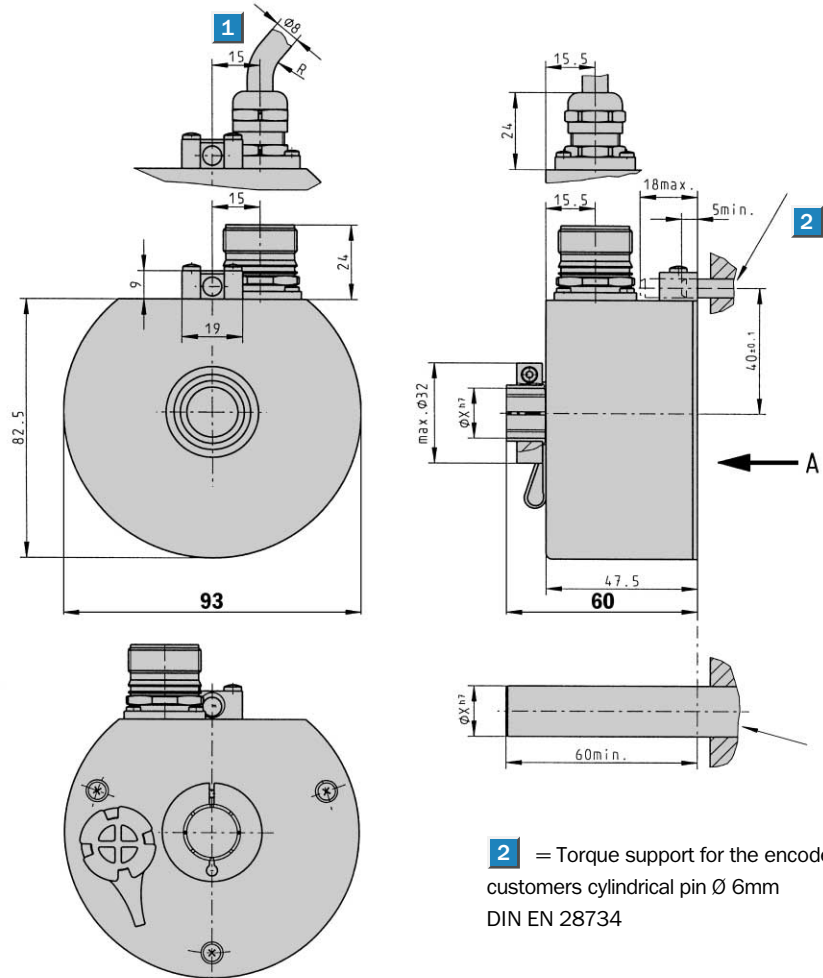## Resolution up to 26 bits

Absolute Encoder Multiturn

- Extremely robust
- SSI and RS 422 configuration interface
- Electronically adjustable, resolution adjustable
- Highly shock- and vibration-proof
- High degree of protection IP 65

CE   c(UL)us

Dimensional drawing through hollow shaft; connector radial, cable radial

2 = Torque support for the encoder via customers cylindrical pin Ø 6mm DIN EN 28734

1 = bending radius min. 40 mm   General tolerances according DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Wire colours (cable outlet)	Explanation
1	GND	blue	Earth connection
2	Data +	white	Signal line
3	Clock +	yellow	Signal line
4	R x D +	grey	RS 422 programming line
5	R x D –	green	RS 422 programming line
6	T x D +	pink	RS 422 programming line
7	T x D –	black	RS 422 programming line
8	U_s	red	Supply voltage
9	SET	orange	Electronical adjustment
10	Data –	brown	Signal line
11	Clock –	lilac	Signal line
12	CW/$\overline{CCW}$	orange/black	Counting sequence when turning
	Screen		Housing potential
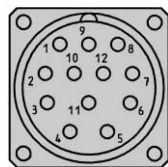
View of the connector M23 fitted to the encoder body

CW/$\overline{CCW}$ Foreward/reverse:
This input programs the counting direction ot the encoder. If not connected, this input is "HIGH". If the encoder shaft, as viewed on the drive shaft, rotates in the clockwise direction, it counts in an increasing sequence. If it should count upwards when the shaft rotates in the anti-clockwise direction, this connection must be connected permanently to "LOW" level (zero volts).

SET   This input activates the electronic zero set.
When the SET line is connected to U_s for more than 100 ms, the current mechanical position is assigned the value 0 or the pre-programmed SET-value.

Accessories

Connection systems
Programming tool
Adaptor modules

Technical data according to DIN 32878		ATM 90 SSI	Flange type									
			through									
Hollow shaft diameter	12, 16 mm, 1/2"											
Mass [1]	Approx. 0.8 kg											
Moment of inertia of the rotor	152.77 gcm^2											
Programmable code type	Gray/binary											
Programmable code direction	CW/CCW											
Measuring step	0.043°											
Max. number of steps per revolution	8,192											
Max. number of revolutions	8,192											
Error limits	± 0.25°											
Repeatability	0.1°											
Operating speed	2,000 min^{-1}											
Position forming time	0.15 ms											
Max. angular acceleration	5 x 10^5 rad/s^2											
Operating torque	0.4 Ncm											
Start up torque	0.5 Ncm											
Bearing lifetime	3.6 x 10^9 revolutions											
Working temperature range	– 20 … + 70 °C											
Storage temperature range	– 40 … + 100 °C											
Permissible relative humidity	98 %											
EMC [2]												
Resistance												
to shocks [3]	100/6 g/ms											
to vibration [4]	20/10 … 2000 g/Hz											
Protection class acc. IEC 60529												
with shaft seal	IP 65											
Operating voltage range (Us)	10 … 32 V											
Power consumption	0.8 W											
Initialisation time [5]	1050 ms											
Signals [6]												
Interface signals												
Clock +, Clock –, Data +, Data – [7]	SSI max. clock frequency 1 MHz i.e. min.											
	duration of low level (clock +): 500 ns											
T x D +, T x D –, R x D +, R x D –	RS 422											
SET (electronic adjustment)	H-active (L ≙ 0 - 4.7 V; H ≙ 10 - U$_s$ V)											
CW/$\overline{\text{CCW}}$ [8]	L -active (L ≙ 0 - 0.9 V; H ≙ 1.9 - U$_s$ V)											

[1] For an encoder with connector outlet

[2] To DIN EN 61000-6-2
and DIN EN 61000-6-3

[3] To DIN EN 60068-2-27

[4] To DIN EN 60068-2-6

[5] From the moment the supply voltage is applied,
this is the time which elapses before the data
word can be correctly read in

[6] Carried by 12 way connector, potential-free
with respect to housing, or 12 core cable

[7] For higher clock frequencies, choose
synchronous SSI

[8] Step sequence in direction of rotation

Order information

ATM 90 through hollow shaft; U$_s$ 10 … 32 V; SSI

1 Configuration ex-works: 4,096 steps x 4,096 revolutions, Gray-Code, Set = 0

Type	Part no.	Explanation
ATM90-ATA12X12	1 030 030	Ø12 mm, connector M23, 12 pin
ATM90-ATK12X12	1 030 031	Ø12 mm, cable 1.5 m
ATM90-ATL12X12	1 030 032	Ø12 mm, cable 3 m
ATM90-ATM12X12	1 030 033	Ø12 mm, cable 5 m
ATM90-AUA12X12	1 030 034	Ø1/2" , connector M23, 12 pin
ATM90-AUK12X12	1 030 035	Ø1/2" , cable 1.5 m
ATM90-AUL12X12	1 030 036	Ø1/2" , cable 3 m
ATM90-AUM12X12	1 030 037	Ø1/2" , cable 5 m
ATM90-AXA12X12	1 030 038	Ø16 mm, connector M23, 12 pin
ATM90-AXK12X12	1 030 039	Ø16 mm, cable 1.5 m
ATM90-AXL12X12	1 030 040	Ø16 mm, cable 3 m
ATM90-AXM12X12	1 030 041	Ø16 mm, cable 5 m

1 Other configurations on request