

# Temperature displays

## LED temperature displays

## Pt100 and Ni100 input (DC)

## Codix 531



Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.

For very accurate temperature measurements using Pt100 and Ni100 resistance thermometers in 2, 3 or 4-wire technology, with permanently stored characteristic curves.

Minimum and maximum value detection for temperature monitoring over long periods of time.



|                          |                                                                                              |                                                                                                   |                                                                                                              |                                                                                                                  |                                                                                                                         |                                                                                                                    |                                                                                                                               |                                                                                                  |                                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>DC</b><br>10 ... 30 V | <br>2, 3, 4 | <br>Pt100, Ni100 | <br>Menu-driven programming | <br>AC/DC<br>Galvanic isolation | <br>-20°... +65°C<br>Temperature range | <br>IP65<br>High protection level | <br>min / max<br>Min / Max value detection | <br>DIN 48x24 | <br>5 LEDs<br>LED display |
| Supply voltage           | 2-, 3-, 4-wire technology                                                                    | Pt100 / Ni100                                                                                     | Menu-driven programming                                                                                      | Galvanic isolation                                                                                               | Temperature range                                                                                                       | High protection level                                                                                              | Min / Max value detection                                                                                                     | DIN front bezel                                                                                  | LED display                                                                                                  |

### Product features

- Input range: resistance thermometer.
- Compact and low-price temperature display.
- Easy programming and operation.
- Modern industrial design.
- 5 measurements/second.

### Benefits

- Temperature display in °C or °F.
- MIN/MAX value acquisition and data backup in case of power off.
- Galvanic isolation with protection against incorrect polarity.
- Screw terminal connection: pitch 5 mm.
- Display hold input.

### Order no.

Temperature display for Pt100 and Ni100 resistance thermometer

**6.531.012.300** <sup>1)</sup>

#### Delivery specification

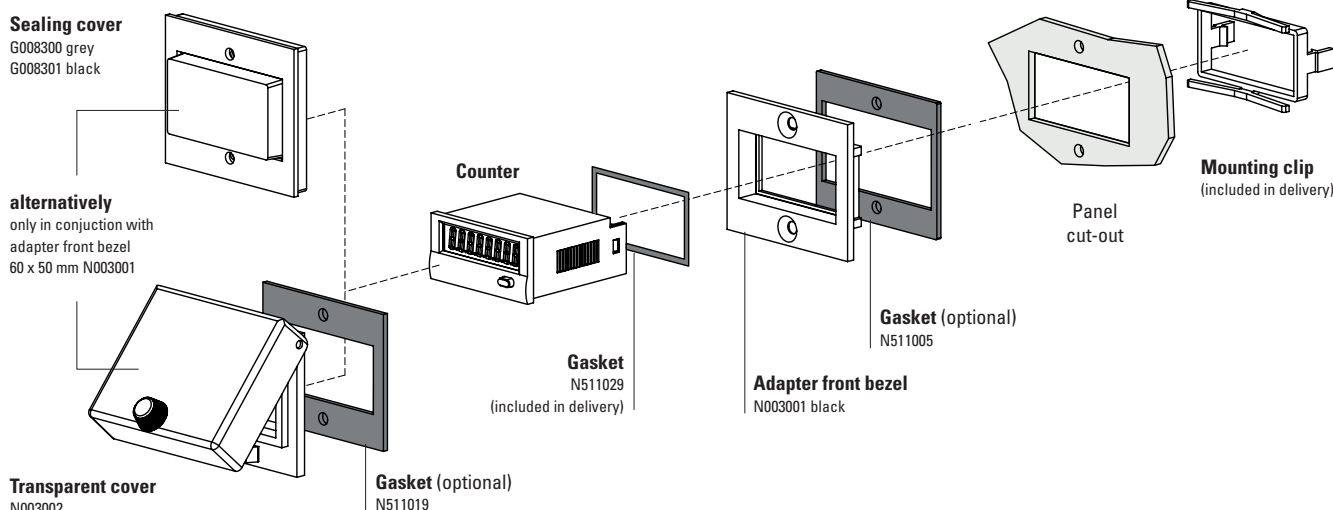
- Digital display
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types.

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|                                 |                                   |                  |
|---------------------------------|-----------------------------------|------------------|
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|---------------------------------|-----------------------------------|------------------|

## Accessories / Mounting examples



|                               |  | Type / size                                           | Description                                                                                                                     |                                                 | Order no.                                          | suitable gasket |
|-------------------------------|--|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-----------------|
| <b>Adapter front bezel</b>    |  | <b>53 x 28 mm</b><br>[2.09 x 1.10"]                   | for cut-out 50 x 25 mm [1.97 x 0.98"]<br>to cut-out 45 x 22.2 mm [1.77 x 0.94"]                                                 | grey<br>black<br>anthracite                     | <b>T008164</b><br><b>T008165</b><br><b>T008180</b> | <b>N511015</b>  |
|                               |  | <b>56 x 40 mm</b><br>[2.20 x 1.57"]                   | for cut-out 50 x 25 mm [1.97 x 0.98"]<br>to cut-out 45 x 22.2 mm [1.77 x 0.94"]<br>screw mounting                               | black<br>anthracite                             | <b>T008161</b><br><b>T008181</b>                   | <b>N511045</b>  |
|                               |  | <b>72 x 36 mm</b><br>[2.83 x 1.42"]                   | for cut-out 68 x 33 mm [2.68 x 1.30"]<br>to cut-out 45 x 22.2 mm [1.77 x 0.94"]                                                 | black and silver<br>anodised<br>as set          | <b>162704Set</b>                                   | —               |
|                               |  | <b>60 x 50 mm</b><br>[2.36 x 1.97"]                   | for cut-out 54 x 29 mm [2.13 x 1.14"]<br>to cut-out 45 x 22.2 mm [1.77 x 0.94"]<br>screw mounting                               | black                                           | <b>N003001</b>                                     | <b>N511005</b>  |
|                               |  | <b>48 x 48 mm</b><br>[1.89 x 1.89"]                   | for cut-out 45 x 45 mm [1.77 x 1.77"]<br>to cut-out 45 x 22.2 mm [1.77 x 0.94"]                                                 | black                                           | <b>T008883</b>                                     | —               |
| <b>Sealing cover IP65</b>     |  | <b>K1</b>                                             | only in conjunction with adapter front bezel<br>60 x 50 mm N003001                                                              | transparent /<br>grey<br>transparent /<br>black | <b>G008300</b><br><b>G008301</b>                   | —               |
| <b>Transparent cover IP65</b> |  | <b>1 Dv</b><br>(mounted on<br>bezel)                  | cover lockable,<br>for cut-out 54 x 29 mm [2.13 x 1.14"],<br>only in conjunction with adapter front bezel<br>60 x 50 mm N003001 | transparent /<br>black                          | <b>N003002</b>                                     | <b>N511019</b>  |
| <b>Gasket counter</b>         |  |                                                       | 48 x 24 mm (for installation in adapter front bezel)<br>49 x 25 mm                                                              |                                                 | <b>N511029</b><br><b>N511034</b>                   |                 |
| <b>Mounting frame</b>         |  | <b>cut-out</b><br><b>50 x 25 mm</b><br>[1.97 x 0.98"] | via adapter T008180<br>for snap-on mounting on<br>35 mm [1.38"] top-hat DIN rail                                                | chromated                                       | <b>G300004</b>                                     | —               |
| <b>Enclosure blind</b>        |  | <b>48 x 24 mm</b><br>[1.89 x 0.94"]                   | for cut-out 45 x 22.2 mm [1.77 x 0.94"]<br>and cut-out 50 x 25 mm [1.97 x 0.98"]                                                | anthracite                                      | <b>G003836</b>                                     | —               |

incl. in delivery

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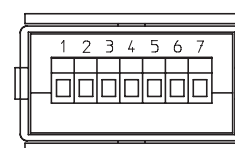
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|---------------------------------|-----------------------------------|------------------|
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## Technical data

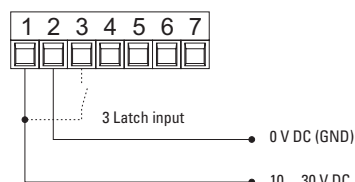
| General technical data          |                                                                                                                                                                     |                                                                                                                                                                                         |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display                         | 5 digits, red 7 segment LED display;<br>8 mm [0.32"] high                                                                                                           |                                                                                                                                                                                         |
| Display refresh                 | 1 ... 2 times per second                                                                                                                                            |                                                                                                                                                                                         |
| Data backup                     | EEPROM                                                                                                                                                              |                                                                                                                                                                                         |
| Operating temperature           | -20 °C ... +65 °C [-4 °F ... +149 °F]<br>(non-condensing)                                                                                                           |                                                                                                                                                                                         |
|                                 |                                                                                                                                                                     |                                                                                                                                                                                         |
| Electrical characteristics      |                                                                                                                                                                     |                                                                                                                                                                                         |
| Supply voltage                  | 10 ...30 VDC, galvanically<br>isolated with integrated<br>reverse polarity protection                                                                               |                                                                                                                                                                                         |
| Current consumption             | max. 40 mA                                                                                                                                                          |                                                                                                                                                                                         |
| Circuit type                    | 2-wire, 3-wire and 4-wire<br>technology, programmable                                                                                                               |                                                                                                                                                                                         |
|                                 |                                                                                                                                                                     |                                                                                                                                                                                         |
| Mechanical characteristics      |                                                                                                                                                                     |                                                                                                                                                                                         |
| Housing                         | front panel mount 48 x 24 mm<br>[1.89 x 0.94"] acc. to DIN 43700;<br>RAL 7021, dark grey                                                                            |                                                                                                                                                                                         |
| Protection                      | IP65 (front side)                                                                                                                                                   |                                                                                                                                                                                         |
| Weight                          | approx. 50 g [1.76 oz]                                                                                                                                              |                                                                                                                                                                                         |
| Connections                     | screw terminal,<br>pitch 5.08 mm [2"] , 7 pin                                                                                                                       |                                                                                                                                                                                         |
|                                 |                                                                                                                                                                     |                                                                                                                                                                                         |
| Measuring signal inputs         |                                                                                                                                                                     |                                                                                                                                                                                         |
| Measuring rate                  | 5 measurements / second                                                                                                                                             |                                                                                                                                                                                         |
| Input                           | Pt100 resistance thermometer<br>Ni100 resistance thermometer<br>with sensor breakage monitoring                                                                     |                                                                                                                                                                                         |
| Control inputs                  | HIGH<br>LOW                                                                                                                                                         | 4 ... 30 V DC<br>0 ... 2 V DC                                                                                                                                                           |
| Supply current                  | 1 mA                                                                                                                                                                |                                                                                                                                                                                         |
| Supply line                     | 2-wire<br>3-wire, 4-wire                                                                                                                                            | max. 20 Ω, programmable<br>max. 20 Ω, no balancing required                                                                                                                             |
| Temperature ranges              | Pt100 acc. to DIN IEC 751<br>-199.9 °C ... +850.0 °C<br>[-327.8 °F ... +1562.0 °F]<br>Ni100 acc. to DIN 43760<br>-60.0 °C ... +250.0 °C<br>[-76.0 °F ... +482.0 °F] |                                                                                                                                                                                         |
| Resolution                      | 0.1 °C (0.1 °F) or 1 °C (1 °F)                                                                                                                                      |                                                                                                                                                                                         |
| Linearity error                 | Pt100<br><br>Ni100                                                                                                                                                  | < 0.1 % for the whole measuring<br>range at an operating temperature<br>of 20 °C [68 °F]<br><br>< 0.2 %for the whole measuring<br>range at an operating temperature<br>of 20 °C [68 °F] |
| Temperature drift               | 0.1 K/K <sub>Ambient</sub>                                                                                                                                          |                                                                                                                                                                                         |
|                                 |                                                                                                                                                                     |                                                                                                                                                                                         |
| Approvals                       |                                                                                                                                                                     |                                                                                                                                                                                         |
| UL compliant in accordance with | File no. E128604                                                                                                                                                    |                                                                                                                                                                                         |
| CE compliant in accordance with | EMC Directive 2014/30/EU<br>RoHS Directive 2011/65/EU                                                                                                               |                                                                                                                                                                                         |

## Terminal assignment

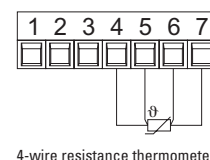
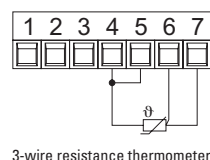
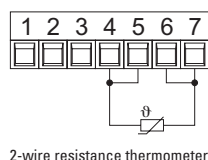
| 1              | 2            | 3           | 4           | 5           | 6           | 7           |
|----------------|--------------|-------------|-------------|-------------|-------------|-------------|
| 10 ... 30 V DC | 0 V DC (GND) | Latch input | Pt100/Ni100 | Pt100/Ni100 | Pt100/Ni100 | Pt100/Ni100 |



Connection supply voltage and latch input



Connection resistance thermometer Pt100/Ni100



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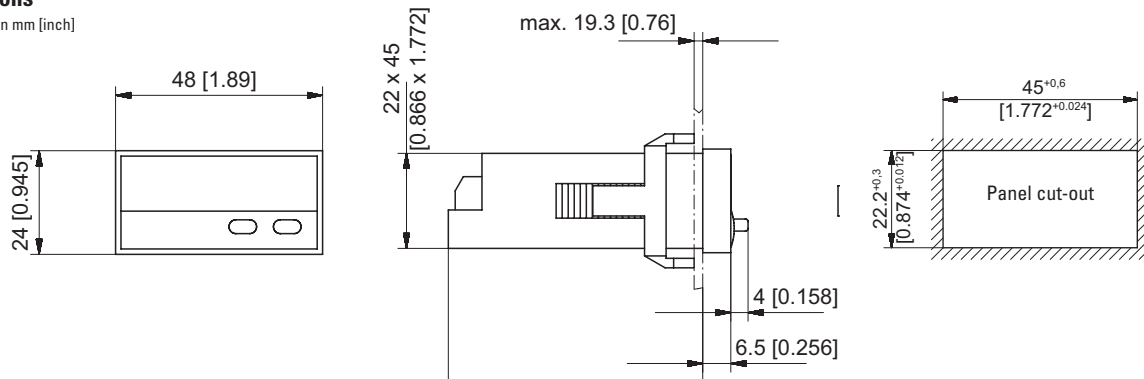
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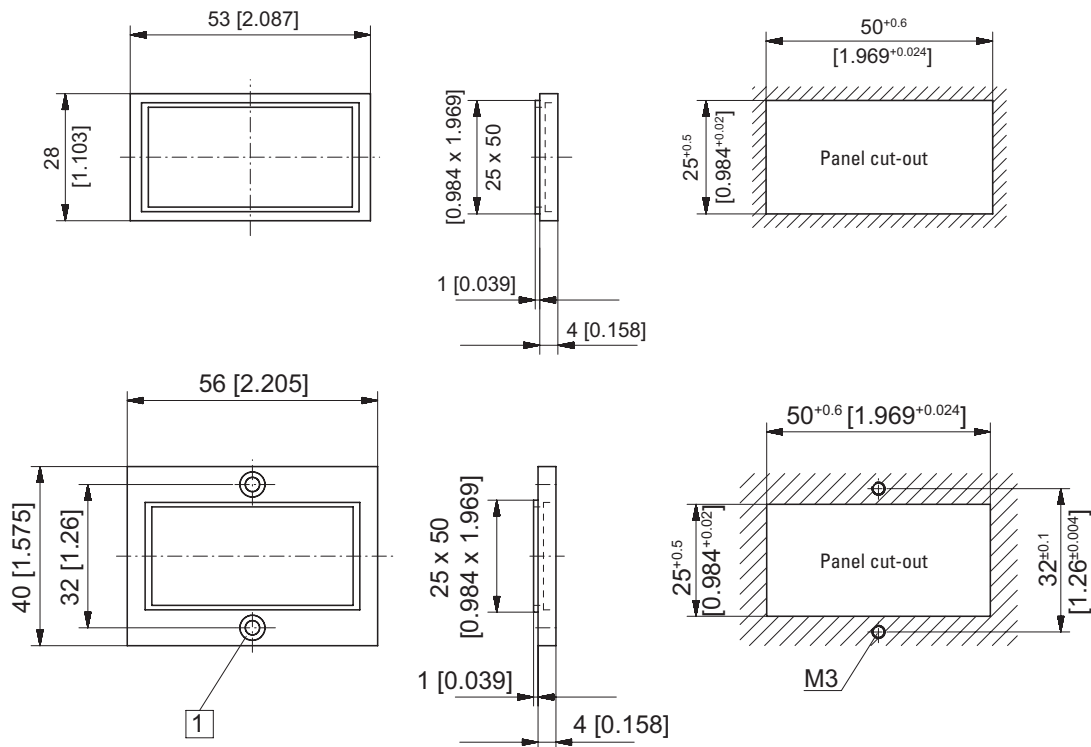
## Codix 531

### Dimensions

Dimensions in mm [inch]



### Front bezel



1 Countersinking Af3, DIN 74