

## DIN Mounting Rail Min.-/Max. Value Memory Unit GM42-MAX



# Table of Content

<b>1</b>	<b>Imprint / Copyright</b>	<b>3</b>
<b>2</b>	<b>Important Notes / Keeping</b>	<b>3</b>
2.1	General Informations	3
2.2	Intended Use	5
2.3	General Hazards in the Event of non-compliance with the Safety Instructions	5
2.4	Residual Hazards	5
<b>3</b>	<b>Safety and Warning Notices</b>	<b>5</b>
3.1	Symbols	5
3.2	Health Protection and Safety	6
3.3	Conversions and Changes	6
3.4	CE Marking	6
<b>4</b>	<b>Preamble</b>	<b>6</b>
4.1	Product Description	6
4.2	Power Supply	7
4.3	Safe and Correct Use	7
4.4	Dimensions / Weight	7
<b>5</b>	<b>Instruction / Description of the Operating Mode</b>	<b>8</b>
5.1	Connect Description	8
5.2	Switching the Device on	8
5.3	Minimum-/Maximum Value Memory	8
5.4	Interfaces and Connections	9
5.5	Troubleshooting	9
<b>6</b>	<b>Product Phases</b>	<b>9</b>
6.1	Transportation	9
6.2	Commissioning and Installation	9
6.3	Standard Operation	10
6.4	Maintenance and Cleaning	10
6.5	Equipment disposal	11
<b>7</b>	<b>Reference Information</b>	<b>11</b>

## 1 Imprint / Copyright

© 2019 Lorenz Messtechnik GmbH, D-73553 Alfdorf

These operating instructions do not constitute an agreed quality agreement or durability guarantee within the meaning of § 443 BGB (German Civil Code).

Technical changes, errors and misprints excepted.

No part of this publication may be reprinted without the written permission of Lorenz Messtechnik GmbH, Alfdorf.

## 2 Important Notes / Keeping

Before installing and commissioning the device, these operating instructions, and in particular the corresponding safety instructions, must be read. The device may only be used as described in this manual to prevent injury or damage.

The operating instructions have been drawn up in accordance with EN 82079-1 and must be kept in a safe place.

### 2.1 General Informations

These operating instructions are intended for technically qualified personnel who have appropriate knowledge in the field of measurement and control technology. Qualified personnel are persons who are familiar with the installation, operation, maintenance and repair of the device and have the appropriate qualifications. The personnel must have knowledge of the legal and safety regulations and be able to apply them.

The device may only be used by qualified personnel in accordance with the technical data in connection with the safety regulations and rules set out below. During operation, the legal and safety regulations required for the respective application must also be observed. This also applies analogously to the use of accessories.

The exact information about all safety instructions and warnings contained in these operating instructions as well as their correct technical implementation are prerequisites for the safe installation, commissioning, safe operation and maintenance of Lorenz Messtechnik GmbH devices. All measures must only be carried out by qualified personnel. All persons involved in the project planning, installation and operation of Lorenz Messtechnik GmbH devices must be familiar with the safety concepts in the automation technology and be qualified in the above-mentioned sense.

For reasons of clarity, these operating instructions cannot cover all details and information and not all applications for the handling of devices from Lorenz Messtechnik GmbH. Nor can all conceivable types of installation, operation and maintenance must be taken into account.

If further information is desired or required, or if special problems occur which are not described in detail in these operating instructions, please contact Lorenz Messtechnik GmbH.

The devices of Lorenz Messtechnik GmbH may only be operated in accordance with the applications described in these operating instructions. Built-in devices may only be operated if they are properly installed.

By connecting and commissioning the device, the purchaser accepts the General Terms and Conditions of Sale and Delivery of Lorenz Messtechnik GmbH. Furthermore, the buyer accepts the possible incompleteness of this operating manual and that the information contained therein may not be complete and informations are without guarantee. Errors, misprints and changes excepted.

### **Intended Use, not intended Use**

A device from Lorenz Messtechnik GmbH is used for display, processing and control of processes. It must not be used as the sole means of averting dangerous conditions on machines and systems. Machines and systems must be designed in such a way that faulty states cannot lead to a dangerous situation for the operating personnel (e. g. through independent limit value-switches or mechanical interlocks). In particular, it must be ensured that a the device, its malfunction or its failure does not lead to damage to property or a loss of that can lead to danger to people. It is also important to prevent the precautions that are taken from being cannot be circumvented for the safety of a plant. Emergency stop devices must remain effective at all times.

### **Installation Instructions**

Devices from Lorenz Messtechnik GmbH must be installed and connected in compliance with the relevant DIN and VDE standards. They must be installed in such a way that unintentional operation is sufficiently excluded. To prevent an interruption of the supply and signal lines from leading to an undefined or dangerous state, appropriate hardware and software safety precautions must be observed. Supply and signal lines must be installed in such a way that they do not interfere with the function of the Lorenz Messtechnik GmbH by interfering signals (such as inductive or capacitive interferences).

### **Notes on Malfunctions, Maintenance and Repair**

The devices do not contain any parts that require or can be serviced by the user. Repairs may only be carried out by Lorenz Messtechnik GmbH. If it can be assumed that safe operation of the device is no longer possible, it must be put out of operation immediately and secured against unintentional operation. This applies in particular if:

- The device is visibly damaged
- The device is no longer functional
- Parts of the appliance are loose
- The connecting lines are visibly damaged

In addition, we would like to point out that all obligations of Lorenz Messtechnik GmbH arise exclusively from the respective purchase contract in which the warranty is conclusively stated.

## 2.2 Intended Use

Devices from Lorenz Messtechnik GmbH are to be used exclusively for measuring tasks and the directly associated control tasks. Any use beyond this is considered to be improper.

The valid legal and safety regulations must be observed during measurement. The instrument is not a safety component in the sense of its intended use and it is transported and stored properly. The installation and commissioning, the operation and the disassembly must be carried out professionally.

## 2.3 General Hazards in the Event of non-compliance with the Safety Instructions

The device complies with the current safety requirements. Residual dangers can emanate from the device if it is improperly used and operated by untrained personnel. Any person entrusted with the installation, operation, maintenance and repair of the device must read and understand the operating instructions and, in particular, the safety instructions.

Incorrect use (e. g. by untrained personnel) may result in residual hazards. The operating instructions must be read and understood by all persons involved in the installation, commissioning, maintenance, repair, operation and dismantling of the device is trusted. The device must not be used if visible damage is visible.

## 2.4 Residual Hazards

The system planner, equipment supplier and operator must plan, implement and be responsible for the safety of the equipment. Other hazards must be minimized. The residual dangers of the measurement technology must be pointed out and human error must be taken into account. The design of the system must be suitable for avoiding hazards - a hazard analysis must be carried out for the system. The applicable regulations and laws are as follows to note.

# 3 Safety and Warning Notices

## 3.1 Symbols



**Warning:** There is a risk of injury to persons. Damage to the machine is possible. The accident prevention regulations of the employer's liability insurance association must be observed.



**Note:** Important points to be observed. A note that indicates a possible danger of damage to the product, process, person or the environment.



Additional information or reference to other important detailed information.

## 3.2 Health Protection and Safety

To ensure that our products are safe and do not pose a health hazard, the following points must be observed:

1. Read all relevant sections of this manual carefully before starting work.
2. All warning signs on containers and packaging must be observed.
3. Installation, operation, maintenance and repair work may only be carried out by suitably trained personnel and in accordance with the instructions given. If one of these instructions is not followed, the user of the product bears full responsibility for any consequences that may occur.
4. Disconnect the appliance from any power supply before opening it.
5. The safety instructions must be strictly observed in order to avoid damage to property and bodily injury - possibly even fatal ones.

## 3.3 Conversions and Changes

The device may not be modified in terms of design or safety without the express consent of Lorenz Messtechnik GmbH. Any modification excludes any liability on our part for damages resulting therefrom. Repairs and modifications are prohibited.

## 3.4 CE Marking

With the CE marking, Lorenz Messtechnik GmbH guarantees that its product meets the requirements of the relevant EC directives.

# 4 Preamble

## 4.1 Product Description

The GM42-MAX is a universally applicable fast min./max. value memory with a  $\pm 10V$  input. The slim housing shape allows space-saving installation in control cabinets on standard DIN mounting rails. The analog outputs minimum and maximum value memory of  $\pm 10V$  enable direct signal processing with a PLC. The minimum and maximum value memory can be cleared by a reset input. All indicators are protected behind a transparent acrylic glass panel.

## 4.2 Power Supply

### Mains operation

Power supply:	10 ... 30VDC, 100 mA, safe from reverse polarity
Ripple:	< 10 %
Under-/overshoot:	Can lead to erroneous measurements or defects
Voltage peaks:	Are being discharged by fast protection components
Voltage dropouts:	Voltage dropouts up to 10 ms have no effect

The supply voltage of 10 ... 30VDC is electrically isolated from the measuring and output circuit.

## 4.3 Safe and Correct Use

- Protect the device against moisture, condensation, rain, snow, etc.
- Protect the device against direct solar radiation
- Protect the device against dust and pollution
- Protect the device against excessive ambient temperature
- Protect the device against excessive vibration

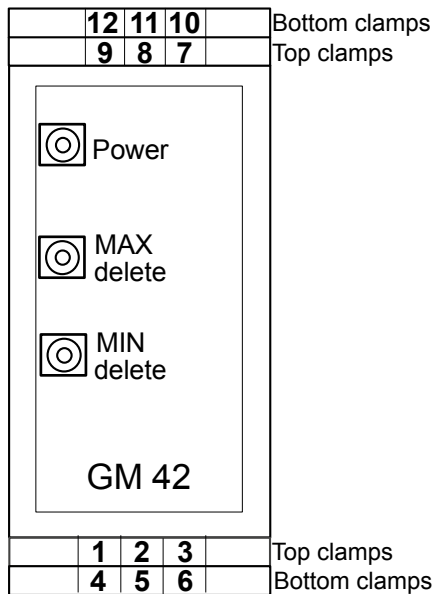
## 4.4 Dimensions / Weight

Device dimensions: L x W x H: 23 x 111 x 76 mm

Weight: 0.10 kg

## 5 Instruction / Description of the Operating Mode

### 5.1 Connect Description



#### Terminal assignment

Terminal	Assignment	Type
1	Signal 0 ±10V	Input
2	GND	Input
3	NC	-
4	10 ... 30VDC	Supply
5	GND	Supply
6	Shield	Supply
7	Clear min. value	Input
8	GND	Input
9	Clear max. value	Input
10	Min. value	Output
11	GND	Output
12	Max. value	Output

#### Status display (LED)

Power:	On during operation
Delete MAX:	On during deletion
Delete MIN:	On during deletion

### 5.2 Switching the Device on

The device is activated and ready to operate as soon as supply voltage is applied. The readiness for operation is signaled by the Power-LED.

### 5.3 Minimum-/Maximum Value Memory

A signal is measured at terminals 1 and 2. If the following measurement is smaller, the signal output at the minimum value memory is updated at terminals 10 and 11. If the measurement is higher, the respective value of the previous measurement is held and issued. The minimum value output is from -10V to +10V.

A signal is measured at terminals 1 and 2. If the following measurement is larger, the signal output at the maximum value memory is updated at terminals 12 and 11. If the measurement is smaller, the respective value of the previous measurement is held and issued. The maximum value output is from -10V to +10V.

A control signal of 10 ... 30VDC is required in order to reset the minimum and maximum values. In order to delete the minimum value, the control signal must be applied to terminals 7 and 8. In order to delete the maximum value, the control signal must be applied to terminals 9 and 8.



## 5.4 Interfaces and Connections

<b>Voltage input</b>	Signal: $\pm 10V$ Control signal: 10 ... 30VDC
<b>Voltage output</b>	Signal: $\pm 10V$



**Note:** The device must be disconnected from mains during all connection work. The safety precautions must be observed.

## 5.5 Troubleshooting

### Output signal not available

- No supply voltage - Power-LED must be on
- Control signal for resetting of min. or max. value is constantly activated

### Voltage output in control limit

- The signal voltages are higher than  $\pm 10V$

### Resetting of min. or max. value is not possible

- The control signal is too small

### Voltage output indicates undefined values

- The signal voltage is not applied

## 6 Product Phases

### 6.1 Transportation



Please pack the equipment suitable for transportation.



The equipment must not move back and forth in the packaging.



Please protect the equipment against moisture.

### 6.2 Commissioning and Installation

#### Safety measures before the installation



**Caution:** The device may not be connected to the power supply system, directly. The specifications of the supply voltage in chapter 4.2 must be considered.



**Cable connections:** Never connect voltage levels to unoccupied pins.

## 6.3 Standard Operation

### EMC



**Caution:** The device may not be exposed to higher EMC transients than determined by the standard.

### Cable



**Caution:** Never disconnect the connectors by pulling the cables. Always separate the connector at the plug, directly.

### Storage



Store the device in dry and dust-free spaces only.

## 6.4 Maintenance and Cleaning



**Warning:** Please disconnect the device from the power supply before cleaning!

Clean the housing with a soft and slightly moisturized cloth. Never use solvents, as they may damage the front panel labeling and the display panel.

While cleaning, ensure that no liquids enter the device or the connections.

### Preventive maintenance and inspection



Check the plug connections

### Repair

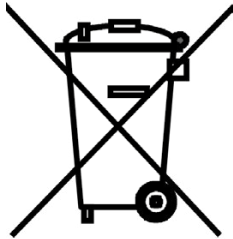


**Note:** The device does not contain any parts which must or can be serviced by the user. Repairs may be carried out by Lorenz Messtechnik GmbH exclusively. If assuming that safe operation of the device is no longer possible, it must be taken out of service and secured against inadvertent operation, immediately. This applies in particular, if:

- The device shows visible damage
- The device is no longer functional
- Parts of the device are loose
- The connection lines show visible damage

## 6.5 Equipment disposal

The device must be disposed of in accordance with the applicable legal regulations - see also our „General Terms and Conditions of Delivery and Sale“ at [www.lorenz-messtechnik.de](http://www.lorenz-messtechnik.de).



## 7 Reference Information

Data sheet of the DIN Mounting Rail Min.-/Max. Value Memory Unit GM42-MAX.