



Data logger SO141 (SO541, SO841, SO842) with USB adapter

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

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 SO841, SO842 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 (SO841, SO842 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

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.

COMMON TECHNICAL PARAMETERS:

| | |
|--|--|
| Operating temperature range - models RO110 no display: | -30 to +80 °C, -40 to +80 °C logger RO110 |
| Operating temperature range - models SOxxx with display: | -30 to +70 °C |
| Accuracy of temperature measurement - internal sensor: | ±0.4 °C (not valid for economy loggers SO110E and RO110E) |
| 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 RO110, 6 years SOxxx |
| Protection: | IP67 - protected against influence of temporary immersion into water |



Start/stop magnet



USB adapter for communication



COM adapter for communication via RS232

| Model | LOGGERS WITH DISPLAY | measured signals | measuring range |
|--------|--|----------------------|---|
| SO110 | Single channel thermometer with internal sensor | 1 x T | -30 to +70 °C |
| SO110E | 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 |
| SO111 | Single channel thermometer for record from one external probe | 1 x T | -90 to +260 °C |
| SO121 | Dual channel thermometer for recording from two external probes | 2 x T | -90 to +260 °C |
| SO122 | 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 |
| SO141 | Four channel thermometer for recording from four external probes | 4 x T | -90 to +260 °C |
| SO541 | 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 |
| SO841 | 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 |
| SO842 | 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 |
| RO110 | Single channel thermometer with internal sensor | 1 x T | -40 to +80 °C |
| RO110E | 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 SO541, SO841, SO842 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.

— **Optional accessories:**

- **SWR004** - optional software for Windows - color printing, vertical and horizontal zooming of graphs and other functions - see also page 23.
- **SWR007** - program package Database Logger 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 MySQL - see also page 23
- **SW100** - CD with free Windows program
- **LP002** - 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 - external converter for communication with the PC via Ethernet. Including ac/dc adapter 100 to 240Vac/5Vdc. Exceeding of adjusted limits is alarmed by sending e-mail message or trap.
- 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 SOxx1, SOxx2 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 SO541 logger voltage signal 0-5V, SO841, SO842 logger binary signal, protection IP67
- **F9000** - wall holder secured against unauthorized removal



LP005 - LAN adapter



Thermometer RO110, RO110E



F9000 - wall holder