

# Stack velocity and flowrate meter ST2





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## Description

The ST2 is stack emission velocity and flowrate meter able to work with all Pitot tubes and thermocouples available on the market.

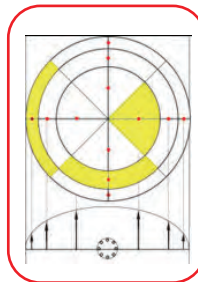
But not only, in the ST2, Dado lab blended together experience and innovation to create a solution for the isokinetic conditions evaluation including all the functions and requirements specified by standards, such as the EPA M1 and 2 or EN16911:2013 and as well as guide lines, such as the CEN/TR 17078:2017 with sampling points positioning according to EN15259.

In addition to the evaluation of emission velocity profile, the ST2 can be used in combination with a suitable sampler to perform the isokinetic sampling in accordance to EN13284:2017, ISO9096: 2017 or EPA5 / 17.

The ST2 is one of its kind, the result of a development aimed at creating a solution that allows, at the same time, to simplify the assessment of fluid-dynamic stack conditions but also reduce the size and weight to easy the transport, especially up to the sampling plane.

Infact the ST2 offers the unique characteristic of being able to be fixed to the CP2 probe, leaving the hands free.

When the instrument is attached to the probe, the connection is made with a few centimeters cable and therefore it is not necessary to bring long and heavy cables to a chimney, thus reducing overall dimensions and costs.



## Characteristics

The ST2 integrates the advanced calculation functions of the ST5 isokinetic sampler, such as the wall effect setting (WAF) and calculation of probe positioning.

It's also possible to program the stack or Pitot data on the app and then transfer the libraries to the instrument.

Moreover, ST2 has a built-in inclinometer for the swirl angle evaluation. The gyroscope sensor can be zeroed in any position the instrument is placed making the angle measurement extremely easy and fast.

In addition to the possibility of storing the calibration history of the stack/ambient temperature sensors as well as the differential/ambient pressure, ST2 is equipped with a routine for the dP sensor leak test.

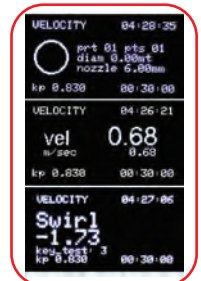
## Construction

The hardware and firmware of the ST2 were developed considering both the typical harsh operating conditions of the stack and the application requirements such as a superior ruggedness, reliability and low power demand.

The unit is equipped with the new OLED display, offering high visibility and low power consumption, and with light lithium-ion battery, capable to power the unit for about 8 hours

## Fixed and mobile point

The ST2 can be equipped with an optional second dP sensor which allows the simultaneous velocity determination in a fixed and mobile point, as requested by the EN16911 where the field repeatability evaluation is necessary.



## Dedicated app

The management and protection of data acquired during field operation is one of the most important aspect. This the reason why we wanted to imple-ment the remote data transfer in our equip-ments.

The ST2 is also unique in terms of communication capability and operation mode. Infact it is equipped with a wireless connection allowing the remote and fast management through the free Dado lab app installed on a smartphone.

The app allows you to program libraries, remotely display the synoptic and calculations in real time. Even more important, it is possible to download and transfer measurement reports to the mobile phone and email it directly to the office or labora-tory.

An advanced communication that speeds up the setup programming operations but, above all, considerably limits the risk of data loss accidents



## Technical Characteristics

### Costruction:

|                       |                               |
|-----------------------|-------------------------------|
| Connections:          | Quick Connectors              |
| Operative conditions: | -20 ÷ 40°C 95% UR             |
| Stock conditions:     | -10 ÷ 50°C 95% UR             |
| Display:              | 1,3" Oled                     |
| Communication:        | Wireless Bluetooth            |
| Memory:               | 8 MB                          |
| Power supply:         | 5V/2A from microusb           |
| Materials:            | ABS with rubber on borders    |
| Keyboard:             | Polycarbonate, tactile effect |
| Dimension:            | 145x73x58mm                   |
| Weight:               | 350g                          |

### Sensors

#### Differential Pressure

|                       |  |
|-----------------------|--|
| dP Pitot:             | 100 ÷ 1000 Pa (-10÷100 mmH <sub>2</sub> O) |
| Hysteresis/Linearity: | 0.25 % F.S                                 |
| Accuracy:             | Better than 1% (± 2 Pa)                    |
| Resolution:           | 0.05 Pa (0.005 mmH <sub>2</sub> O)         |
| Pressure max burnst:  | max. 30 kPa (3000 mmH <sub>2</sub> O)      |

#### Absolute pressure

|                       |                             |
|-----------------------|-----------------------------|
| Static/barometric:    | 10 ÷ 105 kPa (1050 mBar)    |
| Hysteresis/Linearity: | 0.25 % F.S                  |
| Risoluzione:          | 0.01 kPa (0.1 mBar)         |
| Accuracy:             | Better than 1% (± 0.25 kPa) |

#### Thermocouple input

|                                    |               |
|------------------------------------|---------------|
| [programmed type std "K" ITS 1990] |               |
| Range:                             | -20 ÷ 1200 °C |
| Resolution:                        | 0.01 °C       |
| Accuracy:                          | 1% (± 0.4 °C) |

## Model and Accessories



|              |   |
|--------------|---|
| 101.107.1001 | ST2 Velocity/Flowrate meter               |
| 101.107.1003 | ST2 Velocity/Flowrate meter w/ smartphone |
| 101.107.2001 | Smartphone for ST2/ST5 communication      |
| 101.107.2011 | Fixed/mobile point option                 |
| 101.107.2015 | CP2 fixing kit                            |