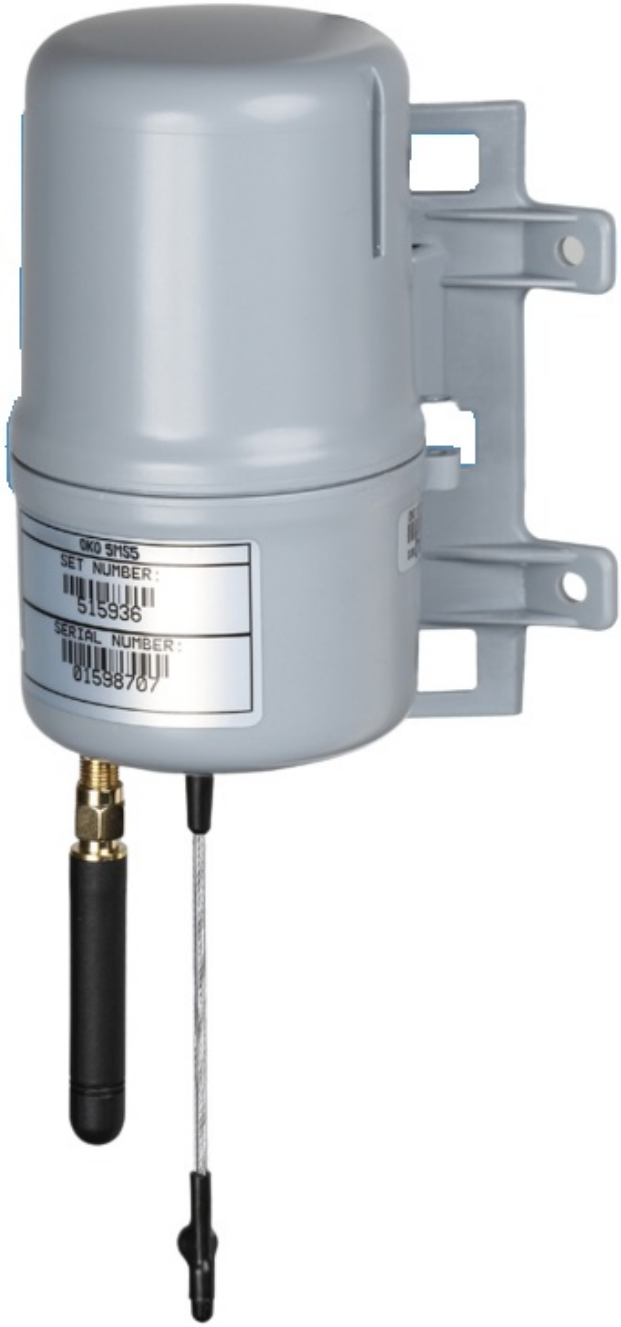
aiut OKO 5MS5 Data Gateway User Manual

aiut OKO 5MS5 Data Gateway User Manual



Contents

DISCLAIMER

- **READ INSTRUCTIONS** – all the safety and operational instructions should be read before the product is operated.

- **ACCESSORIES –** the installation of the product should follow the manufacturer's instructions and should use mounting accessory recommended by the manufacturer.

- **REPLACEMENT PARTS** – when replacement parts are required, make sure that only replacement parts specified by the manufacturer are used.

- **WARRANTY –** failure to follow the instruction or any modifications/ alternations in the operations described in this instruction may void the warranty.

- **VIBRATION –** product is not designed to work in heavy vibration.

- **TRANSPORT** – every item removed from the multipack must be properly secured (e.g. with bubble wrap) for further transport.

- **ACCESSORIES –** the installation of the product should follow the manufacturer's instructions and should use mounting accessory recommended by the manufacturer.

- **RECYCLING –** the used devices should be returned to the manufacturer for proper disposal.

- **SPECIAL USAGE CONDITIONS**

  - Increased ambient temperature range: –40 oC ÷ +70 oC
  - IP 68 – device protected against dust penetration and immersion in water (up to 1 meter). Whenever it is necessary to open the cover, secure the device against dust and moisture by other means

- Never rub the enclosure surface ofOKO 5MS5 using a dry cloth because of the danger of electrostatic discharge

PRODUCT OVERVIEW

OKO 5MS5 is a battery powered, wireless data gateway that receives radio signals from assigned ALEVEL smart level sensors installed on propane tanks. With configured frequency OKO 5MS5 collects the tank level/volume data. The data from the past few months are stored and transferred to acquisition server periodically (e.g. daily at a specified time) using LTE cat. M / NB IoT / 2G technology. User friendly structure of OKO 5MS5 and its HMI makes it intuitive and easy to set up. The client, with minimal instruction, is able to perform allrequired operations and manage the system unassisted.

OKO 5MS5 can be conveniently located close to the tank, on well-maintained, gas or ventilation pipe line, at a height ensuring the best possible network coverage. OneOKO 5MS can retransmit level signals from up to 6 smart level sensors. OKO 5MS5 can interface any Lot or serial device to the Cloud. Its flexible, extendable design allows it to be used in different configurations.

FUNCTIONAL AND TECHNICAL FEATURES

General Parameters	
Dimensions H x H(with antenna) x D	108mm x 188mm x 66mm
Opto Port	IEC 62056-21 standard
Power Supply	
Type of battery pack	AIUT ABAT M020, Lithium
Battery lifetime	5 years
Communication module	

Cellular module	Telit ME910G1-WW
Frequency Bandssupported	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B71, B85 0,2W; 23dBm @ 4G LTE
Antenna	SMA connector for external antenna
Local RF communication	
Frequency range	902 – 926.88 MHz non-licensed band
Radiated power	< 1mW
Range	200m fromabove-ground tanks, 20m underground
Compliance:	FCC Part 15.249 compliant transmitter
Antenna	Integral, quarter-wave whip
Environmental parameters	
Ingress protection	IP 68
Operational temperature range	400C ÷ +700C
Parameters for eternal cellular antenna	
Frequency range	Depending by frequency band(s) provided by the network provider, the customer shall use the most suitable antenna for that/those band(s)

Bands/Bandwidths	250 MHz in LTE Band 1	60 MHz in LTE Band 19
	140 MHz in LTE Band 2, PCS1900	71 MHz in LTE Band 20
	170 MHz in LTE Band 3, DCS1800	145 MHz in LTE Band 25
	445 MHz in LTE Band 4	80 MHz in LTE Band 26
	70 MHz in LTE Band 5, GSM850	62 MHz in LTE Band 27
	80 MHz in LTE Band 8, GSM900	100 MHz in LTE Band 28
	47 MHz in LTE Band 12	490 MHz in LTE Band 66
	41 MHz in LTE Band 13	81 MHz in LTE Band 71
	60 MHz in LTE Band 18	48 MHz in LTE Band 85
Impedance	50ohm	
VSWR recommended	≤ 2:1 (limit to obtain max sensitivity)	
VSWR absolute max	≤ 10:1 (limit to avoid permanent damage)	
Antenna Connector	SMA male	
Antenna gain:	Must not exceed values indicated in regulatory requirements, where applicable, in order to meet related EIRP limitations.	

INSTALLATION

OKO installation

In the location OKO 5MS5 should be attached to vertical section of pipe with a diameter of between 20 – 95mm and fixed with plastic wires. Please use the wires delivered with the device or any others with the following parameters: length 380mm, width 4,8mm,UV resistant.

It is also possible to install the device on a wall using 4 screws with an external diameter of 4,8 mm. The type of screws should be adjusted to the type of surface where the device is to be installed.

Antenna installation

The antenna is not a part of OKO 5MS5. A suitable antenna type should be ordered separately depending on the specific application. Install the antenna in a place covered by LTE signal Antenna must not be installed inside metal cases The antenna can be connected directly to connector or through coaxial cable depending on the specific application Antenna shall be installed in accordance with antenna manufacturer instructions Antenna integration should optimize the Radiation Efficiency. Efficiency values > 50% are recommended on all frequency bands
Antenna integration should not dramatically perturb the radiation pattern. It is preferable to get, after antenna installation, an omnidirectional radiation pattern, at least in one pattern cut.

Antenna gain must not exceed values indicated in regulatory requirements, where applicable, in order to meet related EIRP limitations. Typical antenna Gain in most M2M applications does not exceed 2dBi.

Device activation

For safe transport and in order to minimize the battery consumption during the storage (prior the installation), the device is in sleep mode directly after the production. To wake OKO 5MS5 up slide the top of antenna near the magnet icon printed on the casing.

FCC/ISED Regulatory notices

Modification statement

AIUT Sp. z o.o.[Ltd.] has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user’s authority to operate the equipment.

Interference statement

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Wireless notice

This device complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the ISED radio frequency (RF) Exposure rules. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This device needs to be installed and used on distance greater than 20 cm from human body. Antenna gain must be as below:

Frequency Band	Antenna Gain
700 MHz	6.63 dBi
850 MHz	6.63 dBi
1700 MHz	6.00 dBi
1900 MHz	8.51 dBi

FCC Class B digital device notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 ofthe FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on,the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

CAN ICES-3 (B) / NMB-3 (B)
This Class B digital apparatus complies with Canadian ICES-003

Documents / Resources

	aiut OKO 5MS5 Data Gateway [pdf] User Manual OKO5MS5, 2AKQSOKO5MS5, OKO 5MS5 Data Gateway, OKO 5MS5, Data Gateway