

# + Quick Guide

## EE600 - Differential Pressure Sensor

# E+E

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in sensor  
technology.

### **i** PLEASE NOTE

Find this document and further product information on our website at [www.epluse.com/ee600](http://www.epluse.com/ee600).

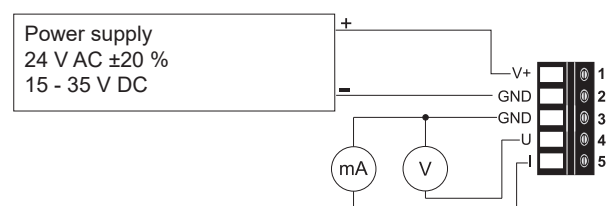
## Electrical Connection

### **⚠** WARNING

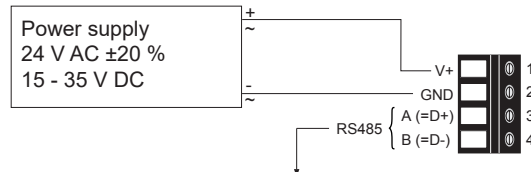
Incorrect installation, wiring or power supply may cause overheating and therefore personal injuries or damage to property. It is essential that the cables are not under voltage during installation. No voltage must be applied when the product is connected or disconnected. For correct cabling of the device, always observe the presented wiring diagram for the product version used.

The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.

### Analogue Output

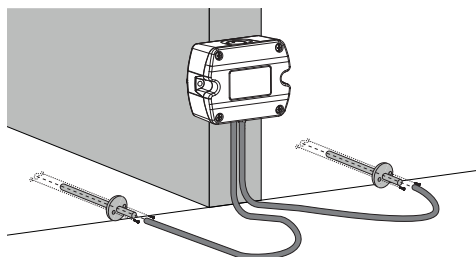


### Digital Output



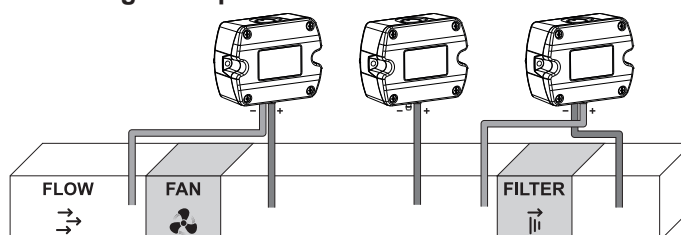
## Installation

### Pressure Connection



Use a Ø7.5 mm drill for installing the pressure connection nipples into the duct.

### Mounting Examples



## User Interface - LED Indication

### Green LED

|                                |                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------|
| Flashing (1 s interval)        | EE600 operates normally, the measured data is within the selected measuring range |
| One flash (2 s)                | Confirms adjustment or return to factory settings                                 |
| Off                            | No power supply or electronics failure                                            |
| Fast flashing (0.2 s interval) | Auto-zero is executed, first time 10 s after start/reset                          |

### Red LED

|                         |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------|
| Flashing (1 s interval) | The measured data is out of the selected range (overload or reversed pressure connection)                   |
| One flash (2 s)         | Indicates the failure of the attempt to adjust zero point or span point, or to return to factory adjustment |

## EE600 with Analogue Output

| S1 | S2 | MR <sup>1)</sup> | S3 | S4 | Time   | S5 | S6 | Unit    | S7 | DPB <sup>2)</sup> | S8 | Output             | S9 | Setting <sup>3)</sup> |
|----|----|------------------|----|----|--------|----|----|---------|----|-------------------|----|--------------------|----|-----------------------|
| 0  | 0  | 100 %            | 0  | 0  | 50 ms  | 0  | 0  | Pa      | 0  | on                | 0  | 0 - 10 V/4 - 20 mA | 0  | DIP switches          |
| 1  | 0  | 75 %             | 1  | 0  | 500 ms | 1  | 0  | mbar    | 1  | off               | 1  | 0 - 5 V/0 - 20 mA  | 1  | PCS10                 |
| 0  | 1  | 50 %             | 0  | 1  | 2 s    | 0  | 1  | inch WC |    |                   |    |                    |    |                       |
| 1  | 1  | 25 %             | 1  | 1  | 4 s    | 1  | 1  | kPa     |    |                   |    |                    |    |                       |

1) Measuring range 2) Display backlight 3) These and further settings can be changed with PCS10 via USB configuration adapter (HA011066) while DIP switch S9 = 1. Only available with version with 10 DIP switches.

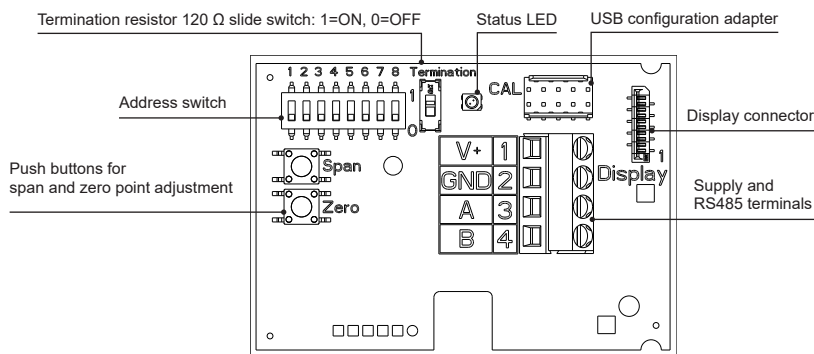
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## EE600 with RS485 Interface Electronics Board Layout

The bus termination shall be realized with the 120  $\Omega$  resistor (slide switch on board).



## Address Setting

| Address Switch         | Option                                                                                                                                                                                                                                                                                                                               |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>0 0 0 0 0 0 0 0</p> | <b>Address setting via PCS10 Product Configuration Software (= factory setting)</b><br>All DIP switches at position 0 → factory-set default address (43 <sub>DEC</sub> , 0x2B) applicable, can be changed via software (PCS10 or Modbus protocol, permitted values: 1...247).<br>Example: Address is set via configuration software. |
| <p>1 1 0 1 0 0 0 0</p> | <b>Address setting via DIP switches</b><br>DIP switches in any other position than 0 indicate the effective Modbus address which overrules the factory setting and any Modbus address set via PCS10 or Modbus command (permitted values: 1...247).<br>Example: Address set to 11 <sub>DEC</sub> (0000 1011 <sub>BIN</sub> ).         |

## Communication Settings

|                | Modbus                         |                                          |
|----------------|--------------------------------|------------------------------------------|
|                | Factory settings               | User selectable values (via PCS10)       |
| Baud rate      | As specified in the order code | 9600, 19200, 38400, 57600, 76800, 115200 |
| Data bits      | 8                              | 8                                        |
| Parity         | Even                           | None, odd, even                          |
| Stop bits      | 1                              | 1, 2                                     |
| Modbus address | 43                             | 1...247                                  |

## Modbus Protocol

The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, even, 1.

Address, Baud rate, parity and stop bits can be set via:

- PCS10, Product Configuration Software and the USB configuration adapter HA011066.
- Modbus protocol in the register 1 (0x00) and 2 (0x01).

Refer to Application Note Modbus AN0103 (available on [www.epluse.com/ee600](http://www.epluse.com/ee600)).

The measured values are saved as 32 bit floating point value and as 16 bit signed integer value, see Modbus register map below.

## Modbus Register Map

|                                          |                     | FLOAT 32                               |                                         | INT16               |                                        |                                         |
|------------------------------------------|---------------------|----------------------------------------|-----------------------------------------|---------------------|----------------------------------------|-----------------------------------------|
| Parameter                                | Unit                | Register number <sup>1)</sup><br>[DEC] | Register address <sup>2)</sup><br>[HEX] | Scale <sup>3)</sup> | Register number <sup>1)</sup><br>[DEC] | Register address <sup>2)</sup><br>[HEX] |
| Read register: function code 0x03 / 0x04 |                     |                                        |                                         |                     |                                        |                                         |
| Differential pressure                    | mm H <sub>2</sub> O | 1211                                   | 4BA                                     | 10                  | 4106                                   | 1009                                    |
| Differential pressure                    | mbar                | 1213                                   | 4BC                                     | 100                 | 4107                                   | 100A                                    |
| Differential pressure                    | Pa                  | 1215                                   | 4BE                                     | 1                   | 4108                                   | 100B                                    |
| Differential pressure                    | kPa                 | 1217                                   | 4C0                                     | 1000                | 4109                                   | 100C                                    |
| Differential pressure                    | inch WC             | 1219                                   | 4C2                                     | 100                 | 4110                                   | 100D                                    |
| Air velocity                             | m/s                 | 1041                                   | 410                                     | 100                 | 4021                                   | FB4                                     |
| Air velocity                             | ft/min              | 1043                                   | 412                                     | 1                   | 4022                                   | FB5                                     |
| Volume flow                              | m³/h                | 1055                                   | 41E                                     | 1                   | 4028                                   | FBB                                     |
| Volume flow                              | l/s                 | 1057                                   | 420                                     | 1                   | 4029                                   | FBC                                     |
| Volume flow                              | m³/s                | 1059                                   | 422                                     | 1000                | 4030                                   | FBD                                     |
| Volume flow                              | ft³/min             | 1181                                   | 49C                                     | 1                   | 4091                                   | FFA                                     |
| Filter monitoring                        | %                   | 1075                                   | 432                                     | 10                  | 4038                                   | FC5                                     |
| Level indicator                          | cm                  | 1077                                   | 434                                     | 10                  | 4039                                   | FC6                                     |
| Level indicator                          | inch                | 1079                                   | 436                                     | 10                  | 4040                                   | FC7                                     |

1) Register number starts from 1

2) Register address starts from 0

3) 1xx is scale. E.g. for 1:100, reading of 2550 is equivalent to 25.5