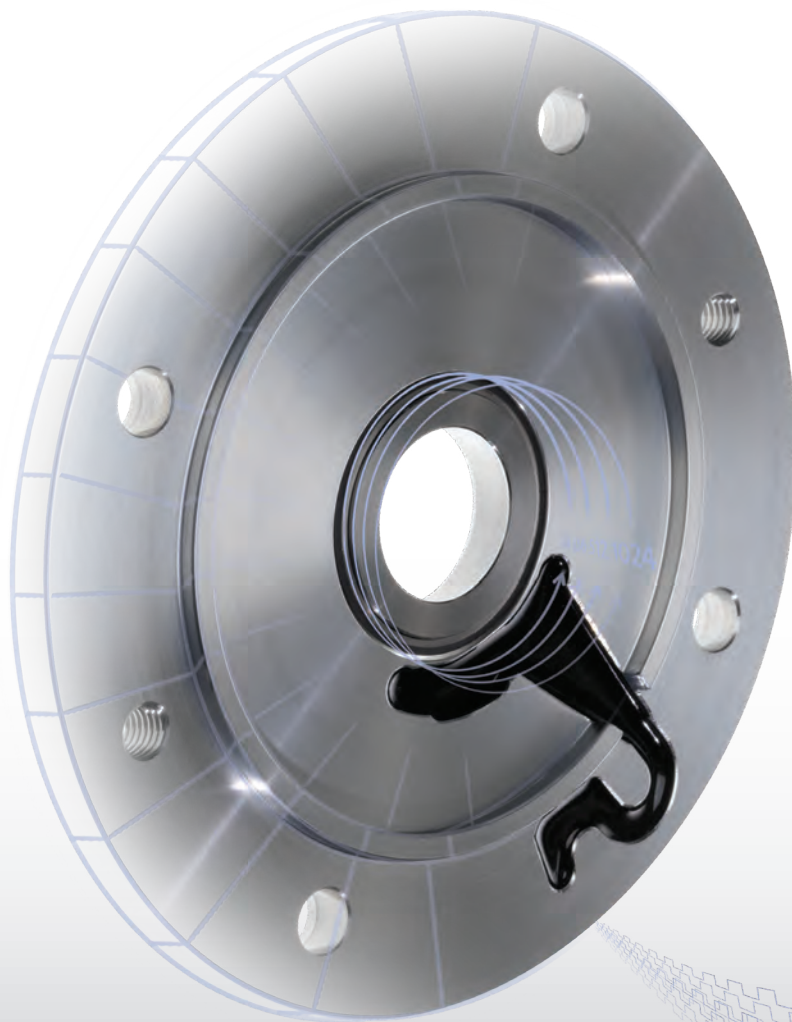


ROTOTECH

MIG[®] Encoders



v 1.4 | 11-2020

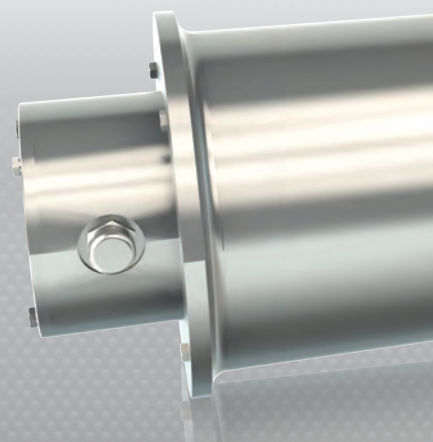
ROTOTECH

MIG[®] Encoders

INNOVATE. OPTIMIZE. CONNECT.

WHEN PRECISION COUNTS

- ✓ High Quality Engineering
- ✓ IEC/NEMA Standard Size
- ✓ Space-Saving Design



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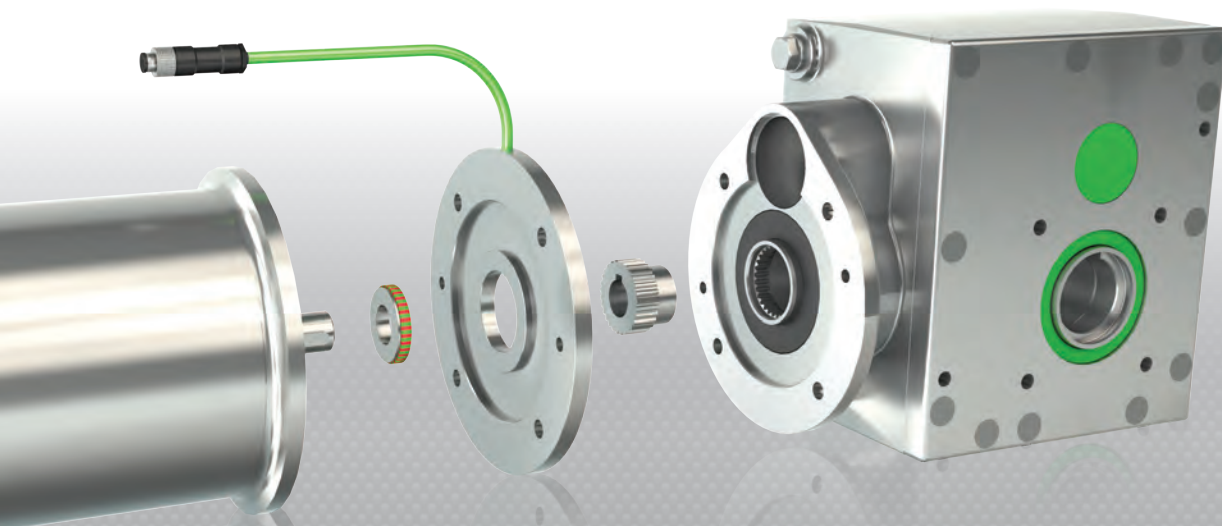
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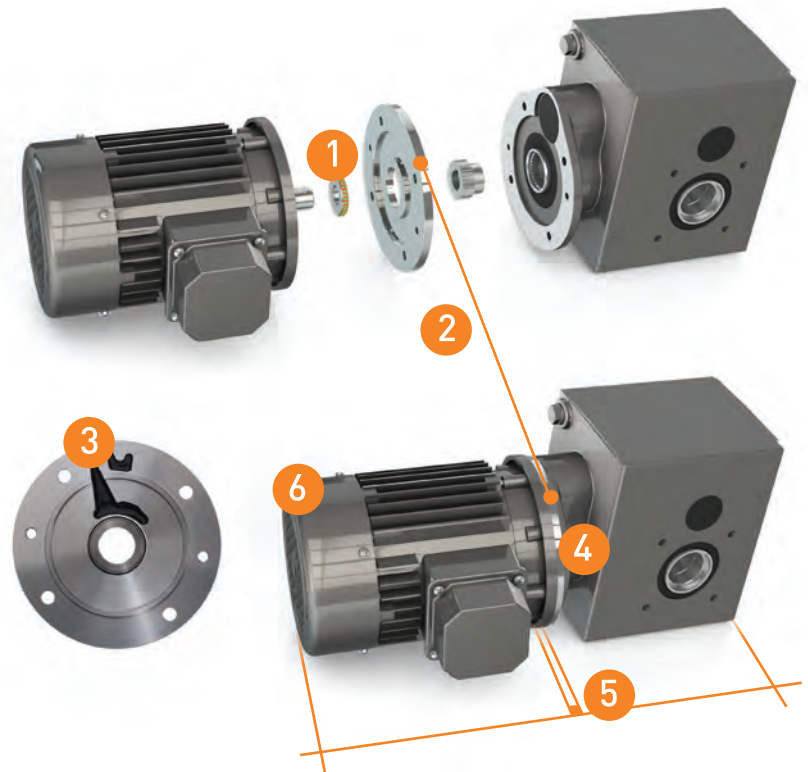
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GENERAL INFORMATION

The ideal encoder is here.
Space saving, ultra hygienic
and high quality signal.



1. Robust and shockproof

The use of a vulcanised magnet ring makes the encoder sturdy and shockproof.

2. Easy installation

Fits on every IEC electric motor. For custom drives the MIG can be tailored to meet your specific needs.

3. Very stable contactless signal measurement

Epoxy resin sealed high quality electronics are completely protected from external influences which ensures a very stable contactless signal measurement.

4. Exceptional protection

Due to the assembly between motor and gear unit, our encoder is completely protected from dirt, dust, corrosion and liquids. Even during high pressure cleaning.

5. Incredibly compact

Machines and drive systems using the MIG barely increase in length. The encoder adds 7 to max. 15 mm to the total length.

6. No additional drive adjustments

Because the MIG is integrated between the motor and gear unit there are no motor modifications required e.g. extended fan cover or NDE shaft.

MIG® BASIC



A90°B
1 – 64 impulses
NPN, PNP
HTL (Push-Pull)

The MIG BASIC incremental encoder makes highly accurate positioning tasks easy to perform and is suitable for control with HTL protocol. The MIG Basic is an economic solution for simple positioning tasks with an A90°B output signal and a resolution between 1 – 64 pulses per rotation.

MIG® NOVA+



A90°B
1 – 2048 impulses
NPN, PNP, RS422
HTL (Push-Pull), TTL

The MIG NOVA+ incremental encoder makes highly accurate positioning tasks easy to perform and is compatible with virtually all controls (HTL and TTL). The MIG NOVA+ has an extraordinary resolution with an A90°B output signal with up to 2048 impulses per rotation.

MIG® AST



4 – 18 bit
RS422 (± 5V)
SSI/BiSS

The MIG absolute single-turn encoder ensures optimum interaction between the individual system components and makes highly accurate positioning tasks easy to perform. Our customers often install the MIG AST encoder interface in environments where safety and accuracy are key factors.

Incremental vs absolute

Compared to the incremental encoder, the absolute single-turn version has the advantage of remembering the position of the shaft for one revolution. Thanks to its memory, this encoder knows the correct position immediately when the machine is switched on again, for example after a loss of power supply.

MIG BASIC INCREMENTAL ENCODERS



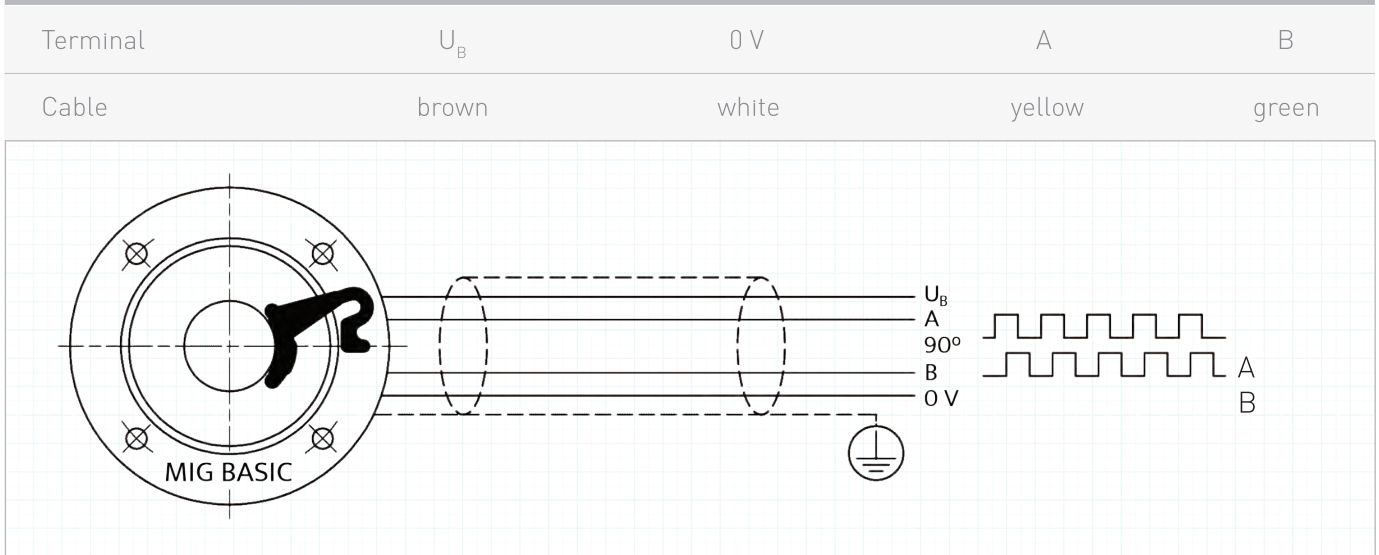
ELECTRICAL & MECHANICAL VALUES

Connecting voltage U_B	5 – 24 VDC
Max. impulse frequency	≤ 100 kHz
Max. speed	6000 min^{-1}
Output signals	A90°B
Impulses per rotation	1 – 64
Signal level	$U_{\text{high}} \geq U_B - 0.7V$ @ $I_{\text{last}} \leq 10$ mA $U_{\text{low}} \leq 0.7V$ @ $I_{\text{last}} \leq 10$ mA
Output capacities	≤ 30 mA @ $U_B = 5$ VDC ≤ 20 mA @ $U_B = 24$ VDC
Interface	HTL (Push-Pull)
External evaluation	NPN, PNP
Reverse polarity protection	✓
Short circuit protection at the output	✓
Motor shaft tolerance	0.5 mm axial 0.05 mm radial
Temperature range	-30 °C — +80 °C
Flange & hub material	Aluminium
Connection cable	PUR-sheath 4x0.14 mm ² screened
Cable length	Standard 2 m. *
Max. cable length	Max. 20 m. @ 24 VDC
Protection class	IP55, IP67 **
Certificates	CE, RoHs
Flange design	IEC, NEMA, Cover, 4-pin plug
Optional	Hydromotor, increased temperature range, deviating rotor bore, customized flange

* Different lengths on request

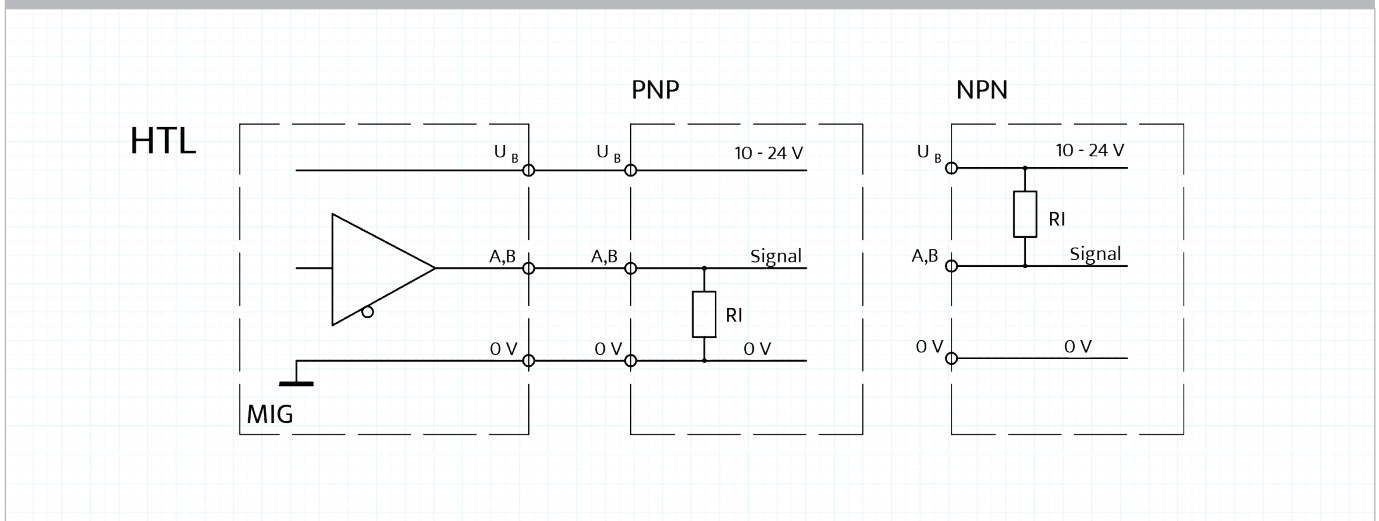
** IP67 depending on the sealant used between motor and machine flange

TERMINALS



Attention: Please isolate unused connection lacings and protect them from short-circuits.

SIGNAL EVALUATION



MIG NOVA+ INCREMENTAL ENCODERS



ELECTRICAL & MECHANICAL VALUES

Connecting voltage U_B	5 – 24 VDC
Max. impulse frequency	≤ 100 kHz
Max. speed	6000 min ⁻¹ (1024 impulses) 3000 min ⁻¹ (2048 impulses)
Output signals	A90°B / \bar{A} 90° \bar{B}
Impulses per rotation	1 – 2048
Signal level	$U_{high} \geq U_B - 0.7V$ @ $I_{last} \leq 10$ mA $U_{low} \leq 0.7V$ @ $I_{last} \leq 10$ mA
Output capacities	≤ 30 mA @ $U_B = 5$ VDC ≤ 20 mA @ $U_B = 24$ VDC
Interface	HTL (Push-Pull), TTL
External evaluation	NPN, PNP, RS422
Reverse polarity protection	✓
Short circuit protection at the output	✓
Motor shaft tolerance	0.5 mm axial 0.05 mm radial
Temperature range	-30 °C — +80 °C
Flange & hub material	Aluminium, Stainless steel
Connection cable	PUR-sheath 6x0.14 mm ² screened
Cable length	Standard 2 m. *
Max. cable length	Max. 100 m. @ 5 VDC Max. 20 m. @ 24 VDC Max. 50 m. @ 24 VDC, $f_{max} = 50$ kHz
Protection class	IP55, IP67 **
Certificates	CE, RoHs
Flange design	IEC, NEMA, Cover, 4-pin plug (not for TTL)
Optional	Hydromotor, increased temperature range, deviating rotor bore, customized flange

* Different lengths on request

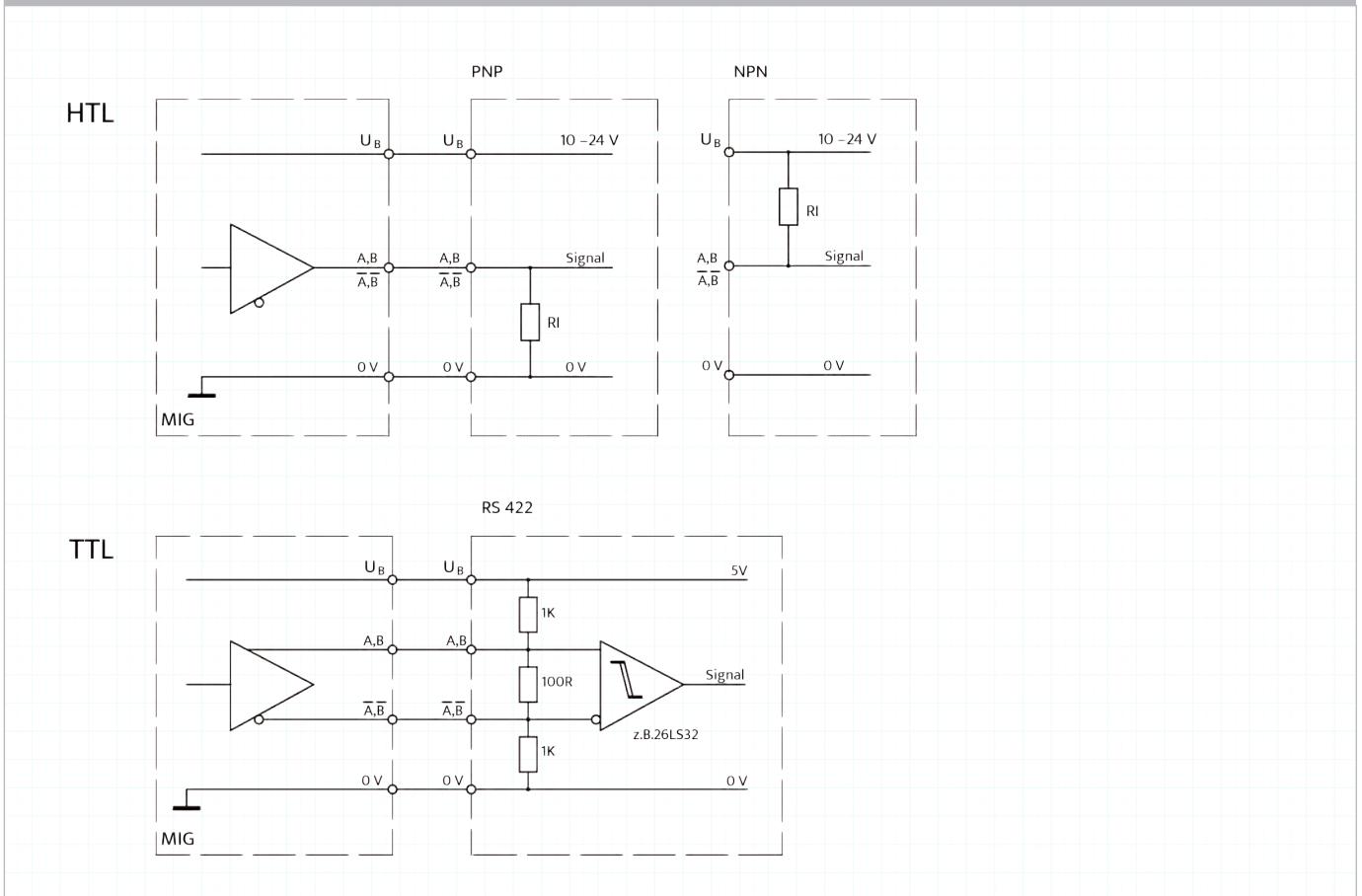
** IP67 depending on the sealant used between motor and machine flange

MIG NOVA+ TERMINALS

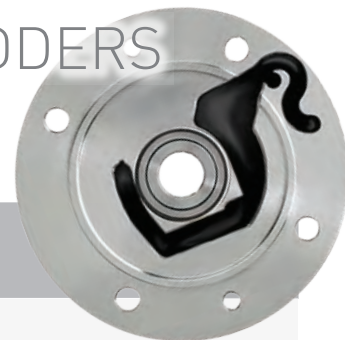
Terminal	U_B	0 V	A	B	\bar{A}	\bar{B}
Cable	brown	white	yellow	green	pink	grey

Attention: Please isolate unused connection lacings and protect them from short-circuits.

SIGNAL EVALUATION



MIG AST ABSOLUTE SINGLE-TURN ENCODERS



ELECTRICAL & MECHANICAL VALUES

Connecting voltage U_B	5 – 24 VDC
Max. speed	6000 min
Output capacities	≤ 200 mA @ $U_B = 5$ VDC ≤ 30 mA @ $U_B = 24$ VDC
Interface	SSI, BiSS
External evaluation	RS422 (± 5 V) @ 30 mA
Reverse polarity protection	✓
Short circuit protection at the output	✓
Measuring range	360°
Resolution	4 – 18 bit
Linearity (25 °C)	< 0.35° *
Repeat accuracy	0,1°
Monoflop time	20 μ s
SSI clock rate/Code	100 kHz – 4 MHz/binary
BiSS clock rate/Code	100 kHz – 5 MHz/binary
Data refresh rate	30 μ s
Permissible load/channel	120 Ω
Error bit	✓
Warning bit	✓
CRC Polynom	0x43
Motor shaft tolerance	0.2 mm axial 0.05 mm radial
Temperature range	-30 °C — +80 °C
Flange & hub material	Aluminium, Stainless steel
Connection cable	PUR-sheath 7x0.14 mm ² screened
Cable length	Standard 2 m. **
Protection class	IP55, IP67 ***
Certificates	CE, RoHs
Flange design	IEC, NEMA, Cover
Optional	Hydromotor, increased temperature range, deviating rotor bore, customized flange

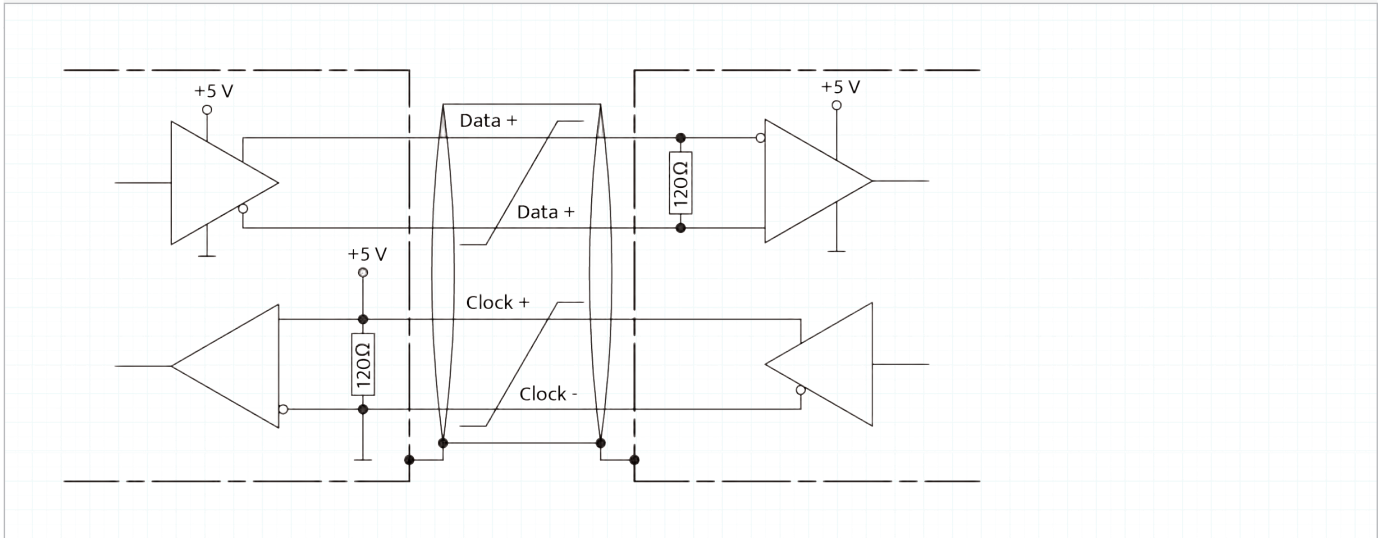
* Depending on the magnet diameter

** Different lengths on request

*** IP67 depending on the sealant used between motor and machine flange.

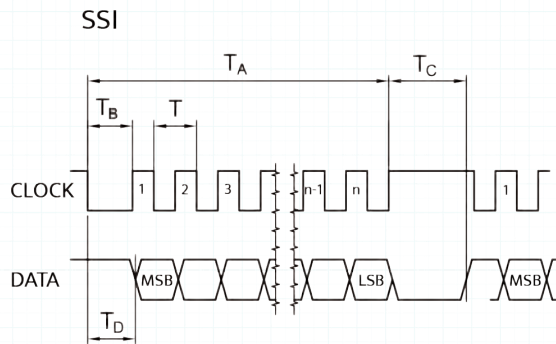
MIG AST TERMINALS

Terminal	U_B	0 V	C+	C-	D+	D-	Error
Cable	brown	white	green	yellow	grey	pink	red



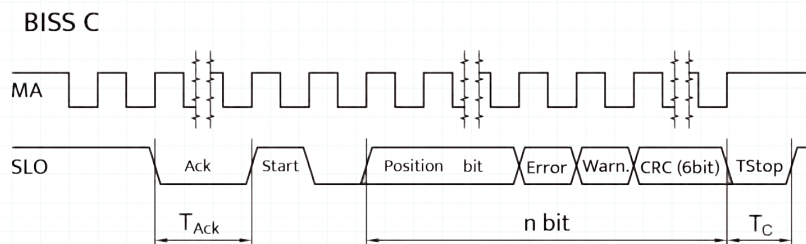
Attention: Please isolate unused connection lacings and protect them from short-circuits.

SIGNAL EVALUATION



Operating instructions/Calibrating the MIG AST:

The calibration module is required when installing the MIG AST. For more information on how to calibrate the MIG AST please refer to our operating instructions.

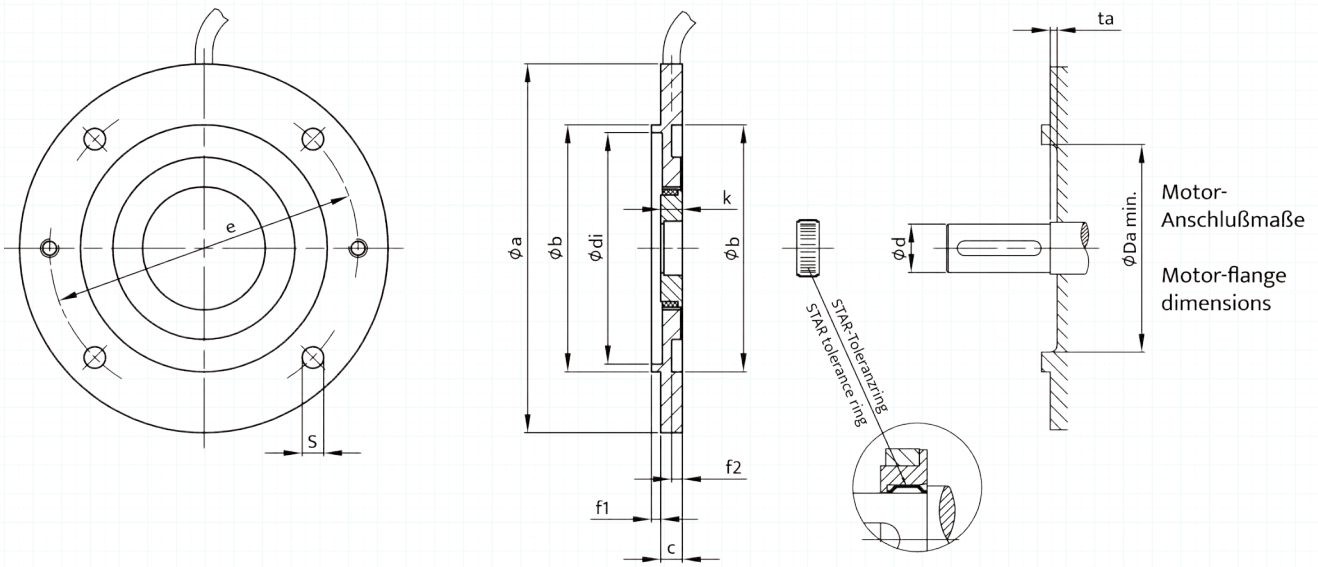


DIMENSIONS & INSTALLATION

DIMENSIONS									FRAME SIZES IEC													
Øa	Øb	c	Ødi	Øe	f1	f2	k	s	BG	Fl.	Ød x l	ta	BASIC ØDa	N+ ØDa	AST ØDa							
80	50	7	44	65	2,5	3	7	5,8	56	FT 65	Ø 9 x 20	2	43	43	n/a							
90	60	7	54	75	2,5	3	7	5,8	63	FT 75	Ø11 x 23	2	43	43	53							
105	70	7	64	85	2,5	3	7	7	56	FT 85	Ø 9 x 20	2	60	60	55							
									71	FT 85	Ø14 x 30	2	60	60	55							
120	80	7	74	100	3	3,5	7	7	56	FF 100	Ø 9 x 20	2	60	60	55							
									63	FT 100	Ø11 x 23	2	60	60	55							
									80	FT 100	Ø19 x 40	2	60	60	55							
140	95	7	85	115	3,5	4	7	9	63	FF 115	Ø11 x 23	2	60	60	55							
									71	FT 115	Ø14 x 30	2	60	60	55							
160	110	9	85	115	3,5	4	9	9	90	FT 115	Ø24 x 50	2	60	60	n/a							
									7	100	130	3,5	4	7	9	71	FF 130	Ø14 x 30	2	60	60	55
									80	FT 130	Ø19 x 40	2	60	60	55							
200	130	9	100	130	3,5	4	9	9	90	FT 130	Ø24 x 50	2	60	60	n/a							
									100	FT 130	Ø28 x 60	2	60	60	n/a							
									112	FT 130	Ø28 x 60	2	60	60	n/a							
									80	FF 165	Ø19 x 40	2	60	60	n/a							
250	180	12	170	215	4	5	12	3,5	100	FF 215	Ø28 x 60	2	n/a	60	n/a							
									112	FF 215	Ø28 x 60	2	n/a	60	n/a							
300	230	12	218	265	4	5	12	3,5	132	FT 165	Ø38 x 80	3	n/a	105	n/a							
									100	FF 215	Ø28 x 60	2	n/a	60	n/a							
350	250	12	238	300	5	6	12	17	112	FF 215	Ø28 x 60	2	n/a	60	n/a							
									132	FT 215	Ø38 x 80	3	n/a	105	n/a							
400	300	15	290	350	5	6	15	17,5	132	FF 265	Ø38 x 80	3	n/a	105	n/a							
									160	FF 300	Ø42 x 110	3	n/a	105	n/a							
450	350	15	340	400	5	6	15	17,5	180	FF 300	Ø48 x 110	3	n/a	105	n/a							
									200	FF 350	Ø55 x 110	3	n/a	105	n/a							
450	350	15	340	400	5	6	15	17,5	225	FF 400	Ø55 x 110	3	n/a	105	n/a							
											Ø60 x 140											

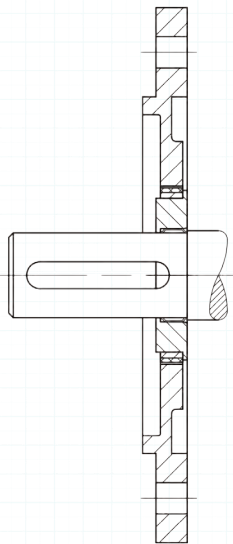
Different dimensions on request

DRAWING

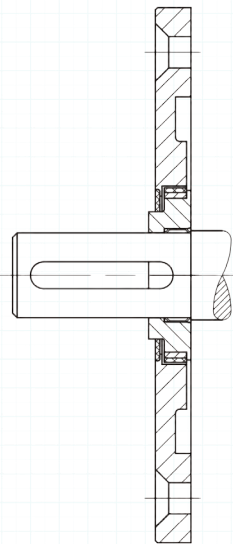


FLANGE DESIGN

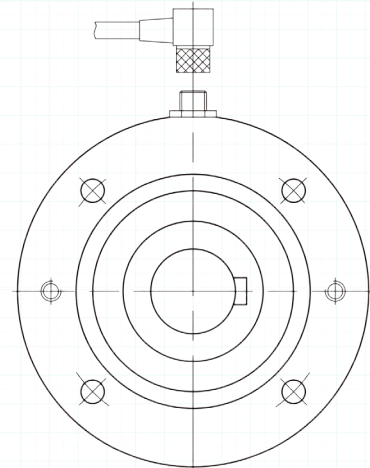
B5 & B14
IEC design [IEC]



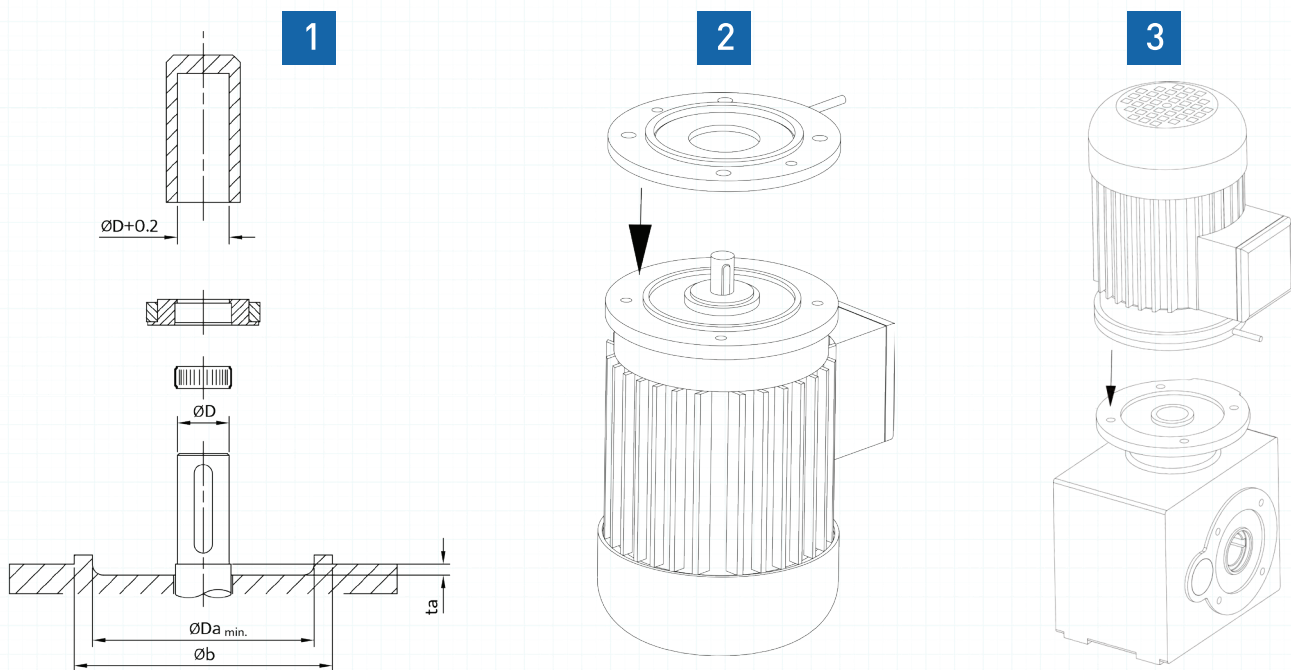
B3, B5 & B14
Cover design [D]



4 pin plug design [S]



QUICK GUIDE: INSTALL. CONNECT. GO.

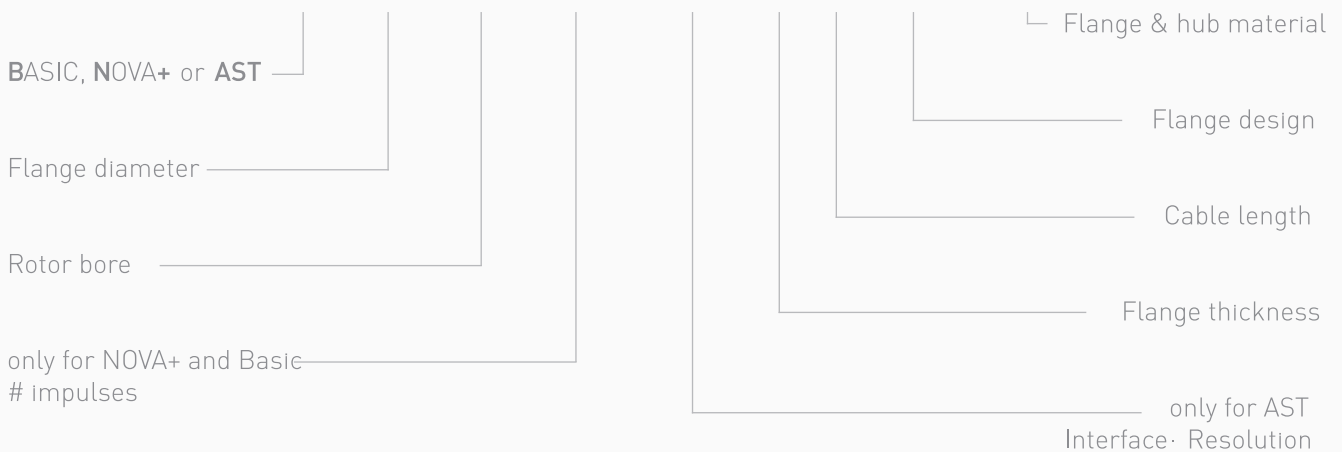


1. Check measures and mount magnetic ring
2. Mount encoder flange on motor
3. Mount motor on gear unit

See manual for more installation details

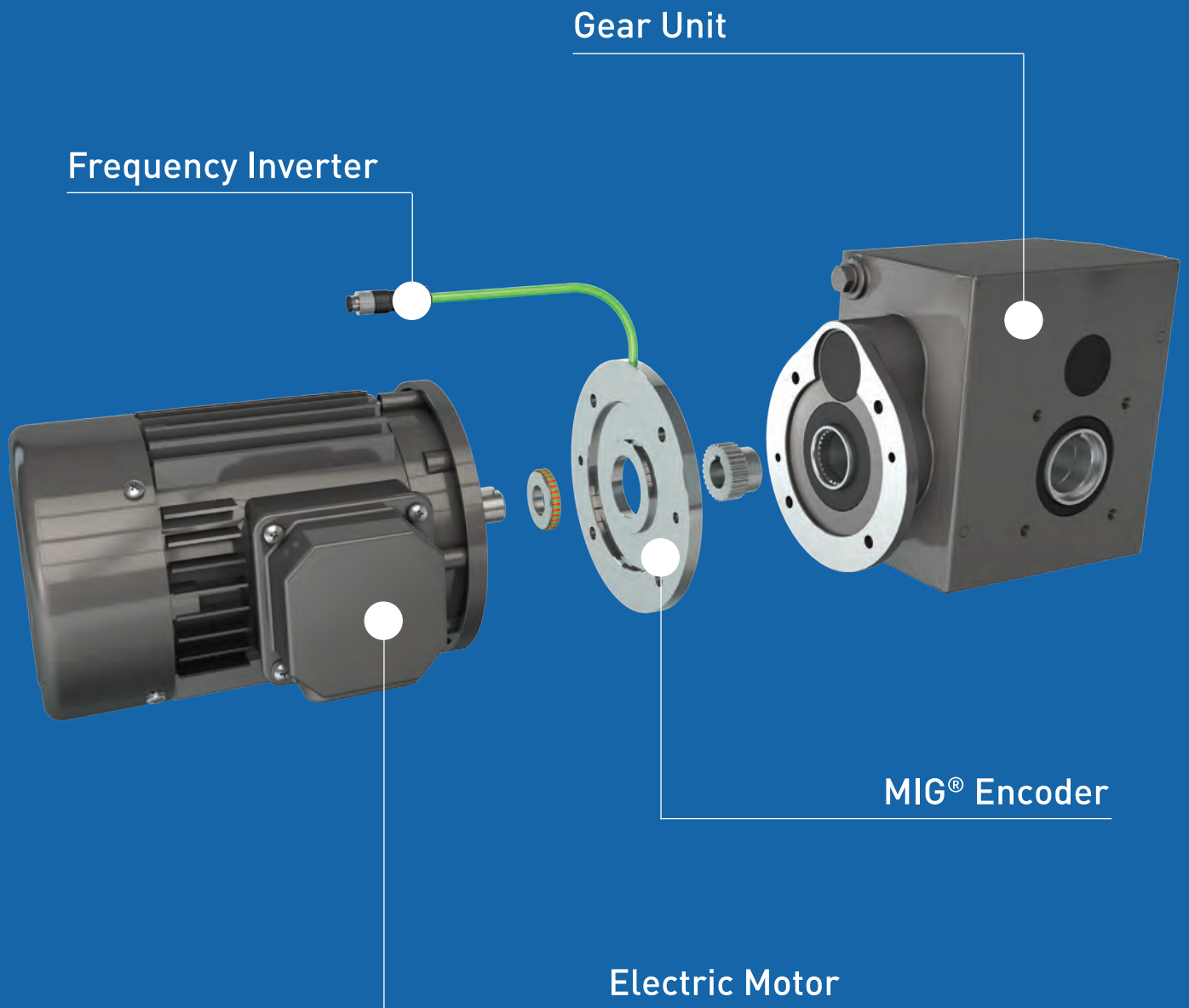
ORDERING EXAMPLE MIG

MIG - N+ - 105 - 14 - 1024 | S · 18 - 7 - 2 - IEC - ALU



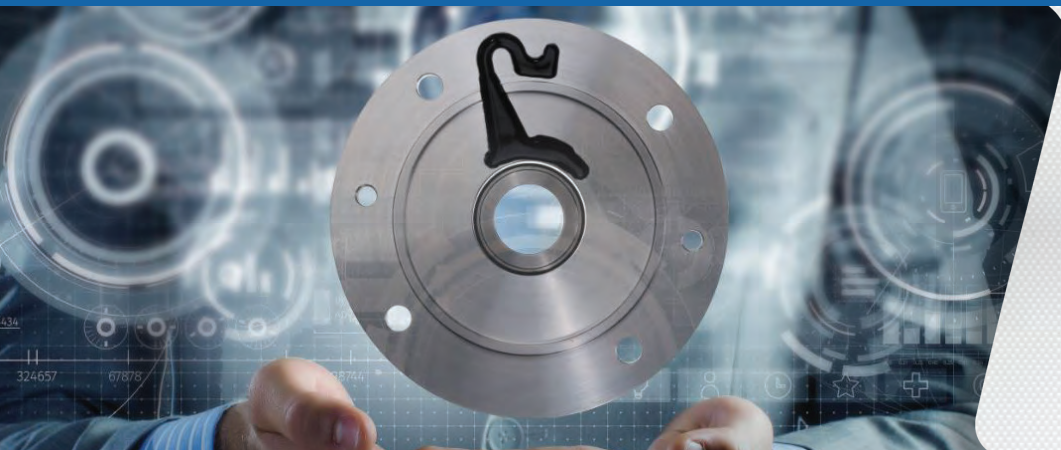
INTEGRATED DRIVE SOLUTIONS

All brands. All types. The universal encoder that always fits.



ROTOTECH

MIG[®] Encoders



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