

# Artec Ray II



Lightning-fast long-range 3D scanner  
for professional captures with high accuracy



Digital twins



Reverse  
engineering



Inspection



Civil  
infrastructure



Forensics



Heritage  
preservation

With the high-accuracy, long-range, and wireless Ray II, you can precisely capture large to massive objects, scenes or areas faster than ever, and from up to 130 m away.

**Scan huge objects or areas:**

- ▶ Bridges
- ▶ Factory floors
- ▶ Ship propellers
- ▶ Wind turbines
- ▶ Airplanes
- ▶ Forensic scenes
- ▶ Archeology sites



**Speed**

Capture a full dome at highest resolution in 1.7 mins.



**Accuracy**

Expect data with an uncompromised 3D point accuracy of 1.9 mm from 10 meters.



**Resolution**

No details missed at a resolution of 3 mm at 10 meters.



**Capture vehicles in minutes**



**Capture aircraft and full-sized buildings in just a few hours**



# Metrology-grade precision

Artec Ray II scans with high 3D point accuracy and best-in-class angular accuracy.

|                   |                            |        |
|-------------------|----------------------------|--------|
| 3D point accuracy | @10m                       | 1.9 mm |
|                   | @20m                       | 2.9 mm |
|                   | @40m                       | 5.3 mm |
| Angular accuracy  | 0.87 mm @10m (or 18")      |        |
| Range accuracy    | 1.0 mm + 10 ppm            |        |
| Range noise       | 0.4 mm @ 10m - 0.5mm @ 20m |        |



## Check & Adjust

If your device isn't perfectly calibrated, your scanner will either automatically calibrate itself by scanning the surroundings, or let you know if further action is required.



## Accuracy certificates

Scan with full confidence knowing that your scanner has been verified to fall within specifications.



## Declaration of conformity

Your scanner has been rigorously tested and is guaranteed to conform to the required list of 11 European safety standards.

# Brilliant texture

Detect even the smallest surface irregularities with Ray II's 36 MP 3-camera system, with brilliant HDR texture.



## Lifelike replicas

In heritage preservation, Ray II enables the recreation of every detail in true-to-life color.



## For critical evidence

In forensic applications, enhanced color accuracy facilitates identifying crucial evidence such as bloodstains.



# Fast & easy

Artec Ray II captures data at a remarkable 2 million pts/s.

| resolution      | 3 mm    | 6 mm     | 12 mm   |
|-----------------|---------|----------|---------|
| without texture | 1.7 min | 0.85 min | 0.4 min |
| with texture    | 2.7 min | 1.9 min  | 1.4 min |

## Onboard control

Fuss-free scanning is ensured with the intuitive Ray II — with basic features accessible on board, it's as simple as pressing a button, with no computer or other device needed.



## Portable and quick to set up

At just 5 kg including the tripod, Ray II needs no targets and is ready for full setup in mere seconds.



## Remote scanning

When scanning something large, in an inaccessible location, or at a height you can't safely be on, control your scanner easily and from a distance with the Artec Remote App.



## Real-time registration on board

Track the scanner's movement in real time with feature tracking and advanced algorithms for intuitive 3D-space navigation including Ray II's Visual Inertial System (VIS), Altimeter, compass, and Global Navigation Satellite System.



## Comprehensive long-range capture

With Ray II, the expansive 360°-300° field of view gives you flexibility to capture objects from 0.5 to 130 meters away, and with high accuracy and superior quality.



## Automatic removal of moving objects

Ray II's smart auto-removal of moving objects that may enter or exit the scene keeps all captured data focused on exactly what you need.



## Continuous supply battery system

Powered by two hot-swappable batteries and another two on standby, Ray II comes ready to scan for a full 8 hours. Need more time? Charge while you scan, and swap without any downtime.



## Water and dust protection: IP54 (IEC 60529)

Your scanner is protected and your work kept safe with the Ray II's water and dust protection, designed to keep particles or humidity from getting into your device.

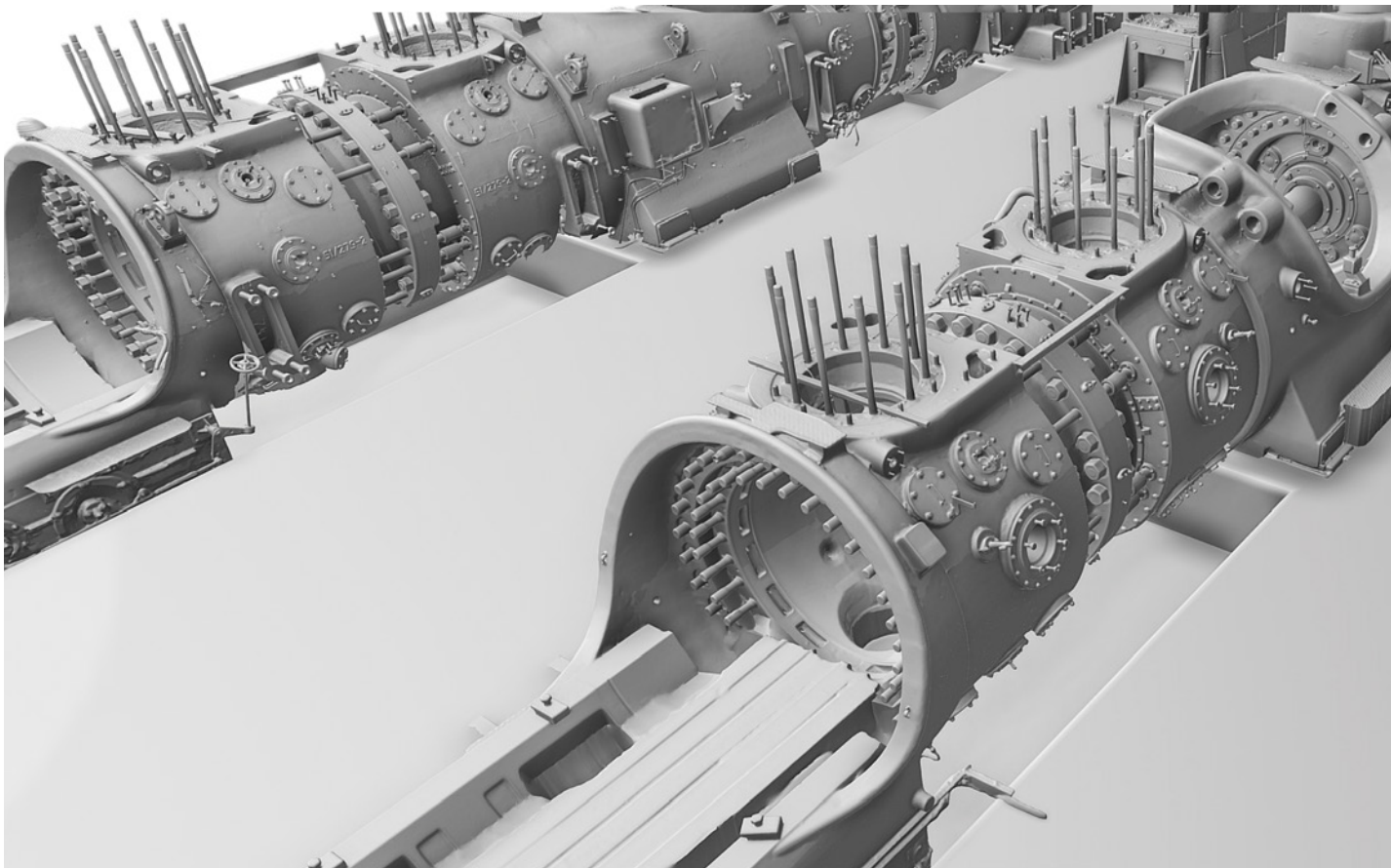


# Perfect match for Leo

Exceptionally well-suited for use with the wireless powerhouse Artec Leo, the duo can quickly capture large or even massive objects with high accuracy and full coverage.

## Power couple

An unbeatable combination of two smart, wireless scanners: Artec Ray II's range and speed for full scenes and large objects, the handheld Artec Leo for specific areas and angles.



# Export

## Scan-to-CAD export

Upload to Artec Studio to precisely position and fit your scans with CAD primitives, then export to SOLIDWORKS or other CAD software – or for inspection, directly to Control X for in-depth reports.



# Specifications

| Accuracy & resolution                |  |
|--------------------------------------|--|
| 3D point accuracy                    | 1.9 mm @ 10 m  |
|                                      | 2.9 mm @ 20 m  |
|                                      | 5.3 mm @ 40 m  |
| Angular accuracy                     | 18" (0.87 mm @ 10 m)   |
| Range accuracy                       | 1.0 mm + 10 ppm  |
| Resolution                           | 3 user selectable settings:<br>3 / 6 / 12 mm @ 10 m  |
| Range noise* **                      | 0.4 mm @ 10 m  |
|                                      | 0.5 mm @ 20 m  |
| Field of view & range                |  |
| Field of view                        | 360° (horizontal) / 300° (vertical)  |
| Range                                | 0.5 — 130 m  |
| Speed                                |  |
| 3D capture rate                      | Up to 2,000,000 pts/sec  |
| Scanning time without texture @ 10 m | 1.7 min @ 3mm resolution   |
|                                      | 0.85 min @ 6mm resolution  |
|                                      | 0.4 min @ 12mm resolution  |
| Scanning time with texture @ 10 m    | 2.7 min @ 3mm resolution   |
|                                      | 1.9 min @ 6mm resolution   |
|                                      | 1.4 min @ 12 mm resolution   |
| Color capture                        |  |
| Camera                               | 36 MP 3-camera system captures 432 MPx raw data for calibrated 360° × 300° spherical image   |
| HDR                                  | Automatic, 5 brackets  |
| Operation                            |  |
| On scanner                           | Touchscreen control with finger touch, full color WVGA graphic display<br>480 × 800 pixels   |
| Mobile devices                       | Artec Remote app for iOS and Android tablets and smartphones including:  |
|                                      | • Remote control of scan functions   |
|                                      | • Settings selection   |
|                                      | • Launch scanning  |
| Algorithms                           |  |
| Real time registration               | Automatic point cloud alignment based on real time tracking of scanner movement between setups based on Visual Inertial System (VIS) by video enhanced inertial measurement unit |
| Automatic removal of moving objects  | Delete captured data of moving objects using Double Scan   |
| Check & Adjust                       | Field procedure for targetless checking of angular parameters  |

| Navigation sensors                  |   |
|-------------------------------------|---|
| Visual Inertial Systems             | Video enhanced inertial measuring system to track movement of the scanner position relative to the previous setup in real time  |
| Tilt                                | IMU based, Accuracy: 18" (for upright and upside down setups with +/- 10° inclination)  |
| Geolocation sensors                 | Altimeter, Compass, Global Navigation Satellite System  |
| Interfaces                          |   |
| Wireless                            | Integrated wireless LAN (802.11 b/g/n)  |
| Data storage                        | Leica MS256, 256 GB exchangeable USB 3.0 flash drive  |
| Hardware specifications             |   |
| Scanning technology                 | Time of flight enhanced by Waveform Digitising (WFD) technology   |
| Laser class                         | 1 (in accordance with IEC 60825-1:2014), 1550 nm (invisible)  |
| Dimensions                          | 120 mm × 240 mm × 230 mm / 4.7" × 9.4" × 9.1"   |
| Weight                              | 5.35 kg / 11.7 lbs, nominal (without batteries)   |
| Mounting mechanism                  | Quick mounting on 5/8" stub on lightweight carbon tripod or tripod adapter  |
| Power                               |   |
| Internal battery                    | 2 × Leica GEB364 internal, rechargeable Li-Ion batteries  |
|                                     | Duration: Typically up to 4 hours   |
|                                     | Weight: 340 gr. per battery   |
| External                            | Leica GEV282 AC adapter   |
| Environmental                       |   |
| Operating temperature               | -5° to +40°C  |
| Storage temperature                 | -40° to +70°C   |
| Operating low temperatures***       | -10° to +40°C   |
| Dust/Humidity****                   | Solid particle/liquid ingress protection IP54 (IEC 60529)   |
| Certification                       |   |
| Accredited calibration certificates | Calibration certificates provided by Leica Geosystems' Accredited Calibration Laboratories for distances and angles. The accreditation (SCS 079) is in accordance with the standard ISO/IEC 17025 and is granted by the Swiss Accreditation Service (SAS), member of ILAC (International Laboratory Accreditation Cooperation). |
|                                     | All accuracy specifications are on a level of confidence of 68% according to the Guide of the Expression of Uncertainty in Measurement (JCGM100:2008) unless otherwise noted.   |
|                                     |   |
| *                                   | At 89% albedo   |
| **                                  | For single-shot measurements  |
| ***                                 | Extended low temperature operation is possible to -10°C if internal temperature is at or above -5°C when powered on. For extended low temperature measurement, it is recommended that QA procedures are followed.   |
| ****                                | For upright and upside down setups with a +/- 15° inclination   |

