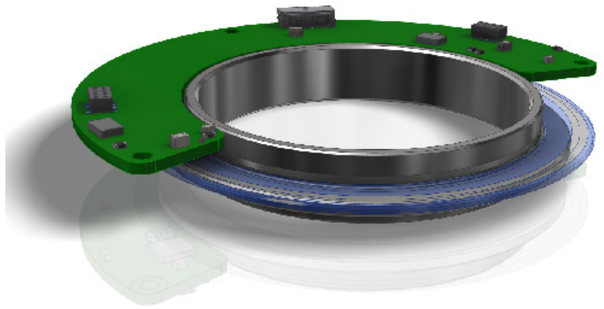
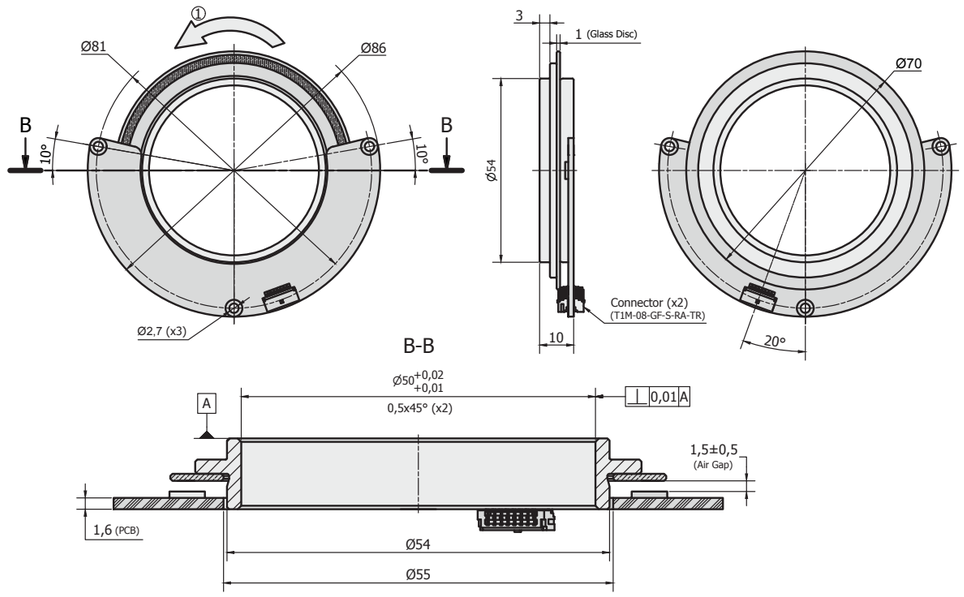
PRECIZIKA METROLOGY

PHOTOELECTRIC ROTARY ENCODER

AN



The Encoder-AN is a high-resolution, singleturn absolute encoder with a 22 Bit BiSS C interface. The encoder consists of several optical reflectance sensors arranged at an angle of 180 degrees to each other. This allows to eliminate mechanical errors in the application, such as the runout of the measured shaft, by using subsequent electronics.



MECHANICAL DATA

Permissible axial motion of measured shaft	0.03 mm
Permissible radial runout of measured shaft	0.03 mm
Moment of inertia of rotor	< $30x10^{-6}$ kgm^2
Maximum weight	0.05 kg
Type of protection (IEC 529)	IP00
Maximum humidity (non-condensing)	98 %

Permissible vibration (55 to 2000 Hz)	≤ 100 m/s^2
Permissible shock (11 ms)	≤ 200 m/s^2
Operating temperature	-40 - 100°C
Storage temperature	-40 - 100°C

ELECTRICAL DATA

Resolution	22 bit
Output code	Binary
Data interface	BiSS-C
Accuracy	≤ ±100"
Supply voltage	+5V ± 5%;
Supply current	80 - 220 mA
Start up time	13 ms
Scan ratio of T	40 - 60 %
Time lag	80 ns

Monoflop time	timeout + T/2 us
Rise and fall time	4 - 15 ns
Analog signals	~1Vpp (1024ppr)
Cutoff frequency	< 240 kHz
Amplitude output voltage	0.6 - 1.2 V
Maximum output current	22 mA
Light source	LED

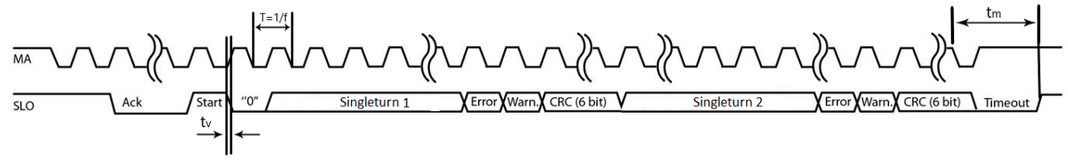
INSTALLATION ERROR

Due to dimensional and form error of the customer's shaft as well as its radial runout and fit tolerances with encoder disc / hub assembly the unwanted runout of the circular scale appears and leads to increased angle measurement error. The following installation error ΔΦ relationship between the radial runout **r** and the mean diameter **D** of the graduation is expressed:

$$\Delta\Phi = \pm\ 412 \times 0.5r / D$$ D = 65,26 mm

INTERFACE

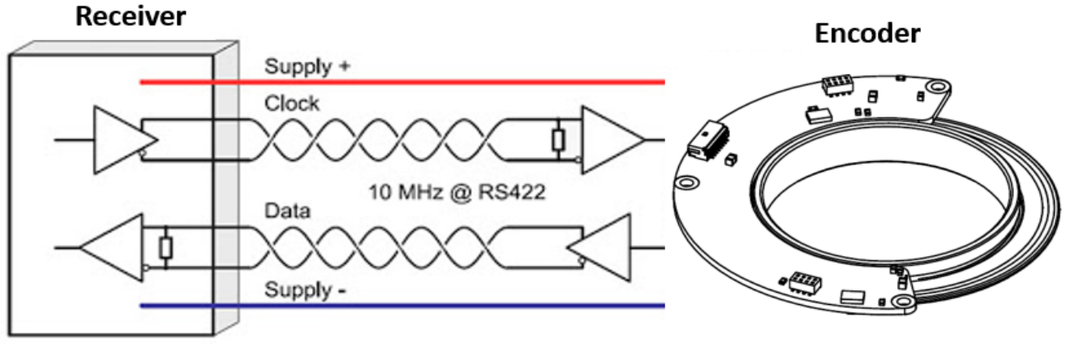
DATA TRANSFER BISS-C



The position data increases when the shaft rotates in the direction shown in the drawing

DESCRIPTION	DATA
$T_{timeout}$	0.075 us - 24 us
Clock frequency	62.4 kHz - 20 MHz

TYPICAL OPERATING CIRCUIT FOR BISS-C



This is just one example of a tailor made encoder kit. For other mechanical, electrical configurations or different interface options please contact us directly: sales@precizika.com