RELATIVE HUMIDITY AND TEMPERATURE LOGGERS

Thermometer hygrometer S3120

● **Food and beverages industry (HACCP)**
● **Pharmaceutical industry**
● **HVAC (heating, ventilation, air conditioning, cooling)**
● **Building and energy management**
● **Research and development, Laboratories (GLP)**
● **Technological processes and warehouses**
   Museums, archives, galleries

Data loggers are designed for recording of temperature or temperature together with signal from a contact. Values are stored to a non volatile electronic memory. Data transfer to the personal computer for further analysis is performed via USB, RS232, GSM or Ethernet interface by means of a proper adapter.

Sxxxx Rxxxx Gxxxx

Advantages:

● included traceable calibration certificate
● easy user ajdjustment and calibration of relative humidity by means of optional accessory and PC software
● variability of connection to the computer - USB, RS232, Ethernet, GSM modem
● fast data transfer to the PC (full memory of 32 000 readings for approximately 30s)
● permanent connection to the PC enabled, data is possible to download even during logging
● large dual line display with special symbols, switchable
● 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 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
● combination of measurement of temperature and RH with two user calibrated voltage signals 0-5V
● also logging mode enabled, when logging runs only, if 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

TECHNICAL PARAMETERS

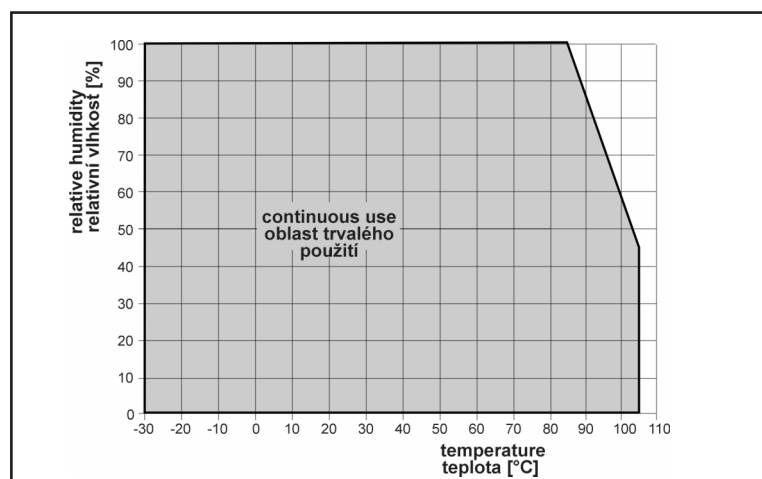|	
Operating temperature range - models R312x no display:	-30 to +80°C
Operating temperature range - models S3xxx with display:	-30 to +70°C
Accuracy of temperature measurement - internal sensor:	±0.4°C
Accuracy of the S3631 data logger Pt1000 input without probe:	±0.2°C from -50 to +100°C ±0.2% from reading from +100 to +260°C ±0.4% from reading from -90 to -50°C
Accuracy of relative humidity measurement:	±2.5% RH from 5 to 95% at 23°C
Accuracy of dew point temperature measurement:	±1.5°C from 30 to 95% RH
Resolution:	0.1°C, 0.1%RH
Real time clock:	year, leap year, month, day, hour, minute, second
Logging interval:	adjustable from 10s to 24h
Display and alarm refresh:	every 10 s (every minute in low power mode)
Total memory capacity:	32000 values in non-cyclic mode
Data logging modes:	non-cyclic – logging stops after filling the memory cyclic – after filling memory oldest data is overwritten by new
Dimensions without connectors:	S3xxx loggers with display 93x64x29mm R312x loggery without display 93x64x26mm
Power:	Lithium battery 3.6V, size AA
Typical battery life in low power mode (1min):	7 years R312x, 6 years S3120, S3121, S3631, S3541
Typical battery life in standard mode (10 second):	3 years R312x, 2.5 years S3120, S3121, S3631, S3541
Battery life in continuous online mode with interval 1 min:	reduced to 70% of the above lives
Battery life in continuous online mode with interval 10 s:	1 year
Protection of loggers with internal sensors:	IP67, sensors covered with a plastic cover with IP30 protection
Protection of loggers S3121, R3121 with probe on the cable:	IP67, sensors protected with a stainless steel mesh with IP40 protection. Filtering ability 0.025mm.

RELATIVE HUMIDITY AND TEMPERATURE LOGGERS

Model	LOGGERS WITH DISPLAY	measured signals	measuring range
S3120	THERMOMETER-HYGROMETER with internal sensors. Dew point temperature reading.	T+RH	temperature -30 to +70°C humidity 0 to 100%
S3121	THERMOMETER-HYGROMETER including dew point temperature reading. With external T+RH probe on a 1 meter cable. Cable lengths 2 and 4 meters available optionally. Probe diameter is 18mm, length 90mm.	T+RH	temperature -30 to +105°C* humidity 0 to 100%
S3631	THERMOMETER-HYGROMETER with internal T+RH sensors. Additional connector for external temperature probe. Alternative display of dew-point temperature, external probe temperature and the temperature difference of external probe and dew-point temperature.	T+RH +Text	internal -30 to +70°C external -90 to +260°C humidity 0 to 100%
S3541	THERMOMETER-HYGROMETER including dew-point calculation with internal T+RH sensors. Additional Canon 9 pins connector for two signals 0 to 5Vdc (±0.2% FS accuracy). Necessary to order connector for connection of input signals.	T+RH 2 x 0 to 5V	internal -30 to +70°C humidity 0 to 100%
Model	LOGGERS WITHOUT DISPLAY	measured signals	measuring range
R3120	THERMOMETER-HYGROMETER with internal sensors. Dew point temperature reading.	T+RH	temperature -30 to +80°C humidity 0 to 100%
R3121	THERMOMETER-HYGROMETER including dew point temperature reading. With external T+RH probe on a 1 meter cable. Cable lengths 2 and 4 meters available optionally. Probe diameter is 18mm, length 90mm.	T+RH	temperature -30 to +105°C* humidity 0 to 100%

* temperatures over +85 with the limitation specified in graph

Thermometer hygrometer
S3541 with 0 to 5V inputs

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 - only for model S3541.

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:
- 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 230Vac/5Vdc.
- LP005-5 - LAN adapter with cable 5m for communication with the PC via Ethernet, including ac/dc adapter 230Vac/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, no leads, size AA
- for S3631 it is necessary to order probe with Pt1000 sensor with K1321 connector - symbol /E behind probe name
- K0921 - watertight female connector Canon 9 pins for connection of 0-5V signals of S3541 logger, protection IP67
- K0925 - female connector Canon 9 pins for connection of input signals of S3541 logger, protection IP20
- K0945 - adapter with terminals for easy connection of 0-5V signals of S3541, protection IP20

- F5200 - grey sensor cover with filter from stainless steel mesh, filtering ability 0,025mm
- F5200B - black sensor cover with filter from stainless steel mesh, filtering ability 0,025mm for S3121, R3121 loggers
- F9000 - wall holder with lock
- 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.

LP004 - start/stop magnet

LP003
USB adapter for communication

LP012
COM adapter for communication via RS232

Logger R3120

Thermometer hygrometer S3121

F9000 - wall holder with lock

K0945 - adapter for S3541

K0921- watertight connector for input signals of S3541
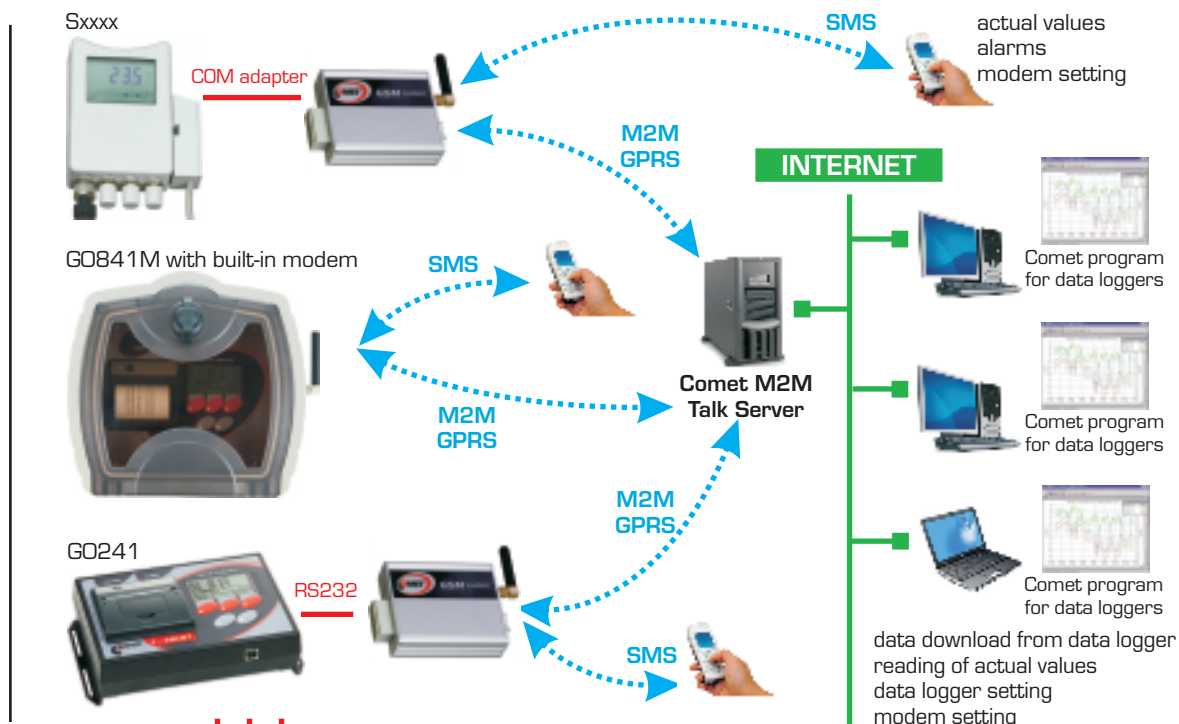

LP005 - LAN adapter

F5200
F5200B
Sensor cover with filter from stainless steel mesh

Accessory for humidity adjustment and calibration by the user:
- MD046 - vessel for humidity calibration and adjustment
- HM023 - set of 5 humidity standards 10% RH with 5 application pads
- HM024 - set of 5 humidity standards 80% RH with 5 application pads

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:

Model	Description
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	RS232/USB converter to QMS2901 cable for modem setting via USB. Needed only for local setting of modem during configuration of the operation.
MD036	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	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
M2M server	One time fee for using M2M server - applied for each data logger with modem.

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