

OLAN 10x5 Operation Manual

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1 INTRODUCTION

1.1 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 mounting of the product should follow the manufacturer's instructions and should use a 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



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



Special usage conditions

- Increased ambient temperature range: from $-40\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$
- IP 67 – device protected against dust penetration and immersion in water under defined conditions of pressure and time.
- Never rub the enclosure surface of OLAN IOx5 using a dry cloth because of the danger of electrostatic discharge
- Apart from the usage conditions determined in Disclaimer, there are no other restrictions to the installation process or exploitation conditions. The procedures of opening the cover and exchanging the battery can be performed on site



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

1.2 Product overview

OLAN IOx5 is a battery powered data logger installed on Elster BK G4, BK G1.6 and BK G2.5 gas meters with internal valve. The device registers readouts and transmits gathered data via 868/915 MHz, WM-Bus radio to back office server using data gateways. In IoT profile, OLAN IOx5 sends the data via Sigfox or Lora low power network.

The data logger enables to control the valve remotely, without accessing the customer's premises: immediate valve closing and permission for manual opening. It also helps to reduce the costs of hard execution and promotes good payment behavior among consumers.

The product conforms with the essential requirements of the applicable CE (*ATEX, EMC, RED, LVD*).

User friendly structure of OLAN IOx5 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.



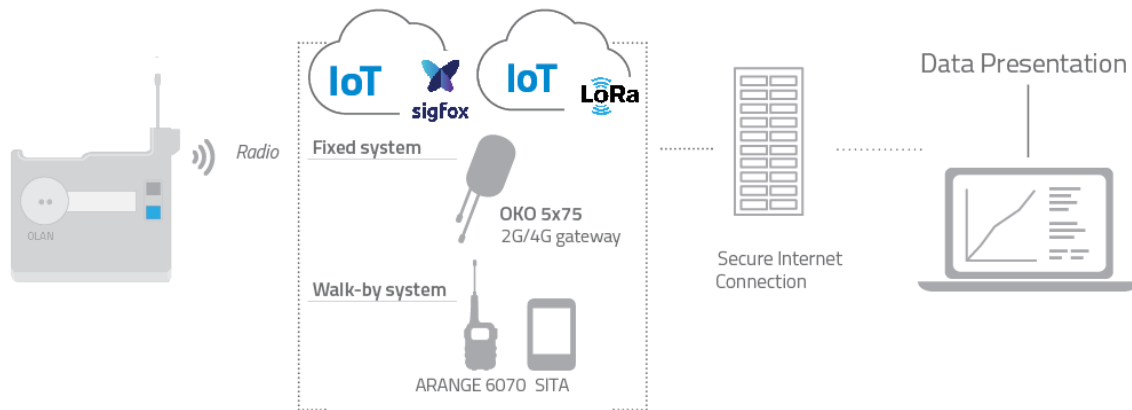
Main Advantages

- IoT connectivity/SRD wireless communication
- Hourly consumption recorded for 10 years
- Remote control of the valve
- User replaceable battery
- Tamper detection
- User friendly interface
- Extreme environment conditions (IP 67, enclosure resistant to UV)
- Long life battery (10 years with transmission of hourly readouts once per day and valve control once per month)
- ATEX
- Opto Port for easy diagnostics
- Replicated pulse output (optional)
- Remote configuration of the device and firmware upgrade

1.2.1 How does it work

OLAN IOx5 is designed for fixed and walk-by readout and can also provide wireless communication autonomously with IoT (LPWAN) platforms.

The user gets the daily data (current state, daily statistics, daily data archive) in unified form according to WM-Bus protocol. At the end of the day and month, OLAN IOx5 generates summary reports with hourly and daily consumption profile.



1.2.2 Data Structures

OLAN IOx5 is a **data logger** that **gathers, stores** the readouts with the determined frequency (e.g. every 30 or 60 minutes) **and transfers** data over radio to the Server once a day or on demand. The following models of data exchange are possible:

- **On request** – using commands it is possible to get the most recent readouts, diagnostics or archive data. Additionally, you can use opto-head to get access to device configuration, data, archives etc. Both options are also used to modify the configuration of OLAN IOx5. For more see [Commands & Schedules](#), [Local data access](#).
- **Periodically** – with schedules OLAN can send the data on air autonomously at preconfigured time. With this option it can also report the current readouts and inform about the status of OLAN and its functionality. For more see [Commands & Schedules](#),
- **Events** – In case when the specific condition is met, immediate communication is performed. These events can be interpreted as alarms and processed respectively to inform the responsible personnel with SMS or email by Data Center.

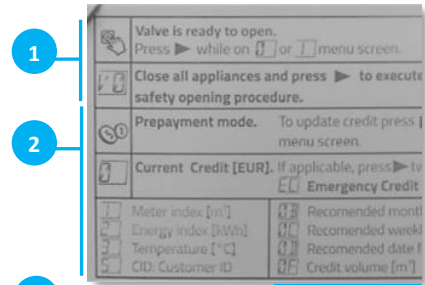
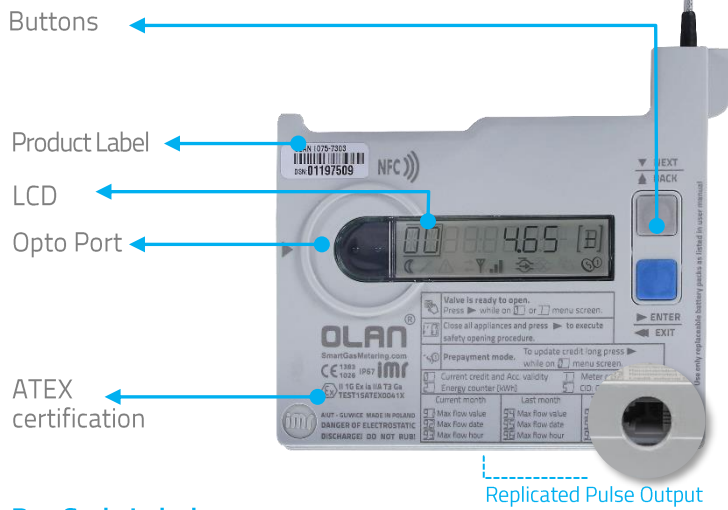
Exemplary data registered by OLAN IOx5 data logger:

- Log 10 years of hourly consumption data. Configurable logging interval of 30 or 60 minutes
- Daily readout: current device state, temperature, hourly consumption
- Tamper detection: device removal, external magnet, exceeding Qmax or operational temperature range

OLAN generates summary reports, with hourly and daily consumption profile, that are stored in OLAN data archive for its lifetime (up to 10 years). Data archive can be accessed remotely by radio or locally by Opto Port.

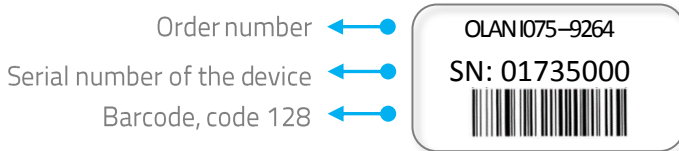
1.3 General Information

1.3.1 The structure of the device



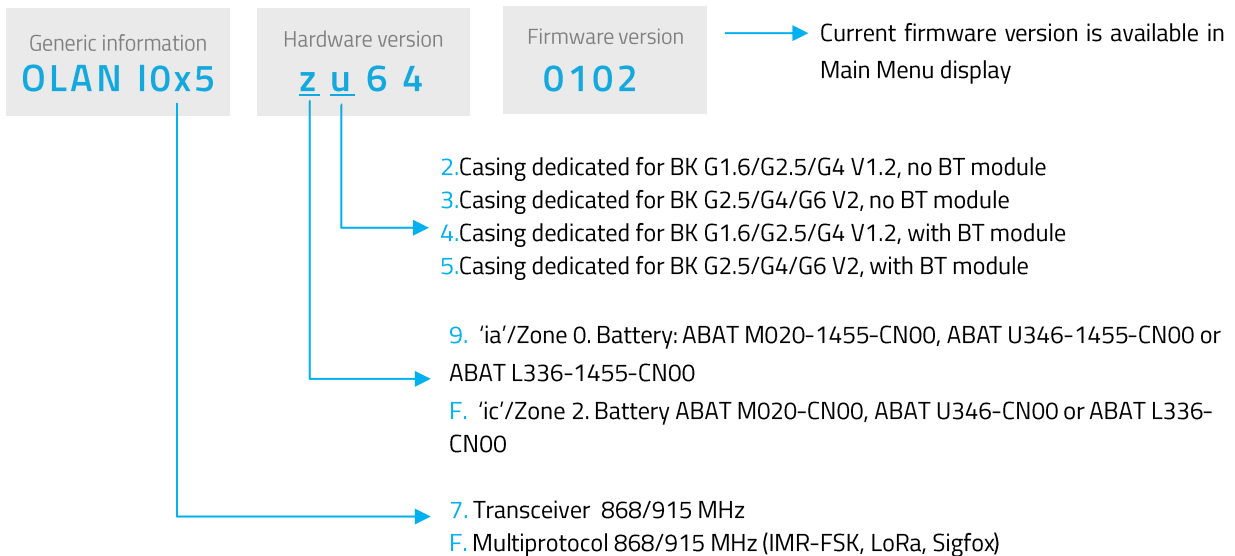
- 1 Valve opening procedure
- 2 Main Menu selection
- 3 Prepaid data selection

Bar Code Label



Order number

Order number provides the information concerning generic information, hardware and firmware version. The first two quarters are printed on the barcode label.



1.3.2 Technical parameters

Ingress protection	IP67
Operational temperature range [°C]	-40 ÷ +55
ATEX certification	II 1G Ex ia IIA T3 Ga (OLAN IOx5-9xx4) II 3G Ex ic IIA T3 Gc (OLAN IOx5-Fxx4)
Battery lifetime	10 years
Possible type of battery pack	ABAT M020-1455-CN00, ABAT U346-1455-CN00, ABAT L336-1455-CN00 ABAT M020-CN00, ABAT U346-CN00, ABAT L336-CN00



Replication pulse output

Circuits	1 intrinsically safe circuit
Connector type	RJ-9, 4-pin
Max cable length	3m
Circuit type	open collector output
Maximum input voltage U_i	30V
Maximum input current I_i	100mA
Maximum input power P_i	3W
Maximum internal capacitance C_i	negligible
Maximum internal inductance L_i	negligible

Connecting OLAN device to 3rd Party Data Acquisition System – replicated pulse measurements

The wires should be inserted into the connector according to the diagram:

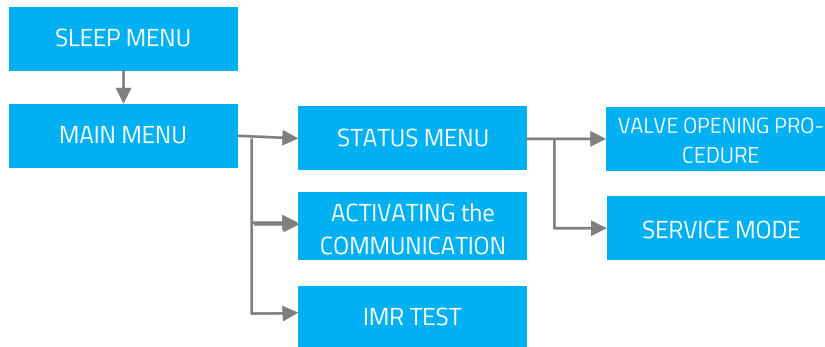
- 1 Short-circuited with wire no. 4*
- 2 Ground
- 3 Output
- 4 Short-circuited with wire no. 1*



*Pins internally connected in the socket

1.3.3 HMI

Main device functions and diagnostics information are presented on special icon LCD. All operations are performed with two buttons. Use the legend to navigate the menu and find out how to operate the particular operations.



HMI Overview

Take a quick look at the HMI to know the current status of your OLAN IOx5 device and its gas credit.



4	1	2	3
	1 Radio communication	2 NFC:	3 VALVE
	<p>incoming / outgoing correct package: blinking 30sec then on, on next modem activation off</p>	<p>NFC active NFC failed</p>	<p>Valve opened Valve closed Valve ready for opening</p>
4 Diagnostics:	Warnings: <ul style="list-style-type: none"> magnetic tamper detection removal detection max temperature exceeded temperature below minimum max flow exceeded 	Errors: <ul style="list-style-type: none"> RTC error Pulse counter error Valve error 	Sleep: <ul style="list-style-type: none"> Radio receiver is off or in walk-by sampling mode

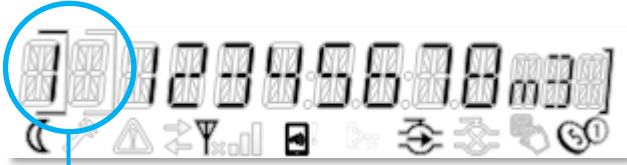
1.3.3.1 HMI Menus

Below all available menu versions are presented. Menu selection depends on the dedicated application and firmware version, as a result some part of the menu may not be available (e.g. prepaid menu)

Check the content of the menus to see where you can find the data/information of interest:

MAIN MENU

If the device is not in *Sealrun* mode, its *Main Menu* is displayed on LCD by default. In order to initialize the device that is in *Sealrun* mode see [OLAN activation](#).



The number of *Main Menu* screen. Short press the grey button to enter the next screen of *Main Menu*. Long press the grey button to return to the previous screen of *Main Menu*.

CONTENT

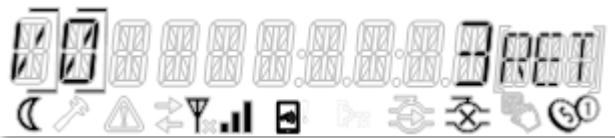
- Meter index
- Energy index
- Temperature
- CID
- Serial number of the gas meter
- Serial number of the device

STATUS MENU

Enter the screen no. 1 *Main Menu*. Short press the blue button:



You are in the first screen of *Status Menu*. Short press the grey button to enter the next screens of the menu.



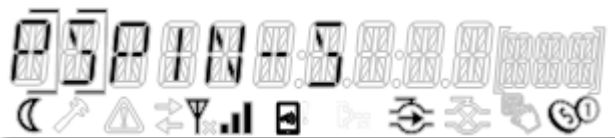
CONTENT

- Valve opening procedure*
- Codes of device status
- State of the battery
- Current date
- Current UTC time
- Pulse counter

*displayed if applicable

SERVICE MENU

Enter *Status Menu* and repeatedly short press the grey button until *Entering Service Mode* screen appears.



Enter PIN code to enter the Service menu.

CONTENT

- Battery status

1.3.4 Communication

OLAN IOx5 can communicate using WM-Bus protocol mode R2 according to EN 13757-4:2005 and EN 13757-5:2008, and sends the data via radio 868/915 MHz. In order to minimize the current consumption, radio transceiver of OLAN IOx5 is in sleep mode and wakes up according to schedule settings, on demand or when an event occurs.

OLAN data/readouts/configuration elements are stored in nonvolatile flash memory structures called OMB objects. WM-Bus protocol enables to write or read device objects and arrays of objects as well as write or read commands. Using WM-Bus protocol both current and archive data are accessible. The data logger can transmit data in push mode (autonomously) according to configured schedules and on request in bidirectional data exchanging.

Other communication protocols can be implemented according to client's needs, but please remember that the functionality of the data logger depends on the implemented communication protocol and the supporting acquisition system.

Local communication – Opto Port:

Opto Port serves as a local configuration and diagnostic interface enabling to control OLAN IOx5 both on-site and in warehouse. For more see [Local Data Access](#).

1.3.5 Security

OLAN IOx5 is specially designed to **detect the removal and magnetic tampering** (applying the external magnetic field). A few steps performed in one of the available applications enable the full control over the device and **minimize the risk of unauthorized usage**. OLAN registers warning events (presented as icons on LCD) in two types of registers:

- current status – that is set to 0 or 1 (inactive/active) depending on occurrence of particular event or its absence.
- latched status – once the event occurs it is set to 1 and can be cleared after receiving clear command from the system or, automatically, after receiving the confirmation of delivering the status to the system.



Additionally, all events, warnings and every unique change in status is stored in nonvolatile event log memory of 32.000 entries. Event log can be read out remotely over WM-Bus.

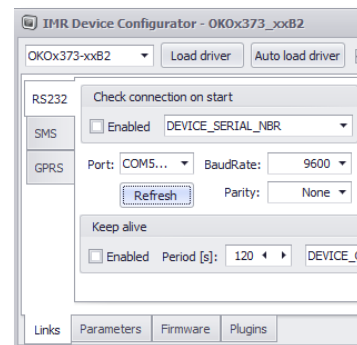
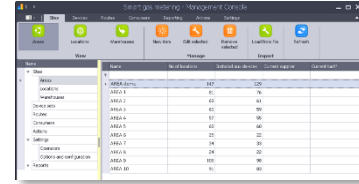
To enhance the security, the **communication over radio and with local opto port is encrypted** and authenticated with 128bit AES symmetrical algorithm. In order to avoid tampering and prevent unauthorized users from accessing the device, special plastic seals are used.

Additionally, to ensure the proper working of the device and prevent from any malfunctions that may appear in extreme temperature conditions, the operational mode may be limited once the established maximum or minimum temperature is exceeded. See [Temperatures](#).

1.3.6 Software - Direct data access & configuration

IMR Server high performance, multi—protocol data collection system that enables for meter data presentation on the **Web Application**, supervise on-site installations, device handling and daily system maintenance

- **SGM Manager** is a powerful management tool enabling the user to control the gas consumption, perform billing services and manage the locations and devices. The application helps to perform every action step by step and tackle the problem in a relatively short period of time.
- **SITA** is an application dedicated for mobile devices (smartphone, tablet) with android OS that supports the operational procedures such as installation and configuration of gas meter data loggers as well as diagnostic operations and services. The data and information collected during the procedures are sent directly from the application to IMR Server where are further proceeded and presented in dedicated applications.
- **IMR Device Configurator (IMRDC)** is an application used for OLAN configuration, maintenance and diagnostics. It enables to read/write OMBs (configurable parameters) assigned to the particular device. Additionally, IMRDC is equipped with a variety of plugins that provide many advanced functions such as: the preview of data packets, automatic action running, archive data readout and additional functions dedicated for devices other than OLAN. For more see *IMR Device Configurator User Guide*



1.3.7 Packaging

OLAN IOx5 already installed on gas meter is packed in cardboard box. The boxes are transported on a standard Euro pallet [120cmx80cm].



OLAN IOx5 (1pc)

INSTALLED ON GAS METER

BOX DIMENSIONS: W x L x H [16x23x27]CM

1.3.8 Accessories*



OPTO HEAD** for Bluetooth communication with IMR telemetric devices equipped with opto interface.



IMR 3G ROUTER*** connected to IMR Server to enable the wireless communication with IMR devices.



WHITE PLASTIC SEALS to secure the cover of OLAN I0x5



SCREWS

*Delivered separately

**For work in potentially explosive atmospheres please use Atex certified Opto Head.

***optional

2 OPERATIONAL PROCEDURE

2.1 Commissioning Procedure

After mechanical installation of gas meter with embedded OLAN IOx5 follow a few easy to perform steps to enjoy the full functionality of OLAN IOx5:

2.1.1 OLAN activation

Initialization

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. It counts pulses but no remote communication is performed. In order to initialize the device, short press the grey button and, subsequently, short press the blue button to enter the *Main Menu* screen as presented in the scheme below.



Device in seal-run mode. Short press the grey button.



Initialization starts. [Short press the blue button](#). The first screen of Main Menu is displayed.

NOTE The device can be initialized once only. After the initialization process the device is in regular operation.

Communication activation

After the initialization process the device is in regular operation. In order to minimize the current consumption, device is in sleep mode and wakes up according to the schedule settings (for more see [Commands & Schedules](#)). It is possible to wake up the device (activate the communication) from sleep mode on demand. In order to do so [enter the second menu screen in Main Menu and short press the blue button](#). The device is activated for the time determined in the configuration. If no action is performed within this time period, it automatically turns off.



Before Activation

Device in seal-run mode. Short press the grey button.

☾ - OLAN in sleep mode



Modem Activated

Initialization starts. [Short press the blue button](#).

☾ - communication with OLAN is active

2.1.2 OLAN set commissioning

After the mechanical installation of gas meter with its assigned OLAN IOx5 device, an action registering the unit in particular location must be performed. The operation is performed with SITA application.

SITA is used to register gas meter-OLAN IOx5 unit in the System. It also enables to manage commands and collect readouts from telemetry devices installed on gas meters.

The procedure of registering the unit with SITA application is performed according to the following steps:

1. In SITA application Installation Form is completed. The key elements of OLAN configuration are as follows:

Select the meter type and series from the available list. Fill in the necessary data [Qmin, Qmax, Meter size]

Click *Continue* button to enter the next step of *Installation Form*.

Select the meter index format (specify the number of digits before and after the comma)***

Decide on the amount of gas [m³] per one impulse.***

Introduce the serial number of the gas meter

Rewrite the gas volume from the mechanical counter



If necessary, change the default installation type.

*** Values are displayed automatically if they have already been defined in the System.

2. SMS action is sent to IMR Server. Confirm the correctness of the introduced data by sending it to the IMR Server. The server will start the automatic action of OLAN configuration according to the set parameter
3. The action is executed. The status of the completed action (success or failure) is registered in the Server.
4. The User gets the response from the Server that is displayed in SITA.

For more please refer to *SITA User Guide*



2.1.3 Exchanging the battery

The device can be used only with the original battery specified in [Technical Parameters](#). According to the requirements of ATEX, the whole procedure can be performed on site without dismantling the gas meter.

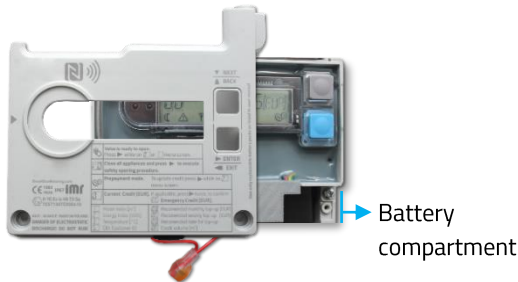
1 Remove all three seals by piercing them with screwdriver



2 Remove the screws from the cover



3 Gently lift the top cover



4 Cut the battery wires as close to the connector as possible.



5 Prepare the new battery and connect wires of the same colors (black to black, red to red) with wire connectors.



6 To close the cover, gently put the top cover back. Screw the cover with three screws and then seal the cover with plastic seals



Resetting the battery timer



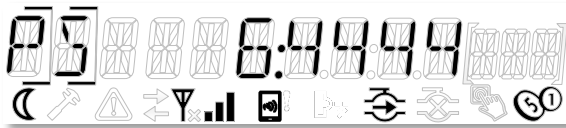
In Main Menu repeatedly short press the grey button to enter the test screen and then **short press the blue button**.



Introduce the received PIN code

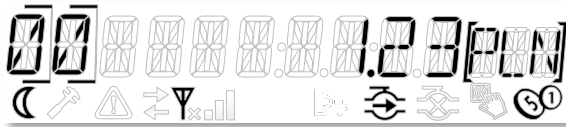
Introduce the first digit by short pressing the blue button

Short press the grey button to confirm the digit and move on to the next one.



In the same way introduce the other digits.

After introducing the PIN code short press the grey button to enter the first screen of Main Menu.



In the first screen of Main Menu repeatedly short press the grey button to enter the screen no 8.



In screen no 8 **short press the blue button**.



Short press the grey button twice to enter the battery status screen.



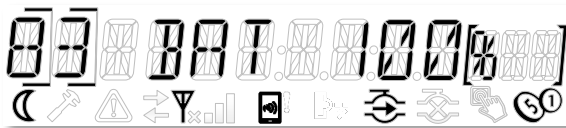
Short press the blue button.



Short press the grey button.



Short press the blue button.



The battery timer will be automatically reset to 100% and the view will return to Main Menu.

3 DATA ACCESS

3.1 Local data access

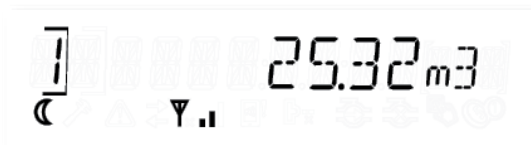
OLAN is featured with Opto Port that enables to:

- Update the firmware
- Get access to device configuration, data, archives etc.
- Switch between different device modes run/sleep/seal
- Run actions on devices

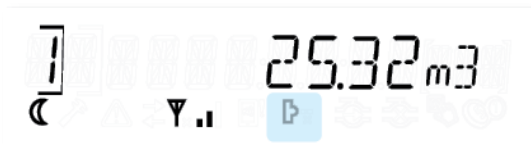
Possible statuses of opto module

- Off** – Opto interface switched off, waiting for the user to wake it up
- Waiting for data**– after attaching Opto Head. Opto interface waits for incoming data
- Active** – after receiving at least one correct data package
- Error**- no data received

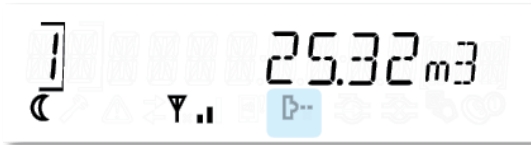
Activating Opto Module



Short press the button in any screen of Main Menu.



Opto module is waiting for data, start the communication within 30 sec.



Attach the Opto Head to the opto port and connect the cable to USB port on your computer (concerns Opto Head 01x1). Open the dedicated application for local communication and configuration (SITA, IMR Device Configurator) and read/write the configurable parameters.

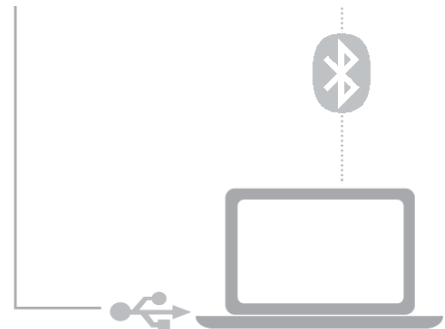
NOTE Opto Head 02x3 (with Bluetooth 4.1 BLE) is activated automatically once it is selected from the list of available BT devices in the application. After closing the application the opto head will change its mode to “waiting for communication”.



- Blue LED** - Bluetooth communication
- Smooth pulsing (t=4s) - waiting for communication
- Solid blue - active connection
- Blinking (t=0,5s) - data transfer in progress



OLAN with applied Opto Head 01x1 (with USB connection) OLAN with applied Opto Head 02x3 (with Bluetooth BLE 4.1)

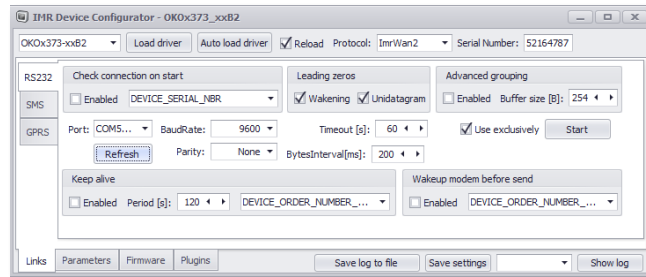


NOTE In case of local communication with OLAN installed in potentially explosive areas, it is possible to use only the equipment (Opto Head, computer) certified for use in hazardous areas. Otherwise the readout/configuration must be carried out beyond the area.

3.1.1 IMR Device Configurator

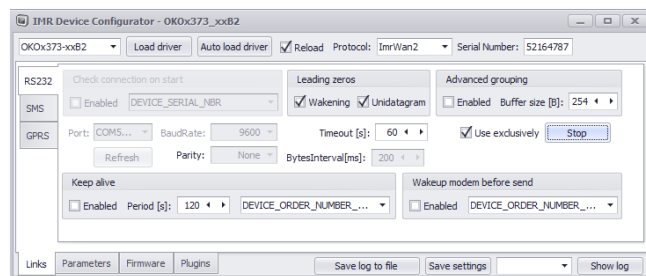
In order to configure OLAN device using IMR Device Configurator follow the steps below:

1. IN LINKS FIELD, SELECT *RS232* TAB AND CHOOSE *PORT*, *BAUDRATE* AND DECIDE ON THE *TIMEOUT*. AFTER THE SETTINGS CLICK *START* BUTTON TO CONFIRM.

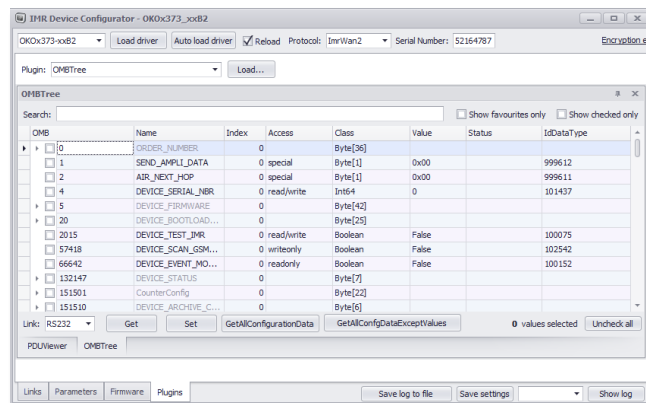


2. SELECT THE APPROPRIATE DEVICE FROM THE LIST AT THE TOP OF THE WINDOW AND CLICK *LOAD DRIVER*.

OR, IF YOU DON'T KNOW WHICH DRIVER TO CHOOSE, CLICK *AUTO LOAD DRIVER*.



3. IN *PLUGINS* FIELD CHOOSE *OMB TREE* IN *PLUGIN* WINDOW AND CLICK *LOAD* BUTTON. THE LIST OF ALL *OMBS* ASSIGNED TO THE PARTICULAR *DRIVER* WILL BE DISPLAYED.




4. SELECT THE DATA AND CLICK *SET* (TO INTRODUCE NEW PARAMETERS) OR *GET* (TO READ THE DATA)

4 OLAN FUNCTIONALITY

4.1 Closing / Opening the valve

OLAN IOx5 performs the operation of valve closing immediately after receiving closing command from the System via WM-Bus protocol. The valve can be opened only if OLAN IOx5 allows for the operation, (it receives permission remotely from the System using WM-Bus or locally within service maintenance operation)

In order to open the valve the following basic conditions must be met:

1. Gas credit must be sufficient (after top-up or using emergency credit)
2. OLAN IOx5 receives permission from the system
3. Hand icon  displayed on the screen must be active

At the beginning of the procedure of valve opening the **leakage test** is performed. If gas flow is detected during the test, the valve is closed automatically.


The procedure of valve opening should be performed in the following way:


POSSIBLE REASONS FOR CLOSING THE VALVE

- Exhausted credit
- An occurrence of a tamper event
- Valve has been closed manually by local service operation



In screen no. 00 **short press the blue button.**

 Valve is closed

 Valve is ready to be opened. The procedure of valve opening is allowed



The number of possible attempts of valve opening is shown on the screen. **Short press the blue button.**

NOTE Make sure that all appliances are off.



The leakage test is performed automatically. The time [s] left for the test to finish is displayed on the screen.



POSSIBLE TEST RESULTS:

OK – leakage test finished successfully. The valve is open.

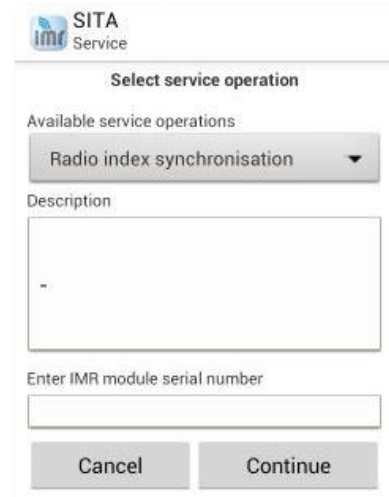
ERROR – test finished with error. During the test gas flow has been detected. Short press the blue button if there are any more attempts available. If not, *Main Menu* screen is displayed automatically after 120 seconds.



4.2 Meter index synchronisation

The action of meter index synchronization should be performed in cases when the regular work of OLAN device has been interrupted (e.g. battery discharged, OLAN malfunction). Once OLAN device returns to regular work, the action of synchronization must be performed to ensure the accuracy and correctness of data sent to the System. The operation is performed with SITA application where gas volume displayed by OLAN IOx5 is synchronised with the volume on gas meter.

For more please refer to *SITA User Guide*.



4.3 Meter data logging – primary pulse counter

With a universal, internal OLAN IOx5 software module counted pulses are recalculated to the media counter units [e.g. m³, dm³] according to the configuration:

- Volume counting [m³]
- Energy counting [kWh]
- Flow counting [m³/h]:

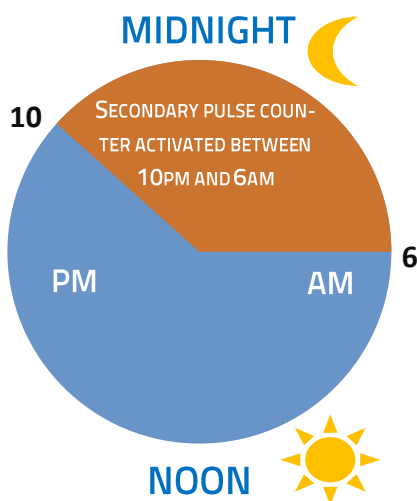
Gas volume [m³] = pulses * coefficient + offset

Energy [kWh] = gas volume [m³] * slope + offset

Slope (i.e. the coefficient of gas calorific value) may change during the life of the device due to the change in the calorific value

4.4 Secondary pulse counter

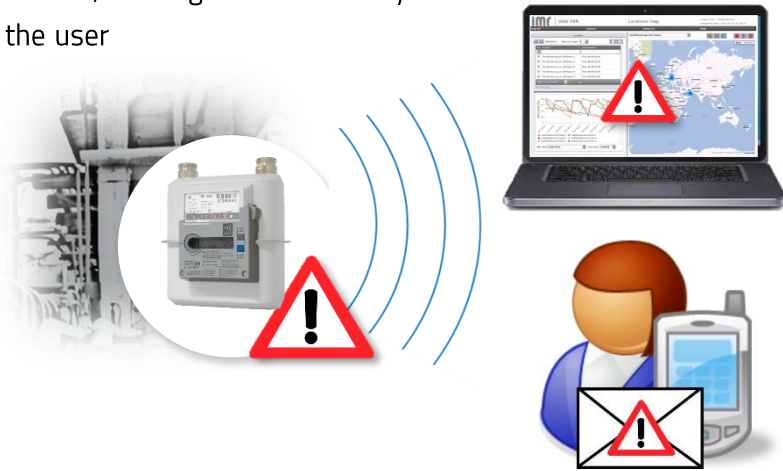
Secondary pulse counter is an additional, fully functional pulse counter active in the determined time period. As a result, it can be used in a tariff considering the lower gas rates (e.g. between 10 p.m. and 6 a.m.) Such option enables to shift from on-peak to off-peak periods and help manage consumption costs and the environment.



Secondary pulse counter is activated with commands in IMR DC.

4.5 Tampering detection

Thanks to the special design of OLAN IOx5, it is possible to detect, among others, the removal, cover opening, external magnetic field manipulation, exceeding maximum gas flow or allowed range of temperatures. Once the event occurs, it is registered in the System. Additionally, on demand the user can get SMS notice informing about the event.



4.6 Software updating

OLAN IOx5 is equipped with a special function that enables to update the software over radio. The whole procedure is carried out in a few steps and is supervised by IMR Server. Remote software updating is a perfect solution that enables the client to keep the software up-to-date with no user intervention.

4.7 FREQ

FREQ is a self-frame data package sent periodically by OLAN via WMBUS radio. It delivers the main diagnostic data and provides the user with regular, for example, daily readouts. FREQ can be accessed in the following ways:

Fixed System

TITLE	DATA DESCRIPTION
Device clock	Device clock (UTC),time is represented in seconds since 01-01-1970 00:00:00
Meter index	Meter index [dm3]
Temperature	Current temperature
Configuration Change Counter	Total number of important changes in configuration
Firmware version	Firmware version
Outgoing packets	Total number of outgoing radio packets
Incoming packets	Total number of incoming radio packets
Battery usage	Battery usage [%]
Device status - current	Current status of the device
Device status - latched	Latched status of the device
kWh	Total kWh
Maximum instantaneous flow	Maximum instantaneous flow
Maximum instantaneous flow - timestamp	Maximum instantaneous flow - timestamp
Maximum hourly flow	Maximum hourly flow
Timestamp of the maximum hourly flow	Timestamp of the maximum hourly flow
Average temperature	Average temperature in the past day (24h) - refreshed every 00:00
Hourly pulses differences	Every pulse difference is calculated as a pulse difference between current pulse counter and pulse counter saved an hour before. Calculations from the whole last day are sent (24 measurements)
Final Pulse Counter	Pulse counter saved at the end of the past day. Indispensable to calculate the absolute pulse counter values on the basis of their (value) differences
Temperatures	Temperatures saved every 4 hours. (six measurements)
Pulse coefficient	dm3/pulse

Walk-By System

TITLE	DESCRIPTION
Device clock	Device clock (UTC),time is represented in seconds since 01-01-1970 00:00:00
Meter index	Meter index [dm ³]
Temperature	Current temperature
Configuration Change Counter	Total number of important changes in configuration
Firmware version	Firmware version
Outgoing packets	Total number of outgoing radio packets
Incoming packets	Total number of incoming radio packets
Battery usage	Battery usage [%]
Device status - current	Current status of the device
Device status - month summary	Latched status of the device
kWh	Total kWh
Maximum instantaneous flow	Maximum instantaneous flow
Maximum instantaneous flow - timestamp	Maximum instantaneous flow - timestamp
Maximum hourly flow	Maximum hourly flow
Day of the maximum hourly flow occurrence	Day of the maximum hourly flow occurrence
Hour of the maximum hourly flow occurrence	Hour of the maximum hourly flow occurrence
Average month temperature	Average monthly temperature
Hourly pulses differences	Every difference [m ³] is calculated as the difference in m ³ between the current counter and the counter saved the day before. Calculations from whole last month are sent (31 measurements)
Final Pulse Counter	Pulse counter saved at the end of the past month. Indispensable to calculate the absolute m ³ counter values on the basis of their (value) differences
Pulse coefficient	dm ³ /pulse

Pre-paid

TITLE	DESCRIPTION
Valve status	Open or closed
Current tariff	Current tariff and its parameters (price of 1dm ³ of gas, additional daily charges), parameters of emergency credit (its amount and availability)
Prepaid mode	Active or inactive
Top-up ID	Unique ID of the last top-up
Charges	Charges generated by the gas consumption and daily standing charge (A)
Top-up	Total sum of top-ups sent to the device (B)
Credit	Current credit displayed on the screen (B-A)
Top-up validity	Validity time of the top-up

4.8 Archives – monthly and periodical data

The archive period can be divided into 2 groups: periodical archive and monthly archive. Both are recorded in nonvolatile flash memory and saved for up to 10 years. Hourly consumption data and daily status allow complete diagnostics and regular (e.g. daily) readouts.

Archive data can be read with:

- Radio
- IMRDC application

EXEMPLARY ARCHIVES

Gas usage
The number of tamper events
Temporary/hourly gas flow
Average temperatures
Valve state
Battery level

4.9 Commands & Schedules

With commands you can get the most recent readouts, diagnostics or archive data as well as modify the configuration of OLAN IOx5. Commands can be executed in the following ways:

- manually, using IMRDC application
- automatically, if command is configured in *schedules*.

EXEMPLARY USAGE OF COMMANDS:

Clear the daily archive
Restore the default configuration
Activate the secondary counter

One of the most important OLAN functionalities is a **universal schedule mechanism**. In every schedule it is possible to configure a command that is to be executed in appropriate time.

The parameters of schedule activation are configured by configurable parameters. In order to configure the schedule decide on the time of its implementation.

All schedules rely on UTC or local time according to OLAN time configuration

It is possible to configure up to 20 schedules. Schedules can be configured with IMR Device Configurator application

4.10 Temperatures

NOTE For safe use of OLAN IOx5 in potentially explosive atmospheres, the user must ensure that the device is installed and works in the area where the temperature does not exceed 55°C.

OLAN IOx5 is designed to work in defined range of temperatures. If configured, once the maximum or minimum allowed temperature is exceeded, the operational mode is limited for proper working of device. Such operation prevents from any possible problems that may appear in extreme temperature conditions.

5 TROUBLESHOOTING

ISSUE	POSSIBLE REASON	SOLUTION
Pulses are not counted	PARTS ARE CONNECTED INCORRECTLY	Check the connection of the particular devices (meter- OLAN)
	DAMAGED OLAN DEVICE	Exchange OLAN device.
	GAS METER OUT OF ORDER	Exchange the gas meter
Pulses counted incorrectly	PROCESS OF OLAN SET COMMISSIONING PERFORMED WITH FAILURE.	Repeat the process. Check the radio action response.
	INCORRECTLY DEFINED PULSE COEFFICIENT	Check the pulse coefficient. Perform the meter index synchronisation process .
	APPLICATION OF THE EXTERNAL MAGNETIC FIELD	Check the magnetic tamper parameters IMRDC. See Tampering detection
No radio communication	RADIO ANTENNA IS DAMAGED	Contact the Service, exchange the device
	POOR RADIO SIGNAL QUALITY	Try to set up receivers in the open area
	POOR BATTERY OR BATTERY DISCHARGED	Exchange the battery
No incoming data	GAS METER INAPPROPRIATELY ASSIGNED TO THE OLAN DEVICE	Contact the Service. Check the assignment in SIMA application.
	RADIO ANTENNA IS DAMAGED	Contact the Service, exchange the device
	POOR BATTERY OR BATTERY DISCHARGED	Exchange the battery

ISSUE	POSSIBLE REASON	SOLUTION
Battery state indicated in daily report is close to 0%	-	Plan the preventive battery exchange
No current data from OLAN in daily readout report	OLAN with given serial number is assigned to improper customer location	Check the assignment in SIMA application.
Disturbed or no communication via Opto Head	Direct light (sunlight, artificial) may interrupt transmission	Try to cover the device in order to limit the influence of surrounding light
	Damaged opto head	Check cable connections and chosen communication port
	-	Unplug and reconnect the cable and restart the connection in IMR DC
Inactive opto interface	-	If the opto interface enters inactive mode wait for the timeout to elapse and try again. If the situation repeats and you still cannot communicate with the device – check if you chose proper driver, COM and encryption in the software you use and try again.