

With an exciting step into the future, GSL DOO presents its latest catalog dedicated to innovative devices that redefine industrial standards and shape the way we live and work. Focusing on our clients' needs, GSL offers a wide range of specialized solutions—from industrial devices that optimize production processes to smart devices that enhance everyday living and working environments. Confident in our expertise and commitment, we invite you to explore our offerings and discover how we shape the future of technology today.



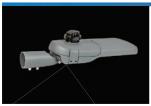








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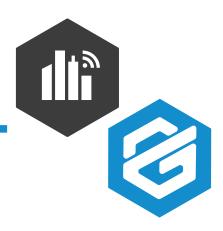








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About us

GSL DOO is a company based in Novi Sad specializing in the development, production, implementation, and maintenance of electronic devices and systems. It focuses on innovative and advanced solutions, particularly excelling in the following areas:

- Security and safety systems with smart LED lighting
- Smart LED street lighting systems
- Industrial solutions

Our company's mission is to work diligently every day toward achieving our set goals and continuously improving the protection of private and public property. We strongly focus on innovative technologies that enable energy savings, which contributes to the profitability of our clients.

Through proactive communication with clients, we enthusiastically embrace challenges and introduce innovative solutions into our systems, setting new standards in electronics, engineering, and technology.

Our vision is to be the leading manufacturer and service provider in the technological fields we operate in, making significant contributions to the improvement of private and public property protection and reducing environmental impact through innovative and sustainable solutions.

> Tekelijina 28, Novi Sad 21000, 0212100013 https://gsl.rs









- Detection of short circuits between the fluid-carrying pipe and signal wire
- Detection of breaks in signal wires
- Detection of leaks in pre-insulated pipes

SYSTEM DESCRIPTION

Since pre-insulated pipelines are equipped with signal wires along their entire length, it is possible to place the pipeline under continuous remote monitoring. Each pre-insulated pipeline must be included in a stationary continuous remote monitoring system to promptly detect faults and prevent the spread of fluid through the insulation material.

The MSD8970E leak detector is an electronic instrument designed for permanent leak detection and verification of the installation and connection of signal wires in pre-insulated heating pipelines. The device is designed for stationary installation, connecting to the signal wires and fluid-carrying pipe while continuously monitoring three alarm conditions:

- Leak detection in pre-insulated pipelines,
- Break detection in signal wires,
- Short circuit detection between the fluid-carrying pipe and signal wire

The system simultaneously and independently checks all signal measurement circuits up to 6000 meters. The device has an integrated memory that can store measurements for all channels on pre-insulated pipelines and also measure the ambient temperature. It is recommended that the signal circuits of the pipeline be no longer than 2000 meters, to ensure easier and more accurate detection of potential leaks.

Based on the project and the length of the security measurement circuits in the leak detection system, internal calibration and threshold setting are performed before installing the device. This calibration increases the accuracy and efficiency of the system.

If one of the three alarm states is detected, the device displays the type of alarm on the screen along with information about which pipe is affected. The device operates by measuring moisture in the insulation network, using conductivity measurement of the fluid with pulse measurement to eliminate parasitic effects such as polarization capacitance and electrochemical reactions.

TECHNICAL SPECIFICATIONS	
Maximum monitoring wire length per channel:	Maximum: 6000 m
Power supply:	230VAC / Max: 15W
Certifications:	IP certification, EMC certification
Number of alarm signal relays	1 x 24VDC/2A
Number of AUX inputs:	3
Internal fuse:	400mA 250V - 5x20mm T-type
Operating temperature:	-25 do 60°C

The device can connect to all types of pre-insulated pipeline systems, with specific designations for each:

- S1, S2 POTIS (Pressure) Connection to the supply pipe,
- S1, S2 POVRAT (Return) Connection to the return pipe,
- S1, S2 T.P.V Connection to the TPV pipe,

The device has one relay digital output (NO/NC) for alarm signaling, designed for connection to a PLC controller, which will signal an ALARM on SCADA systems.

There are three AUX relay inputs for connecting sensors that detect alarm conditions and notify the system by triggering an alarm.

Examples of connected sensors:

- Moisture sensor Detects water or moisture at a specific location. When conditions change, it activates an alarm, notifying the system of a potential leak or flooding.
- Magnetic contact sensor Installed on substation doors or windows. When opened, the magnetic contact is interrupted, triggering an alarm for potential break-in or unauthorized access.

These are just a few examples. A wide range of sensors can be used depending on the system's alarm needs.





ROLES OF DEVICE COMPONENTS

The main circuit board is housed in a plastic enclosure with a transparent hinged cover. Below the cover, there is a control panel with a built-in display that shows the system status. The panel contains two LED indicators signaling power presence and alarm status.

- LED Indicators:
 - Green LED (POWER): Lights up when power is present, indicating that the system is operational. Red LED (ALARM): Activates when an alarm condition occurs, displaying the type of alarm on the LCD screen, alerting the user to a system issue.
- LCD display:
- The display continuously monitors the system. If an alarm condition occurs, it shows the alarm type and provides information about which pipeline section or channel is affected. If the system is functioning normally, an "OK" indicator appears next to each channel, confirming that everything is in order.

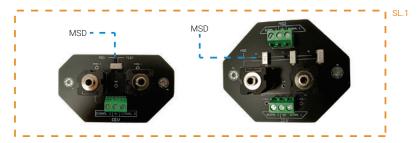
 Alarm Status Legends on the LCD Display:

- 1. KS Short circuit
 2. PR Break in signal wire
- 3. VL Moisture detection
- Reset button Located beneath the protective plate of the MSD8970E housing. In case of unexpected external disturbances, pressing this button resets the system's status display and initiates a new measurement cycle for the entire pipeline.

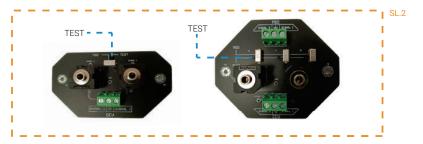
MEASUREMENT MODULE FUNCTIONS

The measurement module is installed at the beginning and end of the pre-insulated pipeline. It is used for easier control measurements with a TDR portable device, eliminating the need to disconnect the pre-insulated pipes from the system.

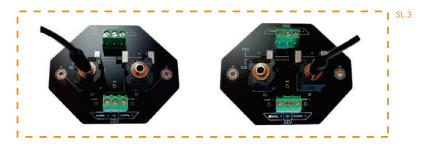
Continuous Monitoring Mode (MSD8970E connected): The switches (S1, S2, S3) must be set to the MSD position, as shown in Diagram SL.1.



Test Mode (Portable Measurement Device connected): The switches (S1, S2, S3) must be set to the TEST position (Diagram SL.2).



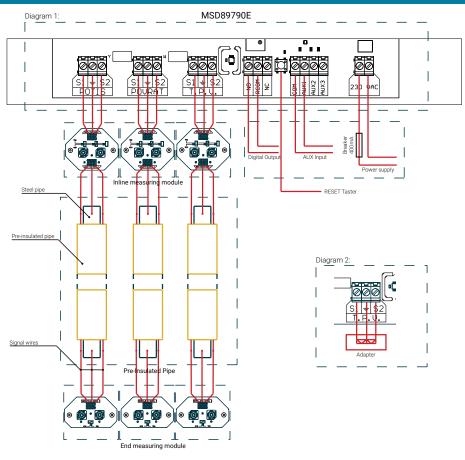
The measurement device is connected to the test connector (J1 or J2) using a 3.5mm cable with a 2200 impedance connector (Diagram SL.3) During this mode, all control wires in the pre-insulated pipes are disconnected from the system, allowing accurate measurement's between test points.







WIRING DIAGRAM - THREE-PIPE AND TWO-PIPE SYSTEM



In Diagram 1, the connection method for the three-pipe system is shown.

In the case of a two-pipe system, an "Adapter" is placed on the third channel to simulate uninterrupted operation on that channel, as shown in Diagram 2.

SAFETY MEASURES

This device is not intended for use by persons (including children) with limited physical, mental, or visual abilities, or by individuals who lack the necessary experience and/or knowledge, unless they are supervised by a person responsible for their safety and instructed on how to use the device.

The installation and commissioning of the device may only be carried out by a person holding a certificate issued by the device manufacturer.

During any intervention or work on the pipeline to which the pre-insulated pipe leak detection device is connected, all device inputs, including the power supply, must be disconnected for safety reasons.





INSTALLATION, COMMISSIONING, AND MAINTENANCE OF THE DEVICE

PREPARATION FOR INSTALLATION

Before mounting the MSD8970E device on the wall, ensure the following:

- Make sure you have the appropriate tools for drilling and installation.
- Check whether all required parts and accessories (screws, wall anchors, brackets) are included in the package.
- Select a suitable mounting location on the wall that is close to the necessary power and signal cable connections.

Selecting the Mounting Location

- Choose a dry location protected from direct exposure to weather conditions.
- Ensure that the location is easily accessible for maintenance and inspection.

Marking the Drill Holes

- Position the device at the desired location on the wall.
- Using a pencil, mark the positions of the mounting holes through the mounting slots on the device or bracket.

Drilling and Mounting

- Using a drill, make holes at the marked positions.
- The recommended hole depth is approximately 5-6 cm, depending on the size of the wall anchors and screws.
- Insert the wall anchors into the drilled holes.
- Ensure that the wall anchors are firmly secured in the wall.
- Align the device or bracket with the wall anchors.
- Secure the device or bracket to the wall using screws.
- Use a spirit level to ensure that the device is mounted evenly.

Connecting the Device

- Before connecting the device, ensure that there is no electrical power in the connection line.
- Connect the signal wires according to the wiring diagram (three-pipe or two-pipe system).

 Connect the power supply (230VAC) by bringing in two conductors (Phase and Neutral) and attaching them to the designated power connector on the PCB.

Functionality Check

- After installation, turn on the device and check the LED indicators and LCD display.
- Ensure that the device is functioning correctly before completing the installation process.

 If the green indicator LED is on and the channels are correctly displayed, the device has been successfully connected.
- If the green LED is not illuminated or channel readings appear incorrect, review the connection process and verify the wiring.

Final Notes

- Ensure that all connections are secure and stable.
- Check for any loose wires or faulty connections
- After installation and wiring, the device is ready for operation. Follow all safety precautions during installation and handling to ensure system security and efficiency.

Safety Measures During Installation

- Wear protective gloves and goggles during drilling, installation, and wiring.
- Check for existing electrical installations in the wall before drilling to prevent damage.
- Ensure that the device is mounted in a location where it will not be exposed to mechanical impacts or vibrations.

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY DAMAGES OR INJURIES RESULTING FROM IMPROPER INSTALLATION OF THE DEVICE BY THE USER. IT IS RECOMMENDED THAT INSTALLATION BE CARRIED OUT BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.





CONNECTION, COMMISSIONING, AND MAINTENANCE OF THE DEVICE

ADDITIONAL EXTERNAL PROTECTION OF THE DEVICE

When installing and connecting the MSD8970E device, it is important to provide additional protection for both the device and the users. It is recommended to use an external switch or an automatic circuit breaker to allow quick and safe power disconnection in case of intervention or device servicing.

- External switch: Allows manual power disconnection of the device, which is useful during installation, maintenance, and emergency situations.
- Automatic circuit breaker: Ensures automatic power disconnection in case of overload or short circuit, protecting the device and the installation from damage.

Overcurrent Protection Devices in the Installation:

To protect the device and the installation from overcurrent, it is recommended to use external protective devices such as automatic circuit breakers. These devices respond to excessive current or short circuits by cutting off the power supply and preventing damage.

Automatic circuit breaker (6 to 16A, C class). In this case, it is recommended to use an automatic circuit breaker rated between 6 and 16A, C class. This breaker is designed to react to current loads that exceed the specified limit, automatically disconnecting the power supply and preventing potential hazards.

Using a 6 to 16A, C class automatic circuit breaker ensures:

- Protection against overcurrent: The breaker will cut off the power if the current exceeds the rated value, thereby protecting the device and the installation.
- Increased safety: Prevents cable and equipment overheating, reducing the risk of fire or damage.
- Ease of use: Automatic circuit breakers can be easily reset after activation, allowing quick and simple restoration of the device's operation.

PROTECTIVE SYMBOLS ON THE LABEL AND THEIR MEANINGS

IP65

IP65: This symbol indicates that the device is completely protected against dust and resistant to water jets from any direction.



Double insulation: The double insulation symbol signifies that the device has additional insulation, providing protection against electric shock and eliminating the need for grounding.

TA: -10°C - 50°C

Temperature range: The temperature marking of -10°C to 50°C indicates that the device can safely operate within this temperature range.

DEVICE CLEANING

General Notes:

The device is housed in an enclosure with an IP65 rating, meaning it is protected from dust and water jets from all directions. However, to keep the device in optimal condition and ensure the display is always visible, it is important to follow the cleaning instructions below.

Recommended Materials:

- Soft cloth (microfiber or similar)
- Mild soap or gentle cleaning solution
- Clean water
- Rubber gloves (recommended)

Cleaning Steps:

1. Power Off:

Before starting the cleaning process, make sure to turn off the device and unplug it to avoid any risk of electric shock.

2. Prepare Cleaning Solution:

Prepare a mild soap solution or a gentle cleaning agent that will not damage the device surface. Avoid using harsh chemicals that could corrode the enclosure or screen.

3. Cleaning the Enclosure:

Dampen the soft cloth with the prepared cleaning solution, then wring it out so that it is damp but not wet. Gently wipe the exterior of the device, paying attention to remove any dirt or residue that may have accumulated.

Cleaning the Screen:

Clean the protective glass over the screen gently, using a cloth dampened with clean water to remove any soap residue.

5. Wiping and Drying:

After cleaning, use a second dry, clean soft cloth to wipe the device and remove any remaining moisture. Ensure that there is no residual moisture, especially around the seams and connectors.

6. Inspection and Reconnection:

Before reconnecting the device to the power supply, check that it is completely dry and free of any moisture. Once you are sure the device is dry, you may reconnect it to power and continue using it.

Note

The device should not be opened or cleaned internally unless performed by authorized service personnel. Unauthorized opening may result in voiding the warranty and damaging the device.





SERVICE PERSONNEL INSTRUCTIONS NOTE ON DEVICE USAGE

Specific Risks Associated with the Product that May Affect Service Personnel:

Electrical Risks:

The device contains live components. There is a risk of electric shock when handling or servicing the device.

Mechanical Risks:

When opening the device or handling its parts, there is a risk of injury to fingers or other body parts due to sharp edges or moving parts.

Thermal Risks:

While the device is operating, certain parts may become hot. There is a risk of burns when handling these parts.

Protective Measures for These Risks:

Electrical Risks:

Before handling the device, always disconnect it from the power supply and ensure there is no voltage on the electrical components. Use appropriate protective equipment such as insulating gloves and tools.

Mechanical Risks:

Use appropriate tools and protective techniques when handling parts of the device to avoid injury.

Thermal Risks:

Avoid direct contact with hot parts of the device. Use appropriate protective gloves or tools for handling hot components.

Safety Check After Repair:

■ Electrical Safety Check:

Before reconnecting the device to the power supply, check all electrical connections and components to ensure there is no damage or loose connections.

Functionality Check:

After repair, test the device's functionality to ensure the repair was successful and the device is working properly.

Physical Safety Check:

Ensure that all parts of the device are correctly positioned and that there is no damage that could cause safety issues during use.

DEVICE USAGE NOTE:

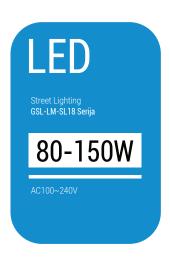
The MSD8970E Device is Intended Solely for Leak Detection in Pre-insulated Pipes and Associated Systems. If the device is used in a manner not specified in the provided instructions or specifications, it may be damaged or its functionality may be compromised.

Users are required to follow the manufacturer's instructions for installation, use, and maintenance to ensure safety and optimal performance. If the device is used in a manner not approved by the manufacturer, the protection it offers may be compromised, which could result in unforeseen situations or loss of functionality.

Before each use, users should familiarize themselves with all relevant instructions and specifications provided by the manufacturer to ensure proper operation of the device and the safety of all users. Any modification or unauthorized intervention on the device may lead to the loss of warranty and potentially hazardous situations.

If there are any doubts or questions regarding the proper use of the device, users should contact the manufacturer or authorized service for additional information and support.





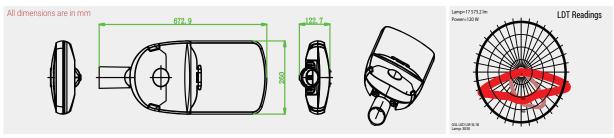


SYSTEM DESCRIPTION

We present our advanced LED street lights, offering power ranging from 70 to 150W. These lights are designed with a durable housing featuring a NEMA 7 connector according to the ANSI C136.41 standard, ensuring reliability and safety in various environments. The controller in the NEMA 7 pin housing communicates via GSM, WiFi, and/or Bluetooth, and uses GPS for positioning each lamp.

What makes this product special is its compatibility with our smart controller. With this capability, you can remotely manage the lights and access detailed information about their performance and status. This type of control not only improves convenience but also allows for efficient management of your lighting infrastructure. The technical specifications for the given models are shown in the table below.

Model	GSL LM-SL18-80W	GSL LM-SL18-100W	GSL LM-SL18-120W	GSL LM-SL18-150W
Dimensions	620*235*125mm	690*260*130mm	690*260*130mm	810*320*135mm
Lyre holder	48mm, 60mm, 76mm	48mm, 60mm, 76mm	48mm, 60mm, 76mm	48mm, 60mm, 76mm
Power	70W	100W	120W	150W
Flux output	125-150lm/W	125-150lm/W	125-150lm/W	125-150lm/W
Material	Aluminum, Tempered Glass			
Mounting angle	±15 degrees upper and side entry			
Color temperature	4000K			
Color Rendering Index	>75Ra			
LED Chip	SMD3030			
Driver	SosenXXVP			
Operating Voltage	100-277Vac			
Surge Protection	L/N-PE: 10kV, L-N: 6kV			
IP Rating	IP66, IK09			
Lifespan	>85 000 hours			



IntelityNET LEDMesh





LED decorative light with integrated controller for managing the operation of the LED driver.



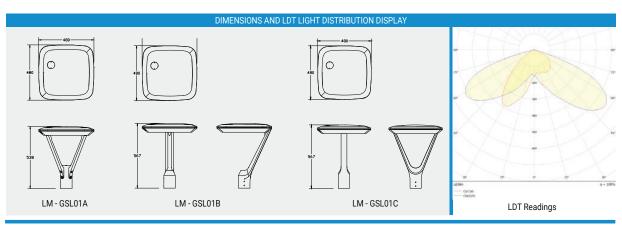


SYSSTEM DESCRIPTION

We present our LED decorative street lights, which offer power from 30 to 150W. These lights are designed with a durable housing featuring a NEMA 7 connector according to the ANSI C136.41 standard, ensuring reliability and safety in various environments. The controller in the NEMA 7 pin housing communicates via GSM, WiFi, and/or Bluetooth, while GPS is used to position each lamp.

What makes this product special is its compatibility with our smart controller. With this capability, you can remotely control the lights and access detailed information about their performance and status. This type of control not only enhances convenience but also allows for efficient management of your lighting infrastructure. The technical specifications for the given models are shown in the table below.

Model	LM-GSL01A	LM - GSL01B	LM - GSL01C	LM - GSL 01D
Dimensions	D480 * H538mm	D480 * H567mm	D480 * H567mm	D480 * H275mm
Lyre holder	48mm, 60mm, 76mm	48mm, 60mm, 76mm	48mm, 60mm, 76mm	48mm, 60mm, 76mm
Power	30-150W	30-150W	30-150W	30-150W
Flux output	130-170 lm/W	130-170 lm/W	130-170 lm/W	130-170 lm/W
Material		Aluminum,	Tempered Glass	
Operating temperature		-40°C do +60°C		
Color temperature	4000K			
Color Rendering Index	>75Ra			
LED Chip	SMD3030			
Driver	SosenXXVP			
Operating Voltage	100-277Vac			
Surge Protection	L/N-PE: 10kV, L-N: 6kV			
IP Rating	IP66, IK09			
LifeSpan		>85	000 hours	
Warranty		3)	years .	







LED decorative light with integrated controller for managing the operation of the LED driver.





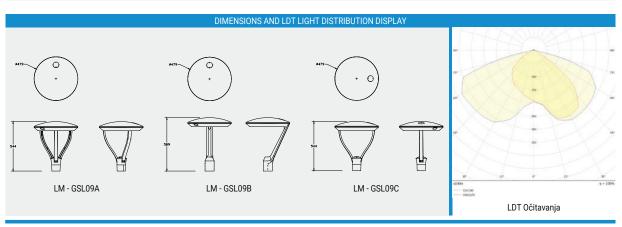


OPIS SISTEMA

We present our LED decorative street lights, which offer power from 30 to 150W. These lights are designed with a durable housing featuring a NEMA 7 connector according to the ANSI C136.41 standard, ensuring reliability and safety in various environments. The controller in the NEMA 7 pin housing communicates via GSM, WiFi, and/or Bluetooth, while GPS is used to position each lamp.

What makes this product special is its compatibility with our smart controller. With this capability, you can remotely control the lights and access detailed information about their performance and status. This type of control not only enhances convenience but also allows for efficient management of your lighting infrastructure. The technical specifications for the given models are shown in the table below.

Model	LM - GSL09A	LM - GSL09B	LM - GSL09C	LM - GSL 09D
Dimensions	D479 * H544mm	D479 * H589mm	D480 * H544mm	D479 * H295mm
Lyre holder	48mm, 60mm, 76mm	48mm, 60mm, 76mm	48mm, 60mm, 76mm	48mm, 60mm, 76mm
Power	30-150W	30-150W	30-150W	30-150W
Flux output	130-170 lm/W	130-170 lm/W	130-170 lm/W	130-170 lm/W
Material		Aluminum,	Tempered Glass	
Operating temperature		-40°C do +60°C		
Color temperature	400K			
Color Rendering Index	>75Ra			
LED Chip	SMD3030			
Driver	SosenXXVP			
Operating Voltage	100-277Vac			
Surge Protection	L/N-PE: 10kV, L-N: 6kV			
IP Rating	IP66, IK09			
LifeSpan		>85	000 hours	
Warranty		3)	years	







IntelityNET Mesh LED

I-LED Equipment Model: IntelityNET Mesh LED V1.1

IntelityNet MESH

95~270\/\(\rac{1}{2}



PWM resolution 10 bits.

GPS Positioning

WiFi communication¹

Bluetooth communication²

OTA3

Consumption measurement⁴

Client application controled

SYSTEM DESCRIPTION

IntelityNET Mesh LED is a device designed for controlling and managing LED drivers with a power capacity of up to 500W, intended for street/outdoor lighting applications. The device operates within a voltage range of $95 \sim 270$ VAC. Dimming is performed using a 1kHz PWM signal, with the option to reprogram it to a desired range from 50Hz to 50kHz. By measuring the current during operation, the device can diagnose the condition of the connected load. The device features a GPS positioning system that operates in real time, providing the user with continuous access to location data. Communication with the application software is established via a WiFi network. A light sensor enables autonomous control of the LED driver based on ambient light conditions. The device supports three operating modes:

- Programmed Mode The user configures the device's functionality through the application software.
- Autonomous Mode The device automatically controls the LED driver based on external light levels.
- Manual Mode The user can set a fixed operating mode for a single device or a group of devices via the application software.

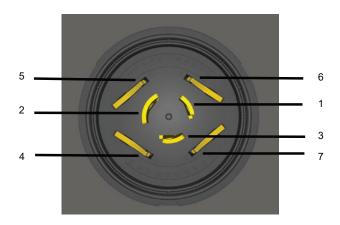
If necessary, the device's functionality can be upgraded according to user requirements through OTA3 (Over-the-Air) technology.

мо	MODEL		IntelityNET L	ED
	VOLTAGE RANGE		95 ~ 270 VA	С
	FREQUENCY RANGE	47 ~ 63Hz		
INPUT	INPUT CURRENT	<0.2A		
	INRUSH CURRENT	<10A		
	VOLTAGE RANGE		95 ~ 270 VA	С
OUTPUT	CONSTANT CURRENT		3A	
PROTECTION	OVERVOLTAGE		104 ~ 125V	,
	DIMMING		signal frequency 1kHz	
FUNCTIONS	LIGHT SENSOR	Resolution	: 21,866 DOTS (Maxim	um daylight intensity)
	PROCESSOR	2 x Xte	nsa® 32bit LX6 od 80	MHz do 240 MHz
	RAM		8 MB	
	ROM		448 KB	
	EEPROM		8 MB	
		WiFi	Protocol	802.11 b/g/n
	PERIPHERALS	VVIFI	Frequency range	2.4 GHz ~ 2.5 GHz
MICROCONTROLLER			Protocol	Bluetooth v4.2 BR/EDR and BLE
		Bluetooth	Radio	NZIF receiver with -97 dBm sensitivity. Class1, Class2 and Class 3 transmitter
	MODEL		L80-R	•
		50 Channels		
	RECEIVER TYPE	GPS L1 frequency, C/A Code		
GPS		WAAS i EGNOS		OS
	SENSITIVITY	-165dBm		
	SENSITIVITY	2.5m		
	MINIMUMTEMPERATURE	-40°C		
ENVIRONMENT	MAXIMUM TEMPERATURE		+65°C	
	HUMIDITY		0 ~ 98% RF	
	DIMENSIONS		Height: 95mm Diame	ter: 85mm
	IP RATING		IP66	
OTHER	IK RATING		IK09 (10J)	
3 TT 12 TT	ENCLOSURE		NEMA 7	
	LIFESPAN		>85 000 hou	rs

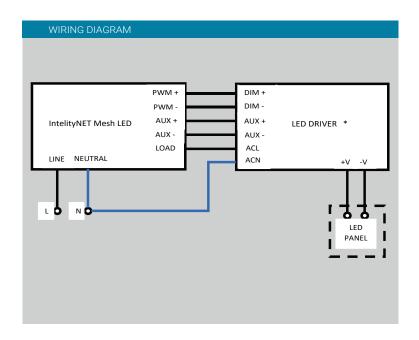




RASPORED PINOVA I FUNKCIJE



	PIN	1/0	OPIS
REDNI BROJ	NAZIV	1/0	OPIS
1	LOAD	0	Power output to which the load (consumer) is connected.
2	NEUTRAL	I	Input to which the neutral from the power network is connected.
3	LINE	ı	Input to which the line from the power network is connected.
4	PWM +	0	Positive output of the PWM signal.
5	PWM -	0	Negative output of the PWM signal.
6	AUX +	I	Power supply for PWM + output.
7	AUX -	I	Power supply for PWM - output.







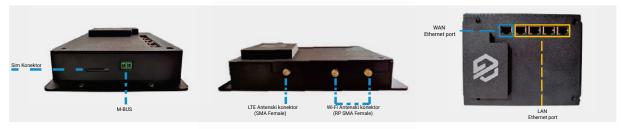


SYSTEM DESCRIPTION

The 4G communication module is a modern and comprehensive solution for fast and stable internet connectivity, ideal for business and industrial needs. This router comes with wireless firmware updates, ensuring that users always have the latest features and improvements. Additionally, the router is expandable with external modules, meaning it can be customized to meet specific user needs, such as adding an antenna for a stronger signal or a module for enhanced security. The user-customized firmware allows for personalized usage, while the redundant power supply option ensures continuous operation and system reliability. With all these features, the 4G router is a reliable, practical, and modern way to stay connected and productive.

SYSTEM CHARACTER	ISTICS		OPERATING ENVIRONMENT	
CPU	MT7628	N, 580 MHz, MIPS 24KEc	Operating temperature	-25 ° C do 60° C
RAM	128 MB,	DDR2		
Flash storage	32 MB			
MIMO	2x2	_		
POWER SUPPLY			FIRMWARE	
Connector		2-pin screw terminal connector	Operating system	OpenWRT - IntelityNET
Operating Voltage / Por	wer consumption (MAX)	230 VAC / 20W	Update	OTA
Redundant Battery Pov	wer Supply	Da		
PHYSICAL INTERFACE			WiFi	
Network	4 x RJ45 LAN, 1	0/100Mbps, 1x RJ45 WAN 10/100Mbps	Protocol	802.11b/g/n
SIM	1 x SIM full size		Maximum internet speed	100mbps
Antenna	2 x RP SMA Fer	nale for WiFi, 1 x SMA Female for LTE	VPN Tunnel	Yes (IPSec, L2TP, WireGuard)
ETC	1 x M - BUS			

^{*}When expanding with external modules, it is necessary to create a custom firmware based on the user's needs.



^{*}The images of the 4G communication module housing are not the final product and are created according to the user's needs.









Asset Protection

Access Control

Employee Performance Recording

Unauthorized Access Alert

Flood, Smoke, and Glass Break Detection

Detailed Overview of All Events Based on Different Criteria

Access Control for Distribution Cabinets

SYSTEM DESCRIPTION

Depending on the purpose of the buildings, there are different justifications for installing a security and safety system. In addition to successfully securing your property and employees/users, this system provides precise documentation and control of all access to the buildings by employees.

Our system offers greater efficiency in protecting buildings compared to other security systems, especially when considering that it is enhanced with a security and safety lighting system. The lighting system and access control are software-integrated, and depending on your needs, we define how the system should function.

The system is fully customized to your needs.

Operating Voltage / Power consumption (MAX):	230VAC / 80W
Battery type:	SLA 12V
Battery connector:	12VDC
Operating temperature:	-25 ° C do 60° C
Alarm zones:	7 x alarmnih zona, 1 x tamper zona
Relay outputs:	2 x relejna izlaza
Other outputs:	2 x digitalna programabilna izlaza, 1 x izlaz za sirenu
AUX:	12VDC za napajanje senzora
Module communication:	ISEC BUS
Protection Rating:	IP65
Other:	Real time clock, Proširivo eksternim modulima
Optional:	BLE (GSLBeacon gateway)

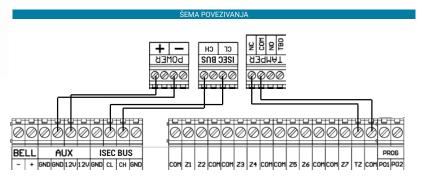
EXTERNAL MODULES

ISEC RFID





- NFC Card and Tag Reader
- Used for arming/disarming the alarm system, as well as identifying individuals/employees.
- Supported Cards and Tags:
 - ISO/IEC 14443A/MIFARE
 - ISO/IEC14443B







ISEC RFID TAG



- RF Keychain GSL TAG 1356M
 The NFC tag serves as a user identification medium.
 Operating Frequency: 13.56MHz
 Standard: ISO14443
 Protocol: MIFARE/classic



- Ethernet module used for connecting the alarm control panel to the internet.
- Data Transfer Rate: 10/100 Mbit/s.
- Connects to the alarm control panel via the designated slot.



- WiFi / MESH Module
- In WiFi module mode (2.4GHz 802.11b/g/n), it is used for connecting the alarm control panel to the internet.
- Data Transfer Rate: 135 Mbit/sec.
- In Mesh module mode, it is used to connect sensors and devices to the alarm control panel that support IntelityNET Mesh wireless communication.
- Connects to the alarm control panel via the designated slot.



- Integration of Digital Sensors/Outputs for Receiving Digital Signals
- Providing information about changes on the device
- Enables monitoring of various scenarios in the smart LED lighting system and ISEC security system.
- 3 x Digital Inputs
- Operates on the GSL Mesh protocol

Technical specifications:	
Input Voltage:	230VAC / PoE
Operating Temperature:	-25 ° C to 60 ° C
Inputs:	3 x digital inputs
Dimensions (L x W x H):	105 x 78 x 20 mm
Protocol:	GSL Mesh





WIRELESS INERTIAL SENSOR

SEC Equipment

OMS V2.1

2.7V / 1200m Ak



Detects even the smallest movements of objects.

Integrated temperature and humidity sensors.

Wireless operation with no need for charging for up to 90 days.

DEVICE PURPOSE

- The device is physically installed on the object/exhibit of interest for detecting even the smallest movement of the object/exhibit.
- The integrated accelerometer detects even the smallest movements of the object to which the device is attached.
- The detected movement triggers the device into an alarm state and immediately sends a message to the alarm center.
- The exhibit where the alarm state was detected switches to alarm status, which is visible in the client application.
- The device has integrated temperature and humidity sensors. Humidity, temperature, and battery status are read every 12 hours and are available in the client application for each object/exhibit.
- The sensor allows setting boundary values for temperature and humidity (minimum and maximum), as well as sensitivity and frequency for sending collected data to the server.

Power supply:	Rechargeable LiPo Battery 3.7V, 1300mAh.
Connector:	Mikro USB
Operating temperature:	-25 to 55°C
Communication protocol:	BLE
Dimensions (LxWxH):	110 x 44 x 10mm
Humidity measurement RH:	0 - 100% (± 2%)
Temperature measurement:	-25 - 80°C (± 0,2°C).
Standby operation autonomy:	90 days







ISEC Equipme

OMC V1

12V//2A



- Capability to charge 4 devices simultaneously
- 3.5-inch graphical interface
- Touch screen inertial sensor configuration

DEVICE PURPOSE

- The power supply for the motion inertial sensor is provided via a USB connection (the output current at 5V is up to 500mA).
- It has 4 USB Type-A ports that allow for charging 4 devices simultaneously.
- The device is intended solely for charging the motion inertial sensor charging any other device is disabled.
- It provides feedback on the status and condition (functional/non-functional) of the battery.
- It is used for configuring the sensitivity of the motion inertial sensor, as well as the boundary values for temperature and humidity.
- It is also possible to set the frequency for sending collected data from the sensor to the server, which is then displayed in the client application.

TECHNICAL SPECIFICATIONS	
Power supply / Consumption:	12V / 2A
Screen:	Touch screen 3.5'
USB outputs:	4 x 500mA (5V)
Dimensions (LxWxH):	97 x 68 x20 mm
Operating temperature:	-25 to 55°C





ANALOG UNIT MODULE

IMS equipment Model:**Analog**

IMS ANALOG4



Diagnostics and Alarm Notification for Each Channel Individually

2-inch Graphic Interface

Configurable Digital Inputs/Outputs

The analog module, which is in the final stages of development, is an advanced device with four configuration channels. Each channel supports different operating modes, including:

Measurement from 0 to 10V

- Output from 0 to 10V
- Input from 4 to 20mA
 Output from 4 to 20mA
- Resistive Temperature Detector (RTD) (pt100, pt500, pt1000)
- The module also supports a digital input mode.

It is equipped with a 2-inch graphic interface, through which we can view readings or errors on-site, as well as alarm notifications and diagnostics for each channel individually.

TECHNICAL SPECIFICATIONS	
Power supply / Consumption:	24V / 2W
Upper limit:	28V
Reverse polarity protection:	Da
Surge protection for all channels:	40V
DEVICE CONSUMPTION	
Nominal power:	2W
Maximum power:	3W
WORKING MODE	
Analog input:	Yes
Analog output:	Yes
CONFIGURABLE ANALOG INPUTS/OUTPUTS	
Number of configurable I/O ports:	4
NUMBER OF CONFIGURABLE INPUTS:	
For measuring voltage:	4
	4
For measuring current:	<u> </u>
For measuring electrical resistance:	4
NUMBER OF CONFIGURABLE OUTPUTS:	
Voltage output:	4
Current output:	4





MEASURING UNITS:	
Voltage I/O:	mV
Current I/O:	mA
Resistance:	Ω
DIAGNOSTIC INDICATION	
Display:	Yes
Display of channel status:	Yes
Channel diagnostics on the display:	Yes
Full module diagnostics on the display:	Yes
OPERATING(AMBIENT) CONDITIONS:	
Permitted ambient temperature during operation: Installation on DIN rail horizontal min temperature: Installation on DIN rail horizontal max temperature:	-25°C 70°C
TIME/RESOLUTION REQUIRED FOR INTEGRATION AND CONVERSION PER CHANNEL	
Resolution in the range, max.	16bit
Conversion time (per channel)	60ms, 180/50ms
OTUED	
OTHER	
Dimension:	90x70x65mm, without power supply module
Mounting type:	DIN-rail (EN 60715)
IP rating:	IP40





Ethernet Modul

IMS equipment Model:Ethernet_2302

IMS ETHERNET 2302

24V / 2W



Compact housing

Easy assembly with the accompanying module via extension side connector

LCD display

TECH	NICAL	. SPECI	FICAT	IONS

Power supply / Consumption:	24V / 2W
Dimensions with housing:	90x35x65mm
Data transfer rate:	10/100 Mbit/s
Operating temperature:	-25 to 70°C

- Network distribution: Provides internet connection to further connected devices, allowing them to access network resources and the internet.
- LAN connector: The module has one LAN connector that connects directly to the router, ensuring a stable internet connection.
- The module connects via a side connector, where it receives power, simplifying installation and reducing the number of required cables.

The compact housing allows for quick and secure mounting on a standard DIN rail, making it suitable for various industrial applications.





DIGITAL MODUL

IMS equipment Model:Digital

IMS Digital8

24V / 2W



Diagnostics and alarm notifications for each channel separately

2-inch graphic interface

Configurable digital inputs/outputs

Power supply / Consumption	24V / 2W
DADNI MOD	
RADNI MOD	
Digital input:	Yes
Digital output:	Yes
CONFIGURABLE DIGITAL INPUTS/OUTPUTS	
Input characteristic curve according to IEC 61131 type 1:	Yes
Input characteristic curve according to IEC 61131 type 2:	Yes
Input characteristic curve according to IEC 61131 type 3:	Yes
SIGNAL INPUT VOLTAGE	
Nominal value:	24V
For signal 0:	-30 do +5V
For signal 1:	+11V do +30V
SENSOR CONNECTION OPTION	
2-wire sensor:	24V
Allowed sensor idle current:	1.5mA
ALARMS	
Diagnostic alarm:	Yes, for each channel separately.
Hardware failure/break:	Yes, for each channel separately.
DIAGNOSTICS	
Possibility to read diagnostic information:	Yes
Monitoring of supply voltage:	Yes
Break detection:	Yes, for each channel separately.
Short-circuit detection:	Yes, for each channel separately.
OPERATING (AMBIENT) CONDITIONS	
Permissible ambient temperature during operation	0500
Installation on DIN rail horizontal min temperature: Installation on DIN rail horizontal max temperature:	-25°C 70 °C
OPERATING (AMBIENT) CONDITIONS	





PDU Modul

IMS equipment Model:PowerDistributionUnit

IMS PDU



Power filtering and distribution

Surge protection

Easy assembly with the accompanying module via the extension connector

TECHNICAL SPECIFICATIONS	
Power supply / Consumption	24V / 0.5W
Maximum allowable current / power:	5A / 120W
Dimensions with housing:	90x35x65mm
Operating temperature:	-25 to 70°C

- The Power Distribution Unit (PDU) module provides an efficient and safe energy distribution solution from the power source to the connected device.
 Like the Analog module, this one is equipped with an extension connector that mounts on the side of the housing.
 All modules are designed for easy mounting on a standard DIN rail, simplifying installation, replacement, and maintenance.





RS485 Modul

IMS equipment Model:RS485

IMS RS485



Universal module for communication with RS485 module

Unit Load 1/8 (256 nodes)

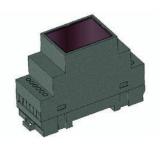
Easy assembly with the accompanying module via the extension connector

TECHNICAL SPECIFICATIONS	
Power supply / Consumption	24V / 2W
Maximum allowable current:	5A
Data transfer rate:	10Mbps
Load capacity:	1/8 UL, 256 nodes
Dimensions with housing:	90x35x65mm
Operating temperature:	-25 to 70°C

- Our universal module enables simple and reliable communication with devices using the RS-485 standard, offering flexibility for a wide range of applications.
- Like the Analog module, it is equipped with an extension connector that mounts on the side of the housing.
 All modules are designed for easy installation on a standard DIN rail, simplifying installation, replacement, and maintenance.







Universal communication module

Support for MODBUS RTU and MODBUS TCP protocols

Easy integration with adjacent modules via extension connector

The IMS MODBUS module is a specialized communication module designed to connect the IMS system with external equipment that operates using the MODBUS RTU/TCP protocol, such as industrial automation or monitoring systems.

The module acts as a bridge between the IMS environment and external systems, enabling bidirectional communication. It allows status information from IMS modules to be transmitted outward, and control signals to be received back into the IMS infrastructure.

It is powered via the IMS PDU (Power Distribution Unit) module at 24V, ensuring stable and reliable operation under all conditions.

Physically, the module is mounted on a DIN rail, enabling fast and easy installation within the cabinet alongside other IMS modules. The side connector allows for seamless mechanical and electrical integration with adjacent modules without the need for additional cabling.

TECHNICAL SPECIFICATIONS	
Power supply / Consumption:	24V / 2W
Dimensions with housing:	90x35x65mm
Supported protocols:	TCP, RTU
Operating temperature:	-25 do 70°C

- Reliable communication and seamless integration into existing SCADA and automation systems.
- Supports MODBUS RTU and MODBUS TCP protocols.
- Supports Mobbos RTO and Mobbos TCF protects.
 Connects with PLCs, UPS units, and other MODBUS-compatible devices.
- In addition to integration within our IMS system, GSL DOO also offers a standalone MODBUS solution for clients with existing industrial or infrastructural equipment. Our team provides full configuration and customization of the module according to your system's specifications, enabling simple and reliable communication with your current infrastructure.







SYSTEM DESCRIPTION

The GSM Gate Controller is a device designed for remote control of gates via phone calls or SMS commands. Configuration and management are performed exclusively through SMS messages, allowing administrators to manage users, configure inputs/outputs, and set alarm calls. The device requires an unlocked SIM card (without a PIN code) with unlimited calls and SMS messages for optimal operation. Insert the SIM card before powering on the device.

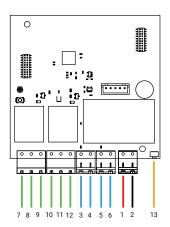
Key Features:

- User Management: Adding/removing admin and user phone numbers, with administrative access to commands
- Input Configuration: Activation of inputs to high/low logic levels with customizable SMS notifications

 Output Configuration: Support for multiple output modes (impulse, continuous, timed) with adjustable duration and intervals
- Alarm Calls: Configurable alarm calls triggered by input events
- SMS Message Limit: Device configuration messages are limited to 60 characters
- Priority User Call: When any input is activated, the device can automatically call a designated user for rapid response

TECHNICAL SPECIFICATIONS	
Power supply / Consumption:	230VAC / 5W
GSM Frequency:	2G, 850/900/1800/1900 MHz
Number and Type of Outputs:	2 / relay
Number and Type of Inputs:	2 / relay
Relay Characteristics:	250VAC, 30VDC - 5A
Dimensions with housing:	100 x 100 x 40 mm
Operating temperature:	-25°C ~ +60°C

MAIN UNIT, WIRING DIAGRAM WITH CONTACT DESCRIPTION



TERMINAL		a Francisco III	
S. Number	Name	DESCRIPTION	
1	AC IN / L	Input for connecting the phase wire from the power supply	
2	AC IN / N	Input for connecting the neutral wire from the power supply	
3	IN 1	Relay input	
4	COM1	COMMON	
5	IN 2	Relay input	
6	COM2	COMMON	
7	NO 1	Relay output (normally open contact)	
8,11	COM1,COM2	COMMON for relay outputs	
9	NC1	Relay output (normally closed contact)	
10	N02	Relay output (normally open contact)	
12	NC2	Relay output (normally closed contact)	
13	SW1	Push button*	

^{*}To reset the Gate Controller device to factory settings, press and hold the button indicated in the diagram for more than 10 seconds. After that, the device will reset and return to the default values.





LIST OF COMMANDS FOR USER MANAGEMENT

Adding an Admin Number:

Command: ADD_ADMIN:+3816xxxxxxxx

The first number to send this message becomes the admin.

Only admins can add or remove admins and users, as well as configure the device.

Removing an Admin Number:

Command: REMOVE_ADMIN:+3816xxxxxxxxx

Adding a User:

Command: ADD_USER:+3816xxxxxxxxx

Removing a User:

Command: REMOVE_USER:+3816xxxxxxxxx

Display Admin Number List: Command: ADMIN_LIST?

Display User Number List:

Command: USER_LIST?

LIST OF COMMANDS FOR DEVICE CONFIGURATION

Inputs (IN1 and IN2) can be configured to activate on either high or low logic levels, with customizable SMS message text sent to users upon activation. Inputs can also be deactivated

Trigger on Low Logic Level:

Command: SET_INx_LOW:Notification text

indicates the input number (1 or 2

Text that users will receive via SMS when the trigger occurs.

Trigger on High Logic Level:

Command: SET_INx_HIGH:Notification text

X indicates the input number (1 or 2

Text that users will receive via SMS when the trigger occurs.

Input Deactivation:

Command: SET_OFF:INx

X indicates the input number (1 or 2). This also automatically disables the alarm call for that input.

ALARM CALL SETTINGS

Activating Alarm Call:

Command: INx_ALARM_CALL_ON:+3816xxxxxxxxx

The specified number will be called when the trigger occurs.

If the number is not on the admin or user list, it will be automatically added as a user for notification purposes.

Deactivating Alarm Call:

Command: ALARM_CALL_OFF:INx

X indicates the input number (1 or 2).

OUTPUT CONFIGURATION

Outputs (NO1/NC1 and NO2/NC2) support multiple operating modes, including impulse, continuous, and timed operations. Each mode can be configured with specific durations and intervals.

NOT USED

Command: SET_OUTx:0

X is the device output, can be defined as 1 or 2. Working mode: NOT_USED

Output is turned off, not in use.

IMP_UNLOCK

Command: SET_OUTx:1/IMPULSE:5

is the device output, can be defined as 1 or 2.

As the device output, can be defined as 1 or 2.

Impulse signal with configurable duration (see Table 2), without any restrictions. Each user call generates an impulse.

NOTE: If IMPULSE is not specified, the default duration is 500 ms.





IMP_LOCK

Command: SET_OUTX:2/IMPULSE:3

X is the device output, can be defined as 1 or 2.

impulse signal with configurable duration. The first call generates an impulse, and the next is accepted only after a repeated call from the

NOTE: If IMPULSE is not specified, the default value is 4 (500 $\,$ ms).

IMP_T

Command: SET_OUTX:3/IMPULSE:3/TIME:1

is the device output, can be defined as 1 or 2

Impulse signal with configurable duration. The impulse automatically repeats after a specified time interval (see Table 3).

NOTE: If IMPULSE is not defined, the default value is 4 (500 ms); if TIME is not defined, the default value is 3 (60 s).

SW_UNLOCK

Command: SET_OUTX:4

X is the device output, can be defined as 1 or 2. The relay is switched on continuously. Each call from any user toggles the relay state.

SW_LOCK

Command: SET_OUTX:5

is the device output, can be defined as 1 or 2

The relay is switched on continuously. Only the same user number that activated it can change the relay state.

SW_TIME

Command: SET_OUTX:6/TIME:1

X is the device output, can be defined as 1 or 2.

The relay is activated by a user call and automatically switches off after a specified time (see Table 3).

TABLE 2		
CODE	VALUE [ms]	
0	0	
1	50	
2	100	
3	200	
4	500 (Default)	
5	750	
6	1000	
7	1500	
8	2000	

TABLE 3		
CODE	VALUE [s]	
0	0	
1	15	
2	30	
3	60 (Default)	
4	90	
5	120	
6	300	
7	600	

OUTPUT ACTIVATION TEXT CONFIGURATION

Output Activation Text:

Command: SET_OUTX_ON_TEXT:Text example

X is the device output, can be defined as 1 or 2

Example of text activated when the selected output is triggered.

Example: "SET_OUT1_ON_TEXT:Light is turned on"

Output Deactivation Text:

Command: SET_OUTX_OFF_TEXT:Text example

X is the device output, can be defined as 1 or 2.

Example of text activated when the selected output is deactivated.

Example: "SET_OUT1_OFF_TEXT:Light is turned off"

TECHNICAL NOTE

- Default Values: Impulse duration is 500 ms (code 4), time interval is 60 s (code 3) if not specified.
- Security: Only admins can send configuration commands. The first admin is set using the ADD_ADMIN command
- SMS Limitation: Messages are limited to 60 characters.
- SIM Card: Use an unlocked SIM card with unlimited calls and SMS, inserted before powering on the device.
- Strictly follow the command format and do not use spaces when sending commands.
- LED Status Indicator:
- Fast blinking red LED: The device has no network connection and is trying to establish one.
- Slow blinking red LED (~1 second on/off): The device is stably connected to the network.

The device must be installed in a protective enclosure to shield it from atmospheric conditions. Use wiring up to 2.5 mm² thickness for connecting to the terminals.





IMPORTANT NOTE

This technical documentation is intended solely for the correct use of the GSM Gate Controller. The manufacturer is not responsible for any damage, loss, or injury resulting from improper installation, use, or neglect of the instructions specified in this documentation.

SAFETY INSTRUCTIONS

Installation: he device must be installed only by qualified personnel in accordance with local electrical regulations. Always disconnect power before installation.

SIM Card Usage: Use an unlocked SIM card without a PIN code. Ensure the SIM card is inserted before powering on the device.

Environment: The device is not intended for use in humid, dusty, or extreme temperature conditions. Protect the device from direct exposure to water and mechanical damage.

Maintenance: Do not open the device unless explicitly stated in the documentation. Unauthorized opening may void the warranty.

Compliance with Instructions: Carefully read and follow all instructions in this documentation to ensure proper device operation.

DISCLAIMER

- The manufacturer does not guarantee uninterrupted operation of the device in cases of network overload, power outages, or SIM card malfunctions.
- The manufacturer is not responsible for any indirect, incidental, or consequential damages resulting from improper use of the device, including but not limited to data loss or material damage.
- The user is responsible for verifying the device's compliance with local regulations and standards prior to installation and use.
- Device specifications and functionalities are subject to change without prior notice. The manufacturer reserves the right to improve the

CONTACT AND SUPPORT

For additional questions, technical support, or to report issues, please contact the manufacturer or authorized distributor. Contact details are available on the manufacturer's official website.

Warning: Improper use of the device may result in malfunction or hazards. Always follow the safety instructions and use the device according to its intended purpose.







SOFTWARE PURPOSE

About Our Web Software:

GSL DOO uses innovative web software that integrates all of our devices on a single platform. This platform allows for the creation of various scenarios and product combinations, providing our users with complete control and efficiency in their operations. Within the software, the following features are also highlighted:

Advanced Software Features:

Alarm Overview: The software allows users to view all alarms that have occurred at a specific device location, providing quick insight into the situation and enabling users to respond promptly to potential issues.

Device Display on Maps: Users can view all their devices on maps, making it easier to track their location and status in real-time.

Graphical Interface: The software offers an intuitive graphical interface that is easy to use and provides users with a clear overview of all functionalities and information.

Device Grouping and Scenario Creation: Users are able to create groups of their devices and different scenarios, offering greater flexibility in managing their systems and optimizing their performance.

Enhancing Security, Innovation, and Energy Savings:

Our mission is to improve security, innovation, and energy savings through our products and services. By integrating our devices with our web software, we enable our clients to manage their resources more efficiently and achieve significant savings.

These features are just some of the many capabilities that our software offers. With continuous improvements and updates, we aim to provide our users with the best experience in managing their systems. If you would like to learn more about the features of our software, please visit our website or contact us directly.



We are closing another catalog with pride and gratitude towards our clients. GSL DOO continues to be your reliable partner in the world of technology, bringing innovation and quality into every product.

We continue to grow and improve, driven by the desire to provide the best solutions for your needs. Your support is our strength, and with you, we move towards the future ready to overcome all challenges.

We would like to thank our partners, collaborators, and employees for their dedication and effort. We continue to build a better tomorrow, together with you.

Yours sincerely, GSL DOO.

