

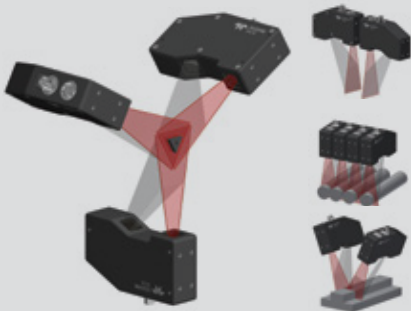
## Z-TRAK2 S-2K Series (Preliminary)

Factory Calibrated High-Performance 3D Profile Sensors



### FEATURES

- » Scan speed 45K profiles/sec, 2,000 points/profile
- » Factory calibrated real-time measurements in real-world units
- » Unified Measurement Space for 360° in-line inspection and measurements
- » Handles highly reflected surfaces
- » Built-in reflection compensation algorithms
- » Multi-Sensor synchronization
- » Simplified cabling
- » Compact IP67 housing for harsh operating environment
- » Free bundled software:
  - » Sherlock™ for rapid application deployment
  - » Sopera LT SDK for scan and control
  - » Sopera Pro run-times 1D, 2D and 3D image processing
  - » 3<sup>rd</sup> party software support for 3D image processing



## The new Z-Trak2 family of 3D Profile Sensors delivers 45,000 profiles/sec for in-line measurement and inspection applications.

The Z-Trak2 S-2K Series combines speed and performance with easy to use software to deliver highly accurate, real-time results for a wide variety of 3D measurement and inspection applications in electronics, PCB, wafer, flat-panel, factory automation, food processing, and secondary battery markets.

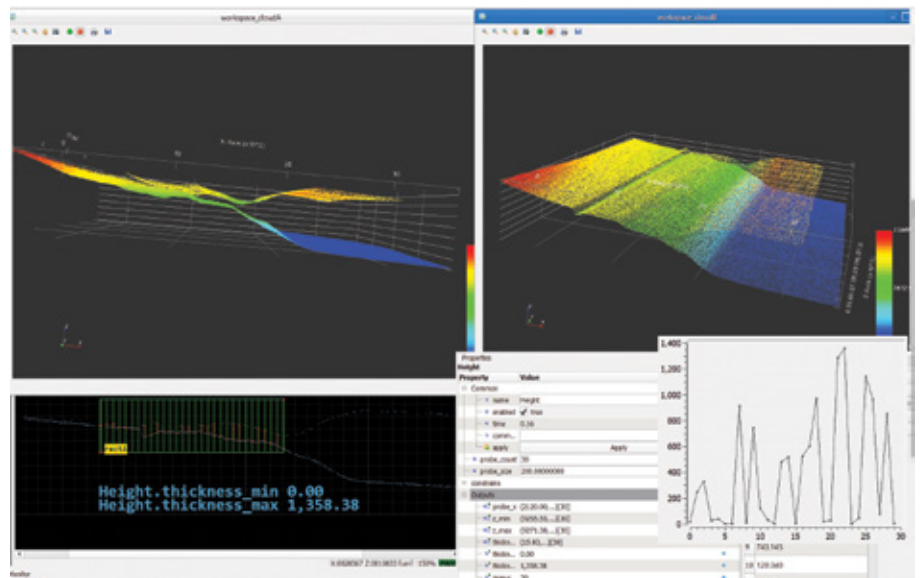
The Z-Trak2 S-2K Series delivers 2K points per profile with a larger FOV and scan speeds beyond 45K profiles/sec. Combined with its hardware-based reflection compensation algorithms and single-scan HDR capabilities, the Z-Trak2 S-2K Series supports a variety of FOVs with blue and red laser configurations.

### HIGH DYNAMIC RANGE (HDR) IMAGING

Powered by Teledyne's 3D image sensor technology, the Z-Trak2 family features built-in single-scan HDR capability. This allows Z-Trak2 to scan objects made of highly reflective surfaces like machine aluminum/glass and low reflectivity materials like rubber, plastic, etc. at the same time. The HDR capability helps reduce processing complexity and time, thereby improving system efficiency.

### MULTI-SENSOR CONFIGURATION AND UNIFIED MEASUREMENT SPACE (UMS)

Multiple Z-Trak2 sensors can be combined and synchronized to create a unified measurement space, to measure an object in 360° or to eliminate occlusions. Multi-sensor synchronization can be accomplished using off-the-shelf Ethernet switches with better than +/- 1 μs precision. In addition, the Z-Trak2 series offers flexible connection topologies and a choice of calibration targets.



**SPECIFICATIONS**

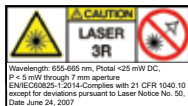
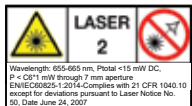
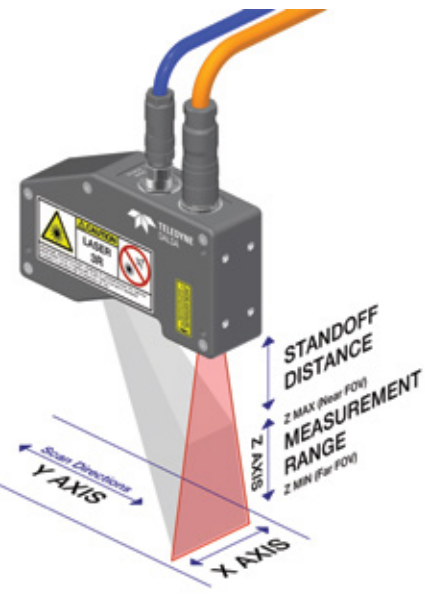
Function	Description
Scanning Rate	<ul style="list-style-type: none"> <li>• AOI: Up to 45,000 profiles/sec</li> </ul>
Connectors	<ul style="list-style-type: none"> <li>• 1 x M12 17-pin: Controls</li> <li>• 1 x M12 8-pin X-Coded: Data Ethernet port</li> <li>• 1 x M12 12-pin: Aux. I/O</li> </ul>
Image Enhancements	<ul style="list-style-type: none"> <li>• Single scan HDR</li> <li>• Reflection elimination</li> <li>• Specular configuration</li> <li>• Filters: programmable median</li> <li>• Horizontal and vertical flip</li> <li>• Unified Measurement Space</li> </ul>
Multi-Sensor Sync	<ul style="list-style-type: none"> <li>• Single low-cost wiring using off-the-shelf network switches</li> <li>• Sensor grouping</li> <li>• Configuration wizard to ease timing setup</li> </ul>
Lasers	<ul style="list-style-type: none"> <li>• Red: 660nm 2M or 3R</li> <li>• Blue: 405 nm 2M or 3R</li> </ul>
Reflectance Management	<ul style="list-style-type: none"> <li>• Time integration</li> <li>• Laser power control: Automatic or manual</li> <li>• Gain control</li> </ul>
Output Format	<ul style="list-style-type: none"> <li>• Individual profile, range map and 3D point cloud</li> <li>• Depth (Z), Lateral (X), Reflectance (R) or Laser Peak Width (W)</li> <li>• GenICam 3.0 (SFNC 2.3) compatible 3D Data output formats compatible with</li> <li>• Calibrated Z; Rectified Z, Calibrated ZR/ ZR+W</li> <li>• Native values and world units (microns/mm/inch)</li> <li>• 16-bit mono (1D line-scan mode)</li> <li>• 10-bit mono (2D area-scan mode)</li> </ul>
Temperature	<p><b>Storage:</b></p> <ul style="list-style-type: none"> <li>• -40°C to +80°C (-4°F to +176°F) temperature</li> <li>• 20% to 80% non-condensing relative humidity</li> </ul> <p><b>Operating:</b></p> <ul style="list-style-type: none"> <li>• 10°C (50°F) to 50°C (122°F)</li> <li>• Relative Humidity: up to 90% (non-condensing)</li> </ul>
System Requirements	<ul style="list-style-type: none"> <li>• 5, 2.5 or 1 Gigabit Ethernet</li> <li>• 4 GB or higher system memory</li> </ul>

Function	Description
I/O	<ul style="list-style-type: none"> <li>• 3 opto-isolated input</li> <li>• Configurable as a trigger input or as a start/stop trigger</li> <li>• 3 opto-isolated output</li> <li>• Serial communication port or Analog output 4 – 20 mA</li> </ul>
Encoder Input	<ul style="list-style-type: none"> <li>• Quadrature (AB) shaft-encoder inputs</li> <li>• RS422/TTL</li> <li>• Up to 20 MHz frequency</li> <li>• Backlash compensation</li> </ul>
Scan Control	<p><b>Profile Trigger</b></p> <ul style="list-style-type: none"> <li>• Encoder input, Internal timer/counter</li> </ul> <p><b>Fixed Scan</b></p> <ul style="list-style-type: none"> <li>• External input; Software; Timer/counter</li> </ul> <p><b>Variable Scan</b></p> <ul style="list-style-type: none"> <li>• Part in place; Start/Stop pulse</li> </ul>
Unified Measurement Space	<ul style="list-style-type: none"> <li>• Intuitive GUI for rapid setup</li> <li>• Up to 16 sensors</li> <li>• Supports multiple sensors in side-by-side, circular and in-line configurations</li> <li>• Combine red and blue laser models</li> <li>• Supports models with different measurement ranges</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>• PoE via 8-pin X-code circular connector (optional)</li> <li>• Separate power via 12M 17-pin connector</li> <li>• +12V to 36VDC +/-10% with surge protection</li> </ul>
Enclosure	<ul style="list-style-type: none"> <li>• Machined aluminum</li> <li>• IP67</li> <li>• 4 x mounting holes</li> </ul>
Software	<ul style="list-style-type: none"> <li>• Microsoft® Windows® 10 (32/64-bit) compatible</li> <li>• Linux 32/64-bit:             <ul style="list-style-type: none"> <li>• Ubuntu/Debian, RHEL/CentOS/Fedora, SLES/openSUSE</li> <li>• Kernel: 2.6.32 or higher</li> </ul> </li> <li>• Fully supported by Teledyne DALSA's software packages (bundled free):             <ul style="list-style-type: none"> <li>• Sherlock 8.0</li> <li>• Sapera LT 8.60 (or higher), Sapera Processing 8.0 (or higher) RTL</li> </ul> </li> <li>• Linux: Teledyne DALSA GevAPI Framework (SDK) ver. 2.40 or higher</li> <li>• 3rd party software:             <ul style="list-style-type: none"> <li>• MVTec® Halcon®</li> <li>• NI® Max/Labview®</li> <li>• Cognex® VisionPro®</li> <li>• Stemmer CVB</li> </ul> </li> <li>• Application development using C++ and Microsoft .Net (C++, C# or Visual Basic)</li> </ul>
Markings	<ul style="list-style-type: none"> <li>• FCC Class B, CE, ICE (pending)</li> <li>• ROHS, China RoHS (pending)</li> </ul>


**SPECIFICATIONS**

	Z-TRAK2 S-2K-0004	Z-TRAK2 S-2K-0015	Z-TRAK2 S-2K-0030
DOF	4 mm	15 mm	30 mm
Standoff (mm)	15	55	65
FOV (mm)	9 - 10	23 - 27	46 - 57
X-Res (µm)	4.6 - 5.1	12-14	23 - 29
Z-Res (µm)	1	2	3
Repeatability (±µm)	0.25	0.35	0.4 - 0.5
Linearity (±) % of F.S.	<0.025%	<0.025%	<0.02%
Laser (nm)	Blue405-2M	Blue405-2M	Blue405-2M
Options	3R, Red660	3R, Red660	3R, Red660
Interface	5/2.5/1 GigE	5/2.5/1 GigE	5/2.5/1 GigE
Case Size	T10	T20	T20

	Z-TRAK2 S-2K-0100	Z-TRAK2 S-2K-0250	Z-TRAK2 S-2K-0600
DOF	100 mm	250 mm	600 mm
Standoff (mm)	90	180	380
FOV (mm)	95 - 157	166 - 325	428 - 978
X-Res (µm)	49 - 81	85 - 167	219 - 503
Z-Res (µm)	12	40	120
Repeatability (±µm)	7.5 - 1.25	2.5 - 6.0	7.5 - 15
Linearity (±) % of F.S.	<0.02%	<0.02%	<0.02%
Laser (nm)	Red660-2M	Red660-3R	Red660-3R
Options	3R, Blue405	2M, Blue405	2M, Blue405
Interface	5/2.5/1 GigE	5/2.5/1 GigE	5/2.5/1 GigE
Case Size	T30	T30	T40



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