

## 1. Features

- **Integrated PTH sensor**
- **Wide pressure monitoring range**
- **Programmable CAN interface**
- **Compact size: 50mm x 30mm**
- **Wide operating supply voltage**

## 2. Applications

- Environmental monitoring with visual alarm
- Data monitoring via CAN bus

## 3. Description

The Pressor features an integrated pressure, humidity, and temperature (PHT) sensor, delivering high-accuracy environmental measurements through a digital CAN interface. The board provides customized data frames defined by a fully configurable CAN interface, ensuring seamless integration with CANOpen-based systems.

An onboard N-channel open-drain MOSFET functions as a solid state switch, automatically activating when the measured pressure drops below 1.3 bar (absolute). The MOSFET supports a maximum drain-source voltage of 35 V and a continuous drain current of up to 2 A, enabling the direct control of external LED indicators.

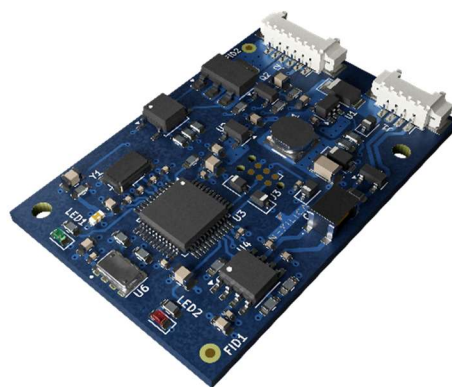


Figure 1 Pressor v1.0a



## 4. Technical Characteristics

<b>PARAMETERS</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Voltage Supply	9	12	28	V
Supply Current		20	35	mA
Operating Temperature	-50	25	+105	°C
Pressure Range	10		2000	mbar
Humidity Range	0		100	% RH
Temperature Range	-40		+85	°C
Resolution (Pressure)		0.016		mbar
Resolution (Humidity)		0.04		% RH
Resolution (Temperature)		0.002		°C
LEDs power supply	10	32	35	V
LEDs current			2	A

Figure 2 Technical Characteristics



## 5. Connectors pinout

The board is equipped with two Molex PicoBlade connectors, one used for power delivery and CAN bus communication and the other one used to interconnect the Pressor with the external light module. The following tables detail the pin assignments and signal descriptions for each connector.

<b>Pin number</b>	<b>Signal</b>	<b>Description</b>
1	CAN_L	CAN LOW signal
2	CAN_H	CAN HIGH signal
3	VDD	Power in
4	GND	Return GND

Figure 3 Main connector pinout



Pin number	Signal	Description
1	LIGHT_VDD	LEDs power supply
2	LIGHT_VDD	LEDs power supply
3	GND_LIGHT	LEDs return GND
4	GND_LIGHT	LEDs return GND
5	MOS_D	MOSFET switch connection to LEDs
6	MOS_D	MOSFET switch connection to LEDs

Figure 4 Light connector pinout

Ensure that when connecting the light module to the Pressor, both the GND\_LIGHT and MOS\_D pins are connected using independent cables. This guarantees that the current is properly distributed between the two pins.



## 6. Application Information

### 6.1 Overview

The Pressor is engineered to provide precise environmental sensing over a CAN network.

It performs continuous measurements of barometric pressure, temperature, and relative humidity, providing calibrated and time-stamped data frames structured according to the CANOpen configuration.

An integrated firmware monitoring function supervises the measured pressure in real time, and when the value drops below the critical threshold of 1.3 bar, the on-board open-drain MOSFET automatically start toggling the activation of an external light indicator.

This built-in alarm capability simplifies the implementation of safety mechanisms and ensures reliable low-pressure detection in field applications with immediate visual signaling.

### 6.2 .CAN Interface

The Pressor's communication interface is

fully compliant with the ISO 11898-2 CAN standard and supports the CANopen protocol.

It allows configurable baud rates from 125 kbps to 1 Mbps, adapting easily to a wide range of system architectures.

This approach ensures plug-and-play integration, enabling real-time acquisition of environmental data within a CANopen-based system.

### 6.3 CANopen configuration

The Pressor employs a dedicated EDS file that defines the CANopen configuration, including information about firmware and bootloader versions, TPDO configurations, LED output configuration, signal scaling factors, and offset parameters for each measured quantity:

- Pressure (mbar) – high-resolution barometric data calibrated to absolute reference conditions
- Temperature (°C) – precise ambient temperature measurement with linear compensation
- Humidity (%RH) – relative humidity data corrected for thermal drift



## Pressor

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- Alarm state (digital flag) – binary status indicating critical low-pressure condition
- Onboard measured VCC and temperature

### 6.3.1 Object Dictionary

The CANOpen configuration is defined in a CANOpen Object Dictionary, which maps all sensor data and configuration parameters to standard index/subindex pairs. This allows for:

- PDO Mapping: Customization of which data is sent in each PDO;
- Device Configuration: Access to parameters such as sensor calibration, diagnostic thresholds, and transmission intervals
- Diagnostics and Status: Monitoring of device health, error codes, and operational state

\*For details on the Object Dictionary please refer to the related file.

### 6.4 MOSFET output

The on-board open-drain MOSFET output is designed for external light indication:

- Type: N-channel open-drain
- Max drain-source voltage: **37 V**
- Max drain current: **2 A**

The output saturates to ground when the pressure falls below the threshold, providing a clear digital indication to external circuits or LEDs. It interrupts the current flowing inside the external light module, allowing it to blink when the pressure undergoes the 1.3.bar threshold.