

Double Limit Monitor – Level Generator Level Monitor with LC-Display

GW4-LCD

Characteristics:

- Switchable input U/I
- Digital switching hysteresis
- Digital switching threshold
- Wire breakage message at 4...20mA
- Malfunction message output
- Additional sensor supply
- Invert function
- Supply 20...253VUC
- 3-way separation
- Mountable on 35mm cap rail TS35
- Clear terminal labeling
- Shape 22,5mm
- High reliability, 5 years warranty



Description:

The devices of the double limit monitor / level generator of the series GW4 have been developed for monitoring norm signals and are able, by usage of a corresponding sensor, to record fill levels and/or to generate levels in vessels. They also can be used as a temperature limit monitor or temperature controller by using a Pt100/Pt1000 sensor and, for example, a transducer series PT3 (LEG).

The user can choose between a voltage- or current input. While using the current input 4...20mA it is additionally monitored for wire breakage (<3,8mA) and short circuit (>20,5mA). The range 0...20mA and 0...10V is monitored for under- or overrun of the measurement range. The accurate function is indicated by a malfunction message output (high if there is no - low if there is a malfunction). Additionally a report in the bottom line of the display appears. The switch conditions of the relays are signaled by each one LED in the front panel. The switch performance can be configured via 3 tactile switches and a LC-display. Switch delay, hysteresis and inverted switching are freely adjustable, separated for each channel. The chosen operating modus direct = double limit monitor or level max / level min = level generator is shown in the bottom line of the display. For the supply of the required sensor there is an auxiliary power of 24V / 20mA at disposal. The modules are mountable on cap rail TS35, they have a wide range power supply so that a supply in the range of 20...253Vuc is possible.

Double limit monitor switch (Mode direct):

Upper and lower switching points can be adjusted, via decade switches and LC-display (1...100%), separately from each other. Decreases the limit value by the via switch hysteresis set value, the relay de-energizes. The hysteresis is freely adjustable in the range of 1% to 50%, based on the measurement range terminal point. Is the function inverted switching selected, the relay is permanently energized and de-energized when reaching the limit value. When falling below the adjusted hysteresis it energizes.

Level monitor maximum value (Mode level max):

With the limit value switch 2(LV2) the switching-on point and with limit value switch 1(LV1) the switching-off point is determined. Therefore the limit value has to be LV1 > LV2, otherwise an error message will be displayed. If the set value is below the limit value 2 (LV2), both of the relays are energized. Increases the set value over the limit value 1 (LV1), both of the relays are de-energized. If the set value decreases below the limit value2 (LV2) again, both relays will energize. The switching delay (delay LV1) applies to both switching limits.

Level monitor minimum value (Mode level min):

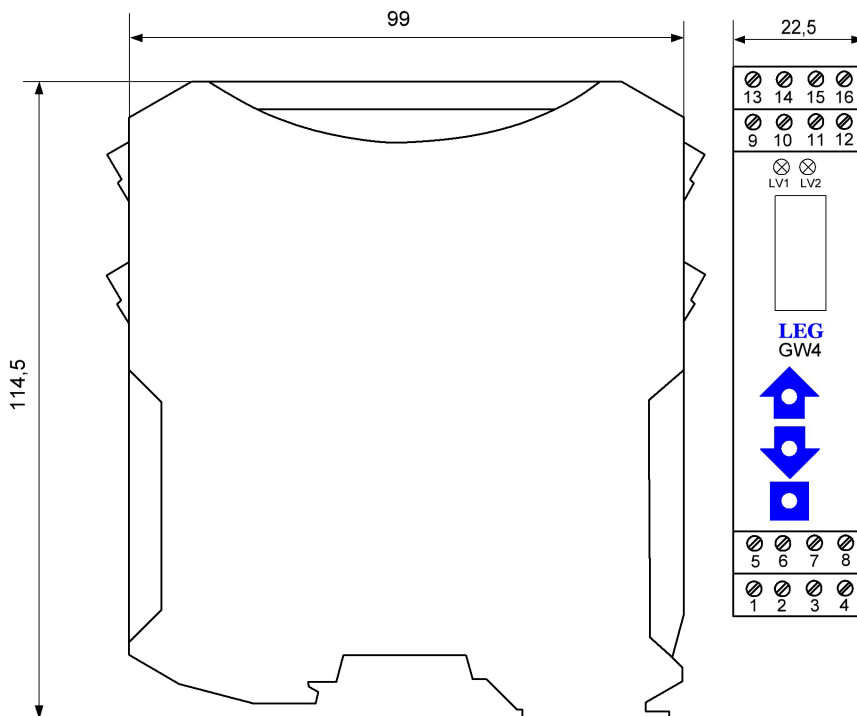
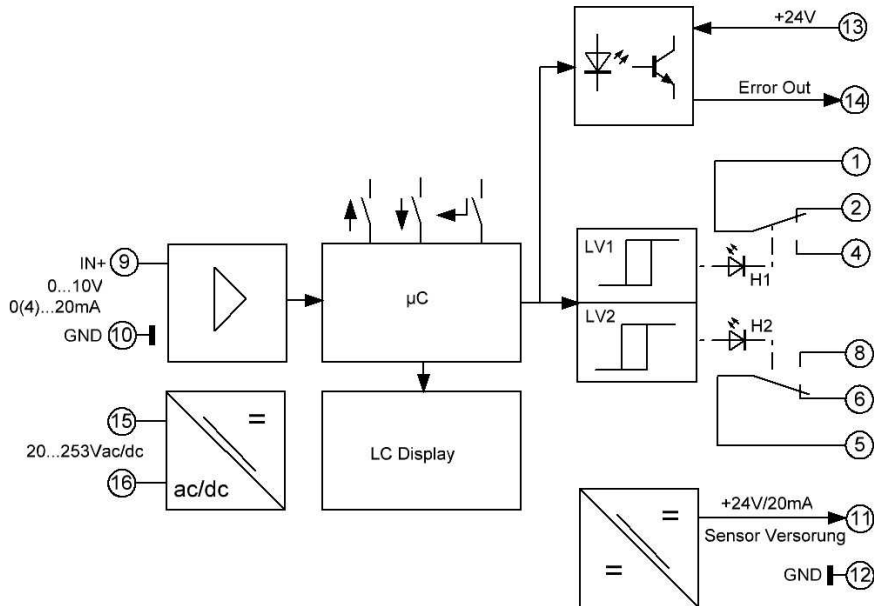
With the limit value switch 2(LV2) the switching-off point and with limit value switch 1(LV1) the switching-on point is determined. Therefore the limit value has to be LV1 > LV2, otherwise an error message will be

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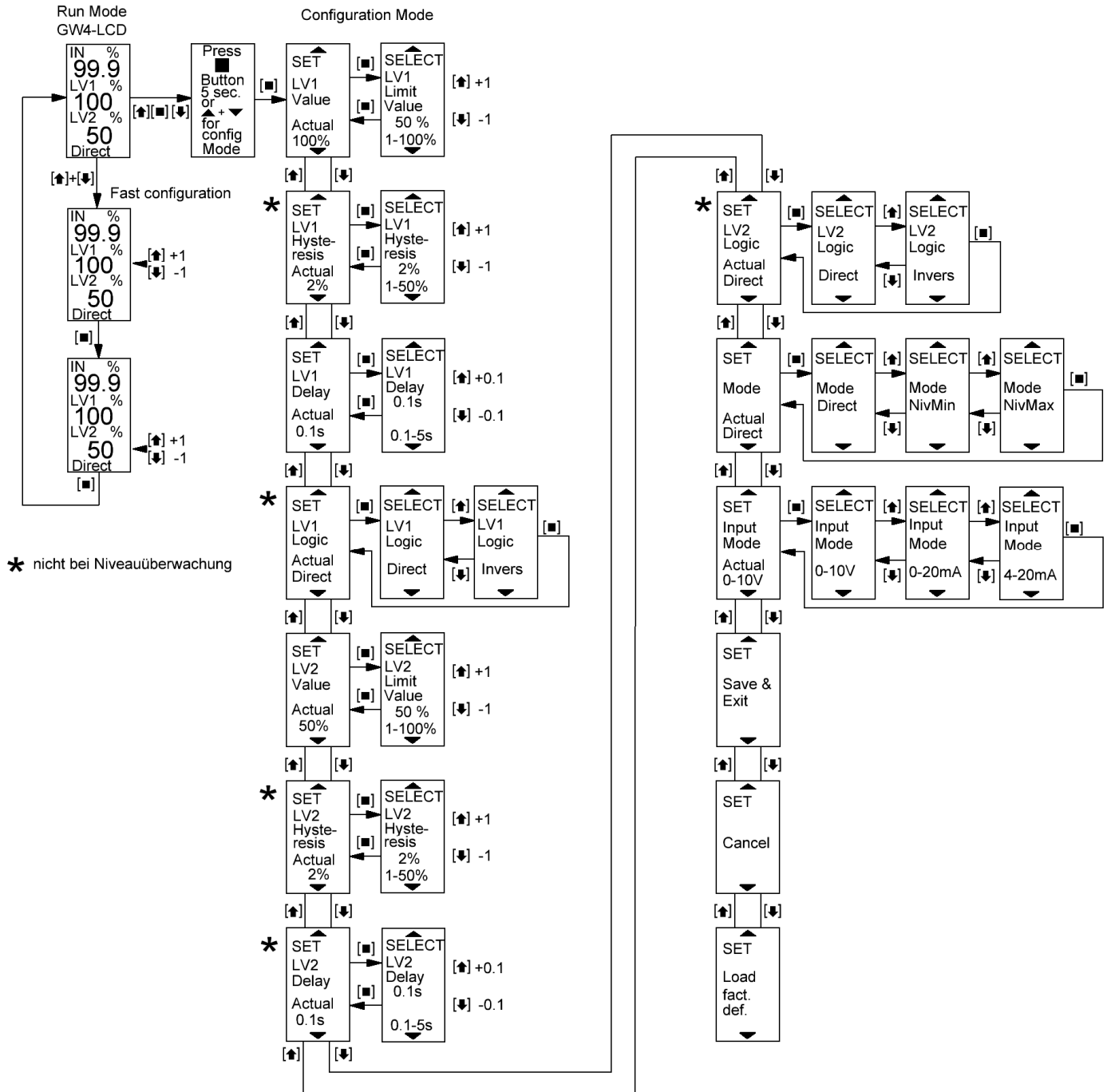
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

displayed. If the set value is below the limit value 2 (LV2), both relays are de-energized. Increases the set value over the limit value 1 (LV1), both of the relays are energized. If the set value decreases below the limit value2 (LV2) again, both relays will energize. The switching delay (delay LV1) applies to both switching limits.



Menu sequence chart











Normal configuration:

1. By pushing button  longer than 3 seconds you'll get into the configuration menu.
2. With button  and  you are able to move through the menu and to choose the parameter which you want to change.
3. Then push button  and change the value of the parameter with , .
4. Once the desired value is reached, push button .
5. Select other desired parameters and change.
6. Leaving of the configuration modus by selection „Save & Exit“, „Cancel „or „Load fact. Def.“
7. Configuration completed.

Quick configuration:

Only the switching threshold can be changed.

1. Push button  and  simultaneously. Limit value 1 flashes.
2. With buttons  and  adjust the desired value.
3. Push button . Limit value 2 flashes.
4. Adjust the desired value with buttons  and .
5. Confirm with button .
6. Both limit values are stored, the quick configuration is completed.

Menu point (SET) LV1 / LV2	Function	Adjustment	Delivery condition LV1 / LV2
Value	Switching threshold limit value adjustment	1...100%	100% / 50%
Hysteresis	Hysteresis adjustment	1...50%	2% / 2%
Delay	On/ off delay adjustment	0,1...5s	0,2s / 0,2s
Logic	Not inverted switching Inverted switching	direct invers	Direct / direct
Mode	Double limit value switch/ Level switch	Direct Level min Level max	Direct /direct
Input Mode	Choose analog input	0...10V 0...20mA 4...20mA	0...10V
Save & Exit	Save settings and back to the "run" mode		
Cancel	Cancel all changings		
Load fact. Def.	Adjust delivery condition		

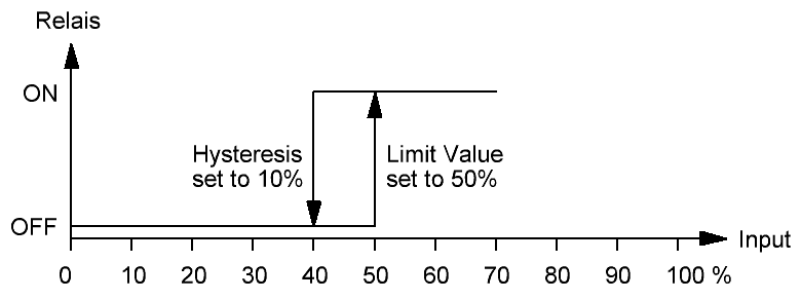
The unit is equipped with a writable side cover on which the adjusted parameters can be recorded.

Display during operation mode

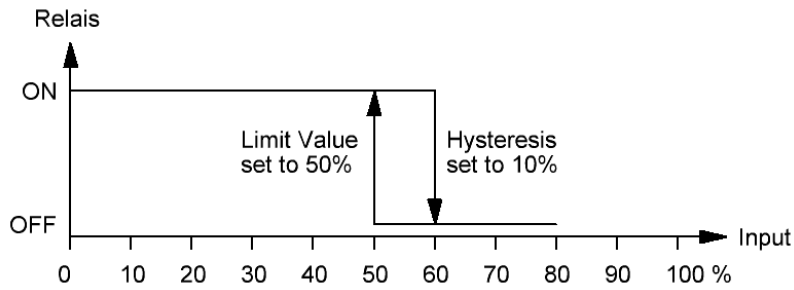
IN %	1	1. Name input with unit
20.0	2	2. Current input measurement value
LV1 %	3	3. Name limit value 1 with unit
100	4	4. Adjusted limit value 1
LV2 %	5	5. Name limit value 2 with unit
50	6	6. Adjusted limit value 2
	7	7. Adjusted mode or error message

Switching characteristics double limit monitor mode direct

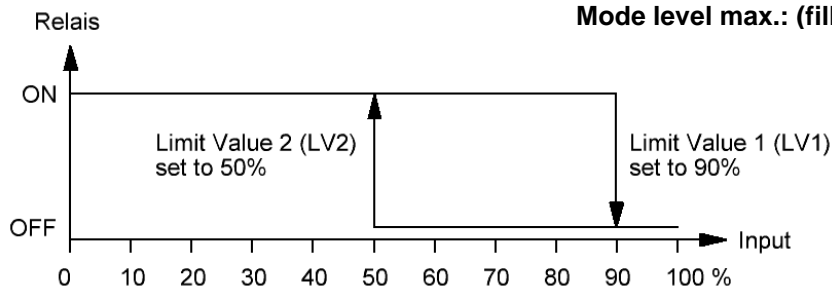
Normal switching:



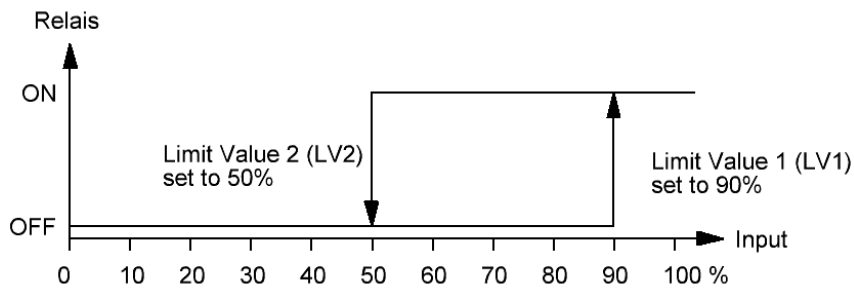
**Switching characteristics double limit value switch
Mode direct:**



**Switching characteristics level switch
Mode level max.: (fill)**



**Switching characteristics level switch
Mode level min: (empty)**



Technical data

Auxiliary power:

Supply voltage : 20..253VAC/DC
Power consumption : 1W...2,5VA

Inputs:

Voltage input : 0...10V / 150kΩ / overload max. 30V
Current input : 0(4)...20mA* / load resistor 100Ω / overload. 40mA
*delivery condition 4...20mA
**Monitoring of the current loop for wire breakage (<3,8mA) and short circuit (<20,5mA)

Limit value preset:

Threshold 1 / 2 : 1...100% / adjustable in 1% steps
Hysteresis 1 / 2 : 1... 50% / adjustable in 1% steps
(Based on the measurement range upper limit)

Outputs:

Malfunction message-
output : Plus switching +24V / 50mA
Relay min. / max. : Each 1 changeover 230VAC / 3A / 24VDC / 1,5A
Switch delay : 0, 1...5s / in 0,1s adjustable in steps
Switch action : Non invert*, invert
Mode (level switch) : minimum level value (empty) / maximum limit value (fill)
Sensor supply : 24V / 20mA
*Delivery condition

Accuracy:

Measurement accuracy : 12 bit conforms to ±2,5mV or. ±5μA
Adjustment accuracy : 1%
Linearity error : < 0, 05%
Temperature coefficient: < 0, 02% / K

General data:

Operating temperature : 0...50°C
Storage temperature : -25...+85°C, condensation before putting into operation is not allowed
MTBF : 140 years Mean Time Between Failures – according to EN 61709 (SN 29500).
Requirements: Stationary operation in clean rooms, average ambient temperature 40 ° C, no forced ventilation, continuous operation
CE conformity : EN 61326-1, EN 61000-4-2/3*/4/5/6*, EN 61000-6-4
* during measurements small deviations are possible

Body:

Dimension : Cf. drawing, 22,5mm adjoin body, 22,5x114,5x104,5mm (with terminals)
Material : PA / V0
Protection category : IP20
Connection : M3-screw-type terminal 0, 14 - 2,5mm², flexible or inflexible
Fixing : Snap-on mounting for norm rail TS35
Weight : 120g
Mounting position : As you like

Note on safety:



Disconnect the power supply before attempting to open the unit.

During the operation of this module it is possible that parts of the module, even there is extra-low voltage, (for example shunt measurement) are under dangerous voltage! Therefore a non-observance of this caution may cause damage of property or physical injury.

Only trained qualified personnel should install or operate the unit. Before installation the qualified personnel should read the documentation and should familiarize themselves with the unit.

If there is visible damage to the body of the unit it should be immediately replaced and not put into operation.



Please ensure that there is a sufficient prevention against electrostatic discharge during installation of the unit.

Installation Information:

Pay attention and make sure the unit is far away from mounted sources that may disturb the device such as magnetic coils, transformers, frequency converters etc.

Wiring advice:

Use only shielded cables. The shield is to be connected extensively to ground. Do not mix power- and signal-wires/cables in the same cable tray.

Limited warranty:

The LEG Industrie-Elektronik GmbH warranted that the product does not have any material or processing defects in a period of 5 years after date of delivery.

It is up to the choice of LEG to repair or to exchange an inoperative unit.

Subsequent damages or any claim for indemnification above the functionality of the unit are excluded.

This limited warranty is only valid if ...

1. the product was installed and put into operation according to the LEG operation documentation;
2. the technical configuration of the power supply was abided;
3. the product was not used for unintended purposes;
4. there were no unauthorized modifications or manipulations, misuse or repairs without previous agreement from LEG .

Our Terms of Trade are based on the "General Conditions for the supply of products and services of the Electrical and Electronics Industry" including the "Complementary Clause: Extended Reservation of Property" of the ZVEI e.V. (German Association of Electrical Manufacturers).

Miscellaneous:

We expressly reserve the right, without previous notice, to correct errors contained in any data of this information brochure, and to make alterations to the program and technical modifications.