Magnetic Switch Products

Magnetic switch products are designed to signal when an actuator with an integrated magnet has reached a set point in its travel. Bimba switches are pretested for use with Bimba actuators, eliminating the costly and time-consuming design and fabrication required to integrate third party switches. Switches are available in multiple configurations to meet your application needs. A variety of outputs are offered for each switch family, including PNP (transistor sourcing), NPN (transistor sinking), normally open contacts, and higher power triac.

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Switch and Cable Selection Chart

Switch Type	Base Part Number	General Description	Original Line Original Line With Rod Lock	Double-Wall	EF/Twist Clamp Twin Bore/ET Pneu-Moment Stopper/ LPA/NPA	Flat-1 Flat-II	PA NFPA	Pneu Turn	Linear Thruster	Ultran	Ultran Slide High Load Ultran	Repairable Stainless Steel All Stainless OL	Ultran Band	Ultran Band Plus	ISO 15552	ISO 6431	ISO 6432
	HC	PNP, LED				X					X6						
	HK	NPN, LED				X					X6						
	MR	Reed, 4mm round, LED	X3		X			X3	X3		X5		X7				X6
	MS	PNP or NPN, 4mm round, LED	X3		X			X3	X3		X5		X7				X6
	MSC	PNP, 4mm round, LED	X3		X			X3	X3		X5		X7				X6
	MSK	NPN, 4mm round, LED	X3		X			X3	X3		X5		X7				X6
	MHC	Mini EdgeSwitch™, PNP, 4mm round, LED	X3		X	X9		X3	X3		X5		X7				X6
	MHK	Mini EdgeSwitch™, NPN, 4mm round, LED	X3		X	X9		X3	X3		X5		X7				X6
	MHF	Mini EdgeSwitch™, 4mm round, LED	X3		X	X9		X3	X3		X5		X7				X6
Track Mounted	MRS-.027	Reed, 2 wire, No LED	X1														
	MRS-.087	Reed, 2 wire, No LED	X2								X6						
	MRS-1.5	Triac, 2 wire, No LED 1.5 amp, AC only	X2														
	MRS-1.5-S	Triac, 2 wire, No LED, 1.5 amp, AC only	X1														
	MRS-AB	Reed, Square slot, LED														X	
	HSC-AB	PNP, Square slot, LED														X	
	HSK-AB	NPN, Square slot, LED														X	
	UBR	Reed, Square slot, LED											X8				
	UBSC	PNP, Square slot, LED											X8				
	UBSK	NPN, Square slot, LED											X8				
	MRN	Reed, 2 wire					X							X	X		
	MDN	Solid State, 2 wire					X							X	X		
	MSN	Solid State Auto Select NPN or PNP					X							X	X		

X1 - MRS Series with -Z option 9/16" and 3/4" bore only
X2 - MRS Series with -Z option 1-1/16" through 2-1/2" bore only
X3 - "T" option required
X4 - Not for use with 9/16" bore
X5 - "U" option required
X6 - "T" option required – not available on 8, 10, or 12mm bore with options ED, Q, U
X7 - 18mm bore only
X8 - 25mm through 63mm bore only
X9 - "-90" with the "S" option available for Flat-1 only

Cables (Compatible with all Bimba Switches with the "Q" Option)

Part Number	Description
C4	Straight M8 Female Connector, Threaded Connection with 2 Meter Cable
C4-S	Straight M8 Female Connector, Threaded Connection with 2 Meter Shielded Cable
C4X	Straight M8 Female Connector, Threaded Connection with 5 Meter Cable
C4X-S	Straight M8 Female Connector, Threaded Connection with 5 Meter Shielded Cable
C5-S	Right Angle M8 Female Connector, Threaded Connection with 2 Meter Shielded Cable
C5X-S	Right Angle M8 Female Connector, Threaded Connection with 5 Meter Shielded Cable

Switch and Cable Selection Chart

Switch Type	Base Part Number	General Description	Original Line Original Line with Rod Lock	Double-Wall	EF/Twist Clamp Twin Bore/ET Pneu-Moment Stopper/LPA/ NPA	Flat-1 Flat-II	Pneu Turn	Linear Thruster	Ultran	Ultran Slide High Load Ultran	Repairable Stainless Steel All Stainless OL	Ultran Band	ISO 6431	ISO 6432
Band Mounted	HSC	PNP, LED	X				X	X4						
	HSK	NPN, LED	X				X	X4						
	MSS	PNP/NPN, 2 wire LED	X								X			
	MRS-.027-B	Reed, 2 wire, No LED, 3 watts												X
	MRS-.027-BL	Reed, 3 wire, LED, 2.8 watts												X
	MRS-.087-B	Reed, 2 wire, No LED, 10 watts	X	X			X	X						
	MRS-.087-BL	Reed, 3 wire, LED, 9 watts	X	X			X	X						
	MRS-.087-PBL	Reed, 2 wire, LED 2.5 watts	X	X			X	X						
	MRS-1.5-B	Triac, 2 wire, No LED, 1.5 amp, AC only	X	X			X	X						
	R10	Reed, 2 wire, LED	X								X			
	RAC	Reed, 2 wire, No LED, AC only	X								X			
	R10P	Reed, 2 wire, LED	X								X			
	RHT	Reed, 2 wire, No LED, High Temperature	X								X			
End of Stroke (Ultran)	RSU-1	Reed, 2 wire, No LED							X	X				
	PCQ	PNP, Proximity, LED							X	X				
	PKQ	NPN, Proximity, LED							X	X				

Switch and Cable Specifications

Switch Type	Base Part Number	General Description	Sensor Type	Output Type	Operating Voltage (V)	Actuating Time	Maximum Load Current
Track Mounted	HC	PNP, LED	GMR	Sourcing, PNP	4.5 to 30 VDC	1.0 mS	150 mA
	HK	NPN, LED	GMR	Sinking, NPN	4.5 to 30 VDC	1.0 mS	150 mA
	MR	Reed, 4mm round, LED	Reed	Normally Open Contact	5 to 120 V AC or DC	1.0 mS	30 mA
	MS	PNP or NPN, 4mm round, LED	GMR	Auto Configure, Sinking or Sourcing	5 to 30 VDC	0.2 mS	100 mA
	MSC	PNP, 4mm round, LED	GMR	Sourcing, PNP	4.5 to 30 VDC	1.0 mS	200 mA
	MSK	NPN, 4mm round, LED	GMR	Sinking, NPN	4.5 to 30 VDC	1.0 mS	200 mA
	MHC	Mini EdgeSwitch™, PNP, 4mm round, LED	GMR	Sourcing, PNP	5 to 28 VDC	1.0 mS	100 mA
	MHK	Mini EdgeSwitch™, NPN, 4mm round, LED	GMR	Sinking, NPN	5 to 28 VDC	1.0 mS	100 mA
	MHF	Mini EdgeSwitch™, 4mm round, LED	GMR	Normally Open, Solid-State	10 to 28 VDC	1.0 mS	50 mA
	MRS-.027	Reed, 2 wire, No LED	Reed	Normally Open Contact	28 V max, AC or DC	1.0 mS	250 mA
	MRS-.087	Reed, 2 wire, No LED	Reed	Normally Open Contact	200 V max, AC or DC	1.0 mS	500 mA
	MRS-1.5	Triac, 2 wire, No LED, 1.5 amp, AC only	Reed	Triac	12 to 230 V, AC only	2.0 mS	1.5 A
	MRS-1.5-S	Triac, 2 wire, No LED, 1.5 amp, AC only	Reed	Triac	12 to 230 V, AC only	2.0 mS	1.5 A
	MRS-AB	Reed, Square slot, LED	Reed	Normally Open Contact	5 to 240 V, AC or DC	1.0 mS	100 mA
	HSC-AB	PNP, Square slot, LED	GMR	Sourcing, PNP	5 to 30 VDC	1.0 mS	200 mA
	HSK-AB	NPN, Square slot, LED	GMR	Sinking, NPN	5 to 30 VDC	1.0 mS	200 mA
	UBR	Reed, Square slot, LED	Reed	Normally Open Contact	5 to 240 V, AC or DC	1.0 mS	100 mA
	UBSC	PNP, Square slot, LED	GMR	Sourcing, PNP	5 to 30 VDC	1.0 mS	200 mA
	UBSK	NPN, Square slot, LED	GMR	Sinking, NPN	5 to 30 VDC	1.0 mS	200 mA
	MRN	Reed, 2-wire flying lead or M8	Reed	Normally Open Contact	240 V max, AC or DC	1.0 mS	100 mA
	MDN	Solid State, 2-wire flying lead or M8	GMR	Normally Open Contact	10 to 28 V, DC only	1.0 mS	50 mA
	MSN	Solid State auto select, 3-wire flying lead or M8	GMR	Sinking, NPN or Sourcing, PNP	5 to 30 V, DC only	1.0 mS	200 mA
Band Mounted	HSC	PNP, LED	GMR	Sourcing, PNP	4.5 to 30 VDC	1.0 mS	150 mA
	HSK	NPN, LED	GMR	Sinking, NPN	4.5 to 30 VDC	1.0 mS	150 mA
	MSS	PNP/NPN, 2 wire LED	GMR	Sinking or Sourcing	10 to 30 VDC	1.0 mS	300 mA
	MRS-.027-B	Reed, 2 wire, No LED, 3 watts	Reed	Normally Open Contact	28 V max, AC or DC	1.0 mS	250 mA
	MRS-.027-BL	Reed, 3 wire, LED, 2.8 watts	Reed	Normally Open Contact	6 to 24 V, AC or DC	1.0 mS	250 mA
	MRS-.087-B	Reed, 2 wire, No LED, 10 watts	Reed	Normally Open Contact	120 (200) V, AC or DC	1.0 mS	500 mA
	MRS-.087-BL	Reed, 3 wire, LED, 9 watts	Reed	Normally Open Contact	6 to 24 V, AC or DC	1.0 mS	500 mA
	MRS-.087-PBL	Reed, 2 wire, LED, 2.5 watts	Reed	Normally Open Contact	3 to 120 V, AC or DC	1.0 mS	20 mA
	MRS-1.5-B	Triac, 2 wire, No LED 1.5 amp, AC only	Reed	Triac	12 to 230 VAC	2.0 mS	1.5 A
	R10	Reed, 2 wire, LED	Reed	Normally Open Contact	5 to 120V, AC or DC	1.0 mS	500 mA
	RAC	Reed, 2 wire, No LED, AC only	Reed	Triac	12 to 240 VAC	2.0 mS	800 mA
	R10P	Reed, 2 wire, LED	Reed	Normally Open Contact	5 to 120V, AC or DC	1.0 mS	150 mA
	RHT	Reed, 2 wire, No LED	Reed	Normally Open Contact	5 to 120V, AC or DC	1.0 mS	500 mA
End of Stroke (Ultran)	RSU-1	Reed, 2 wire, No LED	Reed	Normally Open Contact	200 VDC	1.0 mS	500 mA
	PCQ	PNP, Proximity, LED	Inductive	Sourcing, PNP	10 to 30 VDC	0.33 mS	150 mA
	PKQ	NPN, Proximity, LED	Inductive	Sinking, NPN	10 to 30 VDC	0.33 mS	150 mA

Quick Connect Cable Specifications

Contact Carrier Material:	Nylon
Conductors:	3 x 24 AWG
Molded Connector Head:	Polyurethane (PUR)
Contact Material:	Gold plated brass
Power Rating:	125 V @ 3A
Wire Insulation Material:	Polyvinyl Chloride (PVC)
Jacket Material:	Polyurethane (PUR)
Temperature Range:	-4° F to 200° F (-20° C to 90° C)
Protection Class:	NEMA 1, 3, 4, 6 and IEC IP67
Insulation Resistance:	109

How to Specify

Switch and Cable Specifications

Switch Type	Base Part Number	General Description	Reverse Polarity Protection	Over-Voltage Protection	Transient Protection	Temperature Rating	Enclosure
Track Mounted	HC	PNP, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	HK	NPN, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	MR	Reed, 4mm round, LED	No	No	No	-10°C to 60°C	IP67
	MS	PNP or NPN, 4mm round, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	MSC	PNP, 4mm round, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	MSK	NPN, 4mm round, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	MHC	Mini EdgeSwitch™, PNP, 4mm round, LED	Yes	Yes	Yes	-10°C to 70°C	IP67
	MHK	Mini EdgeSwitch™, NPN, 4mm round, LED	Yes	Yes	Yes	-10°C to 70°C	IP67
	MHF	Mini EdgeSwitch™, 4mm round, LED	No	Yes	Yes	-10°C to 70°C	IP67
	MRS-.027	Reed, 2 wire, No LED	No	No	No	-25°C to 85°C	IP65
	MRS-.087	Reed, 2 wire, No LED	No	No	No	-25°C to 85°C	IP65
	MRS-1.5	Triac, 2 wire, No LED, 1.5 amp, AC only	No	No	No	-25°C to 85°C	IP65
	MRS-1.5-S	Triac, 2 wire, No LED, 1.5 amp, AC only	No	No	No	-25°C to 85°C	IP65
	MRS-AB	Reed, Square slot, LED	No	No	No	-10°C to 70°C	IP67
	HSC-AB	PNP, Square slot, LED	Yes	Yes	Yes	-10°C to 70°C	IP67
	HSK-AB	NPN, Square slot, LED	Yes	Yes	Yes	-10°C to 70°C	IP67
	UBR	Reed, Square slot, LED	No	No	No	-10°C to 70°C	IP67
	UBSC	PNP, Square slot, LED	Yes	Yes	Yes	-10°C to 70°C	IP67
	UBSK	NPN, Square slot, LED	Yes	Yes	Yes	-10°C to 70°C	IP67
Band Mounted	HSC	PNP, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	HSK	NPN, LED	Yes	Yes	Yes	-20°C to 80°C	IP67
	MSS	PNP/NPN, 2 wire LED	Yes	Yes	Yes	-20°C to 70°C	IP67
	MRS-.027-B	Reed, 2 wire, No LED, 3 watts	No	No	No	-25°C to 85°C	IP65
	MRS-.027-BL	Reed, 3 wire, LED, 2.8 watts	No	No	No	-25°C to 85°C	IP65
	MRS-.087-B	Reed, 2 wire, No LED, 10 watts	No	No	No	-25°C to 85°C	IP65
	MRS-.087-BL	Reed, 3 wire, LED, 9 watts	No	No	No	-25°C to 85°C	IP65
	MRS-.087-PBL	Reed, 2 wire, LED, 2.5 watts	No	No	No	-25°C to 85°C	IP65
	MRS-1.5-B	Triac, 2 wire, No LED, 1.5 amp, AC only	No	No	No	-25°C to 85°C	IP65
	R10	Reed, 2 wire, LED	No	No	No	-20°C to 70°C	IP67
	RAC	Reed, 2 wire, No LED, AC only	No	No	No	-20°C to 70°C	IP67
	R10P	Reed, 2 wire, LED	No	Yes	Yes	-20°C to 70°C	IP67
	RHT	Reed, 2 wire, No LED	No	No	No	-40°C to 125°C	IP67
End of Stroke (Ultran)	RSU-1	Reed, 2 wire, No LED	No	No	No	-25°C to 85°C	IP65
	PCQ	PNP, Proximity, LED	Yes	Yes	Yes	-25°C to 70°C	IP67
	PKQ	NPN, Proximity, LED	Yes	Yes	Yes	-25°C to 70°C	IP67

Wire Color Codes

Generally the wire colors for Bimba switches conform to CENELEC EN 50 044 wiring standard. All switches with the “Q” option used with Bimba cables conform to the standard which is: Brown – Positive, Blue – Ground, and Black – Output. Some legacy switches do not conform to the standard as indicated in the catalog and documentation provided with the switch.

NOTE: 2 wire switches use only the brown and blue wires. (Some legacy switches use red and black). Do not connect the blue and brown wires across the power supply without a load in series the switch, it will be destroyed by the short circuit.

Product Features

Bimba offers more than twenty switch product series. The series are grouped by mounting style: band or track mounted. The choice of mounting style depends on the actuator used and user preference. Each series offers a unique mix of features allowing the user to select the right balance of price, performance and features for their application.

Features

Magnetic Reed Switch

> Lower cost
> Optional integrated LED
> AC or DC options
> Compact size
> Straight or 90° take out
> Quick disconnect or flying lead cable ends
> Track or band mounted

Solid State Switch

> Solid state reliability
> Faster response time
> Integrated LED
> Compact size
> Straight or 90° take out
> Quick disconnect or flying lead cable ends
> Reverse polarity and over-voltage protection
> Track or band mounted

Benefits

> Small operating window enables precise control of machine and processes
> Solid State switches have longer life than mechanical switches, reducing downtime
> Optional 90° take out simplifies wire routing
> Multiple cable length options simplify installation
> LED provides visual confirmation of switch function
> Compact size enables multiple switches to be installed on one actuator
> Multiple mounting options enable users to select the option that fits their needs

Band Mounted Solid State Switches

HSC and HSK

Compatible and Tested for use with:

Original Line Cylinders, Pneu-Turn Rotary Actuators, and Linear Thrusters

Band Size	
Bore Size	**Band Size**
No Band	Blank
9/16" (14mm)	02
3/4" (19mm)	04
7/8"	06
1-1/16" (27mm)	09
1-1/4"	12
1-1/2" (38mm)	17
1-3/4"	24
2" (50mm)	31
2-1/2"	50
3"	70

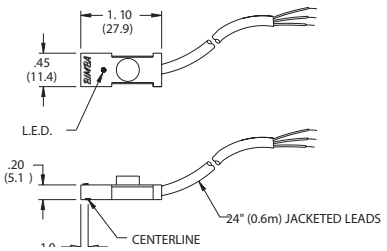
Part Numbers

Part Number	Description
HSC	Sourcing Switch (PNP), LED, 30VDC, 150mA with 24" Pigtail Leads, No Band
HSC-□□[1]	Sourcing Switch (PNP), LED, 30VDC, 150mA with 24" Pigtail Leads, Band Included
HSCQ	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector, No Band
HSCQ-□□[1]	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector, Band Included
HSCQC	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector and 2m Mating Cable, No Band
HSCQC-□□[1]	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector and 2m Mating Cable, Band Included
HSCQCX	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector and 5m Mating Cable, No Band
HSCQCX-□□[1]	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector and 5m Mating Cable, Band Included
HSCX	Sourcing Switch (PNP), LED, 30VDC, 150mA with 144" Pigtail Leads, No Band
HSCX-□□[1]	Sourcing Switch (PNP), LED, 30VDC, 150mA with 144" Pigtail Leads, Band Included
HSK	Sinking Switch (NPN), LED, 30VDC, 150mA with 24" Pigtail Leads, No Band
HSK-□□[1]	Sinking Switch (NPN), LED, 30VDC, 150mA with 24" Pigtail Leads, Band Included
HSKQ	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector, No Band
HSKQ-□□[1]	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector, Band Included
HSKQC	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector and 2m Mating Cable, No Band
HSKQC-□□[1]	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector and 2m Mating Cable, Band Included
HSKQCX	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector and 5m Mating Cable, No Band
HSKQCX-□□[1]	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector and 5m Mating Cable, Band Included
HSKX	Sinking Switch (NPN), LED, 30VDC, 150mA with 144" Pigtail Leads, No Band
HSKX-□□[1]	Sinking Switch (NPN), LED, 30VDC, 150mA with 144" Pigtail Leads, Band Included

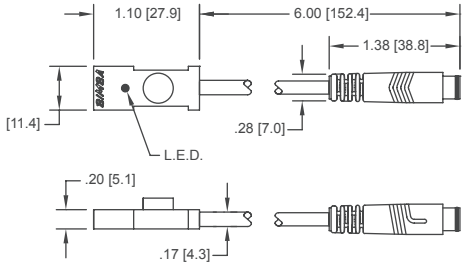
[1] Replace boxes with band size.
Example Part Number with band size from table: HSC-02 is an HSC switch with a band for 9/16" or 14 mm cylinder.

Dimensions

Band Mounted Solid State Switches
HSC and HSK



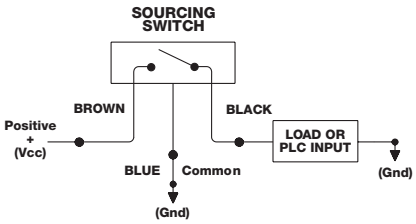
HSC, HSK



HSCQ, HSKQ

Wiring Diagrams

Typical Solid State Sourcing Configuration for HSC Models (PNP)

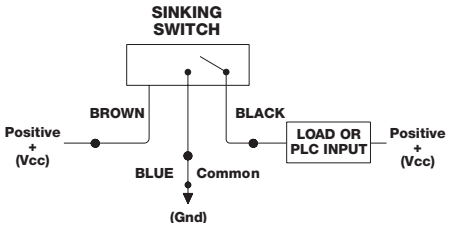


HSC, HC

Basic Circuit Layout for Programmable Logic Controllers (PLC) and Normally Off Relays and Solenoids

CAUTION: Shorting black wire to ground will damage switch.

Typical Solid State Sinking Configuration for HSK Models (NPN)

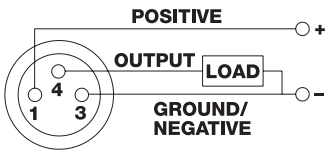


HSK, HK

Basic Circuit Layout for Programmable Logic Controllers (PLC) and Normally Off Relays and Solenoids

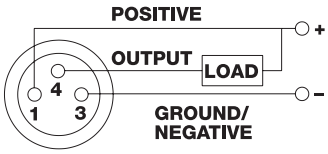
CAUTION: Shorting black wire to supply voltage will damage switch.

8mm Male Connector Sourcing Solid State Switch



HSCQ, HCQ

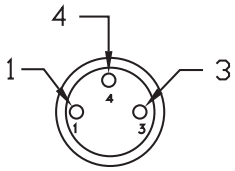
8mm Male Connector Sinking Solid State Switch



HSKQ, HKQ

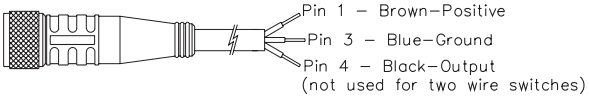
Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector
Face View of M8 Male Connector

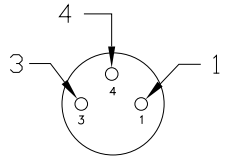


1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector
Side View of M8 Female Connector



Face View of M8 Female Connector



How to Order

HS Series, Band Mounted, Solid State Switches

Series	
HS	Solid State Switch

Cable End	
Blank	24" (0.6m) with Flying Leads
X	144" (3.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

HSCQCX - M25

Output	
C	3 Wire Sourcing (PNP)
K	3 Wire Sinking (NPN)

Mating Cable[1]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[1] Q option required

Band	
Blank	No band
-02	9/16" (14mm)
-04	3/4" (19mm)
-06	7/8"
-09	1-1/16" (27mm)
-12	1-1/4"
-17	1-1/2" (38mm)
-24	1-3/4"
-31	2" (50mm)
-50	2-1/2"
-70	3"
-M10	10mm
-M12	12mm
-M16	16mm
-M20	20mm
-M25	25mm

Compatible and Tested for use with:

> Original Line Cylinders
> Pneu-Turn Rotary Actuators
> Linear Thrusters

Heavy Duty Band Mounted Switches

MRS-.087-B, MRS-.087-PB, and MRS-1.5-B

Compatible and Tested for use with:

Original Line Cylinders, Pneu-Turn Rotary Actuators, Linear Thrusters, and Double-Wall Cylinders

Band Size	
Bore Size	**Band Size**
No Band	Blank
9/16" (14mm)	02
3/4" (19mm)	04
7/8"	06
1-1/16" (27mm)	09
1-1/4"	12
1-1/2" (38mm)	17
1-3/4"	24
2" (50mm)	31
2-1/2"	50
3"	70

Metric Band Size	
Bore Size	**Band Size**
10mm	M10
12mm	M12
16mm	M16
20mm	M20
25mm	M25

Double-Wall Band Size	
Bore Size	**Band Size**
1-1/2"	DW1
2"	DW2
2-1/2"	DW3
3-1/4"	DW4
4"	DW5

Part Numbers

Part Number	Description
MRS-.087-B	Reed Switch, 2 wire, No LED, 200 V, 500mA, 24" Pigtail Leads, No Band
MRS-.087-B-□□[1]	Reed Switch, 2 wire, No LED, 200 V, 500mA, 24" Pigtail Leads, Band Included
MRS-.087-BQ	Reed Switch, 2 wire, No LED, 120 V, 500mA, M8 Male Connector, No Band
MRS-.087-BQ-□□[1]	Reed Switch, 2 wire, No LED, 120 V, 500mA, M8 Male Connector, Band Included
MRS-.087-BQC	Reed Switch, 2 wire, No LED, 120 V, 500mA, M8 Male Connector, 2m Mating Cable, No Band
MRS-.087-BQC-□□[1]	Reed Switch, 2 wire, No LED, 120 V, 500mA, M8 Male Connector, 2m Mating Cable, Band Included
MRS-.087-BQCX	Reed Switch, 2 wire, No LED, 120 V, 500mA, M8 Male Connector, 5m Mating Cable, No Band
MRS-.087-BQCX-□□[1]	Reed Switch, 2 wire, No LED, 120 V, 500mA, M8 Male Connector, 5m Mating Cable, Band Included
MRS-.087-XB	Reed Switch, 2 wire, No LED, 200 V, 500mA, 144" Pigtail Leads, No Band
MRS-.087-XB-□□[1]	Reed Switch, 2 wire, No LED, 200 V, 500mA, 144" Pigtail Leads, Band Included
MRS-.087-BL	Reed Switch, 3 wire, LED, 24 V, 500mA, 24" Pigtail Leads, No Band
MRS-.087-BL-□□[1]	Reed Switch, 3 wire, LED, 24 V, 500mA, 24" Pigtail Leads, Band Included
MRS-.087-BLQ	Reed Switch, 3 wire, LED, 24 V, 500mA, M8 Male Connector, No Band
MRS-.087-BLQ-□□[1]	Reed Switch, 3 wire, LED, 24 V, 500mA, M8 Male Connector, Band Included
MRS-.087-BLQC	Reed Switch, 3 wire, LED, 24 V, 500mA, M8 Male Connector, 2m Mating Cable, No Band
MRS-.087-BLQC-□□[1]	Reed Switch, 3 wire, LED, 24 V, 500mA, M8 Male Connector, 2m Mating Cable, Band Included
MRS-.087-BLQCX	Reed Switch, 3 wire, LED, 24 V, 500mA, M8 Male Connector, 5m Mating Cable, No Band
MRS-.087-BLQCX-□□[1]	Reed Switch, 3 wire, LED, 24 V, 500mA, M8 Male Connector, 5m Mating Cable, Band Included
MRS-.087-XBL	Reed Switch, 3 wire, LED, 24 V, 500mA, 144" Pigtail Leads, No Band
MRS-.087-XBL-□□[1]	Reed Switch, 3 wire, LED, 24 V, 500mA, 144" Pigtail Leads, Band Included
MRS-.087-PBL	Reed Switch, 2 wire, LED, 120 V, 20mA, 24" Pigtail Leads, No Band
MRS-.087-PBL-□□[1]	Reed Switch, 2 wire, LED, 120 V, 20mA, 24" Pigtail Leads, Band Included
MRS-.087-PBLQ	Reed Switch, 2 wire, LED, 120 V, 20mA, M8 Male Connector, No Band
MRS-.087-PBLQ-□□[1]	Reed Switch, 2 wire, LED, 120 V, 20mA, M8 Male Connector, Band Included
MRS-.087-PBLQC	Reed Switch, 2 wire, LED, 120 V, 20mA, M8 Male Connector, 2m Mating Cable, No Band
MRS-.087-PBLQC-□□[1]	Reed Switch, 2 wire, LED, 120 V, 20mA, M8 Male Connector, 2m Mating Cable, Band Included
MRS-.087-PBLQCX	Reed Switch, 2 wire, LED, 120 V, 20mA, M8 Male Connector, 5m Mating Cable, No Band
MRS-.087-PBLQCX-□□[1]	Reed Switch, 2 wire, LED, 120 V, 20mA, M8 Male Connector, 5m Mating Cable, Band Included
MRS-.087-PXBL	Reed Switch, 2 wire, LED, 120 V, 20mA, 144" Pigtail Leads, No Band
MRS-.087-PXBL-□□[1]	Reed Switch, 2 wire, LED, 120 V, 20mA, 144" Pigtail Leads, Band Included
MRS-1.5-B	Reed Switch, 2 wire, No LED, 12 to 230V AC only, 1.5A, 24" Pigtail Leads, No Band
MRS-1.5-B-□□[1]	Reed Switch, 2 wire, No LED, 12 to 230V AC only, 1.5A, 24" Pigtail Leads, Band Included
MRS-1.5-XB	Reed Switch, 2 wire, No LED, 12 to 230V AC only, 1.5A, 144" Pigtail Leads, No Band
MRS-1.5-XB-□□[1]	Reed Switch, 2 wire, No LED, 12 to 230V AC only, 1.5A, 144" Pigtail Leads, Band Included

[1] Replace boxes with band size.
Example Part Number with band size from table: HSC-02 is an HSC switch with a band for 9/16" or 14 mm cylinder.

Heavy Duty Band Mounted Switches

MRS-.027-B, MRS-.027-BL

Compatible and Tested for use with:

ISO 6432 Cylinders

Band Size	
Bore Size	**Band Size**
No Band	Blank
10mm	M10
12mm	M12
16mm	M16
20mm	M20
25mm	M25

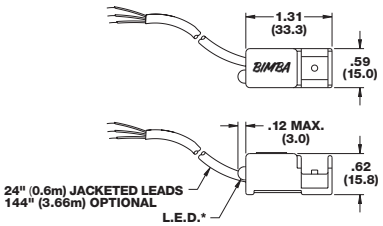
Part Numbers

Part Number	Description
MRS-.027-B	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250mA, 0.6m Pigtail Leads, No Band
MRS-.027-B-□□[1]	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250mA, 0.6m Pigtail Leads, Band Included
MRS-.027-XB	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250mA, 3.6m Pigtail Leads, No Band
MRS-.027-XB-□□[1]	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250mA, 3.6m Pigtail Leads, Band Included
MRS-.027-BQ	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250mA, M8 Male Connector, No Band
MRS-.027-BQ-□□[1]	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250mA, M8 Male Connector, Band Included
MRS-.027-BQC	Reed Switch, 2 wire, No LED, 28 V AD/DC max., 250 mA, M8 Male Connector, 2m Mating Cable, No Band
MRS-.027-BQC-□□[1]	Reed Switch, 2 wire, No LED, 28 V AD/DC max., 250 mA, M8 Male Connector, 2m Mating Cable, Band Included
MRS-.027-BQCX	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250 mA, M8 Male Connector, 5m Mating Cable, No Band
MRS-.027-BQCX-□□[1]	Reed Switch, 2 wire, No LED, 28 V AC/DC max., 250 mA, M8 Male Connector, 5m Mating Cable, Band Included
MRS-.027-BL	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, 0.6m Pigtail Leads, No Band
MRS-.027-BL-□□[1]	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, 0.6m Pigtail Leads, Band Included
MRS-.027-XBL	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, 3.6m Pigtail Leads, No Band
MRS-.027-XBL-□□[1]	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, 3.6m Pigtail Leads, Band Included
MRS-.027-BLQ	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, M8 Male Connector, No Band
MRS-.027-BLQ-□□[1]	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, M8 Male Connector, Band Included
MRS-.027-BLQC	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, M8 Male Connector, 2m Mating Cable, No Band
MRS-.027-BLQC-□□[1]	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250 mA, M8 Male Connector, 2m Mating Cable, Band Included
MRS-.027-BLQCX	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250mA, M8 Male Connector, 5m Mating Cable, No Band
MRS-.027-BLQCX-□□[1]	Reed Switch, 3 wire, LED, 6-24 V AC/DC, 250mA, M8 Male Connector, 5m Mating Cable, Band Included

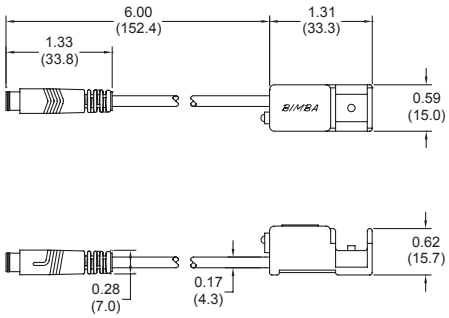
[1] Price includes band. Replace boxes with band size.

Dimensions

Heavy Duty Band Mounted Switches
MRS-.087-B, MRS-.087-PB, and MRS-1.5-B



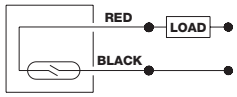
MRS-.087-B
MRS-.087-BL
MRS-.087-PBL
MRS-1.5-B



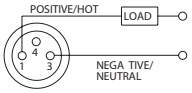
MRS-.087-BQ
MRS-.087-BLQ
MRS-.087-PBLQ

Wiring Diagrams

MRS-.087-B

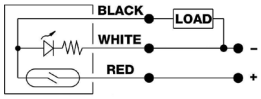


MRS-.087-BQ
MRS-.087-PBLQ

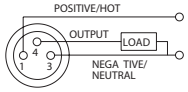


8mm Male Connector

MRS-.087-BL

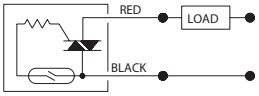


MRS-.087-BLQ

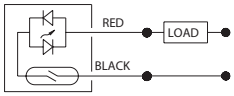


8mm Male Connector

MRS-1.5-B

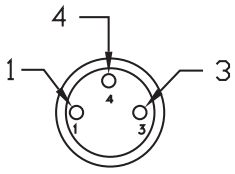


MRS-.087-PBL



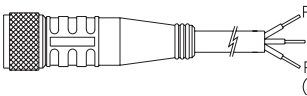
Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector
Face View of M8 Male Connector

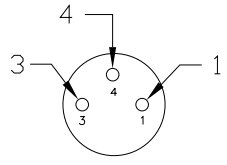


1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector
Side View of M8 Female Connector



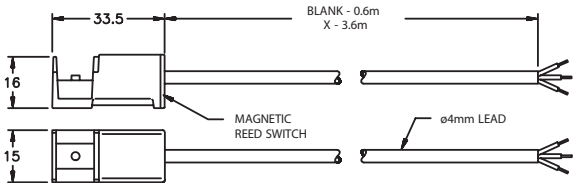
Face View of M8 Female Connector



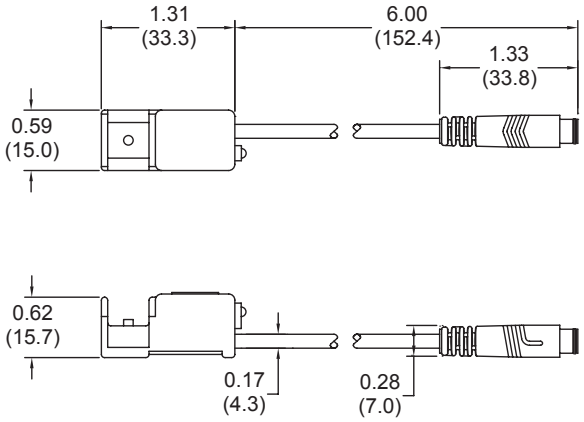
How to Specify

Dimensions

Heavy Duty Band Mounted Switches
MRS-.027-B, MRS-.027-BL

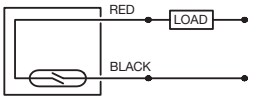


LED INDICATOR: A 'L' in the model number signifies the presence of a LED indicator.
CABLE LENGTH: The standard cable length is 0.6m. Switches with a 'X' in the model number indicate a cable length of 3.6m.



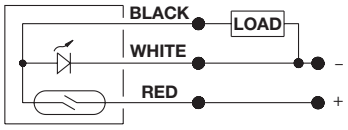
Wiring Diagrams

MRS-.027-B



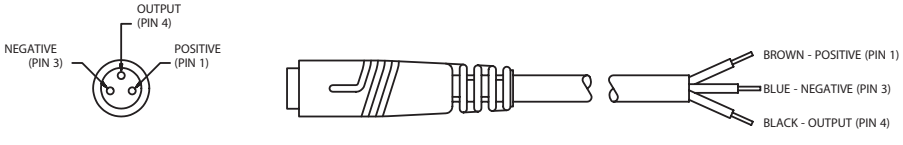
2 wire models, no LED

MRS-.027-BL



3 wire models, with LED

Pin and Wire Assignments for Quick Connect



8mm Female Connector

NOTE: Terminal 4 is not connected for 2 wire switch models.

MRS-.027-B Series, Band Mounted (ISO 6432), Heavy Duty Reed Switches

Series	
MRS-.027	AC/DC Switch

Cable End	
Blank	24" (0.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

MRS - .027 - XBLQCX - M25

Cable Length	
Blank	24" (0.6m) with Flying Leads
X[1]	144" (3.6m) with Flying Leads

[1] Q option not available

Wire Count, Led	
B	2 Wire, No LED
BL	3 Wire, LED

Mating Cable[2]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[2] Q option required

Band	
Blank	No band
-M10	10mm
-M12	12mm
-M16	16mm
-M20	20mm
-M25	25mm

Compatible and Tested for use with:

> ISO 6432 Cylinders

How to Order

MRS-.087-B Series, Band Mounted, Heavy Duty Reed Switches

Series	
MRS-.087	AC/DC Switch

Cable End	
Blank	24" (0.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

MRS - .087 - BLQCX - DW5

Wire Count, Cable Length, LED	
B[1]	2 Wire, 24" (0.6m) with Flying Leads, No LED
PBL[1]	2 Wire, 24" (0.6m) with Flying Leads, LED
BL[1]	3 Wire, 24" (0.6m) with Flying Leads, LED
XB[2]	2 Wire, 144" (3.6m) with Flying Leads, No LED
PXBL[2]	2 Wire, 144" (3.6m) with Flying Leads, LED
XBL[2]	3 Wire, 144" (3.6m) with Flying Leads, LED

[1] Cable length applies to flying lead only
[2] Not valid with Q option
[3] Q option required

Mating Cable[3]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

Band	
Blank	No band
-02	9/16" (14mm)
-04	3/4" (19mm)
-06	7/8"
-09	1-1/16" (27mm)
-12	1-1/4"
-17	1-1/2" (38mm)
-24	1-3/4"
-31	2" (50mm)
-50	2-1/2"
-70	3"
-M10	10mm
-M12	12mm
-M16	16mm
-M20	20mm
-M25	25mm
-DW1	1-1/2" Double Wall
-DW2	2" Double Wall
-DW3	2-1/2" Double Wall
-DW4	3-1/4" Double Wall
-DW5	4" Double Wall

Compatible and Tested for use with:

- Original Line Cylinders
- Pneu-Turn Rotary Actuators
- Linear Thrusters
- Double-Wall Cylinders

MRS-1.5-B Series, Band Mounted, Heavy Duty High Current AC-Only Reed Switch

Series	
MRS-1.5	AC Switch

MRS - 1.5 - XB - DW5

Wire Count, Cable Length, LED	
B	2 Wire, 24" (0.6m) with Flying Leads, No LED
XB	2 Wire, 144" (3.6m) with Flying Leads, No LED

Band	
Blank	No band
-02	9/16" (14mm)
-04	3/4" (19mm)
-06	7/8"
-09	1-1/16" (27mm)
-12	1-1/4"
-17	1-1/2" (38mm)
-24	1-3/4"
-31	2" (50mm)
-50	2-1/2"
-70	3"
-M10	10mm
-M12	12mm
-M16	16mm
-M20	20mm
-M25	25mm
-DW1	1-1/2" Double Wall
-DW2	2" Double Wall
-DW3	2-1/2" Double Wall
-DW4	3-1/4" Double Wall
-DW5	4" Double Wall

Compatible and Tested for use with:

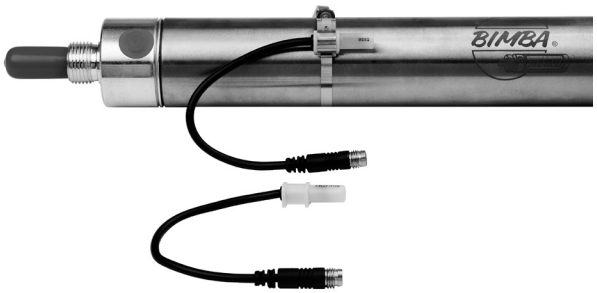
- Original Line Cylinders
- Pneu-Turn Rotary Actuators
- Linear Thrusters
- Double-Wall Cylinders

High Illumination and High Power Band Mounted Switches

MSS, R10, R10P, RAC

Compatible and Tested for use with:

Original Line Cylinders, All Stainless Original Line Cylinders, Pneu-Turn Rotary Actuators, Linear Thrusters, and Repairable Stainless Steel Cylinders



Part Numbers

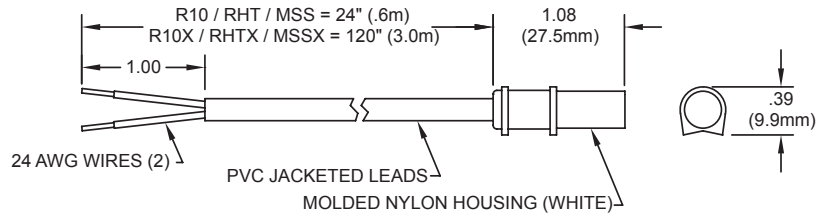
Part Number	Description
MSS	Sourcing or Sinking Switch, 2 wire, High Illumination Body, 24 VDC, 300mA, 24" Pigtail Leads
MSSQ	Sourcing or Sinking Switch, 2 wire, High Illumination Body, 24 VDC, 300mA, M8 Male Connector
MSSQC	Sourcing or Sinking Switch, 2 wire, High Illumination Body, 24 VDC, 300mA, M8 Male Connector with 2m Mating Cable
MSSQCX	Sourcing or Sinking Switch, 2 wire, High Illumination Body, 24 VDC, 300mA, M8 Male Connector with 5m Mating Cable
MSSX	Sourcing or Sinking Switch, 2 wire, High Illumination Body, 24 VDC, 300mA, 120" Pigtail Leads
R10	Reed Switch, 2 wire, High Illumination Body, 120 V, 500mA, 24" Pigtail Leads
R10Q	Reed Switch, 2 wire, High Illumination Body, 120 V, 500mA, M8 Male Connector
R10QC	Reed Switch, 2 wire, High Illumination Body, 120 V, 500mA, M8 Male Connector with 2m Mating Cable
R10QCX	Reed Switch, 2 wire, High Illumination Body, 120 V, 500mA, M8 Male Connector with 5m Mating Cable
R10X	Reed Switch, 2 wire, High Illumination Body, 120 V, 500mA, 120" Pigtail Leads
R10P	Reed Switch with Transient and Over-voltage Protection, 2 wire, High Illumination Body, 120 V, 150mA, 24" Pigtail Leads
R10PQ	Reed Switch with Transient and Over-voltage Protection, 2 wire, High Illumination Body, 120 V, 150mA, M8 Male Connector
R10PQC	Reed Switch with Transient and Over-voltage Protection, 2 wire, High Illumination Body, 120 V, 150mA, M8 Male Connector with 2m Mating Cable
R10PQCX	Reed Switch with Transient and Over-voltage Protection, 2 wire, High Illumination Body, 120 V, 150mA, M8 Male Connector with 5m Mating Cable
R10PX	Reed Switch with Transient and Over-voltage Protection, 2 wire, High Illumination Body, 120 V, 150mA, 120" Pigtail Leads
RAC	High Current Reed Switch, 2 wire, No LED, 240 V AC only, 800mA, 24" Pigtail Leads
RACX	High Current Reed Switch, 2 wire, No LED, 240 V AC only, 800mA, 120" Pigtail Leads
RHT	High Temperature Reed Switch, 2 wire, No LED, 120 V, 500 mA, 24" Pigtail Leads
RHTX	High Temperature Reed Switch, 2 wire, No LED, 120 V, 500 mA, 120" Pigtail Leads
USB25[1]	Mounting band for cylinders up to 2-1/2" bore
USB50[1]	Mounting band for cylinders with 2-1/2" bore up to 5" bore
USB80[1]	Mounting band for cylinders with greater than 5" bore

[1] All switches above are band mounted, band is ordered separately.

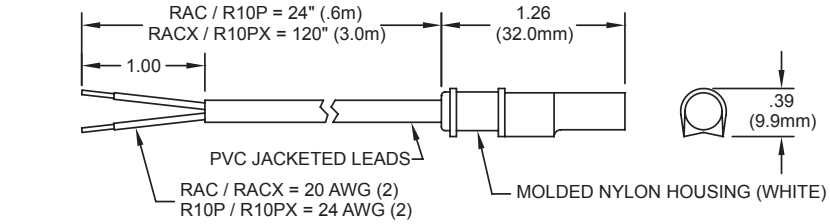
Dimensions

High Illumination and High Power Band Mounted Switches
MSS, R10, R10P, RAC

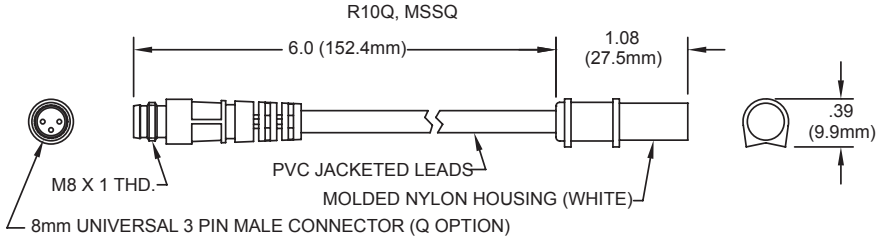
R10, R10X, MSS, MSSX, RHT, RHTX



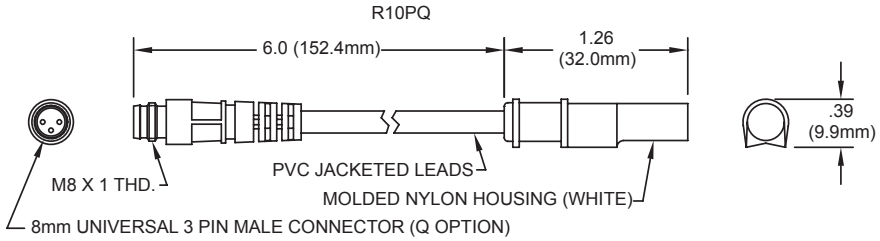
RAC, RACX, R10P, R10PX



R10Q, MSSQ



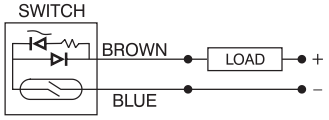
R10PQ



Wiring Diagrams

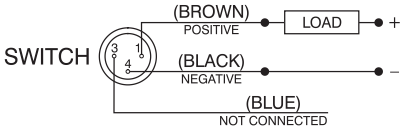
High Illumination and High Power Band Mounted Switches
MSS, R10, R10P, RAC

R10 / R10X / RHT (No LED) / RHTX
Miniature Reed Switch, Cable Type, (2 Wire Switch)



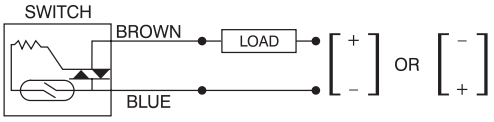
Input Voltage: 120 Volts Max. (AC or DC)
Maximum Load Current:500 mA Max. (Resistive)
Operating Temperature: -20° C to 70° C

R10Q / R10PQ
Miniature Reed Switch, 8mm Male Quick Connect, (2 Wire Switch)



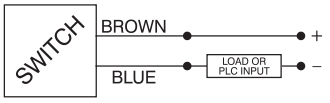
Input Voltage: 120 Volts Max. (AC or DC)
Maximum Load Current: 500 mA Max. (Resistive)
Operating Temperature: -20° C to 70° C

RAC / RACX
High Power AC Reed Switch, Cable Type, (2 Wire Switch)

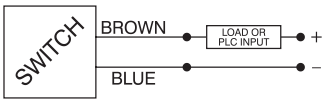


Contact Rating: 200 Watts Max.
Input Voltage: 12 to 240 Volts (AC only)
Minimum Load Current: 80 mA
Maximum Load Current: 800 mA

MSS / MSSX
Miniature Solid State Switch, Cable Type, (2 Wire Switch)



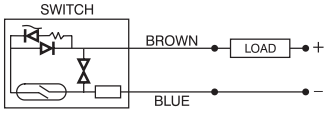
Typical Current Sourcing (PNP) Configuration



Typical Current Sinking (NPN) Configuration

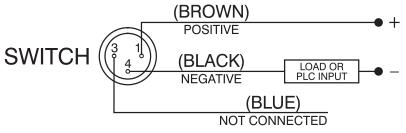
Input Voltage: 10 to 30 V DC
Minimum Load Current: 4 mA
Maximum Load Current: 300 mA
On Voltage Drop: 2.5 Volts @ 4 mA
3.5 Volts @ 300 mA
Operating Temperature: -20° C to 70° C

R10P / R10PX
Miniature Reed Switch, Cable Type, Circuit Protected (2 Wire Switch)

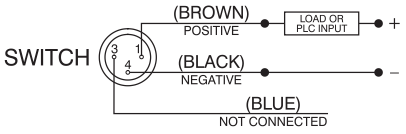


Input Voltage: 120 Volts Max. (AC or DC)
Maximum Load Current: 150 mA Max.
Operating Temperature : -20° C to 70° C
Circuit Protection:
Varistor: 138 Volts
Choke: 680 µH

MSSQ
Miniature Solid State Switch, 8mm Male Quick Connect, (2 Wire Switch)



Typical Current Sourcing (PNP) Configuration



Typical Current Sinking (NPN) Configuration

R Series Band Mounted, High Illumination, Reed Switches

Cable End	
Blank	24" (0.6m) with Flying Leads
X	120" (3m) with Flying Leads
Q[1]	6" (0.15m) M8 Male Connector

R10XCX

Series	
MSS	2 Wire, Solid State Sourcing (PNP)/Sinking (NPN)
R10	2 Wire, Reed Switch
R10P	2 Wire, Reed Switch with Circuit Protection
RAC	2 Wire, High Current Reed Switch
RHT	2 Wire, High Temperature Reed Switch

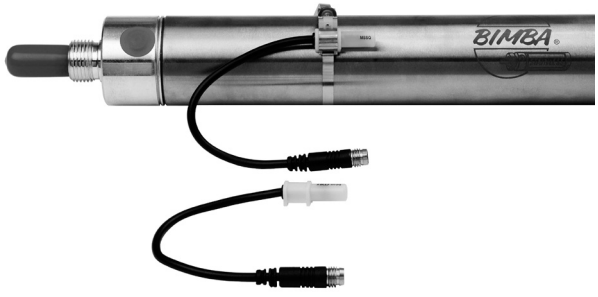
Mating Cable[2]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

Band Size[3]	
Part Number	**Bore Size**
USB25	Mounting band for cylinders up to 2-1/2" (63mm) bore
USB50	Mounting band for cylinders 2-1/2" (63mm) bore up to 5" (127mm) bore
USB80	Mounting band for cylinders 2-1/2" (63mm) bore up to 8" (203mm) bore

[1] Not available with RAC/RHT switch
[2] Q option required
[3] All switches above are band mounted. Band is ordered separately.

Compatible and Tested for use with:

- Original Line Cylinders
- All Stainless Original Line Cylinders
- Pneu-Turn Rotary Actuators
- Linear Thrusters
- Repairable Stainless Steel Cylinders



Track Mounted Solid State Switches

HC and HK

Compatible and Tested for use with:

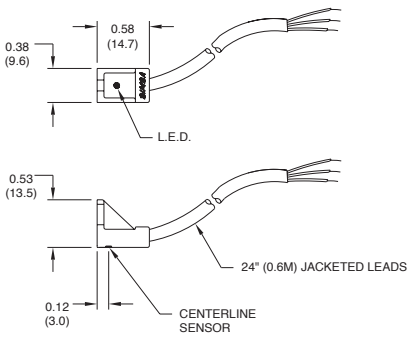
Flat-1 Cylinders, Square Flat-1 Cylinders, Flat-II Cylinders, Square Flat-II Cylinders, and Ultran Rodless Actuators (with -T option)

Part Numbers

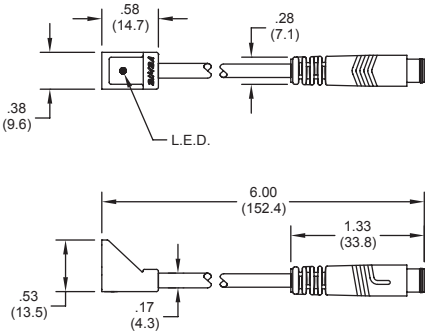
Part Number	Description
HC	Sourcing Switch (PNP), LED, 30VDC, 150mA with 24" Pigtail Leads
HCQ	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector
HCQC	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector and 2m Mating Cable
HCQCX	Sourcing Switch (PNP), LED, 30VDC, 150mA with M8 Male Connector and 5m Mating Cable
HCX	Sourcing Switch (PNP), LED, 30VDC, 150mA with 144" Pigtail Leads
HK	Sinking Switch (NPN), LED, 30VDC, 150mA with 24" Pigtail Leads
HKQ	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector
HKQC	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector and 2m Mating Cable
HKQCX	Sinking Switch (NPN), LED, 30VDC, 150mA with M8 Male Connector and 5m Mating Cable
HKX	Sinking Switch (NPN), LED, 30VDC, 150mA with 144" Pigtail Leads

Dimensions

Track Mounted Solid State Switches
HC and HK



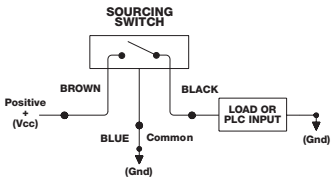
HC, HK



HCQ, HKQ

Wiring Diagrams

Typical Solid State Sourcing Configuration for HC Models (PNP)

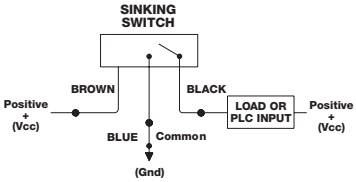


HSC, HC

Basic Circuit Layout for Programmable Logic Controllers (PLC) and Normally Off Relays and Solenoids

CAUTION: Shorting black wire to ground will damage switch

Typical Solid State Sinking Configuration for HK Models (NPN)

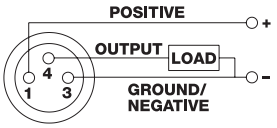


HSK, HK

Basic Circuit Layout for Programmable Logic Controllers (PLC) and Normally Off Relays and Solenoids

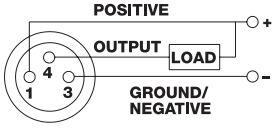
CAUTION: Shorting black wire to ground will damage switch

8mm Male Connector Sourcing Solid State Switch



HCQ

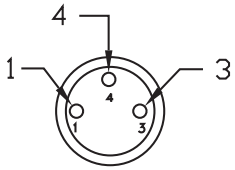
8mm Male Connector Sinking Solid State Switch



HKQ

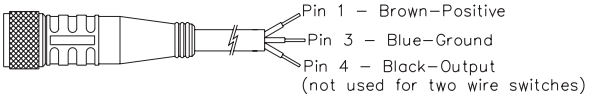
Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector
Face View of M8 Male Connector

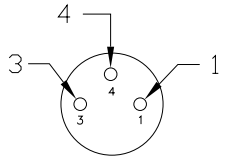


1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector
Side View of M8 Female Connector



Face View of M8 Female Connector



How to Order

H Series, Flat Actuator Track Mounted, Solid State Switches

Series	
H	Solid State Switch

Cable End	
Blank	24" (0.6m) with Flying Leads
X	144" (3.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

HCQCX

Output	
C	3 Wire Sourcing (PNP)
K	3 Wire Sinking (NPN)

Mating Cable[1]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[1] Q option required

Compatible and Tested for use with:

- Flat-1® Cylinders
- Square Flat-1® Cylinders
- Flat-II® Cylinders
- Square Flat-II® Cylinders
- Ultran® Rodless Actuators (with -T option)

Mini 4mm Round (C-Slot) Track Mounted Switches

MHF, MHF-90, MHC, MHC-90, MHK, MHK-90, MR, MR-90, MS, MS-90, MSC, MSC-90, MSK, MSK-90

Compatible and Tested for use with:

Original Line Cylinders, Pneu-Turn Rotary Actuators, Linear Thrusters (-T option required), Extruded Flat, Twist Clamp, Twin Bore, Stopper Cylinders, Extruded Flat Lift Table, Narrow Profile Air Table, Low Profile Air Table, PneuMoment, and ISO 6432 Cylinders

EdgeSwitch™ Solid-State Switch Features:

- Solid-State construction
- Direct replacement for Reed Switch
- Responsive 40-800 Gauss Detection
- Precise Edge Detection technology senses magnet edges/thickness
- Smaller operating window than Reed Switch
- Better repeatability than Reed Switch
- Longer life than Reed Switch
- Low leakage currrent, 0.1 mA at 28VDC
- CE, RoHS compliant
- Stock units

MHF

90° Switch (MHF-90 shown)

Part Numbers

Part Number	Description
MHF	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, 24" Pigtail Leads
MHF-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, 24" Pigtail Leads, 90° version
MHFX	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, 144" Pigtail Leads
MHFX-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, 144" Pigtail Leads, 90° version
MHFQS	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector
MHFQS-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector, 90° version
MHFQCS	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector and 2m Mating Cable
MHFQCS-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector and 2m Mating Cable, 90° version
MHFQCXS	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector and 5m Mating Cable
MHFQCXS-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector and 5m Mating Cable, 90° version
MHC	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 24" Pigtail Leads
MHC-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 24" Pigtail Leads, 90° version
MHCX	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 144" Pigtail Leads
MHCX-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 144" Pigtail Leads, 90° version
MHCQS	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector
MHCQS-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector, 90° version
MHCQCS	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable
MHCQCS-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable, 90° version
MHCQCXS	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable
MHCQCXS-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 5m Mating Cable, 90° version
MHK	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 24" Pigtail Leads
MHK-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 24" Pigtail Leads, 90° version

Mini 4mm Round (C-Slot) Track Mounted Switches

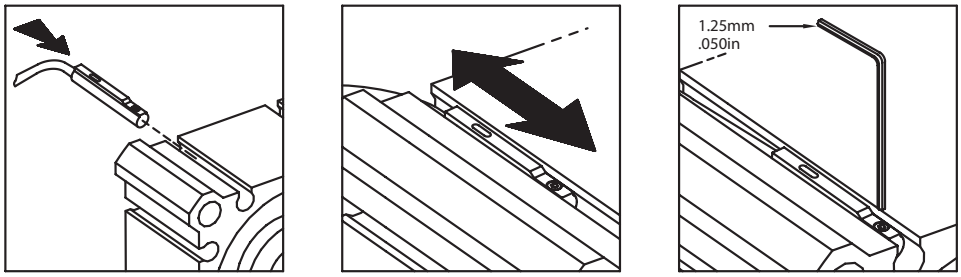
Part Number	Description
MHKX	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 144" Pigtail Leads
MHKX-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 144" Pigtail Leads, 90° version
MHKQS	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector
MHKQS-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector, 90° version
MHKQCS	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable
MHKQCS-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable, 90° version
MHKQCXS	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 5m Mating Cable
MHKQCXS-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 5m Mating Cable, 90° version
MR	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, 1m Pigtail Leads
MR-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, 1m Pigtail Leads, 90° version
MRQ	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with M8 Male Connector
MRQ-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with M8 Male Connector, 90° version
MRQC	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with M8 Male Connector and 2m Mating Cable
MRQC-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with M8 Male Connector and 2m Mating Cable, 90° version
MRQCX	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with M8 Male Connector and 5m Mating Cable
MRQCX-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with M8 Male Connector and 5m Mating Cable, 90° version
MRX	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with 144" Pigtail Leads
MRX-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with 144" Pigtail Leads, 90° version
MS	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 24" Pigtail Leads
MS-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 24" Pigtail Leads, 90° version
MSQ	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector
MSQ-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector, 90° version
MSQC	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 2m Mating Cable
MSQC-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 2m Mating Cable, 90° version
MSQCX	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 5m Mating Cable
MSQCX-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 5m Mating Cable, 90° version
MSX	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 144" Pigtail Leads
MSX-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 144" Pigtail Leads, 90° version
MSC	Sourcing Switch (PNP), LED, 30VDC, 50mA, with 24" Pigtail Leads
MSC-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with 24" Pigtail Leads, 90° version
MSCQ	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector
MSCQ-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector, 90° version
MSCQC	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 2m Mating Cable
MSCQC-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 2m Mating Cable, 90° version
MSCQCX	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 5m Mating Cable
MSCQCX-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 5m Mating Cable, 90° version
MSCX	Sourcing Switch (PNP), LED, 30VDC, 200mA, with 144" Pigtail Leads
MSCX-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with 144" Pigtail Leads, 90° version
MSK	Sinking Switch (NPN), LED, 30VDC, 200mA, with 24" Pigtail Leads
MSK-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with 24" Pigtail Leads, 90° version
MSKQ	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Male Connector
MSKQ-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Cable Connector, 90° version
MSKQC	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Male Connector and 2m Mating Cable
MSKQC-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Cable Connector and 2m Mating Cable, 90° version
MSKQCX	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Male Connector and 5m Mating Cable
MSKQCX-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Cable Connector and 5m Mating Cable, 90° version
MSKX	Sinking Switch (NPN), LED, 30VDC, 200mA, with 144" Pigtail Leads
MSKX-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with 144" Pigtail Leads, 90° version

Mounting Instructions

Mini 4mm Round (C-Slot) Track Mounted Switches

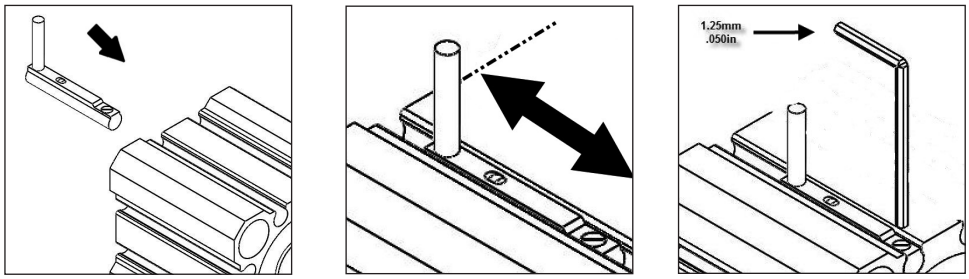
Bimba Mini Round Switches are designed to easily slide mount and lock into the existing "C-Slot" on the cylinder extension or on the attached switch track (optional) as shown below for both inline and 90° switch types. See the provided switch assembly instructions for additional detail.

MHF, MHC, MHK, MR, MS, MSC, MSK



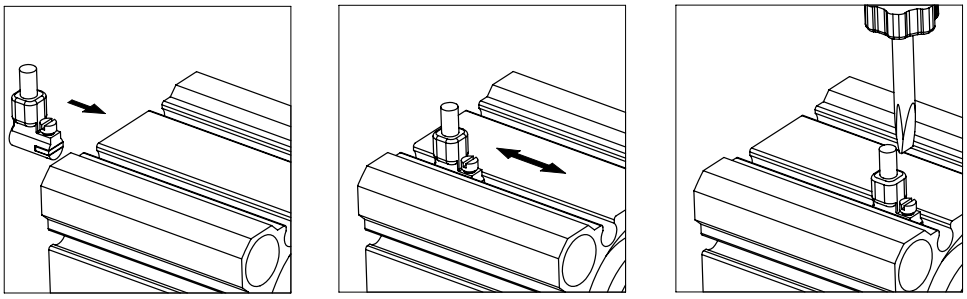
NOTE: Maximum torque on set screw is .170 N-m (1.5 in-lbs.). Do not overtorque.

MR-90, MS-90, MSC-90, MSK-90



NOTE: Maximum torque on set screw is .170 N-m (1.5 in-lbs.). Do not overtorque.

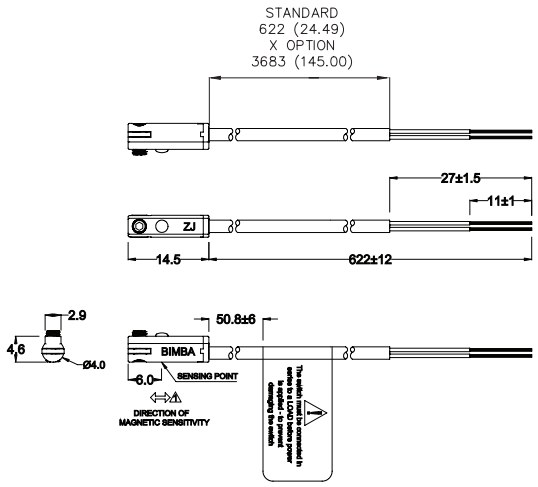
MHF-90, MHC-90, MHK-90



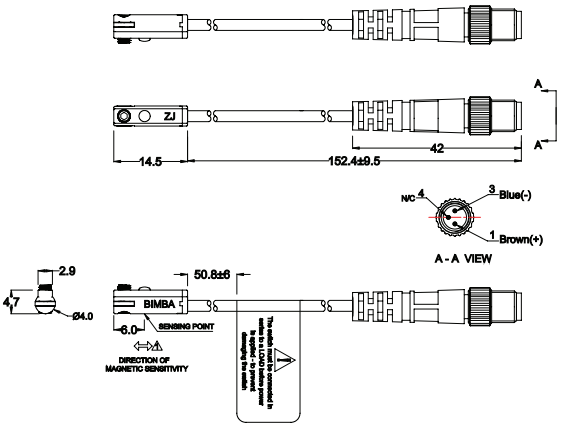
NOTE: Maximum torque on set screw is .170 N-m (1.5 in-lbs.). Do not overtorque.

Dimensions

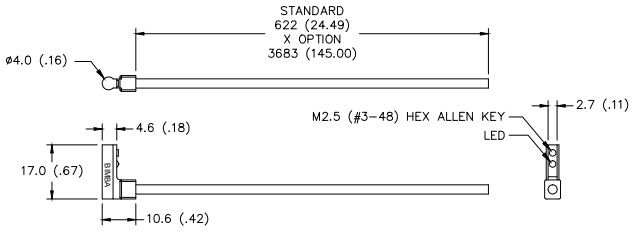
Mini 4mm Round (C-Slot) Track Mounted Switches



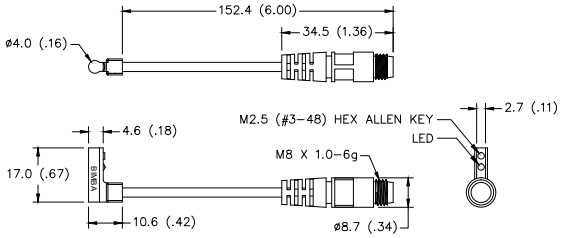
MHF, MHFX, MHK, MHKX, MHC, MHCX



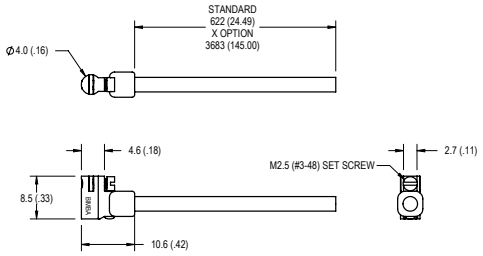
MHFQS, MHFQCS, MHFQCXS
MHKQS, MHKQCS, MHKQCXS
MHCQS, MHCQCS, MHCQCXS



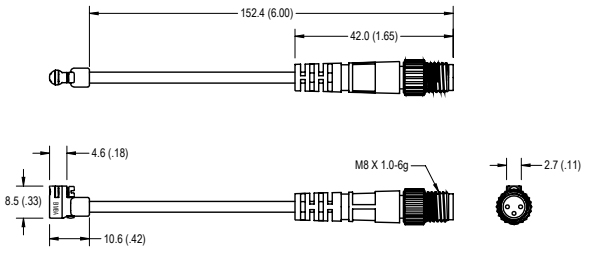
MSC-90, MSCX-90, MSK-90, MSKX-90



MSCQ-90, MSCQC-90, MSCQCX-90,
MSKQ-90, MSKQC-90, MSKQCX-90



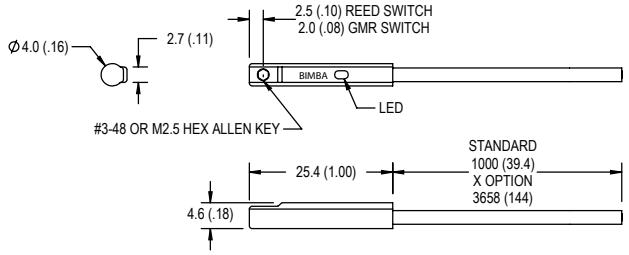
MHF-90, MHFX-90, MHC-90, MHCX-90, MHK-90, MHKX-90



MHFQS-90, MHFQCS-90, MHFQCXS-90,
MHCQS-90, MHCQCS-90, MHCQCXS-90
MHKQS-90, MHKQCS-90, MHKQCXS-90

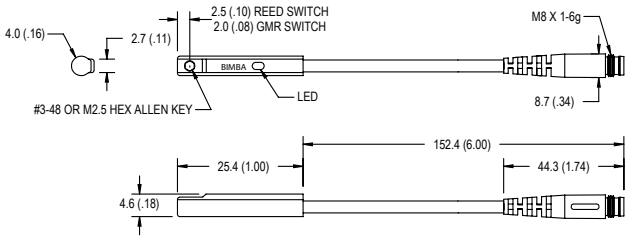
Dimensions

Mini 4mm Round (C-Slot) Track Mounted Switches

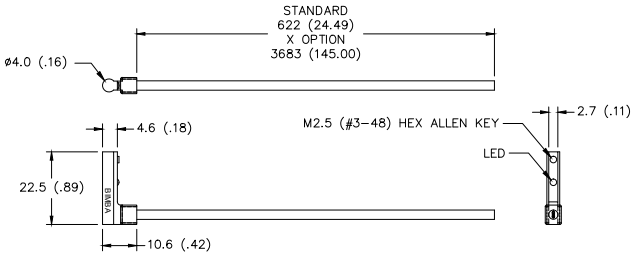


MR, MRX, MS, MSX, MSC*, MSCX, MSK*, MSKX*

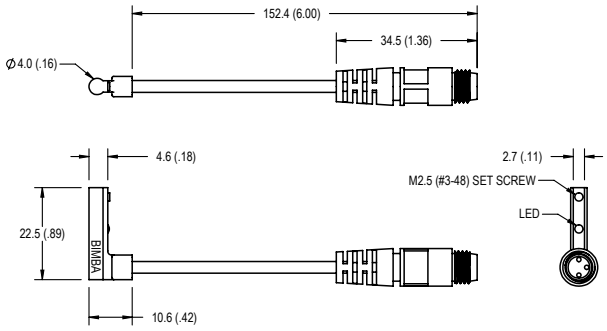
*Standard pigtail length for MS, MSC, and MSK switches is 622 (24.49)



MRQ, MRQC, MRQCX, MSQ, MSQC, MSQCX, MSCQ, MSCQC, MSCQCX, MSKQ, MSKQC, MSKQCX



MR-90, MRX-90, MS-90, MSX-90

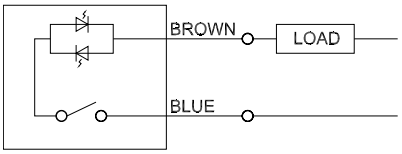


MRQ-90, MRQC-90, MRQCX-90, MSQ-90, MSQC-90, MSQCX-90

How to Specify

Wiring Diagrams

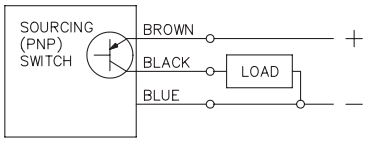
MHF (All types)



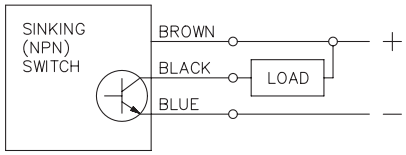
Reverse Polarity Not Protected

On Quick Connect switch models, connect only the Blue and Brown wires on the mating cable and cut back the Black wire. Do not connect switch to a mating cable that has been previously wired for a three-wire solid state switch as it will short the MHFQ switch.

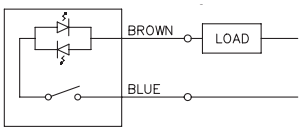
MHC, MSC (All types) (PNP, Sourcing, Solid State)



MHK, MSK (All types) (NPN, Sinking, Solid State)



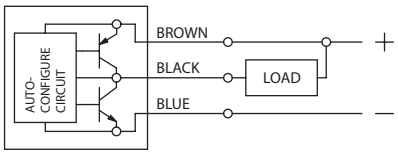
MR (All types) (Reed Switch)



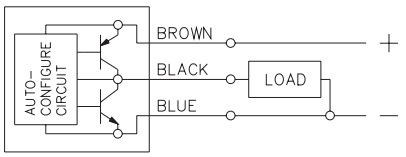
Reverse Polarity Not Protected

On Quick Connect switch models, connect only the Blue and Brown wires on the mating cable and cut back the Black wire. Do not connect switch to a mating cable that has been previously wired for a three-wire solid state switch as it will short the MRQ switch.

MS (All types) (Auto Configure PNP, Sourcing)



MS (All types) (Auto Configure NPN, Sinking)

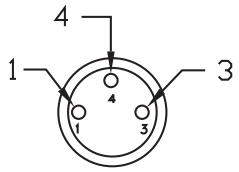


Color Codes	
Brown	(+) Positive
Black	Output
Blue	(-) Negative

Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector

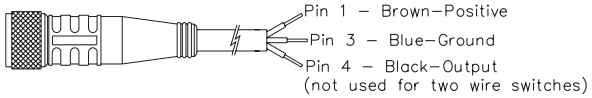
Face View of M8 Male Connector



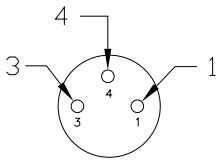
1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector

Side View of M8 Female Connector



Face View of M8 Female Connector



M Series, 4mm Round Track (C-Slot), Edgeswitch™, Mini-Edgeswitch™, Reed And Solid State Switches

Series	
MH	Mini EdgeSwitch Solid State
MR	Reed Switch
MS	Solid State Switch

Cable End	
Blank	24" (0.6m) with Flying Leads
	MR Series 39" (1m) with Flying Leads
X	144" (3.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

MHKQCXS - 90

Output	
Blank[1]	MR Series - 2 Wire Reed Switch
	MS Series - 3 Wire Auto Configure NPN/PNP
C[2]	3 Wire Sourcing (PNP)
K[2]	3 Wire Sinking (NPN)
F[2, 3]	2 Wire Solid State

Mating Cable[4]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

Swivel Connector[5]	
S[6]	Swivel Connector

Cable Take Out	
Blank	Straight
90	90°

[1] Not applicable to MH Series
[2] Not applicable to MR Series
[3] Not applicable to MS Series
[4] Q option required
[5] MH Series with Q option requires S option
[6] Not applicable to MR/MS Series

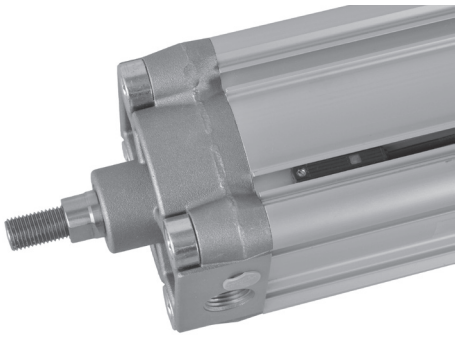
Compatible and Tested for use with:

- Original Line® Cylinders
- Pneu-Turn® Actuators
- Linear Thrusters (-T option required)
- Extruded Flat
- Twist Clamp
- Twin Bore
- Stopper Cylinders
- Extruded Flat Lift Table
- Narrow Profile Air Table
- Low Profile Air Table
- PneuMoment™
- ISO 6432 Cylinders (-T option required)
- Flat-1® Cylinders (-U option required)

M Series, 6mm Round Track (C-Slot), Reed Switch, EdgeSwitch™ and Autoselect Solid Stage Switches

MRN, MDN, MSN

Compatible and Tested for use with:
PA Series NFPA Cylinders
Ultran® Band Plus Rodless Cylinders
ISO 15552 Cylinders

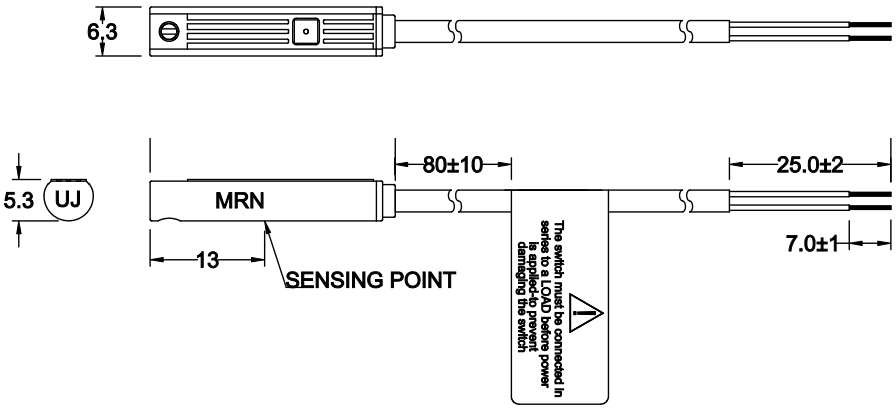


Part Numbers

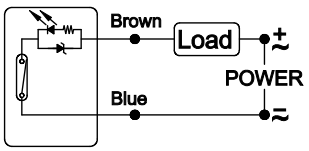
Part Number	Description
MRN	Reed, 2-Wire Flying Lead, 240V AC/DC, 100 Current Maximum mA, Normally Open
MRNQS	Reed, 2-Wire M8, 240V AC/DC, 100 Current Maximum mA, Normally Open
MDN	Solid State, 2-Wire Flying Lead, 10-28V DC, 50 Current Maximum mA, Normally Open
MDNQS	Solid State, 2-Wire M8, 10-28V DC, 50 Current Maximum mA, Normally Open
MSN	Solid State Auto Select, 3-Wire Flying Lead, 5-30V DC, 200 Current Maximum mA, NPN or PNP
MSNQS	Solid State Auto Select, 3-Wire M8, 5-30V DC, 200 Current Maximum mA, NPN or PNP

Reed Switches - MRN

MRN Reed, 2-Wire Flying Lead

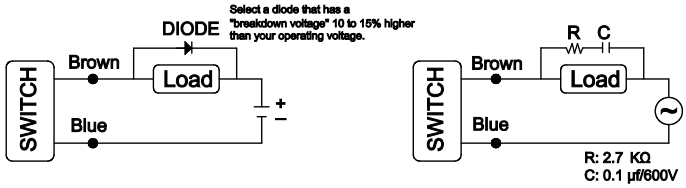


Circuit & Connect Diagram



The brown wire series load to the positive (+)
and the blue to the negative (-) of power source.

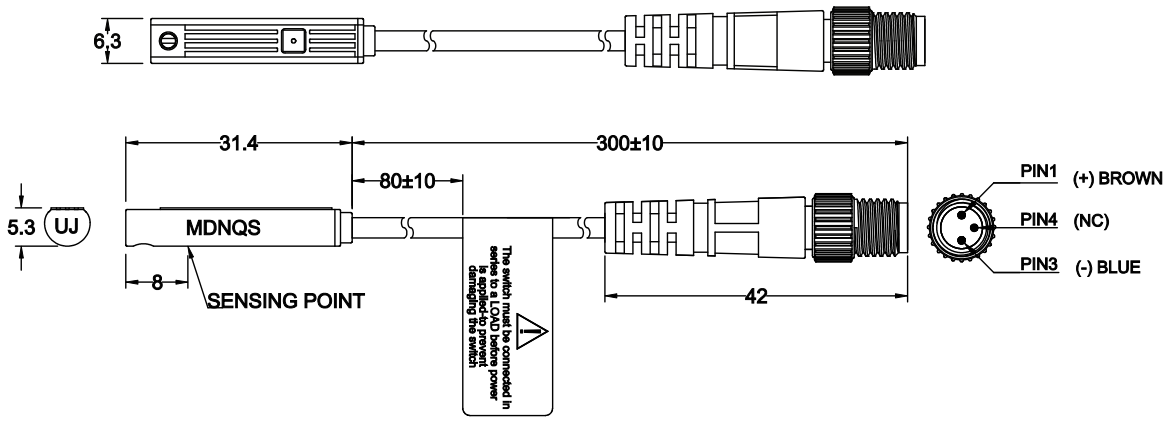
External Protect Circuit



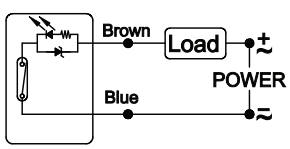
Applicably to
DC Conductive Load

Applicably to
AC Conductive Load

MRNQS Reed, 2-Wire M8

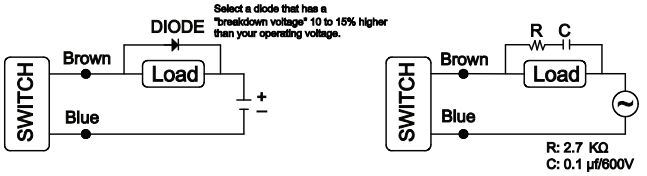


Circuit & Connect Diagram



The brown wire series load to the positive (+)
and the blue to the negative (-) of power source.

External Protect Circuit

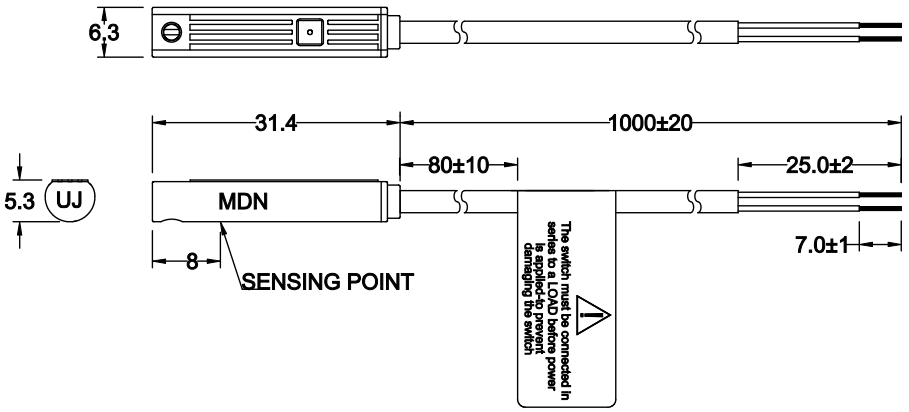


Applicably to
DC Conductive Load

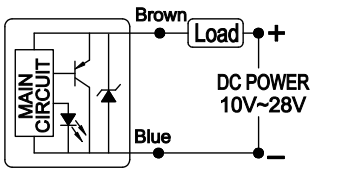
Applicably to
AC Conductive Load

Solid State Switches - MDN

MDN Solid State, 2-Wire Flying Lead

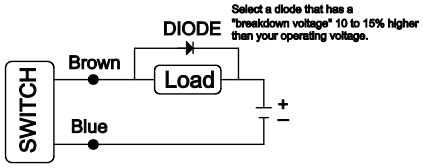


Circuit & Connect Diagram



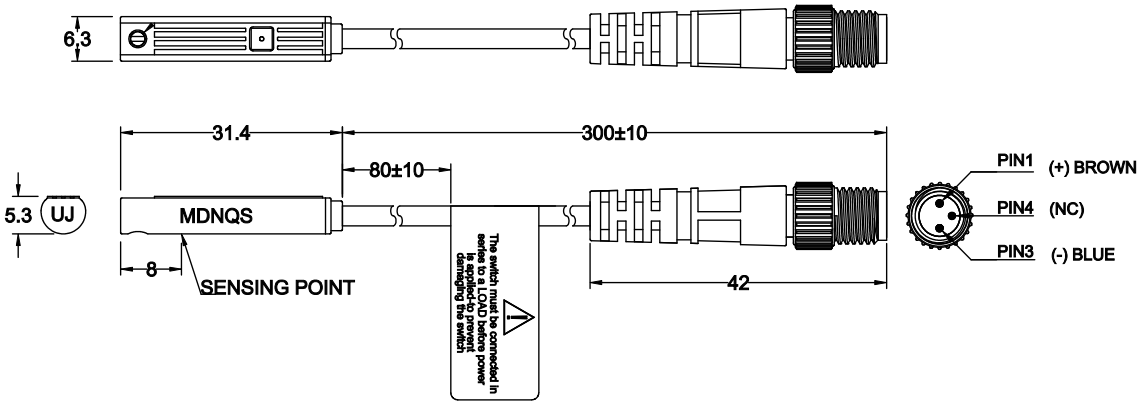
The brown wire series load to the positive (+)
and the blue to the negative (-) of power source.

External Protect Circuit

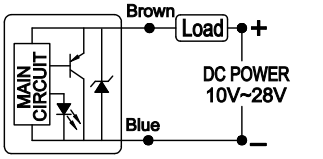


Applicably to
DC Conductive Load

MDNQS Solid State, 2-Wire M8

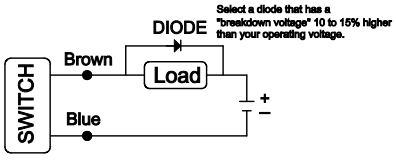


Circuit & Connect Diagram



The brown wire series load to the positive (+)
and the blue to the negative (-) of power source.

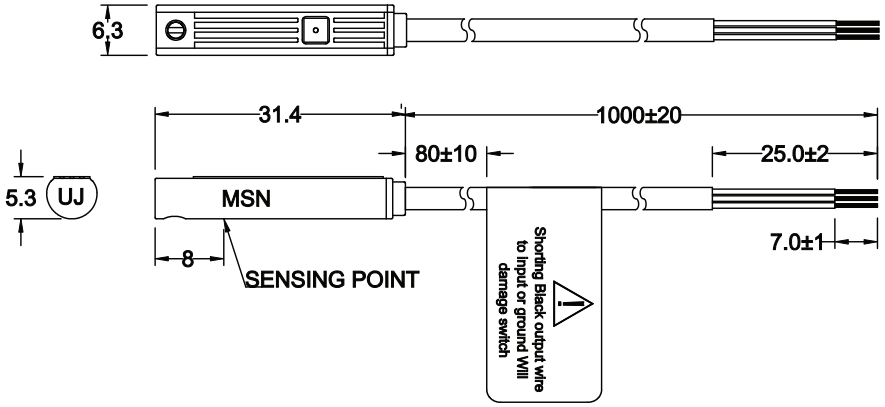
External Protect Circuit



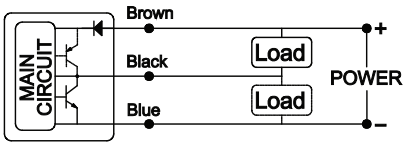
Applicably to
DC Conductive Load

Solid State Switches - MSN

MSN Solid State Auto Select, 3-Wire Flying Lead

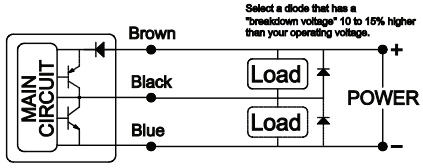


Circuit & Connect Diagram



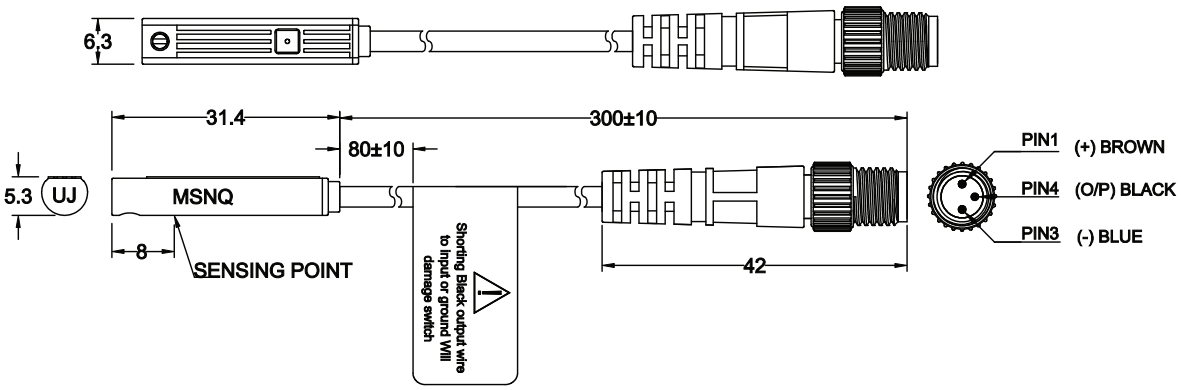
The brown wire to the positive (+) and the blue to the negative (-) from DC power.
The black wire have to connect to the load.

External Protect Circuit

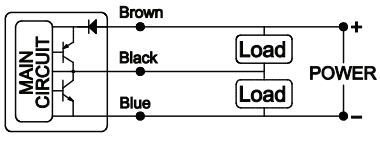


Applicably to Conductive Load
Attach an extenal diode between Brown(+) and Black(out) when NPN connection
Attach an extenal diode between Blue(-) and Black(out) when PNP connection

MSNQS Solid State Auto Select, 3-Wire M8



Circuit & Connect Diagram



The brown wire to the positive (+) and the blue to the negative (-) from DC power.
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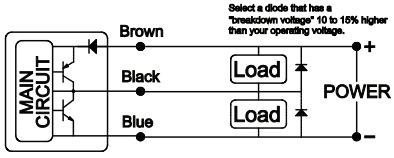
External Protect Circuit



Applicably to Conductive Load
Attach an extenal diode between Brown(+) and Black(out) when NPN connection
Attach an extenal diode between Blue(-) and Black(out) when PNP connection

How to Order

M Series, 6mm Round Track (C-Slot), Reed Switch, EdgeSwitch™ and Autoselect Solid Stage Switches

Output	
RN	Reed Switch
DN	2-Wire Solid State EdgeSwitch™
SN	Auto Select NPN or PNP

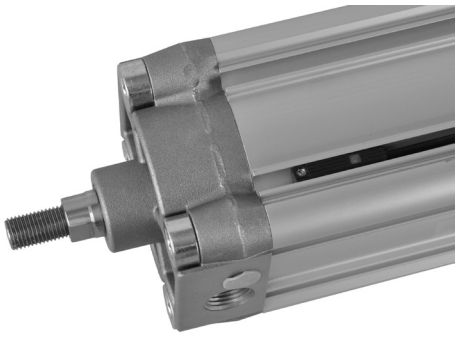
MSNQS

Series	
M	Magnetic Reed Switch

Cable End	
Blank	1 Meter Flying Lead
QS	3 Pin M8 Swivel Connector

Compatible and Tested for use with:

> PA Series NFPA Cylinders
> Ultran® Band Plus Rodless Cylinders
> ISO 15552 Cylinders

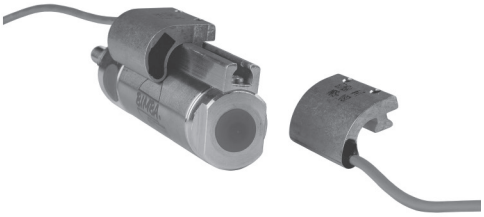


Heavy Duty Track Mounted Switches

MRS-.027, MRS-.087, and MRS-1.5-S

Compatible and Tested for use with:

Original Line Cylinders and MRS Series Cylinders with -Z option



Part Numbers

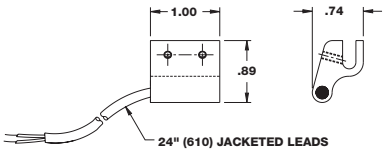
Part Number	Description
MRS-.027[1]	Reed Switch, 2 wire, No LED, 28 V, 250mA, 24" Pigtail Leads
MRS-.027-Q[1]	Reed Switch, 2 wire, No LED, 28 V, 250mA, with M8 Male Connector
MRS-.027-QC[1]	Reed Switch, 2 wire, No LED, 28 V, 250mA, with M8 Male Connector and 2m Mating Cable
MRS-.027-QCX[1]	Reed Switch, 2 wire, No LED, 28 V, 250mA, with M8 Male Connector and 5m Mating Cable
MRS-.087[2]	Reed Switch, 2 wire, No LED, 200 V, 500mA, 24" Pigtail Leads
MRS-.087-Q[2]	Reed Switch, 2 wire, No LED, 200 V, 500mA, with M8 Male Connector
MRS-.087-QC[2]	Reed Switch, 2 wire, No LED, 200 V, 500mA, with M8 Male Connector and 2m Mating Cable
MRS-.087-QCX[2]	Reed Switch, 2 wire, No LED, 200 V, 500mA, with M8 Male Connector and 5m Mating Cable
MRS-1.5[2]	Reed Switch, 2 wire, No LED, 230 V AC only, 1.5A, 24" Pigtail Leads
MRS-1.5-S[1]	Reed Switch, 2 wire, No LED, 230 V AC only, 1.5A, 24" Pigtail Leads

[1] MRS Series with -Z option 9/16" and 3/4" bore only
[2] MRS Series with -Z option 1-1/16" through 2-1/2" bore only

How to Specify

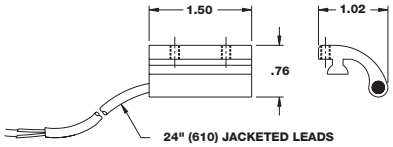
Dimensions

Heavy Duty Track Mounted Switches



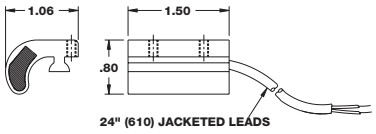
MRS-.027

To order longer leads, specify D-12660-A- lead length in inches. Consult BIMBA distributor or factory for prices.



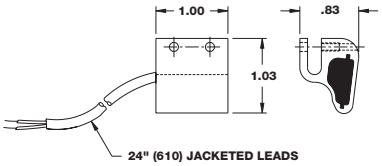
MRS-.087

To order longer leads, specify D-7000-A-lead length in inches. Consult BIMBA distributor or factory for prices.



MRS-1.5

To order longer leads, specify D-7001-A-lead length in inches. Consult BIMBA distributor or factory for prices.

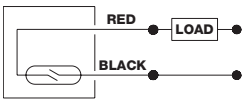


MRS-1.5-S

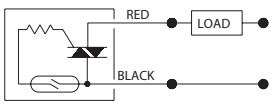
To order longer leads, specify D-16312-A-lead length in inches. Consult BIMBA distributor or factory for prices.

Wiring Diagrams

MRS-.027
MRS-.087

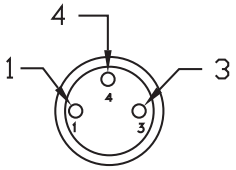


MRS-1.5
MRS-1.5-S



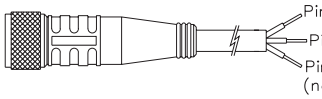
Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector
Face View of M8 Male Connector

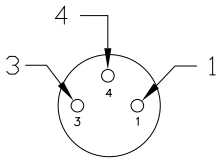


1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector
Side View of M8 Female Connector



Face View of M8 Female Connector



MRS® Series, MRS-Z Actuator, Heavy Duty Reed Switches

Series	
MRS	Magnetic Reed Switch

Model	
.027[1]	2 Wire, 28V Max., AC or DC
.087[2]	2 Wire, 200V Max., AC or DC
1.5	2 Wire, 12V to 230V, AC only

MRS - .087 - QCX

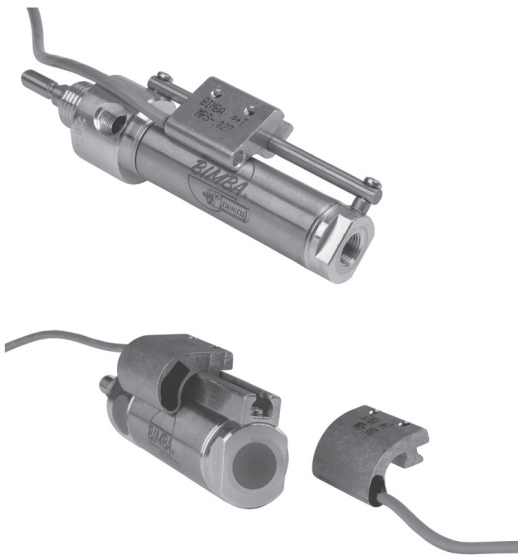
Cable End	
Blank	24" (0.6m) with Flying Leads
Q[3]	6" (0.15m) M8 Male Connector
S[1 4]	24" (0.6m) with Flying Leads

Mating Cable[5]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[1] MRS series cylinders with -Z option, 9/16" and 3/4" bore only
[2] MRS series cylinders with -Z option, 1-1/16" through 2-1/2" bore only
[3] Not applicable to Model 1.5
[4] 1.5 Model only
[5] Q option required

Compatible and Tested for use with:

> MRS® Series Cylinders (-Z option required)



5mm Square Track Mounted Switches

HSC-AB, HSK-AB, and MRS-AB

Compatible and Tested for use with:

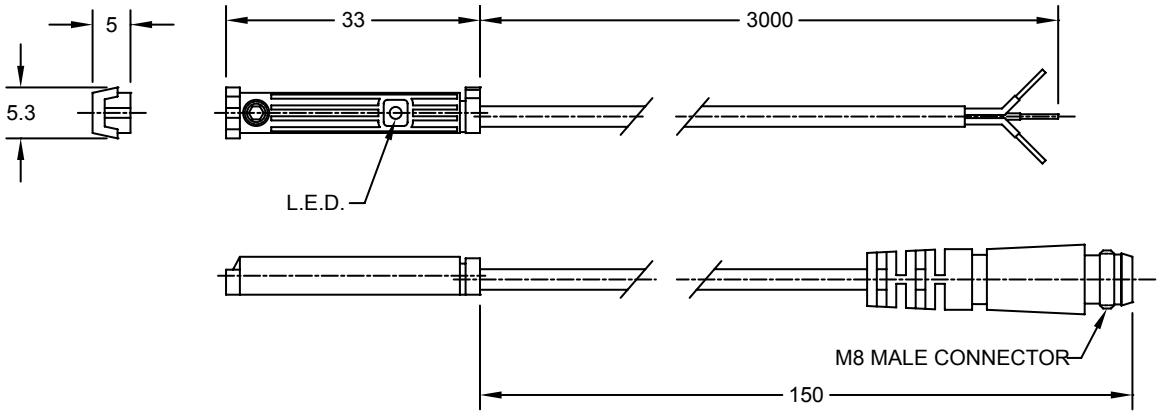
ISO-15552 Cylinders

Part Numbers

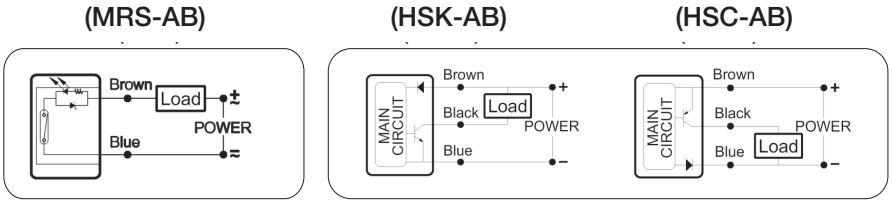
Part Number	Description
MRS-AB	Reed Switch, 2 wire, LED, 240 V, 100mA, 24" Pigtail Leads
MRS-ABQ	Reed Switch, 2 wire, LED, 240 V, 100mA, with M8 Male Connector
MRS-ABQC	Reed Switch, 2 wire, LED, 240 V, 100mA, with M8 Male Connector and 2m Mating Cable
MRS-ABQCX	Reed Switch, 2 wire, LED, 240 V, 100mA, with M8 Male Connector and 5m Mating Cable
HSC-AB	Sourcing Switch (PNP), LED, 30VDC, 200mA with 24" Pigtail Leads
HSC-ABQ	Sourcing Switch (PNP), LED, 30VDC, 200mA with M8 Male Connector
HSC-ABQC	Sourcing Switch (PNP), LED, 30VDC, 200mA with M8 Male Connector and 2m Mating Cable
HSC-ABQCX	Sourcing Switch (PNP), LED, 30VDC, 200mA with M8 Male Connector and 5m Mating Cable
HSK-AB	Sinking Switch (NPN), LED, 30VDC, 200mA with 24" Pigtail Leads
HSK-ABQ	Sinking Switch (NPN), LED, 30VDC, 200mA with M8 Male Connector
HSK-ABQC	Sinking Switch (NPN), LED, 30VDC, 200mA with M8 Male Connector and 2m Mating Cable
HSK-ABQCX	Sinking Switch (NPN), LED, 30VDC, 200mA with M8 Male Connector and 5m Mating Cable

Dimensions

5mm Square Track Mounted Switches



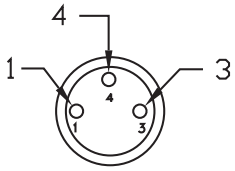
Wiring Diagrams



Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector

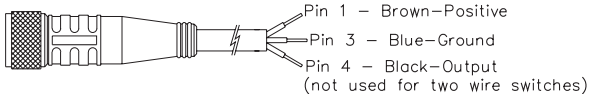
Face View of M8 Male Connector



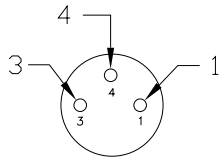
1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector

Side View of M8 Female Connector



Face View of M8 Female Connector



How to Order

AB Series, 5mm Square Track (ISO 15552), Reed or Solid State Switches

Series	
MRS-AB	2 Wire, 5V to 240V, AC or DC
HSC-AB	3 Wire Sourcing (PNP)
HSK-AB	3 Wire Sinking (NPN)

Mating Cable[1]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[1] Q option required

MRS - ABQCX

Cable End	
Blank	24" (0.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

Compatible and Tested for use with:

> ISO 15552

5mm Square Track Mounted Switches

UBR, UBSC, and UBSK

Compatible and Tested for use with:

Ultran Band Cylinders (25mm to 63mm bore sizes)

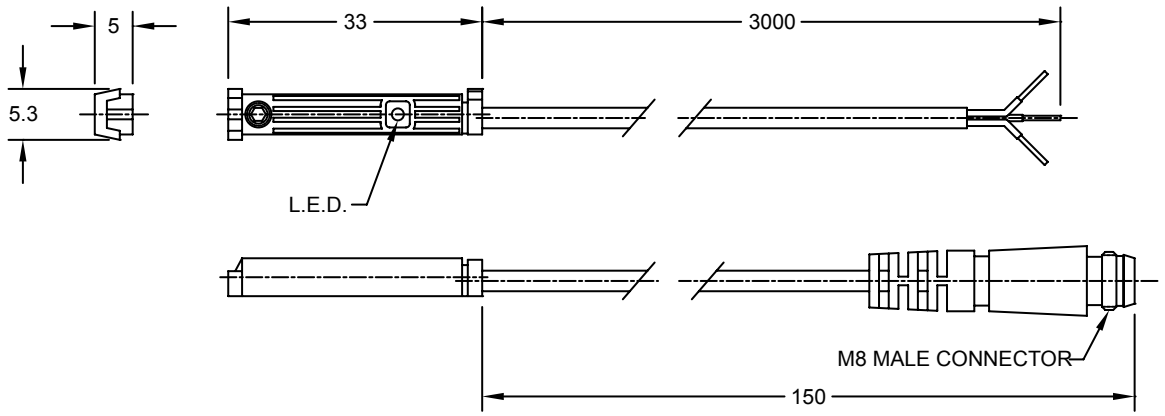
Part Numbers

Part Number	Description
UBR	Reed Switch, 2 wire, LED, 240 V, 100mA, 24" Pigtail Leads
UBRQ	Reed Switch, 2 wire, LED, 240 V, 100mA, with M8 Male Connector
UBRQC	Reed Switch, 2 wire, LED, 240 V, 100mA, with M8 Male Connector and 2m Mating Cable
UBRQCX	Reed Switch, 2 wire, LED, 240 V, 100mA, with M8 Male Connector and 5m Mating Cable
UBSC	Sourcing Switch (PNP), LED, 30 VDC, 200mA with 24" Pigtail Leads
UBSCQ	Sourcing Switch (PNP), LED, 30 VDC, 200mA with M8 Male Connector
UBSCQC	Sourcing Switch (PNP), LED, 30 VDC, 200mA with M8 Male Connector and 2m Mating Cable
UBSCQCX	Sourcing Switch (PNP), LED, 30 VDC, 200mA with M8 Male Connector and 5m Mating Cable
UBSK	Sinking Switch (NPN), LED, 30 VDC, 200mA with 24" Pigtail Leads
UBSKQ	Sinking Switch (NPN), LED, 30 VDC, 200mA with M8 Male Connector
UBSKQC	Sinking Switch (NPN), LED, 30 VDC, 200mA with M8 Male Connector and 2m Mating Cable
UBSKQCX	Sinking Switch (NPN), LED, 30 VDC, 200mA with M8 Male Connector and 5m Mating Cable

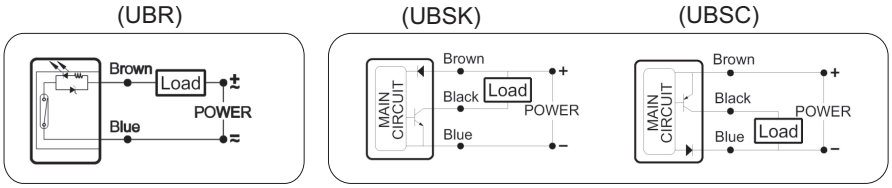
How to Specify

Dimensions

5mm Square Track Mounted Switches
Magnetic Sensor Dimensional Data

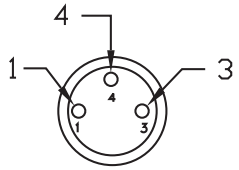


Wiring Diagrams



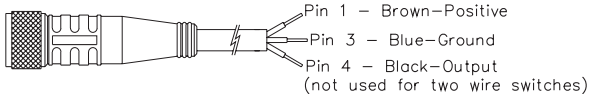
Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector
Face View of M8 Male Connector

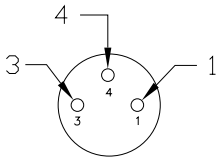


1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector
Side View of M8 Female Connector



Face View of M8 Female Connector



UB Series, 5mm Square Track (Ultran®), Reed or Solid State Switches

Series	
UB	Ultran® Band Switch

Cable End	
Blank	24" (0.6m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

UBSCQCX

Output	
R	2 Wire, 5V to 240V, AC or DC
SC	3 Wire Sourcing (PNP)
SK	3 Wire Sinking (NPN)

Mating Cable[1]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[1] Q option required

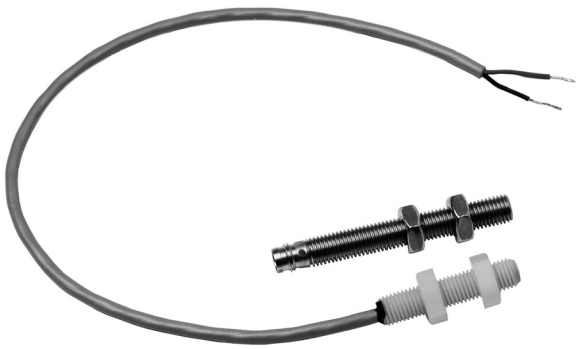
Compatible and Tested for use with:

> Ultran® Band Cylinders (25mm to 63mm bore sizes)

Ultran End of Stroke Switches

PCQ, PKQ, RSU-1

Compatible and Tested for use with:
Ultran Rodless Cylinders

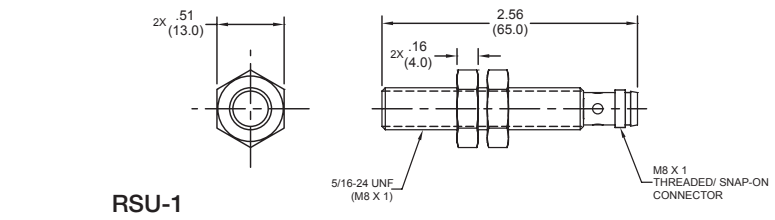


Part Numbers

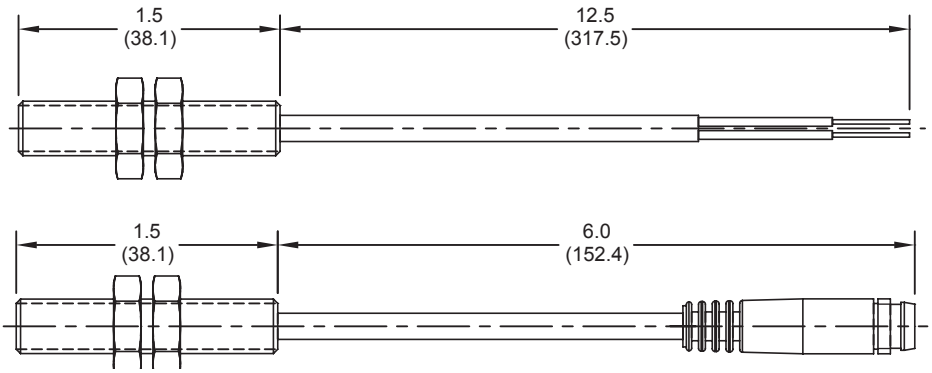
Part Number	Description
PCQ	5/16-24 Threaded Barrel Type Inductive Proximity Sensor with Sourcing (PNP) Output, M8 Male Connector
PKQ	5/16-24 Threaded Barrel Type Inductive Proximity Sensor with Sinking (NPN) Output, M8 Male Connector
RSU-1	5/16-24 Threaded Barrel Type Magnetic Reed Sensor with Normally Open Contact Output, 12.5" Pigtail Leads
RSU-1-Q	5/16-24 Threaded Barrel Type Magnetic Reed Sensor with Normally Open Contact Output, M8 Male Connector
PCQC	5/16-24 Threaded Barrel Type Inductive Proximity Sensor with Sourcing (PNP) Output, M8 Male Connector and 2m Mating Cable
PKQC	5/16-24 Threaded Barrel Type Inductive Proximity Sensor with Sinking (NPN) Output, M8 Male Connector and 2m Mating Cable
RSU-1-QC	5/16-24 Threaded Barrel Type Magnetic Reed Sensor with Normally Open Contact Output, M8 Male Connector and 2m Mating Cable
PCQCX	5/16-24 Threaded Barrel Type Inductive Proximity Sensor with Sourcing (PNP) Output, M8 Male Connector and 5m Mating Cable
PKQCX	5/16-24 Threaded Barrel Type Inductive Proximity Sensor with Sinking (NPN) Output, M8 Male Connector and 5m Mating Cable
RSU-1-QCX	5/16-24 Threaded Barrel Type Magnetic Reed Sensor with Normally Open Contact Output, M8 Male Connector and 5m Mating Cable
RSUM-1	M8 by 1.25 Threaded Barrel Type Magnetic Reed Sensor with Normally Open Contact Output, 12.5" Pigtail Leads
RSUM-1-Q	M8 by 1.25 Threaded Barrel Type Magnetic Reed Sensor with Normally Open Contact Output, M8 Male Connector and 5m Mating Cable

Dimensions

Ultran End of Stroke Switches

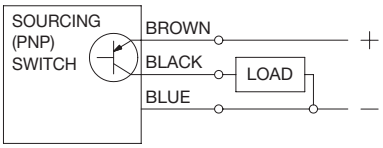


RSU-1

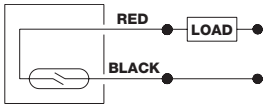


Wiring Diagrams

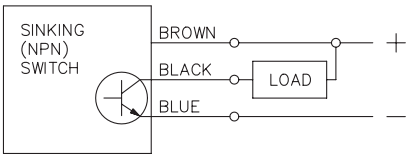
PCQ (Sourcing, Solid State)



RSU-1



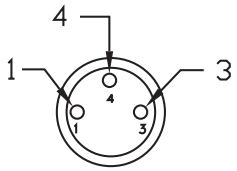
PKQ



Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector

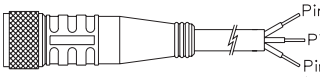
Face View of M8 Male Connector



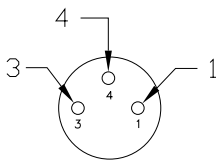
1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector

Side View of M8 Female Connector



Face View of M8 Female Connector



How to Order

RSU Series, Threaded Barrel (Ultran), Reed Switches

Series	
RSU	Threaded Barrel Reed Switch

Cable End	
Blank	12.5" (0.3m) with Flying Leads
Q	6" (0.15m) M8 Male Connector

RSUM - 1QCX

Barrel	
-1	5/16-24 Threaded Barrel
M-1	M8 by 1.25 Threaded Barrel

Mating Cable[1]	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

[1] Q option required

Compatible and Tested for use with:

> Ultran Rodless Cylinders

P Series, Threaded Barrel (Ultran), Inductive switches

Series		Cable End	
P	5/16-24 Threaded Inductive Proximity Sensor	Q	6" (0.15m) M8 Male Connector

PCQCX

Output	
C	3 Wire Sourcing (PNP)
K	3 Wire Sinking (NPN)

Mating Cable	
Blank	No cable
C	2m Mating Cable (C4)
CX	5m Mating Cable (C4X)

Compatible and Tested for use with:

> Ultran Rodless Cylinders

M8 Female Quick Connect Cables

C4 and C5

Compatible and Tested for use with:

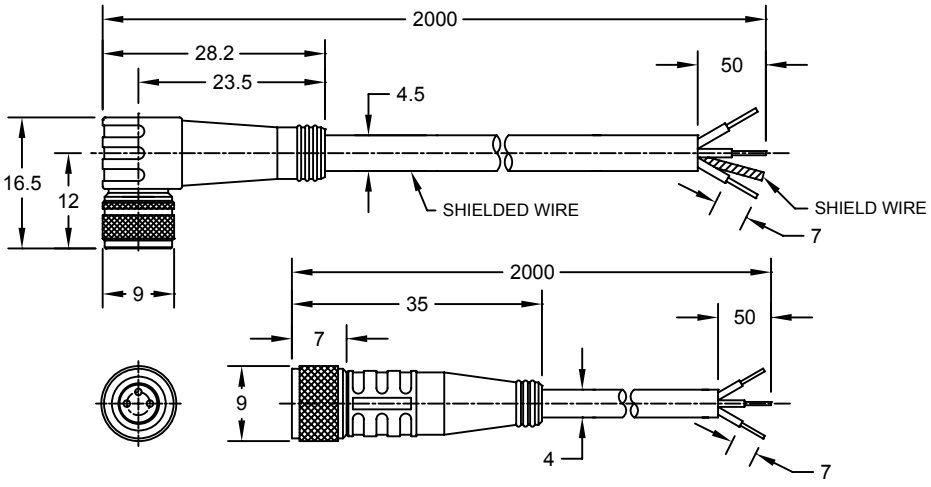
All Bimba Actuators with “Q” Option

Part Numbers

Part Number	Description
C4	Straight M8 Female Connector, Threaded Connection with 2 Meter Cable
C4-S	Straight M8 Female Connector, Threaded Connection with 2 Meter Shielded Cable
C4X	Straight M8 Female Connector, Threaded Connection with 5 Meter Cable
C4X-S	Straight M8 Female Connector, Threaded Connection with 5 Meter Shielded Cable
C5-S	Right Angle M8 Female Connector, Threaded Connection with 2 Meter Shielded Cable
C5X-S	Right Angle M8 Female Connector, Threaded Connection with 5 Meter Shielded Cable

Dimensions

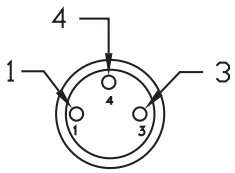
M8 Femle Quick Connect Cables



Pin and Wire Assignments for Quick Connect

Switch "Q" Option Male Connector

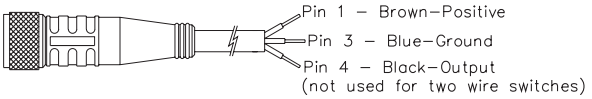
Face View of M8 Male Connector



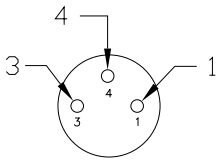
1. POSITIVE / HOT
3. NEGATIVE / NEUTRAL
4. OUTPUT
   NOT CONNECTED
   FOR 2 WIRE SWITCH
   MODELS

C4 and C5 Cable Female Connector

Side View of M8 Female Connector



Face View of M8 Female Connector



How to Order

M8 Female Quick Connect Cables (C4 and C5)

Compatible and Tested for use with:
All Bimba Actuators with “Q” Option

Cable End	
4	Straight 3-Pin M8 Female Connector
5	Right Angle 3-Pin M8 Female Connector

Cable Length	
Blank	2 meter
X	5 meter

C4X - S

Series	
C	Cable

Shielding	
Blank[1]	Unshielded Cable
S	Shielded Cable

[1] Not available with Right Angle Connector

SW Series, Extruded Body Electric, Solid State Switches

Output, Cable End	
P	3 Wire Sourcing (PNP), 12" (0.3m) M8 Male Connector
N	3 Wire Sinking (NPN), 12" (0.3m) M8 Male Connector

SW - PNO

Series	
SW	Solid State Switch

Switch Contact	
NO	Normally Open
NC	Normally Closed

Compatible and Tested for use with:

> Belt Driven Actuator S Series B27
> Belt Driven Actuator S Series B80-B110
> Belt Driven Actuator ST Series ST80
> Belt Driven Actuator D Series LP15B-LP20B
> Belt Transfer Actuator Series BAT80-BT80
> Ballscrew Actuator Series S27
> Ballscrew Actuator Series S80-S110
> IntelliAxisTM H- Bot
> IntelliAxisTM T- Bot
> RS Rack Slide

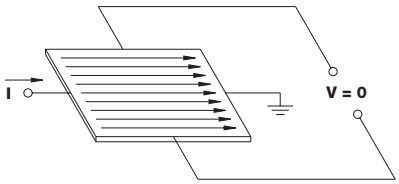
How it Works

Bimba Solid State Magnetic Switch

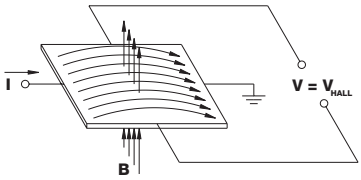
A Bimba solid state switch is a three-wire device recommended for low current DC loads such as interfacing with programmable controllers. It provides compact, reliable sensing with virtually infinite life. An LED indicator light illuminates when switching occurs. Models are available in current sinking (NPN) and current sourcing (PNP) models. Either can be used for loads like counters and solid state relays. Selection of sinking or sourcing models depends on the requirements of the programmable controller.

The Bimba Solid State Switch is based on giant magnetoresistive (GMR) technology. It includes four solid state resistors (two active, two shielded), each of which has many thin layers of magnetoresistive material. In each layer, the electrons are oriented opposite the adjacent layer, providing a great deal of resistance to electrical flow. The presence of a magnetic field overcomes the magnetic coupling between the adjacent layers, causing parallel alignment of magnetic moments between layers, and resistance drops significantly.

By connecting the four resistors in a classic Wheatstone bridge configuration, the voltage across a single resistor is doubled, providing a linear output. This voltage is then amplified and sent to a comparator that switches the sensor output when it detects that a minimum magnetic field strength is present. High voltage transistors provide TTL-compatible output rated at 25 milliamps. The switch includes reverse polarity, overvoltage, and transient protection.



PRINCIPLE OF SOLID STATE (NO MAGNETIC FIELD)



PRINCIPLE OF SOLID STATE (MAGNETIC FIELD PRESENT)

Sinking vs. Sourcing

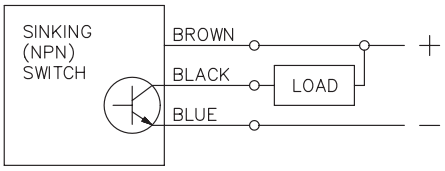
Bimba offers both sinking and sourcing Solid State Switch models:

- **Sinking switches** are applied to the **negative** side of a load. When the switch is activated, the negative (ground) is connected, completing the circuit.
- **Sourcing switches** are applied to the **positive** side of a load. When the switch is activated, power is connected, completing the circuit.

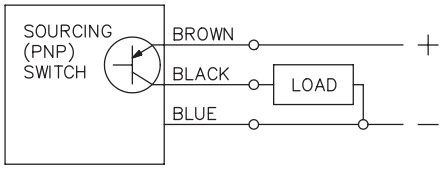
The model needed will be determined by a number of factors, including:

- Company standards.
- PLC input cards. (You may have sinking input cards available or your PLC only has a sinking type. Be aware that for some PLC manufacturers, sourcing input cards require a sinking switch or sinking input cards require a sourcing switch; check the specifications to clarify.)
- Type of circuit. PLC manufacturers typically filter input modules that use sourcing field devices and use unfiltered input modules with sinking field devices.

Typical Solid State Sinking Configuration (NPN)



Typical Solid State Sourcing Configuration (PNP)



Switch Information Location

Actuator Application Data

Hysteresis and Operating Windows

Hysteresis

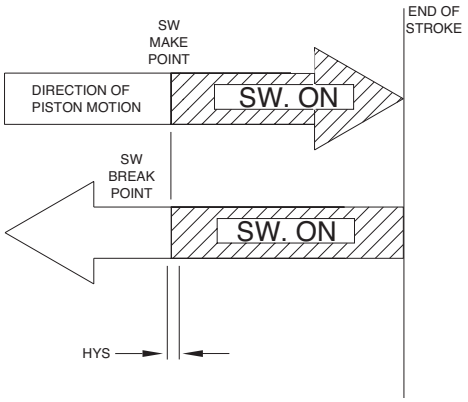
Bimba Solid State switches are subject to hysteresis. Hysteresis is the difference in magnetic field strength needed to initiate switch operation versus the field strength needed to sustain switch operation. The effect is that the switch break point will be different from the switch make point in the piston travel.

Operating Window

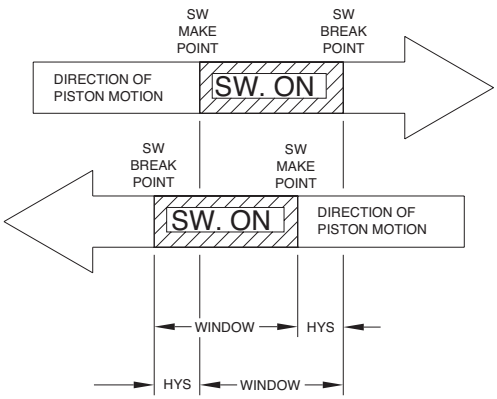
The operating window is the distance the piston travels while the switch is in the “ON” state, and includes the hysteresis action. For the Solid State Switch, hysteresis is greater on one side of the operating window because this switch is sensitive to only one side of the magnet.

For high speed equipment, the time duration of the switch signal may be critical. The time duration is a function of the operating window length and the speed of operation of the actuator. It is calculated by dividing the minimum travel in the operating window by the piston speed, taking into account the hysteresis effect. The illustrations and chart below show the operating windows for the Solid State Switch.

END OF STROKE OPERATION



MID STROKE OPERATION



Switch Application Information

Original Line Cylinders with Indicated Switches

Bore Size		MR, MS, MSC, MSK			MHF, MHC, MHK		
		Operating Window	Maximum Hysteresis	Repeatability	Operating Window	Maximum Hysteresis	Repeatability
007	5/16"	0.250"	0.040"	±0.010"	0.055"	0.030"	±0.005"
01	7/16"	0.275"	0.040"	±0.010"	0.125"	0.030"	±0.005"
02	9/16"	0.350"	0.040"	±0.010"	0.125"	0.030"	±0.005"
04	3/4"	0.375"	0.045"	±0.010"	0.125"	0.030"	±0.005"
06	7/8"	0.425"	0.045"	±0.010"	0.125"	0.030"	±0.005"
09	1-1/16"	0.450"	0.045"	±0.010"	0.125"	0.030"	±0.005"
12	1-1/4"	0.450"	0.050"	±0.010"	0.125"	0.030"	±0.005"
17	1-1/2"	0.450"	0.050"	±0.010"	0.125"	0.030"	±0.005"
24	1-3/4"	0.450"	0.050"	±0.010"	0.125"	0.030"	±0.005"
31	2"	0.450"	0.050"	±0.010"	0.125"	0.030"	±0.005"
50	2-1/2"	0.450"	0.050"	±0.010"	0.125"	0.030"	±0.005"
70	3"	0.500"	0.050"	±0.010"	0.125"	0.030"	±0.005"

Bore Size		MRS-.087, MRS-1.5			MRS-.027, MRS-1.5-S			HSC, HSK		
		Operating Window	Maximum Hysteresis	Repeatability	Operating Window	Maximum Hysteresis	Repeatability	Operating Window	Maximum Hysteresis	Repeatability
02	9/16"	0.350"	0.040"	±0.015"	0.345"	0.015"	±0.015"	0.290"	0.040"	±0.015"
04	3/4"	0.350"	0.040"	±0.015"	0.345"	0.015"	±0.015"	0.310"	0.040"	±0.015"
06	7/8"	0.350"	0.040"	±0.015"				0.320"	0.040"	±0.015"
09	1-1/16"	0.350"	0.040"	±0.015"				0.330"	0.040"	±0.015"
12	1-1/4"	0.350"	0.040"	±0.015"				0.340"	0.040"	±0.015"
17	1-1/2"	0.440"	0.040"	±0.015"				0.350"	0.040"	±0.015"
24	1-3/4"	0.440"	0.040"	±0.015"				0.350"	0.040"	±0.015"
31	2"	0.440"	0.040"	±0.015"				0.360"	0.040"	±0.015"
50	2-1/2"	0.440"	0.040"	±0.015"				0.370"	0.040"	±0.015"
70	3"	0.440"	0.040"	±0.015"				0.380"	0.040"	±0.015"

Flat Cylinders with Track Mounted Switches

Bore Size		HK, HC, MR, MS, MSC, MSK			MHF, MHC, MHK		
		Operating Window	Maximum Hysteresis	Repeatability	Operating Window	Maximum Hysteresis	Repeatability
02	9/16"	0.250"	0.040"	±0.015"	0.125"	0.030"	±0.005"
04	3/4"	0.300"	0.040"	±0.015"	0.125"	0.030"	±0.005"
09	1-1/16"	0.300"	0.040"	±0.015"	0.125"	0.030"	±0.005"
17	1-1/2"	0.300"	0.040"	±0.015"	0.125"	0.030"	±0.005"
31	2"	0.325"	0.040"	±0.015"	0.125"	0.030"	±0.005"
50	2-1/2"	0.325"	0.040"	±0.015"	0.125"	0.030"	±0.005"
70	3"	0.375"	0.040"	±0.015"	0.125"	0.030"	±0.005"
125	4"	0.400"	0.040"	±0.015"	0.125"	0.030"	±0.005"

Switch Application Information

Pneu-Turn Rotary Actuators with Indicated Switches

Bore Size		MR, MS, MSC, MSK			MHF, MHC, MHK		
		Operating Window	Maximum Hysteresis	Repeatability	Operating Window	Maximum Hysteresis	Repeatability
02	9/16"	73°	8°	±2°	26°	6°	±1°
04	3/4"	57°	7°	±1.5°	19°	5°	±0.8°
09	1-1/16"	57°	6°	±1.5°	17°	4°	±0.7°
17	1-1/2"	47°	5°	±1°	13°	3°	±0.5°
31	2"	33°	4°	±0.75°	9°	2°	±0.3°

Bore Size		HSC, HSK			MRS-.087 -B		
		Operating Window	Maximum Hysteresis	Repeatability	Operating Window	Maximum Hysteresis	Repeatability
02	9/16"	84°	7°	±3°	62°	9°	±3°
04	3/4"	61°	5°	±2°	51°	7°	±2°
09	1-1/16"	55°	5°	±2°	54°	9°	±2°
17	1-1/2"	41°	4°	±2°	40°	6°	±2°
31	2"	29°	3°	±1°	30°	5°	±1°

Notes