



# WORKSWELL SMARTIS

## SMART THERMAL IMAGING SYSTEM

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## Datasheet

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**Release date:** 13<sup>th</sup> of May, 2021

**Revision Number:** 210513



# Workswell SMARTIS

## Introduction

Workswell s.r.o. is pleased to introduce you a brand new Smart Thermal Imaging System Workswell SMARTIS for Automation, Process and Manufacturing applications. We pushed the limits forward and created all-in-one system with built-in analysis, continuous measurement and control functions. It allows you to use easily SMARTIS camera without any external PCs or evaluation units.

The powerful communication interface contains 4 analog output channels (voltage or current), Ethernet, digital trigger inputs and alarm digital outputs for technology control. SMARTIS can have a resolution up to 640 x 512 pixels with temperature sensitivity up to 0.05°C and temperature range up to 1 500°C (2 732 °F)

- 1 4 CHANNEL ANALOG OUTPUTS
- 2 7 ALARM DIGITAL OUTPUTS
- 3 4 TRIGGER DIGITAL INPUTS
- 4 ETHERNET TPC/IP R-J45



The SMARTIS is TCP/IP Ethernet compliant and therefor analysis and alarm results can be easily applied to PLC. Analog and digital outputs are available for general alarms and direct temperature measurement from specific pixel position or selected area. Due to these built-in capabilities can be used as independent multi-pyrometric analog output sensor or standalone OK/NOK thermal 2D camera. An image masking system provides you to select only the relevant area/pixel for final evaluation and control.

Workswell SMARTIS



## Key Features

- Built-in Webserver for control and vizualization
- Fully calibrated up to 550 °C (optional +1 500°C)
- 336px or 640px detector
- Ethernet TCP/IP Process communication
- 4 channel isolated current or voltage outputs
- 4 digital trigger inputs for sync and timing
- 7 digital alarm outputs for technology control
- Standardized M12 circular connectors



	SMARTIS 336	SMARTIS 640
<b>SMARTIS Thermal Sensor</b>		
<b>Resolution</b>	336 x 256 pixels	640 x 512 pixels
<b>Image Frequency</b>	9Hz, 30Hz or 60Hz	9Hz or 30Hz
<b>Temperature ranges</b>	-25 °C to +150 °C (-13 °F to 302 °F) -40 °C to +550 °C (-40 °F to 1 022 °F) optional temperature range +50 – 1 000 °C (122 °F to 1 832 °F) optional temperature range +400 – 1 500 °C (752 °F to 2 732 °F)	
<b>Temperature sensitivity</b>	0.05°C (50mK)	
<b>Accuracy</b>	±2 % or ±2 °C (±3.6 °F) (in temperature range -10 °C to +150 °C (-13 °F to 302 °F) and 0 °C to +550°C (-40 °F to 1 022 °F))	
<b>Calibration</b>	Yes, the system includes the calibration certificate	
<b>Detector Type</b>	Uncooled VOx microbolometer	
<b>Optics (FOV)</b>	17°, 25°, 35°, 45° ( <a href="#">FOV calculator online</a> )	32°, 45°, 69° ( <a href="#">FOV calculator online</a> )
<b>Focus</b>	Continuous Manual (fixed focusable, min focus distance depends on lens)	
<b>Spectral Range</b>	7.5 – 13.5 μm	

<b>SMARTIS Communication and Power supply</b>	
<b>Networking</b>	Ethernet 100Mb/sec, RJ-45, Metal cable gland protection
<b>Analog output</b>	4-channel isolated Current loop (0-24mA) / Voltage (±12VDC, M12 circular thread)
<b>Digital output</b>	7 x Isolated open collector output (max 40 VDC), M12 circular thread
<b>Digital inputs</b>	4 x isolated high-voltage trigger inputs (max 36 VDC), M12 circular thread
<b>Supply input</b>	18 to 32 VDC, < 4 W (max. 5 W during NUC calibration), M12 circular thread

<b>SMARTIS Built-in Functions</b>	
<b>Camera configuration</b>	Built-in WEB server for easy and fast sensor configuration, Google Chrome or Firefox browser compatible, no external software required
<b>Monitoring and Alarming</b>	Extreme detections, MAX/MIN evaluations, Dynamic/Static measurements User Control Table (Logical rules and PLC features) Selectable digital output for specific ROI result (OR/AND operators)
<b>Synchronization</b>	Continuous (periodical or full-speed) or Triggered (Start/Stop, Latching)
<b>Visualization</b>	Real-time video streaming, Pallet settings, Overlay elements, Digital zooming, Numeric and statistical indicators, Input and Output overview panel
<b>Security</b>	Administrator/Operator password, locking functions
<b>Image Correction</b>	Non-Uniformity Correction asynchronous/synchronous/triggerable
<b>ROI</b>	User definable measurement area (Point, Line, Polyline, Rect., Polygon, Circle) Multiple product selection for ROI presets (Manual or via Ethernet)
<b>Others</b>	Real-time Clock, Emissivity correction, Multiple languages

SMARTIS Physical Data	
Dimensions and weight	185 x 100 x 105 mm , 1.3 kg, Durable aluminum two-milled body
Mounting	20 x M5 tread, 6 x ¼-20 UNC thread

Operating Environment and Packaging	
IP protection (Encapsulation)	IP54 (or IP65 with front cover lens cap) – no special housing needed
Operating temperature	0 °C to +50 °C (32 °F to 122 °F)
Storage temperature	-30 °C to +60 °C (-22 °F to 140 °F)
Humidity	5% to 95% non-condensing
List of contents	SMARTIS 640/336 model, lens with protection glass cover, Standard Calibration certificate, 1x Power supply cable 5-pin (2 meters), 1x Analogue & Digital IO cable 8-pin (2 meters), 1x Ethernet UTP5 cable (2 meters), Quick start guide, Hard transport case

## SMARTIS lenses

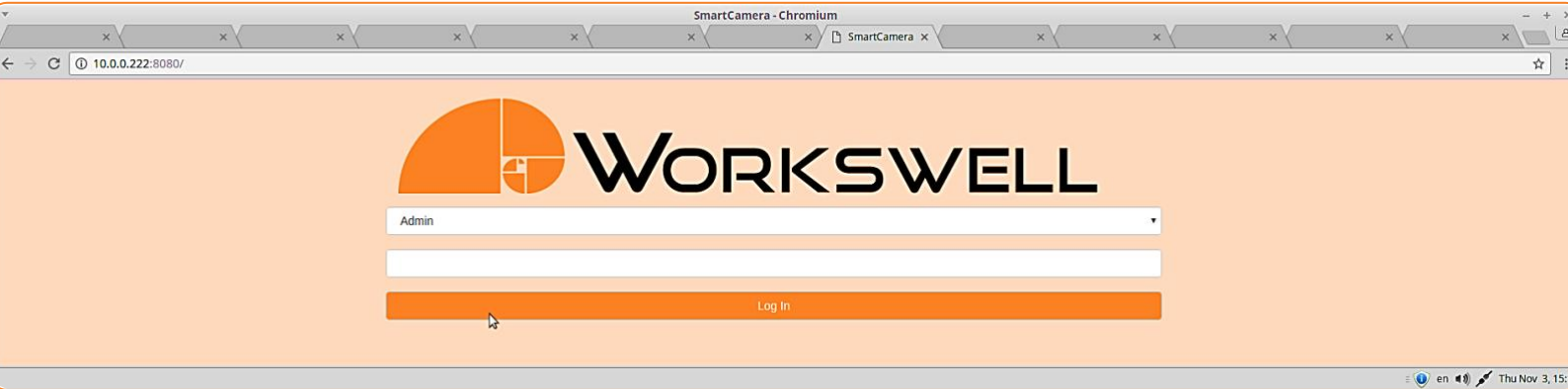
Resolution 640 x 512 pixels	Field of view	Spatial resolution	Pixel size
Focal length 9 mm	FOV 69° x 56°	1.889 mrad from 1 meter	1.9 mm from 1 meter
Focal length 13 mm	FOV 45° x 37°	1.308 mrad from 1 meter	1.4 mm from 1 meter
Focal length 19 mm	FOV 32° x 26°	0.895 mrad from 1 meter	0.9 mm from 1 meter

Resolution 336 x 256 pixels	Field of view	Spatial resolution	Pixel size
Focal length 6.8 mm	FOV 45° x 35°	2.267 mrad from 1 meter	2.3 mm from 1 meter
Focal length 9 mm	FOV 35° x 27°	1.889 mrad from 1 meter	1.9 mm from 1 meter
Focal length 13 mm	FOV 25° x 19°	1.308 mrad from 1 meter	1.4 mm from 1 meter
Focal length 19 mm	FOV 17° x 13°	0.895 mrad from 1 meter	0.9 mm from 1 meter



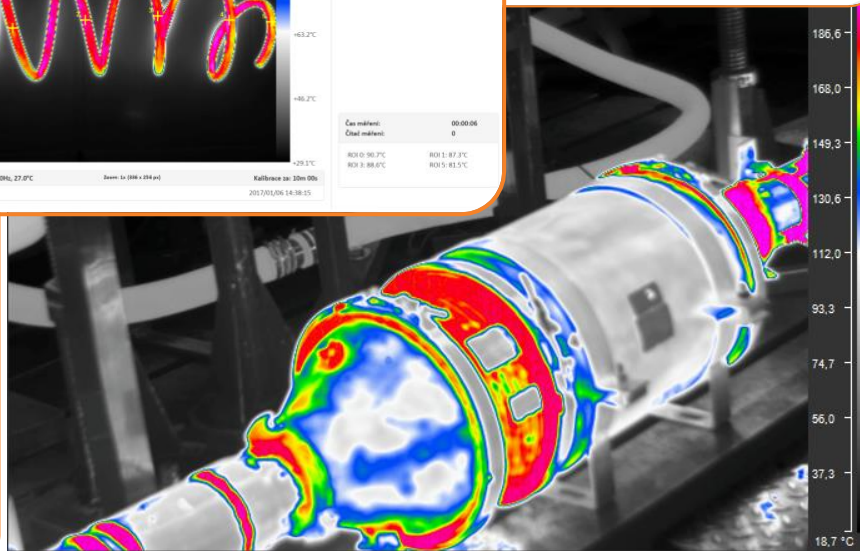
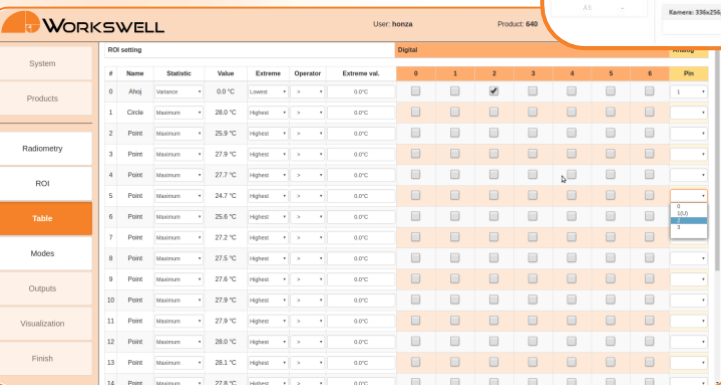
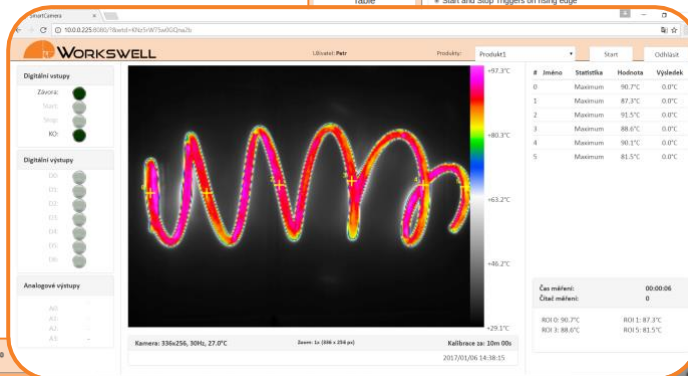
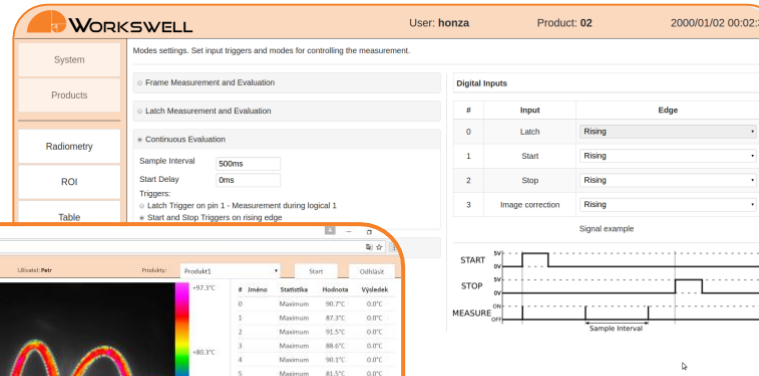


# Built-in Web-server in SMARTIS



## Webserver Key Points

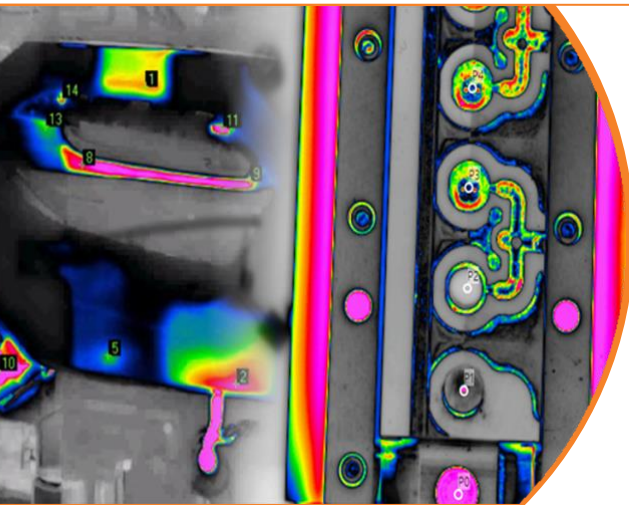
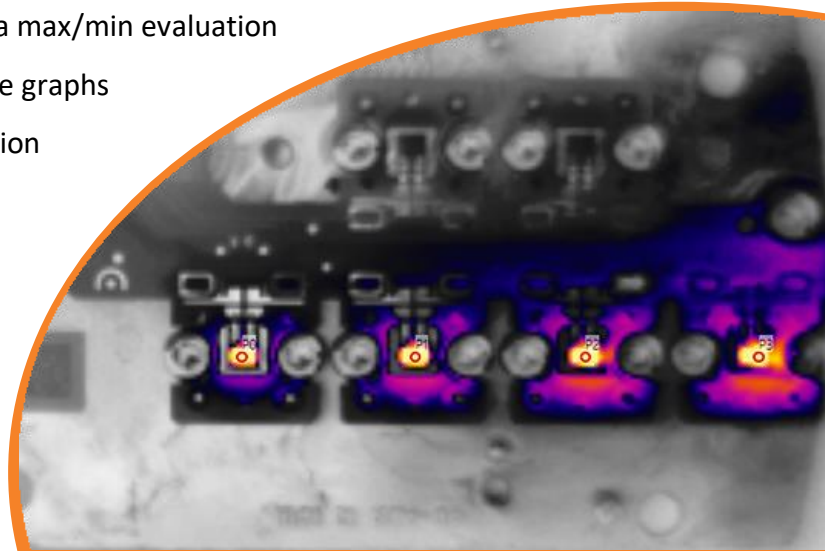
- No external Software needed and Windows, Linux or Mac OS fully compatible
- Full camera control and image streaming via standard Web-Browser/Client
- User-friendly configuration wizard with multiple user access mode
- Integrated operator visualization with indicator panel
- Available via Ethernet cable or Wireless connectivity
- Camera Updates
- Multilanguage



## SMARTIS DESIGNED FOR REAL APPLICATION

### Multi-Pyrometric Functions with Analog Current/Voltage Outputs

- Multi-Pyrometric measurement applications with analog output requirements
- Temperature hotspot or user-defined area max/min evaluation
- Integrated operator visualization with time graphs
- Voltage or Current loop output configuration
- Up to 60Hz fast measurement capability
- Multiproduct/Job selector functions
- Non-trigger or trigger reaction
- Precise manual lens focus
- Zoom and Drawing tools



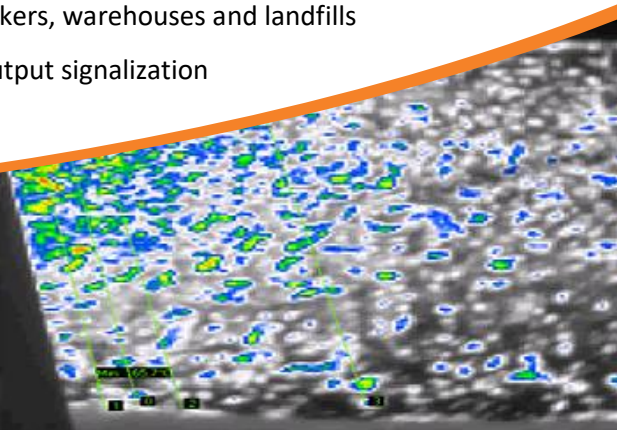
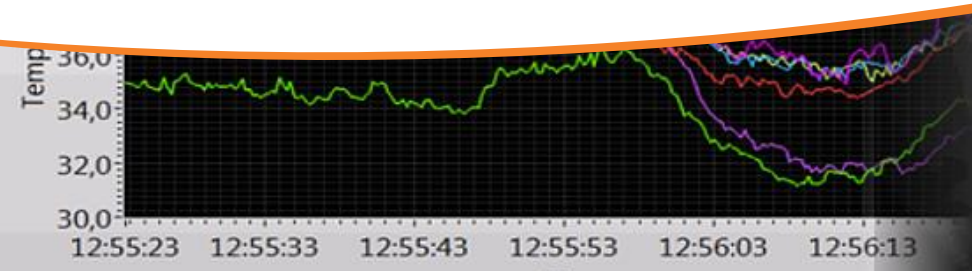
### Triggered Vision Sensor with Digital Outputs

- Temperature or Infrared image snapshot evaluation
- PLC Trigger features with Rising or Falling reaction
- Integrated Webserver with discontinuous visualization
- Optically isolated industrial inputs and outputs
- Accurate user defined 2D Area Drawing tools
- Optionally available LCD visualization panel

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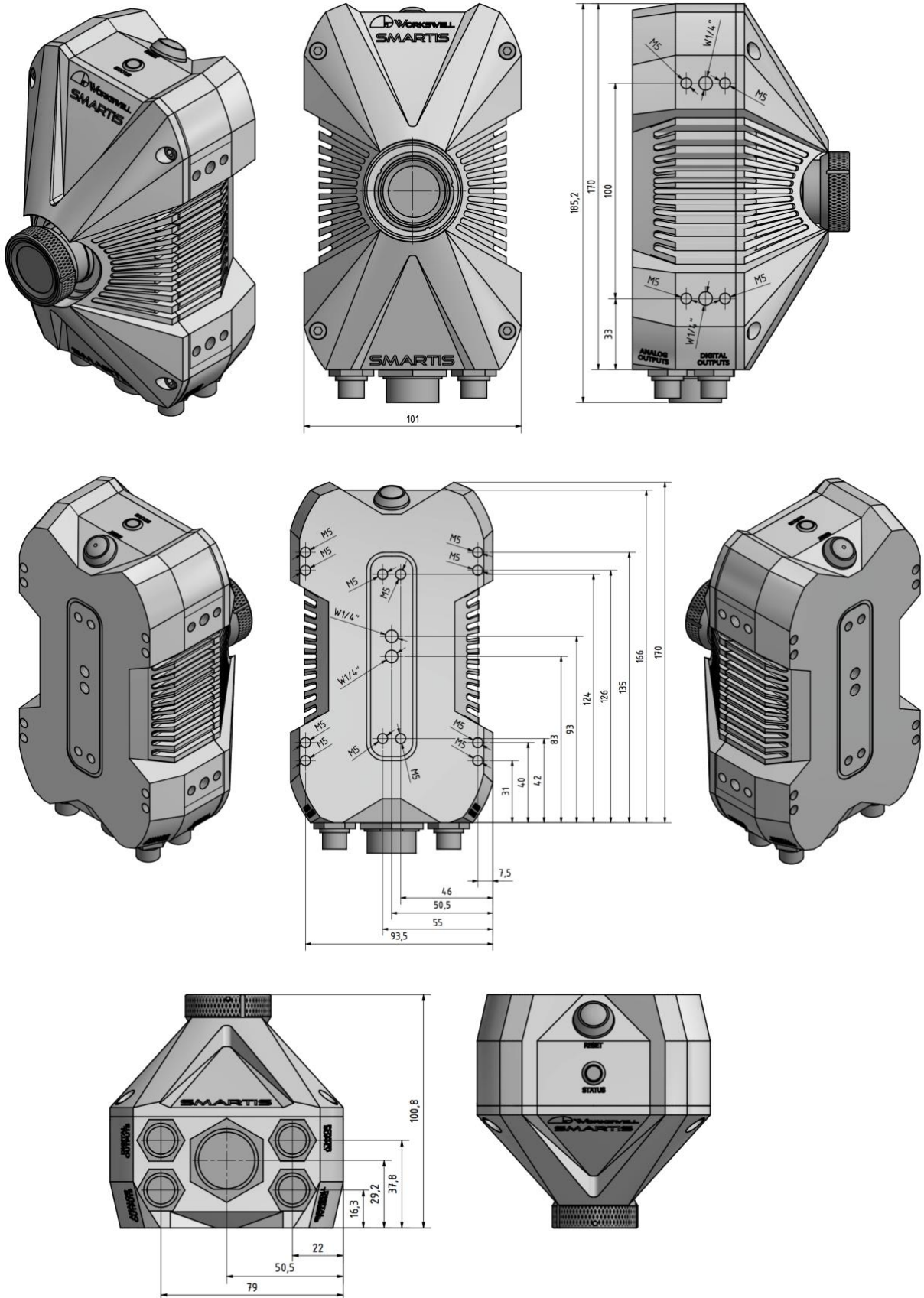
### 24/7 Continuous Fire-safety Camera with Ethernet and digital IO

- Parameterized thermal imaging system for 24/7 protection of waste bunkers, warehouses and landfills
- User-friendly configuration wizard, operator and admin access, digital output signalization
- No other industrial PC needed, different lenses option, easy to install





# SMARTIS dimensions



# Contact information

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