

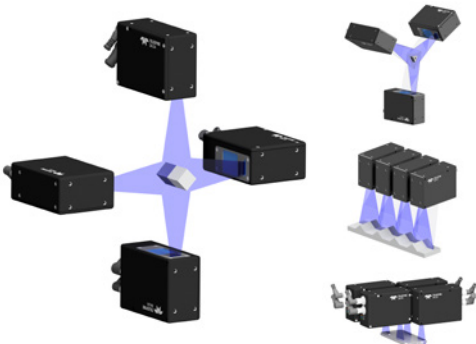
Z-TRAK2 V-2K Series

Factory Calibrated High-Performance 3D Profile Sensors



FEATURES

- » Scan speed 10K 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 environments
- » 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
 - » 3rd party software support for 3D image processing



The new Z-Trak2 family of 3D Profile Sensors delivers 10,000 profiles/sec for in-line measurement and inspection applications.

The Z-Trak2 V-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.

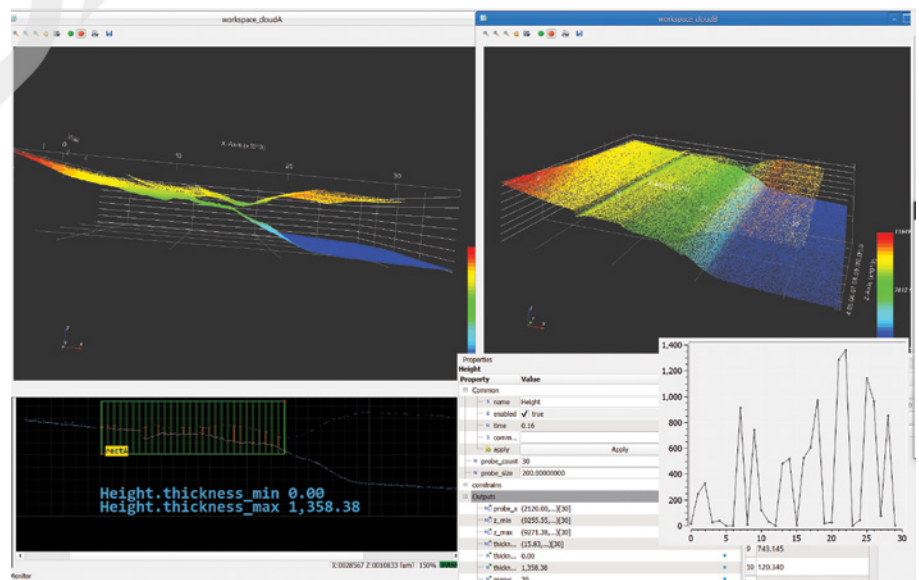
The Z-Trak2 V-2K Series delivers 2K points per profile with a larger FOV and scan speeds beyond 10K profiles/sec. Combined with its hardware-based reflection compensation algorithms and single-scan HDR capabilities, the Z-Trak2 V-2K Series supports a variety of FOVs with blue and red laser configurations.

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)

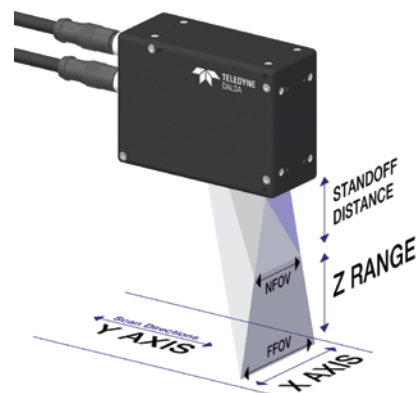
Multiple Z-Trak2 sensors can be combined and synchronized to create a unified measurement space, to measure an object in 360° or to eliminate occlusions. Multi-sensor synchronization can be accomplished using off-the-shelf Ethernet switches with better than +/- 1 μs precision. In addition, the Z-Trak2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

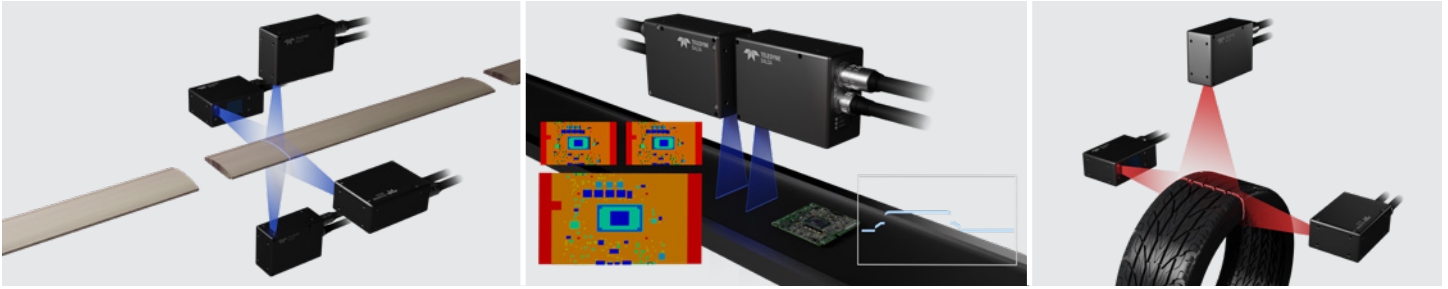


SPECIFICATIONS¹

Function	Description
Scanning Rate	<ul style="list-style-type: none"> • AOI: Up to 10K profiles/sec
Connectors	<ul style="list-style-type: none"> • 1 x M12 17-pin: Controls • 1 x M12 8-pin X-Coded: Data Ethernet port
Image Enhancements	<ul style="list-style-type: none"> • Single scan HDR • Reflection elimination • Specular configuration • Filters: programmable median • Horizontal and vertical flip • Unified Measurement Space
Multi-Sensor Sync	<ul style="list-style-type: none"> • Single low-cost wiring using off-the-shelf network switches • Sensor grouping • Configuration wizard to ease timing setup
Lasers	<ul style="list-style-type: none"> • Red: 660 nm 2M or 3R • Blue: 405 nm 2M or 3R
Reflectance Management	<ul style="list-style-type: none"> • Time integration • Laser power control: Automatic or manual • Gain control
Output Format	<ul style="list-style-type: none"> • Individual profile, range map and 3D point cloud • Depth (Z), Lateral (X), Reflectance (R) or Laser Peak Width (W) • GenICam 3.0 (SFNC 2.3) compatible 3D Data output formats compatible with • Calibrated Z; Rectified Z, Calibrated ZR/ZR+W • Native values and world units (microns/mm/inch) • 16-bit mono (1D line-scan mode) • 10-bit mono (2D area-scan mode)
Temperature	<p>Storage:</p> <ul style="list-style-type: none"> • -40°C to +80°C (-4°F to +176°F) temperature • 20% to 80% non-condensing relative humidity <p>Operating:</p> <ul style="list-style-type: none"> • 10°C (50°F) to 50°C (122°F) • Relative Humidity: up to 90% (non-condensing)
System Requirements	<ul style="list-style-type: none"> • 1 Gigabit Ethernet • 4 GB or higher system memory
I/O	<ul style="list-style-type: none"> • 2 opto-isolated input • Configurable as a trigger input or as a start/stop trigger • 2 opto-isolated output • Serial communication port² or Analog output² 4 – 20 mA

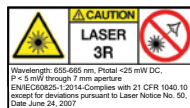
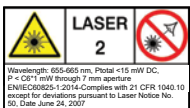
Function	Description
Encoder Input	<ul style="list-style-type: none"> • Quadrature (AB) shaft-encoder inputs • RS422/TTL • Up to 5 MHz (20M tick rate) • Backlash compensation
Scan Control	<p>Profile Trigger</p> <ul style="list-style-type: none"> • Encoder input, Internal timer/counter <p>Fixed Scan</p> <ul style="list-style-type: none"> • External input; Software; Timer/counter <p>Variable Scan</p> <ul style="list-style-type: none"> • Part in place; Start/Stop pulse
Unified Measurement Space	<ul style="list-style-type: none"> • Intuitive GUI for rapid setup • Up to 16 sensors • Supports multiple sensors in side-by-side, circular and in-line configurations • Combine red and blue laser models • Supports models with different measurement ranges
Power Supply	<ul style="list-style-type: none"> • PoE via 8-pin X-code circular connector (optional) • Separate power via 12M 17-pin connector • +12V to 36VDC +/-10% with surge protection
Enclosure	<ul style="list-style-type: none"> • Machined aluminum • IP67 • 4 x mounting holes
Software	<ul style="list-style-type: none"> • Microsoft® Windows® 10 (32/64-bit) compatible • Linux 32/64-bit: <ul style="list-style-type: none"> • Ubuntu/Debian, RHEL/CentOS/Fedora, SLES/openSUSE • Kernel: 2.6.32 or higher • Fully supported by Teledyne DALSA's software packages (bundled free): • Free Software <ul style="list-style-type: none"> • Sherlock 8.0 • Sapera LT 8.60 (or higher), Sapera Processing 8.0 (or higher) RTL • Linux: Teledyne DALSA GevAPI Framework (SDK) ver. 2.40 or higher • 3rd party software: <ul style="list-style-type: none"> • MVTec® Halcon® • NI® Max/Labview® • Cognex® VisionPro® • Stemmer CVB • Application development using C++ and Microsoft .Net (C++, C# or Visual Basic)
Markings	<ul style="list-style-type: none"> • FCC Class B, CE, ICE (pending) • ROHS, China RoHS (pending)




SPECIFICATIONS¹ (Continued)

Models	V2K-0004-B3 ²	V2K-0015-B3	V2K-0030-B3	V2K-0100-B3
Z-Range (mm)	4	15	30	100
Standoff Distance (mm)	25	32.7	43.7	64.5
Data Interface	1 GigE			
Z-Resolution (µm)	1 - 1	1 - 2	3 - 5	8 - 14
NFOV-FFOV (mm)	13 - 14	27 - 32	53 - 72	97 - 185
X-resolution (µm)	7 - 7	14 - 17	27 - 37	50 - 95
Repeatability (+/-µm) ³	0.15 - 0.15	0.25 - 0.25	0.3 - 0.4	0.5 - 0.75
Linearity (% of F.S.)	<0.05%	<0.04%	<0.03%	<0.02%
Laser (nm) ⁴	405	405	405	405
Laser Class	2M / 3R	2M / 3R	2M / 3R	2M / 3R
Housing type	T10	T20	T20	T20

Models	V2K-0150-R3	V2K-0250-R3	V2K-0300-R3	V2K-0400-R3 ²	V2K-0650-R3 ²
Z-Range (mm)	150	250	300	400	650
Standoff Distance (mm)	140	180	200	450	550
Data Interface	1 GigE				
Z-Resolution (µm)	14 - 25	22 - 45	34 - 74	43 - 71	81 - 156
NFOV-FFOV (mm)	129 - 228	157 - 325	230 - 508	400 - 659	624 - 1211
X-resolution (µm)	66 - 117	81 - 167	118-261	206 - 339	321 - 623
Repeatability (+/-µm) ³	1 - 1.5	1.5 - 2	2 - 4	3 - 10	4 - 12.5
Linearity (% of F.S.)	<0.02%	<0.02%	<0.02%	<0.02%	<0.02%
Laser (nm) ⁴	660	660	660	660	660
Laser Class	2M / 3R	2M / 3R	2M / 3R	2M / 3R	2M / 3R
Housing type	T30	T30	T30	T40	T40



1. Subject to change without prior notice
2. Contact Teledyne DALSA Sales
3. ±2σ
4. Contact Teledyne DALSA for other laser options

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