PRODUCT DESCRIPTION

The transmitters Wx8xx for SIGFOX network are designed to measure temperature, relative humidity and barometric pressure of air in non-aggressive environment. The W0850 version has a two binary inputs for detection of binary signals, too. The transmitters are available in a compact design or with connectors for the connection of external probes. The transmitters of relative humidity also provide a value of dew point temperature. Internal replaceable batteries are used for power.

The measured values and service information are displayed cyclically in three steps on the LCD and are sent over an adjustable time interval via radio transmission in the SIGFOX network to the cloud data store. The device performs a measurement every 1 minute.

Device setup is done either by computer (locally, by communication cable SP003) or remotely via cloud web interface. For each measured variable it is possible to set two alarm limits. The alarm is signalled by the symbols on the LCD display and by sending an extraordinary message to the Sigfox network, from which it is to send to the user via e-mail or SMS message.

Device type	Measured values	Construction
W0810	T	Internal temperature sensor
W0811	T	Connector for external Pt1000/E probe connection
W0832	T	Internal temperature sensor and connectors for two external Pt1000/E probe connection
W0850	T + BIN	Internal temperature sensor and two binary inputs
W3810	T + RH + CV	Internal temperature and relative humidity sensor
W3811	T + RH + CV	Connector for external Digi/E probe connection
W7810	T + RH + P + CV	Internal temperature, relative humidity and barometric pressure sensors
W7811	T + RH + P + CV	Internal barometric pressure sensor and connector for external Digi/E probe connection

T…temperature, BIN… binary input, RH…relative humidity, P…barometric pressure, CV…computed values

TURNING ON THE DEVICE

The devices are supplied with the battery installed, but in the off state
- Unscrew the four screws at the corners of the case and remove the cover
- Press the CONFIGURATION button at the bottom right near of the battery and release it as soon as the display lights up
- If necessary, perform the device setup (locally by communication cable SP003 or remotely via cloud web interface)
- Carefully tighten the cover of the transmitter, making sure that the gasket in the housing groove is correctly positioned

Device setting from the manufacturer – message sending interval of 10 minutes, alarms deactivated, altitude for pressure measurement is set 0 m, binary inputs are set to connect a voltage-free contact.

INSTALATION AND OPERATION

The transmitter housing is provided with a pair of holes for fixing (for example, with screws or cable ties). The W0810 transmitter can also stand freely on its bottom base without fastening.
- The devices always install vertically, with the antenna cover up, at least 10 cm away from all conductive objects
- Do not install the devices in underground areas (the radio signal is generally unavailable here). In such cases, use the model with an external probe on the cable, and place the device for example one floor above.
- The devices and all cables should be located as far as possible from potential interference sources
- To optimize the range of radio transmission, therefore, place the device as high as possible with the antenna better in open space than near the wall. The mounting location of the device and the method of laying the cables of the external probe or binary inputs choose according to the picture on the other side of this data sheet.

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

WORKING WITH CLOUD AND READING MEASURED VALUES

On a PC with Internet connection, launch a web browser. Navigate to the cloud address you use and sign in to your account. Each transmitter is identified by its unique address (device ID) in the Sigfox network. The transmitter has an ID printed on the nameplate along with its serial number. In the list of your devices in the cloud select device with the desired ID and start viewing the measured values.

SAFETY INSTRUCTIONS

- Read carefully the **Safety information for IoT SENSOR** 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	W0810	W0811	W0832	W3810, W7810	W3811, W7811	W0850
Power batteries	Lithium battery 3.6 V, AA size, 2200 mAh (recommended type: Tadiran SL-760/S, 3.6 V, 2200 mAh)					
Adjustable message transmission interval / battery life (at oper. temperatures < 35°C)	10 minutes / 4 months • 30 minutes / 11 months • 1 hour / 1.5 year • 3 hours / 3.5 years • 6 hours / 5 years • 12 hours / 6 years • 24 hours / 7 years					
Internal temperature measuring range	-30 to +60°C	—	-30 to +60 °C	-30 to +60 °C	—	-30 to +60 °C
Accuracy of internal temperature measurement	± 0.4°C	—	± 0.4°C	± 0.4°C	—	± 0.4°C
External temperature measuring range	—	-90 to +260°C	-90 to +260°C	—	according the probe	—
Accuracy of external temperature measurement	—	± 0.2°C *	± 0.2°C *	—	according the probe	—
Relative humidity (RH) measuring range	—	—	—	0 to 100 %RH	according the probe	—
Accuracy of humidity measurement	—	—	—	± 1.8 %RH **	according the probe	—
Barometric pressure measuring range	—	—	—	600 až 1100 hPa (W7810)	600 až 1100 hPa (W7811)	—
Accuracy of barometric pressure measurement at 23°C	—	—	—	±1.3hPa (W7810)	±1.3hPa (W7811)	—
Dew point temperature measuring range	—	—	—	-60 to +60 °C ***	according the probe	—
Recommended calibration interval	2 years	2 years	2 years	1 year	1 year	2 years
Protection class of the case with elektronics	IP65	IP65	IP65	IP65	IP65 (W3811) IP54 (W7811)	IP65
Protection class of the sensors	IP65	according the probe	according the probe	IP40	according the probe	IP65
Temperature operating range	-30 to +60°C	-30 to +60°C	-30 to +60°C	-30 to +60°C	-30 to +60°C	-30 to +60°C
Relative humidity operating range (no condensation)	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH
Working position	with antenna cover up	with antenna cover up	with antenna cover up	with antenna cover up	with antenna cover up	with antenna cover up
Recommended storage temperature range (5 to 90 %RH, no condensation)	-20 to +45°C	-20 to +45°C	-20 to +45°C	-20 to +45°C	-20 to +45°C	-20 to +45°C
Electromagnetic compatibility	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	150 g	155 g	160 g	155 g	155 g	200 g
Dimensions [mm]						

The optimal location of devices in terms of radio range

> 20 cm
150 ~ 200 cm
> 40 cm
binary inputs, probes

126
ø 4,3
73
76,5
89.
40

the Pt1000/E probes

the Pt1000/E probes

10
ø 18
30

the DIGI/E probes

cable length 1m

Radio specification

• Operating frequency: 868 MHz
• Max. transmission power: 25 mW
• Sigfox radiation class: 0U
• Radio configuration zone: RCZ1
• Typical range from base station:
  50 km in open field
  3 km in urban area

Voltage-free contact

Voltage at open contact:	cca 3 V
Contact resistance for „closed" state:	< 10 kΩ
Contact resistance for „open" state:	> 250 kΩ

Voltage input

Input voltage range:	0 to 30 Vdc
Input voltage level „L":	< 1.5 V
Input voltage level „H":	> 4.0 V

brown
green
white
yellow
black (shielding)

! The binary inputs are not galvanically separated (green, yellow and black wire are inside the device connected to one point) !

* the accuracy of the device without probe in the range -90 to +100 °C (in the range +100 to +260 °C is accuracy ±0,2 % of measured value)

** sensor accuracy at 23 °C in the range of 0 to 90 %RH (hysteresis < ±1 %RH, non-linarity < ±1 %RH)
*** for accuracy of dew point temperature measurement see graphs at device manual