

## 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

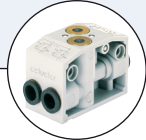
Type 8650 can be combined with ...



**Type 2012**  
Process valve



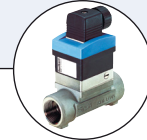
**Type 8697**  
Position feedback



**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<sub>ss</sub>

#### Mounting

on S7 profile rail from Siemens

#### Temperatures

Operation  
Storage

0 to + 55 °C (horizontal installation)  
- 40 to + 70 °C

#### Interference elimination

interference resistance  
emitted interference

according to EMV statutes  
EN 50082 - 2  
EN 50081 - 2

#### Rating

IP30

#### Protection class

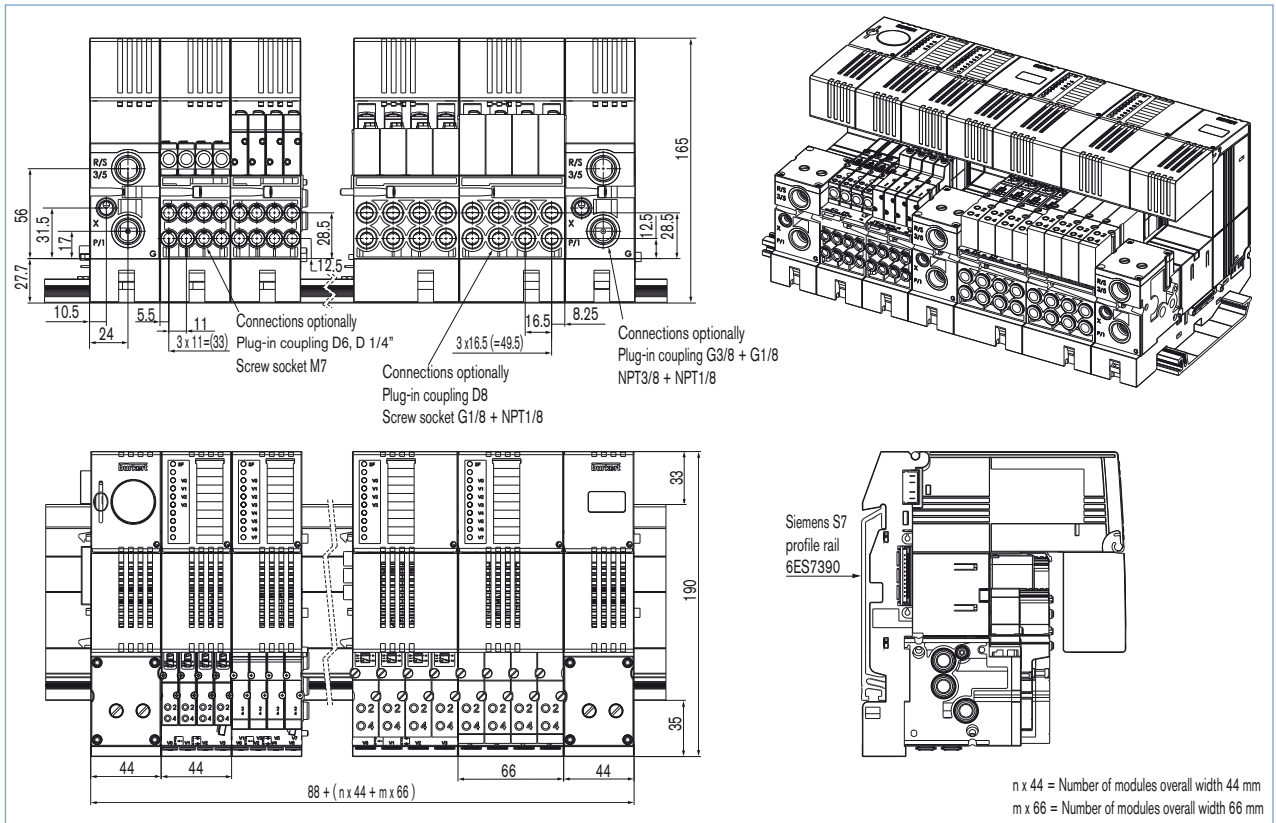
I (according to IEC 61140)

#### Approvals

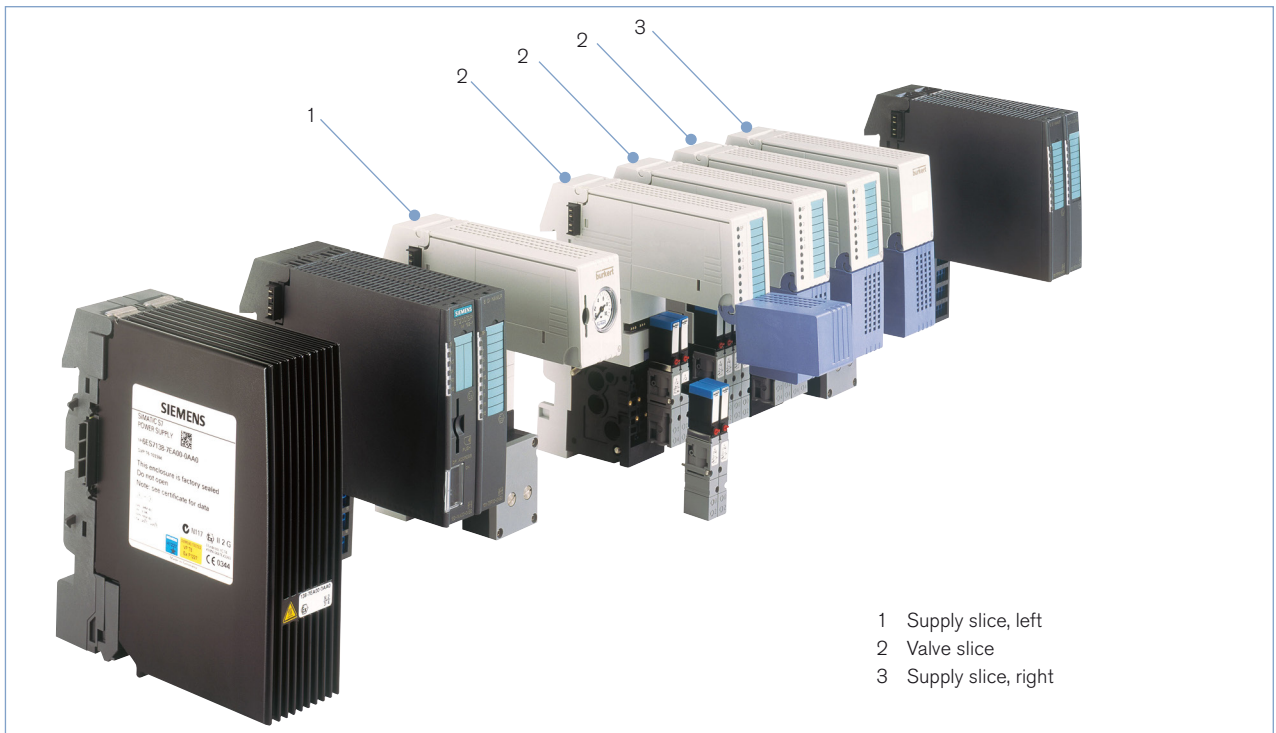
ATEX, IEC-Ex, Zone 1/21

**Dimensions [mm]**

**System AirLINE Ex Type 8650**



Structure example AirLINE Ex Type 8650



Electrical modules of series Siemens SIMATIC ET 200iSP™






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

\*detailed specifications see manual Siemens SIMATIC ET 200iSP

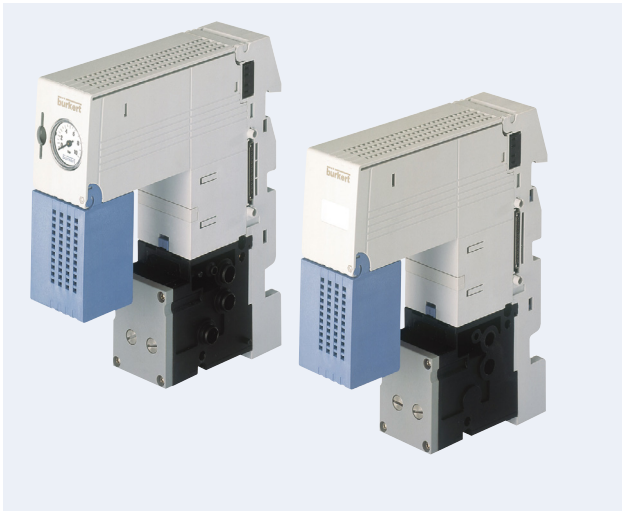
The Siemens SIMATIC ET 200iSP™ is suitable for use in explosion-protected areas. It consists of power supply and interface module and a maximum 32 electronic modules.

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.  |

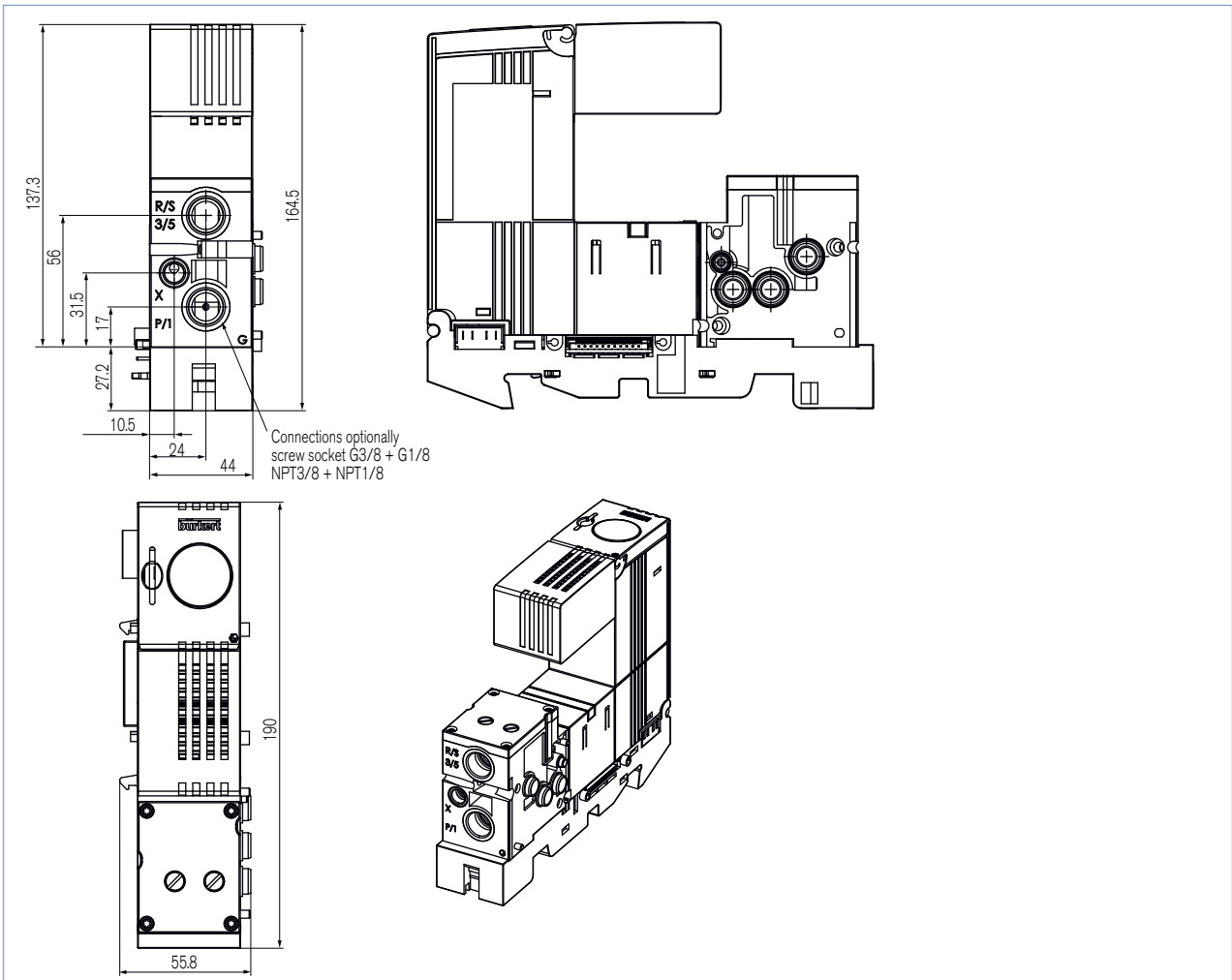
**Supply slice left / right / middle**



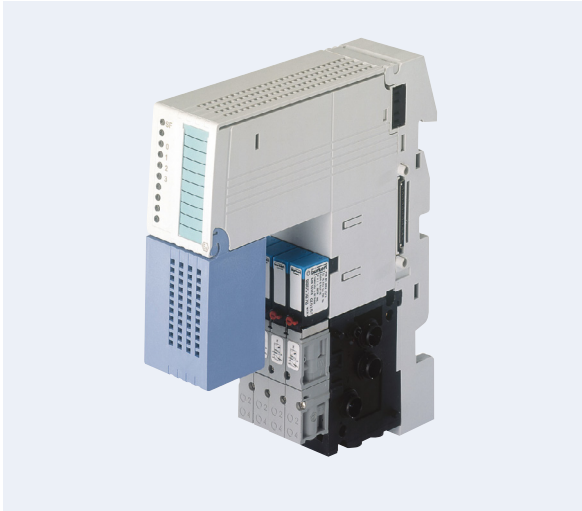
| Technical data                                       |  |
|--|--|
| <b>Power consumption</b>                             | 0 W<br>(Module is electrically passive)  |
| <b>Pneumatic connections</b>                         | G 3/8" and G 1/8" or<br>NPT 3/8" and NPT 1/8"  |
| <b>Media</b>   | lubricated and non lubricated dry air;<br>neutral gases<br>(5 µm-filter recommended) |
| <b>Duty cycle</b>                                    | 100% ED (continuous operation)   |
| <b>Dimensions [mm]</b>                               | ca. 50 × 190 × 120   |
| <b>Material<br/>(housing / pneumatic)</b>            | PA, PBT, PC  |
| <b>Weight [g]<br/>(without / with<br/>manometer)</b> | 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]**



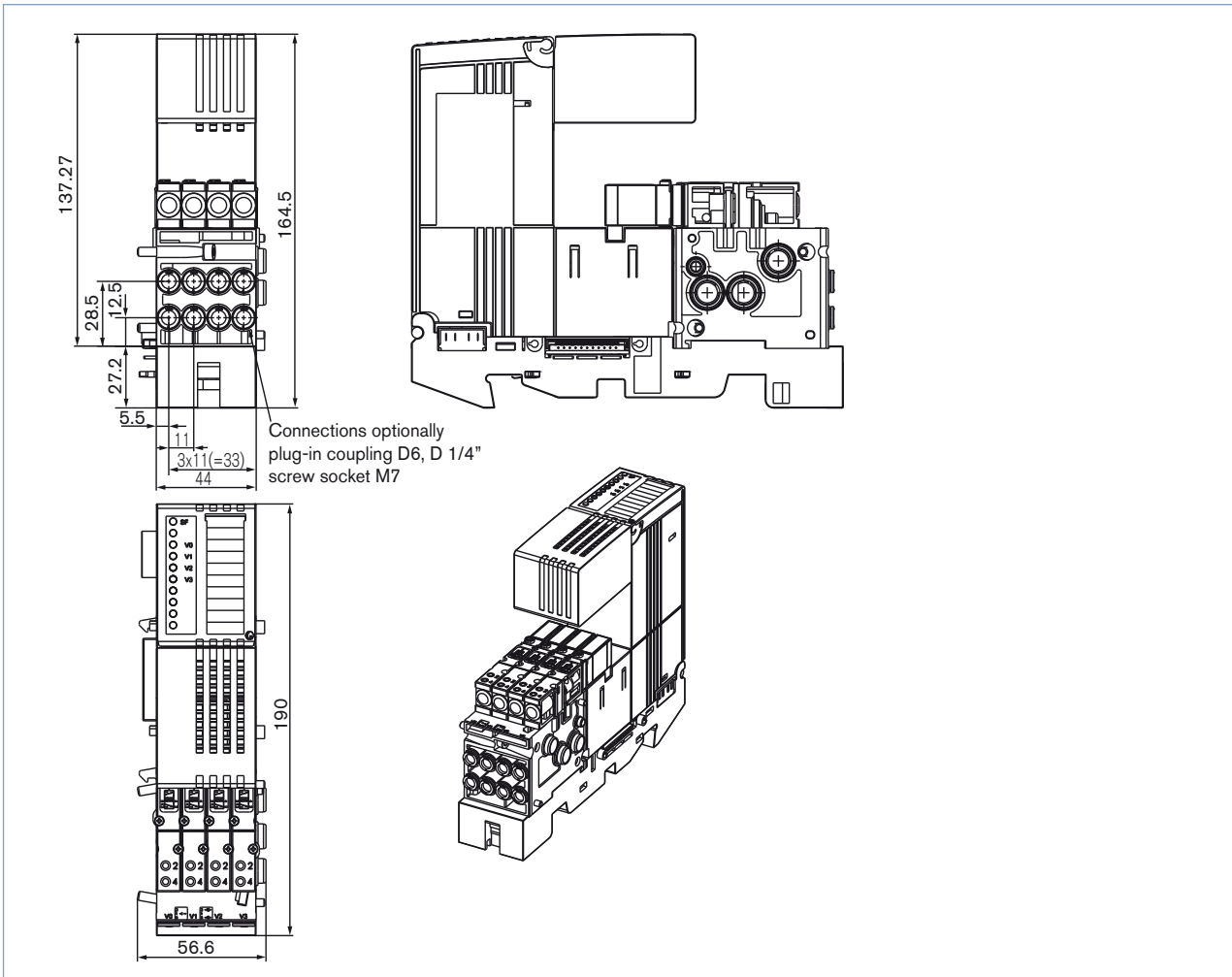
Valve slice 44 mm



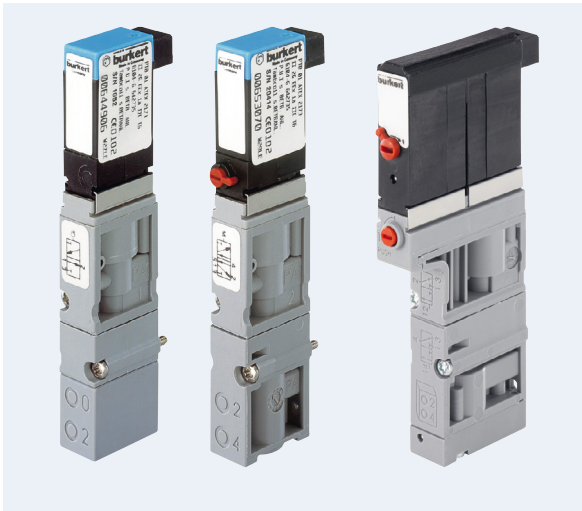
| Technical data   |  |
|--|--|
| <b>Power consumption</b>   | 2.9 W (for 2 × 3/2 way valves: 3.6 W)  |
| <b>Pneumatic connections of the valve slice for</b><br>Valves with 11 mm per station | Plug-in connection D6, D1/4";<br>Thread M7   |
| <b>Media</b>   | lubricated and non lubricated dry air;<br>neutral gases<br>(5 µm-filter recommended) |
| <b>Duty cycle</b>  | 100% ED (continuous operation)   |
| <b>Dimensions [mm]</b>   | ca. 50 × 190 × 120<br>ca. 72 × 190 × 120   |
| <b>Material (housing / pneumatic)</b>  | PA, PBT, PC  |
| <b>Weight [g] (without valves)</b>   | 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<br>(for 2 × 3/2 way valves: 2 × 0.3 W)  |
| Duty cycle                         | 100% ED (continuous operation)  |
| Electrical connection at the valve | rectangular plug RM 2.54 mm   |
| Orifice                            | 4 mm  |
| Q <sub>Nn</sub> value air [l/min]  | 300   |
| Installation                       | with 2 screws M2 × 20   |

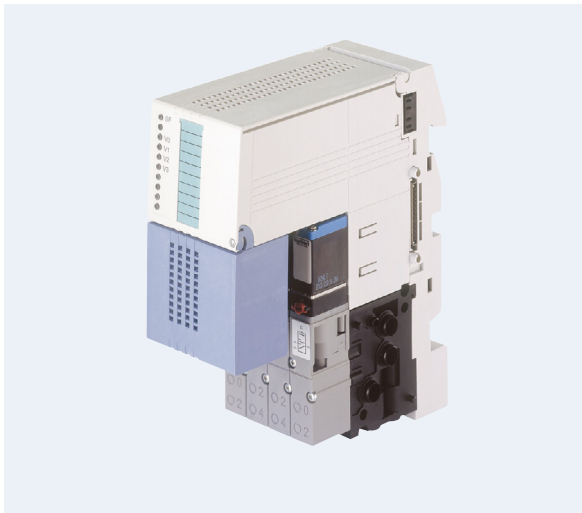
The pilot valves of types 6524 and 6525 consist of a solenoid valve (Ex-i design) and a pneumatic poppet valve as amplifier. The operating principle enables high pressure to be controlled with low power consumption and short switching times. The valves are equipped with manual override (alternatively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

Ordering chart

| ATEX & IEC-Ex certified   |                            |                            |                      |                 |                      |
|---|----------------------------|----------------------------|----------------------|-----------------|----------------------|
| Circuit Function  | Response time Opening [ms] | Response time Closing [ms] | Pressure range [bar] | manual override | Article no.          |
| <b>C = NC (normally closed)</b><br><br>3/2 way servo-controlled solenoid valve, normally closed, with manual override | 15                         | 20                         | 2.5 - 7              | yes             | 184766               |
|   |                            |                            | 2.5 - 7              | no              | 186832               |
|   |                            |                            | 1 - 7                | yes             | 186835 <sup>1)</sup> |
| <b>C</b><br><br>2 × 3/2 way servo-controlled solenoid valve, normally closed, with manual override                    | 15                         | 20                         | 2.5 - 7              | yes             | 182086               |
|   |                            |                            | 1 - 7                | yes             | 182088 <sup>1)</sup> |
| <b>H</b><br><br>5/2 way servo-controlled solenoid valve, pilot air and manual override                                | 15                         | 20                         | 2.5 - 7              | yes             | 184769               |
|   |                            |                            | 2.5 - 7              | no              | 184773               |
|   |                            |                            | 1 - 7                | yes             | 186834 <sup>1)</sup> |

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

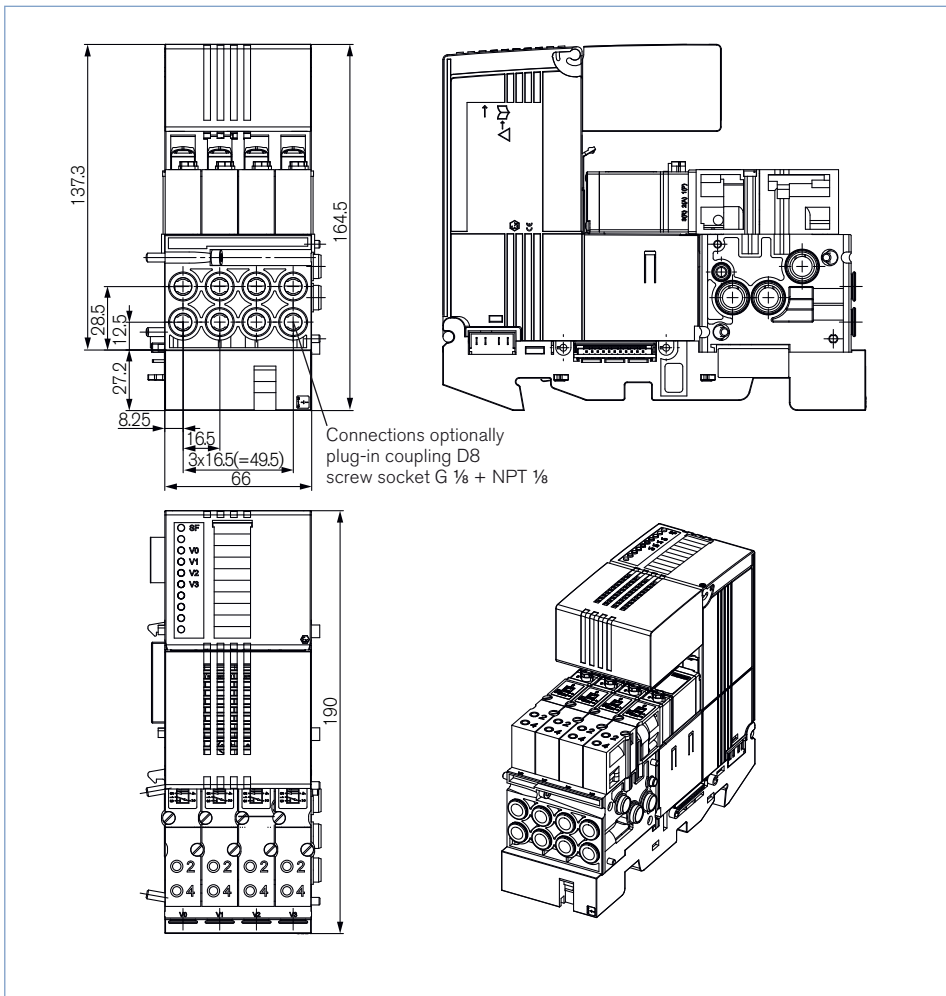
**Valve slice 66 mm**



| Technical data   |  |
|--|--|
| <b>Power consumption</b>   | 2.9 W  |
| <b>Pneumatic connections of the valve slice for</b><br>Valves with 16.5 mm per station | Plug-in connection D8;<br>Thread G 1/8", NPT 1/8"                                    |
| <b>Media</b>   | lubricated and non lubricated dry air;<br>neutral gases<br>(5 µm-filter recommended) |
| <b>Duty cycle</b>  | 100% ED (continuous operation)   |
| <b>Dimensions [mm]</b>   | ca. 50 × 190 × 120<br>ca. 72 × 190 × 120   |
| <b>Material (housing / pneumatic)</b>  | PA, PBT, PC  |
| <b>Weight [g] (without valves)</b>   | 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]**





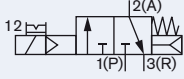
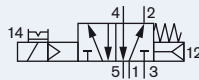
Pilot valves type 6526 and type 6527 Ex-i (16.5 mm width per station)



| 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                              | 6 mm  |
| Q <sub>Nn</sub> value air [l/min]    | 700   |
| Installation                         | with 2 screws M3 × 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 | Article no. |
|--|-----------------------------|-----------------------------|----------------------|-----------------|-------------|
| <b>C = NC (normally closed)</b><br><br>3/2 way servo-controlled solenoid valve, normally closed, with manual override | 80                          | 90                          | 2 ... 8              | yes             | 175634      |
|  |                             |                             |                      | no              | 175674      |
|  |                             |                             | 1 ... 8              | yes             | 175731      |
| <b>H</b><br><br>5/2 way servo-controlled solenoid valve, pilot air and manual override                                | 80                          | 90                          | 2 ... 8              | yes             | 175727      |
|  |                             |                             |                      | no              | 175728      |
|  |                             |                             | 1 ... 8              | yes             | 175729      |

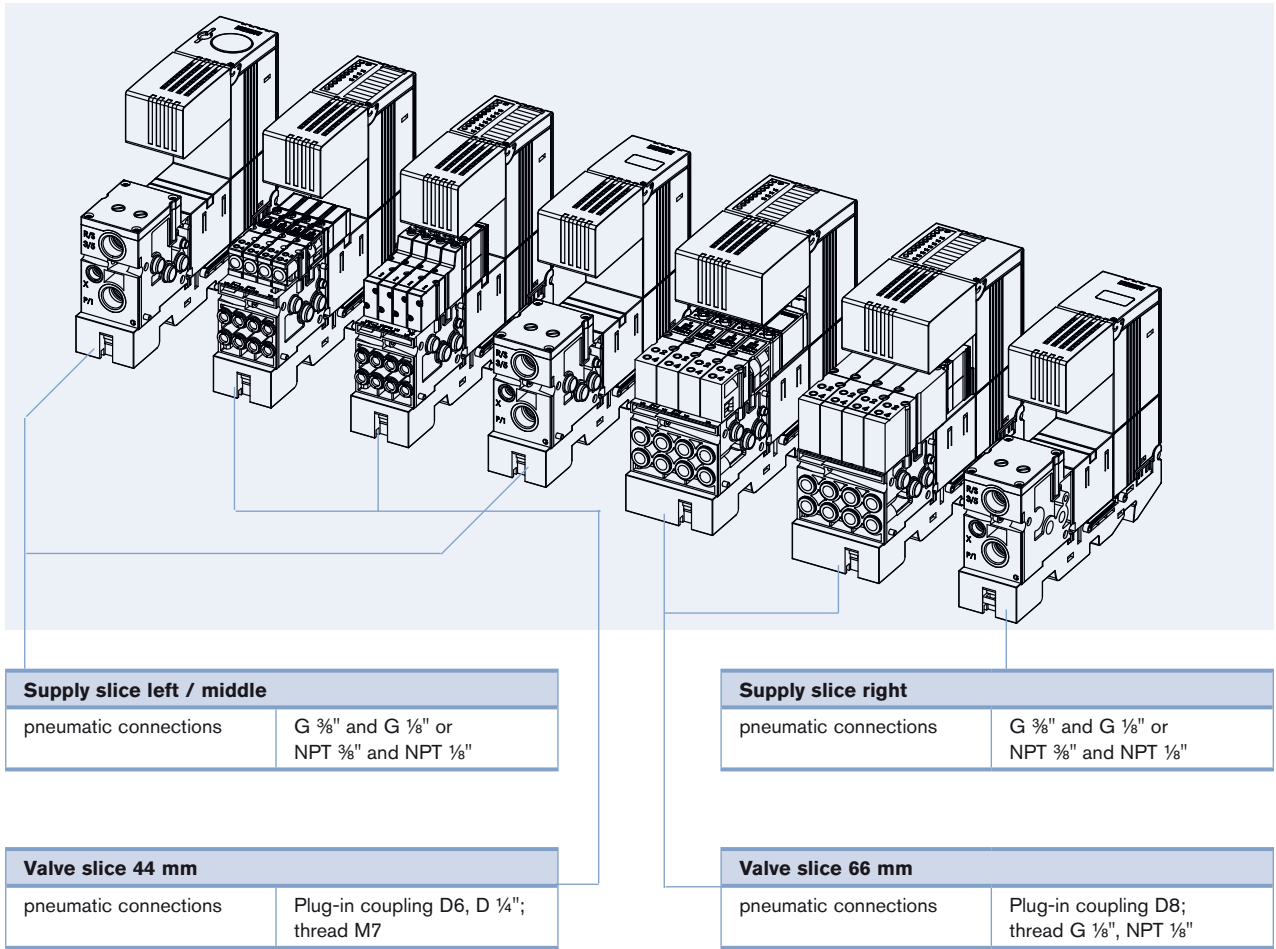
<sup>1)</sup> Version with auxiliary pilot air

Ordering chart System-Accessory

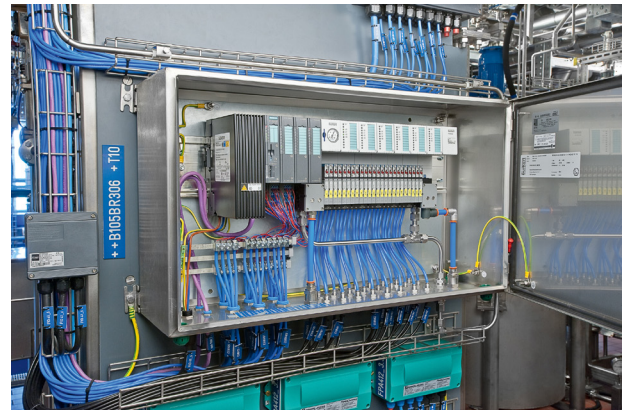
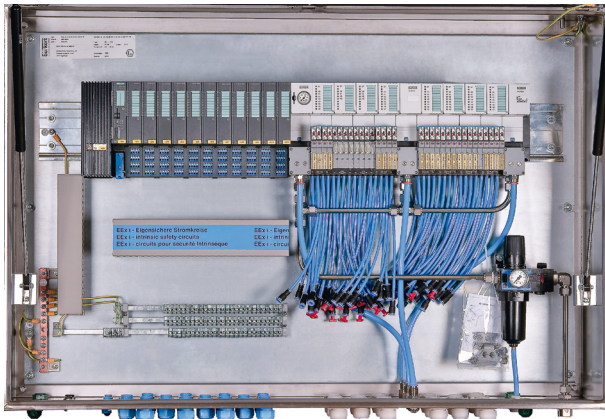
| Accessory           | Specifica-<br>tion  | Article no.  |
|---------------------|---|--|
| profile rail        | length 480 mm   | 655982  |
|                     | length 530 mm   | 655983  |
|                     | length 585 mm   | 671701  |
|                     | length 830 mm   | 671702  |
|                     | length 885 mm   | 671703  |
| further accessories | Plug to block P-channel<br>(to build up several pressure levels or media groups in a 8650 system) | 655068  |
|                     | suitable Ex-i bus plug 9pol sub-D<br>e.g. from Siemens: Order no. 6ES7-972-0DA60-0XA0             | 655981  |
|                     | RS 485 IS bus coupler from Siemens.<br>Order no. 6ES7-972-0AC80-0XA0                              | 222963  |

<sup>1)</sup> 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



Certified cabinets on request



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