

# Uniblitz® FS25

25mm 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.

**Need Support?** Please [visit our website](#) or email us at [info@uniblitz.com](mailto:info@uniblitz.com).

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Updated 2/21 | Datasheet Version 5.3 | ©2021 Vincent Associates

## Key Features

- 25mm aperture
- Default closed operation, +5VDC opens the shutter, 0VDC closes the shutter
- **RoHS Compliant**
- Transfer time on opening:  
**9.0 milliseconds**
- Total opening time:  
**16.0 milliseconds**

# Product Options

FS25 ② ③ ④ ⑤ ⑥ - ⑦

Ex: FS25S2C0L-EC

## ① Shutter Series:

- **FS25:** Normally Closed
- **FSR25:** Normally Open

## ② Voltage:

- **S:** Standard 5VDC

## ③ Housing:

- **1:** Un-Housed
- **2:** Half-Housed
- **3:** Fully-Housed

## ④ Blades: <sup>1</sup>

- **C:** Black carbon impregnated plastic (C-PET)
- **T:** Low Energy (Teflon<sup>®</sup>)
- **ZM:** High Energy (AlMgF<sub>2</sub>) <sup>2</sup>

## ⑤ Electronic Sync:

- **0:** Omitted
- **1:** Included

## ⑥ Connector:

- **L:** 18" flying leads

## ⑦ Encapsulated Coil:

- **EC:** Included <sup>3</sup>
- Leave blank if not required

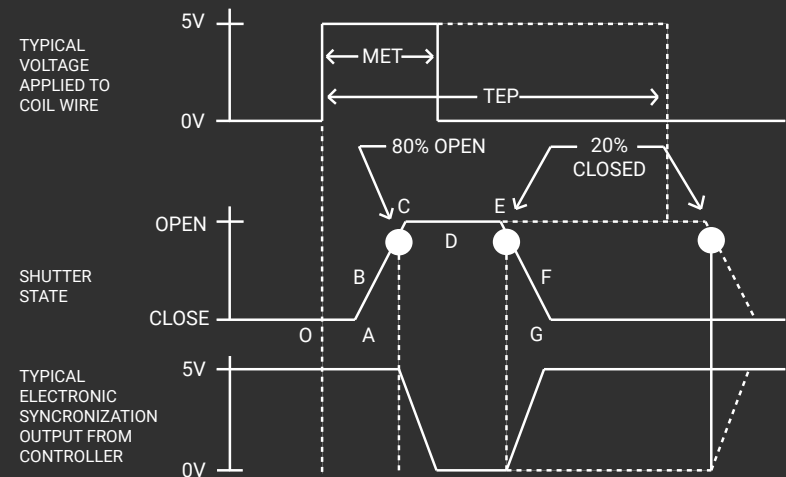
<sup>1</sup> Various mounting methods are available depending on housing option – see Key Features on website

<sup>2</sup> Other blade coating options may be available by special order.

<sup>3</sup> Input side only; Teflon<sup>®</sup> coating is on opposite side to protect shutter blade surface. Light source must be input to the reflective side only.

<sup>4</sup> Vacuum compatibility up to 10E-10 Torr

# Shutter Timing



## FS25 (w/ 5VDC and C-PET blades)

## Time (msec.)

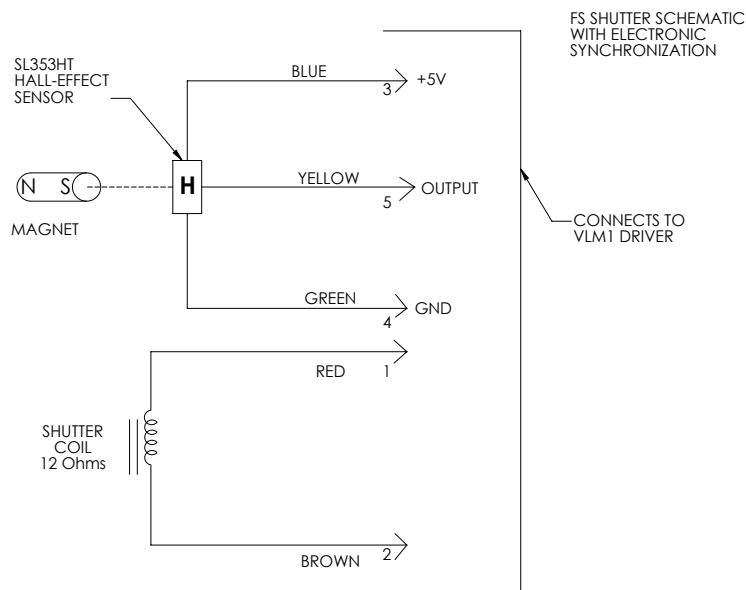
O - A	Delay time on opening after current applied	7.0
A - C	Transfer time on opening	9.0
O - C	Total opening time	16.0
C - E	Min. dwell time with min. input pulse	15.0
B - F	Min. equivalent exp. time	30.5
E - G	Transfer time on closing	22.0
A - G	Total window time	46.0
MET	Min. exposure time	30.0
TEP	Typical exposure pulse	>30.0

# Technical Specifications

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

<sup>1</sup>(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 <sup>1</sup>	Number of Shutter Blades
FS25	22.0 g / 57.0 g / 92.5 g	-40 - +65 °C	15%	15%	5 Hz / 10 Hz	5

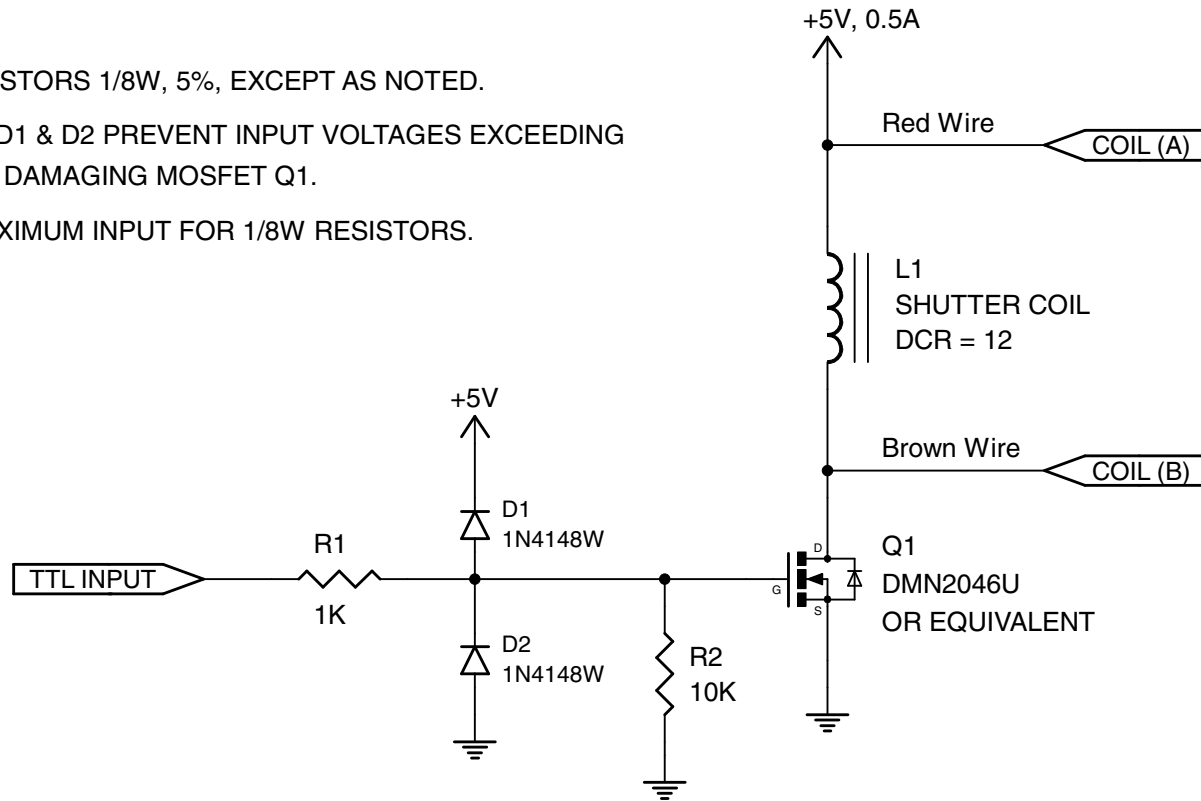


The synchronization system for FS shutter devices incorporates a small magnet mounted to the driving mechanism and a Hall effect sensor. When the device achieves approximately 80% of full open, the magnet causes the Hall effect sensor to change state, producing a signal to indicate that the shutter has 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

## NOTES:

1. ALL RESISTORS 1/8W, 5%, EXCEPT AS NOTED.
2. DIODES D1 & D2 PREVENT INPUT VOLTAGES EXCEEDING +5V AND DAMAGING MOSFET Q1.
3. +12V MAXIMUM INPUT FOR 1/8W RESISTORS.



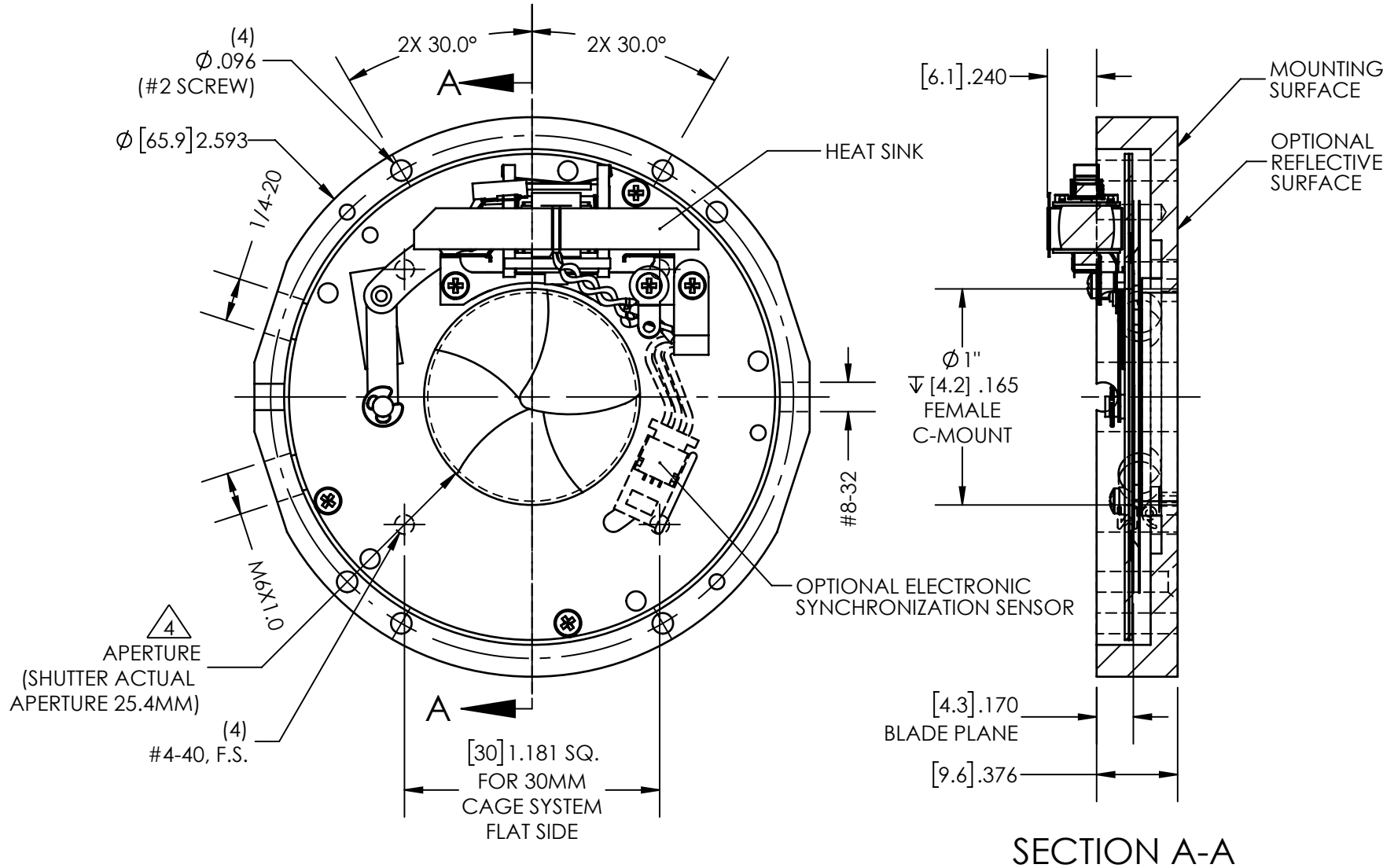
This simple control circuit can be used to operate the shutter device from a TTL trigger pulse.<sup>1</sup> This control can be also accomplished with our new VLM1 TTL control interface, which will be available soon.

<sup>1</sup> The shutter will not operate directly from a TTL signal.

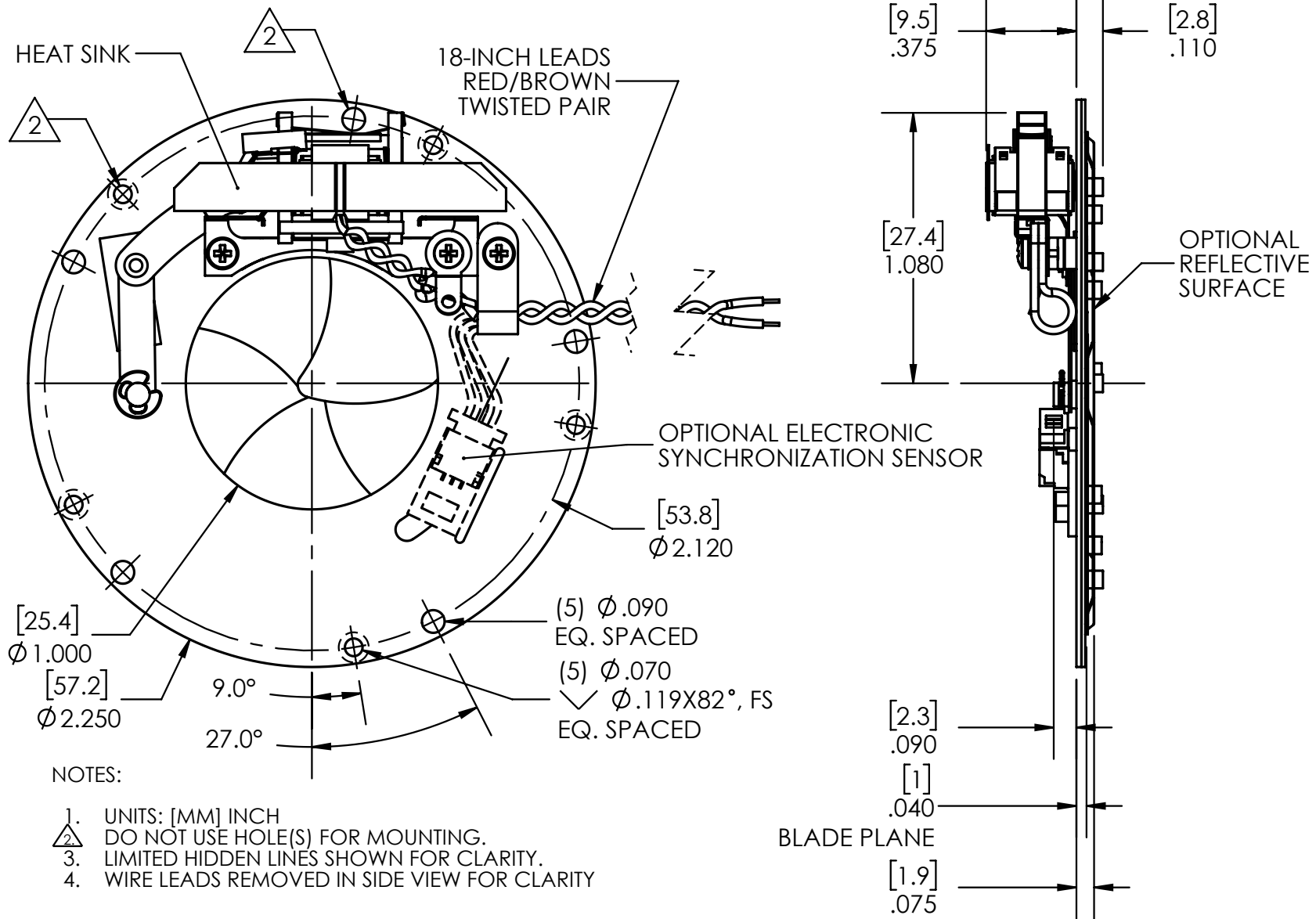
# Technical Drawings - FS25 (Half-Housed - FS25S2C0L)

NOTES:

1. UNITS: [MM] INCH.
2. LIMITED HIDDEN LINES SHOWN FOR CLARITY.
3. LEADS WIRES REMOVED FOR CLARITY.
4. SHUTTER ACTUAL APERTURE IS 25.4MM, IN MOUNT APERTURE IS REDUCED BY FEMALE C-MOUNT TO  $\Phi .965$  [24.5MM].



# Technical Drawings - FS25 (Un-Housed - FS25S1C0L)



# Technical Drawings - FS25 (Housed - FS25S3C0L)

NOTES:

1. UNITS: [MM] INCH
2. LIMITED HIDDEN LINES SHOWN FOR CLARITY.
3. SHUTTER APERTURE IS 25.4MM REDUCED TO (Ø .965 [24.5MM]) WHEN INSTALLED INTO HOUSING.
4. OPTIONAL REFLECTIVE SURFACE OPPOSITE ACTUATOR COIL SIDE.

