XCU3 FUSION

316L stainless-steel intelligent dual imager camera

DESCRIPTION

Rugged dual imaging camera for demanding environments. Utilizing both thermal imaging and a visible light in one single camera, its applications are endless: from perimeter surveillance, fire detection up to incident monitoring in traffic. The XCU and its accessories are double protected against corrosion; they are entirely made of powder-coated stainless-steel (316L). The housing is hermetically sealed against water and dust, which makes it ideal for harsh environments like traffic, tunnels, marine, offshore, heavy industry, and waste management.
The XCU3 with a fast thermal module (25/30 fps) are controlled for export under the Regulation (EU) 2021/821), Annex I c

FEATURES

- Dual imager: 10x zoom Full-HD + Uncooled thermal imager
- Compact, robust, and corrosion free
- powder-coated 316L stainless steel housing
- Plug & Play
- Nano glass optical window
- Diamond-like-coated germanium window
- 10x zoom optical camera
- 9, 13, 19 or 25 mm thermal camera
- Water and dust tight: IP66 & IP67
- ONVIF Profile S conformant



Description

The XCU3 Fusion is designed to operate in harsh and aggressive environments. Typical applications are found in the heavy industry, traffic, tunnels, waterways, waste treatment and even in the salty environment of the marine. The XCU Fusion combines a full-HD ultra-low light imager with an uncooled thermal imager for both day and night vision.

Plug & Play
Installing and commissioning IP cameras has become childs play. The XCU3 Fusion clicks into place with its versatile mounting accessories and is operational by plugging in the external connector. No need to open the unit; all connections can be prepared in advance.

Day vision
The XCU3 Fusion is fitted with a full-HD 2 Mpixel camera. Its 10x optical zoom offers an ideal coverage of the scene from almost any viewpoint. The viewing angle ranges from 54° up to 4.9°. Remote focus assist, a full set image enhancement tools and its ultra-low light performance makes this a versatile camera for a range of applications.

Night Vision
The XCU3 Fusion is also fitted with a highly sensitive uncooled microbolometer for thermal imaging. It detects temperature differences as small as 35 mK and can spot heat sources invisible to the naked eye. When the darkness obscures the vision of the optical imager, the thermal camera gives a clear over view of what is going on.

Multi-streaming and multi-casting
The XCU3 Fusion has multi-streaming capabilities for simultaneous transmission of one or more H.265 and/or H.264 streams. 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, multi-casting is supported for complex, multi-user video networks.

Open standards
Out of the box, the XCU3 Fusion integrates with the common VMS systems. Being ONVIF Profile S conformant, the camera is supported without having a dedicated driver. When dedicated software or driver is needed the camera offers a

comprehensive HTTP API. This specifically enables deployment in projects with custom requirements.

Built-in video analysis
The XCU Fusion series offers on-board analytics, such as intrusion detection and fire/hotspot detection on the thermal camera.

Export restrictions (Dual Use)
The Slow thermal modules (XCU3-F-Txx**S**yX limited to 9Hz frame rate) are not export controlled. They can be exported to all countries except terrorist supporting countries (Country Group E:1), unless otherwise prohibited. Note: Special regulations (EAR, ITAR) apply in the U.S.
Fast thermal modules (XCU3-F-Txx**F**yX 25/30 fps) are controlled for export, This product is controlled for export under Regulation (EU) 2021/821 and Export Control Classification Number (ECCN) 6A003.b.4.b applies.

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Camera housing	
Body material	316L stainless steel
Finishing	Powder coated (RAL9016)
Sunshield	Optional (316L powder coated, RAL9016)
Heater/Demister	Standard
Ingress protection	IP66, IP67
Corrosion Class	C5 (ISO 12944)
Impact rating casing	IK10
Solar radiation test	MIL-STD-810, method 505.4 (p.4)
Shock test (transportation)	MIL-STD-810, method 516.5
Vibration (IEC 50068-2-6)	10 Hz to 150 Hz, 0.5g, all 3 axes, 1 oct/min, 1 sweep
Max wind velocity	240 km/h (150 mph)
Operating temperature	-34 °C to +74 °C (-29 °F to 165 °F) - per Nema TS-2
- Continuous (sheltered, air temp)	-30 °C to +55 °C (-22 °F to 131 °F)
- Cold start	-30 °C (-22 °F)
Relative Humidity	5% to 100%
Dry heat test	+75 °C, 24 hours
Weight	4.0 kg (4.55 kg incl packaging)

Optical Imager	
Image sensor	1/2.86 Progressive scan CMOS
Frame rate	1 to 25/30 fps
Effective pixels	1920(H) x 1080(V), 2.1Mp
Minimum scene illumination	0.02 lux color, 0.005 lux (b/w) F/1.6
Dynamic WDR	120dB
Shutter speed	1/25 - 1/30,000 s
Lens	10x zoom, 5.1 to 51 mm, F/1.6 to F/1.8
Horizontal field of view	54° (W) to 4.9°(T)
Lens type	motorized zoom
Features	BLC, HLC, auto/manual white balance, noise reduction, defog
Digital image stabilizer	Yes
Exposure	Auto/Manual/Shutter priority/Iris priority
Day/Night (IR-cut filter)	Auto/Manual
Focus	Auto/Manual/Push-to-focus

Thermal imager (Txxyzz)				
- xx = Focal Length	09; 13; 19; 25;			
- y = Max frame rate	S= 8.3 fps; F= 30 fps			
- zz = Resolution	3X= 384x288; 6X= 640x512			
Imager type	T09y3X	T13y3X	T19y3X	T25y3X
- Focal length	9.1 mm	13 mm	19 mm	25 mm
- Pixel size	17µm	17µm	17µm	17µm
- Resolution	384x288	384x388	384x288	384x288
- Field of view	39.5°x30.1°	28.2°x21.3°	19.5°x14.7°	14.9°x11.2°

Specs

Thermal imager (Txxyzz)				
- Min. focus distance	1.5 m	3 m	6 m	10 m
- f-number	f/1.0	f/1.0	f/1.0	f/1.1
Imager type	T09y6X	T13y6X	T19y6X	T25y6X
- Focal length	9.1 mm	13 mm	19 mm	25 mm
- Pixel size	12µm	12µm	12µm	12µm
- Resolution	640x512	640x512	640x512	640x512
- Field of view	48.0°x38.4°	32.9°x26.6°	22.9°x18.4°	17.4°x14.0°
- Min. focus distance	2 m	5 m	10 m	16 m
- f-number	f/1.0	f/1.0	f/1.0	f/1.0
Imager	uncooled micro-bolometer (VOx)			
Spectral bandwidth	7.5 µm to 13.5 µm (LWIR)			
Sensitivity (NEdT)	< 35 mK @ f/1.0			
Time to image	< 60 s			
Digital zoom	No			
Color palette	7 color palettes; 1 isotherm palette with adjustable temp. levels			
Radiometric	yes (Isotherm color palette)			

Video stream	
Number of streams	2x per sensor
Compression algorithm(s)	AVC/H.264 (BP, MP,HP), HEVC/H.265, MJPEG
Number of streams	2x streams for optical image and 2x streams for thermal image
Aspect ratio	16:9, 16:10, 5:4, 4:3 (cropped, no scaling, one setting for both sensors)

Supported output resolutions	
- Optical image	920x1080; 1280x1024; 1280x720; 720x576; 704x576; 640x480;
	480x576, 352x576; 704x288; 352x288; 320x240, 176x144
- Thermal image	Output images are up or down scaled
	720x576 (D1); 704x480; 704x240; 640x512, 352x288; 336x256, 176x120
Compression bit rate control	Variable bit rate (VBR)
Output bit rate (per 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 lines in both optical and thermal image

Analytics (on thermal only)	
PID	Intrusion detection. Free form zones or detection lines
- Detection line	Touch, Cross (directional sensitive), Cross
- Detection zone	Touch
Hotspot detection	in two zones
- Measuring range	-20°C to 150°C or 0°C to 550°C
- Accuracy*	+/- 2°C (typical below 100 °C); +/- 3% (over 100°C)
Flare monitoring	Flare-on, Flare-off, Flare-too-large
Event time	0 to 10 s

Specs

Analytics (on thermal only)	
Event output	generic ONVIF, SPI
Electrical	
Supply voltage	IEEE802.3at type II (PoE+); AC 24 V (+/- 4V), 50/60 Hz; DC 24 V (+/- 4V) (Galvanic isolated)
Power consumption	15 W max
Power connector	3-pin 7/8" Conec
Network connector	Conec RJ45
PoE+ wiring recommendation	Wiring resistance = 50V
Network	
Interface(s)	100/1000 Mb Ethernet, auto negotiating, MDI/MDX
- 2SM models	GBE Singlemode SFP: "SFP SM 1310 20km 1Gb", dual LC (1310nm, 20km, 1GBE)
- 2MM models	GBE Multimode SFP: "SFP MM 1310 2km 1000Mb", dual LC (1310, 2km, 1GBE)
Protocols	IPv4, TCP/IP, UDP, RTP, RTSP, RTCP, NTP, HTTP, HTTPS, ICMP, FTP, SMTP, DHCP, UPnP,
	IEEE 802.1x (EAP-MD5 or EAP TLS), IGMP, SNMP, QoS, ONVIF, TLS1.2, TLS1.3
Password levels	Viewer, Operator and Administrator
Supported browsers	Edge, Chrome, Firefox, Safari
User accounts	20
Ordering information	
XCU3-F-T09S3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 40°, 8.3fps
XCU3-F-T13S3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 28°, 8.3fps
XCU3-F-T19S3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 19°, 8.3fps
XCU3-F-T25S3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 15°, 8.3fps
XCU3-F-T09F3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 40°, 30fps
XCU3-F-T13F3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 28°, 30fps
XCU3-F-T19F3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 19°, 30fps
XCU3-F-T25F3X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 384x288, 15°, 30fps
XCU3-F-T09S6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 48°, 8.3fps
XCU3-F-T13S6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 33°, 8.3fps
XCU3-F-T19S6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 23° 8.3fps
XCU3-F-T25S6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 17°, 8.3fps
XCU3-F-T09F6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 48°, 30fps
XCU3-F-T13F6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 33°, 30fps
XCU3-F-T19F6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 23°, 30fps
XCU3-F-T25F6X	XCU3 Fusion 316L dual imager, 2MP 10x zoom, 640x512, 17°, 30fps
Cable connectors	included
Mounting accessories	
XCUWM01	XCU 316L Wall/Pole mount with swivel, RAL9016
XCUCM01	XCU 316L Rugged ceiling mount, RAL9016
XCUSS01	XCU Fusion 316L sunshield, RAL9016
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Specs

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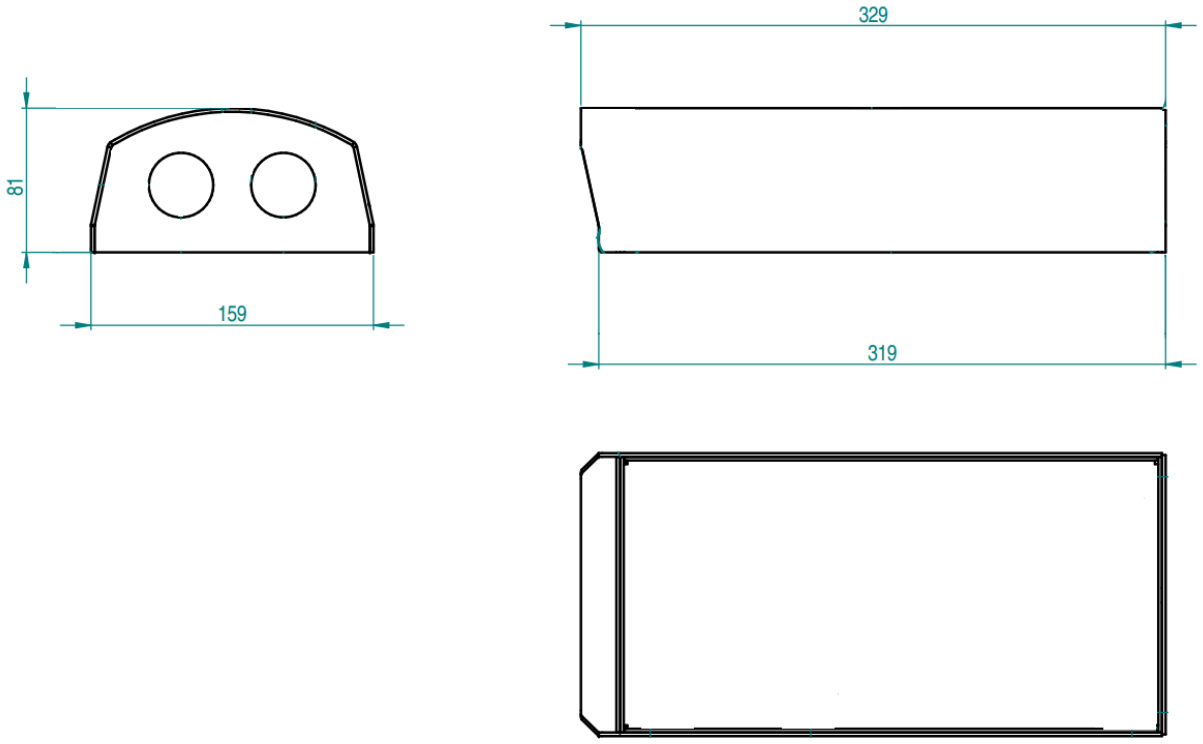
*: Accuracy at a distance up to 5 m @ 25°C, RH 50% or less, 9mm lens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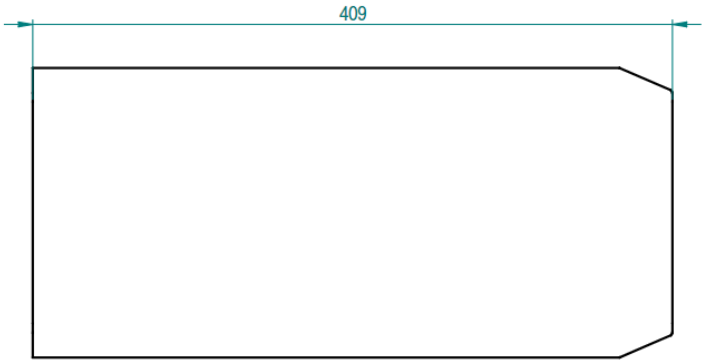
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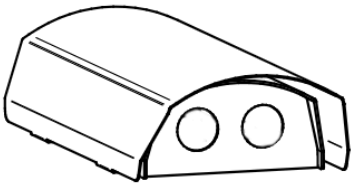

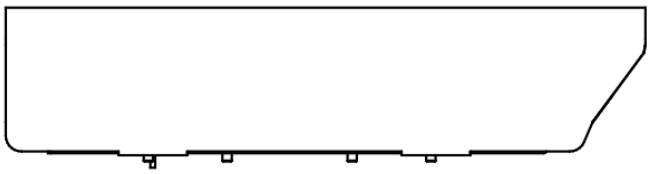

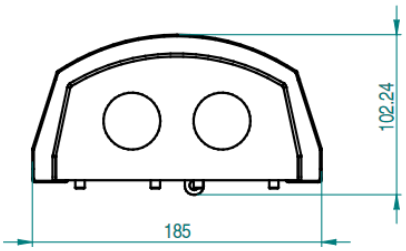
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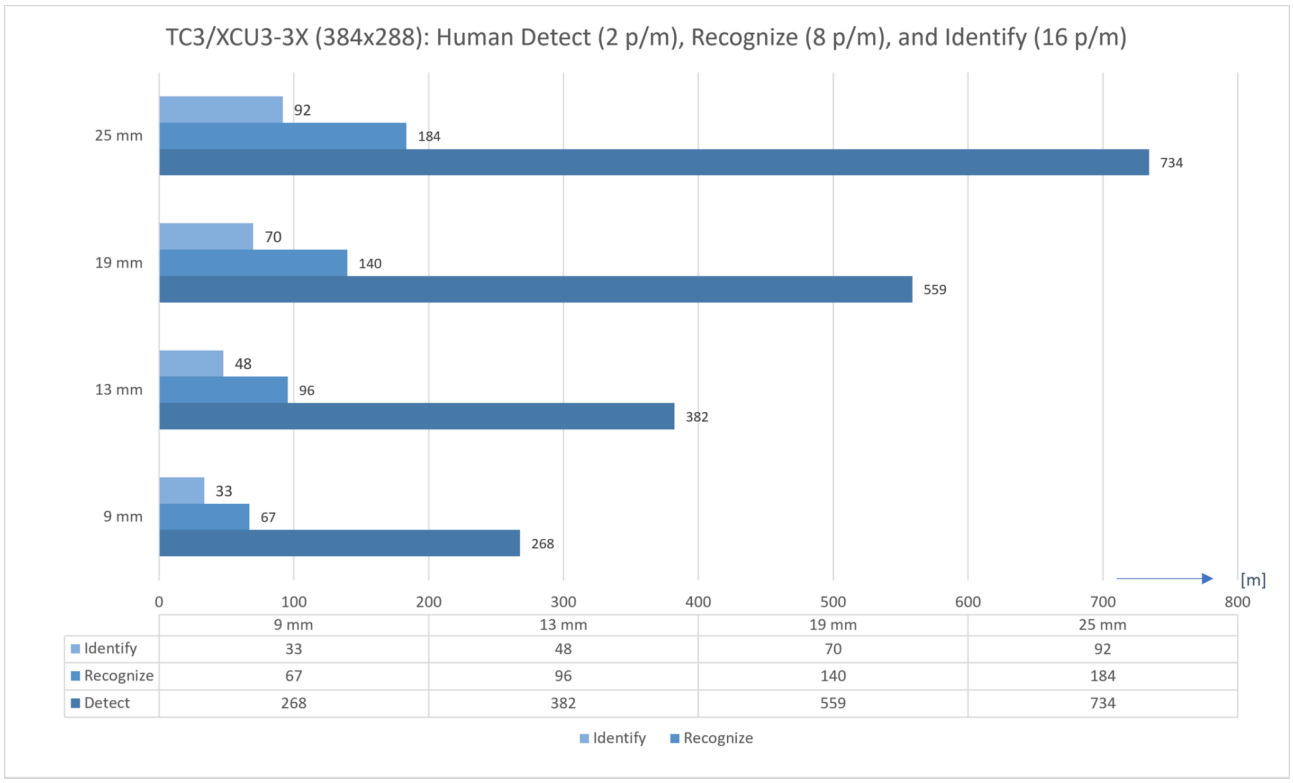
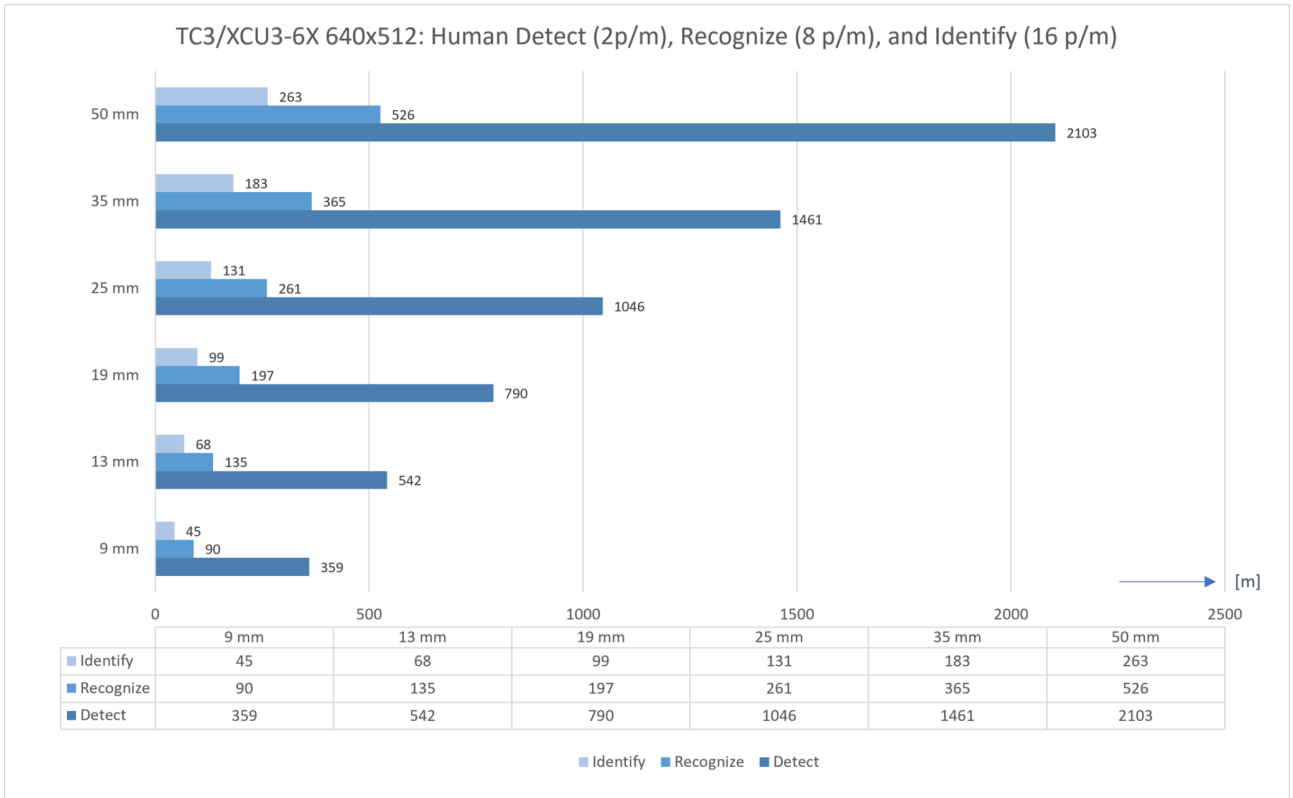
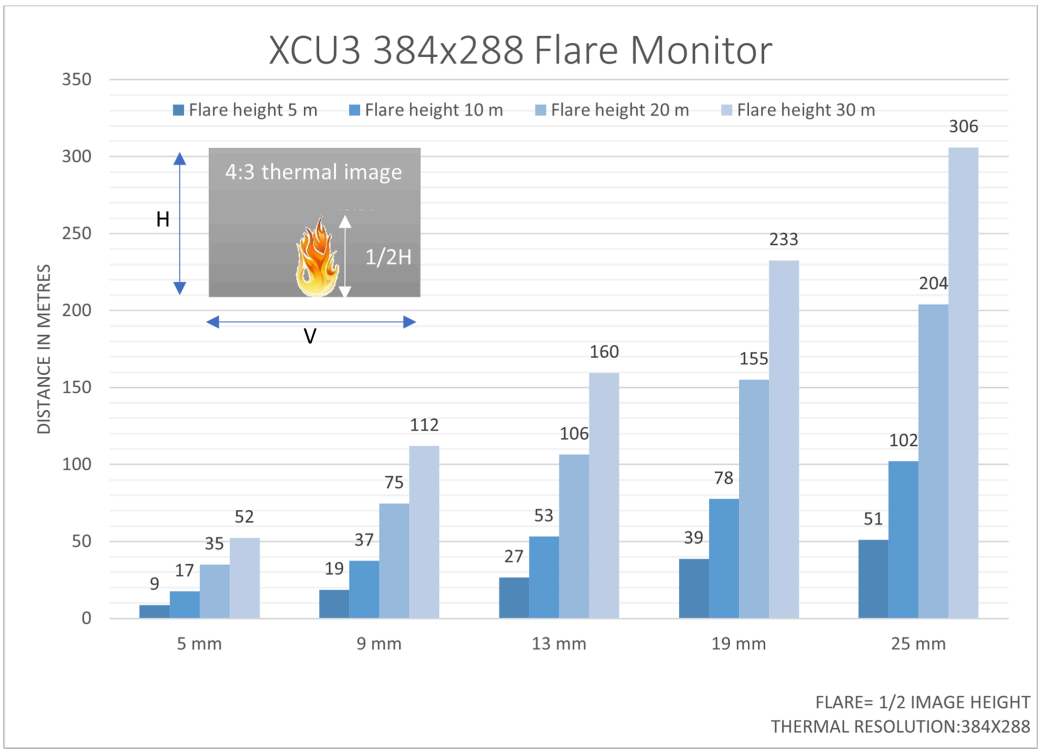
JOHNSON CRITERIA (DRI)

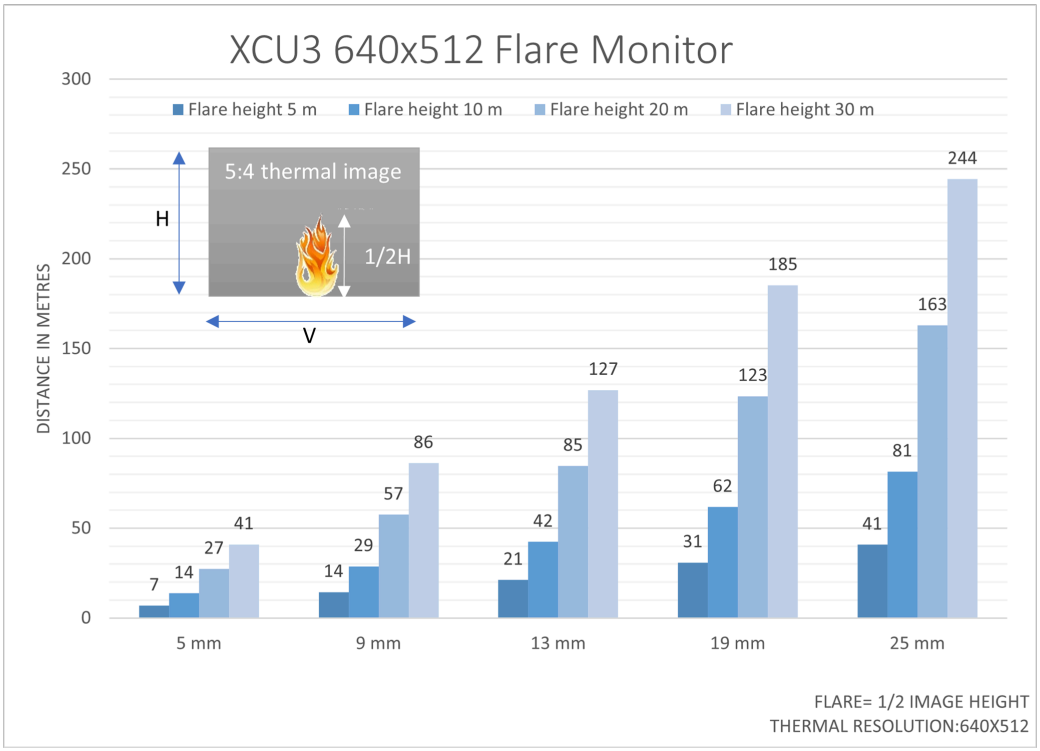


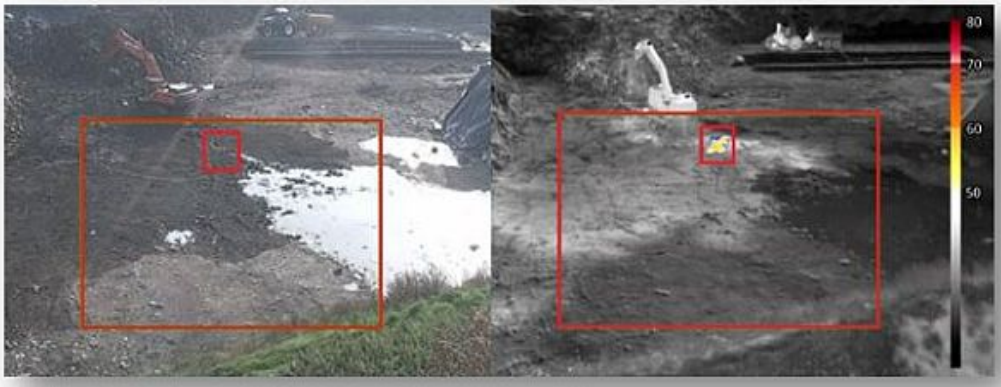
	9 mm	13 mm	19 mm	25 mm
Identify	33	48	70	92
Recognize	67	96	140	184
Detect	268	382	559	734



	9 mm	13 mm	19 mm	25 mm	35 mm	50 mm
Identify	45	68	99	131	183	263
Recognize	90	135	197	261	365	526
Detect	359	542	790	1046	1461	2103


XCU3 384x288 Flare Monitor
Flare height 5 m
Flare height 10 m
Flare height 20 m
Flare height 30 m
4:3 thermal image
H
1/2H
V
DISTANCE IN METRES
350
300
250
200
150
100
50
0
9
17
35
52
19
37
75
112
27
53
106
160
39
78
155
233
51
102
204
306
5 mm
9 mm
13 mm
19 mm
25 mm
FLARE= 1/2 IMAGE HEIGHT
THERMAL RESOLUTION:384X288


XCU3 640x512 Flare Monitor
Flare height 5 m
Flare height 10 m
Flare height 20 m
Flare height 30 m
5:4 thermal image
H
1/2H
V
DISTANCE IN METRES
300
250
200
150
100
50
0
7
14
27
41
14
29
57
86
21
42
85
127
31
62
123
185
41
81
163
244
5 mm
9 mm
13 mm
19 mm
25 mm
FLARE= 1/2 IMAGE HEIGHT
THERMAL RESOLUTION:640X512



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