PCHI3M-AF | DATASHEET

OPTO ENGINEERING

Compact pericentric lens for 1.1"sensors, liquid lens focusing

KEY ADVANTAGES

Perfect focusing of holed objects
Both the walls and the bottom of a cavity are imaged in high resolution

Cavity inspection from the outside
No need to put an optical probe into the hole

Very high field depth
Objects featuring different shapes and dimensions can be imaged by the same lens

Wide viewing angle
Sample surfaces are acquired by the lens under a convenient perspective to clearly display their features

New focusing ring version available
Manually adjusting the focus is never been easier!

New integration with liquid lens technology
PCHI AF allows for an extremely fast and repeatable change in focus

PCHI Optics have been developed by Opto Engineering® to easily inspect holes, cavities and containers.

SPECIFICATIONS

Optical specifications

Image circle	(mm)	10
Max sensor size		1.1"
Working distance with minimum object size[1]	(mm)	5
Working distance with maximum object size[1]	(mm)	62
Viewing angle	(°)	82
wf/N[2]		13

Liquid lens specifications

Liquid lens model		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

Mechanical specifications

Focusing		Liquid lens
Mount		C
Length[3]	(mm)	122.4
Outer diameter	(mm)	40.0
Mass	(g)	282

Environment

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

[1] Working distance: distance between the front end of the mechanics and the object.
[2] Working f-number (wf/N): the real f-number of a lens in operating conditions.
[3] Measured from the front end of the mechanics to the camera flange.

FIELD OF VIEW

Field of view (diameter x height)

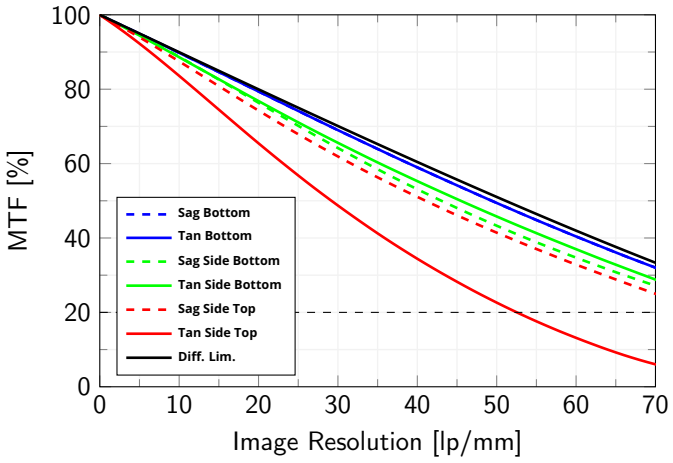
Minimum	(mm x mm)	10.0 x 6.0
Maximum	(mm x mm)	120.0 x 190.0

COMPATIBLE PRODUCTS

Full list of compatible products available *here*.

A wide selection of innovative machine vision components.

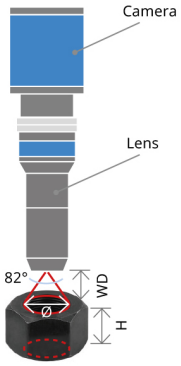
Image Resolution



Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm of cylindrical object of diameter 30 mm and height of 20 mm

PCHI IMAGING SETUP

PCHI optics can image cavities whose diameters and thicknesses span over a wide range of values. PCHI series features 82° view angle and can image both the inner walls and the bottom of cavities.



COMPATIBLE CONTROLLER

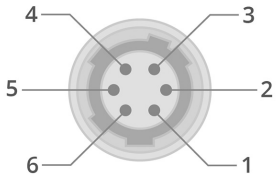
The liquid lens must be controlled by a suitable lens driver. Hirose cables and Liquid Lens driver are sold separately. Only the following part numbers are considered fully compatible with PCHI3M-AF:

- **CBGPIO6PMF-3M**, 6 Pin Hirose Male - Female moulded connector cable, 3 m.
- **RT-EL-E-4i**, USB Controllers for liquid lens modules, industrial version.

TEMPERATURE EFFECTS

Temperature changes affects the lens behaviour resulting in a drift of the optical power.
For more information please check the Optotune's datasheet for EL-3-10.

CONNECTOR PINOUT



Device side

Pin	Description
1	Lens + control pin
2	Lens - control pin
3	GND
4	Power
5	I^2C SCL
6	I^2C SDA

ATTENTION: observe precaution for handling.
Electrostatic sensitive device