# 8xPDIF-S

## 8x channel differential pressure sensor with CAN bus

SN: P########

Texense sensors are designed for data logging. Should the users want to include this sensor in a closed loop system, they must undertake total responsibility from doing so.

| Measurement features | | |
|---|---|---|
| Available ranges | ±50 to ±1000 | mBar |
| | ±0.7 to ±15 | PSI |
| Sensitive Element | Piezo resistive Cells | |
| Proof pressure[1] | ≤ ±350mbar range | 1400 |
| | ±1000mbar range | 3000 |
| Calibrator | Mensor CPC 4000 | |
| Accuracy | ±0.5 | % FS |
| Non linearity / Hysteresis | ±0.7 | % FS |
| Offset Drift | ±0.5 | % FS |
| Sensitivity drift | 0.5 | % |
| Sampling Frequency | 200 | Hz |
| CAN features | | |
| CAN bus standard | 2.0A or 2.0B | |
| Baudrate | 125K to 1M | bps |
| Output data frequency | 1Hz to 200Hz, or on trig | |
| Electrical features | | |
| Supply Voltage | 6 to 16 | V |
| Supply Current | 30 | mA |
| Mechanical features | | |
| Dimensions | See §Mechanical drawing | |
| Material | Aluminum | |
| Weight | 80 | g |
| Internal gasket | EPDM 70sh | |
| Environment | | |
| Protection | IP64 | |
| Vibration test | 20Gpp 5' | |
| Shock | 500 | G |
| Operating Temp | +5 to +85 | °C |
| Storage Temp | -40 to +125 | °C |
| Humidity | This sensor withstands high humidity. Avoid water entering in the tube as well as condensation, it may block the pressure. | |

(1)   Do not blow into the tubes with the mouth or a compressed air line

| Date | | Operator | |
|---|---|---|---|
| Customer | | | |
| Order | | | |
| Product Ref | 8xPDIF-S-#x#-###-# | | |
| SW version | V#.## | | |

| Sensor Readings | | | |
|---|---|---|---|
| Channel | at   mBar | at 0 mBar | at   mBar |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

| Software setup | | |
|---|---|---|
| CAN | ☒2.0A        ☐2.0B | - |
| CAN output | ☒STD        ☐MUX | - |
| Baudrate | 1M | bps |
| Frequency | 10 | Hz |
| Rx trig ID | 0x7F0 | - |
| Tx1 ID | 0x3F0 | - |
| Tx2 ID | 0x3F4 | - |
| Unit | ☒0.1mBar/bit      ☐1mPSI/bit | - |

| Factory setup | | |
|---|---|---|
| Autozero | ☒ Enable | ☐ Disable |
| CAN 120Ω termination resistor | ☐Connected | ☒Not connected |

A brand of texys GROUP
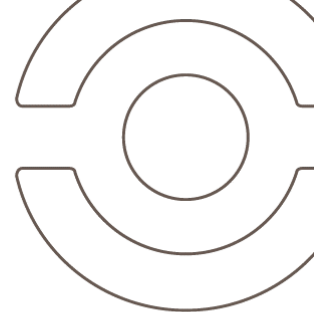
# Mechanical drawing

| Manifold version | Mechanical drawing |
|---|---|
| 1x common port ("S-1" ordering code) |  |
| 2x common port ("S-2" ordering code) |  |
| 8x common port ("S-8" ordering code) |  |

# Pinout

| Cable | | |
|---|---|---|
| 5x26AWG FEP tinned copper braided cable 250V 200°C Length: 1000mm   Tubing: 50mm Connector: on request | | |
| **Color** | **Function** | **Pin** |
| Red | Supply | - |
| Black | 0V | - |
| White | CAN Low | - |
| Green | CAN High | - |
| Yellow | Do not connect and isolate | - |
| Braid | - | |

## CAN data
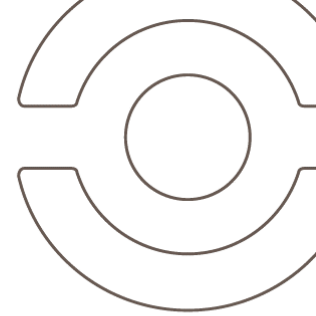
### Data output

The pressure values are provided in 16bit signed integer format. Resolution is 0.1mbar/bit or 1mPSI/bit, depending on configured unit.

#### Standard CAN (interframe spacing 2ms)

Frame #1     (default Tx1 Frame ID: 0x03F0)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Channel 1 MSB | Channel 1 LSB | Channel 2 MSB | Channel 2 LSB | Channel 3 MSB | Channel 3 LSB | Channel 4 MSB | Channel 4 LSB |
| | Pressure 1 | | Pressure 2 | | Pressure 3 | | Pressure 4 | |

Frame #2     (default Tx2 Frame ID: 0x03F4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F4 | Channel 5 MSB | Channel 5 LSB | Channel 6 MSB | Channel 6 LSB | Channel 7 MSB | Channel 7 LSB | Channel 8 MSB | Channel 8 LSB |
| | Pressure 5 | | Pressure 6 | | Pressure 7 | | Pressure 8 | |

#### Multiplexed CAN Data output (interframe spacing 1.5ms)

Frame #1     (default Tx1 Frame ID: 0x03F0, default Sensor ID: 0xF4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Sensor ID | Multiplexed Msg ID = 0 | Channel1 MSB | Channel1 LSB | Channel2 MSB | Channel2 LSB | Channel3 MSB | Channel3 LSB |
| | | | Pressure 1 | | Pressure 2 | | Pressure 3 | |

Frame #2     (default Tx1 Frame ID: 0x03F0, default Sensor ID: 0xF4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Sensor ID | Multiplexed Msg ID = 1 | Channel4 MSB | Channel4 LSB | Channel5 MSB | Channel5 LSB | Channel6 MSB | Channel6 LSB |
| | | | Pressure 4 | | Pressure 5 | | Pressure 6 | |

Frame #3     (default Tx1 Frame ID: 0x03F0, default Sensor ID: 0xF4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Sensor ID | Multiplexed Msg ID = 2 | Channel7 MSB | Channel7 LSB | Channel8 MSB | Channel8 LSB | Signed char | 0 |
| | | | Pressure 7 | | Pressure 8 | | Internal Temp. (°C) | |

### Data input

#### Trig frame

Rx Frame (default Rx Frame ID: 0x07F0)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x07F0 | Sensor ID | Multiplexed Msg ID | Don't Care | | | | | |
| | ID / 0xFF (all sensors) | 0,1,2 / 0xFF(all Msg) | | | | | | |

#### Auto-zero command (optional)

Command input frame

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x07F1 | 0xFF | - | - | - | - | - | - | 0x01 |

Acknowledge output frame

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x07F3 | 0xFF | Serial Number | | | | 0x00 | 0x00 | 0x01 |

This command can be used to re-zero all channels. Each time the sensor will receive the above CAN frame, the autozero function will be launched (except during first second after power-on). When autozero function is launched, a "customer offset" is set up and added for each channel on top of factory calibration. Those "Customer offsets" will be stored in volatile memory. Therefore, they will be lost when switching OFF the sensor and they will be initialized to 0 when switching ON the sensor.

# Changing parameters

> Must be setup according to Texense CAN protocol, or by using the tWist® software (texense Windows software tool) with the tSIB (texense Smart Interface Box).

| N° | Parameter | Raw values | Values | Comments |
|---|---|---|---|---|
| 0x00 | Baudrate | 0x00 | CAN2.0**A**  1Mbps | Default |
| | | 0x01 | CAN2.0**A**  500 Kbps | |
| | | 0x02 | CAN2.0**A**  250 Kbps | |
| | | 0x03 | CAN2.0**A**  125 Kbps | |
| | | 0x10 | CAN2.0**B**  1Mbps | |
| | | 0x11 | CAN2.0**B**  500 Kbps | |
| | | 0x12 | CAN2.0**B**  250 Kbps | |
| | | 0x13 | CAN2.0**B**  125 Kbps | |
| 0x01 | Emission frequency AND Standard CAN | 0x00 | Rx frame trigger mode | |
| | | 0x01 | 1 Hz | |
| | | 0x02 | 5 | |
| | | 0x03 | 10 | Default |
| | | 0x04 | 50 | |
| | | 0x05 | 100 | |
| | | 0x06 | 200 | |
| | Emission frequency AND Multiplexed CAN | 0x10 | Rx frame trigger mode | |
| | | 0x11 | 1 Hz | |
| | | 0x12 | 5 | |
| | | 0x13 | 10 | |
| | | 0x14 | 50 | |
| | | 0x15 | 100 | |
| | | 0x16 | 200 | |
| 0x02 | Rx frame ID | if CAN2.0A: 0x1 to 0x7F0 if CAN2.0B: 0x1 to 0xFFFF (except 0x7F1 to 0x7F3) | MSB of triggering frame ID | Default 0x07F0 |
| 0x03 | | | LSB of triggering frame ID | |
| 0x04 | Tx1 frame ID | if CAN2.0A: 0x1 to 0x7F0 if CAN2.0B: 0x1 to 0xFFFF (except 0x7F1 to 0x7F3) | MSB of data frame 1 ID | Default 0x03F0 |
| 0x05 | | | LSB of data frame 1 ID | |
| 0x06 | Tx2 frame ID | if CAN2.0A: 0x1 to 0x7F0 if CAN2.0B: 0x1 to 0xFFFF (except 0x7F1 to 0x7F3) | MSB of data frame 2 ID | Default 0x03F4 |
| 0x07 | | | LSB of data frame 2 ID | |
| 0x06 | if Multiplexed CAN: Sensor ID | Don't care | Not used | Default 0xF4 |
| 0x07 | | 0 to 0xFE | Sensor ID | |
| 0x08 | Unit | 0x00 | PSI | 0.001 PSI / bit | Default |
| | | 0x01 | Bars | 0.1 mBar / bit | |

*For complete information, contact us at info@texense.com*

# Ordering information

**Ordering ref:**

8xPDIF-S – *Common ports – Range – Autozero*

*1x1:*   1x 1mm common port (1x ref for channels 1 to 8)
*1x1.6:* 1x 1.6mm common port (1x ref for channels 1 to 8)
*2x1:*   2x 1mm common port (1x ref for channels 1 to 8) and 1x ref for channels 5 to 8)
*2x1.6:* 2x 1.6mm common ports (1x ref for channels 1 to 4 and 1x ref for channels 5 to 8)
*8x1.6:* 8x 1.6mm common ports (1x ref per channel)

*N:* None
*Z:* Auto-zero

*50:* ±50mbar range
*70:* ±70mbar range
*150:* ±150mbar range
*200:* ±200mbar range
*250:* ±250mbar range
*350:* ±350mbar range
*1000:* ±1000mbar range

ex: 8xPDIF-S-2x1-350-Z