

U0110M • U0121M • U0141M • U3120M • U3121M • U3631M • U4440M • U8410M**PRODUCT DESCRIPTION**

The dataloggers UxxxxM are designed for measuring and recording physical and electric quantities with an adjustable logging interval from 1 second to 24 hours. The measured values (instantaneous or the average, minimum and maximum values detected during the recording interval) are stored in the internal non-volatile memory. The data logging mode can be cyclic (when the data memory is completely full, the oldest data are overwritten by the new ones), or non-cyclic (the recording will stop once the memory is full). For each measured value it is possible to set two alarm limits. The alarms are signalled by the symbols on the LCD display, by flashing the LED, by acoustic or by sending a warning SMS message. The data recording can be performed continuously or only when an alarm occurs.

GSM modem is a part of each datalogger. Modem is used to send SMS messages to up to four selected recipients and to send the measured values using JSON messages, e.g. to the COMET Cloud. In addition to alarm warning messages, SMS messages containing current measured values and alarm statuses can be sent at regular intervals.

Device setting, data downloading and online monitoring are carried out using the computer with the **COMET Vision** software installed (see www.cometsystem.com). The USB interface is used to communicate with the computer.

The datalogger is powered by an internal **Li-Ion battery**. The device includes a charging circuit, which is activated automatically when a standard USB charger is connected or after connecting a device to a computer. The charging takes place if the battery condition requires it and the internal temperature of the device is in the range 0 and 40 °C. Fast charge mode can be run by turning off the device.

| Device type | Measured values | Construction |
|---------------|---|---|
| U0110M | Ti | Internal temperature sensor |
| U0121M | 2 x Te + 1 x cc | Connectors for two external Pt1000/E probe connection |
| U0141M | 4 x Te + 2 x cc | Connectors for up to four external Pt1000/E probe connection |
| U3120M | Ti + RH + Td + 1 x cc | Internal temperature and relative humidity sensor |
| U3121M | Te + RH + Td + 1 x cc | Connector for an external Digi/E probe connection |
| U3631M | Ti + Te + RH + Td + 1 x cc | Internal temperature and relative humidity sensor and connector for Pt1000/E probe connection |
| U4440M | Ti + RH + Td + P + CO ₂ + 1 x cc | Internal sensors of temperature, relative humidity, barometric pressure and CO ₂ concentration |
| U8410M | CO ₂ | Internal sensor of CO ₂ concentration |

Ti, Te... Temperature, RH... Relative humidity, Td... Dew point temperature, P... Barometric pressure, CO₂... CO₂ concentration
cc... calculated channel, ie the channel that can be used to calculate and record the value calculated from the measured quantities according to the selected formula

INSTALLATION AND OPERATION

Insert the micro-SIM card for the 2G network into the device (see other side of this sheet). Use a card with parameters conforming to the expected number of sent SMS messages and amount of received and transmitted data. If the SIM card is protected by PIN code, make a note of it, and later insert this code into the device configuration. Proceed with care and avoid contact of the external conductive parts with the electronics of the device (the datalogger is constantly supplied from the internal battery). An optional accessory is a prepaid IoT SIM card (order code **LP105**) for sending data to the COMET Cloud. Please note that this card does not support the sending of SMS messages. The **UxxxxMsim** kit (datalogger with built-in IoT SIM card) allows the instant connection to the COMET Cloud.

Fasten the device on the wall with two screws or insert it into the wall holder **LP100** (optional accessory). Datalogger may be operated as a portable one. In this kind of operation avoid the device falling down. Try to maintain the proper working position.

- The dataloggers always install vertically (with the antenna facing up) into locations with sufficient GSM signal quality. Insufficient signal level can be in reinforced concrete buildings, metal chambers and other shielded areas.
- Connect the probes to the device (maximum length of cables should not exceed 30 m, recommended cable length of the Pt1000/E probe is 15 m)
- The devices with all cables should be located as far as possible from potential interference sources

Set-up the device

- Connect the datalogger with attached probes to the computer. Use a USB cable with USB-C connector (max. cable length 3 m).
- Run the installed **COMET Vision** software and select the device you want to set up from the device list
- Click on the **Configuration** button. The device configuration will be downloaded and you can change the setup of individual items.
- Finally save the new configuration into the device (**Apply changes**)

The devices do not require special maintenance. We recommend verifying the measurement accuracy regularly by calibration.

SAFETY INSTRUCTIONS

- Read carefully the **Safety information for dataloggers with GSM modem** before operating the device and observe it during use!
- Installation, electrical connection and commissioning should only be performed by qualified personnel in accordance with applicable regulations and standards
- Devices contain electronic components, it needs to liquidate them according to currently valid conditions.
- **To complement the information in this data sheet** read the manuals and other documentation, which are available in the **Download** section for a particular device at www.cometsystem.com

Technical specifications

| Device type | U0110M | U3120M | U3121M | U0121M, U0141M | U3631M | U4440M | U8410M | |
|--|---|-------------------|------------------------|-------------------|------------------------|-------------------------------|--|--|
| Power batteries | Li-Ion accu pack 5200 mAh | | | | | | | |
| Recording interval | (1 - 2 - 5 - 10 - 15 - 30) s • (1 - 2 - 5 - 10 - 15 - 30) min. • (1 - 2 - 3 - 4 - 6 - 8 - 12 - 24) h | | | | | | | |
| Memory capacity | 500 000 values in non-cyclic record mode • 350 000 values in cyclic record mode | | | | | | | |
| Internal temperature measuring range | -20 to +60°C | -20 to +60 °C | — | — | -20 to +60 °C | -20 to +60 °C | — | |
| Accuracy of internal temperature measurement | ± 0.4°C | ± 0.4°C | — | — | ± 0.4°C | ± 0.4°C | — | |
| External temperature measuring range | — | — | according to the probe | -200 to +260°C | -90 to +260°C | — | — | |
| Accuracy of external temperature measurement | — | — | according to the probe | ± 0.2°C * | ± 0.2°C * | — | — | |
| Relative humidity measuring range (without condensation) | — | 0 to 100 %RH | according to the probe | — | 0 to 100 %RH | 0 to 100 %RH | — | |
| Accuracy of the relative humidity sensor | — | ± 1.8 %RH ** | according to the probe | — | ± 1.8 %RH ** | ± 1.8 %RH ** | — | |
| Dew point temperature measuring range | — | -60 to +60°C | according to the probe | — | -60 to +60°C | -60 to +60°C | — | |
| Accuracy of dew point temperature measurement *** | — | ± 1.5°C | according to the probe | — | ± 1.5°C | ± 1.5°C | — | |
| Barometric pressure measuring range | — | — | — | — | — | 700 to 1100 hPa | — | |
| Accuracy of barometric pressure measurement at 23°C | — | — | — | — | — | ± 1,3 hPa | — | |
| CO2 concentration measuring range | — | — | — | — | — | 0 to 5000 ppm | 0 to 5000 ppm | |
| Accuracy of CO2 concentration measurement (25°C • 1013 hPa) **** | — | — | — | — | — | ±(50ppm+3% of measured value) | ±(50ppm+3% of measured value) | |
| Recommended calibration interval | 2 years | 1 year | according to the probe | 2 years | 1 year | 1 year | 5 years | |
| Protection class - case with electronics / T+RH sensor | IP67 / — | IP67 / IP30 | IP67 / — | IP67 / — | IP67 / IP30 | IP20 / IP20 | IP20 / — | |
| Temperature operating range | -20 to +60°C | -20 to +60°C | -20 to +60°C | -20 to +60°C | -20 to +60°C | -20 to +60°C | -20 to +60°C | |
| Relative humidity operating range (without condensation) | 0 to 100%RH | 0 to 100%RH | 0 to 100%RH | 0 to 100%RH | 0 to 100%RH | 0 to 95%RH | 0 to 95%RH | |
| Recommended storage temperature range | -20 to +45°C | -20 to +45°C | -20 to +45°C | -20 to +45°C | -20 to +45°C | -20 to +45°C | -20 to +45°C | |
| Recommended storage humidity range (without condensation) | 5 to 90%RH | 5 to 90%RH | 5 to 90%RH | 5 to 90%RH | 5 to 90%RH | 5 to 90%RH | 5 to 90%RH | |
| Electromagnetic compatibility according to | ETSI EN 301 489-1 | ETSI EN 301 489-1 | ETSI EN 301 489-1 | ETSI EN 301 489-1 | ETSI EN 301 489-1 | ETSI EN 301 489-1 | ETSI EN 301 489-1 | |
| Weight | 260 g | 260 g | 260 g | 270 g | 260 g | 270 g | 270 g | |
| Dimensions [mm] | | | | | | | | |
| | <p>temperature and rel. humidity sensor</p> | | <p>Digi/E probe</p> | | <p>Pt1000/E probes</p> | | <p>Pt1000/E probe</p> <p>bar. pressure sensor and CO2 sensor</p> <p>CO2 concentration sensor</p> | |
| | <p>SIM card installation</p> <p>Unscrew the rear cover of the device (use the TORX T10 key)</p> <p>Insert the SIM card into the holder</p> <p>Screw up the rear cover of the device</p> <ul style="list-style-type: none"> • check the seal in the nut for integrity • tighten screws gradually and with feeling <p>notice: the CO2 concentration measuring range can be changed for extra fee to 0 to 10,000 ppm, accuracy ± (100 ppm + 5% of measured value)</p> | | | | | | | |

* device accuracy without probe in the range of -200 °C to +100 °C is ±0.2 °C, in the range of +100 to +260 °C is accuracy ±0.2 % of measured value
 ** at temperature 23 °C in the range of 0 to 90 %RH (hysteresis ±1 %RH, non-linearity ±1 %RH, temperature error 0.05 %RH/°C at 0 to 60 °C)

*** at ambient temperature T < 25 °C and relative humidity RH > 30 %RH (for details see graphs in the instruction manual)
 **** temperature dependence in the range -20 to +60 °C is typ. ±(1+MV/1000) ppmCO2/°C, where MV is measured value