

# Flow Calibrator CF1





## Flow Calibrator mod. CF1

### Description

CF1 is the new flow calibrator specifically designed for the verification and calibration of personal, environmental and stack emissions samplers.

Thanks to the flow measurement system based on a laminar flow cell sensor, CF1 grants an exceptional measurement range, from 0,45 to 45 l / min, which allows its application to a wide range of sampling systems dedicated to different applications, all with a single instrument, without the need to have, and certify, multiple measuring cells.



CF1 is also available in the CF1-UR version. This model is equipped with an external sensor for ambient temperature and air relative humidity.

Calling it flow calibrator is reductive. CF1 can be ISO17025 certified for flowrate, volume, ambient temperature, ambient pressure and relative humidity readings, and it also measures the sampling line pressure drop, all with one instrument.

CF1 is compact and weighs only 300 g, therefore easy to carry in its practical case and, thanks to the very short warm-up time, of immediate use.

Equipped with 4000 mA rechargeable lithium polymer batteries, CF1 is able to operate with an autonomy of about 8 hours. In addition, thanks to the presence of a microUSB power port, it is directly rechargeable in the field or can be connected to a power bank to extend its autonomy.

### Characteristics

CF1 measures the flow rate in real time, both in suction and in delivery, indicating on the display and acquiring the data both at gas conditions (Pamb and Tgas) or normalized.

The CF1-UR version, equipped with a combined external sensor for relative humidity and ambient temperature, is able to provide the flow rate data under current and even anhydrous conditions.

As with all Dado lab instruments, CF1 has also been designed to stand out from other solutions available on the market, in fact CF1 is designed both to be a flow calibrator but, being equipped with ambient temperature and pressure sensors, it can be used to calibrate these parameters on samplers. Not only that, CF1 integrates the flow rate reading over time, returning the volume data of the gas sampled during the test, under normal or current conditions. This feature also allows you to use CF1 to check the reading of volumetric meters.

CF1 is supplied with CF1-Link communication software and USB key for wireless connection to a windows PC. CF1-Link allows both the download of the acquired data and the visualization of instantaneous data.

In addition to the transport case, the supply also includes adapters for connection to sampling systems for PM10 / 2.5 type EN / EPA and quick couplings for silicone tubes.



## Technical Specifications

### General

Principle of measurement	: Anular laminar flow cell
Range	: 0.45 - 45 NL/min (dynamic 1:100)
Flowrate accuracy	: Standard: $\pm 1.5\%$ f.s. : High 0.8% of the reading $\pm 0.1$ f.s.
Volume accuracy	: 1,5%
Repeatability	: $\pm 0.5\%$ f.s.
Flowrate indication	: Actual conditions (Pamb - Tgas) : Normalized conditions : Dry normalized conditions (CF1-UR version)
Operative pressure	: 0 ÷ 105 kPa
Operative Temperature	: 0 ÷ 40°C
Response time	: 500 ms

### CF1 Sensors

Pressure:	
Barometric Pressure	: 10 ÷ 105 kPa (1050 mBar)
Hysteresis and Linearity	: 0.25 % F.S
Resolution	: 0.01 kPa (0.1 mBar)
Accuracy	: Better than 1% ( $\pm 0.25$ kPa)

Temperature:	
Range	: -10 ÷ 60 °C
Resolution	: 0.1 °C
Accuracy	1: % ( $\pm 0,4$ °C)

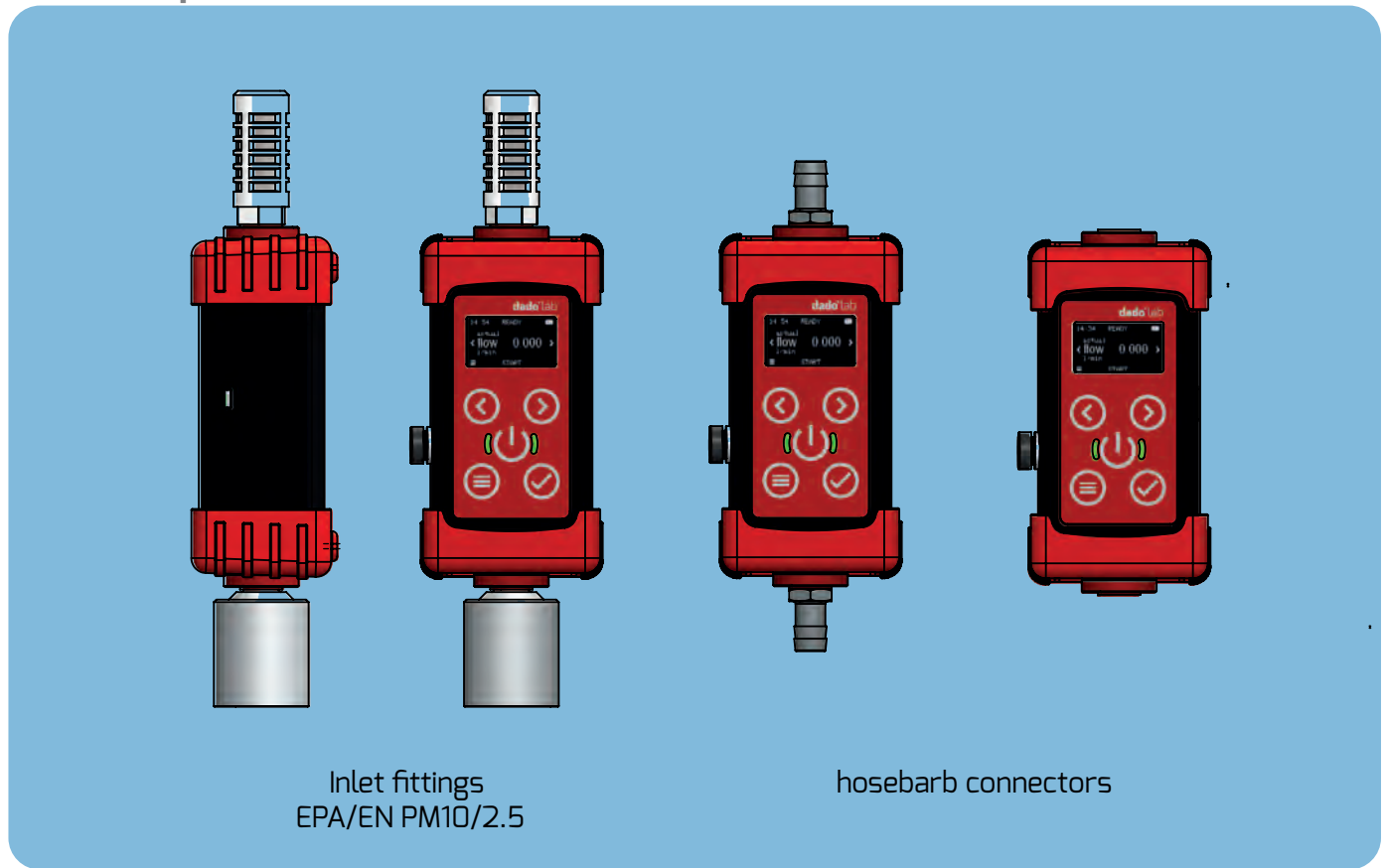
### Temp - UR Sensor (CF1-UR)

Cable lenght	1 m
Temperatura range	-10 ÷ 60 °C
Resolution	0.1 °C
Accuracy	1% ( $\pm 0.4$ °C)
rH% range	0 ÷ 100% UR
Risoluzione:	0.5 %
Accuracy	$\pm 2\%$ between 10% ÷ 90% UR at 25°C

### Construction

Fittings	1/4"gas
Operative conditions	-10 ÷ 40°C 95% UR
Stock conditions	-10 ÷ 50°C 95% UR
Display:	1.3" Oled
Communication	Wireless
Data output	Continuous for Flowrate/temperature/pressure/volume/rH%
internal memory	8 MB
Battery	LiPo 4000 mA
Power	5V/500 mA from microusb
Materials	ABS w/ rubber protections
Keyboard	Polycarbonate, tactile effect
Dimensions	145x73x58 mm
Weight	300 gr

## Included options



Inlet fittings  
EPA/EN PM10/2.5

hosebarb connectors

## Models and certifications



300 104 1101	CF1 Digital Flow calibrator
300 104 1111	CF1-UR Digital Flow calibrator w/ rH/T probe
300 104 2001	High accuracy calibration
200 110 1031	ISO17025 Flowrate on 5pts certification
200 110 1001	ISO17025 volume certification on 5 points
200 110 1011	ISO17025 Temperature sensor certification on 5 pts
200 110 1023	ISO17025 pressure sensor certification on 5 pts
200 110 1051	ISO17025 rH sensor certification on 3 pts from 10 - 95%