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### Application

#### Application

- Electronic volume flow controllers of Type Compact are compact, all-in-one control devices for VAV terminal units
  - Static differential pressure transducer, electronic controller, and actuator are fitted together in one casing
  - Suitable for different control tasks depending on how the input for the setpoint value signal is used
  - The output signals (voltage signals or data points) of the room temperature controller, central BMS, air quality controller or similar units control variably control the volume flow
  - Local override control by means of switches or relays
  - Volume flow rate actual value is available as a linear voltage signal or data point
  - Controller parameters are factory set
- 

### Description

#### Parts and characteristics

- Sensor for static differential pressure measurements
- Mechanical stops for limiting the damper blade positions
- Actuators with overload protection
- Release button to allow for manual operation

### Functional description

VAV terminal units control the volume flow in a closed loop, i.e. measurement – comparison – control.

The volume flow rate is determined by measuring the differential pressure (effective pressure). For this purpose the VAV terminal unit is fitted with a differential pressure sensor.

The integral differential pressure transducer transforms the effective pressure into a voltage signal, which is then analysed by the microprocessor of the controller. The volume flow rate actual value is available as a data point or voltage signal. The factory setting is such that a 10 V DC voltage signal always corresponds to the nominal volume flow rate ( $\dot{V}_{nom}$ ).

The volume flow rate setpoint value comes from a higher-level controller (e.g. room temperature controller, air quality controller, central BMS), either as a voltage signal or as a data point, or from local switch contacts. Variable volume flow

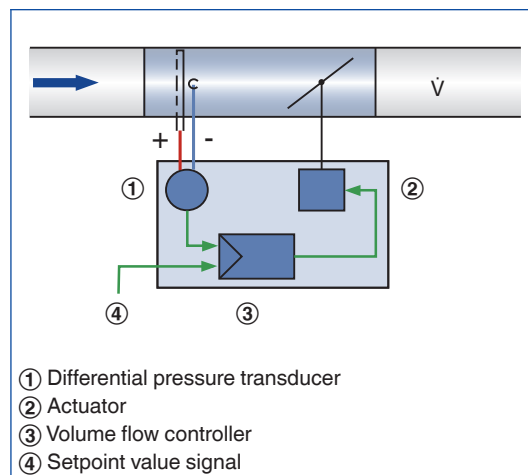
control results in a value between  $\dot{V}_{min}$  and  $\dot{V}_{max}$ . It is possible to override the room temperature control, e.g. by a complete shut-off of the duct. The controller compares the volume flow rate setpoint value to the actual value and controls the integral actuator accordingly.

Volume flow rate parameters and voltage ranges are factory stored in the controller. Changes on the customer's site can easily be carried out using an adjustment device, a notebook with service tool, or a bus interface.

### Volume flow control

- The volume flow controller works independent of the duct pressure
- Differential pressure fluctuations do not result in permanent volume flow rate changes
- To prevent the control from becoming unstable, a dead band is allowed within which the damper blade does not move.

### Principle of operation – Easy and Compact controllers



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

### Compact controllers for VAV terminal units

Order code detail	Part number	Type	Type of VAV terminal unit
SA0	A00000043584	ASV115CF132E	①
SC0	A00000043585	ASV115CF152E	①

① TVR, TVJ, TVT, TZ-Silenzio, TA-Silenzio, TVZ, TVA, TVRK

## Application

- Electronic volume flow controllers  
ASV115CF132E and ASV115CF152E as  
Compact controllers
- Variable air or constant air volume flow control
- Second, integral controller for room  
temperature control or differential pressure  
control
- The flow rate is measured according to the  
static measurement principle
- Voltage range for the actual and setpoint value  
signals 0 – 10 V DC
- Separate inputs for override control  $\dot{V}_{\min}$  and  
 $\dot{V}_{\max}$
- RS-485 communication interface (Sauter local  
communication)
- Setpoint value defaults and overrides by means  
of data exchange with a higher-level system
- Status values such as volume flow rate actual  
value and damper blade position are sent to  
the interface
- Use adjustment device or commissioning tool  
to configure the controller

## Construction

For TVR, TVJ, TVT, TZ-Silenzio, TA-Silenzio, TVZ,  
TVA, TVRK

- SA0: ASV115CF132E with integral actuator
- SC0: ASV115CF152E with integral fast-running  
actuator

## Communication interface

- RS-485 (SLC, Sauter local communication)
- Up to 31 devices per segment

## Operating modes

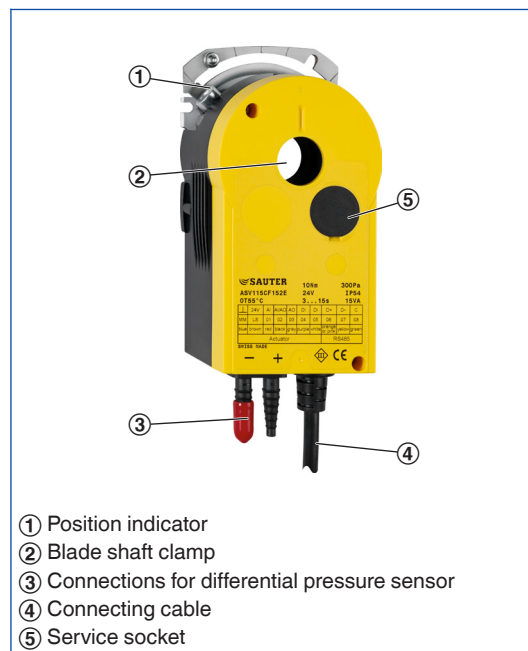
- Variable volume flow control:  $\dot{V}_{\min} - \dot{V}_{\max}$
- $\dot{V}_{\min}$ : Minimum volume flow rate
- $\dot{V}_{\max}$ : minimum volume flow rate

Parameters are factory set. The customer defines  
the required volume flow rates in the order code at  
the time of ordering.

## Commissioning

- Use commissioning tool to configure the  
interface
- When installing the VAV terminal units it is  
important to assign each room the correct unit  
based on the ordered volume flow rates

## SA0, SC0





Compact controller  
ASV115CF132E

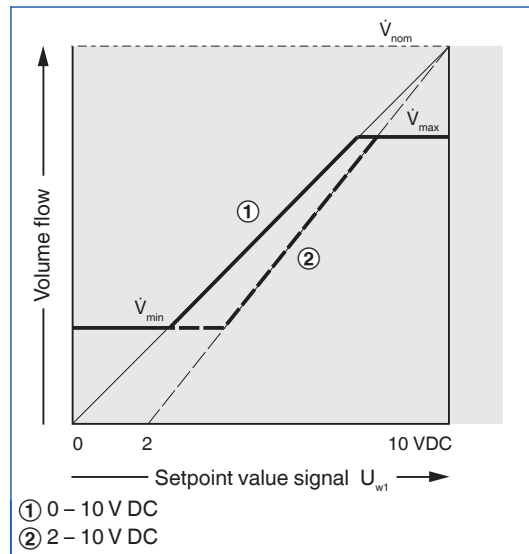
#### Compact controller ASV115CF132E

Supply voltage (AC)	24 V AC $\pm$ 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC $-10/+20$ %
Power rating (AC)	5.7 VA max.
Power rating (DC)	3.3 W max.
Torque	10 Nm
Running time for 90°	30 – 120 s, adjustable
Setpoint value signal input	0 – 10 V DC, $R_a > 100$ k $\Omega$
Actual value signal output	0 – 10 V DC, 0.1 mA max.
Input for flow rate shift signal or output for flow rate deviation, configurable	As input: 0 – 10 V DC, $R_a > 100$ k $\Omega$ ; as output: 0 – 10 V DC, 0.1 mA max.
Input for switch contact $\check{V}_{min}$ or temperature sensor, configurable	Volt-free or Ni1000, 0 – 50 °C
Input, switch contact $\check{V}_{max}$	Volt-free
Communication	RS-485, not galvanically isolated, 115 kBd
Communication format	Sauter local communication (SLC)
Network	Linear, no branches, up to 31 devices per segment
Cable termination	Cable length 200 – 500 m, 120 $\Omega$ both ends
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU
Weight	0.8 kg

#### Compact controller ASV115CF152E

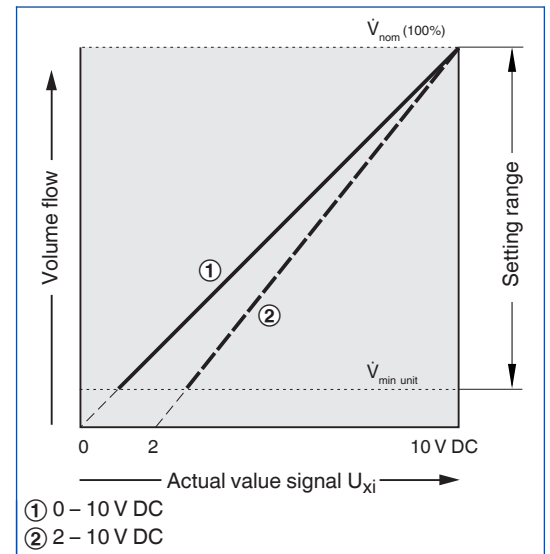
Supply voltage	24 V AC $\pm$ 20 %, 50/60 Hz
Power rating	15 VA max.
Torque	10 Nm
Running time for 90°	3 – 15 s, adjustable
Setpoint value signal input	0 – 10 V DC, $R_a > 100$ k $\Omega$
Actual value signal output	0 – 10 V DC, 0.1 mA max.
Input for flow rate shift signal or output for flow rate deviation, configurable	As input: 0 – 10 V DC, $R_a > 100$ k $\Omega$ ; as output: 0 – 10 V DC, 0.1 mA max.
Input for switch contact $\check{V}_{min}$ or temperature sensor, configurable	Volt-free or Ni1000, 0 – 50 °C
Input, switch contact $\check{V}_{max}$	Volt-free
Communication	RS-485, not galvanically isolated, 115 kBd
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**SA0, SC0, Characteristic of the setpoint value signal**



ASV115CF132E, ASV115CF152E

**SA0, SC0, Characteristic of the actual value signal**



ASV115CF132E, ASV115CF152E

**Volume flow rate setpoint value**

0 – 10 V DC

$$\dot{V}_{\text{setpoint}} = \frac{U_{w1}}{10} \dot{V}_{\text{nom}}$$

SA0, SC0

**Volume flow rate actual value**

0 – 10 V DC

$$\dot{V}_{\text{actual}} = \frac{U_{xi}}{10} \dot{V}_{\text{nom}}$$

SA0, SC0

**Volume flow rate setpoint value**

2 – 10 V DC

$$\dot{V}_{\text{setpoint}} = \frac{U_{w1} - 2}{8} \dot{V}_{\text{nom}}$$

SA0, SC0

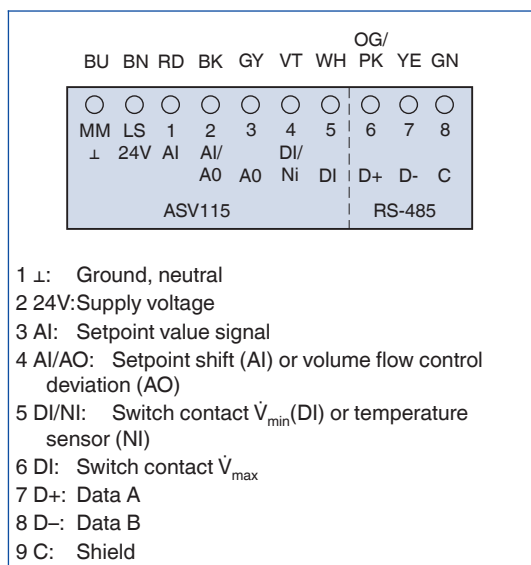
**Volume flow rate actual value**

2 – 10 V DC

$$\dot{V}_{\text{actual}} = \frac{U_{xi} - 2}{8} \dot{V}_{\text{nom}}$$

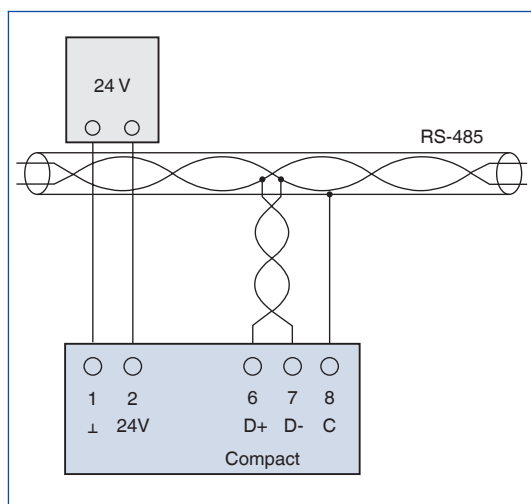
SA0, SC0

**SA0, SC0, Connecting cable core identification**



Compact: ASV115CF132E, ASV115CF152E

**SA0, SC0, Volume flow control**



Compact: ASV115CF132E, ASV115CF152E