

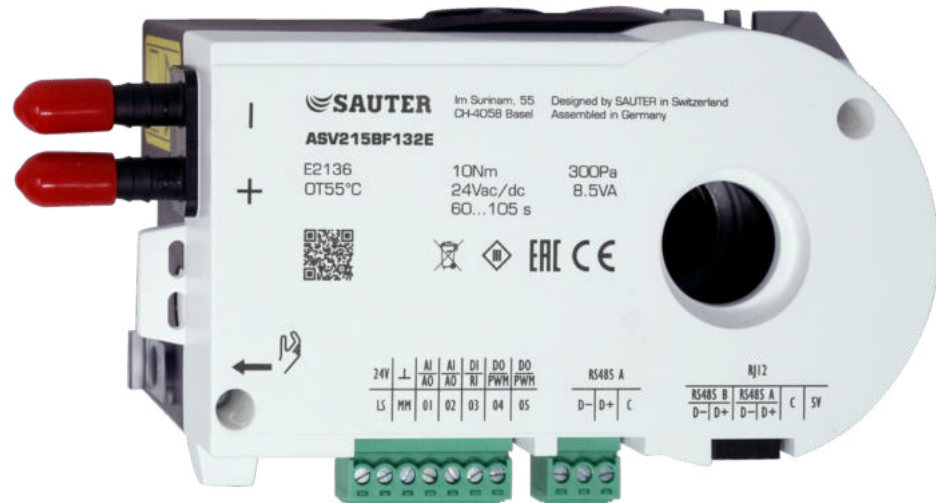
Static transducer

# Control component for VAV terminal units

## SB0N



Bus interface BACnet MS/TP



### Control component for VAV terminal units, with static transducer and with an analogue and a digital communication interface

Compact controller made by SAUTER for mounting onto TROX VAV terminal units

- Controller, static effective pressure transducer and actuator in one casing
- Use in ventilation and air conditioning systems, with clean and contaminated air
- Configurable basic functions
  - Volume flow control
  - Differential pressure control
  - Fan control for heating and cooling coils
- Suitable for constant and variable volume flows
- Analogue interface 0 – 10 V DC or 2 – 10 V DC or configurable
- Digital communication interface RS-485 for BACnet MS/TP and SLC (SAUTER Local Communication) protocols
- Parameter setting and commissioning by others with SAUTER software tool

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## General information

### Application

- All-in-one control device for TROX VAV terminal units
- Static differential pressure transducer, electronic controller, and actuator are fitted together in one casing
- Choice of various control options based on project-specific settings (by others)
- Existing connections can be used differently depending on project-specific settings (by others), for example:
  - Volume flow rate actual value as a network data point or voltage signal
  - Damper blade position as a network data point or voltage signal

Area of application according to manufacturer (SAUTER):

- Supply air and extract air flow control
- Differential pressure control in supply air and extract air ducts
- Suitable for internal spaces such as offices, conference rooms and hotel rooms

For more information please refer to the product details or the manufacturer's documentation

### Special features

- For various applications
- Requires adaptation (by others) to the actual application
- With a second control circuit for duct pressure and zone pressure control as well as for room air conditioning
- Supports SLC (SAUTER Local Communication) protocol for configuration, SAUTER system integration and connection of control panels
- Outputs for reheating and recooling
- BACnet Application Specific Controller (B-ASC)

### Constructions

SB0N with Compact controller ASV215BF132E for VAV terminal units:

- TVR, TZ-Silenzio, TA-Silenzio, TVZ, TVA, TVRK
- TVJ (all sizes)
- TVT up to size 1000 × 300 or 800 × 400 mm

### Parts and characteristics

- Static differential pressure measurement independent of the installation position
- Integral actuator, slow running
- Clamping device and gear release button
- Terminals and RJ12 sockets
- 2 RS-485 communication interfaces, not galvanically isolate

### Commissioning

- No factory setting by TROX because with this control component relevant parameters cannot be protected from being changed later
- Required by others: adaptation to terminal unit, application type setting, interface configuration and setting of operating parameters

### Required products for commissioning

- SAUTER CASE VAV, PC software for configuration and commissioning (can be downloaded from [www.sautercontrols.com](http://www.sautercontrols.com))
- RS-485 interface adapter

## Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

### Category

Compact controller for volume flow rate or room or duct pressure

- 5 configurable I/O signals including 2 × AI/AO, 1 × DI/RI, 2 × DO/PWM

### Application

Control of a constant or variable volume flow rate or pressure setpoint. Electronic controller for applying a reference value and capturing an actual value signal. Stand-alone operation or integration with a central BMS.

### Area of application

Static transducer for contaminated air in ventilation and air conditioning systems

### Actuator

Integral; slow running (run time 60–105 s for 90°)

### Installation orientation

Any installation position, zero point can be corrected

### Connection

2 terminal blocks and 1 RJ12 socket (bus)

### Supply voltage

24 V AC/DC

### Interface/signalling

- 2 RS-485 bus interfaces, not galvanically isolated, for BACnet MS/TP or SAUTER SLC protocol

### Interface information

Connections can be configured as required, for example:

- Analogue inputs: for reference value, setpoint value change
- Analogue outputs: for volume flow rate actual value, damper blade position, effective pressure
- Switch input DI: for load shedding
- Switch output DO/PWM: for reheating and recooling
- Communication interface RS-485: BACnet MS/TP (BACnet Application Specific Controller (B-ASC) and SAUTER SLC (configuration, SAUTER system integration and connection of control panels)

### Special functions

- Parameter setting for volume flow rate control, VOC-based or CO<sub>2</sub>-based room pressure control, and heating and cooling; this function may require an optional component

### Parameter setting

- Complete parameter setting (by others) for adaptation to the VAV terminal unit and for the project-specific use of inputs and outputs, functions and operating parameters
- Only with SAUTER commissioning software and interface adapter

### Factory condition

- Electronic controller factory mounted on the control unit

## Order code

Control component SB0N (shown together with TVR as an example)

**TVR - D - P1 - / 200 / D2 / SB0N**  
 |     |     |     |     |     |     |  
 1    2    3    4    5    6    7

**1 Type**

**TVR** VAV terminal unit

groove for optional lip seal

**FL** Flanges on both ends

**2 Acoustic cladding**

No entry: none

**D** With acoustic cladding

**5 Nominal size [mm]**

**100, 125, 160, 200, 250, 315, 400**

**3 Material**

No entry: galvanised sheet steel

**P1** Powder-coated RAL 7001 (silver grey)

**A2** Stainless steel construction

**6 Accessories**

No entry: without accessories

**D2** Double lip seal both ends (push-fit only)

**G2** Matching flanges for both ends (only with FL)

**4 Duct connection**

No entry: push-fit, suitable for ducts according to EN 1506; with

**7 Attachments (control components)**

**SB0N** Compact controller with static transducer, configurable application type; interface: analogue, BACnet MS/TP or SLC

**Order example: TVR-D-P1/200/D2/SB0N**

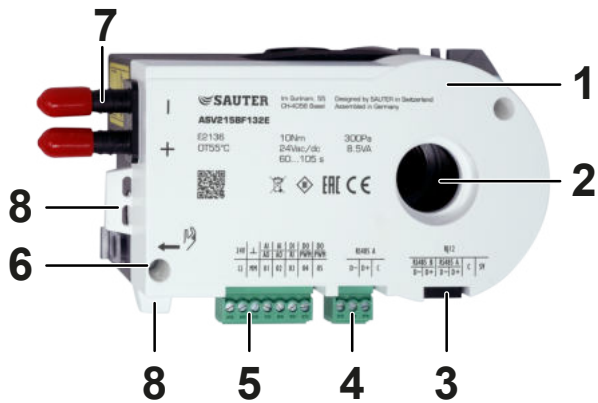
<b>Type</b>	TVR
<b>Acoustic cladding</b>	With acoustic cladding
<b>Material</b>	Powder-coated RAL 7001 (silver grey)
<b>Duct connection</b>	Push-fit, suitable for ducts according to EN 1506; with groove for optional lip seal
<b>Nominal size [mm]</b>	200
<b>Accessories</b>	Double lip seal both ends
<b>Attachments (control components)</b>	SB0N – Compact controller with static transducer, configurable application type; interface: analogue, BACnet MS/TP or SLC

Complete parameter setting (by others) for adaptation to the VAV terminal unit and for the project-specific use of inputs and outputs, functions and operating parameters Only with SAUTER commissioning software and interface adapter.

Parameters specific to the terminal unit and the size are given in the installation and commissioning manual as well as on a silver sticker on the product.

## Variants

### Compact controller SB0N, ASV215BF132E



- 1: VAV Compact controller
- 2: Clamping device
- 3: RS-485 interfact with RJ12 socket
- 4: RS-485 interface with screw terminals
- 5: Screw terminals for supply voltage, input signals and output signals
- 6: Gear release button
- 7: Effective pressure tube connections
- 8: Strain relief for cables

## Technical data

### Compact controllers for VAV terminal units

VAV terminal units	Type of installation component	Part number
TVR, TVJ, TVT, TZ-Silenzio, TA-Silenzio, TVZ, TVA, TVRK	ASV215BF132E	A00000069857

### Compact controller SB0N, ASV215BF132E



### Compact controller SB0N, ASV215BF132E

Type of measurement/installation orientation	Static, measurement range up to 300 Pa, independent of the installation orientation
Supply voltage (AC)	24 V AC, $\pm 20\%$ , 50/60 Hz
Supply voltage (DC)	24 V DC, $-10\%$ – $+20\%$
Power rating (AC)	Up to 8.5 VA
Power rating (DC)	Up to 4.7 W
Torque	10 Nm
Connections	<ul style="list-style-type: none"> <li>▪ 2 × RS-485 bus interface at RJ12</li> <li>▪ Terminals</li> <li>▪ RJ12 socket</li> </ul>
Analogue interface (optional)	0 – 10 V DC or 2 – 10 V DC or user-specific (adjustable)
Digital communication interface	<ul style="list-style-type: none"> <li>▪ Bus interface RS-485 (not galvanically isolated)</li> <li>▪ BACnet MS/TP and SLC (SAUTER Local Communication) protocols</li> <li>▪ Addressing by others, 31 devices max.</li> </ul>
IEC protection class	III (protective extra-low voltage)
Protection level	IP00, IP30 only with additional protection kit
EC conformity	EMC to 2014/30/EU
Weight	0.8 kg

The information given here is just to give you an idea.

For the latest information on the electronic attachments please refer to the technical data in the manufacturer's product documentation

Fr. SAUTER AG [www.sauter-controls.com/produkt/volumenstrom-kompaktregler/](http://www.sauter-controls.com/produkt/volumenstrom-kompaktregler/)

[www.sauter-controls.com/en/product/vav-compact-controller/](http://www.sauter-controls.com/en/product/vav-compact-controller/)

[www.sauter-controls.com/fr/produits/regulateur-compact-vav/](http://www.sauter-controls.com/fr/produits/regulateur-compact-vav/)

## Product details

### Commissioning

TROX VAV terminal units with the SB0N attachment must be parameterised and commissioned by the customer for the intended application.

The following settings must be made:

- Parameters for adapting the control component to the TROX VAV terminal unit
  - E.g. nominal flow rate, orifice factor (K value) or effective pressure at nominal flow rate
  - For specific parameters regarding the terminal unit and the dimensions, see the installation and commissioning instructions or the product label
- Setting for the desired function of the control component and the interfaces
- Operating values for the application area such as  $q_{vmin}$  and  $q_{vmax}$
- If necessary, communication setting for operation in a communication network

#### **Important:**

The PC software available free of charge from SAUTER and the appropriate interface adapter are required for commissioning the control component by the customer.

## Manufacturer's notes and data

### Reference to the manufacturer's details

The product documentation of the control component is relevant for the range of functions and technical data

Type ASV215BF132E of Fr. SAUTER AG

For further information, please consult the detailed manufacturer's documentation such as product data sheet and installation and commissioning instructions on the manufacturer's website.

- Technical data
- Function and application description
- Dimensions and dimension drawing
- Block diagram
- Electrical connecting cable core identification and sample wiring
- Accessories
- Commissioning and required software tools

Manufacturer of the control component:

Fr. SAUTER AG

[www.sauter-controls.com/produkt/volumenstrom-kompaktregler/](http://www.sauter-controls.com/produkt/volumenstrom-kompaktregler/)

[www.sauter-controls.com/en/product/vav-compact-controller/](http://www.sauter-controls.com/en/product/vav-compact-controller/)

[www.sauter-controls.com/fr/produits/regulateur-compact-vav/](http://www.sauter-controls.com/fr/produits/regulateur-compact-vav/)



## Nomenclature

 **$q_{vNom}$  [m<sup>3</sup>/h]; [l/s]**

Nominal flow rate (100 %): The value depends on product type, nominal size and control component (attachment). Values are published on the internet and in technical leaflets and stored in the Easy Product Finder design program. Reference value for calculating percentages (e.g.  $q_{vmax}$ ). Upper limit of the setting range and maximum volume flow rate setpoint value for the VAV terminal unit.

 **$q_{vmin Unit}$  [m<sup>3</sup>/h]; [l/s]**

Technically possible minimum volume flow rate: The value depends on product type, nominal size and control component (attachment). Values are stored in the Easy Product Finder design program. Lower limit of the setting range and minimum volume flow rate setpoint value for the VAV terminal unit. Setpoint values below  $q_{vmin unit}$  (if  $q_{vmin}$  equals zero) may result in unstable control or shut-off.

 **$q_{vmax}$  [m<sup>3</sup>/h]; [l/s]**

Upper limit of the operating range for the VAV terminal unit that can be set by customers:  $q_{vmax}$  can be set to less than or equal to  $q_{vnom}$ . For analogue signalling to volume flow controllers (typically used), the maximum value of the setpoint signal (10 V) is assigned the set maximum value ( $q_{vmax}$ ) (see characteristic).

 **$q_{vmin}$  [m<sup>3</sup>/h]; [l/s]**

Lower limit of the operating range for the VAV terminal unit that can be set by customers:  $q_{vmin}$  should be set to less than or equal to  $q_{vmax}$ . Do not set  $q_{vmin}$  to less than  $q_{vmin unit}$  as the control may become unstable or the damper blade may close.  $q_{vmin}$  may equal zero. In case of analogue signalling to volume flow controllers (which are typically used), the set minimum value ( $q_{vmin}$ ) is

allocated to the minimum setpoint signal (0 or 2 V) (see characteristic).

 **$q_v$  [m<sup>3</sup>/h]; [l/s]**

Volume flow rate

**VAV terminal unit**

Consists of a basic unit with an attached control component.

**Basic unit**

Unit for controlling a volume flow without an attached control component. The main components include the casing with sensor(s) to measure the effective pressure and the damper blade to restrict the volume flow. The basic unit is also referred to as a VAV terminal unit. Important distinguishing features: Geometry or unit shape, material and types of connection, acoustic characteristics (e.g. acoustic cladding or integral sound attenuator), volume flow rate range.

**Control component**

Electronic unit(s) mounted on the basic unit to control the volume flow rate or the duct pressure or the room pressure by adjusting the damper blade position. The electronic unit consists basically of a controller with effective pressure transducer (integral or external) and an integral actuator (Easy and Compact controllers) or external actuator (Universal or LABCONTROL controllers). Important distinguishing features: Transducer: dynamic transducer for clean air or static transducer for contaminated air. Actuator: slow-running actuator as standard, spring return actuator for safe position, or fast-running actuator. Interface: analogue interface or digital bus interface for the capturing of signals and data.