DWS1S - SSI/BiSS communication

Absolute Linear Position Feedback

Output Signal: SSI, BISS

Range: 0 - 1500mm

Aluminum Enclosure

Compact Design

IP65 · NEMA 4 protection

DWS1S

Industrial Grade
SSI/BiSS Communication



At its core is an absolute, geared optical encoder that provides a fully physically guaranteed absolute signal. This compact sensor offers multiple resolution options, suitable for applications from high-precision position feedback to low-speed feedback. The DWS1S offers many options, including full stroke measurement from 0-1500mm, different output options and alternative measuring cable exits.

SPECIFICATIONS

SUMMARY

Full Stroke Range 0-1500mm
Output Signal ..... SSI·BISS
Accuracy ..... ±0.1% full stroke
Repeatability ..... ±0.05% full stroke
Resolution ..... see ordering information
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

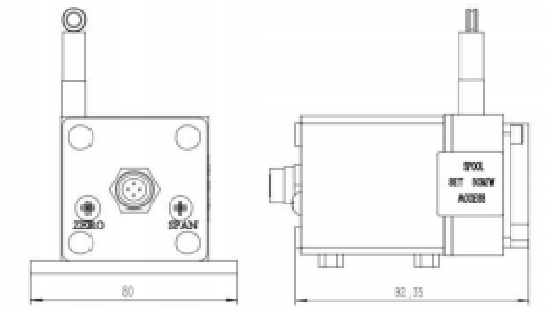
Input Voltage ..... see ordering information
Input Current ..... see ordering information
Permissible Load..... 30 mA max.
Interface ..... SSI Gray, BiSS-B, BiSS-C
Bandwidth ..... 500 kHz
Alarm Output SSI: optional alarm bit; BiSS: warning and alarm bits

ENVIRONMENTAL

Enclosure NEMA4,IP65
Operating Temperature ..... 0° to 200°F (-17° to 90°C)
Vibration ..... up to 10 g to 2000 Hz max.

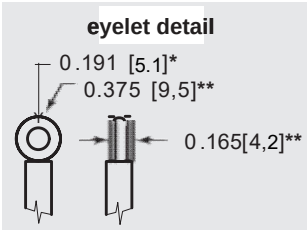
EMC certified 89/336/EEC

Emissions / Immunity ..... EN50081-2 / EN50082-2



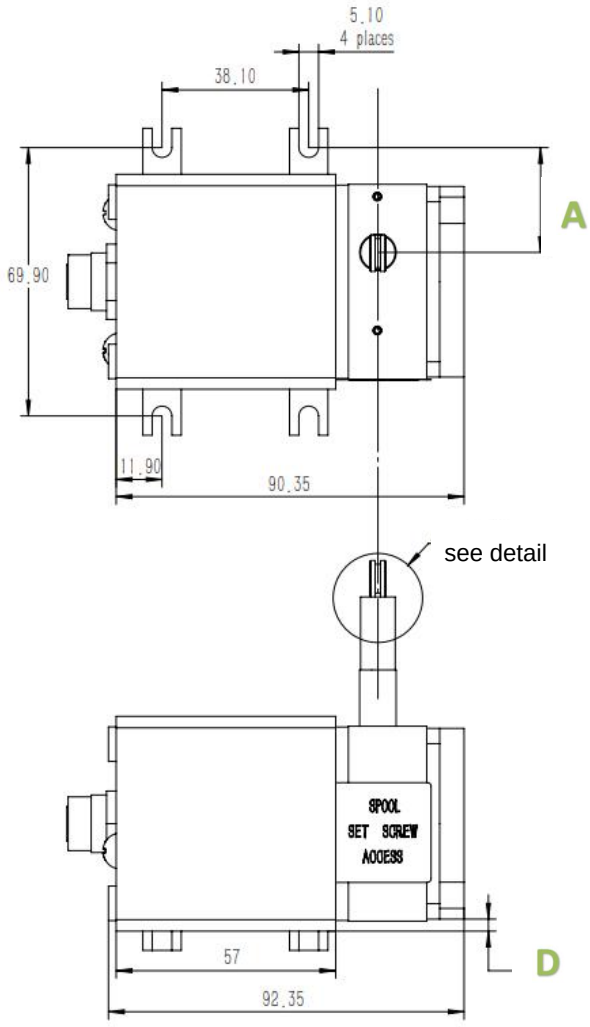
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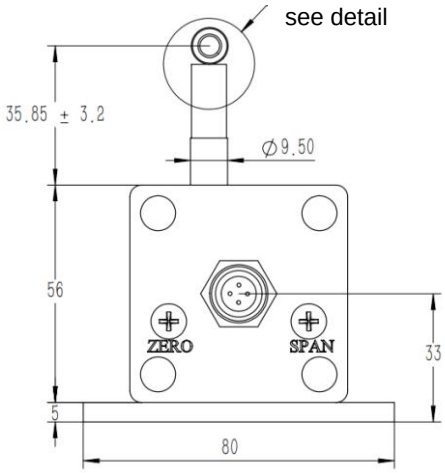
Outline Drawing:



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

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]

Sample Model Number:

DWS1S - 50 - UP - BE - DB9 - SG
Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ

Ⓡ 50 = 50 mm stroke
Ⓐ UP = up cable exit
Ⓑ BE = BiSS-C output
Ⓒ DB9 = 9-pin connector
Ⓓ SG = spring-loaded guide

DWS1S - R range ·A cable exit ·B output signal ·C electrical connection ·D cable guide

Range:

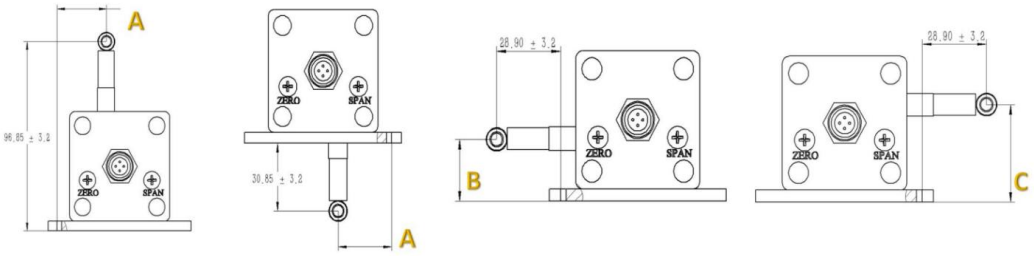
R order code	50	100	150	250	500	750	1000	1500
stroke (mm)	50	100	150	250	500	750	1000	1500
accuracy (% of f.s.)	0.28%			0.18%			0.15%	
cycle life (x10,000 cycles)	250			50			25	
cable tension (20%) (oz.)	12	6	4	12	6	4	6	4
max. cable acceleration (g)	11	4	3	11	4	3	4	3
resolution (12 bit) mm/step	0.013	0.0259	0.0386	0.013	0.0259	0.0386	0.0259	0.0386
resolution (22 bit) µm/step	0.0127	0.0253	0.0377	0.0127	0.0253	0.0377	0.0253	0.0377

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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

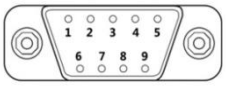
Output Signal:

B order code	SB	SD	SG	SC	BI	BC	BE	BV
signal output	SSI binary signal	SSI binary signal (+1 Vpp sine-cosine signal)	SSI Gray code signal	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							
	Example: order code = BE = BiSS-C							

Electrical Connection:

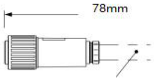
C order code: DB9 M6 C25

9-pin connector



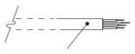
DB9 plug (pins)

6-pin plastic connector with mating plug



cable dia. 8-10mm

7.5m waterproof cable



24 AWG, shielded

7.5m x 5mm dia.

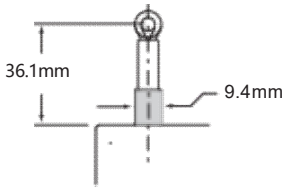
signal	cable color	DB9 pin	M6 pin
main supply (DC 5 V / 7-30 V)	WHITE	1	A
supply ground (0 V)	brown	2	B
Clock	yellow	3	C
Clock -	GREEN	4	D
Data	pink	5	E
Data -	grey	6	F
A+	white/green 1		
A-	brown/green 1		
B+	red/blue 1		
B-	grey/pink 1		
1 selectable + SinCos 1 Vpp			

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Cable Guide:

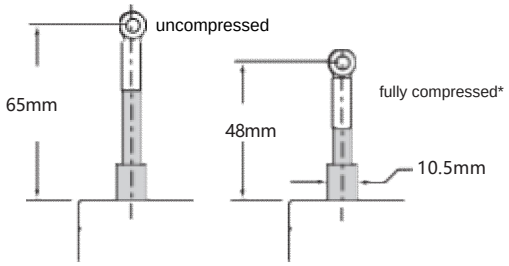
D order code: Blank SG

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)