

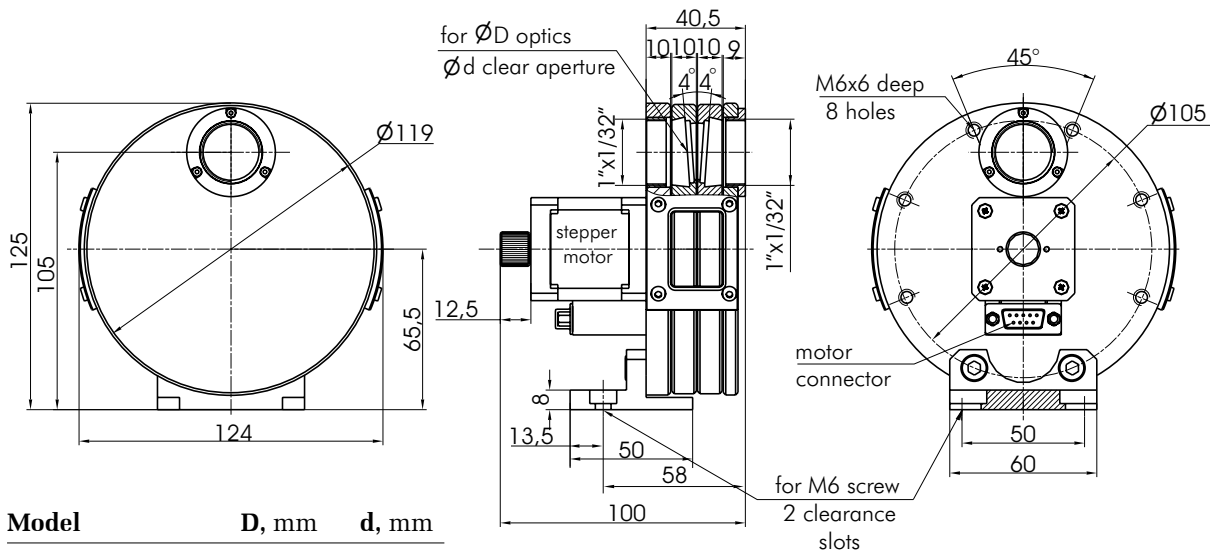
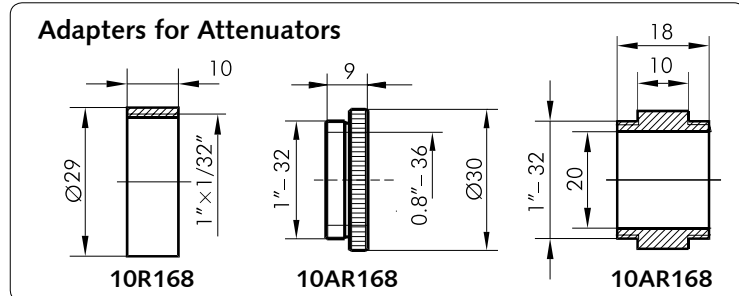
Motorized Closed Variable Two Wheels Attenuators

10MCWA168

- Filter diameter - $\varnothing 20/\varnothing 25.4$ mm
- Clear aperture $\varnothing 18/\varnothing 23$ mm
- Non parallel filters (inclined by 4°)
- Maximum thickness of filters - 4 mm
- C-mount threads on both ends
- Control program using 8SMC4-USB controller Xilab interface



10MCWA168-1



Model	D, mm	d, mm
10MCWA168-20	$\varnothing 20$	$\varnothing 18$
10MCWA168-1*	$\varnothing 25.4$	$\varnothing 23$

10MCWA168-1* - without filters.

Motorized Closed Variable Two Wheel Attenuator 10MCWA168 consists of two filter wheels. Each wheel contains eight filter mounts of $\varnothing D$ mm with clear aperture of $\varnothing d$ mm. Each mount is inclined by **4 degrees** to prevent mutual reflections between filters.

We supply the attenuator **10MCWA168-20** with a standard, most popular, set of filters. See the table below. Alternatively, optics could be manufactured to individual orders. Or we could supply the attenuator without filters, which you can fit by yourself.

10MCWA168-1 model comes WITHOUT filters. You bring a filter of each wheel into the optical path easily by hand or using automation. The two wheels are driven by a single step motor. A computer can operate it via a controller and **Computer Software** come separately.

For fastening, the attenuator has clearance slots for **M6** and **M4** screws. There are also two **M6** holes, and one **M4** hole (opposite to one of the **M6** holes).

Material: black anodized aluminium.

The attenuator stepping motor:

SPECIFICATIONS

Rated Current	0.4 A	
Resistance	33 Ω	
Inductance	52 mH	
Holding torque	0.12 N·m	
Step angle	1.8 $^\circ$	
Step angle accuracy	5 minutes	
Required electrical power	5.6 W	
Weight		
	10MCWA168-20	0.7 kg
	10MCWA168-1	0.75 kg

Transmittance of filters from a standard set:

WHEEL N1	WHEEL N2
1	1
0	0
0.9	0.8
0.5	0.3
0.1	0.03
0.01	0.003
0.001	0.0003
0.0001	0.00003



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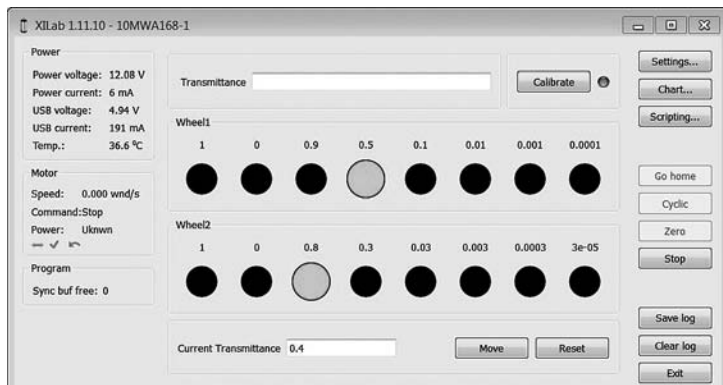
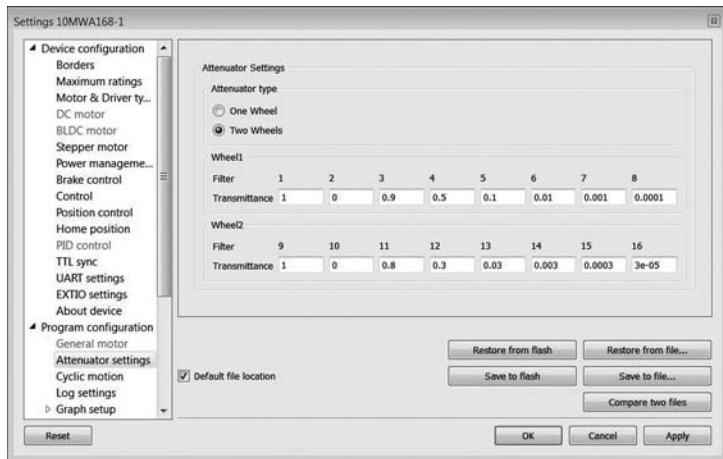
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Computer Software



- Control of single stepper motor with two wheels and up to 8 filters in every wheel
- Operation in transmittance mode
- Program chooses the best combination of filters for required transmittance
- Transmittance values of each filter can be entered manually

Software Xilab Software XiLab used with controller 8SMC4-USB has integrated filter wheel control functionality designed to control STANDA motorized filter attenuators. Motorized filter attenuators can be used in all kinds of optical circuitry where variable transmittance has to be achieved. Program allows you to easily change transmittance in attenuators 10MWA168, 10MCWA168 and 8MRU-1-WA. Just enter transmittance value, and the program will select the most suitable filters. Or you can select the filters directly. The simple interface allows you to use the program right away. All of our software works only with our controllers. Controller software can be downloaded for the majority of operating systems, e.g., Windows, Mac OS X, Linux etc.

REQUIREMENTS

Display
STANDA's Stepper Motor Controllers
24 V / 36 V power supply



Free software downloads available on www.standa.LT

Stepper motor controllers for Motorized Variable Two Wheels Attenuators



Motorized Closed One Wheel Attenuator for Microscope



10MWA18-1

- 8 filters
- Filter diameter 1" (Ø25.4 mm)
- Clear aperture Ø23 mm
- Connecting adapters available

SPECIFICATIONS

Rated current	0.67 A
Resistance	5.6 Om
Inductance	4 mH
Step angle	1.8°
Step angle accuracy	5'

More info on www.STANDA.LT

Universal Motorized Rotation Stages



8MRU-1WA

8MRU-1WA - a filter wheel version of universal rotation stage **8MRU**. Accepts up to **eight 1" filters**.

SPECIFICATIONS

Rotation range	360°
Resolution in full step	0.6°
in 1/8 step	4.5 arcmin
Max. rotation speed*	3 ÷ 5 rps
Wobble	2 arcmin
Reduction gear	3:1
Limit switches	mechanical
Drive mechanism	belt
Load capacity	
Horizontal	5 kg
Radial	1.5 kg
Torque	4.5x10 ⁻³ Nm
Cable	integrated, 1.6 m length
Motor connector	HDB15(M)
Stepper motor	28S

*Test condition:
 • STANDA controllers;
 • Power supply - 36V.

See catalogue page 8-47



8MRU-1TP

8MRU-1TP - a version of **8MRU** with a universal mounting platform with a **pattern of M6 and M4 tapped holes**.



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Variable Attenuator/Beamsplitter

10APF3

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10APF3-1

- Combine Half Waveplate with a Polarizing Beamsplitter
- Both optics are adjustable
- Optics should be ordered separately

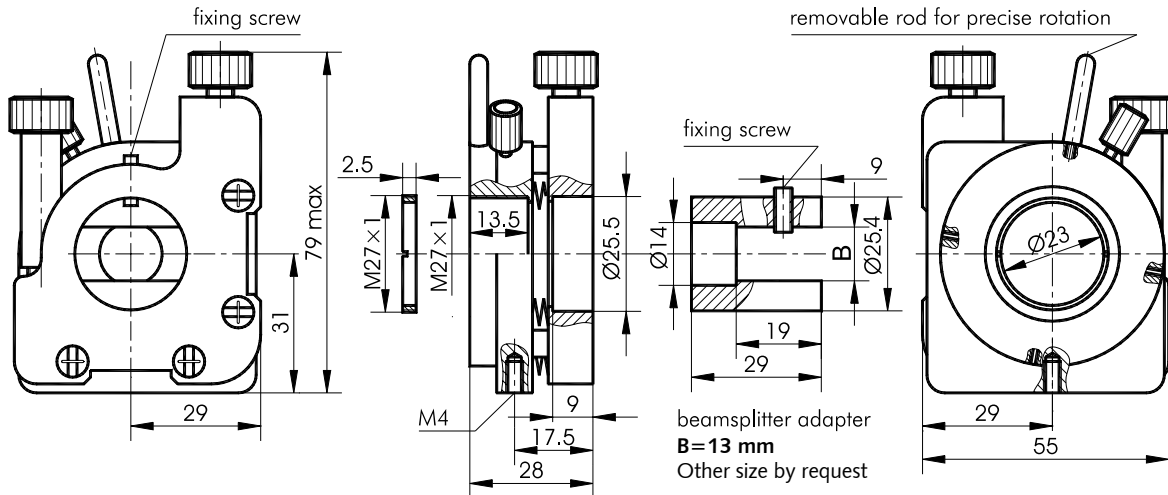
10APF units allow to mount a **half waveplate** and a **polarizing beamsplitter**. The result is a combined **Variable Attenuator/Beamsplitter**.

To attenuate the beam, you can rotate the **waveplate** the whole **360°**.

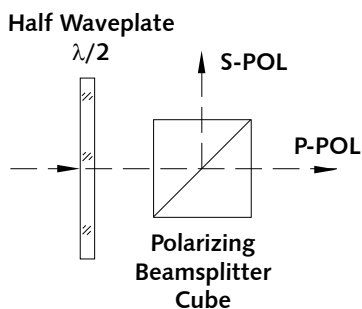
10APF3 is a modified 5APH79T mount. When mounted on the **M4** hole in the platform, **pivot** is applied to the **base** instead of the **platform**. A beamsplitter is mounted via an adapter to the **base**. Hence the beamsplitter can be **pivoted** within **±2.5°** in one **coordinate**. You can freely **rotate** the **adapter** in the base and clutch it with a **fixing screw**.

SPECIFICATIONS

Half waveplate	
rotation range	360°
Scale gradation	2°
Beamsplitter cube	
Pivot	±2.5°
Sensitivity	3 arcsec
Rotation	360°



10APF3-1



see catalogue section 14

ORDERING INFORMATION

10APF3-1	Variable Attenuator/Beamsplitter without optics
10APF3-1CVAB	Variable Attenuator/Beamsplitter with optics (see next page)
WPZO.2-1	Half Waveplate
PBC-10	Polarizing Beamsplitter Cube



10APF3-1CVAF
Variable Attenuator for Femtosecond laser pulses
(look next catalogue page)



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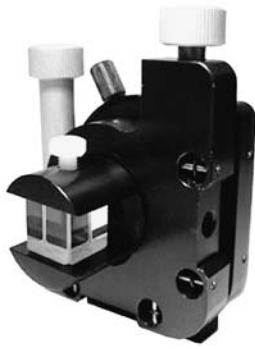


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Continuously Variable Attenuator/Beamsplitter

10APF3-1CVAB



- Divides laser beam into two beams of manually adjustable intensity ratio
- Convenient 90 deg angle between reflected and transmitted beams
- Negligible beam deviation
- Large dynamic range

SPECIFICATIONS

Beam deviation	40×10^{-6} rad, average over range
Damage threshold	200 mJ/cm ² pulsed at 1064 nm, typical
Antireflection coating	R < 0.25% all entrance and exit surfaces
Time dispersion	t > 100 fs for laser pulses
Extinction ratio	T _s /T _p < 1:1000

Continuously Variable Attenuator / Beam-splitter for down to **100 fs laser pulses**. This Variable Attenuator / Beamsplitter consists of 2 high-performance polarizing optics components placed in precision opto-mechanical Holder **5APH79T-1**. 10APF3 incorporates a high-performance Polarizing Cube Beam-splitter which reflects s-polarized light 90 while transmitting p-polarized light.

A rotating quartz Phase $\lambda/2$ Waveplate is placed in the incident polarized laser beam. The intensity ratio of those two beams may be continuously varied without alteration of other beam parameters by rotating the wave-plate. The intensity of either exit beam, and their intensity ratio, can be controlled over a wide dynamic range. Pure p-polarization could be selected for maximum transmission, or pure s-polarization for maximum attenuation of the transmitted beam.

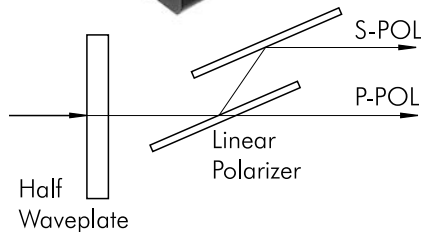
Standard Models	Central wavelength, nm	Clear aperture, mm
10APF3-1CVAB-1064-10	1064	10
10APF3-1CVAB-1064-15	1064	15
10APF3-1CVAB-1064-20	1064	20
10APF3-1CVAB-780-10	780	10
10APF3-1CVAB-780-15	780	15
10APF3-1CVAB-780-20	780	20
10APF3-1CVAB-800-10	800	10
10APF3-1CVAB-800-15	800	15
10APF3-1CVAB-800-20	800	20

Variable Attenuator for Femtosecond laser pulses

10APF3-1CVAF



- Divides laser beam into two parallel beams of manually adjustable intensity ratio
- Large dynamic range
- Negligible beam deviation
- High Optical damage threshold



SPECIFICATIONS

Central wavelengths	266, 355, 532, 780, 800, 1064 nm or other
Operational wavelength range	+/- 10 nm
Beam deviation	40×10^{-6} rad, average over range
Aperture diameter	15 mm
Damage threshold	5 J/cm ² pulsed at 1064 nm, typical
Antireflection Coating	R < 0.25% all entrance and exit surfaces
Time dispersion	t < 4fs for Ti:Sapphire laser pulses
Polarization Contrast	> 500:1

Standard Models	Central wavelength, nm	Standard Models	Central wavelength, nm
10APF3-1CVAF-266	266	10APF3-1CVAF-780	780
10APF3-1CVAF-355	355	10APF3-1CVAF-800	800
10APF3-1CVAF-532	532	10APF3-1CVAF-1064	1064



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