

# EX-TC840R1 F series

## Explosion-proof fixed intelligent thermal camera

- ✓ ATEX and IECEx certified for gas and dust
- ✓ Single integrated flexible conduit tail
- ✓ Corrosion protected 316L stainless steel
- ✓ 640x512 LWIR thermal camera with built-in
  - Hot spot or fire detection
  - Flare too small / too large detection
  - Custom colour palettes
- ✓ Complete range of thermal lenses available
- ✓ Integrated heater
- ✓ Direct to Fiber (optional)
- ✓ ONVIF profile S compliant



### Description

The EX-TC840R1 F is a high resolution thermal IP camera built in a fixed housing designed for use in hazardous areas in onshore, offshore, marine and heavy industrial environments. The camera housing is constructed from electro-polished 316L stainless steel for maximum corrosion protection and is fitted as standard with sunshield and thermostatically controlled heater element. Optionally the camera can be connected direct to optical fiber.

### ATEX and IECEx certified

The EX-TC840R1 Ex d (flame proof) housing is suited to be used in hazardous areas, zone 1 or 2 for gas and zone 21 or 22 for dust environments.

### Integrated thermal camera

The Siquira TC840R1 is fitted with a highly sensitive uncooled microbolometer. It detects temperature differences as small as 50 mK. It can spot heat sources invisible to the naked eye, such as burning butane, overheated transformers, slipping brakes, or smouldering coal piles. The thermal image can be shown in ten different colour palettes. The thermal imager is "plug-and-play" and configuration is made easy by its self-explanatory web interface.

### Multi-stream

The integrated camera has multi-stream capability for simultaneous streaming of H.264/H.264 or H.264/MJPEG. Multiple combinations of resolution and frame rate can be configured to satisfy different live viewing and recording scenarios.

### Analytics

The intelligent thermal camera automatically and instantaneously can detect hotspots in a region of interest, like small fires, smouldering dust or overheated machinery. Specially for flare monitoring the TC840R1 is fitted Flare off detection and flare too large detection.

### Security Solution

In combination with Sense, TKH Security Solutions Video Management System, the SA (corrosion proof) and EX (explosion proof) cameras create a versatile CCTV solution for the On- or Off-shore and marine markets. Compatibility with other video management systems is realized by the camera's ONVIF Profile S compliance.

### Conduit choices

To simplify installation in hazardous areas the Ex-fixed camera is standard fitted with a 3m conduit, including wiring. TKH Security Solutions offers an 316L Ex e termination box for easy, but safe and secure installation. The conduit is available in 3, 5, or 10 m.

### Direct to fiber

As an option the camera can be fitted with a 100FX optical fiber connection. The duplex single mode fiber is preconfigured with dual LC connectors.

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## Camera housing

Certification	ATEX, IECEx II 2 G Ex d op pr IIC T6 II 2 D Ex tb IIIC T85°C Db IP66/67
Ingress protection rating	IP66/ IP67
Body material	Electro-polished 316L stainless steel
Conduit	20 mm low fire hazard, liquid tight conduit Galvanised steel core zero halogen
Glands	2x M20 Brass flameproof barrier glands, pre-assembled
Length	3, 5, or 10 m
Sunshield	Standard
Internal demister/heater	Standard
Wiper	N/A
Operating temperature	-20 °C to +60 °C
“Dry heat” test	+75 °C, 2 days
Weight	12 kg

## Electrical

Supply voltage	24 V~ 50/60 Hz; Optional 115 V~ 50/60 Hz; 230 V~ 50/60 Hz
Power consumption	25 W maximum
Electrical connections	3 wire power cable from the conduit, 0.75 mm <sup>2</sup>

## Thermal imager

Imager	Uncooled micro-bolometer						
Pixel pitch	17 µm						
Resolution	640 x 512 pixels						
Focal length	7.5mm	9 mm	13 mm	19 mm	25 mm	35 mm	50 mm
Field of view	90°x69°	69°x56°	45°x37°	32°x26°	25°x20°	18°x14°	12.4°x9.9°
f-number	f/1.4	f/1.4	f/1.25	f/1.25	f/1.1	f/1.5	f/1.2
Spectral bandwidth	7.5 µm to 13.5 µm (LWIR)						
Frame rate	8.3 fps (xx-S version) Optional: 30 fps (xx-F version)						
Sensitivity (NEdT)	< 50 mK @ f/1.0						
Time to image	60 s						
Digital zoom	No						

## Analytics

Freeform zones or detection lines	2x in stand-alone (Web configured)
Event type	“Hot object detected” or “Hot object disappeared”
Event time	0 to 10 s
Event output	generic ONVIF, SPI
Measuring range	-40°C to 160 °C or -40 °C to 550°C
Accuracy	+/- 5 °C (T < 100 °C) or +/- 5% (T > 100 °C)

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## Video

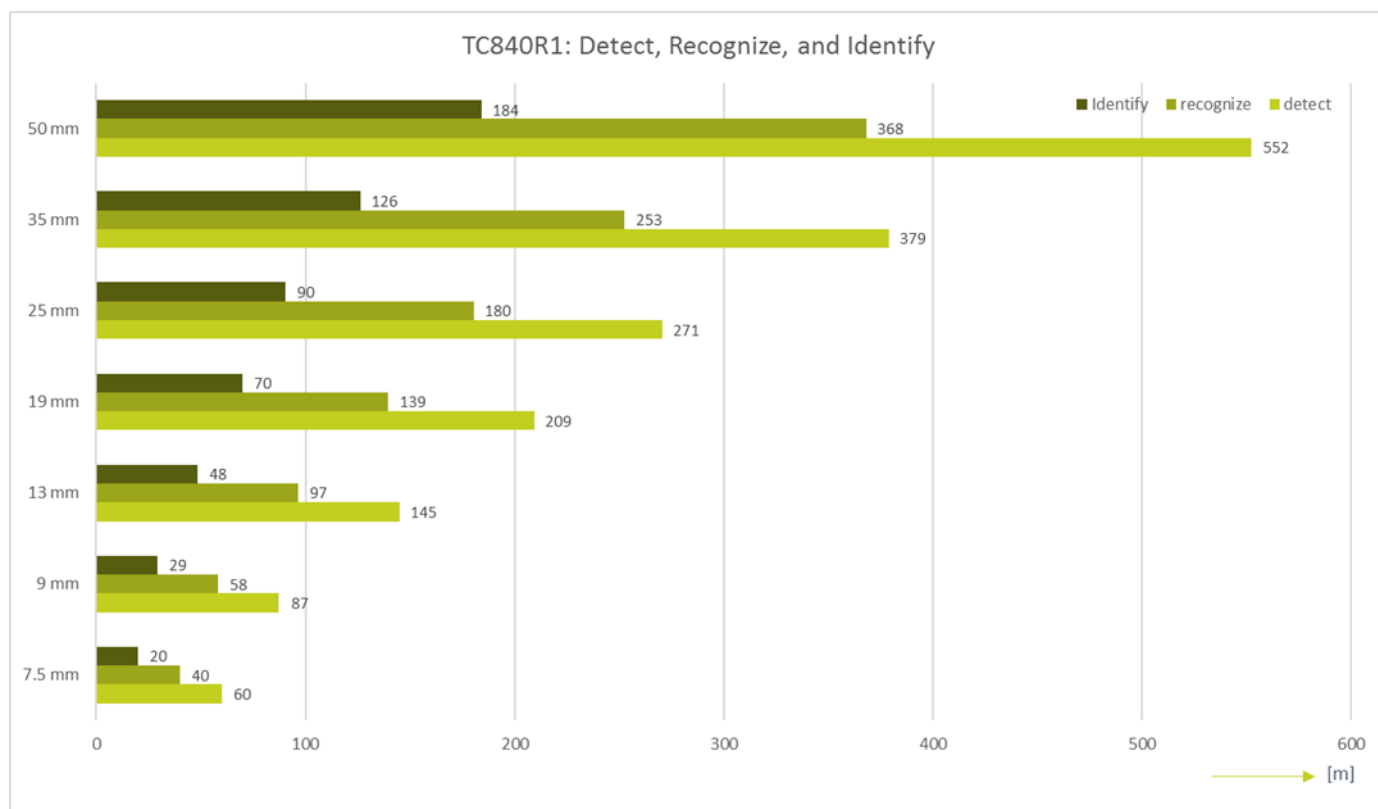
Number of video streams	2x H.264/MJPEG
Max resolution	720 x 512 @ 25/30fps (upsampled)
Number of output streams	Up to 20 (RTSP)
Compression algorithm(s)	H.264 (H.264/MPEG-4 AVC), MJPEG
Encoder bit rate control	Constant bit rate (CBR), variable bit rate (VBR)
Output bit rate (per H.264 stream)	Up to 6 Mbit/s
Total output data rate	Up to 32 Mbit/s
Video overlay	3x Text, 1x bitmap (BMP, GIF); PID Object data (blue blob), event data (red box);

## Network

Interface(s)	10/100 Mb Ethernet (4-wires 0.5 mm <sup>2</sup> from conduit)
Protocols	IPv4, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, ICMP, FTP, SMTP, DHCP, , UPnP, IGMP, SNMP, QoS, ONVIF
Password levels	User and Administrator
Supported browsers	Internet Explorer (6.0+), Chrome, Firefox, Safari
User accounts	20

## Ordering information

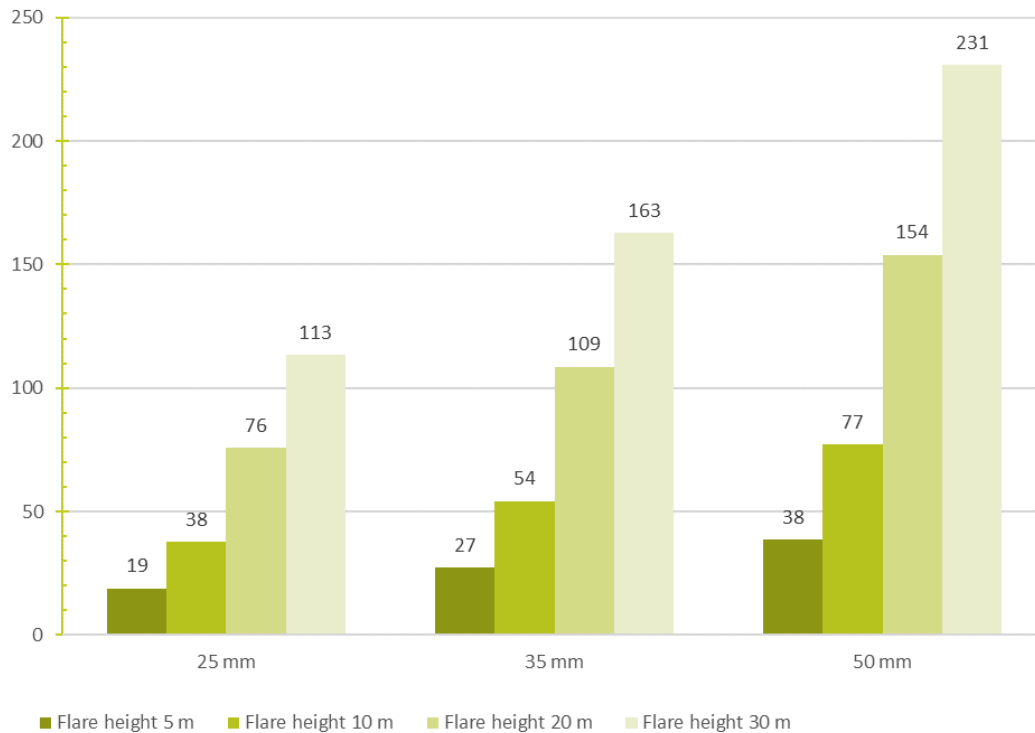
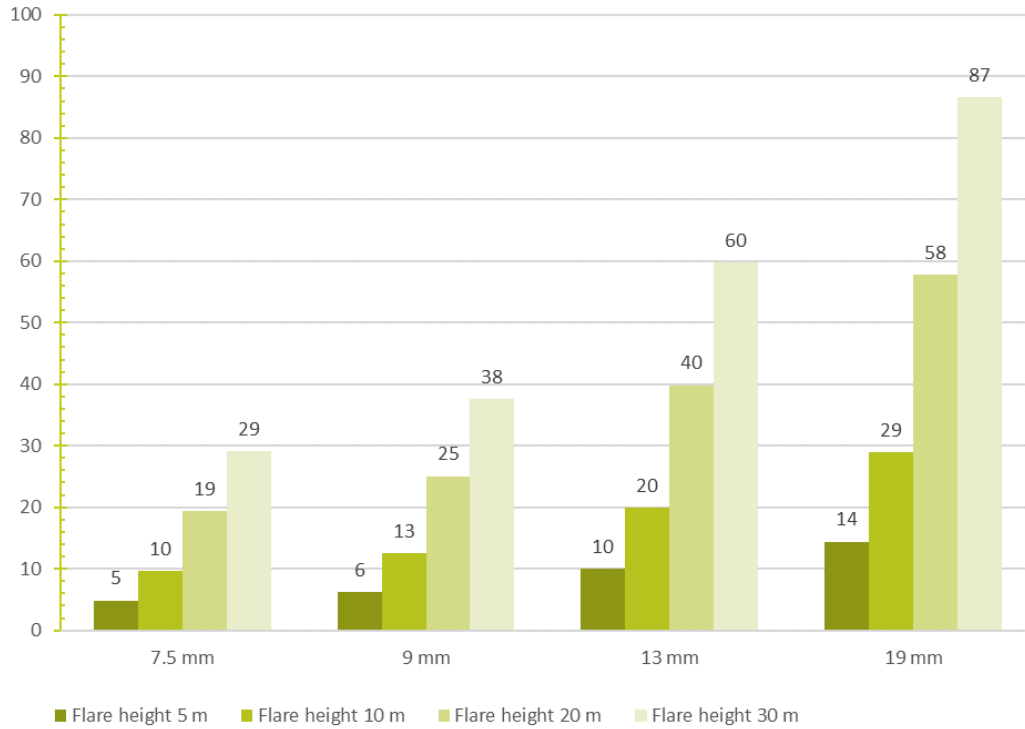
EX-TC840R1 7.5-S F 24 3C	Ex 316L fixed IP Ti 7.5mm 9 Hz 336 24Vac 3m conduit 20 mm M20
EX-TC840R1 7.5-S F 24 2SM 3C	Ex 316L fixed IP Ti 7.5mm 9Hz 336 24Vac 2SM 3m conduit 20 mm M20
EX-TC840R1 <b>7.5-S F 24 3C</b>	<i>Lens type in mm: 7.5, 9.0, 13, 19, 25, 35, or 50</i>
EX-TC840R1 7.5- <b>S</b> F 24 3C	<i>'-S' for Slow (8.3 fps) or '-F' for Fast (30 fps)</i>
EX-TC840R1 7.5-S F <b>24 3C</b>	<i>Replace 24 with 115 or 230 respectively for 115 or 230 Vac power</i>
EX-TC840R1 7.5-S F 24 <b>3C</b>	<i>Replace 3C with 5C or 10C respectively for 5 or 10 metre conduit</i>



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The tables below give an overview of the distance from the flare, per lens type and for a flare height of 5, 10, 20, or 30 metres. At the given distance, the flare will cover 75% of the image height. The distances are in metres.



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## Accessories

EX pole mounting adapter F



316L pole mounting adapter for EX wall mounting bracket F

EX wall mounting bracket F



316L wall mounting bracket for EX fixed camera housings

EX Pole Top Mounting F



316L Pole TOP Mounting bracket for EX fixed camera housing

Ex e termination box IP  
(Ex e termination box fiber)



316L Ex e termination box for IP camera  
(316L Ex e termination box for fiber cameras)

## Maintenance & replacement kits

EX-MK F

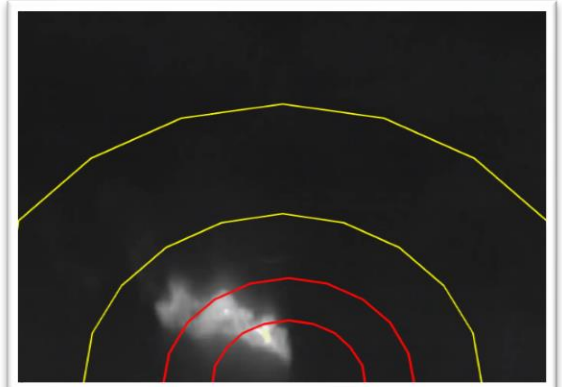
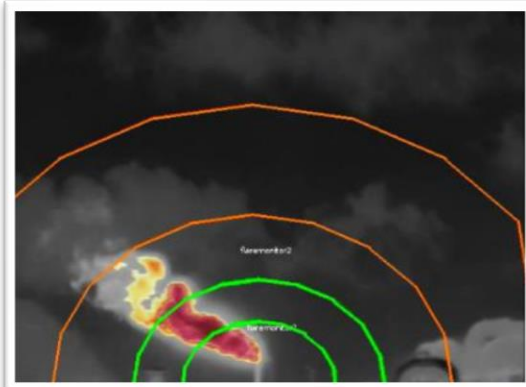
Maintenance kit EX Fixed camera: O-Ring, screws, desiccant bags

*Please Note: Thermal cameras fall under export restrictions. Please, contact TKH Security Solutions for more information.*

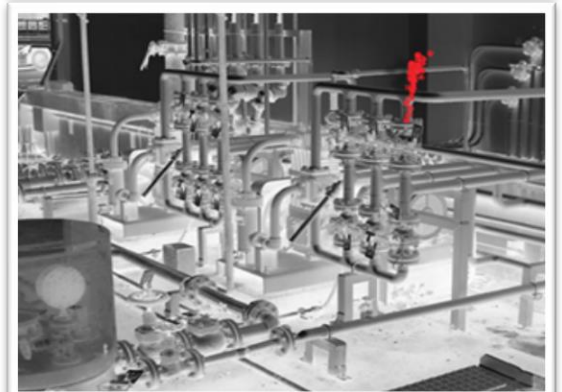
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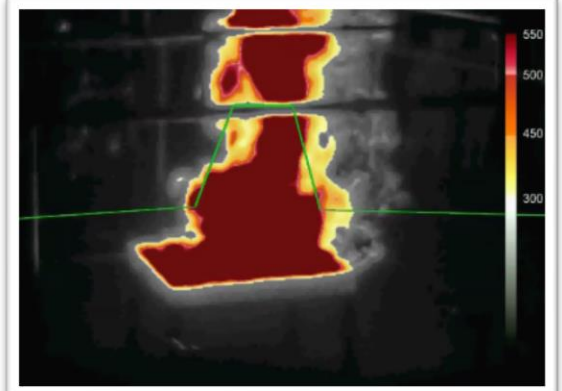
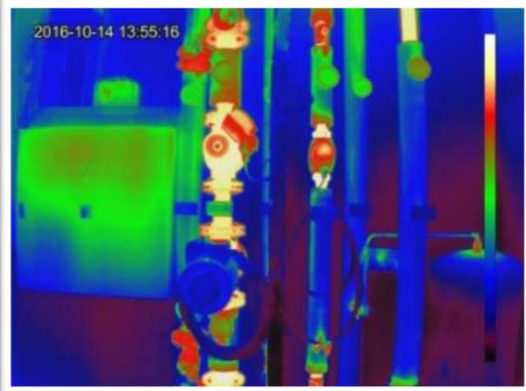
*Flare on/off detection*



*Hot spot and fire detection*



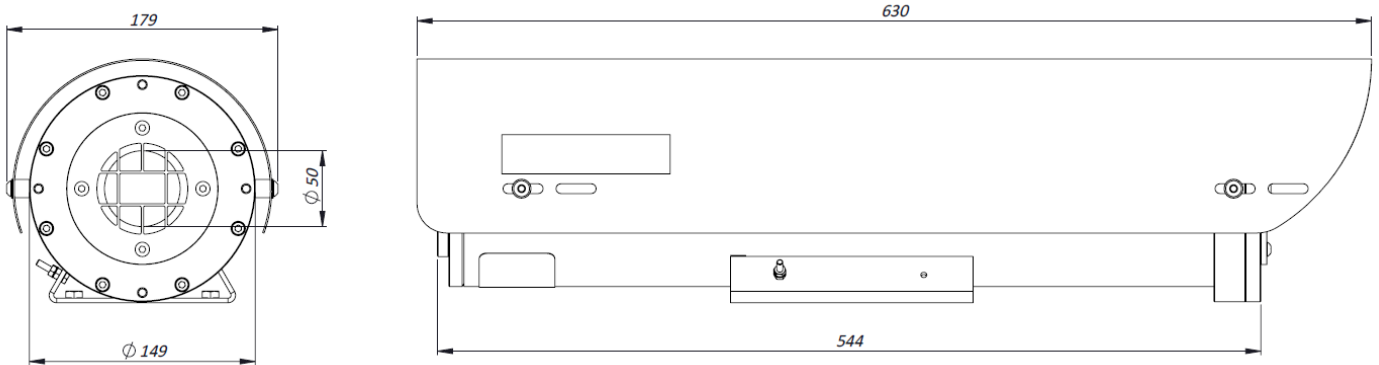
*Colour palettes*



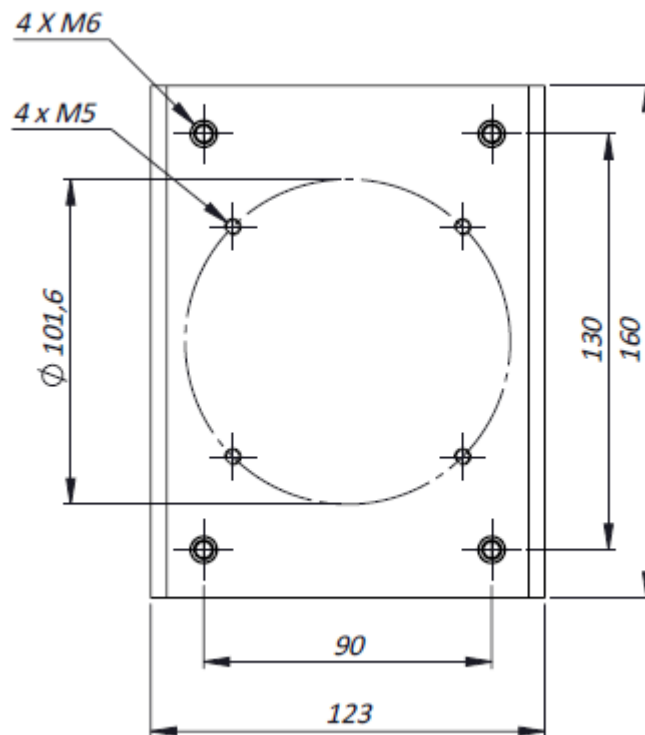
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Dimensions EX-TC840R1 F series:



Mounting pattern:



All dimensions in mm



The quality management system used in the development, production, sales, and support of this product is ISO 9001 certified by LRQA.

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