

<b>EARLINET Call-sign</b>	<b>MS</b>					
<b>Status updated</b>	2007 02 08					
<b>Station</b>	München - Meteorologisches Institut LMU-MUENCHEN					
<b>System name</b>	MULIS					
<b>Home Location</b>	Germany, Munich (home)			Maisach (current)		
<b>Home Location Coordinates</b>	48.148 N	11.573 E	539 m asl	48.209 N	11.258 E	515 m asl
<b>Home Location Environment</b>	urban			rural		
<b>System transportable</b>	yes					
<b>Emitter</b>	<b>Laser 1</b>					
<b>Laser type</b>	Nd:YAG					
<b>Laser manufacturer</b>	Continuum					
<b>Laser model</b>	Surelite II					
<b>Seeder</b>	no					
<b>Seeder bandwidth</b>						
<b>Seeder manufacturer</b>						
<b>Seeder model</b>						
<b>Pulse energy total (typ.)</b>	1.6 J					
<b>Repetition rate</b>	10 Hz					
<b>wavelength</b>	1064 nm	532 nm	355 nm			
<b>Pulse energy (typ.)</b>	0.175 J	0.05 J	0.175 J			
<b>Pulse length (typ.)</b>	6 ns	6 ns	6 ns			
<b>Polarization and purity (nominal)</b>	elliptical	linear >95%	linear >95%			
<b>Polarisation purity measured</b>						
<b>Polarisation orientation</b>	elliptical	vertical	horizontal			
<b>Laser beam diameter (mm)</b>	8 mm fwhm					
<b>Laser beam divergence</b>	0.6 mrad fw at 86% of energy					
<b>Beam expansion type</b>	n.a.					
<b>Beam expansion factor</b>						
<b>Beam divergence</b>						
<b>Alignment</b>	manual					
<b>Alignment control</b>	camera					
<b>Alignment accuracy</b>	0.1 mrad					
<b>Receiver Optics</b>	<b>Telescope 1</b>					
<b>Telescope type</b>	Cassegrain, primary spherical					
<b>Telescope manufacturer / model</b>	Steinheil, Munich, 1969					
<b>Telescope aperture diameter</b>	0.3 m					
<b>Telescope obscuration diameter</b>	0.092 m					
<b>Focal length</b>	0.94 m					
<b>Field of view</b>	variable 0 to +-3 mrad equiv.					
<b>Fieldstop type</b>	tilted slit 60°					
<b>Fieldstop size</b>	9.3 mm length, 1.9 mm width, 60°					
<b>Optical fiber Numerical Aperture</b>	n.a.					
<b>Optical fiber manufacturer</b>						
<b>Optical fiber type</b>						
<b>Telescope-laser axes distance</b>	0.4 m					
<b>Collimation system type / model</b>	planconvex lens		Linios 312334			
<b>Collimation focal length</b>	101 mm					
<b>Detection channels</b>						
<b>Centre wavelength</b>	355 nm	387 nm	532 nm	532 nm	607 nm	1064 nm
<b>Scattering mechanism</b>	Elastic	vibr.Raman N2	Elastic parallel	Elastic cross	vibr.Raman N2	Elastic
<b>Wavelength separation</b>	DBS	DBS	DBS	DBS	DBS	DBS
<b>Separation Passband bandwidth</b>						
<b>Separation transmission*</b>						
<b>Separation transmission pol. Parallel</b>	0.988	0.982	0.962	0.962	0.878	0.912
<b>Separation transmission pol. Cross</b>	0.997	0.978	0.956	0.956	0.891	0.787
<b>Out of band suppression</b>	IFF	IFF	IFF	IFF	IFF	IFF
<b>Passband bandwidth</b>	1.0 nm fwhm	0.51 nm fwhm	1.1 nm fwhm	1.1 nm fwhm	0.46 nm fwhm	2.7 nm fwhm
<b>Passband transmission</b>	0.45	0.62	0.49	0.49	0.7	0.55
<b>Out of band blocking</b>	>OD 5	OD6 @355 OD7 @ 532 OD6 @1064	> OD 4	> OD 4	OD6 @355 OD7.5 @ 532 OD6 @1064	> OD 4
<b>Polarization separation</b>						
<b>Pol. Transmission parallel</b>			0.9831	0.0169		
<b>Pol. Transmission cross</b>			0.0009	0.9991		
<b>Neutral density filter OD</b>	3 (variable)	0.6 (variable)	2.3 (variable)	1.6 (variable)	0.00	0.00
<b>Detector type</b>	PMT	PMT	PMT	PMT	PMT	PIN
<b>Detector manufacturer</b>	Hamamatsu	Hamamatsu	Hamamatsu	Hamamatsu	Hamamatsu	Silicon Sensor
<b>Detector model</b>	R7400-U	R7400-U	R7400-U	R7400-U	R7400-U20	SS0-PD-50-7-T08S
<b>Additional features</b>						
<b>Daytime capability</b>	yes	no	yes	yes	no	yes
<b>Data Acquisition</b>						
<b>Data acquisition mode</b>	Analog	PC	Analog	Analog	PC	Analog
<b>Transimpedance Amplifier</b>	yes	no	yes	yes	no	yes
<b>Transimpedance Gain</b>	10 kOhm		10 kOhm	10 kOhm		100 kOhm
<b>Transimpedance Bandwidth</b>						7 MHz
<b>Output impedance</b>	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm
<b>Analog sampling rate</b>	40 MS/s		40 MS/s	20 MS/s		20 MS/s
<b>Bandwidth</b>	20 MHz		20 MHz	10 MHz		10 MHz
<b>A-D bits</b>	12 bit		12 bit	14 bit		14 bit
<b>Input termination</b>	50 Ohm		50 Ohm	50 Ohm		50 Ohm
<b>Max input Voltage</b>	2 V		2 V	1.1 V		1.1 V
<b>Photon counting count-rate</b>		250 MHz			250 MHz	
<b>Data acquisition manufacturer</b>	Spectrum	LICEL	Spectrum	Spectrum	LICEL	Spectrum
<b>Data acquisition model</b>	PCI412	PR20	PCI412	MI4022	PR20	MI4022
<b>Raw data dange resolution</b>	7.5 m	7.5 m	7.5 m	7.5 m	7.5 m	7.5 m
<b>Raw data time resolution</b>	10 s	10 s	10 s	10 s	10 s	10 s
<b>Raw data altitude range</b>	16 km	16 km	16 km	16 km	16 km	16 km
<b>Pretrigger data</b>	yes	yes	yes	yes	yes	yes
<b>Mode of Operation</b>						
<b>Lidar pointing</b>	Zenith					
<b>Scanning range Elevation</b>	-5° to 95°					
<b>Scanning range Azimuth</b>	350°					
<b>Unattended operation</b>	yes					
<b>Automated functions</b>	Scanning, depolarization calibration					
<b>Auxiliary Information</b>						
<b>Sunphotometer</b>						
<b>Nearest radio sounding station</b>	Oberschleissheim WMO 10868					
<b>Distance to lidar station</b>	10 km					
<b>Frequency of Radio Soundings</b>	Noon, Midnight					
<b>Abbreviations</b>	interference filter (IFF )					
	dichroic beam splitter (DBS)					
	photon counting (PC)					
	double grating monochromator (DGM)					
	single grating monochromator (SGM)					
	Fabry-Perot interferometer (FPI)					
	polarizing cube beamsplitter (PCB)					
	sheet polarizer (SP)					
<b>Annotations</b>	(*) Product of all beam splitters divided in parallel and perpendicular to the laser polarization, if available.					