

25mm Uni-Stable X-ray Shutter

Overview

The Uniblitz XRS25 has been designed specifically for x-ray switching applications. The innovative platinum-iridium (PtIr) blade design allows beam extinction of 90% up to 30 keV x-ray energy (based upon the tenth value extinction of PtIr). The XRS25 is well suited for applications such as x-ray crystallography, medical x-ray imaging, etc.

Key Features

- 25mm aperture
- Capable of blocking x-ray energy (30 KeV)
- Dual-actuator design, configured for the [VCM-D1 Shutter Driver](#)
- **RoHS Compliant**
- Transfer time on opening: 12.0 milliseconds
- Total opening time: 19.0 milliseconds

Specifications

Primary Actuator Electrical Specifications ¹

Coil resistance	24 OHMS
Voltage to Open	+70 VDC
Hold Voltage (Nominal) ²	+7 VDC / +5 VDC ³ (continuous)

Secondary Actuator Electrical Specifications ¹

Coil resistance	24 OHMS
Voltage to Open	+70 VDC
Hold Voltage (Nominal) ²	+7 VDC / +5 VDC ³ (continuous)

Mechanical Specifications

Weight Unhoused	130.0 g
Weight Housed	370.0 g
Operating Temp.	0 - 80 °C
Max. Opening Bounce	15%
Max. Closing Bounce	5%
Max. Freq. of Operation ⁴	2 Hz / 10 Hz
Number of Shutter Blades	2

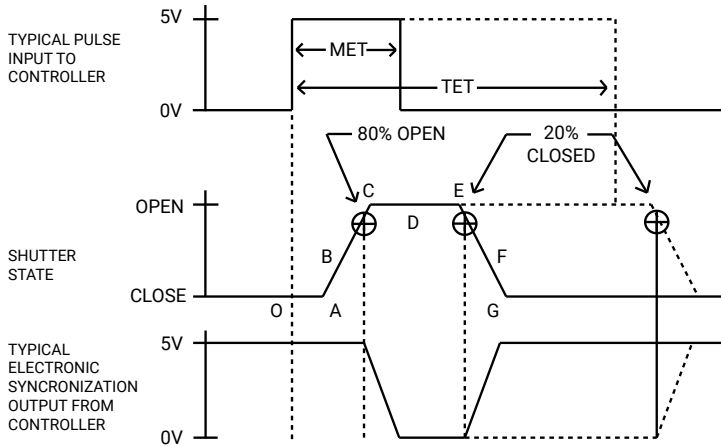
¹ Actuators wired in parallel. Combined DCR is 12 Ω.

² Voltage level required across actuator coil when held in open position.

³ Dual hold voltage system included in VCM-D1 shutter driver.

⁴ (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.

Shutter Timing Data



MET¹ and TET² for XRS25

- **Minimum Exposure Time (MET):**
25.0 msec. ³
- **Typical Exposure Time (TET):**
35.0 msec. ³

XRS25 ⁴ (w/ VCM-D1 and "Ptr" blades) ⁵		Min. Exp. Time (msec.)		Typ. Exp. Time (msec.)	
Graph	Description	Typical	Max	Typical	Max
O - A	Delay time on opening after opening drive is applied	7.0	8.0	7.0	8.0
A - C	Transfer time on opening	12.0	14.0	12.0	14.0
O - C	Total opening time	19.0	22.0	19.0	22.0
B - F	Minimum equivalent exposure time	23.5	27.5	37.3	41.3
C - E	Minimum dwell time (based on exposure pulse)	9.0	10.0	19.5	20.5
D - E	Delay time on closing after closing drive is applied	3.0	7.0	3.5	7.5
E - G	Transfer time on closing	17.0	21.0	23.5	27.5
A - G	Total window time	38.0	45.0	55.0	62.0

¹ The minimum timing required to allow the shutter to fully open and then fully close.

² The exposure time provided to the driver where, as you increase the exposure pulse in one msec increments, the shutter output (or the A-G time) will change in one msec increments.

³ Due to non-linearity caused by damp and blade adjustment, exposure pulse selection between 25msec and 35msec may have some indeterminate typical and max values.

⁴ Individual timing segments may vary.

⁵ Under no circumstances should any type of lubricant be applied to the shutter blade area. Lubricating the shutter blades will likely slow the shutter down and may eventually render it inoperable.

Product Options

XRS25H 2 3 4 5 6 - 7 - 8

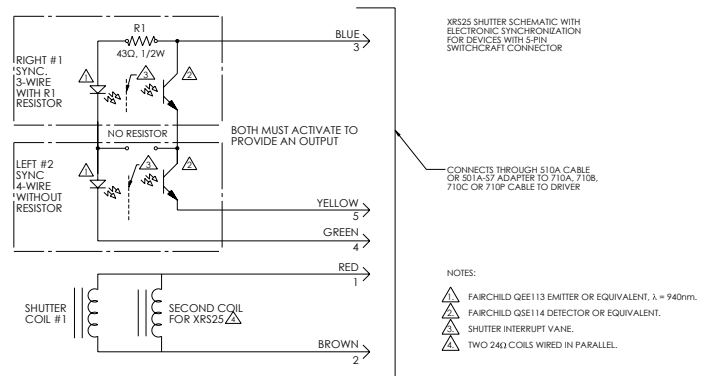
Ex: XRS25HS2P0-EC-21

<p>1 Shutter Series:</p> <p>XRS25H</p>	<p>2 Driver Compatibility:</p> <p>S: Use with VCM-D1 E: Use with VED24, V880, or D880C</p>	<p>3 Housing:</p> <p>1: Un-Housed 2: #2 Housing</p>	<p>4 Blades:</p> <p>P: 0.01" thick Ptlr (10% iridium, 90% platinum)</p>
<p>5 Electronic Sync:</p> <p>0: Omitted 1: Included</p>	<p>6 Connector:</p> <p>L: 18" Flying Leads <i>Leave blank for 5-pin Switchcraft connector</i></p>	<p>7 Encapsulated Coil:</p> <p>EC: Included <i>Leave blank if not required</i></p>	<p>8 Mount: ¹</p> <p>21: Zeiss Axiovert 105: C-Mount (Male) 24: Olympus BX/IX 106: C-Mount (Female) 27: Nikon <i>Leave blank if not required</i></p>

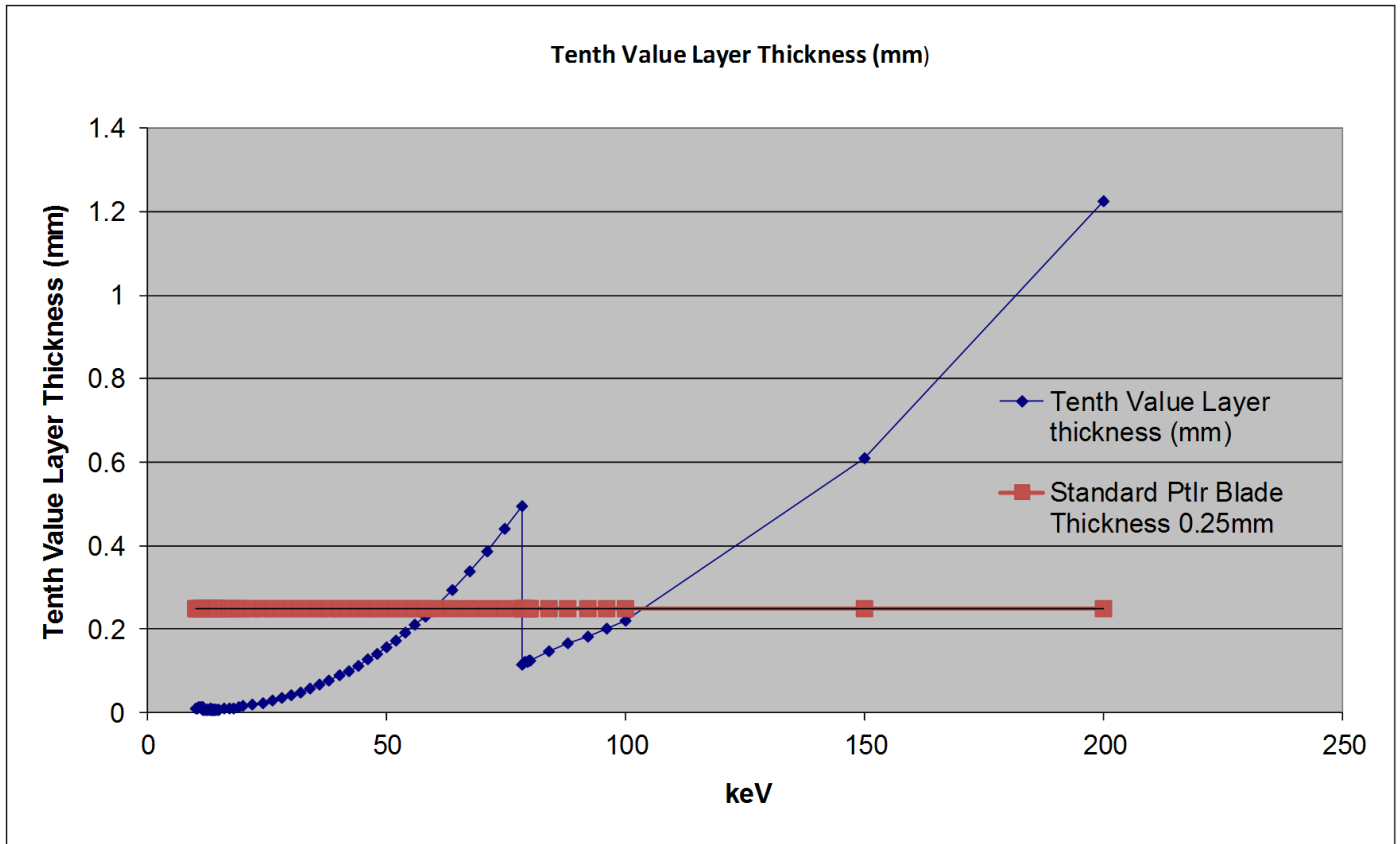
¹ Mounts are only compatible if #2 housing is optioned as well.

Electronic Sync.

The electronic synchronization system provides a feedback signal (through the driver utilized) after the shutter transfers to the open state. The system incorporates an infrared emitting diode, an infrared sensitive detecting transistor, and an interrupting vane (one sync. system for each actuator – the sync circuits are interconnected to insure both blades transfer to provide an output, a wire "AND" configuration). The vane is attached to each shutter blade so as to block the light path between the emitter and detector in the closed position. When both actuators are activated and each shutter blade transfers to the 80% open position, the vane is removed from each of the infrared light paths, allowing each emitter to switch the detectors to the active state. **There will be no connection to the designated connector pins when electronic sync. is omitted.**



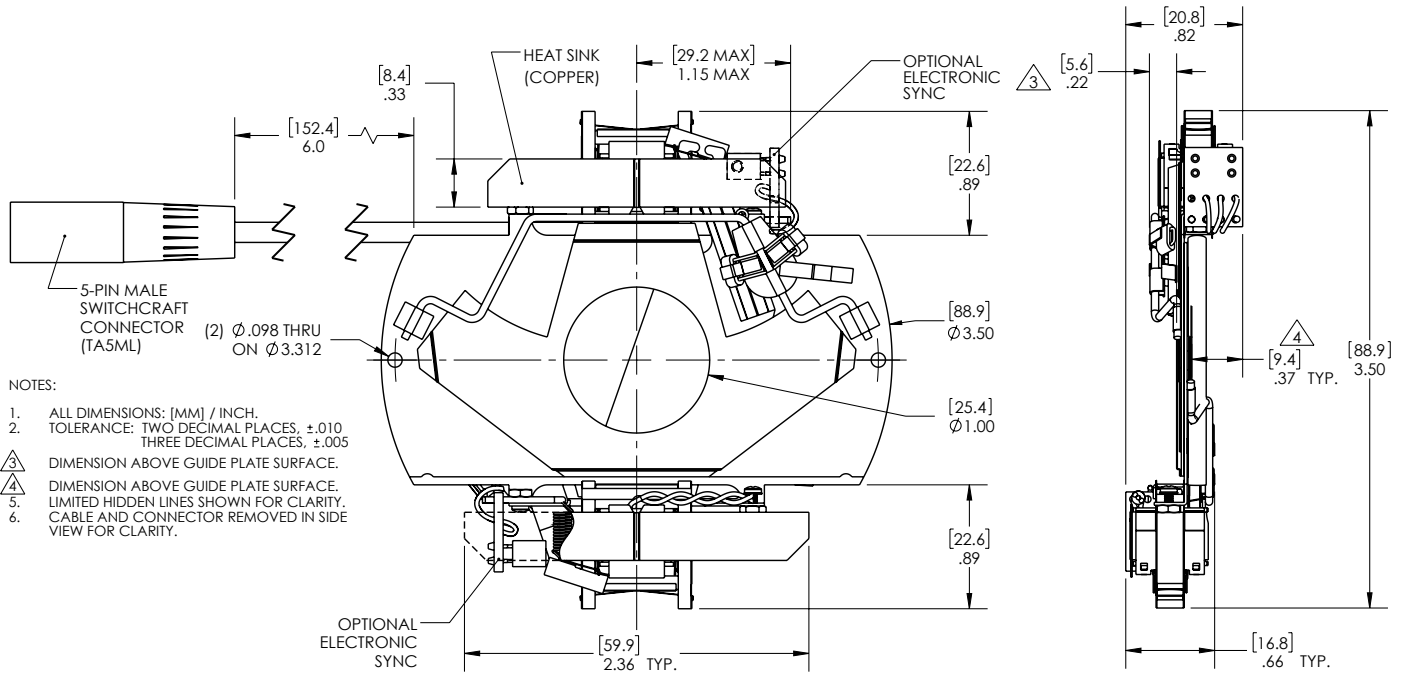
Shuttering X-rays with Platinum-Iridium Alloy



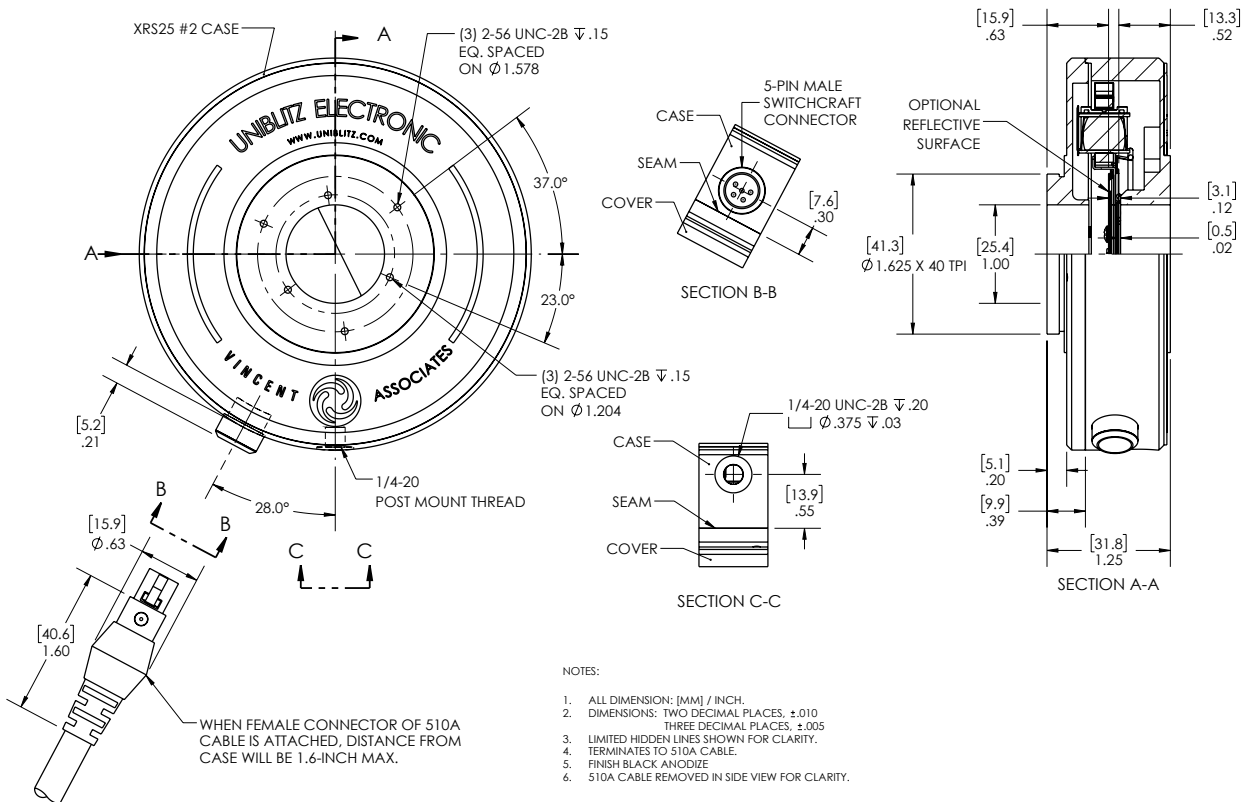
All Uniblitz XRS Series shutters come standard with platinum-iridium (PtIr) blades ("P" blades), allowing for a beam extinction of 90% at up to 30 keV x-ray energy.

Uniblitz® XRS25 Technical Drawings

Un-Housed / Shutter Layout

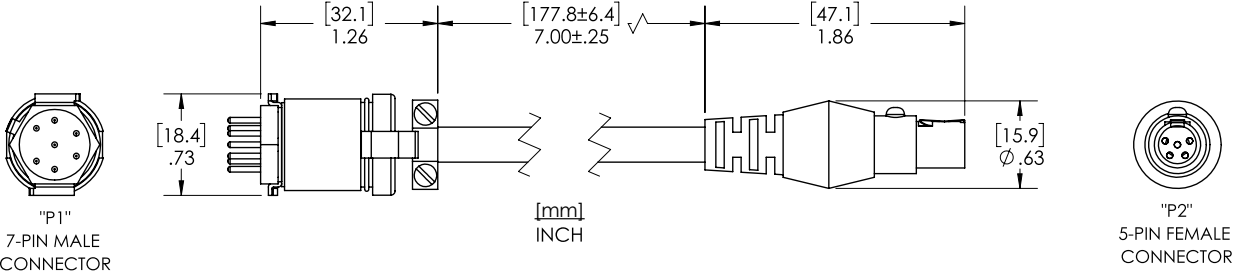


Connector Layout



Uniblitz® XRS25 Technical Drawings

501A-S7 Adapter Cable¹ (Not included)



¹ 501A-S7 Shutter Adapter Cable is required for use with VMM-D3, VMM-D4, D880C and any VCM-D1 purchased prior to November 2022.