

optris GTS

Glass Tempering Scanner

TECHNICAL DATA

High-Resolution Temperature Measurement System for Process Control in Glass Tempering Facilities



Features

- Coating independent underneath measurement system
- Full glass width coverage: 3.5 m at 125 Hz and up to 4.3 m at 32 Hz
- 120° super wide angle optics with 640 pixels and 125 Hz scan speed
- Optional air cooling for high operating temperatures
- Integrated ultra-fast glass breakage detection and lens protection system
- Fully preconfigured and ready to use
- Glass area calculation
- Analysis software with predefined layouts

Specification	GTS main unit
Ambient temperature	0 ... 45 °C
Storage temperature	-40 ... 70 °C
Relative humidity	10...95 %, non-condensing
Material (housing)	Stainless Steel
Dimensions	722 mm x 145 mm x 72 mm
Weight	23 kg (incl. all components)
Cable length (Ethernet)	Up to 100 m. We recommend Cat.6 or higher
Power Supply	100-240 V AC/ 50-60 Hz/ 1.5 A max.
Vibration (sensor)	IEC 60068-2-6 / -64
Shock (sensor)	IEC 60068-2-27 (25 G and 50 G)

Specification	PI 640i G7
Function	Infrared Image
Optical resolution	640 x 480 pixels
Detector	FPA, uncooled (17 µm x 17 µm)
Spectral range	7.9 µm
Therm. sensitivity (NETD) ¹⁾	80 mK (at TOBj = 650 °C)
Temperature range	150 ... 900 °C / 200 ... 1500 °C
Sighting range	0 ... 250 °C
Frame rate	HFOV: 125 Hz @ 640 x 120 pixels DFOV: 32 Hz @ 640 x 480 pixels
Optics (FOV)	120° x 100° f = 3.5 mm
Scan width	3.5 m (HFOV) 4.3 m (DFOV)

Scope of supply
• GTS main unit (pre-assembled) with shutter for emergency closure, electronics and PI 640i G7 with 120° optics • 10 m Ethernet cable • 100-240 V AC power cable • Glass Breakage Sensor (CTlaser 4ML) with 10 m cable • Furnace Door Sensor (CTi LT) with 10 m cable • Analog input cable, 10 m long • Aiming Support with 10 m cable each (2 pcs.) • Remote control button with 10 m cable • Cable protection conduit (4 pcs.)

Specification	CTlaser 4ML	CTi LT
Function	Glass Breakage Sensor	Furnace Door Sensor
Optical resolution	30:1	22:1
Spectral range	2.2 - 6 µm	8 - 14 µm
Temperature range	0 ... 500 °C	-50 ... 1050 °C
Response time	300 µs (90% signal)	115 ms (90% signal)
Weight sensing head	600 g	40 g

¹⁾ Measurement of the noise equivalent temperature difference (NETD) according to VDI 5585 standard, method B; 650 °C black body temperature, frame rate 20 Hz averaged



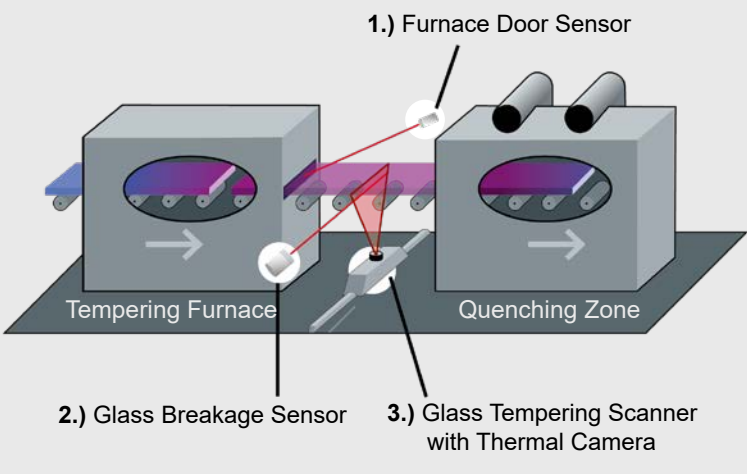
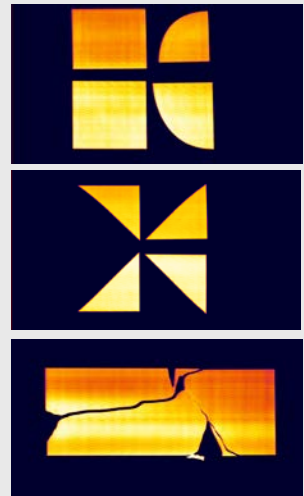
Components of the pre-assembled GTS



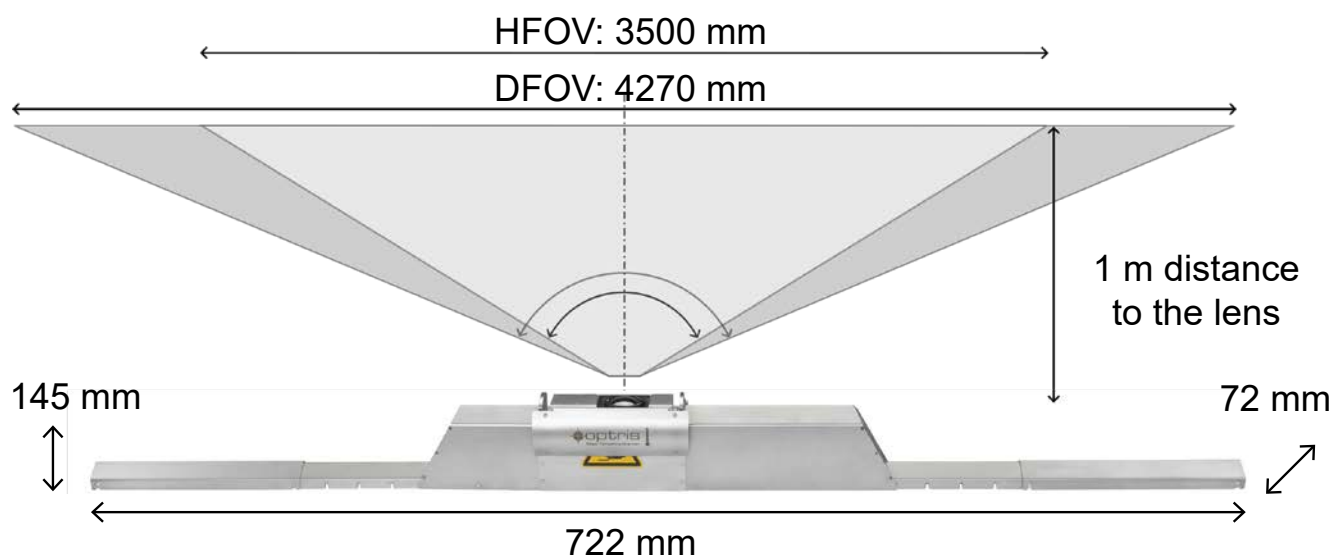
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Measurement Principle	Main Components	Results IR Measurement
 1.) Furnace Door Sensor 2.) Glass Breakage Sensor 3.) Glass Tempering Scanner with Thermal Camera Tempering Furnace Quenching Zone	1.)  CTI LT 2.)  CTI Laser 4ML 3.)  PI 640i G7 with 120° optics	

System Overview (Standard Setup)



THE FOCUS CAN BE VARIABLE FOR DIFFERENT DISTANCES!

Software PIX Connect



Exemplary software layout with thermal profile, IR live view, snapshot history, five measurement zones and glass area calculation



The software provides excellent image quality and manifold analysis features as profiles, measurement areas and alarm indication