

## Force - Measuring Head Series STAK 1390

STAK 1390



STAK 1390-AL



STAK 1390-C



Type STAK 1390 is a compact, precise and reliable measuring head for compression and tensile forces. It contains all necessary components for measurement in a very flat housing.

- Measuring system
- Amplifier with analogue output
- Adjustment for zero ( tare )
- Adjustment for amplifying ( calibration )

It is easy to fix it into the production-line and it is ready for operation immediately. Fixing the sensor is optional, several sensors can be stacked on one block.

Type STAK 1390 is available for service voltages of 5 V, 12 V, 24 V or  $\pm 15V$ . Therewith it is compatible to most of the existing sources of tension.

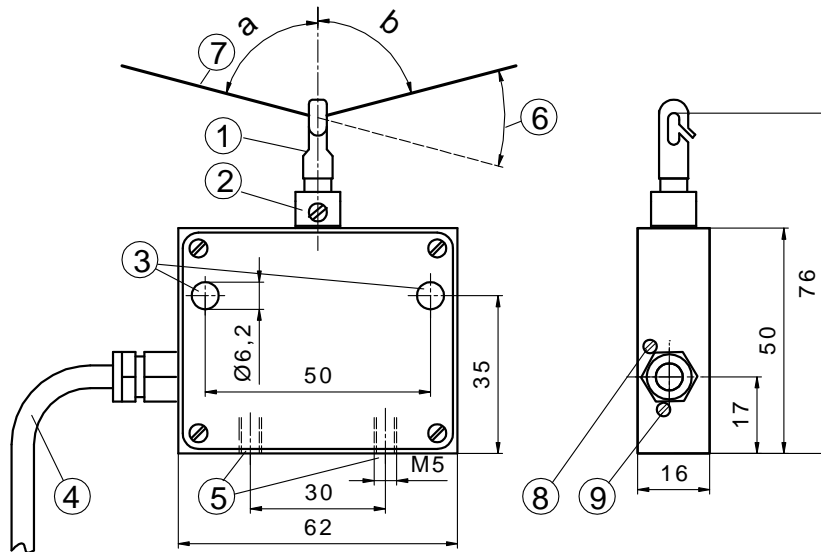
The analogue output supplies a tension of  $0 \dots \pm 10 V$ , which is proportional to the measuring results. This signal can be used as actual value for controlling.

|                               |   |
|-------------------------------|---|
| <i>Application:</i>           | Measuring tensile forces on: threads, wires, yarn and other flexible material by creating an angle of contact in the measuring-hook.  |
| <i>Characteristics:</i>       | Direct measurement of tensile - and compression forces<br>Having less space - stacked arrangement of several sensors is possible  |
| <i>Nominal loads:</i>         | <b>STAK 1390:</b> 2 N, 3 N, 4 N, 5 N, 6 N, 10 N, 20 N, 30 N,<br><b>STAK 1390-C:</b> 30N, 50 N, 100 N, 200N, 300 N, 400 N, 500 N      others upon request  |
| <i>Overload protection:</i>   | 4- > 10 times the nominal load. Safe protection from unexpected operation-conditions.   |
| <i>Calibration:</i>           | Electrical zero and gain are adjustable by means of a screw-driver.   |
| <i>Measuring principle:</i>   | The force, acting on the sensor, causes a proportional, minimal deformation of a complex formed bending - beam. The built-in strain-gage full-bridge transforms this deformation into a proportional electric outputsignal. |
| <i>Housing:</i>               | Aluminium alloy, <i>Weight:</i> approx. 150 g, STAK 1390-C approx.350 g without connection cable  |
| <i>Connection cable:</i>      | fixed, length 3 m   |
| <i>Volume of delivery:</i>    | Measuring head, Instruction manual  |
| <i>Accessories available:</i> | other sensor ( instead the ceramic hook ) upon request.<br>digital indicating instruments SA DMS 610 E or SA 310 DMS  |

**Technical data :**

**Force Measuring head Series STAK 1390, STAK 1190**

Dimensions :



- |                          |  |
|--------------------------|--|
| 1 = Measuring-hook       | 6 = Angle of contact                   |
| 2 = Sensor               | 7 = Material to be measured            |
| 3 = Fixing - holes       | 8 = Adjusting the zero ( Tare )        |
| 4 = Connection cable 3 m | 9 = Adjusting the gain ( Calibration ) |
| 5 = Fixing threads       | a,b = identical angle                  |

**max. thread-length ( 5 ) = 6 mm, longer screws destroy the built-in amplifier**

**STAK 1190**

|                       |   |                         |                          |
|-----------------------|---|-------------------------|--------------------------|
| <b>Nominal loads:</b> | <b>3 N, 4 N, 5 N, 6 N, 10 N, 20 N, 30 N</b> |                         |                          |
| Resistant Input:      | 350 Ohm                                     | Error meas. System:     | < 0,3 %                  |
| Resistant output:     | 350 Ohm                                     | Meas.principle:         | strain-gage, full-bridge |
| Charact.temp.range:   | + 5°C ...+ 60°C                             | Self-frequency:         | 200 Hz to 500 Hz         |
| Coef.of temp.:        | < +- 0,01 %/°C                              | Charact. Value:         | 1,5 mV / V               |
| Overload-protection:  | 4 - 10 times                                | Max. bridge-excitation: | 10 V                     |
| Protection:           | IP 50                                       | Connection cable fixed: | 3 m long                 |

**STAK 1390 (STAK 1190 with built-in amplifier )**

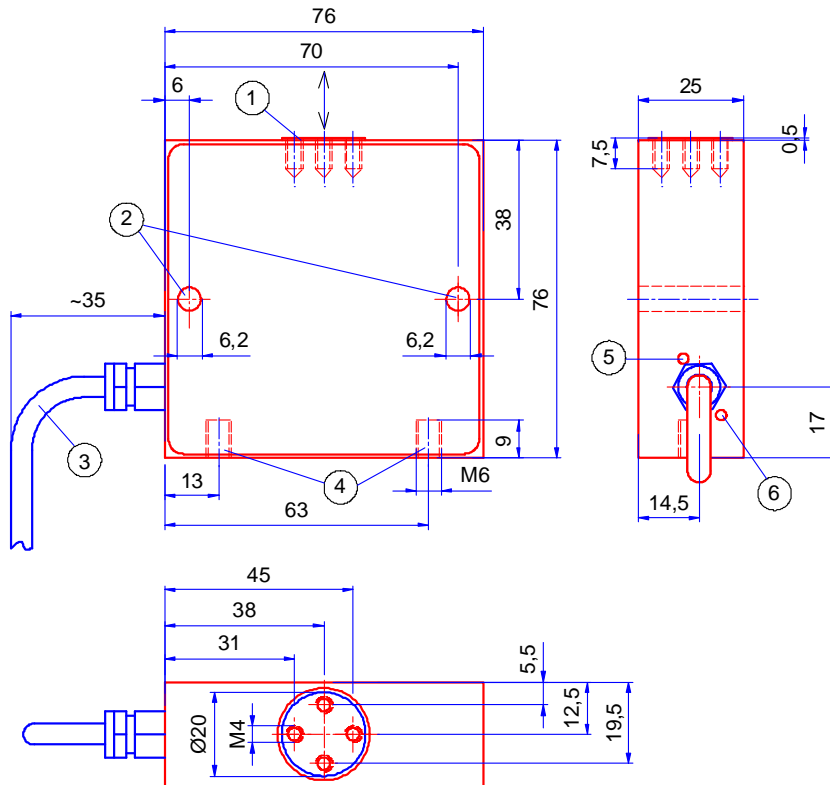
|                      |  |                      |                 |
|----------------------|--|----------------------|-----------------|
| <b>Nominal loads</b> | <b>2 N, 3 N, 4 N, 5 N, 6 N, 10 N, 20 N, 30 N</b> |                      |                 |
| Service voltage:     | 5 V ± 10% / < 90 mA                              | Overload protection: | 4 - 10 times    |
|                      | 12 V ± 10% / < 70 mA                             | Protection:          | IP 50           |
|                      | 24 V ± 10% / < 35 mA                             | Filter:              | 30 Hz 3dB       |
|                      | ±15V / < 20mA / 6 mA                             | Error meas.system:   | < 0,3 %         |
|                      |  | Charact.temp.range:  | + 5°C ...+ 60°C |
|                      |  | Coef. of temp.:      | < +- 0,02 %/°C  |

Connection cable, fixed: 3 m long

**Technical data:**

**Force Measuring head Series STAK 1390, STAK 1190**

Dimensions:



- 1 = Sensor
- 2 = Fixing – holes
- 3 = Connection cable 3 m
- 4 = Fixing threads  
**max. thread-length 6 mm,  
longer screws destroy the built-in  
amplifier**
- 5 = Adjusting the zero point ( Tare )
- 9 = Adjusting the gain ( Calibration )

**STAK 1190**

**Nominal loads** 100 N, 200 N, 300 N, 400 N, 500 N

|                             |                 |                                |                          |
|-----------------------------|-----------------|--------------------------------|--------------------------|
| <i>Resistant Input:</i>     | 350 Ohm         | <i>Error meas. System:</i>     | < 0,3 %                  |
| <i>Resistant output:</i>    | 350 Ohm         | <i>Meas.principle:</i>         | strain-gage, full-bridge |
| <i>Charact.temp.range:</i>  | + 5°C ...+ 60°C | <i>Self-frequency:</i>         | 200 Hz to 300Hz          |
| <i>Coef.of temp.:</i>       | < + 0,01 %/°C   | <i>Charact. Value:</i>         | 1,5 mV / V               |
| <i>Overload-protection:</i> | 4 - 10 times    | <i>Max. bridge-excitation:</i> | 10 V                     |
| <i>Protection:</i>          | IP 50           | <i>Connection cable fixed:</i> | 3 m long                 |

**STAK 1390** ( STAK 1190 with built-in amplifier )

**Nominal loads** 100 N, 200 N, 300 N, 400 N, 500 N

|                        |            |                 |                           |                 |
|------------------------|------------|-----------------|---------------------------|-----------------|
| <i>Service voltage</i> | 5 V ± 10%  | / < 90 mA       | <i>Protection</i>         | IP 50           |
|                        | 12 V ± 10% | / < 70 mA       | <i>Filter</i>             | 30 Hz 3dB       |
|                        | 24 V ± 10% | / < 35 mA       | <i>Error meas.system</i>  | < 0,3 %         |
|                        | ±15V       | / < 20mA / 6 mA | <i>Charact.temp.range</i> | + 5°C ...+ 60°C |
|                        |            |                 | <i>Connection cable</i>   | fixed, 3 m long |