

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 and redundant versions are produced according to PL d (EN ISO 13849-1:2015), 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, 4-pin, 5-pin or 8-pin
- 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	< ± 0.5% FS
Long term repeatability	< ± 2%FS for 4300mm to 8300mm variants < ± 3%FS for 1800mm to 3300mm variants
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 connector output
Output signal	CANopen, 0.5-4.5V, 0-10V, 4-20mA
Supply voltage	+10 – +36 Vdc

**Environmental conditions**

Operating temperature range		-40 – 65 °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
	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	Configurations	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

**Ordering code -  
on request**

Sensor type	
Wire transducer	S

Electrical connections	
M12 - 4-pole connector	M
M12 - 5-pole connector	N
M12 - 8 pole connector (redundant ver)	O
Cable output (on request)	F

Numbers of connectors	
Always "0" in case of cable output	0
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

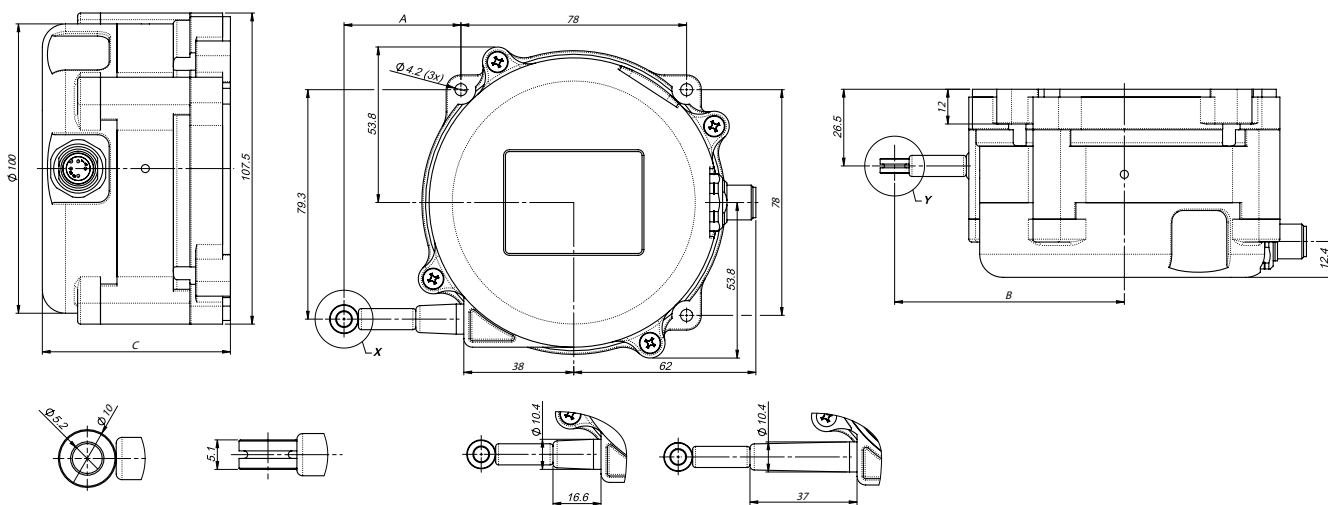
Accessories	
No accessories	X
FLA033: fixing flange, A version	A
FLA034: fixing flange, B version	B
CON293: 4-pin female mating connector M12x1; IP67	C
CON469: 8-pin female mating connector M12x1; IP67	D
CON031: 5-pin female mating connector M12x1; IP67	E

Cable length	
Cable output (on request)	00

Example of ordering:  
DST X800-SN2R4300HC1 0033X00

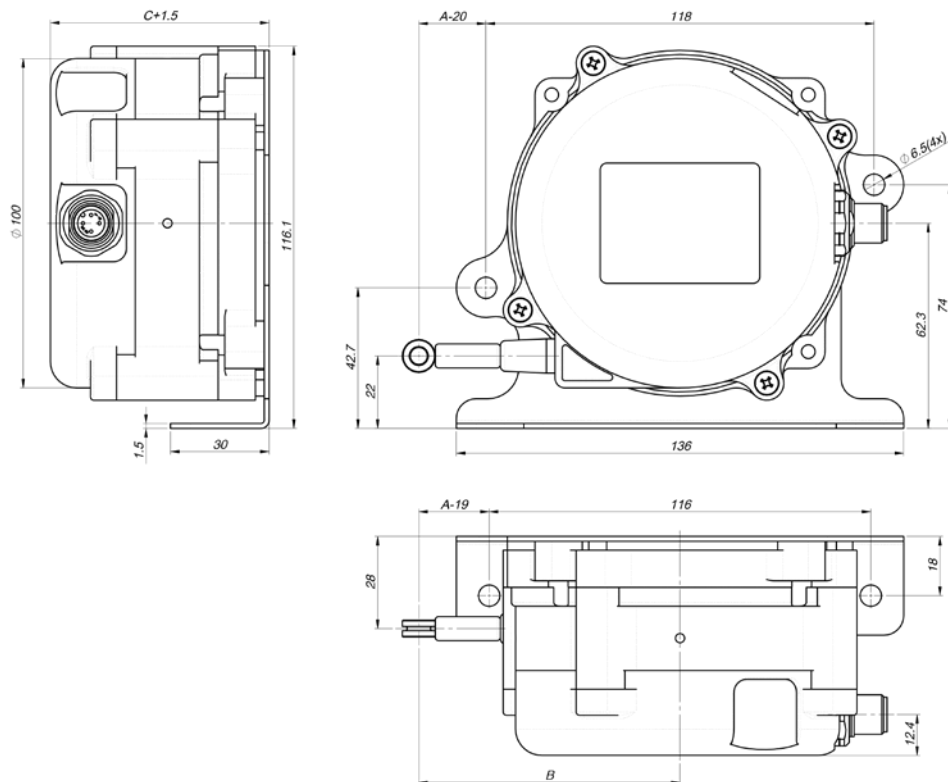
S	Wire sensor
N	M12 c onnector 5-pin
2	2 male 5-pin connector
R	Redundant
4300	4300 mm stroke
H	+ 10 – + 36 V DC
C1	CANopen
0	No certificate
033	Standard
X	No accessories
00	Cable lenght (On request)

Dimensions

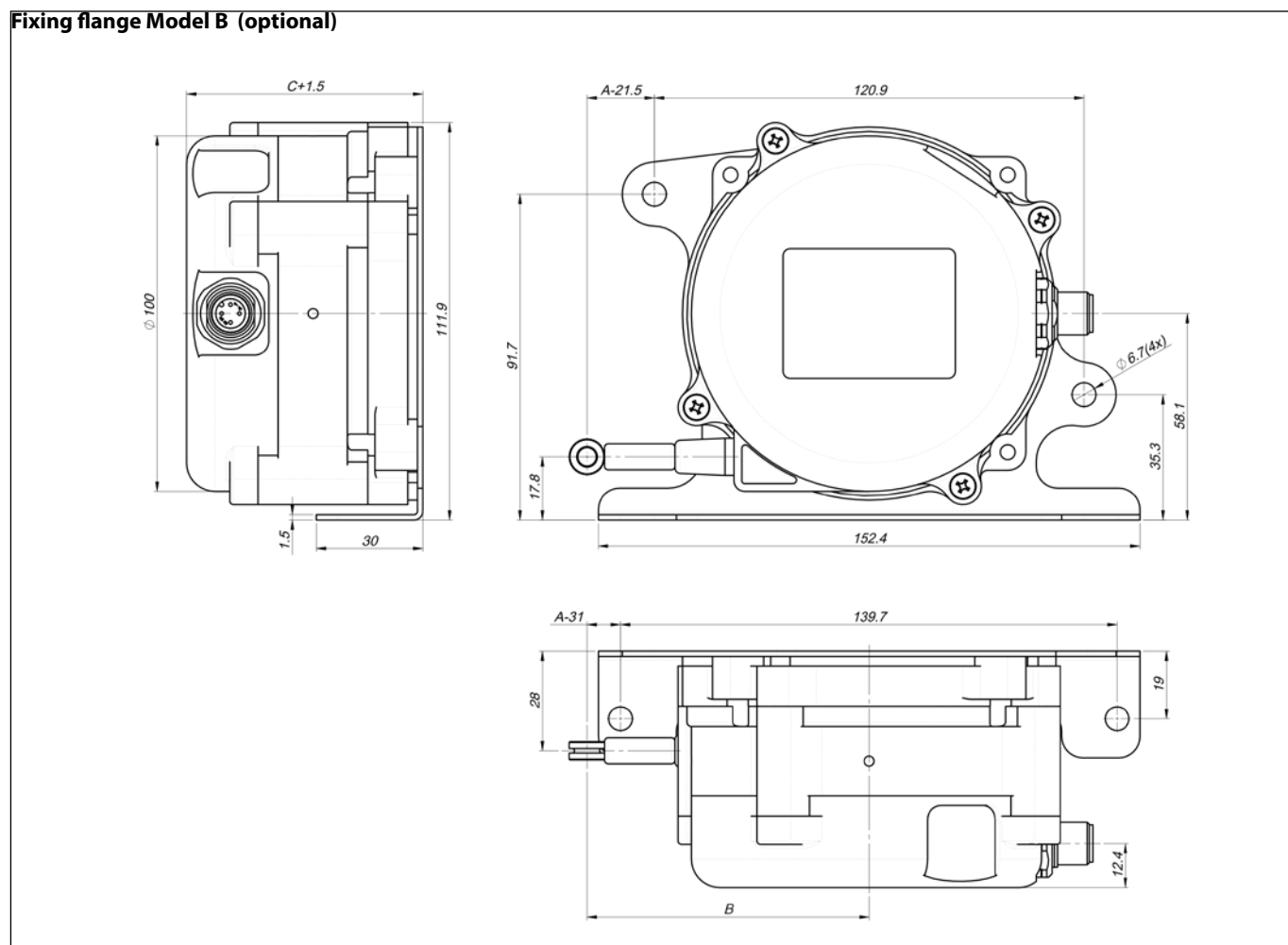


Strokes	A	B	C
1,800 – 5,300	40.4	79.4	-
6,300 – 8,300	60.8	99.8	-
1,800 – 6,300	-	-	65
7,300 – 8,300	-	-	68

Fixing flange Model A (optional)



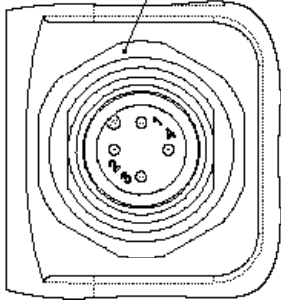
Fixing flange Model B (optional)



Electrical connections

**Single version**

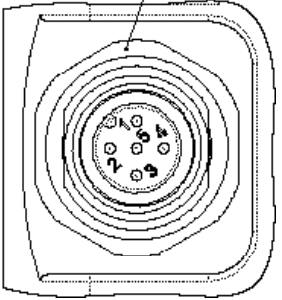
M12x1 4-pin male connector



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

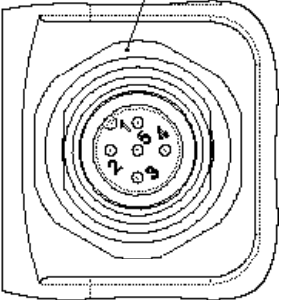
M12x1 5-pin male connector



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

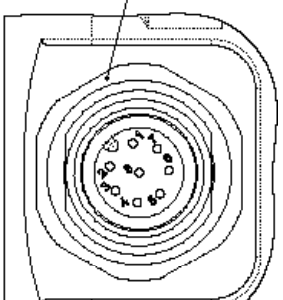
M12x1 5-pin male connector



<p>CANopen output connections.</p> <ol style="list-style-type: none"> <li>1. Ground</li> <li>2. + Supply</li> <li>3. Ground</li> <li>4. CAN H</li> <li>5. CAN L</li> </ol>
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**Redundant version**

M12x1 8-pin male connector

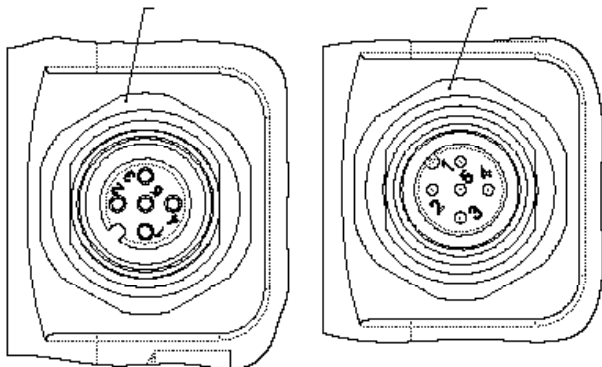


<p>Analog output connections</p> <ol style="list-style-type: none"> <li>1. + Supply 1</li> <li>2. Ground 1</li> <li>3. Output 1</li> <li>4. n.c.</li> <li>5. + Supply 2</li> <li>6. Ground 2</li> <li>7. Output 2</li> <li>8. n.c.</li> </ol>	<p>CANopen output connections.</p> <ol style="list-style-type: none"> <li>1. + Supply 1</li> <li>2. Ground 1</li> <li>3. CAN H 1</li> <li>4. CAN L 1</li> <li>5. + Supply 2</li> <li>6. Ground 2</li> <li>7. CAN H 2</li> <li>8. CAN L 2</li> </ol>
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Single / Redundant / Half-redundant version

M12x1 5-pin female connector

M12x1 5-pin male connector



CANopen output IN-OUT connections.

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

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TOMORROW



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