

ENCODER

Incremental Angle Transducer



Series A36, A58

Key-Features:

- Incremental output A/B-pulses
- Housing diameter 36 mm or 58 mm
- Protection class IP64, solid shaft version also IP67
- Output frequency up to 300 kHz
- Maximum rotation speed 12.000 rpm
- Torque: 0.05 to 0.5 Nm
- Aluminium housing
- Customised versions available

Content:

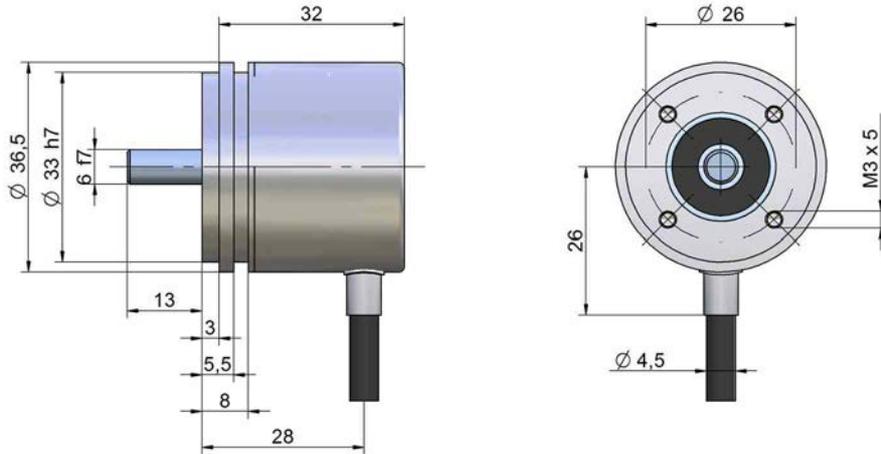
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TECHNICAL DATA A36

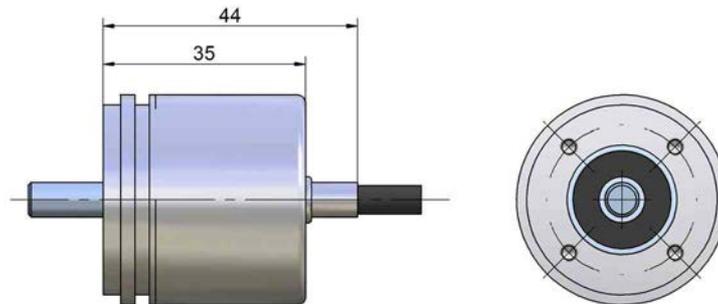


	Solid Shaft	Through hollow shaft / Hollow shaft
Shaft diameter	6 mm	6 / 6.35 / 8 mm (depth=2xD for hollow shaft)
Maximum rotation speed [U/min]	12000,00	12000,00
Maximum shaft load	radial 40 N, axial 25 N	radial 45 N, axial 30 N
Moment of inertia [kgm ²]	0.2 x 10 ⁻⁶ kgm ²	0.3 x 10 ⁻⁶ kgm ²
Starting torque at 20°C [Nm]	<0.05 Nm	<0.5 Nm
Shaft material	high grade steel	brass
Working temperature [°C]	-30...+85 °C	-30...+85 °C
Protection class	IP64, optional IP67 (max. revolution 50 % reduced)	IP64
Shock resistance	1000 m/s ² ; 6 ms	1000 m/s ² ; 6 ms
Vibration resistance	100 m/s ² ; 55 - 2000 Hz	100 m/s ² ; 55 - 2000 Hz
Weight [g]	ca. 80	ca. 80
Housing material	Aluminium	Aluminium
available resolutions [pulses/turn]*	25 / 100 / 125 / 200 / 250 / 300 / 360 / 500 / 1000 / 1024 / 1250 / 1500 / 2000 / 2048 / 2500 / 3600	
* other resolutions on request		

Solid shaft, cable output, radial

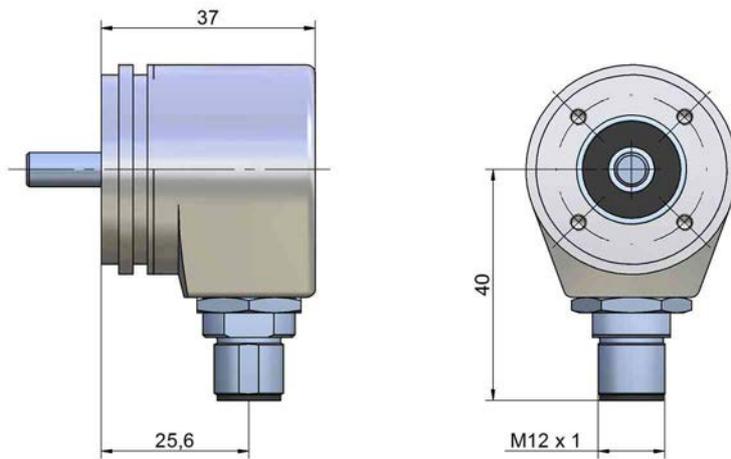


Solid shaft, cable output, axial

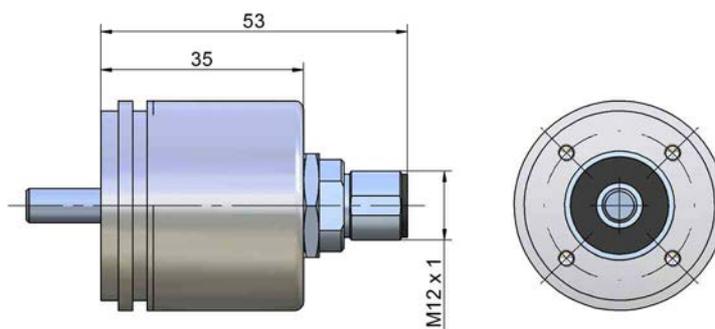


TECHNICAL DRAWING A36

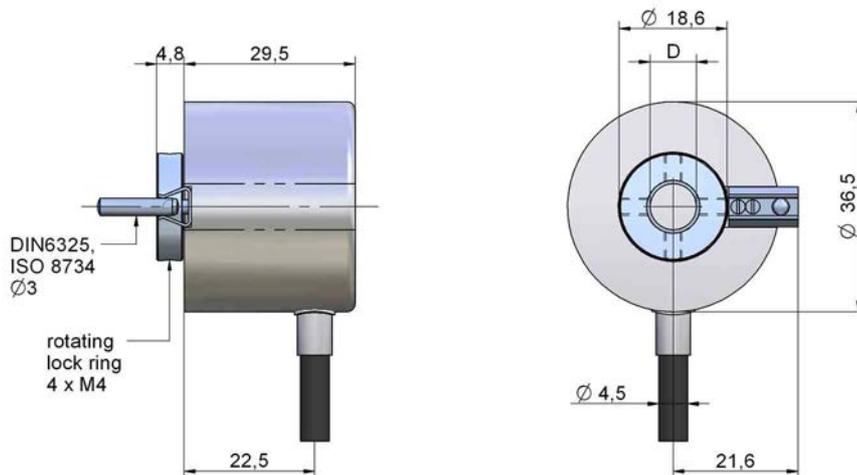
Solid shaft, connector output M12, radial



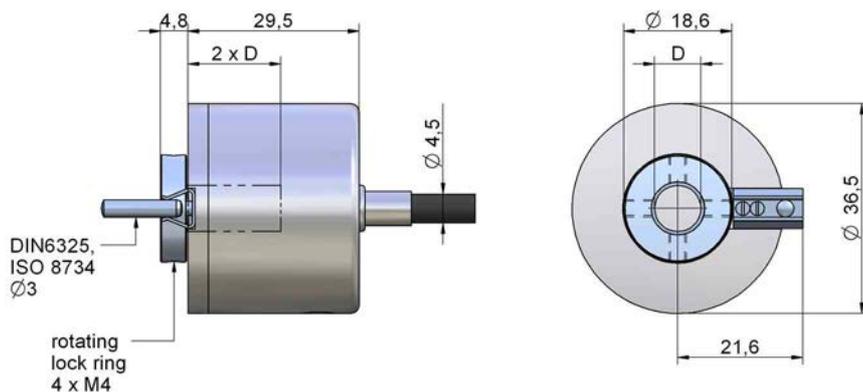
Solid shaft, connector output M12, axial



Trough hollow shaft / hollow shaft, cable output, radial



Hollow shaft, cable output, axial



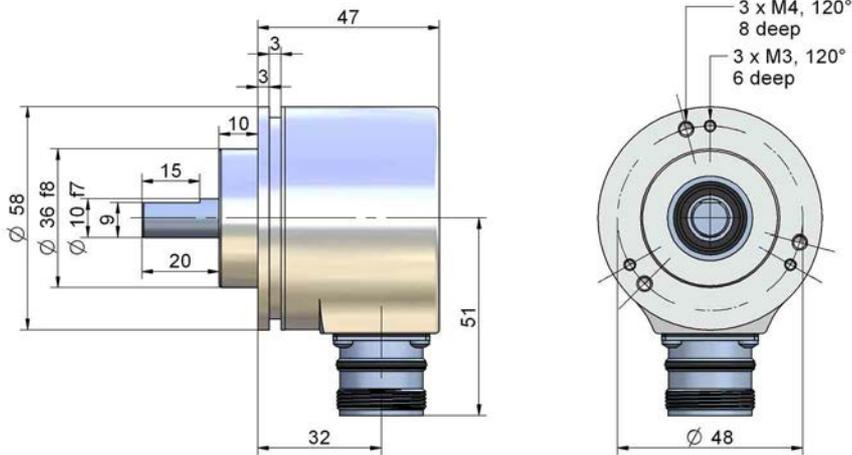
TECHNICAL DATA A58



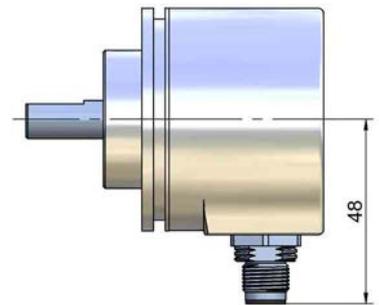
	Solid Shaft	Hollow Shaft
Shaft diameter	6 / 10 / 12 mm	12 / 20 / 25 / 28 mm
Maximum rotation speed [U/min]	12.000	5.000
Maximum shaft load	radial 40 N, axial 60 N	radial 60 N, axial 80 N
Moment of inertia [kgm ²]	1.4 x 10 ⁻⁶ kgm ²	35 x 10 ⁻⁶ kgm ²
Starting torque at 20°C [Nm]	<0.05 Nm	<0.1 Nm
Shaft material	high grade steel	high grade steel
Working temperature [°C]	-30...+85 °C	-30...+85 °C
Protection class	IP64, optional IP67 (max. revolution 50 % reduced)	IP64
Shock resistance	1000 m/s ² ; 6 ms	1000 m/s ² ; 6 ms
Vibration resistance	100 m/s ² ; 55 - 2000 Hz	100 m/s ² ; 55 - 2000 Hz
Weight [g]	ca. 250	ca. 250
Housing material	Aluminium	Aluminium
available resolutions [pulses/turn]*	60 / 100 / 125 / 200 / 250 / 400 / 500 / 960 / 1000 / 1024 / 2000 / 2048 / 5000	

* other resolutions on request

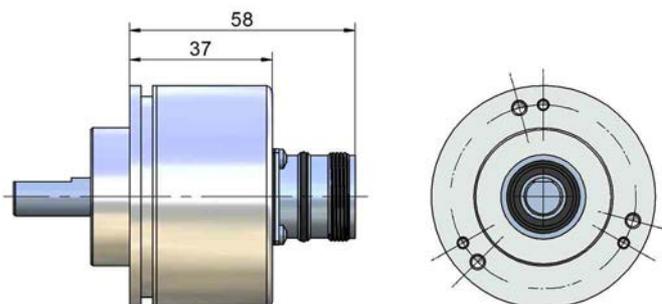
Solid shaft, connector output, radial, M23, 12-pole



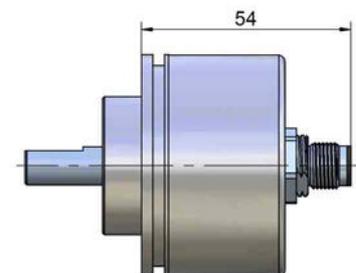
Solid shaft, connector output, radial, M12, 8-pole



Solid shaft, connector output, axial, M23, 12-pole

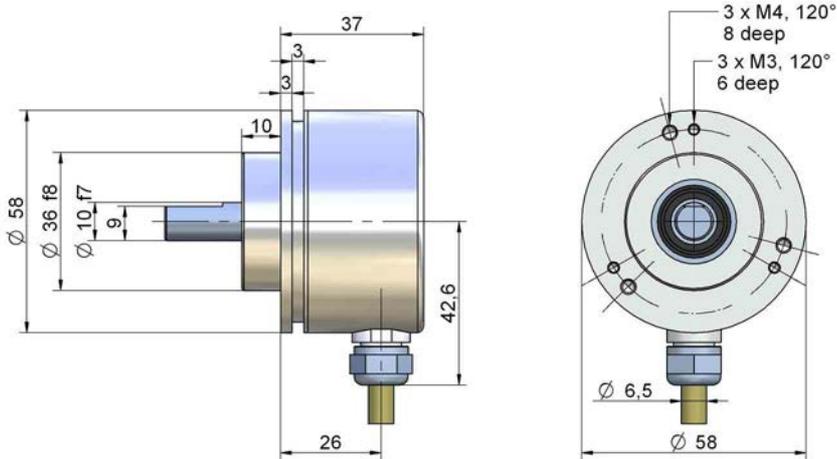


Solid shaft, connector output, axial, M12, 8-pole

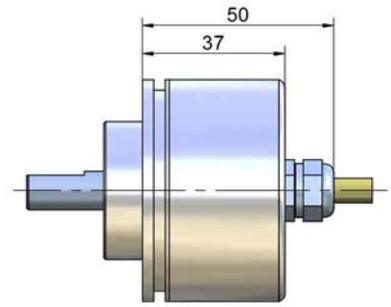


TECHNICAL DRAWING A58

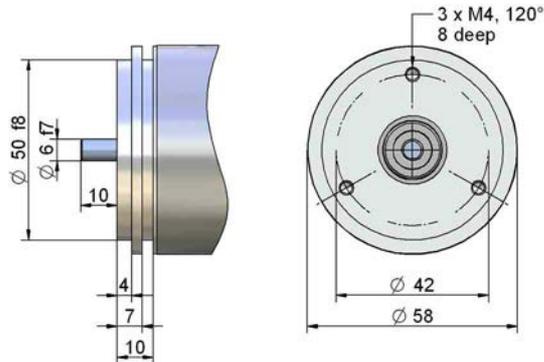
Solid shaft, cable output, radial



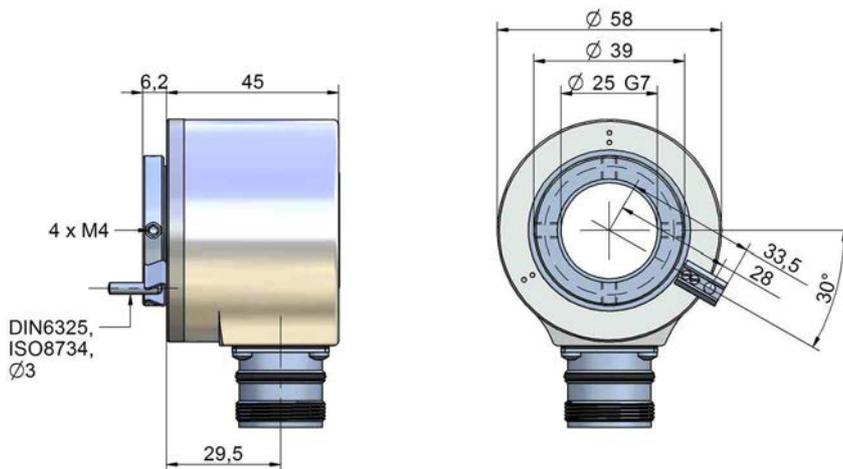
Solid shaft, cable output, axial



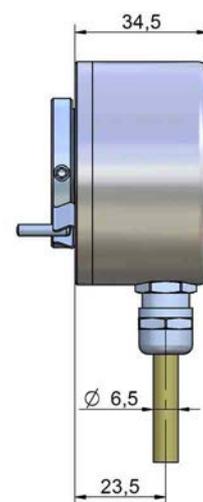
Synchro flange (measurements for connector and cable output please see versions with solid shaft)



**Hollow shaft, connector output radial M23, 12-pole
(measurements for connector output radial M12, 8-pole, see page 4)**



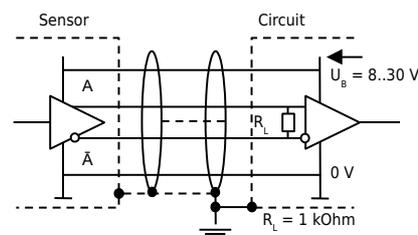
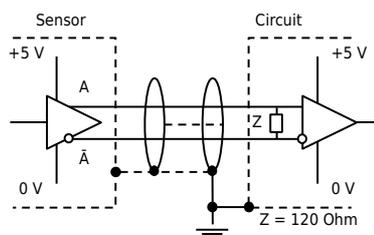
Hollow shaft, cable output radial



DIGITAL OUTPUT, INCREMENTAL

Electrical Data	Line Driver L, RS422 (TTL-compatible)	Push Pull G
Power supply	5 VDC, $\pm 5\%$	8...30 VDC
Current consumption without load	typical 70 mA, max. 100 mA	typical 80 mA, max. 150 mA
Max. load / channel A36	± 10 mA	± 30 mA
Max. load / channel A58	± 20 mA	± 30 mA
Max. pulse frequency A36	125 kHz	100 kHz
Max. pulse frequency A58	300 kHz	300 kHz
Min. signal level high	2.5 V	$U_B - 3$ V
Max. signal level low	0.5 V	2.5 V

Recommended circuit

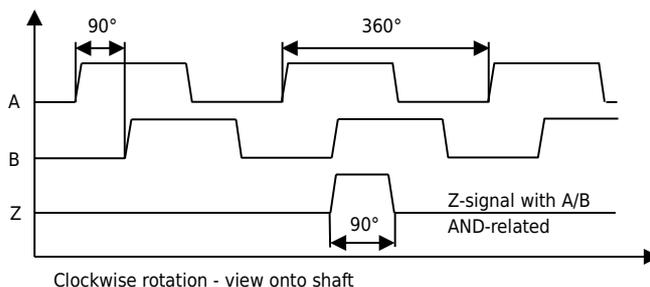


Connection	connector 8-pole/ 12-pole anticlockwise, cable output 2 m	connector 8-pole/ 12-pole anticlockwise, cable output 2 m
Protection class	IP65, optional IP67	IP65, optional IP67
Max. line length	up to 1000 m	up to 250 m

Output signal

Pulses A and B are 90° phase-delayed (detection of direction). The Z-signal recurs with pulse distance Z and may be used as point of reference.

Display of signal without inverted signals.



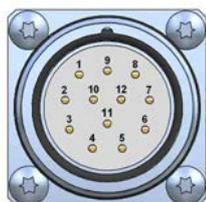
ELECTRICAL CONNECTION

Signal	0 V	U_B+	0 V _{sens} *	$U_{B\text{sens}}+$ *	A	A -	B	B -	Z	Z -	Screen
Connector, 12-pole, M23	10	12	11	2	5	6	8	1	3	4	Housing
Connector, 8-pole, M12	1	2	-	-	3	4	5	6	7	8	Housing
Wire color	white	brown	black	violet	green	yellow	grey	pink	blue	red	Housing

* For line driver L only (RS422 TTL-compatible). For long line lengths it may occur that the operating voltage at the sensor is not sufficient due to the output resistance. With the sensor lines 0Vsens and +UBsens the operating voltage can be checked and, if necessary, be readjusted at the input connection.

12-pole connector output M23, (socket)

Profile/view on solder side of mating connector (only A58)



8-pole connector output M12, (socket)

Profile/view on solder side of mating connector



Cable output A36

radial/ axial 2 meter standard
other cable lengths on request
Type: LiYCY, flexibel, PVC coat
Diameter: $\varnothing 4,5$ mm
Cable strand: 8×0.14 mm²
Temperature range: fixed installation -30...+80 °C, flexible -20...+80 °C

Cable output A58

radial/ axial 2 meter standard
other cable lengths on request
Type: UL2464/ 1061, LiYY, flexible
Diameter: $\varnothing 6,5$ mm
Cable strand: 8×0.25 mm²
Temperature range: fixed installation -30...+80 °C, flexible -20...+80 °C

OPTIONS

IP67 (for A58)

Please chose IP67 if the sensor is completely immersed in water (temporarily). Please bear in mind that this option implicates a higher starting torque due to the specific sealing. The maximum torque is reduced to 50% of the specified value. This option is available for series A58 only.

Extended connector cable for cable output

The cable length for sensors with cable output is 1.5 m standard. Other cable lengths are available on request.

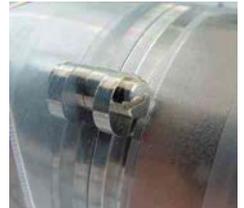
ACCESSORIES

Mounting excentric kit - BX36 and BX58

The encoder can be mounted with the excentrics.
The kit includes 3 excentrics and 3 screws.

Required drill holes:

BX36: M2,5-screw thread, depth 5 mm, \varnothing screw-hole circle 42 mm
BX58: M3-screw thread, depth 6 mm, \varnothing screw-hole circle 65 mm



Cable with connector M12, straight and angular

cable with straight connector:

K8P2M-S-M12 2 m
K8P5M-S-M12 5 m
K8P10M-S-M12 10 m

cable with angular connector:

K8P2M-SW-M12 2 m
K8P5M-SW-M12 5 m
K8P10M-SW-M12 10 m



Connector M12, straight and angular, shielded (for self assembly)

straight connector: D8-G-M12-S
angular connector: D8-W-M12-S

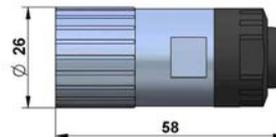
protection class: IP67
temperature: -25...+90 °C

cable passage: \varnothing 4...8 mm
core: 0.14...0.34 mm²



Mating connector M23 for A58 - CON012-S

M23, straight, 12-pole, female, clockwise
metal housing

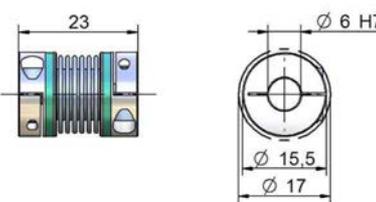
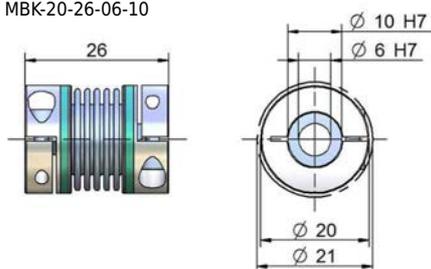
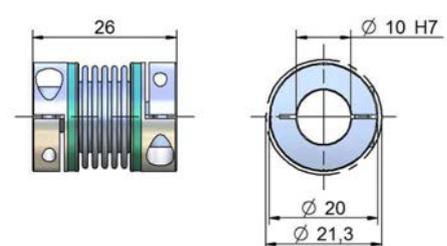


Couplings

Bellows couplings are used for the free of backlash connection between an encoder and a shaft. The couplings are free of wear and compensate lateral, axial and angular shaft misalignment. The mounting on the shaft is done by clamping hubs.



The following bellows couplings are available:

<p>MBK-15.5-23-06-06</p> 	<p>MBK-20-26-06-10</p> 	<p>MBK-20-26-10-10</p> 
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Different versions (e.g. axial pluggable) and other hole diameters are available on request.

ACCESSORIES

Digital display- REX-D

Operation modes:

- High speed position and event counter (100 kHz)
- Tachometer, frequency meter
- Baking time and processing time indicator (reciprocal speed)
- Timer, stopwatch
- Speed display from transition time between start and stop impulse
- Additional functions: linearisation, brightness control, digital filter etc.

For further information please see the WAY-DS data sheet.



ORDER CODE A36

A36 - - - - -

Shaft version Solid shaft Through hollow shaft Hollow shaft	W H SH		- IP67	Protection Class Standard IP64 IP67 (only for solid shaft versions)
Shaft diameter Solid shaft: 6 mm Through hollow shaft, hollow shaft: 6 / 6.35 / 8 mm	6 e. g. 8		KA KR SR SA	Connection Cable output axial (not for hollow shaft) Cable output radial Connector output M12 radial Connector output M12 axial (not for hollow shaft)
Output Linedriver L, RS422 (5V) Push-Pull G, (8...30 V)	L G		e. g. 3600	Resolution 25 / 100 / 200 / 360 / 500 / 1000 / 1024 / 1500 / 2000 / 2048 / 2500 / 3600

ORDER CODE A58

A58 - - - - -

Shaft version Solid shaft (with clamping flange) Solid shaft (with Synchro flange) Hollow shaft	W WY H		- IP67	Protection Class Standard IP64 IP67 (only for solid shaft versions)
Shaft diameter Solid shaft (with clamping flange): 6 / 10 / 12 mm Solid shaft (with Synchro flange): 6 mm Hollow shaft: 12 / 20 / 24 / 25 / 28 mm	e. g. 6 6 e. g. 25		KA* KR* SR SA SRM12 SAM12	Connection Cable output axial (not for hollow shaft) Cable output radial Connector output M23 radial Connector output M23 axial (not for hollow shaft) Connector output M12 radial Connector output M12 axial (not for hollow shaft)
Output Linedriver L, RS422 (5V) Push-Pull G, (8...30 V)	L G		e. g. 5000	Resolution 60 / 100 / 200 / 250 / 400 / 500 / 960 / 1000 / 1024 / 2000 / 5000

OVERVIEW

A36-W	Solid shaft
A36-H, A36-SH	Through hollow shaft, hollow shaft
A58-W, A58-WY	Solid shaft (clamping- or Synchro flange)
A58-H-12, A58-H-20	Hollow shaft, $\varnothing 12$ or $\varnothing 20$ mm
A58-H-24, A58-H-25, A58-H-28	Hollow shaft, $\varnothing 24$, $\varnothing 25$ or $\varnothing 28$ mm
Option IP67	

ACCESSORIES

Cable with connector M12, 8-pole		Mounting excentric kit	
K8P2M-S-M12	2m, connector, straight, M12	BX36	for A36, the kit includes 3 excentrics and 3 screws
K8P5M-S-M12	5m, connector, straight, M12	BX58	for A58, the kit includes 3 excentrics and 3 screws
K8P10M-S-M12	10m, connector, straight, M12		
Cable with connector M12, 8-pole		Display	
K8P2M-SW-M12	2m, connector, angular, M12	REX-D	digital display (see separate data sheet)
K8P5M-SW-M12	5m, connector, angular, M12		
K8P10M-SW-M12	10m, connector, angular, M12		

Connector, M12, 8-pole		Extended connector cable for axial/ radial cable output KA/ KR	
D8-G-M12-S	connector, M12, straight	Kabel-PVC-36	1 for each additional meter (for series A36)
D8-W-M12-S	connector, M12, angular	Kabel-PVC-58	1 for each additional meter (for series A58)

Connector, M23, 12-pole	
CON012-S	connector M23, straight

Subject to change without prior notice.