

Modular electrical and pneumatic automation system



- For use in hazardous areas (zone 1/21)
- Developed in cooperation with Siemens Automation and Drives
- Electrical connection via PROFIBUS® DP-is, electrical I/O functions via Siemens SIMATIC ET 200 iSP™ modules
- Compact design / Protection rating IP30

Type 8650 can be combined with ...



Type 2012
Process valve



Type 8697
Position feedback



Type 0498
Double pilot controlled
check valve



Type 2000
Angle valve



Type 8030
Sensor



Type 6519 Ex-i
Pneumatic valve

AirLINE Ex Type 8650 is a modular electrical and pneumatic automation system that controls complex processes in hazardous areas (Zone 1 / 21).

The protection class "intrinsically safe" (Ex-i) of electronic modules and valves allows the change of modules during operation.

With the modules of the cooperation partner Siemens, Bürkert offers electrical, analogue and digital I/O functions for use in zone 0. A data set on a SD-Card with serialised data will be delivered as a complete system.

Technical data

System structure

Number of valves

Valve types 6524 / 6525

Valve types 6526 / 6527

max. width of the system

max. 88 valve functions

max. 32 valve functions

1070 mm (inclusive Siemens modules)

(see *Technical data* in the operating instructions)

Max. power consumption

see *Technical data* in the operating instruction

Duty cycle

100 % ED (continuous operation)

Operating voltage

24 V DC alternative 120/230 V AC

Residual ripple

2 V_{ss}

Mounting

on S7 profile rail from Siemens

Temperatures

Operation

0 to +55 °C (horizontal installation)

Storage

-40 to +70 °C

Interference elimination

interference resistance

according to EMV statutes

emitted interference

EN 50082-2
EN 50081-2

Rating

IP30

Protection class

I (according to IEC 61140)

Approvals

ATEX, IEC-Ex, Zone 1/21

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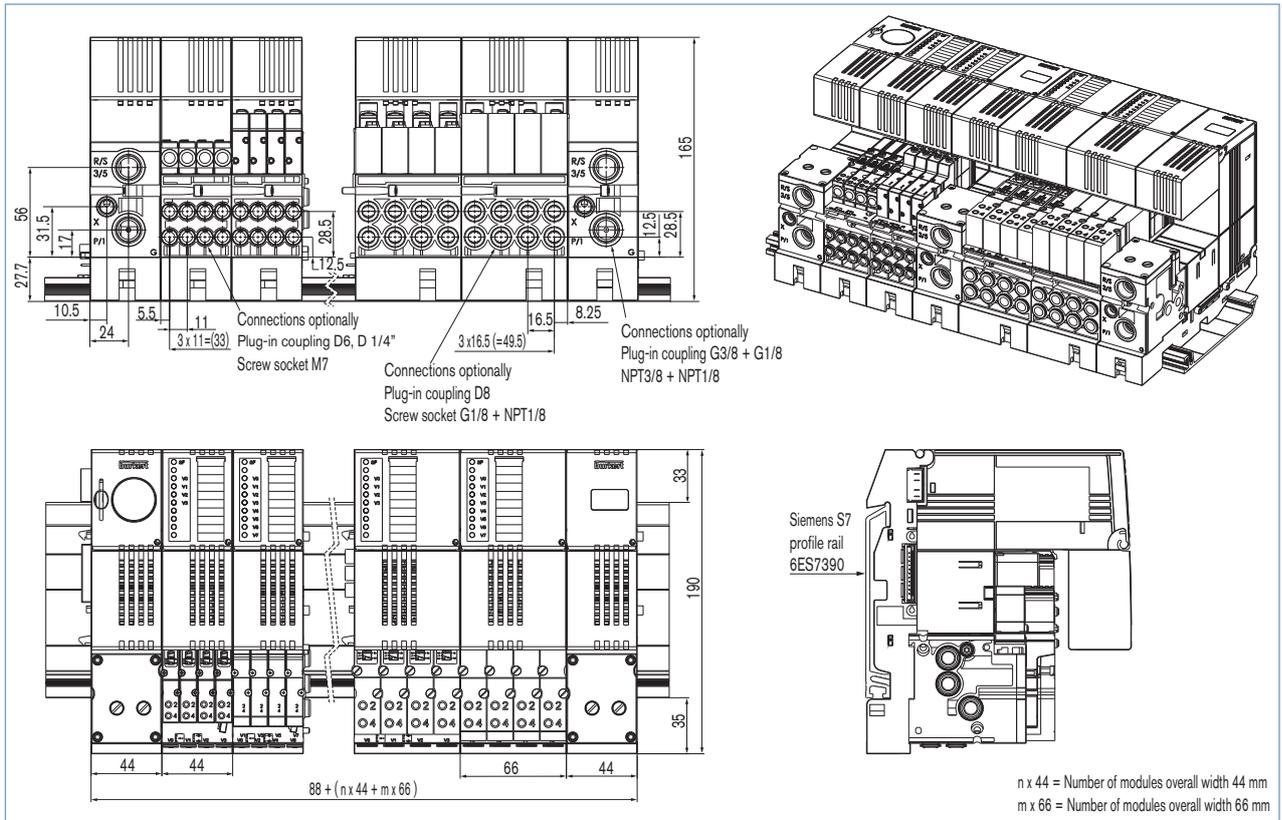
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SIMATIC ET 200iSP™

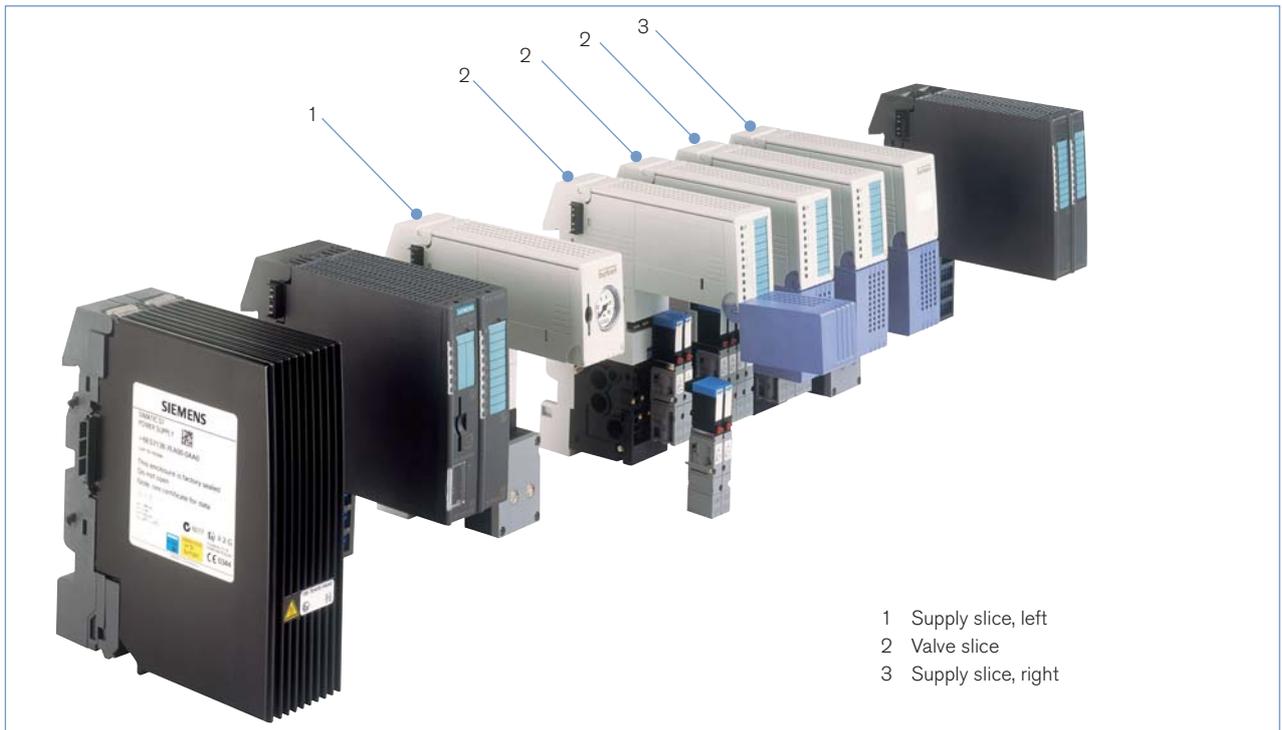
decentralised peripheral device from Siemens

Dimensions [mm]

System AirLINE Ex Type 8650



Structure example AirLINE Ex Type 8650



Electrical modules of series Siemens SIMATIC ET 200iSP™



Technical data*	
Operating voltage	24 V DC alternative (power module) 120/230VAC installed as Ex-e
Temperatures	
Operation	-20 ... +70 °C
Storage	-40 ... +70 °C
Rating	IP30
Protection class	I according to IEC 60536

*detailed specifications see manual Siemens SIMATIC ET 200iSP

The Siemens SIMATIC ET 200iSP™ is suitable for use in explosion-protected areas. It consists of power supply and interface module and a maximum 32 electronic modules.

Overview of the Siemens components required for the AirLINE Ex type 8650

The Siemens components required for the AirLINE Ex type 8650 are presented in an overview in the following. For detailed information concerning the modules from series ET 200iSP™ please refer to the corresponding data sheets from Siemens.

Components for the SIMATIC ET 200iSP™-systems	
Profile rail	The profile rail is a rack from the ET 200iSP™ system. You mount the modules on this rail.
Terminal module	The terminal modules carry the stationary wiring. They accommodate the power supply, interface and electronic modules.
 Power-Supply module	The power supply module is positioned on terminal module TM-PS-A / TM-PS-B (optionally redundant). It supplies electronics and sensors with power.
 Interface module	The interface module is positioned on terminal module TM-IM / EM or TM-IM / IM. It connects the ET 200iSP™ system with the DP master and distributes the data to the populated electronic modules.
 Electronic module	The electronic modules are positioned on terminal module TM-IM / EM or TM-EM / EM. It determines the functions (e. g. digital or analogue electronic I/O module).
Termination module	The termination module complements the station.

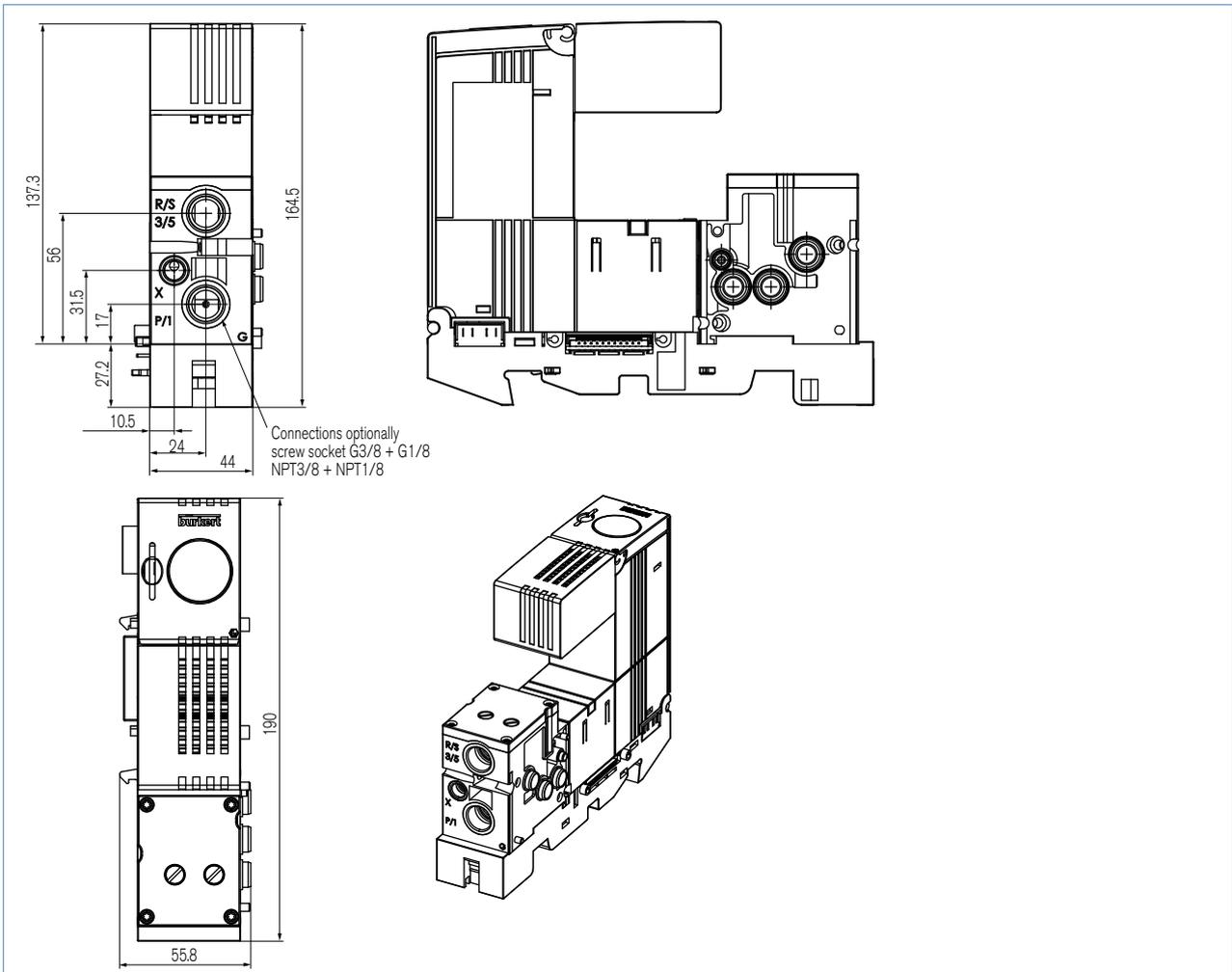
Supply slice left / right / middle



Technical data	
Power consumption	0 W (Module is electrically passive)
Pneumatic connections	G3/8" and G1/8" or NPT3/8" and NPT1/8"
Media	lubricated and non lubricated dry air; neutral gases (5 µm-filter recommended)
Duty cycle	100 % ED (continuous operation)
Dimensions [mm]	ca. 50 x 190 x 120
Material (housing / pneumatic)	PA, PBT, PC
Weight [g] (without / with manometer)	480 / 520

The supply slices (on the picture supply slices right / left) compose the interface between the electronic modules of the Siemens SIMATIC ET 200iSP™ series and the pneumatic valve block from Bürkert. With the supply slices the AirLINE Ex-System is powered with compressed air.

Dimensions [mm]



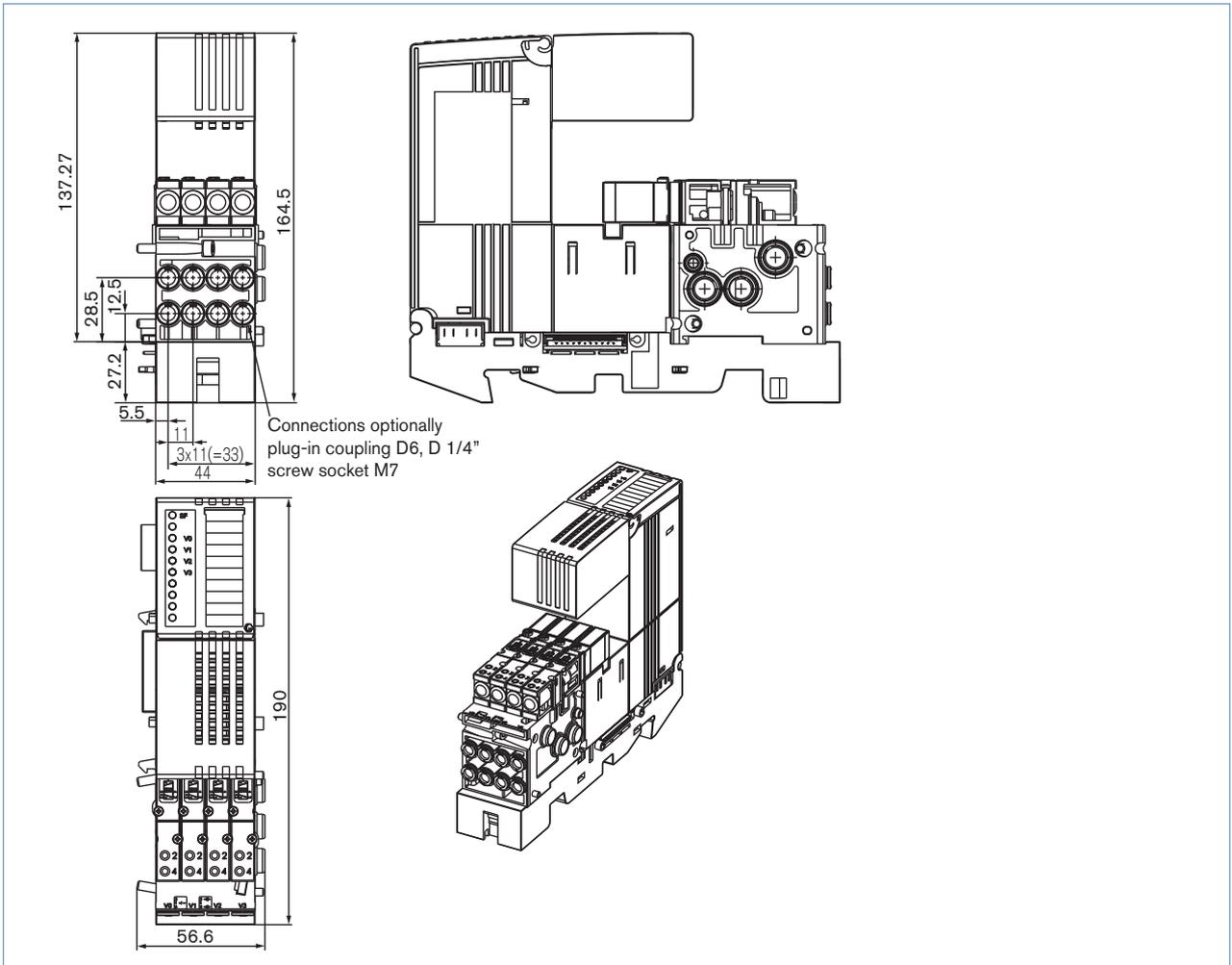
Valve slice 44 mm



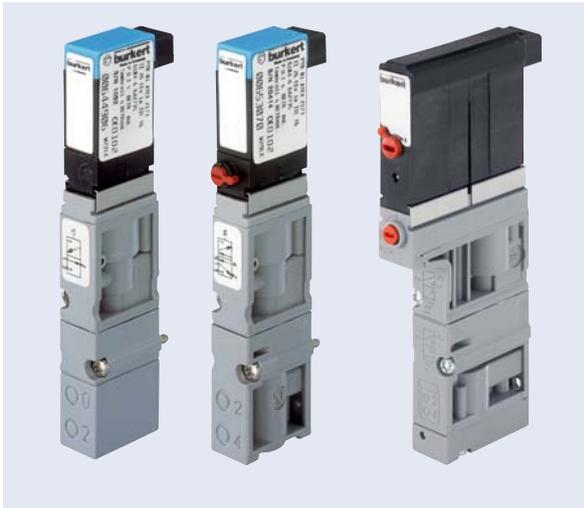
Technical data	
Power consumption	2.9 W (for 2 x 3/2-way valves: 3.6 W)
Pneumatic connections of the valve slice for Valves with 11 mm per station	Plug-in connection D6, D1/4"; Thread M7
Media	lubricated and non lubricated dry air; neutral gases (5 µm-filter recommended)
Duty cycle	100 % ED (continuous operation)
Dimensions [mm]	ca. 50 x 190 x 120 ca. 72 x 190 x 120
Material (housing / pneumatic)	PA, PBT, PC
Weight [g] (without valves)	470

A valve slice is composed of a terminal module which represents the backplane. On this terminal module an electronic and a pneumatic basic module is fixed. Pilot valves of the following types can be assembled:
6524 / 6525 Ex-i (11 mm width per station).

Dimensions [mm]



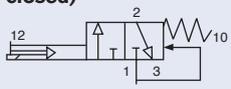
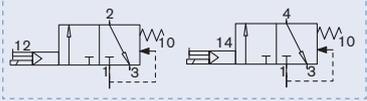
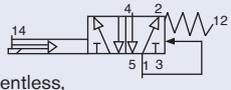
Pilot valves type 6524 and type 6525 Ex-i (11 mm width per station)



Technical data	
Body material	PA (polyamide)
Sealing material	NBR
Media	lubricated and non lubricated dry compressed air; neutral gases (5 µm-filter recommended)
Port connection	Flange for MP 13
Manual actuation	yes (alternative versions without)
Rated power	0.3 W (for 2 x 3/2-way valves: 2 x 0.3 W)
Duty cycle	100 % ED (continuous operation)
Electrical connection at the valve	rectangular plug RM 2.54 mm
Orifice	4mm
QNn value air [l/min]	300
Installation	with 2 screws M2 x 20

The pilot valves of types 6524 and 6525 consist of a solenoid valve (Ex-i design) and a pneumatic poppet valve as amplifier. The operating principle enables high pressure to be controlled with low power consumption and short switching times. The valves are equipped with manual override (alternatively versions without).

Ordering chart

ATEX & IEC-Ex certified					
Circuit Function	Response time Opening [ms]	Response time Closing [ms]	Pressure range [bar]	manual override	Item No.
C = NC (normally closed) 3/2-way valve, servo-assisted, currentless, Port 2 decreased 	15	20	2,5 - 7	yes	184766
			2,5 - 7	no	186832
			1 - 7	yes	186835 ¹⁾
C 2 x 3/2-way valve, servo-assisted in de-energized position port 2/4 to atmosphere 	15	20	2,5 - 7	yes	182086
			1 - 7	yes	182088 ¹⁾
H 5/2-way valve, servo-assisted, currentless, Port 1 with Port 2, Port 4 exhausted 	15	20	2,5 - 7	yes	184769
			2,5 - 7	no	184773
			1 - 7	yes	186834 ¹⁾

¹⁾ Version for use with auxiliary pilot air only !
Other valve functions on request

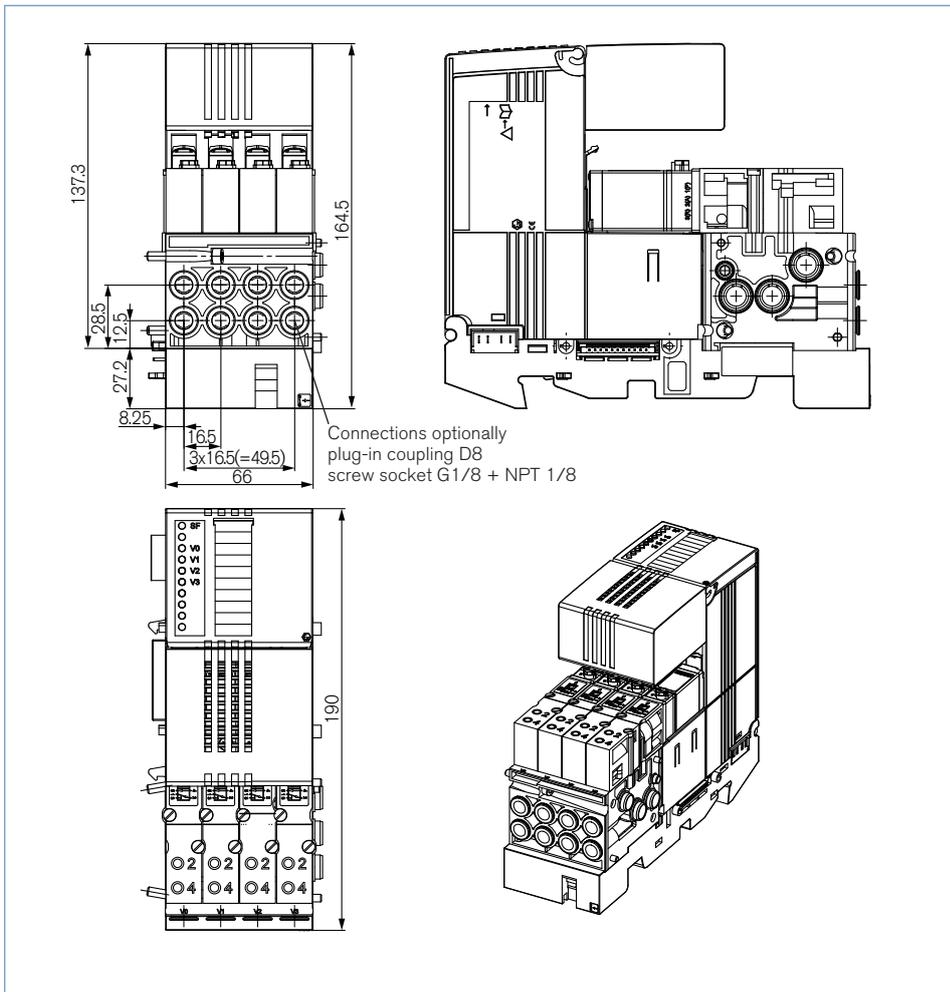
Valve slice 66 mm



Technical data	
Power consumption	2.9 W
Pneumatic connections of the valve slice for Valves with 16.5 mm per station	Plug-in connection D8; Thread G1/8", NPT1/8"
Media	lubricated and non lubricated dry air; neutral gases (5 µm-filter recommended)
Duty cycle	100 % ED (continuous operation)
Dimensions [mm]	ca. 50 x 190 x 120 ca. 72 x 190 x 120
Material (housing / pneumatic)	PA, PBT, PC
Weight [g] (without valves)	580

A valve slice is composed of a terminal module which represents the backplane. On this terminal module a fourfold electronic and a fourfold pneumatic basic module is fixed. Pilot valves of the following types can be assembled:
6526 / 6527 Ex-i (16.5 mm width per station)

Dimensions [mm]



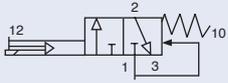
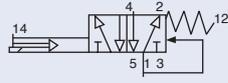
Pilot valves type 6526 and type 6527 Ex-i (16.5 mm width per station)



Technical data	
Body material	PA (polyamide)
Sealing material	NBR
Media	lubricated and non lubricated dry compressed air; neutral gases (5 µm-filter recommended)
Port connection	Flange for MP 13
Manual actuation	yes (alternative versions without)
Rated power	0.3 W
Duty cycle	100 % ED (continuous operation)
Electrical connection with the valve	rectangular plug RM 5.08 mm
Orifice	6mm
QNn value air [l/min]	700
Installation	with 2 screws M3 x 30

The pilot valves of types 6526 and 6527 consist of a rocker type solenoid valve of type 6106 (Ex-i design) and a pneumatic poppet valve as amplifier. The operating principle enables high pressure to be controlled with low power consumption and short switching times. The valves are equipped with manual override (alternatively versions without).

Ordering chart: ATEX, IEC-Ex

Circuit function	Response times Opening [ms]	Response times Closing [ms]	Pressure range [bar]	Manual Override	Item no.
C = NC (normally closed)  3/2-way valve, servo-assisted, currentless, Port 2 decreased	80	90	2 ... 8	yes	175 634
				no	175 674
			1 ... 8	yes	175 731 ¹⁾
H  5/2-way valve, servo-assisted, currentless, Port 1 with Port 2, Port 4 exhausted	80	90	2 ... 8	yes	175 727
				no	175 728
			1 ... 8	yes	175 729 ¹⁾

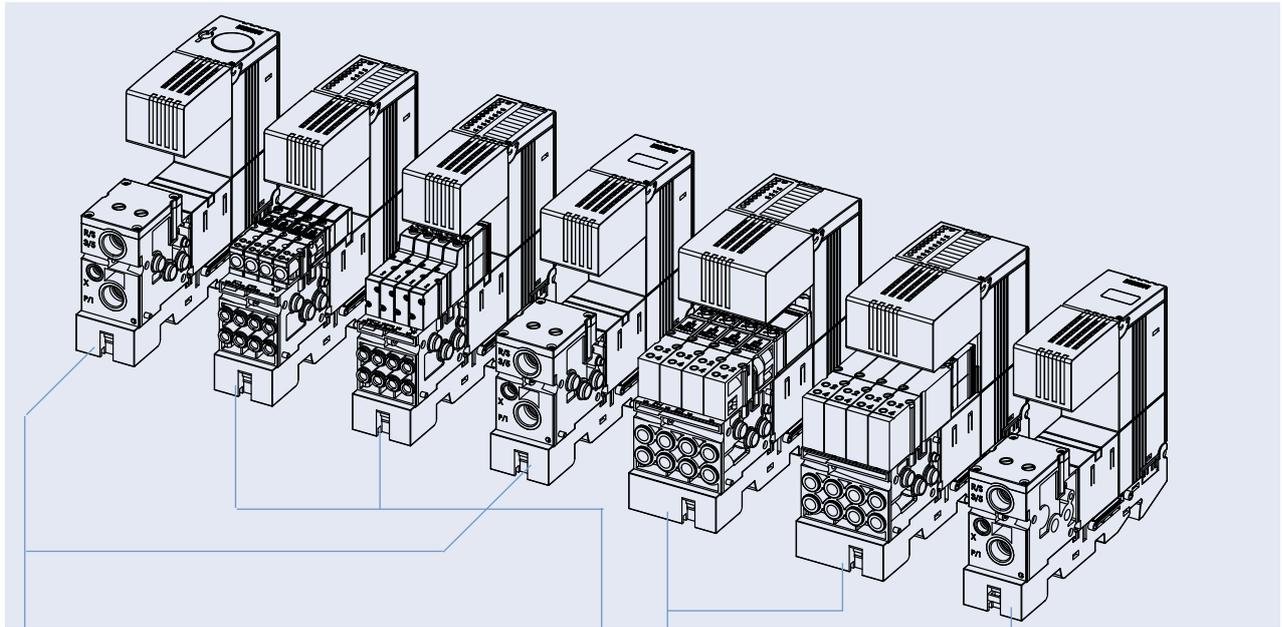
¹⁾ Version with auxiliary pilot air

Ordering chart System-Accessory

Accessory	Specification	Item no.
profile rail	length 480 mm	655 982
	length 530 mm	655 983
	length 585 mm	671 701
	length 830 mm	671 702
	length 885 mm	671 703
further accessories	Plug to block P-channel (to build up several pressure levels or media groups in a 8650 system)	655 068
	suitable Ex-i bus plug 9pol sub-D e. g. from Siemens: Order no. 6ES7-972-0DA60-0XA0	655 981
	RS 485 IS bus coupler from Siemens. Order no. 6ES7-972-0AC80-0XA0	222 963

¹⁾ These plates use the working connections and medium channels of the respective valve position. Since they have smaller diameters than the connections on the clamping pieces, the potential throughflow values are correspondingly lower!

Example configuration



Supply slice left / middle	
pneumatic connections	G 3/8" and G 1/8" or NPT 3/8" and NPT 1/8"

Supply slice right	
pneumatic connections	G 3/8" and G 1/8" or NPT 3/8" and NPT 1/8"

Valve slice 44 mm	
pneumatic connections	Plug-in coupling D6, D 1/4"; thread M7

Valve slice 66 mm	
pneumatic connections	Plug-in coupling D8; thread G 1/8", NPT 1/8"

Certified cabinets on request



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In case of special application conditions,
please consult for advice.

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