# Strain Gauge Bridge Amplifier SIL3 and PL „e“ SMM-DR

## Characteristics



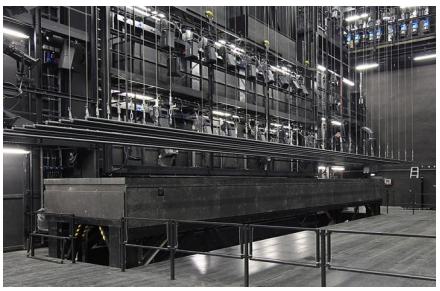

| | |
|---|---|
| - Input: | 1x strain gauge full bridge (350 Ω) |
| - Strain gauge sensitivity: | up to 4 mV/V |
| - Sensor supply: | 5 VDC |
| - Analogue output: | 2x 4....20 mA |
| - Voltage supply: | 24 VDC ±10% |
| - Accuracy: | see technical data |
| - Ingress protection: | IP 20 |
| - Vibration protection: | without |
| - Diagnostic input: | Pulse of 24 VDC, ≤250 Hz |
| - Enclosure: | DR22,5 (117x22,5x113,6 mm) |
| - Certificates: | SIL3 and Performance level „e“ |

## Technical data

| | | |
|---|---|---|
| **Input** | | |
| Strain gauge: | 1x strain gauge full bridge 350 Ω | |
| Strain gauge sensitivity: | up to 4 mV/V | |
| **Output** | | |
| Analog A: | Nominal operation range: | 8...16 mA |
| | Valid signal range: | 4...20 mA |
| | Zero point: | 8 mA or 12 mA (tension and compression load) |
| | Load resistance: | maximum 500 Ω |
| | Other: | galvanical isolation from supply voltage and output B |
| Analog B: | Nominal operation range: | 8...16 mA |
| | Valid signal range: | 4...20 mA |
| | Zero point: | 8 mA or 12 mA (tension and compression load) |
| | Load resistance: | maximum 500 Ω |
| **Interface** | | |
| I2C bus: | Use: | Calibration by manufacturer |
| **Performance measuring amplifier** | | |
| Accuracy: | Balance of current: | ±5% deviation of current (0,8 mA) |
| Temperature coefficient.: | <50 ppm/K | |
| Diagnostic input 24 VDC: | current output channel B increases by 1 mA, ≤250 Hz | |

## Applications

The safety measuring amplifier with 1 sensor input is for use in applications where a bridge signal has to be observed because of reasons of safety, eg for stage technology. The evaluation of the load cell has to be done with a control system which is approved for SIL3 / Performance Level „e“.



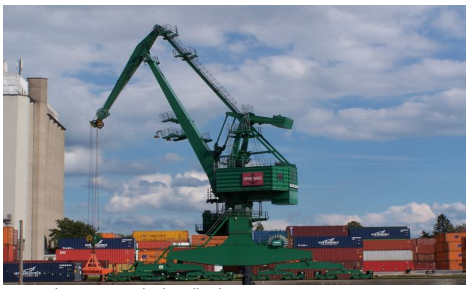
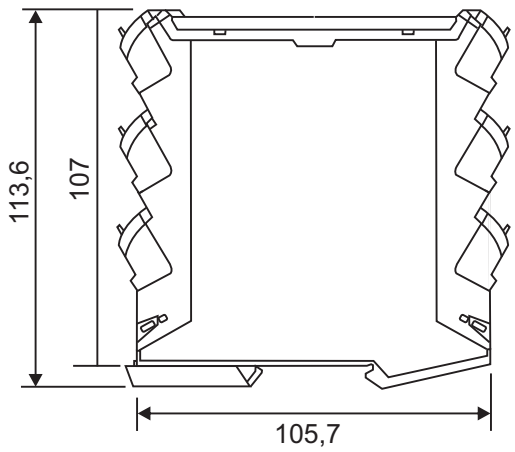


photo: www.pixelquelle.de

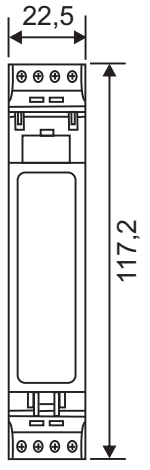
## Technical data (continued)

| | |
|---|---|
| **Power supply** | |
| Voltage: | 24 VDC, ±10% |
| Current consumption: | Maximum 100 mA |
| Sensor supply: | 5 VDC |
| Test pulse: | 24 VDC ±20% |
| **Ambient conditions** | |
| Operating temperature: | -10...+60°C |
| Storing temperature: | -20...+70°C |
| Air humidity: | 96% rH without condensation |
| **Mechanics** | |
| Case DR 22,5: | Dimensions: 117,2x22,5x113,6 mm<br>Material: PA66 GF30<br>Color: black<br>Flammability: UL 94 V-0<br>Mounting: DIN rail TS 35 |
| Protection: | IP 20 |
| Weight: | approx. 240 g |
| Electrical connection: | 6 plug-in terminal strips 4-pole |
| Clamping range: | 0,13...3,31 mm² |
| **Safety specifications** | |
| Certificates: | SIL3 (EN 61508, EN 62061)<br>Performance level „e“, category 3 (EN13849-1) |
| Evaluation: | The evaluation of both analog signals has to be done with a safety control system (Safety PLC). The program concept for the safety control system (Safety PLC) is specified by the manufacturer. |

## Dimensions (in mm)



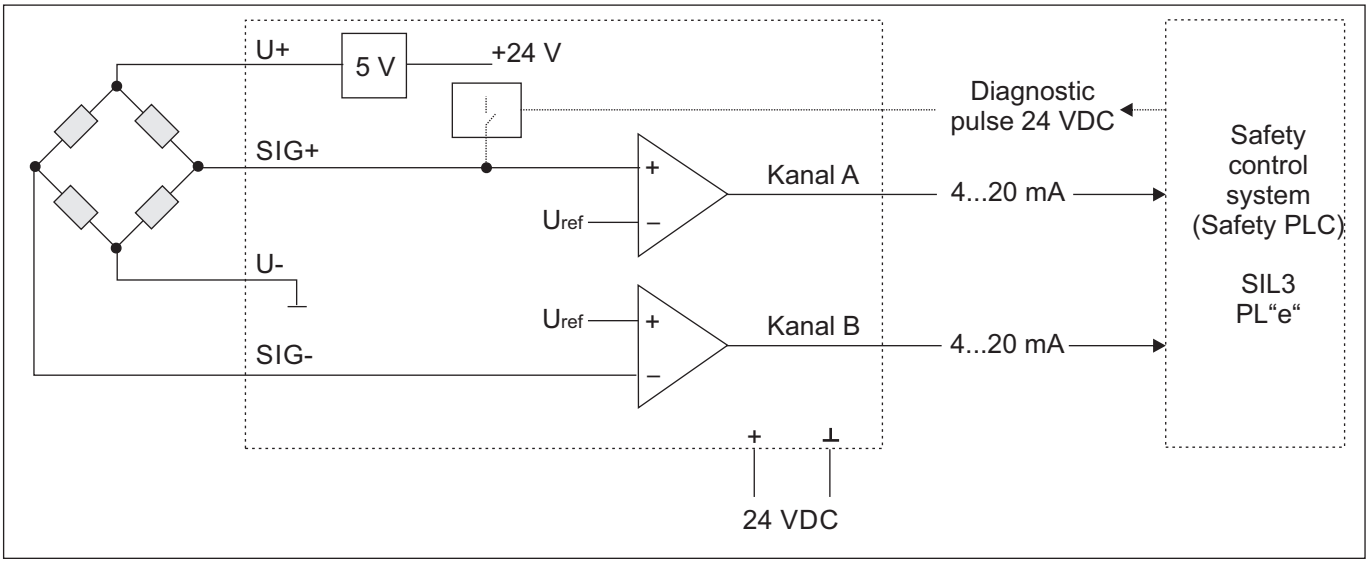

View side



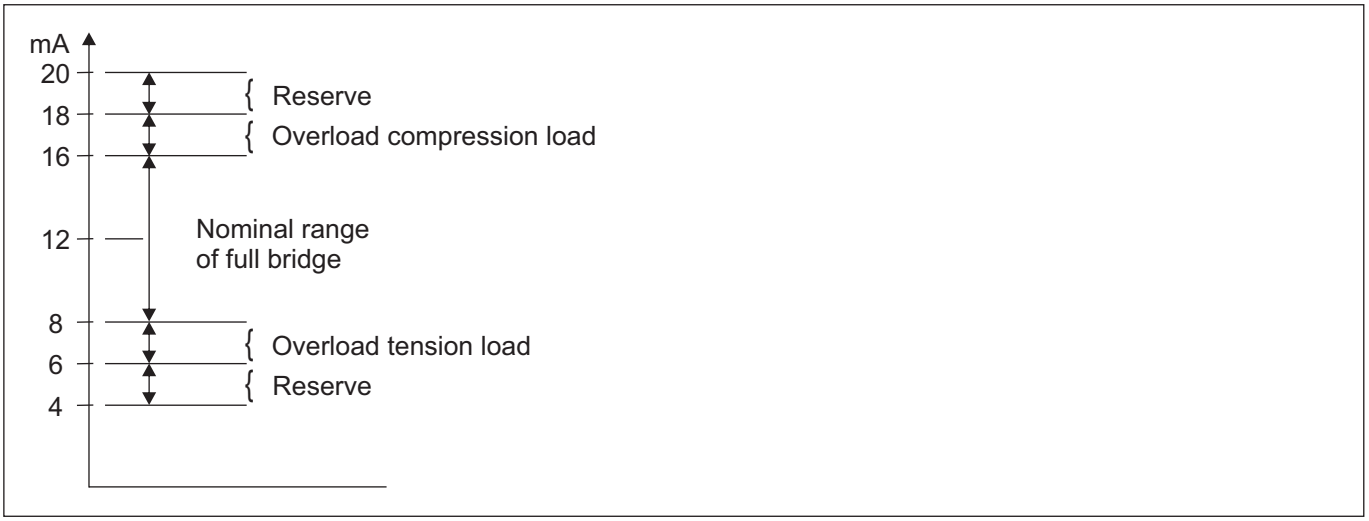

View top

## Function

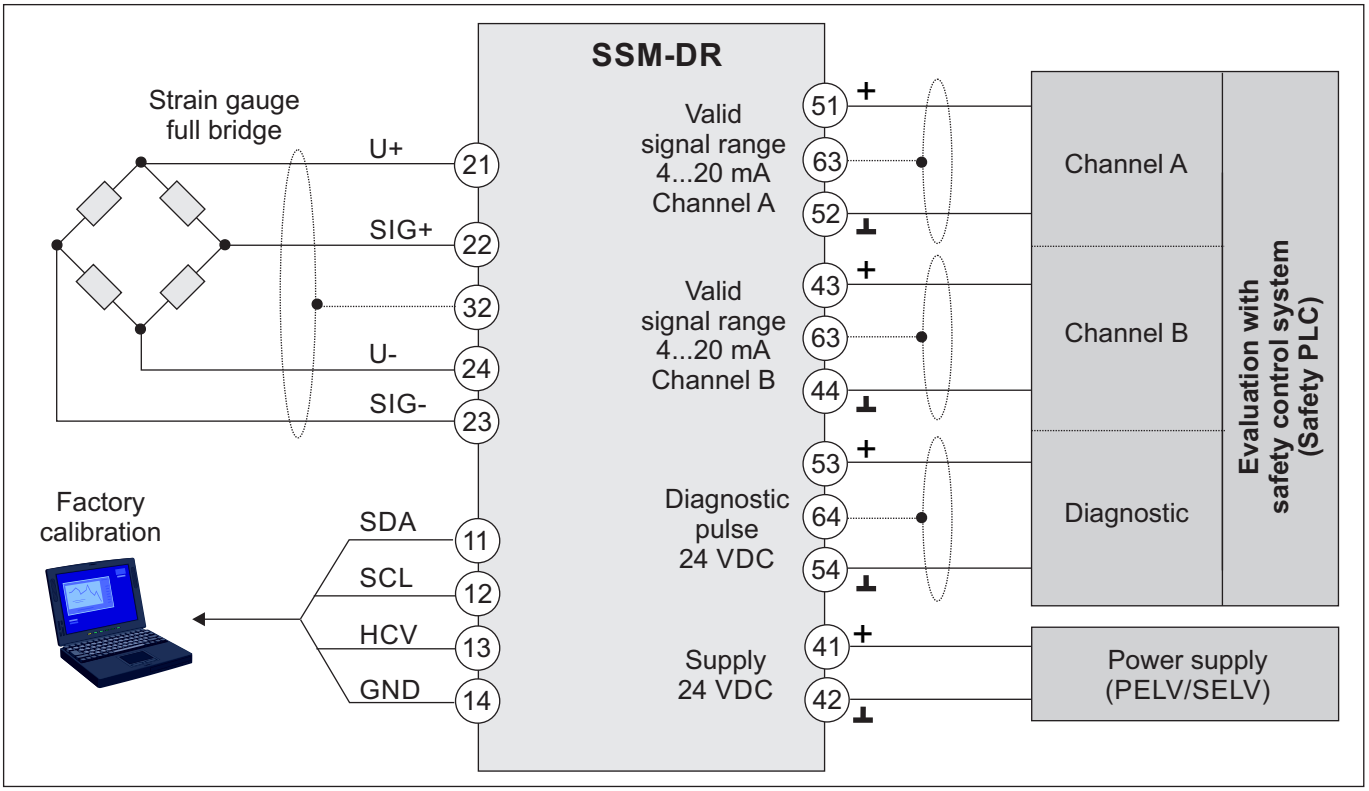
### General principle




### Output signal channel A and channel B



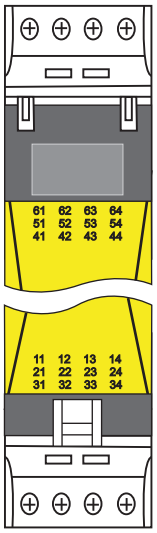

### Principle of connection (example)



## Connection terminals

| | | | |
|---|---|---|---|
| 61 | 62 | 63 | 64 |
| 51 | 52 | 53 | 54 |
| 41 | 42 | 43 | 44 |

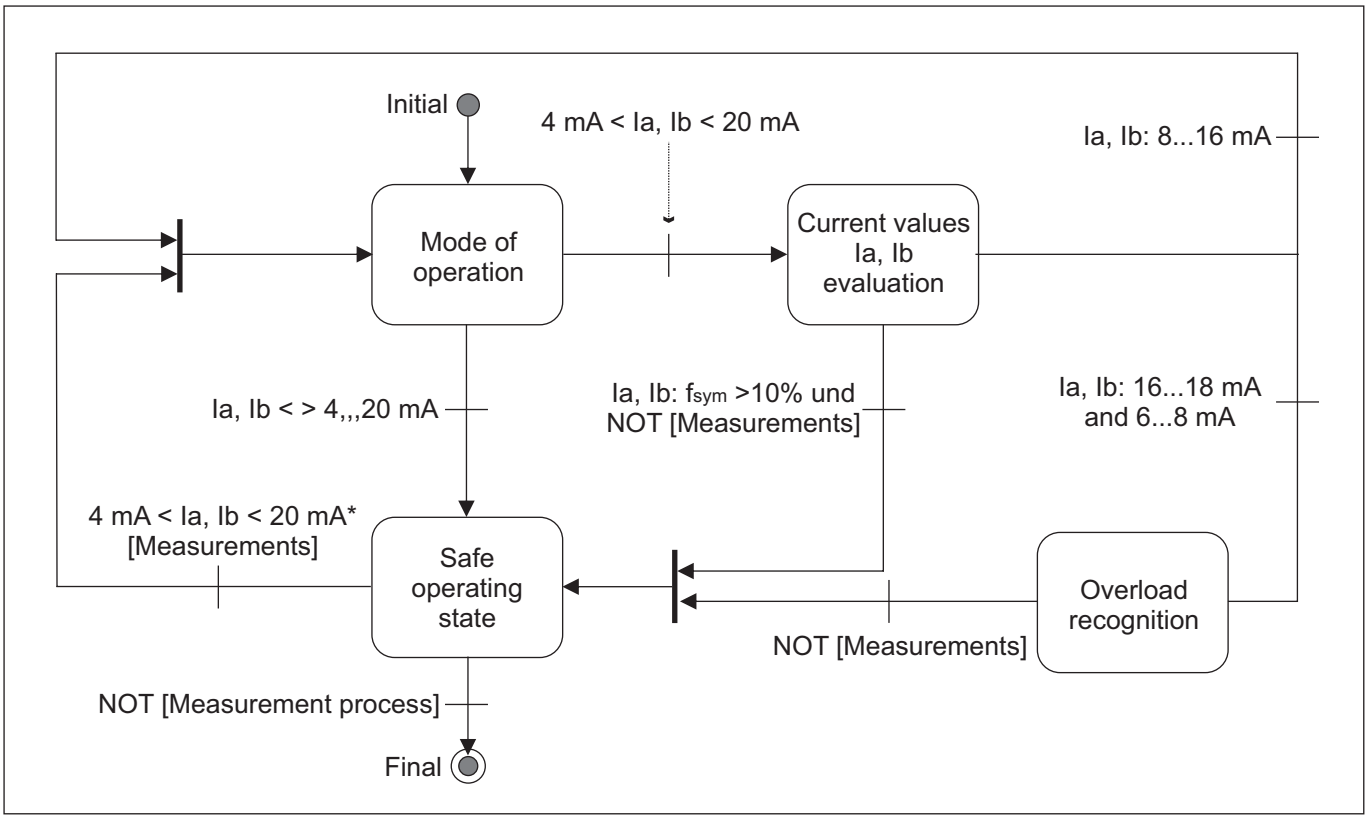
upper row




| | | | |
|---|---|---|---|
| 11 | 12 | 13 | 14 |
| 21 | 22 | 23 | 24 |
| 31 | 32 | 33 | 34 |

upper row

## Evaluation concept PLC (finite state machine (FSM))




## Ordering information

**Bridge measuring amplifier SIL3 und PL „e“:**

1 bridge input and 2 analog outputs

**Order No.: 0600-00492**

Subject to change, version 42-429