

# More Precision



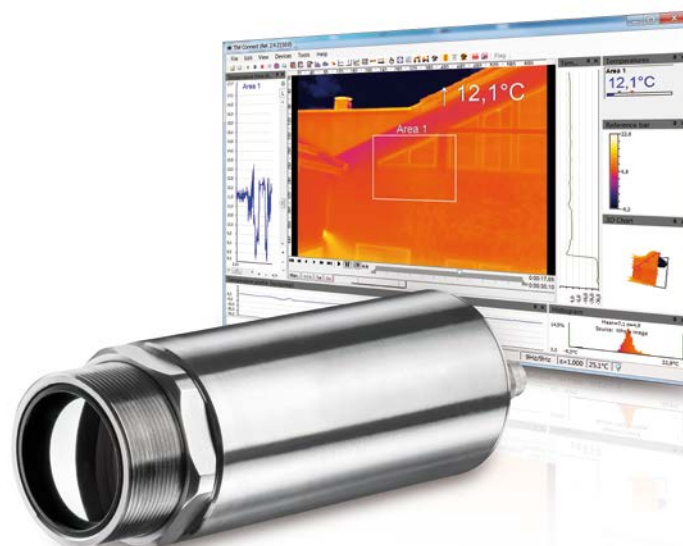
## thermoIMAGER TIM 40

### Compact OEM thermal imaging camera

The TIM 40 is a robust and compact thermal imaging camera with motorized focus which enables the user to focus easily on targets via remote control. Its compact design and favorable price make the industrial camera ideally suitable for OEM purposes.

#### Advantages

- Industrial camera with 382 x 288 pixels for precise temperature measurements from -20 °C to 900 °C
- Robust and compact imager with motorized focus
- Excellent optical resolution with distance-to-spot-size-ratio up to 390:1
- Frame rate of 80 Hz for monitoring of fast thermal processes
- Comprehensive ready-to-use package including versatile software with SDK



| Model                            | TIM 40                                                                                                          |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Optical resolution               | 382 x 288 pixels                                                                                                |
| Temperature ranges               | -20 °C to 100 °C, 0 °C to 250 °C, (20) 150 °C to 900 °C <sup>1)</sup>                                           |
| Spectral range                   | 7.5 to 13 μm                                                                                                    |
| Frame rate                       | switchable 80 Hz or 27 Hz                                                                                       |
| System accuracy                  | ±2 °C or ±2 %, whichever is greater                                                                             |
| Fixed lens                       | 18° x 14° FOV / f = 20 or 29° x 22° FOV / f = 12.7 or 53° x 38° FOV / f = 7.7 or 80° x 54° FOV / f = 5.7        |
| Focus                            | manual motorized focus                                                                                          |
| Thermal sensitivity (NETD)       | 80 mK                                                                                                           |
| Detector                         | FPA, uncooled (17 μm x 17 μm)                                                                                   |
| Outputs/digital                  | USB 2.0 / optional interface USB to GigE (PoE)                                                                  |
| Standard process interface (PIF) | 0-10 V input, digital input (max. 24 V), 0-10 V output                                                          |
| Industry process interface (PIF) | 2x 0-10 V inputs, digit. input (max. 24 V), 3x 0(4)-20 mA outputs, 3x relays (0-30 V / 400 mA), fail-safe relay |
| Cable length (USB)               | 1 m (standard), 3 m, 5 m, 10 m, 20 m                                                                            |
| Power supply                     | USB powered                                                                                                     |
| Tripod mount                     | 1/4-20 UNC                                                                                                      |
| Protection class                 | IP67                                                                                                            |
| Ambient temperature              | 0 °C to 50 °C                                                                                                   |
| Storage temperature              | -40 °C to 70 °C                                                                                                 |
| Relative humidity                | 20 to 80%, non-condensing                                                                                       |
| Vibration <sup>2)</sup>          | IEC 60068-2-6 (sinus-shaped) / IEC 60068-2-64 (broadband noise)                                                 |
| Shock <sup>2)</sup>              | IEC 60068-2-27 (25 g and 50 g)                                                                                  |
| Housing (size) <sup>2)</sup>     | ø 36 mm x 100 mm (M30x1 thread)                                                                                 |
| Weight                           | 200 g                                                                                                           |

<sup>1)</sup> For the range (20)150 up to 900 °C, the accuracy specification applies from 150 °C

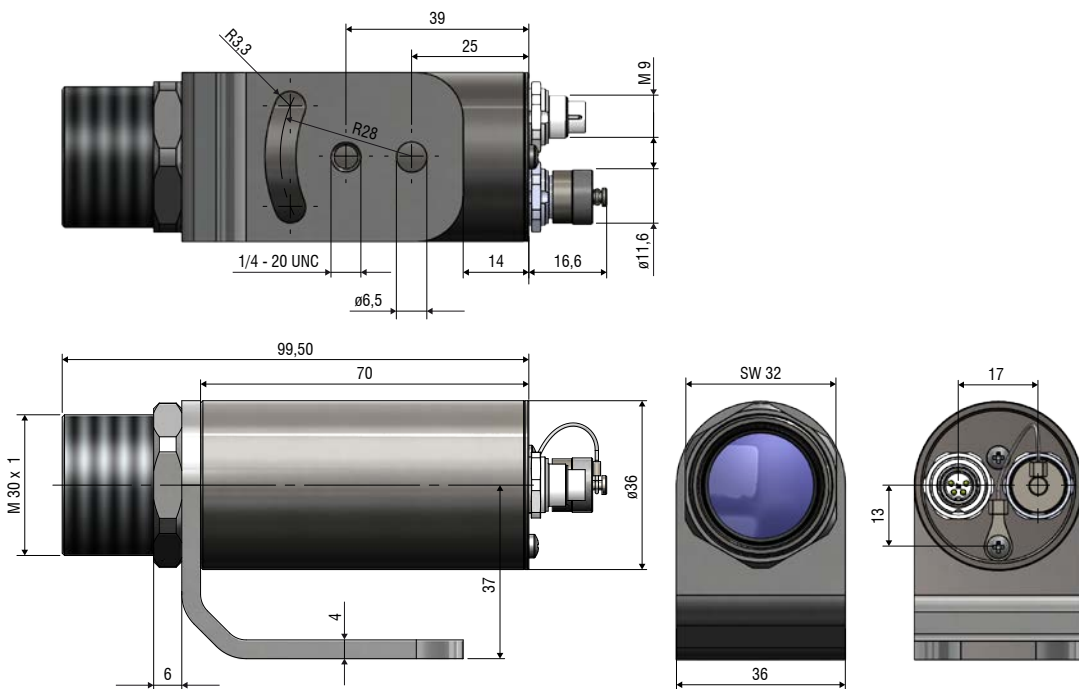
<sup>2)</sup> For more information see operating instructions

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| TIM 40                             | Focal length | Minimum measurement distance* | Distance to measurement object (measuring field in m, pixels in mm) |       |       |       |       |      |      |      |      |      |      |      |       |
|------------------------------------|--------------|-------------------------------|---------------------------------------------------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|-------|
|                                    |              |                               |                                                                     | 0.05  | 0.1   | 0.2   | 0.3   | 0.5  | 1    | 2    | 4    | 6    | 10   | 30   | 100   |
| 382 x 288 px                       |              |                               |                                                                     |       |       |       |       |      |      |      |      |      |      |      |       |
| 29° x 22°<br>Standard lens         | 13 mm        | 0.2 m                         | HFOV (m)                                                            | 0.025 | 0.051 | 0.104 | 0.16  | 0.26 | 0.53 | 1.06 | 2.11 | 3.17 | 5.3  | 15.9 | 52.9  |
|                                    |              |                               | VFOV (m)                                                            | 0.019 | 0.038 | 0.78  | 0.12  | 0.20 | 0.39 | 0.79 | 1.58 | 2.36 | 3.9  | 11.8 | 39.4  |
|                                    |              |                               | IFOV (mm)                                                           | 0.1   | 0.1   | 1.263 | 0.4   | 0.7  | 1.3  | 2.7  | 5.4  | 8.1  | 13.4 | 40.3 | 134.4 |
| 18° x 14°<br>Telephoto lens        | 20 mm        | 0.3 m                         | HFOV (m)                                                            |       |       | 0.068 | 0.101 | 0.17 | 0.33 | 0.66 | 1.31 | 1.97 | 3.3  | 9.8  | 32.7  |
|                                    |              |                               | VFOV (m)                                                            |       |       | 0.051 | 0.076 | 0.13 | 0.25 | 0.49 | 0.99 | 1.48 | 2.5  | 7.4  | 24.6  |
|                                    |              |                               | IFOV (mm)                                                           |       |       | 0.170 | 0.26  | 0.4  | 0.9  | 1.7  | 3.4  | 5.1  | 8.5  | 25.5 | 85.0  |
| 53° x 38°<br>Wide angle lens       | 8 mm         | 0.2 m                         | HFOV (m)                                                            |       | 0.107 | 0.21  | 0.31  | 0.51 | 1.01 | 2.00 | 4.00 | 6.00 | 10.0 | 29.9 | 100.0 |
|                                    |              |                               | VFOV (m)                                                            |       | 0.076 | 0.15  | 0.22  | 0.35 | 0.70 | 1.39 | 2.78 | 4.17 | 6.9  | 20.8 | 69.5  |
|                                    |              |                               | IFOV (mm)                                                           |       | 0.3   | 0.5   | 0.7   | 1.1  | 2.2  | 4.4  | 8.8  | 13.2 | 22.0 | 66.0 | 220.0 |
| 80° x 54°<br>Super wide angle lens | 6 mm         | 0.2 m                         | HFOV (m)                                                            | 0.069 | 0.149 | 0.30  | 0.46  | 0.78 | 1.57 | 3.14 | 6.29 | 9.43 | 15.7 | 47.3 | 157.7 |
|                                    |              |                               | VFOV (m)                                                            | 0.047 | 0.098 | 0.20  | 0.30  | 0.51 | 1.01 | 2.03 | 4.06 | 6.10 | 10.2 | 30.5 | 101.7 |
|                                    |              |                               | IFOV (mm)                                                           | 0.2   | 0.3   | 0.6   | 0.9   | 1.5  | 3.0  | 6.0  | 12.0 | 18.1 | 30.1 | 90.3 | 300.9 |

FOV: Horizontal expansion of the total measuring field at the object level; VFOV: Vertical expansion of the total measuring field at the object level;  
IFOV: Size of the individual pixels at the object level

\* Please note: The measurement accuracy of the camera may lie outside of the specifications for distances below the defined minimum measurement distance.



Scope of supply (standard)

- TIM 40
- USB cable 1 m
- PIF cable incl. terminal block (1 m)
- Mounting angle with tripod thread, mounting nut
- TIMConnect Software
- Assembly instruction