



3-Way Solenoid

S-390-3W

The BERMAD S-390-3W is a compact 3-Way Solenoid, specially designed for reliable long life service in irrigation systems controlled by Continuous Current Controllers. The BERMAD solenoid can control valves independently or in combination with other control circuit accessories. Model S-390-3W is compliant with all Continuous Current Controllers on the market. It excels in its low power and low sensitivity to dirt and voltage variations. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.



Features and Benefits

- Advanced Construction Materials, Unique Plastic Casing
 - Proven pressure, voltage and weather resistance
 - Highly durable in corrosive environments
 - High mechanical strength
 - Protection Class- IP68; NEMA Type 6D
- Superb Internal Design and Finish
 - Reliable operation under dirt loaded water
 - Low sensitivity to voltage variations
- Low Power Consumption
 - Low coil heating and sediment damage
 - Saves wires and infrastructures costs
 - Suits all Continuous Current Controllers on the market
- Angled Plastic Base with Installation Bracket
 - High flow capacity quickens valve response
 - Manual override open
 - Simple installation to valve or manifold
- Simple Installation, Operation and Maintenance
- Reliable and Durable Product that Bears the Stamp of BERMAD Quality



Applications

- Solenoid controlled on/off valves
- Solenoid controlled pressure and flow control valves
- Multiple valve systems
- Systems distanced from control center



Specifications

Ports:

Actuator Port (1/8" NPT) - Pressure (N.O.); Vent (N.C.)
 Base Port - 1 (1/8" NPT⁽¹⁾) - Vent (N.O.); Pressure (N.C.)
 Base Port - C⁽²⁾ (1/8" NPT⁽¹⁾) - Valve Control Chamber (Common)

⁽¹⁾ Brass Base Ports Size is 1/4" NPT

⁽²⁾ Brass Base Common Port is marked "2"

Solenoid to Base Connection: 3/4"; 20 UNEF Male Threaded

Leads: 2 leads x 0.32 mm² x 80 cm

Operating Pressure Range: 0-10 bar

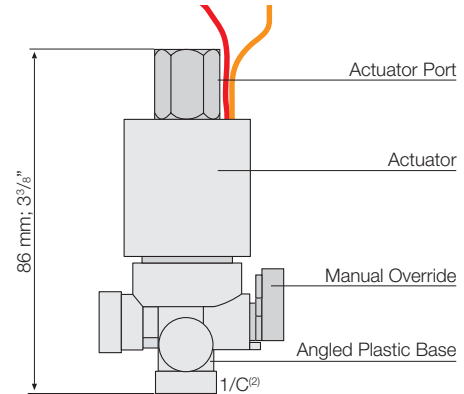
Materials:

Actuator Casing: Nylon

Seals: NBR

Wetted parts: Stainless steel 400 and polyamide

Base: Nylon (Optional: Brass)



Electrical Data:

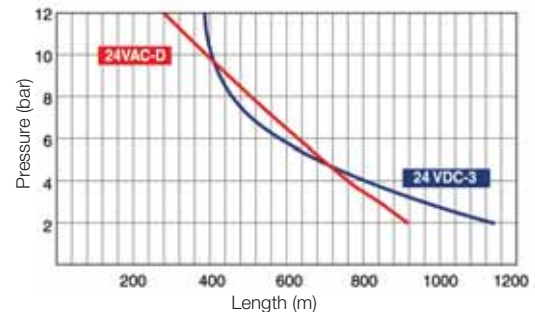
Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Coil Resistance ohm@20°C; 68°F
			Inrush	Hold	
S-390-3W-24VAC-D NO	Red/Orange	2.2	0.13	0.13	37.5
S-390-3W-24VAC-D NC	Orange/Blue	3.5	0.20	0.20	*
S-390-3W-24VAC-R NO	Red/Red	2.9	0.46	0.24	21
S-390-3W-24VDC NO & NC	Black/Black	4.2	0.17	0.17	135
S-390-3W-12VDC NO & NC	Blue/Blue	4.0	0.33	0.33	36

* The resistance in these coils cannot be measured

Cable Length Data:

Maximum cable length according to coil type

Cable cross section: 0.5 mm², orifice size: 1.8 mm, air gap: 0.8 mm



3-Way Flow & Pressure Data

Actuator Type	Pressure Rating (bar; Psi)		Inlet Port Kv*		Exhaust Kv*	
	1.6	1.8	1.6	1.8	1.6	1.8
S-390 24VAC-D-NO	10;150		0.05			0.12
S-390 24VAC-D-NC	15;220	10;150	0.07	0.12	0.05	
S-390 24VAC-R-NO	10;150		0.05			0.12
S-390 24VDC-NO	8;115		0.05			0.12
S-390 24VDC-NC	10;150	5;70	0.07	0.12	0.05	
S-390 12VDC-NO	8;115		0.05			0.12
S-390 12VDC-NC	10;150	5;70	0.07	0.12	0.05	

* KV = m³/h @ 1 bar ΔP ** CV = GPM @ 1 bar ΔP

How to Order

Please Specify the requested Solenoid as follow:

■ 2-wires Continuous Current Solenoid, BERMAD Model:

S-390-3W-_____ (a)-_____ (b)-_____ (c)-_____ (d)

- (a) Mark D or R
- (b) Mark desired Voltage: 24V/AC, 24V/DC, 12V/DC
- (c) Mark Solenoids desired De-Energised Function: NO (Open) or NC (Closed)
- (d) Mark desired Base: 00 (No Base) BC (Plastic NC), BR (Brass NC)

To Order installed and tested Solenoid Manifold Please Specify:

■ S-390-3W Solenoid Manifold, BERMAD Model:

E-390-3W-_____ (c)-_____ (e)-_____ (f)

- (c) Mark Solenoids desired De-Energised Function: NO (Open) or NC (Closed)
- (e) Specify Desired Quantity of Solenoids (2-10 Solenoids can be ordered)
- (f) Mark desired Voltage: 24V/AC, 24V/DC, 12V/DC





2-WAY SOLENOID ACTUATOR

S-390T-2W

The BERMAD S-390T-2W is a compact 2-Way Normally Closed Solenoid Actuator, specially designed for reliable long life service in irrigation systems controlled by Continuous Current Controllers. The BERMAD Solenoid Actuator is applicable directly to the Trio valve cover or with a Trio Base that enables combining the S-390T-2W in variety of 2-way control circuits. Model S-390T-2W is compliant with all Continuous Current Controllers on the market. It excels in its low power demand and low sensitivity to dirt and voltage variations.

Features & Benefits

- Advanced Construction Materials, Unique Plastic Casing
 - Proven pressure, voltage and weather resistance
 - Highly durable in corrosive environments
 - High mechanical strength
 - Protection Class- IP68; NEMA Type 6D
- Superb Internal Design and Finish
 - Reliable operation under dirt loaded water
 - Low sensitivity to voltage variations
- Low Power Consumption
 - Low coil heating and sediment damage
 - Saves wires and infrastructures costs
 - Suits all Continuous Current Controllers on the market
- Simple Installation, Operation and Maintenance
- Robust "Trio" 3-position manual override handle, Close, Open & Automatic modes
- Reliable and Durable Product that Bears the Stamp of BERMAD Quality

Applications

- Solenoid controlled on/off valves
- Solenoid controlled pressure and flow control valves
- Multiple valve systems
- Systems distanced from control center





Specifications

- Ports:**
Base Port - 1 (1/4" NPT) - Outlet
Base Port - C (1/4" NPT) - Inlet
- Solenoid to Base Connection:** 3/4"; 20 UNEF Male Threaded
- Base orifice size:** 2 mm
- Base Flow Factor:** Kv = 0.10 m³/h @ 1 bar ΔP;
Cv=0.12 GPM @1 psi ΔP
- Leads:** 2 leads x 0.32 mm² x 80 cm
- Operating Pressure Range:** 0-10 bar
- Max. Temperature:** water 80°C; 180°F

Materials:

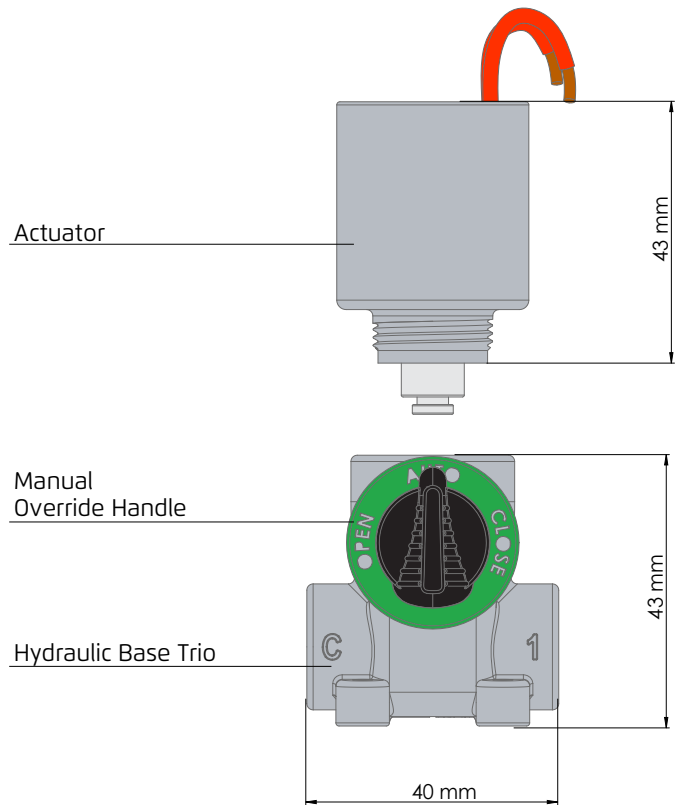
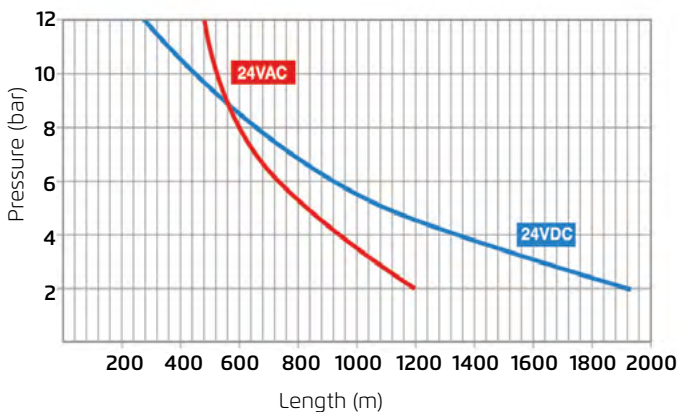
- Actuator Casing:** Nylon
- Seals:** NBR
- Wetted parts:** Stainless steel and polyamide
- Base:** Nylon (Optional: Brass)

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Coil Resistance ohm@20°C; 68°F
			Inrush	Hold	
S390T-2W-24VAC-R	Red/Red	1.7	0.25	0.125	37.5
S390T-2W-24VAC-D	Red/Orange	2.2	0.13	0.13	*
S390T-2W-24VDC	Black/Black	4.2	0.18	0.18	156
S390T-2W-12VDC	Blue/Blue	4.0	0.33	0.33	36

* Coil resistance in this coil cannot be measured

Cable Length Data:

- Maximum cable length according to coil type**
- Cable cross section:** 0.5 mm², orifice size:
- 2 mm, air gap:** 0.7 mm



For cables longer than shown in diagram

In order to calculate the cross section of a length other than shown in the diagram, use the following equation:

$$S = \frac{L (SOL)}{L (diagram)} \times 0.5$$

- S = Minimum conductor cross-section in mm²
- L (sol) = Actual Length of cable to solenoid
- L (diagram) = Length of cable shown in this diagram





MAGNETIC LATCH SOLENOID ACTUATOR

2-Way, 9VDC Latch, 2- Leads

S-392T-2W

The BERMAD Model S-392T-2W is a compact 2-Way Latching Solenoid Actuator, specially designed for reliable long life service in irrigation systems controlled by Battery Operated Controllers. The BERMAD latching Solenoid Actuator is applicable directly to the valve cover or with a 2 Way Trio base that enables combining it in variety of 2-way control circuits. Model S-392T-2W consumes power only when switching positions, using a very short electric impulse. This prolongs life of batteries and enables solar recharging.



Features & Benefits

- Advanced Construction Materials, Unique Plastic Casing
 - Proven pressure, voltage and weather resistance
 - Highly durable in corrosive environments
 - Protection Class- IP68; NEMA Type 6D
- Superb Internal Design and Finish
 - Reliable operation under dirt loaded water
- Short Electrical pulse Latch Activation
 - Extremely low power consumption
 - Low voltage battery operation
 - Saves wires and infrastructures
 - No coil heating
 - Suits most Battery Operated Controllers on the market
 - Applicable in solar activated systems
- Simple Installation, Operation and Maintenance
- Reliable and Durable Product that Bears the Stamp of BERMAD Quality
- Robust "Trio" 3-position manual override handle, Close, Open & Automatic mode

Applications

- Systems distanced from control center
- Unavailable power supply locations
- Solenoid controlled on/off valves
- Solenoid controlled pressure and flow control valves
- Multiple valve systems





Specifications

Ports:

Base Port - 1 (¼" NPT) - Outlet

Base Port - C (¼" NPT) - Inlet

Leads: 2 leads x 0.32 mm² x 80 cm

Operating Pressure Range: 0-10 bar

Base Orifice: 2 mm

Base Flow Factor: Kv = 0.10 m³/h @ 1 bar ΔP;
Cv=0.12 GPM @1 psi ΔP

Materials:

Actuator Casing: Nylon

Seals: NBR

Wetted parts: Stainless steel 400 and polyamide

Base: Nylon

Electrical Data:

Voltage Range: 9-20 VDC

Coil Resistance: 6 Ω

Coil Inductance: 90 mH

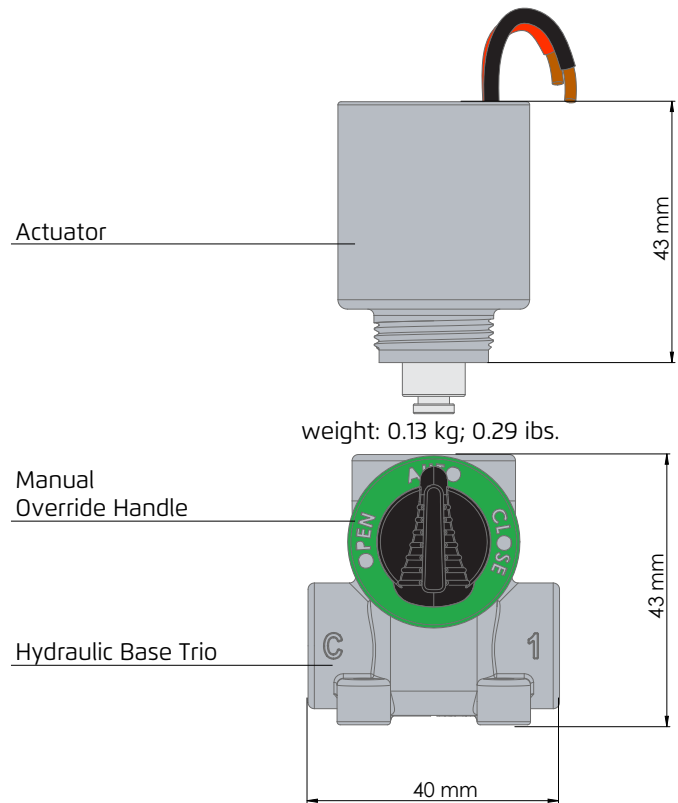
Pulse Width: 20-100 mSec.

Operation Modes (electrical connections):

+Red & -Black: Latch Position

+Black & -Red: Released Position

Note: To ensure compatibility of solenoid with your system, please contact BERMAD's local representative.





3-Way Solenoid

S-390-3W

The BERMAD S-390-3W is a compact 3-Way Solenoid, specially designed for reliable long life service in irrigation systems controlled by Continuous Current Controllers. The BERMAD solenoid can control valves independently or in combination with other control circuit accessories. Model S-390-3W is compliant with all Continuous Current Controllers on the market. It excels in its low power and low sensitivity to dirt and voltage variations. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.



Features and Benefits

- Advanced Construction Materials, Unique Plastic Casing
 - Proven pressure, voltage and weather resistance
 - Highly durable in corrosive environments
 - High mechanical strength
 - Protection Class- IP68; NEMA Type 6D
- Superb Internal Design and Finish
 - Reliable operation under dirt loaded water
 - Low sensitivity to voltage variations
- Low Power Consumption
 - Low coil heating and sediment damage
 - Saves wires and infrastructures costs
 - Suits all Continuous Current Controllers on the market
- Angled Plastic Base with Installation Bracket
 - High flow capacity quickens valve response
 - Manual override open
 - Simple installation to valve or manifold
- Simple Installation, Operation and Maintenance
- Reliable and Durable Product that Bears the Stamp of BERMAD Quality



Applications

- Solenoid controlled on/off valves
- Solenoid controlled pressure and flow control valves
- Multiple valve systems
- Systems distanced from control center



Specifications

Ports:

Actuator Port (1/8" NPT) - Pressure (N.O.); Vent (N.C.)
 Base Port - 1 (1/8" NPT⁽¹⁾) - Vent (N.O.); Pressure (N.C.)
 Base Port - C⁽²⁾ (1/8" NPT⁽¹⁾) - Valve Control Chamber (Common)
⁽¹⁾ Brass Base Ports Size is 1/4" NPT
⁽²⁾ Brass Base Common Port is marked "2"

Solenoid to Base Connection: 3/4"; 20 UNEF Male Threaded

Leads: 2 leads x 0.32 mm² x 80 cm

Operating Pressure Range: 0-10 bar

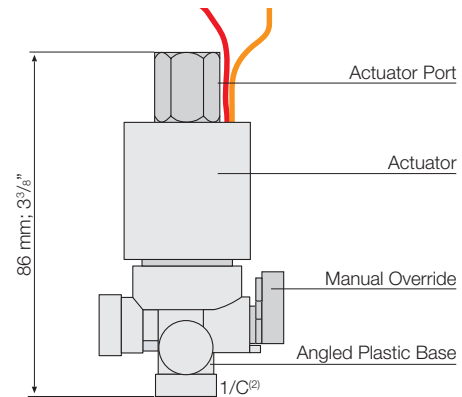
Materials:

Actuator Casing: Nylon

Seals: NBR

Wetted parts: Stainless steel 400 and polyamide

Base: Nylon (Optional: Brass)



Electrical Data:

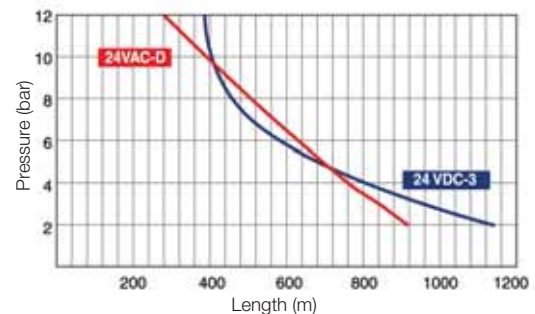
Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Coil Resistance ohm@20°C; 68°F
			Inrush	Hold	
S-390-3W-24VAC-D NO	Red/Orange	2.2	0.13	0.13	37.5
S-390-3W-24VAC-D NC	Orange/Blue	3.5	0.20	0.20	*
S-390-3W-24VAC-R NO	Red/Red	2.9	0.46	0.24	21
S-390-3W-24VDC NO & NC	Black/Black	4.2	0.17	0.17	135
S-390-3W-12VDC NO & NC	Blue/Blue	4.0	0.33	0.33	36

* The resistance in these coils cannot be measured

Cable Length Data:

Maximum cable length according to coil type

Cable cross section: 0.5 mm², orifice size: 1.8 mm, air gap: 0.8 mm



3-Way Flow & Pressure Data

Actuator Type	Pressure Rating (bar; Psi)		Inlet Port Kv*		Exhaust Kv*	
	1.6	1.8	1.6	1.8	1.6	1.8
S-390 24VAC-D-NO	10;150		0.05			0.12
S-390 24VAC-D-NC	15;220	10;150	0.07	0.12	0.05	
S-390 24VAC-R-NO	10;150		0.05			0.12
S-390 24VDC-NO	8;115		0.05			0.12
S-390 24VDC-NC	10;150	5;70	0.07	0.12	0.05	
S-390 12VDC-NO	8;115		0.05			0.12
S-390 12VDC-NC	10;150	5;70	0.07	0.12	0.05	

* KV = m³/h @ 1 bar ΔP ** CV = GPM @ 1 bar ΔP

How to Order

Please Specify the requested Solenoid as follow:

■ 2-wires Continuous Current Solenoid, BERMAD Model:

S-390-3W-_____ (a)-_____ (b)-_____ (c)-_____ (d)

- (a) Mark D or R
- (b) Mark desired Voltage: 24V/AC, 24V/DC, 12V/DC
- (c) Mark Solenoids desired De-Energised Function: NO (Open) or NC (Closed)
- (d) Mark desired Base: 00 (No Base) BC (Plastic NC), BR (Brass NC)

To Order installed and tested Solenoid Manifold Please Specify:

■ S-390-3W Solenoid Manifold, BERMAD Model:

E-390-3W-_____ (c)-_____ (e)-_____ (f)

- (c) Mark Solenoids desired De-Energised Function: NO (Open) or NC (Closed)
- (e) Specify Desired Quantity of Solenoids (2-10 Solenoids can be ordered)
- (f) Mark desired Voltage: 24V/AC, 24V/DC, 12V/DC





DRY MAGNETIC LATCH SOLENOID

with Isolating Membrane &
Hydraulic Base

3-Way, 12VDC Latch, 2- Leads

Model S-982-3W

The BERMAD S-982-3W-BB is a compact 3-Way Latching Solenoid Pilot Valve, comprised of two main components: a dry solenoid actuator and a 3-way hydraulic pilot valve. The actuator is neutralized from water damages by an isolating membrane, which hermetically isolates it from the water. The Model S-982-3W-BB consumes power only when switching positions, using a very short electric impulse. This prolongs life of batteries and enables solar recharging. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.



Features & Benefits

- Advanced Construction Materials
 - Proven pressure, voltage and weather resistance
 - Highly durable in corrosive environments
 - Protection Class- IP68; NEMA Type 6D
- Dry Actuator and Superb Finish
 - Reliable operation under dirt loaded water
 - Suitable to turbid, muddy and/or corrosive water
- Short Electrical Impulse Latch Activation
 - Extremely low power consumption
 - Low voltage battery operation
 - Saves wires and infrastructures
 - Suits most Battery Operated Controllers on the market
 - Applicable in solar activated systems
- Hydraulic Base with Installation Bracket
 - High flow capacity quickens valve response
 - Manual override open and close
 - Simple installation to valve or manifold
- Reliable and Durable Product that Bears the Stamp of BERMAD Quality



Applications Guide

- Systems distanced from control center
- Systems irrigated with turbid or corrosive water
- Unavailable power supply locations
- Solenoid controlled pressure & flow control on/off valves
- Multiple valve systems
- Solenoid manifolds in irrigation heads

All images in this catalog are for illustration only



Specifications

Base Ports: 1/8" NPT

- 1- Vent
- 2- Valve Control Chamber
- 3- Pressure

Valve Anchoring:

By Screws (Self Tapping #8) at the Solenoid base

Leads: 2 leads x 0.32 mm² x 85 cm

Operation Modes (electrical connections):

- + Red & - Black: Solenoid vents
 - + Black & - Red: Solenoid pressurizes
- Cable is black PVC sheathed

Operating Pressure Range: 0-10 bar

Base Orifice Diameter: 2 mm

Base Flow Factor:

Pressure port Kv = 0.12 m³/h @ 1 bar ΔP; Cv = 0.14 GPM @1 psi ΔP

Exhaust port Kv = 0.14 m³/h @ 1 bar ΔP; Cv = 0.16 GPM @1 psi ΔP

Materials:

Actuator Casing: Nylon

Seals and Isolating Membrane: NBR

Wetted parts: Nylon

Base: Nylon (Optional: Brass)

Electrical Data:

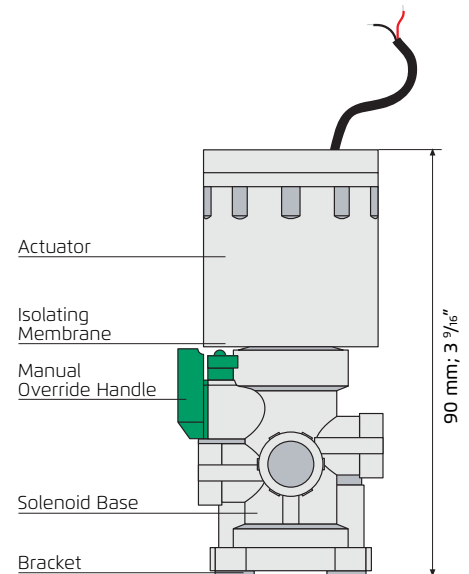
Voltage Range: 12-50 VDC

Coil Resistance: 4.2 Ω

Pulse Width: 20-100 mSec.

Required Capacitor: 4700μF

Note: To ensure compatibility of solenoid with your system, please contact BERMAD's local representative.



weight: 0.18 kg; 0.4 lbs.