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WARRANTY CERTIFICATE

Serial no:

DATE OF SALE .....

The hereby warranty confirms the high quality and proper operation of the product.

Warranty is valid for 12 month from the date of sale.

Warranty obliges the producer to remove free of charge all defects of the sold product in 14 days from the delivery of a faulty product to the service.

WARRANTY CONDITIONS

1. Eksploitation of the device should be performed in accordance with its destination and the User's Manual.
2. The guarantee expires in the following cases:
   - Breaking of the leaden seal,
   - Mechanical damages,
   - Damages caused by improper exploitation,
   - Corrections in the Warranty Certificate, unless changes were introduced by the producer.

The guarantee does not include damages occurred during the transportation.

3. Warranty Certificate is valid together with the Sale Receipt.

SEAL

MIKSTER

LGTH-R-01 Temperature and humidity sensor
User's Manual

Application

Radio temperature and humidity sensor is a measurement module, which transmits readouts through a radio link. Using it is advantageous in any case, where making a wire system is difficult or not recommended. The sensor is equipped with 50 kB internal FLASH-type memory, which allows continuous temperature and humidity recording for up to 18 months with recording frequency – every 1 minute. Readout of the sensor recordings is possible through radio recording switchboard connected to a computer with installed "Loggisoft" software through RS232 connector or a RS485 interface.

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Installation of LGTH-R-01 Radio Sensor in the Radio System.

1. Enter the LGRT-01 Transmitting and Recording Switchboard in the configuration state. Mark the central, into which radio sensors are to be added, in the window: „ *Recording units list"* and press the key „*Install Radio"*. The Radio-Central confirms being in the configuration state by flashing the control lamp  every second.

2. Enter the sensor in the measuring mode of the radio network:

   - Press and hold the button on the sensor until both control lamps light,
   - Press this button 3 times,
   - The sensor signals entering the measuring mode by flashing the control lamp  every second.

3. The place should be found, in which the radio signal from the network is the best audible for the sensor.

The sensor shows the level of the signal by cyclic flashing of the control lamp  . The number of light impulses indicates the level of the signal (no impulses => lack of signal; 8 impulses => the strongest signal). The repetition frequency of impulse series depends on the number of relay stations already registered in the system and it is the smaller the more numerous are relay stations.

4. Adding a sensor into the system:

   - Press and hold the button on the sensor until both control lamps light,
   - Press this button 5 times,
   - The sensor signals entering into the logging mode by cyclic lighting of both control lamps with the period of 1 second,
   - The sensor confirms its logging in to the system by series of light impulses on the control lamp  .
   - After logging in, the sensor automatically enters the mode of normal registration (control lamps light every 15 seconds).

When the procedure of addition into the system is properly completed the installed Radio Sensor should appear in the Loggisoft program. In order to add a consecutive sensor instructions 1 to 4 should be repeated. This way up to 64 radio sensors may be added to the radio system. When the radio range can not be reached a relay station should be added in between the installation place of the Radio Sensor and the Radio-Central.

Technical Data.

- Overall dimensions: 82x80x57mm
  (including terminals: 82x182 x57mm)
- Protection level: IP65
- Power supply: lithium battery
- Temperature measuring range: –55…125°C
- Measuring resolution for temperature: 0.1°C
- Temperature measurement uncertainty: < 0.5°C (–10….+85°C)
- Temperature measurement uncertainty
  for extended temperature range: < 2 C (-55 ... +125 C)
- Humidity measurement range: 0 ... 100 %
- Humidity measurement uncertainty: < 3.5 %RH (20 ... 80%RH)
  Humidity measurement uncertainty for
  extended humidity range: < 5%RH (0 ... 100%RH)

Radio sensor recording parameters:

- Recorded data storage time for slow temperature changes (e.g. cold store): up to 18 months,
- Recorded data storage time for frequent changes temperature changes (e.g. insolated areas): min. 34 days,
- Recording frequency: period every 1 minute

Radio link parameters:

- Sensitivity: -100dBm,
- Transmitter power output: <10dBm,
- Operating frequency: 433, 302 MHz,
- Modulation type: FSK,
- Transmission speed: 19 200 b/s,
- Average power consumption: approximately 40µA (max. 75µA),
- Time of operation until battery replacement:
  not less than 3 years (remote control),
- Expected operating range: open area - up to 200m,
  rarely built-up area - up to 100m,
  densely built-up area - up to 50m,

Range will be reduced in the presence of strong man-made interference and is dependent on individual characteristics of the area, where the system is installed, that is topographic features, height of installation, distance from large metal surfaces, and thickness of walls in radio link way and material the walls are made of.