

PRELIMINARY



## GENERAL INFORMATION

## TECHNICAL DATA mechanical

# Absolute Shaft Encoders

# Type AC 110

## ACURO industry

## BiSS / SSI

- Same electrical performance as ACURO industry AC 36 and AC 58 versions
- Robust bearings for long life
- Hollow shaft up to 50 mm
- Absolute singleturn
- Revolution 11-17 Bit
- SSI or BiSS - Interface
- Optional: Sine-Cosine 4096 increments
- DC 5 V or DC 10 - 30 V
- Integrated diagnostic system

### HENGSTLER OPTOASIC Technology

The central Element of the ACURO AC110 is the latest Hengstler OptoAsic technology, which offers the following key benefits.

- Outstanding reliability by reduced number of components and integrated diagnostics systems
- Aging compensation by integrated LED light regulation
- Integrated monitoring of:
  - Pollution
  - Disk damage
  - LED lifetime
  - Temperature

The ACURO AC110 is ideally suited for applications like:

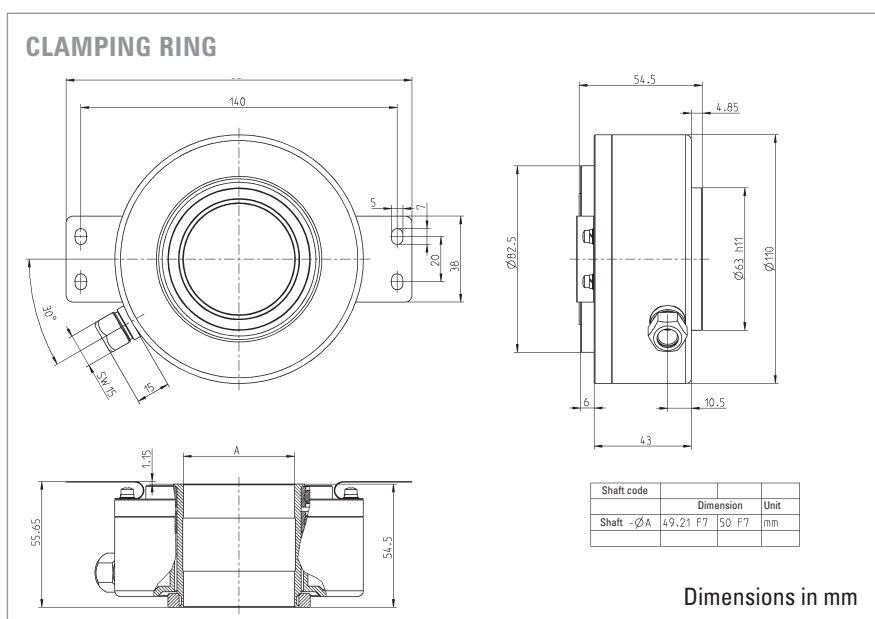
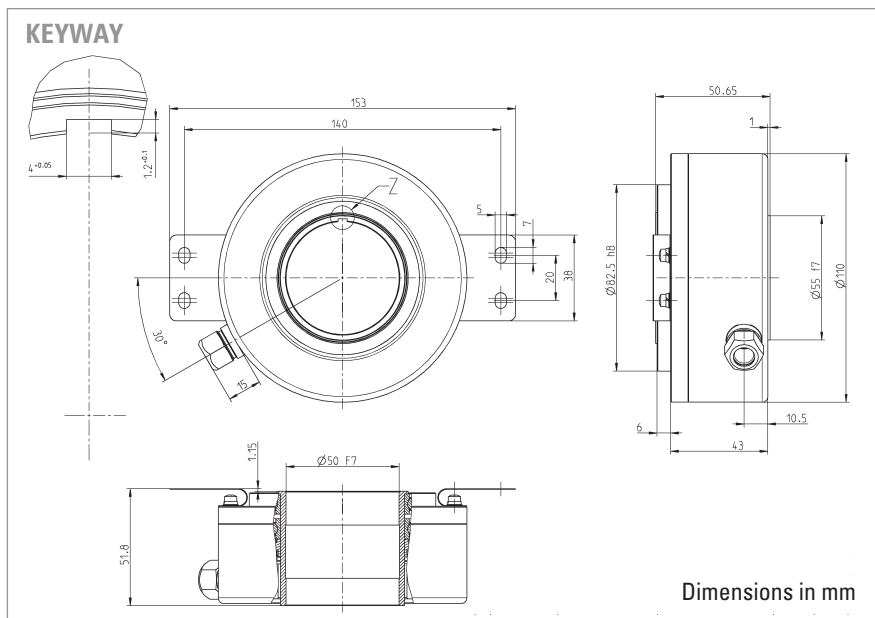
- Gearless drive
- Gearless elevators
- Industrial Machinery

Housing diameter	110 mm
Shaft diameter	up to 50 mm
Protection class housing	IP50 or IP64
Protection class shaft	IP50 or IP64
Max. speed	IP50: 3 600 min <sup>-1</sup> IP64: 1 500 min <sup>-1</sup>
Spring tether (hollow shaft)	
Tolerance axial	± 0.5 mm
Tolerance radial	± 0.05 mm
Vibration resistance (IEC 68-2-6)	100 m/ s <sup>2</sup> (10 - 500 Hz)
Shock resistance (IEC 68-2-27)	1000 m/ s <sup>2</sup> (6 ms)
Operating temperature	-20...+70°C
Storage temperature	-50...+80°C
Material Shaft	Stainless steel
Material Housing	Aluminium
Weight approx.	1000g

### TECHNICAL DATA electrical

Supply voltage	DC 5 V (-5 %/ +10 %) or DC 10-30 V
Max. current w/o load ST/MT	120 mA
Lines / Drives	Clock and Data / RS422
Output code	Binary or Gray
Resolution singleturn	10 - 17 Bit
Incremental signals	Sine - Cosine 1 Vpp
No. of increments	4 096
3 dB limiting frequency	500 kHz
Absolute accuracy	± 35"
Repeatability	± 7"
Alarm output	alarm bit (SSI), warning bit and alarm bit (BiSS)
Connection	Cable radial Cable with Conin-Coupling

### DIMENSIONAL DRAWINGS



### PIN ASSIGNMENT

Colour cable	Cable connector	Signal
brown <sup>4</sup>	1	0V (supply voltage)
pink	2	Data
yellow	3	Clock
	4	N.C.
blue	5	Direction <sup>1</sup>
	6	N.C.
	7	N.C.
white <sup>4</sup>	8	DC 5 V <sup>3</sup> / DC 10 - 30 V
	9	N.C.
grey	10	Data
green	11	Clock
black	12	0V-signal output <sup>2</sup>
Screen		Shielded with housing

<sup>1</sup> Direction: + U<sub>B</sub> or unconnected = ascending code values with rotation cw  
0 V = descending code values with rotation cw

<sup>2</sup> Connected with 0 V in the encoder. Use this output to lay Direction on logical "0" if required.

<sup>3</sup> Notice: when supply voltage = DC 5V → max. cable length 10 m

<sup>4</sup> Use only thin wires 014 mm<sup>2</sup>

The max. data transfer rate depends on the cable length.

For Clock/ Clock and Data/ Data please use twisted pairs. Use shielded cable.

Lead length	Baud rate
< 50 m	< 400 kHz
< 100 m	< 300 kHz
< 200 m	< 200 kHz
< 400 m	< 100 kHz

### RECOMMENDED DATA TRANSFER RATE WITH SSI

### ORDERING INFORMATION

Type	Resolution	Supply voltage	Spring tether	Protection class	Mounting /Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC110</b>	<b>0011</b> 11 Bit ST <b>0012</b> 12 Bit ST <b>0013</b> 13 Bit ST <b>0014</b> 14 Bit ST <b>0017</b> 17 Bit ST <sup>1</sup>	<b>A</b> DC 5 V <sup>2</sup> <b>E</b> DC 10 - 30 V	<b>B</b> with <b>O</b> without	<b>1</b> IP50 <b>4</b> IP64	<b>K50</b> Keyway (4x1.2)/ 50 mm <b>H50</b> Clamping ring/ 50 mm	<b>SB</b> SSI Binary <b>SG</b> SSI Gray <b>BI</b> BiSS	<b>B</b> Cable radial 1.5 m <b>B-D0</b> Cable radial 3 m <b>B-F0</b> Cable radial 5 m <b>B-K0</b> Cable radial 10 m <b>B-D</b> Cable 1.5 m with Conin-Coupling

<sup>1</sup> When resolution > 14 Bit → max. Clock frequency 178 kHz

<sup>2</sup> Notice: when supply voltage = DC 5V → max. cable length 10 m