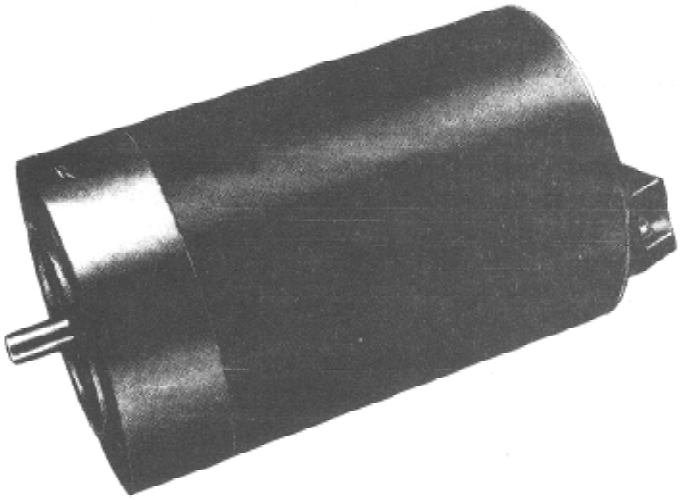


MULTITURN SHAFT ENCODER Model CK 106 absolute/electro-optical

- For the conversion of long range displacements into digital signals
- Resolution up to 314 counts per 360°
- Number of revolutions up to 1024
- Total capacity up to 262,144 counts (18 Bits)
- Output codes: Gray, Binary or BCD
- Heavy duty configuration

TWK

Constructional features

Anodized aluminium housing - Stainless steel shaft (10 mm dia) - Sealed ball bearings - Multi-stage code gear - Sealed connector exit - Plastic code discs - Gallium-Arsenide-diodes - Phototransistors followed by comparator and trigger - Disc code format: unambiguous Gray or Gray-Excess - Internal transcoder supplies Binary or BCD-output - Code direction (upward or downward counting) at option.

Functional features

Unlike Model CK 105, the code disc of the first stage is driven via a gear situated between its shaft and the input shaft of the encoder. The gear ratio can be chosen in small increments according to the required resolution, the maximum being 314 counts per 360°.

With respect to the input shaft many resolutions can be obtained such as 95,238 counts per 360°, which corresponds to a total capacity of 4000 counts at 42 revolution of the input shaft.

The first code disc is followed by a multi-stage gear comprising one code disc each stage. This allows to accept up to 1024 revolutions of the first code disc.

When using a BCD output code the maximum number of usable revolutions is limited by the number of 20 output channels (5 decades). When using a Gray or Binary output code the full capacity up to 262,144 (18 bits) counts can be obtained.

Mechanical specification

- Slewing speed:	3000 rpm max.
- Starting torque:	≤ 5 Ncm
- Shaft load max.:	250N radial, 200N axial
- Useful life of bearings:	10^9 rev. at max. load and max. speed
- Operating temperature:	- 5°C to + 50°C
- Storage temperature:	- 25°C to + 70°C
- Weight:	2,2 kg
- Environmental protection:	IP 65 (dust and water)
- Connector type:	DB 25 with special sealed case (IP 65)

Electrical specification

- Light sources:	GaAs-diodes
- Signal conditioning:	Phototransistor-comparator-trigger/memory-transcoder
- Output circuitry:	Open collector, positive logic (TCA 971) Umax=24 V, Imax=50 mA
- Output level:	log "1" ≙ U, log "0" ≤ 0,4 V
- Supply voltage:	12 to 24 VDC
- Current requirements:	200 mA (Gray and Binary) 350 mA (BCD)
- Code direction:	Upward count when turning CCW, can be inverted by external strap
- Readout frequency:	8 kHz max.
- Latch (output signal memory) "L":	Available for BCD and Binary output only.

Additional functions (optional)

- Enable input for use with bus operation
- Push-pull output circuitry
- Heating (thermostatic controlled) to extend operating temperature to - 20°C and to avoid water condensation due to extreme temperature variations
- Parity-Bit
- Zero point indication by LED

Note: The number of additional functions is limited by the 25-contact connector.

TWK-ELEKTRONIK GMBH · 4 DÜSSELDORF 1 · POSTF. 8040 · HEINRICHSTR. 85 · TEL. (0211) 632067 · TELEX 8586683

Specification requirements

Customers should specify the following data when asking for quotations or when ordering:

1a) Required resolution: counts per 360° with respect to the input shaft (314 max).

or

1b) Required number of counts related to a specified number of revolutions.

2) Output code: Gray, Binary or BCD

3a) Required number of usable revolutions

or

3b) Required usable capacity (maximum will be 2^{18} = 262,144 counts for Gray and Binary and 100,000 counts for BCD)

Ordering code

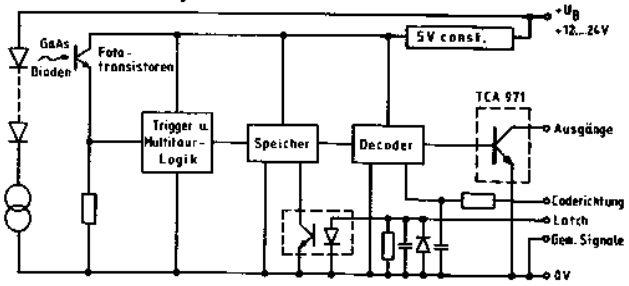
CK 106 - 300,5 G 16 X

- X — Additional function or special features (to be specified)
- 16 — No of Bits (capacity) 1)
  - R + G: 16 ≙ 2^{16} = 65536 counts
  - B: 16 ≙ 4 dec. = 10000 counts
- G — Output code: G=Gray, B=BCD, R=Binary
- 300,5 — Resolution counts per 360° 2)
- CK 106 — Basic model

Zero-point adjustment

In order to adjust the zero-point when the encoder is fixed and coupled to its driving shaft the hex - socket head screw at the rear cover is to be retracted. A screwdriver can now be inserted into the housing and the code discs can be mechanically adjusted with respect to the position of the input shaft of the encoder.

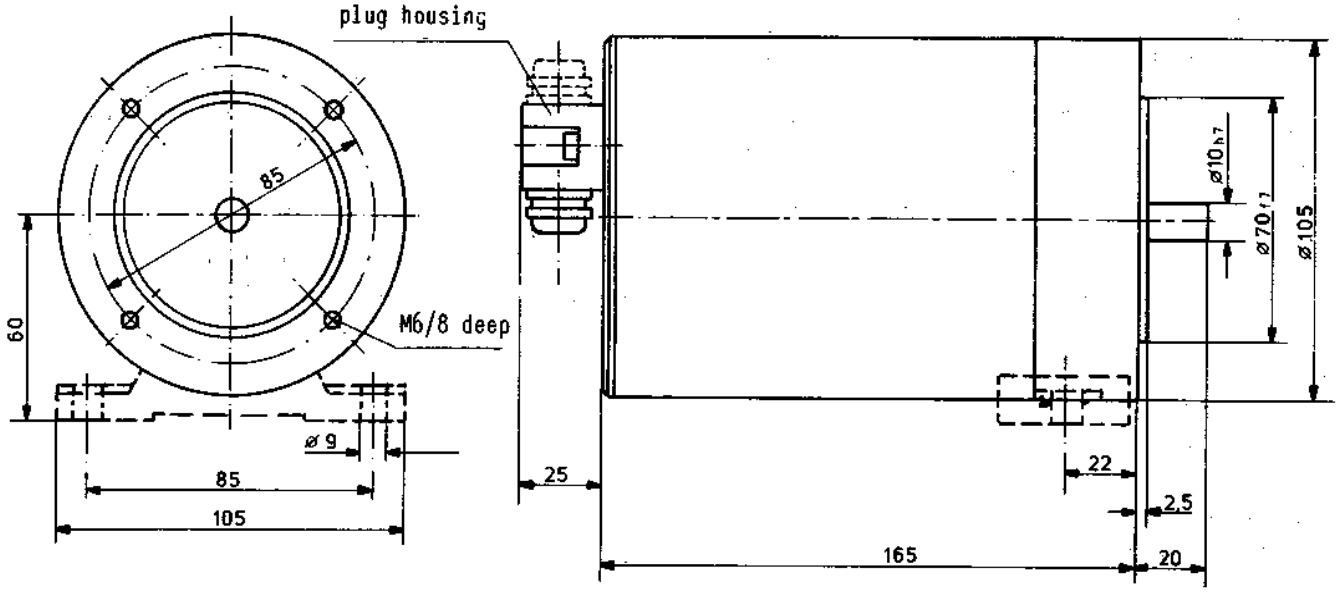
Basic circuity



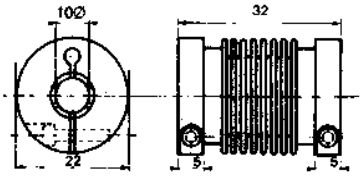
1) $\frac{\text{Capacity}}{\text{counts p.360°}}$ = Usable revolutions, e.g. $\frac{65536}{300.5}$ = 218 rev.

2) Only one figure behind decimal point to be shown, if applicable

Dimensions in mm



Stainless steel bellow coupling 491/10



Accessories

Mating plug with DB 25 S sockets and sealed cover is supplied with each encoder. Coupling and mounting bracket must be ordered separately.

Encoders with BCD-output can be used with TWK-indicators WA 100 and WV 104 (Data Sheet 2833 EA)