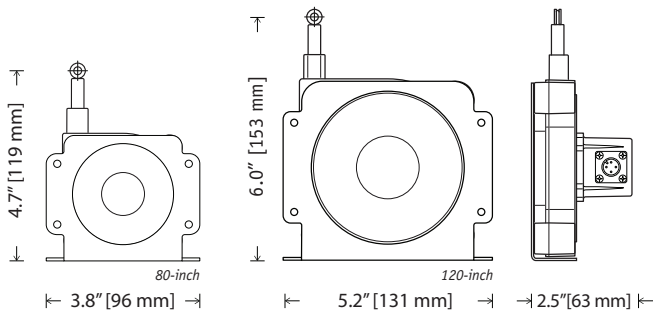# SG1

Voltage Divider Output Signal

Compact Mid-Range String Pot • Absolute Position
80, 120-inch Stroke Range Options
Polycarbonate Enclosure • IP67
In Stock for Quick Delivery

4.7" [119 mm]
6.0" [153 mm]
80-inch
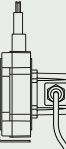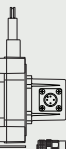*120-inch*
3.8" [96 mm]
5.2" [131 mm]
2.5"[63 mm]

The SG1 provides absolute linear position up to a 10-ft. stroke range. Constructed with a rugged polycarbonate body, this model is available in an 80-inch or 120-inch stroke range and offers optional IP67 protection for wet or outdoor installations and an M12 connector for easy installation.

The SG1 uses a precision high-cycle plastic hybrid potentiometer and an extremely durable spring-loaded stainless steel measuring cable to provide an accurate reliable position feedback signal over the entire stroke. With it's slim design and versatile mounting bracket, the SG1 has been designed to fit into spaces no other measurment device can. For the OEM customer, custom mounting hardware and electrical connections are available.

SPECIFICATIONS

|	
Stroke Range Options	80 inches (2032 mm), 120 inches (3048 mm)
Output Signal	voltage divider (potentiometric)
Accuracy	.35% FS.
Repeatability	.05% FS.
Resolution	essentially infinite
Measuring Cable	.019-inch dia. nylon-coated stainless steel
Maximum Acceleration	10 g
Measuring Cable Tension	9 oz. (2,5 N) ±30%
Sensor	plastic-hybrid precision potentiometer
Input Resistance	10K ohms, ±10%
Power Rating, Watts	2.0 at 70°F
Recommended Maximum Input Voltage	30 V (AC/DC)
Output Signal Change Over Full Stroke Range	94% ±4% of V(+in)
Cycle Life	≥ 250,000
Electrical Connection	see ordering information
Enclosure	glass-filled polycarbonate
Environmental	IP 50 , IP67 (m12 connector & pigtail options)
Operating Temperature	-40˚ to 160˚ F (-40˚ to 70˚ C)
Weight, 80-inch (not including bracket)	.6 lbs. (272 g)
Weight, 120-inch (not including bracket)	1 lb. (453 g)

ORDERING INFORMATION

Part No.
SG1-80
80-inch stroke range, solder terminal connection, IP50 environments, mounting bracket included

Part No.
SG1-120
120-inch stroke range, solder terminal connection, IP50 environments, mounting bracket included

Part No.
SG1-80-2
80-inch stroke range, 40-inch electrical cable, IP67 environments, mounting bracket included

Part No.
SG1-120-2
120-inch stroke range, 40-inch electrical cable, IP67 environments, mounting bracket included

Part No.
SG1-80-3
80-inch stroke range, M12 connector, IP67 environments, mounting bracket included

Part No.
SG1-120-3
120-inch stroke range, M12 connector, IP67 environments, mounting bracket included

Optional Cordset
4-pin M12 connector
13 ft (4 m)
22 AWG (.34mm²)

Part No.
9036810-0040
for short-run connections, a convenient optional 13-ft. cordset with a 4-pin M12 connector is available for the SG1-80-3 and SG1-120-3.

Electrical Connection:
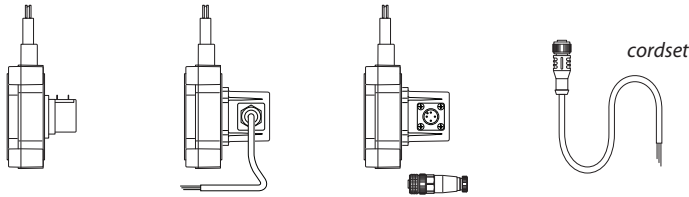
cordset

signals	terminal	colorcode	pin*	pin - colorcode*
+in	3 (cw)	red	1	1 - brown
common	1 (ccw)	black	2	2 - white
+out	2 (s)	green	3	3 - blue

*note: connector pin 4 and the black wire on the **cordset** are NOT used.*

Output Signal:

$V_{(+out)}$

(0% fs.)　　　　(100% fs.)

+in

common　+out

potentiometer connections
(SG1-80, SG1-120 only)

1(CCW)　3(CW)

2(S)

field installable connector
(SG1-xx-3, SGD-xx-3 only)

contact view

⊢ 2.4" [60mm] ⊣

*customer supplied electrical cable
(.25 in [6 mm] max. dia.)*

cordset, part no. 9036810-0040
(optional for SG1-xx-3, SGD-xx-3 only)

contact view

⊢ 1.7" [45 mm] ⊣

13.6 ft. [4 M]

22 AWG (.34mm²)
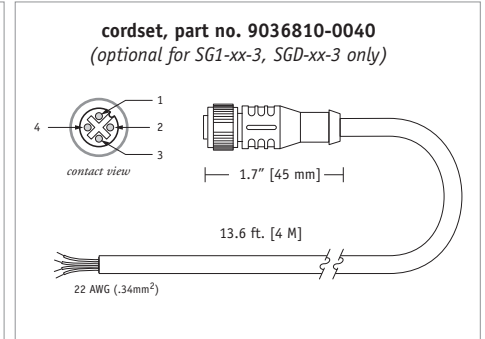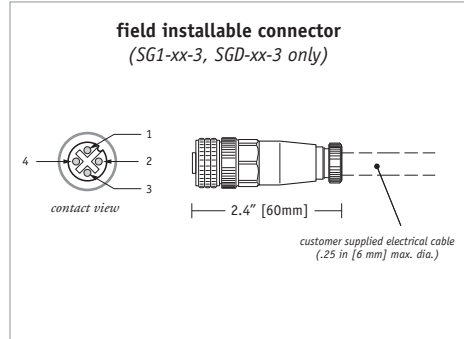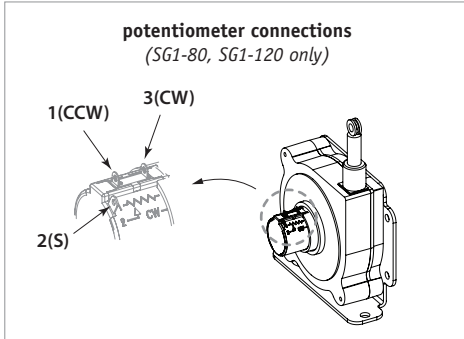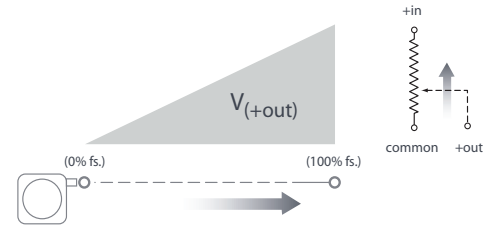
Mounting Options (SG1-80, SG1-80-2, SG1-80-3):

.50 [12,7]

4.70 [119,3]

.53 [13,5]

1.42 [36,1]

1.40 [35,6]

.50 [12,7]

1.42 [36,1]

2.77 [70,4]

INCHES [MM]
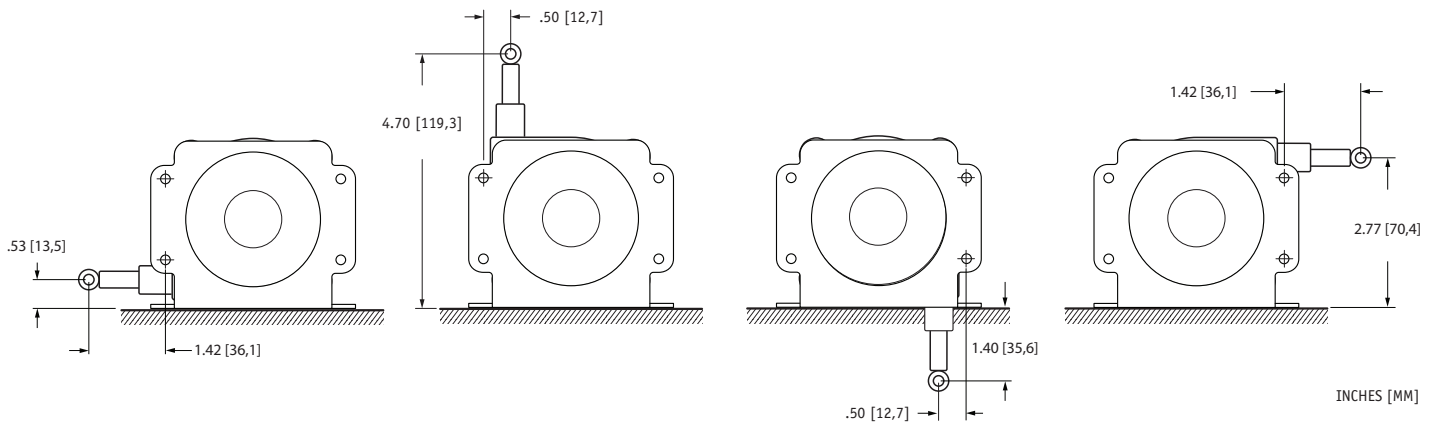
Mounting Options (SG1-120, SG1-120-2, SG1-120-3):

.50 [12,7]

6.04 [153,3]

.49 [12,4]

1.42 [36,1]

1.44 [36,5]

.50 [12,7]

1.42 [36,2]

4.11 [104,4]

SG1-80 w/o Mounting Bracket:

1.08 [27,5]

.61 [15,5]

Ø.53 [13,3]

Ø.375 [9,53]

Ø.191 [4,85]

45°

3.05 [77,4]

2.11 [53,5]

.61 [15,4]

3.00 [63,5]

3x Ø.071 [1,82] thru
on Ø3.563 [90,5] B.C.
90° apart

Note: can be drilled out
to Ø.120 [3,05] max.

2.00 [50,8]

3.00 [76,2]

INCHES [MM]

eyelet detail

Ø.191 [4,19]*

Ø.375 [9,52]**

.165 [4,19]**
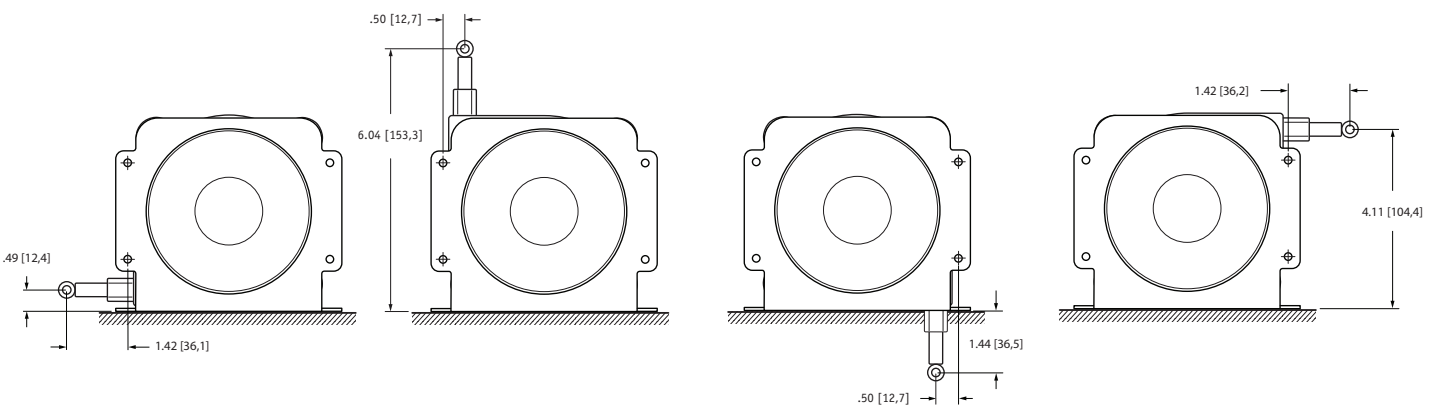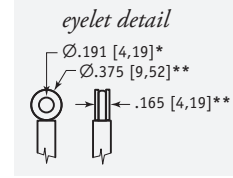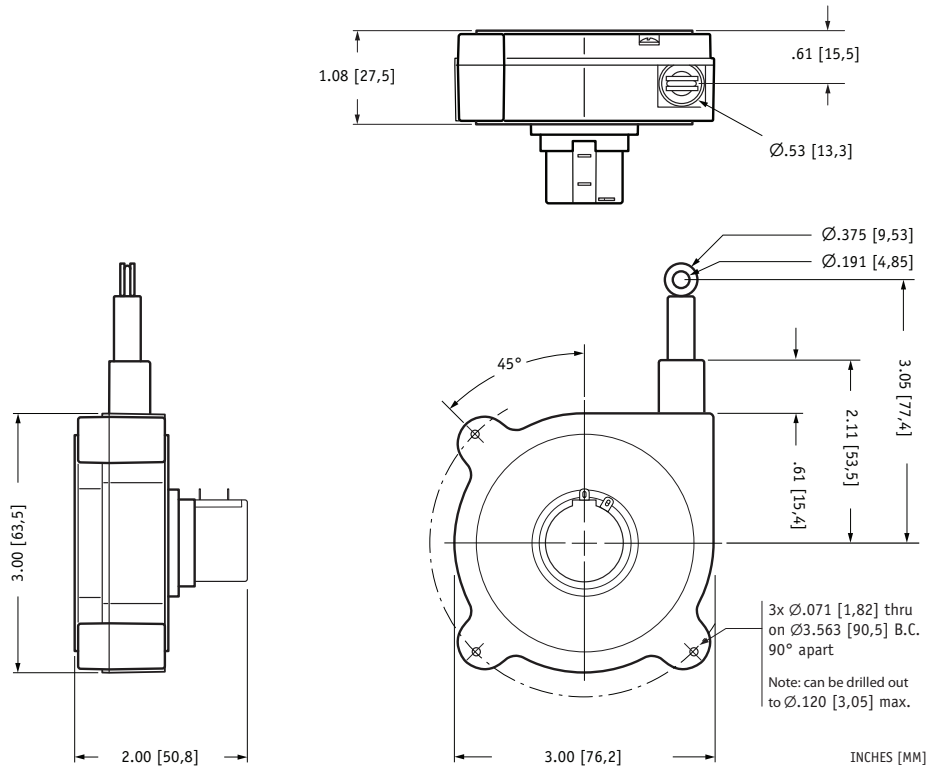
*tolerance = +.005 −.001 [+.13 −.03]
**tolerance = +.005 −.005 [+.13 −.13]

SG1-120 w/o Mounting Bracket:

1.10 [27,9]

.61 [15,5]

Ø.53 [13,3]

.165 [4,19]

Ø.375 [9,53]

Ø.191 [4,85]

45°

3.74 [94,9]

2.79 [70,9]

.61 [15,4]

3.75 [95,3]

3x Ø.071 [1,82] thru
on Ø4.90 [124,5] B.C.
90° apart

Note: can be drilled out
to Ø.120 [3,05] max.

2.00 [50,8]

4.38 [111,1]

INCHES [MM]

eyelet detail

Ø.191 [4,19]*

Ø.375 [9,52]**

.165 [4,19]**

*tolerance = +.005 −.001 [+.13 −.03]
**tolerance = +.005 −.005 [+.13 −.13]

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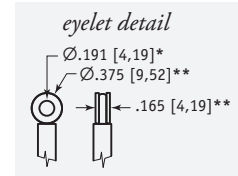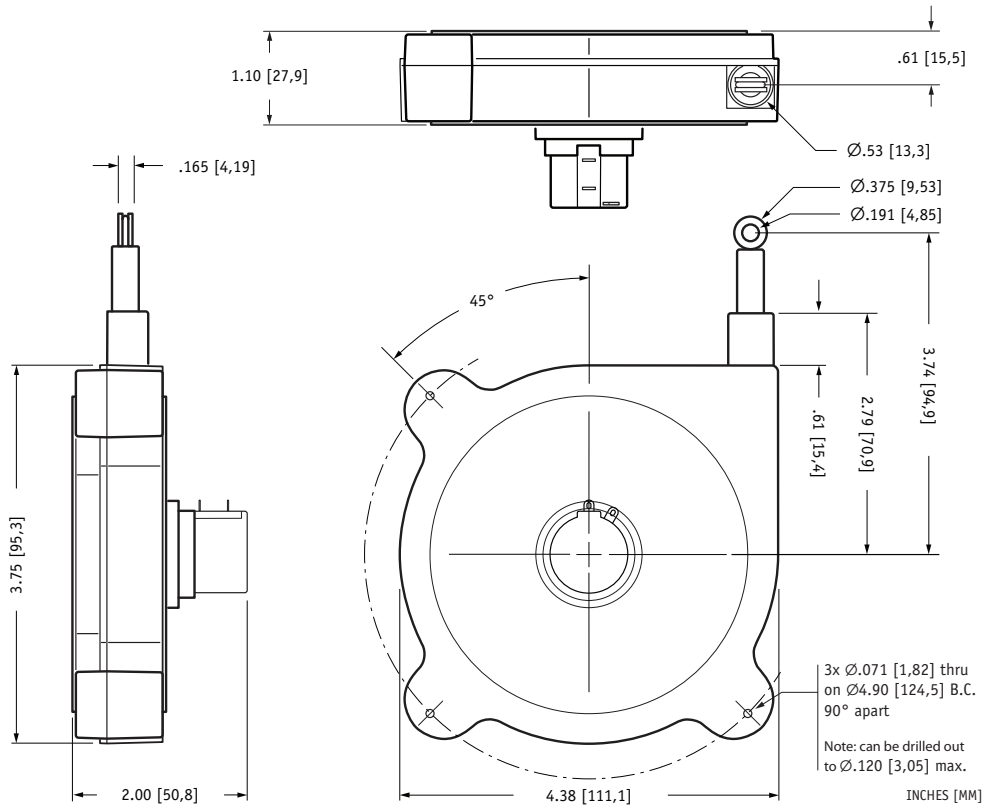
SG1 | 3

SG1-80 w/ Mounting Bracket:

eyelet detail

Ø.191 [4,19]*
Ø.375 [9,52]**
.165 [4,19]**

*tolerance = +.005 −.001 [+.13 −.03]
**tolerance = +.005 −.005 [+.13 −.13]

.56 [14,3]
1.02 [25,8]
Ø.22 [5,6] 2 plc.
.65 [16,5]
.69 [17,5]
3.38 [85,7]

.50 [12,7]
4.70 [119,3]
1.65 [41,9]
Ø.18 [4,5] 4 plc.
1.50 [38,1]
.9 [22,9]
3.25 [82,6]
3.80 [96,4]

3.15 [80]
1.13 [28,6]
2.03 [51,6]
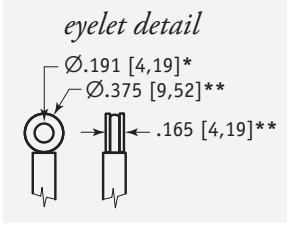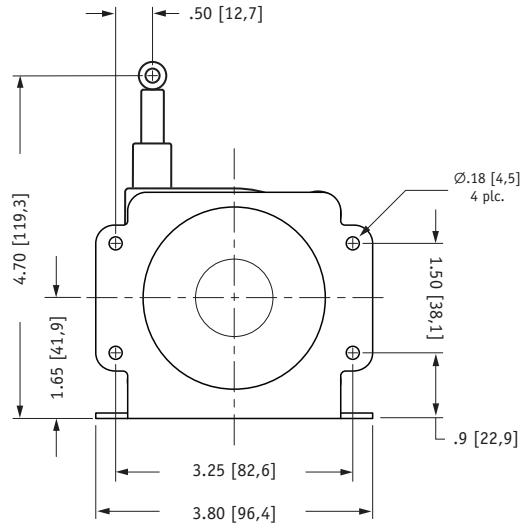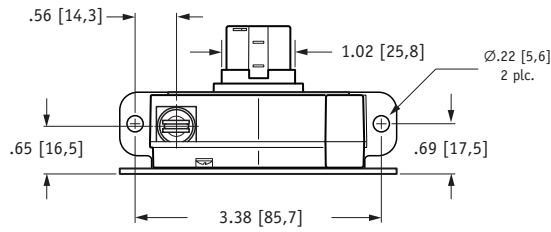
INCHES [MM]

SG1-120 w/ Mounting Bracket:

eyelet detail

Ø.191 [4,19]*
Ø.375 [9,52]**
.165 [4,19]**

*tolerance = +.005 −.001 [+.13 −.03]
**tolerance = +.005 −.005 [+.13 −.13]

.56 [14,3]
1.02 [25,8]
Ø.22 [5,6] 2 plc.
.65 [16,5]
.69 [17,5]
4.75 [120,1]

.50 [12,7]
6.04 [153,3]
2.30 [58,4]
Ø.18 [4,5] 4 plc.
2.20 [55,9]
1.20 [30,5]
4.62 [117,4]
5.17 [131,3]

4.49 [114]
1.13 [28,6]
2.05 [51,9]
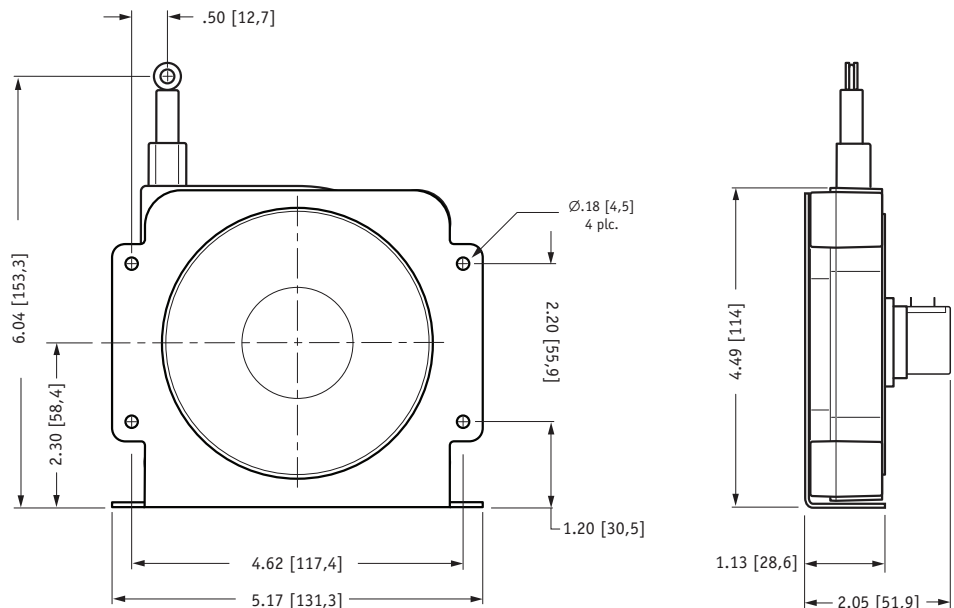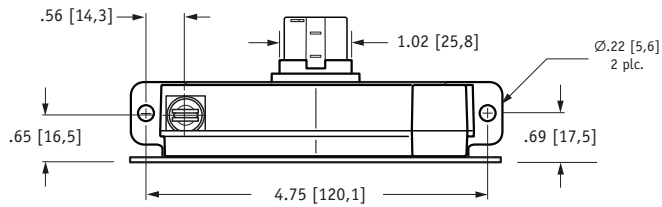
INCHES [MM]

SG1-80-2 w/ Mounting Bracket:

eyelet detail

∅.191 [4,19]*
∅.375 [9,52]**
.165 [4,19]**

*tolerance = +.005 −.001 [+.13 −.03]
**tolerance = +.005 −.005 [+.13 −.13]

1.58 [40,2]
.56 [14,3]
∅.22 [5,6] 2 plc.
.65 [16,5]
.69 [17,5]
3.38 [85,7]

.50 [12,7]
4.70 [119,3]
∅.18 [4,5] 4 plc.
1.50 [38,1]
1.65 [41,9]
3.25 [82,6]
.9 [22,9]
3.80 [96,4]

3.15 [80]
∅1.49 [35.5]
1.13 [28,6]
2.47 [62,7]

INCHES [MM]

electrical cable – 3-conductor, 24 AWG, shielded, 40 in. (1 meter) long

SG1-120-2 w/ Mounting Bracket:

eyelet detail

∅.191 [4,19]*
∅.375 [9,52]**
.165 [4,19]**

*tolerance = +.005 −.001 [+.13 −.03]
**tolerance = +.005 −.005 [+.13 −.13]

1.58 [40,2]
.56 [14,3]
∅.22 [5,6] 2 plc.
.65 [16,5]
.69 [17,5]
4.75 [120,1]

.50 [12,7]
6.04 [153,3]
∅.18 [4,5] 4 plc.
2.20 [55,9]
2.30 [58,4]
4.62 [117,4]
1.20 [30,5]
5.17 [131,3]

4.49 [114]
∅1.49 [35.5]
1.13 [28,6]
2.48 [63,0]

INCHES [MM]

electrical cable – 3-conductor, 24 AWG, shielded, 40 in. (1 meter) long

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SG1 | 5

SG1-80-3 w/ Mounting Bracket:

1.43 [36,2]
.56 [14,3]
Ø.22 [5,6] 2 plc.
.65 [16,5]
.69 [17,5]
3.38 [85,7]

.50 [12,7]
Ø.18 [4,5] 4 plc.
4.70 [119,3]
1.50 [38,1]
1.65 [41,9]
.9 [22,9]
3.25 [82,6]
3.80 [96,4]

3.15 [80]
Ø1.49 [35.5]
1.13 [28,6]
2.47 [62,7]

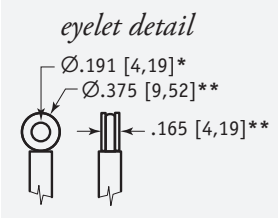INCHES [MM]

eyelet detail

Ø.191 [4,19]*
Ø.375 [9,52]**
.165 [4,19]**

*tolerance = +.005 –.001 [+.13 –.03]
**tolerance = +.005 –.005 [+.13 –.13]

SG1-120-3 w/ Mounting Bracket:

1.43 [36,2]
.56 [14,3]
Ø.22 [5,6] 2 plc.
.65 [16,5]
.69 [17,5]
4.75 [120,1]

.50 [12,7]
Ø.18 [4,5] 4 plc.
6.04 [153,3]
2.20 [55,9]
2.30 [58,4]
1.20 [30,5]
4.62 [117,4]
5.17 [131,3]

4.49 [114]
Ø1.49 [35.5]
1.13 [28,6]
2.48 [63,0]

INCHES [MM]

eyelet detail

Ø.191 [4,19]*
Ø.375 [9,52]**
.165 [4,19]**

*tolerance = +.005 –.001 [+.13 –.03]
**tolerance = +.005 –.005 [+.13 –.13]

Version: **3.0** last updated: **February 4, 2013**