

# **User Manual** Galvanic 0-10V or 0-5V Isolator

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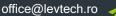
LSP-IV2



















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#### **PREFACE**

Thank you for selecting our product!

This User Manual contains information needed for proper installation, operation, and maintenance of your product. A thorough understanding of these simple instructions will help you get the most of your product.

This document should be read thoroughly, and the safety instructions described in this manual should be followed carefully. If you have questions or concerns about the operation and maintenance of this product, please contact our customer support.

If a problem arise with the product, check if you followed the installation steps correctly. If the problem persists, contact an authorized Levtech dealer or our customer support.

All information in this User Manual is based on the latest product information available at the time of printing approval. Levtech reserves the right to make changes at any time without notice and without incurring any obligation.

Please always keep this manual together with the isolator as a reference to everyone who uses this product.



# **Document Revisions**

Date	Version Number	Document Changes	
11-03-2021	1.0	Initial draft	
13-04-2021	2.0	Overall improvements	
15-04-2021	3.0	Application examples added	
13-05-2021	4.0	Wiring diagram added	

# **Approvals**

# This document requires following approvals:

Name	Title
Levi Mihaly	General Manager



### 1. INTRODUCTION

#### 1.1. General Information

This manual is the designated User Manual for the installation, safe operation, and maintenance of your product. It is divided into nine chapters covering general information, safety instructions, how to safely install and operate the product, maintenance, warranty, and contact information.

All personnel involved in the installation, operation, and maintenance of this equipment should read and understand this manual, particularly its safety instructions. Substandard performance and longevity, property damage, and personal injury may result from not knowing and following these instructions.

In order to ensure long product life, Levtech recommends that you utilize the product and perform maintenance by correctly following the instructions described in this guide. The manufacturer's warranty does not cover any damage resulting from the neglect of these instructions.

Levtech assumes no liability for damage caused by operation contrary to what is specified in this operating manual.

## 1.2. Support and Services

For information about further questions that are not answer in this manual, additional materials, and support, please contact:

- Lueta Nr. 319, Romania
- +40758576007
- office@levtech.ro
- www.levtech.ro

# 1.3. Disposal Remarks

**DO NOT** dispose of the product with domestic waste!

Electronic devices have to be disposed of according to the regional directives on electronic and electric waste disposal. In case of further questions, please consult your supplier. The supplier may take care of proper disposal.



### 2. SAFETY INSTRUCTIONS

### 2.1. Symbols

<b>⚠</b> WARNING	This symbol indicates information that, if ignored, could result possibly in personal injury or even death due to incorrect handling.
<b>⚠</b> CAUTION	This symbol indicates information that, if ignored, could possibly result in personal injury or physical damage due to incorrect handling.
NOTICE	Indicates information considered important, but not hazard-related.

### 2.2. Receipt and unpacking

Unpack the device without damaging it and check whether the device type corresponds to the one ordered. The packing should always follow the device until this has been permanently mounted.

#### 2.3. Environment

Avoid direct sunlight, dust, high temperatures, mechanical vibrations and shock, and rain and heavy moisture.

### 2.4. Mounting

- Only technicians who are familiar with the technical terms, warnings, and instructions in the manual and who are able to follow these should connect the device.
- Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.e. wire cross section, protective fuse, and location. Descriptions of input / output and supply connections are shown in this installation guide and on the side label.
- Use this device only in accordance with this instruction manual, as well as all applicable local and national laws and regulations. Only allow this device to be installed, operated, maintained, repaired, etc. by others who have also read and understood the user manual.
- Do not allow minors, untrained personnel, or personnel suffering from physical or mental impairment that would affect their ability to follow this manual to install, operate, maintain, or repair this device.
- Any untrained personnel who might be near the device while it is in operation MUST be informed that it is dangerous and fully instructed on how to avoid injury during its use.



# **MARNING**

To avoid the risk of electric shock and fire, the safety instructions of this guide must be observed and the guidelines followed.

### 2.5. Cleaning

When disconnected, the device may be cleaned with a cloth moistened with distilled water.

# **⚠** WARNING

- The specifications must not be exceeded, and the device must only be applied as described in the following.
- Do not use the device near water or moisture.
- Do not install near any heat sources such as radiators, stoves or other heaters that produce heat.
- To prevent ignition of the explosive atmospheres, disconnect power before servicing and do not separate connectors when energized and an explosive gas mixture is present.
- Do not mount or remove devices from the power rail when an explosive gas mixture is present.
- Before the commissioning of the device, this installation guide must be examined carefully, and only qualified personnel (technicians) should install this device.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

# ! CAUTION

To avoid the risk of explosion due to electrostatic charging of the enclosure, do not handle the units unless the area is known to be safe, or appropriate safety measures are taken to avoid electrostatic discharge.



### 3. DESCRIPTION

The LSP-IV2 isolator is designed to make galvanic isolation between the transmitter and the processing unit (PLC). This isolator is a 3 point galvanic isolator, which means that the input, output and the power supply is separated from each other. This instrument is suitable for any industrial application where 0-10V or 0-5V analog signal is used. The module ensures 3500VDC isolation and reduces the impact of interferences and ground potential differences. The isolators has to be ordered according to the input type. They are widely used in automation systems where the field devices are connected to the PLC on 0-10V or 0-5V analog signals and there are potential differences.

### 4. FEATURES

- Three way isolated
- 3500VDC Isolation
- TS-35 DIN rail mounting
- +/-0.1% accuracy
- Ip40 case
- Screw terminals
- Power indicator LED
- 0-10V or 0-5V analog input and output
- Factory calibrated
- Made in EU







### 5. INSTALLATION AND WIRING

The module is designed to be installed, in a vertical position, on TS-35 DIN rail. For the best module performance and duration, avoid placing objects that could obstruct the ventilation. Never install the modules near heat sources.

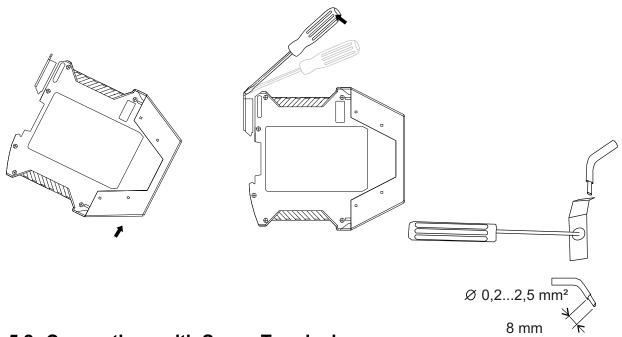
#### 5.1. Installation on TS-35 DIN Rail

#### Inserting the Module in the Rail:

- 1) Attach the module in the lower part of the rail, as shown in the left figure below.
- 2) Press the module upwards.

#### Removing the Module in the Rail:

- 1) Apply leverage using a screwdriver, as shown in the right figure below.
- 2) Press the module downwards.



### **5.2. Connections with Screw Terminals**

The module has been designed for screw-type terminal electrical connections. Proceed as follows to make the connections:

- 1) Strip the cables by 8mm.
- 2) Insert a screwdriver in hole, unscrewing the screw.
- 3) Insert the cable in the round hole.
- 4) Again, use the screwdriver to tight the screw.
- 5) Remove the screwdriver and make sure that the cable is tightly fastened in the terminal.



# 6. SPECIFICATIONS

Input			
Number of inputs	1		
Input Signal	Direct Voltage		
Input Range	0-10V or 0-5V		
Input Resistance	10ΚΩ		
Output			
Number of outputs	1		
Output Signal	Direct Voltage		
Output Range	0-10V or 0-5V		
Output Resistance	>1ΚΩ		
General			
Linearity error	0.10%		
Output accuracy	0.10%		
Limit frequency	100Hz		
Response time	0.8ms		
Isolation Voltage	3500Vpeak		
Working isolation voltage	400 Vrms		
Power Supply			
Supply Voltage	12 ~ 30VDC		
Current Consumption	25mA		
Reverse-Polarity Protection	Yes		
Enclosure			
IP Rating	IP40		
Dimensions (L x D x H)	114 x 99 x 12.5 mm		
Weight	83g		
Mounting	TS-35 DIN		
Maximum Cable Cross-Section	2.5mm <sup>2</sup> (max.)		
Environmental Conditions	40 0000		
Ambient Temperature Range	<u> </u>		
Storage Temperature Range	-30 ~ +80°C		
Humidity Level	0 ~ 95% RH at 40°C, no condensation		

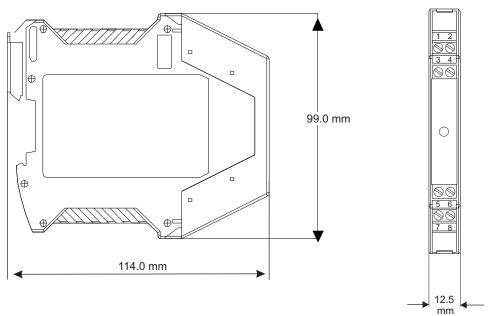
# 7. CONFIGURATION TYPE AND ORDER CODE

The LSP-IV2 has two different type and the product has to be ordered according to the analog signal type used in the system. The following table shows the ordering codes for each model.

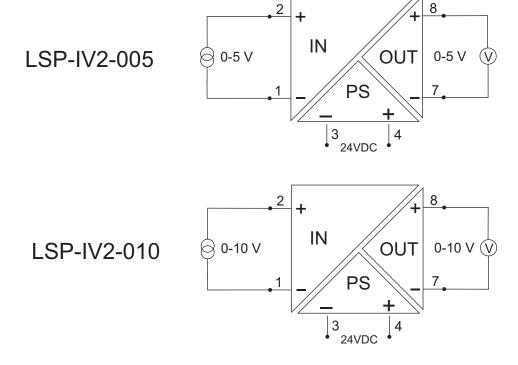
Order Code	Input	Output 1
LSP-IV2-005	0-5V	0-5V
LSP-IV2-010	0-10V	0-10V



# 8. DIMENSIONS



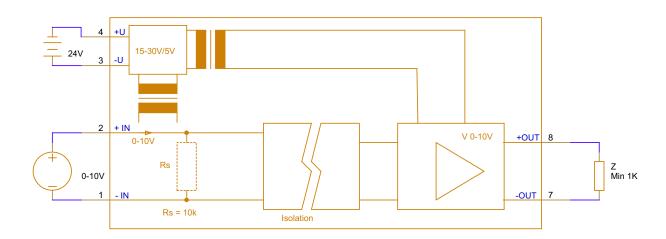
# 9. TERMINAL DESIGNATION



- 1. Negative Signal Input
- 2. Positive Signal Input
- 3. Negative Input of the Power Supply
- 4. Positive Input of the Power Supply
- 5. Negative Signal Output;
- 6.Positive Signal Output.

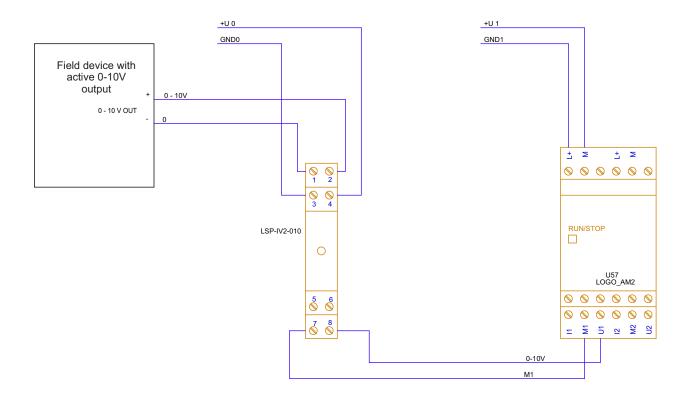


# 10. ELECTRICAL DIAGRAMS



# LSP-IV2 Wiring Example:

In the below example a level sensor is connected to a Siemens PLC through the LSP-IV2-010 galvanic isolator.



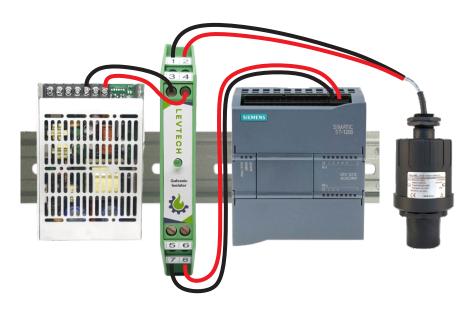


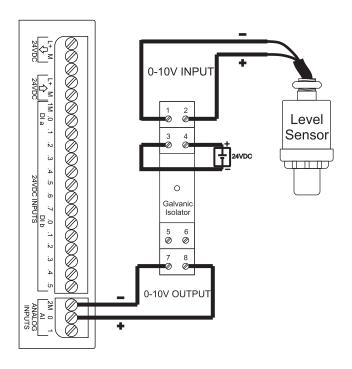
# 11. APPLICATIONS

The device can be used for several applications on industrial automation. It is ideal for removing errors caused by noise and signal interference, protecting sensitive equipment such as PLC form potentional hazards. The module has voltage input and voltage output.

#### Example 1:

In the below example a level sensor is connected to a Siemens PLC through the LSP-IV2 galvanic isolator.







### 12. OPERATION AND MAINTENANCE

### 12.1. Operation

This isolator requires no user adjustments during commissioning. It comes with factory calibration ready for use.

If the isolator fails to operate, check for bad connections. In the unlikely event of the isolator not working, it should be returned to the supplier for repair or replacement.

#### 12.2. Maintenance

Levtech suggests a quick check for terminal tightness and general unit condition. Always adhere to any site requirements for programmed maintenance.

#### 13. WARRANTY DISCLAIMER

Levtech warrants this product to be free from significant deviations in material and workmanship for a period of 3 year from date of purchase. If repair or adjustment is necessary and has not been the result of abuse or misuse, within the 3 year period, please return-freight-prepaid and the correction of the defect will be made free of charge. If you purchased the item from our distributors and it is under warranty, please contact them to notify us of the situation. Levtech Service Department will determine if the product problem is due to deviations or customer misuse. Out-of-warranty products will be repaired on a charge basis.

#### 13.1. Return of items

Authorization must be obtained from one of our representatives before returning items for any reason. When applying for authorization, have the model and serial number handy, including data regarding the reason for return. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss.

Levtech will not be responsible for damage resulting from careless or insufficient packing. A fee will be charged on all authorized returns.

Levtech reserves the right to make improvements in design, construction and appearance of our products without notice on which the buyer could reasonably have discovered the alleged defect or breach.



# 14. CONTACT INFORMATION







#### **ADDRESS**

Lueta Nr. 319 Post Code 537140 Harghita Romania

#### **WEBSITE**

https://www.levtech.ro/

#### **SOCIAL MEDIA**



Levtech



@levtechsp



@levtech\_s\_p

#### **COMPANY DATA**

LEVTECH SERVICE & PRODUCTION SRL

Fiscal code (CIF): RO35733217 Trade Register: RC J19/134/2016 IBAN: RO39RNCB0152150349440001

**BCR BANK**