

Product Presentation

- Application Name:

Advanced Tools and Equipment

- Product Name:

FARO Focus Premium 350/ FARO Focus Premium 150 / FARO Focus Premium 70



- Core Function:

Record of the existing features with HDR Panoramic image; On-site Pre-registration allows the real-time process of combining multiple scans using common overlap; Detail As-built measurement; Inspection with Design Model (CAD/ BIM model)

- Technology Used:

Terrestrial Laser Scanning Technology

- Construction Process involved:

Initial design
Retrofits and Renovation
As-built

- Key Improvement in Construction Process:

- Productivity
- Quality
- Safety

- Job Reference:

- The Old Dairy Farm Senior Staff Quarters, Pok Fu Lam, Project, 2014
- Midfield Concourse, Hong Kong International Airport, Project, 2014
- Lift Shaft Wall Plumbness Analysis, Quarry Bay, Trial, 2021

Specifications:



	FARO Focus Premium 350	FARO Focus Premium 150	FARO Focus Premium 70
General:			
- Weight:	4.4 kg	4.4 kg	4.4 kg
- Size:	230 x 183 x 103 mm	230 x 183 x 103 mm	230 x 183 x 103 mm
Laser (optical transmitter):			
- Laser class:	Laser class 1	Laser class 1	Laser class 1
- Wavelength:	1550 nm	1550 nm	1550 nm
- Beam divergence:	Typical 0.3 mrad (0.024°)(1/e)	Typical 0.3 mrad (0.024°)(1/e)	Typical 0.3 mrad (0.024°)(1/e)
- Beam diameter at exit:	Typical 2.12 mm (1/e)	Typical 2.12 mm (1/e)	Typical 2.12 mm (1/e)
Data handling and control:			
- Data storage:	SD, SDHC™, SDXC™, SATA 3.0 SSD	SD, SDHC™, SDXC™, SATA 3.0 SSD	SD, SDHC™, SDXC™, SATA 3.0 SSD
- Scanner control:	Through touchscreen display and WLAN connection. Control by FARO Stream App (iOS & Android) or mobile devices with HTML5	Through touchscreen display and WLAN connection. Control by FARO Stream App (iOS & Android) or mobile devices with HTML5	Through touchscreen display and WLAN connection. Control by FARO Stream App (iOS & Android) or mobile devices with HTML5
Ranging unit:			
- Ranging Error @25m	±1 mm	±1 mm	±1 mm
- 3D Accuracy	2 mm @ 10 m, 3.5 mm @ 25 m	2 mm @ 10 m, 3.5 mm @ 25 m	2 mm @ 10 m, 3.5 mm @ 25 m
- Angular Accuracy:	19 arcsec	19 arcsec	Not specify
- Unambiguity interval:	614 m for up to 0.5 MPts/sec 307 m at 1 MPts/sec 153 m at 2 MPts/sec	614 m for up to 0.5 MPts/sec 307 m at 1 MPts/sec 153 m at 2 MPts/sec	614 m for up to 0.5 MPts/sec 307 m at 1 MPts/sec 153 m at 2 MPts/sec
- Range:	White, 90% Reflectivity: 0.5 – 350 m Dark-grey, 10% Reflectivity: 0.5 – 150 m Black, 2% Reflectivity: 0.5 – 50 m	White, 90% Reflectivity: 0.5 – 150 m Dark-grey, 10% Reflectivity: 0.5 – 150 m Black, 2% Reflectivity: 0.5 – 50 m	White, 90% Reflectivity: 0.5 – 70 m Dark-grey, 10% Reflectivity: 0.5 – 70 m Black, 2% Reflectivity: 0.5 – 50 m
- Measurement speed (pts/sec):	Up to 2 MPts/sec	Up to 2 MPts/sec	Up to 2 MPts/sec
Additional Features			
Rescanning of Distant Targets	Defined areas recaptured in higher resolution at a greater distance	Defined areas recaptured in higher resolution at a greater distance	Defined areas recaptured in higher resolution at a greater distance

	FARO Focus Premium 350	FARO Focus Premium 150	FARO Focus Premium 70
Color unit:			
- Resolution:	Up to 266 megapixel color	Up to 266 megapixel color	Up to 266 megapixel color
- Raw Color Resolution	867 MPx	867 MPx	867 MPx
- HDR:	2x, 3x, 5x	2x, 3x, 5x	2x, 3x, 5x
- Parallax:	Minimized due to co-axial design	Minimized due to co-axial design	Minimized due to co-axial design
Multi-Sensor:			
- Dual axis compensator:	Levels each scan: Accuracy 0.019°; Range ±2°	Levels each scan: Accuracy 0.019°; Range ±2°	Levels each scan: Accuracy 0.019°; Range ±2°
- Height sensor:	Via an electronic barometer the height relative to a fixed point can be detected and added to a scan.	Via an electronic barometer the height relative to a fixed point can be detected and added to a scan.	Via an electronic barometer the height relative to a fixed point can be detected and added to a scan.
- Compass:	The electronic compass gives the scan an orientation.	The electronic compass gives the scan an orientation.	The electronic compass gives the scan an orientation.
- GPS:	Integrated GNSS receiver	Integrated GNSS receiver	Integrated GNSS receiver
Interface Connection:	- IEEE 802.11 ac/a/b/g/n 2x2 MIMO, as access point or client in existing networks (2.4 and 5 GHz) - USB 3 port	- IEEE 802.11 ac/a/b/g/n 2x2 MIMO, as access point or client in existing networks (2.4 and 5 GHz) - USB 3 port	- IEEE 802.11 ac/a/b/g/n 2x2 MIMO, as access point or client in existing networks (2.4 and 5 GHz) - USB 3 port
Deflection unit:			
- Field of view:	(vertical/horizontal): 300° / 360°	(vertical/horizontal): 300° / 360°	(vertical/horizontal): 300° / 360°
- Step size:	(vertical/horizontal):0.009° (40,960 3D-Pixel on 360°) / 0.009° (40,960 3D-Pixel on 360°)	(vertical/horizontal):0.009° (40,960 3D-Pixel on 360°) / 0.009° (40,960 3D-Pixel on 360°)	(vertical/horizontal):0.009° (40,960 3D-Pixel on 360°) / 0.009° (40,960 3D-Pixel on 360°)
- Max. vertical scan speed:	97 Hz	97 Hz	97 Hz
Ambient Conditions:			
- Ambient Temperature:	5 °C - 40 °C	5 °C - 40 °C	5 °C - 40 °C
- Extended operating temperature:	-20 - 55°C	-20 - 55°C	-20 - 55°C



Innovative Features

- Core Technology:
 - Terrestrial Laser Scanning
- Comparison with current practice and popular models:
 - Technology: Mobile Mapping System
 - Specification: Handheld Laser Scanner
 - Benefits: Accurate result (3D position accuracy: 2mm at 10m/ 3.5mm at 25m); higher resolution (Up to 1.5mm at 10m range); lower noise range
- Comparison with similar Pre-approved list products and competitors:
 - Technology: Terrestrial Laser Scanning
 - Benefits: Smaller & lighter model; Up to 350m Scanning Range; Standard SD Card & SSD Data Storage
- First Launch Date: 12/04/2022

Adoption Example

- Project for Illustration: The Old Dairy Farm Senior Staff Quarters
- Work Process: Collect dataset in multiples scan stations to capture a complete model
- Use/ Function in project: Record of the existing features and based on the Pointcloud data convert to BIM model



Site Photo



2D Plan extracted from BIM Model



PointCloud model

Adoption Example

- Project for Illustration: Midfield Concourse Linkbridge & Skylight inspection
- Work Process: Collect data of each Linkbridge & Skylight, then compare to the design model
- Use/ Function in project: Record of the existing features and inspection



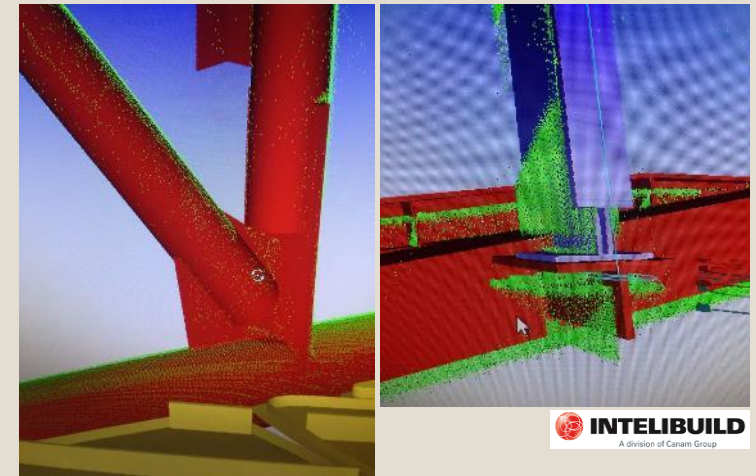
Site Photo



Complete Point Cloud Model



PointCloud
model



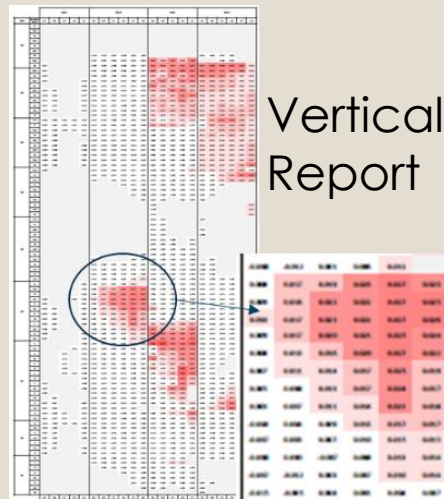
Inspection Result

Adoption Example

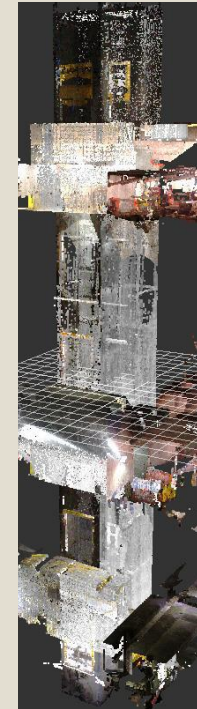
- Project for Illustration: Lift Shaft Wall Plumbness Analysis
- Work Process: Collect data on target floors, then compare with design model
- Use/ Function in project: Record of the existing features and provide verticality report of Lift Shaft based on the Pointcloud data



Site Photo



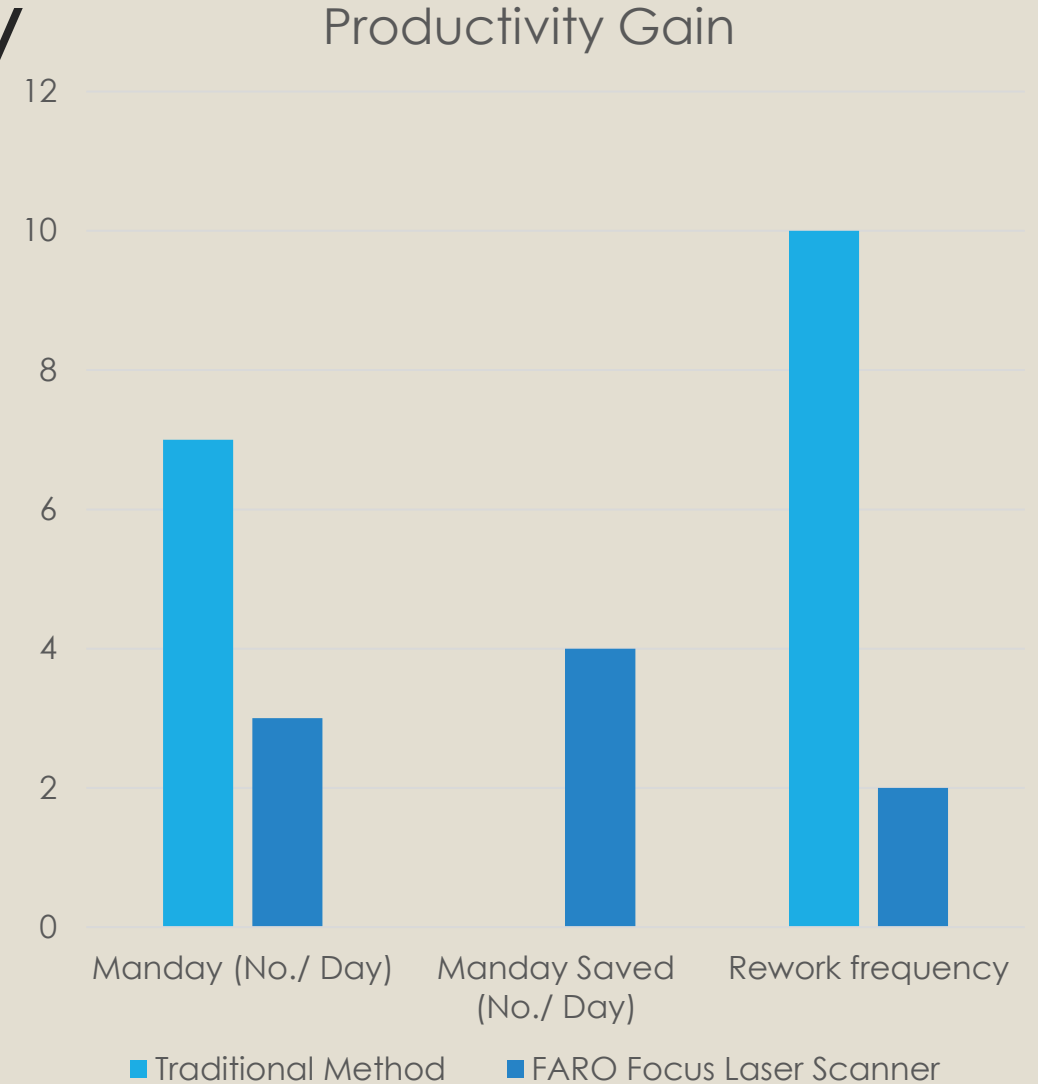
Verticality Report



Complete Point Cloud Model

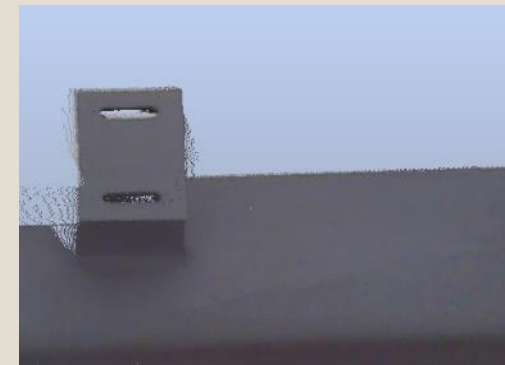
Benefits – Productivity

- Improve productivity by:
 - Improved efficiency (eg. ~600 Clips on Linkbridge)
- Traditional Output:
 - 7 days to complete one Linkbridge
- Output by [FARO Focus Laser Scanner]:
 - 3 days to complete one Linkbridge
- Rework (Traditional Method):
 - High
- Rework (FARO Focus Laser Scanner):
 - Low
- Total Saving in Mandays (without rework):
 - 4 days
- Total Saving in Project Period:
 - 76 days



Benefits – Quality

- Improve quality by:
- Error reduction
 - Total Station: Survey the center position of each clips
 - Laser Scanner: Scan the profile of Clip that can check the position and orientation of each clips



Benefits – Safety

- Improve Safety by:
- Dangerous work
 - Traditional method: Worker needs to walk on the beams of Linkbridge to survey clips position
 - Laser Scanner: Place the scanner on the roof of Linkbridge to scan clips profile

