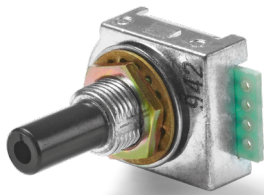


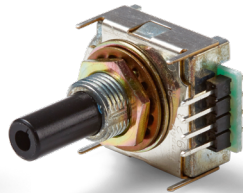
Data Sheet for Panel Encoders

Optoelectronic Panel Encoder

Series MRL



MRL with
solder pads



MRL V1
with
solder pins

- Plastic shaft
- Compact housing design
- Resolution 20 or 25 pulses per revolution
- With or without detent
- 5 V supply voltage
- Standard solder pads, as an option solder pins for PCB mounting or 150 mm flatband cable

Compact optical panel encoder also as option for PCB mounting.

Electrical Data Sensor	MRL C with detent	MRL without detent
Output signal	A, B	
Number of pulses	20 pulses per rev. (option 25 pulses per rev.)	
Output voltage high	≥ (supply voltage - 0,5V)	
Output voltage low	≤ 0,5 V max	
Limit frequency	100 Hz	
Supply voltage	5 V ±10%	
Power consumption (no load)	< 40 mA	
Insulation voltage 1.)	250 VAC, 1 min	
Insulation resistance 1.)	100 MOhm @ 250 VDC	
Output electronics	CMOS	

Mechanical and Environmental Data Sensor	MRL C with detent	MRL without detent
Mechanical angle of rotation /stroke 1.)	360° without stop	
Number of detents per revolution	20 or 25 (20 or 25 pulses per rev.)	-
Lifespan 2.)	> 1 mio. shaft revolutions	
Bearing	Sleeve bearing	
Operational torque / detent torque		
Without shaft sealing	0.5 ± 0,2 Ncm	≤0,4 Ncm
With shaft sealing	0.65 ± 0,35 Ncm	≤0,4 ±0,35 Ncm
Operating temperature range	0..+60 °C	
Storage temperature range	-40..+85 °C	
Protection grade standard (IEC 60529)	IP40	
Option D (shaft sealing)	IP65	
Vibration (IEC 68-2-6, Test Fc)	10-55 Hz; 1.5 mm 2h each direction	
Shock (IEC 68-2-27, Test Ea)	490m/s ² , 11 mm X, Y, Z each 3 times	

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Mechanical and Environmental Data Sensor	MRL C with detent	MRL without detent
Housing diameter / length	24.5 x 18 mm	
Housing depth	8 mm	
Shaft diameter	6 mm	
Shaft type	Solid shaft	
Max. radial load	< 1 N	
Max. axial load	< 1 N	
Connection type	Solder pads, solder pins, flatband cable 150 mm	
Connection position	Radial	
Sensor mounting	Bushing	
Mass	ca. 10 g	
Fastening parts included in delivery	Hex nut M9, flat washer and tooth washer, for option D with additional sealing ring	
Fastening torque mounting nut	< 1 Nm	
Material shaft	Plastic	
Material housing	Metal	

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Data Sheet for Panel Encoders

Optoelectronic Panel Encoder

Series MRL

Order code

Description		Selection: standard=black/bold, possible options=grey/cursive						
Description	MRL							
Shaft diameter, shaft length: Ø 6 x 20 mm <i>Option Ø 6 x 16 mm</i> <i>Option shaft length in mm</i> <i>Option shaft diameter in mm (≤6,00 mm)</i>		-						
		<i>A 16,00</i>						
		<i>A xx,xx</i>						
		<i>DMx,xx</i>						
Detent: With detent <i>Option without detent</i>			C					
			-					
Resolution in pulses per revolution: 20 ppr (20 detents) <i>Option 25 ppr (25 detents)</i>				20				
				25				
Supply voltage: 5 V						-		
Output signal: A+B							-	
Shaft sealing: Without shaft sealing <i>Option D with shaft sealing</i>							-	
							D	
Electrical Connection: With solder pads <i>Option with solder pins to the front side</i> <i>Option flatband cable 150 mm</i>							-	
							V1	
							V6	

Order example MRL

Requirement:

Shaft diameter 6 mm, shaft length 20 mm, with detent, 20 pulses per revolutions, supply voltage 5 V, output signal A+B, with shaft sealing, electrical connection solder pads

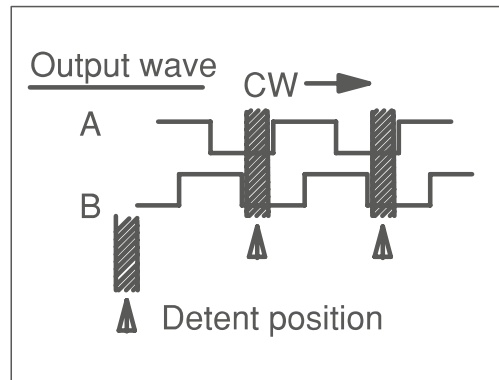
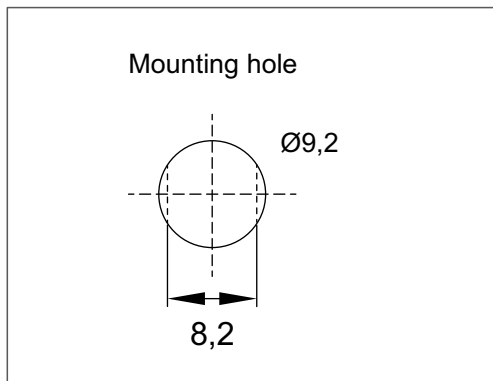
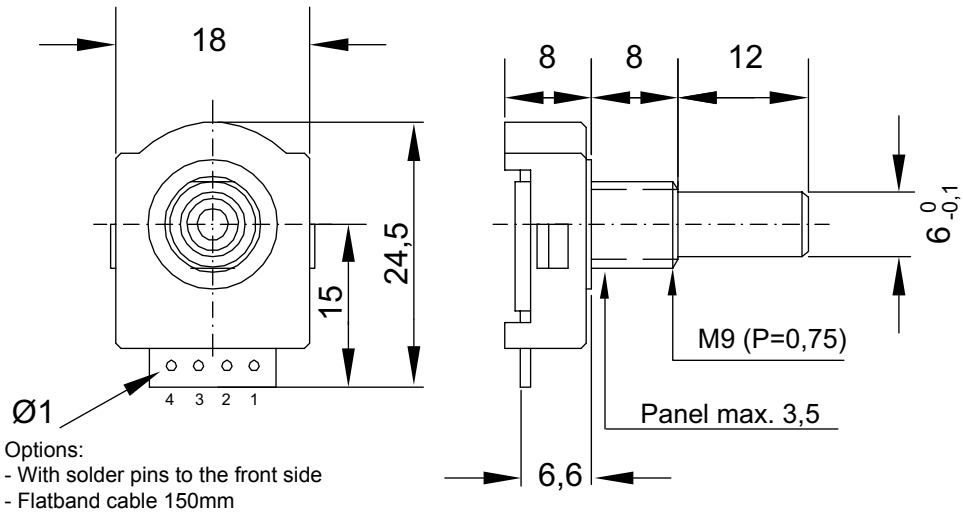
Example for order code: MRL C 20

For higher quantities or on-going demand, additional options are available as described below

For example:

- Other resolutions
- Other number of detents
- Customized detent torque
- Special shaft design
- Special cable and connection design

Drawing



Dimensions in mm

Connections	
1	GND
2	A phase output
3	B phase output
4	Powersupply