

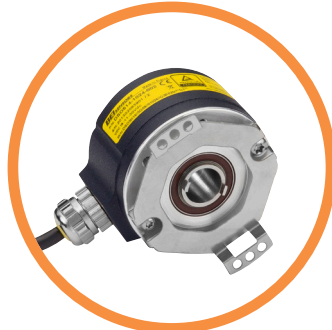


DSM5H & DSO5H MODELS

SIL3 PLe INCREMENTAL ENCODERS



DSM5H



DSO5H



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
- Robustness and excellent resistance to shock and vibration
- High protection level: IP65
- High temperature performance -20°C to $+85^{\circ}\text{C}$
- Power supply 5Vdc or 11/30Vdc
- Digital TTL/RS422 or HTL or sine/cosine 1Vpp output
- Resolutions up to 2500ppr
- 58mm encoder, solid shaft 6mm, 9.52mm or 10mm (DSM5H), and through shaft, standard 14mm (DSO5H)
- Connector or cable output (DSM5, side output only for DSO5)
- Stainless steel version available as an option (DSM5X) - consult factory
- Adapted anti-rotation system (DSO5H)



SPECIFICATIONS

Mechanical

	DSM5H	DSO5H
Material	Cover: powder coated zinc alloy Body: aluminum Shaft: AISI 303 stainless steel	Cover: powder coated zinc alloy Body: aluminum Shaft: AISI 303 stainless steel
Bearings	6000 series - sealed	6803 series - sealed
Maximum Loads	Axial: 40 N	Axial: 20 N
	Radial: 80 N	Radial: 40 N
Shaft Inertia	$< 2,800 \text{ g}\cdot\text{mm}^2$	$< 9,500 \text{ g}\cdot\text{mm}^2$
Static/Dynamic torque	5 / 35 mN.m	10 / 85 mN.m
Permissible max. speed	9,000 RPM	
Continuous max. speed	6,000 RPM	4,000 RPM
Theoretical mechanical lifetime L_{10h} ^(A)	$> 29.7 \times 10^9$ turns / 82,365 hours	$> 24 \times 10^9$ turns / 100,000 hours
Encoder weight (approx.)	0.30 kg	0.28 kg

^(A) *Continuous max. speed – ½ max. load – according to ISO 281: 1990, L_{10}*

Temperature Conditions

Operating temperature	- 20 ... + 85 °C (encoder T°)
Storage temperature	- 20 ... + 85 °C

Electrical Characteristics / Functional Safety Parameters ^(B)

Electronic Version	Output signals	Operating Voltage +V	Supply current	Current per channel pair	Short circuits proof	Reverse polarity protected	PFD	PFH	MTTFd	DC
2G2	Digital TTL RS422	5V +/-5%	100mA with no load	40mA	Yes	Yes	7.51E-05	8.58E-10	1331	HIGH
5G2		11-30V			Not to +V		9.52E-05	1.09E-09	1050	
5G5	Digital HTL				Yes		9.52E-05	1.09E-09	1050	
2WT	Sine Cosine 1Vpp	5V +/-5%	70mA with no load	10mA	Yes		4.29E-05	4.90E-10	2328	
5WT		11-30V			Not to +V		6.60E-05	7.53E-10	1515	

^(B) **Safety mission time:** 20 years

Standards Conformity

Protection(EN 60529)	IP65
Humidity (EN 60068-2-38)	93% @ 65°C
Shock (EN60068-2-27)	≤ 500m.s ⁻² (during 6 ms)
Vibration (EN60068-2-6)	≤ 200m.s ⁻² (10 ... 2 000 Hz)
EMC Immunity Test	EN 61000-6-2,increased levels
EMC Emission Test	EN 61000-6-4,increased levels
Isolation	1000 Veff
Salt Spray (EN 60068-2-11 part 2)	96h
Functional safety	IEC 61508
	IEC 62061
	ISO 13849-1
	IEC 61800-5-2
	IEC 62061
Encoders usable up to SIL3 / PLe with external specific requirements, see safety user manual for details.	
Z and Z/ are not safety signals.	

Electrical Connections

		0V	+V	A or S	B or C	Z	A/ or S/	B/ or C/	Z/	Ground
G6	M23 - 12 pins CW	1	2	3	4	5	6	7	8	Connector body
G8	M23 - 12 pins CCW	10 + 11	2 + 12	8	5	3	1	6	4	Connector body
G3	PVC cable 8 wires 8230/020	WH white	BN brown	GN green	YE yellow	GY grey	PK pink	BU blue	RD red	General shielding
GP	PUR cable 12 wires 8230/050	WH white + WH/GN white /green	BU blue + BN/GN brown / green	GY grey	BN brown	RD red	PK pink	GN green	BK black	General shielding

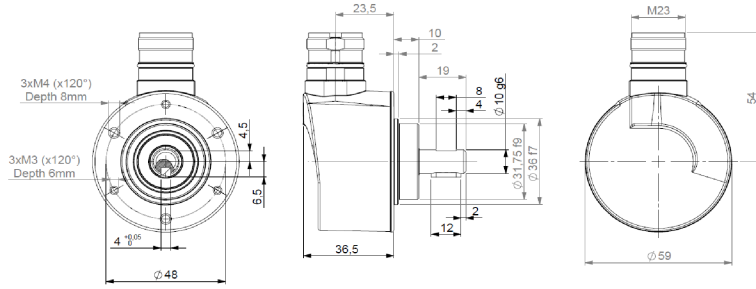
Available Resolutions

250 256 360 500 512 1000 1024 2048 2500



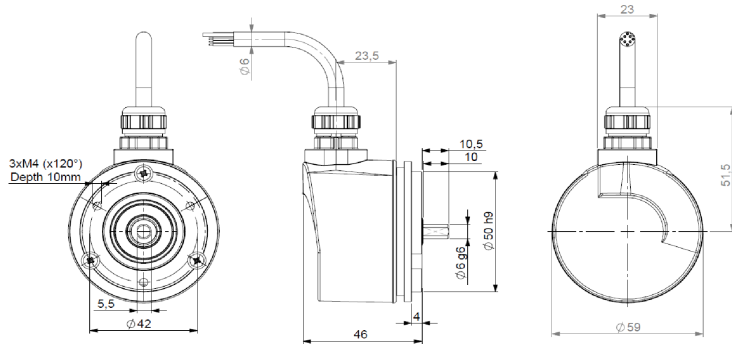
DIMENSIONS

DSM5H10 – radial M23 connector

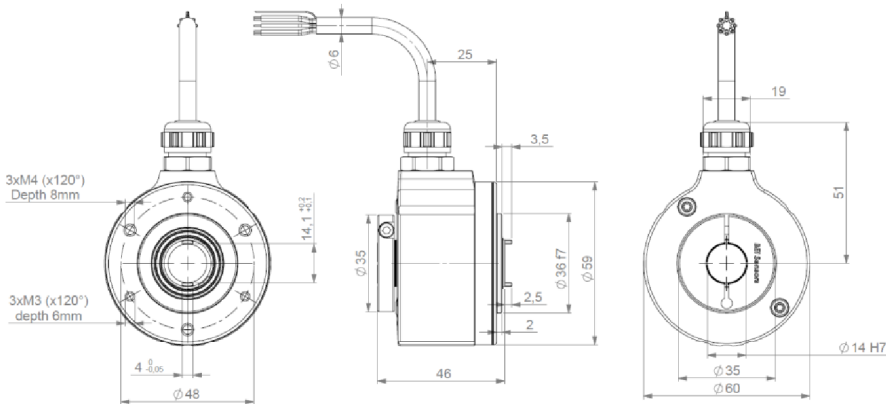


		9445/044	9445/047
Permissible misalignments	Axial	+/- 1mm	+/- 1mm
	Radial	+/- 0.2mm	+/- 0.2mm
	Perpend.	+/- 2°	+/- 5°
	Runout	0.1mm	0.1mm
Angular rigidity		200 N.m/rad	250 N.m/rad

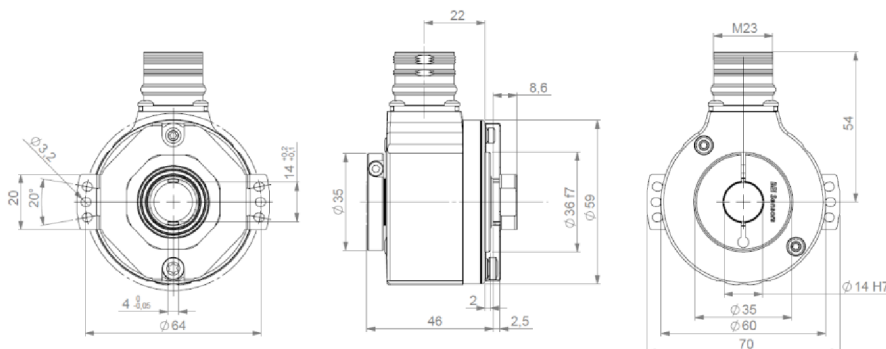
DSM5H06 radial cable - with 9500/003 flange



DS05H – radial cable



DS05H radial M23 - with stator coupling 9445/044





DSM5H ORDERING OPTIONS

Example : DSM5H06 // 5G29 // 01024 // GPR050 / 1J / **03**

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

	DSM5H	06	//	5G59	//	01024	//	GPR050	/	1J	/	CS03**
Family	[Line from DSM5H to DSM5H]											
DSM5H	[Line from DSM5H to DSM5H]											
Shaft	[Line from 06 to Shaft]											
06: 6mm	[Line from 06 to Shaft]											
10: 10mm	[Line from 06 to Shaft]											
09: 9.52 mm	[Line from 06 to Shaft]											
Supply + Output stage + Output signals	[Line from 5G59 to Supply + Output stage + Output signals]											
Digital Signals:	[Line from 5G59 to Supply + Output stage + Output signals]											
2: 5Vdc	[Line from 5G59 to Supply + Output stage + Output signals]											
G2: TTL RS422	[Line from 5G59 to Supply + Output stage + Output signals]											
9: AA/ BB/ ZZ/	[Line from 5G59 to Supply + Output stage + Output signals]											
5: 11- 30Vdc	[Line from 5G59 to Supply + Output stage + Output signals]											
G2: TTL RS422	[Line from 5G59 to Supply + Output stage + Output signals]											
G5: HTL	[Line from 5G59 to Supply + Output stage + Output signals]											
9: AA/ BB/ ZZ/	[Line from 5G59 to Supply + Output stage + Output signals]											
Analog Sine Cosine signals:	[Line from 5G59 to Supply + Output stage + Output signals]											
2: 5Vdc	[Line from 5G59 to Supply + Output stage + Output signals]											
WT: TTL RS422	[Line from 5G59 to Supply + Output stage + Output signals]											
N: SS/ CC/ ZZ/	[Line from 5G59 to Supply + Output stage + Output signals]											
5: 11- 30Vdc	[Line from 5G59 to Supply + Output stage + Output signals]											
WT: TTL RS422	[Line from 5G59 to Supply + Output stage + Output signals]											
N: SS/ CC/ ZZ/	[Line from 5G59 to Supply + Output stage + Output signals]											
Resolution	[Line from 01024 to Resolution]											
250, 256, 360, 500, 512, 1000, 1024, 2048, 2500	[Line from 01024 to Resolution]											
Connection + Orientation	[Line from GPR050 to Connection + Orientation]											
G6: M23 12 pins CW	[Line from GPR050 to Connection + Orientation]											
A: axial	[Line from GPR050 to Connection + Orientation]											
R: radial	[Line from GPR050 to Connection + Orientation]											
G8: M23 12 pins CCW	[Line from GPR050 to Connection + Orientation]											
A: axial	[Line from GPR050 to Connection + Orientation]											
R: radial	[Line from GPR050 to Connection + Orientation]											
GP: PUR cable 12 wires	[Line from GPR050 to Connection + Orientation]											
R: radial cable (example: 050 = 5m)	[Line from GPR050 to Connection + Orientation]											
G3: PVC cable 8 wires	[Line from GPR050 to Connection + Orientation]											
R: radial cable (example: 050 = 5m)	[Line from GPR050 to Connection + Orientation]											
Cover	[Line from 1J to Cover]											
1J: Zinc alloy cover	[Line from 1J to Cover]											
Flange	[Line from CS03** to Flange]											
****: No specials	[Line from CS03** to Flange]											
CS**: Key for keyway DSMH10 only	[Line from CS03** to Flange]											
03: 9500/003 Servo Flange	[Line from CS03** to Flange]											



DSO5H ORDERING OPTIONS

Example : DSO5H14 // 5G29 // 01024 // GPR050 // **DX**

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

Family	DSO5H	14	//	5G29	//	01024	//	GPR050	//	**DX**
DSO5H										
Shaft										
14: 14mm										
Supply + Output stage + Output signals										
Digital Signals:										
2: 5Vdc										
G2: driver 5Vdc RS422										
G5: push-pull										
9: AA/ BB/ ZZ/										
5: 11- 30Vdc										
G2: driver 5Vdc RS422										
G5: push-pull										
9: AA/ BB/ ZZ/										
Sine-wave signals:										
2: 5Vdc										
WT: sine 1Vpp										
N: SS/ CC/ ZZ/										
5: 11- 30Vdc										
WT: sine 1Vpp										
N: SS/ CC/ ZZ/										
Resolution										
250, 256, 360, 500, 512, 1000, 1024, 2048, 2500										
Connection + Orientation										
G6: M23 12 pins CW										
R: radial										
G8: M23 12 pins CCW										
R: radial										
GP: PUR cable 12 wires										
R: radial cable (example: 050 = 5m)										
G3: PVC cable 8 wires										
R: radial cable (example: 050 = 5m)										
Anti-rotation										
DX: 9445/044										
****: No antirotation										



AGENCY APPROVALS & CERTIFICATIONS



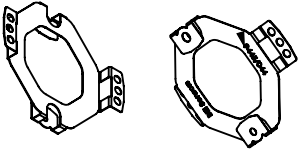
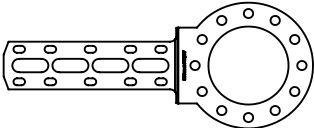
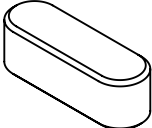
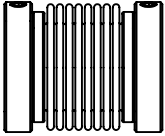
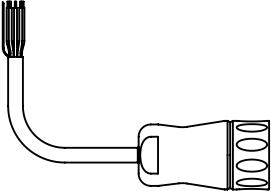


GENERAL NOTES

For a safe installation according to the required safety level needed in the application, refer to the user safety manual - during the installation on the equipment, a quick installation guide is provided with each encoder.



ACCESORIES

<p>Safety Rated Flexmount (hardware included)</p> 	<p>M9445/044</p>	<p>DS05H</p>
<p>Safety Encoder Tether Arm (hardware included)</p> 	<p>M9445/047</p>	<p>DS05H</p>
<p>Metal shaft key 4mm square by 12mm long</p> 	<p>9435/006</p>	<p>DSM5H</p>
<p>Safety Bellows Couplings For 10mm shaft</p> 	<p>9404/S/10-10</p>	<p>DSM5H</p>
<p>Standard Mating Connector 2m, 5m, 7m, 10m Mating Cable Assembly</p> 	<p>9416/076-8230/020-G6-020 = 2m 9416/076-8230/020-G6-050 = 5m 9416/076-8230/020-G6-070 = 7m 9416/076-8230/020-G6-100 = 10m</p> <p>For use with M23 connector type G6</p>	<p>DS05H DSM5H</p>