



#### Main features:

- Available for all Sensormate sensors (2/4 bridges)
- Direct display of the measured values in  $\mu\epsilon$ , kN or t
- High accuracy and stable reset
- Automatic reset, external reset and alarm output
- Ideal for control cabinet installation (96x96mm, DIN 43700)
- Battery operation possible (optional) / not rechargeable

The DU-1D Monitor is an industrial signal amplifier and monitor for strain gauges and strain sensors. It has integrated functions for external and internal (automatic) reset. Force measurement on tie bars displays in kN or tons and diameter input. Strain measurement displays in  $\mu\epsilon$  (micro strain). Direct switch units and change parameters. The handling is very user-friendly

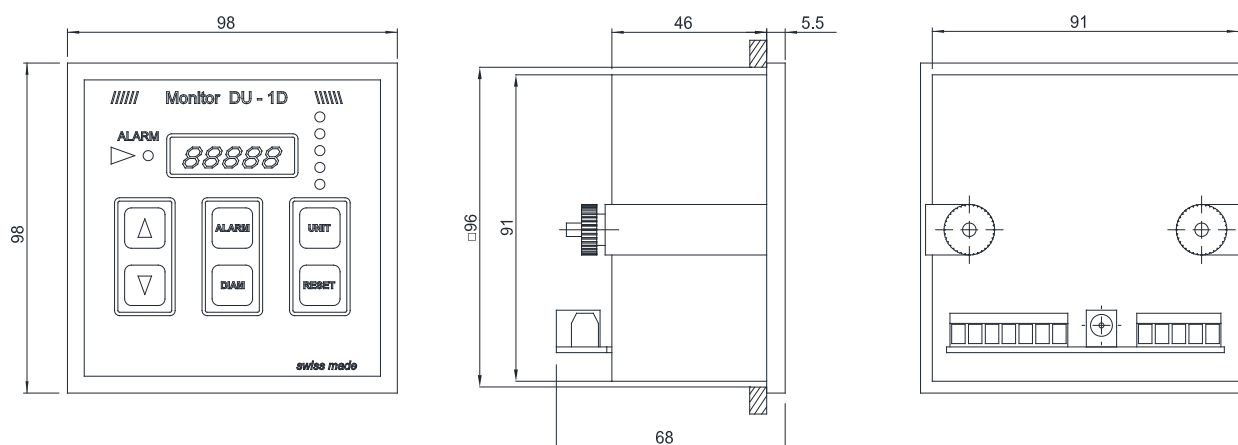
Application: The device DU-1D is used in conjunction with tie bar strain-sensors of the Gefran Schweiz AG for the control of the clamping force on presses, injection-moulding and die-casting machines. The ALARM relay allows to stop the machine in case of overload. Ideal to retrofit on existing machines.

#### TECHNICAL DATA

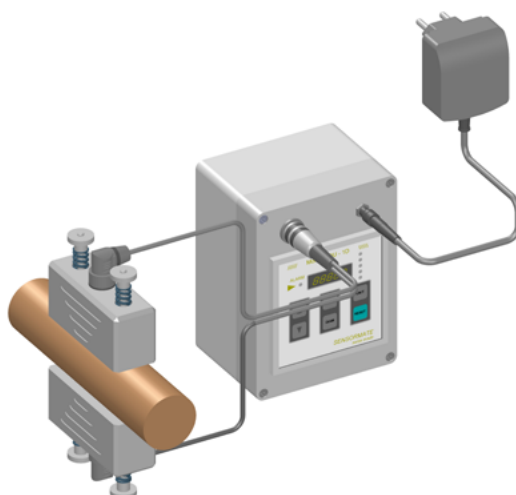
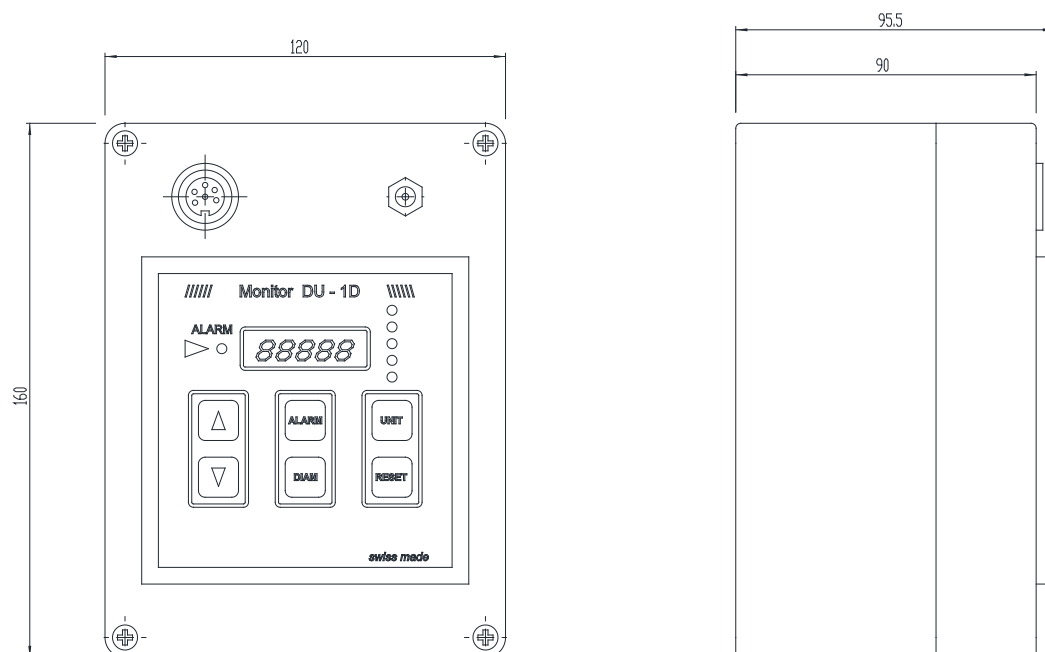
|                                     |                                        |
|-------------------------------------|----------------------------------------|
| Input Bridge resistance             | 350...1000 $\Omega$                    |
| Signal input range (FS)             | 0.1...1mV/V                            |
| Resolution ADC                      | 16-Bit                                 |
| Sampling rate                       | 500Hz                                  |
| Output rate                         | 40Hz                                   |
| Display refresh                     | 100Hz                                  |
| Output signal                       | Display ( $\pm$ 9999 digit, 1 channel) |
| Noise                               | $\leq$ 1 digit                         |
| Accuracy                            | $< \pm 0.5\%$ FS                       |
| Accuracy of zero point              | $\leq$ 1 digit                         |
| Linearity                           | $< \pm 0.5\%$ FS                       |
| Alarm reaction time                 | $> 25\text{ms}$                        |
| Reset time                          | $> 200\text{ms}$                       |
| Reset voltage                       | 15...28VDC                             |
| Supply voltage                      | 12VDC                                  |
| Supply current                      | $< 100\text{mA}$                       |
| Inverse polarity protection         | Yes                                    |
| Accidental short-circuit protection | No                                     |
| Operating temperatur range          | 0...+65°C                              |
| Storage temperatur range            | -40...+80°C                            |
| Temperature coefficient at 10°C     | $< 0.1$ (0.05 typical)                 |
| Protection class                    | IP50                                   |
| EMC                                 | 2014/30/EU                             |
| Case material                       | Plastic                                |
| Weight                              | 210g                                   |

## DIMENSIONS

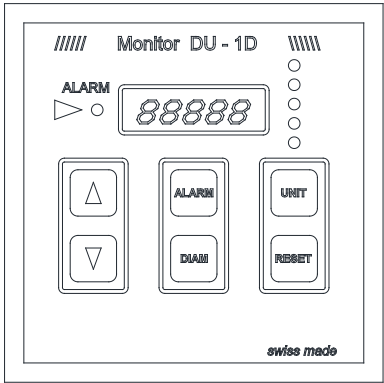
### Option: Installation-Housing



### Option: Box- Housing



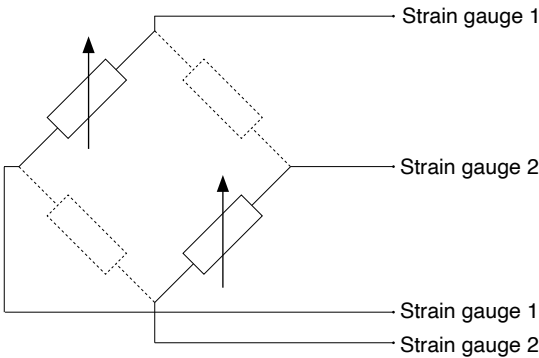
FACEPLATE DESCRIPTION



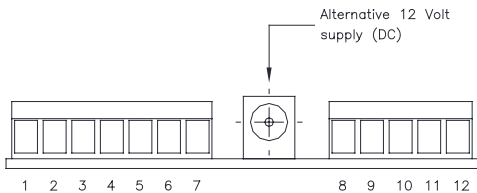
|                  |                                  |
|------------------|----------------------------------|
|                  | Decrease chosen value            |
|                  | Increase chosen value            |
| <b>ALARM</b>     | Set alarm threshold              |
| <b>DIAM</b>      | Set tie-bar diameter             |
| <b>UNIT</b>      | Select unit (µε, kN or tons)     |
| <b>RESET</b>     | Set measurement to zero          |
| <b>LED's</b>     | Indicate actual unit and/or mode |
| <b>ALARM LED</b> | LED on = alarm out active        |

ELECTRICAL CONNECTIONS

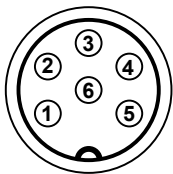
2/4 bridge sensor



Option: Installation-Housing



Option: Box-Housing



| Option:<br>Installation<br>Housing | Function               | Option:<br>Box<br>Housing |
|------------------------------------|------------------------|---------------------------|
| Connection<br>pin                  |                        | Connection<br>M16 x 6-pin |
| 1                                  | Power supply 12VDC     | Alternative<br>Connection |
| 2                                  | GND                    | Alternative<br>Connection |
| 3                                  | Reset +                | -                         |
| 4                                  | Reset -                | -                         |
| 5                                  | Alarm switch           | -                         |
| 6                                  | Alarm switch<br>open   | -                         |
| 7                                  | Alarm switch<br>closed | -                         |
| 8                                  | Strain gauge 1         | 1                         |
| 9                                  | Strain gauge 1         | 2                         |
| 10                                 | Shield                 | -                         |
| 11                                 | Strain gauge 2         | 4                         |
| 12                                 | Strain gauge 2         | 5                         |
| -                                  | -                      | -                         |

## ORDER CODE

1- CHANNEL DIGITAL MONITOR

DU1D -   -  -

| Calibration for   |           |
|-------------------|-----------|
| QE1008-C          |           |
| 3 m cable lenght  | <b>03</b> |
| 5 m cable lenght  | <b>05</b> |
| 10 m cable lenght | <b>10</b> |
| For other sensors | <b>00</b> |

| Box housing      |          |
|------------------|----------|
| With Box housing | <b>B</b> |
| None             | <b>N</b> |

| Features                    |            |
|-----------------------------|------------|
| With battery case           | <b>BAT</b> |
| US-tons instead of tons     | <b>UST</b> |
| With battery case + US-tons | <b>BUS</b> |
| No features                 | <b>000</b> |

Example: DU1D - 05 - N - 000

1- channel digital monitor, calibrated for 5m cable lenght, no Box housing, no features

## ACCESSORIES

| Description                                                                                                                                                                                                                                                                                                                                                                                          | Order code            | Code    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|
| Connector-cable (0.3m) for sensors (open leads)                                                                                                                                                                                                                                                                                                                                                      | C - 680 - 003 - O - S | F062410 |
| Power supply 12VDC for DU-1D (incl. 4x plug adapter)     |                       | F069683 |

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

# GEFRAN

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