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# FLIR ETS320

## P/N: 63950-1001

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### Website

<http://www.flir.com>

### Customer support

<http://support.flir.com>

### Disclaimer

Specifications subject to change without further notice. Camera models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations. Please refer to [exportquestions@flir.com](mailto:exportquestions@flir.com) with any questions.



<b>General description</b>	
The FLIR ETS320 is FLIR's first electronic test bench camera, designed for a quick temperature check of PCB boards and electronic devices. The FLIR ETS320 is sensitive enough to detect subtle temperature difference with an accuracy of $\pm 3^{\circ}\text{C}$ ( $5.4^{\circ}\text{F}$ ), so you can quickly find hot spots and potential points of failure. The $320 \times 240$ pixel infrared detector offers more than 76 000 points of temperature measurement, eliminating the guesswork of legacy measurement tools. Designed specifically for bench-top work, the battery-powered FLIR ETS 320 connects to your PC for immediate analysis and sharing of thermal data.	
Benefits:	
<ul style="list-style-type: none"> <li>• Reduces test times: Quickly identify hot spots, thermal gradients, and potential points of failure.</li> <li>• Improves product design: Know where and when to add fans and heatsinks, and ensure products are operating within specification for their maximum lifetime.</li> <li>• Saves money: Improve rapid prototyping and reduce product development cycles.</li> <li>• Optimizes lab time: Battery powered and hands-free, and offers complete measurement and analysis in the camera.</li> </ul>	
Key features:	
<ul style="list-style-type: none"> <li>• &gt;76 000 points of non-contact temperature measurement at the push of a button.</li> <li>• <math>320 \times 240</math> pixel detector provides crisp thermal imagery.</li> <li>• Time versus temperature measurement with FLIR Thermal Studio.</li> <li>• Small-component measurement, down to <math>170 \mu\text{m}</math> per pixel spot size.</li> <li>• Lens offers a <math>45^{\circ}</math> thermal view of the target for the quick detection of hot spots.</li> <li>• Records radiometric imagery in standard JPEG format for easier sharing.</li> <li>• <math>\pm 3\%</math> accuracy promotes quality assurance and factory acceptance of PCBs.</li> <li>• Quickly mounts on the supplied stand for immediate use.</li> <li>• Crisp 3 in. LCD display provides immediate thermal feedback.</li> <li>• World-class software provided for advanced measurement corrections/capabilities.</li> </ul>	
<b>Imaging and optical data</b>	
IR resolution	$320 \times 240$ pixels
Thermal sensitivity/NETD	$<0.06^{\circ}\text{C}$ ( $0.11^{\circ}\text{F}$ )/ $<60 \text{ mK}$
Field of view (FOV)	$45^{\circ} \times 34^{\circ}$
Fixed focus distance	$70 \text{ mm} \pm 10 \text{ mm}$ ( $2.8 \text{ in.} \pm 0.4 \text{ in.}$ )
Spatial resolution (IFOV)	2.6 mrad
F-number	1.5
Image frequency	9 Hz

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<b>Detector data</b>	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–13 $\mu\text{m}$
<b>Image presentation</b>	
Display	3.0 in. 320 × 240 color LCD
Image adjustment	Automatic/manual
<b>Measurement</b>	
Object temperature range	–20°C to +250°C (–4°F to +482°F)
Accuracy	$\pm 3^\circ\text{C}$ ( $\pm 5.4^\circ\text{F}$ ) or $\pm 3\%$ of reading, whichever greatest, for ambient temperature 10°C (50°F) to 35°C (95°F) and object temperature above +0°C (+32°F)
<b>Measurement analysis</b>	
Spotmeter	Center spot
Area	Box with maximum/minimum
Emissivity correction	Variable from 0.1 to 1.0
Emissivity table	Emissivity table of predefined materials
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
<b>Set-up</b>	
Color palettes	Black and white, iron, and rainbow
Set-up commands	Local adaptation of units, language, date and time formats
<b>Video streaming</b>	
Radiometric IR video streaming	Full dynamic to PC (FLIR Thermal Studio) using USB
Non-radiometric IR video streaming	Uncompressed colored video using USB
<b>Storage of images</b>	
File formats	Standard JPEG, 14-bit measurement data included
<b>Data communication interfaces</b>	
Interfaces	USB Micro: Data transfer to and from PC and Mac devices
<b>Power system</b>	
Battery type	Rechargeable Li ion battery
Battery voltage	3.7 V
Battery operating time	Approximately 4 hours at 25°C (77°F) ambient temperature and typical use
Charging system	Battery is charged inside the unit
Charging time	2.5 hours to 90% capacity
Power management	Automatic shut-down
AC operation	AC adapter, 90–260 V AC input, 5 V DC output to camera
Battery documents	For documents like MSDS and UN38.3 test reports/summaries, see: <a href="https://support.flir.com/resources/msds">https://support.flir.com/resources/msds</a>



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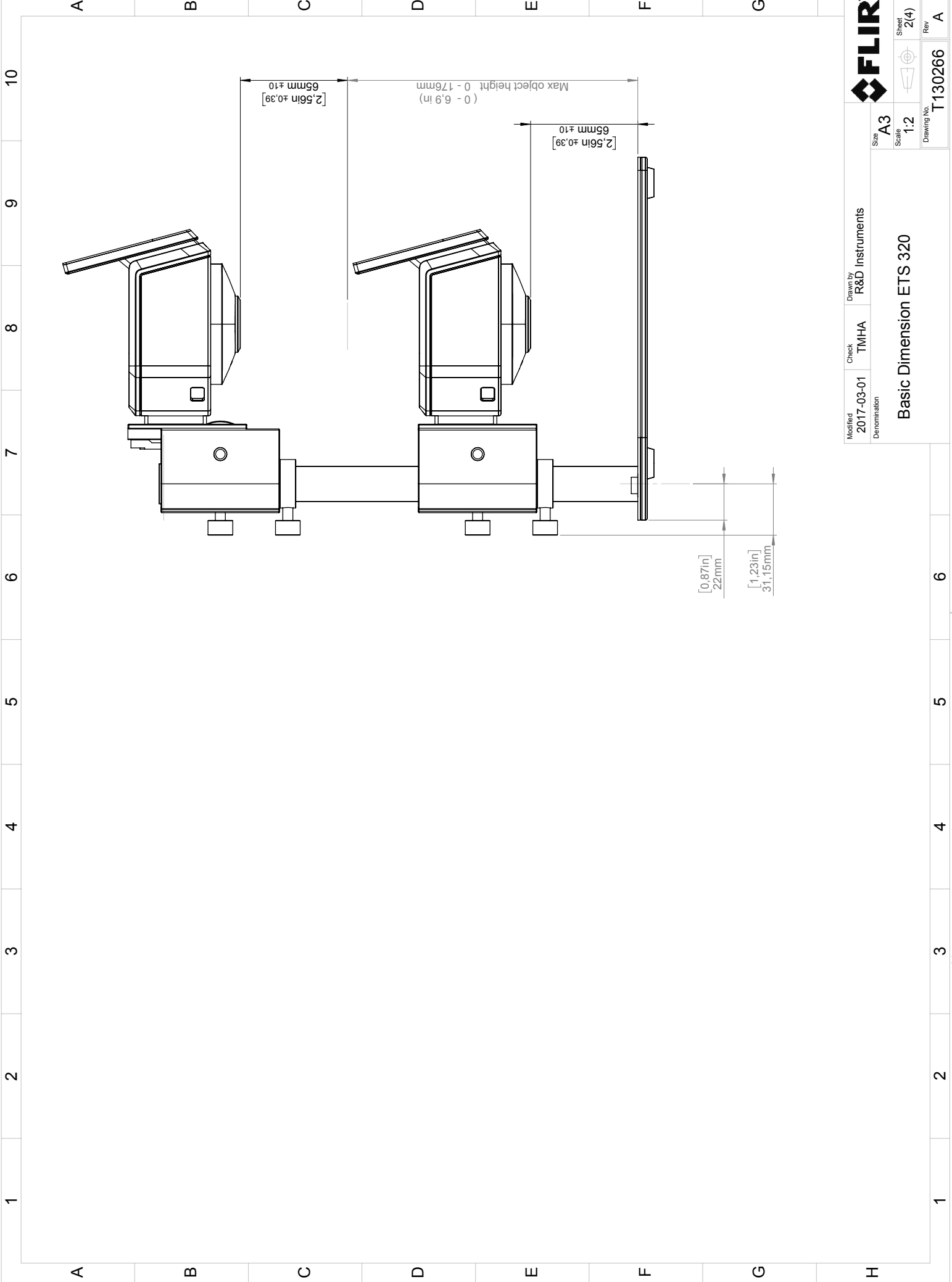
#63950-1001; r. 84743;

<b>Environmental data</b>	
Operating temperature range	10–40°C (50–104°F)
Storage temperature range	–40 to +70°C (–40 to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity
Encapsulation	IP 40 (IEC 60529)
<b>Directives and regulations</b>	
Directives and regulations	<ul style="list-style-type: none"> <li>• Battery Directive 2006/66/EC</li> <li>• EMC Directive 2014/30/EU</li> <li>• FCC 47 CFR Part 15 Class B Subpart B</li> <li>• REACH Regulation EC 1907/2006</li> <li>• RoHS2 Directive 2011/65/EC</li> <li>• WEEE Directive 2012/19/EC</li> </ul>
Declaration of conformity	See: <a href="https://support.flir.com/resources/DoC">https://support.flir.com/resources/DoC</a>
<b>Physical data</b>	
System weight, incl. battery	1.8 kg (4.0 lb.)
System size (L × W × H)	220 × 150 × 300 mm (8.7 × 5.9 × 11.8 in.)
Color	Black and gray
<b>Shipping information</b>	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none"> <li>• Infrared camera unit</li> <li>• USB cable</li> <li>• Power supply</li> <li>• FLIR Thermal Studio Standard, 1 Year Subscription</li> <li>• Printed documentation</li> </ul>
Packaging, weight	2.9 kg (6.4 lb.)
Packaging, size (L × W × H)	290 × 170 × 378 mm (11.4 × 6.7 × 14.9 in.)
EAN-13	4743254002913
UPC-12	845188014186
Country of origin	Designed & Engineered by FLIR Systems, Sweden. Assembled in Taiwan.

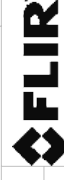
### Supplies & accessories:

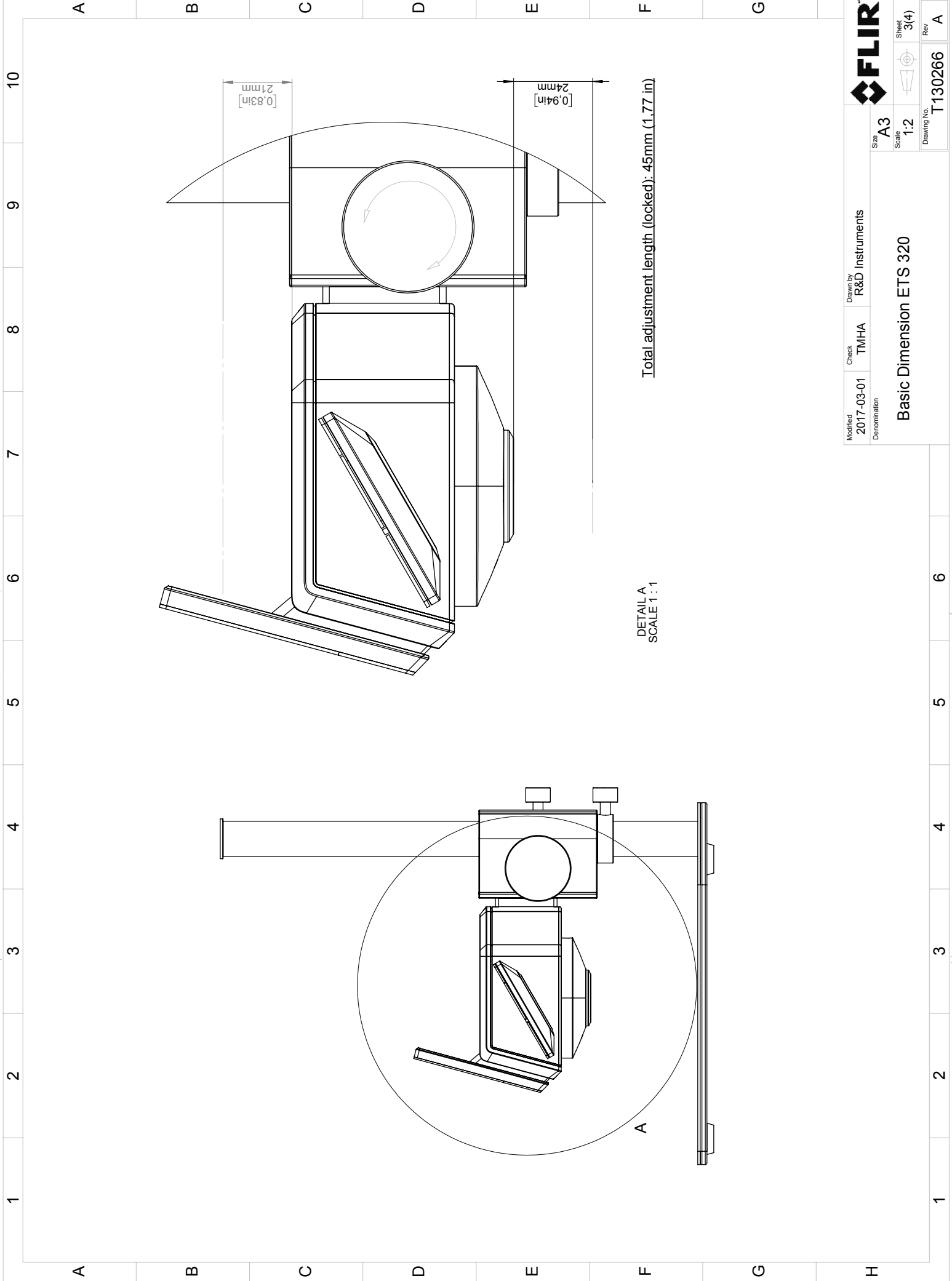
- T300243; FLIR Thermal Studio Pro, 1 Year Subscription
- T300083; FLIR Thermal Studio Pro, Perpetual license
- T300341; FLIR Thermal Studio Standard, 1 Year Subscription
- T300258; FLIR Thermal Studio Standard, Perpetual license
- 4232535; FLIR Research Studio, Professional Edition - 1 Year Subscription (online activation)
- 4232556; FLIR Research Studio, Professional Edition - Perpetual License (online activation)
- 4232590; FLIR Research Studio, Professional Edition - Perpetual License (USB dongle)
- 4220499; FLIR Research Studio, Standard Edition - 1 Year Subscription (online activation)
- 4220500; FLIR Research Studio, Standard Edition - Perpetual License (online activation)
- 4220646; FLIR Research Studio, Standard Edition - Perpetual License (USB dongle)
- 4232591; FLIR ResearchIR to Research Studio, Professional Edition - 1 Year License Upgrade



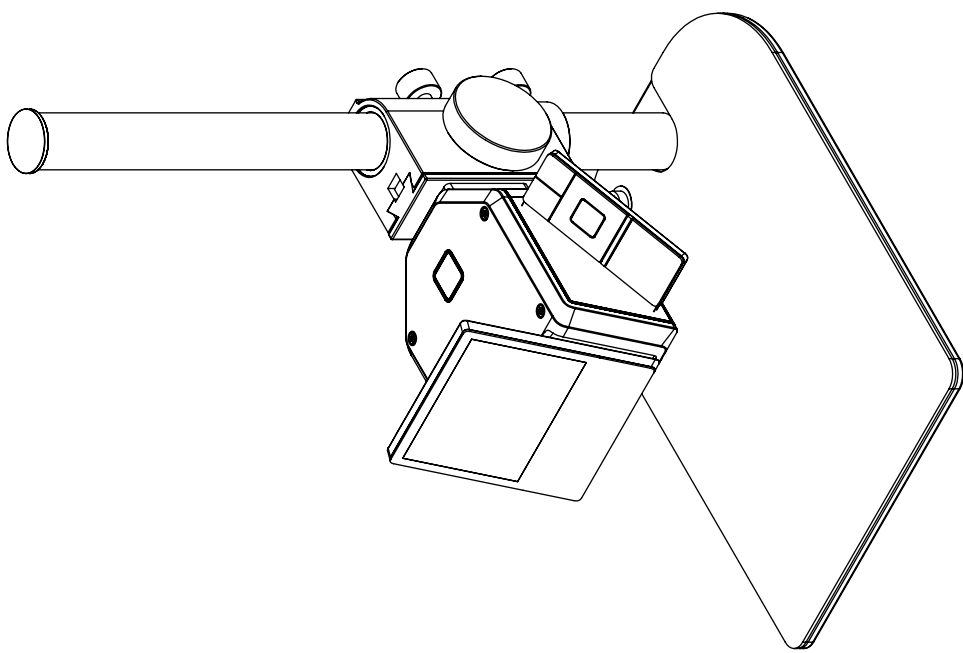


Modified 2017-03-01 Denomination	Check TMHA	Drawn by R&D Instruments	Size A3	Sheet 2(4)	Rev A
Basic Dimension ETS 320			Scale 1:2	Drawing No. T130266	





Modified 2017-03-01 Denomination	Check TMHA	Drawn by R&D Instruments	FLIR
Basic Dimension ETS 320			Sheet 3(4)
Size A3			Rev A
Scale 1:2			Drawing No. T130266



		Size <b>A3</b>
Modified <b>2017-03-01</b> Denomination	Check <b>TMHA</b>	Drawn by <b>R&amp;D Instruments</b>
<b>Basic Dimension ETS 320</b>		Scale <b>1:2</b>
		Drawing No. <b>T130266</b>
		Sheet <b>4(4)</b>
		Rev <b>A</b>

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