

## Highlights

- Multiple sensor design (up to 8 sensing heads for 1 box)
- Plug & Play (automatic head detection)
- Rugged IP rated metal box or fast mountable DIN rail box
- All boxes support all MI3 spectral models
- Failsafe functions (internal temp., break of head cable)
- Isolated alarm relay output
- User configurable inputs for remote sensor configuration
- Analog outputs with galvanic isolation
- USB 2.0 interface as standard
- Optional serial RS485 communication interface with the protocols: ASCII, Profibus, Modbus®
- Optional Ethernet communication interface with the protocols: ASCII, http, Profinet IO
- Intuitive user interface with high resolution LCD display
- Advanced on-board signal processing like: peak & valley hold, intelligent averaging (flicker)
- DataTemp® Multidrop Software for remote monitoring

### Measurement Specifications

#### Accuracy

|                     |        |
|---------------------|--------|
| mA / V output       | ±1°C   |
| Thermocouple output | ±1.5°C |

#### Temperature Resolution

|             |  |
|-------------|--|
| mA/V output | ±0.1°C (±0.2°F) <sup>1</sup> / 12 bit (metal box, MI3COMM) |
| mA/V output | ±0.02°C (±0.04°F) / 16 bit (analog DIN rail box)           |

#### Temperature Coefficient

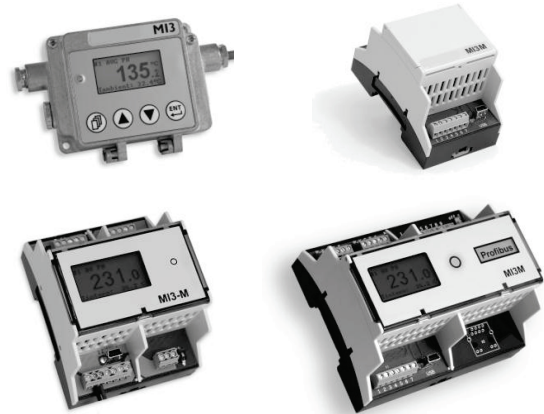
|                     |             |
|---------------------|-------------|
| mA/V output         | ±0.02 K / K |
| Thermocouple output | ±0.05 K / K |

<sup>1</sup> for a zoomed temperature span of < 500°C (932°F)

### Interfaces

|                       |   |
|-----------------------|---|
| <b>Outputs</b>        | 4 – 20 mA, 0 – 20 mA, 0 – 5 V, or 0 – 10 V<br>J, K, R, or S thermocouple,<br>0 – 5 V head ambient signal  |
| <b>Thermocouple</b>   | J: -40 to 600°C (-40 to 1112°F)<br>K: -40 to 800°C (-40 to 1472°F)<br>R/S: 250 to 1800°C (482 to 3272°F)  |
| <b>Relay</b>          | 48 V / 300 mA<br>(solid-state relay, potential-free)  |
| <b>Inputs (1 - 3)</b> | 1. Emissivity ε setting (analog, 0 - 5 V <sub>DC</sub> )<br>2. Background radiation compensation (analog, 0 - 5 V <sub>DC</sub> )<br>3. Trigger/hold or laser switching (digital, high/low)<br>or<br>digital emissivity control via inputs 1 to 3 |
| <b>Communications</b> | USB 2.0<br>RS485<br>Profibus DP-V0<br>Profinet IO<br>Ethernet TCP/IP, http and 64 MB data logger<br>Modbus RTU  |

## MI3 Box Datasheet



### General Specifications

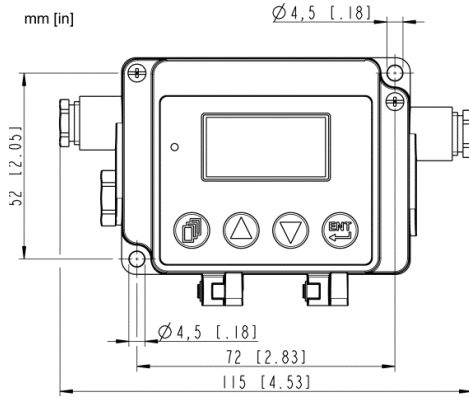
|                            |   |
|----------------------------|---|
| <b>Power Supply</b>        | 8 to 32 VDC, 5 W  |
| <b>Ambient Temperature</b> | -10 to 65°C (14 to 149°F)                                   |
| <b>Storage Temperature</b> | -20 to 85°C (-4 to 185°F)                                   |
| <b>Environmental</b>       | IP65 / NEMA-4 (MI3COMM only)                                |
| <b>EMC</b>                 | EN 61326-1:2006   |
| <b>Material</b>            | die cast zinc (MI3COMM)<br>molded plastic (all other boxes) |

| Comm Box                | MI3COMM... | MI3MCOMM<br>DIN 3TE | MI3MCOMM<br>DIN 4TE | MI3MCOMM...<br>DIN 6TE |
|-------------------------|------------|---------------------|---------------------|------------------------|
|                         |            |                     |                     |                        |
| <b>Firmware</b>         | 8 heads    | 8 heads             | 8 heads             | 8 heads                |
| <b>Wiring</b>           | 1 head     | 4 heads             | 4 heads             | 4 heads                |
| <b>Display, Button</b>  | ✓          | –                   | ✓                   | ✓                      |
| <b>Outputs:</b>         |            |                     |                     |                        |
| mA / V                  | ✓          | –                   | –                   | 4x (optional)          |
| TC                      | ✓          | –                   | –                   | –                      |
| Relay                   | ✓          | ✓                   | ✓                   | ✓                      |
| <b>Inputs:</b>          |            |                     |                     |                        |
| ε – analog              | ✓          | –                   | –                   | –                      |
| ε – digital             | ✓          | –                   | –                   | –                      |
| T <sub>Background</sub> | ✓          | –                   | –                   | –                      |
| Trigger/Hold            | ✓          | ✓                   | ✓                   | ✓                      |
| Laser Switch            | ✓          | ✓                   | ✓                   | ✓                      |
| <b>Interfaces:</b>      |            |                     |                     |                        |
| USB                     | standard   | standard            | standard            | standard               |
| RS485                   | optional   | –                   | standard            | –                      |
| Profibus                | optional   | –                   | –                   | optional               |
| Profinet                | optional   | –                   | –                   | optional               |
| Ethernet                | optional   | –                   | –                   | optional               |
| Modbus                  | optional   | –                   | –                   | optional               |

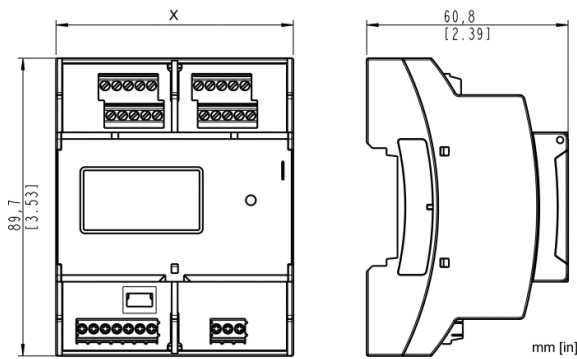
## Dimensions

### Metal Box (MI3COMM)

Height: 31.5 (1.2)



### DIN Rail Box (MI3COMM...)



| Width | MI3COMMN                        | MI3COMM                         | MI3COMM...                       |
|-------|---------------------------------|---------------------------------|----------------------------------|
| X     | DIN 3TE:<br>53.6 mm<br>(2.1 in) | DIN 4TE:<br>71.6 mm<br>(2.8 in) | DIN 6TE:<br>107.6 mm<br>(4.2 in) |

## Options

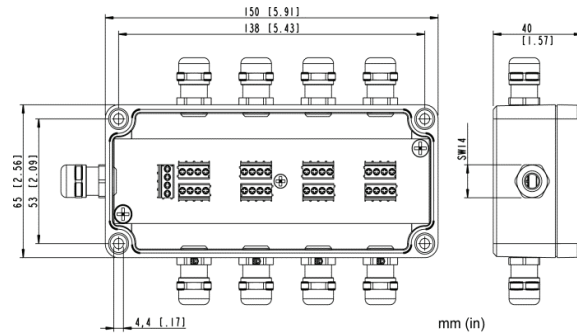
Options must be specified at time of order.

- Fieldbuses for Comm Box:  
RS485, Profibus, Profinet, Ethernet, Modbus
- 4 analog output channels for Comm Box, DIN 6TE:  
mA or V, all channels electrically isolated

## Accessories

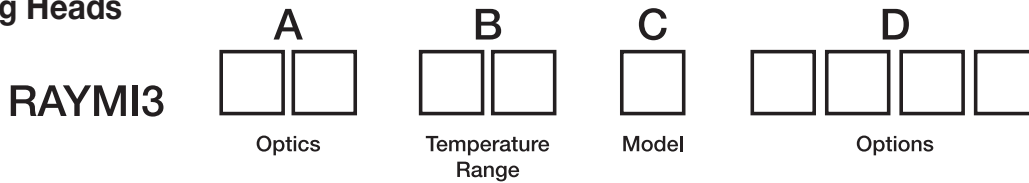
Accessories include items that may be ordered at any time and added on-site:

- Multi-Channel Box to support up to 8 sensing heads in a network (XXXMI3CONNBOX)
- USB/RS485 Adapter for boxes with RS485 interface (XXXUSB485)



Multi-Channel Box (XXXMI3CONNBOX)

## Sensing Heads



Each MI3 sensor system is comprised of (1) MI3 sensing head and (1) MI3COMM or MI3MCOMM communication module. The sensing head includes one mounting nut and 1m (3.3ft) cable. Longer cables up to 30 m (100ft) maximum are available and must be specified at time of order. The MI3 sensing head and MI3COMM box are ordered as separate items.

| Model  | Description   |
|--------|---|
| RAYMI3 | Miniature infrared sensing head with 1 meter (3.3ft) cable  |
| Code A | Optical Resolution  |
| 02     | 2:1   |
| 10     | 10:1  |
| Code B | Temperature Range   |
| LT     | -40°C to 600°C (-40°F to 1112°F) Note: 0°C to 1000°C (32°F to 1832°F) for LTF and LTS 22:1 models |
| G5     | 250°C to 1650°C (482°F to 3002°F)   |
| Code C | Model   |
| S      | Standard sensing head, 120°C (248°F) maximum ambient  |
| F      | Fast response sensing head, 20 mSec response time, 120°C (248°F) maximum ambient (10:1 head only) |
| H      | High ambient sensing head, up to 180°C (356°F)  |
| Code D | Options   |
| CB3    | 3m (10ft) cable   |
| CB8    | 8m (26ft) cable   |
| CB15   | 15m (49ft) cable  |
| CB30   | 30m (98ft) cable  |

## Communication Boxes

| Model         | Description   |
|---------------|---|
| RAYMI3COMM    | MI3 IR thermometer communication box with USB 2.0 communications, cast zinc housing and user-interface  |
| RAYMI3COMM4   | MI3 IR thermometer communication box with USB 2.0 communications and RS-485 communication option, cast zinc housing and user-interface                            |
| RAYMI3COMMM   | MI3 IR thermometer communication box with USB 2.0 communications and Modbus communication option, cast zinc housing and user-interface                            |
| RAYMI3COMMP   | MI3 IR thermometer communication box with USB 2.0 communications and Profibus communication option, cast zinc housing and user-interface                          |
| RAYMI3MCOMM   | Modular DIN mountable 4-channel IR communication box with user interface, USB 2.0 and RS485 communications  |
| RAYMI3MCOMMM  | Modular DIN mountable 4-channel IR communication box with user interface, USB 2.0 and Modbus communications   |
| RAYMI3MCOMMP  | Modular DIN mountable 4-channel IR communication box with user interface, USB 2.0 and Profibus communications   |
| RAYMI3MCOMMN  | Modular DIN mountable 4-channel IR communication box with no user interface, display or RS485 interface. Includes USB 2.0 and alarm relay, only                   |
| RAYMI3MCOMMA  | Modular DIN mountable 4-channel IR communication box with user interface, USB 2.0 and 4 galvanic isolated analog outputs  |
| RAYMI3COMME   | MI3 IR thermometer communication box with USB 2.0 communications and Ethernet communication and built-in HTTP-Server option, cast zinc housing and user-interface |
| RAYMI3COMMPN  | MI3 IR thermometer communication box with USB 2.0 communications and Profinet communication, cast zinc housing and user-interface                                 |
| RAYMI3COMME   | Modular DIN mountable 4-channel IR communication box with user interface, USB 2.0 and Ethernet interface with built-in HTTP-Server.                               |
| RAYMI3MCOMMPN | Modular DIN mountable 4-channel IR communication box with user interface, USB 2.0 and Profinet interface.   |

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