Uniblitz® FS35

35mm Uni-Stable Optical Shutter

Overview

The Uniblitz FS series shutters are designed and optimized to operate directly from +5VDC and do not require a separate driver. Removing the +5VDC (0VDC) closes these shutters. A simple control circuit can be used to operate these shutter devices from a TTL trigger pulse. This control can be also accomplished with our new VLM1 TTL control interface (available soon).

This low-cost innovation provides the reliability of Uniblitz shutters (typical lifetime >300K cycles) at a single operating voltage.

Key Features

- 35mm aperture
- Default closed operation, +5VDC opens the shutter, 0VDC closes the shutter
- **RoHS Compliant**
- Transfer time on opening:

  20.0 milliseconds
- Total opening time:

  32.0 milliseconds

Need Support? Please **visit our website** or email us at **info@uniblitz.com.**

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Product Options

FS35 ❷ ❸ ❹ ❺ ❻ - ❼ Ex: FS35S2C0L-EC

❶ Shutter Series:
- **FS35:** Normally Closed
- **FSR35:** Normally Open

❷ Voltage:
- **S:** Standard 5VDC

❸ Housing: [1]
- **1:** Un-Housed
- **2:** Half-Housed
- **3:** Fully-Housed

❹ Blades: [2]
- **C:** Black carbon impregnated plastic (C-PET)
- **T:** Low Energy (Teflon®)
- **ZM:** High Energy (AlMgF2) [3]

❺ Electronic Sync:
- **0:** Omitted
- **1:** Included

❻ Connector:
- **L:** 18" flying leads

❼ Encapsulated Coil:
- **EC:** Included [4]
- Leave blank if not required

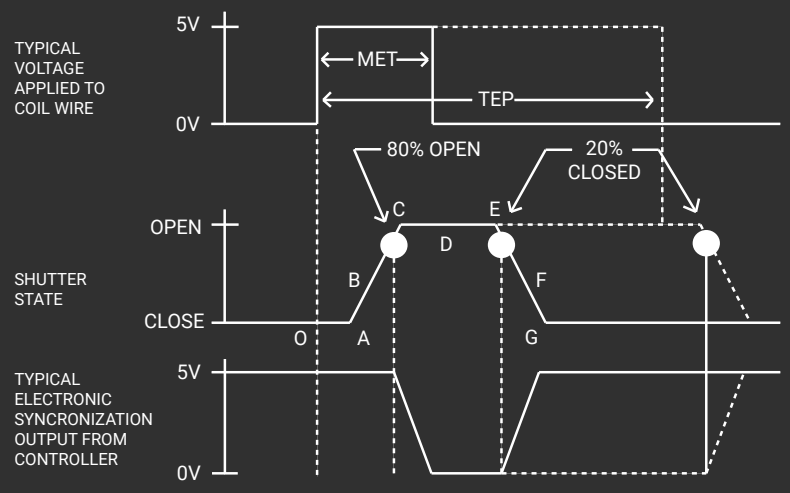
[1] *Various mounting methods are available depending on housing option – see Key Features on website*

[2] *Other blade coating options may be available by special order.*

[3] *Input side only; Teflon® coating is on opposite side to protect shutter blade surface. Light source must be input to the reflective side only.*

[4] *Vacuum compatibility up to 10E-10 Torr*

Shutter Timing



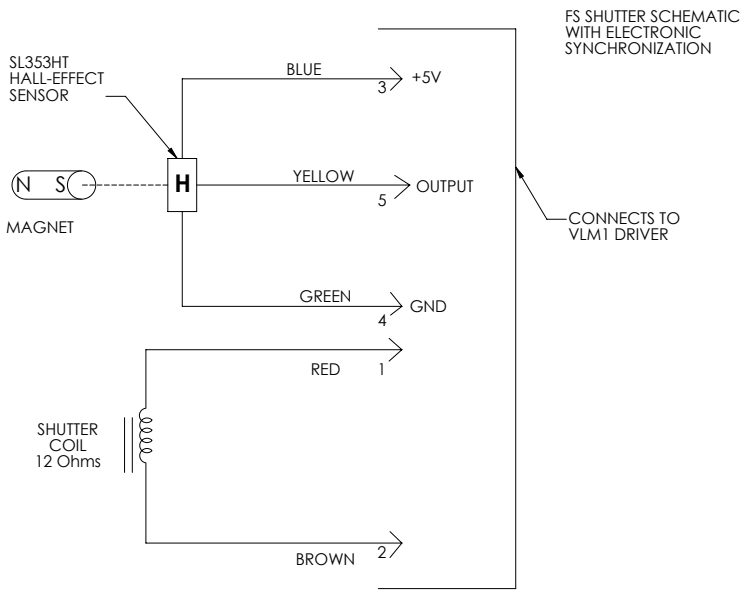
FS35 (w/ 5VDC and C-PET blades)		Time (msec.)
O - A	Delay time on opening after current applied	12.0
A - C	Transfer time on opening	20.0
O - C	Total opening time	32.0
C - E	Min. dwell time with min. input pulse	14.0
B - F	Min. equivalent exp. time	33.0
E - G	Transfer time on closing	18.0
A - G	Total window time	52.0
MET	Min. exposure time	40.0
TEP	Typical exposure pulse	>40.0

Technical Specifications

Coil Resistance	Voltage to Open	Hold Voltage
12 Ω	+5 VDC at 425mA	+5 VDC

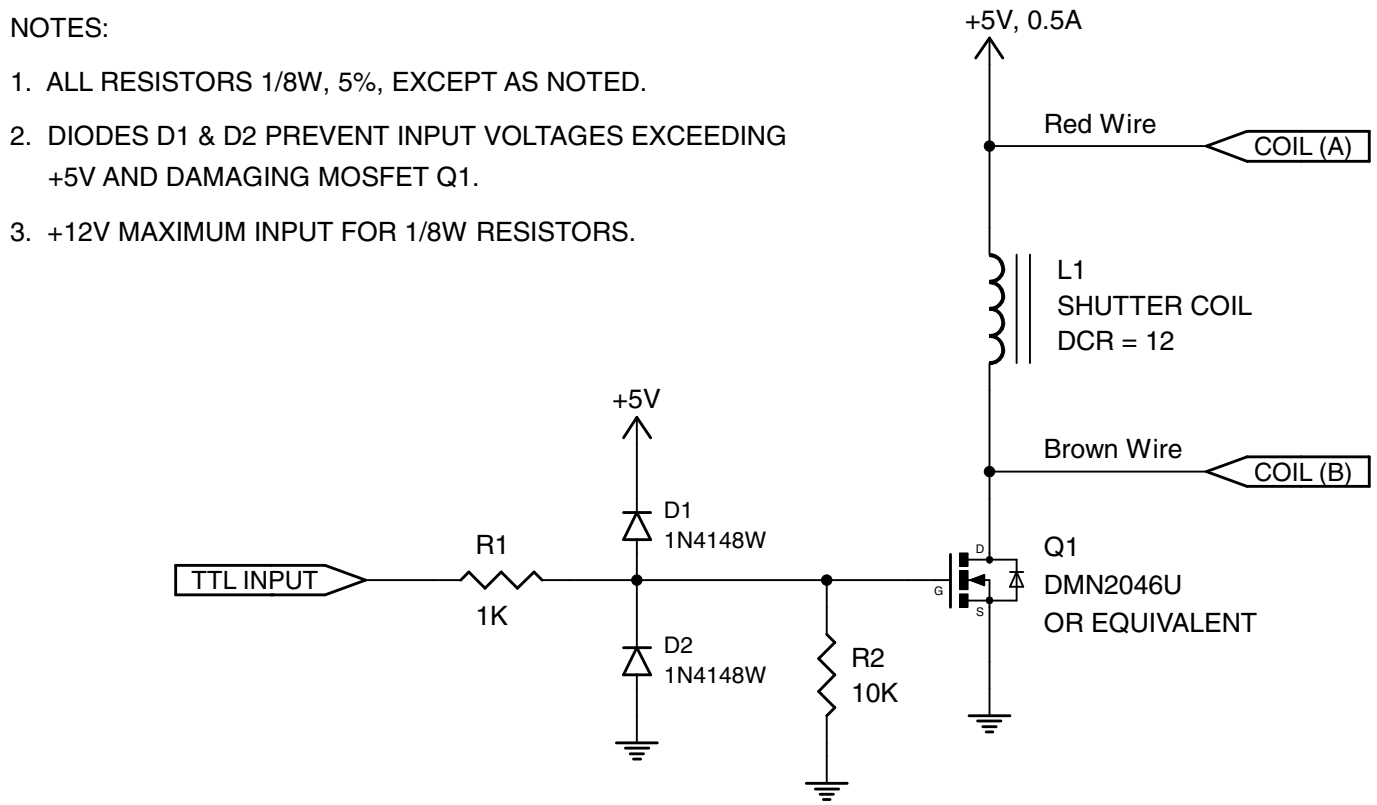
[1] *(Continuous/Burst) Continuous frequency rating specified at shutter's minimum exposure pulse. Burst frequency rating specified for four (4) seconds maximum with one (1) minute minimum between bursts.*

Series	Weight (Unhoused/Half/Housed)	Operating Temp.	Max. Opening Bounce	Max. Closing Bounce	Max. Freq. of Operation [1]	Number of Shutter Blades
FS35	48.5 g / 116.0 g / 183.5 g	-40 - +65 °C	15%	15%	5 Hz / 10 Hz	5



The synchronization system for FS shutter devices incorporates a small magnet mounted to the driving mechanism and a Hall effect sensor. When the device achieves approximately 80% of full open, the magnet causes the Hall effect sensor to change state, producing a signal to indicate that the shutter has switched to the active state. Shown to the left is the FS series shutter schematic which incorporates the electronic synchronization system. **There is no connection to the designated synchronization pins when an electronic sync. is not selected.**

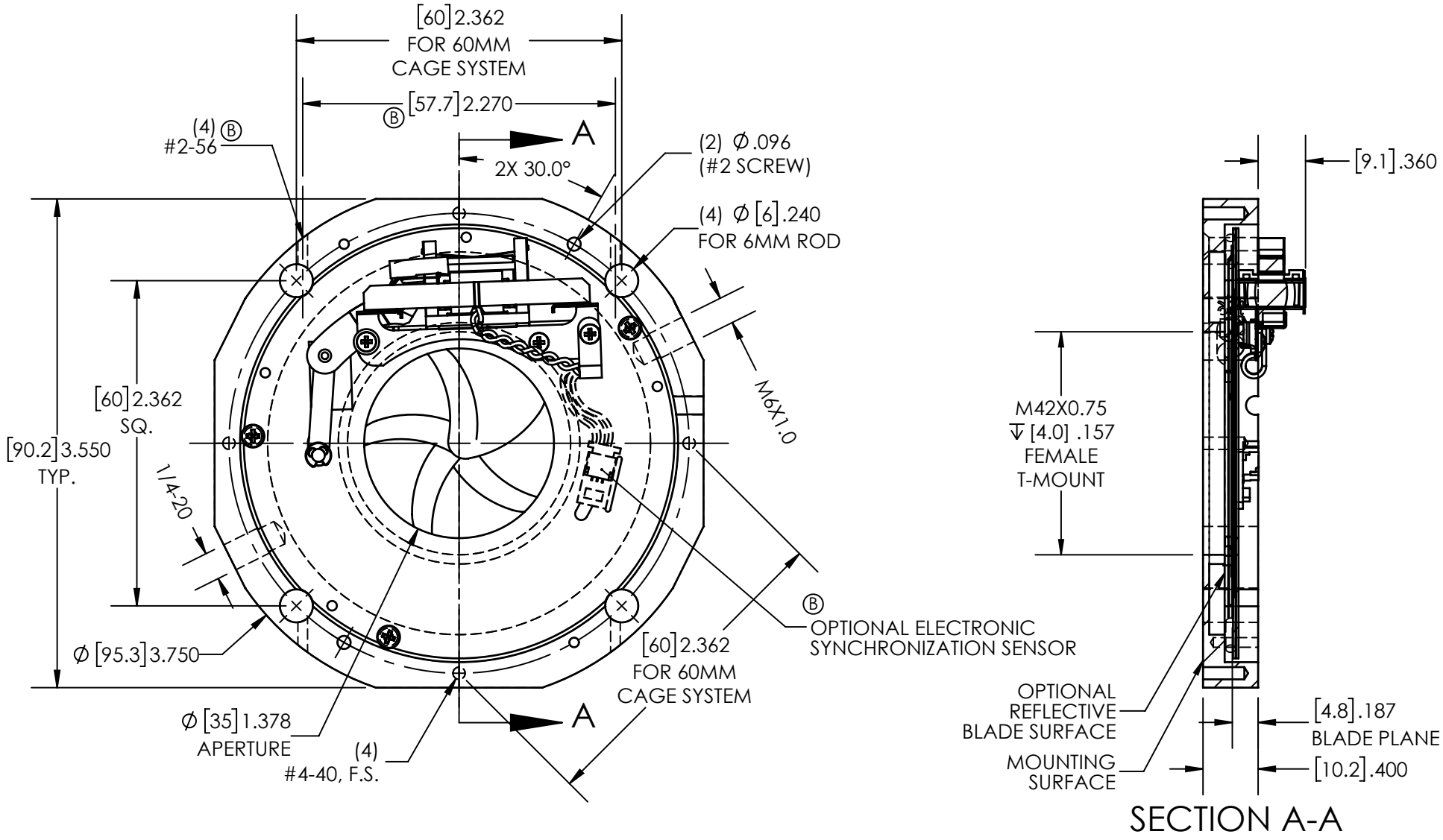
Typical Control Circuit



This simple control circuit can be used to operate the shutter device from a TTL trigger pulse.[1] This control can be also accomplished with our new VLM1 TTL control interface, which will be available soon.

[1] *The shutter will not operate directly from a TTL signal.*

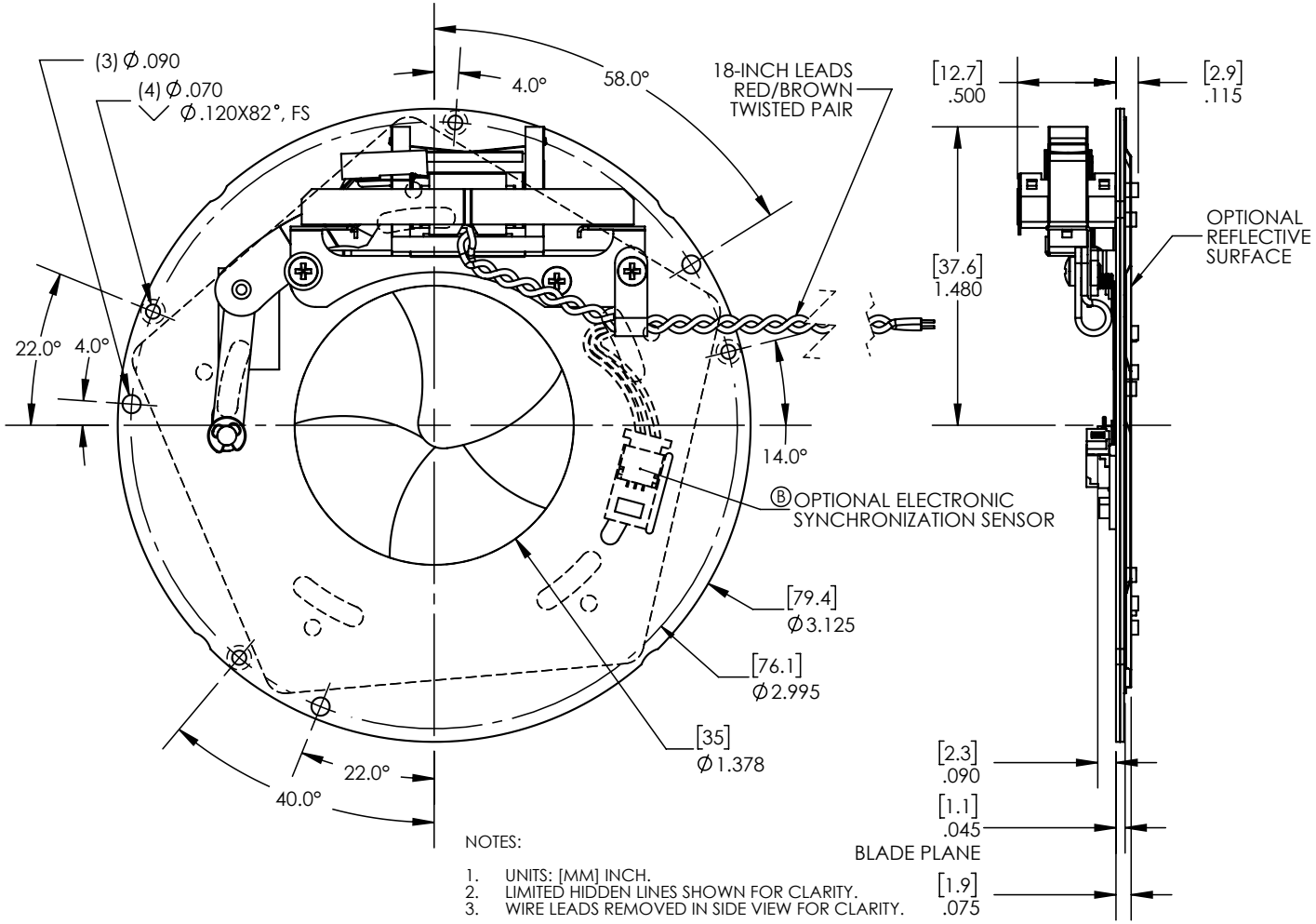
Technical Drawings - FS35 (Half-Housed - FS35S2C0L)



NOTES:

1. UNITS: [MM] INCH.
2. LIMITED HIDDEN LINES SHOWN FOR CLARITY.
3. LEADS WIRES REMOVED FOR CLARITY.

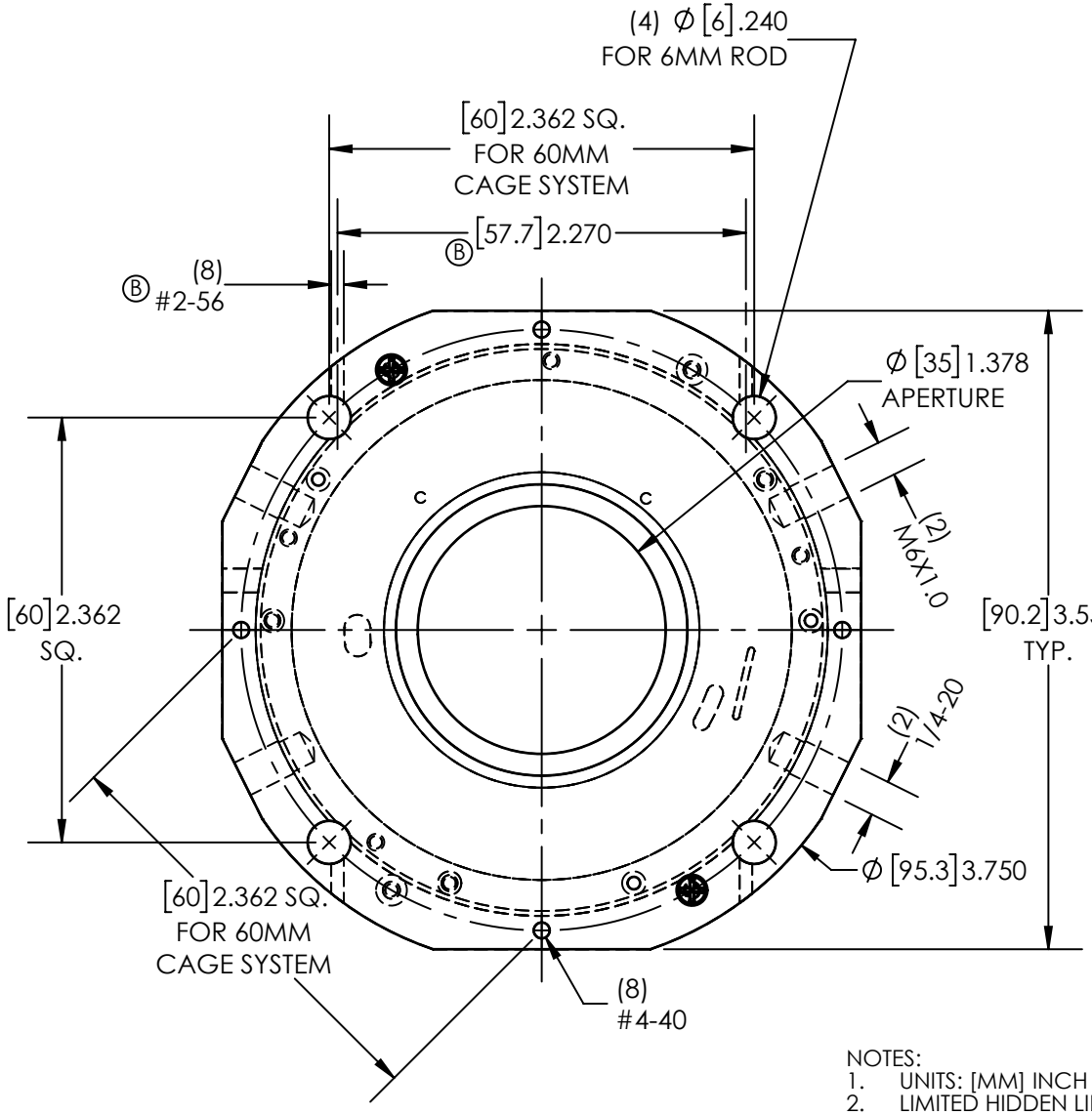
Technical Drawings - FS35 (Un-Housed - FS35S1C0L)

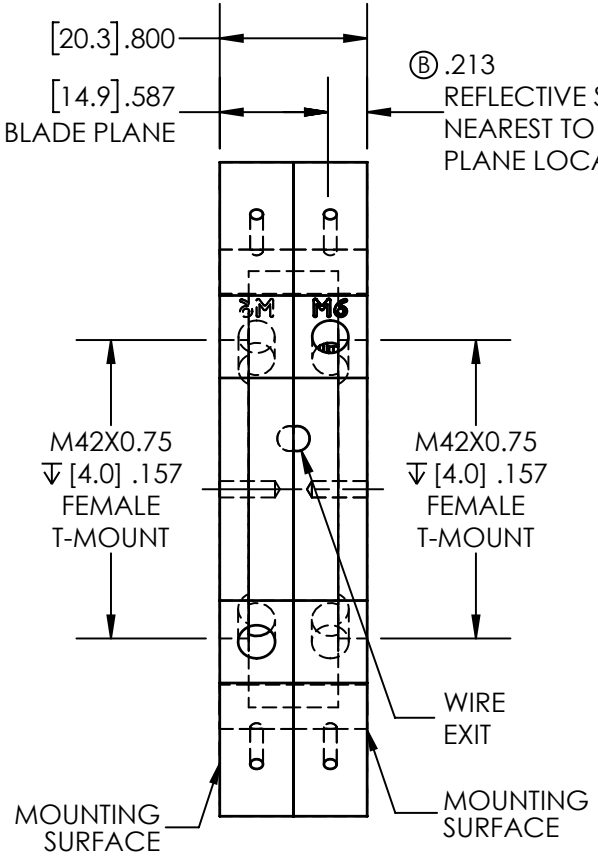


NOTES:

1. UNITS: [MM] INCH.
2. LIMITED HIDDEN LINES SHOWN FOR CLARITY.
3. WIRE LEADS REMOVED IN SIDE VIEW FOR CLARITY.

Technical Drawings - FS35 (Housed - FS35S3C0L)





NOTES:
1. UNITS: [MM] INCH
2. LIMITED HIDDEN LINES SHOWN FOR CLARITY.
3. OPTIONAL REFLECTIVE SURFACE OPPOSITE ACTUATOR COIL SIDE.