DWS1MA - String Potentiometer

Absolute Linear Position Feedback

Output Signal: 4...20mA

Range: 0 - 1500mm

Aluminum and Polycarbonate Enclosure

Compact Design

IP65 · NEMA 4 protection

DWS1MA

Industrial Grade



SPECIFICATIONS

SUMMARY

Full Stroke Range 0-1500mm
Output Signal ..... 4...20 mA (2-wire) and 0...20 mA (3-wire)
Accuracy ..... see ordering information
Repeatability ..... ±0.05% full stroke
Resolution ..... essentially infinite
Measuring Cable ..... 0.48mm dia. nylon-coated stainless
Enclosure Material ..... blue anodized aluminum
Sensor ..... plastic-hybrid precision potentiometer
Pot. Cycle Life ..... see ordering information
Max. Cable Accel. ..... see ordering information
Weight ..... 454 g (1 lb.) max.

ELECTRICAL

input voltage ..... see ordering information
input current ..... 20 mA max.
max. loop resistance (load) (loop supply voltage - 8)/0.020
circuit protection ..... 38 mA max.
impedance ..... 100 M ohm @ 100 VDC min.

output signal adjustment

zero adjustment preset amount from factory zero to 50% of full stroke
full stroke adjustment to 50% of factory-set full stroke

thermal effect

zero ..... 0.01% f.s./°F max.
full stroke ..... 0.01% f.s./°F max.

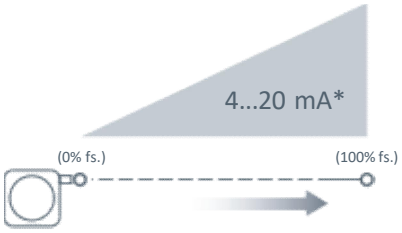
ENVIRONMENTAL

Enclosure ..... NEMA 4, IP65
Operating Temperature ..... 0° to 200°F (-17° to 90°C)
Vibration ..... up to 10 g to 2000 Hz max.

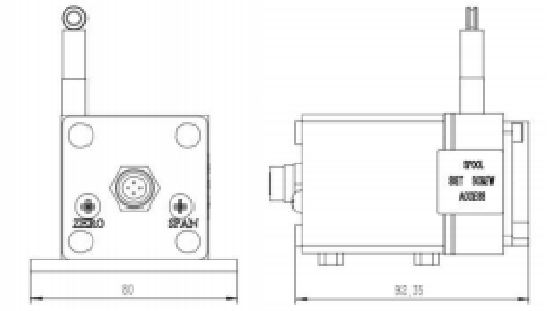
EMC certified 89/336/EEC

emissions / immunity ..... EN50081-2 / EN50082-2

Output Signal

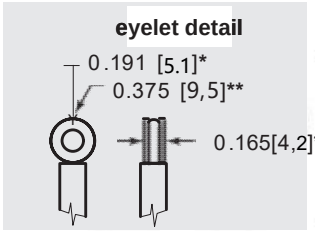


*optional 3-wire 0·20 mA output signal.



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Sensor Dimension Drawing:

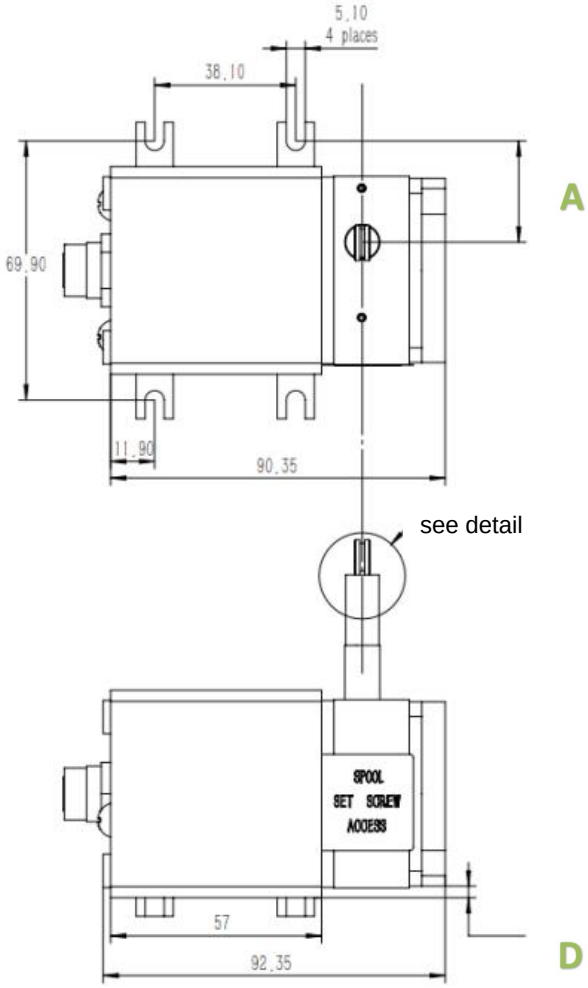


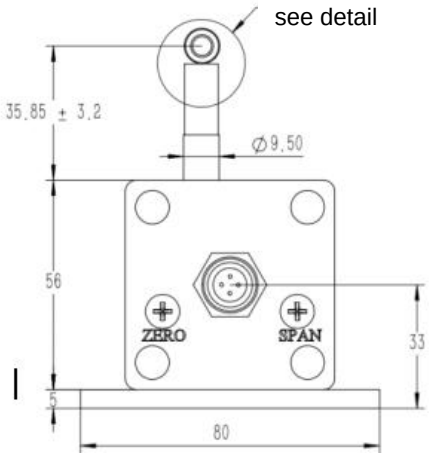
Stroke

Full Stroke Range	A
50,250	27.5mm
100,500,1000	18.9mm
150,750,1500	11.8mm

Stroke

Full Stroke Range	D
50,250,100,500,1000	7.6mm
150,750,1500	4.5mm





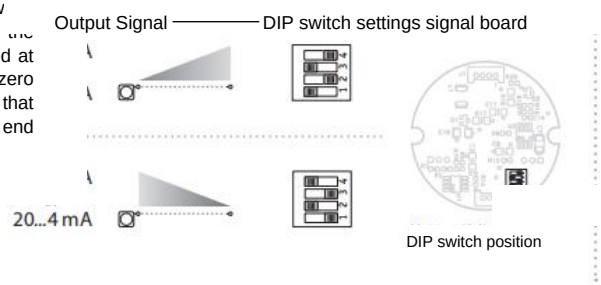
Dimensions are in inches [mm]. Tolerances are 0.03 in. [0.5 mm] unless otherwise noted.

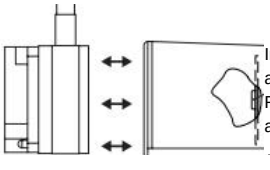
* tolerance = +.005 ·.001 [+.13 ·.03]

** tolerance = +.005 ·.005 [+.13 ·.13]

Output Signal Selection

By simply changing the DIP sw settings on the internal signal board, the output signal direction can be reversed at any time. After changing the settings, zero and full stroke should be adjusted so that the signal matches the start and end points of travel.





Internal DIP switches and signal board
Remove the plug to access the hex screws

To service the signal board, remove the two socket-head screws

DWS1MA - String Potentiometer

Model Number:

DWS1MA - R range ·A cable exit ·B output signal ·C electrical connection ·D cable guide

Sample Model Number:

DWS1MA - 50 - UP - 420E - MP4 - SG
Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ

Ⓡ 50 = 50mm range
Ⓐ UP = cable exit up
Ⓑ 420E = 4...20mA output
Ⓒ MP4 = 4-pin connector
Ⓓ SG = spring-loaded guide

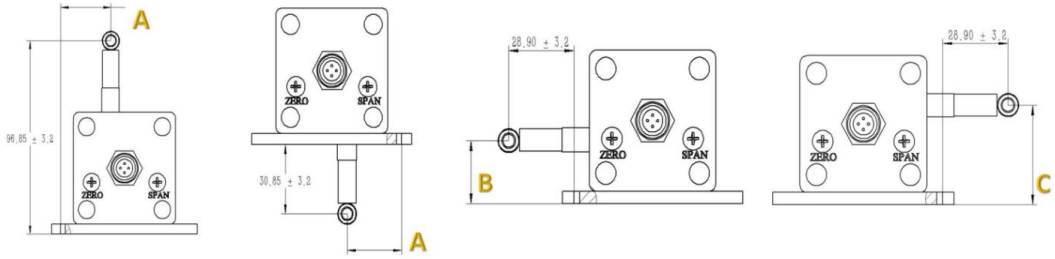
Range:

R order code	**50**	**100**	**150**	**250**	**500**	**750**	**1000**	**1500**
stroke (mm)	50	100	150	250	500	750	1000	1500
accuracy (% of f.s.)	0.28%			0.18%			0.15%	
cycle life (x10,000 cycles)	250			50			25	
cable tension (20% oz.)	12				6	4	6	4
max. cable acceleration (g)	11	4	3	11	4	3	4	3

Cable Exit:

A order code: UP DN FR BK

Direction: up down front back



stroke (mm)	50	100	150	250	500	750	1000	1500
A (mm)	27.5	18.9	11.8	27.5	18.9	11.8	18.9	11.8
B (mm)	25.1	16.9	9.7	25.1	16.9	9.7	16.9	9.7
C (mm)	40.7	49.2	56.3	40.7	49.2	56.3	49.2	56.3

Output Signal:

B order code: 420E 420R 020E 020R

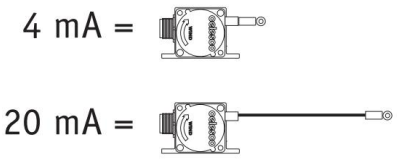
Signal Output:



acc. range:	16 mA/full stroke ±0.25%	20 mA/full stroke ±0.25%
Wiring Configuration:	2-wire	3-wire
Input Voltage:	8 – 34 v	14 – 29 v

Example:

order code = **420E** = 4...20 mA

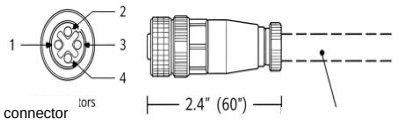


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Electrical Connection:

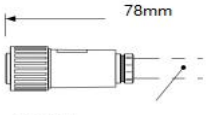
C order code: MP4 | M6 | C25

4-pin connector with mating plug
Field-installable connector (incl.)



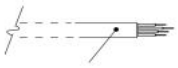
dash line: customer-supplied cable

6-pin plastic connector with mating plug

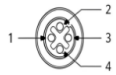
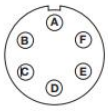


cable dia. 8-10mm

24 AWG
7.5m shielded instrument cable



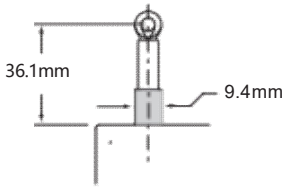
7.5m x 5mm dia.

4-pin connector with mating plug					6-pin plastic connector with mating plug				7.5m (25 ft.) cable		
	pin	color code	2-wire	3-wire		pin	2-wire	3-wire	color code	2-wire	3-wire
	1	RED-BLK TR.	8-34vdc	14-29vdc		1	8-34vdc	14-29vdc	RED	8-34vdc	14-29vdc
	2	RED-WHT TR.	4...20mA	common		2	4...20mA	common	BLACK	4...20mA	common
	3	RED	-	0...20mA		3		0...20mA	WHITE	-	-
contact view	4	GREEN	-		contact view	4			GREEN		0...20mA

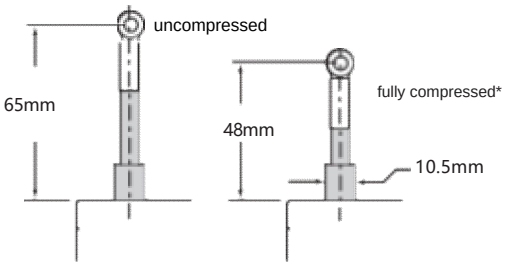
Cable Guide:

D order code: Blank | SG

standard cable guide



spring-loaded guide
(cushions impact from accidental free release)



*note: full stroke range begins at full compression point (except 50mm and 1500mm ranges)