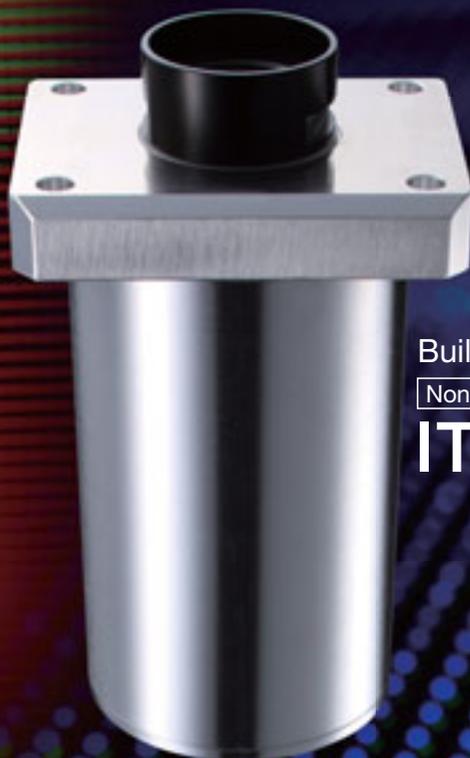


Industry-leading accuracy

HORIBA high-accuracy temperature measurements

Non-Contact Infrared Thermometer Series



Built-in type

Non-Contact Infrared Thermometer

IT-470F-H

Industry-leading accuracy

HORIBA's exclusive Infrared-based high-accuracy temperature measurement technologies

HORIBA incorporates unique, home-grown technologies into non-contact infrared handheld thermometers and built-in type.

HORIBA's IT product line offers industry leading accuracy supported by years of know-how in infrared sensor development and a track record of success across many industries.

Wavelength optimization for high sensitivity

Infrared Multi-Layer Film Filter

Years of successful development of infrared multi-layer filters are leveraged to identify the best wavelength regions and filter designs matched to sensor performance to ensure high accuracy temperature measurements.



New model

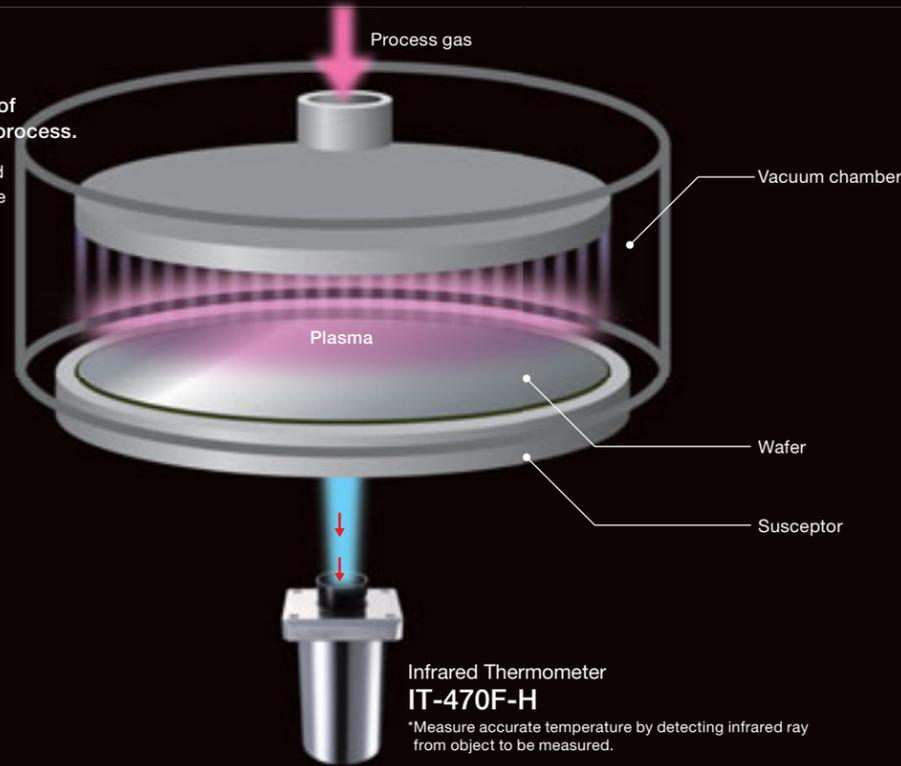
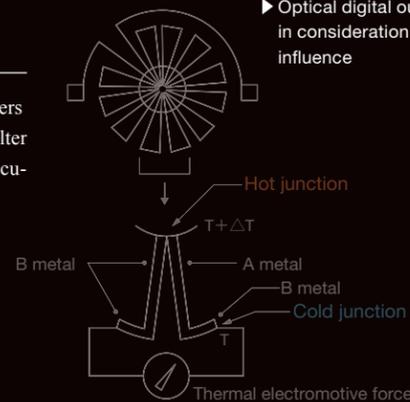
Unique structure for high stability

Thermopile Sensor

Adoption of a new sensor structure provides enhanced resistance to fluctuations in ambient temperature for very stable measurement with minimal drift.

Japan Patent number 5658059

Temperature measurement of a susceptor during plasma process.
▶ Optical digital output is equipped in consideration of extrinsic noise influence



Infrared Thermometer IT-470F-H
*Measure accurate temperature by detecting infrared ray from object to be measured.



Built-in type
Non-Contact Infrared Thermometer
IT-470F-H

Absolute high measurement accuracy ($\pm 0.4^{\circ}\text{C}$) and superior repeatability of ($\pm 0.2^{\circ}\text{C}$ *) temperature measurement should contribute to improve process stabilization.

*Under given conditions.

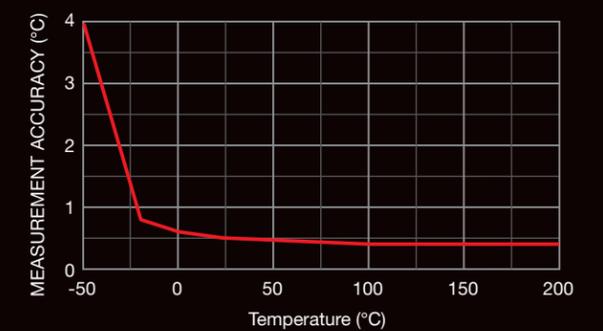


Unique calibration equipment ensures extreme accuracy

Stabilized Black Body Furnace

Exclusive in-house black body furnace technology produces superior uniform temperature conditions to deliver industry-leading characterization and calibration.

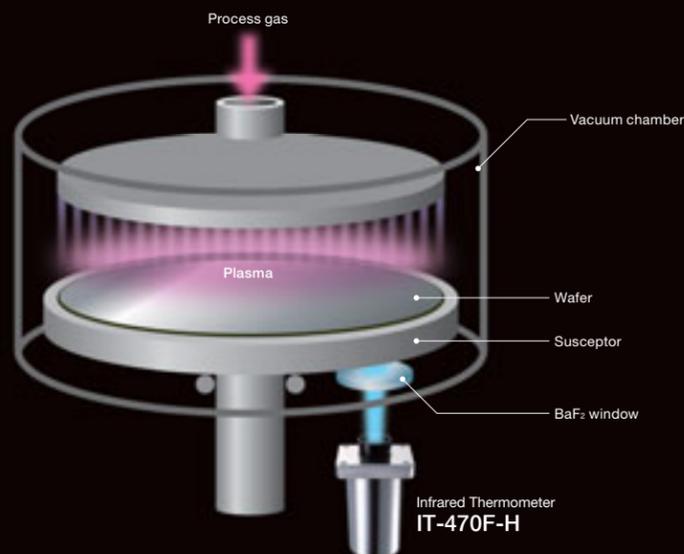
IT-470F-H measurement accuracy



Adoptable to semiconductor and FPD production which required high accuracy temperature measurement

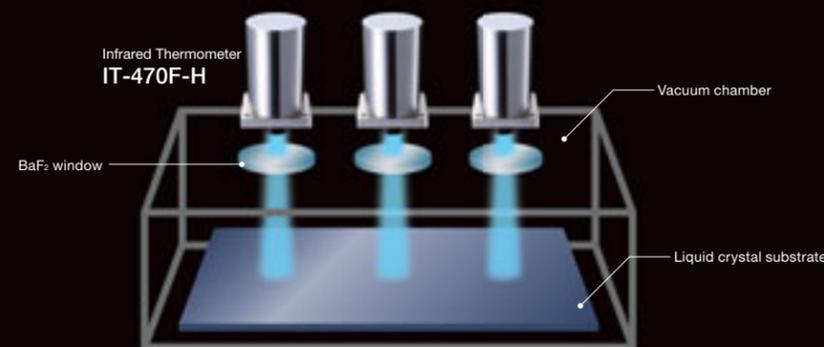
In case of a susceptor is in a vacuum chamber

▶ Temperature measurement of a susceptor is possible from outside of a chamber through the window



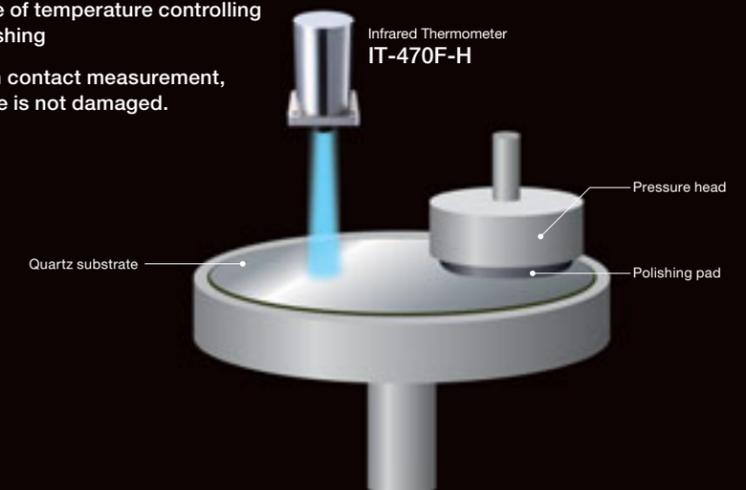
In case of surface temperature measurement of liquid crystal substrate in FPD production process.

▶ As non contact measurement, surface is not damaged.



In case of temperature controlling in polishing

▶ As non contact measurement, surface is not damaged.

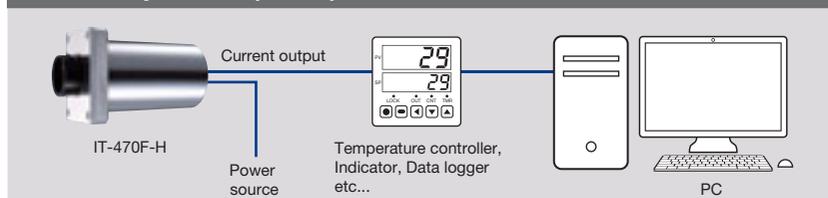


Specification of IT-470F-H

Measurement wavelength	8 to 14 μ m
Measurement temp. range	-50 to 200°C
Output resolution	Optical digital output: 0.1°C Current output \leq 0.025%FS
Accuracy* (Optical digital output)	\pm 4.0°C (Object temperature -50°C) \pm 0.8°C (Object temperature -20°C) \pm 0.6°C (Object temperature 0°C) \pm 0.5°C (Object temperature 23°C) \pm 0.4°C (Object temperature 100°C~) (Linear interpolation is applied for the mid-points of object temperature and interpolated data are rounded to one decimal place.)
Repeatability (Optical digital output)	0.7°C (Object temperature -50°C) 0.5°C (Object temperature 23°C) 0.5°C (Object temperature 200°C) (In case of the emissivity = 1.000 and use the 2 σ value of 10 times measurement)
Response time (Optical digital output)	Optical digital output: \leq 1.4 sec (running average 1 sec, at 95% response)
Data sampling period	0.1 sec
Display update period	Optical digital output: 0.2 sec Current output: 0.1 sec
Measuring diameter	ϕ 8mm/Distance 150mm (incident light amount 90%)
Emissivity setting	0.001 to 1.000 changeable (Setting at factory shipping)
Operating temp. & humidity	0 to 55°C, 35~85%RH (no condensation)
Power	DC24V \pm 5%
Function	Optical digital output (JIS F05) Current output 4 to 20mA (Load resistance 100 Ω , non-isolated)
Dimensions	55x44x96mm Power, Current cable attached (Standard length 2m)
Mass	\leq 300g

*Condition: Operating temperature 24 to 29°C (include temperature of attachment), Humidity 55 \pm 20%, Emissivity correction setting 1.000.

IT-470F-H system setup example



■ For the measurement window of a furnace or vacuum chamber.

[BaF₂ window]
 ϕ 40x4t



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