

Scanner Basic Configuration

Part-No. 21R09-00-110-00

3D Laser Scanner RIEGL VZ-1000 Part-No. 21R09-00-010-00

- 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
- 32 GByte flash memory for data storage, internal
- GPS receiver (L1), integrated (with antenna)
- inclination sensors (2 axes), integrated
- laser plummet, integrated
- digital compass, integrated
- internal power supply electronics, input voltage 11 – 32 V DC

Detailed specifications and laser classification according to the latest datasheet *RIEGL VZ-1000*.



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

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

User Manual (in English language)

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

Firmware Options

Please note:

For upgrading of already delivered instruments please provide the instrument's serial number to allow checking of feasibility and estimating of costs.

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.

Function for Automatic Reflector Search, Fine-Scanning and Registration, RIEGL VZ-xx Standalone

Part-No. [02Z07-04-005-00](#)

Applicable for standalone operation with the *RIEGL* VZ-xx scanner, without the need of a PC running RiSCAN PRO, by means of the scanner's integrated Human Machine Interface, HMI (LCD screen and key pad).

Identifies all available reflector targets and ignores incorrect ones due to user defined rules and intelligent processing. Automatic fine-scanning of valid reflectors for obtaining accurate reflector position as a basis for global registration.



3D Terrestrial Scanner RIEGL VZ-1000

Preliminary System Configuration **09/10**

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



3D Terrestrial Scanner RIEGL VZ-1000

Preliminary System Configuration **09/10**

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*).

Power Supply Modules

AC Power Supply Unit [Part-No. 02Z05-03-008-00](#)

for RIEGL VZ-xx, 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. 21R09-06-006-00](#)

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, 2.13 kg weight, 60.5 mm height, 21.6 V, 4.5 Ah.

Operating time @ typical operating conditions:

VZ-400: approx. 2 h @ 20°C ambient temperature

VZ-1000: approx. 1 h 20 min @ 20°C ambient temperature



*) 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](#)

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-xx* and cables. Dimensions: 560 x 455 x 265 mm.

Scanner Carrying Case “LARGE” [Part-No. 02Z05-01-035-00](#)

with 4 hinged handgrips and wheels, splash-proof, foam lined to fit shape of *RIEGL VZ-1000*, 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 D300(s) 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 D300(s) 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



Further Accessories

High Precision Camera Mount

Detachable, for high precision mounting of the camera, with connector for GPS antenna, power supplied via scanner, direct USB2 data connection via spring contacts, and Compact Flash Card (SanDisk extreme IV, necessary for operation of the camera with the *RIEGL VZ-xx*)

for NIKON D300(s) [Part-No. 21R09-06-004-02](#)

for NIKON D700 [Part-No. 21R09-06-004-03](#)



Lens Adapter & Protection Tube

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 a customer-specific, 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](#)

Adapter Plate for Tripod Mounting [Part-No.21R04-02-019-00](#)

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-xx* on a tripod. Note: *RIEGL VZ-xx* mounted on a tribrach to be used only in vertical position! Due to reduced stability, usage of a tribrach may reduce measurement result quality.

Adapter for Tribrach [Part-No. 04RA09-01-001-01](#)

Shock-Absorbing Mount SPM-Vxx [Part-No. 09RA09-00-004-00](#)

made of stainless steel mounting plates and optimized shock-absorbing elements, prepared for being combined with a special adapter plate for mounting of an IMU sensor.

Adapter Plate for IMU for SPM-Vxx [Part-No. 21R04-02-006-00](#)

for mounting of the customer-specific IMU sensor to the shock-absorbing mount SPM-Vxx. Dimensional drawings of IMU sensor are requested for checking of feasibility.

Scanner Mount for Manual Tilt [Part-No. 21R09-06-005-00](#)

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