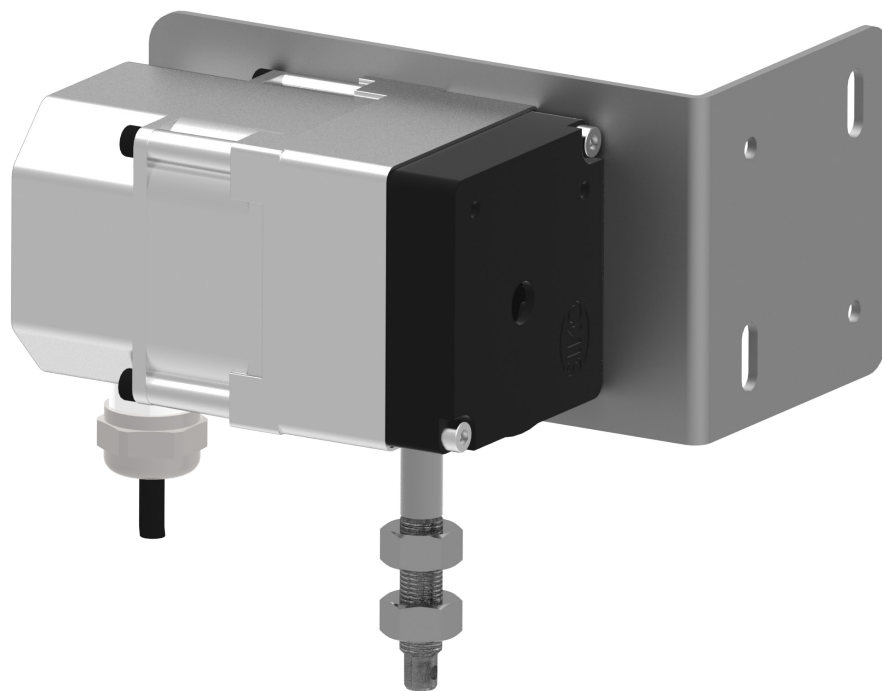


Sensor systems

Type DS-TRD



For EASYLAB fume cupboard controllers

Sash distance sensor for the variable, demand-based control of extract air flows in fume cupboards

- Sash distance measurement
- For fume cupboards with vertical sashes only; also for walk-in fume cupboards
- Ideal for rooms with high airflow velocities or levels of turbulence
- Multiple possibilities to couple the sensor with the sash movement
- Measuring range 0 – 1750 mm or 350 – 2100 mm

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Application

Application

- Sash distance sensor Type DS-TRD for fume cupboard controllers EASYLAB TCU3
- For the demand-based control of variable volume flows in fume cupboards, based on the sash distance
- For linear control (FH-DS) and safety-optimised control (FH-DV) by the EASYLAB controller
- For fume cupboards with vertical sashes only; also for walk-in fume cupboards
- Ideal for rooms with high airflow velocities or levels of turbulence (measurement of the sash distance, the volume flow rate measurement is therefore not affected)
- For use in laboratories and in clean rooms in

the pharmaceutical and semiconductor industries

Special characteristics

- Suitable for sashes with 1750 mm maximum opening
- Suitable for EASYLAB controller TCU3
- Can be used with different control strategies (FH-DS and FH-DV)
- Ideal for rooms with high airflow velocities or levels of turbulence
- Replaces a separate contact for sash distance monitoring according to EN 14175

Description

Parts and characteristics

- Measuring wire sensor in a closed casing with integral rewind and precise resistance measurement
- Measuring wire with fixing eye, maximum length 2100 mm
- Mounting bracket for various application situations
- 3 m connecting cable

Useful additions

- EasyConnect: Configuration software for the commissioning and diagnosis of EASYLAB components

Construction features

- A draw wire is used to measure the sash

distance

Materials and surfaces

- Plastic casing, black
- Measuring wire made of stainless steel, with a polyamide jacket
- Mounting bracket made of galvanised sheet steel

Standards and guidelines

- Type certification: Volume flow control system for fume cupboards to EN 14175
- Alarm function to EN 14175 if the sash distance limit is exceeded

Functional description

The sash distance is recorded with a draw wire that is linked to the sash movement. The output signal is proportional to the sash distance. The sensor can be used only with vertical sashes.

DS-TRD for fume cupboard control – linear control strategy

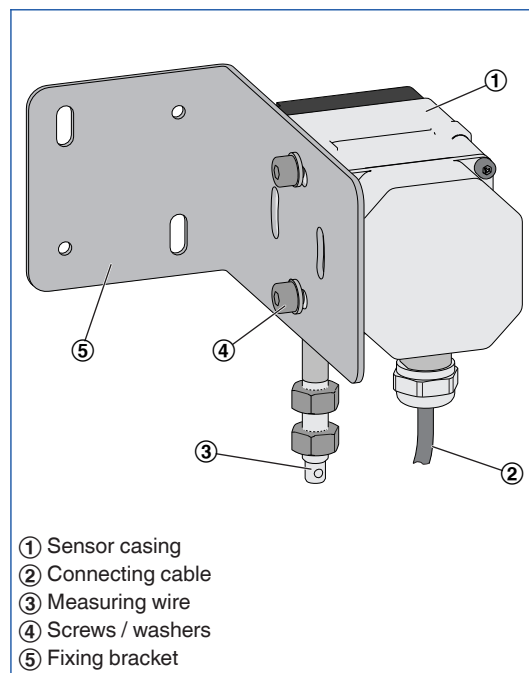
- EASYLAB controller TCU3: Equipment function FH-DS
- Variable volume flow control based on the measured sash distance
- Volume flow rate is linear to the sash position: OPEN corresponds to \dot{V}_{\max} , CLOSED corresponds to \dot{V}_{\min}

- Sash opening can be monitored according to EN 14175, without additional switch contact

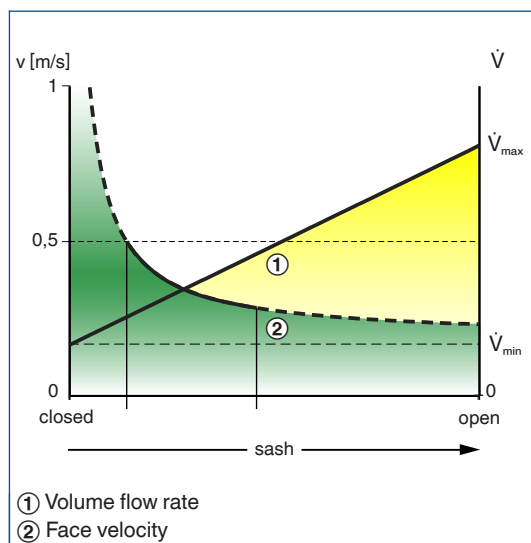
DS-TRD for fume cupboard control – safety-optimised control strategy

- EASYLAB controller TCU3: Equipment function FH-DV
- Safety-optimised volume flow control based on the measured sash distance
- The volume flow rate is linear to the sash distance; the aim is to maintain a constant safe face velocity (0.5 m/s) even if the sash is fairly wide open
- Sash opening can be monitored according to EN 14175, without additional switch contact

DS-TRD sash distance sensor



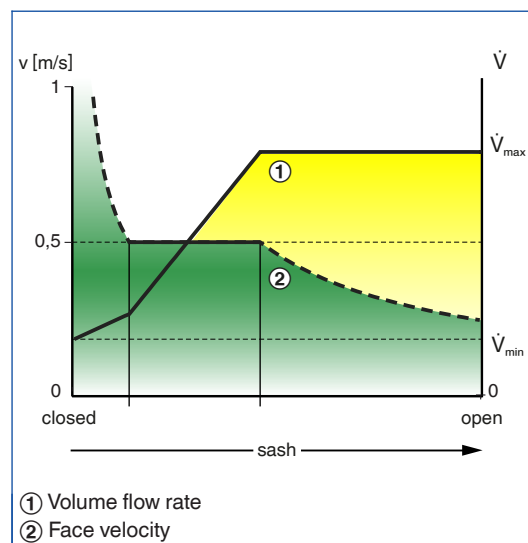
Control diagram for FH-DS



Linear control strategy

- Variable volume flow control based on the measured sash distance
- Volume flow rate is linear to the sash position: OPEN corresponds to \dot{V}_{max} , CLOSED corresponds to \dot{V}_{min}
- Particularly suitable for fume cupboards in rooms with increased airflow (turbulence)
- Sash opening can be monitored according to EN 14175, without additional switch contact

Control diagram for FH-DV



Safety-optimised control strategy

- Safety-optimised volume flow control based on the measured sash distance
- The volume flow rate is linear to the sash position; the aim is to maintain a constant safe face velocity (0.5 m/s) even if the sash is fairly wide open
- Particularly suitable for fume cupboards in rooms with increased airflow (turbulence)
- Sash opening can be monitored according to EN 14175, without additional switch contact

Supply voltage	12 V DC from the controller
Measuring range	0 – 1750 mm or 350 – 2100 mm
Measurement accuracy	± 0.25 % of the reading
Actual value signal output	0 – 10 V DC, 0.5 mA max.
Operating temperature	–20 to 40 °C
IEC protection class	III (protective extra-low voltage)
Protection level	IP 40
EC conformity	EMC according to 2004/108/EC

Electronic sash distance sensor for the EASYLAB system, used to capture the sash distance of fume cupboards.

Suitable for sashes with 1750 mm maximum opening.

The sash distance is measured using a draw wire. A 0 – 10 V DC voltage signal that is proportional to the sash distance is emitted. If the sensor is connected to a fume cupboard controller, the volume flow is controlled based on demand. Simple installation in several installation positions on the fume cupboard; simple linking to the sash movement.

Special characteristics

- Suitable for sashes with 1750 mm maximum opening
- Suitable for EASYLAB controller TCU3
- Can be used with different control strategies (FH-DS and FH-DV)

- Ideal for rooms with high airflow velocities or levels of turbulence
- Replaces a separate contact for sash distance monitoring according to EN 14175

Materials and surfaces

- Plastic casing, black
- Measuring wire made of stainless steel, with a polyamide jacket
- Mounting bracket made of galvanised sheet steel

Technical data

- Supply voltage 12 V DC from the controller
- Measuring range: 0 – 1750 mm or 350 – 2100 mm
- Measurement accuracy: $\pm 0.25\%$ of the reading
- Output: Actual value signal: 0 – 10 V
- Protection level: IP 40

- Any attachments are to be defined with the order code of the VAV terminal unit.
- Retrofit possible

Bestellschlüssel für Anbaugruppe ELAB und EASYLAB Laborabzugsregler mit Regelstrategie linear (FH-DS) oder sicherheitsoptimiert (FH-DV)

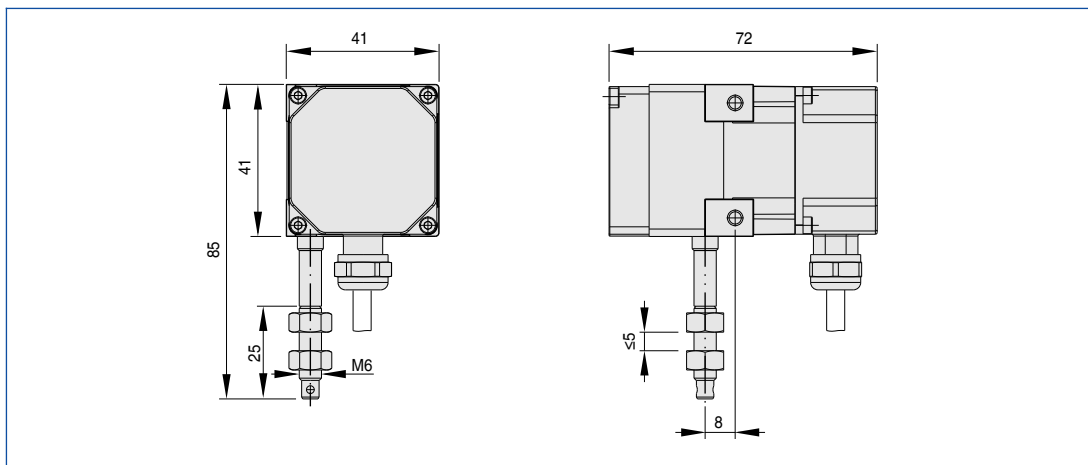
ELAB / FH - DS / ...

ELAB / FH - DV / ...

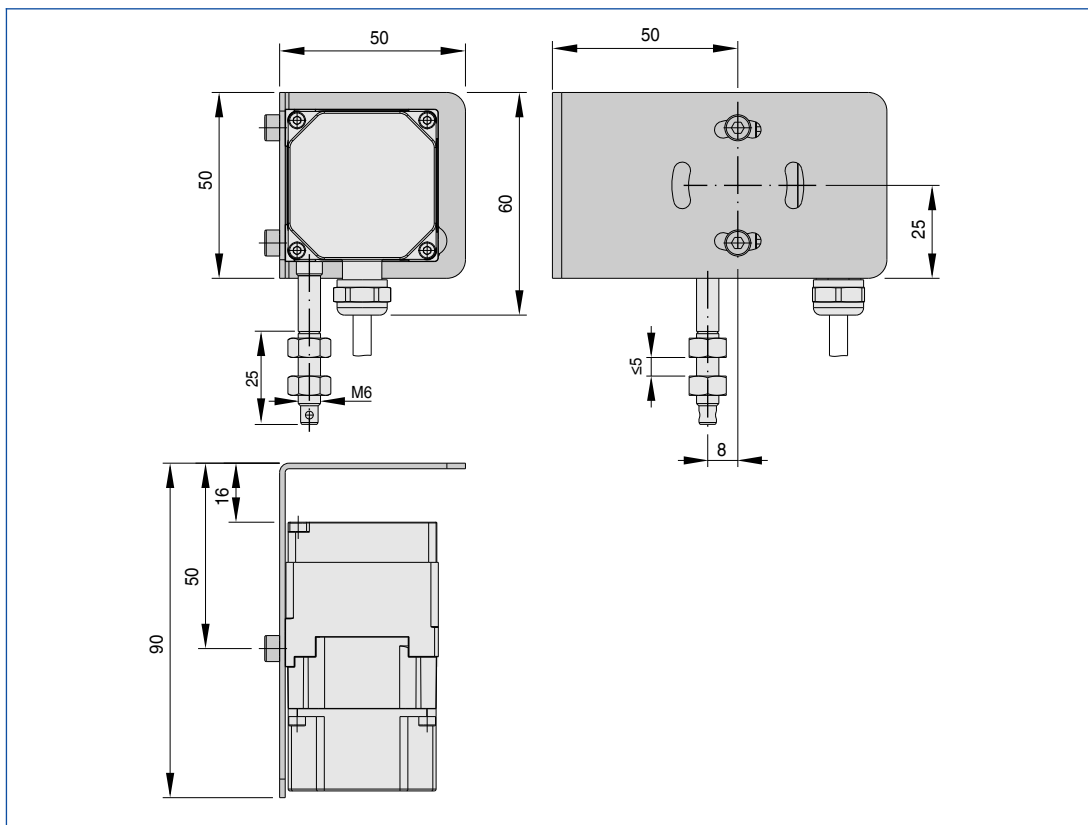
Sensor EASYLAB DS-TRD for retrofit or as replacement part

DS - TRD

DS-TRD



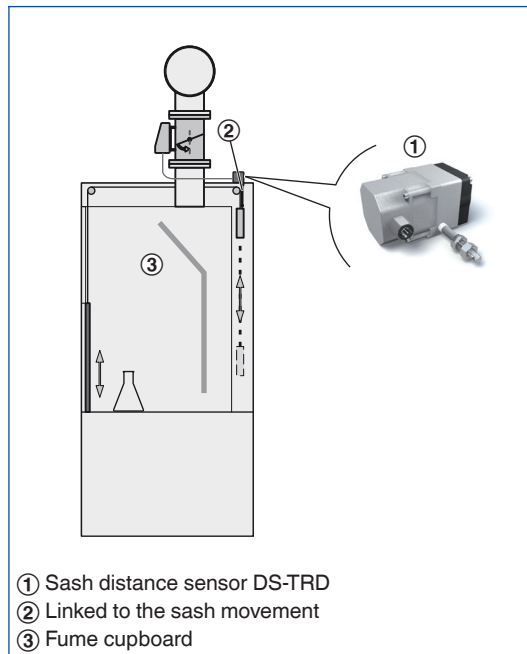
DS-TRD



Installation and commissioning

- Fix the sash distance sensor to the fume cupboard
- Link the measuring wire to the sash movement, e.g. by fixing it to the balance weight of the sash
- The measuring wire can be drawn vertically or horizontally.
- Measuring range 0 – 1750 mm or 350 – 2100 mm
- The controller automatically recognises the sash distance sensor
- Project-specific adjustments can be made, and the maximum operational sash opening can be entered using the EasyConnect configuration software

Measurement location of the sash distance sensor (FH-DS, FH-DV)



Measuring range of DS-TRD

