

# Incremental encoders

With measuring arm and wheel  
100...25000 manual adjustable

## MA20



MA20 with mounting accessories

### Features

- Encoder with 16 predefined resolutions
- Max. 25000 pulses per revolution
- Measuring wheel circumference 200 mm
- Manual adjustment without any programming tool
- Contact pressure seamlessly adjustable
- Different degrees of rubber hardness for optimal grip

### Technical data - electrical ratings

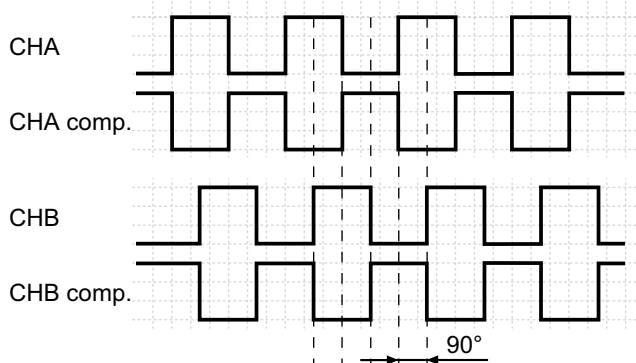
Voltage supply	4.75...30 VDC
Consumption typ.	100 mA (24 VDC, w/o load)
Pulses per revolution	100...25000
Sensing method	Optical
Output frequency	≤300 kHz
Output signals	A 90° B
Output stages	Push-pull antivalent, short-circuit proof (HTL)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

### Technical data - mechanical design

Size (flange)	ø40 mm
Shaft type	ø6 mm solid shaft
Protection DIN EN 60529	IP 64
Operating speed	≤3000 rpm
Operating torque typ.	0.0075 Nm (3000 rpm / 20 °C)
Materials	Encoder housing: aluminium Measuring arm: Aluminium/steel Measuring wheel: Aluminium/ NBR
Operating temperature	-20...+85 °C
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 10-200 Hz DIN EN 60068-2-27 Shock 50 g, 11 ms
Connection	Connector M12, 8-pin Cable 2 m
Weight approx.	100 g

### Output signals

Counter clockwise rotating direction when looking at the flange.



### Switch setting (HEX switch)

Switch	Resolution	Switch	Resolution
0	100	8	2000
1	200	9	2048 (default)
2	360	A	2500
3	500	B	3600
4	512	C	5000
5	720	D	10000
6	1000	E	20000
7	1024	F	25000

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## Part number

MA20   I401D 26W 02048C  

Connection  
5 Cable 2 m,  
radial  
N Connector M12,  
8-pin, radial

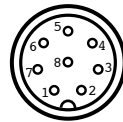
Voltage supply / signals  
26W 4.75...30 VDC / push-pull  
antivalent short-circuit proof

Measuring wheel  
N4 NBR, Shore 40  
N7 NBR, Shore 70

## Terminal assignment

Connector	Core colour	Signals
Pin 1	white	0 V
Pin 2	brown	+Vs
Pin 3	green	CHA
Pin 4	yellow	CHB
Pin 5	grey	n.c.
Pin 6	pink	n.c.
Pin 7	blue	CHB comp.
Pin 8	red	CHA comp.

Connector M12 – for connection reference -N



## Accessories

### Connectors and cables

10146775 Female connector M12, 8-pin, straight, without cable

### Mounting accessories

11043871 Encoder standoff set  
11047704 O-ring for wheel (shore 40), yellow  
11043772 O-ring for wheel (shore 70), black  
11053254 Adjust gauge

## Trigger level

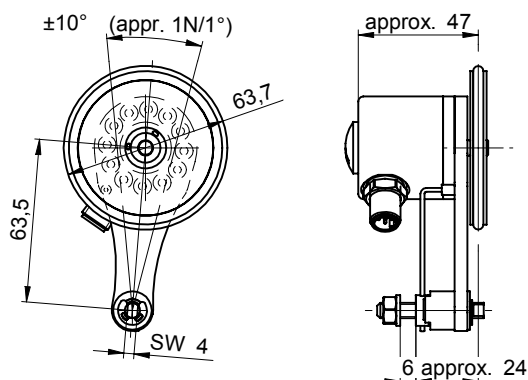
### Outputs 26W

### Push-pull antivalent short-circuit-proof

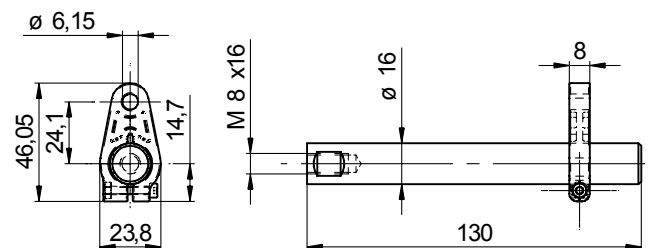
Output level High >+Vs -2.6 V (I = 20 mA)  
Output level Low <0.5 V (I = -20 mA)

## Dimensions

### MA20



### Mounting accessories: encoder standoff set



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