ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

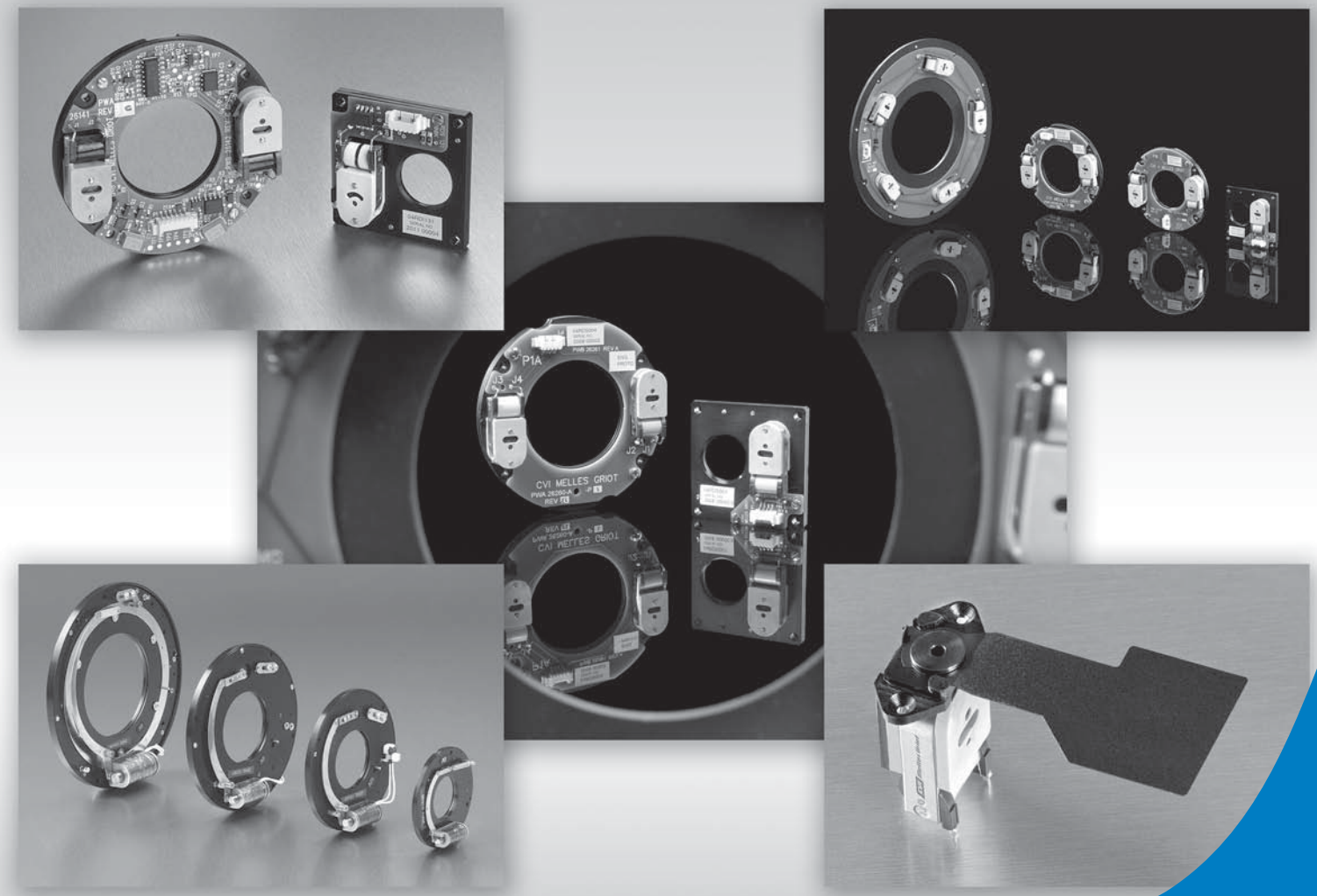
Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Melles Griot 04 IES 003* at our website: *Click HERE*



High-Performance Optical Shutters

for Night Vision, Instrumentation, Scientific Imaging and Research

CVI Melles Griot

AllThingsPhotonic.com

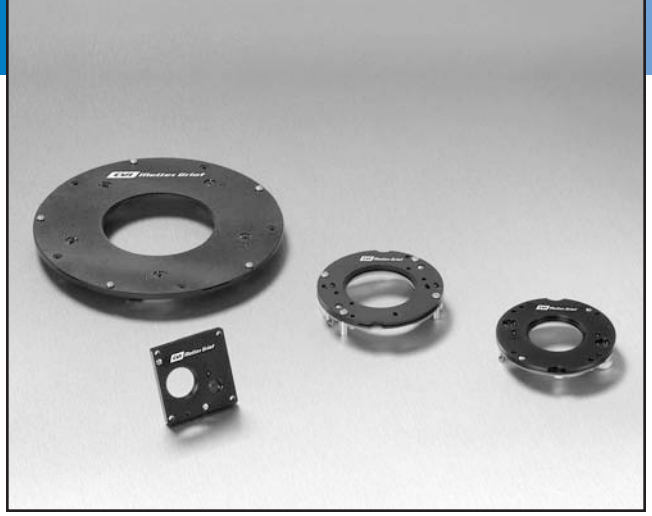
Lasers | Lenses | Mirrors | Assemblies | Windows | Shutters | Waveplates | Mounts

Americas +1 505 296 9541 | Europe +31 (0) 316 333 041 | Asia +81 3 3407 3614

High-Performance Optical Shutters



Type Product Code	Actuator Type	Unpowered State	Operating Temperature	Controller	Blade Coating	Applications	Page
Rotor Drive Shutters **RDS**	Proprietary Rotor Drive	Bi-stable	−40°C to +70°C	04 RSC 850 (page 18.16) or similar	Flat black, high IR emissivity	Night vision, thermography, imaging, lab/research	2
Stepper Shutters **SMS**	Stepper Motor	Bi-stable	−40°C to +70°C	Stepper motor controller	Flat black, high IR emissivity	Night vision, thermography, imaging, lab/research	7
SafeClose™ Laser Shutter **LSC**	Proprietary Rotor Drive	Normally closed	−40°C to +70°C	Not required	High LDT	Laser sefety, instrumentation, lab/reasearch	9
Shutters with Integrated Controller **RDI**	Proprietary Rotor Drive	Bi-stable	−40°C to +70°C	None required. Accept TTL input	Flat black, high IR emissivity	Night vision, thermography, imaging, lag/research	10
ExtremeService™ Shutters **ESC, ESO**	Solenoid	Normally open and normally closed models available	−40°C to +70°C	04 ISC 850 (page 18.14) or similar	Flat black, high IR emissivity	Night vision, thermography, imaging, lab/research	12
UltraThin™ Shutters **UTS**	Solenoid	Normally open and normally closed models available	−10°C to +40°C	04 ISC 850 (page 18.14) or similar	Flat black	Imaging, lab/research	13
IES™ Shutters **IES**	Solenoid	Normally closed	−10°C to +40°C	04 ISC 850 (page 18.14) or similar	Flat black	Imaging, lab/research	15
Electronic Shutter Controller **IPS, ISC, OSC**							17
Rotor Drive Shutter Controller **IPS, RSC**							19
Electronic-Shutter Mounts **HIS**							20



Rotor Drive Shutters

Rotor Drive Shutters

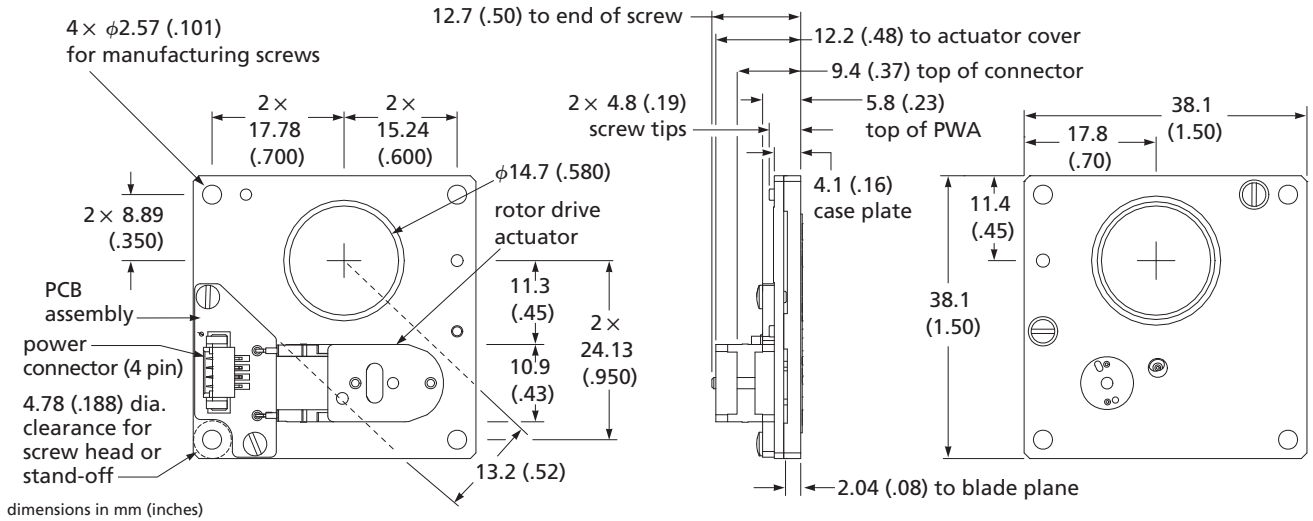
Rotor Drive actuator technology is incorporated into a new generation of shutters which may be customized for any application requiring a small space envelope and unprecedented reliability, even under severe operating conditions. Rotor Drive actuator technology has a design life of several million cycles, and its open architecture is easily configurable for custom packages and requirements. Rotor Drive shutters are available in both single- and multi-blade formats.

- Easily customized for new and existing configurations.
- Designed for extreme temperature conditions (−40°C to +70°C).
- Consumes power only while moving the blades (bi-stable).
- Extremely lightweight with few moving parts.
- Reliably operates for several million cycles.
- Resists high shock and vibration during operation.

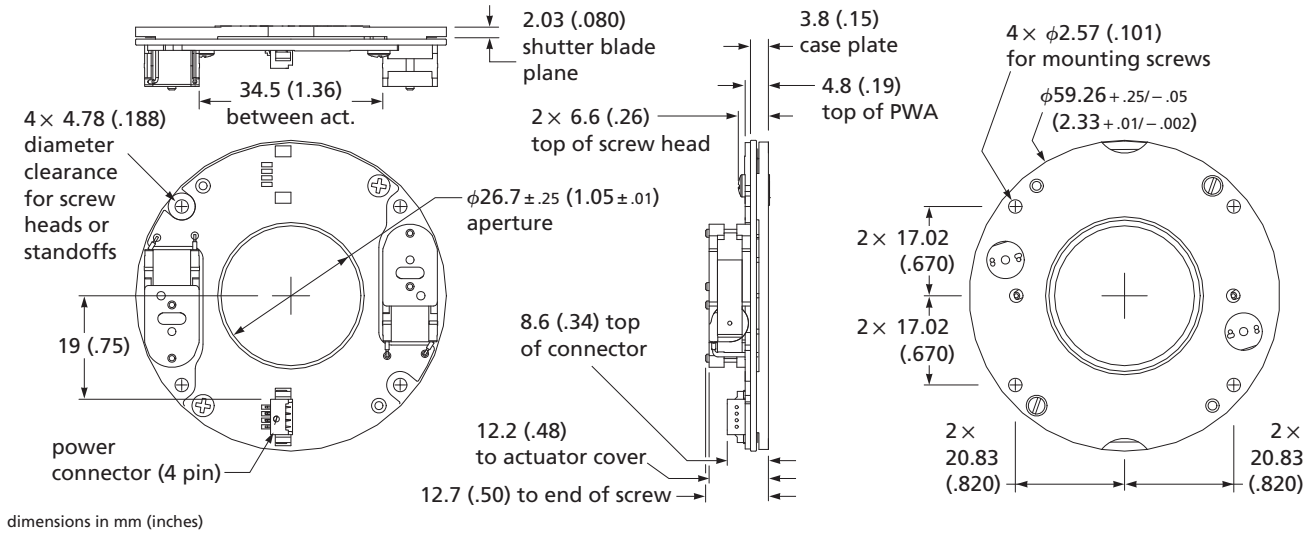
Rotor Drive Shutters

Clear Aperture (mm)	Required Drive Current (mA)	Drive Voltage[3] (Vdc)	Holding current (mA)	Actuation Speed[4] (msec)	Resistance[3] (Ω)	Inductance[3] (mH)	Number of Blades	PART NUMBER
ϕ14.7	±225	9	0 (not required)	20	40	20	1	04 RDS 001
ϕ18	±450[1]/±225[2]	9[1]/18[2]	0 (not required)	20	20[1]/80[2]	10[1]/40[2]	2	04 RDS 302
ϕ18	±660[1]/±330[2]	3[1]/6[2]	0 (not required)	20	5[1]/20[2]	2.6[1]/10[2]	2	04 RDS 332
ϕ26.7	±450[1]/±225[2]	9[1]/18[2]	0 (not required)	20	20[1]/80[2]	10[1]/40[2]	2	04 RDS 002
ϕ26.7	±660[1]/±330[2]	3[1]/6[2]	0 (not required)	20	5[1]/20[2]	2.6[1]/10[2]	2	04 RDS 032
ϕ35	±280[1]/±140[2]	5.6[1]/11.2[2]	0 (not required)	35	20[1]/80[2]	10[1]/40[2]	4	04 RDS 004
ϕ58	±1120[1]	9[1]	0 (not required)	30	8[1]	10[1]	5	04 RDS 005
15.3 x 12.6	± 225	9	0 (not required)	20	40	20	1	04 RDS 701
15.3 x 12.6	± 330	3	0 (not required)	20	10	3	1	04 RDS 731
19 x 15	± 225	9	0 (not required)	20	40	20	1	04 RDS 501
19 x 15	± 330	3	0 (not required)	20	10	3	1	04 RDS 531

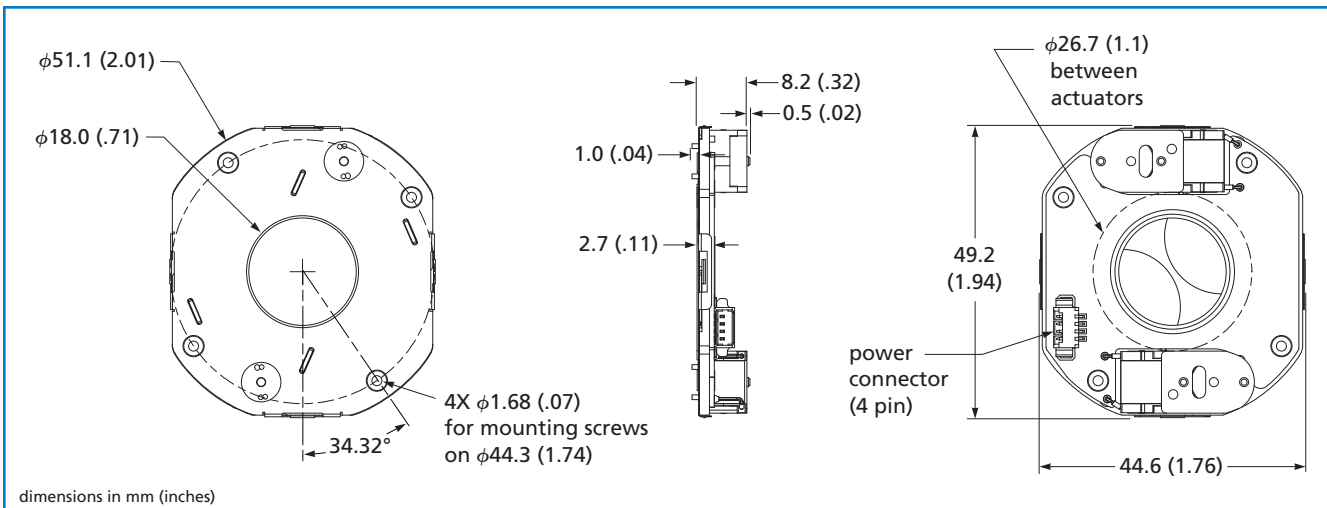
[1] For a parallel-wired shutter
[2] For a series-wired shutter
[3] Nominal @ 20 deg. C
[4] Typical, excluding bounce settling time (10-40 ms depending on the pulse drive power and wave form)



04 RDS 0x1 Rotor Drive Shutter Drawing

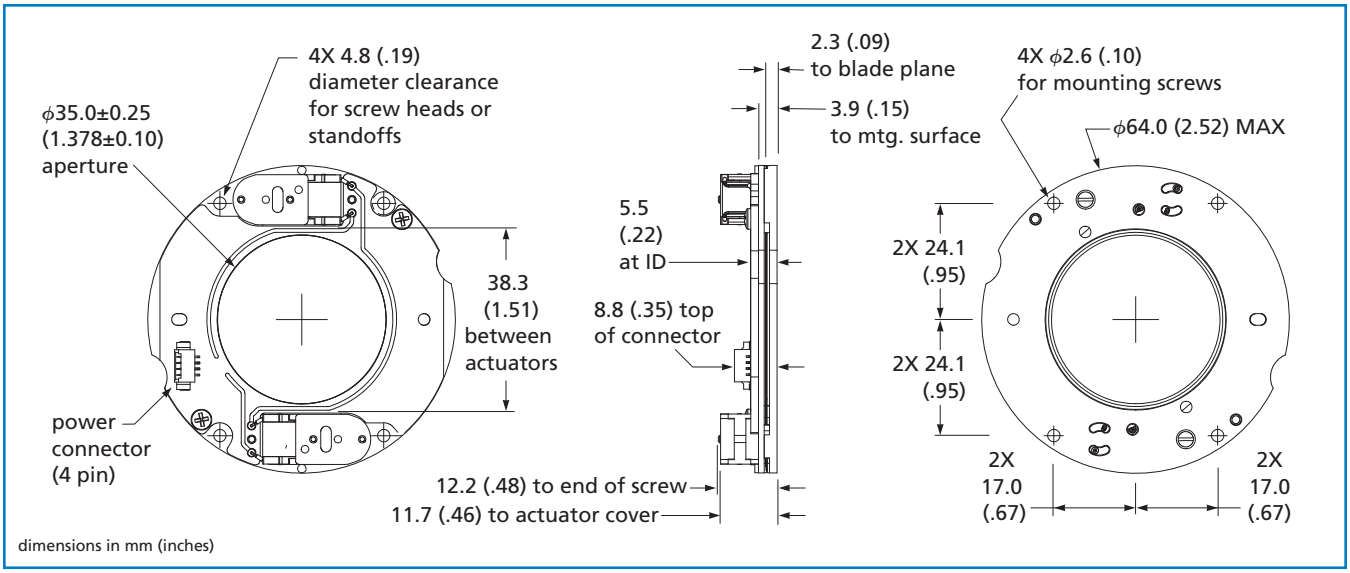


04 RDS 0x2 Rotor Drive Shutter Drawing

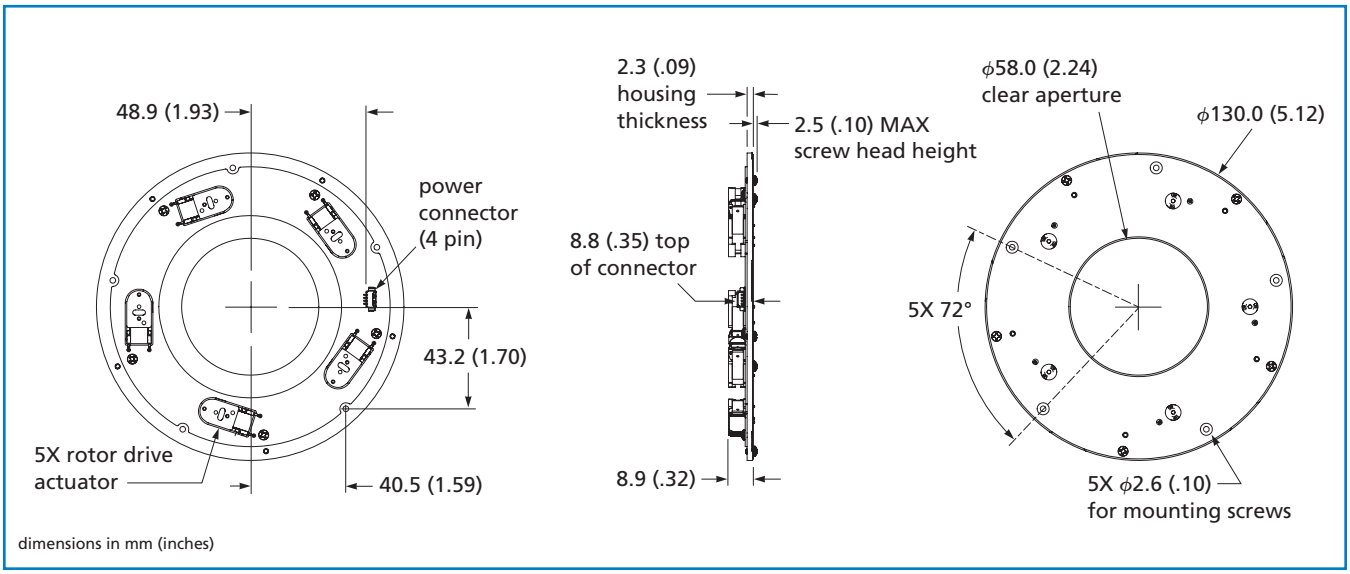


04 RDS 3x2 Rotor Drive Shutter Drawing

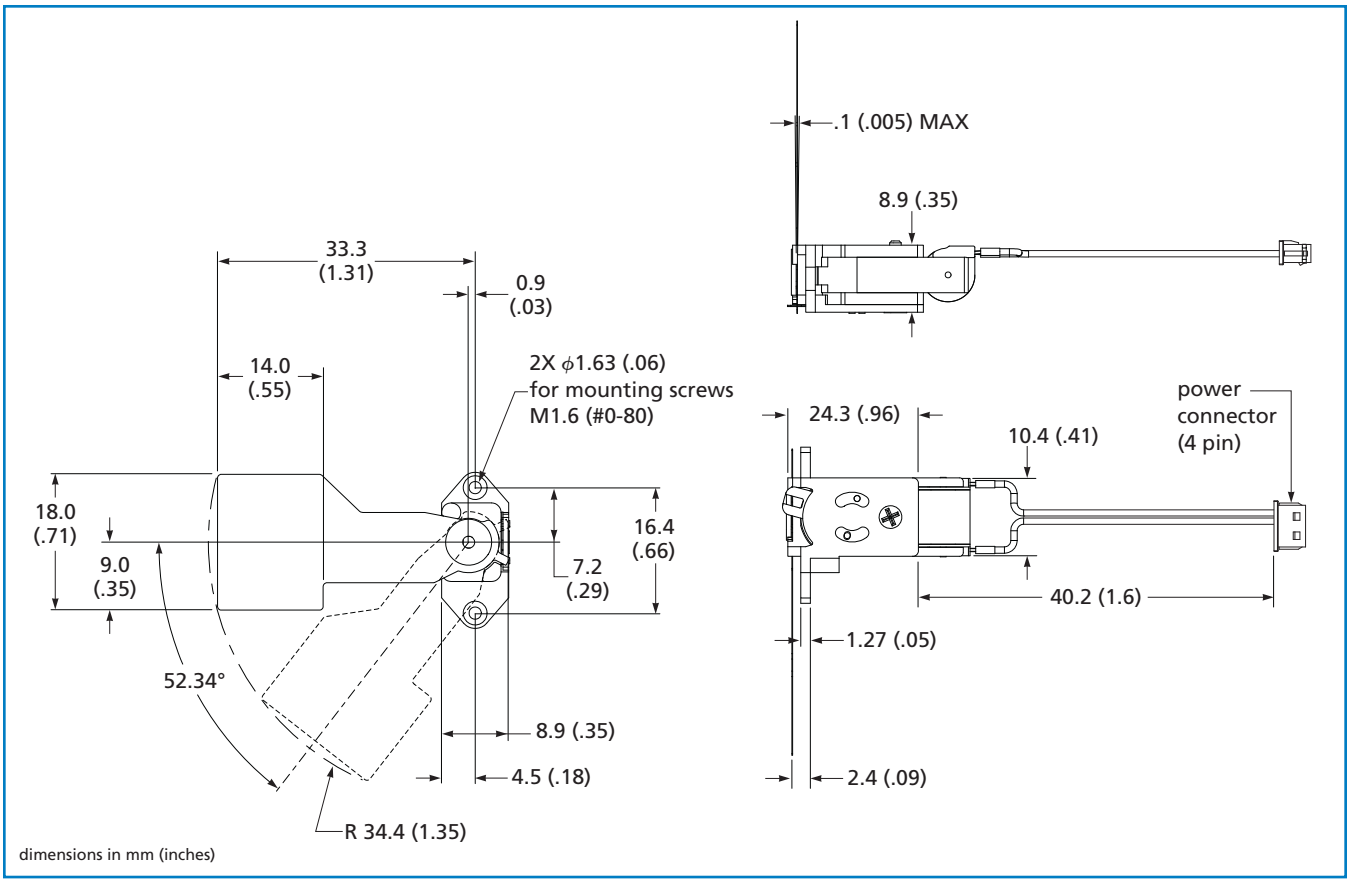
continued



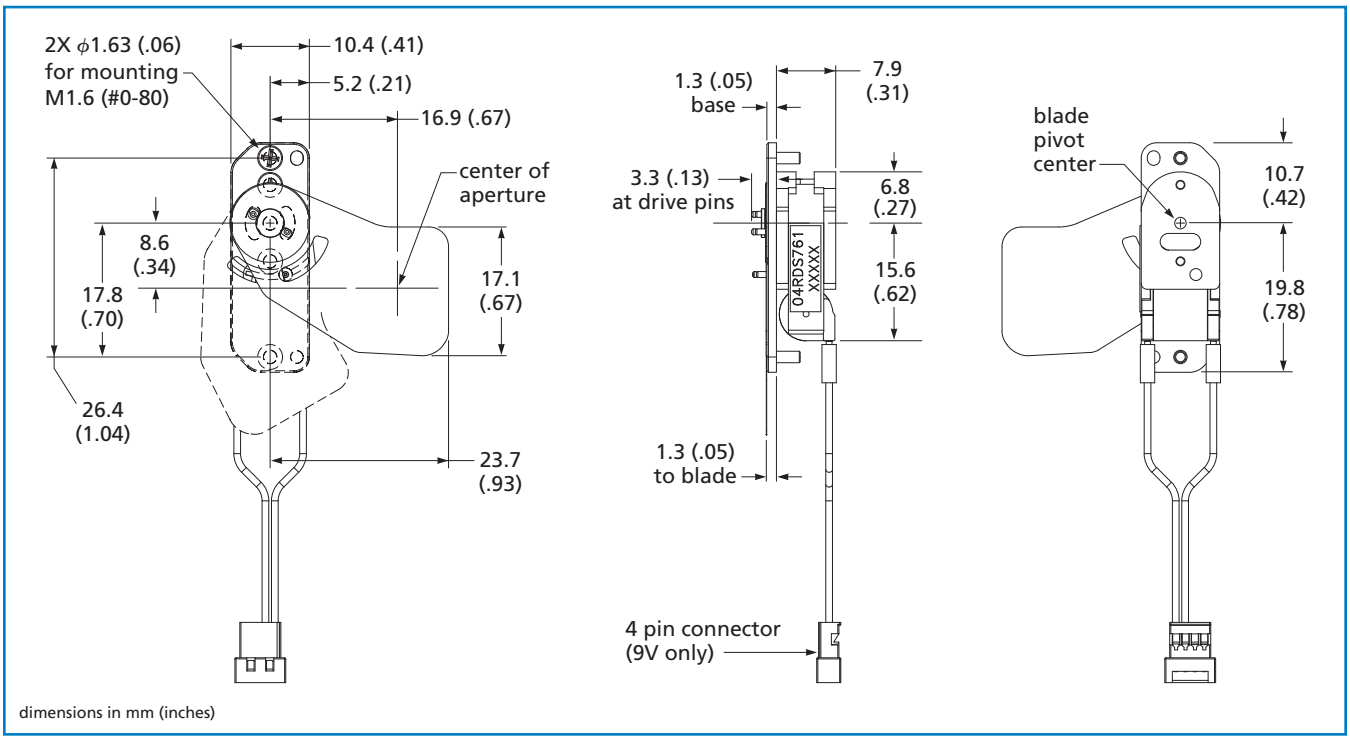
04 RDS 004 Rotor Drive Shutter Drawing



04 RDS 005 Rotor Drive Shutter Drawing

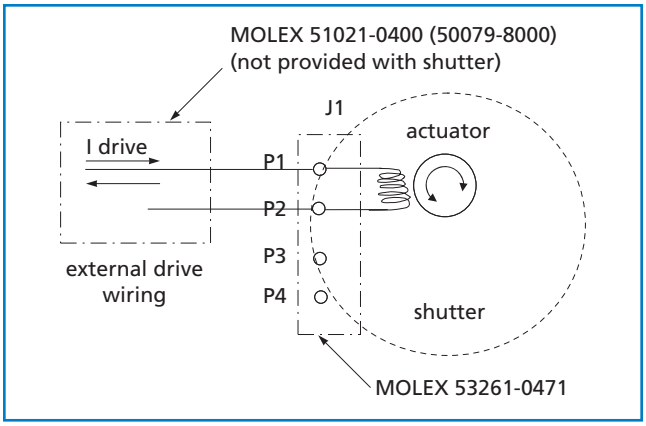


04 RDS 5x1 Flag Shutter Drawing

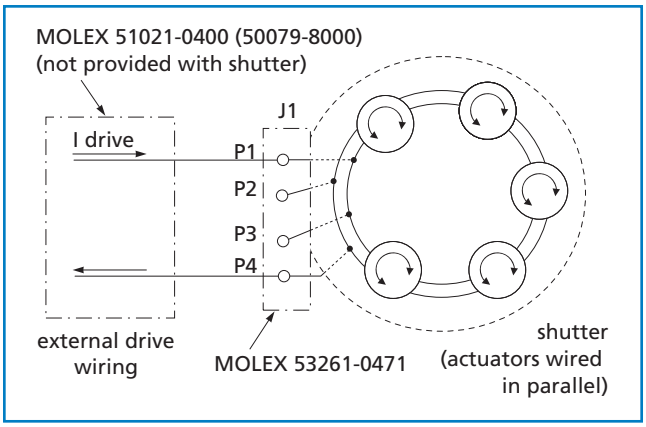


04 RDS 7x1 Paddle Shutter Drawing

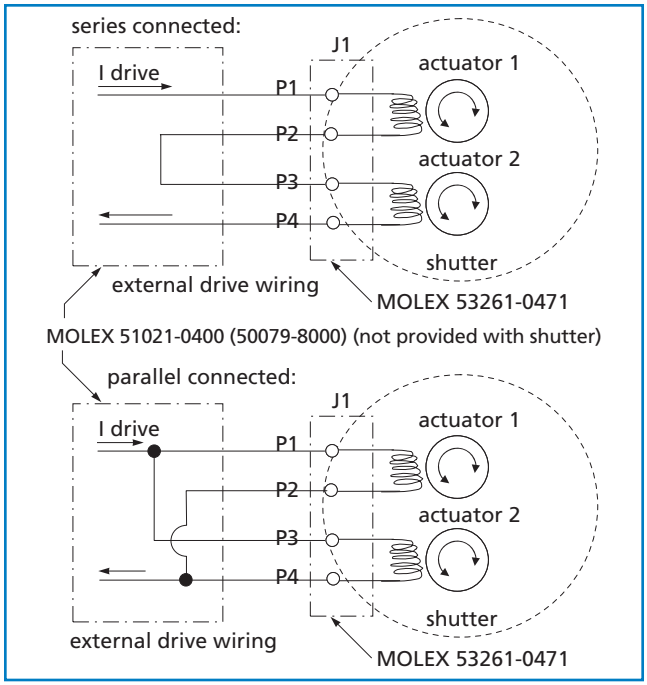
continued



04 RDS 001 Wiring Diagram



04 RDS 005 Wiring Diagram



04 RDS 0x2, 04 RDS 3x2, and 04 RDS 0x4 Wiring Diagram

APPLICATION NOTE

Rotor Drive Circuit Requirements

The Rotor Drive shutter is bi-stable which means electrical power to move the shutter blade position is only applied during motion. A short pulse from a constant-current drive circuit supplies the current indicated in the table. The voltage requirement will increase as the temperature of the actuator winding increases. Drive electronics should have the ability to automatically adjust to fluctuating winding temperatures.
A CVI Melles Griot integrated drive circuit is recommended.



Stepper Shutters

The Stepper Shutters are based on miniature stepper motors and geared drives, providing reliable low-power performance in a very compact package. The shutter blades retain position in the absence of power. Driven by a simple, two-phase bipolar stepper pulse train, the blades move between physical hard stops, with no homing sequence required.

The Stepper Shutters are designed for long life and high reliability. The controlled speed/motion of the stepper drive minimizes blade stop impact, for long life, low wear, and low noise. The shutters are designed to withstand harsh environmental conditions, including shock, vibration and extreme temperatures typical in transportation and field portable applications.

Blade shape and coatings are optimized for visible and IR imaging applications. The Stepper Shutters are specifically designed to fit restricted space envelopes and low power budgets, particularly in miniaturized night vision cameras and sights.

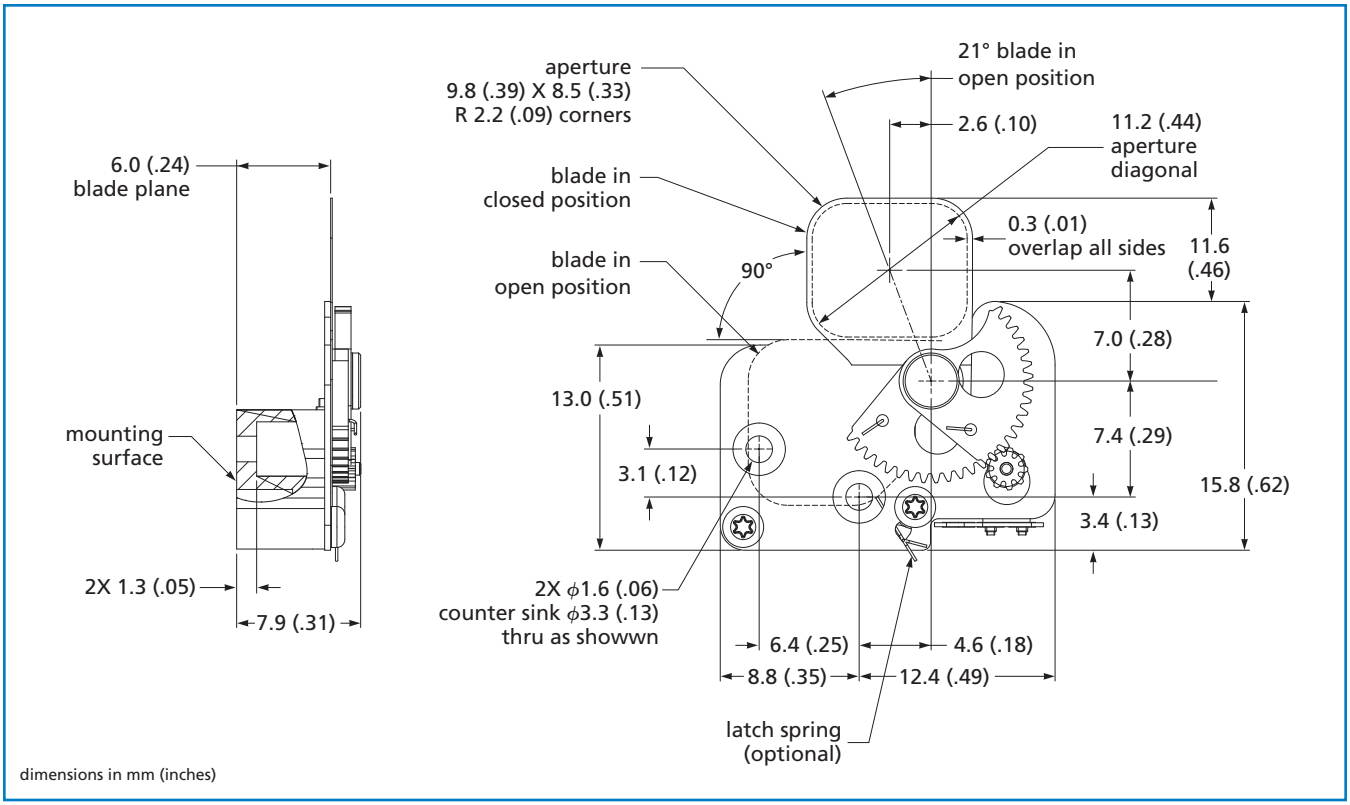
- Micro miniature package
- Low weight
- Low power consumption
- Long life
- Low impact / Low wear
- Repeatable speed/time control
- Shock and vibration resistance
- Reliable operation from -40°C to + 70°C
- High IR-emissivity blade coating

Stepper Shutters

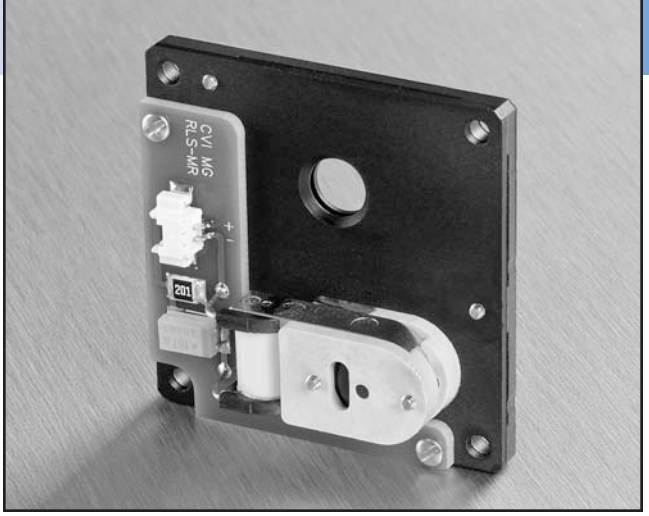
Aperture (mm)	Electric Drive	Required Drive Current[1] (mA)	Drive Voltage (Vdc)	Actuation Speed[2] (msec)	Holding current (mA)	Resistance[3] (Ω)	Number of Blades	PART NUMBER
Rectangular 9.84 x 8.48	Bipoar Stepper, 2 Phase	70	3.0 - 5.0	60	0 (not required)	20	1	04 SMS 001

[1] Per phase, @ 20°C
[2] Maximum transition time
[3] Nominal @ 20°C

continued



04 SMS 001 Stepper Shutter Drawing



SafeClose™ Laser Shutters

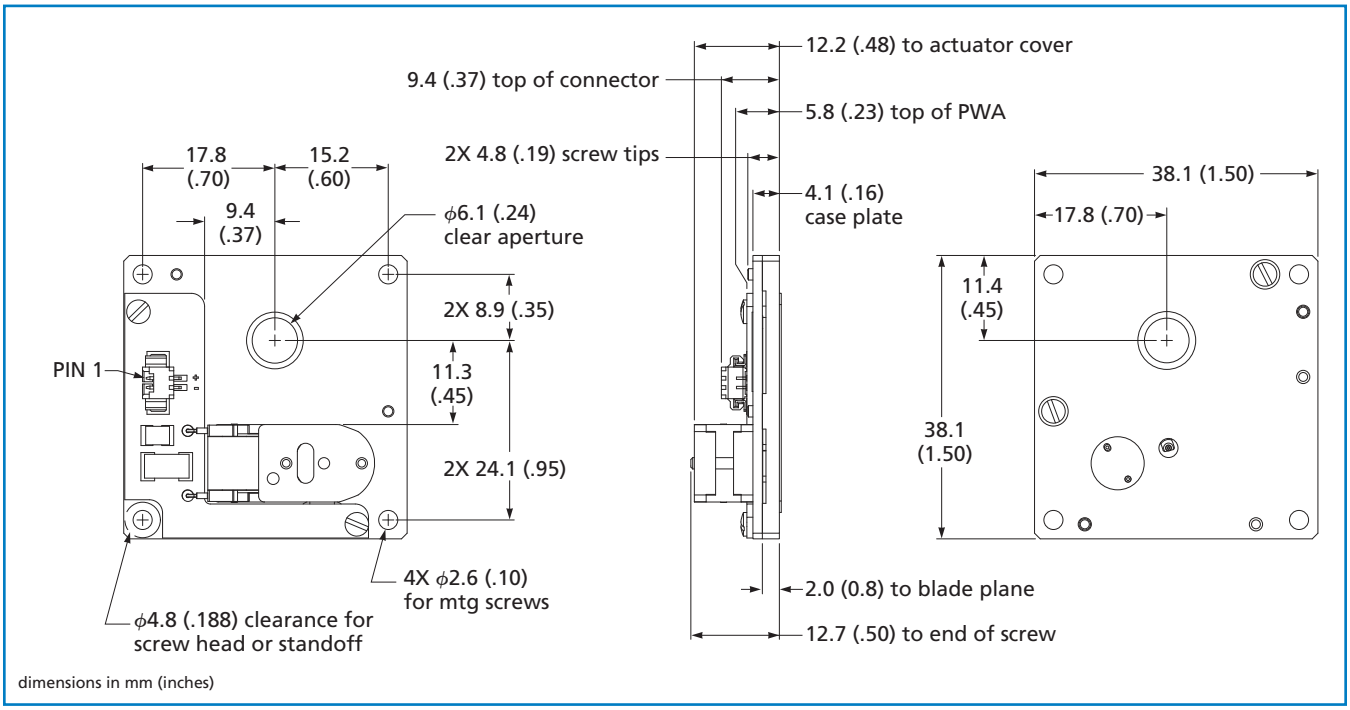
SafeClose™ laser shutters are based on the proven rotor drive actuation technology modified for closing on power down operation. No need for a separate controller. Just a 9 V power signal is required to actuate the shutter and hold it open indefinitely. The blade will close upon signal removal. The shutters can withstand harsh environmental conditions, including wide temperature variations, high shock, and vibration in a clean environment.

- Multimillion cycle life
- Fail-safe magnetic return
- No separate controller required
- High shock and vibration resistance
- Reliable operation from -40°C to + 70°C
- High LDT blade coating

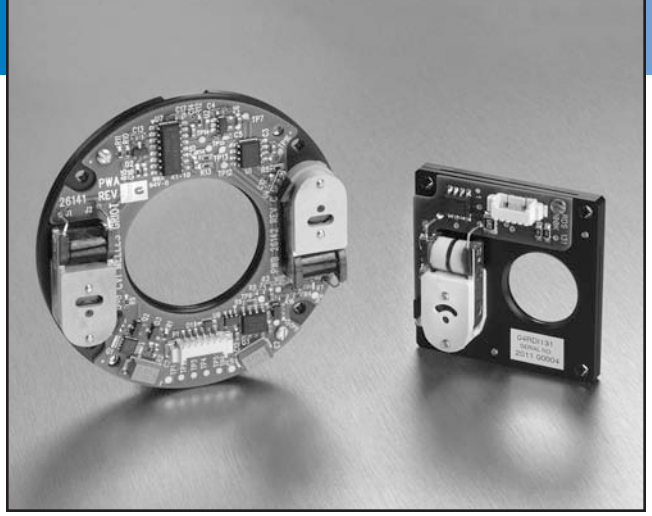
SafeClose™ Laser Shutters

Aperture (mm)	Configuration	Actuation Voltage (Vdc)	Peak Current[1] (mA)	Open/Close Speed[2] (msec)	Electrical Reset Time[3] (msec)	Maximum Repetition Rate (Hz)	Number of Blades	PART NUMBER
6	Normally Closed	9	225	15	80	10	1	04 LSC 001

[1] Current drops from 225 to 70 mA in 10 msec on open
[2] Typical transition time to full blade rest
[3] After close electrical drive circuit must reset



04 LSC 001 SafeClose™ Laser Shutter Drawing



Shutters with Integrated Controller

Rotor Drive shutters with integrated controller have the same mechanical dimensions and performance characteristics as corresponding shutters without controller. Integrated controller allows rapid integration of the shutters with minimal investment. It also reduces the probability of shutter malfunction due to the incorrect actuation signal.

- Accept state-controlling TTL input directly
- Can be powered by AA batteries
- Non-optical sensors provide indication of the shutter closed state via a separate TTL signal

SPECIFICATIONS:
Integrated Controller Specifications

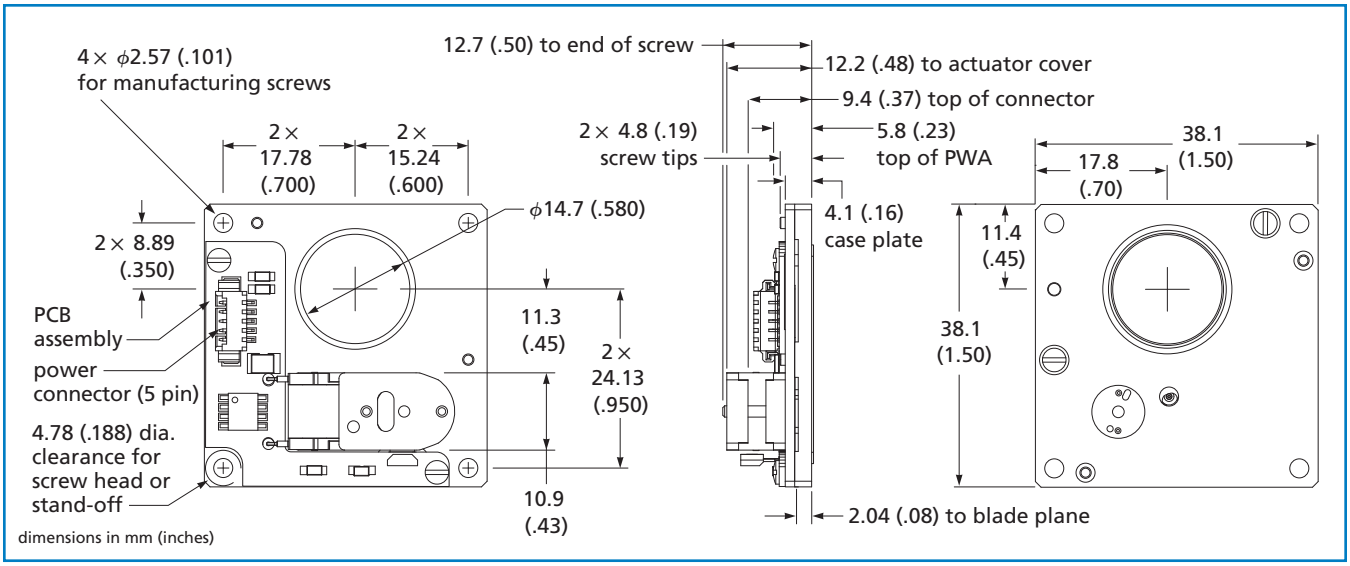
Actuation Type	TTL, separate channels for "Open" and "Close" signals
Actuation Signal	
Open	High (>3V)
Close	High (>3V)
Actuation Pulse Time	60 ms
Actuation Rate Continuous	4 Hz Maximum
Minimum Time Between Actuations[1]	125 ms}
State Sensing Type	non-optical, one TTL signal output
State Sensing Signal	
Open	Low (<0.5V)
Close	High (>4.5V)

Shutters with Integrated Controller

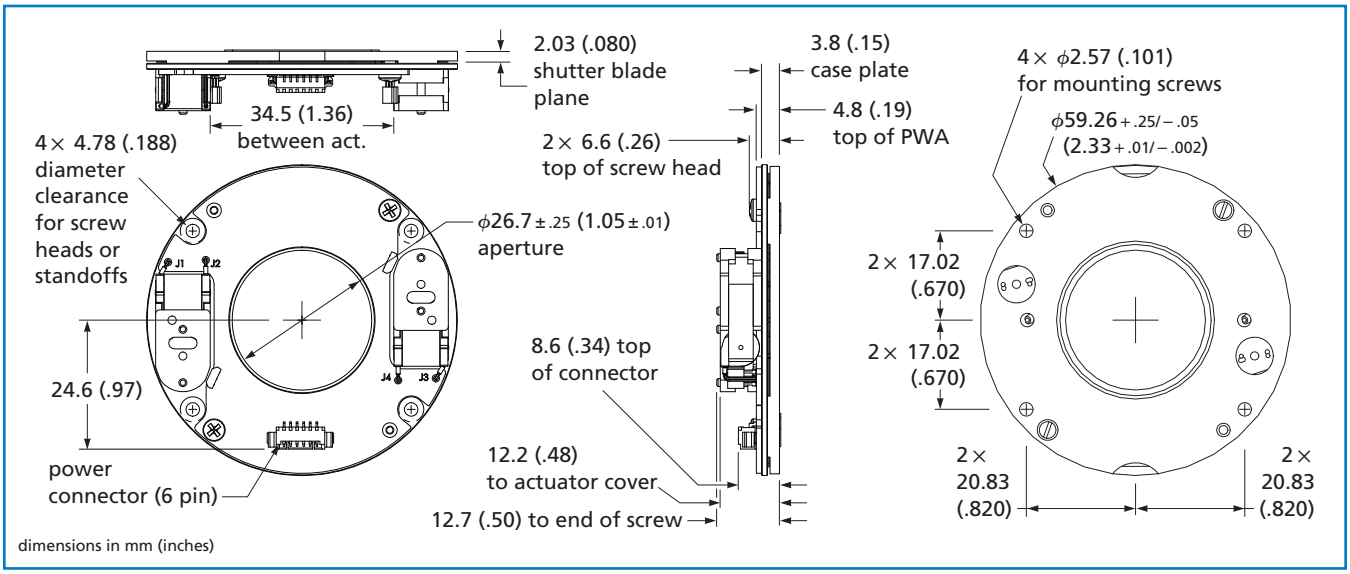
Clear Aperture (mm)	Supply Voltage (Vdc)	Supply Quiescent Current (mA)[2]	Supply Current During Actuation (mA)	Actuation Speed (msec)[3]	Connector	Number of Blades	PART NUMBER
14.7	4.4 - 8.0	2 Max	500 Max	20	Molex 5 pin, part number 53261-0571	1	04 RDI 131
26.7	4.8 - 9.0	11 Max	750 Max	20	Molex 6 pin, part number 53261-0619	2	04 RDI 132

[1] Limit: one cycle per second
[2] At Supply Voltage =5.0V
[3] Typical, excluding bounce settling time (10-40 ms depending on the pulse drive power and wave form)

continued



04 RDI 131 Shutter Drawing



04 RDI 132 Shutter Drawing



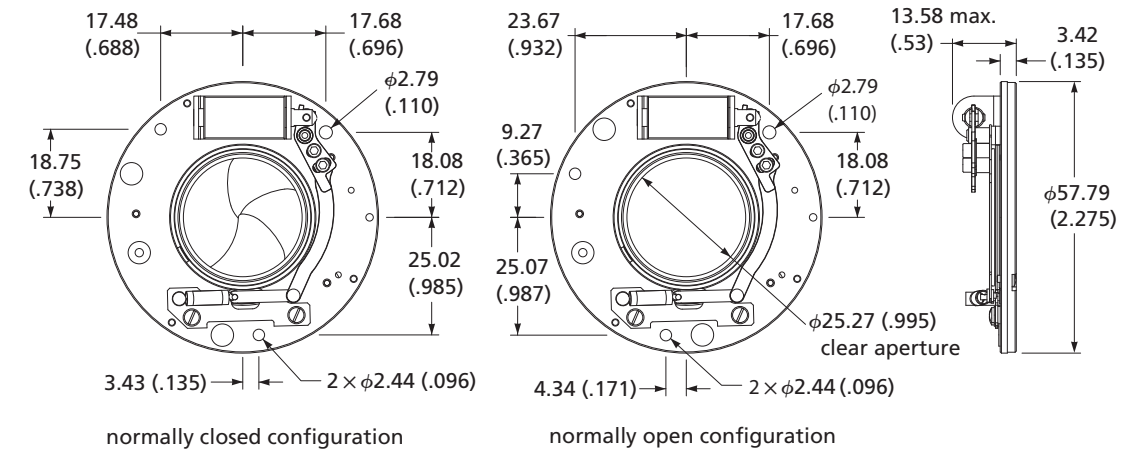
Electronic Shutters

ExtremeService™ Electronic Shutters

ExtremeService™ shutters from CVI Melles Griot offer industry-leading reliability in harsh environmental conditions. Their robust, temperature-insensitive design thrives at temperatures as low as −40°C and as high as 70°C. The coating on the blades is highly emissive in the infrared spectral region, making these shutters an ideal choice for calibrating uncooled sensors in FLIR systems. ExtremeService™ shutters provide the reliability and control needed for night-vision and infrared-illumination systems, as well as for a wide range of analytical, metrology, and photonics instrumentation.

ExtremeService™ Electronic Shutter Features

- Operates reliably from −40°C to +70°C
- Proprietary low-friction, high-IR emissivity blade coating
- Offered in normally closed and normally open configurations
- Available with 12-Vdc or 3 Vdc solenoids



dimensions in mm (inches)

04 ESC- and ESO-series shutters

ExtremeService™ Electronic Shutters

Clear Aperture (mm)	Configuration	Maximum Speed* (sec)	Shutter Blades	Peak Pulse Current (mA)	Holding Current (mA)	Rated Solenoid Voltage (Vdc)	Resistance** (Ω)	Inductance (mH)	PART NUMBER
25.20	Normally Open	1/60	5	1000	120	12	50	54.9	04 ESO 121
25.20	Normally Closed	1/60	5	1000	120	12	50	54.9	04 ESC 121
25.20	Normally Open	1/60	5	4000	500	3	3	2.7	04 ESO 031
25.20	Normally Closed	1/60	5	4000	500	3	3	2.7	04 ESC 031

Typical
*** Resistance is nominal (±10%) at 20 degrees Celcius and will vary approximately 0.393% per degree Celcius*
Note: Solenoid properties are nominal and apply at a 10% duty cycle as calculated by the formula: Duty Cycle (% of rated power) for a 20-msec pulse = 100 × (0.32 + 0.25 × hold time)/(total cycle time). To achieve specified performance, duty cycle, calculated by the preceeding formula, should not exceed 100%

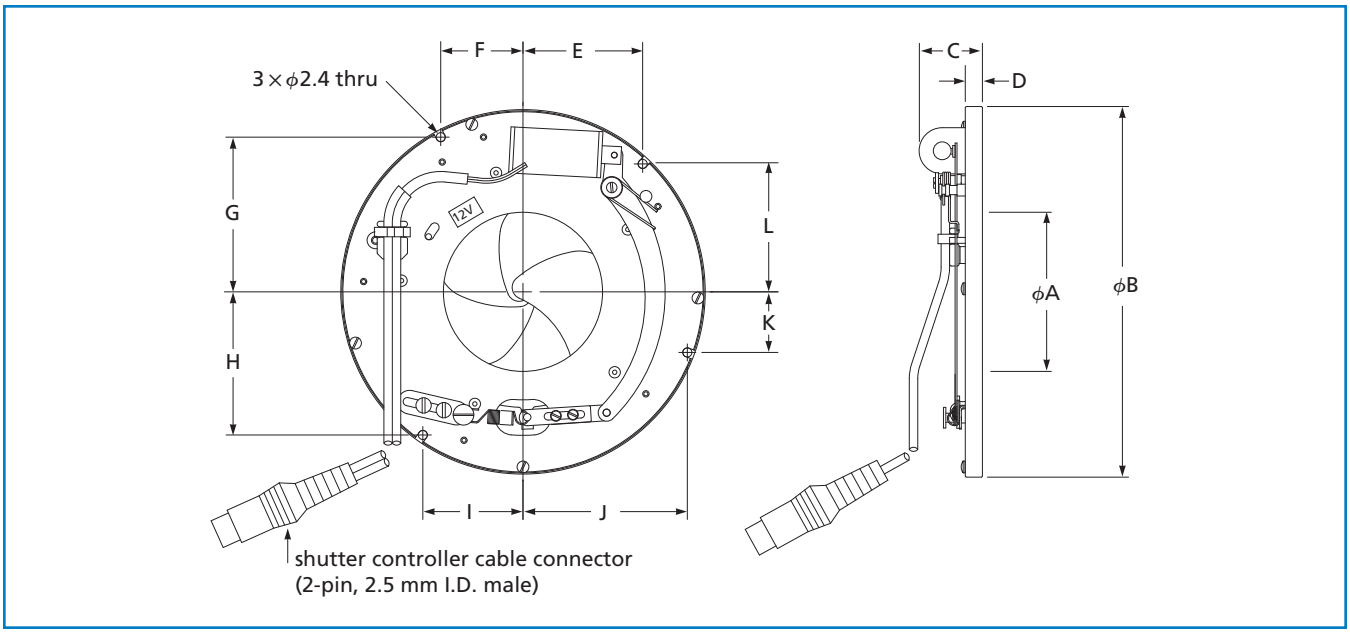


UltraThin™ Electronic Shutters

UltraThin™-series electronic shutters are optimized for OEM applications which require compact size, low weight, and low-voltage operation. UltraThin shutters may be mounted in any orientation via three mounting holes (see diagram). It is important that the receiving mount be designed so that it does not bend or distort the shutter. Electrical connection for 12-Vdc shutters is made with a supplied connector.

UltraThin™ Electronic Shutters, Mechanical Dimensions

Dimension Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
Type 1	25.2	57.8	13.6	3.4	17.6	17.5	18.8	–	–	3.4	25.1	18.0
Type 1a	25.2	57.8	13.6	3.4	17.8	23.7	9.3	25.1	4.3	–	–	18.2
Type 2	34.9	82.5	16.5	4.2	–	15.2	35.2	23.5	29.9	31.9	20.9	–
Type 3	42.7	99.4	17.2	4.8	–	24.2	40.3	39.8	24.8	44.9	13.9	–
Type 4	63.5	126.0	24.3	6.6	22.9	–	–	7.5	58.2	35.0	47.2	53.9



04 UTS-series UltraThin™ electronic shutter

continued

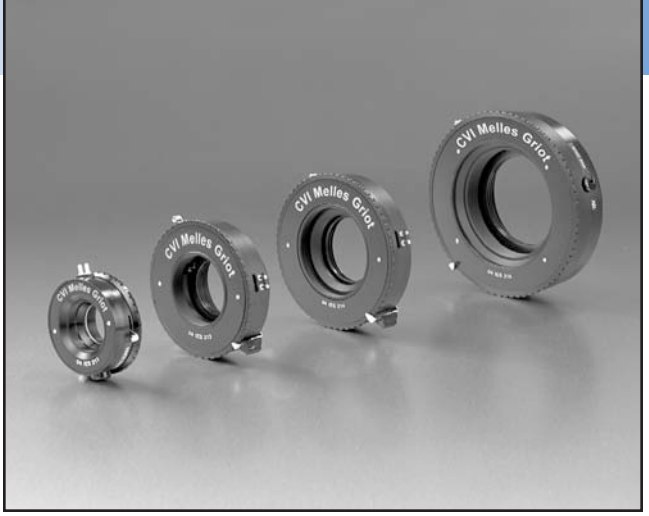
UltraThin™ Electronic Shutters

Clear Aperture (mm)	Configuration	Maximum Speed* (sec)	Shutter Blades	Peak Pulse Current (mA)	Rated Solenoid Voltage (Vdc)	Resistance** (Ω)	Inductance (mH)	Connector Included	Dimension Code	PART NUMBER
25.2	Normally Closed	1/60	5	4000	3	3	2.67	No	Type 1	04 UTS 206
25.2	Normally Closed	1/60	5	2000	6	12	12.6	No	Type 1	04 UTS 208
25.2	Normally Closed	1/60	5	1000	12	50	54.9	Yes	Type 1	04 UTS 201
25.2	Normally Closed	1/60	5	1000	12	50	54.9	No	Type 1	04 UTS 210
25.2	Normally Closed	1/60	5	460	24	208	233	No	Type 1	04 UTS 212
25.2	Normally Closed	1/60	5	230	48	830	817	No	Type 1	04 UTS 214
25.2	Normally Open	1/60	5	4000	3	3	2.67	No	Type 1a	04 UTS 216
25.2	Normally Open	1/60	5	2000	6	12	12.6	No	Type 1a	04 UTS 218
25.2	Normally Open	1/60	5	1000	12	50	54.9	No	Type 1a	04 UTS 220
25.2	Normally Open	1/60	5	460	24	208	233	No	Type 1a	04 UTS 222
25.2	Normally Open	1/60	5	230	48	830	817	No	Type 1a	04 UTS 224
34.9	Normally Closed	1/60	5	2800	6	8.5	10.3	No	Type 2	04 UTS 226
34.9	Normally Closed	1/60	5	1600	12	30	35.6	Yes	Type 2	04 UTS 203
34.9	Normally Closed	1/60	5	1600	12	30	35.6	No	Type 2	04 UTS 228
34.9	Normally Closed	1/60	5	740	24	130	157	No	Type 2	04 UTS 230
34.9	Normally Closed	1/60	5	380	48	500	596	No	Type 2	04 UTS 232
34.9	Normally Open	1/60	5	2800	6	8.5	10.3	No	Type 2	04 UTS 234
34.9	Normally Open	1/60	5	1600	12	30	35.6	No	Type 2	04 UTS 236
34.9	Normally Open	1/60	5	740	24	130	157	No	Type 2	04 UTS 238
34.9	Normally Open	1/60	5	380	48	500	596	No	Type 2	04 UTS 240
42.7	Normally Closed	1/30	5	2800	6	8.5	10.3	No	Type 3	04 UTS 242
42.7	Normally Closed	1/30	5	1600	12	30	35.6	Yes	Type 3	04 UTS 204
42.7	Normally Closed	1/30	5	1600	12	30	35.6	No	Type 3	04 UTS 244
42.7	Normally Closed	1/30	5	740	24	130	157	No	Type 3	04 UTS 246
42.7	Normally Closed	1/30	5	380	48	500	596	No	Type 3	04 UTS 248
42.7	Normally Open	1/30	5	2800	6	8.5	10.3	No	Type 3	04 UTS 250
42.7	Normally Open	1/30	5	1600	12	30	35.6	No	Type 3	04 UTS 252
42.7	Normally Open	1/30	5	740	24	130	157	No	Type 3	04 UTS 254
42.7	Normally Open	1/30	5	380	48	500	596	No	Type 3	04 UTS 256
63.5	Normally Closed	1/30	6	4000	6	6	11.4	No	Type 4	04 UTS 258
63.5	Normally Closed	1/30	6	2000	12	24	45.7	Yes	Type 4	04 UTS 205
63.5	Normally Closed	1/30	6	2000	12	24	45.7	No	Type 4	04 UTS 260
63.5	Normally Closed	1/30	6	1100	24	86	143	No	Type 4	04 UTS 262
63.5	Normally Closed	1/30	6	460	48	416	655	No	Type 4	04 UTS 264
63.5	Normally Open	1/30	6	4000	6	6	11.4	No	Type 4	04 UTS 266
63.5	Normally Open	1/30	6	2000	12	24	45.7	No	Type 4	04 UTS 268
63.5	Normally Open	1/30	6	1100	24	86	143	No	Type 4	04 UTS 270
63.5	Normally Open	1/30	6	460	48	416	655	No	Type 4	04 UTS 272

**Typical*
*** Resistance is nominal (+/- 10%) at 20 degrees Celcius and will vary approximately 0.393% per degree Celcius.*
Note: Solenoid properties are nominal and apply at a 10% duty cycle as calculated by the formula: Duty Cycle (% of rated power) for a 20-msec pulse = 100 × (0.32 + 0.25 × hold time)/(total cycle time). To achieve specified performance, duty cycle, calculated by the preceeding formula, should not exceed 100%

UltraThin™-Series Electronic Shutter Features

- Compact size and low weight for OEM applications including photography, night-vision/thermal cameras and sensors.
- Easily mountable in any orientation via three mounting holes.
- Available in normally closed (standard) and normally open configurations.
- Available in 12 Vdc (standard) 3, 6, 24, and 48 Vdc.



IES™ Electronic Shutters

IES™-series electronic shutters are well suited for laboratory and OEM optical applications that demand the ability to shutter light beams with 100% transmission and high extinction. In addition to the shutter blades, IES-series shutters contain an iris diaphragm which can adjust the shutter's clear aperture from maximum to approximately 10 percent of maximum.

For electronic flash synchronization or event triggering, IES shutters include an X-syncronization switch that provides electrical continuity when the shutter blades are fully open. For ease of setup, a manual actuation lever permits the opening and closing of the shutters without an electrical signal. All shutters are supplied with a mounting flange that threads onto the shutter's rear outer mounting threads.

IES™ Electronic Shutters

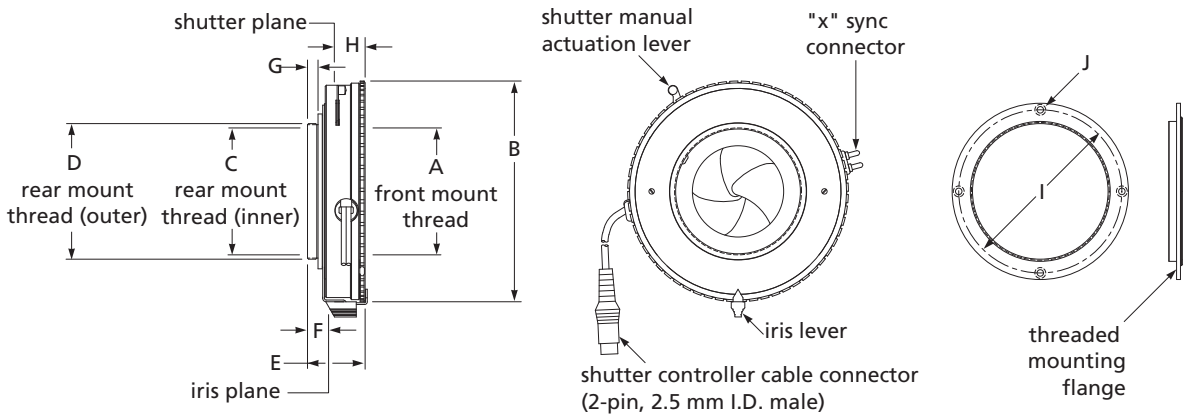
Maximum Aperture (mm)	Minimum Aperture (mm)	Configuration	Maximum Speed* (sec)	Diaphragm Blades	Shutter Blades	Rated Solenoid Voltage (Vdc)	Resistance** (Ω)	Inductance (mH)	Connector Included	Dimension Code	PART NUMBER
25.4	1.6	Normally Closed	1/60	10	5	3	3	2.67	No	Type 1	04 IES 212
25.4	1.6	Normally Closed	1/60	10	5	6	12	12.6	No	Type 1	04 IES 218
25.4	1.6	Normally Closed	1/60	10	5	12	50	54.9	Yes	Type 1	04 IES 211
25.4	1.6	Normally Closed	1/60	10	5	24	208	233	No	Type 1	04 IES 220
25.4	1.6	Normally Closed	1/60	10	5	48	830	817	No	Type 1	04 IES 222
34.9	2.2	Normally Closed	1/60	10	5	6	8.5	10.3	No	Type 2	04 IES 224
34.9	2.2	Normally Closed	1/60	10	5	12	30	35.6	Yes	Type 2	04 IES 213
34.9	2.2	Normally Closed	1/60	10	5	24	130	157	No	Type 2	04 IES 226
34.9	2.2	Normally Closed	1/60	10	5	48	500	596	No	Type 2	04 IES 228
42.7	3.4	Normally Closed	1/30	10	5	6	8.5	10.3	No	Type 3	04 IES 230
42.7	3.4	Normally Closed	1/30	10	5	12	30	35.6	Yes	Type 3	04 IES 214
42.7	3.4	Normally Closed	1/30	10	5	24	130	157	No	Type 3	04 IES 232
42.7	3.4	Normally Closed	1/30	10	5	48	500	596	No	Type 3	04 IES 234
63.5	5.1	Normally Closed	1/30	12	6	6	6	11.4	No	Type 4	04 IES 236
63.5	5.1	Normally Closed	1/30	12	6	12	24	45.7	Yes	Type 4	04 IES 215
63.5	5.1	Normally Closed	1/30	12	6	24	86	143	No	Type 4	04 IES 238
63.5	5.1	Normally Closed	1/30	12	6	48	416	655	No	Type 4	04 IES 240

**Typical ** Resistance is nominal (±10%) at 20°C and will vary approximately 0.39% per °C.*
Note: Solenoid properties are nominal and apply at a 10% duty cycle as calculated by the formula: Duty Cycle (% of rated power) for a 20-msec pulse = 100 × (0.32 + 0.25 × hold time)/(total cycle time). To achieve specified performance, duty cycle, calculated by the preceeding formula, should not exceed 100%

continued

IES™ Electronic Shutters, Mechanical Dimensions

Dimension Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)
Type 1	M31.2 × 0.50	63.0	M31.2 × 0.50	M33.7 × 0.60	23.9	8.5	6.5	13.4	42	2.4 through (3 plcs)
Type 2	M45.0 × 0.50	87.3	M45.0 × 0.50	M48.6 × 0.64	26.4	9.5	6.2	14.9	60.6	2.4 through (4 plcs)
Type 3	M59.6 × 0.64	103.3	M59.6 × 0.64	M63.5 × 0.85	27.0	9.8	4.7	15.7	76.4	3.0 through (4 plcs)
Type 4	M76.2 × 0.85	132.0	M76.2 × 0.85	M82.1 × 0.85	34.0	9.5	6.0	22.5	97.2	3.0 through (4 plcs)



04 IES-series electronic shutter

IES™-Series Electronic Shutter Features

- High-reliability and high-speed multiblade shutter system to provide near 100% light extinction.
- Adjustable iris diaphragm, X-synchronization, and manual actuation lever.
- Spring-steel blades with Teflon®-impregnated, black matte finish for smooth, reliable operation.
- Offered in normally closed (standard) and normally open configurations.
- Multiple voltages available including 12 Vdc (standard), 3, 6, 24, and 48 Vdc.



Electronic Shutter Controllers

- Drives all CVI Melles Griot 12-V IES™ and UltraThin™ shutters
- Local or remote operation
- CE compliant
- 8 preset shutter speeds
- Actuate with manual pushbutton or standard TTL input signal
- Infinitely adjustable shutter speeds from 1/60 of a second to 30 seconds
- Easy control of long shutter speeds via B (bulb) and T (time) control functions
- OEM (unpackaged) control board also available

CVI Melles Griot electronic shutter controllers facilitate the operation of all standard CVI Melles Griot 12-volt IES™ and UltraThin™ shutters. For convenience, a number of shutter control functions are designed into the controller, including eight preset shutter speeds ranging from 1/60th of a second to two seconds. For local operation, these functions are actuated using the controller's manual pushbutton trigger switch. For remote operation, the functions are actuated using a TTL pulse or signal. A shutter control board, which can be panel mounted, is available separately for OEM applications.

LOCAL OPERATION

Pressing the manual pushbutton trigger switch on the packaged controller actuates and holds the shutter open either for one of eight preset, calibrated intervals, or for an uncalibrated interval that can be as long as 30 seconds. The interval selection is made via a rotary switch, and the uncalibrated duration is set by a potentiometer accessible from the side of the controller.

Setting the B/T toggle switch in the T (time) position holds the shutter open until the switch is returned to its neutral position. Setting and holding the toggle switch in the B (bulb) position holds the shutter open until the switch is released.

REMOTE OPERATION

Applying a brief (10 msec) TTL pulse to the controller duplicates the function of the pushbutton.

The shutter can also be energized and held open for as long as the TTL signal remains high.

SPECIFICATIONS:
Electronic Shutter Controllers

Input Voltage[1]	12 Vdc
Input Current[1]	2.5 A Minimum
Output Voltage	
Initial Pulse	48 Vdc for 10–20 msec
Holding Voltage	6 Vdc
Preset Shutter Speeds[2]	2, 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60 sec
TTL Input	3–7 Vdc, 15 mA (opto-isolated, floating ground)
Maximum Repetition Rate	2 Hz
Minimum Recharge Time	200 msec
Input Voltage[3]	90–264 Vac, 47–63 Hz
Dimensions (L × W × H)[4]	149.9 × 79.5 × 46.2 mm (5.90 × 3.13 × 1.82 in.)
Weight	0.32 kg (11.2 oz)
Connectors	
Packaged Controller	
dc Input	Coaxial barrel
Shutter Drive	50 Ω coaxial barrel
TTL Input	BNC
OEM Controller Board	
dc Input	Coaxial barrel
TTL and Shutter Drive	6-in. pigtailed leads

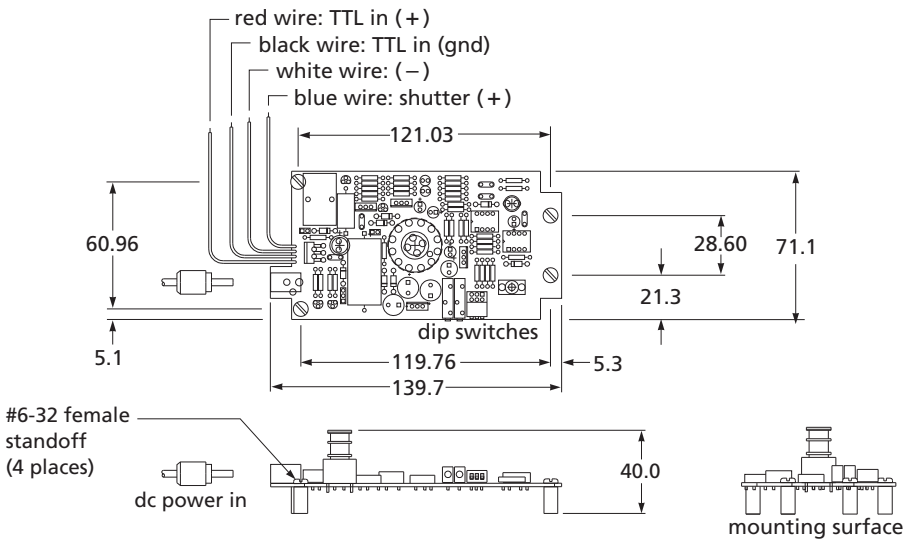
[1] Controller module
[2] Accessed via rotary knob on packaged units. Accessed via DIP switch on OEM control board.
[3] Power-supply module
[4] Packaged unit. For control board see drawing.

continued

APPLICATION NOTE

TTL Operation

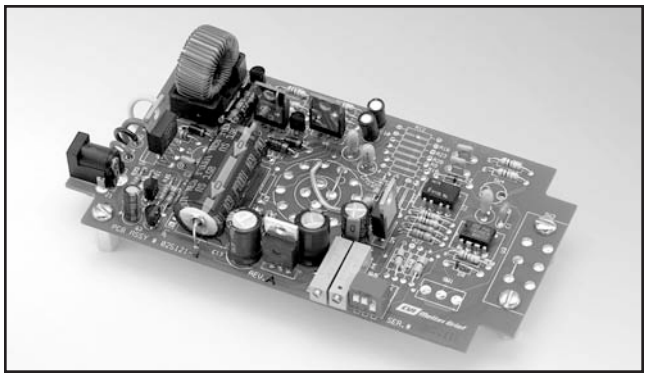
In the TTL setting, the shutter will actuate for an uncalibrated time when the manual trigger is pressed. To prevent the shutter from actuating as a result of electronic noise and spurious pulses, disconnect the TTL input plug when not in use.



59 OSC 205 Electronic Shutter Controller Board Drawing

Electronic Shutter Controller

Description	Plug Style	PART NUMBER
Electronic Shutter Controller		
Controller		04 ISC 850
OEM Controller Board		59 OSC 205
Shutter Controller Power Supplies		
12-Vdc Power Supply	3 prong North American	04 IPS 833
12-Vdc Power Supply	2 prong European	04 IPS 835
12-Vdc Power Supply	Japanese	04 IPS 837



59 OSC 205 Electronic Shutter Controller Board

Electrical Specifications

CVI Melles Griot electronic shutters are operated by external power sources, such as the 04 ISC 850 electronic shutter controller. To operate the shutter, it is important to understand the electrical requirements. To open the shutter, a dc signal that is four times the rated solenoid voltage should be applied to the bipost connector. The recommended pulse width is 20 msec. To keep the shutter open, a holding voltage of one-half the solenoid rating must be maintained after opening the shutter. Removal of this signal will quickly close the shutter. Standard solenoids are rated at 12 Vdc. Thus, the nominal opening voltage should be 48 Vdc for 20 msec, with a holding voltage of 6 Vdc.



Rotor Drive Shutter Controller

Rotor Drive Shutter Controller

CVI Melles Griot Rotor Drive Shutter Controller provides actuation signals to Rotor Drive shutters locally, through manual push button, or remotely, through TTL signal. The Rotor Drive Shutter controller is supplied with the adaptor cable to allow connecting the controller to any 9V Rotor Drive shutter. The unit is powered by the 12 V power supply available separately.

LOCAL OPERATION

Pressing the manual pushbutton trigger switch will change the shutter state to the opposite, from open to close or from close to open depending on the original state. The shutter will remain in the new state until the push-button is pressed again.

REMOTE OPERATION

Applying a TTL pulse to the controller duplicates the function of the pushbutton. Changing the shutter state again requires a new TTL pulse.

- Drives CVI Melles Griot Rotor Drive shutters
- Local or remote operation
- Compliant with safety and environmental standards for commercial electronics
- Actuate with manual push button or standard TTL input signal

SPECIFICATIONS: Rotor Drive Shutter Controller

Input Voltage[1]	12 Vdc
Input Current[1]	2.5 A Minimum
TTL Input	2.4–5.0 Vdc, 2 mA
Maximum Repetition Rate	3 Hz
Weight	2.44 kg (1.11 lb)
Output Voltage	9 Vdc
Output Current	
Single Blade Shutter	0.22 A
Dual Blade Shutter	0.45 A
Input Voltage[2]	90–264 Vac, 47–63 Hz
Dimensions (L × W × H)	152 × 84 × 48 mm (6.0 × 3.3 × 1.9 in.)
Connectors	
dc input	Coaxial barrel (panel mounted)
Shutter Drive	Molex 51021-0400 (adaptor cable)
TTL Input	BNC (panel mounted)

[1] Controller module
[2] Power supply module, available separately

Rotor Drive Shutter Controller

Description	Plug Style	PART NUMBER
Electronic Shutter Controller		
RDS Controller		04 RSC 850
Shutter Controller Power Supplies		
12-Vdc Power Supply	3 prong North American	04 IPS 833
12-Vdc Power Supply	2 prong European	04 IPS 835
12-Vdc Power Supply	Japanese	04 IPS 837

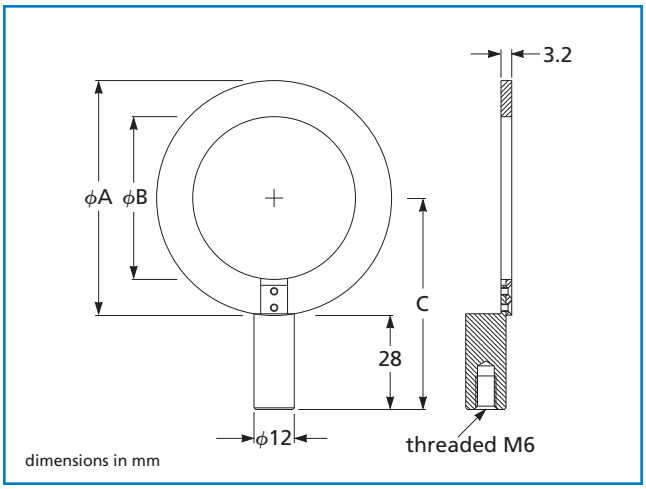


Electronic-Shutter Mounts

These mounts provide a simple, straightforward way to secure a CVI Melles Griot electronic shutter to a post. To mount a shutter, the mounting ring of the shutter is removed, the shutter is inserted into the mount and held in place by rethreading the mounting ring onto the shutter. The mounting post has an M6-threaded hole and can be easily affixed to other CVI Melles Griot posts.

Electronic-Shutter Mount Features

- Electronic-shutter mounts allow quick, easy mounting of IES-series electronic shutters.
- Mounting post has M6 thread and can be easily secured to other CVI Melles Griot posts.
- Durable, black finish provides control of light reflections.



Electronic-shutter mounts

Electronic-Shutter Mounts

Electronic Shutter	ϕA (mm)	ϕB (mm)	C (mm)	PART NUMBER
04 IES 211, 04 IES 212, 04 IES 218, 04 IES 220, 04 IES 222	50.5	34.0	55.5	07 HIS 001
04 IES 213, 04 IES 224, 04 IES 226, 04 IES 228	70.0	49.0	63.0	07 HIS 003

AllThingsPhotonic.com

Lasers | Lenses | Mirrors | Assemblies | Windows | Shutters | Waveplates | Mounts

United States
CVI Melles Griot - Albuquerque
200 Dorado Place SE
Albuquerque, NM 87123
USA
+1 505 296 9541(v) +1 505 298 9908(f)
optics@cvimellesgriot.com

CVI Melles Griot - Carlsbad
Laser Group
2051 Palomar Airport Road, 200
Carlsbad, CA 92011
USA
+1 760 438 2131(v) +1 760 438 5208(f)
lasers@cvimellesgriot.com

CVI Melles Griot - Covina
1175 E Edna Place
Covina, CA 91724
USA
+1 626 967 5281(v) +1 626 967 2513(f)
optics@cvimellesgriot.com

CVI Melles Griot - Rochester
55 Science Parkway
Rochester, NY 14620
USA
+1 585 244 7220(v) +1 585 244 6292(f)
optics@cvimellesgriot.com

United Kingdom
CVI Melles Griot - Cambridge
Regus House
1010 Cambourne Business Park
Cambridge, CB23 6DP
United Kingdom
+44(0) 1624 647000(v) +44(0) 1624 676859(f)
lasers.uk@cvimellesgriot.com

CVI Melles Griot - Leicester
35 Ashville Way
Whetstone, Leicester LE8 6NU
United Kingdom
+44 (0) 1162 846200(v) +44 (0) 1162 751673(f)
infrared.uk@cvimellesgriot.com

CVI Melles Griot - Isle of Man
Second Avenue
Onchan, Isle of Man
British Isles
IM3 4PA
+44(0) 1624 647000(v) +44(0) 1624 676859(f)
info.uk@cvimellesgriot.com

France
CVI Melles Griot - France
12 Avenue Jean Bart
78960 Voisins Le Bretonneaux
France
+33 (0)1 30 12 06 80(v) +33 (0)1 30 60 08 51(f)
info.france@cvimellesgriot.com

Germany
CVI Melles Griot - Germany
Lilienthalstraße 30-32
64625 Bensheim
Germany
+49 6251 84060(v) +49 6251 840622(f)
info.germany@cvimellesgriot.com

Japan
CVI Melles Griot - Japan
7F Totate International Bldg
2-12-19 Shibuya
Shibuya-Ku, Tokyo 150-0002
Japan
+81 3 3407-3614(v) +81 3 3486-0923(f)
sales@cvimgkk.com

Korea
CVI Melles Griot - Korea
226 Samjung-Dong Ojung-Ku
Boochun-Si
Kyongki-Do 421-150
Korea
+82 32 673 6114(v) +82 32 673 4010(f)
korea@cvimellesgriot.com

The Netherlands
CVI Melles Griot - Netherlands
Aalsbergen 2
6942 SE Didam
The Netherlands
+31 316 333 041(v) +31 316 528 187(f)
info.holland@cvimellesgriot.com

Singapore
CVI Melles Griot - Singapore
994 Bendemeer Rd. #06-05
Kallang Basin Industrial Estate
Singapore 339943
+65 6392-5368(v) +65 6392-5508(f)
sales@cvimgsp.com.sg

Sweden
CVI Melles Griot - Nordics
Kungsgatan 54
SE-753 21 Uppsala
Sweden
+46-(0)18-12 04 00(v) +46-(0)18-12 08 00(f)
info.nordic@cvimellesgriot.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP