OKO 5875. User Manual

Tank Monitoring

OKO 5875

User Manual

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1 DISCLAIMER

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

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

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 or mobile application

SPECIAL USAGE CONDITIONS

- Increased ambient temperature range: –40 °C÷ +70 °C
- 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 of OKO 5875 using a dry cloth because of the danger of electrostatic discharge

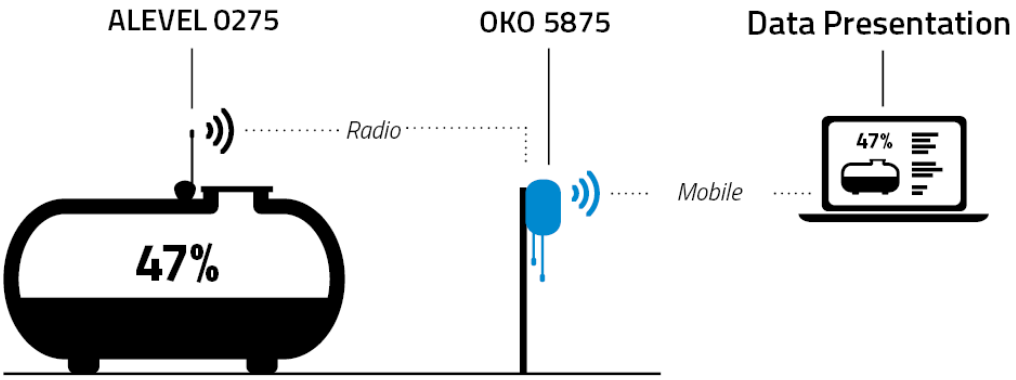
2 Product overview

OKO 5875 is a battery powered, wireless data gateway that collects data from up to 6 ALEVEL 0275 devices in range. The data from the past few months are stored and transferred to acquisition server periodically (e.g. daily at a specified time) using LTE technology.

User friendly structure of OKO 5875 and its HMI makes it intuitive and easy to set up. The client, with minimal instruction, is able to perform all required operations and manage the system unassisted.

Operating Principle

OKO 5875 receives radio signals from assigned smart level sensors (ALEVEL 0275) installed on propane tanks. With configured frequency OKO 5875 collects the tank level/volume data and retransmits the current stock information, archive measurements and the status of the device via GSM to acquisition server. OKO 5875 can be mounted next or directly on propane tank. One OKO 5875 can retransmit level signals from up to 6 smart level sensors.



3 Functional & 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

3G/4G Mobile Communication

Cellular module	Telit LE910–NA1
Technologies and Frequency Bands supported:	4G LTE FDD Cat.1: Band 2, Band 4, Band 5, Band 12, Band 13
	3G UMTS FDD: Band II, Band V
Output power	0,2W; 23dBm @ 4G LTE 0,25W; 23dBm @ 3G WCDMA
Antenna	SMA connector for external antenna

Local RF Communication

Frequency range	902 – 928 MHz non-licensed band,
Radiated power	< 1mW
Range	200m from above-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	$-40^0C \div +70^0C$

Parameters for external 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	60 MHz in LTE/WCDMA Band 2 45 MHz in LTE Band 4 25MHz in LTE/WCDMA Band 5 15MHz in LTE Band 12 10MHz in LTE Band 13

Impedance	50ohm
VSWR recommended	≤ 2:1 (limit to obtain max sensitivity)
Antenna Connector	SMA male
Antenna gain:	must not exceed values indicated in regulatory requirements, where applicable, in order to meet related EIRP limitations.

4 Installation

In the location OKO 5875 should be attached to vertical section of pipe with a diameter of between 20 – 95 mm 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 4,8mm. The type of screws should be adjusted to the type of surface where the device is to be installed.

Antenna installation

Note. The 3G/4G antenna is not a part of OKO 5875. 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 5875 up slide the top of antenna near the magnet icon printed on the casing.

5 FCC/ISED Regulatory notices

OKO 5875
FCC ID: 2AKQSOKO5875
IC: 22378-OKO5875

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.

AIUT Sp. z o.o.[Ltd.] n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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 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

Le présent appareil est conforme à l'exposition aux radiations FCC / ISED définies pour un environnement non contrôlé et répond aux directives d'exposition de la fréquence de la FCC radiofréquence (RF) et RSS-102 de la fréquence radio (RF) ISED règles d'exposition. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

Cet appareil doit être installé et utilisé à une distance supérieure à 20 cm du corps humain.

Gain de l'antenne doit être ci-dessous:

Bande de fréquence	Gain de l'antenne
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 of the 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.

Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.