Measuring Amplifier

in top hat rail-chase for all weighing-technical application

Characteristics

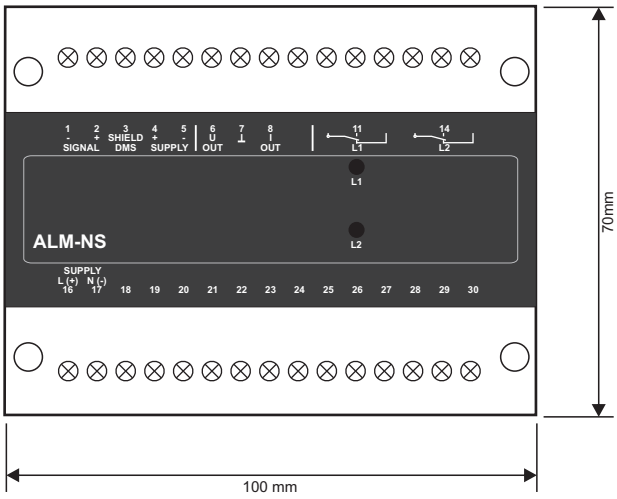
- **Input sensitivity (0,1 mV/V to 4 mV/V) selectable by DIP-switches**
- **Connection of max. 4 resistance strain gauge sensors (full bridge, 350 Ω)**
- **Change-over analog output: 0(4) ... ± 20(24) mA or 0(2) ... ±10(12) V**
- **Opionally 2 adjustable limit value switches (potential-free change-over contacts)**
- **Sensor supply voltage internally continiously adjustable (4 ... 14 V)**
- **Accuracy ± 0,1 % of end-scale value**
- **Supply voltage 115/230 VAC or 24 VAC/DC**

Description

The measuring amplifier is designed for use in connection with resistance strain gauge full-bridge sensors. Thanks to the top hat rail-case, it is very simple to integrate it in existing switch cabinet installations.

Ist range of use is for all weighing-technical applications and for industrial purposes. The adaption of the input sensitivity to the used sensor is made by DIP-switches which can be operated after an opening of the Frontplate. Because of the efficient sensor supply up to 4 sensors can be connected parallel. The high range of voltage adjustment (4-14 V) guarantees an optimal evalution signal.

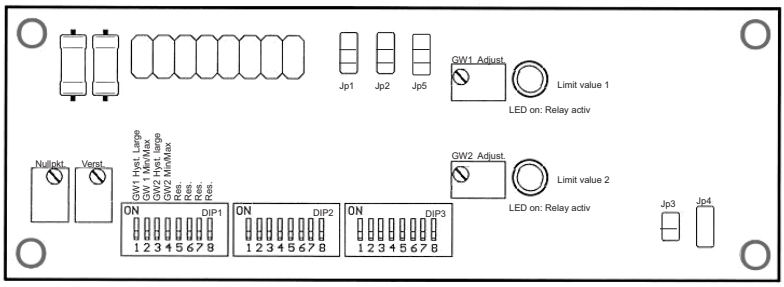
The analog outputs are available at the same time and operate in the range of -10 V...+10 V and -20 mA...+20 mA. Standardized the device is provided with 2 adjustable limit value switches (potential-free change-over contacts 250VAC/5A)



Technical Data

Input	Sensor Input:	max. 4 DMS resistance strain gauge full-bridge sensors (350 Ohm), Rges ≥ 80 Ohm
	Input sensitivity:	0,1 / 0,25 / 0,5 / 0,75 / 1 / 1,5 / 2 / 2,5 / 3 / 4 mV/V selectable by DIP-Switches
	Continous fine adjustment:	± 20 %
	Zero shift:	± 40 %
	Active low-pass filter (20 dB/octave):	5 Hz
Outputs	Current output:	0(4) - ±20(24) mA, (load ≤ 500 Ohm) selectable by DIP-switches
	Voltage output:	0(2) - ±10(12) V (R_{LOAD} ≥ 600 Ohm) selectable by DIP-switches
	Sensor supply:	4 -14 V, continous adjustable by potentiometer R_{load} ≥ 80 Ohm
Limit value Switch	Switch value:	max. 2 relay outputs with 1 potentialfree change-over contact(250 VAC/5A)per output Adjustable 0-100% of measuring range at the front panel. MIN./MAX. selectable by DIP-switches.
	Switch Accuracy:	< 0,1 % of end scale value
	Hysteresis:	selectable by Dip-switches, 10% standard, others on request
Accuracy	Linearity:	< 0,02 % of measured value
	Temperature coeff.:	< 50 ppm/°C
Power Supply	Mains voltage:	115/230 VAC, 24 VAC/DC, 24 VDC electrically isolated
	Power consumption:	5 - 8 VA (higher value for option)
Ambient Conditions	Operating temperature:	-10°C - 60°C
	Storing temperature:	-20°C - 70°C
Dimensions	Case:	30-terminal top hat rail-case with terminal cover plate according to DIN
	Dimensions:	70 x 100 x 112 mm (including terminal cover plate)
	Fixing:	snap-in fixing on top hat rail
	Material of case:	Polycarbonate / GV / V-0 (terminal carrier plate) ABS / V-0 (hood)
	Color:	Bottom part: black, Lid: grey
	Weight:	approx.. 0,6 kg
	Terminals:	30 flat terminals with terminal screws

Operating, adjustment hints



Pin configuration

1	Signal (-)	16	Supply L (+)
2	Signal (+)	17	Supply N (-)
3	Shield DMS	18	
4	Supply (+)	19	
5	Supply (-)	20	
6	U out	21	
7	⊥	22	
8	I out	23	
9		24	
10		25	
11	L 1	26	
12		27	
13		28	
14	L 2	29	
15		30	

Adjustment solder bridge

JP1 JP2 JP5

1 2 3 } Sensor break, high level

1 2 3 } Sensor break, low level

JP3

1 2 } Zero max. 80 %

1 2 } Zero max. 40 %

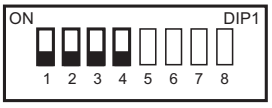
JP4

1 2 3 } Low-pass filter 24 dB / Octave

1 2 3 } Low-pass filter 12 dB / Octave

Adjustment

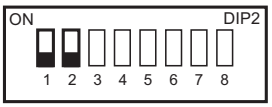
1. Connect supply voltage.
2. The switch behavior of the limit values is set by DIP-switch block 1 as follows:



Switch behavior \ DIP-switch (block 1)	1	2	3	4
GW1 = MAX / GW2 = MAX		OFF		OFF
GW1 = MIN / GW2 = MAX		ON		OFF
GW1 = MIN / GW2 = MIN		ON		ON
GW1 = MAX / GW2 = MIN		OFF		ON
GW1 = Hyst 1% / GW2 = Hyst 1 %	OFF		OFF	
GW1 = Hyst 10% / GW2 = Hyst 1%	ON		OFF	
GW1 = Hyst 10% / GW2 = Hyst 10%	ON		ON	
GW1 = Hyst 1% / GW2 = Hyst 10%	OFF		ON	

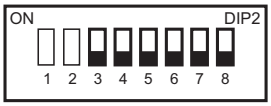
(DIP-Switch 5 to 8 are without function.)

3. Over DIP-switch block 2 (DIP-switch 1 and 2) choose the right output-signal.



Output \ DIP-switch (block 2)	1	2
2...12 V, 4...24 mA	ON	OFF
2...10 V, 4...20 mA	ON	ON
0...10 V, 0...20 mA	OFF	OFF

4. The input-sensitivity (mV/V) is set by DIP-switch block 2 (DIP-switch 3 to 8)



mV/V \ DIP-Switch (block 2)	3	4	5	6	7	8
0,1	ON	OFF	OFF	OFF	OFF	OFF
0,25	OFF	ON	OFF	OFF	OFF	OFF
0,5	OFF	OFF	ON	ON	ON	ON
0,75	OFF	OFF	ON	OFF	OFF	ON
1,0	OFF	OFF	ON	OFF	OFF	OFF
1,5	OFF	OFF	OFF	ON	ON	OFF
2,0	OFF	OFF	OFF	OFF	ON	ON
2,5	OFF	OFF	OFF	ON	OFF	OFF
3,0	OFF	OFF	OFF	OFF	ON	OFF
4,0	OFF	OFF	OFF	OFF	OFF	ON

5. The filter adjustment starts over DIP-switch block 3:

a) Adjustment of limiting frequency

fg / Hz \ DIP-switch (block 3)	1	2	3	4	5	6	7	8
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10	ON	OFF	ON	OFF	ON	OFF	ON	OFF
100	ON	ON	ON	ON	ON	ON	ON	ON

b) edge steepness (JP4, look up)

6. Connect "Zero"-Signal to input (by calibrator or by admitting the corresponding physical value to the connected sensor). Adjust trimmer "Zero" until the corresponding output signal is reached.

7. Connect rating signal to input (by calibrator or by admitting the corresponding physical value to the connected sensor). Adjust trimmer "Gain" until the rating output signal is reached.

8. Connect "Zero"-Signal again to input and check output signal. During the calibration it might be necessary to repeat step 5 and 6 several times until both values are correct.

9. Limit value switch adjustment: Set up the input value, for switching the limit value . Hysteresis at minimum. With Poti GW1 respectively GW2 find switchpoint (discernible on LED) and put in , so that the changeover results exactly at the enclosed value.