Absolute encoders - bus interfaces

Through hollow shaft up to ø14 mm

Optical multiturn encoders 18 bit ST / 14 bit MT, CANopen®

GBP5H - CANopen®

GBP5H with through hollow shaft

Features

- **Encoder multiturn / CANopen®**
- **Optical sensing method**
- **Resolution: singleturn 18 bit, multiturn 14 bit**
- **Through hollow shaft up to ø14 mm**
- **High resistance to shock and vibrations**
- **LED status indicator**
- **CANopen® Profile CIA DSP 406**
- **Permanent check of code continuity**
- **Maximum resistant against magnetic fields**

Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤50 mA (24 VDC)
Initializing time typ.	250 ms after power on
Interface	CANopen®
Function	Multiturn
Transmission rate	10...1000 kBaud
Profile conformity	CANopen® CiA DSP 406 V 3.0
Operating mode	Event-triggered / Time-triggered Remotely-requested Sync (cyclic) / Sync (acyclic)
Identifier	11 bit
Steps per turn	≤262144 / 18 bit
Number of turns	≤16384 / 14 bit
Absolute accuracy	±0.01 °
Sensing method	Optical
Code	Binary
Code sequence	CW/CCW programmable
Output stages	CAN bus standard ISO / DIS 11898
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Programmable parameters	Operating modes Total resolution Scaling Rotation speed monitoring
Diagnostic functions	Position or parameter error Multiturn sensing
Status indicator	DUO-LED integrated in housing
Approval	UL approval / E63076

Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø10 mm (through hollow shaft) ø12 mm (through hollow shaft) ø14 mm (through hollow shaft)
Protection DIN EN 60529	IP 54, IP 65 (optional)
Operating speed	≤6000 rpm (mechanical) ≤6000 rpm (electric)
Starting acceleration	≤1000 U/s²
Starting torque	≤0.015 Nm (+25 °C, IP 54)
Rotor moment of inertia	20 gcm²
Materials	Housing: steel Flange: aluminium
Operating temperature	-25...+85 °C -40...+85 °C (optional)
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 16-2000 Hz DIN EN 60068-2-27 Shock 100 g, 4 ms
Weight approx.	500 g
Connection	Connector M12, 5-pin Connector M23, 12-pin

GBP5H - CANopen®

Part number

GBP5H. | | **10** | | **06** |

Interface
- 06 CANopen® DSP 406 / galvanically isolated

Connection
- A3 Connector M23, 12-pin, radial
- M1 Connector M12, 5-pin, radial

Voltage supply
- 10 10...30 VDC

Through hollow shaft
- 8 ø10 mm, without pin
- 9 ø10 mm, pin 15 mm
- 0 ø12 mm, without pin
- 1 ø12 mm, pin 15 mm
- B ø12 mm, pin 9.5 mm
- 4 ø14 mm, without pin
- 5 ø14 mm, pin 15 mm
- F ø14 mm, pin 9.5 mm

Accessories

Connectors and cables

Z 148.001	Female connector M23, 12-pin, without cable
Z 148.003	Female connector M23, 12-pin, 2 m cable
Z 148.005	Female connector M23, 12-pin, 5 m cable
Z 148.007	Female connector M23, 12-pin, 10 m cable
Z 180.003	Female connector M12, 5-pin, A-coded, 2 m cable
Z 180.005	Female connector M12, 5-pin, A-coded, 5 m cable
Z 180.007	Female connector M12, 5-pin, A-coded, 10 m cable

Mounting accessories

Z 119.024	Torque support and spring washer for encoders with 9.5 mm pin
Z 119.041	Torque support by rubber buffer for encoders with 15 mm pin
Z 119.050	Spring coupling for one-side attachment, length 35 mm
Z 119.053	Spring coupling for motor's fan guard
Z 119.072	Spring coupling for encoders with ø58 mm housing, hole distance 73 mm
Z 119.073	Spring coupling for encoders with ø58 mm housing, hole distance 68 mm
Z 119.076	Spring coupling for one-side attachment, length 115 mm
Z 119.082	Spring coupling for encoders with ø58 mm housing, hole distance 63 mm

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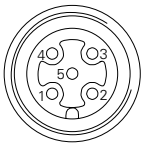
Terminal significance	
UB	Encoder voltage supply
GND B	Encoder ground connection relating to UB
CAN_L	CAN bus signal (dominant Low)
CAN_H	CAN bus signal (dominant High)
CAN_GND	GND relating to CAN interface. Depending on model separated from GND B either by galvanic isolation or by inductive earthing.

CANopen® features	
Bus protocol	CANopen®
Device profile	CANopen® - CiA DSP 406, V 3.0 (Device Class 2, CAN 2.0B)
Operating modes	Event-triggered / Time-triggered Remotely-requested Sync (cyclic) / Sync (acyclic)
Preset	Parameter for setting the encoder to a requested position value assigned to a defined shaft position of the system. The offset of encoder zero point and mechanical zero point is stored in the encoder.
Rotating direction	Parameter for defining the rotating direction in which there have to be ascending or descending position values.
Scaling	Parameter defining the steps per turn as well as the total resolution.
Diagnosis	The encoder supports the following error warnings: - Position and parameter error - Lithium battery voltage control (Multiturn)
Node Monitoring	Heartbeat or Nodeguarding
Default	50 kbit/s, Node ID 1

Terminal assignment

M12-connector

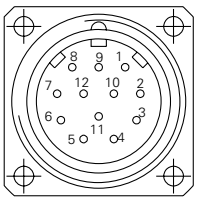
Connector	Core colour	Assignment
Pin 1	brown	GND B
Pin 2	white	UB
Pin 3	blue	CAN_GND
Pin 4	black	CAN_H
Pin 5	grey	CAN_L



Please use cores twisted in pairs (for example CAN_H / CAN_L) for extension cables of more than 10 m length.

M23-connector

Connector	Core colour	Assignment
Pin 1	brown/green	UB
Pin 2	white/green	GND B
Pin 3	pink	CAN_L
Pin 4	grey	CAN_H
Pin 5	white	CAN_GND
Pin 6-12	–	–



Please use cores twisted in pairs (for example CAN_H / CAN_L) for extension cables of more than 10 m length.

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Dimensions