CVS Calibration Unit
CVS-KAL

As of 08-06-2017

Front side (top) and rear side (bottom)

The calibration system CVS-KAL evaluats Laminar Flow Elements (LFE), subcritical SAO nozzles or other pressure drop devices, like Betaflow. These were used for the calibration of the air intake measurement with critical Venturi nozzles in a CVS test bench.

- CVS application calibration of sonic Venturi nozzles
- Accuracy according EPA requirements
- Flow evaluation of Laminar Flow Elements or SAO nozzles
- Compact design in 19“-rack
- Incl. factory calibration certificate

Technical Description

This compact unit replaces well type or handheld manometers used up to now and offers besides its accurate sensors very usefull additional functions like averaging and differential pressure zeroing.
The standard version contains sensors for the measurement of the differential pressure, the absolute pressure and the temperature. To achieve higher accuracies optionally a humidity sensor and sensors in higher accuracy classes can be supplied.

Specification

Flow Elements

Flow elements to use with this system are Laminar Flow Elements (LFE) , SAO nozzles and all other types of subcritical pressure drop devices like Venturi tubes, orifices, Beta-flow and other.

System Accuracy

From the adjusted turn down of the differential pressure of 1:10 results an extended system accuracy (k=2) of ±1,0%o.R. with and ±1,6% o.R. without humidity sensor.

Media Compatibility

Air, dry, dustfree, not condensing humidity.

Temperature Conditions

Storage and operation 10 ... 40 °C

Overpressure Limits

Pressure sensors: double full scale range, if only plus side is pressurized and up to 1 bar gauge pressure on both sides at the same time.

Process Connections

Tube compression fitting for 4/6 mm pneumatic tube (absolute pressure: 1 x, differential pressure 2 x).
Temperature sensor and optional humidity sensor with 2 m connection cable each for external connection.

EPA Measurement Ranges and Accuracy

Differential pressure	2.5 – 50 mbar	< ±0.01 hPa
Absolute pressure	800 – 1200 mbar	< ±0.34 hPa
Temperature	15 – 25°C	< ±0.14°C
Humidity	20 – 60%r.H.	< ±3% r.H.
Flow	10 – 100%F.S.	< ±0.5% o.R.

Linearity, repeatability and hysteresis included temperature effect abt. 0,01%/°C.

Display

Controller S320 front panel mounted housing acc. DIN IEC 61554 with six independend red LED display lines, 3 x 6 digits LED displays (10 mm) and 3 x 4 digits text-LED displays (6 mm). With the integrated five function keys the complete operation and setting of parameter is possible.

Housing

Measures:	450 x 150 x 316 mm (WxHxD) 3HE, 84TE
Material:	Aluminium profile, cover plates coated
Weight	abt. 5 kg
Protection	class IP20, optional up to IP 54.

Supply

90 - 260 V AC, 50/60 Hz max. 80 Watt

Interfaces

Ethernet, RS 232 und 2x RS 485

Necessary Sizing Data

For sizing purposes should be supplied:

CVS Flow Range

Minimum and maximum flow range for air.

Ordering Information

Part Number Structure: CVS-KAL-aaa-bbb-ccc-ddd

CVS-KAL-	Standard CVS calibration unit with
aaa	**Differential pressure range**
50M	0 – 50 mbar ±0.01% F.S., RS485
50P	0 – 50 mbar ±0.05% F.S., RS485
50S	0 – 50 mbar ±0.1% F.S., RS485
bbb	**Absolut pressure range**
12M	0 – 1200 mbar ±0.01%F.S., RS485
12P	0 – 1200 mbar ±0.025%F.S., RS485
12S	0 – 1200 mbar ±0.05%F.S., RS485
ccc	**Temperature range**
PTA	Pt100 probe, 0 – 50°C, ±0.15°C, L= 100 mm, with 2 m connection cable
ddd	**Humidity range**
RHA	Humidity sensor 0 – 100 %rH ±3%, with 2 m connection cable

Article-No.	Accessories
WIT-PT-11-SO-2-100-G-A-OL	Pt100-Temperature probe, 0-50°C, Cl. A, D=2mm, L=100mm, RSMED (M8x1)
HUM-U-G12-423	Humidity sensor 0..100%rH, 0-1V, supply: 7..28 VDC, G1/2",

Further accessories and spare parts on request

TetraTec Instruments GmbH
Gewerbestr. 8, 71144 Steinenbronn, Germany
Phone: +49 (0)7157/5387-0, Fax: +49 (0)7157/5387-10
Email: info@tetratec.de, www.tetratec.de