

# M21-M31-M41-M61 Pressure gauges with electrical contacts

**M21/M31 - Differential pressure**

**M41 - Relative pressure with strong overpressure**

**M61 - Pression Absolue**

**Gauges with bellows Ø 150 mm**

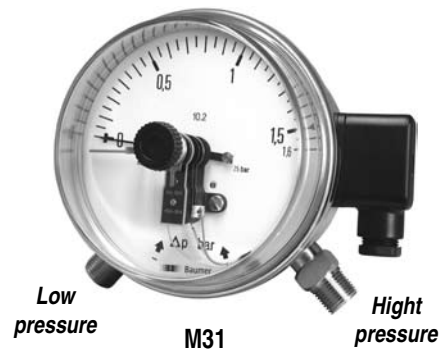
**For corrosive fluids and atmospheres**

**Dry contacts (CES)**

**Electrical part conforms to Low Voltage Directive  
DBT 73/23/CE**

Based upon the **MZ** (M21) - **MX** (M31) - **ME** (M41) - **MA** (M61) gauges of which they share all characteristics, they are fitted with electrical contact blocks allowing the following control functions:

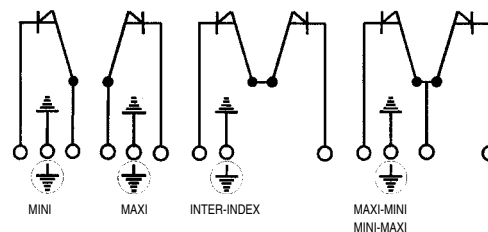
- single : min and max
- dual : min-max and max-min



## Specifications (20°C)

|  |  |
|--|--|
| <b>Measurement range</b>                                   | See table on next page   |
| <b>Accuracy</b>  | ± 3 %  |
| <b>Gauge working temperature</b>                           | -20...70°C<br>The gauge may be used on fluid temperatures up to 200°C providing that the gauge temperature does not exceed 70°C.   |
| <b>Protection rating</b>                                   | IP 65 according NF EN 60529.   |
| <b>Sensing element</b>                                     | Two 1.4404 (AISI 316L) stainless steel bellows.<br>Balance effect by high tensile leaf spring; mechanical start and end-of-travel stops to withstand full static pressure. |
| <b>Connections and parts in contact with process fluid</b> | 1.4301 (AISI 304) Stainless steel.<br>Thread: G 1/2 or 1/2 NPT.  |
| <b>Case and bezel ring</b>                                 | 1.4301 (AISI 304) Stainless steel.<br>bayonet lock type.   |
| <b>Window</b>  | Transparent polycarbonate domed<br>with watertight index adjustment knob.  |
| <b>Window gasket</b>                                       | Elastomer.   |
| <b>Movement</b>  | Stainless steel.   |
| <b>Dial</b>  | Aluminium alloy, rubber zero stop, black graduations and figures on white background..   |
| <b>Pointer</b>   | Aluminium alloy, black painted.  |
| <b>Electrical connection</b>                               | Terminal block. M20x1.5 cable gland<br>Ø 7 a 13 mm cable.  |

**Block diagram showing the contact block control functions:**

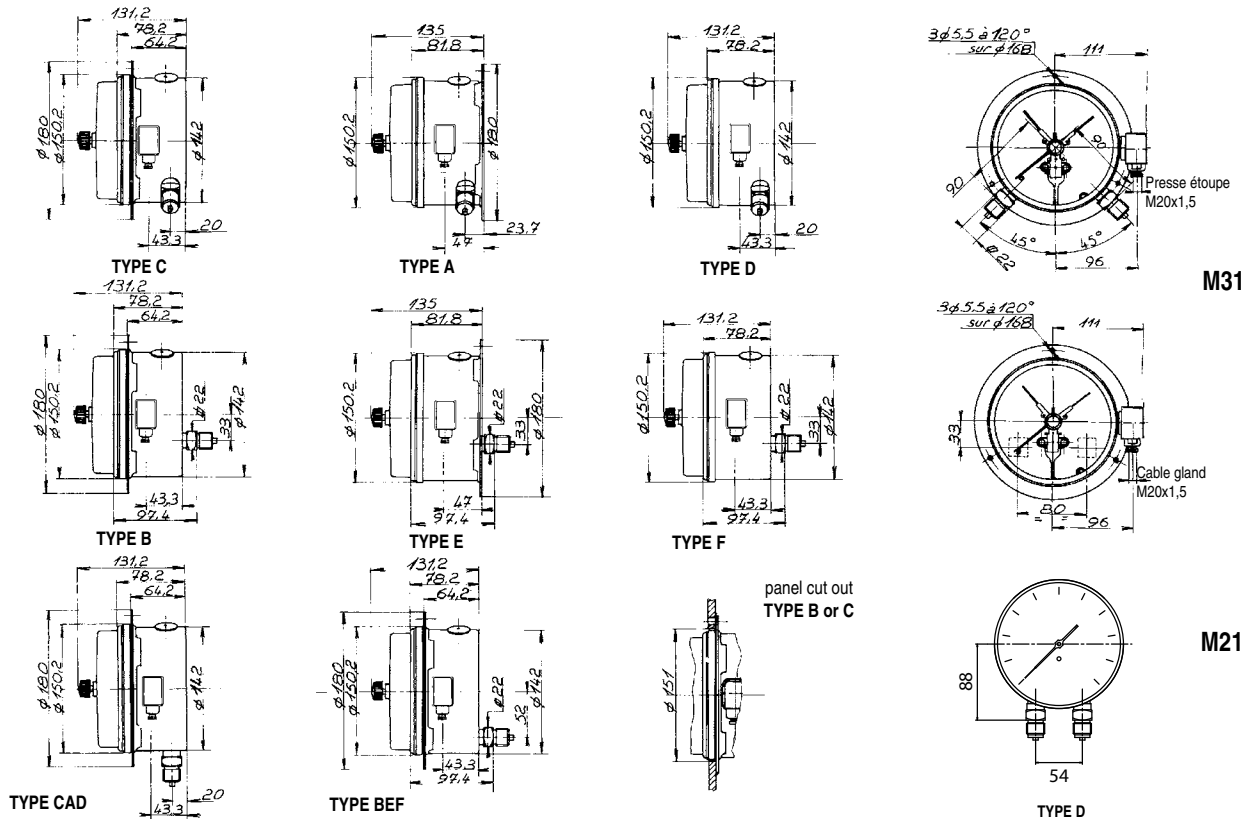


**Characteristics of electrical contacts and relays AREB: see data sheet A21.33**

### Options

- Contacts material : palladium silver, gilded contacts
- Oxygen application **Code 0765**
- Special threads ≤ G 1/2 or 1/2 NPT.
- Restrictor screw **Code 0771**
- Index regulation by a protected system **Code 0758**

## Dimensions (mm) - Type of mounting



## Measurement ranges (bar)

M61 (MA/CES)

| Code | Absolute pressure | Overpressure |   |     |     |   |   |    |    |    |    |    |     |   |
|------|-------------------|--------------|---|-----|-----|---|---|----|----|----|----|----|-----|---|
|      |                   | 0,6          | 1 | 1,6 | 2,5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 |   |
| 10   | 0 + 0,25          | *            | * | *   | *   | ⊗ | ⊗ | ○  | ●  |    |    |    |     |   |
| 11   | 0 + 0,4           | *            | * | *   | *   | * | * | ⊗  | ○  | ●  |    |    |     |   |
| 12   | 0 + 0,6           | *            | * | *   | *   | * | * | ⊗  | ●  |    |    |    |     |   |
| 15   | 0 + 1             |              | * | *   | *   | * | * | *  | ○  |    |    |    |     |   |
| 16   | 0 + 1,6           |              |   | *   | *   | * | * | *  | *  | ●  |    |    |     |   |
| 18   | 0 + 2,5           |              |   |     | *   | * | * | *  | *  | ○  |    |    |     |   |
| 19   | 0 + 4             |              |   |     |     | * | * | *  | *  | ⊗  | ⊗  |    |     |   |
| 20   | 0 + 6             |              |   |     |     |   | * | *  | *  | *  | *  | ●  |     |   |
| 22   | 0 + 10            |              |   |     |     |   |   | *  | *  | *  | *  | *  | ○   | ● |
| 24   | 0 + 16            |              |   |     |     |   |   |    | *  | *  | *  | *  | *   | ○ |
| Code |                   | A            | C | D   | E   | F | G | H  | J  | K  | L  | M  | N   |   |

Choose an absolute pressure range, corresponding to the maximum overpressure to which the gauge will be submitted. For an intermediate overpressure, take the value of the overpressure immediately above.

M41 (ME/CES)

| Code | Relative pressure | Overpressure |   |     |     |   |   |    |    |    |    |    |     |   |
|------|-------------------|--------------|---|-----|-----|---|---|----|----|----|----|----|-----|---|
|      |                   | 0,6          | 1 | 1,6 | 2,5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 |   |
| 09   | 0 + 0,16          | *            | * | *   | *   | ⊗ | ⊗ | ○  | ●  |    |    |    |     |   |
| 10   | 0 + 0,25          | *            | * | *   | *   | * | * | ⊗  | ○  | ●  |    |    |     |   |
| 11   | 0 + 0,4           | *            | * | *   | *   | * | * | ⊗  | ○  | ●  |    |    |     |   |
| 12   | 0 + 0,6           |              | * | *   | *   | * | * | *  | *  | ○  |    |    |     |   |
| 15   | 0 + 1             |              |   | *   | *   | * | * | *  | *  | *  | ●  |    |     |   |
| 16   | 0 + 1,6           |              |   |     | *   | * | * | *  | *  | *  | ○  |    |     |   |
| 18   | 0 + 2,5           |              |   |     |     | * | * | *  | *  | *  | ⊗  | ⊗  |     |   |
| 19   | 0 + 4             |              |   |     |     |   | * | *  | *  | *  | *  | *  | ●   |   |
| 20   | 0 + 6             |              |   |     |     |   |   | *  | *  | *  | *  | *  | *   | ○ |
| 22   | 0 + 10            |              |   |     |     |   |   |    | *  | *  | *  | *  | *   | ○ |
| Code |                   | A            | C | D   | E   | F | G | H  | J  | K  | L  | M  | N   |   |

Choose a relative pressure range, corresponding to the maximum overpressure to which the gauge will be submitted. For an intermediate overpressure, take the value of the overpressure immediately above.

M21 (MZ/CES) - M31 (MX/CES)

| Code | Differential pressure | Static pressure |   |     |     |   |   |    |    |    |    |    |     |   |
|------|-----------------------|-----------------|---|-----|-----|---|---|----|----|----|----|----|-----|---|
|      |                       | 0,6             | 1 | 1,6 | 2,5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 |   |
| 10   | 0 + 0,25              | *               | * | *   | *   | ⊗ | ⊗ | ○  | ●  |    |    |    |     |   |
| 11   | 0 + 0,4               | *               | * | *   | *   | * | * | ⊗  | ○  | ●  |    |    |     |   |
| 12   | 0 + 0,6               | *               | * | *   | *   | * | * | ⊗  | ○  | ●  |    |    |     |   |
| 15   | 0 + 1                 |                 | * | *   | *   | * | * | *  | ○  |    |    |    |     |   |
| 16   | 0 + 1,6               |                 |   | *   | *   | * | * | *  | *  | ●  |    |    |     |   |
| 18   | 0 + 2,5               |                 |   |     | *   | * | * | *  | *  | ○  |    |    |     |   |
| 19   | 0 + 4                 |                 |   |     |     | * | * | *  | *  | ⊗  | ⊗  |    |     |   |
| 20   | 0 + 6                 |                 |   |     |     |   | * | *  | *  | *  | *  | ●  |     |   |
| 22   | 0 + 10                |                 |   |     |     |   |   | *  | *  | *  | *  | *  | ○   | ● |
| 24   | 0 + 16                |                 |   |     |     |   |   |    | *  | *  | *  | *  | *   | ○ |
| 26   | 0 + 25                |                 |   |     |     |   |   |    |    | *  | *  | *  | *   | * |
| Code |                       | A               | C | D   | E   | F | G | H  | J  | K  | L  | M  | N   |   |

Choose a differential pressure range  $\Delta P$ , corresponding to the maximum static pressure to which the gauge will be submitted. For an intermediate static pressure, take the value of the static pressure immediately above.

### Accuracy for all these pressure gauges :

- \* Accuracy  $\pm 3\%$  on 270°
- ⊗ Accuracy  $> 3\%$  on 270°
- Accuracy  $> 3\%$  on 170°
- Accuracy  $> 3\%$  on 100°

Values for readings in undisturbed areas

## Ordering details - M21/M31/M41/M61

|  |                    | Mxxxxxxxx |  |  |  |    |   |
|--|--------------------|-----------|--|--|--|----|---|
| <b>Family</b>  | <b>1 Digit</b>     |           |  |  |  |    |   |
| Pressure gauges  |                    | M         |  |  |  |    |   |
| <b>Type</b>  | <b>2 Digit</b>     |           |  |  |  |    |   |
| M21  |                    | 2         |  |  |  |    |   |
| M31  |                    | 3         |  |  |  |    |   |
| M41  |                    | 4         |  |  |  |    |   |
| M61  |                    | 6         |  |  |  |    |   |
| <b>Type of contacts</b>  | <b>3 Digit</b>     |           |  |  |  |    |   |
| CES  |                    | 1         |  |  |  |    |   |
| <b>Control functions</b>   | <b>4 Digit</b>     |           |  |  |  |    |   |
| Mini (4002)  |                    | 1         |  |  |  |    |   |
| Maxi (4001)  |                    | 2         |  |  |  |    |   |
| Inter-index open (4021)  |                    | 3         |  |  |  |    |   |
| Mini-maxi (4021)   |                    | 4         |  |  |  |    |   |
| Maxi-mini (4012)   |                    | 7         |  |  |  |    |   |
| Inter-index closed (4012)  |                    | 8         |  |  |  |    |   |
| <b>Type of mounting and connection position*</b>                     | <b>5 Digit</b>     |           |  |  |  |    |   |
| bottom connection, back flange                                       |                    | A         |  |  |  |    |   |
| back connection, front flange (except M21)                           |                    | B         |  |  |  |    |   |
| bottom connection, front flange                                      |                    | C         |  |  |  |    |   |
| bottom connection  |                    | D         |  |  |  |    |   |
| back connection, back flange (except M21)                            |                    | E         |  |  |  |    |   |
| back connection (except M21)   |                    | F         |  |  |  |    |   |
| * Option Stainless steel case and bezel ring 1.4404 (316L)           |                    |           |  |  |  |    |   |
| change A with 1, B with 2, C with 3, D with 4, E with 5 and F with 6 |                    |           |  |  |  |    |   |
| <b>Hydraulic connection</b>  | <b>6 Digit</b>     |           |  |  |  |    |   |
| G 1/4  |                    | 2         |  |  |  |    |   |
| G1/2   |                    | 3         |  |  |  |    |   |
| 1/4 NPT  |                    | 5         |  |  |  |    |   |
| 1/2 NPT  |                    | 6         |  |  |  |    |   |
| <b>Unit of measurement</b>   | <b>7 Digit</b>     |           |  |  |  |    |   |
| bar  |                    | B         |  |  |  |    |   |
| kPa  |                    | D         |  |  |  |    |   |
| <b>Measurement ranges</b>  | <b>8...9 Digit</b> |           |  |  |  |    |   |
| See measurement ranges codified on tables (previous page)            |                    |           |  |  |  | xx |   |
| <b>Static pressure or overpressure</b>                               | <b>10 Digit</b>    |           |  |  |  |    |   |
| See static or overpressure scale on tables (previous page)           |                    |           |  |  |  |    | x |

