

DSU9H & DSU9X MODELS

SIL3 PLe INCREMENTAL ENCODERS

Introduction

When an automation system requires a high degree of risk mitigation of failure modes, often times Functional Safety equipment can be a part of the solution. Sensata | BEI Sensors offers a wide range of Functional Safety encoders to fit most any application or electrical interface requirement. Rated at SIL3 (PLe), these encoders allow safe operation in set-up, production and maintenance modes, significantly reducing operational risks. All encoders have the option of a Digital HTL or TTL operation as an alternative to the Sine/Cosine outputs found on most Functional Safety encoders. This makes them a compatible replacement for existing encoders when migrating to a higher safety level of operation. DSU9H & DSU9X offer 30 mm standard through shaft models with optional reduction sleeves for mounting on smaller diameter shafts. The encoder body is 90mm in diameter, available in aluminum or stainless steel.



DSU9H



DSU9X



Features

- Usable up to SIL3 and Cat.4 / PLe according to IEC 61508 / EN ISO 13849
- Suitable for safe motor feedback according to IEC 61800-5-2
- Especially designed for heavy-duty applications (steel, paper, wood, mills, cranes...) Compact and robust design. Excellent resistance to shock and vibration
- Stainless steel version available (DSU9X)
- 90mm encoder, 30mm standard through shaft, PEEK reduction hub available
- High protection level: IP66 (DSU9X), IP65 (DSU9H)
- High temperature performance -20°C to +85°C
- Power supply 5Vdc or 11/30Vdc
- Digital TTL/RS422 or HTL Push-pull or sine/cosine 1Vpp output
- Available resolution up to 2048 ppr
- Connector or cable output – side orientation
- Adapted anti-rotation system

Applications

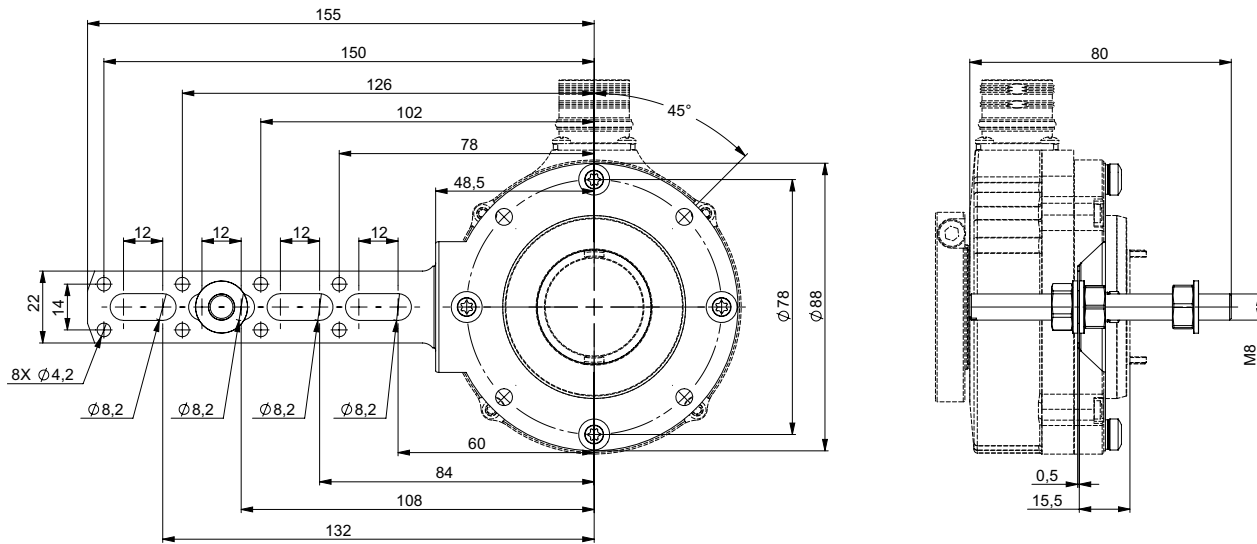
- Industrial automation
- Automated guided vehicles
- Mills for lumber, steel and other metals
- Printing and packaging equipment
- Food processing equipment
- Forming and die presses

SPECIFICATIONS

Mechanical

	DSU9H	DSU9X
Material	Cover: powder coated aluminum Body: aluminum	Cover: AISI 303 stainless steel Body: AISI 303 stainless steel
	Shaft: AISI 303 stainless steel	
Ball Bearings	6807 - Sealed	
Maximum Loads	Axial: 25 N	
	Radial: 50 N	
Shaft Inertia	< 120,000 g.mm ²	< 125,000 g.mm ²
Static/Dynamic torque	30 / 300 mN.m	250 / 600 mN.m

Tether arm kit M9445/046



		9445/045	9445/046
Permissible misalignments	Axial	+/- .5mm	+/- 1mm
	Radial	+/- 0.3mm	+/- 0.2mm
	Perpend.	+/- 3°	+/- 5°
	Runout	0.1mm	0.1mm
Angular rigidity		540 N.m/rad	530 N.m/rad



GENERAL NOTES

For a safe installation according to the required safety level needed in the application, refer to the user safety User Manual. The safety User Manual provides the technical information (drawings, electrical data, etc...) for a safe integration. A quick installation guide is provided with each encoder for use by the technician who installs the device on the equipment.



ORDERING OPTIONS

Example: DSU9X30 /01/ 5G29 // 01024 // GP R 050 // ** DW**

Contact the factory for special versions, ex: resolution, connection, flange...

	DSU9X	30	/	01	/	5G2	9	//	01024	//	GP	R	050	//	**	DW**
Family	DSU9X															
DSU9H: Aluminum																
DSU9S: Stainless																
Shaft	30															
30: 30mm																
E8: 1.00in=25.4mm (with reduction hub)																
25: 25mm (with reduction hub)																
20: 20mm (with reduction hub)																
IP	01															
Blank: IP65 standard																
01: IP66 (available for DSU9X only)																
Voltage Output	5G2															
2G2: 5Vdc, TTL RS422																
5G2: 11- 30Vdc, TTL RS422																
5G5: 11- 30Vdc, HTL																
2WT: 5Vdc, Sine 1 Vpp (analog)																
5WT: 11- 30Vdc, Sine 1 Vpp (analog)																
Channels	9															
9: Digital electronics																
AA/ BB/ ZZ/																
B before A, CW viewed from flange side																
Z gated A&B																
N: Analog electronics																
SS/ CC/ ZZ/																
C before S, CW viewed from flange side																
Z ungated																
Contact factory for other configurations																
Resolution	01024, 2048															
Output Termination	GP															
G6: M23 12 pins CW																
G8: M23 12 pins CCW																
GM: M12 8 pins																
GP: PUR cable 12 wires																
G3: PVC cable 8 wires																
U3: PVC Cable 8 wires																
GC: PUR cable 8 wires																
Output Orientation	R															
R: Radial																
Cable Length	050															
xxx: Cable Length (ex.: 020 = 2 Meters)																
Blank: No Cable																
Reduction Hub	**															
**: No reduction hub																
U2: Insulated Reduction hub																
Anti-rotation	DW**															
DW**: 9445/045 stator coupling																
BB**: 9445/046 tether arm (delivered not mounted on flange)																
****: No antirotation																

* Parts mounted on encoder and fasteners included in the encoder box.



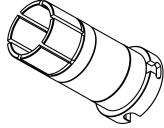
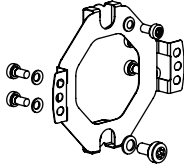
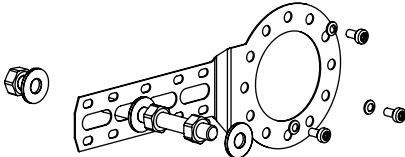
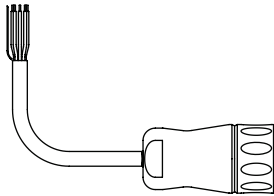
AGENCY APPROVALS & CERTIFICATIONS



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Description	Part Number
<p>Reduction Hub To create 20mm, 25mm and 25,4mm (1.00 in) ID bore on DSU9</p> 	<p>For DSU9H models: 9418/S20 = 20mm 9418/S25 = 25mm 9418/SE8 = 1" (25.4mm)</p> <p>For DSU9X models: 9418/S20-01 = 20mm 9418/S25-01 = 25mm 9418/SE8-01 = 1" (25.4mm)</p>
<p>Safety Rated Flexmount Kit Hardware included</p> 	<p>M9445/045</p>
<p>Safety Encoder Tether Arm Kit Hardware included</p> 	<p>M9445/046</p>
<p>Standard Mating Connector 2m, 5m, 10m Mating Cable Assembly</p> 	<p>Extension cords compatible with G6 connection option: RAL-020-001 = M23, PVC cable, 2m RAL-050-001 = M23, PVC cable, 5m RAL-100-001 = M23, PVC cable, 10m</p> <p>Extension cords compatible with G8 connection option: RAL-020-012 = M23, PUR cable, 2m RAL-050-020 = M23, PUR cable, 5m RAL-100-028 = M23, PUR cable, 10m</p> <p>Extension cords compatible with GM connection option: RAL-020-039 = M12 overmolded, PUR cable, 2m RAL-050-052 = M12 overmolded, PUR cable, 5m RAL-100-050 = M12 overmolded, PUR cable, 10m</p>

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