

TC-336 AND TC-640

Assembly thermal modules 336x256 or 640x512

DESCRIPTION

The TC-336 or TC-640 is a thermal module to be built-in the ATEX (EX) and the marine and industrial (SA) camera housings from Siqura. Thermal imaging can be used 24/7 for all sorts of monitoring or detection purposes. The Thermal module is fitted with video analytics to actively help with perimeter surveillance, fire detection, flare monitoring, and hotspot detection.

FEATURES

Fully Integrated in the Siqura EX- or SA-housings

Uncooled thermal imager

Choice of resolution (36x256 or 640x512)

Choice of different lenses up to 100 mm

Choice of frame rate (Fast or Slow)

Plug & Play

Built-in analytics

ONVIF Profile S



Description

Marine, Offshore, Oil and Gas

The TC-336 or TC-640 thermal modules are essential parts of the Marine, Offshore, Oil and Gas solutions from Siqura. The module is fitted inside the 316L thermal camera housing and forms the digital heart of the camera.

Integrated thermal camera

The thermal module is fitted with a highly sensitive uncooled microbolometer for thermal imaging. It detects temperature differences as small as 50 mK and can spot heat sources invisible to the naked eye. When the darkness obscures the vision of an ultra-low light CCTV camera, the thermal camera gives a clear overview of what's going on.

Multi-streaming and multicasting

The Thermal module has multi-streaming capabilities for simultaneous transmission of one or more H.264 streams combined with MJPEG. This guarantees interoperability with existing VMS systems. Multiple combinations of resolution and frame rate can be configured to satisfy different live-viewing and recording scenarios. In addition, multicasting is supported for complex, multi-user video networks.

Open standards

The SA- or EX- thermal camera integrates with the common VMS systems. Being ONVIF Profile S compliant, the camera is supported by most video management systems. When needed, the camera can be controlled through a comprehensive HTTP API (Siqura Programming Interface). This specifically enables deployment in projects with custom requirements.

Built-in video analysis

The thermal module is fitted with on-board analytics, called FlameGuard and FenceGuard. FlameGuard is a specialized algorithm for 24/7 flare monitoring or fire/hotspot detection. If FenceGuard is used the camera detects intrusion detection or crossing of virtual fences in the highest possible accuracy and lowest number of nuisance alerts.

Export restrictions (Dual Use)

The Slow thermal modules are controlled for export under US Department of Commerce, Export Administration Regulations (EAR), Export Control Classification Number (ECCN) 6A993. They may be exported under ECCN 6A993, NLR (No License Required) to all

countries except terrorist supporting countries (Country Group E:1), unless otherwise prohibited.

The Fast thermal modules (25/30 fps) are controlled for export under US Department of Commerce (DOC), Export Administration Regulations (EAR), Export Control Classification Number (ECCN) 6A003.b.4.b. These cameras contain a focal plane array controlled to 6A002.a.3.f. In most cases an export licence is required.

Thermal imager (TC-336-xy; TC-640-xy)

Imager	uncooled micro-bolometer					
Pixel pitch	17 µm					
Resolution						
- TC-336-xy, TCR1-336-xy	366x256					
- TC-640-xy, TCR1-640-xy	640x512					
Max frame rate (x)						
- TC-336-Fy, TC-640-Fy (x=F)	25/30 fps					
- TCR1-336-Fy, TCR1-640-Fy (x=F)	25/30 fps					
- TC-336-Sy, TC-640-Sy (x=S)	8.3/7.5 fps					
- TCR1-336-Sy, TCR1-640-Sy (x=S)	8.3/7.5 fps					
Focal length (y=)	7.5 mm	9 mm	13 mm	19 mm	25 mm	35 mm
- Field of view (640)	90°x69°	69°x56°	45°x37°	32°x26°	25°x20°	18°x14°
- f-number	f/1.4	f/1.4	f/1.25	f/1.25	f/1.1	f/1.5
- Field of view (336)	45°x35°	35°x27°	25°x19°	17°x13°	13°x10°	9.3°x7.1°
- f-number	f/1.4	f/1.25	f/1.25	f/1.25	f/1.1	f/1.5
Focal length (y=)	50 mm	60 mm	100 mm			
- Field of view (640)	12.4°x9.9°	10.4°x8.3°	6.2°x5°			
- f-number	f/1.2	f/1.25	f/1.6			
- Field of view (366)	6.5°x5°	5.5°x4.2°	3.3°x2.5°			
- f-number	f/1.2	f/1.25	f/1.6			
Spectral bandwidth	7.5 µm to 13.5 µm (LWIR)					
Sensitivity (NEdT)	50 mK @ f/1.0 or better					
Time to image	less than 60 s (boot time)					
Digital zoom	Optional					
Color palette	10 selectable color palettes with freely adjustable temperature thresholds					

Video stream

Number of streams	2x streams
Aspect ratio	16:9, 16:10, 5:4, 4:3 (cropped, no scaling, one setting for both sensors)
Compression algorithm(s)	H.264 BP/MP/HP (H.264/MPEG-4 AVC), MJPEG
Supported output resolutions	Output images are up/down scaled 720x576; 704x480; 704x240; 640x512, 352x288; 336x256, 176x120
Compression bit rate control	Variable bit rate (VBR)
Output bit rate (per H.264 stream)	Up to 6Mb/s
Number of video output streams	Up to 20 (RTSP) per input
Total output data rate (max)	50Mb/s
Video overlay	3x Text, 1x bitmap (BMP, GIF)

Analytics

FenceGuard	Intrusion detection. Free form zones or detection lines
- Detection line	Touch, Cross (directional sensitive), Cross
- Detection zone	Touch, Enter, Inside, Exit
FlameGuard	Hotspot detection in two zones or Flare-on, Flare-off and Flare-too-large monitoring

Specs



Analytics

- Measuring range	-40°C to 550°C
- Accuracy	+/- 20 °C (T 100 °C)
Hot-spot meter	Temperature reading in ROI (TCR1 radiometric models only)
Event time	0 to 10 s
Event output	generic ONVIF, digital I/O, SPI

Network

Interface(s)	100 Mb Ethernet, auto negotiating, MDI/MDX
Protocols	IPv4, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, ICMP, FTP, SMTP, DHCP, UPnP, IGMP, SNMP, QoS, ONVIF, IEEE802.1x, TLS1.2, NTCIP-1205
Password levels	User and Administrator
Supported browsers	Internet Explorer (9.0+), Chrome, Firefox, Safari
User accounts	20

Ordering information

(Please Note	Export restrictions apply to 30 Hz thermal cameras. Dual use)
TC-336-S7.5	Assembly thermal module 336x256 , 7.5Hz, 7.5 mm
TC-336-S9	Assembly thermal module 336x256 , 7.5Hz, 9 mm
TC-336-S13	Assembly thermal module 336x256 , 7.5Hz, 13 mm
TC-336-S19	Assembly thermal module 336x256 , 7.5Hz, 19 mm
TC-336-S25	Assembly thermal module 336x256 , 7.5Hz, 25 mm
TC-336-S35	Assembly thermal module 336x256 , 7.5Hz, 35 mm
TC-336-S50	Assembly thermal module 336x256 , 7.5Hz, 50 mm
TC-336-S60	Assembly thermal module 336x256 , 7.5Hz, 60 mm
TC-336-S100	Assembly thermal module 336x256 , 7.5Hz, 100 mm
TC-336-F7.5	Assembly thermal module 336x256 , 30Hz, 7.5 mm
TC-336-F9	Assembly thermal module 336x256 , 30Hz, 9 mm
TC-336-F13	Assembly thermal module 336x256 , 30Hz, 13 mm
TC-336-F19	Assembly thermal module 336x256 , 30Hz, 19 mm
TC-336-F25	Assembly thermal module 336x256 , 30Hz, 25 mm
TC-336-F35	Assembly thermal module 336x256 , 30Hz, 35 mm
TC-336-F50	Assembly thermal module 336x256 , 30Hz, 50 mm
TC-336-F60	Assembly thermal module 336x256 , 30Hz, 60 mm
TC-336-F100	Assembly thermal module 336x256 , 30Hz, 100 mm
TC-640-S7.5	Assembly thermal module 640x512 , 7.5Hz, 7.5 mm
TC-640-S9	Assembly thermal module 640x512 , 7.5Hz, 9 mm
TC-640-S13	Assembly thermal module 640x512 , 7.5Hz, 13 mm
TC-640-S19	Assembly thermal module 640x512 , 7.5Hz, 19 mm
TC-640-S25	Assembly thermal module 640x512 , 7.5Hz, 25 mm
TC-640-S35	Assembly thermal module 640x512 , 7.5Hz, 35 mm
TC-640-S50	Assembly thermal module 640x512 , 7.5Hz, 50 mm
TC-640-S60	Assembly thermal module 640x512 , 7.5Hz, 60 mm
TC-640-S100	Assembly thermal module 640x512 , 7.5Hz, 100 mm

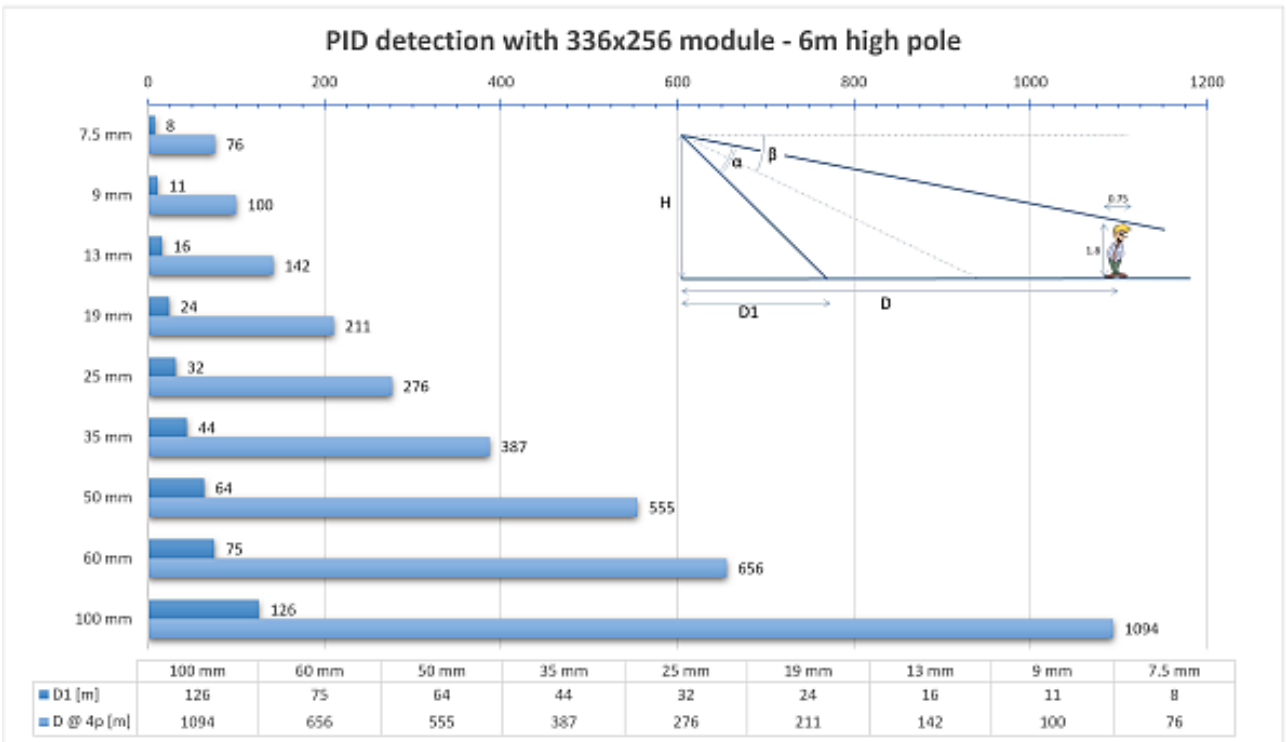
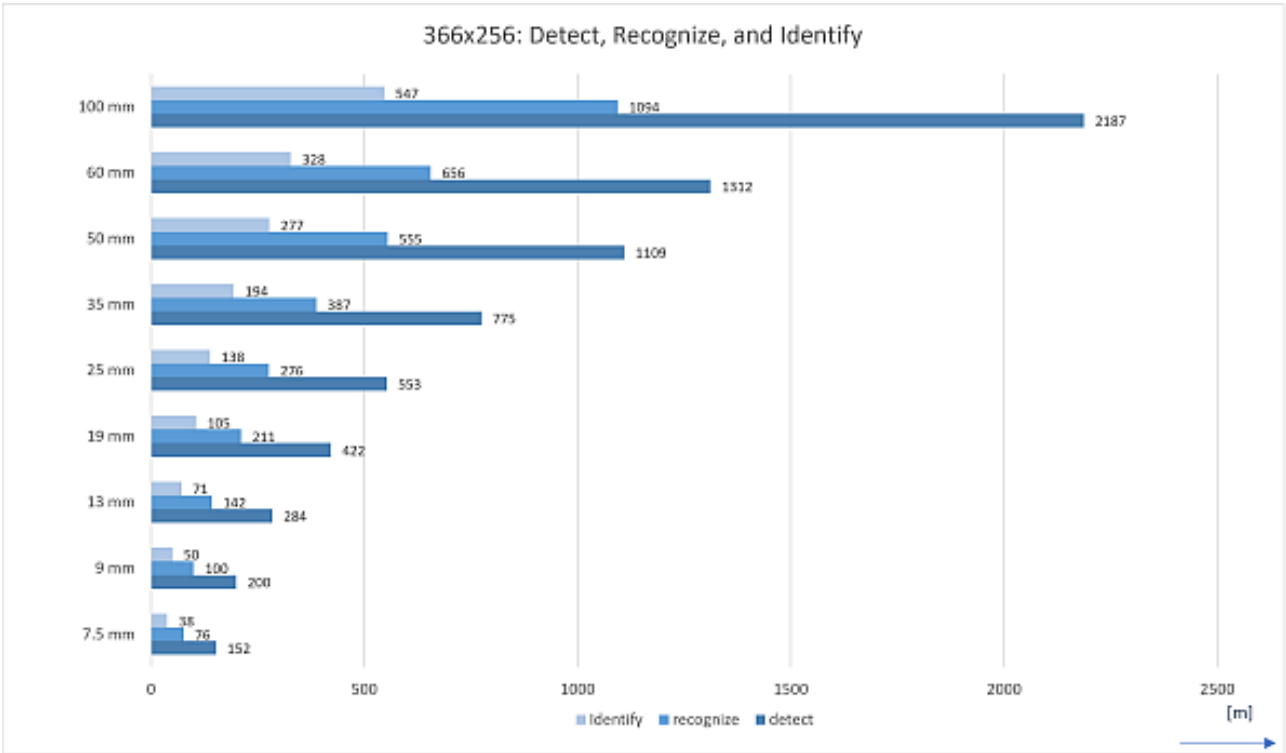
Ordering information	
TC-640-F7.5	Assembly thermal module 640x512 , 30Hz, 7.5 mm
TC-640-F9	Assembly thermal module 640x512 , 30Hz, 9 mm
TC-640-F13	Assembly thermal module 640x512 , 30Hz, 13 mm
TC-640-F19	Assembly thermal module 640x512 , 30Hz, 19 mm
TC-640-F25	Assembly thermal module 640x512 , 30Hz, 25 mm
TC-640-F35	Assembly thermal module 640x512 , 30Hz, 35 mm
TC-640-F50	Assembly thermal module 640x512 , 30Hz, 50 mm
TC-640-F60	Assembly thermal module 640x512 , 30Hz, 60 mm
TC-640-F100	Assembly thermal module 640x512 , 30Hz, 100 mm
TCR1-336-S7.5	Assembly thermal module 336x256 , 7.5Hz, 7.5 mm, radiometric
TCR1-336-S9	Assembly thermal module 336x256 , 7.5Hz, 9 mm, radiometric
TCR1-336-S13	Assembly thermal module 336x256 , 7.5Hz, 13 mm, radiometric
TCR1-336-S19	Assembly thermal module 336x256 , 7.5Hz, 19 mm, radiometric
TCR1-336-S25	Assembly thermal module 336x256 , 7.5Hz, 25 mm, radiometric
TCR1-336-S35	Assembly thermal module 336x256 , 7.5Hz, 35 mm, radiometric
TCR1-336-S50	Assembly thermal module 336x256 , 7.5Hz, 50 mm, radiometric
TCR1-336-S60	Assembly thermal module 336x256 , 7.5Hz, 60 mm, radiometric
TCR1-336-S100	Assembly thermal module 336x256 , 7.5Hz, 100 mm, radiometric
TCR1-640-S7.5	Assembly thermal module 640x512 , 7.5Hz, 7.5 mm, radiometric
TCR1-640-S9	Assembly thermal module 640x512 , 7.5Hz, 9 mm, radiometric
TCR1-640-S13	Assembly thermal module 640x512 , 7.5Hz, 13 mm, radiometric
TCR1-640-S19	Assembly thermal module 640x512 , 7.5Hz, 19 mm, radiometric
TCR1-640-S25	Assembly thermal module 640x512 , 7.5Hz, 25 mm, radiometric
TCR1-640-S35	Assembly thermal module 640x512 , 7.5Hz, 35 mm, radiometric
TCR1-640-S50	Assembly thermal module 640x512 , 7.5Hz, 50 mm, radiometric
TCR1-640-S60	Assembly thermal module 640x512 , 7.5Hz, 60 mm, radiometric
TCR1-640-S100	Assembly thermal module 640x512 , 7.5Hz, 100 mm, radiometric
TCR1-640-F7.5	Assembly thermal module 640x512 , 30Hz, 7.5 mm, radiometric
TCR1-640-F9	Assembly thermal module 640x512 , 30Hz, 9 mm, radiometric
TCR1-640-F13	Assembly thermal module 640x512 , 30Hz, 13 mm, radiometric
TCR1-640-F19	Assembly thermal module 640x512 , 30Hz, 19 mm, radiometric
TCR1-640-F25	Assembly thermal module 640x512 , 30Hz, 25 mm , radiometric
TCR1-640-F35	Assembly thermal module 640x512 , 30Hz, 35 mm , radiometric
TCR1-640-F50	Assembly thermal module 640x512 , 30Hz, 50 mm, radiometric
TCR1-640-F60	Assembly thermal module 640x512 , 30Hz, 60 mm, radiometric
TCR1-640-F100	Assembly thermal module 640x512 , 30Hz, 100 mm, radiometric

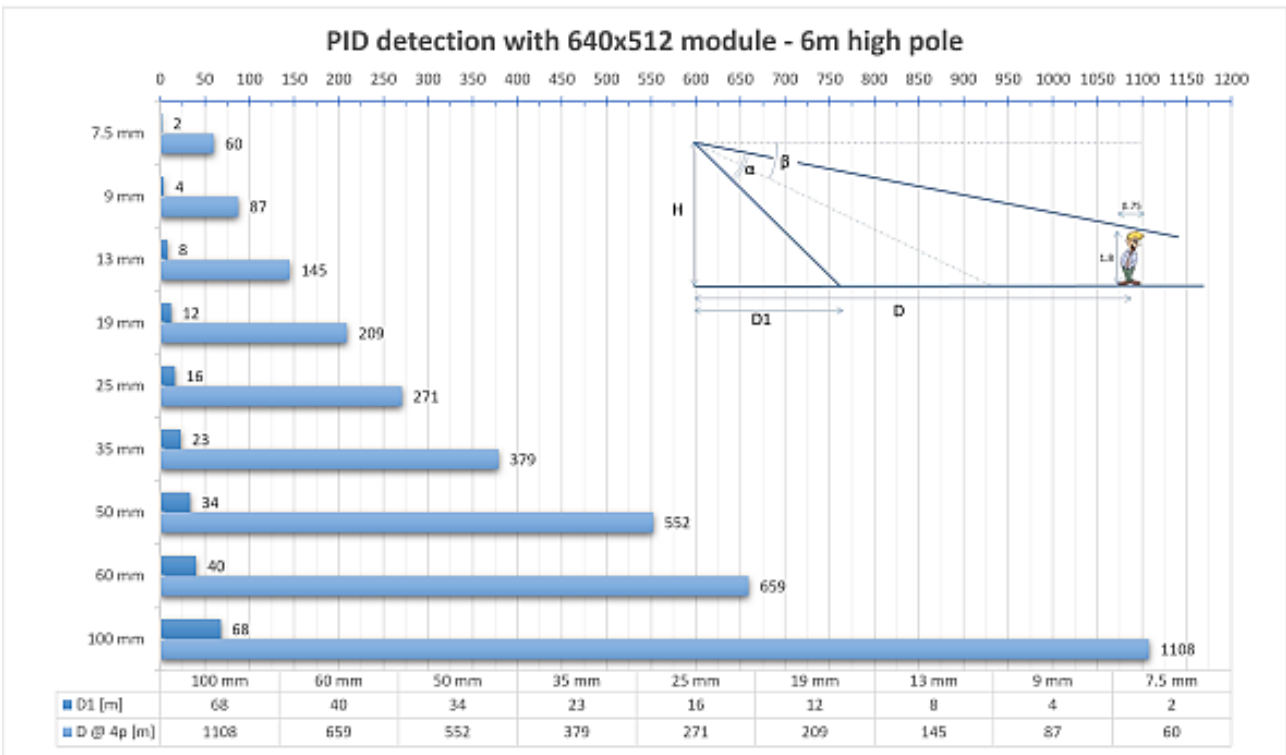
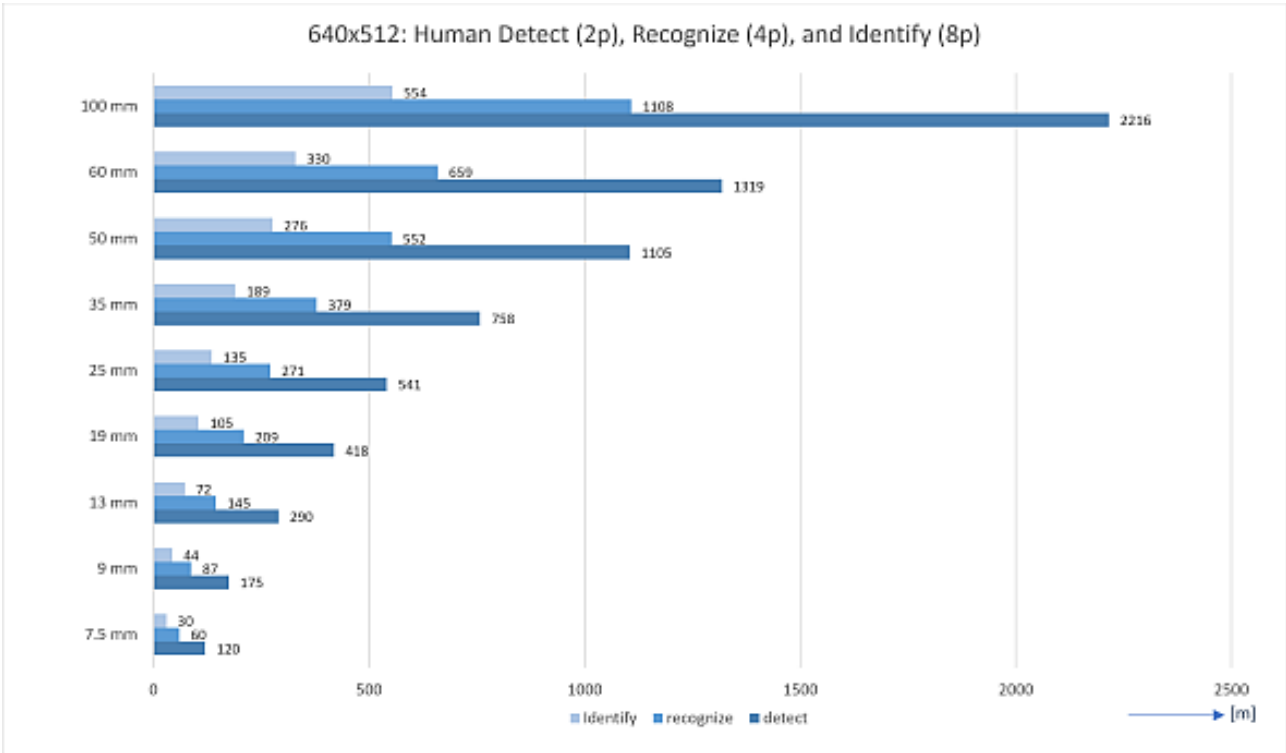
Housing	Optical camera		Thermal camera			Interface			
	BC822v2H3-SA	TC(R1)-336	TC(R1)-640	INT-RJ	INT-RJ5 INT-RJ10	INT-SM	INT-SM5 INT-SM10	INT-MM	INT-MM5 INT-MM10
EX-FIX24	✓			✓	✓	✓	✓	✓	✓
EX-FIX24W	✓			✓	✓	✓	✓	✓	✓
EX-FIX24T		✓	✓	✓	✓	✓	✓	✓	✓
EX-PTZ24	✓			✓	✓	✓	✓	✓	✓
EX-PTZ24T		✓	✓	✓	✓	✓	✓	✓	✓
EX-PTZ24D	✓	✓	✓	✓	✓				

This charts also applies to the EX cameras versions for 115 Vac and 230 Vac.

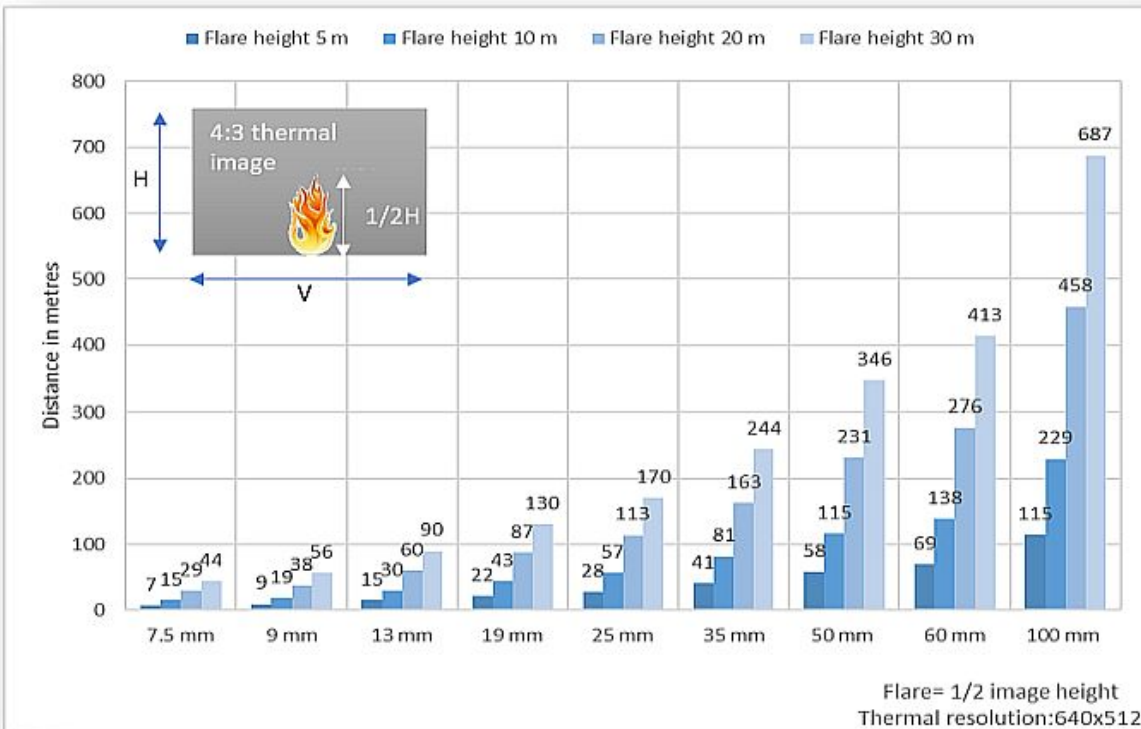
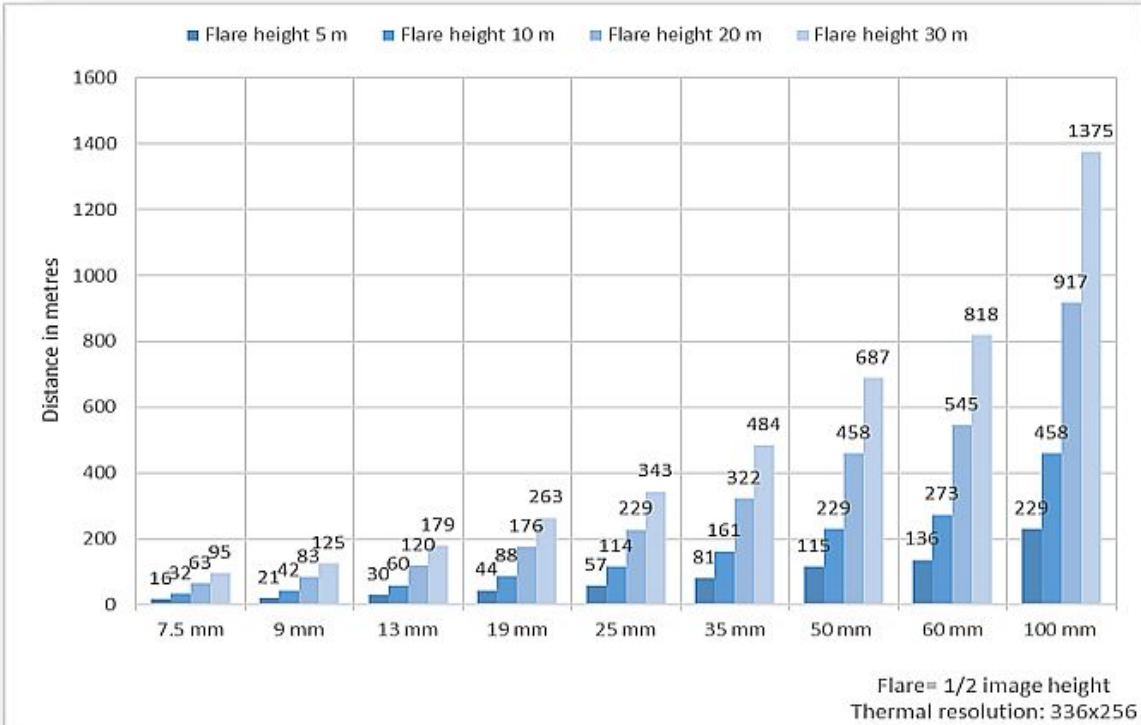
Housing	Optical camera		Thermal camera			Interface			
	BC822v2H3-SA	TC(R1)-336	TC(R1)-640	INT-RJ	INT-RJ5 INT-RJ10	INT-SM	INT-SM5 INT-SM10	INT-MM	INT-MM5 INT-MM10
SA-FIX24	✓			✓		✓		✓	
SA-FIX24W	✓			✓		✓		✓	
SA-FIX24T	✓	✓	✓	✓		✓		✓	
SA-PTZ24	✓			✓					
SA-PTZ24T		✓	✓	✓					
SA-PTZ24D	✓	✓	✓	✓					

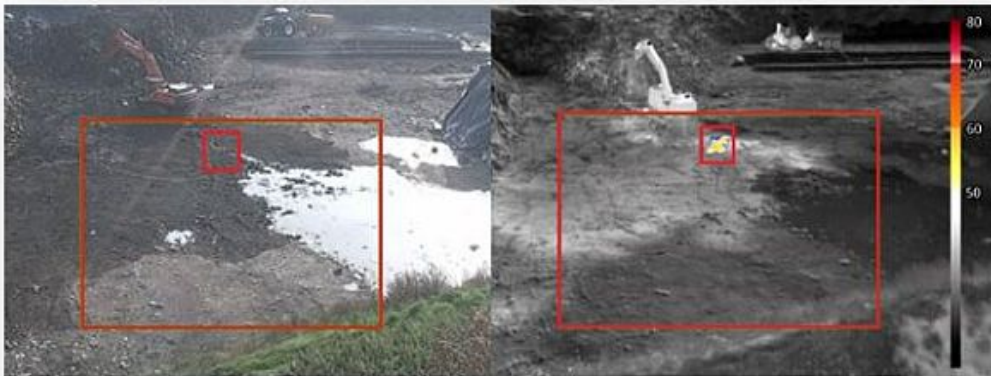
This charts also applies to the SA cameras versions for 115 Vac and 230 Vac.





DISTANCE FLARE MONITORING





FlameGuard: Hotspot detection at a waste management site



Flame Guard: Fire detection in a machine room



FenceGuard: Perimeter intrusion detection



Fire detection, hot-spot and flare monitoring