

Data sheet

Wire position sensor

DST X800



The Danfoss DST X800 wire position sensor is developed to ensure a robust and high-performance solution mobile hydraulic applications. The stability control of e.g. a crane, telehandler or aerial platform is kept under control with draw wire sensors that determine the withdrawal of lateral stabilizers at different positions. On some applications the draw wire on the boom could prevent overturn of the machine.

Danfoss DST X800 series uses contactless Hall technology with measurement ranges up to 8.3 meter

The sensor is designed for off-highway applications and resistant to shock and vibrations and with high electromagnetic compatibility and comes with both analog or CANopen output.

Single and redundant sensor types are available, making the complete portfolio suitable for safety-critical applications.

Features

- Hall effect technology for almost infinite sensor life time
- Single or redundant ranges between 1.8 m to 8.3 m
- Output: Analog or CANopen
- Electrical connector: M12 or cable
- Linearity: $< \pm 0.5\%FS$
- IP protection level IP67

Conformity

CE
RoHS

Technical data
Performance

Measuring range	Strokes 1800mm - 2300mm - 3300mm - 4300mm - 4800mm - 5300mm - 6300mm - 7300mm - 8000mm - 8300mm
Linearity factory verification@ 25°C	< ± 0.5% FS
Long term repeatability	< ±3% FS (for 1.80m, 2.30m, 3.30m) < ±2% FS (for 4.30m, 4.80m, 5.30 m, 6.30m, 7.30 m, 8.00m, 8.30m)
Resolution	0.1mm CANopen output; 12 bit analog output
Speed	Max. 2 m/sec, typ. 1 m/sec
Typical acceleration	1 g
Durability	500,000 speed max. 1 m/sec acc. max. 0.5 g; 150,000 speed max. 2 m/sec acc. max. 1 g

Electrical specifications

Electrical connections	M12 (4, 5 or 8 pin) connector or Cable
Output signal	0.5 – 4.5 Vdc, 0-10 Vdc, 4-20 mA, CANopen
Supply voltage	+10 – +36 Vdc
Current consumption	< 10 mA/per channel (no load)
MTFFd [Years]	CANopen: 220 Analogue: 173 (Single channel)

Environmental conditions

Operating temperature range		-40 – 85 °C	
EMC	Emission	EN 55011	
	Immunity	EN 61236-3-2	
Vibration stability	Sinusoidal	20 g, 10 Hz – 2,000 kHz	IEC 60068-2-6
Shock resistance	Impulsive on 3 axes	50 g, 11 ms	IEC 60068-2-27
IP rating		IP67 with female connector mounted	

Mechanical characteristics

Materials	Enclosure	PBT (Polybutylene terephthalate)	
	Wire	AISI 316; Ø0.85 mm nylon coating	
Net weight		1,800-3,300 mm 0.53 kg 4,300-5,300 mm 0.63 kg 6,300-8,300 mm 0.73 kg	

Ordering

Type	Output signal	Cofigurations	Code no.
DST X800	36 V; 0.5 – 4.5 V;	1 x M12 5p; Single; 1,800 mm	098G2000
	36 V 0.5 – 4.5 V;	1x M12 8p; Redundant; 1,800 mm	098G2001
	36 V; CANopen	1 x M12 5p; Single; 1,800 mm	098G2002
	36 V; CANopen	1x M12 8p; Redundant; 1,800 mm	098G2003
	36 V; 0.5 – 4.5 V;	1 x M12 5p; Single; 4,800 mm	098G2004
	36 V; 0.5 – 4.5 V;	1x M12 8p; Redundant; 4,800 mm	098G2005
	36 V; CANopen	1 x M12 5p; Single; 4,800 mm	098G2006
	36 V; CANopen	1x M12 8p; Redundant; 4,800 mm	098G2007
	36 V; 0.5 – 4.5 V;	1 x M12 5p; Single; 8,300 mm	098G2008
	36 V; 0.5 – 4.5 V;	1x M12 8p; Redundant; 8,300 mm	098G2009
	36 V; CANopen	1 x M12 5p; Single; 8,300 mm	098G2010
	36 V; CANopen	1x M12 8p; Redundant; 8,300 mm	098G2011

Others on request

**Ordering code -
on request**

Sensor type	
Wire transducer	S

Electrical connections	
M12- 4-p connector	M
M12-5-p connector	N
M12-8-p connector (only for redundant versions)	O
Cable	F

Numbers of connectors	
Cable connection	O
1 male M12-4-p connector (single version) or 1 male M12-5-p connector (single or half-redundant version) or 1 male M12 8-p connector (only redundant version)	1
2 male M12-4-p connectors (redundant version) or 2 male M12-5-p connectors (redundant version)	2
1 male M12-5-p connector and 1 M12-5-p female connector (only for IN-OUT CANopen version)	3

Circuit type	
Single	S
Redundant	R
Half-redundant	H

Measuring range	
Measuring range (specify)	xxxx
Available strokes: 1,800 mm; 2,300 mm; 3,300 mm; 4,300 mm; 4,800 mm;; 5,300 mm; 6,300 mm; 7,300 mm; 8,000 mm; 8,300 mm	

Supply voltage	
+10...+36Vdc	H

Output type	
+0.5...+4.5Vdc (powered at +10-36 Vdc)	A1
0...+10Vdc output (powered at +11...36Vdc)	A2
4...20mA output (powered at +10...36Vdc)	A3
CANopen output (powered at +10...36Vdc)	C1

Certificate	
No certificate attached	0
Linearity curve to be attached	L

Version	
Standard	033

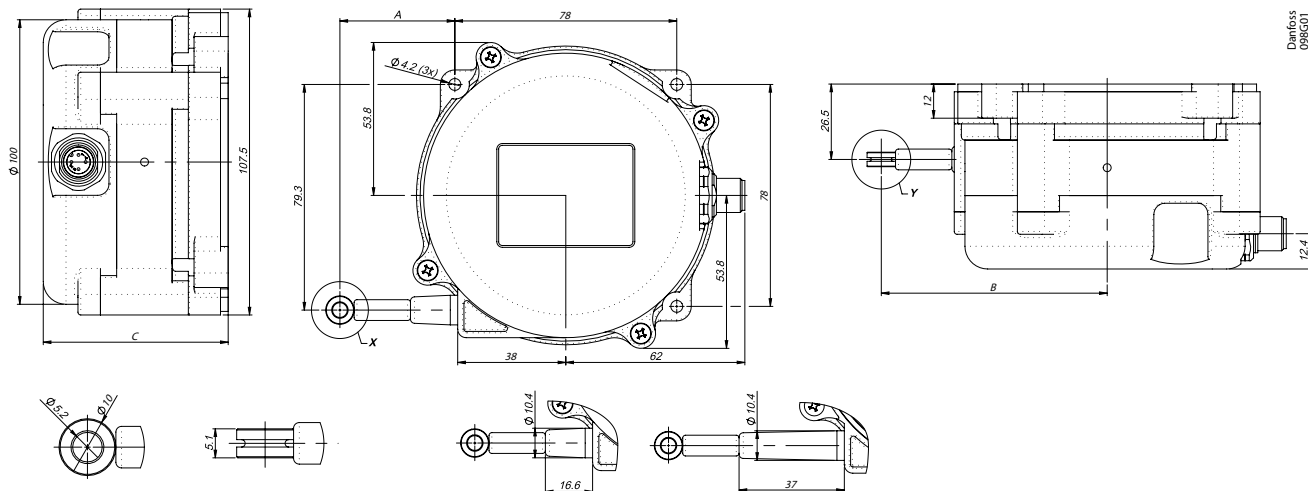
Accessories	
No accessories	X
FLA033: fixing flange, A version	A
FLA034: fixing flange, B version	B
CON293: 4-pin female mating connector M12x1; IP67	C
CON469: 8-pin female mating connector M12x1; IP67	D
CON031: 5-pin female mating connector M12x1; IP67	E

Cable length	
No cable	00
2000 mm	20
Other on request	

Example of ordering:
DST X800-SN2R4300HC1 0033X00

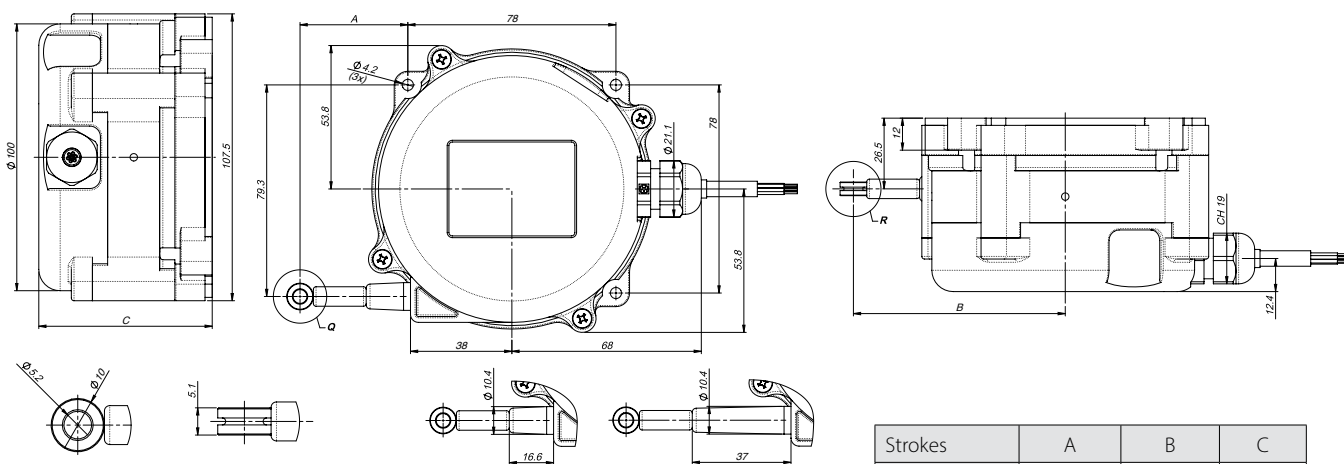
S	Wire sensor
N	M12 c onnector 5-pin
2	2 male 5-pin connector
R	Redundant
4300	4300 mm stroke
H	+ 10 – + 36 V DC
C1	CANopen
0	No certificate
033	Standard
X	No accessories
00	No cable

Dimensions M12 version



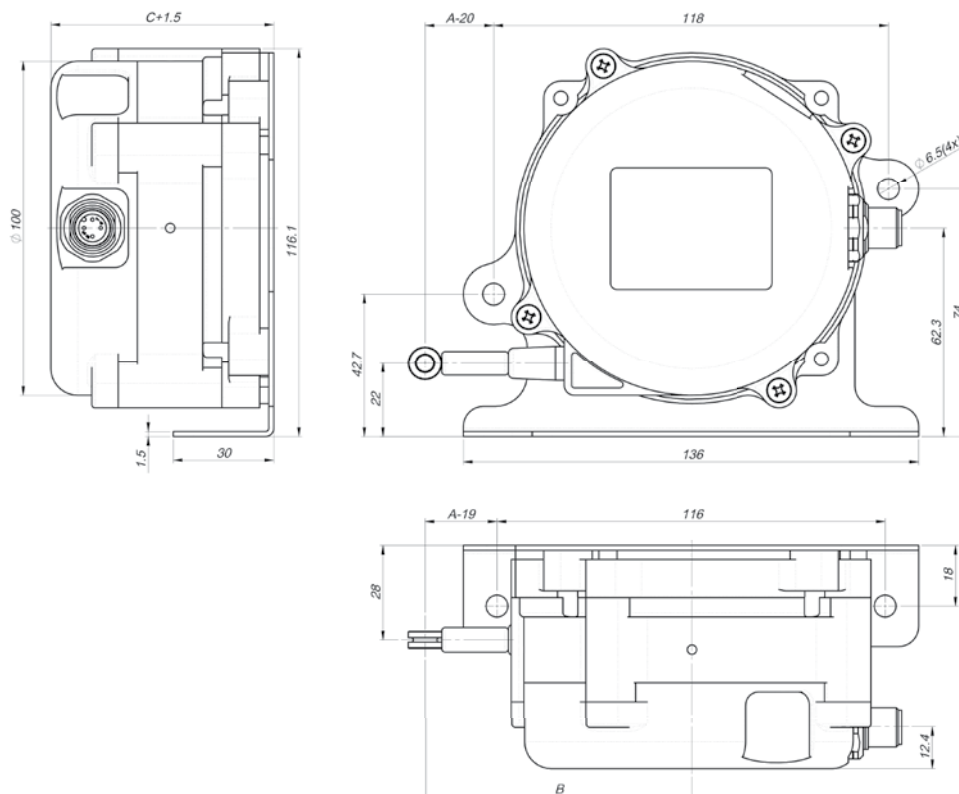
Strokes	A	B	C
1,800 – 5,300	40.4	79.4	-
6,300 – 8,300	60.8	99.8	-
1,800 – 6,300	-	-	65
7,300 – 8,300	-	-	68

Dimension Cable version



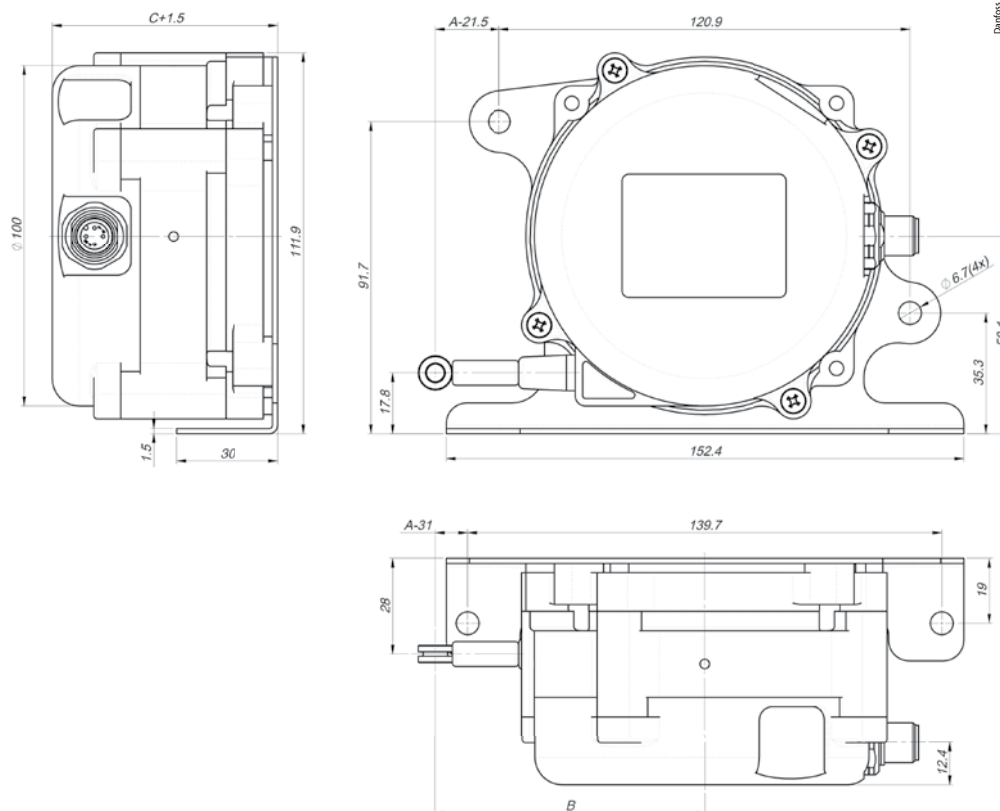
Strokes	A	B	C
1,800 – 5,300	40.4	79.4	-
6,300 – 8,300	60.8	99.8	-
1,800 – 6,300	-	-	65
7,300 – 8,300	-	-	68

Fixing flange Model A (optional)



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096602

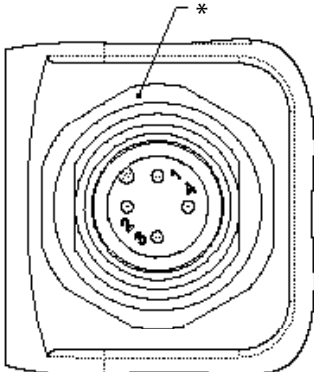
Fixing flange Model B (optional)



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096603

**Electrical connections
M12**

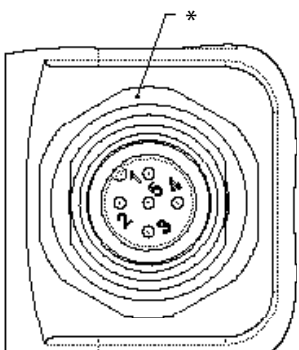
Single version Danfoss
098G04



<p>Analog output connections</p> <ol style="list-style-type: none"> 1. + Supply 2. Ground 3. Output 4. n.c. 	<p>CANopen output connections.</p> <ol style="list-style-type: none"> 1. + Supply 2. Ground 3. CAN H 4. CAN L
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* M12x1 4-pin male connector

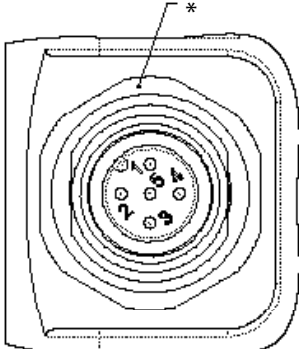
Single version Danfoss
098G05



<p>Analog output connections</p> <ol style="list-style-type: none"> 1. + Supply 2. n.c. 3. Ground 4. Output 5. n.c. 	<p>CANopen output connections.</p> <ol style="list-style-type: none"> 1. n.c. 2. + Supply 3. Ground 4. CAN H 5. CAN L
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* M12x1 5-pin male connector

Half-redundant version Danfoss
098G06

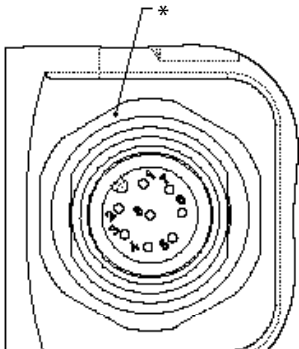


CANopen output connections.

1. Ground
2. + Supply
3. Ground
4. CAN H
5. CAN L

* M12x1 5-pin male connector

Redundant version Danfoss
098G07



<p>Analog output connections</p> <ol style="list-style-type: none"> 1. + Supply 1 2. Ground 1 3. Output 1 4. n.c. 5. + Supply 2 6. Ground 2 7. Output 2 8. n.c. 	<p>CANopen output connections.</p> <ol style="list-style-type: none"> 1. + Supply 1 2. Ground 1 3. CAN H 1 4. CAN L 1 5. + Supply 2 6. Ground 2 7. CAN H 2 8. CAN L 2
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* M12x1 8-pin male connector

Single / Redundant / Half-redundant version

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CANopen output IN-OUT connections.

1. Ground
2. + Supply
3. Ground
4. CAN H
5. CAN L

A: M12x1 5-pin female connector
B: M12x1 5-pin male connector

**Electrical connections
Cable**

IEC 60228 Cable
4 pole 0.34 mm²
PUR OD 4.4 mm

Connection	Connection
Red + Supply	Red + Supply
Black Ground	Black Ground
Blue Out	Blue Can H
White n.c.	White CAN L

IEC 60228 Cable
4 pole 0.34 mm²
PUR OD 5.8 mm

Connection	Connection
White + Supply CH1	White + Supply CH1
Brown Ground CH1	Brown Ground CH1
Green Out CH1	Green Can H CH1
Yellow n.c.	Yellow CAN L CH1
Grey + Supply CH2	Grey Supply CH2
Pink Ground CH2	Pink Ground CH2
Blue Out CH2	Blue Can H CH2
Red n.c.	Red Can L CH2

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