

Absolute Encoders - SSI

End shaft $\varnothing 12$ mm

Magnetic multiturn encoder 12 bit ST / 12 bit MT

adparts

GCM2S



GCM2S with end shaft

Features

- Magnetic multiturn encoder / SSI
- Resolution: 12 bit singleturn and 12 bit multiturn
- End shaft $\varnothing 12$ mm
- Encoder for heavy-duty applications
- New innovative sensing technology
- Code continuity check optional by bus
- Electronic setting of zero point

Technical data - electrical ratings

Supply voltage range	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤ 50 mA (24 VDC)
Initializing time	200 ms after power on
Interface	SSI
Steps per turn	4096 / 12 bit
Number of turns	4096 / 12 bit
Absolute accuracy	$\pm 1^\circ$
Code	Gray or binary
Code sequence	CW/CCW coded by connection
Inputs	SSI clock Control signals UP/DOWN and zero
Output levels	SSI data linedriver RS485 Diagnostic outputs push-pull
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Diagnostic functions	Self-diagnosis Code continuity check Multiturn sensing
Approval	UL Approval / E63076

Technical data - mechanical design

Housing	$\varnothing 58$ mm
Shaft	$\varnothing 12$ mm end shaft
Protection DIN EN 60529	IP 54
Operating speed	≤ 6000 rpm
Starting torque	≤ 0.015 Nm
Rotor moment of inertia	20 gcm ²
Materials	Housing: steel Flange: steel
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 200 g, 6 ms
Weight approx.	600 g
E-connection	Connector, 12-pins

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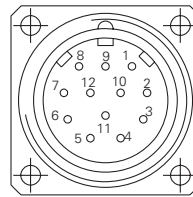
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Terminal significance	
UB	Encoder supply voltage.
GND	Encoder ground connection relating to UB.
Data+	Positive, serial data output of differential linedriver.
Data-	Negative, serial data output of differential linedriver.
Clock+	Positive SSI clock input. Clock+ together with clock- forms a current loop. A current of approx. 7 mA towards clock+ input means logic 1 in positive logic.
Clock-	Negative SSI clock input. Clock- together with clock+ forms a current loop. A current of approx. 7 mA towards clock- input means logic 0 in positive logic.
Zero	Input for setting a zero point anywhere within the programmed encoder resolution. The zero setting operation is triggered by a High impulse and has to be in line with the selected direction of rotation (UP/DOWN). Connect to GND after setting operation for maximum interference immunity. Impulse duration ≥ 100 ms.
$\overline{\text{DATAVALID}}$	Diagnostic output. An error warning is given at level Low. Important: Interferences must be drained by the downstream electronics.
$\overline{\text{DATAVALID MT}}$	Diagnostic output. Multiturn sensor supply control. Upon dropping below a defined voltage level the DV MT output is switched to Low.
$\overline{\text{UP/DOWN}}$	$\overline{\text{UP/DOWN}}$ counting direction input. This input is standard on High. $\overline{\text{UP/DOWN}}$ means ascending output data with clockwise shaft rotation when looking at flange. $\overline{\text{UP/DOWN}}$ -Low means ascending values with counterclockwise shaft rotation.

Terminal assignment		
Connector	Core colour	Assignment
Pin 1	brown	UB
Pin 2	black	GND
Pin 3	blue	Clock+
Pin 4	beige	Data+
Pin 5	green	Zero
Pin 6	yellow	Data-
Pin 7	violet	Clock-
Pin 8	brown/yellow	$\overline{\text{DATAVALID}}$
Pin 9	pink	$\overline{\text{UP/DOWN}}$
Pin 10	black/yellow	$\overline{\text{DATAVALID MT}}$
Pin 11	-	-
Pin 12	-	-



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

Trigger level	
SSI	Circuit
SSI-Clock	Optocoupler
SSI-Data	Linedriver RS485
Control inputs	Input circuit
Input level High	$>0.7 \text{ UB}$
Input level Low	$<0.3 \text{ UB}$
Input resistance	10 k Ω
Diagnostic outputs	Output circuit
	Push-pull circuit-proof
Output level High	$>\text{UB} - 3.5 \text{ V}$ (I = -20 mA)
Output level Low	$<0.7 \text{ V}$ (I = 20 mA)
Load High	$<20 \text{ mA}$
Load Low	$<20 \text{ mA}$

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Dimensions

