Scanner Basic Configuration
Part-No. 21R09-00-101-00

3D Laser Scanner _RIEGL_ VZ-400   Part-No. 21R09-00-001-00

- laser transmitter & receiver front end
- motorized mirror scanning mechanism
- signal processing electronics with echo digitization and online waveform analysis
- Human-Machine Interface (HMI) with high-resolution 3,5" TFT color display (320 x 240 pixels) and keypad
- 8 GByte flash memory for data storage, internal
- GPS receiver (L1), integrated (with antenna)
- inclination sensors (2 axes), integrated
- laser plummet, integrated
- internal power supply electronics, input voltage 11 – 32 V DC

Detailed specifications and laser classification according to the latest datasheet _RIEGL_ VZ-400.

Electrical Interfaces, integrated

- LAN interface 10/100/1000 MBit/s within rotating head
- LAN interface 10/100 MBit/s within base
- integrated WLAN interface with two different length rod antennas
- USB 2.0 for external storage devices (USB flash drives, external HDD)
- USB 2.0 for connecting the optional digital camera
- connector for GPS antenna
- two connectors for external power supply
- connector for serial interface and external GPS synchronization pulse (1PPS)

Mechanical Interfaces, integrated

- W5/8" standard tripod mounting thread
- high precision mounting pads for camera mount on top
- 3x M6 mounting threads, depth 8mm at bottom

Cables

- Part-No. 02Z03-02-003-00 TCP/IP cable M12-M12, 3 m
- Part-No. 02Z03-01-001-00 TCP/IP cable M12-RJ45, 0.3 m
- Part-No. 02Z03-01-002-00 TCP/IP cable M12-RJ45 cross over, 0.3 m
- Part-No. 02Z03-02-034-00 Serial data and PPS cable to GPS receiver, 3 m
- Part-No. 02Z03-01-043-00 Power supply cable, 2 pole / 7 pole, 3 m
- Part-No. 16R09-06-002-00 Adapter cable, 1 m, from power supply cable to banana plugs
- Part-No. 16R09-06-004-00 Adapter cable, 1 m, from power supply cable to cigarette lighter plug
- Part-No. 02Z03-01-044-00 Debug-cable, 2 m, only for service purposes

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Technical content subject to change.

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RiSCAN PRO Viewer, Acquisition & Processing Software Part-No. 02Z06-02-001-00

For detailed description of main functions see RiSCAN PRO datasheet.

- The companion software package to the *RIEGL* Terrestrial Laser Scanner series
- Using a well-documented tree structure for comfortable access and clarity
- Project oriented, XML file format
- For operating systems WINDOWS XP (recommended), WINDOWS 2000 SP2 or above

includes:
- RiSCAN PRO Viewer License
  for visualizing of already acquired RiSCAN PRO projects and simple data evaluation

- RiSCAN PRO Acquisition License
  for *RIEGL* scanner configuration and data acquisition, global scan data registration, viewing and export of merged, filtered point clouds

- RiSCAN PRO Processing Single User License (Dongle)
  for advanced data processing and evaluation of already acquired RiSCAN PRO projects

RiSCAN PRO Standard Software Maintenance for 12 months

Part-No. 02Z06-05-001-00

- Free software updates
- E-mail and telephone support

Firmware Maintenance for 12 months   Part-No. 02Z06-05-032-00

- Free software updates

User Manual (in English language)

"Technical Documentation & User Instructions"
including, among other things, instructions for: Safety, Installation, Operation, etc.

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Firmware Option

SCAN SYNC Scanner Rotation Synchronization for V-Line Laser Scanners

Part-No. 02Z07-04-004-00

for synchronizing scan lines to external timing signal

- Synchronization of the data acquisition of a single laser scanner or several laser scanners to an external event pulse, typically the PPS-signal of a GPS receiver, whereas this event pulse can be fed to other units of a data acquisition system for synchronized operation (e.g. a camera is triggered with start of a scan line).

- Increasing the data acquisition speed by operating several laser scanners, as in some data acquisition systems the acquisition speed of a single laser scanner may be not sufficient. Operating several laser scanners scanning the same angular range requires the scanners to be synchronized to achieve a well-defined scan pattern and to avoid interference between the scanners.

Software Options
Free software updates and e-mail/telephone support for 12 month included.

RiSCAN PRO Processing Network Server License

Part-No. 02Z06-02-027-00

Includes 10 licenses for RiSCAN PRO Processing, administrated by a network server program. Licenses can be allocated to single processing computers in the same network. Checking out of single licenses to a USB dongle is possible.
2 dongles added to scope of delivery.
Single User License mandatory.

License RiSCAN PRO Plugin Camera Module

Part-No. 02Z06-02-005-00

Enables automatic acquisition of calibrated and orientated images via USB or IEEE 1394 "firewire".

License RiSCAN PRO Plugin Multi Station Adjustment Module

Part-No. 02Z06-02-022-00

- Advanced registration based on overlapping point clouds
- Advanced registration and adjustment based on tie points, control points
- Advanced registration and adjustment based on additional plane information

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Services

Two-day Training   Part-No. 02Z06-03-001-00

Regarding the hardware as well as the operating software RiSCAN PRO. The training will be held either at our site in Horn, Austria, or at your site (travelling and accommodation expenses to be added).

Intensified Additional Training   Part-No. 02Z06-03-003-00

Covers advanced working with the scanner hardware as well as processing of the acquired data with RiSCAN PRO.
Price per 8 hours working day (travelling expenses to be added).

Digital Camera Calibration Service for up to three camera lenses

Part-No. 02Z01-01-016-00

Provides complete set of camera calibration parameters for use in RiSCAN PRO including internal calibration, lens distortion parameters and mounting calibration parameters. Parameters are delivered within a RiSCAN PRO project. Calibration statistics included (available for camera-lens combinations as recommended by *RIEGL* LMS).

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Power Supply Modules

AC Power Supply Unit   Part-No. 02Z05-03-008-00

for *RIEGL* VZ-400, 100 – 240 V AC, 50 – 60 Hz

- for direct operation of the scanner from main power supply and simultaneously charging of a mounted add-on rechargeable battery

or

- for direct charging of an unmounted add-on rechargeable battery

Add-on Rechargeable Battery *)   Part-No. 21R09-06-003-00

Optional add-on rechargeable battery pack (high power, high capacity NiMH cells), compact slim disc design, short-circuit-proof and protected connection pins, rechargeable during standard scan operation via external power supply, integrated micro-controller based charging electronics, easily pluggable to base of the laser scanner by central locking screw, DC voltage source (11-32 V DC) sufficient for recharging, 14.4 V, 4.5 Ah.

*) This rechargeable battery (NiMH) is considered to be a "dry cell" battery and is unregulated for transportation by the International Civil Aviation Organization (ICAO), International Air Transport Association (IATA), the International Maritime Organization (IMO) and the US Department of Transportation (DOT).

Rechargeable NiMH Battery for External Power Supply   Part-No. 02Z05-02-004-00

13.2 V, 18Ah, with fuse, weight 3.55 kg

Automatic Charger for External NiMH Battery   Part-No. 02Z05-03-005-00

100-240 V AC, short circuit proof, weight 0.4 kg

Adapter Cable, 1m, from 7 pole supply cable to 12 V PbGel battery

with "quick action" battery pole connectors
Part-No. 02Z03-01-009-00

with "crocodile" battery pole connectors
Part-No. 02Z03-01-010-00

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Carrying Cases

Scanner Carrying Case "SMALL"   Part-No. 02Z05-01-030-00

with 4 hinged handgrips and wheels, splash-proof, foam lined to fit shape of *RIEGL* VZ-400 and cables. Dimensions: 560 x 455 x 265 mm.

Scanner Carrying Case "LARGE"   Part-No. 02Z05-01-034-00

with 4 hinged handgrips and wheels, splash-proof, foam lined to fit shape of *RIEGL* VZ-400, scanner mount for manual tilt and cables. Dimensions: 628 x 497 x 303 mm.

Camera Carrying Case "SMALL"   Part-No. 02Z05-01-031-00

Splash-proof, foam-lined to fit shape of camera NIKON D200, NIKON D300 or NIKON D700, up to 2 lenses (one of the lenses mounted on camera), camera mount with mounted GPS antenna, and camera accessories. Dimensions: 406 x 330 x 174 mm

Camera Carrying Case "LARGE"   Part-No. 02Z05-01-033-00

Splash-proof, foam-lined to fit shape of camera NIKON D200, NIKON D300 or NIKON D700, up to 6 lenses (one of the lenses mounted on camera), camera mount with mounted GPS antenna, and camera accessories. Dimensions: 525 x 428 x 206 mm

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Further Accessories

High Precision Camera Mount

Detachable, for high precision mounting of the camera, with connector for GPS antenna, USB2 connection cable, and Compact Flash Card (SanDisk extreme IV, necessary for operation of the camera with the *RIEGL* VZ-400)

for NIKON D200 or NIKON D300   Part-No. 21R09-06-004-00

for NIKON D700   Part-No. 21R09-06-004-01

Lens Adapter & Protection Tube

for SIGMA-NIKON Lens AF D 10 mm   Part-No. 02RA02-04-077-00

for NIKON Lens AF D 14/2.8 NIKKOR   Part-No. 02RA02-04-083-00

for NIKON Lens AF D 20/2.8 NIKKOR   Part-No. 02RA02-04-044-02

for NIKON Lens AF 50/1.8 NIKKOR   Part-No. 02RA02-04-053-02

for NIKON Lens AF D 85/1.8 NIKKOR   Part-No. 02RA02-04-035-02

GPS Mounting Adapters   Part-No. 21R09-02-013-00 + Part-No. 21R02-14-022-00

Set of 2 adapters for mounting an external, differential GPS antenna, with 5/8" screw connector. 1 adapter for use with camera mounted, 1 adapter for use without camera mounted

Stable, professional tripod   Part-No. 02Z01-03-001-00

Tripod Star for smooth surfaces   Part-No. 02Z01-03-002-00

Tribrach   Part-No. 02Z01-03-003-01

Adjustable tribrach, **ready for laser plummet**, extra stable quality, with bubble level, for mounting the *RIEGL* VZ-400 on a tripod. Note: *RIEGL* VZ-400 mounted on a tribrach to be used only in vertical position! Due to reduced stability, usage of a tribrach may reduce measurement result quality.

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Adapter for Tribrach   Part-No. 04RA09-01-001-01

Shock-absorbing Mount   Part-No. 09RA09-00-003-00

for *RIEGL* VZ-400, made of stainless steel mounting plates and optimized shockabsorbing rubber elements

Scanner Mount for Manual Tilt   Part-No. 21R09-06-005-00

Damped tilting mechanism, adjustable in steps of 15° up to 90°

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