

UV / VIS Spectrophotometer

Single Beam
Double Beam
NANO








Product Overview



	Page 4	Page 5	Page 6
Model	EMC-11D-V	EMC-11S-V	EMC-11-UV
Single beam	✓	✓	✓
Double beam			
Spectral bandwidth	4 nm	4 nm	4 nm
Wavelength range	325-1000 nm	325-1000 nm	200-1000 nm
Calibration certificate	✓	✓	✓
Cell holder positions	4	4	4
Audit Trail software (page 15)	○	○	○
IQ/OQ/PQ		○	○
PC Software (Windows®)			
BASIC software	✓		✓
PROFESSIONAL software			○
EASY UV BASIC software		✓	
EASY UV software		○	
ANALYST software			
Accessories (page 12)			
8-position cell changer			
Peltier/Sipper plug in			
Calibration filter set	○	○	○

PC Software (Windows®)	BASIC	PROFESSIONAL	EASY UV BASIC	EASY UV	ANALYST
Photometric measurement	✓	✓	✓	✓	✓
Kinetic measurement	✓	✓	✓	✓	✓
Quantitative measurement	✓	✓	✓	✓	✓
DNA/Protein		✓		✓	✓
Wavelength scan		✓		✓	✓
Dongle (USB-Software key)		✓		✓	✓

✓ = included
○ = optionally

				
Page 7	Page 8	Page 9	Page 10	Page 11
EMC-11S-UV	EMC-18S-UV	EMC-61PC-UV	EMC-61PCS-UV	EMC-NANO-UV
✓	✓			✓
4 nm	2 nm	1.8 nm	0.5/1/2/4/5 nm	4 nm
200-1000 nm	190-1100 nm	190-1100 nm	190-1100 nm	190-1100 nm
✓	✓	✓	✓	✓
4	4	1+1	1+1	1
○	○	○	○	○
○	○	○	○	○
✓	✓			
○	○			
		✓	✓	✓
	○	○	○	
	○	○	○	
○	○	○	○	○

EMCLAB Spectrophotometers are tested with DAkkS (German body of accreditation) certified UV/VIS Reference Materials NIST traceable:

- Photometric Accuracy
- Wavelength Accuracy
- Spectral Resolution
- Stray Light

All EMCLAB Spectrophotometers are supplied with EMCLAB Works Calibration Certificate



EMCLAB Instruments GmbH
 Kulturstrasse 55
 47055 Duisburg | Germany
 Fon: +49 203 41859410
 Fax: +49 203 41504809
 E-mail: info@emc-lab.de
 Web: www.emc-lab.de

Features:

- LCD screen (128*64)
- Manual setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Incl. PC software BASIC (Quantitative, Kinetics, Photometry Measurement)
- Incl. EMCLAB Works Calibration Certificate



Model	EMC-11D-V
Wavelength Range	325-1000 nm
Spectral Bandwidth	4 nm
Optical System	Single Beam, grating 1200 lines/mm
Wavelength Accuracy	±2 nm
Wavelength Repeatability	1 nm
Photometric Accuracy	≤±0.5 % T or ±0.003A@1A
Photometric Repeatability	≤0.2 % T
Photometric Range	0-200 % T, -0.3 - 3A, 0-1999 Conc
Photometric Mode	T, A, C, F
Stray Light	0.3 % T
Stability	±0.002A/h@500 nm
Noise	0.003A@500 nm
Detector	Silicone Photodiode
Display	LCD 128*64
Central beam height	15 mm
Standard Cell Holder	4-position cell holder 10x10 mm
Light Source	Tungsten lamp
Output	USB port & Parallel port (printer)
Power Requirement	AC 85V~265V 50/60 Hz
Dimensions (LxWxH)	440 x 340 x 200 mm
Weight	8 kg

Features:

- Color TFT screen
- Self-check system
- Fast choose wavelength
- Auto setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Incl. PC software EASY UV (Quantitative, Kinetics, Photometry Measurement)
- Incl. EMCLAB Works Calibration Certificate



Optionally available:

- PC software EASY UV (Quantitative, Kinetics, Wavelength Scan, Multi-Wavelength, DNA/Protein, Energy Scan)
- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)

Model	EMC-11S-V
Wavelength Range	325-1000 nm
Spectral Bandwidth	4 nm
Optical System	Single Beam, grating 1200 lines/mm
Wavelength Accuracy	±2 nm
Wavelength Repeatability	1 nm
Photometric Accuracy	≤±0.5 % T or ±0.004A@1A
Photometric Range	0-200 % T, -0.3 - 3A 0-1999 conc.
Photometric Repeatability	≤0.2 % T
Photometric Mode	T, A, C, F
Stray Light	0.2 % T
Stability	±0.004A/h@500 nm
Baseline Flatness	±0.001A (200-1000 nm)
Noise	0.003A@500 nm
Detector	Silicone Photodiode
Display	Color TFT screen
Central beam height	15 mm
Standard Cell Holder	4-position cell holder 10x10 mm
Light Source	Tungsten lamp
Output	USB port & Parallel port for printer
Power Requirement	AC 85V~265V 50/60 Hz
Dimensions (LxWxH)	440 x 350 x 200 mm
Weight	8 kg

Features:

- LCD screen (128*64)
- Self-check system
- Auto setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Save the results
- Up to 200 methods & 100 standard curves can be stored Incl. PC
- software BASIC (Quantitative, Kinetics, Photometry Measurement)
- Incl. EMCLAB Works Calibration Certificate



Optionally available:

- PC software PROFESSIONAL (Quantitative, Kinetics, Wavelength Scan, Multi-Wavelength, DNA/Protein, Energy Scan)
- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)

Model	EMC-11-UV
Wavelength Range	200-1000 nm
Spectral Bandwidth	4 nm
Optical System	Single Beam, grating 1200 lines/mm
Wavelength Accuracy	±2 nm
Wavelength Repeatability	1 nm
Photometric Accuracy	≤0.5 % T or ±0.003A@1A
Photometric Repeatability	≤0.2 % T
Photometric Range	0-200 % T, -0.3 - 3A, 0-9999 Conc.
Stray Light	0.2 % T
Stability	±0.002A/h@500 nm
Noise	0.003A@500 nm
Detector	Silicone Photodiode
Display	LCD 128*64
Central beam height	15 mm
Standard Cell Holder	4-position cell holder 10x10 mm
Light Source	Tungsten & Deuterium lamp
Output	USB port & Parallel port (printer)
Power Requirement	AC 110/220V 50/60 Hz
Dimensions (LxWxH)	490 x 380 x 220 mm
Weight	14 kg

Features:

- Color TFT screen
- Self-check system
- Fast choose wavelength
- Auto setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Incl. PC software EASY UV BASIC (Quantitative, Kinetics, Photometry Measurement)
- Incl. EMCLAB Works Calibration Certificate



Optionally available:

- PC software EASY UV (Quantitative, Kinetics, Wavelength Scan, Multi-Wavelength, DNA/Protein, Energy Scan)
- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)

Model	EMC-11S-UV
Wavelength Range	200-1000 nm
Spectral Bandwidth	4 nm
Optical System	Single Beam, grating 1200 lines/mm
Wavelength Accuracy	±2 nm
Wavelength Repeatability	1 nm
Photometric Accuracy	≤±0.5 % T or ±0.005A@1A
Photometric Range	0-200 % T, -0.3 - 3A 0-19999 conc.
Photometric Repeatability	≤0.2 % T
Photometric Mode	T, A, C, F
Stray Light	0.2 % T
Stability	±0.004A/h@500 nm
Baseline Flatness	±0.001A (200-1000 nm)
Noise	0.003A@500 nm
Detector	Silicone Photodiode
Display	Color TFT screen
Central beam height	15 mm
Standard Cell Holder	4-position cell holder 10x10 mm
Light Source	Tungsten & Deuterium lamp
Output	USB port & Parallel port for printer
Power Requirement	AC 85V~265V 50/60 Hz
Dimensions (LxWxH)	440 x 350 x 200 mm
Weight	9 kg

Features:

- Color TFT screen
- Self-check system
- Auto setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Save the results
- Up to 200 methods & 100 standard curves can be stored
- Incl. PC software EASY UV BASIC (Quantitative, Kinetics, Photometry Measurement)
- Incl. EMCLAB Works Calibration Certificate



Optionally available:

- PC software EASY UV (Quantitative, Kinetics, Wavelength Scan, Multi-Wavelength, DNA/Protein, Energy Scan)
- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)

Model	EMC-18S-UV
Wavelength Range	190-1100 nm
Spectral Bandwidth	2 nm
Optical System	Single Beam, grating 1200 lines/mm
Wavelength Accuracy	±0.5 nm
Wavelength Repeatability	0.3 nm
Photometric Accuracy	≤±0.5 % T or ±0.005A@1A
Photometric Range	0-200 % T, -0.3 - 3A 0-9999 conc.
Photometric Repeatability	≤0.2 % T
Photometric Mode	T, A, C, F
Stray Light	0.05 % T
Stability	±0.001A/h@500 nm
Baseline Flatness	±0.001A (200-1000 nm)
Noise	0.003A@500 nm
Detector	Silicone Photodiode
Display	TFT color screen
Central beam height	15 mm
Standard Cell Holder	4-position cell holder 10x10 mm
Light Source	Tungsten & Deuterium lamp
Output	USB port & Parallel port for printer
Power Requirement	AC 110/220V 50/60 Hz
Dimensions (LxWxH)	490 x 380 x 220 mm
Weight	11 kg

Features:

- Double Beam
- LCD screen (320*240)
- Self-check system
- Auto setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Incl. USB memory stick for methods and results
- Incl. PC software ANALYST
(Quantitative, Kinetics, Photometry Measurement, Wavelength Scan, Multi-Wavelength, DNA/Protein, System Utilities)
- Incl. EMCLAB Works Calibration Certificate



Optionally available:

- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)

Model	EMC-61PC-UV
Wavelength Range	190-1100 nm
Spectral Bandwidth	1.8 nm
Optical System	Double Beam, grating 1200 lines/mm
Wavelength Accuracy	±0.3 nm
Wavelength Repeatability	0.2 nm
Photometric Accuracy	≤±0.5 % T or ±0.005A@1A
Photometric Range	0-200 % T, -0.3 - 3A
Photometric Repeatability	≤0.001A (0-0.5A), ≤0.002A (0-0.5A) ≤0.15 % T (0-100%)
Scan Speed	Hi, MED, LOW, MAX. 3000 nm/min
Stray Light	0.05 % T
Stability	±0.001A/h@500 nm
Baseline Flatness	±0.001A (200-1000 nm)
Noise	0.0003A@500 nm
Detector	Silicone Photodiode
Display	LCD 320*240
Central beam height	15 mm
Standard Cell Holder	2 x Single cell holder 10x10 mm
Light Source	Tungsten & Deuterium lamp
Output	USB port A for USB memory stick USB port B for PC connectivity Parallel port for printer
Power Requirement	AC 110/220V 50/60 Hz
Dimensions (LxWxH)	589 x 428 x 240 mm
Weight	22 kg

Features:

- Double Beam
- Variable bandwidths 0.5/1/2/4/5 nm
- LCD screen (320*240)
- Self-check system
- Auto setting wavelength
- Auto Zero and Blank
- Sample compartment for different cell holders
- Incl. USB memory stick for methods and results
- Incl. PC software ANALYST
(Quantitative, Kinetics, Photometry Measurement, Wavelength Scan, Multi-Wavelength, DNA/Protein, System Utilities)
- Incl. EMCLAB Works Calibration Certificate



Optionally available:

- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)

Model	EMC-61PCS-UV
Wavelength Range	190-1100 nm
Spectral Bandwidth	0.5/1/2/4/5 nm
Optical System	Double Beam, grating 1200 lines/mm
Wavelength Accuracy	±0.3 nm
Wavelength Repeatability	0.2 nm
Photometric Accuracy	≤±0.5 % T or ±0.005A@1A
Photometric Range	0-200 % T, -0.3 - 3A
Photometric Repeatability	≤0.001A (0-0.5A), ≤0.002A (0-0.5A) ≤0.15 % T (0-100%)
Scan Speed	Hi, MED, LOW, MAX. 3000 nm/min
Stray Light	0.05 % T@220, 340 nm
Stability	±0.001A/h@500 nm
Baseline Flatness	±0.001A (200-1000 nm)
Noise	0.0003A@500 nm
Detector	Silicone Photodiode
Display	LCD 320*240
Central beam height	15 mm
Standard Cell Holder	2 x Single cell holder 10x10 mm
Light Source	Tungsten & Deuterium lamp
Output	USB port A for USB memory stick USB port B for PC connectivity Parallel port for printer
Power Requirement	AC 110/220V 50/60 Hz
Dimensions (LxWxH)	589 x 428 x 240 mm
Weight	24 kg

Features:

- LCD screen (320*240)
- Self-check system
- Auto setting wavelength
- Auto Zero and Blank
- Unique Flip cell holder 2 in 1 for NANO volume and standard cells
- 0.2 ~ 2.5 μ l sample volume for DNA, RNA, PCR, protein
- Incl. USB memory stick for methods and results
- Incl. PC software ANALYST
(Quantitative, Kinetics, Photometry Measurement, Wavelength Scan, Multi-Wavelength, DNA/Protein, System Utilities)
- Incl. EMCLAB Works Calibration Certificate

Optionally available:

- Windows® Pad
- IQ/OQ/PQ documentation
- Audit Trail PC software (FDA 21 CFR part 11 compliant)





The unique Flip cell holder for NANO volume and standard cells:

- Simple to use
- NANO cell holder optical path length 0.5 mm
- Cell holder for standard cells optical path length 10 mm
- Horizontal light path - high precision - no loss of energy



Model	EMC-NANO-UV
Wavelength Range	190-1100 nm
Spectral Bandwidth	4 nm
Optical System	Single Beam, grating 1200 lines/mm
Wavelength Accuracy	± 0.5 nm
Wavelength Repeatability	0.3 nm
Photometric Accuracy	≤ 0.5 % T or $\pm 0.004A@1A$
Photometric Repeatability	$\leq 0.001A$ (0-0.5A), $\leq 0.002A$ (0-0.5A) ≤ 0.5 % T (0-100%)
Photometric Range	0-200 % T, -0.3 - 3A, 0-9999 Conc.
Scan Speed	Hi, MED, LOW – MAX: 3000nm/min
Stray Light	0.05 % T@220, 340 nm
Stability	$\pm 0.002A/h@500$ nm
Baseline Flatness	$\pm 0.002A$ (200-1000 nm)
Noise	0.0005A@500 nm
Detector	Silicone Photodiode
Display	LCD 320*240
Central beam height	15 mm
Flip Cell Holder	0.2~2.5 μ l and cell 10 mm path length
Light Source	Tungsten & Deuterium lamp
Output	USB port A for USB memory stick USB port B for PC connectivity Parallel port for printer
Power Requirement	AC 110/220V 50/60 Hz
Dimensions (LxWxH)	490 x 370 x 220 mm
Weight	14 kg

Cell Holder	Description	Art. No.
	4-position cell holder for cells 10x10 mm, without slider	EMC-00020
	4-position cell holder for cells up to 50 mm, without slider	EMC-00021
	4-position cell holder for cells up to 100 mm, without slider	EMC-00019
	1-position cell holder for cells 10x10 mm	EMC-00023
	1-position cell holder water-jacketed for cells 10x10 mm	EMC-00024
	4-position cell holder water-jacketed for cells 10x10 mm, without slider (not for EMC-11 series)	EMC-00025
	8-position auto cell changer for cells 10x10 mm (not for EMC-11 series)	EMC-00029
	1-position cell holder for cells up to 100 mm	EMC-00045
	1-position cell holder for solid samples up to 2-5 mm thickness	EMC-00099
	2-position cell holder for solid samples up to 2-5 mm thickness	EMC-00101

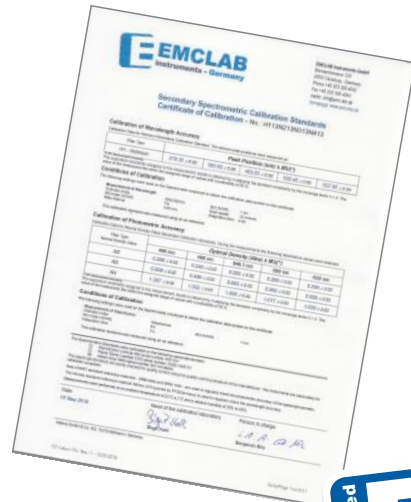
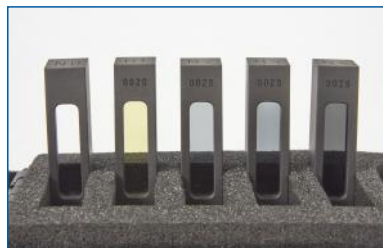
Peltier/Sipper System	Description	Art. No.
	<p>Peltier Sipper System EMC-PSA 1, 10°C - 60°C, incl. thermostat-controlled 1-position cell holder and flow through cell 10x10 mm (not for EMC-11 series)</p>	EMC-00125
Lamps	Description	Art. No.
	Halogen (Tungsten) lamp 6V10W (only for EMC-11D-V & EMC-11S series)	EMC-00011
	Halogen (Tungsten) lamp 12V/20 W (only for EMC-11-UV & EMC-18S-UV)	EMC-00012
	Halogen (Tungsten) lamp 12V/20W (only for EMC-6 series)	EMC-00013
	UV Deuterium lamp	EMC-00039
	UV Deuterium lamp type 2 for EMC-11S-UV	EMC-00130
Cells	Description	Art. No.
	Glass / Quartz glass cells on request	

UV/VIS Calibration filter set with EMCLAB Works Calibration Certificate for maintenance and service

The EMC-SET-100 for testing the wavelength accuracy and photometric accuracy enable the user to check their measurement results. The EMC-SET-100 is supplied with EMCLAB Works Calibration Certificate of Secondary Spectrometric Calibration Standards.

UV/VIS reference materials for testing:

- Wavelength accuracy
- Photometric accuracy



Glass filter set for testing wavelength accuracy (W) and photometric accuracy (A):

Art. No.	Filter	Wavelength (nm)
EMC-SET-100	Holmium Oxide glass filter H1	W*: 279; 361; 453; 536; 638 nm
	Neutral density glass filter N2, 0.25 Abs.	A*: 440; 465; 546.1; 590; 635 nm
	Neutral density glass filter N3, 0.5 Abs.	A*: 440; 465; 546.1; 590; 635 nm
	Neutral density glass filter N4, 1.0 Abs.	A*: 440; 465; 546.1; 590; 635 nm
	Empty filter mount N0	

*A= Wavelength for absorbance,

*W= Wavelength for wavelength accuracy

EMCLAB Audit Trail Software (Windows®)

provides secure access of storage results and features compliant with 21 CFR Part 11.

System access requires a user name and password which are assigned by the workgroup manager/administrator. Individual user access levels determine the access to administrative tools which include instrument configuration, analysis applications, user setup, setup and security policies as well as system and application history logs.

For every file version the recorded information is saved (time logged, time created, time last written, deleted, user and manually recorded comments).

EMCLAB Audit Trail is made for

- Monitoring of file modification
- Documentation of changes made by the user
- In specific directories
- Including subdirectories



AUDIT TRAIL

EMCLAB instruments Germany - AUDIT TRAIL

Setup

file

- Data
- Gerät1
- Gerät2
- Neuer Ordner
- EMC-61PCS-UV
 - Neuer Ordner
 - 2018
 - 2017
- EMC-NANO-UV
- EMC-BR-12

time logged	time created	time last write	length	deleted	comment
file: UQC1707001_UV60_UV600_1.QUA					
07.06.2018 22:45:17	07.06.2018 22:42:23	05.06.2018 15:03:04	1116	<input type="checkbox"/>	
file: UQC1707001_F1_Holmiumoxide_1.sca					
07.06.2018 22:49:29	07.06.2018 22:42:23	07.06.2018 22:49:24	84224	<input checked="" type="checkbox"/>	
07.06.2018 22:45:17	07.06.2018 22:42:23	05.06.2018 15:01:24	84223	<input type="checkbox"/>	
file: UQC1707001_F1-F4.QUA					
07.06.2018 22:50:38	07.06.2018 22:42:23	07.06.2018 22:50:38	1137	<input type="checkbox"/>	Außentemperatur
07.06.2018 22:49:53	07.06.2018 22:42:23	07.06.2018 22:49:53	1137	<input type="checkbox"/>	Zusatz A
07.06.2018 22:45:17	07.06.2018 22:42:23	05.06.2018 15:01:35	1126	<input type="checkbox"/>	Ursprung

Refresh

Comment

Außentemperatur

K4=0.000000
r=1.000000
[Wavelength]
Num=5
WL1=445.000000
WL2=465.000000
WL3=546.099976
WL4=590.000000
WL5=635.000000
WL6=850.000000
WL7=800.000000
WL8=750.000000
WL9=700.000000
WL10=650.000000
WL11=600.000000
WL12=580.000000
WL13=560.000000
WL14=540.000000
WL15=520.000000
WL16=500.000000
WL17=400.000000
WL18=480.000000
WL19=460.000000

AUDIT TRAIL

Disclaimer


Liquid Handling
 Bottle Top Dispenser
 Titration Station
 Digital Burette
 Digital Pipettes




Made in Germany



Stirrer
 Inductive Magnetic Stirrer
 Hotplate Stirrer



Made in Germany



Laboratory Autoclaves
 EMC-ACH 23
 EMC-ACH 29
 EMC-ACH 45



Made in Germany




EMCLAB Instruments GmbH
 Kulturstrasse 55
 47055 Duisburg | Germany
 Fon: +49 203 41859410
 Fax: +49 203 41504809
 E-mail: info@emc-lab.de
 Web: www.emc-lab.de

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