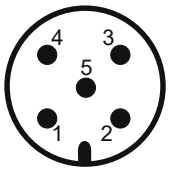
QUICK GUIDE

EE680 - Air Velocity and Temperature Sensor for Laminar Flow

(Full User Manual at www.epluse.com/EE680)

Electrical Connection



Pin number	*Function*	*Wire colors for accessories: - Coupling flange HA010705 - Connection cable HA010819/820/821*
1	Supply voltage 24 V DC +/- 20% (Class III)	brown
2	Analogue out 2 or RS485 (D-), Data	white
3	GND	blue
4	Analogue out 1 or RS485 (D+), Clock	black
5	Configuration pin	gray

Selection between Analogue Output and RS485 Interface

Configuration pin connected to GND:

- EE680 features analogue outputs independently of its original setup.

Configuration pin not connected:

- EE680 set to RS485 interface (option P1 in the order code) features RS485 interface.
- EE680 set to analogue outputs (option GA2/3/5/6 in the order code): the RS485 interface is active for the first 10 seconds after power on and awaits connection with the EE-PCS Product Configuration Software. This allows for setup changes or adjustment of the EE680. If the connection to EE-PCS is not established within 10 seconds, the device automatically changes to analogue output.

Modbus Setup

	Factory settings	**Selectable values**
Baudrate	9600	9600, 19200, 38400, 57600, 115200
Data bits	8	8
Parity	Even	None, even, odd
Stop bits	1	1, 2
Slave ID	68	1...247

The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, Even, 1. The EE680 represents 1 unit load in a Modbus network.

Device address, baud rate, parity and stop bits can be set via:

1. EE-PCS, Product Configuration Software and the appropriate configuration cable HA011018. The EE-PCS can be downloaded free of charge from www.epluse.com/Configurator.
2. Modbus protocol in the register 60001 (0x00) and 60002 (0x01).
   See Application Note Modbus AN0103 (available on www.epluse.com/EE680).

The serial number in ASCII format is located at read register address 30001-30008 (16 bits per address). The firmware version is located at register address 30009 (bit 15...8 = major release; bit 7...0 = minor release). The sensor name is located at register address 30010.

Communication settings (INTEGER 16 bit)		
Parameter	**Register number[1] [DEC]**	**Protocol Address[2] [HEX]**
Write register: function code 0x06		
Modbus address (Slave ID)	1	0x00
Modbus protocol settings[3]	2	0x01

Device information (INTEGER 16 bit)		
Parameter	**Register number[1] [DEC]**	**Protocol Address[2] [HEX]**
Read register: function code 0x03 / 0x04		
Serial number (as ASCII)	1	0x00
Firmware version	9	0x08
Sensor Name	10	0x09

1) Register number starts from 1.
2) Protocol address starts from 0.
3) For Modbus protocol settings see Application Note Modbus AN0103 (available on www.epluse.com/EE680).

Modbus Register Map

FLOAT 32 bit:			
Parameter name	**Unit**	**Register number[1] [Dec]**	**Register address[2] [HEX]**
Read register: function code 0x03 / 0x04			
Air velocity vn[3]	m/s	1045	0x414
	ft/min	1047	0x416
Temperature T	°C	1003	0x3EA
	°F	1005	0x3EC

INTEGER 16 bit:				
Parameter	**Unit**	**Scale[4]**	**Register number[1] [Dec]**	**Register address[2] [HEX]**
Read register: function code 0x03 / 0x04				
Air velocity vn[3]	m/s	100	4023	0xFB6
	ft/min	0.1	4024	0xFB7
Temperature T	°C	100	4002	0xFA1
	°F	50	4003	0xFA2

1) Register number starts from 1
2) Register address starts from 0
3) Standardized air velocity vn at standard conditions (factory setup): Tn = 23 °C (73 °F), pn = 1 013.25 hPa (14.7 psi), settable via EE-PCS
4) Examples: For scale 100, the reading of 2550 means a value of 25.5. For scale 50, the reading of 2550 means a value of 51.

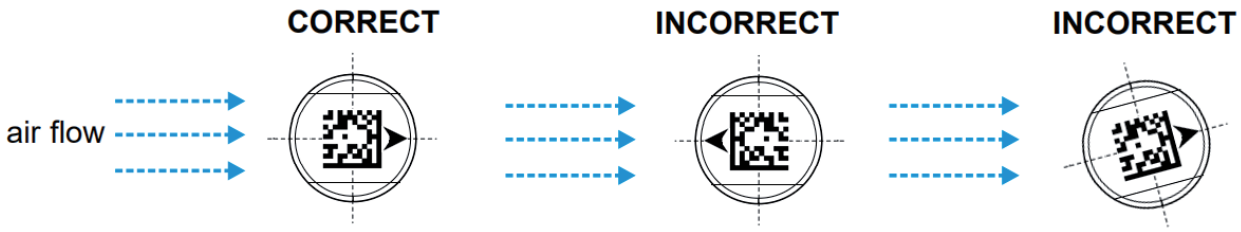
Optical Status Indication

The EE680 features an optical visualization of the laminar flow (LF) and sensor condition via LED ring which is directly visible on the probe. This feature is adjustable via EE-PCS. For further details refer to the User Manual at www.epluse.com/EE680.

Colour	Function / Failure
None	No suitable supply, LED status indication disabled
Green	Operation, no failure LF Status: measured value in range
Yellow flashing	Operation, no failure LF Status: measured value out of range
Red flashing	Failure, return sensor for investigation

Flow Direction

For best measuring accuracy the sensing element of the EE680 must be aligned exactly in the direction of the laminar flow in which factory adjustment took place.
An arrow symbol on the sensor tip indicates factory adjustment direction. The arrow on the sensor probe should be pointing exactly in the direction of the laminar air flow.
The angular deviation must be kept to a minimum.



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