DWS8420 - Heavy Duty 4~20mA

Measurement Range: 0-2000mm

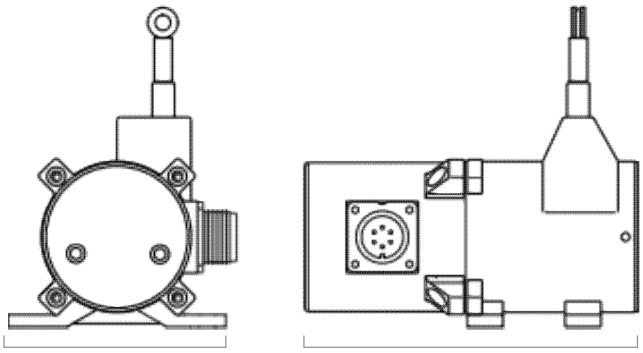
aluminum or stainless steel enclosure

IP68, NEMA rated

DWS8420

Industrial Grade 4...20 mA / 0...20 mA





91 mm 141 mm

The DWS8420 provides a 4...20mA current feedback signal and is the ideal device for monitoring hydraulic cylinder stroke and other applications that need position data in harsh environments. The feedback signal is proportional to the linear motion of the moving stainless steel extension cable. Simply mount the sensor body to a fixed surface and attach the extension cable to the moving object to obtain the feedback signal.

SPECIFICATIONS

SUMMARY

Full Stroke Range	0-2000mm
Output Signal	4...20 mA (2-wire), 0...20 mA (3-wire)
Accuracy	see ordering information
Repeatability	±0.02% full stroke
Resolution	essentially infinite
Measuring Cable	stainless steel or thermoplastic
Enclosure Material	aluminum or stainless steel
Sensor	precision potentiometer
Pot. Cycle Life	see ordering information
Max. Cable Accel.	see ordering information
Weight	2724 g (6 lb.) max.

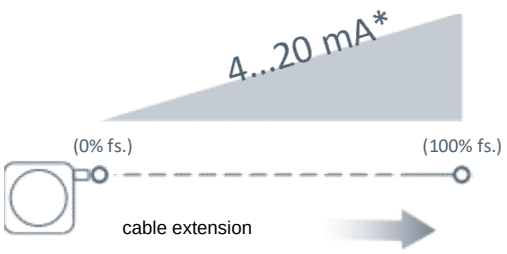
ELECTRICAL

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.
Input Impedance	100 M ohm @ 100 VDC min.
Zero Adjustment	from factory zero to 50% FS
Full Stroke Adjustment	to 50% of factory-set full stroke
Thermal Effect, Zero	0.01% f.s./°F max.
Thermal Effect, Full Stroke	0.01% f.s./°F max.

ENVIRONMENTAL

Enclosure	NEMA 4,IP67/68
Hazardous-Area Approvals	see ordering information
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz max.
Weight, Aluminum (Stainless Steel) Enclosure	1362 g (2724 g) max.

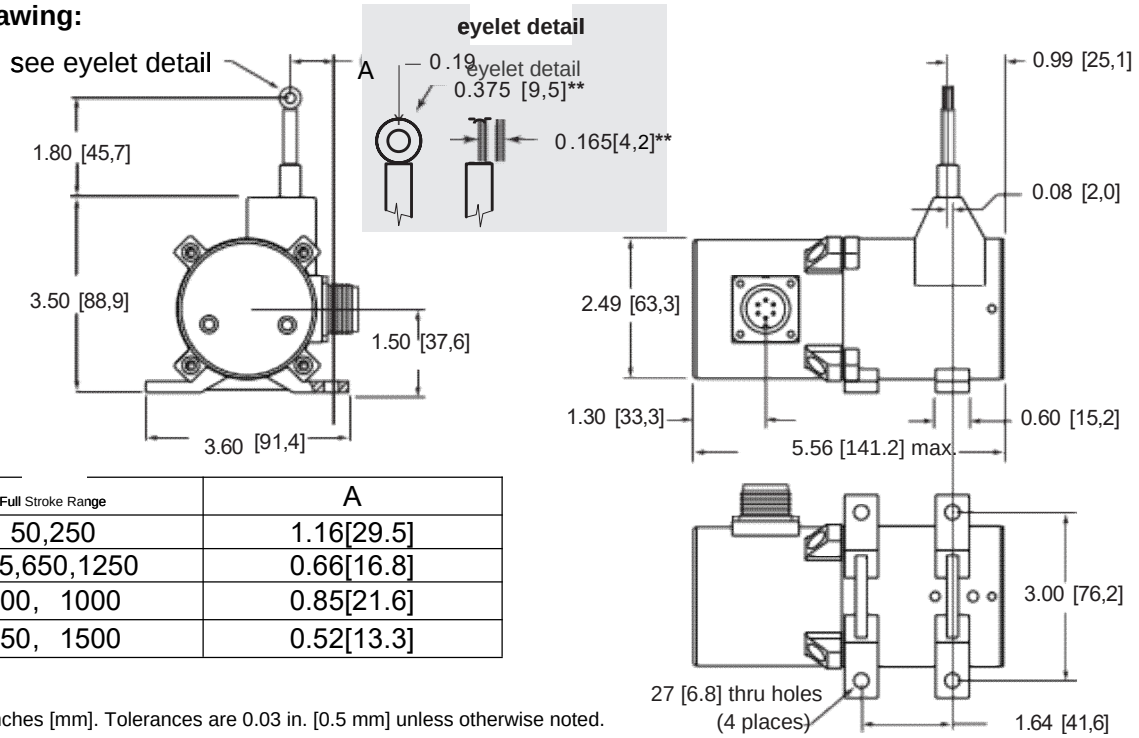
Output Signal



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

DWS8420 - Heavy Duty 4~20mA

Outline Drawing:



Full Stroke Range	A
50,250	1.16[29.5]
125,650,1250	0.66[16.8]
500, 1000	0.85[21.6]
750, 1500	0.52[13.3]

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:

DWS8420 - 500 - 1 - 1 - 1 - 1 - 0
Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

Ⓡ 500 = 500 mm range
Ⓐ 1 = aluminum, std. 13 oz.
Ⓑ 1 = 0.86 mm nylon-coated ss
Ⓒ 1 = 4-20 mA, 2-wire
Ⓓ 1 = 6-pin connector
Ⓔ 0 = standard cable guide

ORDERING INFORMATION

Model Number:

DWS8420 - R range ·A enclosure material/cable tension ·B cable material C output signal ·D electrical connection ·E cable guide

stroke range:

R order code: 50	125	250	500	650	750	1000	1250	1500	2000
min. stroke (mm): 50	125	250	500	650	750	1000	1250	1500	2000
accuracy (% of f.s.): 1.00%	1.00%	0.18%	0.18%	0.18%	0.18%	0.15%	0.15%	0.15%	0.15%
pot. cycle life (x10,000 cycles)*: 250	250	250	250	50	50	25	25	25	25

*1 cycle is defined as the measuring cable travelling from fully retracted to fully extended and back.

Enclosure Material & Cable Tension:

A order code:	1	5	2	3	6	4	8	7	9
enclosure material:	aluminum			303 stainless steel			316 stainless steel		
cable tension:	standard	avg.	high	standard	avg.	high	standard	avg.	high
max. acceleration (g):	15	25	40	6	12	18	6	12	18

stroke (mm):	50	125	250	500	650	750	1000	1250	1500	2000
cable tension options (oz.) standard:	39	16	39	20	16	13	20	16	13	11
avg.:	65	26	65	33	26	22	33	26	22	20
high:	116	47	116	60	47	40	60	47	40	37

tension tolerance: ± 50%

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Cable Material:

B order code:

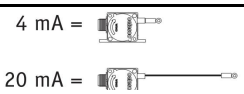
	1	2	3	4
Cable Material:	0.86 mm nylon-coated stainless steel	1.2 mm stainless steel	1.47 mm Vectra rope with PVC jacket	0.79 mm stainless steel
available ranges:	full stroke	≤750mm	available for 750mm only	≥1000mm
application:	indoor	outdoor, high temperature	high voltage or magnetic fields	outdoor, high temperature

Output Signal:

C order code:

	1	2	3	4	5*	6*
signal type:	4...20mA (4 → 20)	20...4 mA (20 → 4)	0...20 mA (0 → 20)	20...0 mA (20 → 0)	4...20mA (4 → 20)	20...4 mA (20 → 4)
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%		16 mA/full stroke ±0.25%	
Wiring Configuration:	2-wire		3-wire		2-wire	
Input Voltage:	8-34V		14-29V		14-32V	
hazardous-area approvals:	not certified		not certified		explosion-proof approval	

Example: order code: 20 mA



CSA • Cenelec
hazardous-area approvals

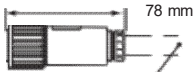
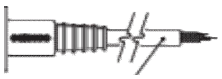
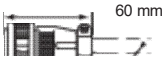
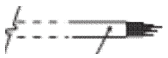
CSA standard 22.2
Class 1
groups A, B, C and D

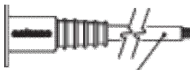
Cenelec
LCIE EEx
ia IIc T4

*IMPORTANT: For installations drawing #677984, intrinsically safe when powered by a CSA-certified regulated supply, 28 VDC, 110 mA max.

Electrical Connection:

D order code:

	1	2	3	4
	6-pin thermoplastic connector	3 m waterproof cable	6-pin metal connector	7.5 m instrument cable
				
	protection: IP 67, NEMA 4X**, 6 size: 78 mm cable accepted: 14 - 8 mm dia. max. conductor size: 16 AWG mating receptacle: MS3102E-14S-6P mating plug: MS3106E-14S-6S	protection: IP 67, NEMA 4X**, 6 size: 3 m × 10 mm construction: 3 conductors, 18 AWG, cable type SJTOW (per UL 62) portable cord	protection: IP 65, NEMA 4 size: 0.5 in. cable: stranded (7 x 19 mm max.), max. conductor size: 16 AWG	size: 7.5 m x 5 mm dia. construction: 6 conductors, 24 AWG, shielded

order code:	5	6	7
	30 m waterproof cable	3 m pressure-tested waterproof cable*	8 m pressure-tested waterproof cable*
			
	protection: IP 67, NEMA 4X**, 6 size: 30 m × 10 mm dia. construction: 3 conductors, 18 AWG, cable type SJTOW (heavy-duty portable cord per UL 62)	protection: IP 68, NEMA 4X**, 6P size: 3 m × 10 mm dia. construction: 3 conductors, 18 AWG, cable type SJTOW (heavy-duty portable cord per UL 62)	protection: IP 68, NEMA 4X**, 6P size: 8 m × 10 mm dia. construction: 3 conductors, 18 AWG, cable type SJTOW (heavy-duty portable cord per UL 62)

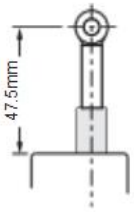
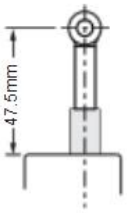
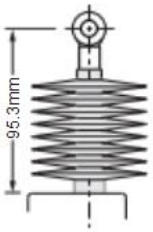
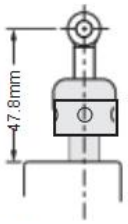
6-pin mating plug				waterproof cable			instrument cable		
pin	**2-wire**	**3-wire**		**color code**	**2-wire**	**3-wire**	**color code**	**2-wire**	**3-wire**
A	8-34vdc***	14-29vdc		WHITE	8-34vdc***	14-29vdc	RED	8-34vdc***	14-29vdc
B	4...20 mA signal output	common		BLACK	4...20 mA signal output	common	BLACK	4...20 mA signal output	common
C	0...20 mA signal output	-		GREEN	0...20 mA signal output	case ground	GREEN	0...20 mA signal output	case ground
D		-	pin view	E F				note: white, blue and brown wires unused	

*Test pressure: 30 m H2O (40 PSID); medium: air; duration: 2 hours. **Stainless steel enclosure only. ***14-32 VDC for hazardous-area option.

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Cable Guide:

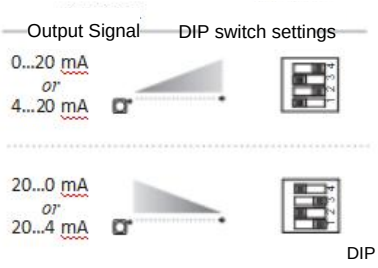
E order code: 0 1 2* 3

standard cable guide	stainless steel cable guide	dust cover (·635 mm)	integral cable brush
			

* Note: all ranges limited to within 635mm

Output Signal Selection:

Simply change the DIP switch settings on the internal signal board and the output signal direction can be reversed at any time. After changing the settings, zero and full stroke need to be adjusted so the signal matches the start and end of travel exactly.

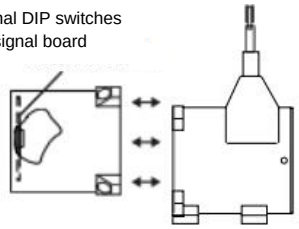


signal board



DIP switch position

Internal DIP switches and signal board



To access the signal board, remove the four socket-head screws and take off the end cap