DELTA – Your professional retroreflectometer partner

DELTA is known for its highly reliable range of retroreflectometers used throughout the world for measuring retroreflection of pavement markings and traffic signboards.

Ensuring that markings and signs are performing according to current standards will help in guiding the traffic safely at daytime and nighttime. This helps reduce the number of accidents, fatalities and injuries on the roads. Besides, knowing the condition of road assets allows road owners to make financially sound decisions related to road maintenance.

Four decades ago DELTA was the first to introduce a retroreflectometer. Besides, DELTA has been deeply involved over the years in writing the international standards on retroreflection measurement of pavement markings and road traffic signs. As the globally leading supplier of retroreflectometers and the preferred choice of professionals we invite you to come and use our instruments and our extensive knowledge and experience within this field.

LTL-M - Continuous measurements of pavement markings

DELTA’s LTL-M mobile retroreflectometer measures retroreflection of pavement markings and is the latest model in our well-known LTL-range of instruments. LTL-M is built over a patented technology based on a DELTA developed flash system, digital camera technology and real-time digital image processing. The result is a measurement system delivering hitherto unparalleled accurate measurements.

LTL-M is easy to mount on any type of standard vehicle using fittings supplied with the system, is calibrated in a simple one-step process and can be operated by one person. LTL-M measures nighttime visibility of markings continuously, measures double lines simultaneously and reports them individually as well as records the width of the markings. LTL-M in addition records the presence of RRPMs (Raised Retroreflective Pavement Markers).

LTL-X Mark II & LTL-XL handheld retroreflectometers for pavement markings

DELTA offers two models of handheld retroreflectometers for measuring retroreflection of pavement markings: LTL-X Mark II and LTL-XL. The two models are similar in design, software and functionality but with a few different features targeted at different measurement needs.

LTL-XL measures nighttime (R_{L}) and daytime (Q_{d}) visibility of all types of dry and wet pavement markings. LTL-XL is able to measure profiled markings up to 5 mm.

LTL-X Mark II measures R_{L} and can measure high profile markings up to 15 mm in profile depth besides measure during continuous wetting (condition of rain).
Both instruments use LED technology, which makes the instrument almost maintenance free.

Measuring times of 1-3 seconds and a large memory of more than 200,000 measurements makes the instrument fast and easy to use. Setting up the instrument for measuring is done on a bright colour LED display clearly visible even during sunshine. Both instruments can be delivered with built-in GPS for review of measurement data on e.g. Google Earth, and built-in printer for instant printing of measurement data. Data transfer is by USB connection.

**RetroSign GRX for road traffic signs, high visibility clothing, license plates and reflective tape**

Since the mid 90s DELTA has offered various models of RetroSign for measuring retroreflection of road traffic signs, high visibility clothing, license plates and reflective tapes. RetroSign GRX is the most recent launch from DELTA offering many features not seen in such instrument so far. GRX offers the possibility to measure up to 7 observation angles simultaneously as well as 7 entrance angles using magnetic attached and identified lens attachments. RetroSign GRX is able to take pictures of signs, automatically detect sign colors, read barcodes and QR codes for asset management programs as well as supports an easy calibration procedure by scanning calibration reference values.

GRX is an all in one instrument easily fitted for different measurement geometries. An app allows transfer of measurement data to a tablet for data back-up, data processing, data presentation and mapping, asset management and wireless transfer of data to company back-office.

**We have the user in mind**

DELTA’s instruments have been developed with the user in mind. They come with single-handed operation and single-touch controls, which makes the operator work easily and simply with our instruments. The instruments are offered as a base model allowing the user to add features according to his or her needs and financial capability.

DELTA’s instruments come standard with USB interface or wireless communication for easy transfer of data. Data storage and presentation are made either in proprietary software (LTL-X Mark II and LTL-XL) or generally available software like Excel and Google Earth.

**Calibration and traceability**

DELTA’s instruments are all very easy to calibrate in a simple one-step process. The calibration references are calibrated in DELTA’s DANAK accredited laboratory and are traceable to PTB (Physikalisch-Technische Bundesanstalt, Germany) and NIST (National Institute of Standards and Technology, USA).

**International standards**

DELTA’s instruments comply with the internationally recognised standards EN 1436, ASTM E-1710, ASTM E-2177 and ASTM E-2832, for pavement markings, EN 12899, ASTM E-1709, and ASTM E-2540 for road traffic signs and EN 20471 for high visibility clothing.

**Contact and further information**

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