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SSI SYNCHRONOUS SERIAL INTERFACE | BiSS INTERFACE | CE

Code	Project	Release	
CST48	**B25-D**	**S**	**TECHNICAL DATASHEET**

MAGNETIC SENSOR CSA - 2 Series

GENERAL FEATURES

- Linear magnetic sensor, with direct reading of the absolute position.
- High-speed SSI - BiSS C (unidirectional) serial interface.
- Resolutions up to 1 μm.
- Contactless reading.
- Measuring length up to 30 000 mm.
- Warning indication through LED.
- Extremely easy and fast mounting of the entire measuring system, with wide alignment tolerances.
- Small size, to allow installation in narrow spaces.
- Option: 1 Vpp analog signal.
- Axial or radial cable output.

MECHANICAL AND ELECTRICAL CHARACTERISTICS

MECHANICAL

- Magnetic sensor with die-cast body.
- Possibility to fix the magnetic sensor with M4 screws or with through M3 screws.
- Wide alignment tolerances.
- Robust sealed cable exit.

ELECTRICAL

- Option: 1 Vpp A and B output signals, with phase displacement of 90° (electrical).
- Serial protocol SSI - BiSS C (unidirectional).
- Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- Electrical protection against inversion of power supply polarity and short circuits on output ports.
- CABLE:
  - Shielded twisted pair for digital signals (SSI - BiSS).
  - The cable is suitable for continuous movements.

  ANALOG + SERIAL OUTPUT VERSION
  - 10-wire shielded cable $\varnothing$ = 7.1 mm, PUR external sheath.
  - Conductors section: power supply 0.35 mm^2; signals 0.10 mm^2.

  The cable's bending radius should not be lower than 80 mm.

  SERIAL OUTPUT VERSION
  - 6-wire shielded cable $\varnothing$ = 7 mm, PVC external sheath, with low friction coefficient, oil resistant.
  - Conductors section: power supply 0.25 mm^2; signals 0.25 mm^2.

  The cable's bending radius should not be lower than 70 mm.

SIGNALS	CONDUCTOR COLOR
+ V	Brown
0 V	White
CK	Green
$\overline{CK}$	Yellow
D	Pink
$\overline{D}$	Grey
SCH	Shield

Model. CSA	2
Pole pitch	2+2 mm
Incremental signal	sine wave 1 Vpp (optional)
Resolution 1 Vpp	up to 1 μm *
Signal period	2 mm
Repeatability	± 1 increment
Serial interface	SSI - BiSS C (unidirectional)
Resolution absolute position	500 - 100 - 50 - 10 - 5 - 1 μm
Accuracy	± 15 μm
Measuring length ML	up to 30 000 mm
Max. traversing speed	300 m/min
Vibration resistance (EN 60068-2-6)	200 m/s^2 [55 ÷ 2 000 Hz]
Protection class (EN 60529)	IP 67
Operating temperature	0 °C ÷ 50 °C standard -20 °C ÷ 80 °C on request
Storage temperature	-30 °C ÷ 90 °C standard -45 °C ÷ 90 °C on request
Relative humidity	100%
Power supply	5 ÷ 28 Vdc ± 5%
Current consumption	150 mA$_{MAX}$ (with R = 120 Ω) 5 Vdc 100 mA$_{MAX}$ (with R = 1200 Ω) 24 Vdc
Max. cable length	20 m **
Electrical connections	see related table
Electrical protections	inversion of polarity and short circuits
Weight	85 g

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  *   Depending on CNC division factor.
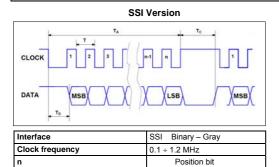 **   Ensuring a minimum power supply of 5 V to the sensor, the maximum cable length can be extended to 50 m.
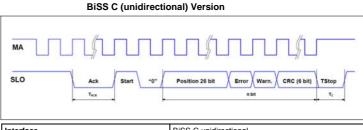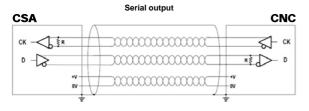
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OUTPUT SIGNALS

SSI Version

Interface	SSI Binary – Gray
Clock frequency	0.1 ÷ 1.2 MHz
n	Position bit
T_C	max. 25 µs

BiSS C (unidirectional) Version

Interface	BiSS C unidirectional
Clock frequency	0.1 ÷ 8 MHz
n	26 + 2 + 6 bit
T_C	8 µs

CABLE

Serial output

CSA ... **CNC**
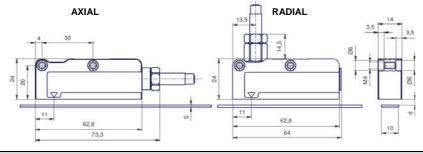

In case of cable extension, it is necessary to guarantee:
- the electrical connection between the body of the connectors and the cables shield;
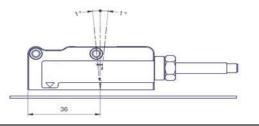- a minimum power supply voltage of 5 V to the sensor.
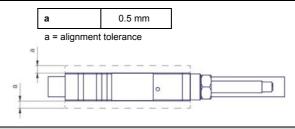
SENSOR DIMENSIONS

AXIAL

RADIAL

values in mm	CP200A	CP200A + CV103	CP200A + SP202
s	1.3	1.6	2.1
d	0.3 ÷ 1	0.7 MAX	0.2 MAX

s = thickness
d = distance to be maintained between sensor and surface of the magnetic band (or eventual cover/support)

SENSOR ALIGNMENT TOLERANCES

a	0.5 mm

a = alignment tolerance

ORDERING CODE

MODEL	POLE PITCH	RESOLUTION	CABLE OUTPUT	POWER SUPPLY	OUTPUT SIGNALS	INCREMENTAL SIGNAL	CABLE LENGTH, CABLE TYPE	CONNECTOR
CSA	**2**	**1**	**A**	**528V**	**S0**	**V**	**M02 / S**	**SC**

	POLE PITCH	RESOLUTION	CABLE OUTPUT	POWER SUPPLY	OUTPUT SIGNALS	INCREMENTAL SIGNAL	CABLE LENGTH, CABLE TYPE	CONNECTOR
	2 = 2+2 mm	10 = 10 µm 5 = 5 µm 1 = 1 µm	A = axial R = radial	528V = 5 ÷ 28 V	S0 = SSI programmable S1 = SSI binary S2 = SSI binary+even parity S3 = SSI binary+odd parity S4 = SSI binary+error S5 = SSI binary+even parity+error S6 = SSI binary+odd parity+error S7 = SSI Gray B1 = BiSS binary	V = + 1 Vpp No cod. = no incremental signal	Mnn = length in m M02 = 2 m (standard) M50 = 50 m R = 6 wires (only serial) S = 10 wires (serial + analog)	SC = without connector Cnn = progressive

Standard ☞ **ABSOLUTE MAGNETIC SENSOR   CSA S1A 528V S0 V M02 / S SC**