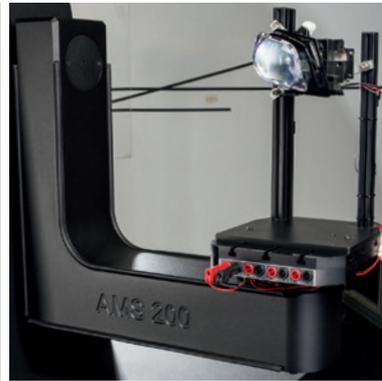
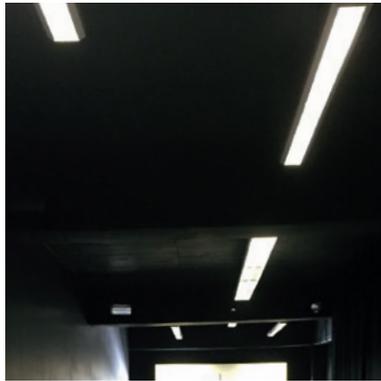


# SYSTEMS & SOLUTIONS

## AMS Goniometer System Solutions



**For Vehicle  
Lights**

# 01 \ Turnkey measurement solutions for automotive exterior lighting

## AMS goniometer series

- ▲ Best technology for measurement of photometric and colorimetric characteristics in the far field
- ▲ CIE Type A goniometer for small to large lamps and modules
- ▲ Automated set-up mode and sequential measuring procedures
- ▲ Axes rotation extremely smooth without vibration
- ▲ Fast, robust and precise

## Light measurement with AMS goniometers

- ▲ Compatible with measurement systems from Instrument Systems to form a turn-key-solution
- ▲ Conformity with GTB and SAE J1330 photometry precision requirements for type testing of vehicle lights
- ▲ Rapid scans “on the fly”
- ▲ Compliance with CIE 121-1996 and EN 13032-1 and DIN 5032-7 (2017)
- ▲ Accessible software for easy evaluation and reporting of measured data, export (IES, KRS, CSV)
- ▲ Full ECE, SAE and FMVSS108 regulation support

## Technical overview

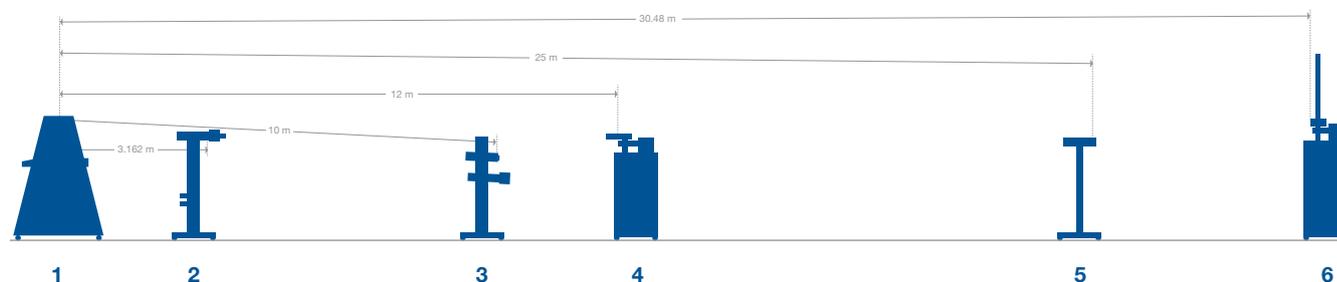


AMS Series	AMS 5000	AMS 3000	AMS 200
Travel range H-axis	±200° safeguarded by limit switches	±200° safeguarded by limit switches	±160° safeguarded by limit switches
Travel speed V-axis	±100° safeguarded by limit switches	±100° safeguarded by limit switches	±130° safeguarded by limit switches
Travel speed γ-axis	up to 50°/s	up to 50°/s	up to 46°/s
Resolution of the angle encoder	0.01°	0.01°	0.01°
Reproducibility of H-axis and V-axis	≤ 0.03°; ≤ 0.03° under nom. sample load	≤ 0.03°; ≤ 0.03° under nom. sample load	≤ 0.05°; ≤ 0.05° under nom. sample load
Dimensions (H x W x D)	1768 x 2444 x 1240 mm <sup>3</sup>	1695 x 1898 x 800 mm <sup>3</sup>	1512 x 657 x 500 mm <sup>3</sup>
Weight	1240 kg	770 kg	95 kg
Max. sample size	Up to 1780 mm	Up to 1180 mm	Up to 650 mm
Max. / Nominal sample weight	80 kg / 50 kg	40 kg / 20 kg	8 kg / 8 kg
Accessories / Options	- Remote control GC 100 - DC source meters - Sample holders - Photometer tube - Positioning unit	- Remote control GC 100 - DC source meters - Sample holders - Photometer tube - Positioning unit	- Remote control GC 100 - DC source meters - Sample holders

# 02 \\ Combined goniometer systems

Components	Applications
	<p><b>DSP 200 photometer – for photometric measurement</b></p> <ul style="list-style-type: none"> <li>▲ Class L photometers conforming to DIN 5032-7 (2017), CIE 69, CIE 121&amp; EN 13032-1</li> <li>▲ Wide measuring range of 0.1 mlx to 200 klx</li> <li>▲ Consistent display of measurements without exponent</li> <li>▲ Excellent stability and lowest noise level due to detector cooling</li> </ul>
	<p><b>CAS 140D spectroradiometer – for spectroradiometric measurement</b></p> <ul style="list-style-type: none"> <li>▲ High-end CCD detector, cooled and back-illuminated</li> <li>▲ Spectrograph with minimum stray light and enhanced throughput</li> <li>▲ Down to 4 ms integration time</li> </ul>
	<p><b>CM 10 colorimeter – for colorimetric measurement</b></p> <ul style="list-style-type: none"> <li>▲ Tristimulus method according to DIN 5033-6 and CIE Publ. No. 15.2 (1966)</li> <li>▲ High signal dynamic range and wide measuring range of up to 600 klx</li> <li>▲ Representation of color coordinates in the different CIE diagrams</li> </ul>
	<p><b>LM 20 luminance meter – for luminance measurement</b></p> <ul style="list-style-type: none"> <li>▲ Conforming to standards ECE R4 and SAE J587</li> <li>▲ Special measurement optics for the suppression of stray and extraneous light</li> <li>▲ LED alignment device facilitates targeting on measuring points</li> </ul>
	<p><b>RMS 1200 retroreflectometer – for retroreflection measurement</b></p> <ul style="list-style-type: none"> <li>▲ In accordance with CIE Publication 54.2-2001</li> <li>▲ Fulfil all current requirements, e.g. ECE R3, SAE J594, ISO-EN-DIN 20471 or DIN 67520</li> <li>▲ <math>V(\lambda)</math> alignment <math>\leq 2.0\%</math> in accordance with CIE Publication 54.2-2001</li> </ul> <p><b>Stray light tube on stand – minimizes undesired extraneous light</b></p> <ul style="list-style-type: none"> <li>▲ Can be fitted with an optical probe for use with a spectroradiometer and with a photometer head</li> <li>▲ Variable viewing angles optimized for different distances such as 3.662, 5, 10 or 25 m</li> </ul>

## Example of a light laboratory



**1. AMS goniometer**

For rapid scans of light distributions

**2. TPU positioning unit, DSP photometer & CM colorimeter**

For signal lamps / license plates

**3. Stand with DSP photometer & CM colorimeter**

For headlamps

**4. Colorimeter with projector**

For color of retroreflectors

**5. Stand with DSP photometer**

For headlamps

**6. RMS retroreflectometer**

For retroreflectors

# 3 \\ Order information

Order number	Description
<b>AMS 5000 Goniometer</b>	
AMS5000-110	Five-axis goniometer, CIE Type A, with angle measurement system and control cabinet, 33 height units with laser adjustment and lamp multiplexer with 4+4+2 channels, including RecoCAN-LX operating unit with touchscreen on the sample stage
AMS5000-300	Optional 115 VAC power supply
AMS5000-400	Safety pressure-sensitive mats for AMS 5000
AMS5000-402	Safety light barrier around the danger area
AMS5000-404	2 safety laser scanners
<b>AMS 3000 Goniometer</b>	
AMS3000-100	Five-axis goniometer, CIE Type A, with angle measurement system and control cabinet, 33 height units with laser adjustment and lamp multiplexer with 4+4+1 channels
AMS3000-300	Optional 115 VAC power supply
AMS3000-400	Pressure-sensitive safety mats for AMS 3000
AMS3000-402	Safety light barrier around the danger area
AMS3000-404	2 safety laser scanners
<b>AMS 200 Goniometer</b>	
AMS200-100	Two-axis goniometer, CIE Type A, with angle measurement system and separate stage switch panel
AMS200-110	Two-axis goniometer, CIE Type A, with angle measurement system with integral rack for 19" slots
AMS200-130	Two-axis goniometer, with angular measurement system, integrated rack and separate control rack 33 height units for 19" slide in units
AMS200-300	Optional 115 VAC power supply
AMS200-320	Remote control for AMS 200
<b>Accessories</b>	
AMS-210	Relay option: 2 switching contacts for control of laboratory light and warning lights, etc., switching capacity 230 VAC / 6 A respectively
AMS-220	Audible warning signal during movement of the goniometer
AMS-310	Device for the support of license plate dummies and license plate illumination
AMS-311	License plate dummies for measurement in accordance with ECE-R4 (3 pcs., Type A, B, C)
AMS-312	License plate dummies for measurement in accordance with SAE-J587 (2 pcs., Type 01, 02)
AMS-313	License plate dummies for measurement for Chinese GB standard (5 pcs.)
AMS-314	License plate dummy for measurement in accordance with Brazilian standard (1 pc.)
AMS-320	USH 30 universal headlamps and lamp holders
AMS-330	Clamp set (adjustable) for slotted table 8 (2 pcs.)
AMS-352	GC 100 remote control with holder
AMS-450	Vehicle test lamp for type testing of vehicle lamps in accordance with ECE regulations, report on luminous flux, and filament included
AMS-470	Rolling trolley for spectral radiometer
AMS-480	PWM generator
AMS-500	Motorized positioning unit for the automated positioning of 3 different photometer heads; optical axis 1400 mm, incl. position set
AMS-501	Motorized positioning unit for the automated positioning of 3 different photometer heads; optical axis 1500 mm, incl. position set
<b>Software</b>	
SW-600	AMS 3000/5000 LightCon software for Windows
SW-601	AMS 200 LightCon software for Windows

An extensive additional accessory range is available for the AMS goniophotometer.