**Warnings**

- Connect the power supply and the display/output device according to the safety regulations for electrical equipment.
- Risk of injury, damage to or destruction of the sensor and/or the controller.
- Avoid shocks and impacts to the sensor and controller.
- Rough mechanical force on the sensor.
- Damage to or destruction of the sensor.
- Protection class: IP65 (NEMA 4).
- Controller: IP65 (NEMA 4).
- Operating temperature: Sensor: -10 °C to +185 °F.
- Storage temperature: Sensor: -40 °C to +185 °F.
- Humidity: 10% to 95% non-condensing.
- EU Directive 2014/30/EU
- EU Directive 2011/65/EU

**Notes on CE Marking**

The following apply to the thermoMETER CTM-4 measuring system:
- Data sheet.
- Operating instructions.
- Service regulations for electrical equipment.

**Electrical Installation**

**Cable Connections**

For the electrical installation of the thermoMETER CTM-4, please open at first the cover of the controller (4 screws).

The screw terminal connections for connecting the cables are located in the bottom of the controller.

**Pin Assignments for CTM-4 Models**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
<th>I/O1, I/O2, I/O3</th>
<th>OUT1, OUT2, OUT3</th>
<th>GND</th>
<th>PINK</th>
<th>GRAY</th>
<th>BROWN</th>
<th>WHITE</th>
<th>GREEN</th>
<th>YELLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>+8...30 VDC</td>
<td>Power supply</td>
<td></td>
<td></td>
<td>GND</td>
<td>Power supply ground (0 V)</td>
<td>Internal input and output ground (0 V)</td>
<td>Alarm 2 (open collector output)</td>
<td>Analog output mA, mV, TCK</td>
<td>Analog output mA, mV, TCK</td>
<td>Ground (0 V)</td>
</tr>
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</tr>
</tbody>
</table>

**Proper Environment**

- Protection class: IP65 (NEMA 4).
- Controller: IP65 (NEMA 4).
- Operating temperature: Sensor: -10 °C to +185 °F.
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**Unpacking/Included in Delivery**

- 1 thermoMETER CTM-4 sensor and sensor cable
- 1 Controller
- 1 Mounting nut
- 1 Assembly instructions
- 1 Micro-USB cable

**Power Supply**

Please use a power supply unit with an output voltage of 8...30 VDC that provides at least 100 mA current. Residual ripple should be no more than 200 mV.

**Power Supply ground (0 V)**

- Damage to the sensor cable, failure of the measuring device.
- Damage to or destruction of the sensor.
- Protection class: IP65 (NEMA 4).
- Controller: IP65 (NEMA 4).
- Operating temperature: Sensor: -10 °C to +185 °F.
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**Ground Connection**

On the left-hand side of the mainboard, you will find a slide switch which connects the ground terminals (GND supply voltage/output) to the housing ground of the controller by default.

To prevent ground loops and related signal interference, it may be necessary to separate this connection in an industrial environment. This requires to change the slide switch position.

**Mechanical Installation**

The thermoMETER CTM-4 sensors feature a metric M12x1-thread and can be directly installed into existing mounting devices by using the sensor thread or by using the mounting nut included. Various mounting brackets are available as accessories to facilitate the alignment of the sensor to the object, see also operating instructions.

**Ratio D = Distance From Device Front Edge to Measuring Object/S = Spot Size**

The size of the object to be measured and the optical resolution of the IR thermometer determine the maximum distance between sensor and object. To avoid measuring errors, the measuring object should completely fill the field of vision of the sensor's optical system. This means, the spot must always be at least as large as or smaller than the measuring object.

**Power Supply ground (0 V)**

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- Protection class: IP65 (NEMA 4).
- Controller: IP65 (NEMA 4).
- Operating temperature: Sensor: -10 °C to +185 °F.
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You can download a PDF of the detailed operating instructions from our website:


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<table>
<thead>
<tr>
<th>CTM-4SF10</th>
<th>D/S = 10:1</th>
<th>8.5</th>
<th>14.9</th>
<th>23.3</th>
<th>31.6</th>
<th>40</th>
<th>51.6</th>
<th>63.3</th>
<th>74.9</th>
<th>86.5</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance (mm)</td>
<td>0</td>
<td>100</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>600</td>
<td>700</td>
<td>800</td>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
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- 1 Controller
- 1 Mounting nut
- 1 Assembly instructions
- 1 Micro-USB cable

You can download a PDF of the detailed operating instructions from our website:

Destruction of the output
Scaling outputs and setting
4 ... 20 mA
and
Process temperature
At least 128 MByte RAM
With falling edge at the I/O pin, the last
Digital output
Laser sighting
ON/OFF
key and then the
The output follows the object tempera
Emissivity [1.000]
°C/ °F
Hard drive with at least 30 MByte storage space
Emissivity [1.000]
Digital input
Mean signal output [0.020 s]
Digital input
0.100 ... 1.100
Voltage at the I/O pin [0 – 10 V; scalable
key moves you to the desired function,
key and hold both for 3 seconds.
Digital input
OUT -mV/mA
Open-collector output/ Definition as
OUT -TC
Switch on laser (Low signal)
115.2 / 921.6 kBaud
Cannot be changed
Multidrop address [1] (only with
OFF/ PEAK/ VALL/
OUT -mV/mA
0 ... 10 V
0 ... 20 mA
The output follows the object tempera
Digital input
Display of an uncommitted value
OFF
I/O Pin is a
Setting all sensor param
OUT -mV/mA
0.100 ... 1.100
The output follows the object tempera
Digital input
Emissivity 
Displaying an uncommitted value
Digital input
Laser at High
Digital input
Displaying the maximum and minimum values
Digital input
Peak Picker Function
For an acquisition of fast hotspots (response time 90 µs), the averaging time
must be set to 0.0 s. In addition, the HOLD function must be set to PEAK.