DWS9420 - Heavy Duty Industrial 4-20mA

Absolute Linear Position Feedback

Range: 0-14000mm

IP68 · NEMA 6 Protection · Hazardous-Area Approvals

Aluminum or Stainless Steel Enclosure

VLS Option To Prevent Free-Release Damage

DWS9420

Heavy Duty Industrial 4-20mA



SPECIFICATIONS

SUMMARY

Full Stroke Range 0-14000mm
Output Signal .... 4...20 mA (2-wire) and 0...20 mA (3-wire)
Accuracy ..... ±0.12% full stroke
Repeatability ..... ±0.05% full stroke
Resolution ..... essentially infinite
Measuring Cable ..... stainless steel or thermoplastic
Enclosure Material painted aluminum or 303 stainless steel
Sensor ..... plastic-hybrid precision potentiometer
Pot. Cycle Life ..... ·250,000
Max. Cable Accel. ..... see ordering information
Max. Velocity ..... see ordering information
Weight, Aluminum (Stainless Steel) Enclosure .. 3632 g (7264 g) max.

ELECTRICAL

Max. Loop Resistance (Load) (loop supply voltage - 8)/0.020
Circuit Protection ..... 38 mA max.
Input Impedance ..... 100 M ohm @ 100 V min.

Output Signal Adjustment

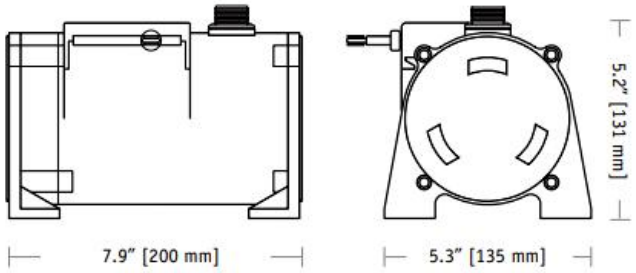
Zero Adjustment ... preset amount from factory zero to 50% of full
Full Stroke Adjustment ..... to 50% of factory-set full stroke

ENVIRONMENTAL

Enclosure ..... NEMA 4/4X/6,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.
Thermal Effect
Zero ..... 0.01% f.s./°F max.
Full Stroke ..... 0.01%/°F max.

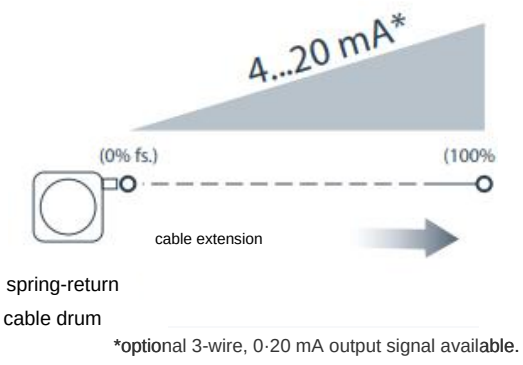
EMC certified 89/336/EEC

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



The DWS9420 offers great value for long-distance applications requiring a 4...20mA linear position feedback signal. It installs in minutes and needs no perfect parallel alignment; its size is only 152.4mm as the cable extends and retracts. As a member of the NEMA-4 rated string potentiometer family, this sensor can operate under the harshest environmental conditions.

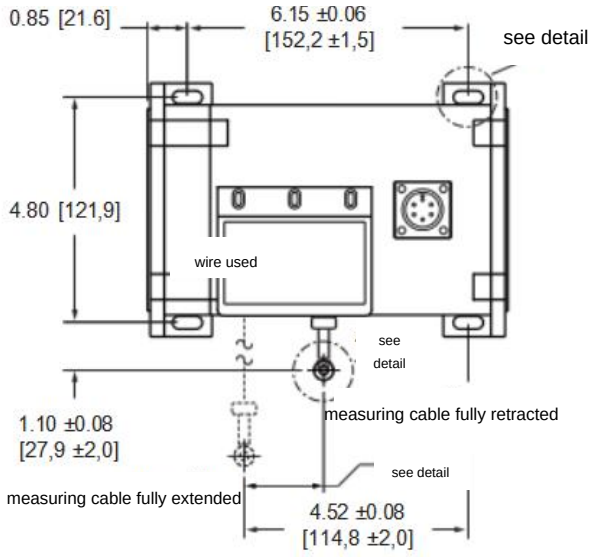
Output Signal

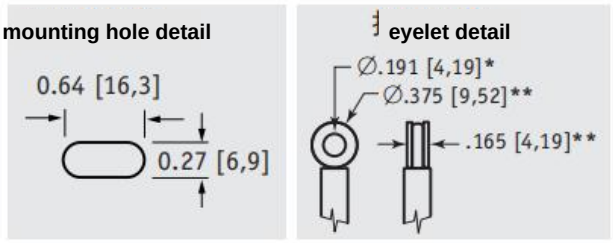


*optional 3-wire, 0·20 mA output signal available.

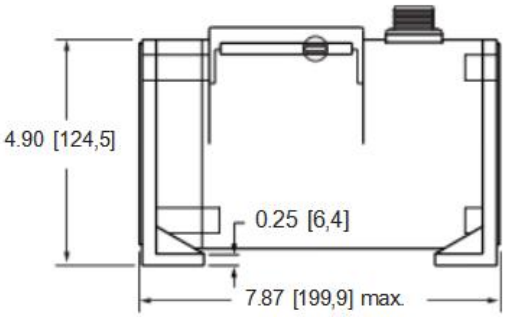
DWS9420 - Heavy Duty Industrial 4-20mA

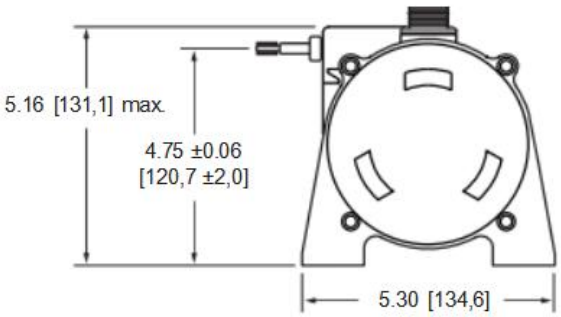
Outline Drawing (18 oz. cable tension only):



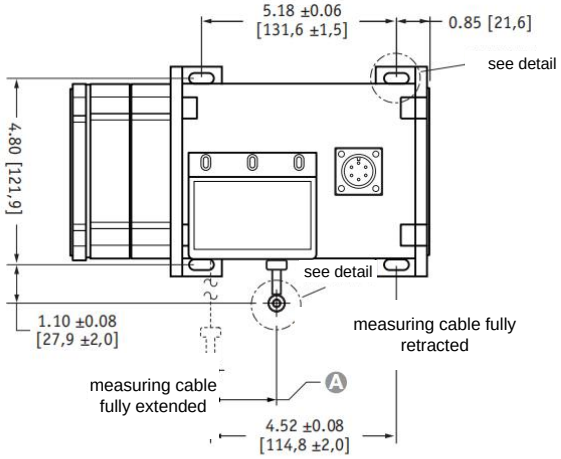


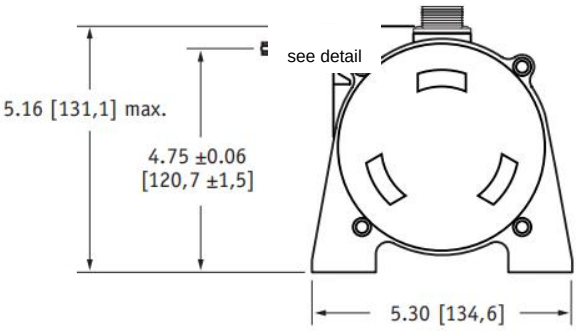
Full Stroke Range	dimension (measuring cable) (mm)			
	20.07	21.84	30.23	39.88
2000	n/a	cable used		9.40
2500	n/a			12.45
4000	n/a	11.18	14.99	18.54
5000	n/a	14.73	20.07	24.89
6500	n/a	18.54	24.89	30.99
7500	n/a	22.35	29.97	37.34
9000	n/a	25.91	35.05	43.43
10000	n/a	29.72	39.88	49.78
11500	n/a	33.27	44.96	n/a
12500	n/a	37.08	50.04	n/a
14000	40.89	40.89	n/a	n/a

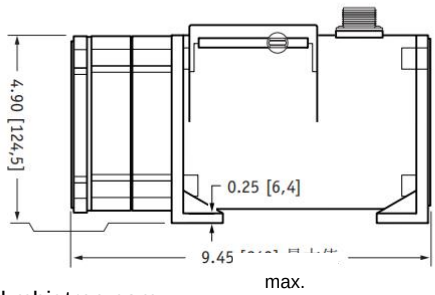




Outline Drawing (36 oz. cable tension only):







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]

DWS9420 - Heavy Duty Industrial 4-20mA

ORDERING INFORMATION

DWS9420 - R range ·A enclosure material ·B cable material C cable exit ·D output signal ·E electrical connection

*36 oz. cable tension strongly recommended

Sample Model Number:

DWS9420 - 5000 - 1 - 1 - 1 - 1 - 1
Ⓡ ⒶⒷⒸⒹⒺ

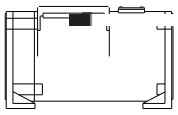
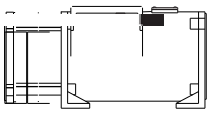
Ⓡ 5000 = 5000 mm range
Ⓐ 1 = aluminum, 18 oz. tension
Ⓑ 1 = 0.86 mm nylon-coated ss
Ⓒ 1 = front cable exit
Ⓓ 1 = 4...20 mA output
Ⓔ 1 = 6-pin connector

R order code:	2000	2500	4000	5000	6500	7500	9000	10000	11500*	12500*	14000*
stroke (mm):	2000	2500	4000	5000	6500	7500	9000	10000	11500	12500	14000

Enclosure Material & Cable Tension:

A order code: 1 | 3 | 2 | 4

cable tension (±30%):	18 oz.		36 oz.	
enclosure material:	painted aluminum	303 stainless steel	painted aluminum	303 stainless steel
max. acceleration:	1 g		5 g	
max. velocity:	1524mm/sec	1524mm/sec	5080mm/sec	5080mm/sec

Cable Material:

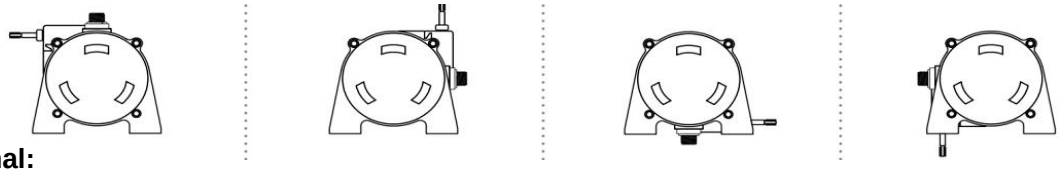
B order code: 1 | 2 | 3 | 4

	1	2	3	4
	0.86 mm nylon-coated stainless steel	1.19 mm stainless steel	1.47 mm Vectra fiber with PVC jacket	0.79 mm stainless steel
available ranges:	full stroke	≤12500mm	available for 10000mm only	14000mm
general purpose:	indoor	outdoor, high temperature	high voltage, magnetic fields	outdoor, high temperature

Cable Exit:

C order code: 1 | 2 | 3 | 4

front | up | back | down



Output Signal:

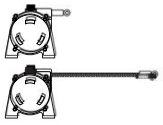
D order code: 1 | 2 | 3 | 4 | 5* | 6*

Signal Output:	4...20 mA	20...4 mA	0...20 mA	20...0 mA	4...20 mA	20...4 mA
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%		16 mA/full stroke ±0.25%	
connection configuration:	2-wire		3-wire		2-wire	
input voltage:	8 - 34 v		14 - 29 v		14 - 32 v	
hazardous-area approvals:	not certified				CSA • Cenelec explosion-proof approval	

Example:

order code = 1 = 4...20 mA

4 mA =
20 mA =



hazardous-area approvals

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

Cenelec
LCIE EEx
ia IIc T4

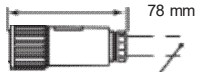
*IMPORTANT: Per installation drawing #677984, intrinsically safe when powered by a CSA-certified regulated supply, 28 VDC, 110 mA max.

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Electrical Connection:

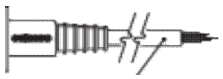
D order code: 1 2 3 4

6-pin thermoplastic connector



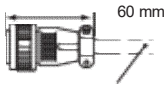
protection: IP 67, NEMA 4X**, 6
size: 78 mm
cable accepted: 14 - 8 mm dia.
max. conductor size: 16 AWG
mating receptacle: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

3 m waterproof cable



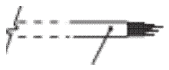
protection: IP 67, NEMA 4X**, 6
size: 3 m × 10 mm
construction: 3 conductors, 18 AWG,
cable type: SJTOW (per UL 62
portable cord)

6-pin metal connector



protection: IP 65, NEMA 4
size: 0.5 in.
cable: stranded (7 x 19 mm max.),
max. conductor size: 16 AWG
cable dia.: max. conductor size: 16 AWG
mating receptacle: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

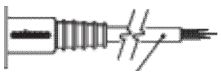
7.5 m instrument cable



protection: IP 67, NEMA 6
size: 7.5 m × 5 mm dia.
construction: 6 conductors, 24 AWG,
shielded

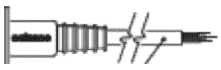
order code: 5 6 7

30 m waterproof cable



protection: IP 67, NEMA 4X**, 6
size: 30 m × 10 mm dia.
construction: 3 conductors, 18 AWG, cable type

3 m pressure-tested waterproof cable*



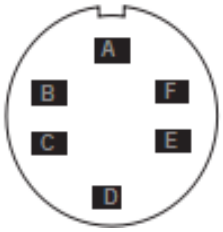
protection: IP 68, NEMA 4X**, 6P
size: 3 m × 10 mm dia.
construction: 3 conductors, 18 AWG, cable type
SJTOW (heavy-duty portable cord per UL 62)

8 m pressure-tested waterproof cable*



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	case ground	0...20 mA signal output	GREEN	case ground	0...20 mA signal output
D	case ground	—					note: white, blue and brown wires unused		



pin view

*NOTE: Test pressure: 30 m water column (28.12 g/mm2 differential); medium: air; duration: two hours

**NEMA-4X applies to stainless steel enclosure only

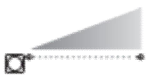
***hazardous-area option voltage: 14-32 VDC

Output Signal Selection (not available with intrinsically safe option):

To access the signal board, remove the four socket-head screws and the end-cap bracket.

signal output

0...20 m A
or
4...20 m A



20...0 mA
or
20...4 m A

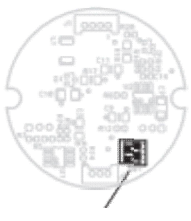


DIP switch settings

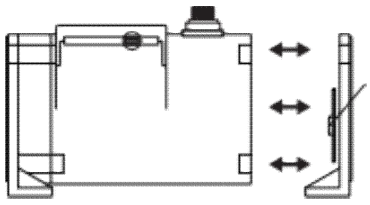




signal board



DIP switch positions



internal DIP switches and signal board

WARNING! Never remove the spring-side end cap. Doing so may release the spring and permanent damage.

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