U0110M(G) • U0121M(G) • U0141M(G) • U0141TM(G) • U0246G

PRODUCT DESCRIPTION

The dataloggers 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 overwrite 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 or JSON message. The data recording can be performed continuously or only when an alarm occurs.

The dataloggers of the **UxxxxM family** contain a 2G (GSM) radio modem, dataloggers of the **UxxxxG family** contain a combined 2G/4G (GSM and LTE) modem. Using the modem, the device connects to the mobile operator's network after inserting a suitable SIM card. 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 (optionally to your own storage). 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 ºC. Fast charge mode can be run by turning off the device.

Device type	Measured values	Construction
U0110M(G)	Ti	Internal temperature sensor
U0121M(G)	2 x Te + Tdiff + 1x cc	Connectors for two external Pt1000/E probe connection
U0141M(G)	4 x Te + 2x cc	Connectors for up to four external Pt1000/E probe connection
U0141TM(G)	4 x Te + 2x cc	Terminal block for up to four external Pt1000/0 probe connection
U0246G	3 x Tc + 1 x Te + 1 x Ti + 2 x cc	Terminal block for up to three thermocouples and one external Pt1000/0 probe connection

Ti … Internal temperature**, Te** … External temperature, **Tc** … Thermocouple, **Tdiff** … temperature difference
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 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 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** and **UxxxxGsim** kits with built-in IoT SIM card (e.g. U0141Msim) 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 mobile operator signal quality. Insufficient signal level can be in reinforced concrete buildings, metal chambers and other shielded areas.
- Connect the sensors to the device. Recommended maximum cables length of the Pt1000 probes and thermocouples is 15 m (it is recommended to use shielded cables). To connect thermocouples and Pt1000/0 probes with stripped ends of the wires use the supplied tool SP013 or a suitable screwdriver. The unused probes connectors cover with the supplied closing cap.
- 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 sensors to the computer. Use an 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 checking the state of the battery (charge as needed) and regularly verifying the accuracy of measurements with calibration.

SAFETY INSTRUCTIONS

- Read carefully the **Safety information for dataloggers with 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(G)	U0121M(G)	U0141M(G)	U0141TM(G)	U0246G
Power batteries		rechargeable Li-Ion battery 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
Accuracy of internal temperature measurement		± 0.4°C *	—	—	—	± 0.6°C *
External temperature measuring range	Pt1000 probe	—	-200 až +260°C	-200 to +260°C	-200 to +260°C	-200 to +260°C
	thermocouple	—	—	—	—	according to the type **
Accuracy of external temp. measurement	Pt1000 probe	—	± 0.2°C ***	± 0.2°C ***	± 0.2°C ***	± 0.2°C ***
	thermocouple	—	—	—	—	according to the type **
DC voltage measuring range		—	—	—	—	± 70 mV
Accuracy of DC voltage mesurement		—	—	—	—	± 70 µV
Recommended calibration interval		2 years	2 years	2 years	2 years	2 years
Protection class - case with elektronics / T+RH sensor		IP67	IP67	IP67	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
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
Recommended working position		antenna pointing up	antenna pointing up	antenna pointing up	antenna pointing up	antenna pointing up ****
Recommended storage temperature range		-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
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
Weight		260 g	270 g	270 g	270 g	275 g

Dimensions

U0110(M)G

U0141TM(G)
U0246G

U0121M(G)
U0141M(G)

Pt1000/E probe
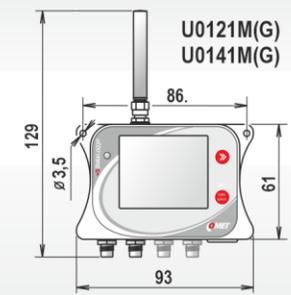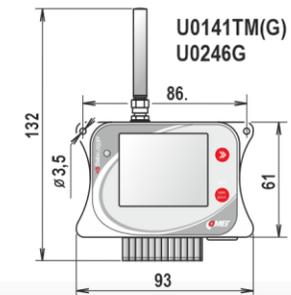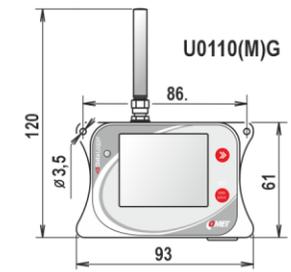
SIM card installation

Use the *micro SIM* card
or *nano SIM* card with adapter

Turn off the device and unscrew
the rear cover (use the TORX T10 key)

Insert the SIM card into the holder

Screw up the rear cover of the device
• *check the seal in the nut for integrity*
• *tighten screws gradualy and with feeling*

IN1 Temp.p.	IN2 Temp.p.	IN3 Temp.p.	IN4 Temp.p.	U0141TM U0141TG

Pt1000 probes

IN1 Tc	IN2 Tc	IN3 Tc	IN4 Temp.p.	U0246G

thermocouples or voltage measurement

Pt1000 probe

The device inputs are not galvanically isolated !!!
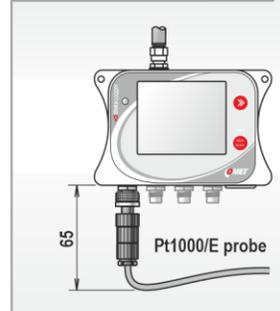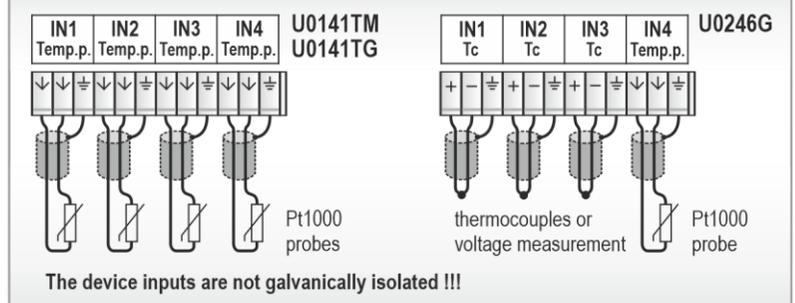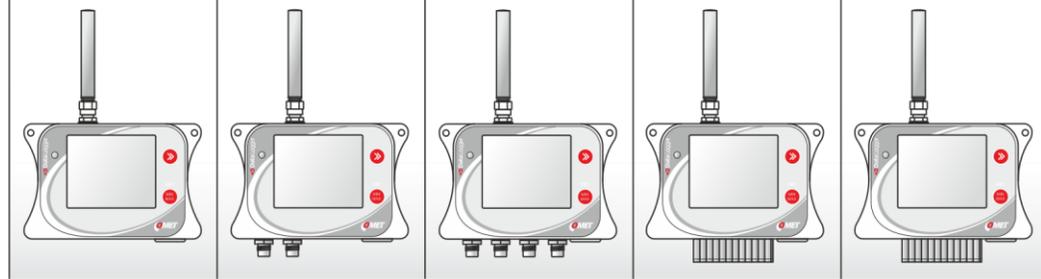
* the accuracy of the measurement may be temporarily reduced during battery charging

** thermocouples type „J", „K", „S", „B"", „T", „N", see „Instruction manual" for details

*** the accuracy of the device without probe in the range of -200 to +100 °C is ±0,2 °C (in the temperature range of +100 to +260 °C is accuracy ±0,2 % of measured value)

**** for correct temperature measurement using thermocouples, it is necessary that there are no rapid temperature changes around the device