

CANopen[®] PRESSURE & TEMPERATURE SENSOR

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PARAMETER SET SURVEY

For more profounding information, please refer to the **SMC Technical Description** (EI-000038).

1 HARDWARE

- Galvanic isolation included** ☐ No ☐ Yes (-40...105°C)
- Bus termination included** ☐ No
☐ Yes: 120Ω
☐ Yes: Split (2x 60Ω + 4,7nF)
☐ Yes: Switchable 120Ω (-40...100°C)
- EMC requirements** ☐ Industrial CE ☐ Railway applications
☒ 12V/24V vehicles

2 SOFTWARE PARAMETERS

2.1 General parameters

- Initial bit rate** [kBit/s] ☐ 20 ☐ 100
☐ 33.333 ☐ 125 (PMST standard)
☐ 40 ☐ 250
☐ 47.619 ☐ 500
☐ 50 ☐ 800
☐ 83.333 ☐ 1000
☐ 95.238 ☐ Other:
- Endianness of measurements** ☐ Little Endian (CANopen standard) ☐ Big Endian
- Bootup behaviour** ☐ Automatical transfer to *Operational State* („Autostart“)
☐ No automatical transfer to *Operational State*
- Node-ID** ☐ 0x20 (32₁₀) ☐ Other:
- Vendor-ID** ☐ Other:
- COB-ID settings**
- | | | |
|----------------|---|---------------------------------------|
| SYNC (0x1005) | ☐ 0x80 | ☐ Other: |
| TIME (0x1012) | ☐ 0x100 | ☐ Other: |
| EMCY (0x1014) | ☐ 0x80 + Node-ID | ☐ Other: |
| TPDO1 (0x1800) | ☐ 0x00000180 + Node-ID | ☐ Other: |
| TPDO2 (0x1801) | ☐ 0x00000280 + Node-ID | ☐ Other: |

Process Value – Linear Scaling
(in case of pressure transducer)

 Pressure
(Primary channel)
☐ 0...20000 ($\triangleq$ measuring range)

☐ Other:

 Temperature
(Secondary channel)
☐ 0...20000 ($\triangleq$ -55...125°C)

☐ Other:

Process Value – Linear Scaling
(in case of temperature transducer)

 Temperature
(Primary channel)
☐ 0...20000 ($\triangleq$ measuring range)

☐ Other:

2.2 TPDO configuration

Communication parameters
Transmission trigger TPDO1
☐ Timer (time as follows: ms)

☐ SYNC (count as follows:)

Transmission trigger TPDO2
☐ Timer (time as follows: ms)

☐ SYNC (count as follows:)

Mappings
(valid mapping entries see section 3)
TPDO1 mappings

Mapping 1:

Mapping 2:

Mapping 3:

Mapping 4:

TPDO2 mappings

Mapping 1:

Mapping 2:

Mapping 3:

Mapping 4:

2.3 Additional parameters

Heartbeat producer
☐ Enabled (time as follows: ms)

☐ Disabled

User-defined serial number
(Unsigned64; lower 32 bits used for LSS)
☐ Based on the engraved serial number

☐ Other:

Device Name String
(Corresponds to object entry 0x1008)
☐ Empty

☐ Other:

Comment String
(Accessible via object entry 0x4020)
☐ Empty

☐ Other:

3 APPENDIX A – VALID TPDO MAPPING ENTRIES

TPDO mapping is a simple and flexible method to build *Process Data Messages* and to arrange the desired data values completely according to the user's needs. There are multiple values that can be mapped into TPDO1 and TPDO2. The following table shows all mappable entries.

A short explanation for better understanding: Each SMC CANopen sensor features **two measuring channels**. In case of a CANopen **pressure sensor**, the *primary measuring channel* corresponds to the measured *pressure*; the secondary measuring channel provides a coarse temperature signal ($\pm 5K$).

In case of a **temperature sensor**, the *primary measuring channel* corresponds to the *temperature*; the secondary channel may be neglected.

Name	Value type	Value range	Object index, sub-index
Error Register	Unsigned8	-	0x1001, -
Field Value (<i>Primary channel</i>)	Integer16	0...20000	0x7100, 1
Field Value (<i>Secondary channel</i>)	Integer16	0...20000	0x7100, 2
Process Value (<i>Primary channel</i>)	Integer16	(Acc. to linear scaling, section 2.1)	0x7130, 1
	Integer32	(Acc. to linear scaling, section 2.1)	0x9130, 1
	Float32/Real	(Acc. to linear scaling, section 2.1)	0x6130, 1
Process Value (<i>Secondary channel</i>)	Integer16	(Acc. to linear scaling, section 2.1)	0x7130, 2
	Integer32	(Acc. to linear scaling, section 2.1)	0x9130, 2
	Float32/Real	(Acc. to linear scaling, section 2.1)	0x6130, 2
Status Byte (<i>Primary channel</i>)	Unsigned8	-	0x6150, 1
Status Byte (<i>Secondary channel</i>)	Unsigned8	-	0x6150, 2
Time stamp (<i>Days since 1984-01-01</i>)	Unsigned16	-	0x3140, 1
Time stamp (<i>Milliseconds</i>)	Unsigned32	-	0x3140, 2