

ATF4

AUTO FOCUS & TRACKING SENSOR

Single dot 660nm, 785nm or 850nm
ATF ideal for laser scribing, glass
inspection, colour filter inspection and
repair and laser micro-machining



The ATF4

WDI's ATF4 is a high speed, high accuracy, autonomous digital autofocus sensor. Its "Smart Sensor Architecture" (SSA) incorporates a semiconductor laser, built-in CMOS image sensor, FPGA and microprocessor for fast digital image processing. By projecting a laser dot onto the sample and digitally processing the image, the ATF4 provides fast and accurate measurements of the distance and direction to focus. This information can then be output directly to WDI's MCM+ or MCZ controller, or to any compatible controller.

High Accuracy At Fast Speeds

WDI's ATF4 sensors project their focusing laser directly through the objective lens of the microscope. This "Through The Lens" (TTL) technique allows the ATF4 to provide extremely accurate autofocus, with a success rate typically higher than 99%. The ATF4's on-board digital processing allows it to couple this accuracy with extremely high speeds, typically achieving focus in less than 0.6 seconds.

Tracking Autofocus

The ATF4 continually assesses both the distance and direction to focus, updating its data every 0.5 milliseconds. This allows the sensor to keep samples in focus regardless of whether they are stationary or in motion. This powerful tracking autofocus makes the ATF4 perfect for scanning very large specimens quickly and precisely.

Maximum Flexibility

The ATF4 sensor is designed to automatically adjust its laser intensity as well as the image sensor's exposure time, allowing it to adapt to a wide variety of specimens, from low reflectivity (down to 1%) to highly reflective (up to 99%). It operates very well on plane reflective surfaces such as glass and unpatterned Si wafer. It is compatible with objective lenses from 2X to 100X magnification, and wavelengths including UV, NUV and NIR. The ATF4 includes *Laser Enable* and *Camera Sync* features for automatically suspending the laser.

Easy Integration

All of the sensors in WDI's ATF family are designed with ease of integration in mind. They are compatible with most types of infinity corrected microscope objectives. The ATF4 can be purchased as either a stand-alone sensor with analog output, or as full autofocus system, integrated with either WDI's MCM+ controller for driving an external Z stage or MCZ controller which includes the ability to drive a two-phase stepper motor for Z actuation. All WDI's ATF sensors have small, standardized footprints and connections, and can output in either analog or digital formats, making them both easy to install and easy to upgrade as application requirements evolve.

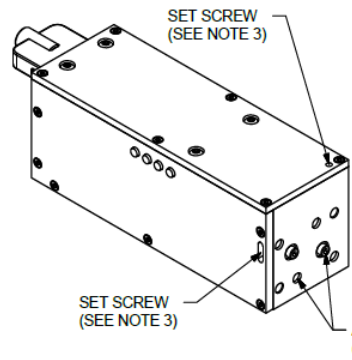
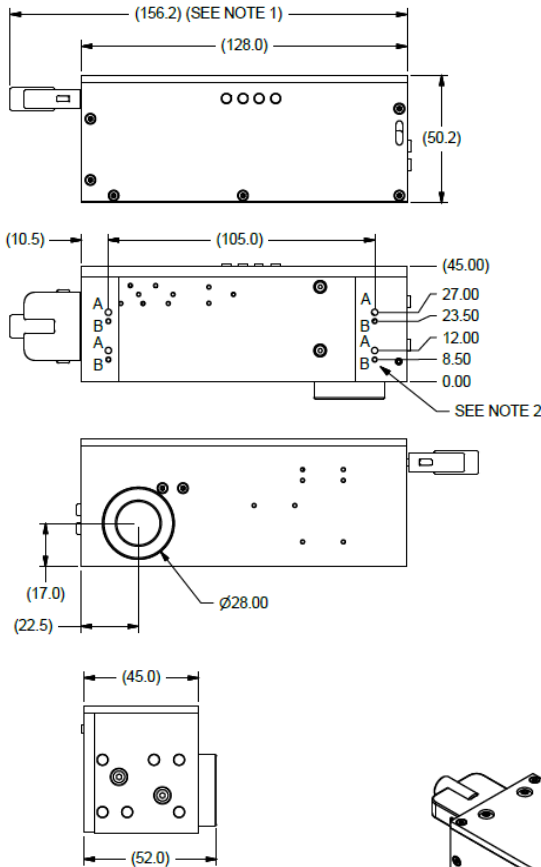


ATF4 Sensor	
Structured Light Pattern	Single Dot
Sensor Wavelength	Choice of 660nm, 785nm or 850nm
Image Detector	Line Scan CMOS
Autofocus Update Rate	1.2kHz
Static Autofocus Accuracy	± 1/4 Objective Depth of Focus
Fast Tracking Autofocus Accuracy	± 1/2 Objective Depth of Focus

General Performance	
Reflectivity Adaption Delay	1ms
Laser Type	Semiconductor
Laser Safety	Class 2
Weight	250g
Dimensions	40 X 40 X 120mm
Maximum Cable Length	1.8m
Compliance	CE SEMI

External Requirements	
Specimen Reflectivity	1% ~ 99%
Glass Thickness	> 0.5mm
Diffusing Specimen	No
Specular Specimen	Yes
Patterned Specimen	No
Textured Specimen	No

Operating Specifications	
Input Voltage	18V ~ 25V, 24V Nominal
Operating Temperature	18°C ~ 35°C
Storage Temperature	10°C ~ 45°C
Humidity	10% ~ 75% Non Condensing



NOTES:

1. ALLOW AN EXTRA 30mm FOR CABLE BEND RADIUS AND CONNECTOR UNPLUGGING.
2. THE MOUNTING SCREWS SHOULD PROTRUDE INTO THE THREADED HOLES BY NO MORE THAN 4mm TO AVOID ANY INTERFERENCE WITH THE INTERNAL COMPONENTS.
3. THESE SET SCREWS AND ADJUSTING SCREWS SHOULD BE ACCESSIBLE AFTER INSTALLATION FOR THE FINAL, IN FIELD, CALIBRATION OF THE SENSOR.



is a world leader in the manufacturing and integration of industrial autofocus sensors and microscopy automation solutions for the biomedical, metrology, electronics, semiconductor and laser markets. WDI's success lies in an innovative culture and ability to optimize and adapt our technology to a customers' specific requirements by listening to their needs and gaining a deep understanding of their processes, applications and goals. WDI employs over 20 optical, electrical, mechanical and software engineers as well as scientists who are dedicated to servicing our customers. We have locations in Canada and Poland, as well as service centers in Taiwan and South Korea. Contact WDI today to see how we can help solve your microscopy automation needs.