WORKSWELL SMARTIS

SMART THERMAL IMAGING SYSTEM

Datasheet

Release date: 14th of September, 2017

Revision Number: 1.20

WORKSWELL

Workswell FS-SMARTIS and EX-SMARTIS

Introduction

Workswell s.r.o. is pleased to introduce you a two brand new Smart Thermal Imaging System Workswell **EX-SMARTIS (ATEX environment)** and **FS-SMARTIS** for Fire-Safety application in Waste bunker, Warehouses, landfills etc. 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 with **protection IP67**.

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 sensitivity up to 0.05°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 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
- **ATEX housing and High-protection housing IP67**
- 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

All pictures are only for illustration. Real values may vary.

	FS-SMARTIS 160 EX-SMARTIS 160	FS-SMARTIS 336 EX-SMARTIS 336	FS-SMARTIS 640 EX-SMARTIS 640
FS-SMARTIS and EX-SMARTIS Thermal Sensor			
Resolution	160 x 128 pixels	336 x 256 pixels	640 x 512 pixels
Image Frequency	30Hz	9Hz, 30Hz or 60Hz	9Hz, 30Hz
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	230 Vac, < 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

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SMARTIS Physical Data	
Dimensions and weight (FS)	Fire-safety app., 493 x 175 x 168 mm, 5.3 kg, durable aluminum body
Dimensions and weight (EX)	ATEX Fire-safety app., 483 x 172 x 167, 17.4 kg, stainless steel
Mounting	More information written in detail housing data sheets

Operating Environment and Packaging	
IP protection (Encapsulation)	IP67 with cable glands
Operating temperature	-20°C to +50°C
Storage temperature	-30°C to +60°C
Humidity	5% to 95% non-condensing
List of contents	FS-SMARTIS or EX-SMARTIS 640/336/160 px model with lens, Standard Calibration certificate, 1x Power supply cable 5-pin (2 meters), 1x Ethernet UTP5 cable (5 meters), Quick start guide, Transport case

SMARTIS lenses

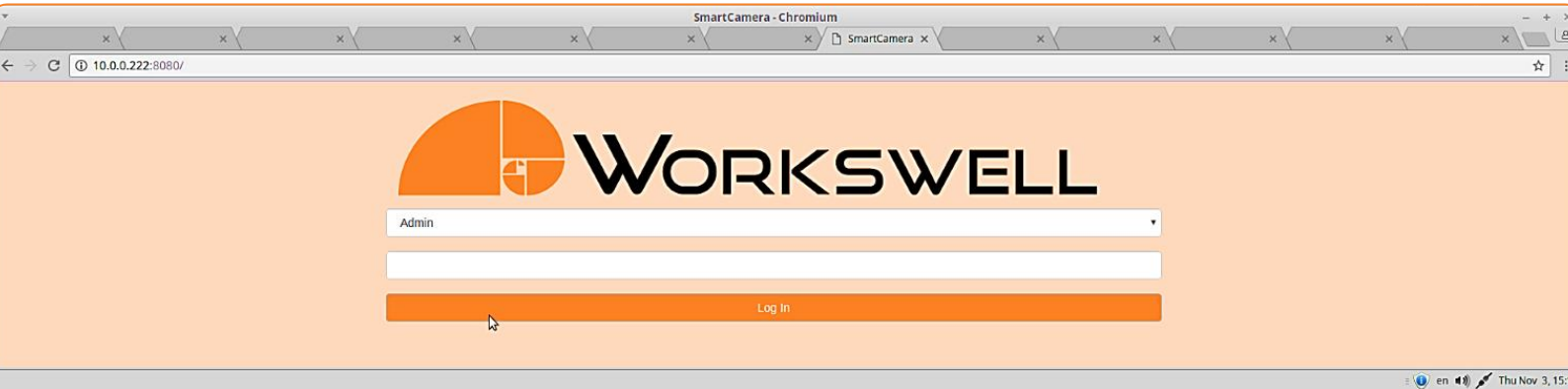| Resolution 640 x 512 pixels	Field of view	Spatial resolution	Pixel size
Focal length 9 mm	FOV 69° x 56°	1.889 mrad from 1 meter	1.9 mm from 1 meter
Focal length 13 mm	FOV 45° x 37°	1.308 mrad from 1 meter	1.4 mm from 1 meter
Focal length 19 mm	FOV 32° x 26°	0.895 mrad from 1 meter	0.9 mm from 1 meter

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

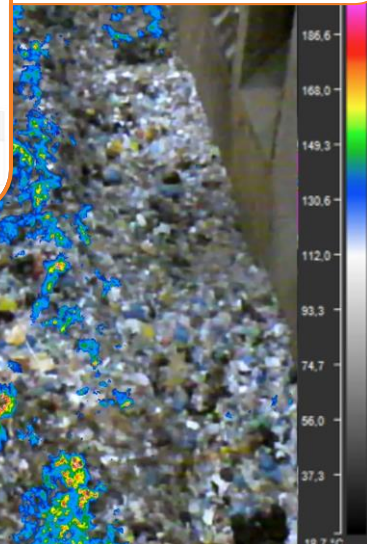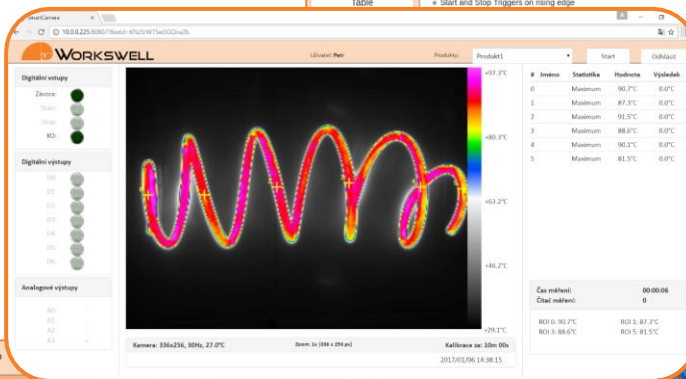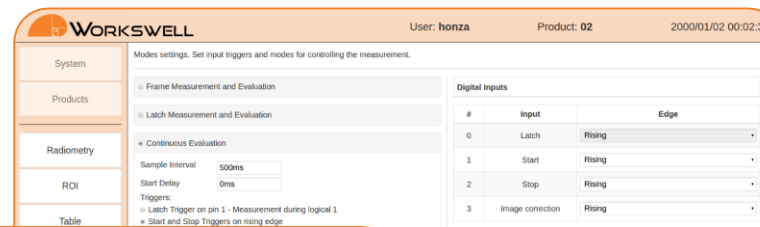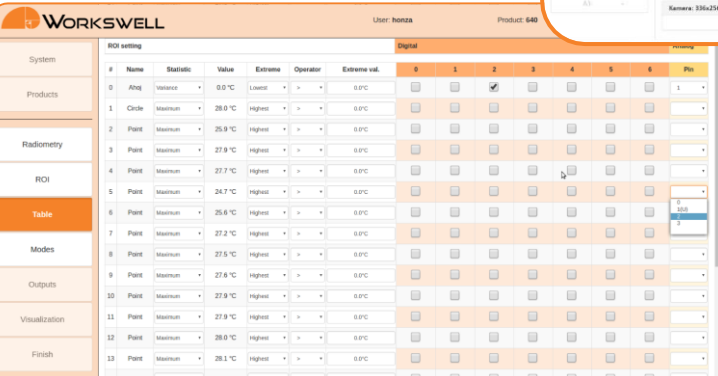| Resolution 160 x 128 pixels	Field of view	Spatial resolution	Pixel size
Focal length 6.8 mm	FOV 30° x 24°	3.333 mrad from 1 meter	3.4 mm from 1 meter
Focal length 9 mm	FOV 25° x 20°	2.778 mrad from 1 meter	2.8 mm from 1 meter
Focal length 13 mm	FOV 17° x 14°	1.923 mrad from 1 meter	2 mm from 1 meter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

Workswell SMARTIS

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
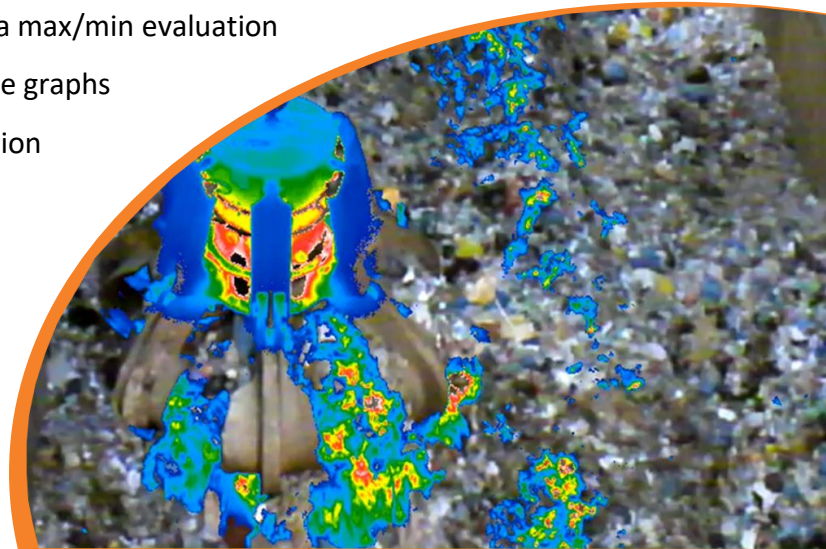
- Camera Updates

- Multilanguage

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FS-SMARTIS and EX-SMARTIS for your Safety

Multi-Camera Functions with Analog Current/Voltage Outputs

- Multi-camera 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
- Non-trigger or trigger reaction
- Precise manual lens focus
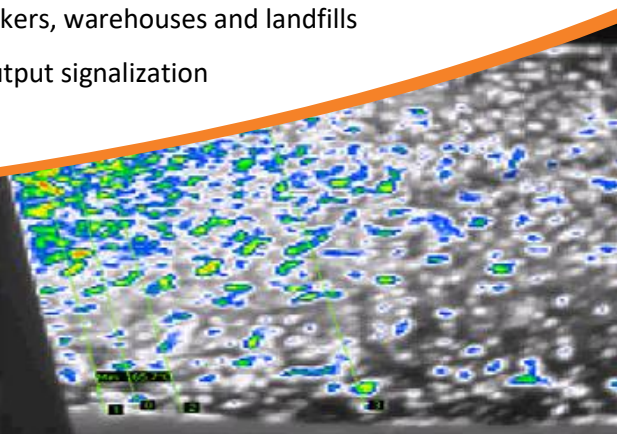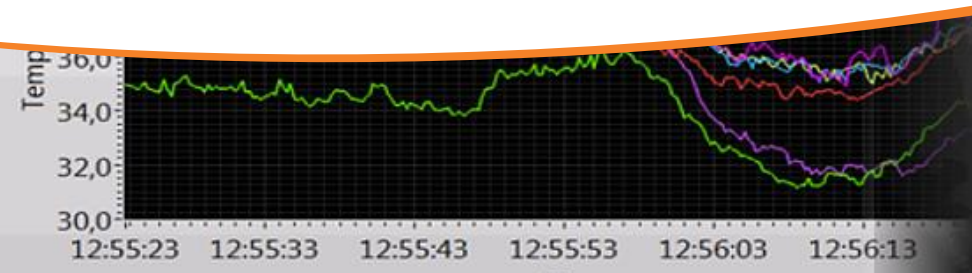- Zoom and Drawing tools

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
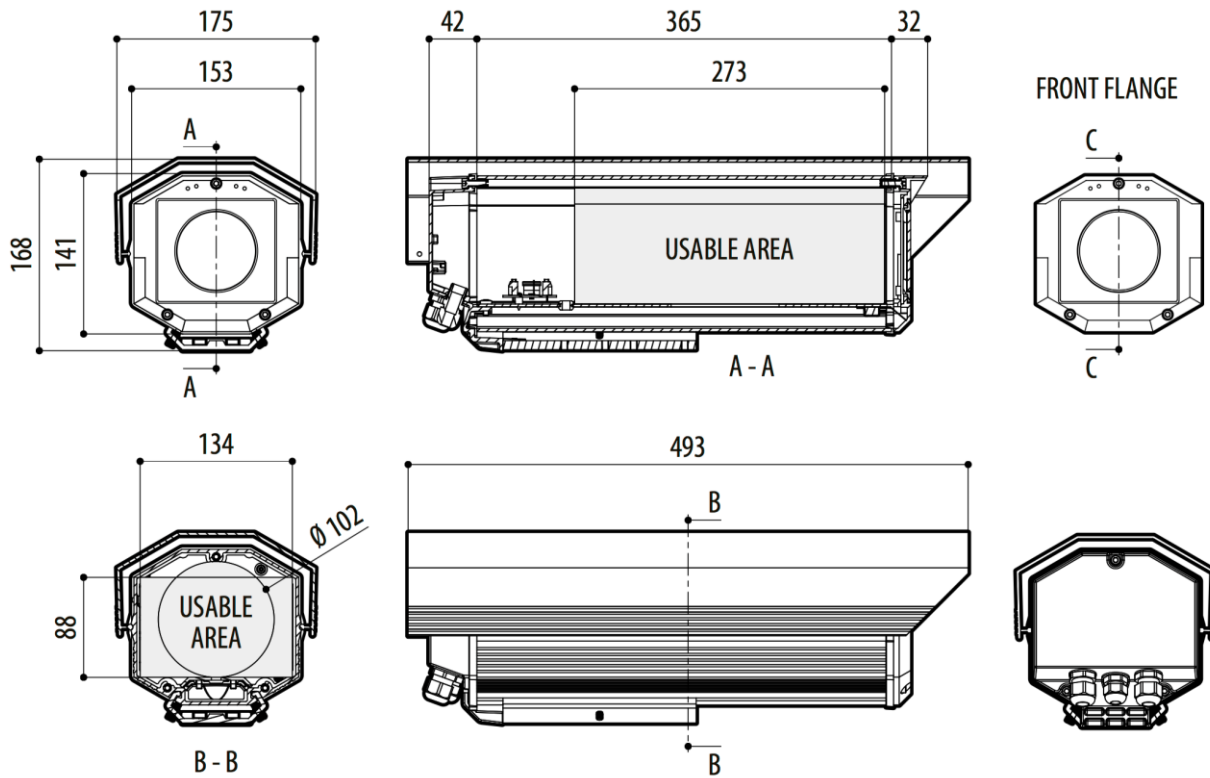- Optionally available LCD visualization panel

Workswell SMARTIS

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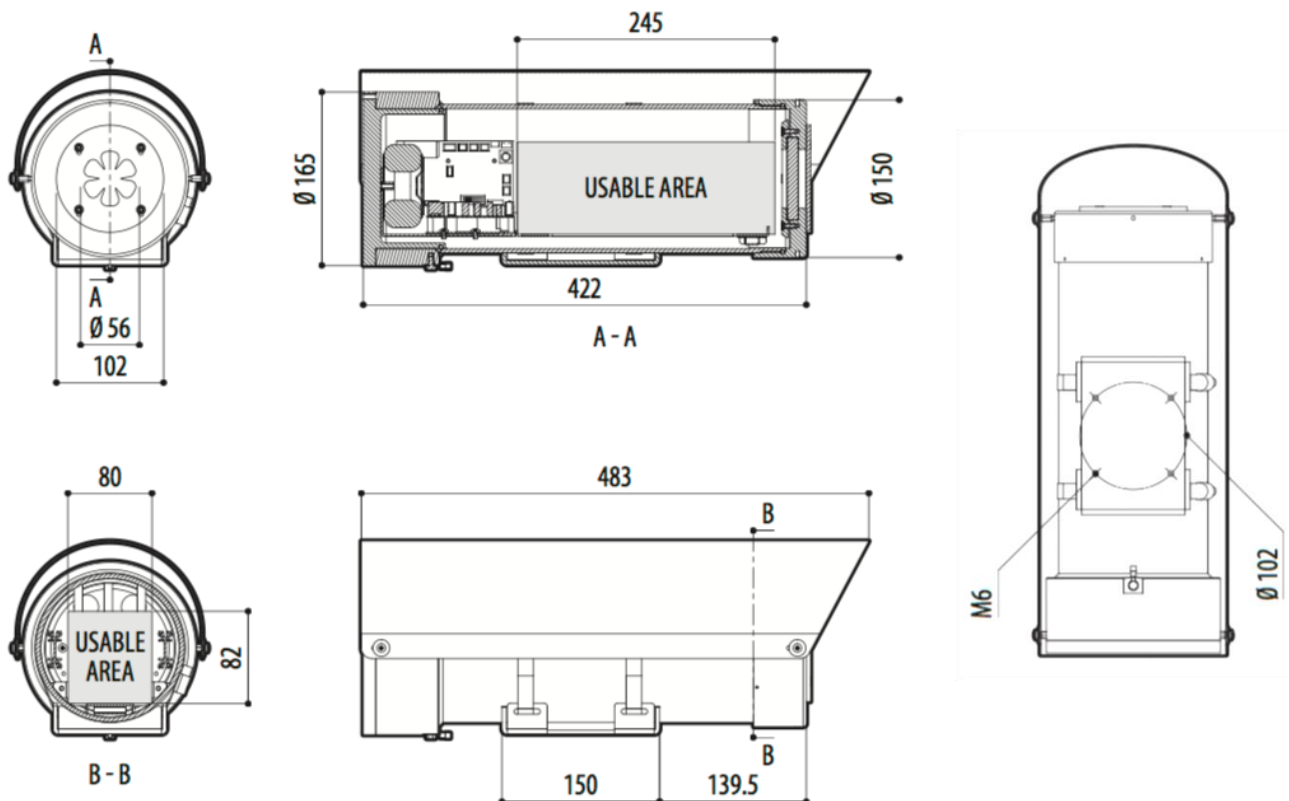
- Parameterized thermal imaging system for 24/7 protection of waste bunkers, warehouses and landfills
- User-friendly configuration wizard, operator and admin access, digital output signalization
- No other industrial PC needed, different lenses option, easy to install

FS-SMARTIS dimensions (in millimeters)

FRONT FLANGE

175
153
168
141
A
A-A
USABLE AREA
42
365
32
273

134
Ø 102
88
USABLE AREA
B-B
493
B
B

EX-SMARTIS dimensions (in millimeters)

245
Ø 165
USABLE AREA
Ø 150
422
A-A

A
A
Ø 56
102

80
USABLE AREA
82
B-B
483
B
B
150
139.5
M6
Ø 102

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WORKSWELL

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