

Three different lenses are available for the LMK mobile R with the following focal lengths: $f' = 7.5$ mm (fisheye); 35 mm (fixed zoom); and 24 – 70 mm (zoom). Depending on customer requirements – selection of lenses prior to calibration and delivery by specifying the field of view (FoV).

Lens type	FishEye	Fixed zoom	Zoom
Optical properties			
Lens name	TT Artisan 7.5 mm	Canon RF 35 mm F1.8 Macro IS STM	Canon 24-70 mm F2.8
Focal length	7.5 mm	35 mm	24 mm – 70 mm
Focus type	Manually controlled	Electronically controlled	Electronically controlled
Focal range/Free working distance	> 1000 mm	> 280 mm	> 1000 mm
Field of view (FoV)	ca. 180°(H) × 140°(V)	ca. 57°(H) × 38°(V)	ca. 84° × 34° (diagonal)
Calibrated properties			
Selection of measuring range	ND filter	Aperture value, ND filter	Zoom, Aperture value, ND filter
Aperture value	F4 (fixed)	F4 – F11 calibrated in 1/3 steps	F4 – F11 calibrated in 1/3 steps
Exposure time	1/1000 – 30 sec.	1/1000 – 30 sec.	1/1000 – 30 sec.
Focal length	7.5 mm	35 mm	24 mm; 35 mm; 50 mm; 70 mm
Focal range	> 1000 mm	> 280 mm	> 1000 mm
Metrological specification			
Calibration uncertainty ΔL in %	$\Delta L = 2.5$ % (standard illuminant A)	$\Delta L = 2.5$ % (standard illuminant A)	$\Delta L = 2.5$ % (standard illuminant A)
Repeatability ΔL in %	$\Delta L = 0.05 \dots 0.85$ %	$\Delta L = 0.05 \dots 0.85$ %	$\Delta L = 0.05 \dots 0.85$ %
Focus precision ΔL in %	$\Delta L = 1$ %	$\Delta L = 2.1$ %	$\Delta L = 5$ %
Uniformity ΔL in %	$\Delta L = 2$ %	$\Delta L = 4.2$ %	$\Delta L = 10$ %
Measuring uncertainty budget ¹ ΔL in %	$\Delta L = 3.5$ %	$\Delta L = 5.4$ %	$\Delta L = 11.5$ %

1.) Typical relative standard deviation for standard illuminant A - as the result for repeatability for aperture and electro-mechanical shutter for exposure time longer than 1/400 sec.