

SMART FOCUS & SHUTTER MODULE

COMPACT FORMAT FOR UNLIMITED SOLUTIONS

Focus & Shutter Module



The Focus & Shutter Module delivers fast, precise, and reliable optical control in a compact, low-power, fully integrated module.



FAST

70ms Shutter
0.4s Focus Travel



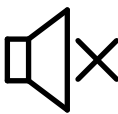
OFF POWER HOLD

Focus and Shutter
Hold Position
Without Power



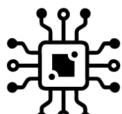
PRECISE

Closed-loop position
control for optimal
performance



QUIET

Soft Close Shutter
Whisper Quite Focus



INTEGRATED

3.3v Operation with
Internal Controller and
Drivers

SMART OPTICAL CONTROL

NST Smart Focus & Shutter provides advanced capabilities over discrete solutions

- Programmable Optical States, not limited to open/closed positions
- Optical Sub-System, drop-in integration
- Software Defined Behavior, adaptive focus, soft close shutter
- Multi-Function Capabilities in One Package

BUILT FOR SWaP

Small, Lightweight,
Efficient, Reliable.

Designed for the **most**
demanding missions.

Key Performance Metrics

Shutter Speed	70ms Actuation (90° TYP)
Focus Range	1.5 mm
Positioning	Absolute Encoders
Focus Resolution	0.5 µm
Shutter Resolution	22 mdeg
Input Voltage	3.3 V
Input Power	280 mW (Standby)
On-Board Controller	SPI / I2C / UART
Mass	20 g



EO/IR CAMERAS

DEFENSE SYSTEMS

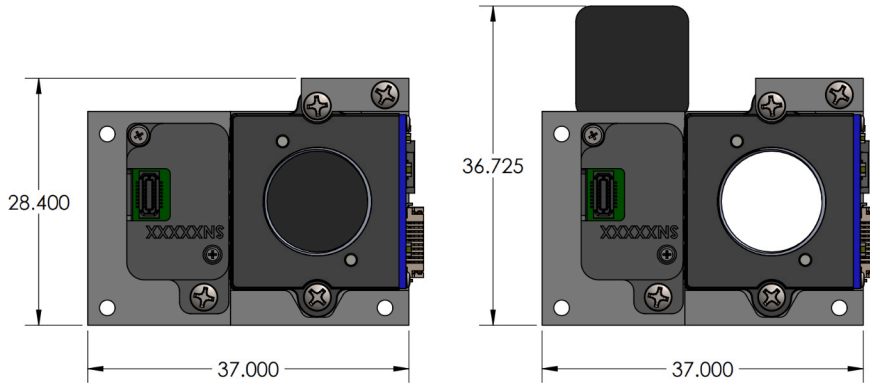
MEDICAL & SCIENTIFIC
INSTRUMENTS

UAV/UGV PAYLOADS

INFRASTRUCTURE
INSPECTION

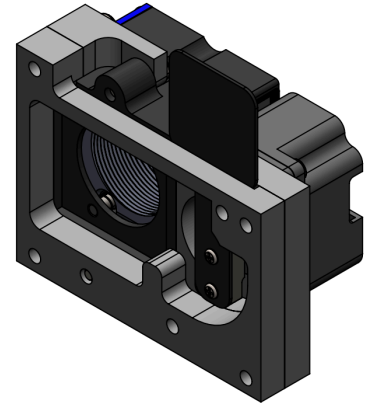


Smart Focus & Shutter Dimensions



Light Tight Design

Mounts over Camera Sensor



Smart Focus & Shutter

Shutter Range	90°
Focus Range	1.5mm
Module Mass	20 g
Module Dimensions	37 x 28.4 x 20 mm

Focus Payload

Mass	< 5 g
Lens Mount	M12 (M3-F) M16 (M3-FS)

M3-FS Closed Loop Performance

Resolution	0.5 μm
Repeatability	$\pm 5 \mu\text{m}$
Accuracy	$\pm 12 \mu\text{m}$
Maximum Speed	5 mm/s

Shutter Closed Loop Performance

Step Frequency	100 Hz
Resolution	22 mdeg (14 bit)
Repeatability	$\pm 0.05^\circ$
Accuracy	0.25°

Electrical & Control

Input Voltage	3.3VDC
Power	750 mw moving 0 mw stationary
Communication Interface	I2C, SPI, UART
Controller	Integrated Controller

Configure with M3-F or M3-FS



NST Pathway™ Application

The included Pathway software provides access to stage settings, scripted motion commands, diagnostics, and more with an easy to use graphical interface.

ASCII commands can be sent directly to stages using the Manual Command Entry or you can create your own code using the intuitive scripting tool.

