IoT-OPERATED BY SIGFOX NETWORK

Internet of things sensors

- **Measuring and monitoring**
    - Temperature
    - Humidity
    - Dew point
    - Bar. pressure
    - Two-state inputs
- **Alarm signalisation**
- **Data transmitting via Sigfox network**
- **Battery operated**

CALIBRATION CERTIFICATE

EXTENDED 3 YEARS WARRANTY

COMET since 1991

Internet of things sensors

SIGFOX Internet of Things (IoT) technology allows devices to communicate:
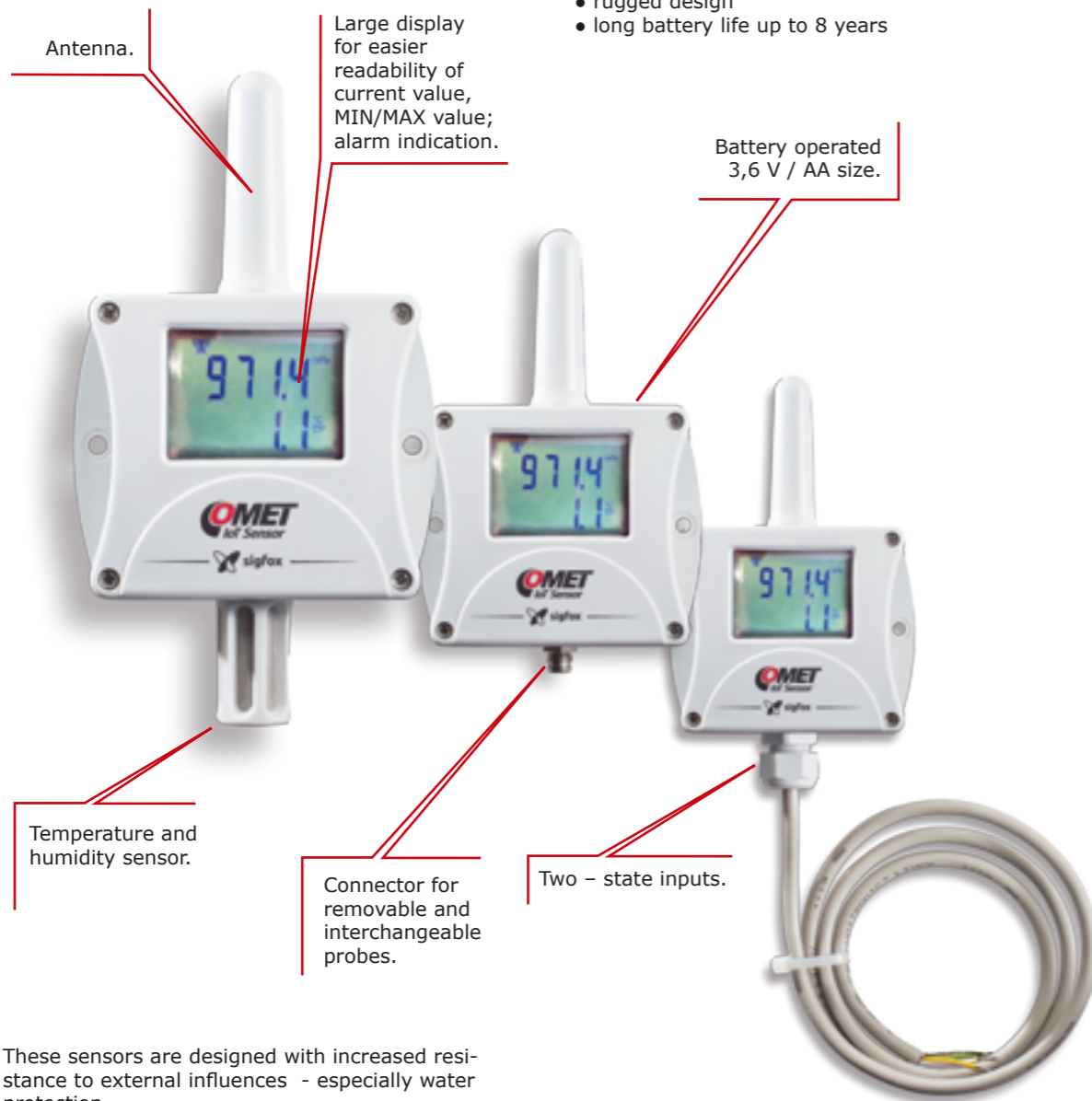
The sensor performs a measurement every 1 minute. The measured values are displayed on the LCD and are sent over an adjustable time interval (10 min to 24 hour) via radio transmission in the SIGFOX network to the cloud data store.

For each measured variable, it is possible to set two alarm limits. The alarm is signalled by the symbols on the LCD display and sending an extraordinary radio message to the Sigfox network, where it is forwarded to the end user by e-mail or SMS message.
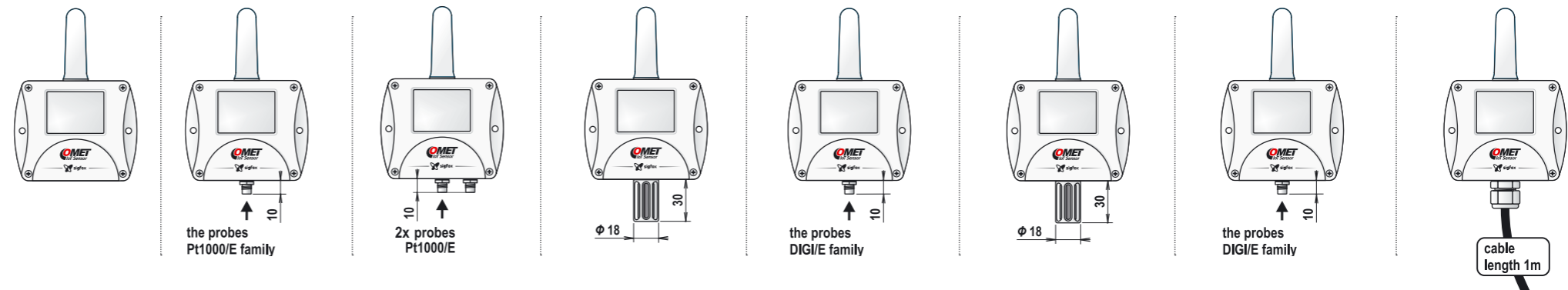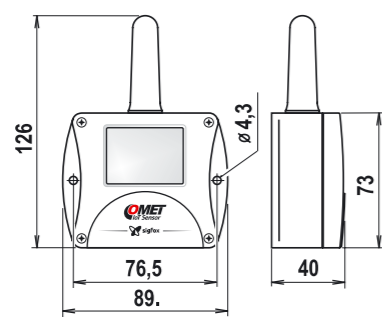
The device is powered by an internal Li-on battery whose lifetime is dependent on the transmission range and operating temperature and ranges from 4 months to 8 years.

Main benefits:

- accurate measurement of
- temperature
- humidity
- barometric pressure
- events
- inexpensive wireless communication for long distances
- indication of alarm via e-mail
- data storage in the Comet Cloud
- rugged design
- long battery life up to 8 years

- **Economically**
  - modem integrated into COMET devices is significantly cheaper than other technologies and does not need a SIM card
  - due to the use of unlicensed band the cost of operation is very low
- **Safely**
  - all communication is signed and also hashed
  - extraordinary resistance to interference - each message is broadcasted three times at random frequency and received by all base stations in the neighborhood
- **At minimal energy consumption**
  - the modem has a power consumption of only 50 mA during transmitting and still has no consumption
  - the battery life is up to 8 years according to the time interval of data transmission
- **For long distances**
  - a typical range of direct visibility is 200 km, 50 km in the open countryside and in dense urban areas 3-5 km
 - quick construction of coverage across countries

Antenna.

Large display for easier readability of current value, MIN/MAX value; alarm indication.

Battery operated 3,6 V / AA size.

Temperature and humidity sensor.

Connector for removable and interchangeable probes.

Two – state inputs.

These sensors are designed with increased resistance to external influences - especially water protection.

Comet database viewer for data displaying on multiple PCs.

CLOUD
COMET CLOUD

COMET DATABASE SOFTWARE

measured values			temperature			temperature, relative humidity		temperature, relative humidity, atm. pressure		temperature, two-state
SIGFOX SENSOR MODELS			W0810	W0811	W0832	W3810	W3811	W7810	W7811	W0850
temperature	internal	range	-30 to +60 °C	-	-30 to +60 °C	-30 to +60 °C	according to the probe	-30 to +60 °C	according to the probe	-30 to +60 °C
		accuracy	±0.4 °C		±0.4 °C	±0.4 °C		±0.4 °C		±0.4 °C
	external	range	-	-90 to +260 °C	-90 to +260 °C	-		-		
		accuracy		±0.2°C *	±0.2°C *					
relative humidity**		range	-			0 to 100 % RH		0 to 100 % RH		-
		accuracy***				± 1.8% RH **	± 1.8% RH **	±1.8% RH **	± 1.8% RH **	
dew point		range ****				-60 to +60 °C	according to the probe	-60 to +60 °C	according to the probe	
barometric pressure		range	-					600 to 1100 hPa	600 to 1100 hPa	
		accuracy						±1.3 hPa	±1.3 hPa	
two-state input			-							2 x
sending interval / typical battery life			10 min / 4 months;	20 min / 7 months;	30 min / 11 months;	1 h /1.5 year;	3h / 3.5 years;	6 h / 5 years;	12 h / 7 years;	24 h / 8 years
class of protection of case with electronics / sensors			IP65			IP65 / IP40		IP54 / IP40		IP65

the probes Pt1000/E family

2x probes Pt1000/E

Φ 18 / 30

the probes DIGI/E family

Φ 18 / 30

the probes DIGI/E family

cable length 1m

* accuracy of device w/o probe in measuring range of -90 to 100 °C (in range +100 to +260 °C is accuracy ±0,2 % of measured value)
** from 0 to 90 %RH at 23 °C
*** accuracy of sensing element
**** for accuracy of dew point see graps at device manual

External temperature probes

Temperature probes on the cable are designed to measure the temperature in specific applications. Probes are supplied in lengths of 1, 2, 5 and 10 meters. Probes are manufactured in accuracy of class A, unless stated otherwise.

Fast accurate air probe with fast response time without protection against moisture.
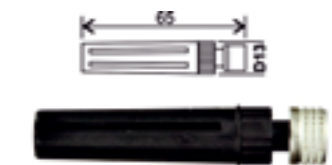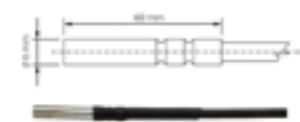
200-80/E, Pt1000
(-30°C to +80°C)

Hand-held pointed tip probe for food industry with teflon handle and silicon cable.
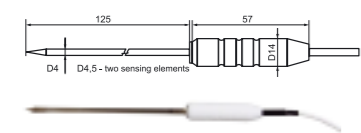
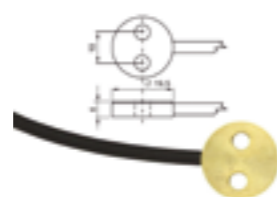**2061-200/E, Pt1000**
(-30°C to +200°C)

The complete range of probes can be found at **www.cometsystem.com**

Universal temperature watertight probe with IP68 for long-term monitoring of temperature in liquids.

Pt1000TG68/E
(-80°C to +200°C)

Brass probe for surface temperature measurements. Probe is not resistant to moisture.

Pt1000TG7/E
(-30°C to +200°C)
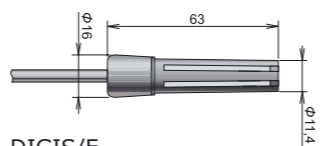
External temperature/ humidity probes

The probe is interchangeable with calibration certificate. The probe line wire must not exceed 30 m.
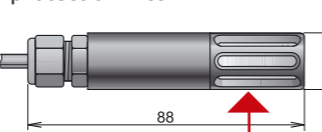
Ultra thin digital probe.

DIGIH/E
(-10 to +60 °C; 0 to 100% RH)

Low cost probe without filter mesh.

DIGIS/E
(-10 to +60 °C; 0 to 95% RH)

Probe with interchangeable protection filter.

DIGIL/E
(-30 to +105 °C; 0 to 100% RH)

Sensor covers for external probes

F5300 - Teflon (PTFE) sensor cover (white colour), with increased resistance against splashing water, non-absorbent surface, does not rust. Porous size 25μm. Temperature range -40°C to +125°C.

F0000 - sintered bronze sensor cover for moderate aggressive environments. Filtering ability 0.025mm.
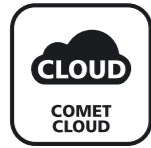
F5200B - sensor cover with filter from stainless steel mesh, suitable for moderately dusty environment. Filtering ability 0.025 mm.
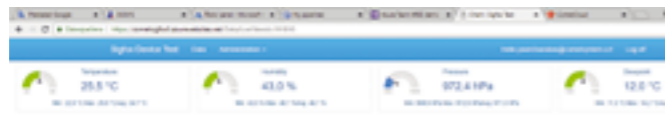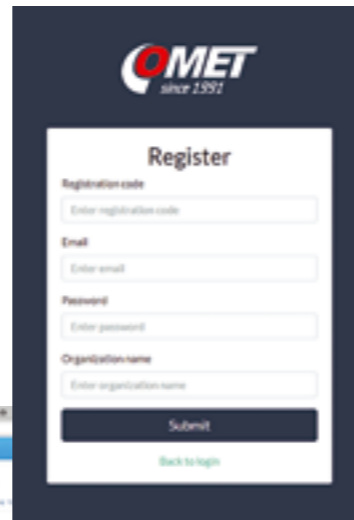
Improved protection

F8100 - Solar radiation shield for better protection of dataloggers and more accurate measurement.

Storage place - COMET CLOUD

The measured values are sent over an adjustable time interval (10 min to 24 hour) via radio transmission in the SIGFOX network to the cloud data store.

Cloud is an internet storage of data. You need to run web browser and internet connection to work with. Navigate to the cloud address you use and sign in to your account. Each sensor is identified by its unique address (sensor ID) in the Sigfox network. The sensor has an ID printed on the nameplate along with its serial number. In the list of your sensors in the cloud, select the sensor with the desired ID and and start viewing the measured values.

Device list

Web browser for data displaying

Graphs by channels

FAQ - Frequently asked questions

What are the limitations of the technology SIGFOX?

Restrictions are threefold:

- Frequency 868 MHz passes soil badly. Generally, coverage will be only in the basement. To cover the deeper underground floors a local cell towers are need.
- The size of outgoing message is max. 12 Byte and recieved message is 8 Byte.
- Only 144 messages can be sent per day = the shortest interval is 10 minutes.

What is the time of message delivery?

The message is delivered after the broadcast (which takes less than 8 seconds), typically within one second. Total time depends on the size of user data.

How does the roaming work?

Users do not pay anything extra. Roaming is completely transparent in all covered territories.

Where can the Sigfox sensors be used?

Operation is possible in Europe, Iran, Oman and South Africa (radio configuration zone is RCZ1). For current network deployment please see www.sigfox.com

Can IoT sensor be adjusted remotely?

Adjusting of the sensors can be remote, but due to network restrictions it can be done once a day.

What kind of protection does the IoT sensor have?

The sensors will have enhanced protection against water and dust.

Who is behind the company SIGFOX?

Among the SIGFOX investors are Intel, Telefonica, Samsung, Engie, Eutelsat, NTT DoCoMo, SK Telecom.

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The COMET System, s.r.o. company is continuously developing and improving its product. COMET System, s.r.o. reserves the right to carry out technical changes in equipment or product without any previous notice.