FINE CONTROLS (UK) LTD

Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product rangerepresenting leading technologies & brands:

Flow: Flow Meters & Transmitters, Flow Switches, Flow Control Valves & Batch Control Systems

Temperature: Temperature Probes & Thermowells, Temperature ransmitters,Temperature Regulators & Temperature Displays

Level: Level Transmitters & Switches

Pressure: Pressure Gauges &Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume boosters.

Precision Pneumatics: Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

Valves: Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

Services: Repair, Calibration, Panel Build, System Design & Commissioning

A rotork Brand FAIRCHILD

bürkert

SIEMENS

alcon SOLENOID VALVES

A rotork Brand

MIDLAND-ACS

A rotork Brand

Honeywell

Bourdon Baumer Group

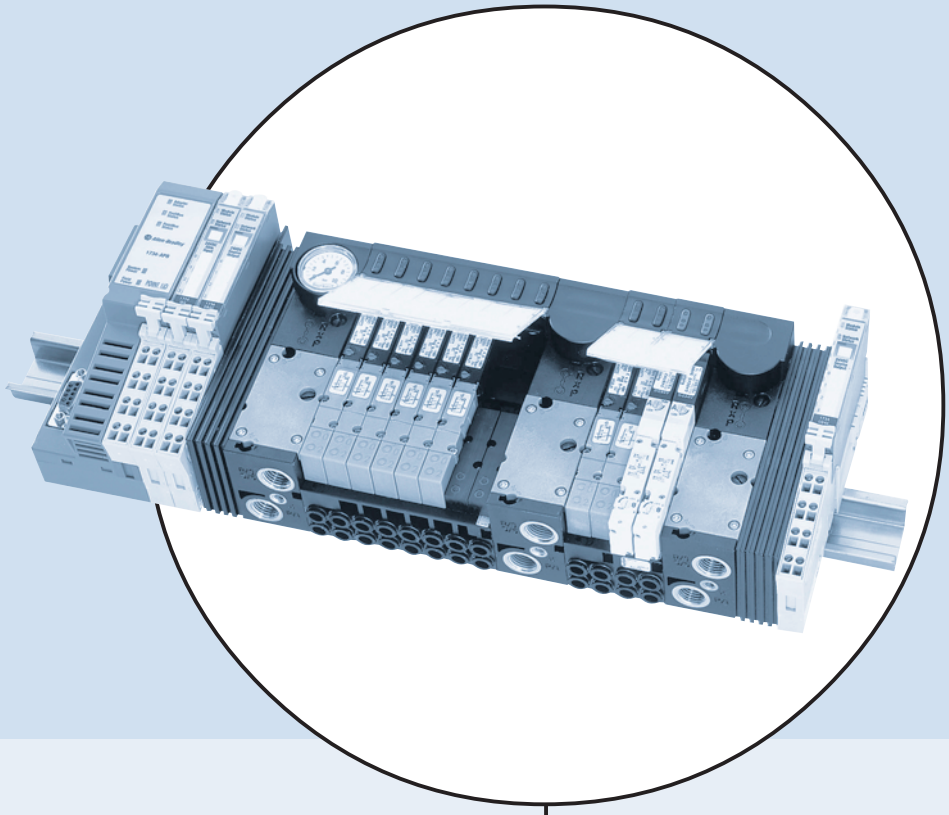
SOLDO CONTROLS

A rotork Brand

Fine Controls (UK) LTD, Bassendale Road, Croft Business Park,
Bromborough, Wirral, CH62 3QL UK
Tel: 0151 343 9966
Email: sales@finecontrols.com

Operating Instructions

Bedienungsanleitung
Instructions de service



Type 8644 AirLINE

with Point I/O System (Rockwell)

mit Point I/O System (Rockwell)

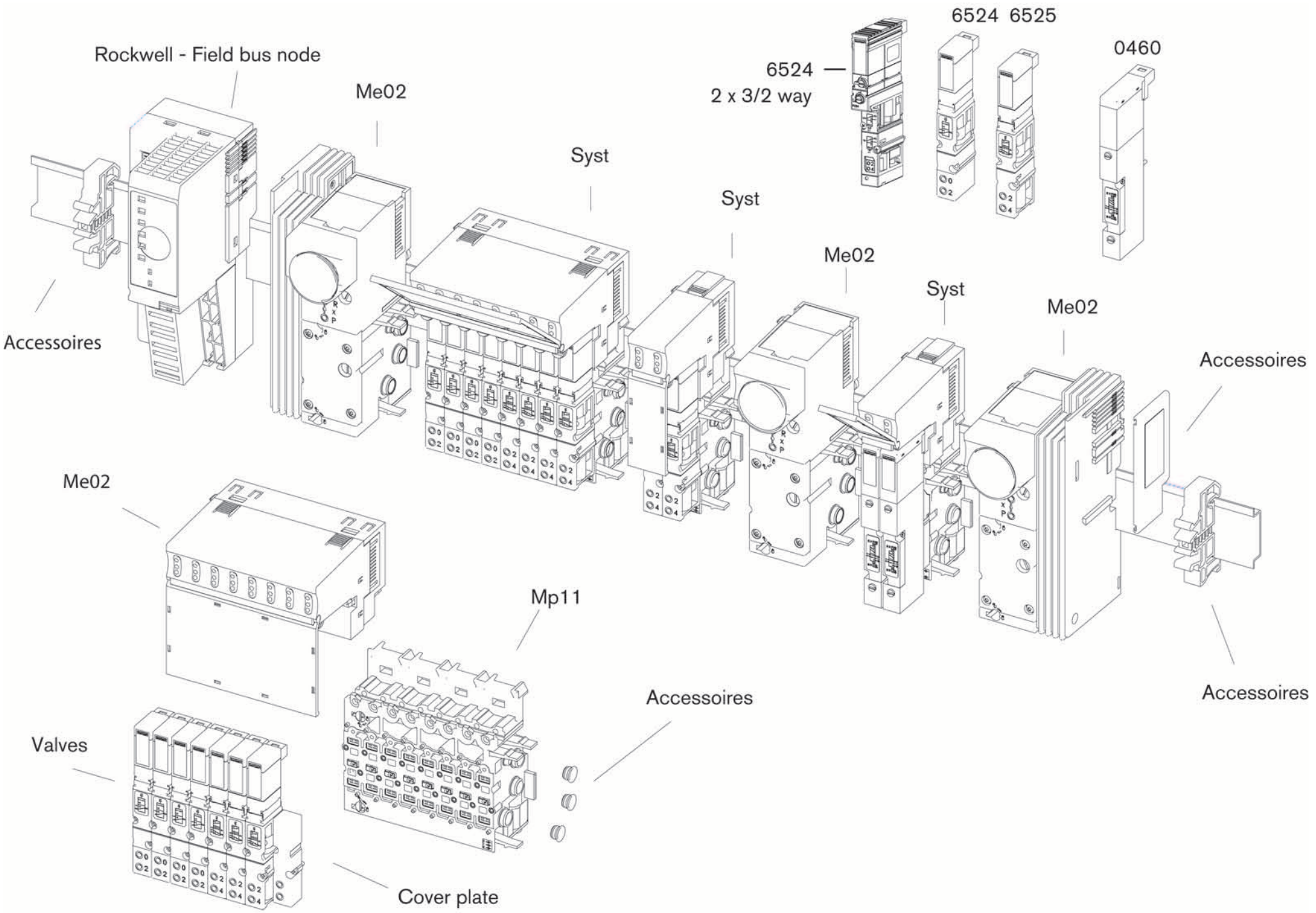
avec Point I/O System (Rockwell)

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

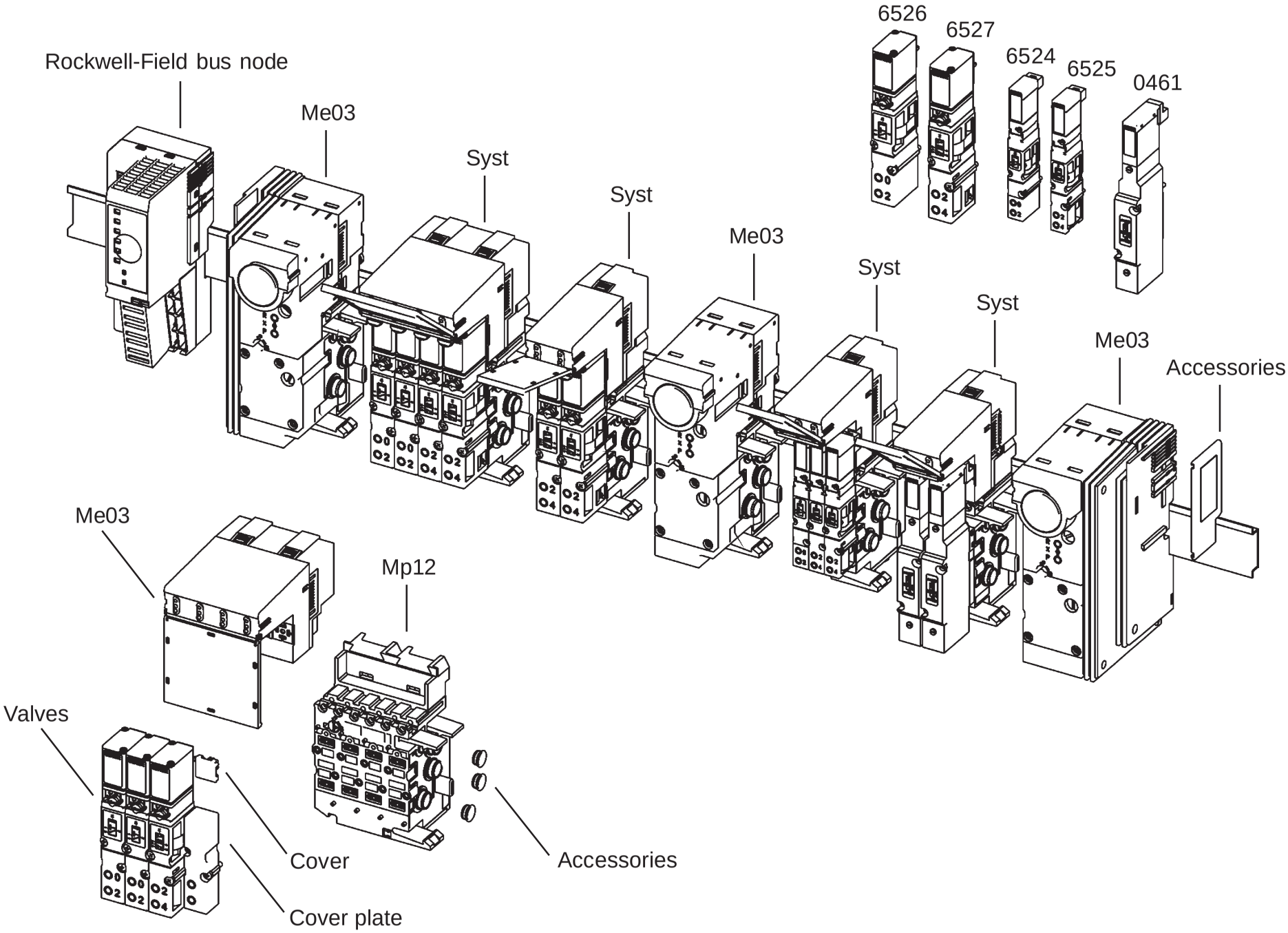
bürkert
Fluid Control Systems

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Operating Instructions 0605/06_EU-EN_00804718



Add-on dimension 11 mm



Add-on dimension 16,5 mm

List of contents
Type 8644 AirLINE -Rockwell

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

General Notes

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

SYMBOLS

The following symbols are used in these operating instructions:

→ marks a work step that you must carry out

ATTENTION! marks notes on whose non-observance your health or the functioning of the device will be endangered

NOTE marks important additional information, tips and recommendations

GENERAL SAFETY NOTES

Please observe the notes in these operating instructions together with the conditions of use and permitted data that are specified in the data sheet, in order that the device will function perfectly and remain operable for a long time:

- Keep to standard engineering rules in planning the use of and operating the device!
- Installation and maintenance work are only allowed by specialist personnel using suitable tools!
- Observe the current regulations on accident prevention and safety for electrical devices during operation, maintenance and repair of the device!
- Always switch off the power supply before intervening in the system!
- Note that in systems under pressure, piping and valves may not be loosened!
- Take suitable precautions to prevent inadvertent operation or damage by unauthorized action!
- After interruption of the electrical or pneumatic supply, make sure the process is restarted in a well-defined, controlled manner!
- On non-observance of these notes and unauthorized interference with the device, we will refuse all liability and the warranty on device and accessories will become void!

Protection from damage by electrostatic charging

**ATTENTION
EXERCISE CAUTION ON HANDLING !
ELECTROSTATICALLY SENSITIVE COMPONENTS / MODULES**

The unit contains electronic components that are very sensitive to electrostatic discharge (EDS). Contact to electrostatically charged persons or objects will endanger these components. In the worst case, they will be immediately destroyed or will fail after commissioning.

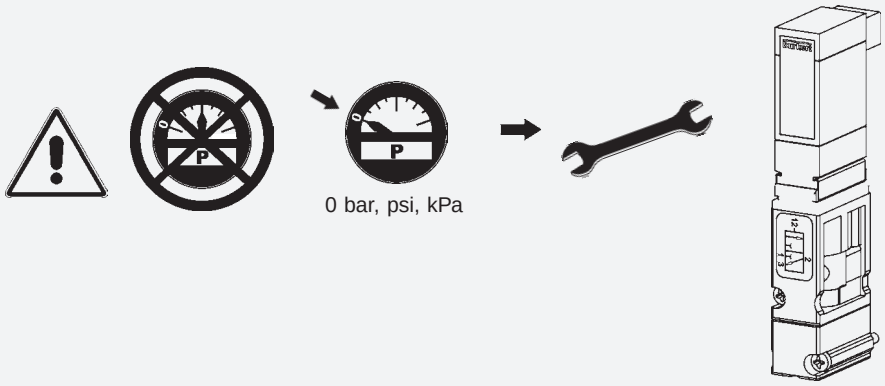
Observe the requirements of EN 100 015 - 1 in order to minimize the possibility of, or avoid, damage from instantaneous electrostatic discharge. Also take care not to touch components that are under supply voltage.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

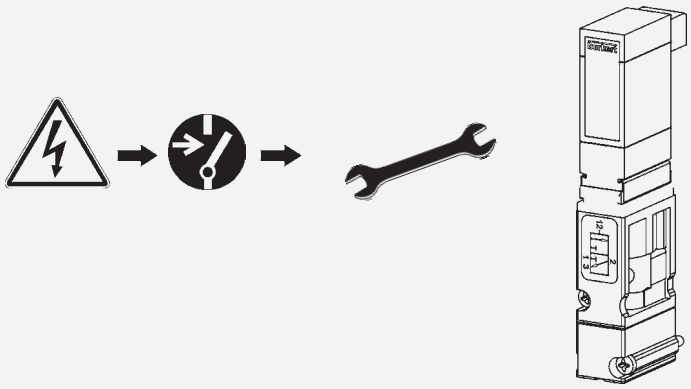
Safety notes for the valve

ATTENTION!

- Keep to standard engineering rules in planning the use of and operating the device!
- Take suitable precautions to prevent inadvertent operation or damage by unauthorized action!
- Note that in systems under pressure, piping and valves may not be loosened!



- Always switch off the power supply before intervening in the system!



- To avoid pressure drop on switching, make the volume of the pressure supply as large as possible!
- The device shall only be operated on direct current !

- **Risk of injury!**
  In continuous operation, the coil can become very hot!

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

SCOPE OF DELIVERY

Immediately after receipt of the goods, make sure the contents are undamaged and agree with the scope of delivery stated on the packing slip.

In case of irregularities, contact our customer service department at once:

Bürkert Fluid Control Systems
Service Department
Chr.-Bürkert-Str. 13-17
D-76453 Ingelfingen
Tel.: (07940) 10-111
Fax: (07940) 10-448
E-mail: info@de.buerkert.com

Or to your Bürkert Sales Center

WARRANTY CONDITIONS

This document contains no warranty statements. In this connection we refer to our general sales and business conditions. A prerequisite for validity of the warranty is use of the device as intended with observance of the specified conditions of use.

ATTENTION!

The warranty covers only faultless condition of the automation system and the attached valves supplied. No liability will be accepted for consequential damage of any kind that may arise from failure or malfunctioning of the device.

APPROVALS

The approval marks on Bürkert rating plates refer to the Bürkert products. In order that the complete valve island is approved, a gateway with a design inspection certificate must be used. In this case, a valve island may be extended with approved units having design inspection certificates up to 64 valves.

More detailed information on the approvals of the valves is to be found in the chapter Valves.

ASSEMBLY NOTE

If the configuration of the valve block also provides of Type 0461 (5/2- way pulsed valve, 5/3- way valve), a profile rail EN 50022-35x15 must be used.

INFORMATION ON THE INTERNET

Operating instructions and data sheets for type 8644 may be found on the Internet under:

www.buerkert.com → Germany → Produkte → Downloads → Betriebsanleitungen → Typ 8644 Rockwell

Furthermore, a complete documentation is available on CD. The complete Operating instructions may be ordered under the following indentification number: 804 718

NOTE

Technical data, configuration files and a detailed description of bus terminals and electrical function terminals by the Rockwell company are available on the Internet web site:

www.ab.com → Manuals On-Line → I/O →1734 Point I/O

Bürkert has no influence upon the update status of the latter home page or on changes in technical data or presentation on the pages linked thereto.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Installation / Commissioning

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Installation instructions

The valve block of the AirLINE-system Type 8644 is combined with the Point I/O System from the Rockwell company. Please observe the respective installation notes.

ATTENTION!

Before starting installation work, switch off the voltage in the vicinity and secure it against being switched on again.

Illustration of the Valve block

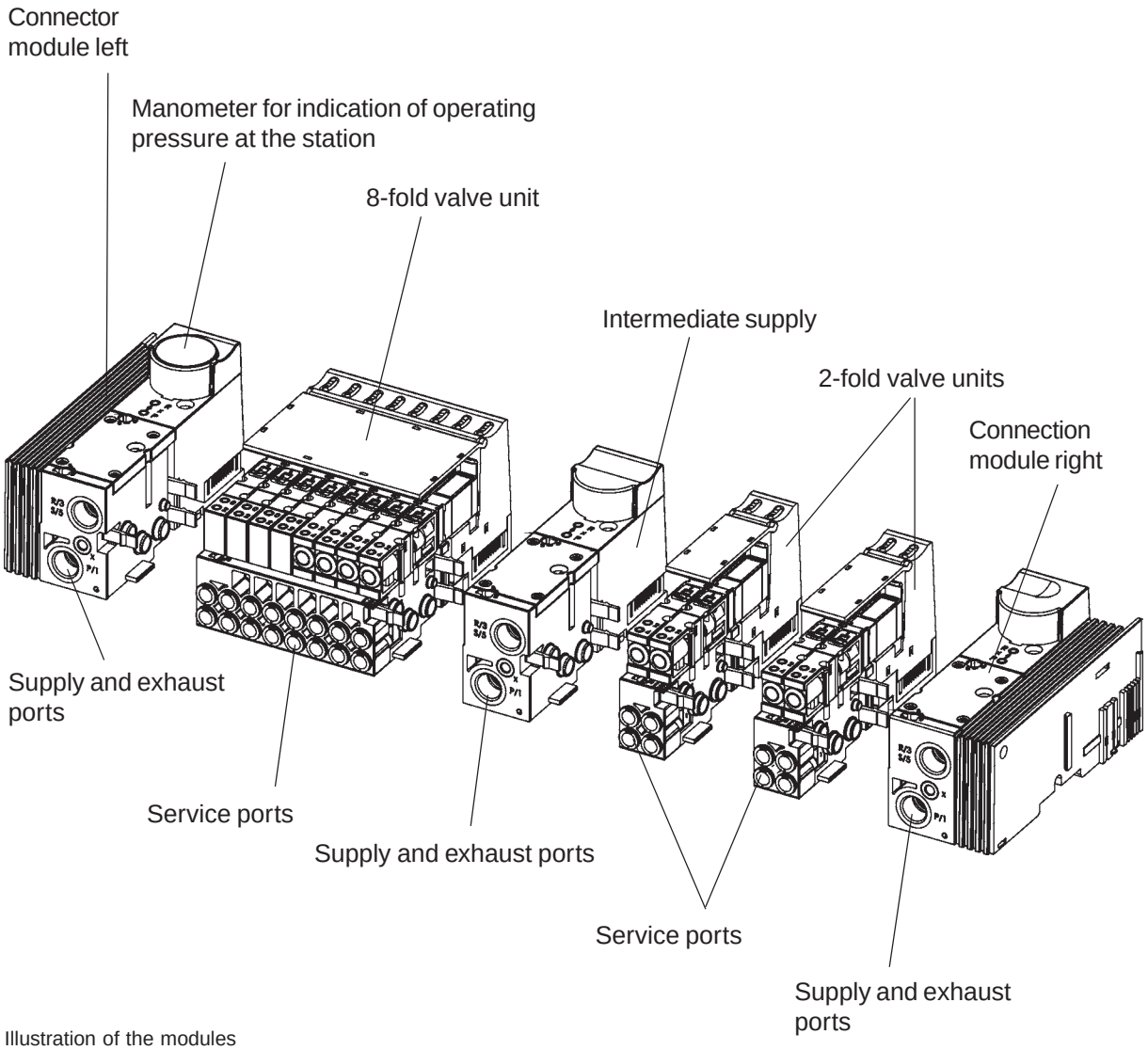
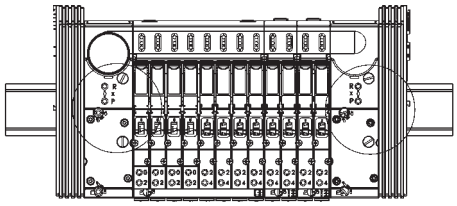


Illustration of the modules of the Bürkert AirLINE system

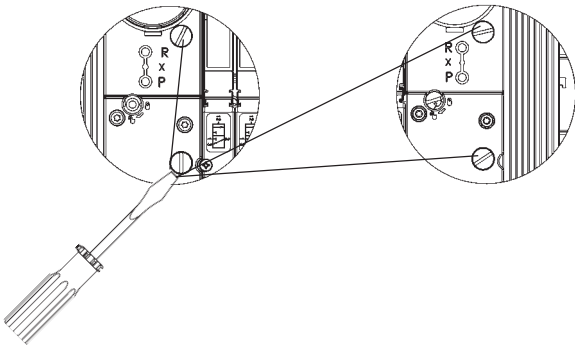
MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Removing the valve block from the top-hat rail

The valve block is firmly screwed to a standard rail. Additional electrical modules / terminals can be mounted on this.



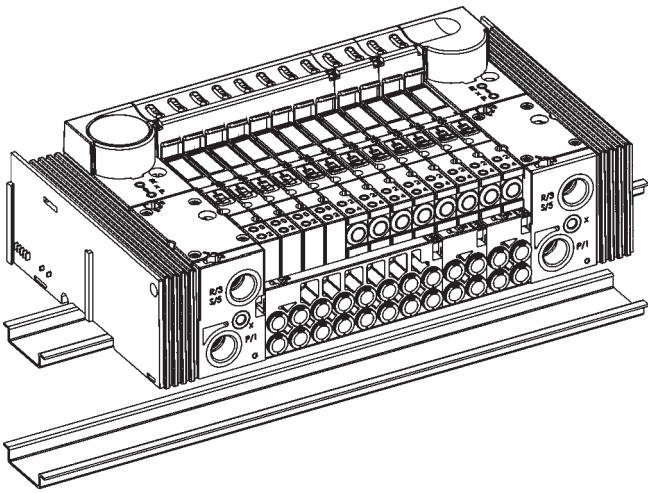
➔ If present, release the adjacent modules / terminals!



➔ Unlock the Vavle block from the standard rail by turning the fixing screws anticlockwise as far as they will go.

➔ Lift the Valve block vertically from the rail.

➔ Disconnect the modules / terminals from the standard rail following the manufacturer's instructions.



NOTE

The interface of the left-hand connection module contains elements that can be damaged if force is used.
Never place the valve block on its side, and ensure that you use an approved installation position!

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Installation of the AirLINE system (e.g. in a control cabinet)

ATTENTION!

During work in the control cabinet, observe the relevant safety regulations!

Before mounting, check whether the mounting rail is properly anchored in the control cabinet or in the system.

Observe the sequence of installation specified in the configuration file(s).

Observe the notes for the connected system!

➔ According to the manufacturer's instructions (Chapter 2: Installing the Mounting Base /Wiring Base Assembly, Installing I/O Modules), snap all electrical modules / terminals onto the standard rail to the left of the valve block.

➔ Slide the valve block onto the standard rail along the interface of the previous module.

NOTE

Alternative for large valve blocks:

- Remove the preceding module
- Snap the valve block onto the standard rail
- Slide the block to its final position
- Snap on the preceding module again

➔ Screw the valve block to the rail by tightening the fixing screws clockwise.

➔ Mount all other modules / terminals on the rail.

ATTENTION!

The valve block is not securely fastened to the standard rail until the fixing screws have been firmly tightened. Throughout the installation, you must ensure that it cannot fall.

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Fluidic installation

Safety notes

ATTENTION!

The pneumatic connections shall not be pressurized during installation!

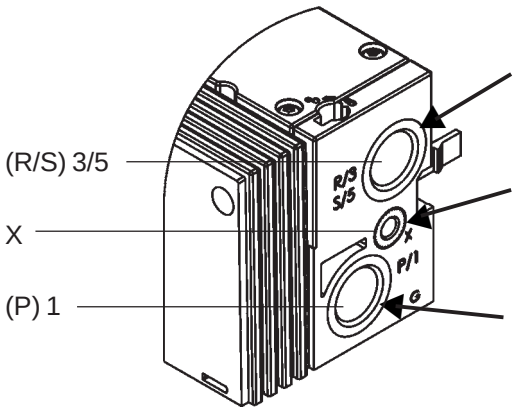
Make the connections with as large a volume as possible.

Close off unused, open ports with screw caps!

The ports for the pilot valve exhaust (x) shall not be closed off!

Check allocation according to instructions of ports 1 and 3 or 5: these shall under no circumstances be swapped!

Pneumatic connections - supply units



Exhaust air

Standard model: Venting of the pilot valves

Auxiliary air control model: P-port for the pilot valves

Pressure supply port

Procedure

➔ Plug (D10) or screw (G 1/4, NPT 1/4) the connections, depending on the version, into the respective service ports.

Notes on plug connections

NOTE

For the plug connections the hoses must fulfil the following requirements:

- Minimum hardness of 40 Shore D (to DIN 53505 or ISO 868);
- Outside diameter to DIN 73378 (max. permissible deviation ± 0.1 mm from nominal dimension);
- Free from burrs, cut off at right angles and undamaged over outer circumference;
- The hoses shall be pushed into the plug connectors as far as they will go.

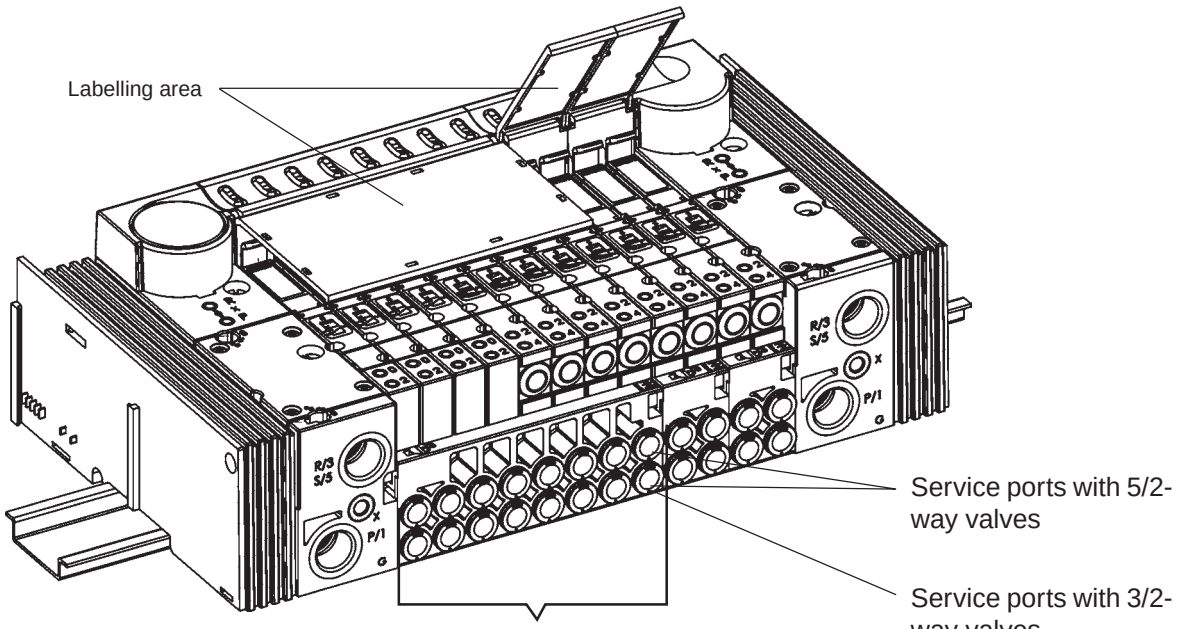
Disassembly of the plug connections

➔ To release the hoses, depress the pressure ring and pull out the hose.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Pneumatic connections - valve units

NOTE || With 3/2-way valves, the upper ports remain free!



8-fold valve unit or
4 / 2-fold valve units

Variants

5/2-way valves

	Variant 1	Variant 2	Variant 3
Service port above (2)	M 5	M 7	D 6, D4, D1/4
Service part below (4)	M 5	M 7	D 6, D4, D1/4

3/2-way valves

	Variant 1	Variant 2	Variant 3
Service port above (0)	internally closed off	internally closed off	internally closed off
Service port below (2)	M 5	M 7	D 6, D4, D1/4

Assembly

➔ Plug (D6, D4, D1/4) or screw (M 5, M7) the connections, depending on the version, into the respective service ports.

➔ With threaded versions, connecting nipples may be used.

Labelling of the connections

➔ Write the valve port data on the provided Labels

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Elektrical installation

All the necessary steps for this should be taken from the Rockwell Operating Instructions Chapter 2 „Wiring the Adapter“.

Fluidic commissioning

Measures to be taken before fluidic initialization

➔ Check the connections, voltage and operating pressure!

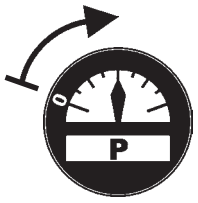
➔ Make sure that the max. operating data (see rating plate) are not exceeded!

➔ Check allocation according to instructions of ports 1 and 3 or 5: these shall under no circumstances be swapped!

➔ For electrical operation, unlock the manual override!

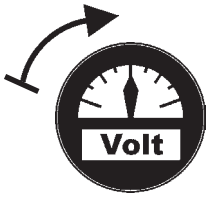
Fluidic commissioning

➔ Switch on the pressure supply.



bar

➔ Only then switch on the voltage!



Electrical commissioning

All the necessary steps for this should be taken from the Rockwell Operating Instructions Chapter 3 „How to Configure Point I/O Modules“.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Special features of commissioning

On delivery, all valve islands possess a comparable configuration with regard to module addressing.

The first addressable module after the field bus node has the address 62,
all following modules the address 63.

Reason:

If a passive DeviceNet node (1734-PDN) is used, then automatic addressing can only be performed via the modules directly. Since it is difficult to remove the modules owing to the pneumatic design, the first module was assigned a different address (62).

NOTE

If an active DeviceNet node is used, automatic addressing must be performed.
With the active Profibus node (1734-APB), this is performed automatically on power-up.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Maintenance and troubleshooting

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

TROUBLESHOOTING

Fault	Possible cause	Remedy
Valves do not switch:	Operating voltage not present or insufficient;	→ Check the electrical connection. → Provide operating voltage acc. to nameplate.
	Manual override knob not in neutral position;	→ Turn knob to zero position.
	Pressure supply insufficient or not present.	→ Execute pressure supply with as large a volume as possible (also for upstream devices such as pressure controllers, maintenance units, shut-off valves, etc.). **Minimum operating pressure ≥ 2,5 bar**
Valves switch with delay or blow out at the vent connections:	Pressure supply insufficient or not present;	→ Execute pressure supply with as large a volume as possible (also for upstream devices such as pressure controllers, maintenance units, shut-off valves, etc.). **Minimum operating pressure ≥ 2,5 bar**
	Valves not in basic position (no power) during pressure build-up;	→ Pressurize the valve block **before** the valve switch!
	Venting of exhaust aire channels insufficient because silencers are too small or contaminated (backpressure);	→ Use matching, large-sized silencers or expansion vessels. → Clean the contaminated silencers.
	Contamination or foreign bodies in pilot or main valve.	→ Change the valve
Leaky valve blocks:	O-rings missing or pinched between the modules;	→ Determine the point of leakage or missing seals.
	missing or wrongly positioned profile seals between the valve and the basic pneumatic module.	→ Insert missing seals or replace damaged seals.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Service address:

bürkert Fluid Control Systems
Service-Department
Chr.-Bürkert-Str. 13-17
D-76453 Ingelfingen
Tel.: (07940) 10-111
Fax: (07940) 10-448
E-mail: info@de.buerkert.com

or your Bürkert distribution center (see list of addresses on the last few pages)

System description

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

MODULAR ELECTIRCAL / PENUMATIC AUTOMATION SYSTEM TYPE 8644 AirLINE

AirLINE Type 8644 is an electrical and pneumatic automation system which has been developed for use in control cabinets or boxes. In a through system, all electronic and pneumatic components are standardized so that if simple rules are complied with, electrical and electronic modules of differing functionality may be combined in a very simple manner. All components are connected via a snap-on mechanism. This includes the necessary electrical connections. In this way, for example, valves and power outputs may be combined with only one field bus connection. A number of electrical modules (terminals) may be combined very simply with valves mounted on special pneumatic modules (valve units).

Features

Characteristics of AirLINE are:

- Simple handling.
- Functional block construction of switched box or cabinet.
- Automatic build-up of potential groups, current, data and safety circuits.
- Open, flexible modular structure
- Combination of valve units and terminals in differing cluster size (2-fold, 4-fols, ...) for space and price optimized station construction.

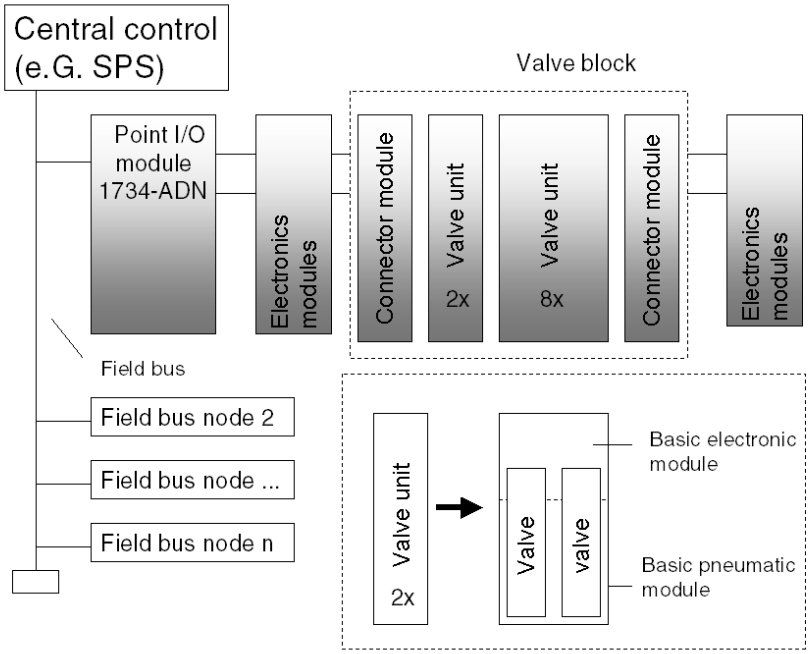
Advantages

This principle brings the following advantages:

- Flow-optimized valve structure
  Pressure range from vacuum to 10 bar
  Flow rates of approx. 300l/min or 700 l/min with a valve width of 10 mm and/or 16 mm.
- Integration of non-return valves into the pneumatic base module (optional).
- High service life through rocker technology with oiled and non-oiled air.
- Simple combination of different functions, configuration and extension through high level of modularity.
- Numerous valve functions: 3/2, 5/2 (monostable, bistable) and 5/3 way functions.
- Mechanical Manual-Emergency operation.
- Different pressure levels possible in a single chain.
- Integration of pressure gauges for display of the operational pressure.
- Central compressed air supply via connection modules possible on both sides, as well as intermediate supply.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

System structure



Schematic representation of the Bürkert AirLine system

Illustration of the valve block

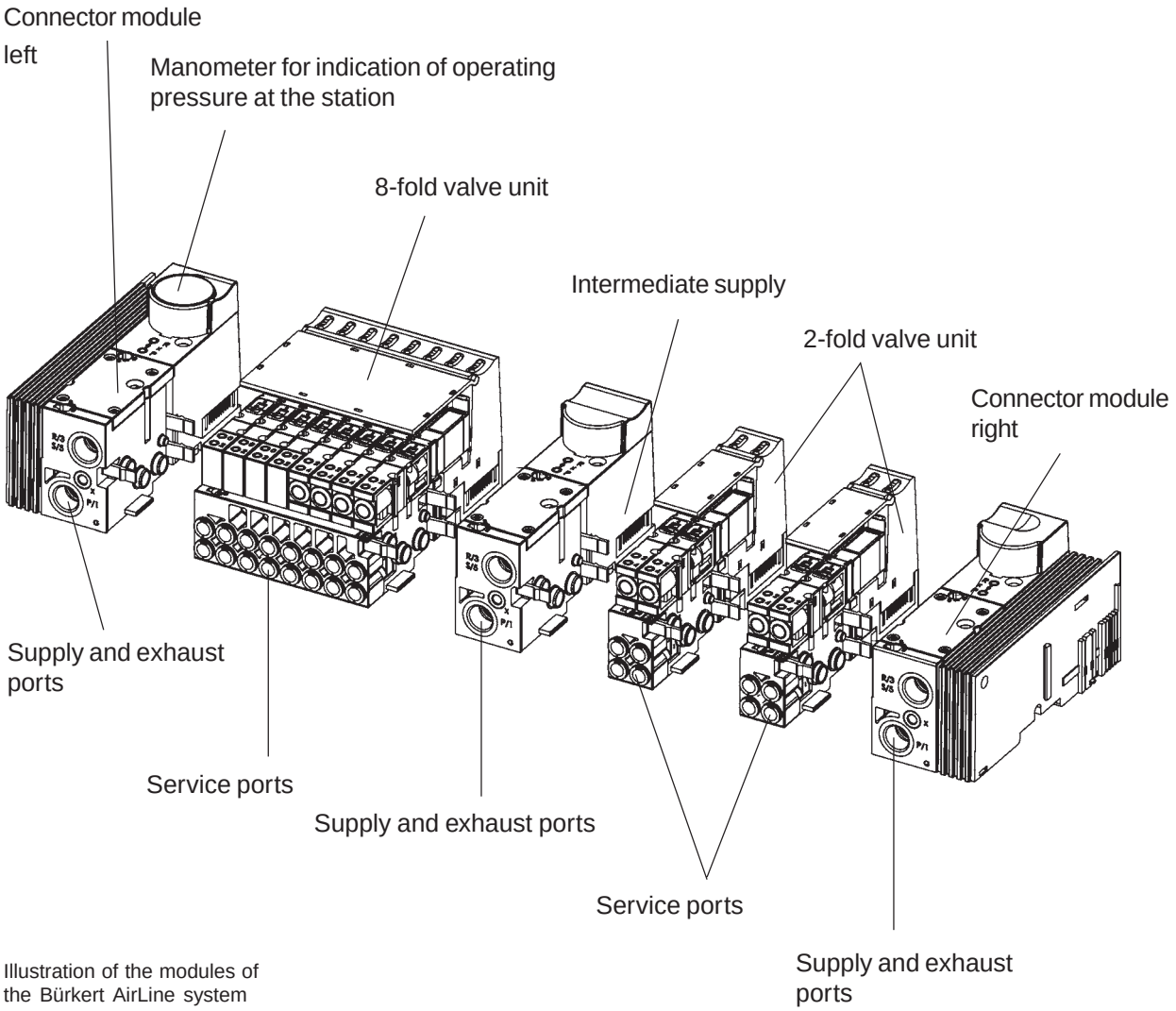


Illustration of the modules of the Bürkert AirLine system

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

System description

In its minimal configuration, the system consists of field bus nodes and the valve block.
The closing plate protects both the system and persons from improper contact.
Terminals can be arranged before and after the valve block.

Procedure for changing the electrical function module:

ACHTUNG!

Do not introduce foreign parts into the basic module (24V supply bus)-
-> Risk of short circuit

➔ Switch off the electricity and compressed air supplies to the AirLINE system

➔ Unscrew fixing screws of the valves with a screwdriver

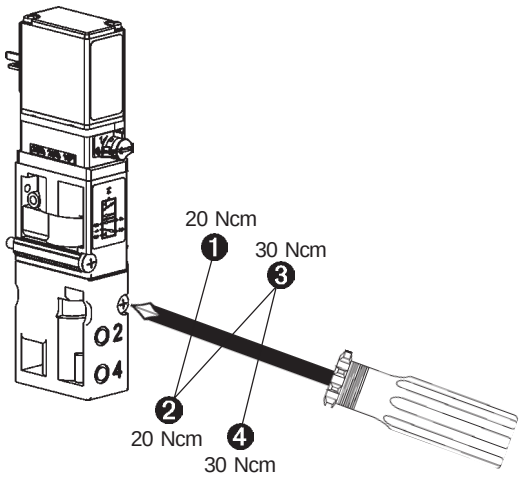
➔ Pull valve off valve plug

➔ Keep dirt away from flange seal and O-ring (3/2 valve)

➔ Loosen the functional module at the rear latching mechanism and pull away upwards from the distributor module (backplane bus) without tilting it

➔ Set the new functional module vertically on the distributor module (back-plane bus) and press downwards until it can be heard to latch in

➔ Place valve with clean inserted flange seals/O-rings onto the valve position and tighten the screws according to the adjacent assembly drawing

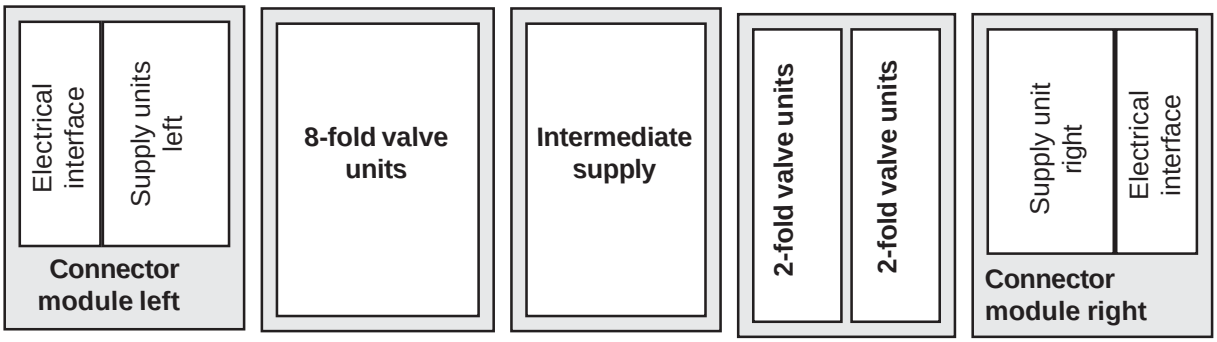


MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

VALVE BLOCK

The valve block is composed of the following modules:

- **Connector modules/supply units** (collective ports for supply, exhaust and auxiliary control air)
- **Valve units** (service ports, miscellaneous vales)

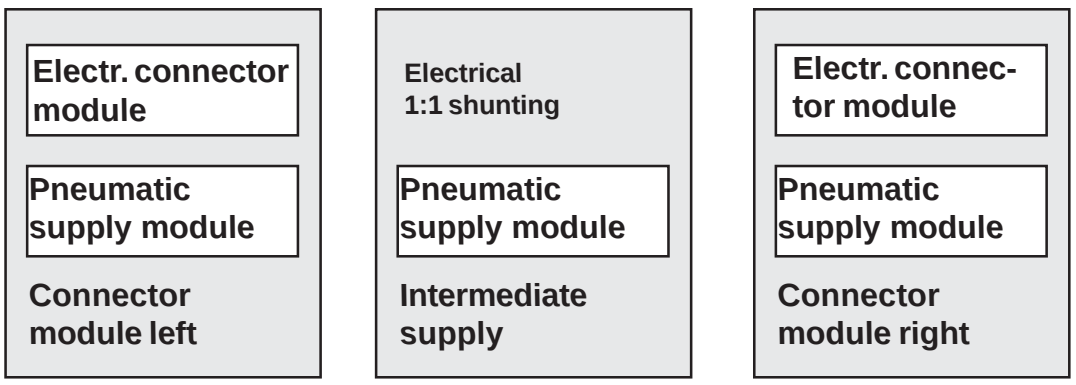


Example of a valve block, schematic

Viewed from the outside, the pneumatic automation system represents a closed electrical unit. Owing to the modular construction, the number of internal bus participants and the current consumption of the valve block may vary. The valve block and each electrical module/terminal provide a standardized electrical interface to the outside.

Connector modules / feeders

Feeders in the form of pneumatic connector modules form the fluidic interface between the supply line and the internal supply structure. The fluid is passed on via the feeder from one valve unit to the next. In order that the supply pressure remains almost constant over the entire path, additional feeders may be necessary. It is recommend to insert a feeder after 24 (ME02) or 16 (ME03) valve positions. The use of intermediate feeders also enables segments to be built up when the pneumatic channels are closed between individual valve units.



Schematic representation of supply

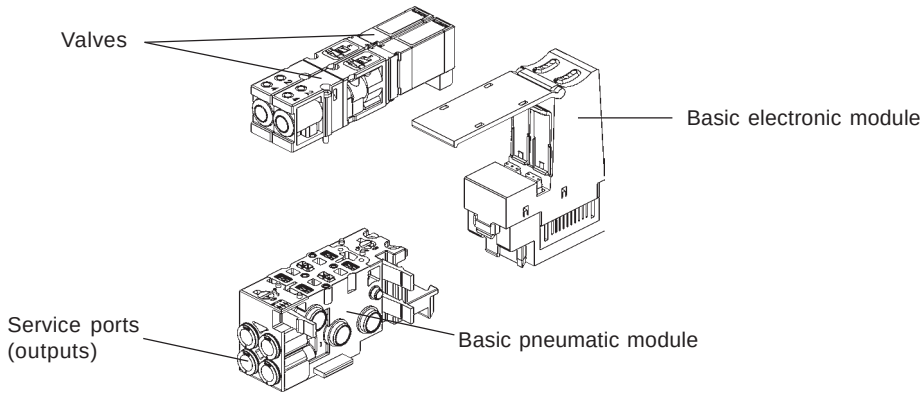
MAN 1000011198 EN Version: J Status: RL (released l freigegeben) printed: 23.04.2009

VALVE UNITS

Construction

Valve units are of modular construction and consist of:

- Basic electronic modules
- Basic pneumatic modules
- Valves



Modular construction of the valve units

The digital outputs, on which the valves sit, are switched on the basic electronic module. Depending ont he function, these switch the internal P channel to the service ports (outputs) of the pneumatic module.

ATTENTION!

Plugged-on valves may only be changed if the pressure in the AirLINE is relieved. If a pressure shut-off is used, the valves may also be exchanged under pressure.

Variants

The modular construction of the valve units permits of serveral variants.

Types: pneumatic / electronic	MP11/ ME02	MP12 / ME03
Add-on dimension	11 mm	16,5 mm
Valve types	6524 6525 0460	6526 6527 0461
No. of valve positions on basic electronic module	2fold ---- 8fold	2fold 3fold* 4fold
No. of valve positions on basic pneumatic module	2fold 8fold	2fold 3fold* 4fold
Connection type (on basic pneumatic module)	D1/4" D4 D6 M5 M7	D8 G1/8" NPT 1/8"
		D1/4" D4 D6** M5** M7**
Non-return valve (optional)	Without non-return valve Non-return valve in R channel Non-return valve in R+S channel	
Pressure shut-off (optional)	with pressure shut-off***	not available

* Width of basic electron/pneumatic module = 33 mm, with 3 plug-on positions for 10 mm valves 6524 / 6525

** Special version 3-fold, 10 mm valves

*** Available only for certain valve types and with functional limitation.
See also the technical data of the valve block and the description of the basic pneumatic module.

NOTE

You can obtain information about the correct assembly of modules, valves and accessories via our Configurator. If you have any questions, please consult our Distribution Center.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Technical data of the valve block

Mounting dimension		11 mm			16.5 mm		
Valve operation	**C/D** (3/2-way) Type 6524	**L/N** (5/3-way) Type 0460***	**2xC** (2 x 3/2-way) Type 6524		**C/D** (3/2-way) Type 6526		**L/N** (5/3-way) Type 0461***
	H (5/2-way) Type 6525	**H** (5/2-pulsed) Type 0460			**H** (5/2-way) Type 6527		**H** (5/2-pulsed) Type 0461
Flow	300 l/min	200 l/min	300 l/min		700 l/min		500 l/min
Pressure range (with P shut-off)	2.5 ... 7 bar 5 ... 7 bar	2.5 ... 7 bar -	2.5 ... 7 bar -		2 ... 10 bar -		2.5 ... 7 bar -
Power	1 W	0,9 W	2 x 1 W with power reduction		1 W	2 W	0.9 W
Current before / after power reduction	43/28 mA	41/- mA	2 x 43/18 mA		42/33 mA	85/52 mA	41/- mA
Valve places (max.)	64	26	32		32		24
Electrical module	2-fold, 8-fold	2-fold bistablel	2-fold 2x monostable 8-fold 2x monostable		2-fold, 3-fold*, 4-fold		2-fold bistable
Pneumatic module	2-fold, 8-fold	2-fold bistable	2-fold 2x monostable 8-fold 2x monostable		2-fold, 3-fold*, 4-fold		2-fold bistable
Protection class (in terminal model)	IP 20						
Ambient temperature	0 ... +55 °C	0 ... +50 °C	0 ... +55 °C		0 ... +55 °C		0 ... +50 °C
Storage temperature	-20 ... +60 °C						
Nominal operating mode	Continuous operation (100 % ED)						
Operating voltage*	24 V / DC; -15 % / +20 % tolerance**;residual ripple at field bus interface 5 %						
Protection class	3 according to VDE 0580						
Total current	Dependent on the connection technology, the expansion stage and the control.						

* 3 x 10 mm valves for istallation dimension 16.5 mm

** max. +10 % for the EEx-n-version

*** The following limitations apply to the voltage supply tolerances for the system as a whole (see: Technical Data of the System): Valve types 0460, 0461: ±10 % for the EEx n-version of this type: +10 %

ATTENTION!

Observe current consumption of the modules!

On project planning of an AirLINE station, observe the current consumption of the logic of each participant! This is given in each module-specific data sheet. It may differ from module to module. Hence the number of possible participants that can be connected depends on the specific construction of the station.

MAN 1000011198 EN Version: J Status: RL (released l freigegeben) printed: 23.04.2009

Technical data for the overall system

Voltage supply:

Rated voltage	24 V/DC
Tolerance	- 15% / + 20%
Valve types 0460, 0461	- 10% / + 10%
Valve type 6524 (2x 3/2-way)	- 15% / + 10%

Current carrying capacity:

Logic area	1 A
24 V area	2.5 A

Maximum current consumption:

I_module — proportion of current in the logic area of the basic electronic modules max. 75 mA

I_valve — valve current before and after power reduction

Valve type	Valve current	
	before power reduction	after power reduction
6524	43 mA	28 mA
6524 (2 x 3/2-way)	43 mA	18 mA
6525	43 mA	28 mA
6526 [1 W/ 2 W]	42/85 mA	33/52 mA
6527 [1 W / 2 W]	42/85 mA	33/52 mA
0460	41 mA	-
0461	41 mA	-

NOTE

After the field bus nodes 1734-APB, 1734-ADN and 1734-PDN, 13 modules can be placed in each case. After this, 13 further modules may be connected in each case by attaching power supply units. The total number of modules must not exceed 63.

Full configuration, 11 mm add-on dimension	max. 64 valves
Full configuration, 16.5 mm add-on dimension	max. 32 valves

Temperature:

Storage temperature	- 20 to + 60 °C

NOTE

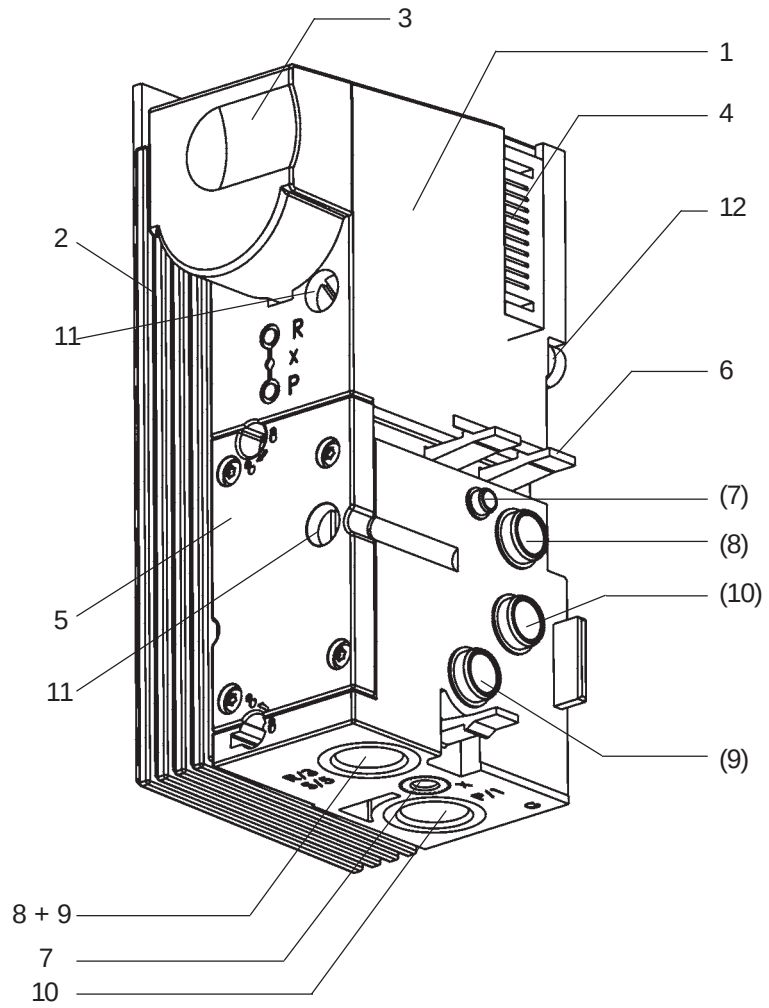
The admissible ambient temperature is depent on the modules used. During assembly, the crucial factor is the most critical module.

Valve type 6524, 6525, 6526, 6527	0 to + 55 °C
Valve type 0460, 0461	0 to + 50 °C

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

CONNECTOR MODULES

Structure of the connector module



Structure of the connector module

No.	Designation	Description
1	pneumatic supply	Type MP11 / MP12 (left, middle, right)
2	electrical connector module	Type ME02 / ME 03 (left, right) Interface to electrical part of automation system (field bus nodes; electrical modules/terminals)
3	Cover	Version with manometer
4	Shunting	(socket left, plug right) Electrical interface to data shunting within the Bürkert AirLINE System Type 8644
5	Cover plate	
6	Interlock hooks	Mechanical fixing for basic pneumatic modules MP11 / MP 12
7	X	Port for pilot exhaust air/auxiliary control air
8	(R) 3	Exhaust air port
9	(S) 5	Exhaust air port
10	(P) 1	Pressure supply port
11	Screws	Fixing screws for rail mounting
12	Clamping pieces	Fixing clamping pieces for rail mounting

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Variants

The supply units have been designed in various variants to take account of differing requirements. For simple commissioning and diagnosis, supply units are available with a manometer. You can obtain the fluidic connections with straight or conical screw connections as well as with fast coupling systems. For special functions the fluidic connections may be used for different purposes, e.g. the exhaust air connection may be used for the pilot valve as a connection for the auxiliary control air, whereby different pressures may be applied for supply and for control of the valve.

The supply units differ in e. g.

- Manometer
- Connection type

MP11	MP12
G 1/4"	G 3/8"
D10	NPT 3/8"
NPT 1/4"	

- Auxiliary control air yes / no

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Connector modules, pneumatic - left, type ME02

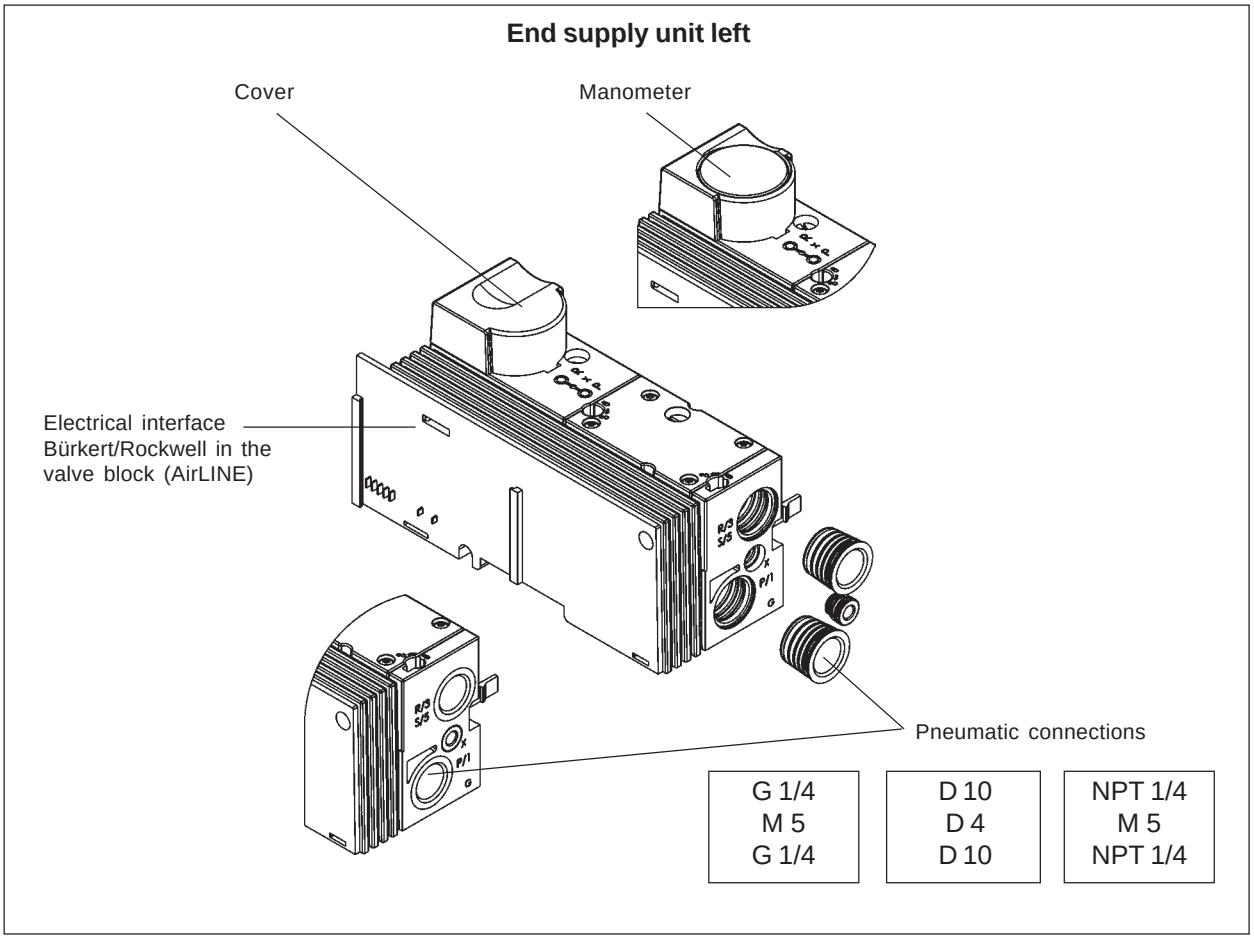
Variants

Supply port (P) 1	Connection X	Exhaust port (R/S) 3/5
without manometer		
G ¼	M5	G ¼
D 10	D 4	D 10
NPT ¼	M5	NPT ¼
with manometer		
G ¼	M5	G ¼
D 10	D 4	D 10
NPT ¼	M5	NPT ¼

Connection X

Operating mode	Configuration of X
Standard	Exhaust air from pilot valve
Auxiliary control air	Connection for auxiliary control air Operation with auxiliary control air is optional

Drawing showing variants



MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Technical data

Housing dimensions (width x height x depth)	61 mm x 71 mm x 130 mm (incl. snap-on hooks)
Weight	220 g
Permissible temperature (storage/transport)	-20 °C to +60 °C
Permissible air humidity	75% mean, 85% occasionally

ATTENTION!

In the range of 0 to +55 °C, suitable precautions must be taken against elevated humidity (> 85%).
Slight condensation of short duration on the outside of the housing is permissible, e.g. when the terminal is brought from a vehicle into a closed room.

Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m üNN)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m üNN)
Protection type	IP 20 to IEC 60529
Protection class	Class 3 to VDE 106, IEC 60536

Performance characteristics seen from the overall system

The left connection module is electrically passive.

- logical	No process diagram, hence no address required
- mechanical	58 mm installation dimension
- electrical	No current consumption
- fluidic	Left-hand limitation of valve block, left-hand supply

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Conector modules, pneumatic - left, type ME03

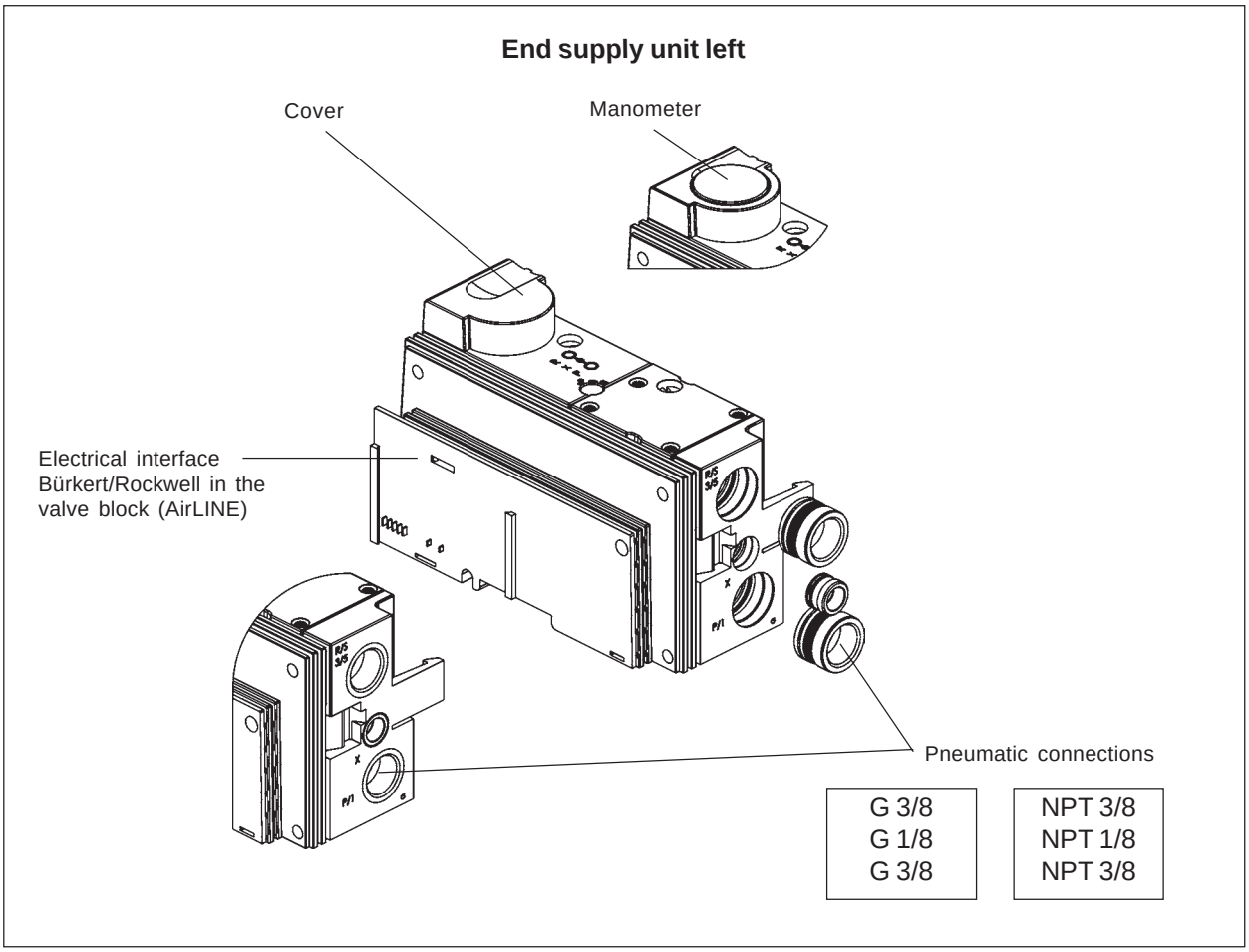
Variants

Supply port (P) 1	Connection X	Exhaust port (R/S) 3/5
without manometer		
G 3/8	G 1/8	G 3/8
NPT 3/8	NPT 1/8	NPT 3/8
with manometer		
G 3/8	G 1/8	G 3/8
NPT 3/8	NPT1/8	NPT 3/8

Connection X

Operating mode	Configuration of X
Standard	Exhaust air from pilot valve
Auxiliary control air	Connection for auxiliary control air Operation with auxiliary control air is optional

Drawing showing variants



MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Technical data

Housing dimensions (width x height x depth)	78 mm x 93 mm x 143 mm (incl. snap-on hooks)
Weight	400 g
Permissible temperature (storage/transport)	-20 °C to +60 °C
Permissible air humidity	75% mean, 85% occasionally

ATTENTION!

In the range of 0 to +55 °C, suitable precautions must be taken against elevated humidity (> 85%).
Slight condensation of short duration on the outside of the housing is permissible, e.g. when the terminal is brought from a vehicle into a closed room.

Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m üNN)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m üNN)
Protection type	IP 20 to IEC 60529
Protection class	Class 3 to VDE 106, IEC 60536

Performance characteristics seen from the overall system

The left connection module is electrically passive.

- logical	No process diagram, hence no address required
- mechanical	62 mm installation dimension
- electrical	No current consumption
- fluidic	Left-hand limitation of valve block, left-hand supply

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Connector modules, pneumatic - middle, type ME02

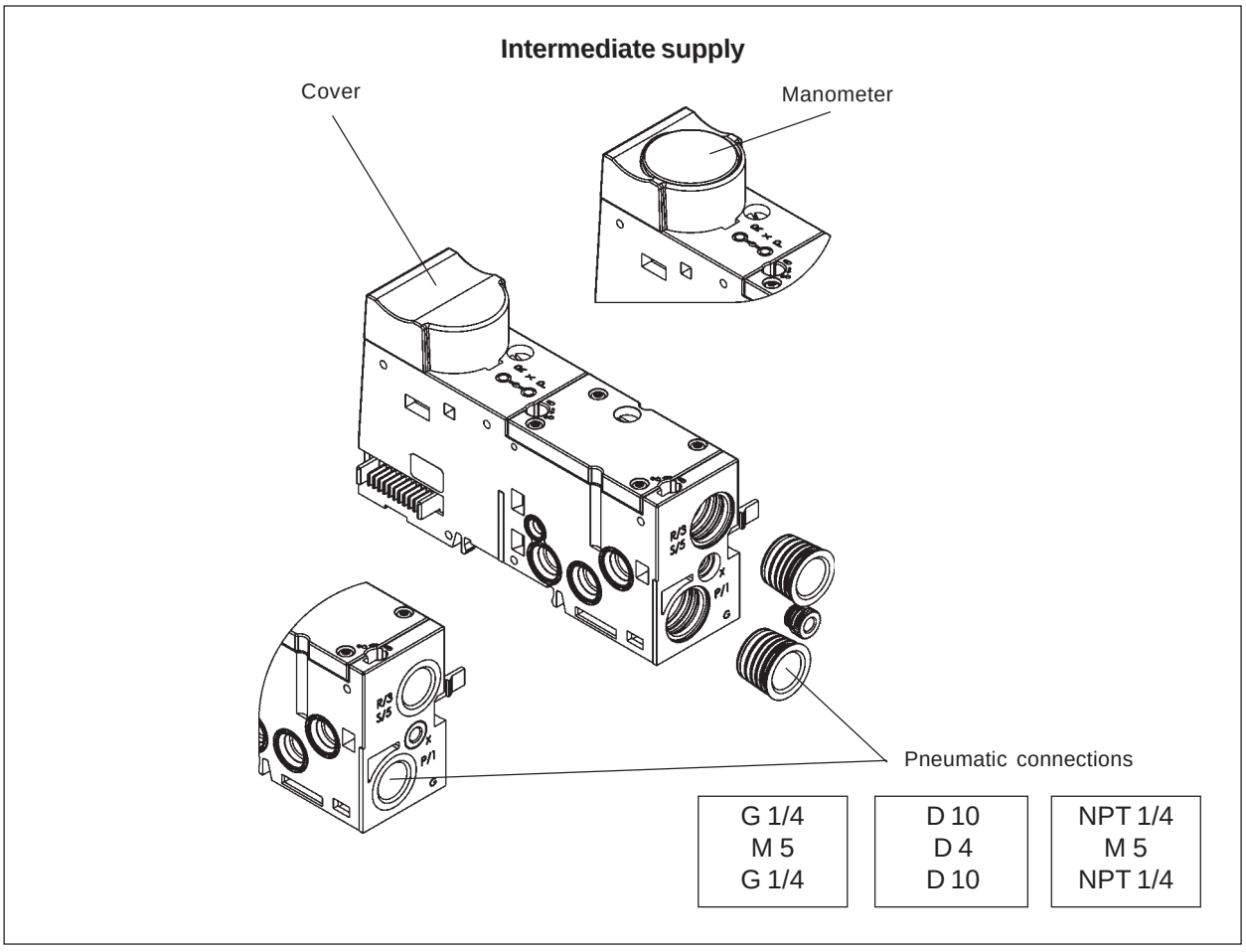
Variants

Supply port (P) 1	Connection X	Exhaust port (R/S) 3/5
without manometer		
G ¼	M5	G ¼
D 10	D 4	D 10
NPT ¼	M5	NPT ¼
with manometer		
G ¼	M5	G ¼
D 10	D 4	D 10
NPT ¼	M5	NPT ¼

Connection X

Operating mode	Configuration of X
Standard	Exhaust air from pilot valve
Auxiliary control air	Connection for auxiliary control air Operation with auxiliary control air is optional

Drawing showing variants



MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Technical data

Housing dimensions (width x height x depth)	52 mm x 71 mm x 119 mm (incl. snap-on hooks)
Weight	118 g
Permissible temperature (storage/transport)	-20 °C to +60 °C
Permissible air humidity	75% mean, 85% occasionally

ATTENTION!

In the range of 0 to +55 °C, suitable precautions must be taken against elevated humidity (> 85%).
Slight condensation of short duration on the outside of the housing is permissible, e.g. when the terminal is brought from a vehicle into a closed room.

Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m üNN)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m üNN)
Protection type	IP 20 to IEC 60529
Protection class	Class 3 to VDE 106, IEC 60536

Performance characteristics seen from the overall system

The intermediate supply is electrically passive.

- logical	No process diagram, hence no address required
- mechanical	33 mm add-on dimension
- electrical	No current consumption
- fluidic	Additional supply

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Connector modules, pneumatic - middle, TYPE ME03

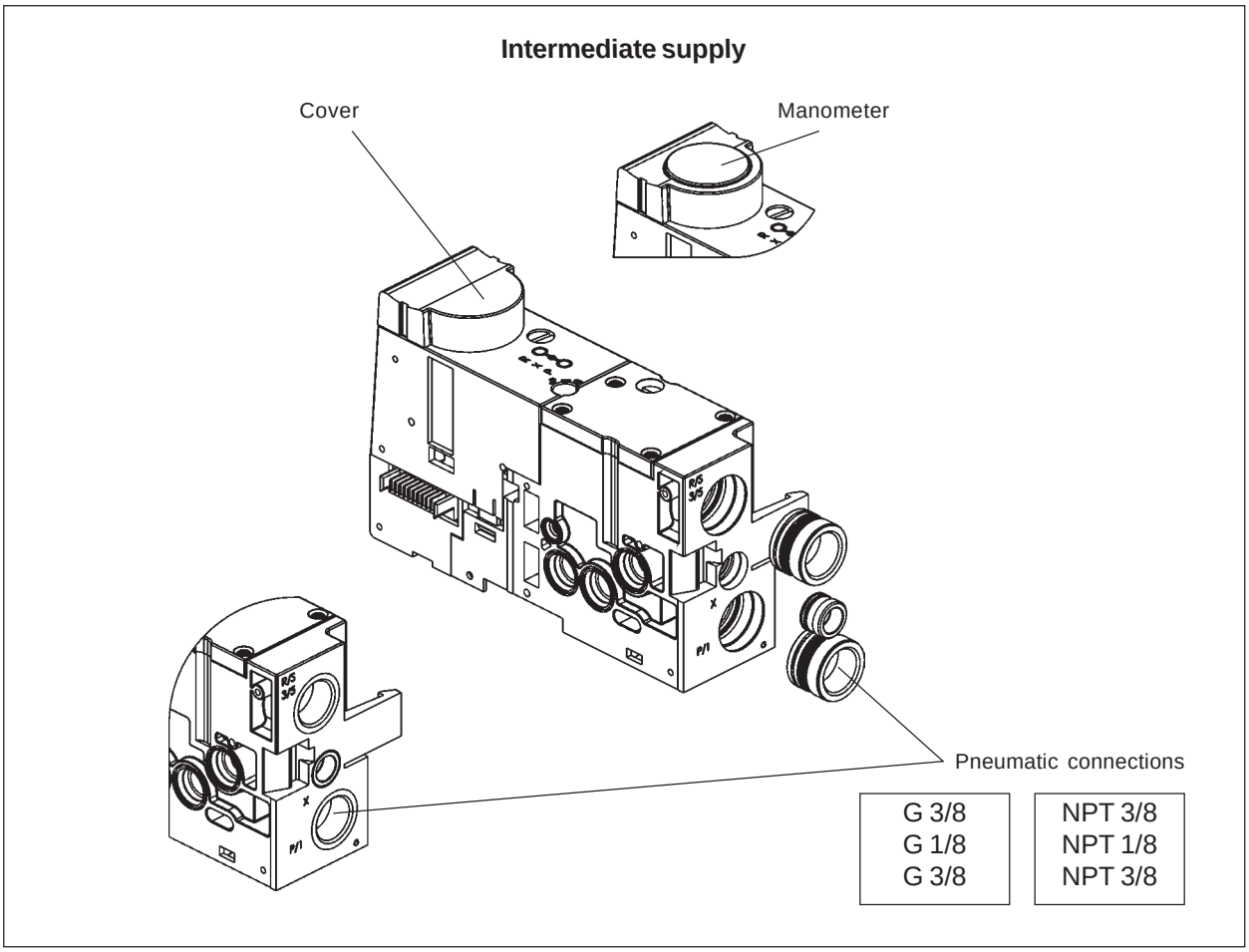
Variants

Supply port (P) 1	Connection X	Exhaust port (R/S) 3/5
without manometer		
G 3/8	G 1/8	G 3/8
NPT 3/8	NPT 1/8	NPT 3/8
with manometer		
G 3/8	G 1/8	G 3/8
NPT 3/8	NPT1/8	NPT 3/8

Connection X

Operating mode	Configuration of X
Standard	Exhaust air from pilot valve
Auxiliary control air	Connection for auxiliary control air Operation with auxiliary control air is optional

Drawing showing variants



MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Technical data

Housing dimensions (width x height x depth)	66 mm x 93 mm x 142 mm (incl. snap-on hooks)
Weight	335 g
Permissible temperature (storage/transport)	-20 °C to +60 °C
Permissible air humidity	75% mean, 85% occasionally

ATTENTION!

In the range of 0 to +55 °C, suitable precautions must be taken against elevated humidity (> 85%).
Slight condensation of short duration on the outside of the housing is permissible, e.g. when the terminal is brought from a vehicle into a closed room.

Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m üNN)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m üNN)
Protection type	IP 20 to IEC 60529
Protection class	Class 3 to VDE 106, IEC 60536

Performance characteristics seen from the overall system

The intermediate supply is electrically passive.

- logical	No process diagram, hence no address required
- mechanical	42 mm add-on dimension
- electrical	No current consumption
- fluidic	Additional supply

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Connector modules, pneumatic - right, type ME02

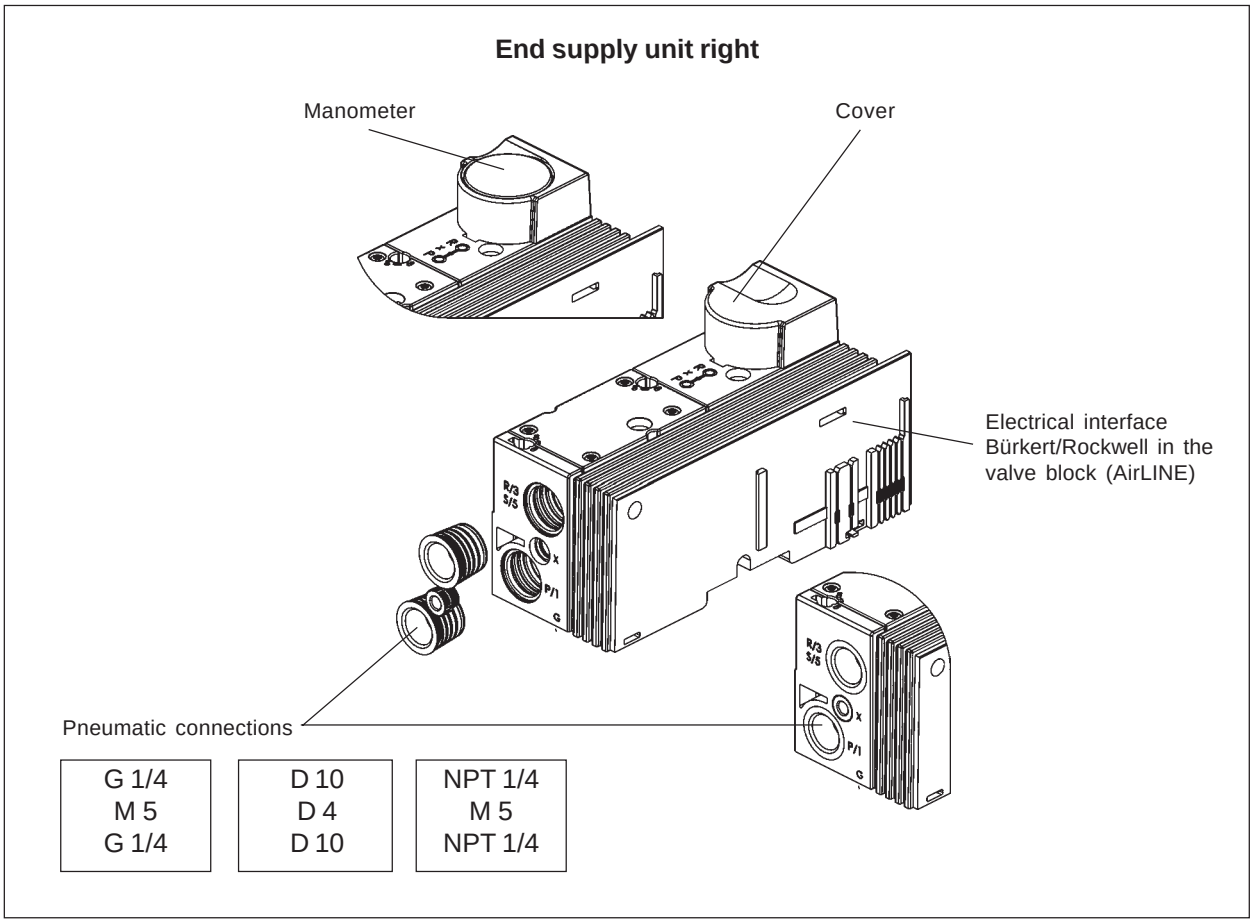
Variants

Supply port (P) 1	Connection X	Exhaust port (R/S) 3/5
without manometer		
G ¼	M5	G ¼
D 10	D 4	D 10
NPT ¼	M5	NPT ¼
with manometer		
G ¼	M5	G ¼
D 10	D 4	D 10
NPT ¼	M5	NPT ¼

Connection X

Operating mode	Configuration of X
Standard	Exhaust air from pilot valve
Auxiliary control air	Connection for auxiliary control air Operation with auxiliary control air is optional

Drawing showing variants



MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Technical data

Housing dimensions (width x height x depth)	61 mm x 71 mm x 130 mm
Weight	220 g
Permissible temperature (storage/transport)	-20 °C to +60 °C
Permissible air humidity	75% mean, 85% occasionally

ATTENTION!

In the range of 0 to +55 °C, suitable precautions must be taken against elevated humidity (> 85%).

Slight condensation of short duration on the outside of the housing is permissible, e.g. when the terminal is brought from a vehicle into a closed room.

Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m üNN)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m üNN)
Protection type	IP 20 to IEC 60529
Protection class	Class 3 to VDE 106, IEC 60536

Performance characteristics seen from the overall system

The right connection module is electrically passive.

- logical	No process diagram, hence no address required
- mechanical	51 mm installation dimension
- electrical	No current consumption
- fluidic	Right-hand limitation of valve block, right-hand supply

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Connector modules, pneumatic - right, type ME03

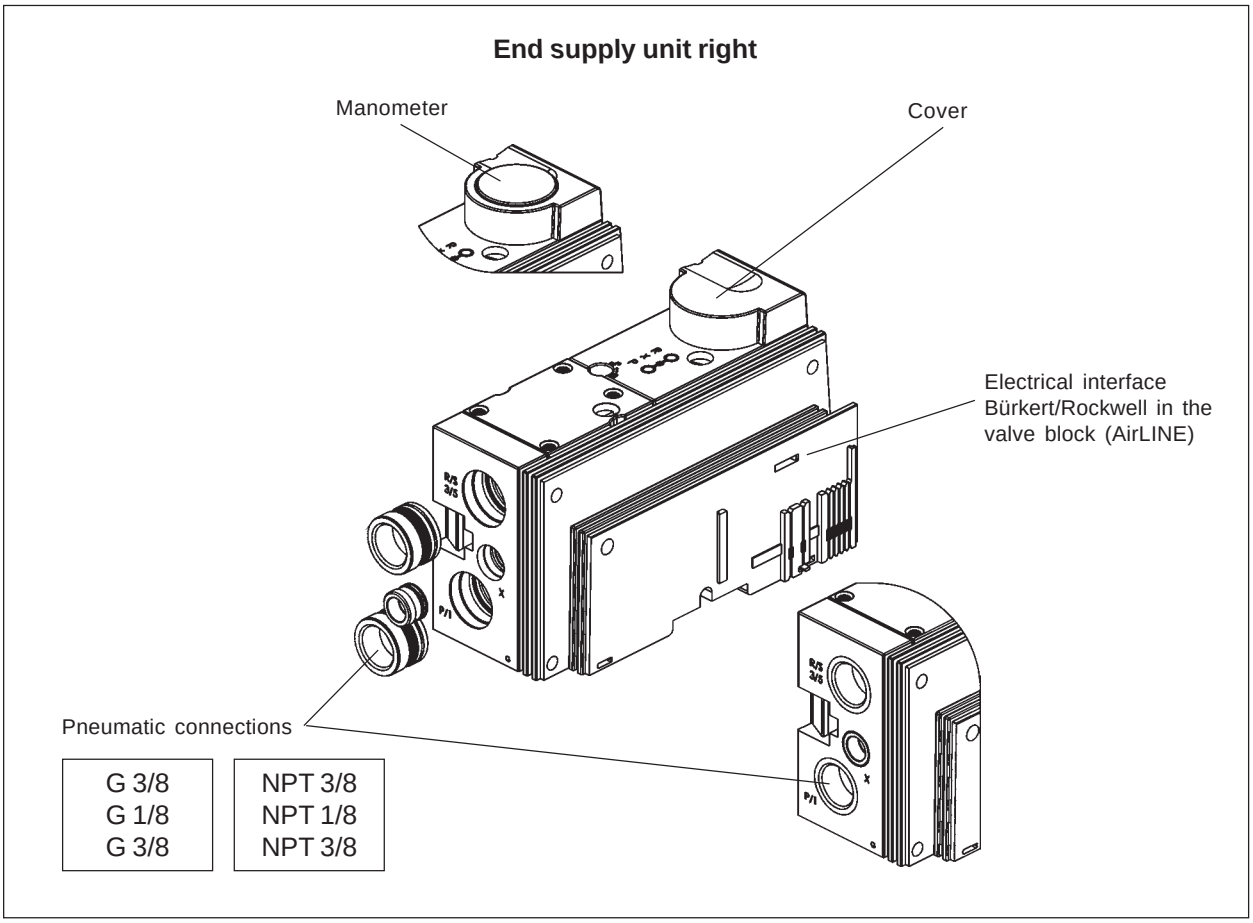
Variants

Supply port (P) 1	Connection X	Exhaust port (R/S) 3/5
without manometer		
G 3/8	G 1/8	G 3/8
NPT 3/8	NPT 1/8	NPT 3/8
with manometer		
G 3/8	G 1/8	G 3/8
NPT 3/8	NPT1/8	NPT 3/8

Connection X

Operating mode	Configuration of X
Standard	Exhaust air from pilot valve
Auxiliary control air	Connection for auxiliary control air Operation with auxiliary control air is optional

Drawing showing variants



MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Technical data

Housing dimensions (width x height x depth)	63 mm x 93 mm x 143 mm
Weight	390 g
Permissible temperature (storage/transport)	-20 °C to +60 °C
Permissible air humidity	75% mean, 85% occasionally

ATTENTION!

In the range of 0 to +55 °C, suitable precautions must be taken against elevated humidity (> 85%).
Slight condensation of short duration on the outside of the housing is permissible, e.g. when the terminal is brought from a vehicle into a closed room.

Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m üNN)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m üNN)
Protection type	IP 20 to IEC 60529
Protection class	Class 3 to VDE 106, IEC 60536

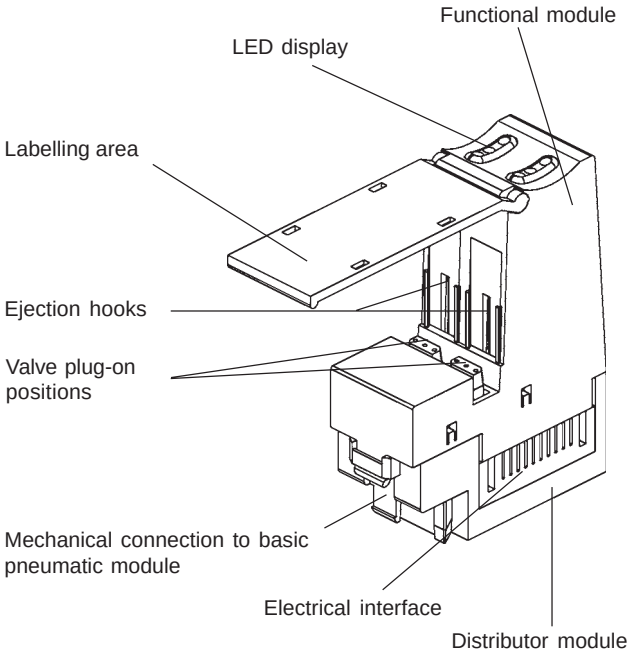
Performance characteristics seen from the overall system

The right connection module is electrically passive.

- logical	No process diagram, hence no address required
- mechanical	60 mm installation dimension
- electrical	No current consumption
- fluidic	Right-hand limitation of valve block, right-hand supply

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

BASIC ELECTRONIC MODULES



Example of a basic electronic module (Type ME02 / 2-fold)

General description

The basic electronic module is connected to the adjacent modules via its electrical interface. In this way it receives both voltage supply and control signals for the valves on the plug-on positions.

The basic electronic modules and hences the valve units may be controlled as digital output modules/terminals. More detailled information is to be found in the chapter *Commissioning*.

Variants

The valves which can be used with AirLine Type 8644 have different connection configurations, valve separations and control characteristics. For this reason, the basic electronic module is available in different versions.

Versions available

Versions	2-fold monostable	2-fold bistable	2-fold 2x monostable	3-fold 10 mm monostable	4-fold monostable	8-fold monostable	8-fold bistable	8-fold 2x monostable
ME02	X	X	X	-	-	X	X	X
ME03	X	X	-	X	X	-	-	-

Possible combinations (basic electronic module / valve)

Basic module type		Add-on dimension	Valve positions	Valve type	Function
ME02	2-fold monostable	11 mm	2	6524	3/2-way
				6525	5/2-way
	2-fold bistable		2	0460	5/3-way
					5/2-way pulse
	2-fold 2x monostable		2	6524	2x 3/2-way
	8-fold monostable		8	6524	3/2-way
				6525	5/2-way
	8-fold bistable		8	0460	5/3-way
					5/2-way pulse
	8-fold 2x monostable		8	6524	2x 3/2-way
ME03	2-fold monostable	16.5 mm	2	6526	3/2-way
				6527	5/2-way
	2-fold bistable		2	0461	5/3-way
					5/2-way pulse
	3-fold monostable*	11 mm	3	6524	3/2-way
				6525	5/2-way
	4-fold monostable	16.5 mm	4	6526	3/2-way
				6527	5/2-way

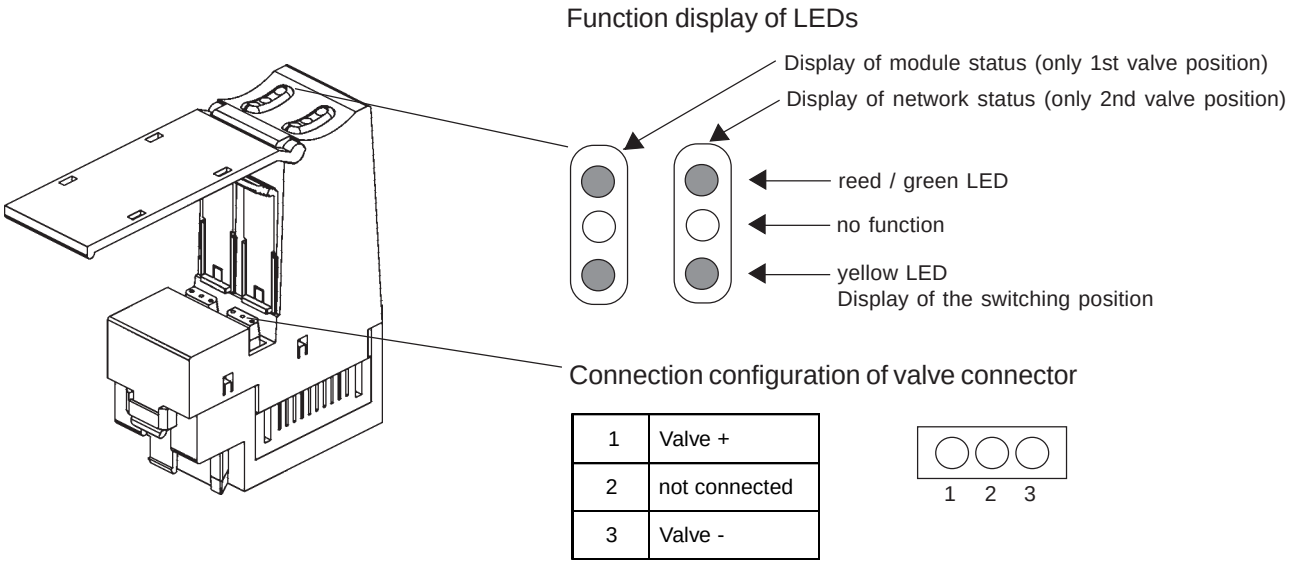
* with 10 mm valves

MAN 1000011198 EN Version: J Status: RL (released l freigegeben) printed: 23.04.2009

Basic electronic module ME02 / 2-fold monostable

Construction

An electric base module consists of a distribution module (backplane bus) and a function module.
The two modules are connected by a 14-pin board-to-board plug.



1	Valve +
2	not connected
3	Valve -

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME02 2-fold monostable	11 mm	2	6524	3/2-way
			6525	5/2-way

As with the electronic module of the point I/O system, the function module can be installed and removed during operation. In order to ensure the switching operation, the valve receives a 24 V supply briefly during installation. The power at the valve is reduced to a quarter after 120 ms.

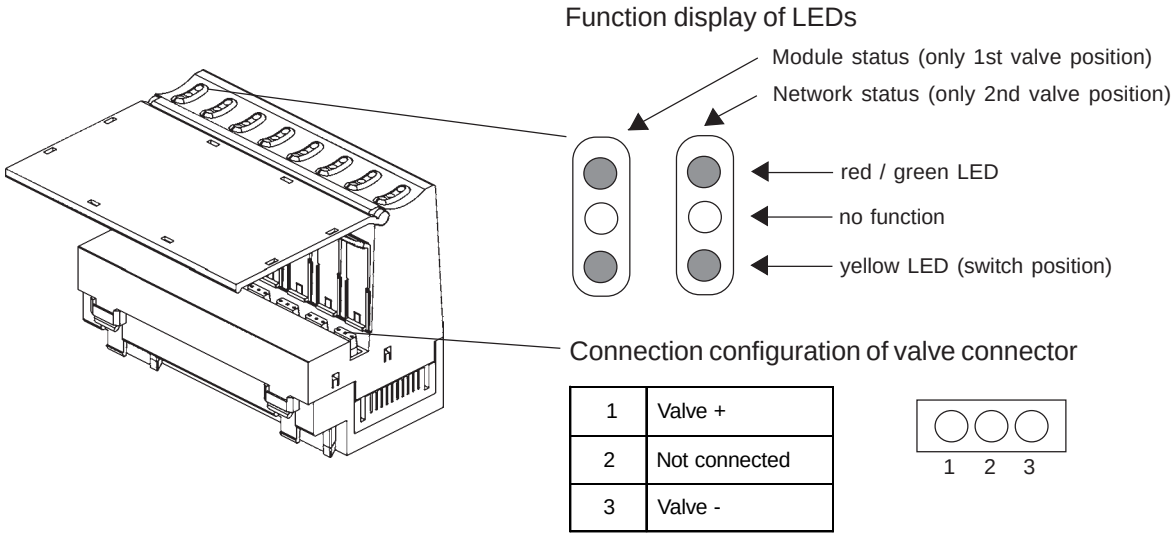
Technical data	ME02 / 2-fold monostable
Dimensions W x H x D	22 x 70.5 x 52 mm
Weight	38 g
Storage temperature	-20 ... +60 °C
Rated voltage under load	DC 24 V
Number of valve outputs	2
Current consumption per valve position during switching	43 mA
Current consumption per valve position after ca. 120 ms	28 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	1 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	2 W
Power dissipation of module 120 ms after switching procedure (2 x 0.25 W power loss at resistors, 2 x 0.25 W at valve coils)	1 W

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Basic electronic module ME02 / 8-fold monostable

Construction

A basic electronic module consists of a distributor module (back-wall bus) and a function module. Both modules are contacted via a 14-pole board-to-board connector.



1	Valve +
2	Not connected
3	Valve -

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME02 8-fold monostable	11 mm	8	6524	3/2-way
			6525	5/2-way

The functional module, like the electronics modules of the Point I/O system, may be pulled off and plugged on during operation. To ensure the switching operation, 24 V is applied briefly to the valve on plugging on. The power consumed by the valve is reduced to one quarter after 120 ms.

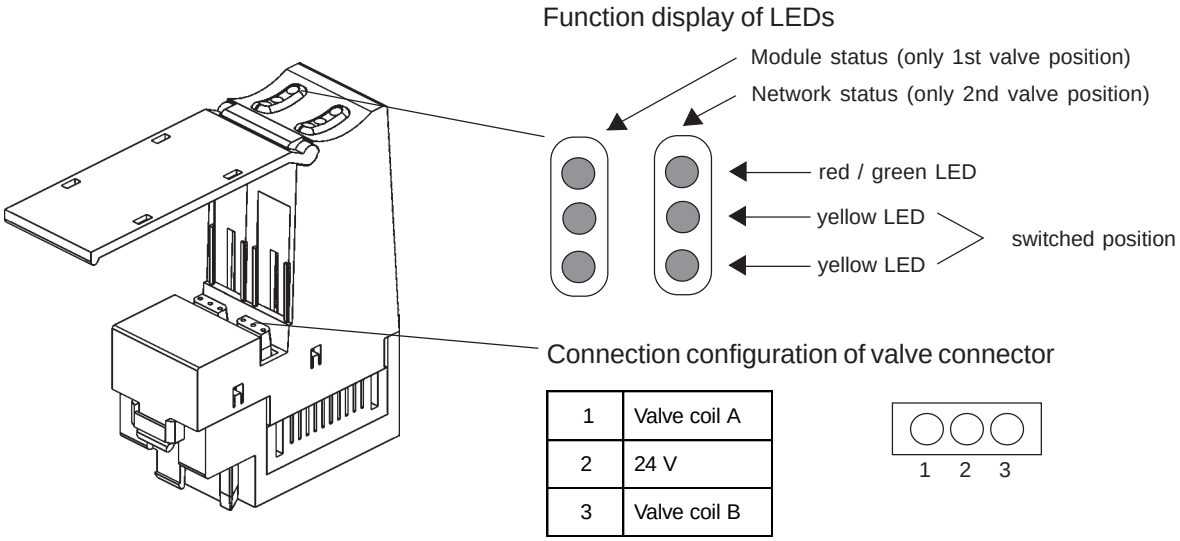
Technical data	ME02 / 8-fold monostable
Dimensions WxHxD	88x70.5x52 mm
Weight	94 g
Storage temperature	-20 to +60° C
Rated voltage under load	DC 24 V
No. of valve outputs	8
Current consumption per valve position during switching	43 mA
Current consumption per valve position after ca. 120 ms	28 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	1 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	4 W
Power dissipation of module 120 ms after switching procedure (2x 0.25W at resistors, 2x 0.25W at valve coils)	2 W

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Basic electronic module ME02 / 2-fold bistable

Construction

A basic electronic module consists of a distributor module (back-wall bus) and a function module. Both modules are contacted via a 14-pole board-to-board connector.



1	Valve coil A
2	24 V
3	Valve coil B

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME02 2-fold bistable	11 mm	2	0460	5/3-way
				5/2-way pulse

The functional module, like the electronics modules of the Point I/O system, may be pulled off and plugged on during operation. 24 V is applied to the valve.

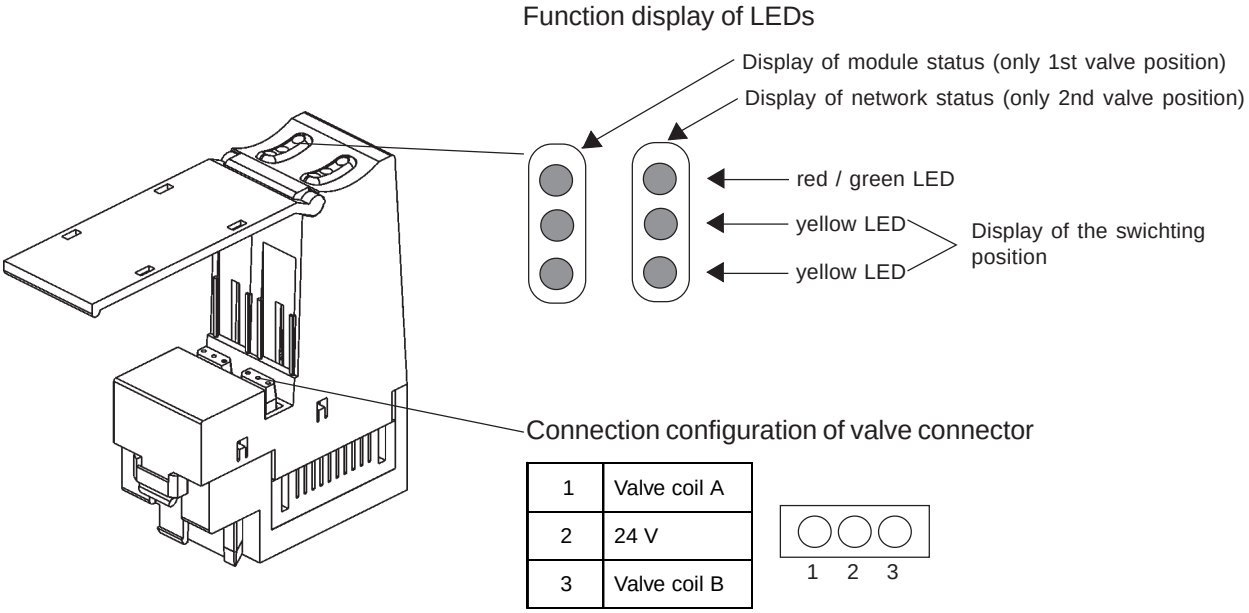
Technical data	ME02 / 2-fold bistable
Dimensions WxHxD	22x70.5x52 mm
Weight	38 g
Storage temperature	-20...+60° C
Rated voltage under load	DC 24 V
No. of valve outputs	2 x 2
Current consumption per valve position	41 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	2 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module	1.8 W

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Basic electronic module ME02 / 2-fold 2 x monostable

Construction

An electric base module consists of a distribution module (backplane bus) and a function module.
The two modules are connected by a 14-pin board-to-board plug.



1	Valve coil A
2	24 V
3	Valve coil B

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME02 2-fold 2 x monostable	11 mm	2	6524	2x 3/2-way

As with the electronic module of the point I/O system, the function module can be installed and removed during operation. In order to ensure the switching operation, the valve receives a 24 V supply briefly during installation. The power at the valve is reduced to a quarter after 110 ms.

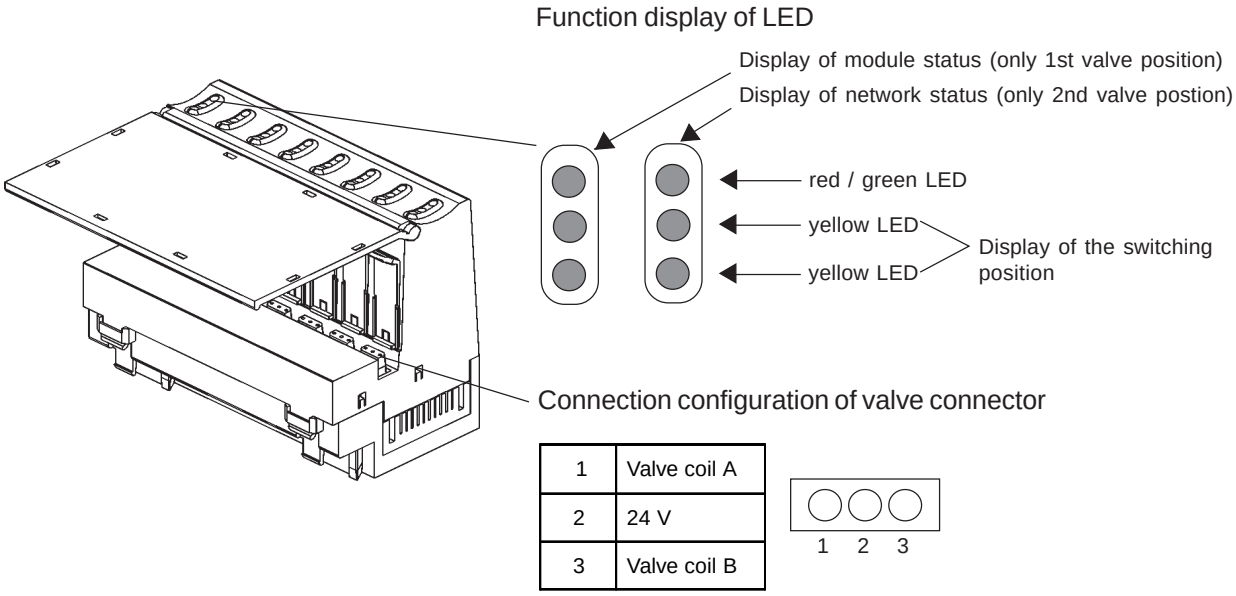
Technical data	ME02 / 2-fold 2 x monostable
Dimensions W x H x T	22 x 70.5 x 52 mm
Weight	38 g
Storage temperatur	-20 ... +60 °C
Rated voltage under load	DC 24 V
Number of valve outputs	2 x 2
Current consumption per valve position	2 x 43 mA
Current consumption per valve position after ca. 110 ms	2 x 18 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	2 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	4 W
Power dissipation of module 110 ms after switching procedure	1 W

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Basic electronic module ME02 / 8-fold bistable

Construction

An electric base module consists of a distribution module (backplane bus) and a function module.
The two modules are connected by a 14-pin board-to-board plug.



1	Valve coil A
2	24 V
3	Valve coil B

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME02 8-fold bistable	11 mm	2	0460	5/3-way
				5/2-way pulsed

As with the electronic module of the point I/O system, the function module can be installed and removed during operation. The valve has a 24 V power supply.

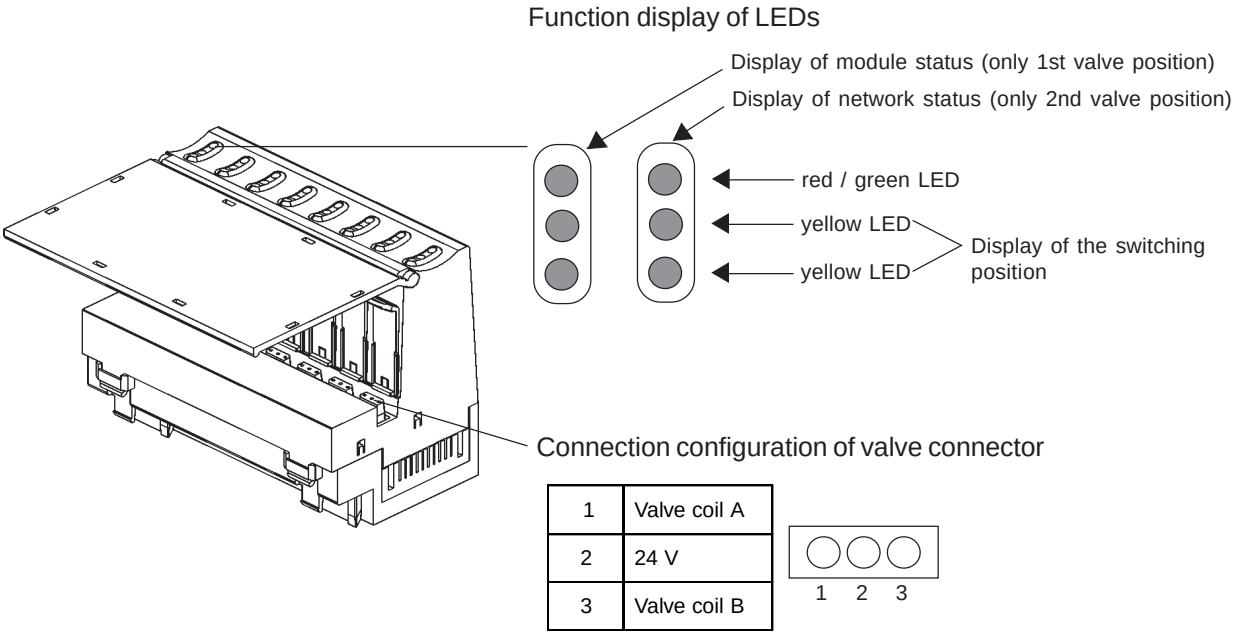
Technical data	ME02 / 8-fold bistable
Dimensions W x H x D	88 x 70.5 x 52 mm
Weight	94 g
Storage temperature	-20 ... +60 °C
Rated voltage under load	DC 24 V
Number of valve outputs	8 x 2
Current consumption per valve position	41 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	2 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power loss of the module	7.2 W

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Basic electronic module ME02 / 8-fold 2x monostable

Construction

An electric base module consists of a distribution module (backplane bus) and a function module. The two modules are connected by a 14-pin board-to-board plug.



1	Valve coil A
2	24 V
3	Valve coil B

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME02 8-fold 2 x monostable	11 mm	8	6524	2x 3/2-way

As with the electronic module of the point I/O system, the function module can be installed and removed during operation. In order to ensure the switching operation, the valve receives a 24 V supply briefly during installation. The power at the valve is reduced to a quarter after 110 ms.

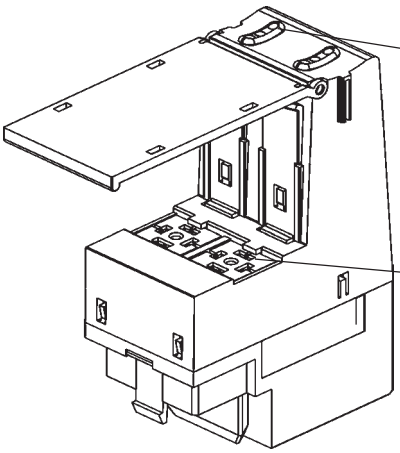
Technical data	ME02 / 8-fold 2x monostable
Dimensions W x H x D	88 x 70.5 x 52 mm
Weight	94 g
Storage temperature	-20 ... +60 °C
Rated voltage under load	DC 24 V
Number of valve outputs	8 x 2
Current consumption per valve postion	2 x 43 mA
Current consumption per valve position after ca. 110 ms	2 x 18 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	2 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	16 W
Power dissipation of module 110 ms after switching procedure	4 W

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

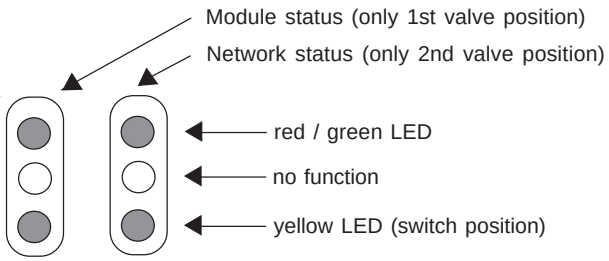
Basic electronic module ME03 / 2-fold monostable

Construction

A basic electronic module consists of a distributor module (back-wall bus) and a function module. Both modules are contacted via a 14-pole board-to-board connector.

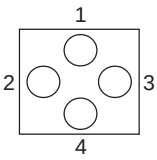


Function display of LEDs



Connection configuration of valve connector

1	Not connected
2	Valve +
3	Valve -
4	Not connected



Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME03 2-fold monostable	16,5 mm	2	6526	3/2-way
			6527	5/2-way

The functional module, like the electronics modules of the Point I/O system, may be pulled off and plugged on during operation. To ensure the switching operation, 24 V is applied briefly to the valve on plugging on. The power consumed by the valve is reduced to one quarter after 400 ms.

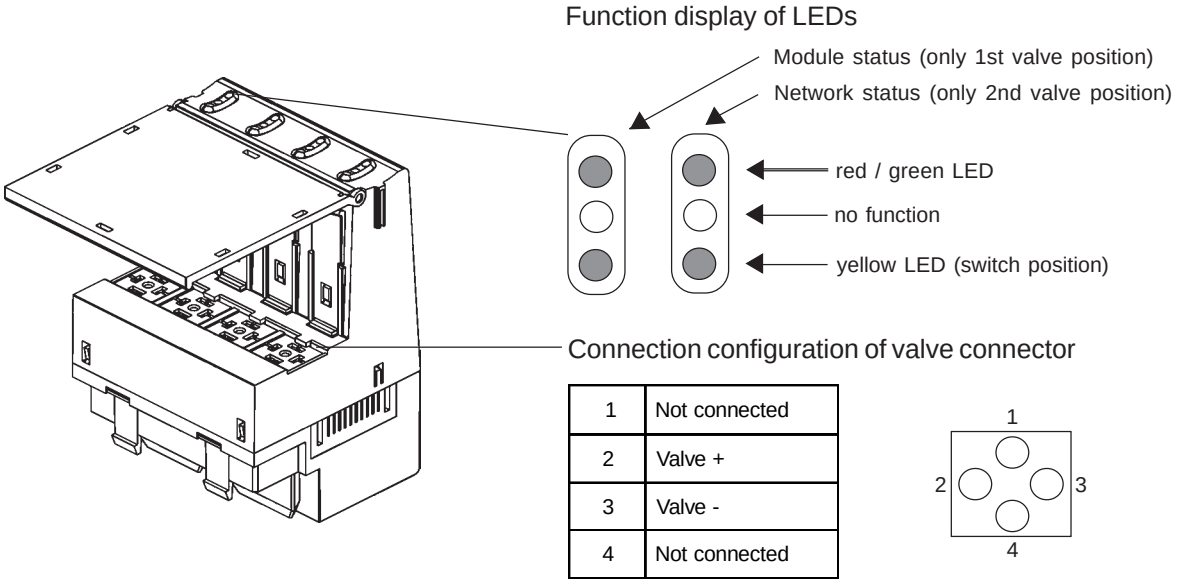
Technical data	ME03 / 2-fold monostable
Dimensions WxHxD	33x93x60 mm
Weight	54.4 g
Storage temperature	-20 to +60° C
Rated voltage under load	DC 24 V
No. of valve outputs	2
Current consumption per valve position during switching	85 mA
Current consumption per valve position after ca. 400 ms	52 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	1 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	4 W
Power dissipation of module 400 ms after switching procedure (2 x 0.5 W at resistors , 2 x 0.5 W at valve coils)	2 W

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Basic electronic module ME03 / 4-fold monostable

Construction

A basic electronic module consists of a distributor module (back-wall bus) and a function module. Both modules are contacted via a 14-pole board-to-board connector.



1	Not connected
2	Valve +
3	Valve -
4	Not connected

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME03 4-fold monostable	16.5 mm	4	6526	3/2-way
			6527	5/2-way

The functional module, like the electronics modules of the Point I/O system, may be pulled off and plugged on during operation. To ensure the switching operation, 24 V is applied briefly to the valve on plugging on. The power consumed by the valve is reduced to one quarter after 400 ms.

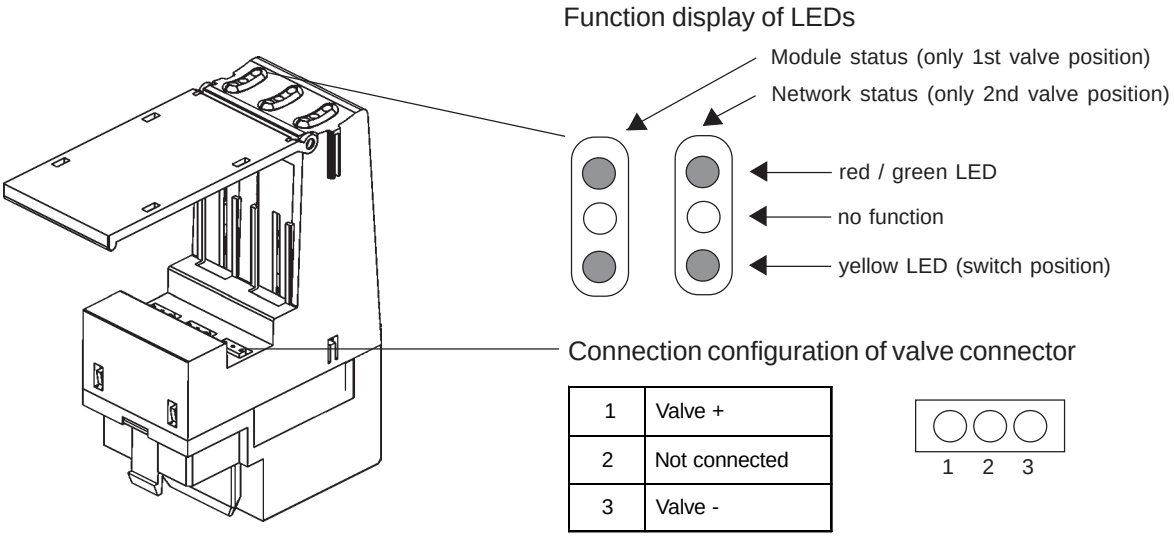
Technical data	ME03 / 4-fold monostable
Dimensions WxHxD	66x93x60 mm
Weight	91.2 g
Storage temperature	-20 to +60° C
Rated voltage under load	DC 24 V
No. of valve outputs	4
Current consumption per valve position during switching	85 mA
Current consumption per valve position after ca. 400 ms	52 mA
Current consumption from back-wall bus	max. 75 mA
Display of valve status	1yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	8 W
Power dissipation of module 400 ms after switching procedure (4x 0.5 W at resistors, 4x 0.5 Wat valve coils)	4 W

MAN 1000011198 EN Version: J Status: RL (released l freigegeben) printed: 23.04.2009

Basic electronic module ME03 / 3-fold 10 mm monostable

Construction

A basic electronic module consists of a distributor module (back-wall bus) and a function module. Both modules are contacted via a 14-pole board-to-board connector.



1	Valve +
2	Not connected
3	Valve -

Possible combinations with valve types

Basic module type	Add-on dimension	Valve positions	Valve type	Function
ME03 3-fold with 10 mm monostable	11 mm	3	6524	3/2-way
			6525	5/2-way

The functional module, like the electronics modules of the Point I/O system, may be pulled off and plugged on during operation. To ensure the switching operation, 24 V is applied briefly to the valve on plugging on. The power consumed by the valve is reduced to one quarter after 120 ms.

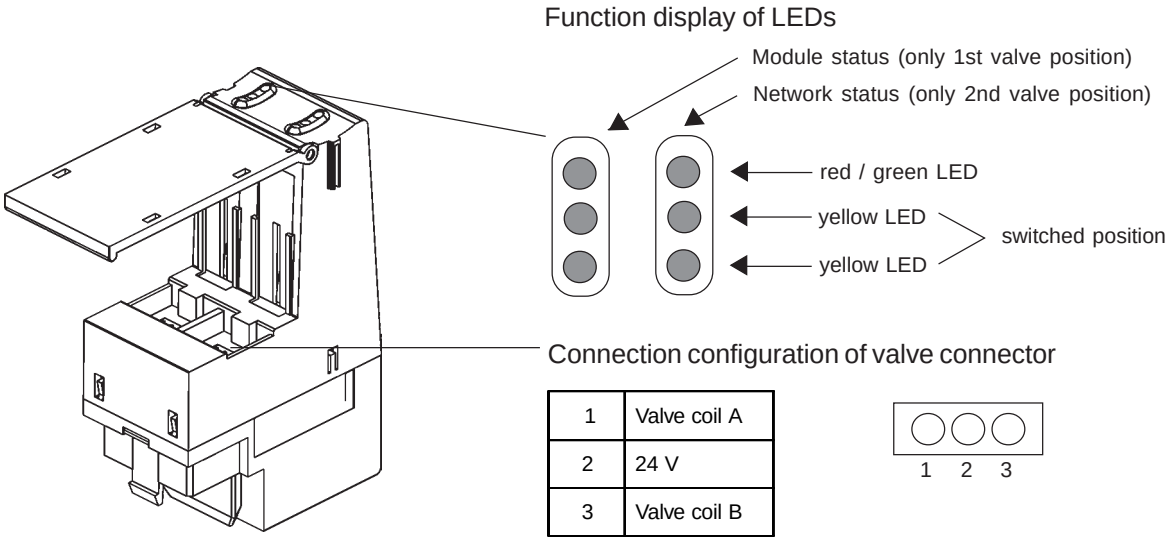
Technical data	ME03 / 3-fold 10 mm monostable
Dimensions WxHxD	33x93x60 mm
Weight	51 g
Storage temperature	-20 to +60° C
Rated voltage under load	DC 24 V
No. of valve outputs	3
Current consumption per valve position during switching	43 mA
Current consumption per valve position after ca. 120 ms	28 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	1 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of network status	1 red / green LED per modul (2nd valve position)
Power dissipation of module in moment of switching	3 W
Power dissipation of module 120 ms after switching procedure (3x 0.25 W at resistors, 3x 0.25 W at valve coils)	1.5 W

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Basic electronic module ME03 / 2-fold bistable

Construction

A basic electronic module consists of a distributor module (back-wall bus) and a function module. Both modules are contacted via a 14-pole board-to-board connector.



1	Valve coil A
2	24 V
3	Valve coil B

Possible combinations with valve types

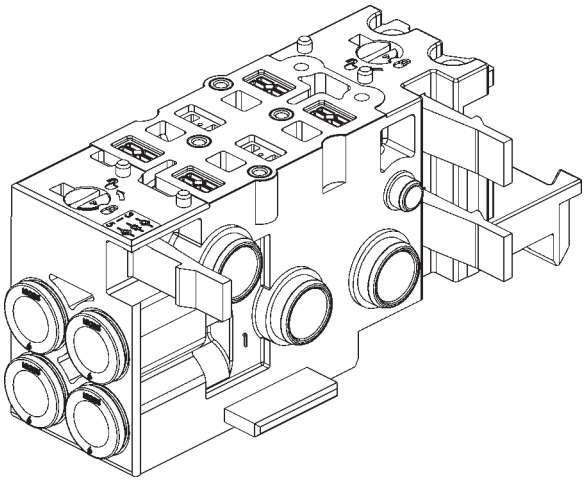
Basic module type	Add-on dimension	Valve position	Valve type	Function
ME03 2-fold bistabile	16.5 mm	2	0461	5/3-way
				5/2-way pulse

The functional module, like the electronics modules of the Point I/O system, may be pulled off and plugged on during operation. 24 V is applied to the valve.

Technical data	ME03 / 2-fold bistable
Dimensions WxHxD	33x93x60 mm
Weight	49.1 g
Storage temperature	-20 to +60° C
Rated voltage under load	DC 24 V
No. of valve outputs	2 x 2
Current consumption per valve position	41 mA
Current consumption from the back-wall bus	max. 75 mA
Display of valve status	2 yellow LED per valve position
Display of module status	1 red / green LED per modul (1st valve position)
Display of networkl status	1 red / green LED per modul (2nd valve position)
Power dissipation of module	1.8 W

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

BASIC PNEUMATIC MODULE



Example of a basic pneumatic module (type MP 11/2-fold)

General description

On the basic pneumatic module are to be found the service ports for subsequent applications. Several basic modules may be built up in a row by interlocking. Sealing from the outside is maintained. By unsing a bulkhead fitting, the P port may be sealed. Thus different working pressures can coexist in one valve block.

Variants

The different variants differ in the add-on dimension, number of valve locations, connection configuration of the valves, types of service port and the optional use of non-return valves.
Not all possible variants are realized.

Add-on dimension

Larger valves require the basic modules to be wider. This allows a higher flow rate to be obtained. At the present, the following add-on dimensions exist:

Versions	Add-on dimensions [mm]	2-fold mono-stable	2-fold bistable	2-fold 2 x mono-stable	3-fold	4-fold	8-fold	8-fold 2 x mono-stable
MP11	11	X*	X	X			X*	X
MP12	16.5	X	X		X	X		

* also available with P shut-off

Number of valve locations per module

Because of optimization for lower granularity, cost savings, design of valve units and loading of the electronics, modules with different numbers of valve locations make sense. (see table)

Types of service port

The customer decides the optimal type for his needs - whether rapid coupling or threaded.

MP11	MP12
D 1/4"	G 1/8"
D4	NPT 1/8"
D6	D 1/4"*
M5	D4*
M7	D6*
	D8
	M5*
	M7*

* Special version 3-fold with 10 mm valves

Non-return valve for exhaust ports

Since functionality with non-return valves is required for certain applications, there are corresponding versions for this purpose.

- Without non-return valve
- Non-return valve in R
- Non-return valve in R+S
- An integrated P shut-off is also available for the MP11 modules (technical description, see following page)

Storage temperature -20 °C to +60 °C

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Basic pneumatic module with integral pressure shut-off

General description

For the basic pneumatic module MP 11 in the 2-way and 8-way versions, an integral pressure shut-off is available as an option. With this option, a faulty valve may be exchanged under pressure without relieving the pressure in the entire valve island or system. On exchange of the valve, the open cross section is reduced by a mechanism until only a very small leak remains.

Feature and limitations

Through the use of a pressure shut-off, some limitations arise in respect of the operating data of the overall system:

- The flow though valve types 6524/25 is reduced to ca. 60%.
- The operating pressure range possible lies between 5 and 7 bar.
- When using valves with external auxiliary control air, the pressure supply for the pilot valves is not shut off. Hence pressure shut-off may be used only in connection with valves with internal auxiliary control air within the limited pressure range.
- Pressure shut-off may be combined with the integral non-return valves.

NOTE

When using basic modules with pressure shut-off, take care that the pressure supply for the valve islands is executed with a suitably large volume (minimum hose diameter: 8/6 mm).

Procedure on exchange of a valve

ATTENTION!

- Only one valve may be removed at a time.
- On disassembly, note that in each case only the pressure channel is shut off!
  This means that any pressure applied to the service ports A or B is relieved on removal of the valve. Consequently, an actuator connected thereto will also become pressureless and a movement may be triggered.
- If the volume on the actuator side is large, install a device by which the service ports can be shut off to prevent movement of the actuator.

On removal of a valve, for functional reasons, a relatively large amount of air is initially blown off to ambient, since the pressure shut-off can close only when the required presure difference is reached. Automatic shut-off, however, significantly reduces the air loss, so that only a small leak remains after closure.

➔ On assembly of the valve, make sure the seal is inserted correctly.

➔ Assemble the valve with the tightening torques stated in the operating instructions.

➔ On assembly of the valve, may sure the service ports are also pressurized in the corresponding rest position of the valve up to the time it is switched. Any actuator connected may execute a movement because of the pressurization.

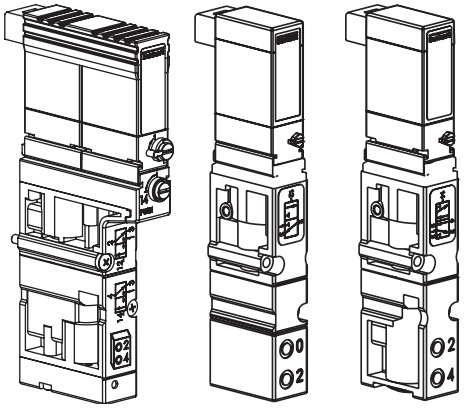
➔ Make sure that such movements of the actuator do not cause damage or undesired actions in the system.

NOTE

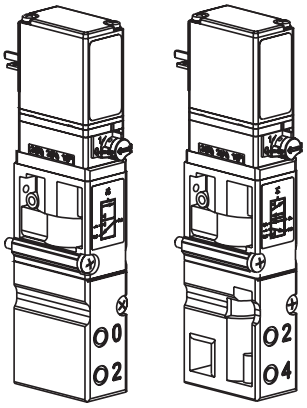
Before exchanging a valve, we recommend bringing the system electrically into a safe basic condition.

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

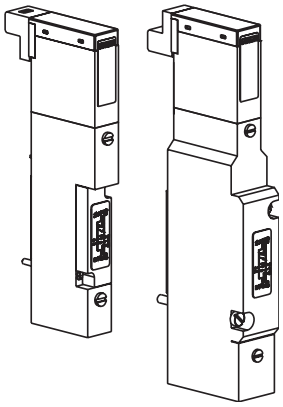
Valves



Types 6524 (2 x 3/2-way) / 6524 / 6525



Type 6526 / 6527



Type 0460 / 0461

EEx approval II 3 G EEx nA II T4 for the Types 6524 / 6525 [Exception Type 6524 (2x 3/2-way)].

General description

Automation systems are increasingly used in all areas where control duties are to be performed. The valves thereby form the interface between electronics and pneumatics.

The valves consist of a pilot solenoid valve and a pneumatic valve. Pilot valve and housing are clipped or screwed together. The working principle enables the switching of high pressures at low power consumption and with short switching times.

The valves are maintenance-free.

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Variants

With AirLINE Type 8644, valves with the following circuit functions may be integrated:

Valves	Circuit function	Actuation	Width	Type
3/2-way	C (NC)	internal control air	10	6524
	D (NO)			
	C (NC)	auxiliary control air		
	D (NO)			
	C-vaccum (NC)			
2 x 2/3-way	2 x C (NC)	internal control air		
	2 x C (NC)	auxiliary control air		
3/2-way	C (NC)	internal control air	16	6526
	D (NO)			
	C (NC)	auxiliary control air		
	D (NO)			
	C-vaccum (NC)			
5/2-way	H	internal control air	10	6525
		auxiliary control air		
		internal control air	16	6527
		auxiliary control air		
5/3-way	L blocking middle position	internal control air	10	0460
	N exhausted			
	L blocking middle position		16	0461
	N exhausted			
5/2-way pulsed	H	internal control air	10	0460
			16	0461

NOTE

More detailed technical data should be taken from the data sheets for the valves.

Valves with auxiliary control air

When valves with auxiliary control air are used, the exhaust air from the pilot valve escapes to ambient.
Valves with auxiliary control air cannot be combined on the valve island with valves with internal control air, since the connection X (see *System descriptions, Connector modules, pneumatic*) has a different configuration.

Valves 6524 and 6525 [Exception: type 6524 (2x 3/2-way)]

The composition of the valve island Type 8644 with valves 6524 and 6525 is approved for use in Zone 2 to II 3 G EEx nA II T4 with the number PTB 02 ATEX 2048.

Storage temperature -20 °C to +60 °C

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Limitations for use in Zone 2

ATTENTION!

For valve types 6526 and 6527, for use in Zone 2 with temperature class T4, the limitation (valve switch-off time) $\mathbf{T_{OFF} \geq 0.2\ s}$ must be strictly complied with under the following conditions:

- with fast switch-on cycles (valve switch-on time $\mathbf{T_{ON} < 3\ s}$)
- maximum ambient temperature of 55° C
- maximum permissible overvoltage U_{nom} of +10 %

Valve switching time

If the valve is switched on for longer than 3 s, there are **no limitations** for the time until the next switch-on of the valve.

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

NOTES

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

APPENDIX

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

EC DECLARATION OF CONFORMITY

Bürkert Werke GmbH & Co. KG hereby declares as the manufacturer that these products comply with the requirements listed in the Guidelines of the Council for Harmonization of the Regulation of the Member States.

in respect of electromagnetic compatibility (89/336/EEC)

and are stipulated for devices and protective systems for intended use in potentially explosive zones (ATEX, 94/9EC).

For the assessment of the products in respect of **electromagnetic compatibility**, the following standards were applied:

EN 61000-6-4: 08/02	Basic engineering standard for interference emission; Part 2: Industrial domain
EN 61000-6-2: 08/02	Basic engineering standard for interference resistance; Part 2: Industrial domain

For the assessment of the products in respect of **ATEX**, the following standards were applied:

EN 50014: 02/00	Electrical equipment for potentially explosive zones, General regulations
EN 50021: 02/00	Electrical equipment for potentially explosive zones, Ignition protection type 2N2:

The EC Design Inspection Certificate PTB 02 ATEX 2048 was issued and the production audited (CE0102) by the

Physikalisch Technischen Bundesanstalt

Bundesallee 100

D-38116 Braunschweig

NOTE Design Inspection Certificate PTB 02 ATEX 2048 is to be found in the Appendix.
For temperature classes and electrical data see "Technical data".

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) Konformitätsaussage

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) Prüfbescheinigungsnummer

PTB 02 ATEX 2048

(4) Gerät: Ventilinsel Typ 8644

(5) Hersteller: Bürkert GmbH & Co.KG.

(6) Anschrift: Christian-Bürkert-Straße 13-17, 74653 Ingelfingen, Deutschland

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage und den darin aufgeführten Unterlagen zu dieser Prüfbescheinigung festgelegt.

(8) Die Physikalisch-Technische Bundesanstalt bescheinigt als benannte Stelle Nr. 0102 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht PTB Ex 02-21358 festgehalten.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

EN 50021:1999

(10) Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese Konformitätsaussage bezieht sich nur auf Konzeption und Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes.

(12) Die Kennzeichnung des Gerätes muß die folgenden Angaben enthalten:

II 3 G EEx nA II T4

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Braunschweig, 24. Juni 2002

gez. Wilkens *L.S.*

Dipl.-Ing. R. Wilkens

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(13) # Anlage

(14) ## Konformitätsaussage PTB 02 ATEX 2048

(15) Beschreibung des Gerätes

Diese Einheit ist ein elektrisches und pneumatisches Automatisierungssystem, das für den Einsatz im Schaltschrank oder Schaltkasten optimiert wurde. Sie dient zur Steuerung pneumatischer Anlagen mit dem vorgegebenen Feldbus-System. Sie besteht aus den elektrischen und pneumatischen Komponenten und kann je nach Bedarf erweitert werden. Alle elektrischen Daten sind auf 24 V DC ausgelegt und der Betreiber hat dafür Sorge zu tragen, dass die Bemessungsspannung durch Störungen um nicht mehr als 40 % überschritten wird.

Technische Daten

Bemessungsspannung	24 V DC
Nennleistung	1/0,25 W pro Magnetventil
Umgebungstemperaturbereich	0 °C bis 55 °C
Druckbereich	2,5 bar bis 7 bar
verwendete Magnetventiltypen	6524 und 6525
max. Anzahl der Magnetventile	64
Vorsteuerung für genannte Ventiltypen	6104

(16) Prüfbericht PTB Ex 02-21358

(17) Besondere Bedingungen

nicht zutreffend

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

durch vorgenannte Norm abgedeckt

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Braunschweig, 24. Juni 2002

gez. Wilkens *L.S.*

Dipl.-Ing. R. Wilkens

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

Contact addresses / Kontaktadressen

Germany / Deutschland / Allemange
Bürkert Fluid Control System
Sales Centre
Chr.-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. + 49 (0) 7940 - 10 91 111
Fax + 49 (0) 7940 - 10 91 448

E-mail: info@de.buerkert.com

International
Contact addresses can be found on the internet at:
Die Kontaktadressen finden Sie im Internet unter:
Les adresses se trouvent sur internet sous :
www.burkert.com Bürkert Company Locations

MAN 1000011198 EN Version: J Status: RL (released I freigegeben) printed: 23.04.2009

MAN 1000011198 EN Version: J Status: RL (released | freigegeben) printed: 23.04.2009

The smart choice
of Fluid Control Systems
www.buerkert.com

bürkert
Fluid Control Systems