

EB260.IR-5N038.VU5JN.01024L

Programmable incremental encoder with IO-Link for condition monitoring

Article number: 11731086

Overview

- LowHarmonics auto-calibration eliminates temperature and mechanical signal errors
- For precise control of position and speed
- Smart condition monitoring with Airgap Monitor
- Bearingless design for compact integration
- Immune to dust, moisture, shaft currents and wear
- Intuitive parameterization of resolution, interface and speed monitor
- Magnetic rotor not included in delivery



Picture similar

Technical data

Technical data - electrical ratings

Voltage supply	4.5...30 VDC 18...30 VDC (IO-Link)
Reverse polarity protection	Yes, to 0 V
Short-circuit proof	Yes
Consumption w/o load	≤100 mA
Initializing time	≤ 300 ms after power on
Output signals	A+, B+, A-, B-, S+/IO-Link
System accuracy	Typ. ±0.1° (+20 °C, EBS.R-5N038)
Sensing method	Magnetic
Status indicator	LED green/red
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Approval	CE UL

Technical data - electrical ratings (square-wave)

Pulses per revolution	1024 (1 ... 65536 programmable)
Phase shift	90 ° ±20°
Duty cycle	45...55 %
Output frequency	≤500 kHz
Output stages	HTL/TTL (Vin = Vout) TTL/RS422 (programmable) IO-Link

Technical data - electrical ratings (IO-Link)

IO-Link version	1.1
Device profile	Identification and diagnosis
IO-Link port type	Class A
Baud rate	230.4 kBaud (COM 3)
Cycle time	≥ 1 ms
Process data length	72 Bit

Technical data - electrical ratings (IO-Link)

Process data structure	Bit 0 = SSC1 (speed monitor) Bit 1 = SSC2 (direction monitor) Bit 2 = quality Bit 3 = alarm Bit 4 = SSC3 (standstill monitor) Bit 7 = condition monitoring Bit 8-39 = 32 Bit Position Bit 40-71 = 32 Bit Speed
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Additional data	Signal quality value Working distance (airgap) Device temperature Device status Statistic data
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Adjustable parameters	User data (3 x 32 Byte) Interpolation settings Speed filter Condition monitoring Motion monitor settings Digital switch output settings
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Technical data - mechanical design

Shaft type	ø8...48 mm (through hollow shaft)
Dimensions W x H x L	23 x 11 x 50 mm
Protection EN 60529	IP 66 IP 67
Operating speed	≤10000 rpm (EBS.R-5N038)
Working distance	0.1 ... 3.0 mm (radial air gap) ± 3.0 mm (axial misalignment)
Material	Housing: polyamide
Operating temperature	-40...+95 °C
Relative humidity	EN 60068-2-30:2005 95 % condensation permitted
Resistance	EN 60068-2-6 Vibration 30 g, 10-2000 Hz EN 60068-2-27 Shock 500 g, 1 ms
Pitch	5 mm (nominal)
Weight approx.	30 g
Connection	Flylead connector M12, 8-pin, length 0.3 m

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General information

EB260.IR-5N022 sensors are compatible with EBS.R-5N022 magnetic rotors and EB260.IR-5N038 sensors are compatible with EBS.R-5N038 magnetic rotors, which needs to be ordered separately.

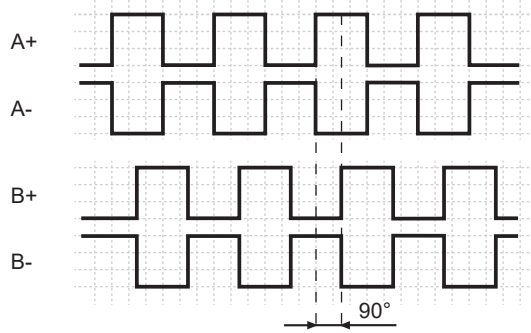
Terminal assignment

Connector M12 a-coded, 8-pin, male

Pin	Assignment	Description
1	0 V	Voltage supply
2	+Vs	Voltage supply
3	A+	Output A
4	A-	Output A inverted
5	B+	Output B
6	B-	Output B inverted
7	S+/IO-Link	Output S (IO-Link)
8	+Vs2	Voltage supply (Output S+/IO-Link)

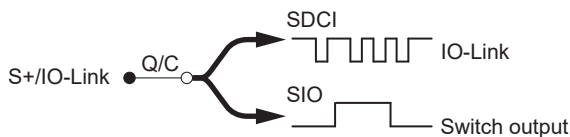


Output signals



Output S

Output S is IO-Link capable and the following functions are parametrizable (SIO): Speed-, Standstill-, Direction-, Condition-, Alarm- or Quality-Monitor (Default):



Trigger level

Outputs	HTL/push-pull short-circuit proof
Output level High	$\geq +V_s - 2 \text{ V}$
Output level Low	$\leq 2 \text{ V}$
Load	$\leq 30 \text{ mA}$

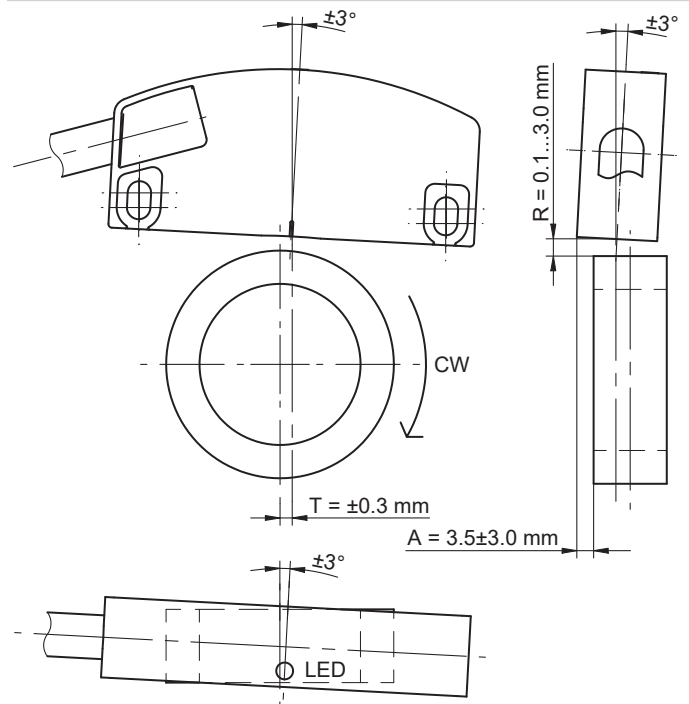
Outputs	TTL/RS422
Output level High	$\geq 2.5 \text{ V}$
Output level Low	$\leq 0.5 \text{ V}$
Load	$\leq 20 \text{ mA}$

By default, the switching levels of the outputs A+, B+, A- and B- depend on the supply voltage +Vs: HTL/push-pull (+Vs=10...30 VDC) or TTL/RS422 (+Vs=4.5...5.5 VDC). Switching levels TTL/RS422 for +Vs=4.5...30 VDC can be parameterized.

The switching levels of the output S+/IO-Link depend on the supply voltage +Vs2: HTL/push-pull (+Vs2=10...30 VDC) or TTL/RS422 (+Vs2=4.5...5.5 VDC). If +Vs2 is not connected, the output is at TTL/RS422 level.

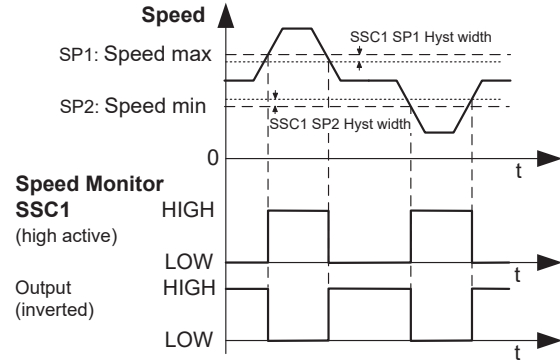
When using IO-Link, a voltage supply (+Vs2) of 18...30 VDC is required.

Working distance



Output Functions

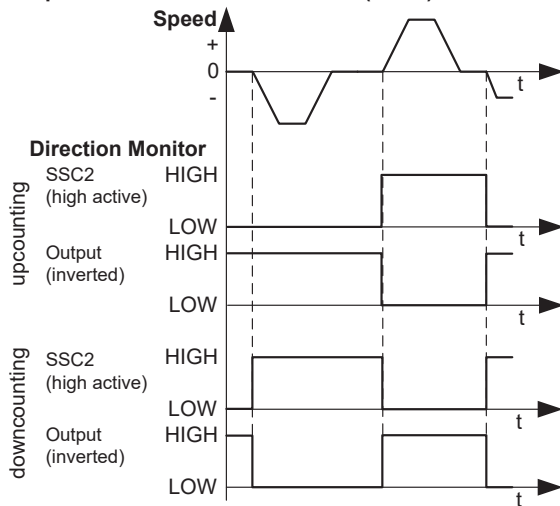
Output function: Speed Monitor (SSC1)



Parameters:

Switching points (Speed limit max, Speed limit min)
Switching logic (high active, low active)
Switching mode (Speed limit, Speed Window)
Switching hysteresis (Setpoint 1, Setpoint 2)
Output function
Output logic
Output startup settings
For more details, please refer to the IODD.

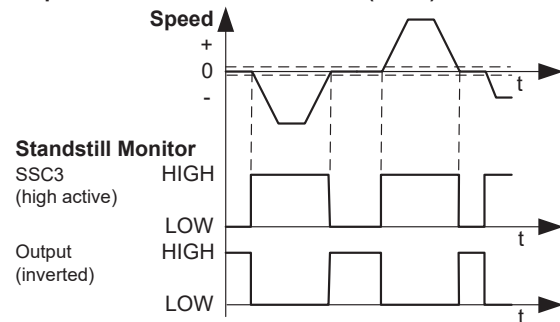
Output function: Direction Monitor (SSC2)



Parameters:

Switching point (Monitoring Direction)
Switching logic (high active, low active)
Switching hysteresis
Output function
Output logic
Output startup settings
For more details, please refer to the IODD.

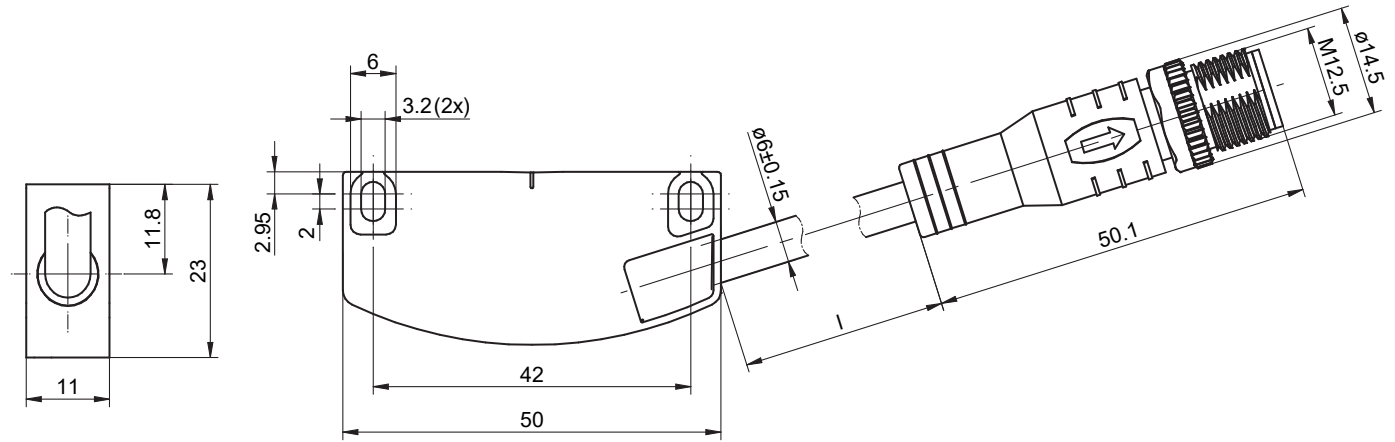
Output function: Standstill Monitor (SSC3)



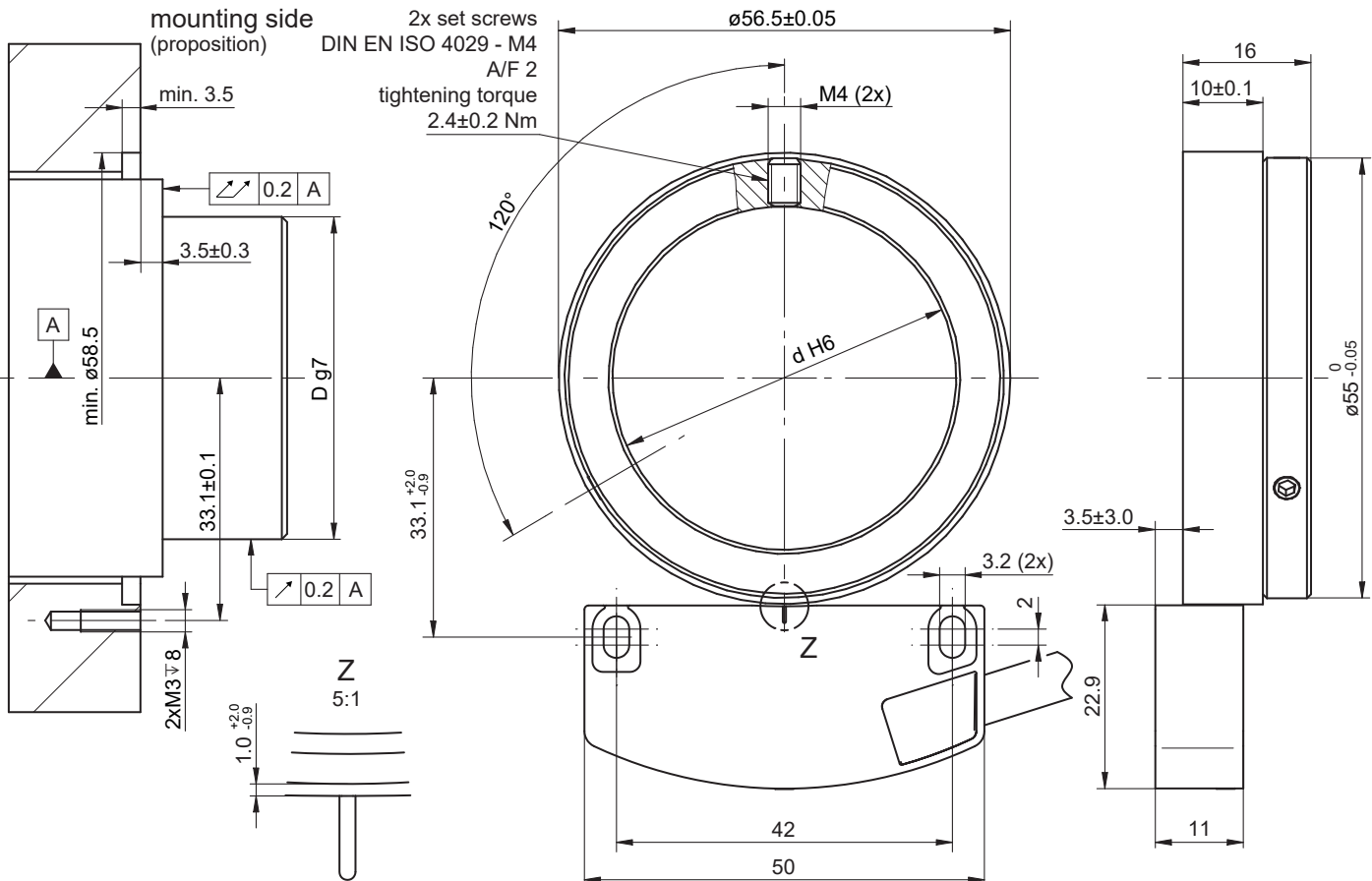
Parameters:

Switching point (Standstill threshold)
Switching logic (high active, low active)
Switching hysteresis (Standstill threshold)
Output function
Output logic
Output startup settings
For more details, please refer to the IODD.

Dimensions

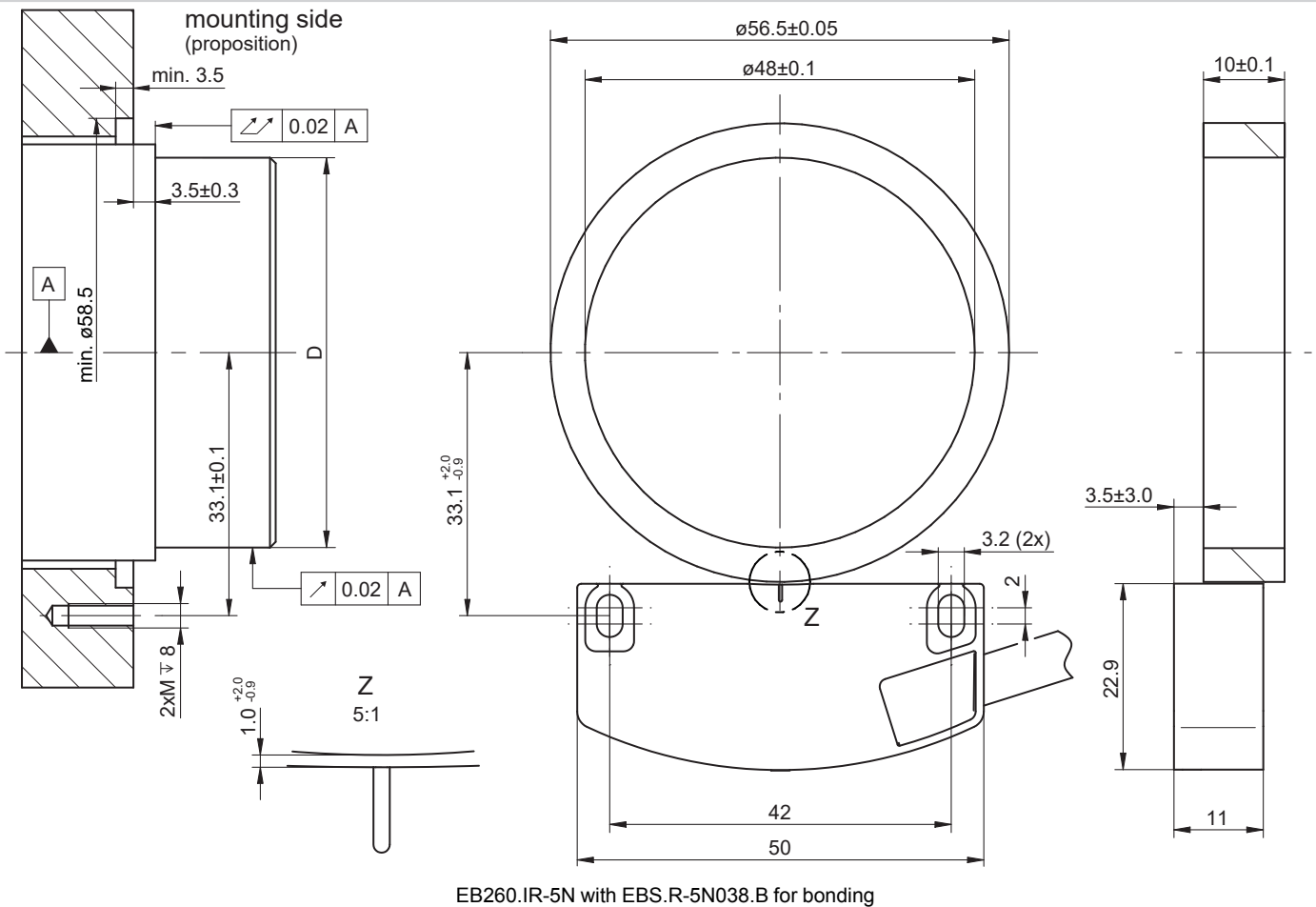


EB260.IR-5N with connector M12



EB260.IR-5N with EBS.R-5N038.S for screw mounting

Dimensions



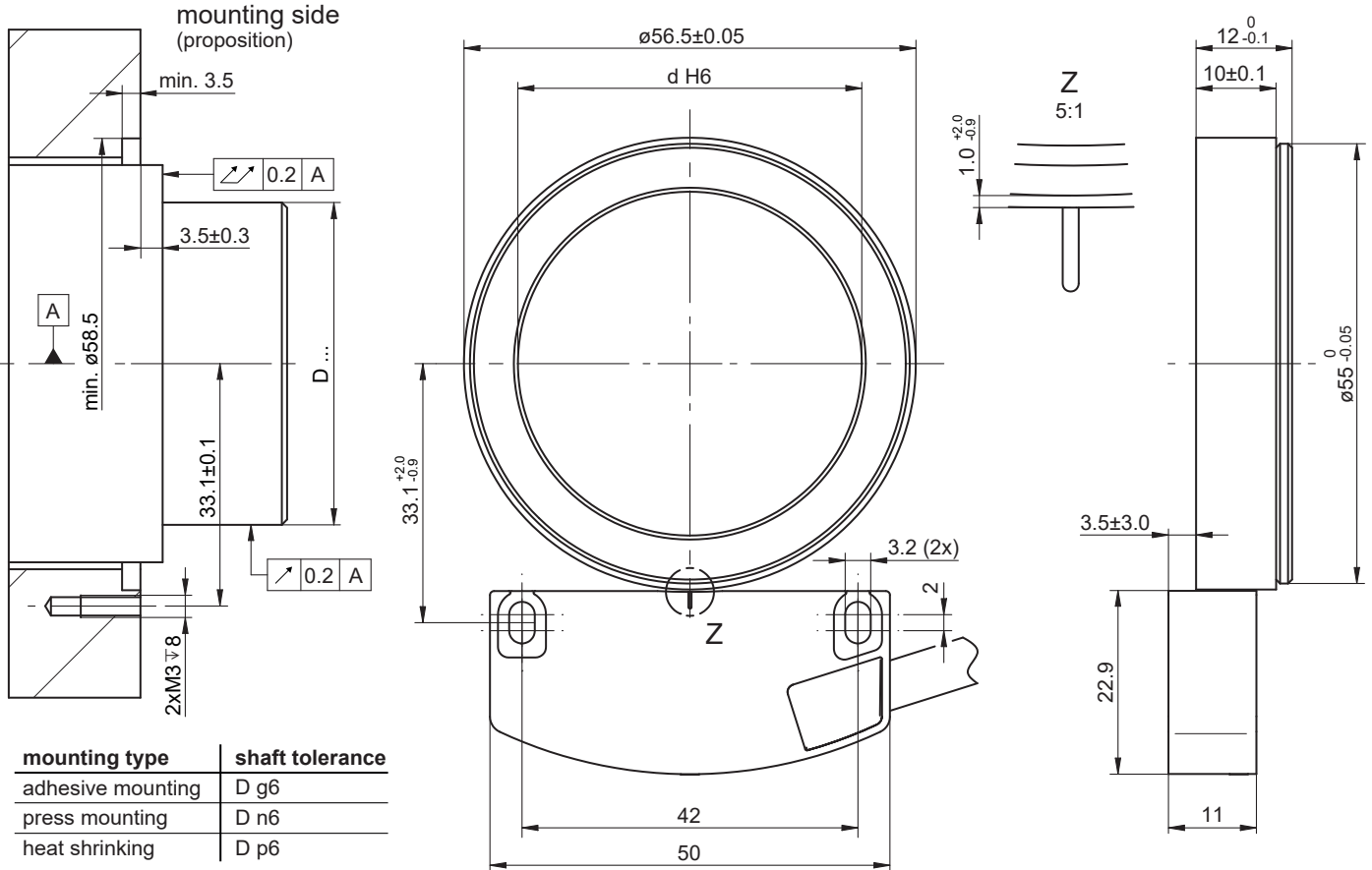
EB260.IR-5N with EBS.R-5N038.B for bonding

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Dimensions



EB260.IR-5N with EBS.R-5N038.U for universal mounting (gluing / pressing / heat shrinking)

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Sensor

Article number	Typecode	Description
11731083	EB260.IR-5N022.VU5C1.01024L	1024 ppr, HTL/TTL/IO-Link, Cable 1 m, matches rotor 5N022
11731084	EB260.IR-5N022.VU5JN.01024L	1024 ppr, HTL/TTL/IO-Link, Flylead connector M12, 8-pin, length 0.3 m, matches rotor 5N022
11731085	EB260.IR-5N038.VU5C1.01024L	1024 ppr, HTL/TTL/IO-Link, Cable 1 m, matches rotor 5N038
11731086	EB260.IR-5N038.VU5JN.01024L	1024 ppr, HTL/TTL/IO-Link, Flylead connector M12, 8-pin, length 0.3 m, matches rotor 5N038

Magnetic rotor (accessory, needs to be ordered separately)

Article number	Typecode	Description
11728715	EBS.R-5N022.S012.A16.H0031	5 mm pitch, 22 poles, screw mounting, ID=12 mm, OD=31.1 mm
11728716	EBS.R-5N022.S014.A16.H0031	5 mm pitch, 22 poles, screw mounting, ID=14 mm, OD=31.1 mm
11728717	EBS.R-5N038.S025.A16.H0057	5 mm pitch, 38 poles, screw mounting, ID=25 mm, OD=56.5 mm
11724881	EBS.R-5N022.B022.N10.H0031	5 mm pitch, 22 poles, for bonding, ID=22 mm, OD=31.1 mm
11724822	EBS.R-5N038.B048.N10.H0057	5 mm pitch, 38 poles, for bonding, ID=48 mm, OD=56.5 mm
11728722	EBS.R-5N022.U012.S12.H0031	5 mm pitch, 22 poles, for bonding/pressing/heat shrinking, ID=12 mm, OD=31.1 mm
11728723	EBS.R-5N022.U014.S12.H0031	5 mm pitch, 22 poles, for bonding/pressing/heat shrinking, ID=14 mm, OD=31.1 mm
11728724	EBS.R-5N038.U025.S12.H0057	5 mm pitch, 38 poles, for bonding/pressing/heat shrinking, ID=25 mm, OD=56.5 mm

Accessories

Programming accessories

11234828	USB-C IO-Link Master
11273351	CAM12.A8Z-11273351