

# Absolute Motor Feedback Systems Type AD 58 for AC Synchronous & BLDC Motors



- For brushless servo motors
- All-digital and highspeed
- + 120°C operating temperature
- 10.000 rpm continuous operation
- Geared optical multiturn
- SSI or BiSS interface
- Option Sinewave 1 Vpp: Harmonic distortion less than 1%
- Bandwidth 500kHz

## GENERAL INFORMATION

The AD58 is an absolute encoder with a true geared Multiturn and optical sensing technology: The mechanical design consists of two ball bearings and a flexible torque support. The AD58 is ideally suited for integration into BLDC servo motors for demanding applications such as CNC precision machining and printing in professional quality. Through its low current consumption the AD58 is contributing to lowering cost of ownership.

### Fully digital control loop

The new and completely digital OptoAsic technology enables the transition to a truly digital drive system. The conventional absolute encoders still have analog sine wave signals for the feedback of speed and position data. The AD58, however, provides fully digital position data up to 22 Bit (Singleturn) and 12 Bit (Multiturn) over the BiSS interface with a variable clock rate up to 10 MHz. This corresponds a singleturn resolution of more than 4 million measured steps.

## TECHNICAL DATA mechanical

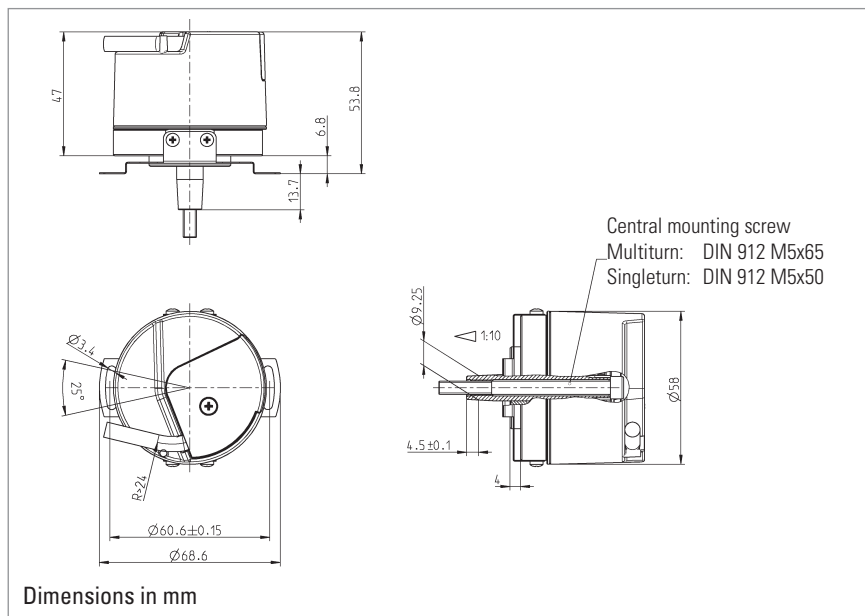
Housing diameter	58 mm
Protection class housing	IP40
Protection class shaft	IP40
Flange	Hubshaft with tether or Konus
Shaft diameter	Cone 10 mm
Max. speed	Continuous operation 10 000 min <sup>-1</sup> Short term operation 12 000 min <sup>-1</sup>
Torque	0,01 Nm
Moment of inertia	3.8 x 10 <sup>-6</sup> kgm <sup>2</sup>
Spring tether (hollow shaft)	
Tolerance axial	± 0,5 mm
Tolerance radial	± 0,1 mm
Vibration resistance (IEC 68-2-6)	100 m/ s <sup>2</sup> (10 - 2000 Hz)
Shock resistance (IEC 68-2-27)	1000 m/ s <sup>2</sup> (6 ms)
Operating temperature	-15 ...+120°C
Storage temperature	-15 ...+85°C (because of packing)
Weight ST/ MT	260 g/ 310 g

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## TECHNICAL DATA electrical

Supply voltage	DC 5 V (-5 %/ +10 %)
Current consumption ST/ MT	50 mA/ 100 mA
Interface	Standard SSI or BiSS
Lines/ Drives	Clock and Data/ RS422
Output code	Binary or Gray
Resolution Singleturn	13 Bit (SSI), max. 22 Bit (BiSS)
Resolution Multiturn	12 Bit
Incremental signals	Sine - Cosine 1 Vpp
No. of increments	2048
3 dB limiting frequency	500 kHz
Absolute accuracy	±35"
Repeatability	±7"
Alarm output	alarm bit (SSI), warning bit and alarm bit (BiSS)
Connection	PCB-Connector, 12 pole

## DIMENSIONAL DRAWINGS



## CONNECTION DIAGRAM

row b	DC 5/7-30 V (U <sub>B</sub> ) gr/pk	Clock wt	B - rd	0V (U <sub>N</sub> ) wt/gn	A - ye	Data bk
row a	Data / vio	A + gn	0V Sensor bn/gn	B + bl	Clock / bn	5V Sensor rd/bl
Pin	1	2	3	4	5	6

## CONNECTION ENCODER SIDE

12 pin PCB connector  
manufacture Berg, type Minitek

Screen is connected over a length of 10 mm  
with encoder housing



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## ORDERING INFORMATION

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Interface	Connection
□	□	□	□	□	□
<b>AD58</b>	<b>0013</b> 13 Bit ST <b>0022</b> 22 Bit ST (BiSS) <b>1213</b> 12 Bit MT+13 Bit ST <b>1222</b> 12 Bit MT+22 Bit ST (BiSS)	<b>A</b> DC 5 V <b>E</b> DC 10 - 30 V	<b>1.0K</b> Hubshaft with tether, IP40, Cone 10 mm	<b>SC</b> SSI Gray +1 Vpp <b>BI</b> BiSS (digital)	<b>0</b> PCB connector 12 pole <b>B</b> PCB connector 12 pole with mating connector and 0.5m cable