Typical battery life:	7 years R0110, 6 years S0xxx
Protection:	IP67 - protected against influence of temporary immersion into water

LP004
Start/stop magnet

LP012
COM adapter for communication via RS232

LP003
USB adapter for communication

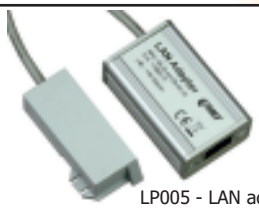
TEMPERATURE DATA LOGGERS

Model	LOGGERS WITH DISPLAY	measured signals	measuring range
S0110	Single channel thermometer with internal sensor	1 x T	-30 to +70°C
S0110E	Economy single channel thermometer with internal sensor. Measuring accuracy: ±0.6°C from -30 to +30°C and ±0.8°C from +30 to +70°C	1 x T	-30 to +70°C
S0111	Single channel thermometer for record from one external probe	1 x T	-90 to +260°C
S0121	Dual channel thermometer for recording from two external probes	2 x T	-90 to +260°C
S0122	Dual channel thermometer for recording from one internal sensor and one external probe	2 x T	external -90 to +260°C internal -30 to +70°C
S0141	Four channel thermometer for recording from four external probes	4 x T	-90 to +260°C
S0541	Dual channel thermometer for record from two external probes. Additional two universal inputs 0 to 5Vdc. Accuracy ±0.2% FS.	2 x T 2 x 0-5V	-90 to +260°C
S0841	Dual channel thermometer for recording from two external probes. Additional inputs for two binary signals, e.g. from door contact.	2 x T 2 x contact	-90 to +260°C
S0842	Three channel thermometer for recording from three external probes. Additional input for one binary signal, e.g. from door contact.	3 x T 1 x contact	-90 to +260°C
Model	**LOGGERS WITHOUT DISPLAY**	measured signals	measuring range
R0110	Single channel thermometer with internal sensor	1 x T	-40 to +80°C
R0110E	Economy single channel thermometer with internal sensor. Measuring accuracy: ±0.6°C from -30 to +30°C and ±0.8°C from +30 to +70°C	1 x T	-30 to +70°C

No accessory or temperature probes are included. For thermometer 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(s) for external signals for S0541, S0841, S0842 loggers 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. It is possible to download free basic program for Windows anytime. Program enables to control all logger functions and viewing and printing of record in numerical and simple graphic format.



LP005 - LAN adapter

Thermometer R0110, R0110E

F9000 - wall holder

Optional accessories:

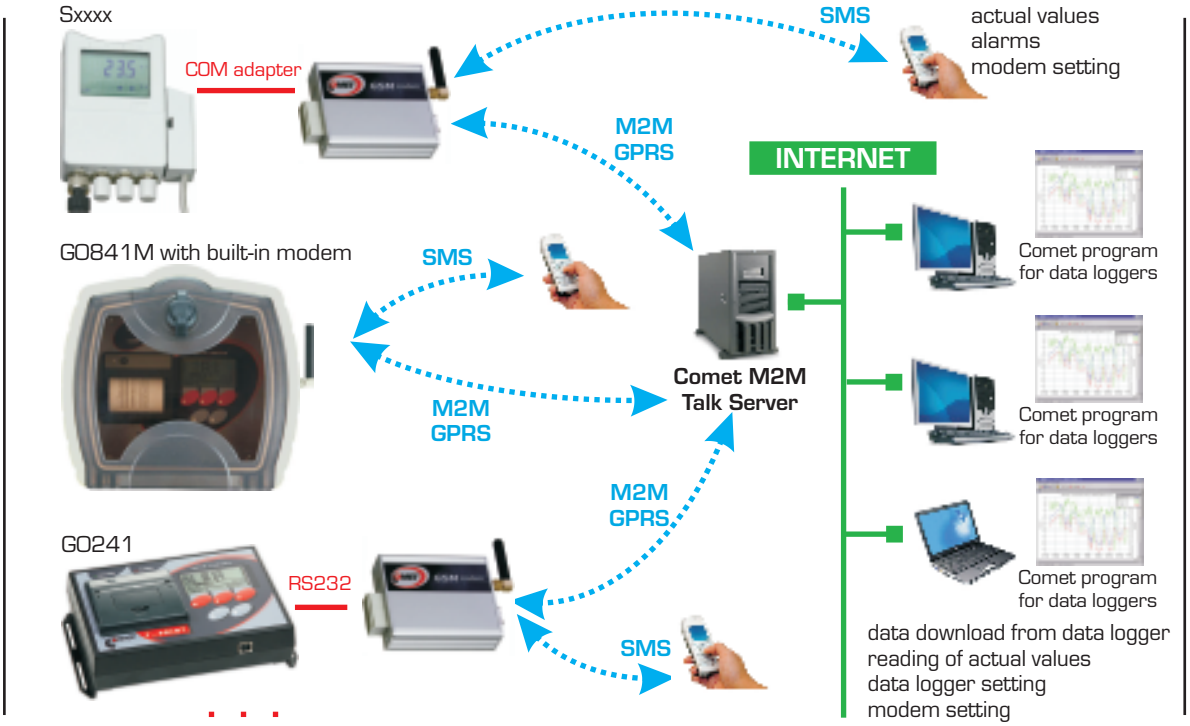
- SWR004 - optional software for Windows - color printing, vertical and horizontal zooming of graphs and other functions - see also page 23.
- DBL Logger Program - database program for working with data from Comet loggers. Program enables i.a.:
  - To set locally the GSM modem via RS232 link by means 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, export to PDF - table and graph.

  Other freeware needed for system operation:
  - database server Microsoft SQL or MySQL - see also page 23
- SW100 - CD with free Windows program
- LP012 - COM adapter for communication with the PC via serial RS232 link
- LP003 - USB adapter for communication with the PC via USB port
- LP005 - LAN adapter with 50 cm cable - external converter for communication with the PC via Ethernet. Including ac/dc adapter 100 to 240Vac/5Vdc.
- LP005-5 - LAN adapter with 5m cable - external converter for communication with the PC via Ethernet. Including ac/dc adapter 100 to 240Vac/5Vdc.
- Accessories for wireless communication with loggers via GSM - see further
- LP004 - start/stop magnet
- MD036 - self adhesive Dual Lock for easy installation

  A4203 – spare Lithium battery 3.6V size AA

  For models S0xx1, S0xx2 it is necessary to order temperature probes with RTD Pt1000 sensors equipped with female K1321 connectors - there is a symbol /E behind probe name.
- K1321 - female connector for connection of S0541 logger voltage signal 0-5V, S0841,
- S0842 logger binary signal, protection IP67
- F9000 - wall holder secured against unauthorized removal

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

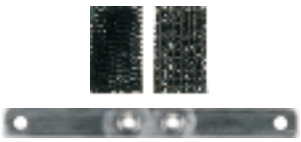
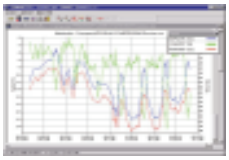
c) By means of SMS message

- 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.