DWS5S - String Potentiometer

Absolute Linear Position Feedback

Range: 0-6500mm

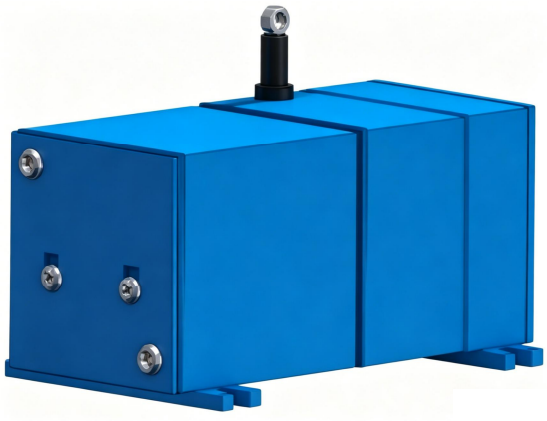
IP68 · NEMA 6 protection · hazardous-area approvals

aluminum or stainless steel enclosure

VLS option to prevent damage from accidental release

DWS5S

Industrial Grade ·
SSI/BiSS Communication



SPECIFICATIONS

SUMMARY

Full Stroke Range 0-6500mm
Output Signal ..... SSI·BISS
Accuracy ..... ±0.1% full stroke
Repeatability ..... see ordering information
Resolution ..... see ordering information
Measuring Cable ..... nylon-coated stainless or thermoplastic
Enclosure Material ... painted aluminum or 303 stainless steel
Sensor ..... plastic-hybrid precision potentiometer
Max. Cable Accel. ..... see ordering information
Weight ..... 2270 g (5 lb.) max.

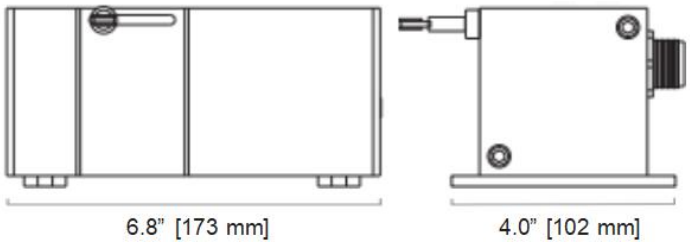
ELECTRICAL

Input Voltage ..... see ordering information
Input Current ..... see ordering information
Permissible Load ..... 30 mA max.
Driver Type ..... clock and data signals / RS422
3 dB Cut-off Frequency ..... 500 kHz
Alarm Output SSI: optional alarm bit; BiSS: warning and alarm bits

ENVIRONMENTAL

Enclosure ..... NEMA 4/6,IP65/67
Operating Temperature ..... -40° to 200°F (-40° to 90°C)
Vibration ..... up to 10 g to 2000 Hz max.

The DWS5S sensor uses a unique thermoplastic cable with a long service life. This cable, designated V62, combines superior performance and long life with a rugged enclosure. Like other sensors, the DWS5S installs in minutes, works without perfect parallel alignment and fits easily into small spaces. The DWS5S offers extra mounting flexibility because its cable exit can be rotated relative to the mounting surface, providing four different cable exit directions.



SSI binary signal

SSI binary signal (+1 Vpp sine-cosine signal)

SSI Gray code signal

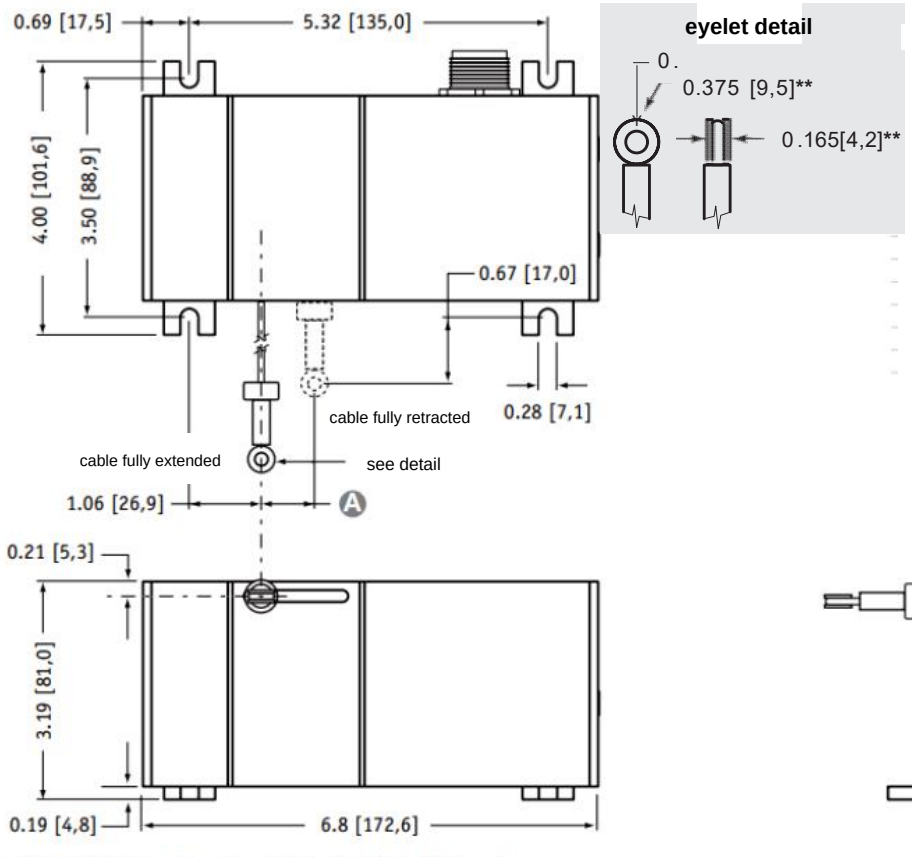
BiSS-B (+1 Vpp sine-cosine signal)

BiSS-C (+1 Vpp sine-cosine signal)

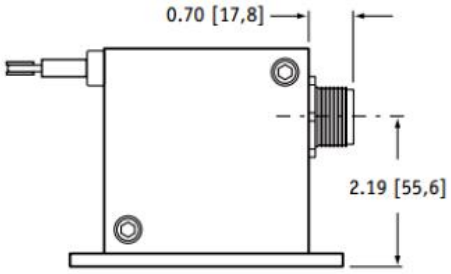
- see ordering information for available channels

DWS5S - String Potentiometer

Outline Drawing:



A dimension (measuring cable) (mm)		
Full Stroke Range	N34 measuring cable	S47 & V62 measuring cable
250	1.27	2.03
350	1.78	3.05
500	2.29	4.06
750	3.56	5.84
1000	4.82	7.87
1300	5.84	9.90
1500	7.11	11.93
2000	9.40	15.74
2500	11.68	19.81
3000	14.73	24.64
4000	17.53	40.89
5000	23.37	n/a
6500	29.46	n/a



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]

DWS5S - String Potentiometer

ORDERING INFORMATION

Sample Model Number:

DWS5S - 2000 - S47 - UP - SG - C25
Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ

Ⓡ 2000 = 2000 mm stroke
Ⓐ S47 = 1.19 mm stainless steel
Ⓑ UP = up cable exit
Ⓒ SG = SSI Gray code signal
Ⓓ C25 = 7.5 m shielded cable

Model Number:

DWS5S - R range ·A cable material ·B cable exit ·C output signal ·D electrical connection

Range:

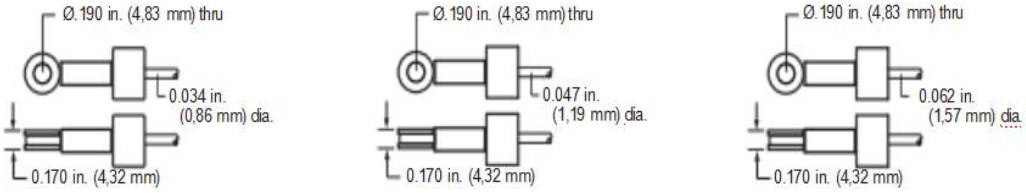
R order code	250	350	500	750	1000	1300	1500	2000	2500	3000	4000	5000	6500
stroke (mm)	250	350	500	750	1000	1300	1500	2000	2500	3000	4000	5000	6500
accuracy (% of f.s.)	0.75	0.6	0.5		0.3		0.25				0.18		
repeatability (± of f.s.)	0.1		0.05				0.02						
cycle life (x10,000 cycles)	250				50						25		
cable tension (20%) (oz.)	41											21	
max. cable velocity (mm/s)	7620											3048	
acceleration (g)	5											2	
resolution (12 bit)	0.0487 mm/step												
resolution (22 bit)	0.048 ·m/step												

Cable Material:

A order code: N34 S47 V62

cable construction: 0.86 mm nylon-coated stainless 1.19 mm stainless steel 1.57 mm thermoplastic

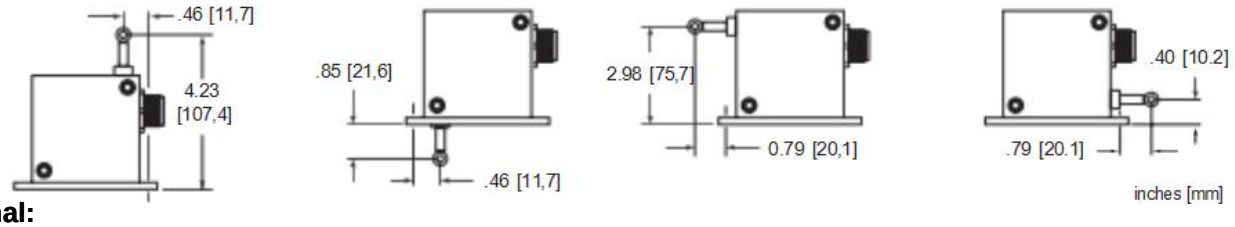
for all ranges for ranges · 4000mm for ranges · 4000mm



Cable Exit:

B order code: UP DN FR BK

Direction: up down front back



Output Signal:

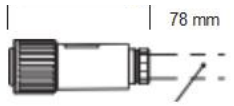
C order code	SB	SD	SG	SC	BI	BC	BE	BV
signal output	SSI binary signal	SSI binary signal (+1 Vpp sine-cosine signal)	SSI Gray	SSI Gray code signal (+1 Vpp sine-cosine signal)	BISS-B	BiSS-B (+1 Vpp sine-cosine signal)	BISS-C	BiSS-C (+1 Vpp sine-cosine signal)
input voltage	5 VDC (±5%, +10%) / 7-30 VDC							
	order code = BE = BiSS-C							

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Electrical Connection:

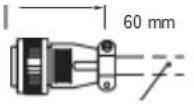
D order code: M6 M6M C25

6-pin thermoplastic connector with mating plug



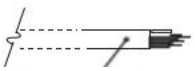
Dimension: 78 mm
Suitable cable: 8-10 mm
Max wire gauge: 16 (AWG)
Mating plug: MS3102E-14S-6P
Mating receptacle: MS3106E-14S-6S

6-pin metal connector with mating plug



Dimension: 60 mm
Suitable cable: 9 mm
Max wire gauge: 16 (AWG)
Mating plug: MS3102E-14S-6P
Mating receptacle: MS3106E-14S-6S

7.5m waterproof cable



Spec: 7.5 m x 5 mm dia.
Construction: 6 conductors, 24 AWG, shielded

signal	cable color	M6 pin
main supply (DC 5 V / 7-30 V)	WHITE	A
supply ground (0 V)	brown	B
Clock	yellow	C
Clock -	GREEN	D
Data	pink	E
Data -	grey	F
A+	white/green 1	
A-	brown/green 1	
B+	red/blue 1	
B-	grey/pink 1	
1 selectable + SinCos 1 Vpp		