

# UHS1 SERIES SHUTTER SPECIFICATIONS

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## FEATURES

- 1mm diameter aperture
- Fastest shutter in the UNIBLITZ® line of electro-programmable shutters.
- 350µsec total exposure time in the (HIGH) speed mode.
- 180µsec rise time.
- Activated by an electronic pulse through shutter driver module, the DM412, included.
- Exposure repetition rate continuously variable from DC-400Hz.
- Electronic synchronization system included.
- Non-resonant design allows instantaneous changes in repetition rate and duty cycle in the normal (NORM) mode.
- No optical surface when open provides 100% transmittance

The UHS1 supersedes the LS2 as the fastest shutter in Vincent's UNIBLITZ® line. As with the LS series, the UHS1 is specially suited for laser use, with applications including low level chopping, high speed switching, pulse gating and selection, and modulation to 400 Hz. In the high speed mode (HIGH) the UHS1 produces a total exposure pulse of 350µsec! This speed is unprecedented in Vincent type instrumentation shutters.

In the normal speed mode (NORM) the shutter is programmable, and activated by an electronic pulse generated by Vincent's drive module, the DM412. This module is included with the UHS1, and will interface with the VCM/VMM type controllers. The DM412 converts the specialized shutter drive outputs into the voltage pulses necessary for proper operation of the UHS1.

### DM412 Drive Module:

Operation of the DM412 is simple and straightforward. All activate functions are supplied through the VCM/VMM type shutter drivers. The only controls integral to the DM412 are the NORM/HIGH switch which allows "on the fly" selections between the normal (NORM) and high (HIGH) speed modes. The CONTROL BNC allows TTL (active low) or remote switch (710R) to electronically select the normal and high speed modes, providing greater flexibility. See page #2 (Figure 3) for DM412 panel layout drawings.

## ELECTRICAL

Coil Resistance	12 ohms <sup>2</sup>
Pulse Voltage to Open	+65VDC <sup>2</sup>
Hold Voltage <sup>1</sup>	+5VDC <sup>2</sup>

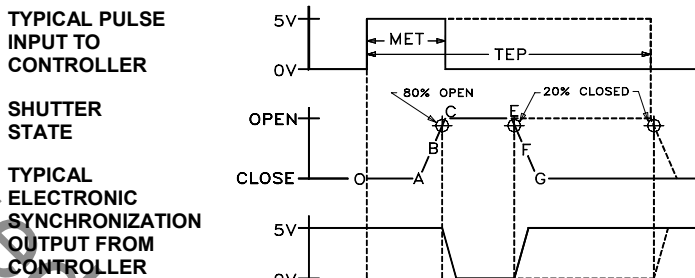
## MECHANICAL

Wgt. Cased	7.46 oz (.21 kg)
Operating Temp.	0°C to +80°C
Max. Opening Bounce	15%
Max. Closing Bounce	5%
Max. Frequency of Operation (CONT/BURST) <sup>3</sup>	100 Hz / 400 Hz
Number of Blades	2

## TIMING

Typical timing values (msec.) using UNIBLITZ drive equipment and measured with UNIBLITZ shutters equipped with standard TEFLON® coated shutter blades.

TIMING OF PULSE INPUT AND SYNCHRONIZATION OUTPUT RELATIVE TO SHUTTER STATE



	(Timing in msec.)	
	HIGH	NORM
O-A Delay time on opening after current is applied	0.54	0.54
A-C Transfer time on opening	0.18	0.18
O-C Total opening time	0.72	0.72
B-F Min. equivalent exp. time	0.20	0.93
C-E Min. dwell time with min. input pulse	0.05	0.70
E-G Transfer time on closing	0.12	0.28
A-G Total window time	0.35	1.16

MET: Min. exposure time	0.60	0.60
TEP: Typical exposure pulse	N/A	>1.00

The question regarding enhancement of shutter speed with the application of user supplied lubricants has been repeatedly asked. It is our experience that lubricating the shutter blades will actually slow the shutter down and eventually render the shutter inoperable. UNDER NO CIRCUMSTANCES SHOULD ANY TYPE OF LUBRICANT BE APPLIED TO THE SHUTTER BLADE AREA.

## PRODUCT OPTIONS

UHS1		T	2	-100
APERTURE SIZE	BLADE FINISH	HOUSING		MOUNTING OPTIONS
UHS1 - 1mm	T- TEFLON COATED S. S. BLADES	2- #2 CASE		- 21 ZEISS AXIOVERT TYPE
	ZM - AlMgF2 COATED BeCu BLADES*	(ELECTRONIC SYNC IS INCLUDED)		- 22 NIKON SBX TYPE
	Z - AISiO COATED BeCu BLADES*			- 23 OLYMPUS BH/IMT TYPE
				- 24 OLYMPUS BX/IX TYPE
				- 26 LEICA TYPE
				- 27 NIKON TYPE
				- 28 OLYMPUS IX TYPE
				- 29 NIKON TE TYPE
				- 30 LEICA DMIRB TYPE
				- 31 NIKON/CONFOCAL TYPE
				- 32 NIKON 80I TYPE
				- 100 MOUNTING RING
				- 105 C-MOUNT ADAPTER (MALE)
				- 106 C-MOUNT ADAPTER (FEMALE)
				- 110 T-MOUNT ADAPTER

<sup>1</sup>Voltage level required across actuator coil when being held in the open position.

<sup>2</sup>Each actuator.

<sup>3</sup>CONTinuous frequency rating specified at shutter's minimum exposure pulse. BURST frequency rating specified for (4) four seconds maximum with (1) one minute minimum between bursts. Frequency measurements are taken in free air, 25°C ambient, actuator coil equipped with heat sink. For additional information on maximum sustained frequencies obtainable, please contact one of our technical representatives.

\*Input side only, Teflon® coating is on opposite side. Intended to protect the shutter blade surface, light source must be input to the reflective side only.

## HOUSED STYLE

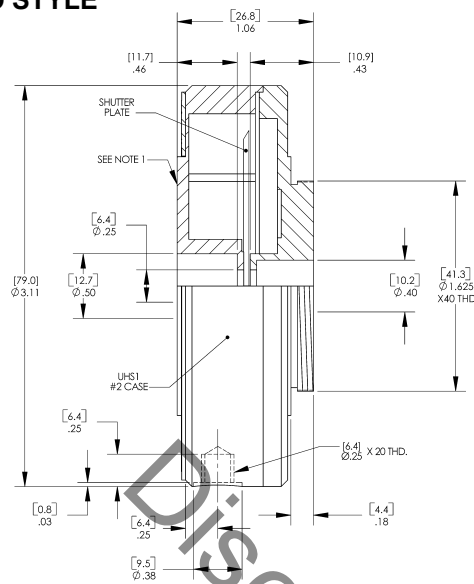


Figure 1

- NOTES:
- (3) 2-56 MOUNTING HOLES ON A  $\phi$  1.204 BOLT CIRCLE 120° APART.
  - (3) 2-56 MOUNTING HOLES ON A  $\phi$  1.578 BOLT CIRCLE 120° APART.

ALL DIMENSIONS MAXIMUM  
 [MM]  
 [INCH]

The UHS1 #2 housing style allows a number of mounting configurations. A 1/4-20 threaded hole is provided for post mounting. The 1.625 inch x 40TPI external thread located on the rear side, and the six 2-56 threaded holes located on the front side (see Figure 1 and Figure 2) can be interfaced directly into your application or fitted with a variety of specific mounting options. See "MICROSCOPE, VIDEO and UNIVERSAL MOUNTING SYSTEMS" data sheets for additional information. The unit terminates with a 9-pin male connector.

## HOUSING/CONNECTOR LAYOUT

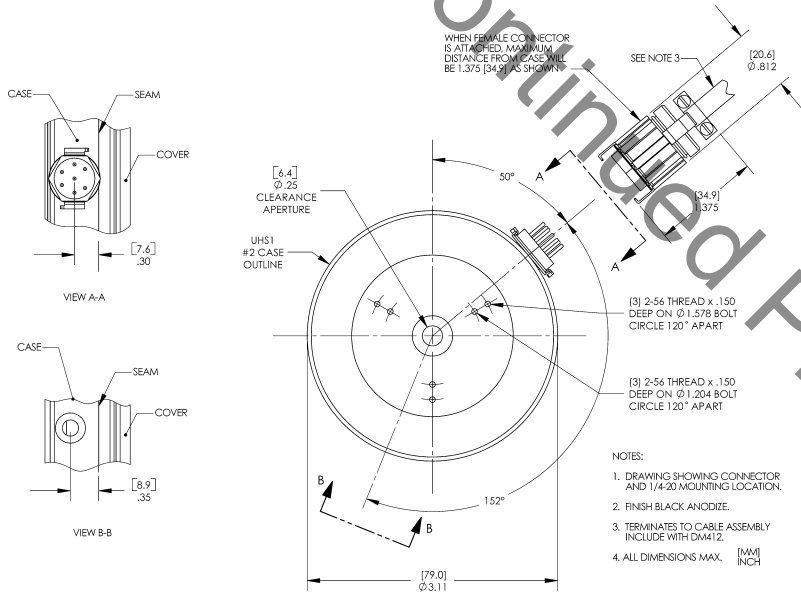


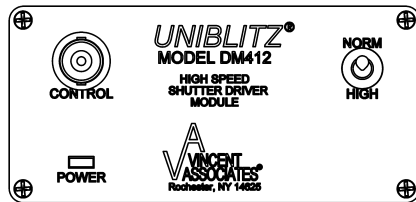
Figure 2

This drawing illustrates 9-pin connector and 1/4-20 threaded hole layout for the UHS1 series #2 housed style.

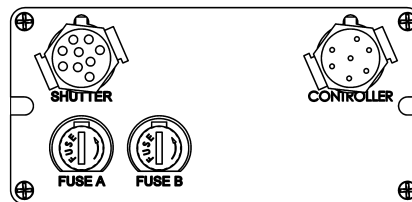
## DM412 PANELS LAYOUT

Figure 3

This drawing illustrates DM412 driver module front and rear panel layouts.



FRONT PANEL



REAR PANEL