



# The RetroSign GR3 & GR1 retroreflectometer features

*The professional choice for measuring all types of retroreflective sheetings for road signs, license plates and safety clothing*

## RetroSign instruments

RetroSign instruments are modern retroreflectometers for measuring retroreflection of road signs, license plates and safety clothing. The photometric filter in the RetroSign is among the most accurate, sensitive and durable filters in the world. When combined with the point aperture geometry, laboratory precision readings for all colours and all types of retroreflective sheetings are ensured. The point aperture geometry specified by the American Society for Testing and Materials (ASTM) ensures accurate readings that replicate real-world driving conditions and corresponds to laboratory measurements.

Due to the proprietary gradient index ultra hard coating (UHC) technology, available only from DELTA, the sensor response meets the ASTM 1709 requirements for combining the CIE eye response and CIE illuminant "A".

RetroSign instruments comply with the following standards: EN 471, EN 20471, EN 12899, ASTM E 1709 and ASTM E 2540.

## RetroSign GR3

Features a unique triple geometry that makes it easy to undertake measurements of a range of observation angles at the same time. This provides the user with a significantly more comprehensive image of the retroreflection of road sign. See table below for geometries.

### The RetroSign GR3 is available with the following geometries

RetroSign	Entrance angle *	-4°
GR3 ASTM <small>ASTM E 1709, E1809, E 2540</small>	Observation angle	0,2°; 0,5°; 1,0°
RetroSign	Entrance angle *	+5°
GR3 CEN <small>EN 12899</small>	Observation angle	0,33°; 0,5°; 1,0°

## RetroSign GR1

Measures the main observation angle stated in these standards, and is available with the geometries listed in the table below. GR1 ASTM and GR1 CEN measure roads signs, GR1 Safety measures safety clothing

### El RetroSign GR1 se encuentra disponible con las siguientes geometrias

RetroSign	Entrance angle *	-4°
GR1 ASTM <small>ASTM E 1709, E 1809</small>	Observation angle	0,2°
RetroSign	Entrance angle *	+5°
GR1 CEN <small>EN 12899</small>	Observation angle	0,33°
RetroSign GR1	Entrance angle *	+5°
SAFETY <small>EN 471, EN 20471</small>	Observation angle	0,2°

## Features

RetroSign instruments are lightweight and ergonomically designed for user comfort.

The instruments operate with a reproducibility of +/- 5 % and a repeatability of +/- 2 %.

The instruments have automatic stray light compensation so that daylight and other outside light sources will not affect the accuracy of the measurements.

The internal memory stores more than 250,000 readings, which essentially means that these instruments never run out of memory.

The instruments enable the user to determine whether a microprismatic sign sheeting material has been applied correctly. Aperture reducers make it possible for RetroSign retroreflectometers also to measure small letters and symbols on road signs.

The Road Sensor Control (RSC) software supplied with the

\*Lense attachments to measure +10°, +20° +30° and +40° entrance angles available.

instrument, combined with the USB interface, makes it easy to download data and generate reports MS-Excel and to transfer locations to Google Earth (if GPS installed and activated).

The RetroSign GR3 and GR1 are designed to interface easily with both current and future ID tagging and asset management systems.

**Add-ons**

RetroSign GR3 and GR1 can be fitted with built-in precision GPS. This makes it possible to determine exactly where any specific measurement has been carried out.

RetroSign GR1 and GR3 can be fitted with Bluetooth for wireless connectivity.

For tracking your assets RetroSign GR3 and GR1 can be delivered with Barcode reader.

RetroSign instruments are available with an extension pole with remote control for measuring particularly tall or elevated signs.

**Calibration standards**

RetroSign instruments are calibrated using references from DELTA's DANAK accredited laboratory and are traceable in accordance with standards issued by PTB (Physikalish-Technische Bundesanstalt, Germany) and NIST (National Institute of Standards and Technology, USA).

**Contact and further information**

For further information about RetroSign GR3 and GR1 retroreflectometers, please contact:



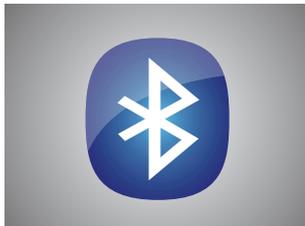
**Kjeld Aabye**  
*Market Manager*

Phone +45 72 19 46 30  
kaa@delta.dk  
roadsensors.com

**Add-ons**



Extension pole



Bluetooth



GPS



Barcode reader

**DELTA**

Venlighedsvej 4  
2970 Hørsholm  
Denmark  
Tel. +45 72 19 40 00  
roadsensors@delta.dk  
roadsensors.com

