

## P/N: T300293

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### Website

<http://www.flir.com>

### Customer support

<http://support.flir.com>

### Disclaimer

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General	
The Advanced Smart Sensor configuration is .....	
It can be used with the FLIR A400 Thermal Core and the FLIR A700 Thermal Core.	
Key features:	
<ul style="list-style-type: none"> <li>• ...</li> <li>• ...</li> <li>• ...</li> </ul>	
Imaging and optical data	
Infrared resolution	<i>Depending on Thermal Core used; see Thermal Core specification</i>
Thermal sensitivity (NETD)	<i>Depending on lens used; see lens specification</i>
Field of view (FOV)	<i>Depending on lens used; see lens specification</i>
Minimum focus distance	<i>Depending on lens used; see lens specification</i>
Focal length	<i>Depending on lens used; see lens specification</i>
Spatial resolution (IFOV)	<i>Depending on lens used; see lens specification</i>
Lens identification	Automatic
f-number	<i>Depending on lens used; see lens specification</i>
Image frequency	30 Hz
Focus	<ul style="list-style-type: none"> <li>• One-shot contrast</li> <li>• Motorized</li> <li>• Manual</li> </ul>
Detector data	
Focal plane array/spectral range	Uncooled microbolometer/7.5–14 μm
Detector pitch	<i>Depending on Thermal Core used; see Thermal Core specification</i>
Visual imaging and optical data (Option)	See Visual camera including MSX option
Still image resolution	
Image stream resolution and formats	
Focus	
Field of view (FOV)	
LED lamp	

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Measurement	
Camera temperature range	<ul style="list-style-type: none"> <li>-20 to 120°C (-4 to 248°F)</li> <li>0 to 650°C (32 to 1202°F)</li> <li>300 to 2000°C (572 to 3632°F)</li> </ul>
Object temperature range and accuracy (for ambient temperature 15–35°C (59–95°F))	<ul style="list-style-type: none"> <li>Range -20 to 120°C (-4 to 248°F):               <ul style="list-style-type: none"> <li>-20 to 100°C (-4 to 212°F), accuracy ±2°C (±3.6°F)</li> <li>100 to 120°C (212 to 248°F), accuracy ±2%</li> </ul> </li> <li>Range 0 to 650°C (32 to 1202°F):               <ul style="list-style-type: none"> <li>0 to 100°C (32 to 212°F), accuracy ±2°C (±3.6°F)</li> <li>100 to 650°C (212 to 1202°F), accuracy ±2%</li> </ul> </li> <li>Range 300 to 2000°C (572 to 3632°F):               <ul style="list-style-type: none"> <li>accuracy ±2%</li> </ul> </li> </ul>
Measurement analysis	
Standard functions	<ul style="list-style-type: none"> <li>10 Spotmeters</li> <li>10 Boxes and Mask polygons (total number)</li> <li>3 Deltas (difference any value/reference/external lock)</li> <li>2 Isotherm (above/below/interval)</li> <li>2 Iso-coverage</li> <li>1 Reference temperature</li> <li>2 Lines</li> <li>1 Polyline</li> </ul>
Automatic hot/cold detection	Max./min. temperature value and position shown within Box
Schedule response	sftp (image), SMTP (image and/or measurement data/result)
Measurement presets	Yes
Atmospheric transmission correction	Based on inputs of distance, atmospheric temperature, and relative humidity
Lens transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0
Reflected apparent temperature correction	Based on input of reflected temperature
External optics/windows correction	Based on input of optics/window transmission and temperature
Measurement corrections	<ul style="list-style-type: none"> <li>Global object parameters</li> <li>Local parameters per analyze function</li> <li>External Black-body correction</li> </ul>
Measurement frequency	Up to 10 Hz
Measurement result read-out	<ul style="list-style-type: none"> <li>Ethernet/IP (pull)</li> <li>Modbus TCP master (push)</li> <li>Modbus TCP slave (pull)</li> <li>MQTT (push)</li> <li>Query over REST API (pull)</li> <li>Measurements and still image (radiometric JPEG, visual 640 × 480, visual 1280 × 960), read access only.</li> <li>Web interface</li> </ul>



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<b>Alarm</b>	
Alarm functions	<ul style="list-style-type: none"> <li>On any selected measurement function</li> <li>Digital in</li> <li>Internal camera temperature</li> </ul>
Alarm output	<ul style="list-style-type: none"> <li>Digital out</li> <li>E-mail (SMTP) (push)</li> <li>EtherNet/IP (pull)</li> <li>File transfer (FTP) (push)</li> <li>Modbus TCP master write (push)</li> <li>Modbus TCP slave (pull)</li> <li>MQTT (push)</li> <li>ONVIF events (push)</li> <li>Query over RESTful API (pull)</li> <li>Store image or video</li> </ul>
<b>Configuration of camera</b>	
Web interface	Yes
<b>Recording of still images/video</b>	
Image storage	<ul style="list-style-type: none"> <li>Format: FLIR radiometric JPEG</li> <li>Number of images: 100</li> <li>Storage as function of:             <ul style="list-style-type: none"> <li>Alarm</li> <li>Scheduling</li> <li>User interaction (camera web)</li> </ul> </li> </ul>
Video storage	<ul style="list-style-type: none"> <li>Format: H.264</li> <li>Number of videos: 10</li> <li>Storage as function of alarm; 5 sec. before alarm and 5 sec. after alarm.</li> </ul>
<b>Video/Radiometric streaming RTSP</b>	
Protocol	RTSP
Unicast	Yes
Multicast	Yes
Multiple image streams	Yes
<b>Video streaming</b>	
Image quality	Bit rate set through Camera web
<b>Video streaming, Image source 0:</b>	
Resolution	640 × 480 pixels
Contrast enhancement	FSX / Histogram equalization (IR only)
Overlay	With / Without
Image source	Visual / IR / MSX
Pixel format	YUV411
Encoding	H.264 / MPEG4 / MJPEG
<b>Video streaming, Image source 1:</b>	
Resolution	1280 × 960 pixels
Overlay	No
Image source	Visual
Pixel format	YUV411
Encoding	H.264 / MPEG4 / MJPEG
<b>Radiometric streaming</b>	
Resolution	<i>Depending on Thermal Core used; see Thermal Core specification</i>



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<b>Video/Radiometric streaming RTSP</b>	
Source	IR
Pixel format	MONO 16
Encoding	<ul style="list-style-type: none"> <li>Compressed JPEG-LS</li> <li>FLIR Radiometric</li> </ul>
<b>Video/Radiometric streaming GVSP (GigE Vision)</b>	
Protocol	N/A
Unicast	
Multicast	
Multiple image streams	
<b>Video streaming</b>	
<b>Video streaming, Image source 0:</b>	
Resolution	
Contrast enhancement	
Overlay	
Image source	
Pixel format	
Encoding	
<b>Radiometric streaming</b>	
Resolution	
Source	
Pixel format	
Encoding	
<b>Ethernet</b>	
Interface	<ul style="list-style-type: none"> <li>Wired</li> <li>Wi-Fi (option)</li> </ul>
Connector type	<ul style="list-style-type: none"> <li>M12 8-pin X-coded, Female</li> <li>RP-SMA, Female</li> </ul>
Ethernet, purpose	Control, result, image, and power
Ethernet, type	1000 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, communication	TCP/IP socket-based FLIR proprietary
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 3
Ethernet, protocols	<ul style="list-style-type: none"> <li>EtherNet/IP</li> <li>IEEE 1588</li> <li>Modbus TCP Master</li> <li>Modbus TCP Slave</li> <li>MQTT</li> <li>ONVIF-S</li> <li>SNMP</li> <li>TCP, UDP, SNTP, RTSP, RTP, HTTP, HTTPS, ICMP, IGMP, sftp (server), FTP (client), SMTP, DHCP, MDNS (Bonjour), uPnP</li> </ul>

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<b>Digital Input/ output</b>	
Connector type	M12 12-pin A-coded, Male (shared with external power)
Digital input	2x opto-isolated Vin(low)= 0–1.5 V, Vin(high)= 3–25 V
Digital input, purpose	<ul style="list-style-type: none"> <li>• NUC</li> <li>• NUC disable</li> <li>• Alarm</li> </ul>
Digital output	<ul style="list-style-type: none"> <li>• 3x opto-isolated, 0–48 V DC, max. 350 mA (derated to 200 mA at 60C)</li> <li>• Solid state opto relay</li> <li>• 1x dedicated as Fault output (NC)</li> </ul>
Digital output, purpose	<ul style="list-style-type: none"> <li>• As function of alarm, output to external device</li> <li>• Fault (NC)</li> </ul>
Digital I/O, isolation voltage	500 VRMS
<b>Power system</b>	
Connector type	M12 12-pin A-coded, Male (shared with Digital I/O)
Power consumption	<ul style="list-style-type: none"> <li>• 7.5 W at 24 V DC typical</li> <li>• 7.8 W at 48 V DC typical</li> <li>• 8.1 W at 48 V PoE typical</li> </ul>
External power operation	24/48 V DC 8 W max
External voltage	Allowed range 18–56 V DC
<b>RS-232/485 serial interface</b>	
Connector type	M8 A-coded, Male
Prerequisite for use	ONVIF must be initiated.
Serial communication, purpose	Pan & Tilt control
Serial communication, standard	Pelco D
Serial communication, HW interface	RS232 and RS485 exclusively
Scanlist support	Yes
<b>Wi-Fi (Option)</b>	
Connector type	RP-SMA, Female
Standard	
Antenna	
Connection type	
<b>Environmental data</b>	
Operating temperature range	–20 to 50°C (–4 to 122°F): <ul style="list-style-type: none"> <li>• –20 to 40°C (–4 to 104°F) (in free air)</li> <li>• 40 to 50°C (104 to 122°F) (mounted on cooling plate accessory)</li> </ul> Maximum camera case temperature: 65°C (149°F)
Storage temperature range	IEC 68-2-1 and IEC 68-2-2, –40 to 70°C (–40 to 158°F) for 16 hours
Humidity (operating and storage)	IEC 60068-2-30/24 hours, 95% relative humidity, 25–40°C (77–104°F)/2 cycles

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<b>Environmental data</b>	
EMC	<ul style="list-style-type: none"> <li>ETSI EN 301 489-1 (radio)</li> <li>ETSI EN 301 489-17 (radio)</li> <li>EN 61000-4-8 (magnetic field)</li> <li>FCC 47 CFR Part 15 Class B (emission US)</li> <li>ISO 13766-1 (EMC - Earth-moving and building construction machinery)</li> <li>EN ISO 14982 (EMC - Agricultural and forestry machinery)</li> </ul>
Radio spectrum	<ul style="list-style-type: none"> <li>FCC 47 CFR Part 15 Class C (2.4 GHz band US)</li> <li>FCC 47 CFR Part 15 Class E (5 GHz band US)</li> <li>RSS-247 (2.4 GHz and 5 GHz band Canada)</li> <li>ETSI EN 300 328 V2.1.1 (2.4 GHz band EU)</li> <li>ETSI EN 301 893 V2.1.1 (5 GHz band EU)</li> </ul>
Encapsulation	IEC 60529, IP 54, IP66 with accessory
Shock	IEC 60068-2-27, 25 g
Vibration	<ul style="list-style-type: none"> <li>IEC 60068-2-6, 0.15 mm at 10–58 Hz and 2 g at 58–500 Hz, sinusoidal</li> <li>IEC 61373 Cat 1 (Railway)</li> </ul>
Safety	IEC 62368-1 (IT equipment audio-visual products)
Corrosion	<ul style="list-style-type: none"> <li>ISO 12944 C4 G or H</li> <li>EN60068-2-11</li> </ul>
<b>Physical data</b>	
Weight (including 24° lens)	0.82 kg (1.8 lb)
Size (L x W x H)	123 x 77 x 77 mm (4.84 x 3.03 x 3.03 in)
Base mount	4x M4 on 4 sides
Tripod mounting	UNC ¼"-20 on 2 sides
Housing material	Aluminium
Color	Black
<b>Warranty and service</b>	
Warranty	<a href="http://www.flir.com/warranty/">http://www.flir.com/warranty/</a>
<b>Shipping information</b>	
Packaging, type	TBD
Packaging, contents	TBD
Packaging, weight	TBD
Packaging, size	TBD
EAN-13	TBD
UPC-12	TBD
Country of origin	Sweden



