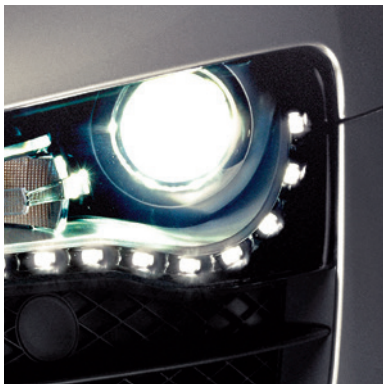
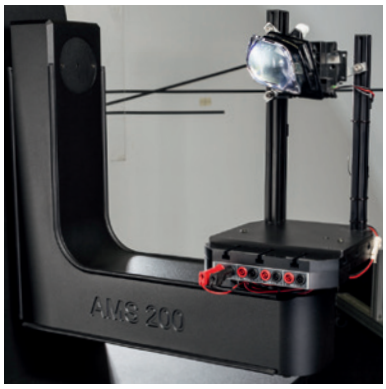
SYSTEMS & SOLUTIONS

AMS Goniometer System Solutions








For Vehicle Lights

Instrument Systems
KONICA MINOLTA Group

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 6000/7000	AMS 5000	AMS 3000	AMS 200
Travel range H-axis	±200° safeguarded by limit switches	±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	±100° safeguarded by limit switches	±130° safeguarded by limit switches
Travel speed H-axis	up to 50°/s	up to 50°/s	up to 50°/s	up to 46°/s
Resolution of the angle encoder	0.01°	0.01°	0.01°	0.01°
Reproducibility of H-axis and V-axis	≤ 0.05°; ≤ 0.05° under nom. sample load	≤ 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)	**AMS 6000:** 1768 x 2650 x 1250 mm³ **AMS 7000:** 1768 x 3400 x 1250 mm³	1768 x 2444 x 1240 mm³	1695 x 1898 x 800 mm³	1512 x 657 x 500 mm³
Weight	1300 kg / 1400 kg	1240 kg	770 kg	95 kg
Max. sample size	1950 mm / 2850 mm	1780 mm	1180 mm	650 mm
Max. / Nominal sample weight	50 kg max. / nom. load	80 kg / 50 kg	40 kg / 20 kg	8 kg / 8 kg
Accessories / Options	- Remote conrtol GC 100 - DC source meters - Sample holders - Photometer tube positioning unit	- Remote conrtol GC 100 - DC source meters - Sample holders - Photometer tube positioning unit	- Remote conrtol GC 100 - DC source meters - Sample holders - Photometer tube positioning unit	- Remote conrtol GC 100 - DC source meters - Sample holders

02 \\ Combined goniometer systems

Components	Applications



DSP 200 photometer – for photometric measurement

- Class L photometers conforming to DIN 5032-7 (2017), CIE 69, CIE 121& EN 13032-1
- Wide measuring range of 0.1 mlx to 200 klx
- Consistent display of measurements without exponent
- Excellent stability and lowest noise level due to detector cooling



CAS 140D spectroradiometer – for spectroradiometric measurement

- High-end CCD detector, cooled and back-illuminated
- Spectrograph with minimum stray light and enhanced throughput
- Down to 4 ms integration time



CM 10 colorimeter – for colorimetric measurement

- Tristimulus method according to DIN 5033-6 and CIE Publ. No. 15.2 (1966)
- High signal dynamic range and wide measuring range of up to 600 klx
- Representation of color coordinates in the different CIE diagrams



LM 20 luminance meter – for luminance measurement

- Conforming to standards ECE R4 and SAE J587
- Special measurement optics for the suppression of stray and extraneous light
- LED alignment device facilitates targeting on measuring points



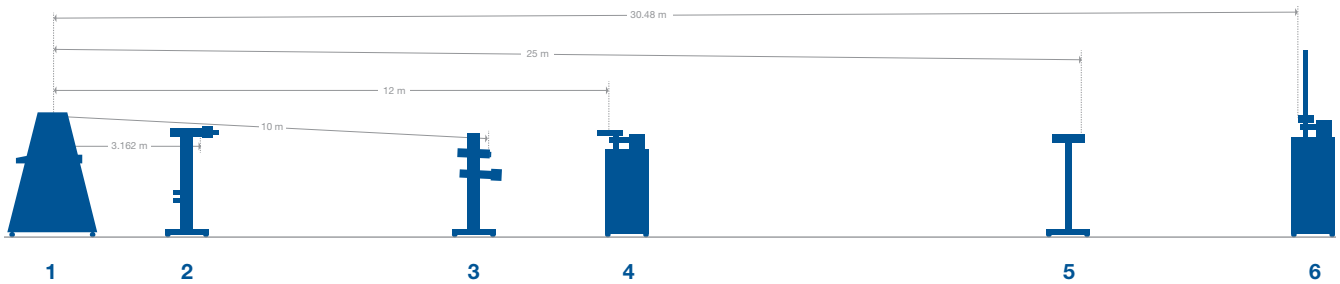
RMS 1200 retroreflectometer – for retroreflection measurement

- In accordance with CIE Publication 54.2-2001
- Fulfil all current requirements, e.g. ECE R3, SAE J594, ISO-EN-DIN 20471 or DIN 67520
- V (λ) alignment ≤ 2.0% in accordance with CIE Publication 54.2-2001

Stray light tube on stand – minimizes undesired extraneous light

- Can be fitted with an optical probe for use with a spectroradiometer and with a photometer head
- Variable viewing angles optimized for different distances such as 3.662. 5, 10 or 25 m

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
AMS 7000/6000/5000 Goniometer	
AMS7000-110	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 GC 100 remote control with touch screen
AMS6000-110	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 GC 100 remote control with touch screen
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
AMS 3000 Goniometer	
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
AMS 200 Goniometer	
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
Accesories	
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
Software	
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.

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