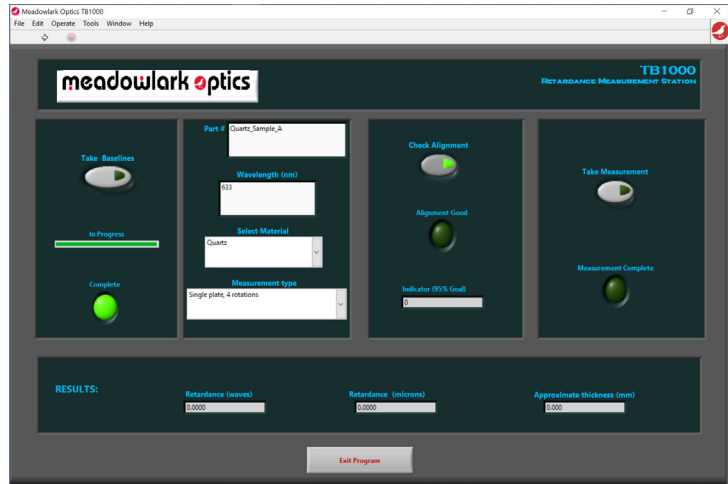




The TB1000 software is fully automated and provides user's retardance measurements with a simple click. It only takes <2 seconds to obtain accurate, repeatable results.

Due to variation in crystal structure, calculating the retardance based on the thickness of the material using only a listed birefringence can lead to errors. The TB1000 allows an end user to accurately measure the real retardance of each waveplate.



TB1000 Software Interface

Retardance in crystals will change with temperature variation. As a rule of thumb, the retardance (in waves) for a 1 mm thick quartz retarder varies by about -0.5% per °C. For this reason, we encourage regular monitoring of air temperature around the equipment if small retardance changes are concerning. Alternatively, you can use the reference retarder included with the TB1000 to confirm accurate readings.

Sample Measurements using TB1000

Material	¹ Measured Thickness in mm	² Calculated Retardance in nm (waves)	³ Measured Retardance in nm (waves)
Quartz A	3.068	27,770 (43.870)	27,705 (43.768)
Quartz B	1.623	14,691 (23.208)	14,648 (23.142)
Quartz C	0.198	1,792 (2.830)	1,753 (2.771)
Sapphire A	1.733	13,976 (22.079)	13,958 (22.052)
Sapphire B	3.475	28,018 (44.262)	27,984 (44.210)
MgF2 A	2.320	27,300 (43.127)	27,184 (42.945)
MgF2 B	0.483	5,789 (9.145)	5,667 (8.953)

1. Measured on Heidenhain length gauge.
2. Retardance calculated using $\delta = Bt/\lambda$, using Measured Thickness
3. Measured at 633nm on TB1000.

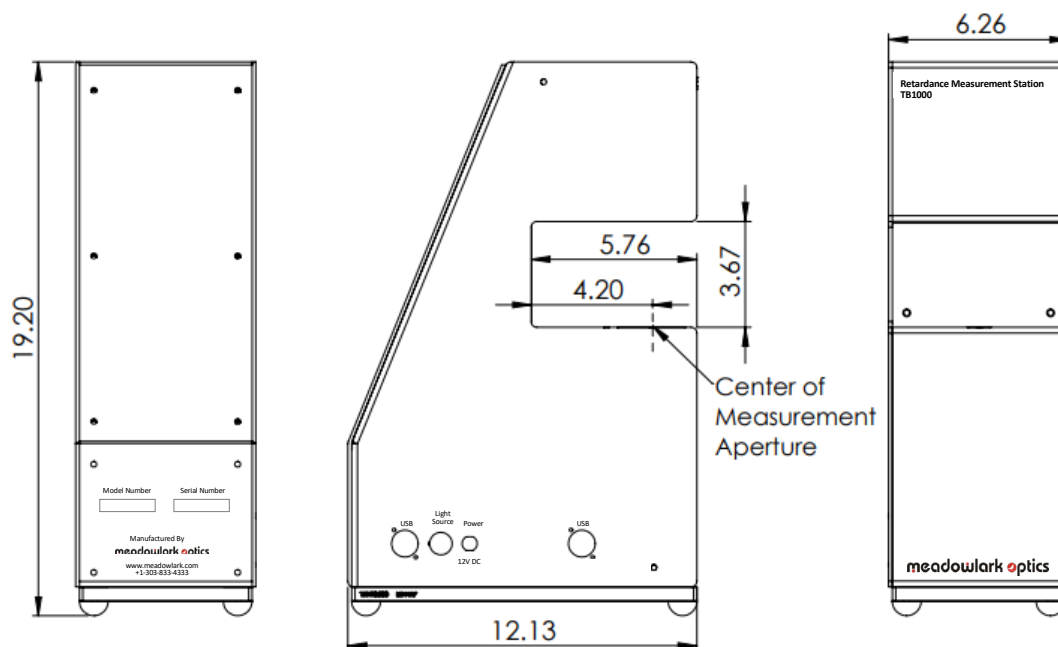


Retardance Measuring Station

SPECIFICATIONS	
Retardation Range	0.1 – 45 waves at 630 nm (default)
Wavelength measurement range capabilities	380 nm to 4.5 μ m
Maximum optic size (to center)	8.2" (208 mm)
Retardance Accuracy ¹	0.005 waves at 630 nm
Measurement Rate ²	<2 seconds
Measurement Spot Diameter	3.8 mm
Measurement Units	nm, λ (for retardance) or mm (for thickness)
Crystal Types	Quartz Sapphire Magnesium fluoride
Interfaces	USB 2.0

¹ Highest retardance accuracy obtained with four measurements.

² Minimum speed retardance is obtained.



ORDERING INFORMATION	
Item	Part Number
Retardance Measuring Station	TB1000
Optional Sample Holder Kit	TB1000-SHK