

PYROVIEW 640G

High-resolution infrared camera for application in glass industry



- ✓ Precise non-contact temperature measurement from 300 °C to 700 °C
- ✓ Uncooled microbolometer array with 640 × 480 pixels
- ✓ Spectral range 4.8 µm to 5.2 µm
- ✓ Numerous optics with motor focus
- ✓ Measurement frequency 50 frames per second
- ✓ Gigabit Ethernet interface (1 GBit/s)
- ✓ Large dynamic range and 16-Bit analog digital converter
- ✓ Camera in small housing „compact+“ (IP54) or industry protection housing "protection" (IP65)
- ✓ Integration in customized system solutions including hard- and software adjustment

Overview

Whether in process monitoring, process automation or quality control in float glass and container glass production – the infrared camera PYROVIEW 640G measures temperatures without contact exactly and reliably. Also in very fast processes or at temperature changes the data acquisition happens in real-time. For a high measurement accuracy the spectral range of the camera is optimally adjusted to measurement objects made from glass.

In stationary industrial continuous operation measurement data is recorded with high spatial resolution on fixed or moving measurement objects. In this way production processes are monitored and controlled efficiently.

Therefore the Gigabit Ethernet interface guarantees a data acquisition without loss and with no appreciable time delay up to 50 images per second. The maximum image frequency of 50 Hz is adjusted optimally to the thermal time constant of the infrared array.

Numerous motor focus infrared lenses, including wide angle and telephoto lenses, provide a flexible adjustment to different measurement object sizes at different measurement distances.

The infrared camera is either built in a small aluminium housing „compact+“ or in a stainless steel industry protection housing „protection“ that has a protection window, an air purge unit and an optional watercooling.

The camera observes the production in stand-alone operation without any connected computer via two galvanically isolated digital inputs and outputs. All process parameters of the stand-alone version are programmed once on location via PC connection.

The modular Windows software PYROSOFT of the camera can be adjusted and extended to process-related requirements. The free software PYROSOFT Compact is delivered with every PYROVIEW infrared camera.



Made by DIAS Infrared

DIAS Infrared headquartered in Dresden (Germany) develops and manufactures high-quality precision devices as well as system solutions for non-contact temperature measurement. Challenging projects are a welcoming motivation for us. The customers appreciate the robust make, outstanding accuracy, superb reliability and the high service standard of our equipment technology.

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PYROVIEW 640G

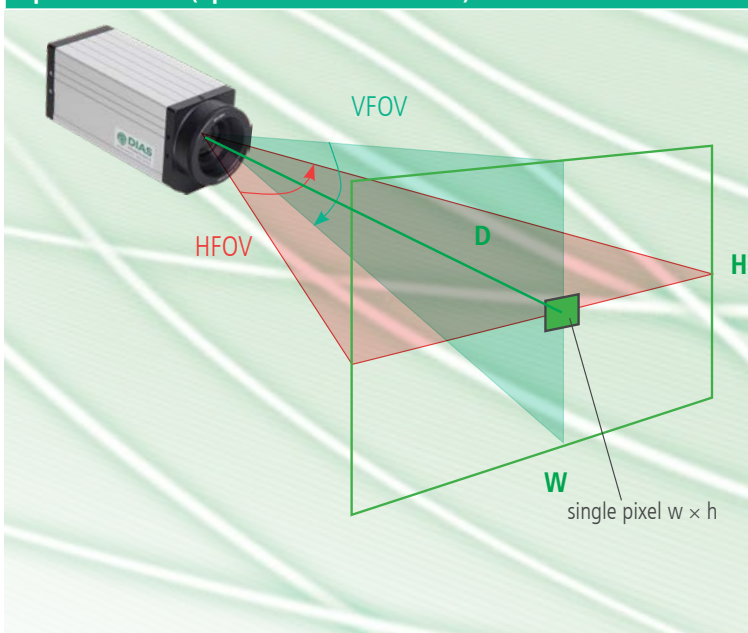
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Technical data

Device type	640G compact+	640G protection
Spectral range	4.8 μ m to 5.2 μ m	
Temperature ranges	300 °C to 700 °C (other on request)	
NETD ^{1,2}	< 1 K (400 °C, 50 Hz)	
Aperture angle (HFOV $\times$ VFOV)	25° $\times$ 19°, optional: 75° $\times$ 60°, 59° $\times$ 46°, 43° $\times$ 33°, 12° $\times$ 9° (optics with motor focus)	
Sensor	uncooled microbolometer array (640 $\times$ 480 pixels)	
Measurement uncertainty ²	2 % of measured value °C	
Measurement frequency ³	internal 50 Hz, selectable: 50 Hz, 25 Hz, 12,5 Hz, ...	
Response time	internal 40 ms, selectable: 2 / measurement frequency	
Interfaces	Gigabit-Ethernet (real-time, 50 Hz), galvanically isolated digital inputs (trigger) and digital outputs (alarm)	
Connectors	round plug connector HR10A (12 pin, power supply, digital inputs and outputs), round plug connector M12A (Ethernet)	round plug connector M23 (16 pin, power supply, digital inputs and outputs), round plug connector M12A (Ethernet)
Power supply	12 V to 36 V DC, typical 10 VA	
Weight	approx. 1.6 kg	approx. 4.2 kg
Housing	aluminium compact housing IP54, 65 mm (L) $\times$ 160 mm (W) $\times$ 79 mm (H), without lens and connectors, optional with weather protection housing with pan-tilt-unit	industry protection housing IP65, stainless steel, with protection window, air purge and optional water cooling, diameter 110 mm, length 280 mm (without mechanical mounting and connectors), 6 bar max. water pressure, 2 bar max. air pressure
Operating temperature of the camera	-10 °C to 50 °C	-10 °C to 50 °C (without water cooling), -25 °C to 150 °C (with water cooling)
Storage conditions	-20 °C to 70 °C, max. 95 % rel. humidity	
Software	control and imaging software PYROSOFT for Windows®, customized modifications on request	
Scope of delivery	infrared camera PYROVIEW 640G, calibration certificate, manual, software PYROSOFT Compact	

¹ Noise equivalent temperature difference. ² Specifications for black body radiator and ambient temperature 25 °C. ³ Export version with < 9 Hz available.

Optics variants (optics with motor focus)



HFOV $\times$ VFOV	D [m]	W [m]	H [m]	w [mm]	h [mm]
IFOV					
25° $\times$ 19°	1	0.44	0.33	0.7	0.7
	3	1.31	0.98	2	2
	10	4.35	3.26	7	7
0.7 mrad	1	1.53	1.15	2.4	2.4
	3	4.60	3.46	7.2	7.2
	10	15.35	11.55	24	24
75° $\times$ 60°	1	1.13	0.85	1.8	1.8
	3	3.39	2.55	5.3	5.3
	10	11.32	8.49	17.7	17.7
2 mrad	1	0.79	0.59	1.2	1.2
	3	2.36	1.78	3.7	3.7
	10	7.88	5.92	12.3	12.3
59° $\times$ 46°	1	0.22	0.16	0.3	0.3
	3	0.65	0.49	1	1
	10	2.18	1.63	3	3
1.6 mrad	1	0.79	0.59	1.2	1.2
	3	2.36	1.78	3.7	3.7
	10	7.88	5.92	12.3	12.3
43° $\times$ 33°	1	0.22	0.16	0.3	0.3
	3	0.65	0.49	1	1
	10	2.18	1.63	3	3
1.2 mrad	1	0.22	0.16	0.3	0.3
	3	0.65	0.49	1	1
	10	2.18	1.63	3	3
12° $\times$ 9°	1	0.22	0.16	0.3	0.3
	3	0.65	0.49	1	1
	10	2.18	1.63	3	3
0.3 mrad	1	0.22	0.16	0.3	0.3
	3	0.65	0.49	1	1
	10	2.18	1.63	3	3

HFOV ... Horizontal Field Of View (horizontal aperture angle)
VFOV ... Vertical Field Of View (vertical aperture angle)
IFOV ... Instantaneous Field Of View (spatial resolution)
D ... Measurement distance

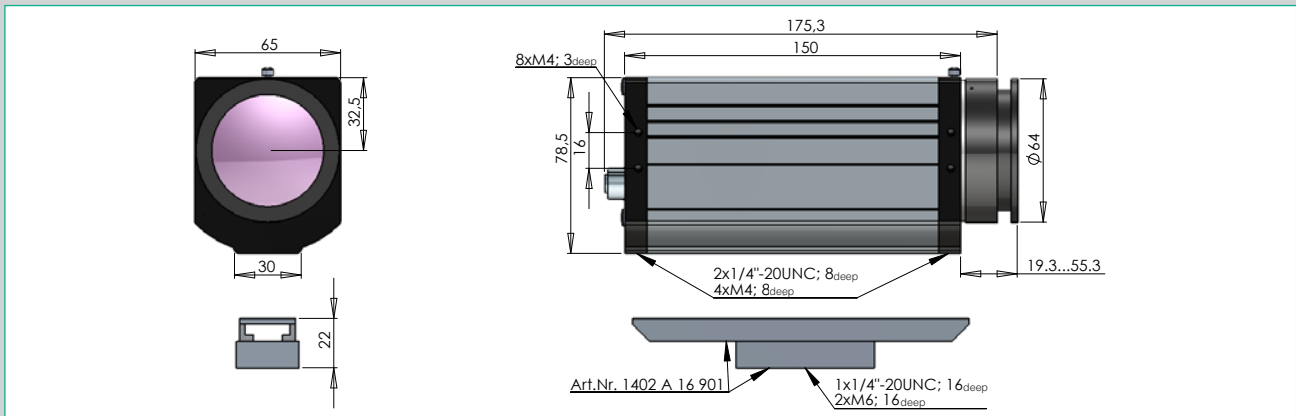
W ... Image width
H ... Image height
w ... Pixel width
h ... Pixel height

PYROVIEW 640G

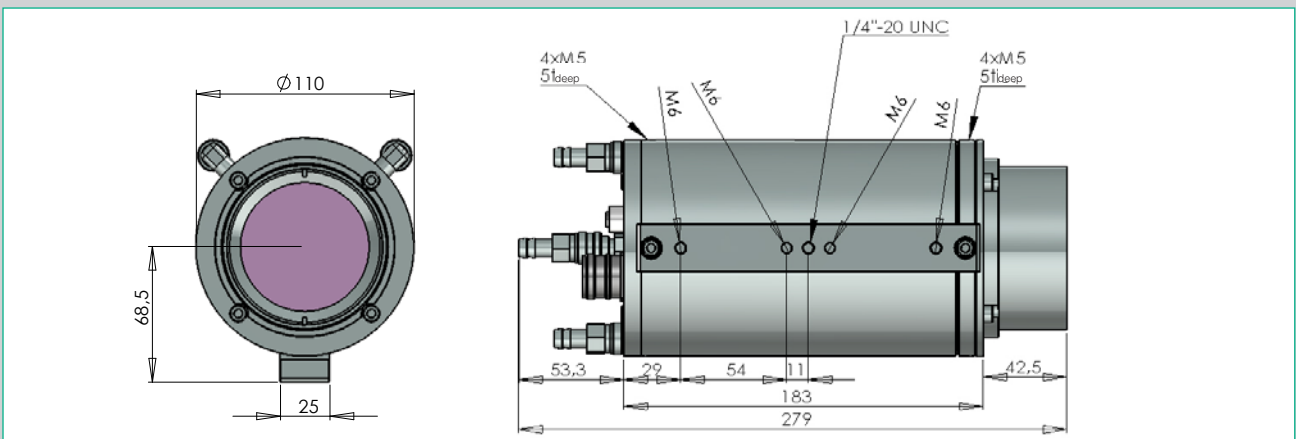
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Dimensional drawings

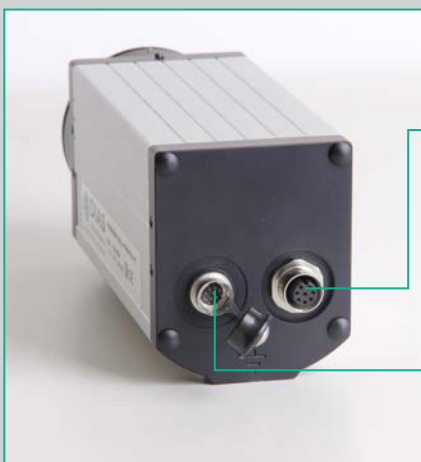
Dimensions: PYROVIEW 640G in compact+ housing



Dimensions: PYROVIEW 640G in protection housing



Connectors



Gigabit-Ethernet (LAN)

- Infrared real-time data up to 50 images per second (TCP/UDP)
- Web interface (status and image bar)
- PYROSOFT software
- GigE Vision® compatible
- Configuration for stand-alone operation

- ➔ Power supply
- ➔ Trigger 1
- ➔ Trigger 2

- Error signal/
- Alarm 1 ➔
- Synch signal/
- Alarm 2 ➔

Inputs

Outputs

Customized terminal box

(with power supply unit, alarm relay, controller, media convertor,...)

Accessories¹

Ethernet cable (8 pin) M12-RJ45/Cross/5 m

Part number

2301A32005

Connection set for compact+ housing (5 m Ethernet cable for direct PC connection/RJ45, 5 m system cable with connected power supply/230 V)

2301A04101

Mounting set for compact+ housing

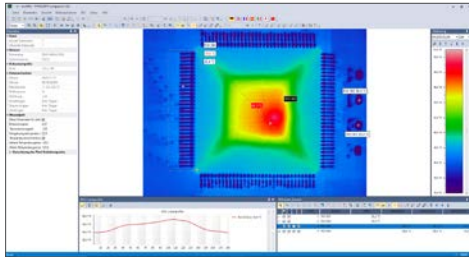
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¹ More accessories available.

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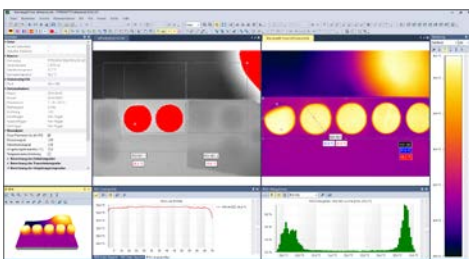
Powerful online and offline software for DIAS infrared cameras

PYROSOFT Compact



- Online data recording from a DIAS infrared camera
- Online data storage
- Opening and editing archived measurement data and sequences
- Bitmap and video export
- Definition of "areas of interest" (ROI): points, lines and rectangles
- Selection of color palettes and scaling including autodynamics
- Zoom functions with auto zoom, full screen view, rotation and tilt
- Creation of reports in Microsoft® Word format using the integrated report function
- Included with every camera

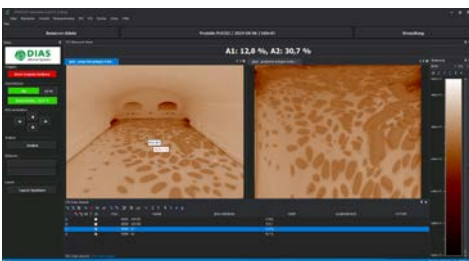
PYROSOFT Professional



- Online operation for multiple cameras
- Online data recording – analyze, save and export data in real time
- Open and edit archived measurement data and sequences
- Multi-document structure for editing multiple documents
- Bitmap, video and text export
- Definition of ROI "regions of interest" and VOI "values of interest" with alarm evaluation, histogram and trend charts
- Reporting functions, multi-report for album files from multiple documents
- PYROSOFT Professional IO: additional bidirectional data interface via PROFIBUS, PROFINET, WAGO, Modbus, OPC, TCP socket or text file to process control systems, controllers and other applications

PYROSOFT Automation

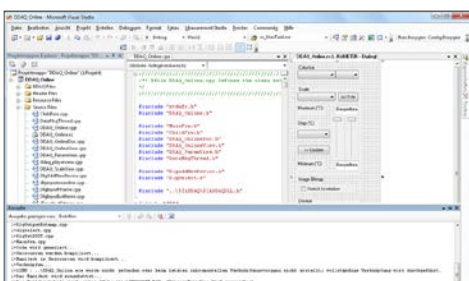
DIAS has developed the PYROSOFT Automation software solution for the integration of infrared cameras into automation processes:



- Online functionality like PYROSOFT Professional IO
- Configurable interface, user rights and password management
- Manual or automatic product switching
- Display of status information and alarms
- PYROSOFT Automation SC: Synchronous data recording from up to 8 cameras, data is combined into a common image
- PYROSOFT Automation MC: Independent data recording and evaluation from up to 8 different cameras, display of individual and overview images of all cameras, status information, alarm messages and states of the IO outputs

PYROSOFT DAQ

For users who want to integrate the camera into their own software environment, we offer our own DLL interface for DIAS infrared cameras:



- API (32 and 64 bit Windows® DLL) for direct data access to cameras
- Support for the DIAS IRDX file format
- Setting recording parameters and measurement object properties
- Querying temperature measurements and camera information
- Bitmap functions for displaying color palettes and measurement values
- Online and offline functionality

More software packages are available, for example: PYROSOFT CamZone (software for zone programming a stand-alone camera).