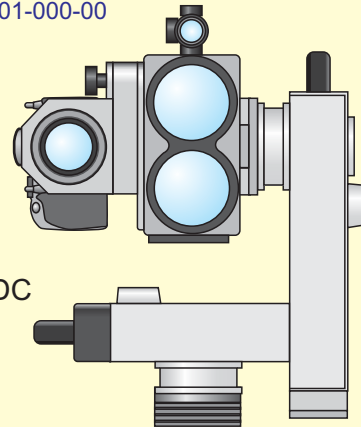


**Scanner Basic Configuration:** Part-No. HW-LPM321-01-000-00**Laser Profile Measuring System LPM-321**

Part-No. HW-LPM321-00-000-00

- Laser distance meter LD321-LR
- Pan & tilt mount PTM for hand and motor operation
- Data interface
- Internal power supply electronics, input voltage 12 - 28 V DC
- Comes with telescope 3x20, connection cable, and user's manual in English language (including, between other things, instructions for: Safety, Installation, Operation, etc.)



Detailed specifications and laser classification according to the latest datasheet LPM-321.

**Interfaces, integrated**

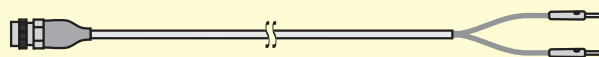
- Ethernet TCP/IP Interface, providing smooth integration of the LPM-321 data into a 10/100 MBit/sec, twisted-pair (TP) Local Area Network (LAN). The interface acts as a server allowing remote configuration and data acquisition via a platform independent TCP/IP interface.
- RS422, 115.2 kBd for configuration & data acquisition via PC or laptop

**Cables**

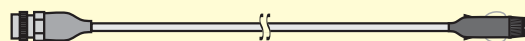
- Part-No. HW-LPM321-03-000-00  
Power Supply Cable, 7 pole connector and serial output, 2 m



- Part-No. HW-GP-03-004-00 Adapter Cable, 1 m, from power supply cable to banana plugs



- Part-No. HW-GP-03-005-00  
Adapter Cable, 1 m, from power supply cable to cigarette lighter plug



- Part-No. HW-GP-03-000-00 TCP/IP Cable M12-M12, 3 m
- Part-No. HW-GP-03-002-00 TCP/IP Cable M12-RJ45, 0.3 m
- Part-No. HW-GP-03-003-00 TCP/IP Cable M12-RJ45 cross over, 0.3 m

**Retroreflectors**

- Part-No. HW-GP-06-091-00 20 pcs. of flat circular retroreflectors, white, diameter 100 mm

Scanner Basic Configuration continued next page

**RiPROFILE Viewer, Acquisition & Processing Software** Part-No. SW-GP-07-003-00

- The companion software package to the *RIEGL* LPM 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:

- RiPROFILE Viewer License  
for visualizing of already acquired RiPROFILE projects and simple data evaluation
- RiPROFILE Acquisition License  
for *RIEGL* scanner configuration and data acquisition, global scan data registration, viewing and export of merged, filtered pointclouds
- RiPROFILE Processing Single User License (Dongle)  
for advanced data processing and evaluation of already acquired RiPROFILE projects

**RiScanLib OFFLINE Scan Library** Part-No. SW-GP-07-002-00

- The basic version of the RiScanLib allows the software developer the offline scan data decoding from a 3dd file. This library will assist the software developer in writing an own software application. Since the RiScanLib is based on COM technology it can be used in many programming languages. It consists of several DLL's for scan data decoding.
- "Visual C++" example and full documentation is included
- For operating systems WINDOWS XP (recommended), WINDOWS 2000 SP2 or above

**Firmware maintenance for 12 months** Part-No. FW-LPM321-12-000-00

- Free firmware updates

**RiPROFILE Software maintenance for 12 months** Part-No. SW-GP-12-010-00

- Free software updates
- E-mail and telephone support

Scanner Basic Configuration Package Part-No. HW-LPM321-01-000-00

**Services:****Two-day training** Part-No. ST-LPM321-11-000-00

Regarding the hardware as well as the operating software RiPROFILE. 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. ST-LPM321-11-001-00

Covers advanced working with the scanner hardware as well as processing of the acquired data with RiPROFILE.

Price per 8 hours working day (travelling expenses to be added).

**Digital Camera Calibration Service** Part-No. ST-GP-11-004-00

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



## ***Further Software Modules:***

Free software updates and e-mail/telephone support for 12 months included.

### **RiPROFILE Processing Network Server License**

Part-No. SW-GP-02-013-00

Includes 10 licenses for RiPROFILE 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 / RiPROFILE Plugin Camera Module**

Part-No. SW-GP-02-000-00

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

### **License RiSCAN PRO / RiPROFILE Plugin Multi Station Adjustment Module**

Part-No. SW-GP-02-001-00

- Advanced registration based on overlapping pointclouds
- Advanced registration and adjustment based on tiepoints, controlpoints
- Advanced registration and adjustment based on additional plane information

### **Single User License RiVIEW 321 Visualization Software for Full Waveform Data**

Part-No. SW-GP-02-024-00

RiVIEW 321 allows the operator to visualize the digitized echo signals and to inspect the impact of different parameter settings. RiVIEW 321 is not intended to be used in the standard operation of the RIEGL LD321, but to determine a parameter set in an optimum way during installation of the instrument within an installation and to provide insight into the measurement procedure in case of erroneous range readings.

Furthermore, it allows extracting of digitized data stored within the RIEGL LD321 and to prepare for sending the data, e.g. per e-mail, for detailed analysis.

1 dongle added to scope of delivery.

### **License RiScanLib ONLINE Scan Library**

Part-No. SW-GP-02-002-00

The online version of the RiScanLib library assists the software developer in writing an own software application for an LPM-xxx scanner, i.e. to control the scanner and to acquire scan data online via TCP/IP or RS422 port. Since the RiScanLib is based on COM technology it can be used in many programming languages. It consists of separate DLL's for scanner configuration, reflector extraction, and scan data decoding.

"Visual C++" example and full documentation is included.

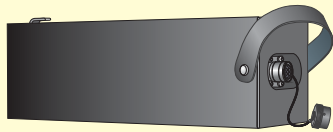
For operating systems WINDOWS XP (recommended), WINDOWS 2000 SP2 or above.



**Power Supply Modules:**

**Rechargeable NiMH Battery**

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



Part-No. HW-GP-04-000-00

**Automatic Charger**

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



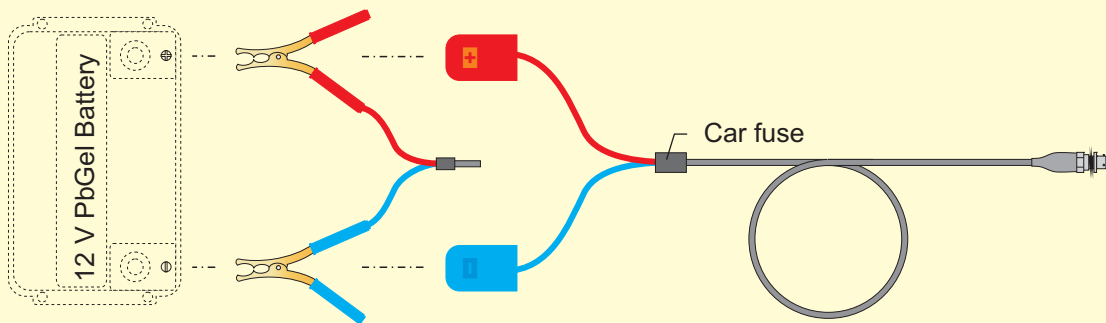
Part-No. HW-GP-04-001-00

**Adapter Cable, 1 m, from 7 pole power supply cable to 12 V PbGel battery with "quick action" battery pole connectors**

Part-No. HW-GP-03-006-00

**Adapter Cable as above, but with "crocodile" battery pole connectors**

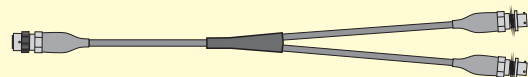
Part-No. HW-GP-03-007-00



**Dual Output Adapter Cable**

0.5 m, with one 7 pole input connector and two 7 pole output connectors

Part-No. HW-LPM321-03-001-00



**AC Power Supply Unit**

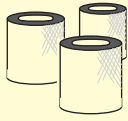
Input 100 - 240 V AC, 50 - 60 Hz, output 15 V DC, 7.5 A, weight 1.4 kg



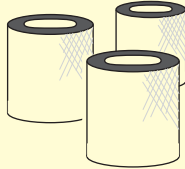
Part-No. HW-ZXX-04-000-00



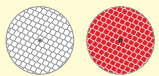
**Reflectors:**



Cylindrical Retroreflectors, <sup>1)</sup>  
height 50 mm x diameter 50 mm each, hole diameter 24.3 mm.  
Part-No. HW-GP-06-005-00

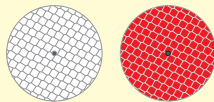


Cylindrical Retroreflectors, <sup>1)</sup>  
height 100 mm x diameter 100 mm each, hole diameter 24.3 mm.  
Part-No. HW-GP-06-007-00



Flat Circular Retroreflectors, <sup>2)</sup>  
centre hole diameter 3 mm, self-adhesive

diameter 50 mm, white  
Part-No. HW-GP-06-002-00  
diameter 50 mm, red  
Part-No. HW-GP-06-009-00



diameter 100 mm, white  
Part-No. HW-GP-06-003-00  
diameter 100 mm, red  
Part-No. HW-GP-06-010-00

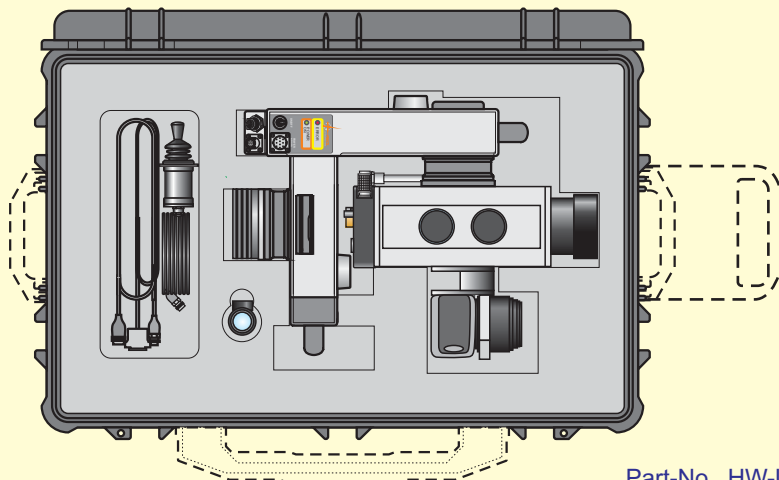
<sup>1)</sup> Intended for prior surveying by DGPS. Cylindrical retroreflectors to be mounted in vertical orientation only.

<sup>2)</sup> Intended to be used with totalstation (theodolite) as control points in RiSCAN PRO and RiPROFILE projects!

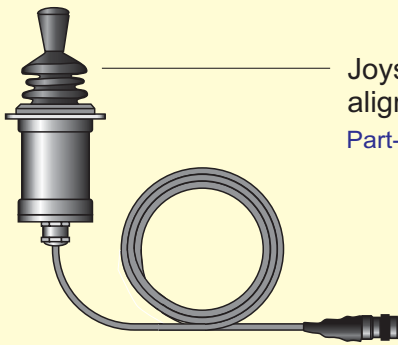
**Carrying Case:**

Heavy-duty **Scanner Carrying Case CC-LPM321** with 4 hinged handgrips and wheels, splash-water proof, foam-lined to fit shape of LPM-321 together with the mounted camera and accessories.

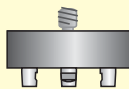
Dimensions: 820 x 520 x 290 mm



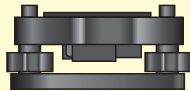
Part-No. HW-LPM321-05-000-00

**Further Accessories:**

Joystick for fast manual positioning and alignment, cable length 3 m  
Part-No. HW-LPM321-06-000-00



Adapter for tribrach  
Part-No. HW-GP-06-013-00



Adjustable tribrach, extra stable quality, with bubble level, for mounting the LPM-321 on a tripod  
Part-No. HW-ZXX-06-004-00

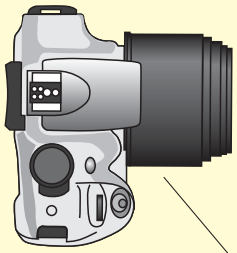
**Note:**

LPM-321 mounted on a tribrach to be used only in vertical position!

Due to reduced stability, usage of a tribrach may reduce measurement result quality.



**Camera Accessories:**



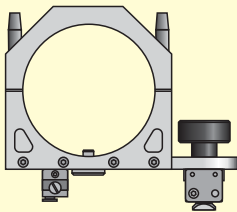
High Resolution Digital Camera CANON EOS 450D

- Effective 12.2 megapixel rendering 4272 x 2848-pixel image
- 22.2 x 14.8 mm CMOS sensor
- Compatible with EF/EF-S lenses
- Shutter speeds: 1/4000 to 30 sec, bulb
- Auto white balance with the image sensor
- Interface USB port (Hi-Speed USB 2.0), Video output (NTSC/PAL)

Part-No. HW-CAM-09-000-00

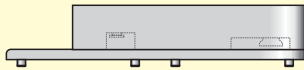
CANON LENS EF 85 mm 1/1.8 USM

Part-No. HW-CAM-10-000-00



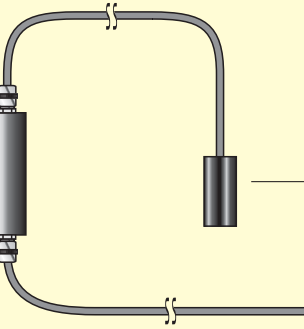
Lens adapter & protection tube  
for CANON LENS EF 85 mm 1/1.8 USM

Part-No. HW-CAM-10-002-00



High precision camera mount  
(detachable) for CANON EOS 450D

Part-No. HW-LPM321-06-002-00



Base plate  
for mounting the camera mount

Part-No. HW-LPM321-06-003-00

DC Converter 8V Power Supply  
for CANON EOS 450D

Part-No. HW-LPM321-04-000-00