

## Boroscopic probe for 2/3" detectors, liquid lens focusing



### SPECIFICATIONS

#### Optical specifications

|                 |      |             |
|-----------------|------|-------------|
| Image circle    | (mm) | 7           |
| Min sensor size |      | 2/3"        |
| Viewing angle   | (°)  | 60          |
| $wf/N^1$        |      | 18          |
| Focusing        |      | Liquid lens |
| Light color     |      | white       |

#### Electrical specifications

|                                    |      |     |
|------------------------------------|------|-----|
| Supply voltage <sup>2</sup>        | (V)  | 24  |
| Current <sup>3</sup>               | (mA) | 40  |
| Power consumption <sup>3</sup>     | (W)  | 1   |
| Typical pulse voltage <sup>4</sup> | (V)  | 40  |
| Max pulse current <sup>5</sup>     | (mA) | 100 |
| Peak power consumption             | (W)  | 4   |
| Max pulse duration                 | (ms) | 1   |
| Max duty cycle                     | (%)  | 1.5 |

#### Liquid lens specifications

|                                 |      |                  |
|---------------------------------|------|------------------|
| Liquid lens model               |      | Optotune EL-3-10 |
| Temperature sensor              |      | Yes              |
| Focal power mode                |      | Yes              |
| Response time                   | (ms) | 1                |
| Setting time                    | (ms) | 4                |
| Current range                   | (mA) | -120 to +120     |
| Lifecycles (10%-90% sinusoidal) |      | >1,000,000,000   |
| Connector                       |      | HR10A-7R-6PB     |

### KEY ADVANTAGES

#### Inspection of cavities from inside

Hidden internal features and defects are clearly viewed

#### High resolution

The catadioptric design enables the detection of tiny defects over a very wide view angle

#### Flaw detection

Coarse deformations revealed using direct illumination

#### Surface defect enhancement

Mixing direct and indirect illumination makes it possible to emphasize tiny and scarcely visible defects.

#### Small diameter inspection

Now down to 5.5 mm

**PCBP probes** are used to inspect holed objects such as engine parts, containers and tubes whose hidden features can only be controlled by introducing a probe into the cavity.

#### Mechanical specifications

|                           |      |      |
|---------------------------|------|------|
| Mount                     |      | C    |
| Phase adjustment          |      | Yes  |
| Probe length              | (mm) | 80.1 |
| Total length <sup>4</sup> | (mm) | 114  |
| Probe diameter            | (mm) | 21   |
| Mass                      | (g)  | 86   |

#### Environment

|                             |      |                       |
|-----------------------------|------|-----------------------|
| Operating temperature       | (°C) | 0-40                  |
| Storage temperature         | (°C) | 0-50                  |
| Operating relative humidity | (%)  | 20-85, non condensing |
| Installation                |      | Indoor use only       |

#### Eye safety

|   |  |              |
|---|--|--------------|
| Risk group (CEI EN 62471:2010)  |  | Risk group 1 |
| <sup>1</sup> working $f/N$ : the real $f/N$ of a lens in operating conditions.  |  |              |
| <sup>3</sup> Tolerance $\pm 2\%$  |  |              |
| <sup>3</sup> Used in continuous (not pulsed) mode                               |  |              |
| <sup>4</sup> Measured from the front end of the mechanics to the camera flange. |  |              |

### FIELD OF VIEW

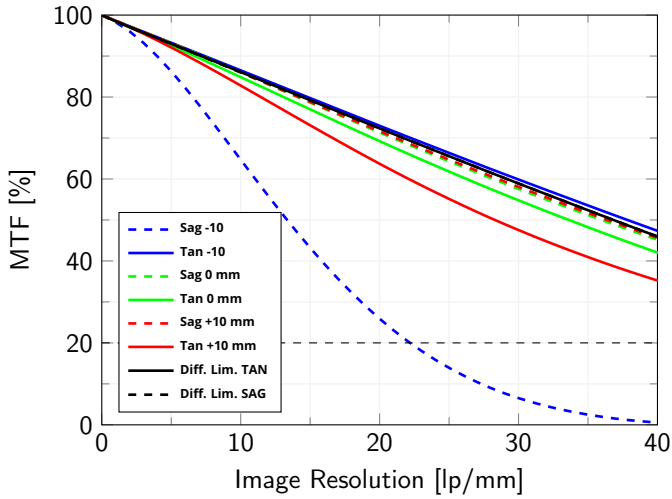
#### Diameter x Height

|         |  |             |
|---------|--|-------------|
|         |  | (mm x mm)   |
| Minimum |  | 25.0 x 11.0 |
| Maximum |  | inf x inf   |

All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only. Data are reported by design, actual lens performance may vary due to manufacturing tolerances.

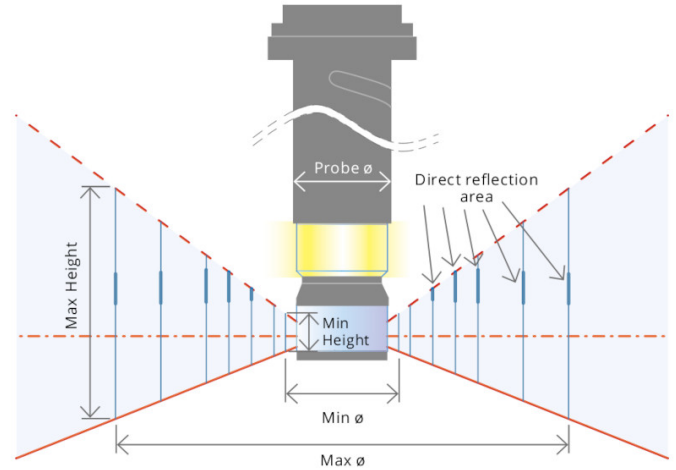
DATA WITH CAVITY DIAMETER OF 40MM

Image Resolution

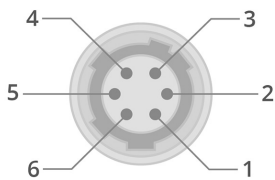


Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm. Fields in legend are represented as distance from the center of the boroscope tip

WORKING PRINCIPLE AND FOV OF PCBP LENSES



CONNECTOR PINOUT



Device side

| Pin | Description          |
|-----|----------------------|
| 1   | Control current +    |
| 2   | Control current -    |
| 3   | GND                  |
| 4   | Power                |
| 5   | I <sup>2</sup> C SCL |
| 6   | I <sup>2</sup> C SDA |

ILLUMINATOR PINOUT

| Function | Cable color |
|----------|-------------|
| GND      | Black       |
| +24 V    | Black/White |

COMPATIBLE PRODUCTS

Full list of compatible products available [here](#).



A wide selection of innovative machine vision components.



**ATTENTION:** observe precaution for handling. Electrostatic sensitive device

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