SIEMENS

OpenAir™

VAV Handheld Tool

AST20

Handheld Tool for VAV compact and modular controllers

For configuration and maintenance of OpenAir VAV compact and modular controllers:

- For use in OEM factory for configuration and basic testing
- For on-site use for commissioning and maintenance

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Siemens
Building Technologies

Features

- Monitoring and configuration of VAV controllers
- Bus configuration of Modbus / BACnet MS/TP field devices
- Mass configuration (“Copying mode”)
- Diagnostic and maintenance parameters
- Access levels for service (SVC) and OEM
- Multi-language support
- Backward compatibility with legacy VAV controllers

Functions

Function	Description	With Type
VAV online	Monitoring of actual values and override control	All types (limitations per device type apply)
VAV configuration	Displaying / setting VAV controller and actuator parameters	All types
NFD configuration	Setting bus parameters	Modbus / BACnet
Mass configuration	Copy-mode for improved productivity	All types
Diagnostics and maintenance	OEM-reset and displaying / changing of OEM default values (in OEM access level)	All types (limitations per device type apply)

Type summary

Product no.	Stock no.	Operating voltage	Power consumption
AST20	S55499-D165	Powered by controller (AC 24 V ±20%)	1.5 VA

Ordering (Example)

Product no.	Stock no.	Description	Quantity
AST20	S55499-D165	VAV Handheld Tool	1

Delivery

The transport case contains one AST20 handheld tool, one 7-pin cable, and one 6-pin cable.

Equipment combinations

VAV compact /modular controllers G..B181.1E/.. and ASV181.1E/..				
ASN	**Stock No.**	**Datasheet**	**Technical Basics**	**Mounting instr.**
G..B181.1E/3	--	N3544	P3544	M3544
ASV181.1E/3	--			
GDB181.1E/KN	S55499-D134	N3547	P3547	M3547
GLB181.1E/KN	S55499-D135			
GDB181.1E/MO	S55499-D166	A6V10631832	A6V10631862	A6V10523083
GLB181.1E/MO	S55499-D167			
GDB181.1E/BA	S55499-D168	A6V10631834	A6V10631864	
GLB181.1E/BA	S55499-D169			

Product documentation

Title	Topic	Document ID
VAV Handheld Tool	Operating manual for VAV Handheld Tool	A6V10555077

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:
http://siemens.com/bt/download

Notes

Safety

Caution

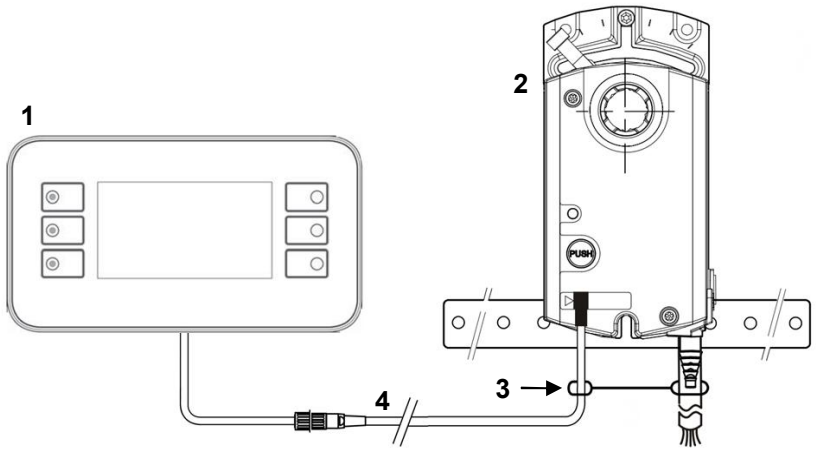
National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.

Connection to VAV controller

Connection of VAV handheld tool to VAV controller G..B181.1E/.. or ASV181.1E/3



1 AST20
2 G..B181.1E/.. or ASV181.1E/3
3 Strain release strip
4 Connection cable (7-pin or 6-pin)

Conection cables	
Connection for AST20	Exchangeable connection cable with 6- or 7-pin connector.
Length of cable attached to AST20	0.29 m
Cable type	Incorporated cable with one coupling (3-wire twisted pair)
Length of cable on VAV controller side	2.6 m
Cable type(s) delivered with AST20	▪ 7-pin cable (74 424 0301 0) for VAV controllers series E (Modbus / BACnet: series A) and newer ▪ 6-pin cable (74 424 0126 0) for VAV controllers Series D and older
Cable type(s) which can be separately ordered	▪ Control panel cable (74 424 0125 0) for VAV controllers with DC 0/2..10V control signal

Maintenance

AST20 Handheld tools are maintenance-free.

- Do not open the VAV handheld tool

Disposal

The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Warranty

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

	Note
	7-pin and 6-pin connection cables Using the wrong connection cable (e.g. 6-pin cable on 7-pin plug) can damage the VAV compact controller.

Operation

Basic operation

The AST20 is operated by five keys.

- Keys UP (3) and DOWN (4) are used to navigate to a menu item.
- If pressing ENTER (5) on a highlighted menu item, the value can be changed with UP/DOWN (if not protected or read-only).
- Pressing ENTER confirms the value change.
- By pressing ESCAPE (2), a value change can be cancelled or a menu page can be left to the next higher level.
- To reset the AST20, press RESET (1) until the display gets dark. The restart takes ca. 20s.

Operation by 5 keys

1	RESET
2	ESCAPE
3	UP
4	DOWN
5	ENTER

Note: After pressing ENTER, changed values are written directly into the VAV compact controller.

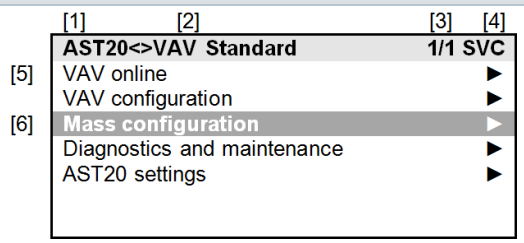
Access levels

- The AST20 supports two access levels, “OEM” and “SVC” (service). The access level is shown in the title bar (see below). The SVC level has some restrictions (Vn value and Vnom can’t be changed).
- To enter the OEM level, navigate to “AST20 settings” and select “Enter OEM password”.
- The initial OEM password can be obtained through the local Siemens sales representative. The OEM passsword can be changed after entering the defualt password. In case the user-defined OEM-password is lost, a reset will reset the AST20 to the default OEM password.

Screen

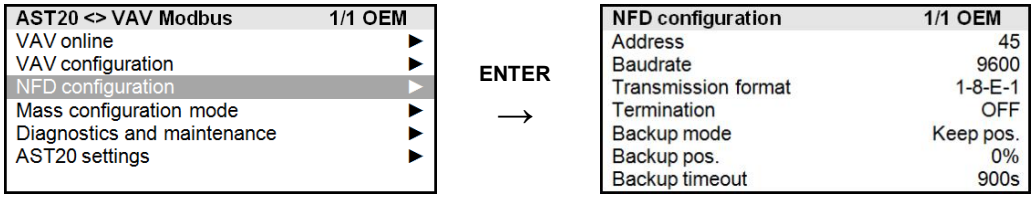
AST20 screen elements

1	AST20 self-identification
2	Connected field device type
3	Page counter (page / pages total)
4	Access level (SVC / OEM)
5	Menu item (not highlighted)
6	Highlighted / selected menu item

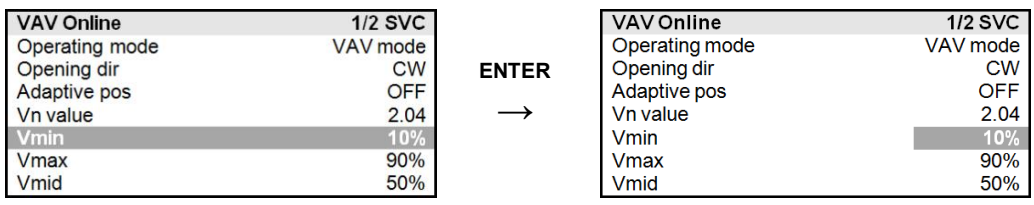


Basically the highlighting bar is moved with the UP/DOWN keys, where ENTER either opens the sub-menu (example 1) or allows changing the selected value (example 2).

Basic operation - examples



Example 1: Entering a sub-menu



Example 2: Changing a value

Menu tree

The general menu structure is shown below. Some items are only visible if a certain VAV type is connected.

Title bar	Information on connected device and access level (SVC or OEM)
VAV online	
Setpoint: flow / pos.	Display of actual setpoint (depends on operating mode)
Actual flow	Actual flow in % and m^3/h (or l/s)
Actual position [1]	Actual relative damper position
Diff. pressure [1]	Actual differential pressure in Pa
Override control	Override control: Off, open, close, stop, setpoint
VAV configuration	
Operating mode	Operating mode (flow control / position control / 3P / STP)
Opening direction	Opening direction CW or CCW
Adaptive positioning	Adaptive positioning On or Off
Vn value [2]	Coefficient for nominal differential pressure
Vmin	Minimum volume flow [%]
Vmax	Maximum volume flow [%]
Vmid [3]	Mid volume flow [%]
Vnom [2]	Nominal volume flow [m3/h] or [l/s]
Altitude level	Altitude level in 100m steps
Unit vol. flow	m^3/h or l/s
NFD configuration [1]	
Address	Address for RS-485 networks (Modbus / BACnet MS/TP)
Baudrate	Baudrate
Transmission format	Start-/Stopbit, Parity
Termination	Termination electronically switchable
Backup Mode	Setpoint monitoring On or Off
Backup Position	Position if backup mode entered
Backup Timeout	Monitoring waiting time
Mass configuration	
Mass configuration	Activates mass configuration: Saves current parameter set which can be copied into subsequent VAV controllers of the same type
Address incrementation	Automatically incrementing the address when using mass configuration
Diagnostics and maintenance	
Field device info	Basic info on connected device
Field device statistics	Counters and statistical data of connected device
OEM default settings [2]	Reset to OEM settings / Read or set OEM settings
AST20 settings	
Authorization level	Change from SVC level to OEM level (password required)
Handheld tool settings	Settings like language, brightness etc.
Enter / change[2] OEM password	Entering password for OEM level, or changing password if in OEM level
Persistent OEM level [2]	Make OEM level persistent (active after power-off of AST20)
Logoff OEM [2]	Leave OEM level

[1] Not available for all types. NFD configuration menu only available for Modubs / BACnet types

[2] Write access only in OEM access level

[3] Used in STP mode only (G..B181.1E/3 or ASV181.1E/3). Note: Vmax can't be lower than Vmid.

Technical data

Power supply		
Powered by controller		DC 24 V ±20%, 30 mA AC 24 V ±20%, 60 mA

Display		
LCD type		STN blue, negative
Resolution		Dot matrix 240 x 128
Backlight		White LEDs
Size	LCD size	93 x 58 mm
	Visible area size	86.15 x 47.78 mm
Visibility angle[1)]	Angle from top	41°
	Angle from bottom	21°

[1)] Visibility angle is the angle at which the contrast ratio is greater than 2.

General data		
Dimensions		173.2 x 95.5 x 22.1 mm
Weight excl. packaging		305 g
Weight incl. packaging and cables		950 g
Lens		Makrolon 2405, transparent
Keypad		Silicon rubber, RAL7035
Housing	Front housing	Makrolon 6485, RAL7035
	Rear housing	Makrolon 6485, RAL5014

Connection cables		
Cable at handheld tool	Type	74 424 0117 0
	Length	0.9 m
Cable with 7-pin connector	Type	74 424 0301 0
	Length	2.6 m
Cable with 6-pin connector	Type	74 424 0126 0
	Length	2.6 m

Degree of protection		
Degree of protection	Degree of protection acc. to EN 60529	IP65
Safety class	Safety class acc. to EN 60730	III
UV protection test level		IEC 60068-2-9, 1.13 kW/m^2, procedure B, 7 cycles
Pollution degree		2

Environmental conditions		
Operation		IEC 60721-3-3
	Temperature	-40…70 °C
	Temperature restriction on LCD	-20…60 °C
	Humidity	5…95% r.h. (non-condensing)
	Air pressure	Min. 700 hPa, corresponding to Max. 3,000 m above sea level
Transport and storage		IEC 60721-3-2
	Temperature	-40…70 °C
	Humidity	5…95% r.h. (non-condensing)
	Air pressure	Min. 260 hPa, corresponding to Max. 10,000 m above sea level

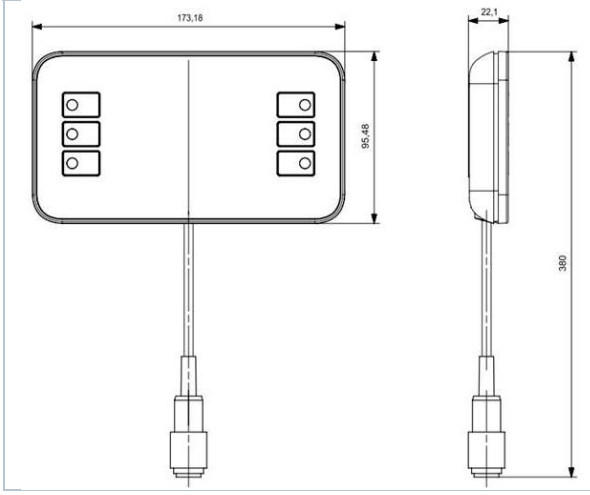
Directives and Standards	
Product standard	EN60730-1
Electromagnetic compatibility (Application)	For residential, commercial and industrial environments
EU Conformity (CE)	8000080607 [1)]
RCM Conformity	8000080608 [1)]
FCC	FCC part 15(EMC emission FCC CFR 47 part 15)

Environmental compatibility	
	The product environmental declaration A5Q00061135F [1)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

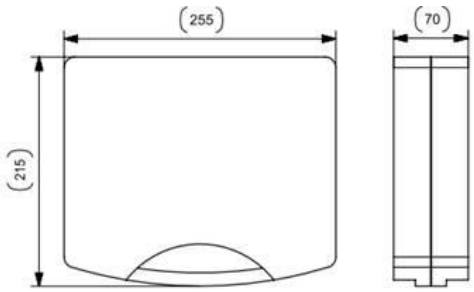
1) The documents can be downloaded from http://siemens.com/bt/download

Dimensions

AST20



Transport case



All measurements in mm

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