



Quark

Longwave Infrared Thermal Core Camera

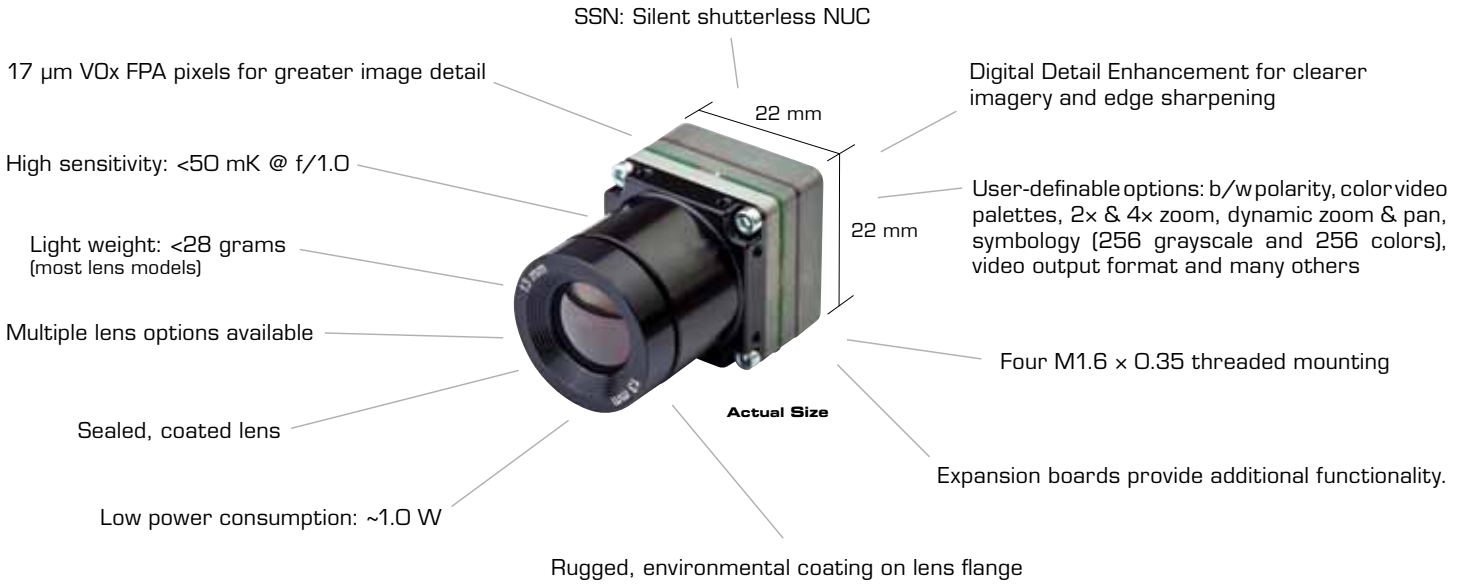
Key Features:

- Available in 336 × 256 and 640 × 512 resolution, both with 17-micron pixels
- Smallest volume camera in the industry and low mass enables new applications
- Low power consumption
- No moving parts provide for high shock and vibration tolerance
- 30/60 Hz field-switchable frame rates
- Common serial commands, GUI & SDK
- Designed for high-volume manufacturing and to provide low cost for customers

Quark

The World's Smallest Thermal Camera

FLIR® Quark™ is the smallest and lightest fully-integrated uncooled camera in existence. It is designed for thermal imaging applications that require minimum volume and weight, yet Quark is rated for extreme shock and operating temperature environments. Several lens options are available for Quark, as well as a lens-less camera body for OEM customers.



See What Quark Sees

DIGITAL DETAIL ENHANCEMENT (DDE)



DDE OFF



DDE ON

2x ZOOM (QUARK CAPABLE OF UP TO 4x ZOOM)



No Zoom



2x Zoom

Choose Your FOV



LENS DATA

Focal Length	13 mm	14 mm	17 mm	19 mm	35 mm
f/ number	1.25	1.25	1.25	1.25	1.5
Quark 640 FOV	45° x 37°	43° x 35°	36° x 29°	32° x 26°	18° x 14°
Quark 336 FOV	24° x 19°	23° x 18°	19° x 15°	16° x 13°	9.3° x 7.1°
IFOV (milliradians)	1.308	1.214	1.000	0.895	0.496
Min Focus	15 cm	20 cm	5 cm	30 cm	2 m
Weight (Lens & Mount Only)	15 g	13.5 g	15 g	15 g	20 g
Weight (Lens + Camera)	23 g	21.5 g	22.5 g	23 g	28 g
Diameter (max)	20.6 mm	20.6 mm	20.6 mm	20.6 mm	26.9 mm

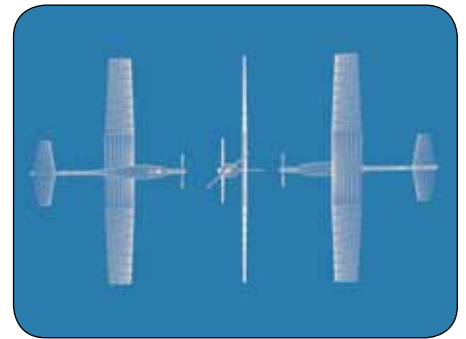
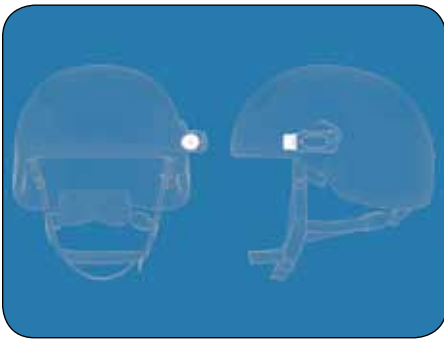
Lens Coating

Diamond-like coated for superior abrasion resistance

For DRI information, please visit www.FLIR.com/Quark

Macro Thermal Performance for Micro Payloads

Quark outputs 14-bit digital data in LVDS and CMOS formats, as well as 8-bit BT.656. With a simple expansion board accessory, the camera provides basic “power-in, video-out” capability using standard USB to generate a user-selectable NTSC or PAL analog video signal. Common camera controls are available in FLIR’s free camera control software GUI – connected via USB – or a low-cost SDK.



Specifications



SYSTEM OVERVIEW

System Type	Uncooled LWIR Thermal Imager
Quark 640:	640 x 512 VOx Microbolometer
Quark 336:	336 x 256 VOx Microbolometer
Pixel Size	17 µm
Spectral Band	7.5 - 13.5 µm
Performance	<50 mK @ f/1.0

OUTPUTS

Analog Video	Field-switchable between NTSC and PAL
Quark 640:	30 Hz (NTSC); 25 Hz (PAL); <9Hz option for export
Quark 336:	30/60 Hz (NTSC); 25/50 Hz (PAL) ; <9Hz export option
Digital Video	8- or 14-bit serial LVDS; 8- or 14-bit parallel CMOS; 8-bit BT.656

OPERATION & CONTROL

Image Control	Invert, revert, 2x & 4x digital zoom, polarity, false color or monochrome, AGC, digital detail enhancement (DDE)
Camera Control	Autonomous; Manual via GUI or serial command
Signal Interface	60-pin SAMTEC connector: power, comm., video, digital data, external sync, discrete commands
Accessories	Video, Power & Communication (VPC) expansion board

PHYSICAL ATTRIBUTES

Size / Weight	22 x 22 x 12 mm (less lens) / 8 g (camera body only)
Mounting Interface	4 M1.6 x 0.35 on rear of camera frame

POWER

Input Voltage	3.3 +/- 0.1 VDC
Power Dissipation	<1.0 W (Quark 336); <1.2 W (Quark 640)
Time to Image	<4 seconds (Quark 336); <5 seconds (Quark 640)

ENVIRONMENTAL

Operating Temperature Range	-40° C to +80° C external temp
Storage Temperature Range	-55° C to +105° C external temp
Scene Temp Range	To 150° C standard
Shock / Temperature Shock	500 g; 0.8 msec shock pulse (all axes)/5/min
Vibration	4.3 g 3 axes, 8 hours each
Humidity	5 - 95% non-condensing
Operational Altitude	+40,000 feet
ROHS, REACH, and WEEE	Compliant



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