OKO XM05

Operation Manual

aiut

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1. 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

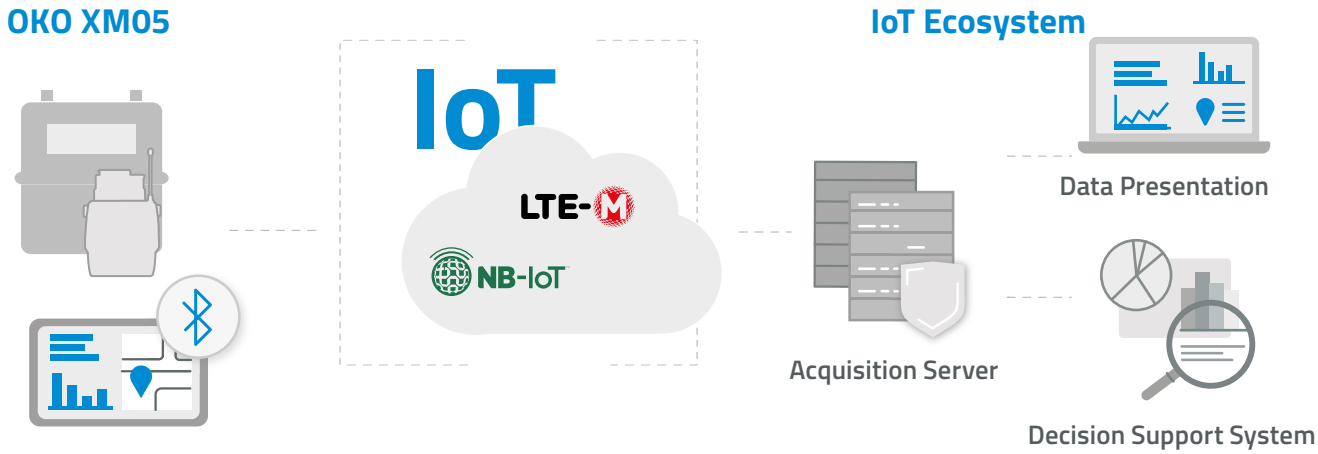
RECYCLING – the used devices should be returned to the manufacturer for proper disposal

SPECIAL USAGE CONDITIONS

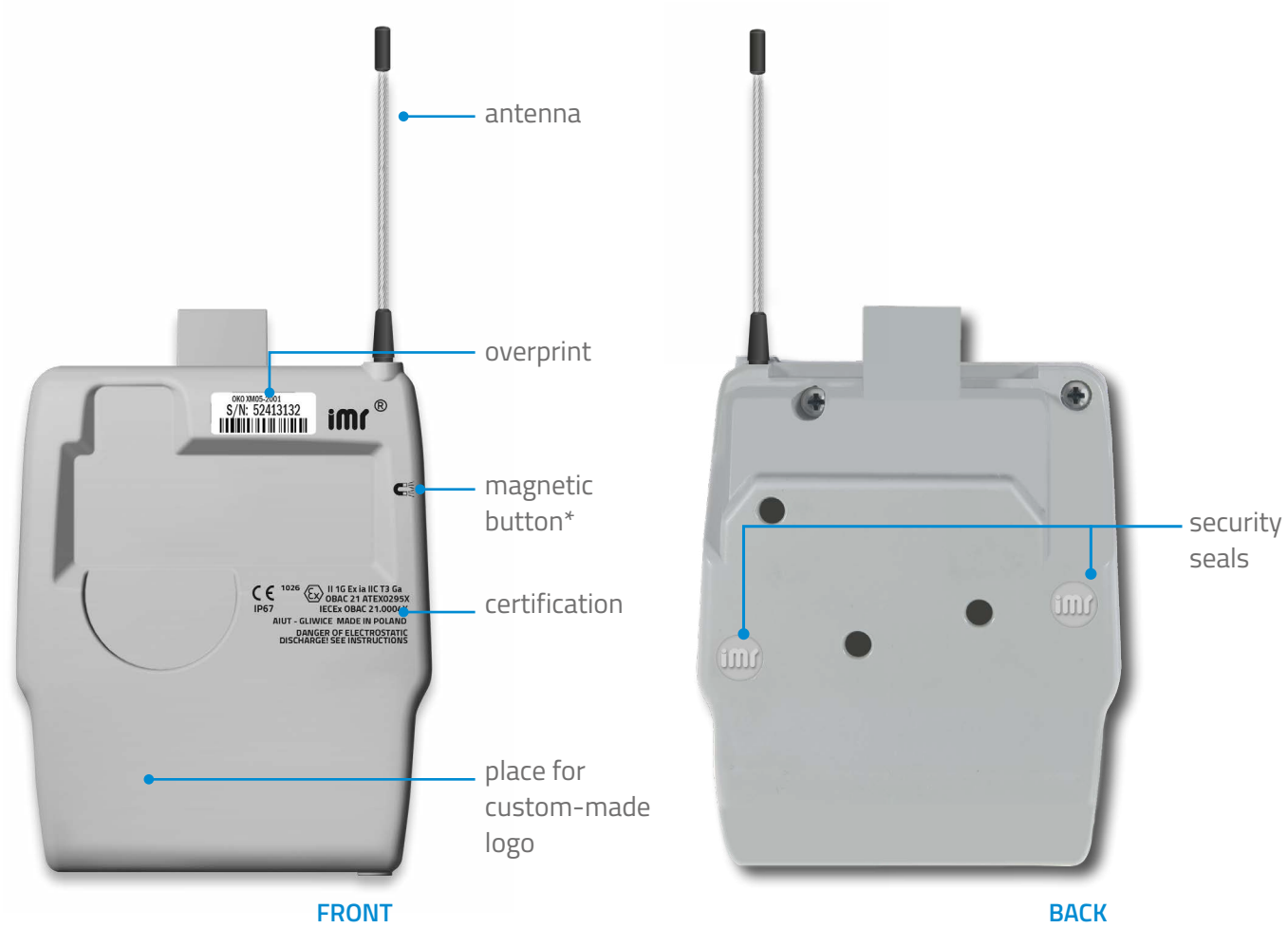
- Operating temperature range: –25 °C ÷ +55 °C
- IP 67 – device protected against dust penetration and immersion in water (up to 1 meter) for half an hour. Whenever it is necessary to open the cover, secure the device against dust and moisture.
- Never rub the enclosure surface of OKO XM05 using a dry cloth because of the danger of electrostatic discharge.

2. GENERAL DESCRIPTION

OKO XM05 is a battery powered ATEX & IECEx certified, wireless data logger that can be easily installed on existing diaphragm meters. Received data from the past few months are stored and transferred over IoT networks to acquisition server at regular intervals. Subsequently, the data can be processed further to 3rd party data center. Flexible configuration permits for customization of logged data structures and communication pattern for specific Gas Utility needs. Its Bluetooth 5.2 module allows data collection, on-site configuration and diagnostics with dedicated SITA application.



3. THE STRUCTURE OF THE DEVICE



*for activating BLE communication in seal-run mode. See BLE Communication.

OVERPRINT

OKO XM05 - 2001
S/N: 52413132

Order number
Serial number
Barcode, code 128

ORDER NUMBER & OKO VERSIONS

Generic information	Hardware/firmware version
OKO XM05	2**x**01

x - type of antenna
0 - whip antenna (Fig.1)
1 - SMA connector for external antenna (Fig.2)


Fig.1 OKO XM05-2001

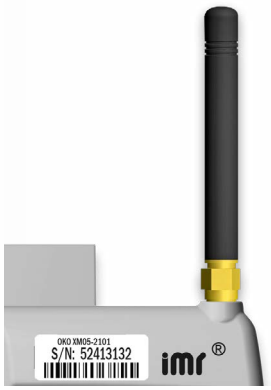


Fig.2 OKO XM05-2101

4. TECHNICAL PARAMETERS

LOW POWER COMMUNICATION

LPWA module	Quectel BG77
Worldwide frequency bands	Cat. M1: LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/ B19/B20/B25/B26/B27/B28/B66/B85* Cat NB2: LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/ B19/B20/B25/B28/B66/B71/B85*
Approvals	GCF (Global), CE (Europe), PTCRB (North America), FCC (America), IC (Canada) SRRC*/NAL*/CCC* (China), KC* (South Korea), NCC* (Taiwan, China), JATE/TELEC (Japan), RCM (Australia/New Zealand), NBTC* (Thailand), NBTC (Thailand), IMDA (Singapore)
SIM card	MFF2 - eSIM
BLE module	BlueNRG-2 (Bluetooth 5.2), 2,4GHz, +8dBm, range up to 30m.

ENVIRONMENTAL PARAMETERS

Operating temperature (data transfer):	-25°C to +55°C
Storage temperature (measurements stored in device archive):	-40°C to +60°C
Ingress protection	IP 67
ATEX / IECEx / UK Ex certificate	Ex II 1G Ex ia IIC T3 Ga
Housing material	ABS

POWER SUPPLY

Type of battery	Non-replaceable, 3V, Li-MnO_2, D-size
Battery lifetime	up to 15 years

MECHANICAL PARAMETERS

Dimensions	H (w/o antenna) x W x D: 112mm x 91mm x 43mm
Weight	390g
Type of connector	connector dedicated for adapters with built-in pulse sensor coupled with gas meter counter

INTRINSICALLY SAFE PARAMETERS

Connector of the adapter	Uo=5,4V; Io= 20mA; Po=25mW; Co=65uF; Lo=800uH Ui=5,4V; Ii=0,2A; Pi=1W; Li, Ci – negligible
SMA connector	Uo=10V; Io=0,2A; Po=2W; Co=1uF; Lo=1uH

REPLICATION PULSE OUTPUT

Output port located in dedicated IMR adapter and capable of providing meter pulse output connections to other meter pulse utilization devices. For more please refer to Replicated Pulse Measurement.

Circuits	1 intrinsically safe circuit	**Maximum input current I_i**	40mA
Connector type	RJ-11 /RJ-9	**Maximum output current I_o**	1mA
Max cable length	3m	**Maximum internal capacitance C_i**	Negligible
Maximum input voltage U_i	30V	**Maximum internal capacitance C_o**	40uF
Maximum output voltage U_o	5,88V	**Maximum internal inductance L_i**	Negligible
Maximum input power P	1,1W	**Maximum external inductance L_o**	1mH
Maximum output power P_o	1mW		

* In development

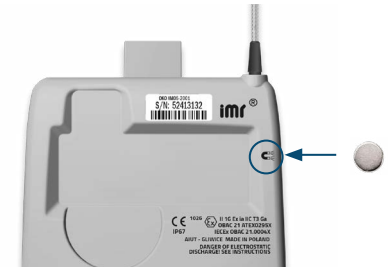
5. Operation of the device

OKO XM05 can operate in two modes:

- warehouse (seal-run) mode
- regular (run) mode

The modes differ in modem operation, BLE communication and battery consumption. However, in both modes you can collect data, configure the device on-site and run diagnostics with dedicated SITA application.

OKO operation in warehouse (seal-run) mode



For safe transport and in order to minimize the battery consumption during the storage (prior the installation), the device is in *Seal-run mode* directly after the production. In warehouse mode OKO XM05 counts pulses but no mobile communication is performed*. However, in *Seal-run mode* it is possible to activate BLE communication. To do so, swipe the magnet near the magnet icon printed on the casing.

- Minimized battery consumption
- Pulse counting active
- No mobile communication
- BLE on demand

Once the BLE communication is activated, advertising frames are sent for 3 hours with the frequency of 2.5s.

*It is possible to wake up the device from *Seal-run mode* during the installation procedure performed with SITA application. For more please refer to: Device Commissioning with SITA

OKO operation in regular (run) mode

OKO XM05 can enter *Regular (run) mode* with SITA application. In this mode the device operates regularly - it takes pulses from the meter and transfers the data over mobile network to acquisition server periodically (e.g. daily at specified time). The Bluetooth 5.2 module embedded in the device sends the advertising BLE frames continuously with the frequency of 2.5s.

- Pulse counting active
- Regular mobile communication
- Continuous BLE

The content of an advertising frame transmitted by OKO XM05

In both modes it is possible to communicate with the device by BLE. Once the device is connected by BLE, a two-way communication using IMR WAN 3 protocol starts.

Firmware version	Device firmware version
Battery level	Remaining battery power [in %]
Status in the current daily period:	• maximum temporary/hourly flow is exceeded • magnet tamper detection • detection of device removal from gas meter • BLE connection is active • extreme temperature of the device is exceeded • device warning • device error / service required

Gas day volume & timestamp*	• gas volume registered in the last gas day • timestamp of the gas day
Volume*	Volume registered by pulse counter in pulse rate units, where the pulse rate is a parameter of the meter totalizer
Clock*	Device clock in UTC
Time left for BLE**	Minutes left until the end of BLE communication
Serial number	Device serial number

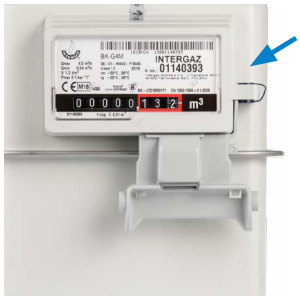
* Applies only to advertising frames of OKO in **regular (run) mode**
** Applies only to advertising frames of OKO in **warehouse (seal-run) mode**

6. MECHANICAL ASSEMBLY

Meter type: HONEYWELL, ELSTER, INTERGAZ BK (Z4 and Z6 index type), Landis+Gyr Model 750, Model 1010

1 Insert the **IC E015/IC L015** adapter on the gas meter.


2 Secure the adapter with a blue seal.



3 Fix OKO to the adapter.

4 Screw and seal OKO with two grey IMR seals on both sides of the cover.


5 Secure the whole set with a plastic meter seal.

Install the seal by threading the wire in the following order: blue seal (1), sealing handle of the adapter (2), sealing handle of the OKO (3), and again, sealing handle of the adapter (4). Then thread the wire through the seal cylinder (5). Tighten the seal by rotating the plastic wing clockwise. Firmly hold plastic body in one hand and apply lateral force to break off the plastic wing.

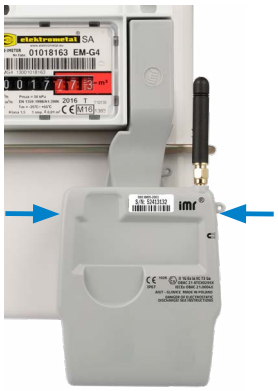
Meter type: ELEKTROMETAL EM

1 Fix and screw the **IC K015** adapter to the gas meter.


2 Seal the adapter with grey IMR seal.

3 Fix OKO to the adapter.

4 Screw and seal OKO with two grey IMR seals on both sides of the cover.



5 Secure the whole set with a plastic meter seal.

Install the seal by threading the wire in the following order: sealing handle of the OKO (1), sealing handle of the adapter (2), sealing handle of the gas meter (3), and again, sealing handle of the adapter (4). Then thread the wire through the seal cylinder (5). Tighten the seal by rotating the plastic wing clockwise. Firmly hold plastic body in one hand and apply lateral force to break off the plastic wing.

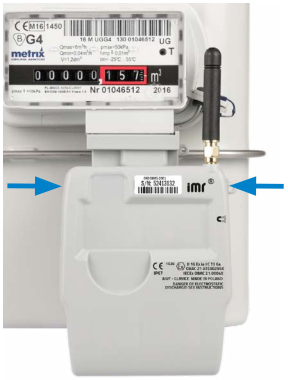
Meter type: GL i UG by APATOR METRIX

1 Fix the **IC M015** adapter on the gas meter.


2 Secure the adapter with a blue seal.

3 Fix OKO to the adapter.

4 Screw and seal OKO with two grey IMR seals on both sides of the cover.



5 Secure the whole set with a plastic meter seal.

Install the seal by threading the wire in the following order: blue seal (1), sealing handle of the adapter (2), sealing handle of the OKO (3), and again, sealing handle of the adapter (4). Then thread the wire through the seal cylinder (5). Tighten the seal by rotating the plastic wing clockwise. Firmly hold plastic body in one hand and apply lateral force to break off the plastic wing.

Meter type: RF1 by ITRON

1 Thread the wire through the two holes located below the meter counter.

2 Fix the **IC R015** adapter on the gas meter.

3 Screw and seal the adapter with the grey IMR seal.

4 Fix OKO to the adapter. Then, screw and seal OKO with two grey IMR seals on both sides of the cover.

5 Secure the whole set with a plastic meter seal.

Install the seal by threading the wire in the following order: two holes below the meter counter (1) as described in step no.1, sealing handle of the OKO (2), sealing handle of the adapter (3). Then thread the wire through the seal cylinder (4). Tighten the seal by rotating the plastic wing clockwise. Firmly hold plastic body in one hand and apply lateral force to break off the plastic wing.

Gas meters embedded with pulse output

1 Connect the wires to the **IC U015** adapter as indicated on its casing and on the cable. Set the cable in the groove and tighten it with to plastic ties.

2 Fix OKO to the adapter. Then, screw and seal OKO with two grey IMR seals on both sides of the cover.

3 Secure the whole set with a plastic meter seal.

Install the seal by threading the wire in the following order: sealing handle of the adapter, sealing handle of the OKO. Then thread the wire through the seal cylinder. Tighten the seal by rotating the plastic wing clockwise. Firmly hold plastic body in one hand and apply lateral force to break off the plastic wing.

ASSEMBLY METHODS

Wall mounting with screws.

Wall mounting with double sided tape.

Pipe mounting with dedicated handles and plastic ties.

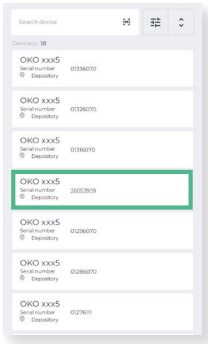
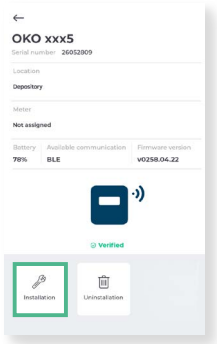
7. DEVICE COMMISSIONING WITH SITA

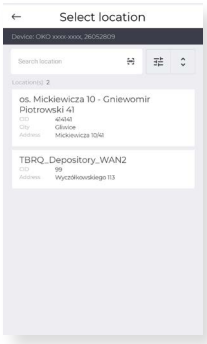
Together with the mechanical installation of OKO XM05, an action activating the device from seal-run mode and registering it in particular location must be performed*. The operation is performed with SITA - an application dedicated for mobile devices (smartphone, tablet) with android OS that supports the operational procedures such as installation/uninstallation and configuration of IoT devices, as well as diagnostics, operations and services.

*concerns devices supported by IMR IoT Ecosystem platform or if the functionality is implemented in the client's HeadEnd System.

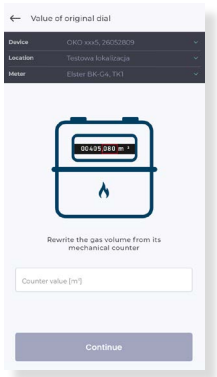
The procedure of device commissioning with SITA application is performed in a few easy steps:

1 Select the device, its location and meter.

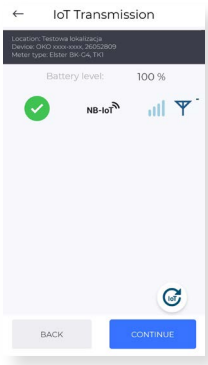



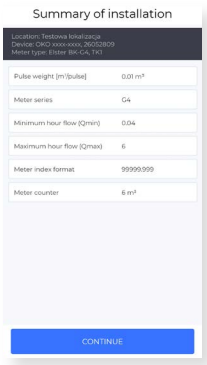


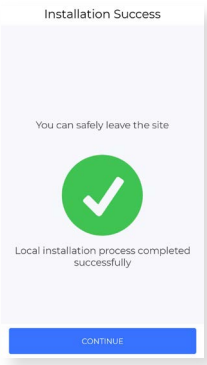
2 Introduce gas meter data (main parameters and gas volume from its mechanical counter).



3 Connect to the device by BLE and send the data to the server.







For more about device installation with SITA please refer to SITA User Guide.

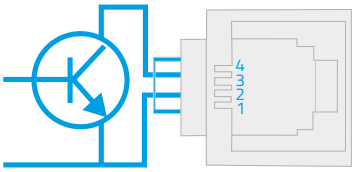
8. REPLICATED PULSE MEASUREMENT

Thanks to the replicated pulse output, OKO XM05 can be connected to 3rd party data acquisition system. The output is located in a dedicated IMR adapter and can provide meter pulse output connections to other meter pulse utilization devices, without interfering or disrupting the collection of data and having minimal effect on any power source within the device.

1 Prepare the cable and crimp the RJ11 connector to the cable using crimping tool. The wires should be inserted into the connector according to the diagram below.

1 Short-circuited with wire no. 4*
2 Ground
3 Impulse output
4 Short-circuited with wire no.1*

*Pins internally connected in the socket



2 Plug the connector into the socket in the adapter as shown in the picture.

9. SCOPE OF DATA

The content of data packet sent by OKO XM05 depends on configuration, while the frequency of data transfer is set in schedules. The information contained in the data packet sent by OKO is listed below.

Daily readouts packet

- Gas meter pulse rate
- End timestamp of the gas day
- Total volume registered in the end of the gas day
- Current meter index
- Maximum instantaneous flow on the gas day
- Timestamp of the maximum instantaneous flow during the gas day
- Maximum hourly flow during the gas day
- Timestamp of the hourly flow during the gas day
- Frequency of meter index registration [e.g. one hour]
- Meter index differences for the subsequent registration periods [e.g. one hour]
- Ambient temperature [°C]
- Battery level [%]
- Mobile signal strength [0-31]
- Current date and time [UTC]
- Status of the accelerometer
- Firmware version

Device status from the last gas day

- Magnet tamper detection
- Device removal from the meter
- Exceeded maximum allowed hourly flow
- Exceeded maximum allowed instantaneous flow
- Exceeded maximum allowed temperature
- Active BLE connection
- Active magnet button
- Device warning
  - significant change in device clock
  - change in volume counter
  - device installation/uninstallation
  - discontinuity of meter index registration
- Device error
  - SIM card error
  - modem error
  - low battery level
  - low voltage detected
  - real time clock error
  - memory integrity error

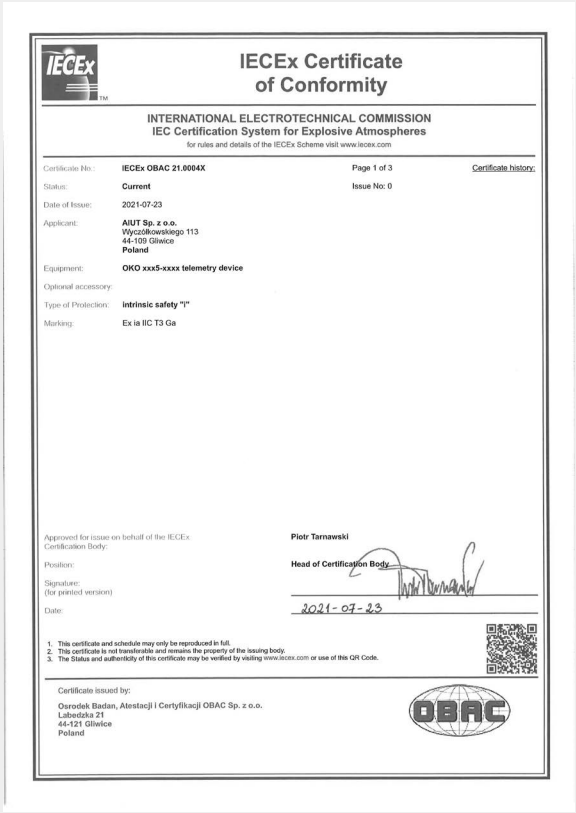
10. SPECIAL CONDITIONS OF USE

To ensure explosion-proof safety, the following requirements must be fully met:

- Under certain extreme circumstances, the plastic enclosure may accumulate a potentially ignitable level of electrostatic charge. The device should not be installed in areas where external conditions promote electrostatic charge accumulation. Avoid rubbing. The equipment should only be cleaned using a damp cloth.
- The SMA antenna socket has a capacitance of 10.4 pF with respect to conductive components that may come into contact with the enclosure. Therefore, when using the device under unfavorable conditions, the possibility of accumulating electric charge should be taken into account, and all necessary precautions should be implemented. For instance, the use of a non-conductive cover for the socket and plug unit is recommended.

11. CERTIFICATIONS

IECEx



IECEx Certificate of Conformity

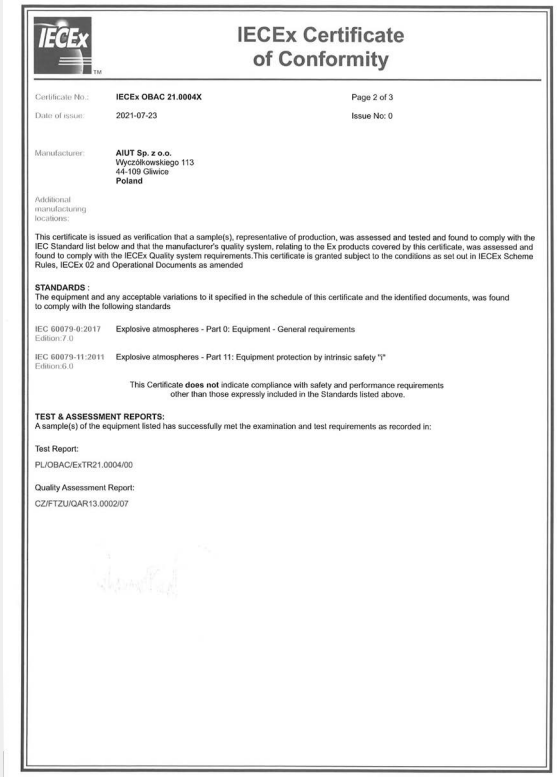
INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx OBAC 21.0004X — Page 1 of 3 — Certificate history:
Status: Current — Issue No: 0
Date of Issue: 2021-07-23
Applicant: AIUT Sp. z o.o.
Wyczółkowskiego 113
44-109 Gliwice
Poland
Equipment: OKO xxx5-xxxx telemetry device
Optional accessory:
Type of Protection: intrinsic safety "i"
Marking: Ex ia IIC T3 Ga

Approved for issue on behalf of the IECEx Certification Body: Piotr Tarnawski
Position: Head of Certification Body
Signature: (for printed version)
Date: 2021-07-23

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:
Osrodek Badan, Atestacji i Certyfikacji OBAC Sp. z o.o.
Labedzka 21
44-121 Gliwice
Poland



IECEx Certificate of Conformity

Certificate No.: IECEx OBAC 21.0004X — Page 2 of 3
Date of issue: 2021-07-23 — Issue No: 0

Manufacturer: AIUT Sp. z o.o.
Wyczółkowskiego 113
44-109 Gliwice
Poland

Additional manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

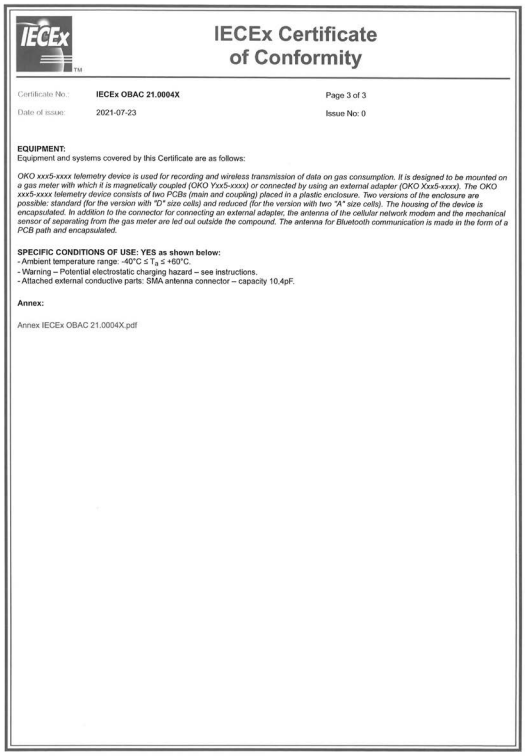
IEC 60079-0:2017 Edition:7.0 — Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11:2011 Edition:6.0 — Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:
PL/OBAC/ExTR21.0004/00

Quality Assessment Report:
CZ/FTZU/QAR13.0002/07



IECEx Certificate of Conformity

Certificate No.: IECEx OBAC 21.0004X — Page 3 of 3
Date of issue: 2021-07-23 — Issue No: 0

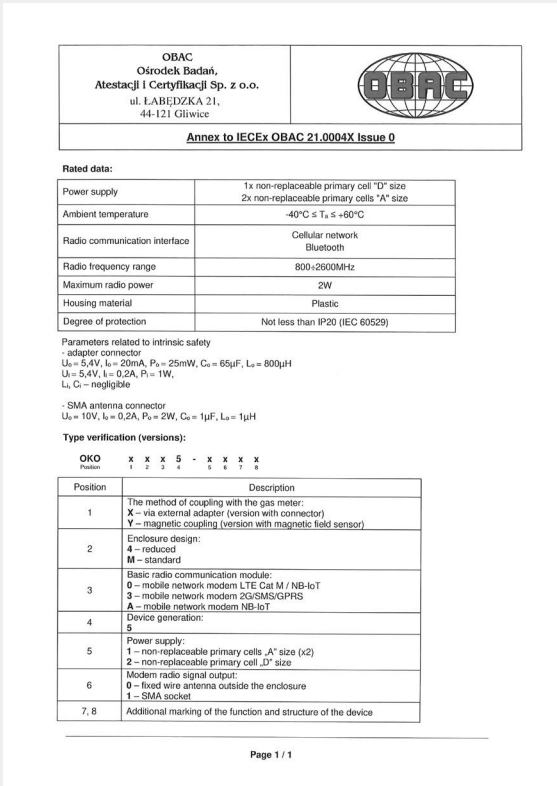
EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

OKO xxx5-xxxx telemetry device is used for recording and wireless transmission of data on gas consumption. It is designed to be mounted on a gas meter with which it is magnetically coupled (OKO Yxx5-xxxx) or connected by using an external adapter (OKO Xxx5-xxxx). The OKO xxx5-xxxx telemetry device consists of two PCBs (main and coupling) placed in a plastic enclosure. Two versions of the enclosure are possible: standard (for the version with "D" size cells) and reduced (for the version with two "A" size cells). The housing of the device is encapsulated. In addition to the connector for connecting an external adapter, the antenna of the cellular network modem and the mechanical sensor of separating from the gas meter are led out outside the compound. The antenna for Bluetooth communication is made in the form of a PCB path and encapsulated.

SPECIFIC CONDITIONS OF USE: YES as shown below:
- Ambient temperature range: -40°C ≤ T_a ≤ +60°C.
- Warning – Potential electrostatic charging hazard – see instructions.
- Attached external conductive parts: SMA antenna connector – capacity 10,4pF.

Annex:

Annex IECEx OBAC 21.0004X.pdf



OBAC
Ośrodek Badań,
Atestacji i Certyfikacji Sp. z o.o.
ul. ŁABĘDZKA 21,
44-121 Gliwice

Annex to IECEx OBAC 21.0004X Issue 0

Rated data:

Power supply	1x non-replaceable primary cell "D" size 2x non-replaceable primary cells "A" size
Ambient temperature	-40°C ≤ T_a ≤ +60°C
Radio communication interface	Cellular network Bluetooth
Radio frequency range	800÷2600MHz
Maximum radio power	2W
Housing material	Plastic
Degree of protection	Not less than IP20 (IEC 60529)

Parameters related to intrinsic safety
- adapter connector
U_o = 5,4V, I_o = 20mA, P_o = 25mW, C_o = 65µF, L_o = 800µH
U_i = 5,4V, I_i = 0,2A, P_i = 1W,
L_i, C_i – negligible

- SMA antenna connector
U_o = 10V, I_o = 0,2A, P_o = 2W, C_o = 1µF, L_o = 1µH

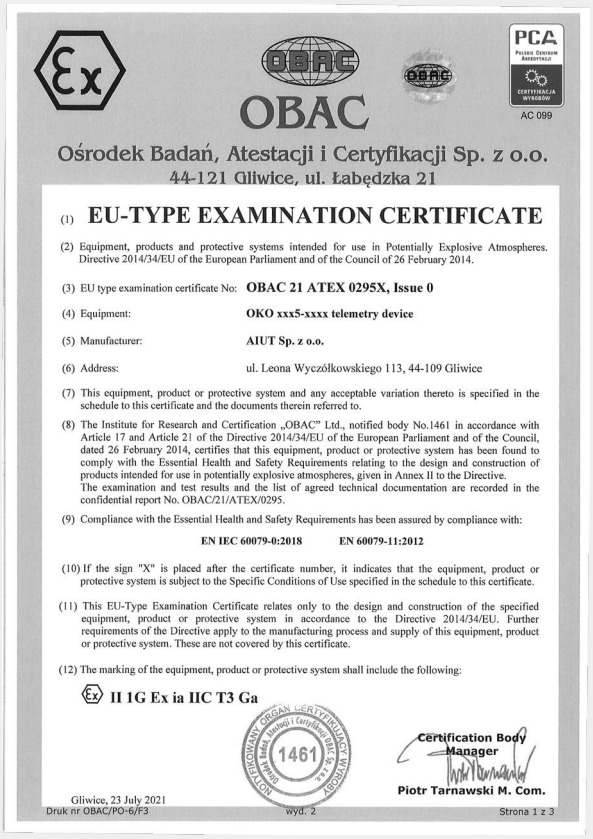
Type verification (versions):

OKO — Position: 1 2 3 4 - 5 6 7 8

Position	Description
1	The method of coupling with the gas meter: **X** – via external adapter (version with connector) **Y** – magnetic coupling (version with magnetic field sensor)
2	Enclosure design: **4** – reduced **M** – standard
3	Basic radio communication module: **0** – mobile network modem LTE Cat M / NB-IoT **3** – mobile network modem 2G/SMS/GPRS **A** – mobile network modem NB-IoT
4	Device generation: **5**
5	Power supply: **1** – non-replaceable primary cells „A" size (x2) **2** – non-replaceable primary cell „D" size
6	Modem radio signal output: **0** – fixed wire antenna outside the enclosure **1** – SMA socket
7, 8	Additional marking of the function and structure of the device

Page 1 / 1

ATEX



Ośrodek Badań, Atestacji i Certyfikacji Sp. z o.o.
44-121 Gliwice, ul. Łabędzka 21

AC 099

(1) EU-TYPE EXAMINATION CERTIFICATE

(2) Equipment, products and protective systems intended for use in Potentially Explosive Atmospheres. Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014.

(3) EU type examination certificate No: **OBAC 21 ATEX 0295X, Issue 0**

(4) Equipment: **OKO xxx5-xxxx telemetry device**

(5) Manufacturer: **AIUT Sp. z o.o.**

(6) Address: ul. Leona Wyczółkowskiego 113, 44-109 Gliwice

(7) This equipment, product or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Institute for Research and Certification „OBAC" Ltd., notified body No.1461 in accordance with Article 17 and Article 21 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment, product or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results and the list of agreed technical documentation are recorded in the confidential report No. OBAC/21/ATEX/0295.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment, product or protective system is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified equipment, product or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment, product or protective system. These are not covered by this certificate.

(12) The marking of the equipment, product or protective system shall include the following:

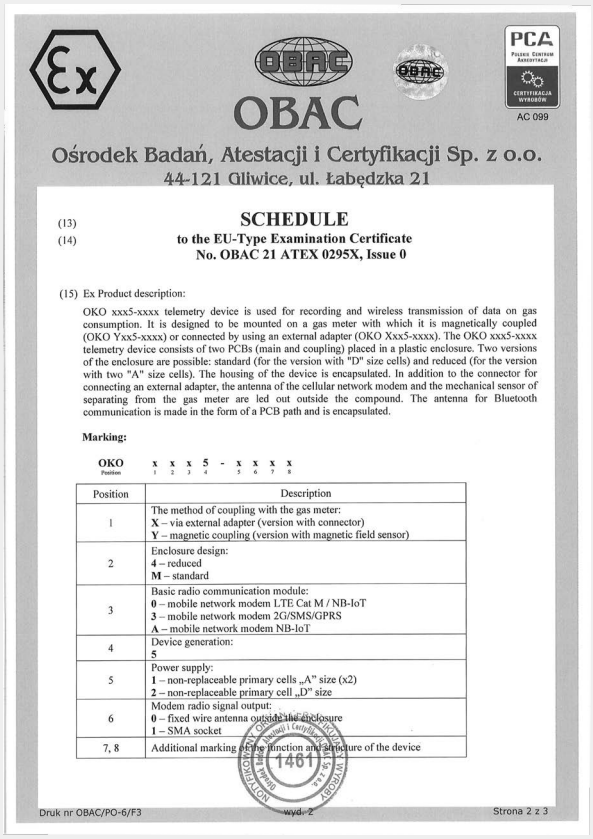
II 1G Ex ia IIC T3 Ga

Gliwice, 23 July 2021

Certification Body Manager

Piotr Tarnawski M. Com.

Druk nr OBAC/PO-6/F3 wyd. 2 Strona 1 z 3



Ośrodek Badań, Atestacji i Certyfikacji Sp. z o.o.
44-121 Gliwice, ul. Łabędzka 21

AC 099

(13) (14) SCHEDULE
to the EU-Type Examination Certificate No. OBAC 21 ATEX 0295X, Issue 0

(15) Ex Product description:

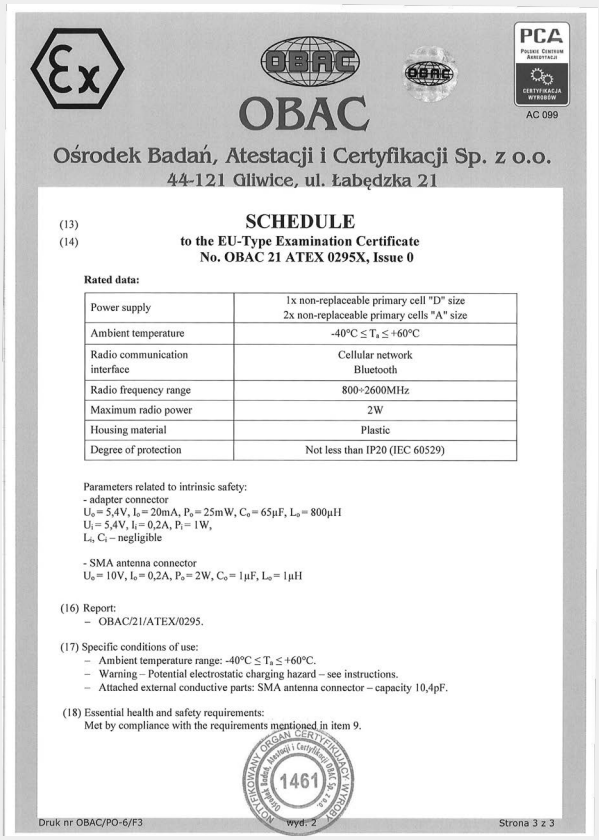
OKO xxx5-xxxx telemetry device is used for recording and wireless transmission of data on gas consumption. It is designed to be mounted on a gas meter with which it is magnetically coupled (OKO Yxx5-xxxx) or connected by using an external adapter (OKO Xxx5-xxxx). The OKO xxx5-xxxx telemetry device consists of two PCBs (main and coupling) placed in a plastic enclosure. Two versions of the enclosure are possible: standard (for the version with "D" size cells) and reduced (for the version with two "A" size cells). The housing of the device is encapsulated. In addition to the connector for connecting an external adapter, the antenna of the cellular network modem and the mechanical sensor of separating from the gas meter are led out outside the compound. The antenna for Bluetooth communication is made in the form of a PCB path and is encapsulated.

Marking:

OKO x x x **5** - x x x x
Position 1 2 3 4 5 6 7 8

Position	Description
1	The method of coupling with the gas meter: **X** – via external adapter (version with connector) **Y** – magnetic coupling (version with magnetic field sensor)
2	Enclosure design: **4** – reduced **M** – standard
3	Basic radio communication module: **0** – mobile network modem LTE Cat M / NB-IoT **3** – mobile network modem 2G/SMS/GPRS **A** – mobile network modem NB-IoT
4	Device generation: **5**
5	Power supply: **1** – non-replaceable primary cells „A" size (x2) **2** – non-replaceable primary cell „D" size
6	Modem radio signal output: **0** – fixed wire antenna outside the enclosure **1** – SMA socket
7, 8	Additional marking of the function and structure of the device

Druk nr OBAC/PO-6/F3 wyd. 2 Strona 2 z 3



Ośrodek Badań, Atestacji i Certyfikacji Sp. z o.o.
44-121 Gliwice, ul. Łabędzka 21

AC 099

(13) (14) SCHEDULE
to the EU-Type Examination Certificate No. OBAC 21 ATEX 0295X, Issue 0

Rated data:

Power supply	1x non-replaceable primary cell "D" size 2x non-replaceable primary cells "A" size
Ambient temperature	$-40°C \leq T_a \leq +60°C$
Radio communication interface	Cellular network Bluetooth
Radio frequency range	800÷2600MHz
Maximum radio power	2W
Housing material	Plastic
Degree of protection	Not less than IP20 (IEC 60529)

Parameters related to intrinsic safety:
- adapter connector
$U_o = 5,4V$, $I_o = 20mA$, $P_o = 25mW$, $C_o = 65\mu F$, $L_o = 800\mu H$
$U_i = 5,4V$, $I_i = 0,2A$, $P_i = 1W$,
L_i, C_i – negligible

- SMA antenna connector
$U_o = 10V$, $I_o = 0,2A$, $P_o = 2W$, $C_o = 1\mu F$, $L_o = 1\mu H$

(16) Report:
– OBAC/21/ATEX/0295.

(17) Specific conditions of use:
– Ambient temperature range: $-40°C \leq T_a \leq +60°C$.
– Warning – Potential electrostatic charging hazard – see instructions.
– Attached external conductive parts: SMA antenna connector – capacity 10,4pF.

(18) Essential health and safety requirements:
Met by compliance with the requirements mentioned in item 9.

Druk nr OBAC/PO-6/F3 wyd. 2 Strona 3 z 3

UK Ex

ExVeritas

1 **UNITED KINGDOM CONFORMITY ASSESSMENT**

UK TYPE EXAMINATION CERTIFICATE

2 **Product Intended for use in Potentially Explosive Atmospheres**
UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1

3 Certificate Number: **ExVeritas 23UKEX1529X** Issue: **0**

4 Product: OKO xxx5-xxxx Telemetry device

5 Manufacturer: AIUT Sp. z o.o.

6 Address: ul. Wyczółkowskiego 113, 44-109 Gliwice, Poland

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 ExVeritas Limited Approved Body number 2585, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018 EN IEC 60079-11:2012

Except in respect of those requirements listed at section 16 of the schedule to this certificate.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

Ex II 1G Ex ia IIC T3 Ga

UKAS PRODUCT CERTIFICATION
No. 8613

On behalf of ExVeritas

S Clarke CEng MSc FIET
Managing Director

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FO-CB-76 V2

Page 1 of 3

CE/UKCA

aiut

File: DoC_OKO_XM05_eng_v2.pdf — Gliwice, November 2023

EU DECLARATION OF CONFORMITY
DECLARATION OF CONFORMITY

CE UKCA

Product

OKO XM05 Gas Meter Data Logger

Name and address of the manufacturer	AIUT Sp. z o.o., ul. Wyczółkowskiego 113, 44-109 Gliwice, Poland Tel.: +48 32 775 40 00, Fax: +48 32 775 40 01 e-mail: biuro@aiut.com

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration	OKO XM05 is an intrinsically safe data logger that consists of plastic enclosure, battery pack and electronics. OKO XM05 installed on gas meter takes pulses from the meter and sends the gas consumption data over LTE Cat M1 link to IoT Server. OKO XM05 has a SMA connector for an external antenna. The device is powered by an integrated battery pack consisting of single lithium cells. BLE interface serves as a local configuration and diagnostic interface.	

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation and the relevant statutory requirements.

References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:

RED	**Council Directive: 2014/53/EU**
RER	**The Radio Equipment Regulations 2017 - UKSI 2017 No.1206**
Harmonized standards	**Art. 3.1a) The protection of the health and the safety of persons**
Designated standards	**The protection of the health and the safety of persons**
EN 62368-1:2014	Audio/video, information and communication technology equipment — Part 1: Safety requirements
EN IEC 62311:2020	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)
	Art. 3.1b) EMC
	EMC
ETSI EN 301 489-1 V2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
Final Draft ETSI EN 301 489-17 V3.1.1	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

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Draft ETSI EN 301 489-52 V1.1.0	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
	Art 3.2 Efficient use and support for efficient use of radio spectrum **Efficient use and support for efficient use of radio spectrum**
ETSI EN 301 908-1 V13.1.1	IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 1: Introduction and common requirements
ETSI EN 301 908-13 V13.1.1	IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)
ETSI EN 300 328 V2.2.2	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum

ATEX	**Council Directive: 2014/34/EU**
Harmonized standards	
EN IEC 60079-0:2018	Explosive atmospheres Part 0: Equipment - General requirements
EN 60079-11:2012	Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"
The notified body (ATEX)	OSRODEK BADAN, ATESTACJI I CERTYFIKACJI OBAC SP. Z.O.O., Poland
body identification number	1461
has performed	conformity assessment procedure according to Module B: EU-Type Examination
and issued the Certificate:	OBAC 21 ATEX 0295X Ex II 1G Ex ia IIC T3 Ga Issue date: 23.07.2021
The notified body (ATEX)	Physical Technical Testing Institute Ostrava-Radvanice, Czech Republic
body identification number	1026
has performed	the manufacturer's quality system assessment procedure according to Module D: Conformity to type based on quality assurance of the production process
and issued the Quality Assurance Notification:	FTZU 04 ATEX Q 008
Product is certified under IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.	
IECEx Certificate No.	IECEx OBAC 21.0004X
UKEX	**The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 - UKSI 2016 No.1107 (as amended by UKSI 2019 No.696)**
Designated standards	
EN IEC 60079-0:2018	Explosive atmospheres Part 0: Equipment - General requirements
EN 60079-11:2012	Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"
The UKCA approved body	Ex Veritas Limited, United Kingdom
body identification number	2585
has performed	conformity assessment procedure according to Part 1 of Schedule 3A – Type Examination
and issued the Certificate:	ExVeritas 23UKEX1529X Ex II 1G Ex ia IIC T3 Ga
The UKCA approved body	Ex Veritas Limited, United Kingdom
body identification number	2585

aiut

has performed	the manufacturer's quality system assessment procedure according to Part 2 and Part 5 of Schedule 3A of the Regulations
and issued the UK Quality Assurance Notification:	ExVeritas 23UKQAN0330
Product is certified under IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.	
IECEx Certificate No.	IECEx OBAC 21.0004X
RoHS 2.0 and RoHS 3.0 **RoHS 2012**	**Council Directive: 2011/65/EU and Commission Delegated Directive (EU) 2015/863** **The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 - UKSI 2012 No. 3032**
Harmonized standards Designated standards	
EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Products are developed and manufactured in an ISO 9001:2015, PN-N-18001, EN ISO/IEC 80079-34:2011 certified factory.

Signed for and on behalf of manufacturer:

aiut Sp. z o.o. 44-109 Gliwice, ul. Wyczółkowskiego 113 tel. 32 775 4000; fax: 32 775 4001 NIP 631-020-03-40 -ST-

Artur Gabrys
Proxy

Prepared by:

imr Integrated meter reading

Grzegorz Szolc
Certification Engineer

IP

J.S. Hamilton Poland Sp. z o.o.
Jednostka Certyfikująca
ul. Wyzwolenia 14
41-103 Siemianowice Śląskie

(1) **CERTIFICATE**
OF ENCLOSURE PROTECTION DEGREE
No. JSHP/37/IP/2021

(2) Manufacturer: **AIUT Sp. z o.o.**

(3) Address: **44-109 Gliwice, ul. Leona Wyczółkowskiego 113, Poland**

(4) Device: **OKO xMx5-2xxx Gas meter data logger**

(5) Tested degree of enclosure protection: **IP67**

(6) J.S. Hamilton Poland Sp. z o.o. – Certification Body based in Siemianowice Śląskie on the basis of tests carried out according to standard PN-EN 60529:2003, certifies that the enclosure of the device listed in paragraph **(4)** ensures a degree of protection listed in paragraph **(5)**.

(7) The certificate was issued on the basis of a test report prepared by J.S. Hamilton Poland Sp. z o.o. – Testing Laboratory based in Siemianowice Śląskie (Accreditation No. **AB 1552**) **No. LT/397.2/2021** and applies only to items that have been covered by this test report.

(8) Date of the certificate issue: **13.10.2021**

Michał [illegible]
Z-ca Dyrektora Branży

Siemianowice Śl., 13th October 2021

HAMILTON

J.S. Hamilton Poland Sp. z o.o., ul. Chwaszczyńska 180, 81-571 Gdynia
Jednostka Certyfikująca, ul. Wyzwolenia 14, 41-103 Siemianowice Śląskie
Tel./Fax. +48 32 730 82 00, www.hamilton.com.pl, www.hamilton-test.pl

F-IP 2 z dnia 01.09.2021 r.