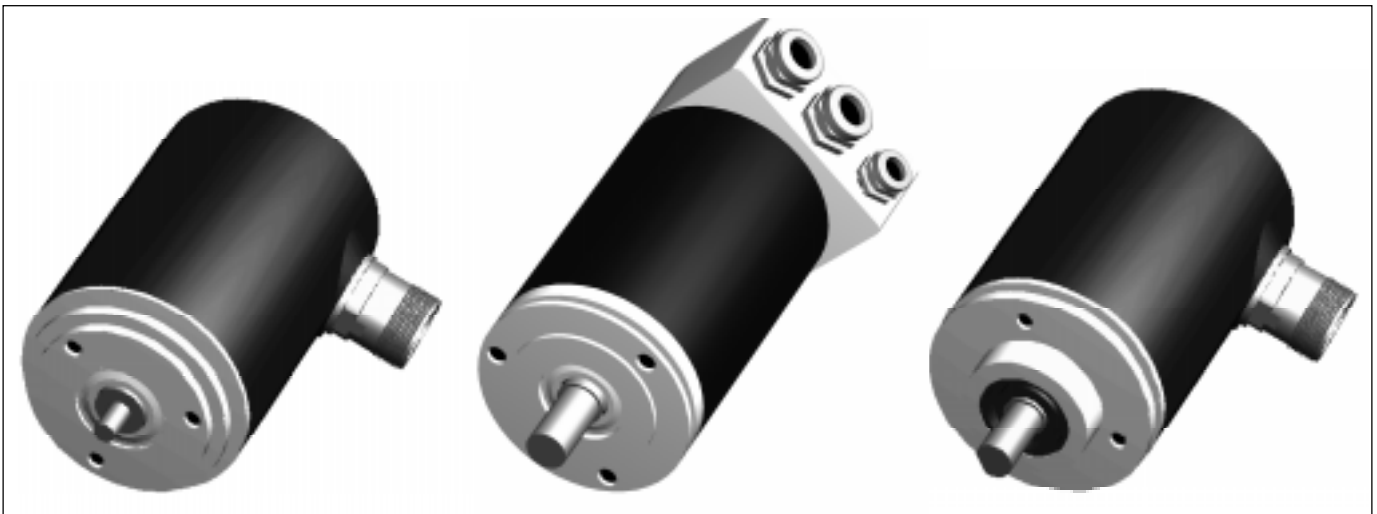


- **Compact and robust design for mechanical engineering and industrial plant applications**
- **With "Device Profile for Encoders CIA Draft Standard Proposal 406 Version 2.0"**
- **Data rate : Up to 1 Mbaud**
- **Output code: Natural binary**
- **Resolution: 8192 positions (steps) per revolution (13 bits) max.**
- **Measuring range: 4096 revolutions (12 bits) max.**
- **Total number of positions: 2²⁵ (25 bits)**
- **Variant "Z" with connecting cap: Integral addressing facility and Baud rate selection switches**
- **Variant "L" with round connecting: Address setting and Baudrate selection via software**
- **To Protection grade IP 65 or IP 66**



Construction

Flange and housing of aluminium - shaft of stainless steel - 12 mm ball-bearings with Nilos ring seal or radial packing ring seal - code disc of glass or of deformation resistant plastic - GaAIAs diodes - photo-transistor array with comparator and trigger circuits for long-term stabilization of the sensor system

General features

The CRN/C encoders conform to the CANopen interface for Encoders to the CIA specification DSP 406 / Class 1 and Class 2.

Besides administrative and pre-defined messages such as Emergency-Messages and Synchronization, support is given to Servicedata Objects (SDOs) and processdata Objects (PDOs).

PDOs are used for data exchange between master and slave, SDOs are used for direct reading and writing access to Object Registers between master and slave. The main application of SDOs is the device configuration, e.g. modification of the transmission type Tx-PDO-Object 1800 H.

The TZY 10750 operating manual describes the protocol.

CANopen Features

- NMT Master: no
- NMT-Slave: yes
- Maximum Boot up: no
- Minimum Boot up: yes
- COB ID Distribution: Default, SDO
- Node ID Distribution: DIP switch Variante Z via Index 2000 Variante L
- No of PDOs: 2 Tx
- PDO-Modes: sync, async, cyclic, acyclic
- Variables PDO-Mapping: no
- Emergency Message: yes
- Node Guarding: yes
- No. of SDOs: 1 Rx / 1 Tx
- Device Profile: CiA DSP 406

Encoder features

- Resolution: 1 to 4096 (or 8192) positions (steps) per revolution
- Measuring range: 1 to 4096 revolutions
- Total Capacity (positions): 16.777.216 (24 bit)
33.554.432 (25 bit)
- Output code: Natural binary
- Code sense: CW or CCW
- Reference value: 0 to total capacity less 1
- Working area status: greater or smaller
- Lower limit: 0 to total capacity less 1
- High limit: 1 to total capacity

General parameters

- Datarate: 20 kBaud, 125 kBaud, 500 kBaud or 1 MBaud
Default: 20 kBaud
- Node address: 1-64, Default: 1
- Scale function: on/off (ref. to operating mode)
- Cycle time: 0 to 65536 ms
- Alarms: Device Hardware, Hardware Memory Error, Communication Error, Device specific Error (e. g. EEPROM-error, CRC-error, ...)

Operating modes (can be programmed via SDO)

- Polling mode (asynchronous): The encoder sends its actual process value when the master has called the actual position value through a Remote Frame telegram.
- Cycle mode (asynchronous-cycle): The encoder sends its actual process value without being called by the master. The cycle rate can be fixed with in 1 ms to 65536 ms.
- Synch mode (synchronous-cyclic*): After having received a SYNC telegram from the master the encoder sends its process value. The SYNC counter can be programed in such a way that the position value will not be send but after a pre-defined number of SYNC telegrams.
- Acyclic mode (synchronous-acyclic*): The encoder send its actual process value after receipt of a SYNC telegram provided the position value has changed after the previous transmission.

* PDO-transmission type

Electrical data

- Sensor system: GaAIAs-diodes - photo array, photo transistors
- CAN-interface (connection): to ISO / DIS 11898
- Resolution: 4096 positions per rev. (12 bit)
8192 positions per rev. (13 bit)
- Max. position variance: $\leq \pm 2'38''$ for 12 bit version
 $\leq \pm 1'59''$ for 13 bit version
- Supply voltage range: + 11 to + 30 VDC
- Power consumption: $P_v \leq 3,5 W$
(inrush current $\leq 300 mA$)

Mechanical data

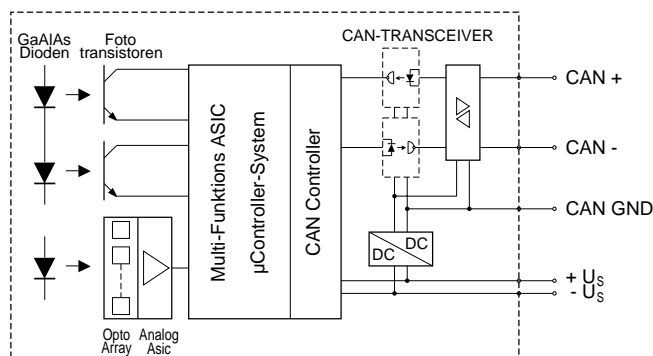
- Operating speed: 3000 rpm max. (continuous)
4000 rpm max. (short period)
- Angular acceleration: 10^5 rad/s^2 max.
- Moment of inertia (rotor): 45 gcm^2
- Operating torque: $\leq 5 \text{ Ncm}$ (8 Ncm - CRD 66)
(at 1000 rpm)
- Starting torque: $\leq 1 \text{ Ncm}$ (4 Ncm - CRD 66)
- Permissible shaft load: 250 N max. (axial and radial)

- Bearing life expectancy: 10^9 revolutions *
 - Mass: ca. 0.5 kg with round connector
ca. 0.7 kg with connecting cap
- * At max. shaft load and working temperature between - 20 °C and + 60 °C. Longer life can be expected at lower shaft loads.

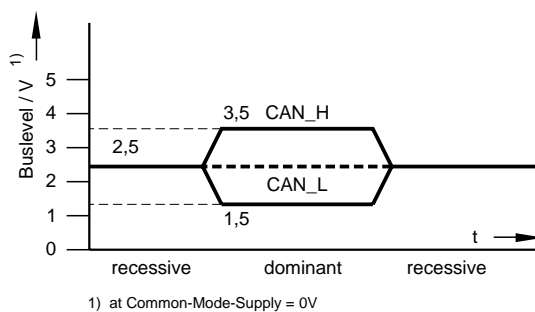
Environmental data

- Operating temperature range: - 20 °C to + 60 °C
 optional - 40 °C to + 85 °C
- Storage temperature range: - 20 °C to + 70 °C
 optional - 40 °C to + 95 °C
- Permissible rel. humidity: 85 % without condensation
- Resistance to shock: 200 m/s²; 11 ms (DIN IEC 68)
- Resistance to vibration: 5 Hz to 1000 Hz; 100 m/s² (DIN IEC 68)
- Protection grade (DIN 40 050)
CRN/C 58, 65, 105: IP 65 (Nilos ring)
CRN/C 66: IP 66 (radial packing ring)

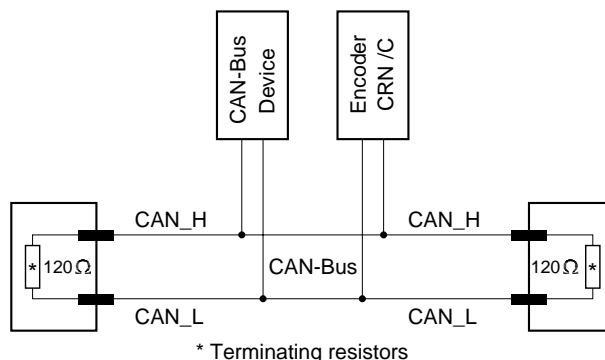
Block diagram



Output level to ISO / DIS 11898



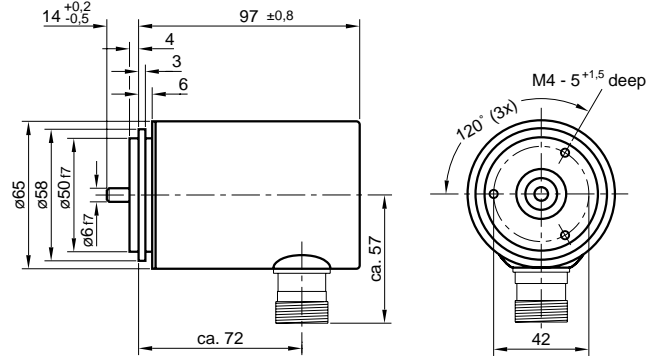
Connection to bus to ISO / DIS 11898



Dimensions in mm

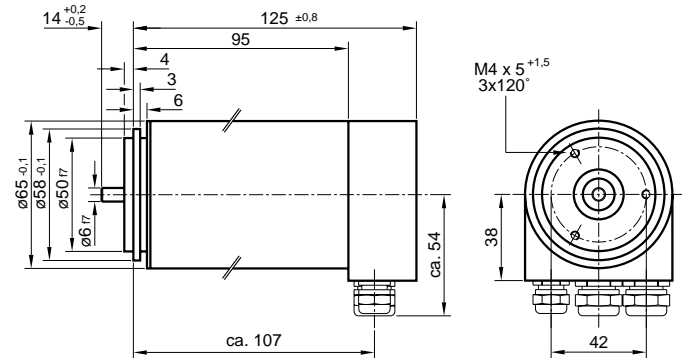
Variant "L" with round connector RS (12 pins)

Model No. 58 with synchro-flange

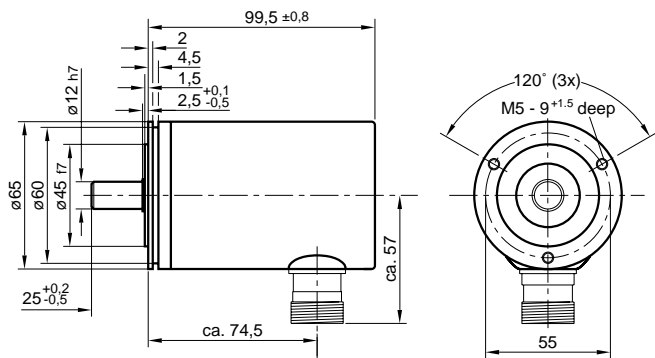


Variant "Z" with connecting cap ZN

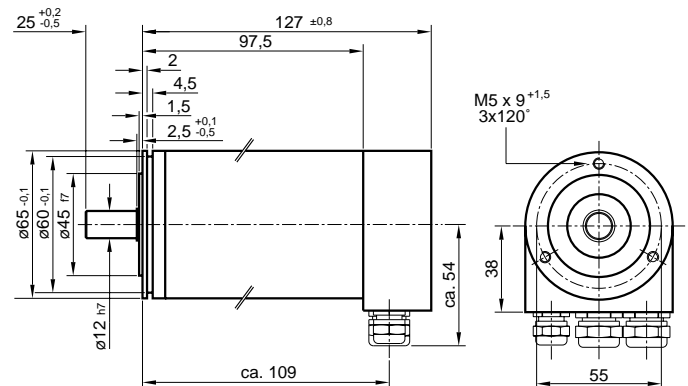
Model No. 58 with synchro-flange



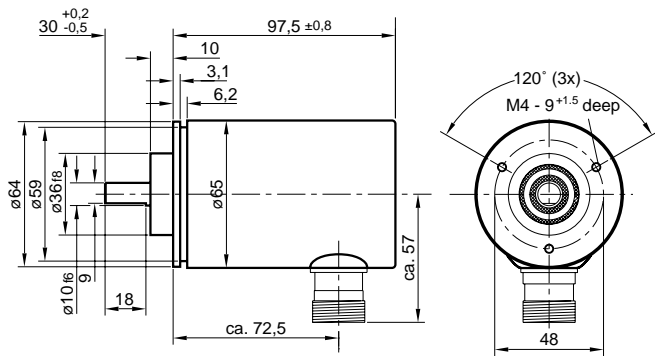
Model No. 65 with synchro-flange



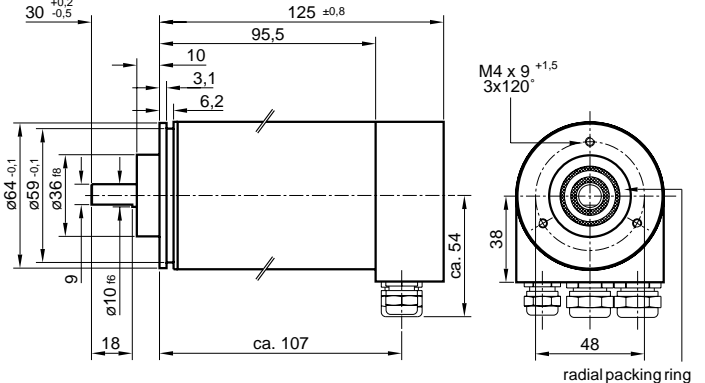
Model No. 65 with synchro-flange



Model No. 66 with clamping flange and shaft with flat



Model No. 66 with clamping flange and shaft with flat



The mating plugs do not form part of the scope of delivery

Drawing of model no.105 will be sent upon request.

Connecting cap ZN-P3L4-C01

The cap is listed and supplied as a separate item.

