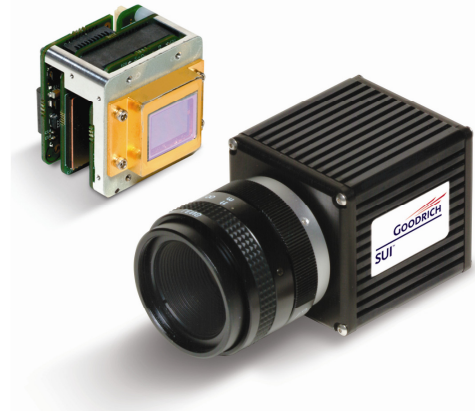


# SU640KTSX-1.7RT

## High Sensitivity InGaAs SWIR Camera with Advanced Dynamic Range Enhancements



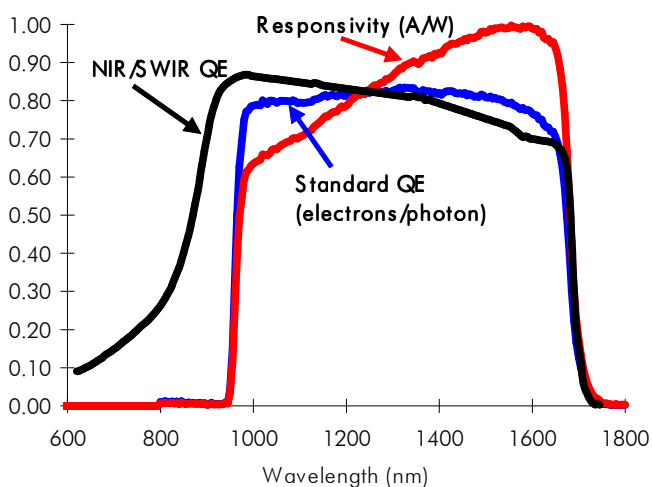
The compact **SU640KTSX-1.7RT** is an InGaAs video camera featuring high-sensitivity and wide dynamic range. It provides real-time daylight to low-light imaging in the Short Wave Infrared (SWIR) wavelength spectrum for persistent surveillance, laser detection, and penetration through fog, dust, and smoke. In addition, the camera employs **on-board** Automatic Gain Control (AGC), proprietary dynamic-range enhancement technology, and built-in non-uniformity corrections (NUCs), allowing it to address the challenges of urban night imaging without blooming. Simultaneous RS170 analog and Camera Link® digital output provide a means for easy plug-and-play video and high quality 12-bit images for image processing or transmission. Low-power and light-weight, with compact size enables easy integration into surveillance systems, whether hand-held, mobile, or aerial. Optional **NIR/SWIR technology** is available to extend the capabilities of Goodrich cameras down to 0.7  $\mu\text{m}$ , offering the advantage of both Near Infrared (NIR) and Short Wave Infrared wavelength response.



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### APPLICATIONS

- Low-light level imaging
- Covert surveillance with passive 24 hr/7 day operation
- Emission microscopy
- Imaging spectroscopy
- Astronomy



### FEATURES

- Highest sensitivity available in 0.9 to 1.7  $\mu\text{m}$  spectrum; NIR/SWIR, from 0.7 to 1.7  $\mu\text{m}$
- Images under partial starlight to direct sun illumination
- 640 x 512 pixel format, 25  $\mu\text{m}$  pitch
- Compact OEM module size < 3.94 in<sup>3</sup>
- Enclosed module size < 9.5 in<sup>3</sup>
- Low power < 2.7 W at 20°C
- All solid state InGaAs imager
- On-board non-uniformity corrections
- Simultaneous digital & analog outputs
- Room temperature FPA operation
- Includes a threaded 42 mm lens mount
- Easy integration into UAV, handheld or robotic systems
- Adjustable contrast enhancement mode and AGC thresholds
- Optional OEM startup kit includes full I/O connectors, 1/4-20 tripod mount, AC power supply, BNC cables, 50 mm M42-mount SWIR optimized lens

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## MECHANICAL SPECIFICATIONS

|                                     |  |   |
|-------------------------------------|--|---|
| Model:                              | Enclosed                                 | OEM                                     |
| Module (no lens)                    | 53 x 53 x 65 mm                          | 42 mm x 38 mm x 41 mm                   |
| Width x Height x Depth <sup>1</sup> | 2.1 x 2.1 x 2.55 inches                  | 1.64 in. x 1.5 in. x 1.60 in.           |
| Weight (no lens/adaptor)            | < 270 g                                  | < 90 g                                  |
| Lens Mount                          | M42x1 mount<br>C-mount adapter included  | M42x1 mount<br>C-mount adapter included |
| Included Lens                       | f/1.4, 50mm, 18° FOV width,<br>M42 mount | none                                    |
| Camera Link Connector               | 3M SDR26 Connector                       | none                                    |
| I/O Connector                       | 3M SDR14 Connector                       | none                                    |
| Interface Connector                 | Not applicable                           | Samtec QSH-030-01-L-D-A                 |
| Pixel Pitch                         | 25 µm                                    |   |
| Focal Plane Array Format            | 640 x 512 pixels                         |   |
| Active Area                         | 16 mm x 12.8 mm x 20.5 mm diagonal       |   |

<sup>1</sup> Depth Includes Cable Mount Hardware for Enclosed Version

## ENVIRONMENTAL & POWER SPECIFICATIONS

|                            |                             |
|----------------------------|-----------------------------|
| Operating Body Temperature | -10°C to 40°C               |
| Storage Temperature        | -10°C to 60°C               |
| Humidity                   | Non-condensing              |
| Power Requirements:        |                             |
| AC Adapter Supplied        | 100-240 VAC, 47-63 Hz       |
| DC Voltage                 | +9-16 V                     |
| Typical Power @ body temp. | <2.7 W at 20°C, <4 W @ 40°C |

## ELECTRICAL SPECIFICATIONS

|  |  |
|--|--|
| Optical Fill Factor                      | 100%   |
| Spectral Response                        | Standard, 0.9 to 1.7 µm<br>NIR/SWIR, 0.7 to 1.7 µm                       |
| Quantum Efficiency                       | Standard, > 65 % from 1 to 1.6 µm<br>NIR/SWIR, > 65 % from 0.9 to 1.6 µm |
| Mean Detectivity, D* <sup>1</sup>        | 2.5 x 10 <sup>13</sup> cm√Hz/W (typical)                                 |
| Noise Equivalent Irradiance <sup>1</sup> | 4.8 x 10 <sup>8</sup> photons/cm <sup>2</sup> ·s (typical)               |
| Noise (rms) <sup>1</sup>                 | 75 electrons (typical)   |
| Full Well (in OPR 0 setting)             | 12.0E+6 electrons (typical)  |
| True Dynamic Range                       | > 1000:1   |
| Operability <sup>2</sup>                 | > 99%  |
| Exposure Times                           | 60 µs to 33.2 ms in 12 steps   |
| Image Correction                         | 2-point (offset and gain) pixel by pixel, user selectable                |
| Digital Output Format                    | 12 bit Camera Link® (optional)   |
| Analog Output Format                     | Buffered EIA170 compatible video, 30 fps                                 |
| Digital Output Frame Rate                | 30 fps   |
| Scan Mode                                | Continuous or 3 externally triggered modes                               |

<sup>1</sup> λ = 1.55 µm, exposure time = 33.2 ms, Highest Gain OPR setting, (no lens) with gain and offset corrections off.

<sup>2</sup> The fraction of pixels with responsivity deviation less than +/-35% from the mean.

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