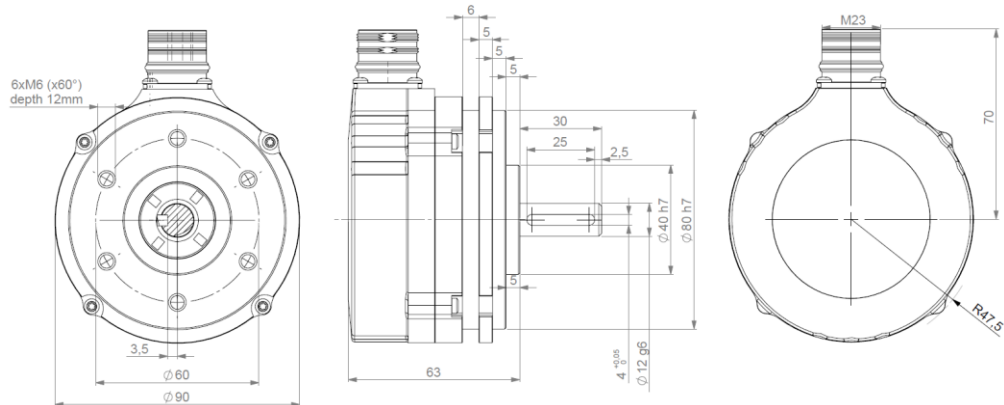


## SIL3 Ple - INCREMENTAL ENCODERS – DSM9H, DSM9X RANGE

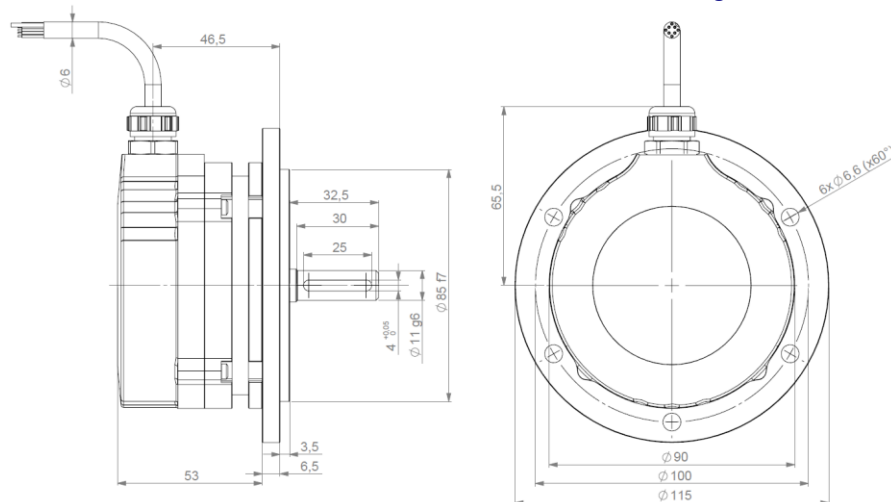
- Usable up to SIL 3 / Ple according to IEC 61508 / IEC 13849.
- Suitable for safe motor feedback according to IEC 61800-5-2.
- Especially designed for heavy-duty (steel, paper, wood – mills, cranes ...). Compact and robust conception. Excellent resistance to shocks/vibrations.
- Aluminium (DSM9H) or stainless steel (DSM9X) version available.
- 90mm encoder, 11mm and 12 mm solid shaft.
- High protection level: IP 66.
- High performances in temperature –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 or end orientation.



### DSM9H / DSM9X – radial M23 connector



### DSM9H / DSM9X radial cable - with 115mm flange



## MECHANICAL CHARACTERISTICS

Material	Cover : powder coated zinc alloy	Static/Dynamic torque DSM9H	20 / 150 mN.m
	Body : aluminum	Static/Dynamic torque DSM9X	40 / 200 mN.m
Stainless steel option	Shaft : AISI 303 stainless steel	Permissible max. speed	9 000 min <sup>-1</sup>
Bearings	6 001 serie - sealed	Continuous max. speed	6 000 min <sup>-1</sup>
Maximum loads	Axial : 100 N	Theoretical mechanical lifetime L <sub>10h</sub> *	7,25.10 <sup>9</sup> turns / 20 147 hours
	Radial : 200 N	Encoder weight (approx.)	1,0 kg zinc alloy cover, alu. body
Shaft inertia	< 23 500 g.mm <sup>2</sup>		2,0 kg stainless steel cover & body
Shaft seal	Double lips	* continuous max. speed – ½ max. load – according to ISO 281 : 1990, L <sub>10</sub>	

## TEMPERATURE CONDITIONS

Operating temperature	- 20 ... + 85 °C (encoder T°)	Storage temperature	- 20 ... + 85 °C
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## SIL3 PLe - INCREMENTAL ENCODERS – DSM9H, DSM9X RANGE

### ELECTRICAL CHARACTERISTICS / FUNCTIONAL SAFETY PARAMETERS

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	5V +/-5%	100mA with no load	40mA	Yes	Yes	7,51E-05	8,58E-10	1331	HIGH
5G2	TTL RS422	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	5V +/-5%	70mA with no load	10mA	Yes		4,29E-05	4,90E-10	2328	
5WT	1Vpp	11-30V			Not to +V		6,60E-05	7,53E-10	1515	

Safety mission time: 20 years

### STANDARDS CONFORMITY

Protection(EN 60529)	IP 66
Humidity (EN 60068-2-38)	93% @ 65°C
Shock (EN60068-2-27)	≤ 500m.s <sup>-2</sup> (during 6 ms)
Vibration (EN60068-2-6)	≤ 200m.s <sup>-2</sup> (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 Sparay (EN 60068-2-11 part 2)	96h (Alu) - 168h (Stainless steel)

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.	
ZZ/ 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 RESOLUTION

1024 2048

### ORDERING REFERENCE (Contact the factory for special versions, ex: resolution, connection, flange)

	Shaft Ø	IP	Supply	Output stage	Output signals	Resolution	Connection	Orientation	Flange
DSM9H Aluminum bearings housing	11: 11mm	01: IP66 option	Digital signals: 2G2, 5G2, 5G5			2048 max	G6: M23 12 pins CW G8: M23 12 pins CCW	A : axial R : radial	**A4** 9500/103 Aluminium 115mm flange
			2: 5Vdc 5: 11 to 30Vdc	G2: driver 5Vdc RS422 G5: push-pull	9: AA/ BB/ ZZ/				
DSM9X Stainless steel version	12: 12mm	01: IP66 option	Sine-wave signals: 2WT, 5WT			2048 max	GP: PUR cable 12 wires G3: PVC cable 8 wires	Example : A050 : radial cable 5m R020 : radial cable 2m	**A5** 9500/104 Stainless steel 115mm flange
			2: 5Vdc 5: 11 to 30Vdc	WT: sine 1Vpp	N: SS/ CC/ ZZ/				
Ex:DSM9X	11 /	01 /	5	G2	9 //	01024 //	GP	R050 //	**A5**

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