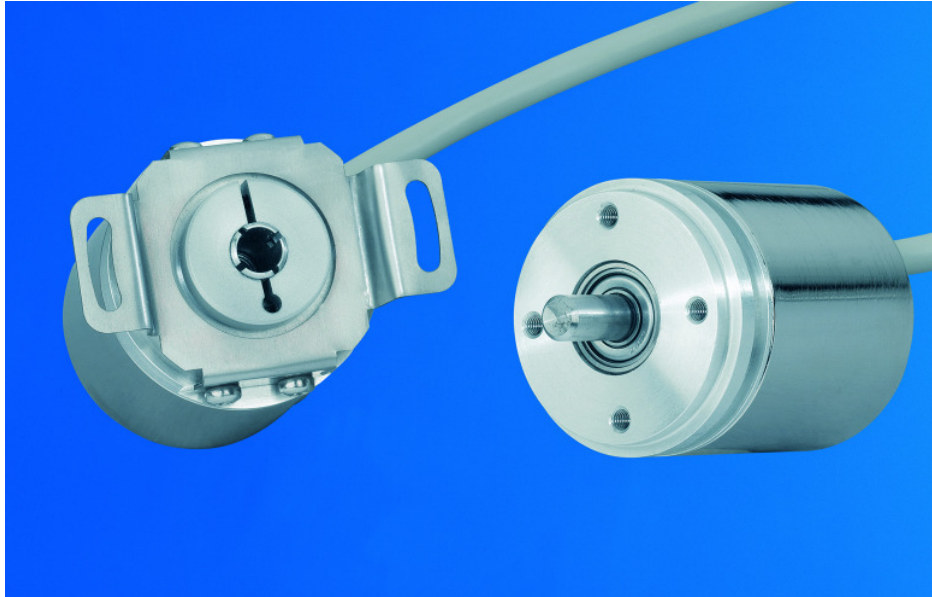


SMALL ABSOLUTE ROTARY ENCODER SSI



High-resolution absolute encoder based on magnetical technology. Singleturn encoding based on 360° Hall technology. Multiturn encoding based on magnetic pulse counter. No batteries used.

Main Features

- Compact industrial model
- Interface: SSI (Synchronous-serial Interface)
- Housing: 36,5 mm Ø
- Shaft: 6 mm Ø
- Blind hollow shaft 6 mm Ø
- Max. 16.384 steps/revolution (14 bit)
- Max. revolution not limited (typical 14 bit)
- Preset input
- Code: Gray or Binary
- EMC: EN 61000-6-2, EN 61000-6-4

Mechanical Structure

- Aluminum flange
- Nickel-plated steel housing
- Stainless steel shaft
- Precision ball bearings with sealing or cover rings

Applications

- Sensing of :
 - o Angles
 - o Distances
 - o Tracks
 - o Inclinations
 - o Differences between two or more axes

Electrical Features

- Highly integrated circuit in SMD -technology
- Polarity inversion protection
- Over-voltage-peak protection

SMALL ABSOLUTE ROTARY ENCODER SSI

Technical data

Electrical data

Clock input	Via opto-coupler
Data output	Line-driver according to RS 422
Clock frequency	100 kHz - 2 MHz
Supply voltage	10-30 V DC (absolute maximum ratings) *
Turn on time	< 1 s
Power consumption	about 2 W
Electrical lifetime	> 10 ⁵ h
EMC	Emitted interference: EN 61000-6-4
	Noise immunity: EN 61000-6-2
Connection	cable exit

* Supply voltage according to EN 50 178 (safety extra-low voltage)

Sensor data

Singleturn technology	magnetic 2 axis Hall sensor
Singleturn resolution	up to 16.384 steps / revolution (14 Bit)
Singleturn accuracy	+/- 1.5° (S1 version) alternatively calibrated +/-0,35° (SC version)
Internal cycle time Singleturn	< 600 µs
Multiturn technology	self supplied magnetic pulse counter
Multiturn resolution	can measure up to 200 Billion revolutions, limited by memory

Environmental Conditions

Operating temperature	- 30 ... + 70 °C (static mounted cable) *
Storage temperature	- 30 ... + 70 °C
Humidity	98 % (without liquid state)
Protection Class (EN 60529)	Casing side: IP 54
	Shaft side: IP 54

* depends on used cable. Temperatures above on request

SMALL ABSOLUTE ROTARY ENCODER SSI

Mechanical data

Housing	nickel-plated steel housing	
Flange	Aluminum	
Shaft	stainless steel	
Lifetime	Dependent on shaft version and shaft loading – refer to table	
Max. shaft loading	Axial 40 N, radial 110 N	
Inertia of rotor	$\leq 30 \text{ gcm}^2$	
Friction torque	$\leq 3 \text{ Ncm}$	
RPM (continuous operation)	max. 12.000 RPM	
Shock (EN 60068-2-27)	$\leq 100 \text{ g}$ (half sine, 6 ms)	
Permanent shock (EN 60028-2-29)	$\leq 10 \text{ g}$ (half sine, 16 ms)	
Vibration (EN 60068-2-6)	$\leq 10 \text{ g}$ (10 Hz ... 1,000 Hz)	
Weight (standard version)	$\approx 150 \text{ g}$, including cable	
Flange	Synchro (S)	Blind hollow shaft (B)
Shaft diameter	6 mm	6 mm
Shaft length	11,5 mm	-
Hollow shaft depth min. / max.	-	8 mm / 18 mm

Minimum (mechanical) lifetime

Flange	Lifetime in 10^8 revolutions with F_a / F_r		
	40 N / 60 N	40 N / 80 N	40 N / 110 N
S6 Synchro flange	216	91	35

Cable

Operating temperature cable	flexing -5°C bis +70°C static -30°C bis +70°C
Minimum bend radius	flexing 10x cable diameter static 5x cable diameter
Cable	aprox 6 mm \varnothing / type : LIYCY 4x2x0.14

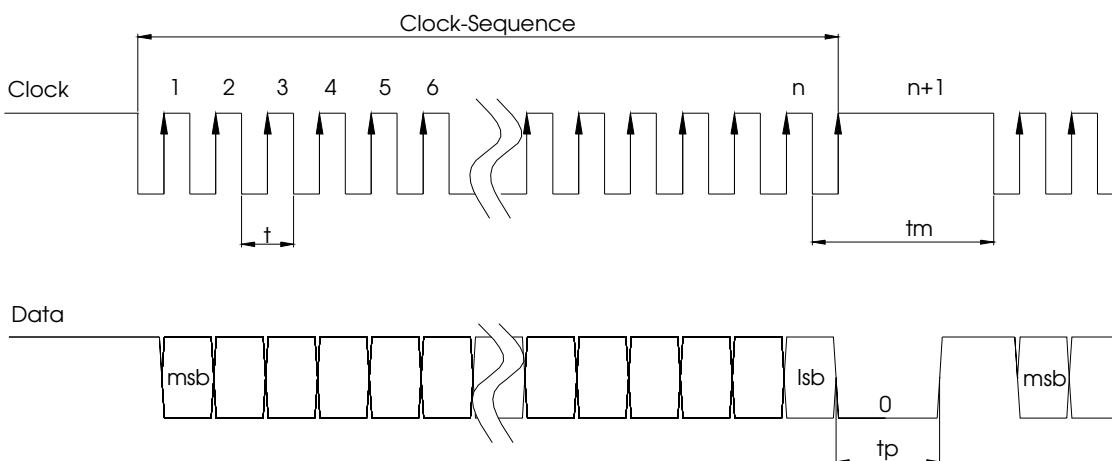
SMALL ABSOLUTE ROTARY ENCODER SSI

Interface

Synchronous Serial Interface (SSI)

Driver	Driver meets EIA standard RS 422; transmission rates up to 10 MBit/s
Transfer	Transfer distance up to 1.200 m
Transmission	Balanced transmission provides high noise immunity, shielded and twisted pair lines are essential to attain extremely high noise immunity

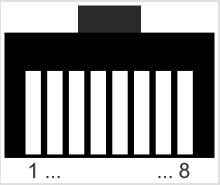
Protocol SSI



Detailed SSI-Interface description under www.posital.de

Electrical connection

A RJ45 Connector is mounted on the cable end. This connector can be used for test purposes also for custom installation.

Function	Wire end	Connector Pin-No.	Pinning Connector
SSI Clk-	yellow	4	(frontview) 
SSI Clk+	green	3	
SSI Data+	grey	5	
SSI Data-	pink	6	
+ U _b = 10-30 V	brown	2	
GND	white	1	
Preset	black or blue	7	
Complement	red	8	
Shielding	Shielding	-	

SMALL ABSOLUTE ROTARY ENCODER SSI

Presetfunction

Voltage Level	Function
0 (Input = N.C. oder GND)	inactive
1 (Input $\geq 10V$ / Input $\leq UB$)	the encoder value will set to 0 after 1 sec
Input Resistance	10 kOhm

Complementfunction

Voltage Level	Encoder counting direction for clockwise rotation (view on shaft)
0 (Input = N.C. oder GND)	Up
1 (Input $\geq 10V$ / Input $\leq UB$)	Down
Input Resistance	10 kOhm

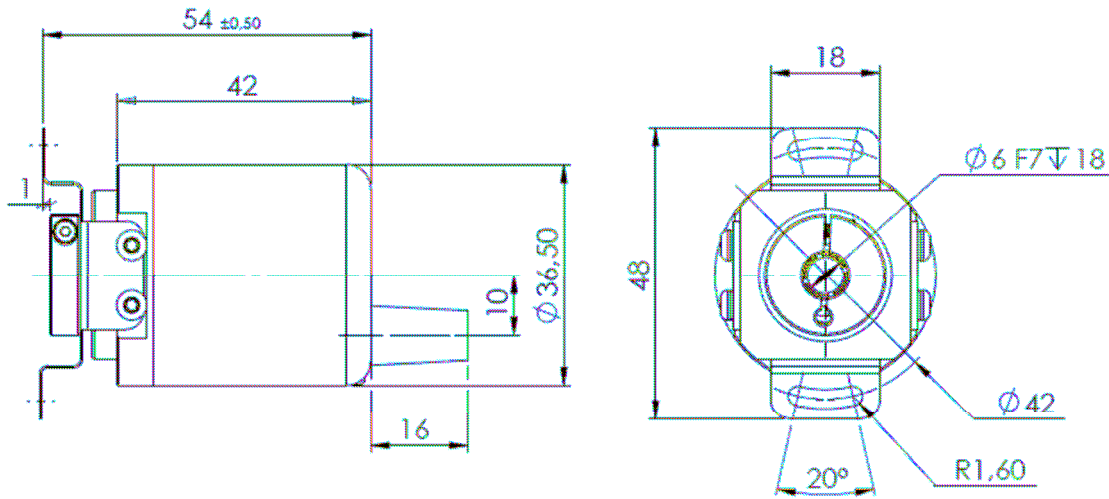
POSITAL

FRABA

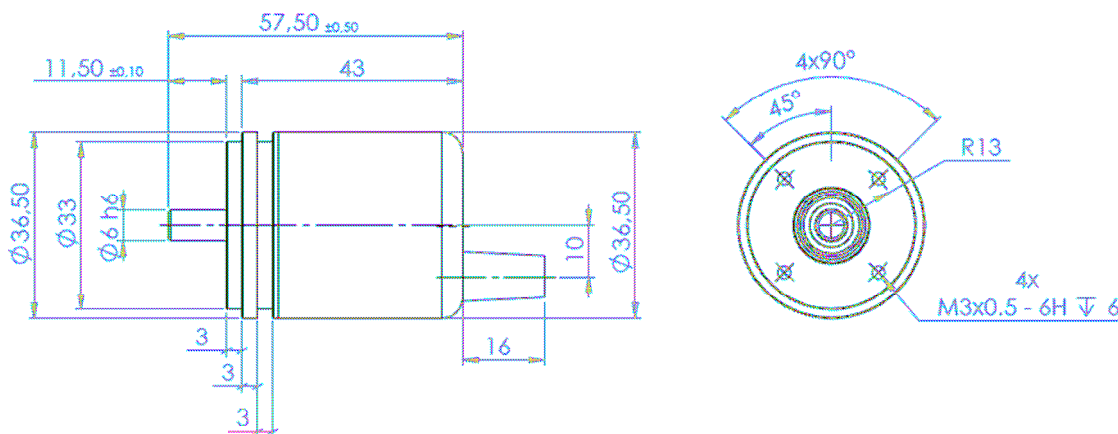
SMALL ABSOLUTE ROTARY ENCODER SSI

Mechanical Drawings

Blind hollow shaft (B)



Synchro Flange (S)



SMALL ABSOLUTE ROTARY ENCODER SSI

Models / Ordering Description

Description	Type key							
Magnetocode	MCD-	__	00	-	-	-	-	-
Interface (8 Bit Accuracy)	SSI	S1						
(10 Bit Accuracy)		SC						
Version			00					
Code	Gray			G				
	Binary			B				
Bits for Revolutions	Single turn				00			
	Multi turn (4.096 turns)				12			
	Multi turn (8.192 turns)				13			
Steps per revolution (Bits)	4.096 (0.09°)					12		
Flange	Synchro flange						S	
	Blind hollow shaft						B	
Shaft diameter	06 mm							06
Mechanical options	Without							0
Connection	Cable exit, axial 1m							CAW

Standard = bold, further models on request

Ordering example :

MCD-S100G-1312-S060-CAW