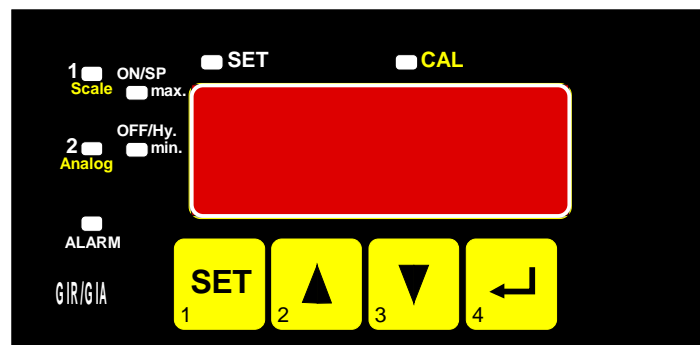


# Connecting and Operating Manual

# GIR600 NS

Version: 4.06



in accordance with  
EN50081-1 and EN50082-2  
for unrestricted use in  
housing and industrial areas

This connecting and operating manual may be subject to technical alternations.

# Introduction

The GIR600 NS is a micro-processor controlled standard signal controller for universal application. It can be used for the connection of 0 to 20mA, 4 to 20mA, 0 to 1V and 0 to 10V standard signals.

The large 4-digit numeric LED as well as seven additional LEDs ensure a clear and well legible display of all measuring values and operating parameters.

The GIR600 NS is designed for direct connection of a transmitter (measuring transducer). The controller range is adapted to the transmitter by directly entering the upper and lower measuring range limits, i.e. no external devices being necessary.

All parameters and limit values can be entered via four buttons located at the front side of the device.

The front side of the controller is splash water proof and wipe resistant fulfilling all requirements of the IP65 rating.

All programmable parameters of the GIR600 NS are stored in an EEPROM and in case of a current failure they will be safe for at least ten years.

The GIR600NS is equipped with a self-diagnosis function constantly monitoring the essential parts of the controller for their trouble-free operation. Together with the self-diagnosis function the monitoring functions for "breaking of the measuring sensor" and "sensor short-circuit" as well as values falling below or exceeding the limited range ensure optimum operational reliability.

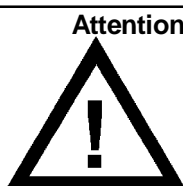
We will supply the GIR600 NS factory tested and completely calibrated.

**Before you can actually use it, make sure to configure your GIR600 for your special application. Please also refer to the chapter "Configuration".**

## Safety Regulations

In order to exclude any risk whatever for the operator the following points have to be observed:

- Immediately switch off the device in case of visible damage or obvious malfunctions.
- Make it a rule to always disconnect voltage source and device before opening it up. The entire device and its connection have to be protected against touching electrical contacts after installation.
- Standard regulations for operation and safety for electrical, light and heavy current equipment have to be observed, with particular attention having to be paid to national safety regulations ( e.g. VDE 0100).
- When connecting the device to other devices (e.g. PC), the interconnection has to be designed most thoroughly as internal. Connections in third-party devices (e.g. connection GND with protective earth) may lead to undesired voltage potentials.



**Attention:** When running electric devices parts of these devices will always be highly energised. Unless the warnings are observed serious personal injuries or damage to property may result. Skilled personnel only should be allowed to work with this device. For trouble-free and safe operation of the device, please ensure professional transport, storage, installation and connection as well as proper operation and maintenance.

### Skilled personnel

are persons familiar with installation, connection, commissioning and operation of the product and have a professional qualification relating to their job.

For example:

- Training or instruction and qualification to switch on/off, isolate, ground and mark electric circuits and devices/systems.
- Training or instruction according to the state of the art of safety technology to maintain and operate adequate safety equipment.
- First-aid training.

# Fault Codes

In case of unacceptable conditions in the system a fault code will be displayed.

## Fault codes have been defined as follows:

### FE 1: Measuring range has been exceeded

This fault code indicates that the measuring range of the A/D converter has been exceeded.

Possible fault cause: transmitter damaged  
short-circuit in transmitter connection

Remedies: FE 1 will be reset as soon as the measuring values are back within their permissible range. Please check your transmitter and transmitter connecting cables.

### FE 2: Measuring values have fallen below permissible range

This fault code indicates that the measuring values of the A/D converter have fallen below the permissible range.

Possible fault cause: transmitter damaged  
transmitter connection interrupted

Remedies: FE 2 will be reset as soon as the measuring values are back within their permissible range. Please check your transmitter and transmitter connecting cables.

### FE 3: Display range has been exceeded

This fault code indicates that the max. display value of 9999 digits has been exceeded.

Remedies: FE 3 will be reset as soon as the measuring values are back within their permissible range.

### FE 4: Values on the display have fallen below permissible range

This fault code indicates that the measuring values of the A/D converter have fallen below the permissible range.

Remedies: FE 4 will be reset as soon as the values on the display are back within their permissible range.

## Please Attention:

If fault codes are displayed or device has malfunction, please check first configuration of GIR600NS. Please refer to chapter "Configuration"

# Electric Connection

All connections for the GIR600 NS are located at the back side of the device.

Connections are made via screw-type/plug-in terminals.

*Make it a rule to mount screw-type/plug-in terminals while they are still loose and to put them on only afterwards. When mounting terminals already put on there is a risk that soldering eyelets may be pulled out. Please use suitable screw driver and do not tighten screws by force.*

**Supply Voltage :** 230V AC, 50/60Hz or instruction on the device

*Please make sure that the mains voltage applied corresponds to the supply voltage stated at the device nameplate*

**Switching output:** 1 potential-free relay (changeover-contact); 10A, 250V AC (ohmic load)  
1 potential-free relay (make-contact); 10A, 250V AC (ohmic load)

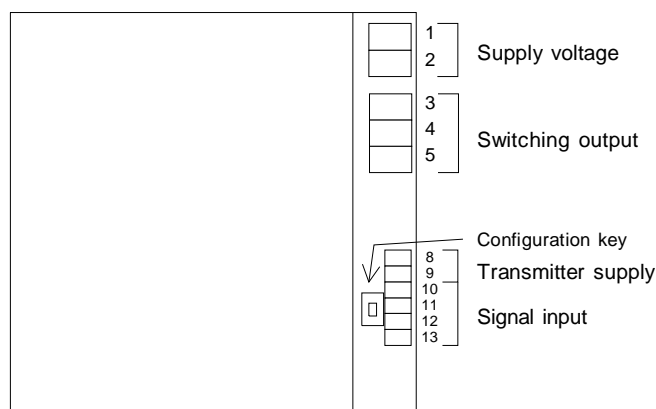
**When using inductive loads the contact has to be connected to a suitable RC-element (for example 'RC220').**

*Electric connection and commissioning of the device must be carried out by trained and skilled personnel. Wrong connection may lead to the destruction of the controller, in which case we cannot assume any warranty.*

## Terminal Assignment

Terminal number	Max. terminal range	Assignment	Notes
1 2	2,5 mm <sup>2</sup>	Supply voltage Supply voltage	230 V AC 50/60 Hz or as specified on device housing
3 4 5	2,5 mm <sup>2</sup>	Relay, normally-closed Relay, input Relay, normally-open	Switching output
8 9	1,5 mm <sup>2</sup>	Transmitter supply + Transmitter supply -	18 V DC / 25mA
10 11 12 13	1,5 mm <sup>2</sup>	GND, signal- 0-20mA, 4-20mA, signal+ 0-1V, signal+ 0-10V, signal+	Signal input

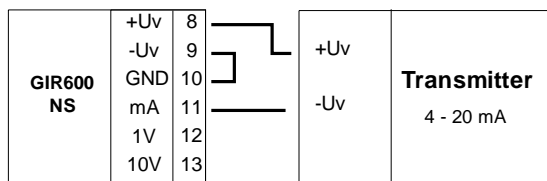
## Assignment Diagram



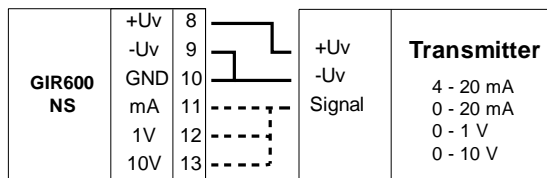
GIR600NS (view of top)

# Transmitteranschluß

## Connection of a 4 to 20 mA transmitter in 2-wire technologie

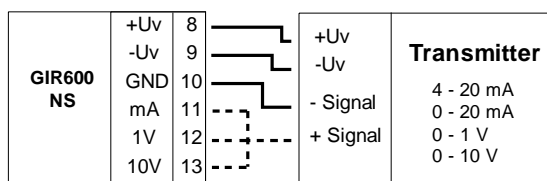


## Connection of a 0(4) to 20 mA, 0 to 1 V, 0 to 10V transmitters in 3-wire technologie



**Note:** connect the dashed lines according to your transmitter signal.

## Connection of a 0(4) to 20 mA, 0 to 1 V, 0 to 10V transmitters in 4-wire technologie



**Note:** connect the dashed lines according to your transmitter signal.

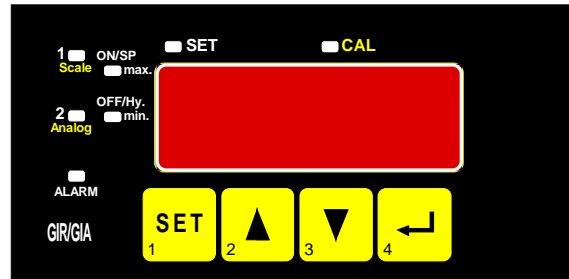
# Technical Specifications

<b>Sensor input:</b>	0 to 20mA, Ri=50 Ohm 4 to 20mA, Ri=50 Ohm 0 to 1Volt, Ri=30 kOhm 0 to 10Volt, Ri=300 kOhm
<b>Output voltage for sensors:</b>	18Volt DC / 25mA, electrically isolated
<b>Display range:</b>	lowest and highest value to be selected individually
<b>Max. display value:</b>	9999 digit
<b>Min. display value:</b>	-1999 digit
<b>Decimal point :</b>	position to be selected individually
<b>Measuring accuracy:</b>	0.1% ± 1 Digit
<b>Measuring rate:</b>	approx. 3 measurements / sec.
<b>Control function:</b>	2-level controller
<b>Power supply:</b>	230VAC or as specified on device housing
<b>Power consumption</b>	5W (230VAC), 3W (24VDC), 1,5W (12VDC)
<b>Relay switching power:</b>	10A, 250V AC (ohmic load) use RC-element when switching inductive loads
<b>Nominal temperature:</b>	25° C
<b>Ambient temperature:</b>	0 to 50° C
<b>Atmospheric humidity:</b>	0 to 80% (not condensing)
<b>Electromagnetic compatibility:</b>	In accordance with EN50081-1 and EN50082-2 for unrestricted use in housing and industrial areas additional error: <1%
<b>Housing:</b>	standard rack housing, 48 x 96 x 100 mm (H x W x D)
<b>Control panel cutout:</b>	43 x 90.5 mm (H x W)
<b>Connecting terminal:</b>	screw-type/plug-in terminals

# Operation

## Start-up

As soon as the supply voltage has been applied the GIR600 NS will carry out a system test for approx. 8s. Then the current measuring value will be displayed, if a transmitter ist connected.



## Display of Current Measuring Value

Display: the current measuring value is shown on the display  
 LED "1": gives status of the relay  
 LED flashing: relay contact made  
 LED not flashing: relay contact broken

## Display/setting of making point for switching output

To be called up by: pressing button 1 till LEDs "SET", "1" and "ON/SP" are illuminated.  
 Display: The display shows the making point for switching output 1.  
 Setting: Set making point by means of buttons 2 and 3. LEDs "1" and "ON/SP" will start flashing.  
*Buttons 2 and 3 are equipped with a scrolling function, i.e. the making point will be increased respectively decreased by 1 digit when button 2 respectively button 3 is pressed briefly (no more than 1 s). When pressing these buttons for a longer time (over 1 s) the values will start "scrolling" upwards respectively downwards. After "scrolling" of approx. 150 digits the "scrolling speed" will be increased by a factor of 10.*  
 Use button 4 to acknowledge new making point/switching point.  
 LEDs "1" and "ON/SP" will stop flashing.  
 Switch over to display of current measuring value by pressing button 4 once again.

## Display/setting of breaking point for switching output

To be called up by: pressing button 1 till LEDs "SET", "1" and "OFF/Hy" are illuminated.  
 Display: The display shows the breaking point for switching output 1.  
 Setting: Set breaking point by means of buttons 2 and 3. LEDs "1" and "OFF/Hy" will start flashing.  
*Buttons 2 and 3 are equipped with a scrolling function, i.e. the breaking point will be increased respectively decreased by 1 digit when button 2 respectively button 3 is pressed briefly (no more than 1 s). When pressing these buttons for a longer time (over 1 s) the values will start "scrolling" upwards respectively downwards. After "scrolling" of approx. 150 digits the "scrolling speed" will be increased by a factor of 10.*  
 Use button 4 to acknowledge new breaking point/hysteresis.  
 LEDs "1" and "OFF/Hy" will stop flashing.  
 Switch over to display of current measuring value by pressing button 4 once again.

# Configuration

## 1) Press button 1 (front side).

Press miniature push button on the back side of the GIR600 NS (located behind the sensor connection terminal) **in addition** (for approx. 1 s) till LED "CAL" (on front side) is flashing.

## 2) LED "CAL" is illuminated.

The display will show "InP.0", "InP.1", "InP.2" or "InP.3".

Use buttons 2 and 3 to select input signal desired (point will start flashing).

"InP.0" = 0 - 20mA

"InP.1" = 4 - 20mA

"InP.2" = 0 - 1 Volt

"InP.3" = 0 - 10 Volt

Acknowledge input signal selected by pressing button 4.

## 3) LED "CAL" is illuminated.

The display will show four dashes as well as the decimal point on the position where they are stored.

Use button 2 (shift decimal point to the left) or button 3 (shift decimal point to the right) to set desired decimal point position; acknowledge position by pressing button 4.

*If decimal point is positioned to the right of the lowest digit position displayed, this means that no decimal point will be shown as soon as the controller is back in the control mode.*

## 4) LEDs "Scale", "max." and LED "CAL" are illuminated.

The display will show the upper limit of the measuring range (value displayed at 20mA, 1V respectively 10V input signal) stored in the GIR600 NS.

Use buttons 2 and 3 to set new upper limit of the measuring range (LED "max." will start flashing); acknowledge by pressing button 4.

*Buttons 2 and 3 are equipped with a scrolling function, i.e. the value will be increased respectively decreased by 1 digit when button 2 respectively button 3 is pressed briefly (no more than 1 s). When pressing these buttons for a longer time (over 1 s) the values will start "scrolling" upwards respectively downwards. After "scrolling" of approx. 150 digits the "scrolling speed" will be increased by a factor of 10.*

## 5) LEDs "Scale", "min." and LED "CAL" are illuminated.

The display will show the lower limit of the measuring range (value displayed at 0mA, 4 mA respectively 0V input signal) stored in the GIR600 NS.

Use buttons 2 and 3 to set new lower limit of the measuring range (LED "min." will start flashing); acknowledge by pressing button 4.

The configuration of the GIR600 NS has now been completed.

Steps 1 to 10 can be repeated any number of times to either correct a setting error or to input a new setting.

*Unless a button is pressed at least approx. every 2 minutes during the setting process, the GIR600 NS will stop the setting process. Then, "CAL" will stop flashing. In such a case we recommend to repeat the setting process.*

