



EM - ER 38 F / G

BLIND HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Miniaturized encoder series for general factory automation applications, small AC motors and gearmotors.

- 3 channel encoder (A / B / Z) up to 14400 ppr
- Power supply up to +30 VDC with several electronic interfaces available
- Up to 500 kHz output frequency
- Cable output, connectors available on cable end
- Metal cover for high IP enclosure rating
- Blind hollow shaft diameter up to 10 mm
- Mounting by stator coupling or anti-rotation pin



ORDERING CODE

ER 38F 500 S 5/30 P 10 X X PR .XXX

SERIES incremental encoder series EM incremental encoder series ER													
MODEL blind hollow shaft with stator coupling 38F blind hollow shaft with anti-rotation pin 38G													
RESOLUTION ppr from 1 to 14400 see table for pulses availability													
ZERO PULSE without zero pulse S with zero pulse Z													
POWER SUPPLY (with L electronic interface) 5 V DC 5 5 ... 30 V DC 5/30													
ELECTRONIC INTERFACE NPN N NPN open collector C push-pull P universal line driver TTL/HTL L power supply 5/30V - output RS-422 RS													
BORE DIAMETER mm 6 mm 8 mm 10													
ENCLOSURE RATING IP 65 X													
OPTION to be reported X													
OUTPUT TYPE radial cable (standard length 0,5 m) PR													
VARIANT custom version XXX													



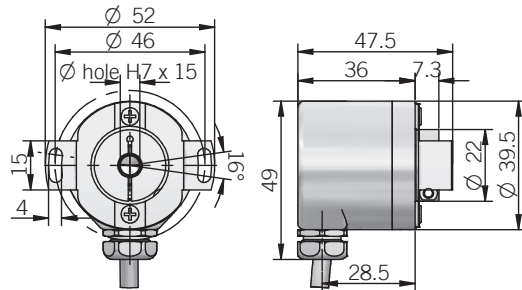
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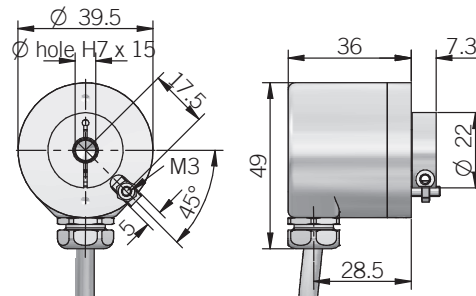
HOLLOW SHAFT INCREMENTAL ENCODERS | EM - ER 38 F / G

EM - ER 38 F



dimensions in mm

EM - ER 38 G



anti-rotation pin is included, for mounting instruction please refer to product installation notes

ELECTRICAL SPECIFICATIONS

Sensing principle	magnetic Asic (EM) / reflective OptoAsic (ER)
Resolution	from 1 to 14400 ppr
Power supply	5 = 4,5 ... 5,5 V DC 5/30 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load	5 = 200 mW typical 5/30 = 600 mW typical
Max load current	20 mA / channel
Output type*	NPN / NPN open collector push-pull / line driver
Max output frequency	250 kHz up to 3600 ppr / 500 kHz from 4000 ppr
Counting direction	A leads B clockwise (shaft view)
Startup time	150 ms
Electromagnetic compatibility	IEC 61000-6-2 IEC 61000-6-4

*output levels according to power supply, for further details please see under Technical basics section

EM SERIES RESOLUTIONS

1 - 2 - 4 - 5 - 6 - 10 - 15 - 16 - 20 - 30 - 32 - 40 - 50 - 70 - 80 - 90

ER SERIES RESOLUTIONS

100 - 120 - 128 - 200 - 240 - 250 - 256 - 300 - **360** - 400 - 480 - **500** - **512** - 600 - 625 - 720 - 800 - 900 - **1000** - **1024** - 1200 - 1250 - 1440 - 1800 - **2000** - **2048** - **2500** - 3000 - **3600** - 4000 - 4096 - **5000** - 6000 - **7200** - 8000 - 8192 - 10000 - 12000 - 14400

please directly contact our offices for other pulses, preferred resolutions in bold

CONNECTIONS

Function	Cable output N / C / P	Cable output L / RS
+V DC	red	red
0 V	black	black
Ch. A	green	green
Ch. A-	/	brown
Ch. B	yellow	yellow
Ch. B-	/	orange
Ch. Z	blue	blue
Ch. Z-	/	white
⊕	shield	shield

MECHANICAL SPECIFICATIONS

Bore diameter	∅ 6* / 8* / 10 mm
Enclosure rating	IP 65 (IEC 60529)
Max rotation speed	6000 rpm
Max shaft load	5 N axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,8 x 10 ⁻⁶ kgm ²
Starting torque (at +20°C / +68°F)	< 0,01 Nm
Fixing torque for collar clamping	0,6 Nm recommended
Body material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	painted aluminum
Bearings	2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature	-25° ... +85°C (-13° ... +185°F)
Storage temperature	-25° ... +85°C (-13° ... +185°F)
Weight	150 g (5,29 oz)

* with supplied adapter shaft



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