

# Seat Belt Sensors

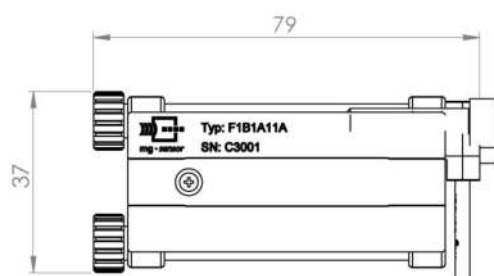
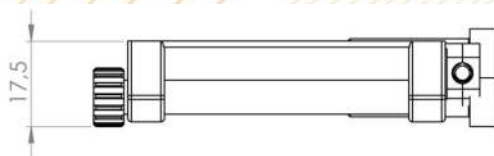
| Location             | Axial | Model*                   | Page |
|----------------------|-------|--------------------------|------|
| Seat Belt            | 1     | <a href="#">F1B1A11A</a> | 175  |
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\*additional versions available on request!

|                                                                                                   |                                                                                                          |                  |                                 |  |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------|---------------------------------|--|
| <b>F1B1A11A</b>  | Description                                                                                              |                  | Load Cell, 1-axial<br>Seat Belt |  |
|                                                                                                   | Measuring range                                                                                          | kN               | 16                              |  |
|                                                                                                   | Sensitivity <sup>1)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i>       | mV/V/kN<br>mV/kN | 0,18<br>5,9                     |  |
|                                                                                                   | Output signal <sup>1), 2)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i> | mV/V<br>mV       | 2,9<br>95                       |  |
|                                                                                                   | Bridge resistance                                                                                        | Ω                | 350                             |  |
|                                                                                                   | Zero signal <sup>1)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i>       | mV/V<br>mV       | ≤ 0,05<br>≤ 1,5                 |  |
|                                                                                                   | Amplitude non-linearity <sup>3)</sup><br><i>without/with linearizing circuit</i>                         | %                | ≤ 3,0/ ≤ 1,0                    |  |
|                                                                                                   | Hysteresis <sup>3)</sup>                                                                                 | %                | -                               |  |
|                                                                                                   | Supply voltage<br><i>without/with linearizing circuit</i>                                                | V                | 2–15/ 5-10                      |  |
|                                                                                                   | Ultimate load                                                                                            | %                | 150                             |  |
|                                                                                                   | Insulation resistance                                                                                    | MΩ               | > 100                           |  |
|                                                                                                   | Temperature range                                                                                        | °C               | –30..+70                        |  |
|                                                                                                   | Band thickness                                                                                           | mm               | ≤ 1,3                           |  |
|                                                                                                   | Band width                                                                                               | mm               | 50,8 (2")                       |  |
|                                                                                                   | Weight (approximate)                                                                                     | g                | 83                              |  |

All values measured at 10 V sensor supply voltage and at 23 °C,  
with standard Berger 08022/2/0702 belt type.

<sup>1)</sup> Typical value, <sup>2)</sup> At nominal load, <sup>3)</sup> Relative nominal range



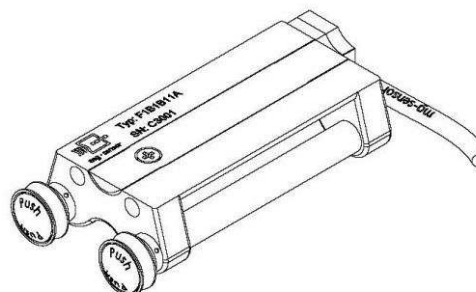
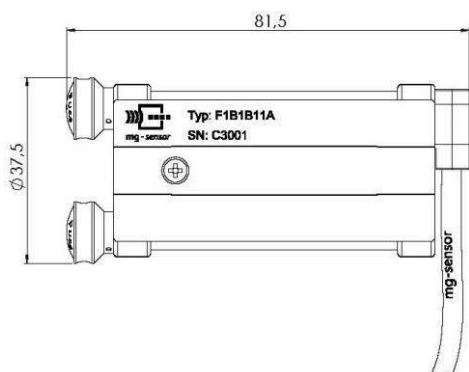
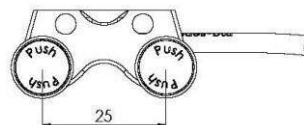
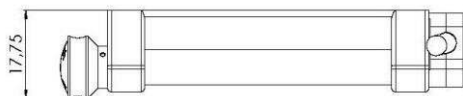
# F1B1B11A



| Description                                                                                | Load Cell, 1-axial<br>Seat Belt |                 |
|--------------------------------------------------------------------------------------------|---------------------------------|-----------------|
| Measuring range                                                                            | kN                              | 16              |
| Sensitivity <sup>1)</sup><br>without linearizing circuit<br>with linearizing circuit       | mV/V/kN<br>mV/kN                | 0,18<br>5,9     |
| Output signal <sup>1), 2)</sup><br>without linearizing circuit<br>with linearizing circuit | mV/V<br>mV                      | 2,9<br>95       |
| Bridge resistance                                                                          | Ω                               | 350             |
| Zero signal <sup>1)</sup><br>without linearizing circuit<br>with linearizing circuit       | mV/V<br>mV                      | ≤ 0,05<br>≤ 1,5 |
| Amplitude non-linearity <sup>3)</sup><br>without/with linearizing circuit                  | %                               | ≤ 3,0/≤ 1,0     |
| Hysteresis <sup>3)</sup>                                                                   | %                               | -               |
| Supply voltage<br>without/with linearizing circuit                                         | V                               | 2–15/5-10       |
| Ultimate load                                                                              | %                               | 150             |
| Insulation resistance                                                                      | MΩ                              | > 100           |
| Temperature range                                                                          | °C                              | –30..+70        |
| Band thickness                                                                             | mm                              | ≤ 1,3           |
| Band width                                                                                 | mm                              | 50,8 (2")       |
| Weight (approximate)                                                                       | g                               | 83              |

All values measured at 10 V sensor supply voltage and at 23 °C,  
with standard Berger 08022/2/0702 belt type.

<sup>1)</sup> Typical value, <sup>2)</sup> At nominal load, <sup>3)</sup> Relative nominal range



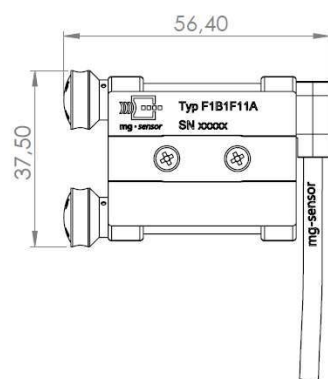
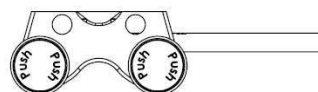
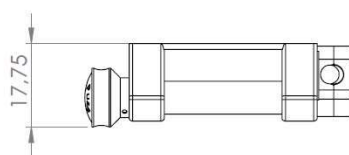


**F1B1F11A**

| Description                           | Load Cell, 1-axial<br>Seat Belt (Children) |          |
|---------------------------------------|--------------------------------------------|----------|
| Measuring range                       | kN                                         | 6,0      |
| Sensitivity <sup>1)</sup>             | mV/V/kN                                    | 0,37     |
| Output signal <sup>1), 2)</sup>       | mV/V                                       | 2,2      |
| Bridge resistance                     | Ω                                          | 350      |
| Zero signal <sup>1)</sup>             | mV/V                                       | ≤ 0,05   |
| Amplitude non-linearity <sup>3)</sup> | %                                          | ≤ 1,0    |
| Hysteresis <sup>3)</sup>              | %                                          | -        |
| Supply voltage                        | V                                          | 2–15     |
| Ultimate load                         | %                                          | 150      |
| Insulation resistance                 | MΩ                                         | > 100    |
| Temperature range                     | °C                                         | –30..+70 |
| Band thickness                        | mm                                         | ≤ 1,4    |
| Band width                            | mm                                         | 25       |
| Weight (approximate)                  | g                                          | 45       |

All values measured at 10 V sensor supply voltage and at 23 °C, with standard 25 mm Duo plus belt (children).

<sup>1)</sup> Typical value, <sup>2)</sup> At nominal load, <sup>3)</sup> Relative nominal range

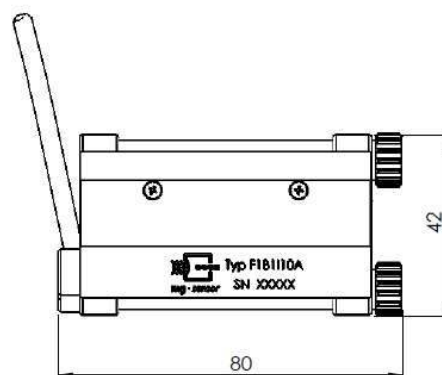
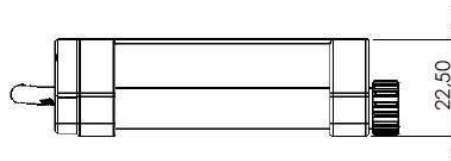
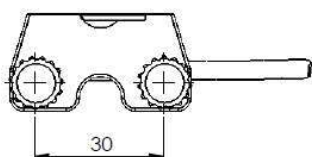


**F1B1I11A**

| Description                                                                                              | Load Cell, 1-axial<br>Seat Belt |                 |
|----------------------------------------------------------------------------------------------------------|---------------------------------|-----------------|
| Measuring range                                                                                          | kN                              | 25              |
| Sensitivity <sup>1)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i>       | mV/V/kN<br>mV/kN                | 0,092<br>0,63   |
| Output signal <sup>1), 2)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i> | mV/V<br>mV                      | 2,3<br>16       |
| Bridge resistance                                                                                        | Ω                               | 350             |
| Zero signal <sup>1)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i>       | mV/V<br>mV                      | ≤ 0,05<br>≤ 0,5 |
| Amplitude non-linearity <sup>3)</sup><br><i>without/with linearizing circuit</i>                         | %                               | ≤ 1,0/≤ 1,0     |
| Hysteresis <sup>3)</sup>                                                                                 | %                               | -               |
| Supply voltage<br><i>without/with linearizing circuit</i>                                                | V                               | 2–15/5-10       |
| Ultimate load                                                                                            | %                               | 150             |
| Insulation resistance                                                                                    | MΩ                              | > 100           |
| Temperature range                                                                                        | °C                              | –30..+70        |
| Band thickness                                                                                           | mm                              | ≤ 2,9           |
| Band width                                                                                               | mm                              | 50              |
| Weight (approximate)                                                                                     | g                               | 154             |

All values measured at 10 V sensor supply voltage and at 23 °C.

<sup>1)</sup> Typical value, <sup>2)</sup> At nominal load, <sup>3)</sup> Relative nominal range

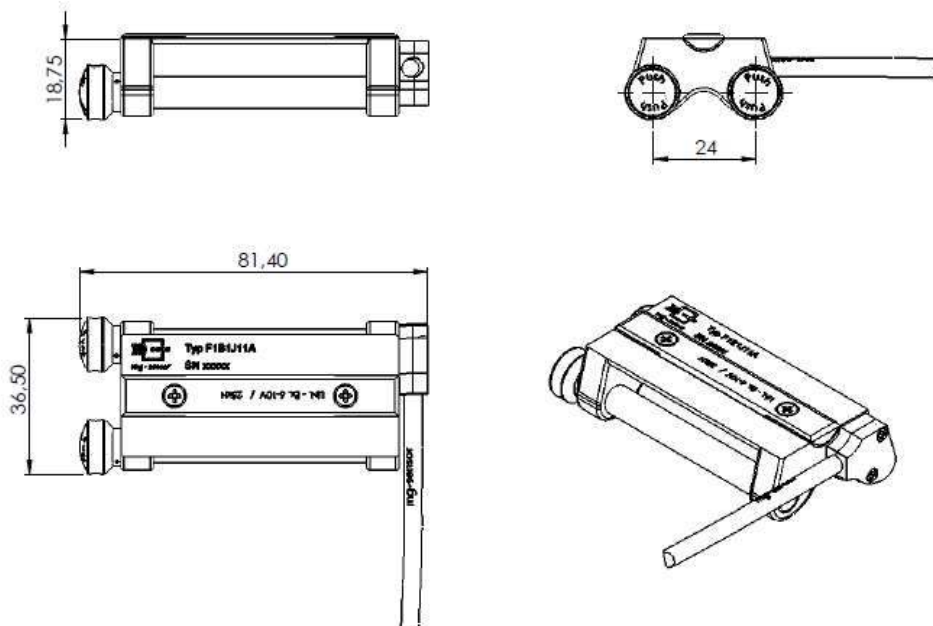


**F1B1J11A**

| Description                                                                                              | Load Cell, 1-axial<br>Seat Belt |                 |
|----------------------------------------------------------------------------------------------------------|---------------------------------|-----------------|
| Measuring range                                                                                          | kN                              | 25              |
| Sensitivity <sup>1)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i>       | mV/V/kN<br>mV/kN                | 0,092<br>84     |
| Output signal <sup>1), 2)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i> | mV/V<br>mV                      | 2,3<br>2100     |
| Bridge resistance                                                                                        | Ω                               | 350             |
| Zero signal <sup>1)</sup><br><i>without linearizing circuit</i><br><i>with linearizing circuit</i>       | mV/V<br>mV                      | ≤ 0,05<br>≤ 1,5 |
| Amplitude non-linearity <sup>3)</sup><br><i>without/with linearizing circuit</i>                         | %                               | ≤ 3,0/≤ 1,0     |
| Hysteresis <sup>3)</sup>                                                                                 | %                               | -               |
| Supply voltage<br><i>without/with linearizing circuit</i>                                                | V                               | 2–15/5-10       |
| Ultimate load                                                                                            | %                               | 150             |
| Insulation resistance                                                                                    | MΩ                              | > 100           |
| Temperature range                                                                                        | °C                              | –30..+70        |
| Band thickness                                                                                           | mm                              | ≤ 1,3           |
| Band width                                                                                               | mm                              | 50              |
| Weight (approximate)                                                                                     | g                               | 90              |

All values measured at 10 V sensor supply voltage and at 23 °C.

<sup>1)</sup> Typical value, <sup>2)</sup> At nominal load, <sup>3)</sup> Relative nominal range





**F1B1M11A**

| Description                           | Load Cell, 1-axial<br>Seat Belt (Children) |          |
|---------------------------------------|--------------------------------------------|----------|
| Measuring range                       | kN                                         | 3,0      |
| Sensitivity <sup>1)</sup>             | mV/V/kN                                    | 400      |
| Output signal <sup>1), 2)</sup>       | mV/V                                       | 1,2      |
| Bridge resistance                     | Ω                                          | 350      |
| Zero signal <sup>1)</sup>             | mV/V                                       | ≤ 0,05   |
| Amplitude non-linearity <sup>3)</sup> | %                                          | ≤ 1,5    |
| Hysteresis <sup>3)</sup>              | %                                          | -        |
| Supply voltage                        | V                                          | 2–15     |
| Ultimate load                         | %                                          | 150      |
| Insulation resistance                 | MΩ                                         | > 100    |
| Temperature range                     | °C                                         | –30..+70 |
| Band thickness                        | mm                                         | ≤ 1,4    |
| Band width                            | mm                                         | 25,4     |
| Weight (approximate)                  | g                                          | -        |

All values measured at 10 V sensor supply voltage and at 23 °C.

<sup>1)</sup> Typical value, <sup>2)</sup> At nominal load, <sup>3)</sup> Relative nominal range

