The Flea3 FL3-GE line of the world’s smallest Gigabit Ethernet cameras offers a total of twelve monochrome and color CCD models, ranging from VGA to 5.0 MP. Measuring just 29 x 29 x 30 mm and weighing only 38 grams, the Flea3 has the same small, lightweight form factor as many industry-standard “ice cube” analog cameras. The Flea3 also offers a host of new features, including enhanced opto-isolated GPIO; an on-camera frame buffer; non-volatile user data storage; new trigger modes; and improved imaging performance.

<table>
<thead>
<tr>
<th>Model</th>
<th>Version</th>
<th>MP</th>
<th>Imaging Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL3-GE-03S1C-C</td>
<td>FL3-GE-03S1M-C</td>
<td>0.3 MP</td>
<td>Sony ICX618, 1/4&quot;, 5.6 µm</td>
</tr>
<tr>
<td>FL3-GE-03S2C-C</td>
<td>FL3-GE-03S2M-C</td>
<td>0.3 MP</td>
<td>Sony ICX424, 1/3&quot;, 7.4 µm</td>
</tr>
<tr>
<td>FL3-GE-08S2C-C</td>
<td>FL3-GE-08S2M-C</td>
<td>0.8 MP</td>
<td>Sony ICX204, 1/3&quot;, 4.65 µm</td>
</tr>
<tr>
<td>FL3-GE-13S2C-C</td>
<td>FL3-GE-13S2M-C</td>
<td>1.3 MP</td>
<td>Sony ICX445, 1/3&quot;, 3.75 µm</td>
</tr>
<tr>
<td>FL3-GE-14S3C-C</td>
<td>FL3-GE-14S3M-C</td>
<td>1.4 MP</td>
<td>Sony ICX267, 1/2&quot;, 4.65 µm</td>
</tr>
<tr>
<td>FL3-GE-20S4C-C</td>
<td>FL3-GE-20S4M-C</td>
<td>2.0 MP</td>
<td>Sony ICL274, 1/1.8&quot;, 4.4 µm</td>
</tr>
<tr>
<td>FL3-GE-28S4C-C</td>
<td>FL3-GE-28S4M-C</td>
<td>2.8 MP</td>
<td>Sony ICX687, 1/1.8&quot;, 3.69 µm</td>
</tr>
<tr>
<td>FL3-GE-50S5C-C</td>
<td>FL3-GE-50S5M-C</td>
<td>5.0 MP</td>
<td>Sony ICX655, 2/3&quot;, 3.45 µm</td>
</tr>
</tbody>
</table>

Imaging Performance (EMVA 1288) See the Imaging Performance Specification, which includes quantum efficiency, saturation capacity (full well depth), read noise, dynamic range and signal to noise ratio.

- **A/D Converter**: 12-bit
- **Video Data Output**: 8, 12, 16 and 24-bit digital data
- **Image Data Formats**: Y8, Y16, Mono8, Mono12, Mono16, Raw8, Raw12, Raw16 (all models); RGB, YUV422, YUV444 (color models)
- **Partial Image Modes**: Pixel binning and region of interest (ROI) modes
- **Shutter**: Global Shutter; Automatic/manual/one-push/extended shutter modes
- **Gain**: Automatic/manual/one-push modes
- **Gamma**: Automatic/manual/one-push modes
- **White Balance**: Automatic/manual/one-push modes
- **High Dynamic Range**: 0.03 ms to 32 seconds
- **Digital Interface**: Gigabit Ethernet interface with screw locks for camera control and data
- **Transfer Rates**: 10/100/1000 Mbit/s
- **GPIO**: 8-pin Hirose HR25 GPIO connector for power, trigger, strobe, PWM, and serial I/O, 1 opto-isolated input, 1 opto-isolated output, 2 bi-directional I/O pins
- **External Trigger Modes**: Trigger Modes 0, 3, 4, 5, 13 (FL3-GE-13S2 only), 14 and 15
- **Image Buffer**: 32 MB frame buffer
- **Memory Channels**: 2 memory channels for custom camera settings
- **Flash Memory**: 1 MB non-volatile memory
- **Dimensions**: 29 mm x 29 mm x 30 mm excluding lens holder, without optics (metal case)
- **Mass**: 38 grams (without optics)
- **Power Consumption**: 12-24 VDC, <2.5 W, via GPIO
- **Machine Vision Standard**: GigE Vision v1.2
- **Camera Control**: via FlyCapture SDK, or GigE Vision third party software
- **Camera Updates**: In-field firmware updates
- **Lens Mount**: C-mount (FL3-GE-13S2 also available with CS-mount)
- **Temperature**: Operating: 0°C to 45°C; Storage: -30°C to 60°C
- **Humidity**: Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)
- **Compliance**: CE, FCC, RoHS
- **Operating System**: Windows 7, Linux Ubuntu
- **Warranty**: 3 years
Flea® 3 GigE Specifications

GigE Benefits
The 1000Mb/s Gigabit Ethernet bus provides enough bandwidth to transmit over distances up to 100m. System costs are reduced with low-cost frame grabbers and by eliminating the need for cable repeaters. Scalability also reduces future costs as GigE Vision continues development for faster bandwidths.

Opto-Isolated GPIO
Opto-isolated GPIO protects the camera from noise on the ground pin generated by external devices as well as power issues caused by malfunctioning devices attached to the camera.

Secure Connector
Screw holes on each side of the camera’s GigE connector enable secure connection to the camera, guaranteeing a reliable connection, and reducing stress on internal electronics caused by cable movement.

Industry Standard Design
Every mechanical component of the Flea3 camera is designed to maximize usability, including the compact aluminum case, C-mount lens holder and ASA/ISO-compliant tripod mounting bracket, status LED and removable glass/IR filter system.

Frame Buffer/Image Retransmit
The camera is equipped with a 32MB frame buffer that can be used to store multiple images for transmission, or retransmission, at a later time. This is useful in situations where the available GigE bandwidth must be maximized between multiple cameras, or where an image must be sent again.

Updatable FPGA
The field-programmable gate array chip controls all camera functionality, including on-camera color processing, pixel binning, user memory channels and more. It can also be updated with new firmware in the field.

Software
The FlyCapture® SDK is compatible with Microsoft® Windows® and Linux Ubuntu and a full software API library, demo programs and C/C+/C# example source code. It also includes the Point Grey filter driver, which provides enhanced data communication between the GigE bus and the CPU and the GigE Configurator tool for configuring IP addressing.

Accessories
Tripod adapter with every camera. All the accessories you need to get up and running, such as interface cards, cables, and power adapters are available from Point Grey.

Dimensional Drawings (in mm)
CAD models available at www.ptgrey.com/support/downloads.

VARIES

2x M2 \( \varnothing 2.5 \)

2x M3 \( \varnothing 2.6 \)

2x M3 \( \varnothing 2.5 \)

2x M3 \( \varnothing 2.5 \)

2x M3 \( \varnothing 2.6 \)

2x M2 \( \varnothing 2.0 \)

8-PIN GPIO CONNECTOR

STATUS LED

GIGABIT ETHERNET CONNECTOR
WITH JACKSCREWS

3.0 23.7
2.0 2.0
12.0 4.5
22.0 12.0
20.0 12.0
30.0
C-MOUNT LENS THREAD