



WORKSWELL SMARTIS

SMART THERMAL IMAGING SYSTEM

Datasheet

Release date: 11th of March, 2017

Revision Number: 1.10

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 1500°C.

- 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.



Key Features

- Built-in Webserver for control and vizualization
- Fully calibrated up to 550°C (optional +1500°C)
- Economical 160px, 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 160	SMARTIS 336	SMARTIS 640
SMARTIS Thermal Sensor			
Resolution	160 x 128 pixels	336 x 256 pixels	640 x 512 pixels
Image Frequency	9Hz, 30Hz or 60Hz	9Hz, 30Hz or 60Hz	9Hz
Temperature ranges	-25°C to +150°C, -40°C to +550°C optional extended temperature range +400°C to +1 500°C (filter)		
Temperature sensitivity	0.05°C (50mK)		
Accuracy	±2% or ±2°C		
Calibration	Yes, the system includes the calibration certificate		
Detector Type	Uncooled VOx microbolometer		
Optics (FOV)	12°, 17°, 25°, 30°	17°, 25°, 35°, 45°	32°, 45°, 69°
Focus	Continuous Manual (fixed focusable, min focus distance depends on lens)		
Spectral Range	7.5 – 13.5 μm		

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

SMARTIS Built-in Functions	
Camera configuration	Built-in WEB server for easy and fast sensor configuration, Google Chrome or Firefox browser compatible, no external software required
Monitoring and Alarming	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)
Synchronization	Continuous (periodical or full-speed) or Triggered (Start/Stop, Latching)
Visualization	Real-time video streaming, Pallet settings, Overlay elements, Digital zooming, Numeric and statistical indicators, Input and Output overview panel
Security	Administrator/Operator password, locking functions
Image Correction	Non-Uniformity Correction asynchronous/synchronous/triggerable
ROI	User definable measurement area (Point, Line, Polyline, Rect., Polygon, Circle) Multiple product selection for ROI presets (Manual or via Ethernet)
Others	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 IP67 with front cover lens cap) – no special housing needed
Operating temperature	0°C to +50°C
Storage temperature	-30°C to +60°C
Humidity	5% to 95% non-condensing
List of contents	SMARTIS 640/336/160 px 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

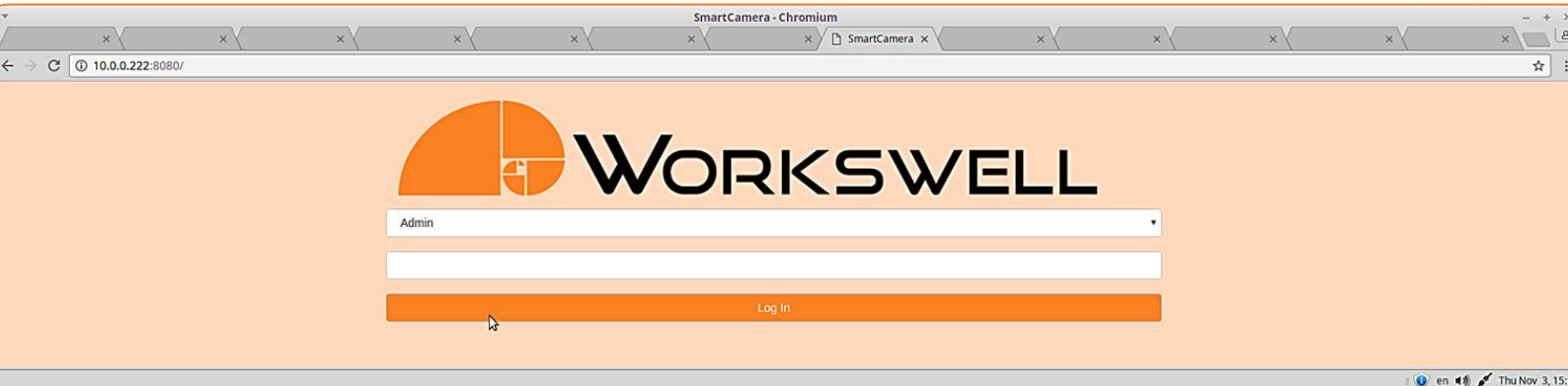
Resolution 640 x 512 pixels	Field of view	Spatial resolution	Pixel size
Focal length 9 mm	FOV 69° x 56°	1.889 mrad from 1 meter	1.9 mm from 1 meter
Focal length 13 mm	FOV 45° x 37°	1.308 mrad from 1 meter	1.4 mm from 1 meter
Focal length 19 mm	FOV 32° x 26°	0.895 mrad from 1 meter	0.9 mm from 1 meter

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

Resolution 160 x 128 pixels	Field of view	Spatial resolution	Pixel size
Focal length 6.8 mm	FOV 30° x 24°	3.333 mrad from 1 meter	3.4 mm from 1 meter
Focal length 9 mm	FOV 25° x 20°	2.778 mrad from 1 meter	2.8 mm from 1 meter
Focal length 13 mm	FOV 17° x 14°	1.923 mrad from 1 meter	2 mm from 1 meter
Focal length 19 mm	FOV 12° x 9.5°	1.316 mrad from 1 meter	1.4 mm from 1 meter

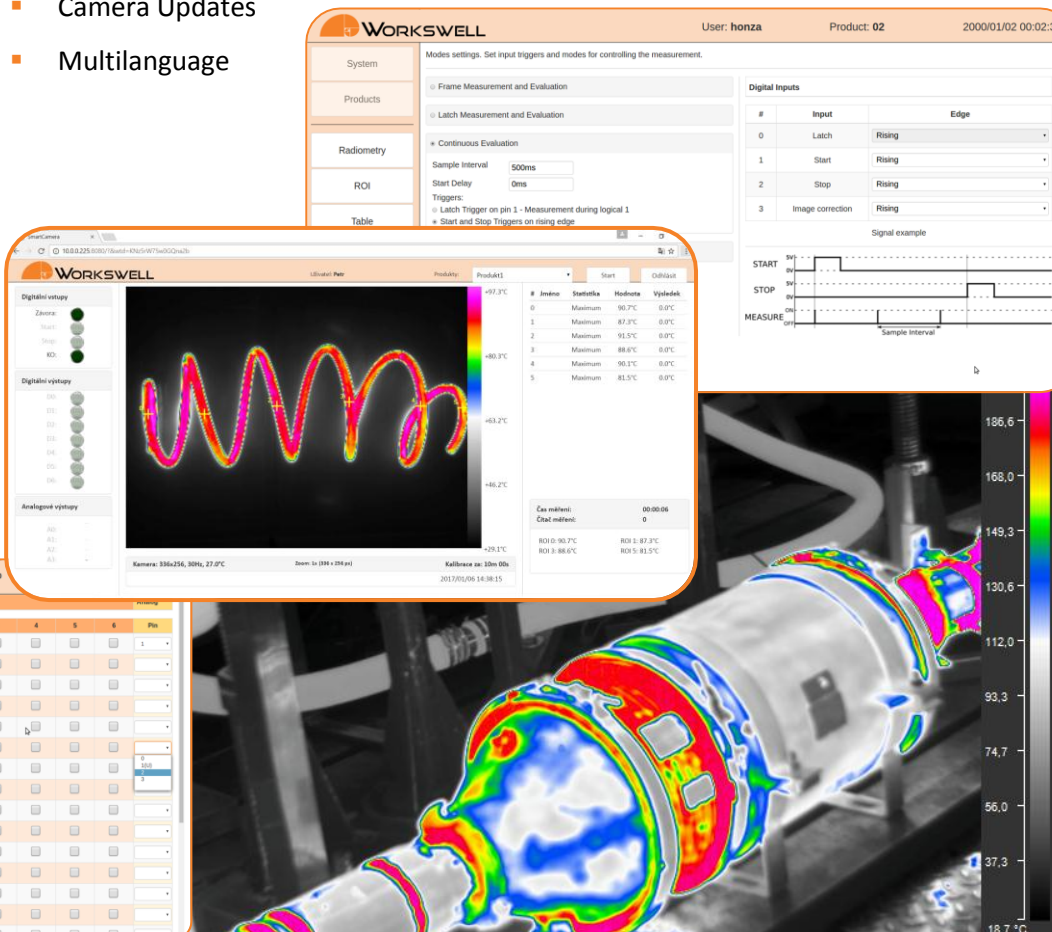


SMARTIS BUILT-IN WEBSERVER



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



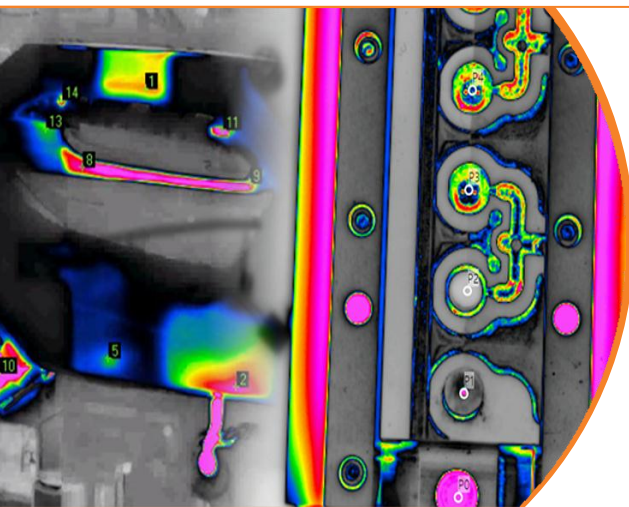
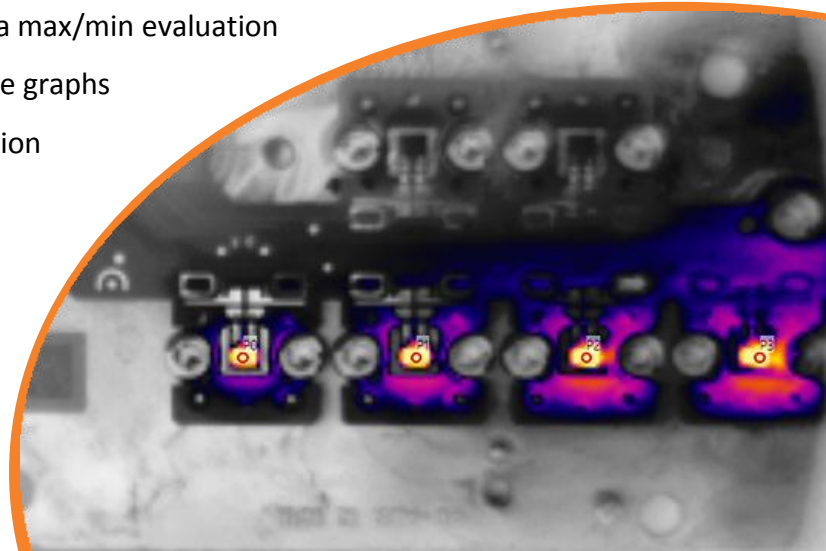
#	Name	Statistic	Value	Extreme	Operator	Extreme val.	0	1	2	3	4	5	6	Pin
0	Altq	Variance	0.0 °C	Lowest	>	0.0 °C								1
1	Circle	Maximum	28.0 °C	Highst	>	0.0 °C								
2	Point	Maximum	25.8 °C	Highst	>	0.0 °C								
3	Point	Maximum	27.8 °C	Highst	>	0.0 °C								
4	Point	Maximum	27.7 °C	Highst	>	0.0 °C								
5	Point	Maximum	24.7 °C	Highst	>	0.0 °C								
6	Point	Maximum	25.6 °C	Highst	>	0.0 °C								
7	Point	Maximum	27.2 °C	Highst	>	0.0 °C								
8	Point	Maximum	27.5 °C	Highst	>	0.0 °C								
9	Point	Maximum	27.6 °C	Highst	>	0.0 °C								
10	Point	Maximum	27.9 °C	Highst	>	0.0 °C								
11	Point	Maximum	27.9 °C	Highst	>	0.0 °C								
12	Point	Maximum	28.0 °C	Highst	>	0.0 °C								
13	Point	Maximum	28.1 °C	Highst	>	0.0 °C								
14	Point	Maximum	27.8 °C	Highst	>	0.0 °C								



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



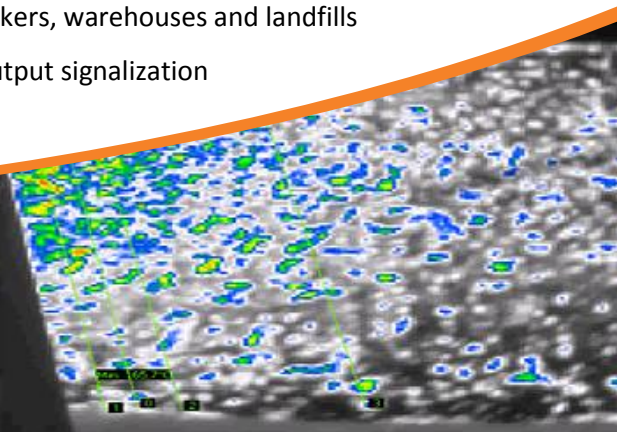
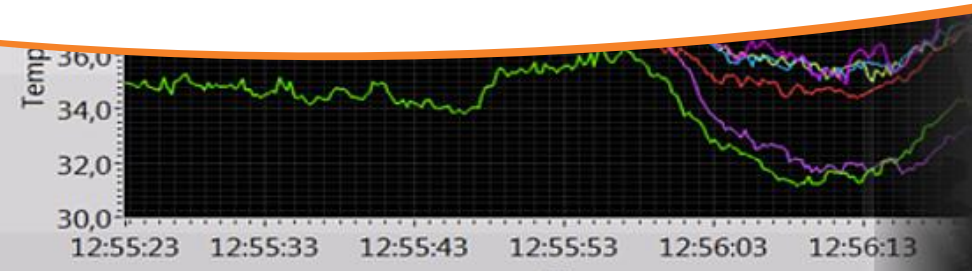
Triggered Vision Sensor with Digital Outputs

- 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

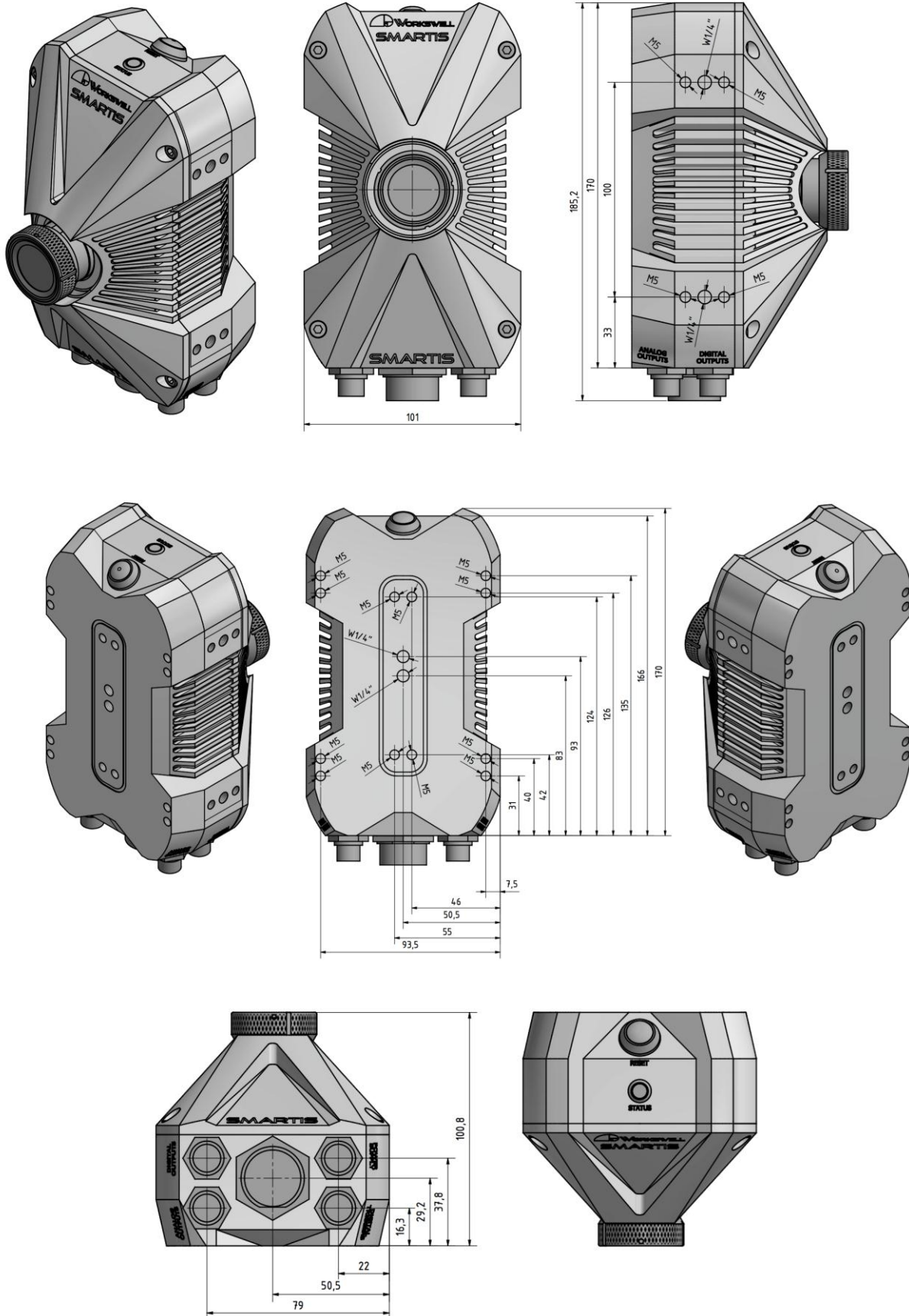
Workswell SMARTIS

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





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