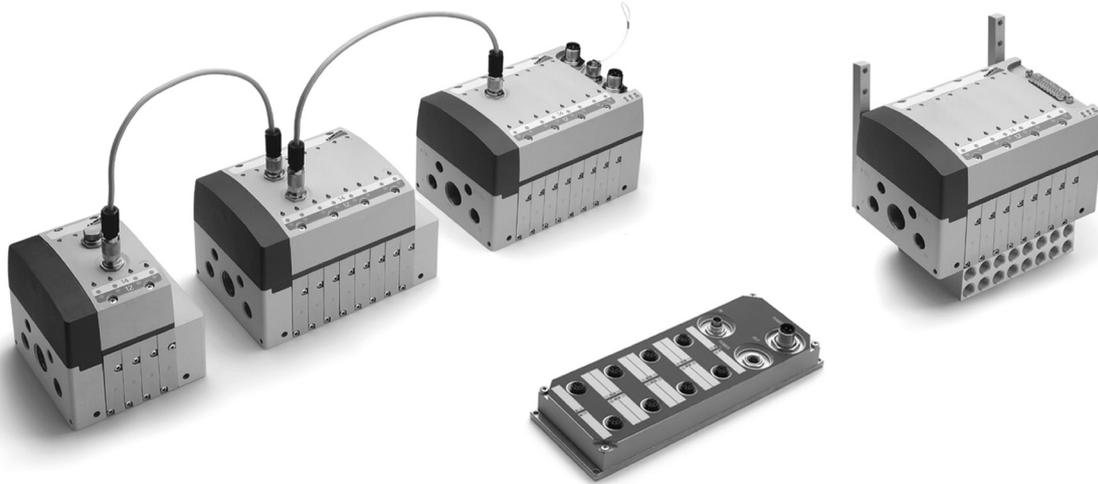


# Valve Island Series Y

Valve Island with Pneumatics and Electronics integrated. Available versions: Individual, Multipole, Fieldbus (Profibus-DP, DeviceNet, CANopen). Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC



**The valve island Series Y is based on particular solutions regarding both the pneumatic, as well as the electronic part.**

Sub-bases and valve bodies are integrated in a sole "module". Different kinds of cartridges and spools are inserted in the module to configure the desired valve function. The valve island can be expanded and modified and its maintenance is easy and safe. Several solutions are possible for the electric connection through the use of modules for digital electric inputs.

Check the suitable connectors in the section 2/3.25.

- » Pneumatic modularity: 2, 4, 6 and 8 valve positions
- » Valve size: 12,5 mm
- » Flow rate: 800 NI/min

## GENERAL DATA

Enclosed in the package there is a label on which it is possible to write each individual coil number.

## PNEUMATIC SECTION

<b>Valve construction</b>	Spool with seals
<b>Valve functions</b>	5/2 monostable and bistable 5/3 CC 2 x 2/2 NC 2 x 2/2 NO 1 x 2/2 NC + 1 x 2/2 NO 2 x 3/2 NC 2 x 3/2 NO 1 x 3/2 NC + 1 x 3/2 NO
<b>Materials</b>	Aluminium spool brass cartridge seals in NBR end covers and covers in technopolymer
<b>Connections</b>	Outlets 2 and 4: G1/8 Inlets 1 and 11: G1/4 Pilot ports: 12/14 and respective exhaust 82/84 G1/8 Exhausts 3/5: G1/2
<b>Temperature</b>	0 + + 50°C
<b>Air specifications</b>	Filtered air in class 5.4.4. according ISO 8573.1 In case of need, only use oil with a max. viscosity of 32 Cst.
<b>Dimensions/size</b>	12,5 mm
<b>Working pressure</b>	-0,9 + 10 bar (with external pilot)
<b>Pilot pressure</b>	3 + 7 bar
<b>Flow rate</b>	800 NI/min

## INLETS SECTION

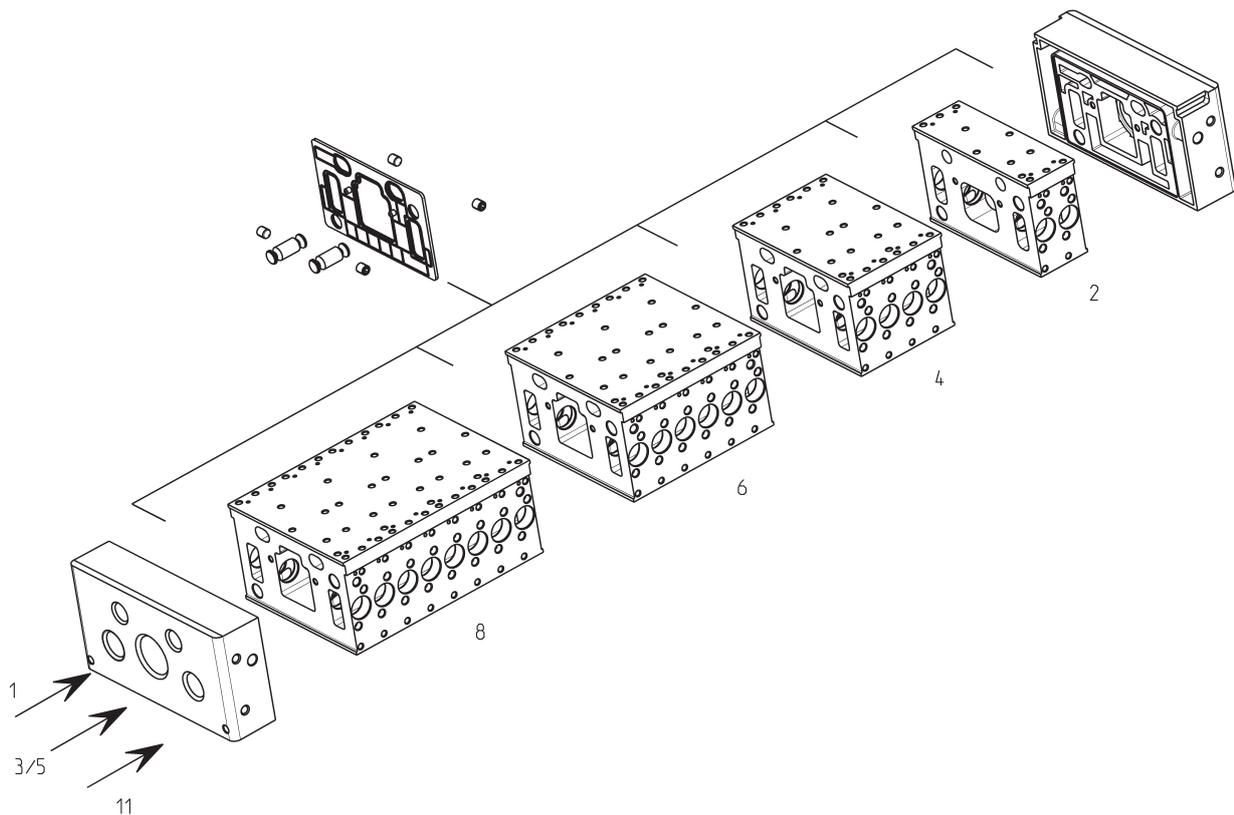
<b>Voltage</b>	24 V ±10%
<b>Max current</b>	350 mA
<b>Operating temperature</b>	0°C + +50°C
<b>Relative humidity</b>	30-90% +25°C 30-50% +50°C
<b>Conform with standards</b>	EN 61131-2 EN 61000-6-2 EN 61000-6-4
<b>Protection class</b>	IP65
<b>Max. number of connected inlets</b>	48
<b>Max. number of connected Inlet Modules</b>	3
<b>Max. distance between init. mod. and last input or expansion mod.</b>	50 m
<b>Max. cable length between sensor and input module</b>	30 m

## ELECTRICAL SECTION

<b>Voltage</b>	24V ±10%
<b>Max. currents</b>	1300mA continuous 1600 mA latch
<b>Operating temperature</b>	0°C + +50°C
<b>Continuous current</b>	ED 100%
<b>Protection class</b>	IP50 Individual version IP65 Multipole version PNP IP65 Fieldbus versions
<b>Baud rate</b>	Profibus-Dp 12 Mbit/s EN 50170 DeviceNet 500 Kbit/s EN 50235 CAN open 500 Kbit/s EN 50235
<b>Maximum number of nodes</b>	Profibus-Dp 32/127 DeviceNet 64 CAN open 127
<b>Maximum number of expansions per node</b>	15
<b>Max. length of internal Fieldbus</b>	50 m
<b>Relative humidity</b>	30-90% +25°C 30-50% +50°C
<b>Conform with standards</b>	EN 61326-1 EN 61010-1
<b>Max. number of solenoids connected/activated at the same time</b>	32

## HOW TO COMPOSE THE VALVE ISLAND (EXAMPLE)

- one or more pneumatic modules with either 2, 4, 6 or 8 valve positions incorporating both the sub-base and seats of the valves, with two separated channels for supply and exhaust and the seat for the valves. It is possible to join the different modules together with pins and fixing screws, thus increasing the number of valve positions;
- two terminal plates (right and left) on which it is possible to connect pressure inlets and exhausts;
- seals among the various elements;
- cartridges and spools which reproduce the different valve functions (further information on the following pages)
- one or more covers which integrate electronics and pilots distributing signals to valves (further information on the following pages)



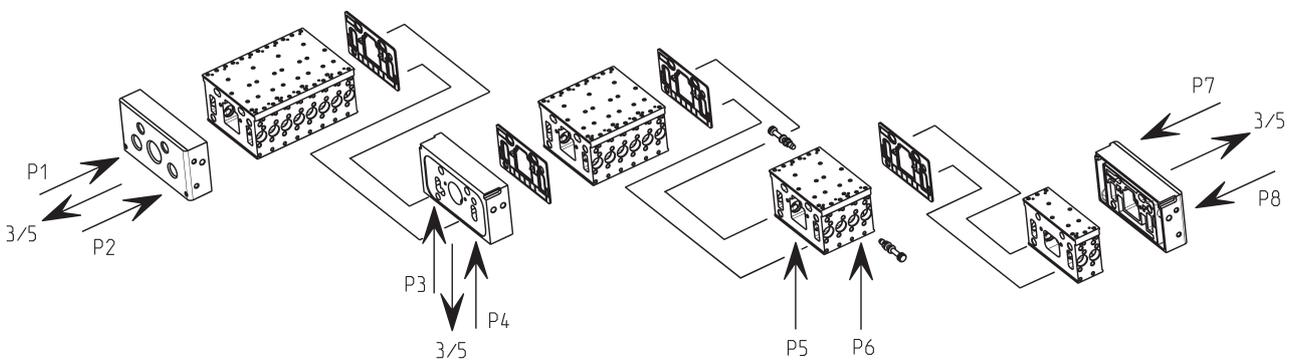
## Plate for supplementary supply and exhaust

The two independent supplies allow the same valve to have different pressure values on outlets 2 and 4.

In this way a higher pressure can be used for the working operations and a lower pressure for the repositioning of the actuators, reducing the costs for generating compressed air.

The modularity of 2, 4, 6 or 8 valve positions allows, through the specific seals, to subdivide the island in pressure/exhaust zones without losing valve positions. Functions W or X can be used to supply the intermediate pressure zones of an island.

To avoid any possible problem during exhaust, the exhaust itself has been increased and it passes through on both sides.



## Air specifications - filtering elements

For those applications where the air quality is unknown, it is advised to supply the whole island or the pilot valve zone with filtering elements according to class 3 of table DIN ISO 8573-1.

Filter models:  
 MC104-F10  
 MC238-F10  
 MC202-F10  
 N108-F10  
 N104-F10

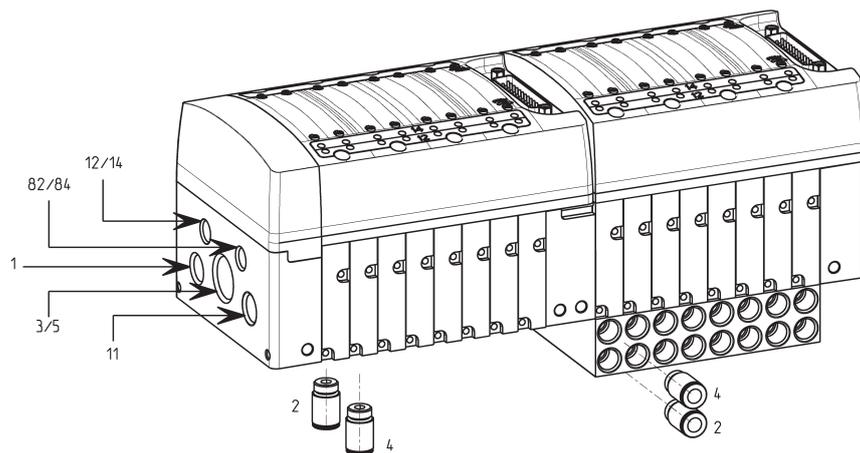


AIR QUALITY CLASS ACCORDING TO STANDARD DIN ISO 8573-1

Class	Solid bodies	Max. dimension of the particles	Water contents	dew-point	Oil quantity max. concentration mg/m <sup>3</sup>
1		0,1 μ		-70°C	0,01
2		1 μ		-40°C	0,1
3		5 μ		-20°C	1
4		15 μ		+3°C	5
5		40 μ		+7°C	25

## Connection

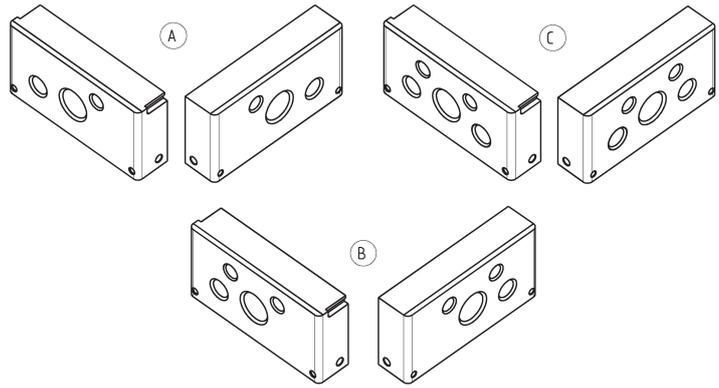
The connection of the inlets and exhaust to the valve island is made by means of terminal plates.



\* It is possible to connect the following fittings, supplied with O-ring:  
 6512-4-1/8-M  
 6512-6-1/8-M  
 6512-8-1/8-M

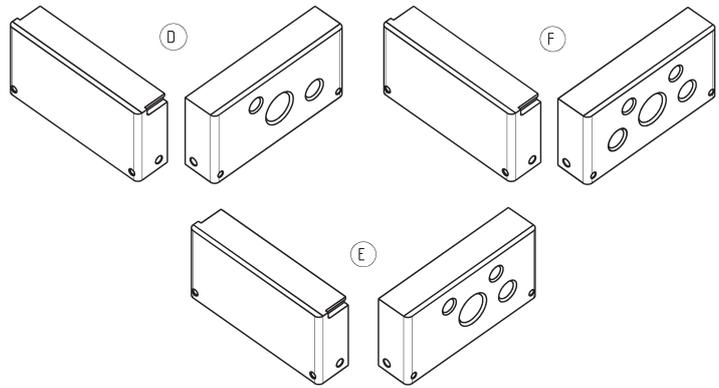
Supply (1-11)	Exhaust (3/5)	Servo-pilot supply (12/14)	Servo-pilot exhaust (82/84)	Inlets (2-4)
G1/4	G1/2	G1/8	G1/8	G1/8

TERMINAL PLATES - pneumatic connections from left and right



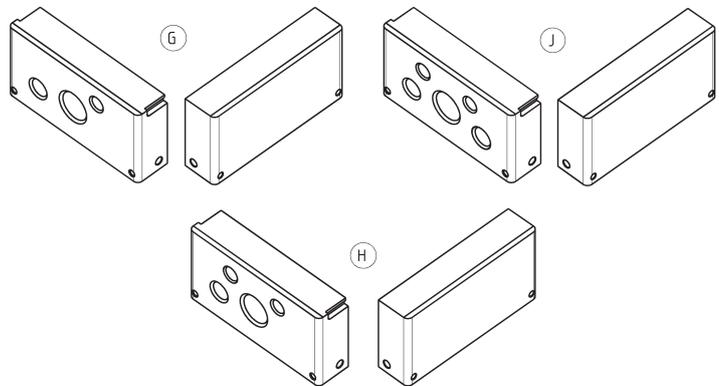
Terminal Plates					
Code	Common connections		Separated connections		
A	1 - 11	12/14	82/84	3/5	
B	1 - 11		12/14	82/84	3/5
C	-		1 - 11	12/14	82/84 3/5

TERMINAL PLATES - pneumatic connections from the right



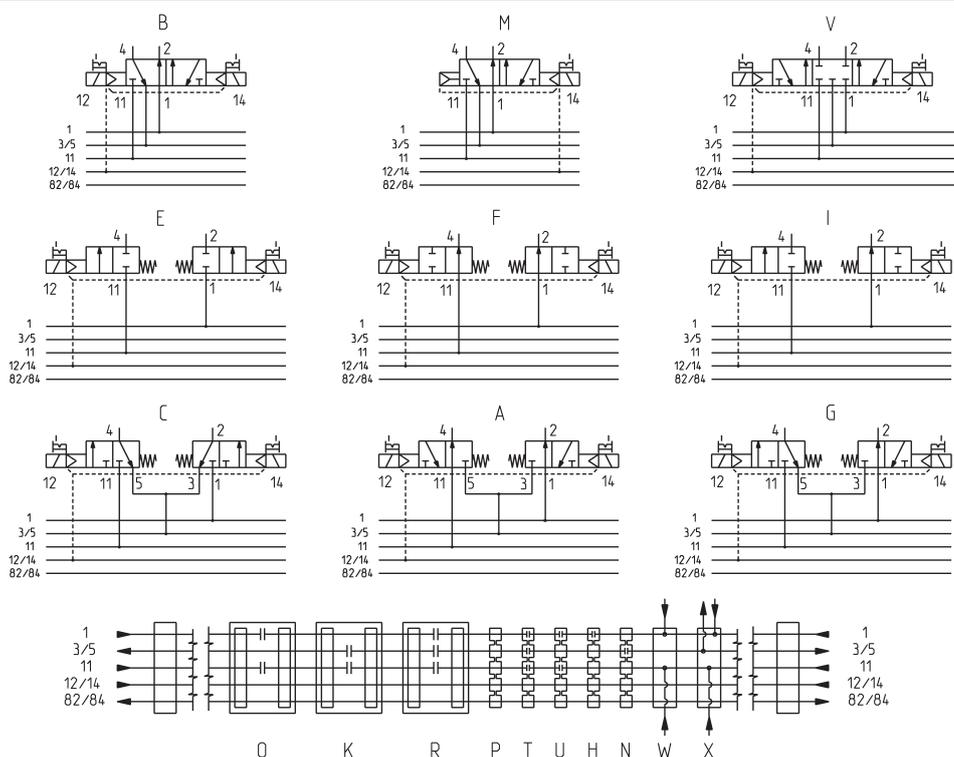
Terminal Plates					
Code	Common connections		Separated connections		
D	1 - 11	12/14	82/84	3/5	
E	1 - 11		12/14	82/84	3/5
F	-		1 - 11	12/14	82/84 3/5

TERMINAL PLATES - pneumatic connections from the left



Terminal Plates					
Code	Common connections		Separated connections		
G	1 - 11	12/14	82/84	3/5	
H	1 - 11		12/14	82/84	3/5
J	-		1 - 11	12/14	82/84 3/5

## Available functions



Code	Function	Actuation/return	Working pressure (bar)	Pilot pressure (bar)	Symbol
<b>M</b>	5/2 Monostable	solenoid/pneumatic spring	-0,9 + 10	3 ÷ 7	M
<b>B</b>	5/2 Bistable	solenoid/solenoid	-0,9 + 10	3 ÷ 7	B
<b>V</b>	5/3 Centres Closed	solenoid/solenoid	-0,9 + 10	3 ÷ 7	V
<b>I</b>	2 x 2/2 (1 NO + 1 NC)	solenoid/solenoid	-0,9 + 10	3 ÷ 7	I
<b>E</b>	2 x 2/2 (NC)	solenoid/solenoid	-0,9 + 10	3 ÷ 7	E
<b>F</b>	2 x 2/2 (NO)	solenoid/solenoid	-0,9 + 10	3 ÷ 7	F
<b>G</b>	2 x 3/2 (1 NO + 1 NC)	solenoid/solenoid	-0,9 + 10	3 ÷ 7	G
<b>C</b>	2 x 3/2 (NC)	solenoid/solenoid	-0,9 + 10	3 ÷ 7	C
<b>A</b>	2 x 3/2 (NO)	solenoid/solenoid	-0,9 + 10	3 ÷ 7	A
<b>L</b>	Free position	-	-	-	L
<b>W</b>	Additional supply from 2 and 4	-	-	-	W
<b>T</b>	Diaphragm seal (module's separation)	-	-	-	T
<b>P</b>	Through seal ( module's separation)	-	-	-	P
<b>T/</b>	Diaphragm seal (separation of both modules and covers)	-	-	-	T
<b>P/</b>	Through seal (separation of both modules and covers)	-	-	-	P
<b>U</b>	Diaphragm seal 3/5 open	-	-	-	U
<b>H</b>	Diaphragm seal 3/5 - 11 open	-	-	-	H
<b>N</b>	Diaphragm seal 1 - 11 open	-	-	-	N
<b>U/</b>	Diaphragm seal 3/5 open (separation of both modules and covers)	-	-	-	U
<b>K</b>	Expansion module, 2 positions with 3/5 - 11 closed	-	-	-	K
<b>R</b>	Expansion module, 2 positions with 3/5 - 1 - 11 closed	-	-	-	R
<b>O</b>	Expansion module, 2 positions with 1 - 11 closed	-	-	-	O
<b>X</b>	Module for additional supply	-	-	-	X

## Cartridges and spools for the creation of valve functions

The different valve functions are obtained by inserting the cartridges and spools in the seats of the pneumatic module. These seats have been designed at right angles with respect to the terminal plates.

The shape of cartridges and spools depends on the valve function required.

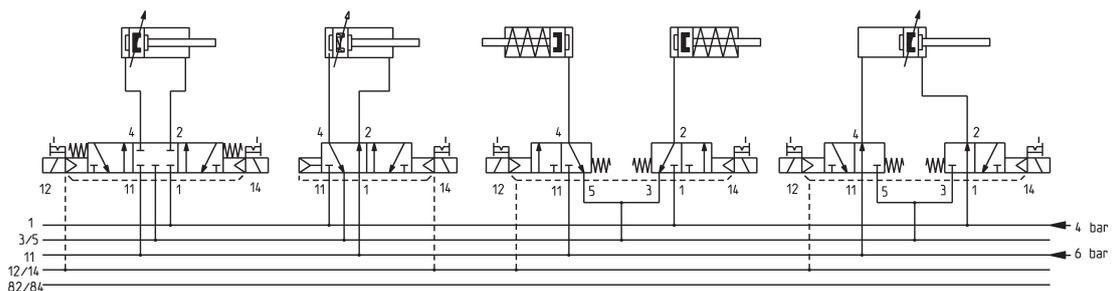
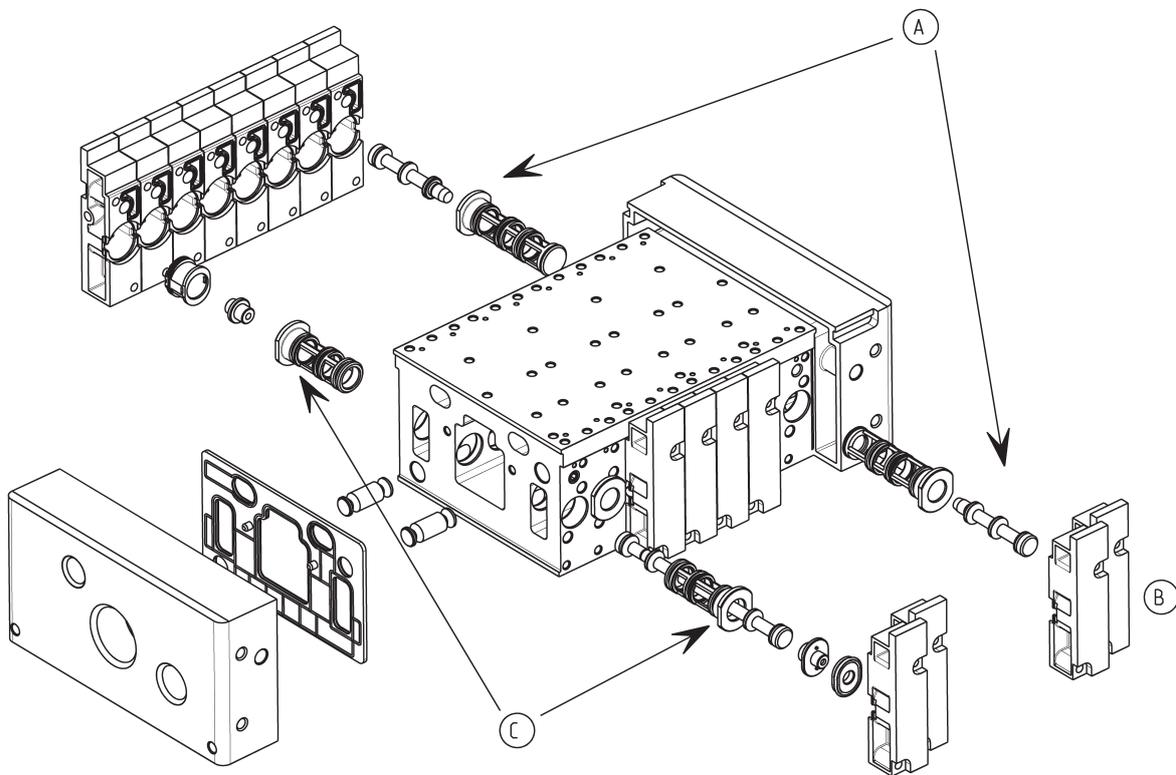
Example:

(A) = Cartridge and spool for a 3/2-way function

(B) = End cover

(C) = Cartridge and spool for a 5/2-way function

The modification or maintenance of a valve position is obtained removing the end cover "B" and replacing both the cartridge and the spool. During modification/maintenance, the tubing for the pneumatic connection can stay connected to the island, thus simplifying and optimising the whole operation.



## Individual version - dimensions

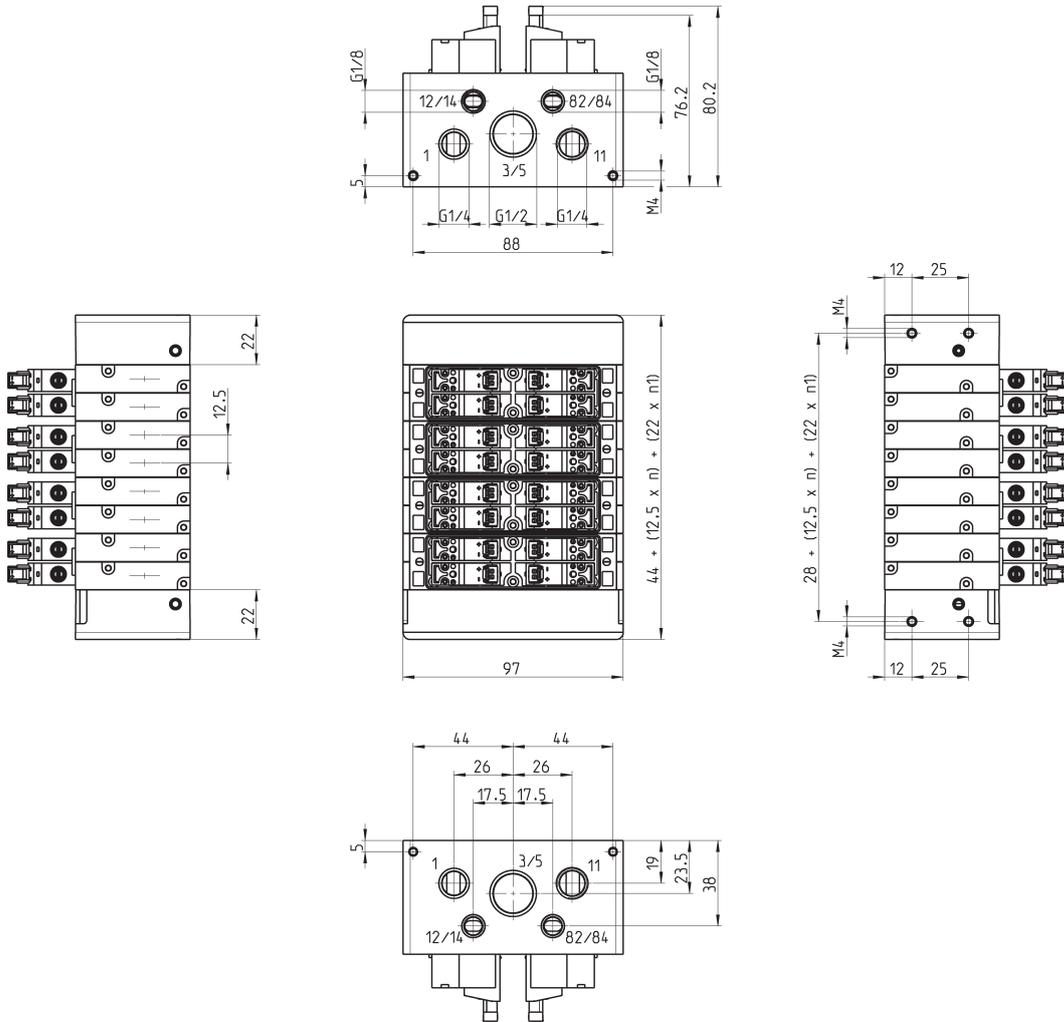
n = number of valves

n1 = number of supplementary power supply modules (cod. X)



2

CONTROL



## Covers

The Multipole and Fieldbus versions use covers for the pilot valves, which guarantee the IP65 protection class as well as the mechanical protection of internal parts.

The covers combine:

- manual override in the monostable and bistable functions.
- A simple pressure is enough to obtain a monostable function, whereas the bistable function is obtained coupling a rotation.
- LEDs for the voltage signalling on the solenoid
- diagnostic LEDs on Fieldbus versions
- ports for the electrical connectors
- integrated electronic boards
- connection interface with the pilot valves
- outlets protection against overvoltage, reversed polarity and short circuit
- connections realized on printed circuit boards



2

CONTROL

## Covers - Multipole version

The Multipole cover is available in three sizes allows the connection to valve islands with 4, 6 or 8 valve positions. Every position can be freely equipped with either monostable or bistable solenoid.

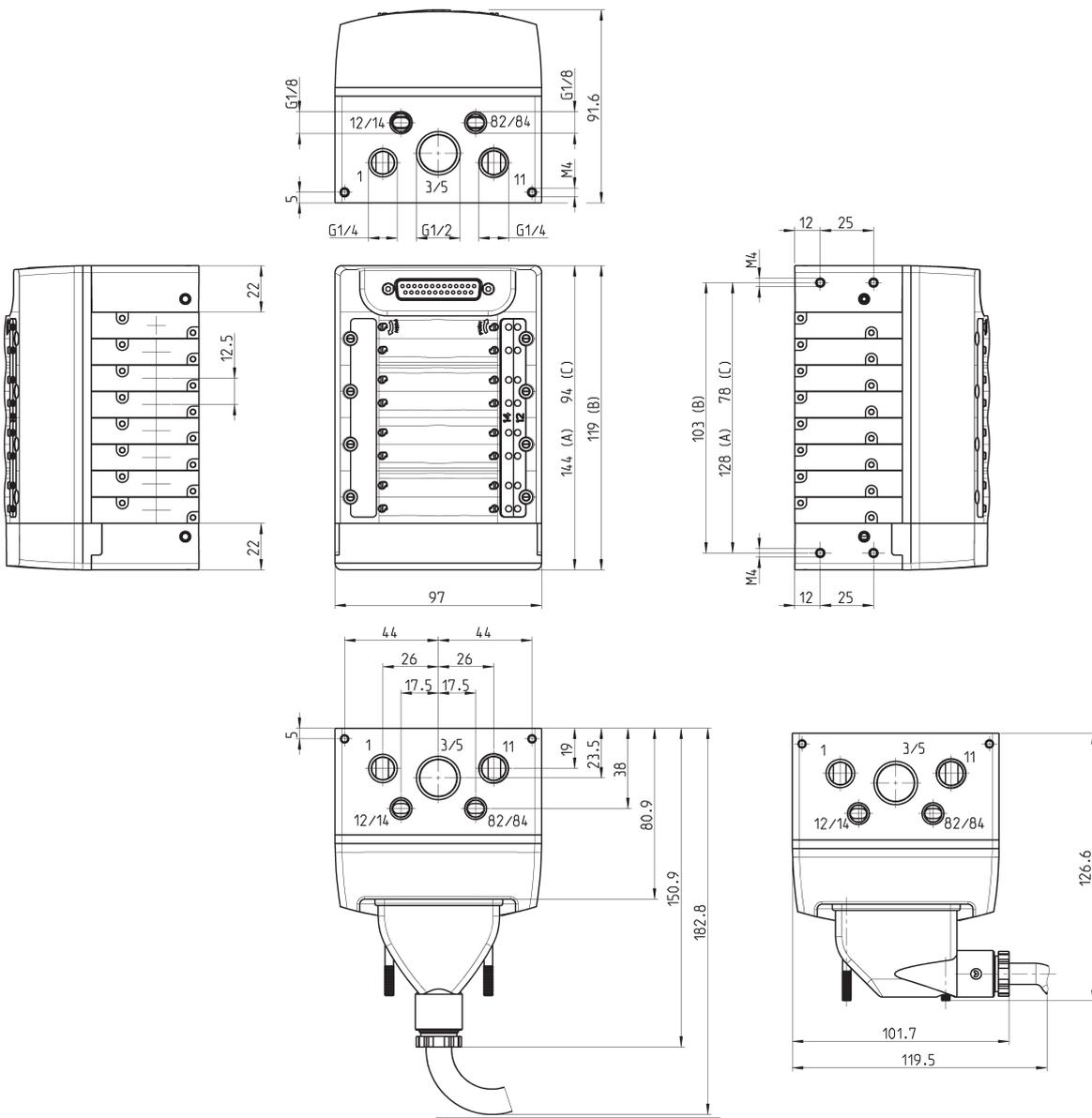
It is possible to join two or more valve islands placing a plate for intermediate supply, type "X", under every Sub-D plug. Pneumatic modules can be composed of 2, 4, 6 or 8 valve positions and separated by various seals.

A module for additional supply type "X" or a function "W" must be always inserted between two seals separating channels 1 and 11.



Multipole version - dimensions

- A = 8 positions
- B = 6 positions
- C = 4 positions

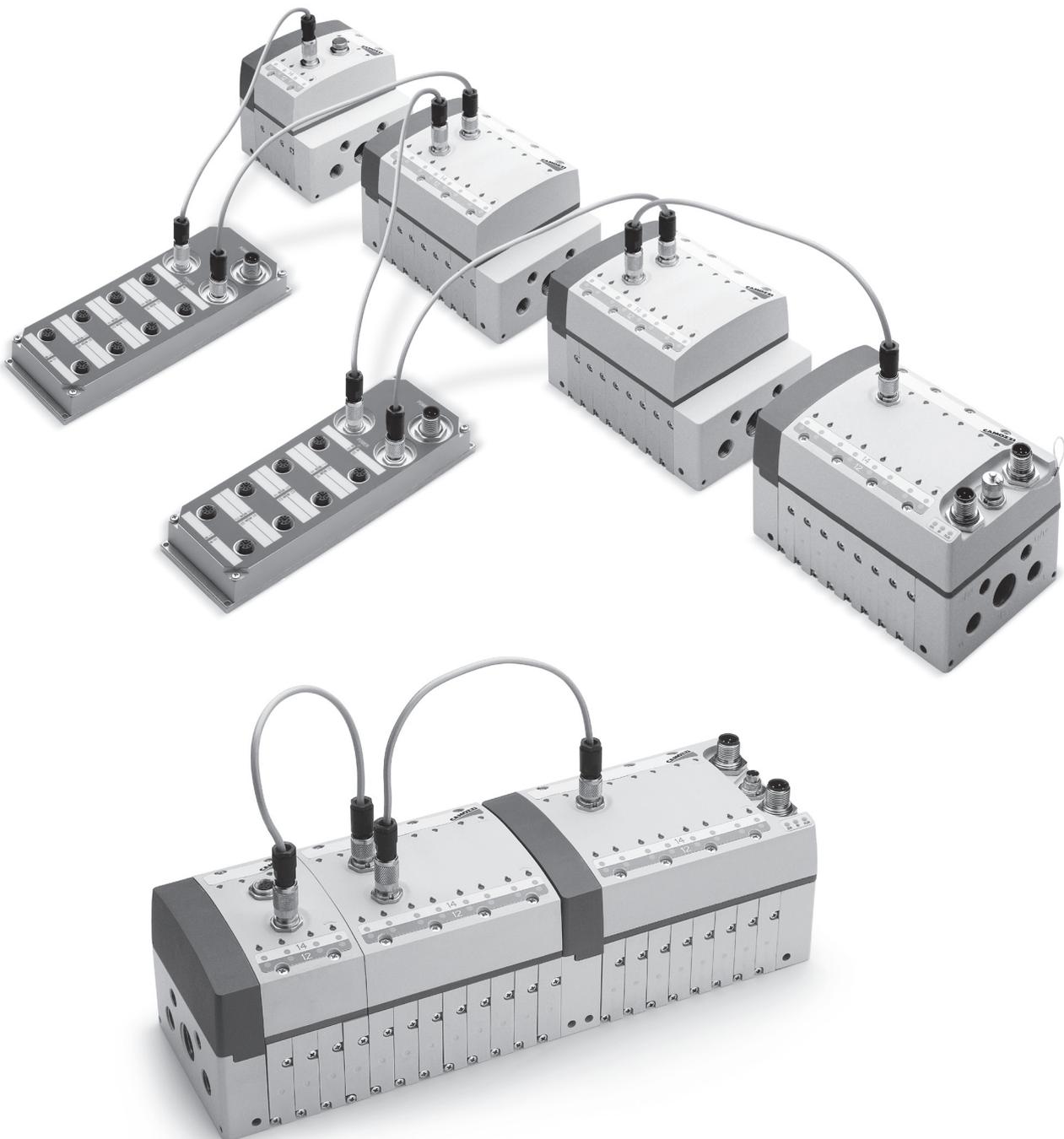


## Covers - Fieldbus version

This version allows the direct connection to Profibus-Dp, DeviceNet, CANOpen. The main feature of this version is a starting module called "Initial module" to which the fieldbus module is connected for the management of the expansion modules. The Initial module can arrange up to 32 coils (outputs) and 48 inlets. To optimize the electronic part, a proper function allows the remoting of unused outlets on the expansion modules. It is thus possible to pilot 32 solenoids on 32 valve positions without losing any output signal.

### Advantages:

- cost reduction thanks to a reduced number of initial modules that can be replaced by expansion modules;
- simplified code as the type of subbase is the same for bistable or monostable solenoid valves;
- saving of electrical signals that are not consumed by free positions and/or diaphragm seals;
- reduced dimensions, simplified connections and optimization of installation costs thanks to the covers modular structure which allows several islands to be joined together.



## Fieldbus Initial Module - characteristics

The initial module has always 8 positions.

It is only the initial module to which the Fieldbus and electrical supply (24V DC) is connected.

The coils addressing can be sequential or customized by a specific configuration software that can be downloaded from our website <http://catalogue.camozzi.com/Downloads>, as well as the configuration file.

Pneumatic modules, available with 2, 4, 6, or 8 valve positions, can be separated by proper seals and allow the creation of different pressure/exhaust zones.



## Fieldbus Expansion Module - characteristics

Versions available:

2 valve positions

4 valve positions

8 valve positions

The expansion modules:

- communicate among themselves and with the initial module through the Cam.I.Net subfieldbus.
- can be easily added to enlarge the valve island, thus avoiding the use of free positions;
- can be positioned up to 50 mt. far from initial module and subdivided into up to 15 groups.

The particular construction of the islands allows the in-line mounting of all the Expansion modules.

Pneumatic modules, available with 2, 4, 6, or 8 valve positions, can be separated by proper seals and allow the creation of different pressure/exhaust zones.



Electrical digital inputs module ME-1600-DL\* - Characteristics

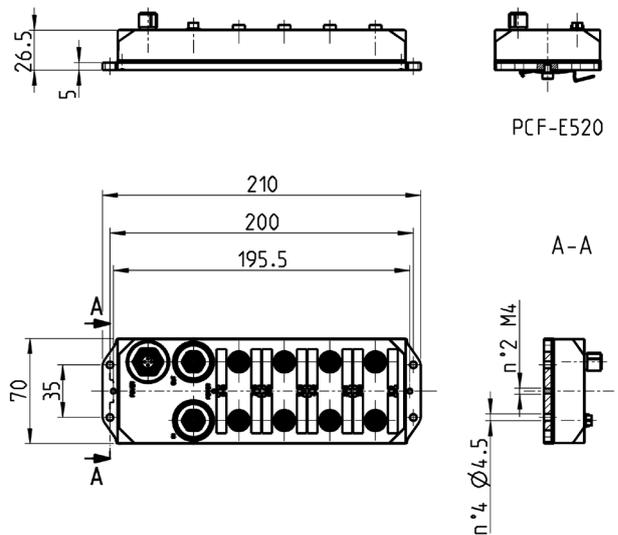
It allows the connection of 16 electrical input signals via 8 M12 DUO 5 poles connections. It is thus possible to connect 2 inputs for each connection.  
 The input module can be positioned at any point of the Cam.I.Net. sub-fieldbus.  
 3 input modules at most can be connected to the initial module, for a total of 48 inputs.

\* not for the DeviceNet version



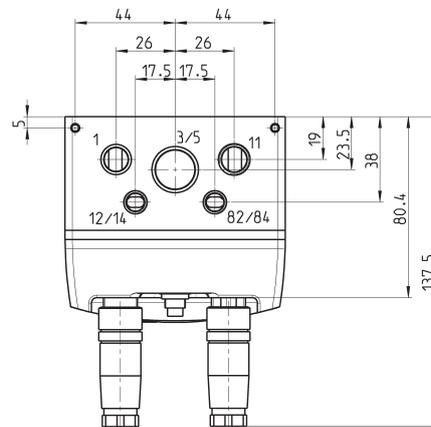
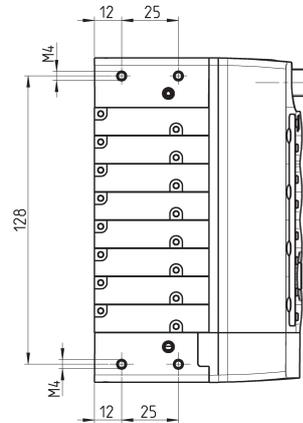
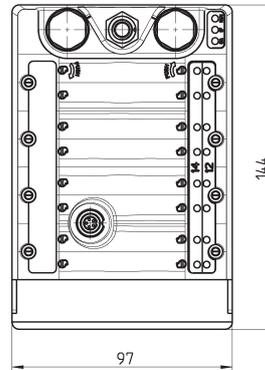
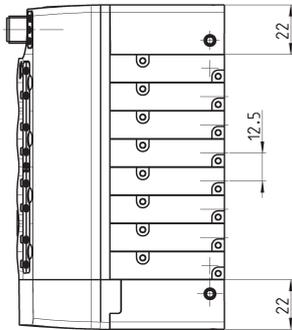
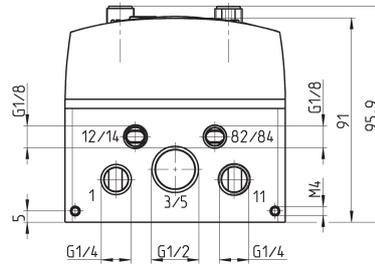
Digital Inputs Module ME-1600-DL\* - dimensions

\* not for the DeviceNet version

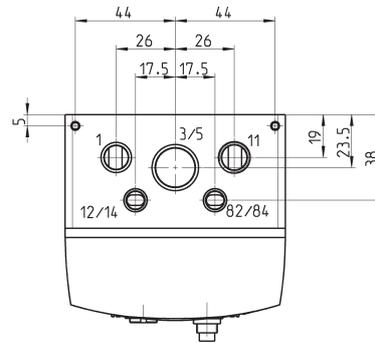
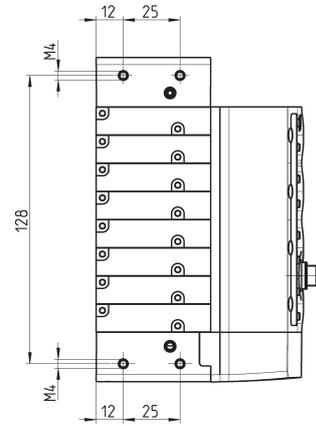
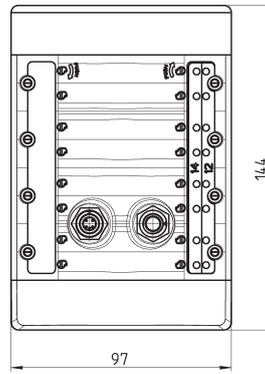
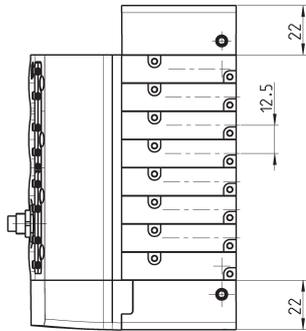
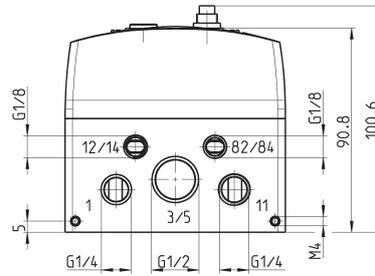


### Fieldbus Initial Module - dimensions

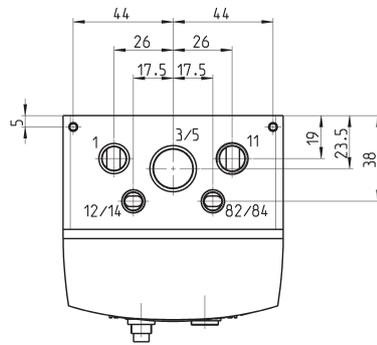
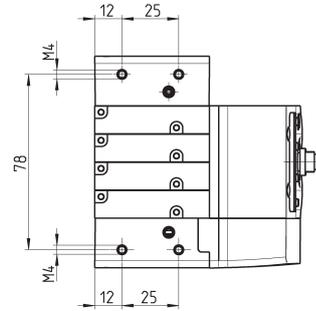
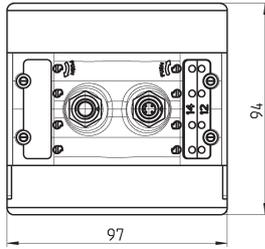
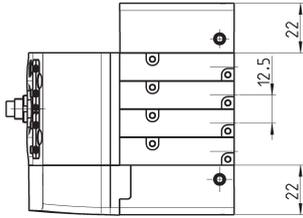
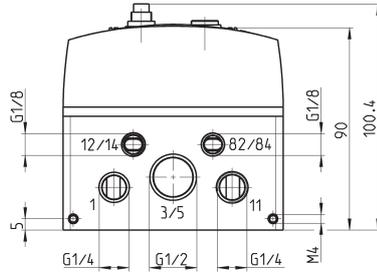
Dimensions don't change according to the different Fieldbus versions (Profibus-DP, CANopen, DeviceNet).



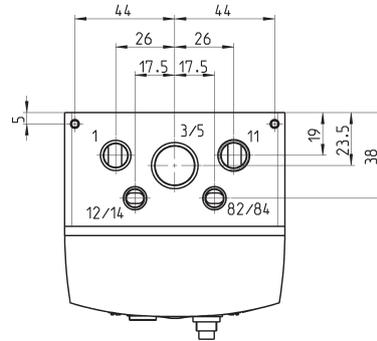
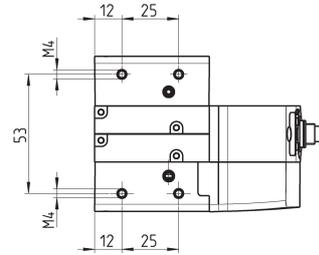
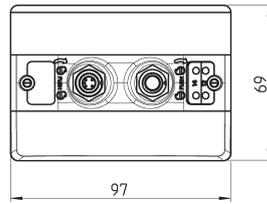
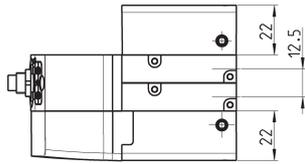
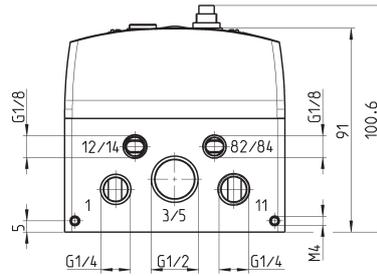
Fieldbus Expansion Module with 8 valve positions - dimensions



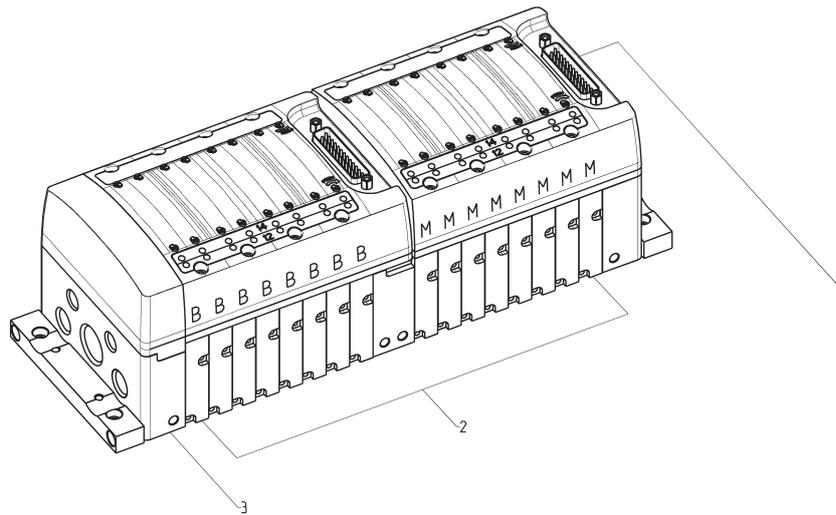
Fieldbus Expansion Module with 4 valve positions - dimensions



Fieldbus Expansion Module with 2 valve positions - dimensions



## CODING



1                      2                      3  
 Y P 1 - [ ] [ ] [ ] ... - [ ]

1                      2                      3  
 Y P 1 M - [ 8 M P X P 8 B ] - [ C ]

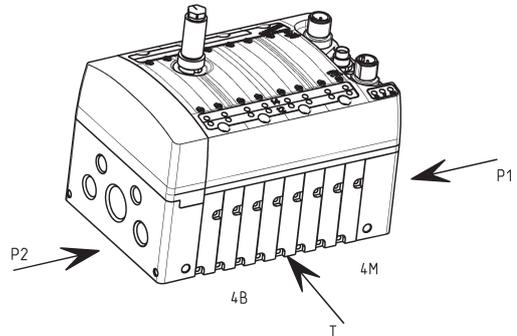
(1) Code	Type of electrical connection	(2) Code	Type of valve	(3) Code	Type of terminal plates
<b>K</b>	Individual		-		-
<b>M</b>	Multipole (PNP)		-		-
<b>P</b>	Profibus-Dp		-		-
<b>D</b>	DeviceNet		-		-
<b>C</b>	CANopen		-		-
<b>E</b>	Expansion		-		-
-		<b>M</b>	5/2 Monostable		-
-		<b>B</b>	5/2 Bistable		-
-		<b>V</b>	5/3 CC		-
-		<b>I</b>	2 x 2/2 1 NO + 1 NC		-
-		<b>E</b>	2 x 2/2 NC		-
-		<b>F</b>	2 x 2/2 NO		-
-		<b>G</b>	2 x 3/2 1 NO + 1 NC		-
-		<b>C</b>	2 x 3/2 NC		-
-		<b>A</b>	2 x 3/2 NO		-
-		<b>L</b>	Free position		-
-		<b>W</b>	Additional supply module from 2 and 4		-
-		<b>T</b>	Diaphragm seal (modules separation)		-
-		<b>P</b>	Through seal (modules separation)		-
-		<b>T/</b>	Diaphragm seal (modules and cover separation)		-
-		<b>P/</b>	Through seal (modules and cover separation)		-
-		<b>U</b>	Diaphragm seal 3/5 opened		-
-		<b>H</b>	Diaphragm seal 3/5-11 opened		-
-		<b>N</b>	Diaphragm seal 1-11 opened		-
-		<b>U/</b>	Diaphragm seal 3/5 opened, modules and cover separ.		-
-		<b>K</b>	Module with 2 positions and 3/5-11 closed		-
-		<b>R</b>	Module with 2 positions and 3/5-1-11 closed		-
-		<b>O</b>	Module with 2 positions and 1-11 closed		-
-		<b>Q</b>	Module with 2 positions and 3/5 closed		-
-		<b>X</b>	Additional supply module		-
-				<b>A</b>	in common 1/11 - 12/14 individual 82/84 - 3/5
-				<b>B</b>	in common 1/11 individual 12/14 - 82/84 - 3/5
-				<b>C</b>	individual 1/11 - 12/14 - 82/84 - 3/5
-				<b>D</b>	in common 1/11 - 12/14 individual 82/84 - 3/5
-				<b>E</b>	in common 1/11 individual 12/14 - 82/84 - 3/5
-				<b>F</b>	individual 1/11 - 12/14 - 82/84 - 3/5
-				<b>G</b>	in common 1/11 - 12/14 individual 82/84 - 3/5
-				<b>H</b>	in common 1/11 individual 12/14 - 82/84 - 3/5
-				<b>J</b>	individual 1/11 - 12/14 - 82/84 - 3/5
-				<b>Z</b>	modules without terminal plate

**Coding example 1**

Valve island with Profibus-DP connection made of:  
 4x solenoid valves type M  
 1x diaphragm seal Mod. T  
 4x solenoid valves type B  
 Terminals with 1 and 11 in common on both sides and 12 /14 separated.

Code:  
 YP1P-4MT4B-B

For the code composition see the coding table on page 2/3.10.19

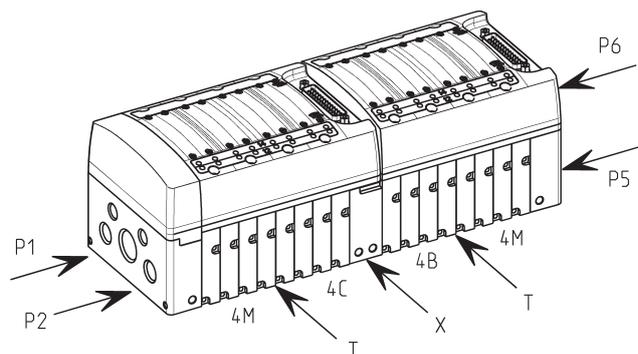
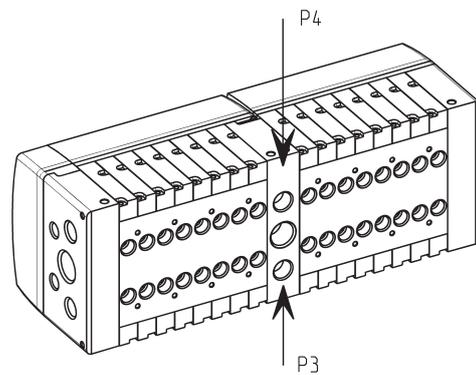


**Coding example 2**

Valve island with Multipole connection made of:  
 4x solenoid valves type M  
 1x diaphragm seal Mod. T for the separation of pressure zones  
 4x solenoid valves type B  
 1x through-out seal Mod. P  
 1x intermediate additional supply module Mod. X  
 1x through-out seal Mod. P  
 Terminals with individual connection  
 4x solenoid valves type C  
 1x diaphragm seal Mod. T for the separation of pressure zones  
 4x solenoid valves type M

Code:  
 YP1M-4MT4BPXP4CT4M-C

For the code composition see the coding table on page 2/3.10.19

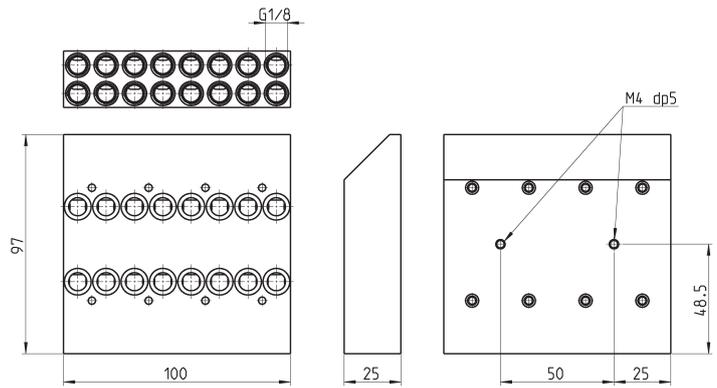


**Interface with 8 valve positions**

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



Supplied with:  
 1x interface 8 pos.  
 8x screws M3x25 UNI 5931  
 16x interface seals



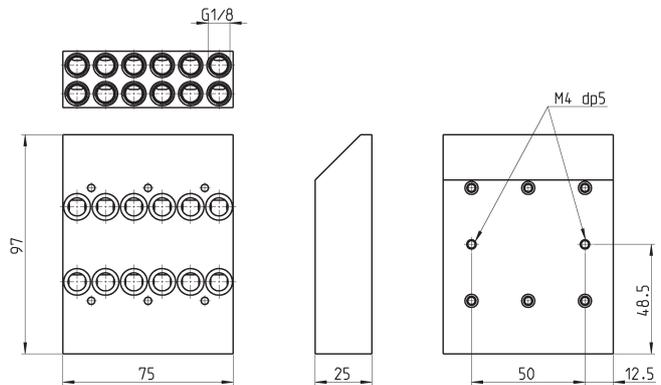
Mod.

**YA1K-N8**
**Interface with 6 valve positions**

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



Supplied with:  
 1x interface 6 pos.  
 6x screws M3x25 UNI 5931  
 12x interface seals



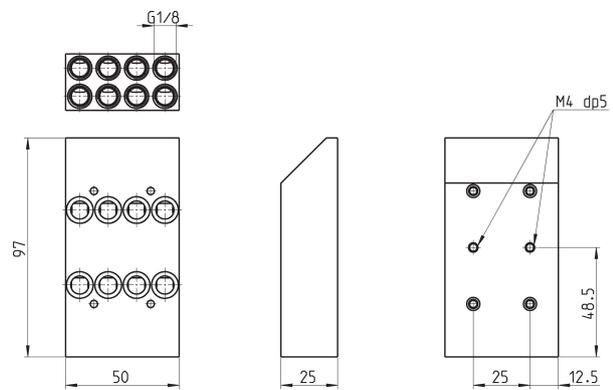
Mod.

**YA1K-N6**
**Interface with 4 valve positions**

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



Supplied with:  
 1x interface 4 pos.  
 4x screws M3x25 UNI 5931  
 8x interface seals



Mod.

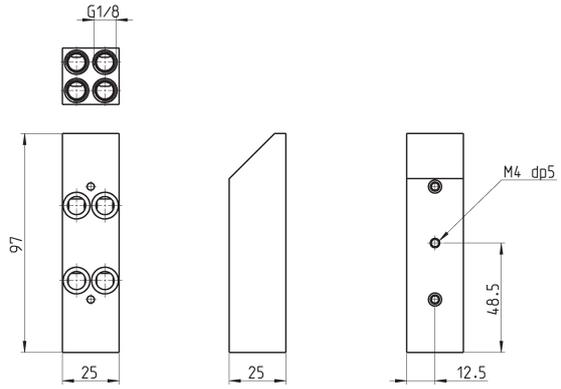
**YA1K-N4**

Interface with 2 valve positions

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



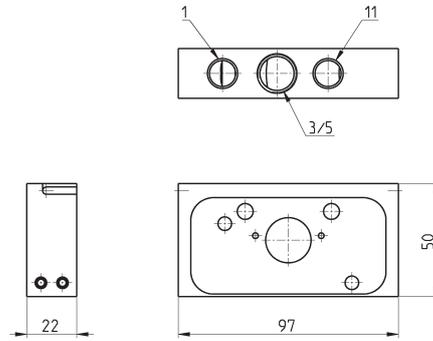
Supplied with:  
 1x interface 2 pos.  
 2x screws M3x25 UNI 5931  
 4x interface seals



Mod.

YA1K-N2

Intermediate plate for supplementary supplies and exhausts cod. X



Mod.

1

3/5

11

YA1K-N1X/1

G1/4

G3/8

G1/4

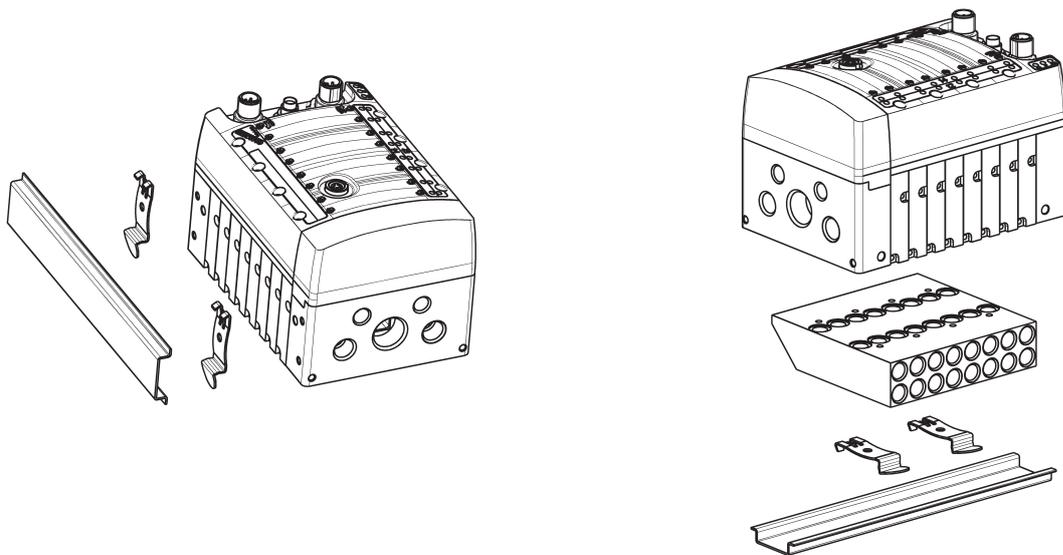
Instructions manual (CD)



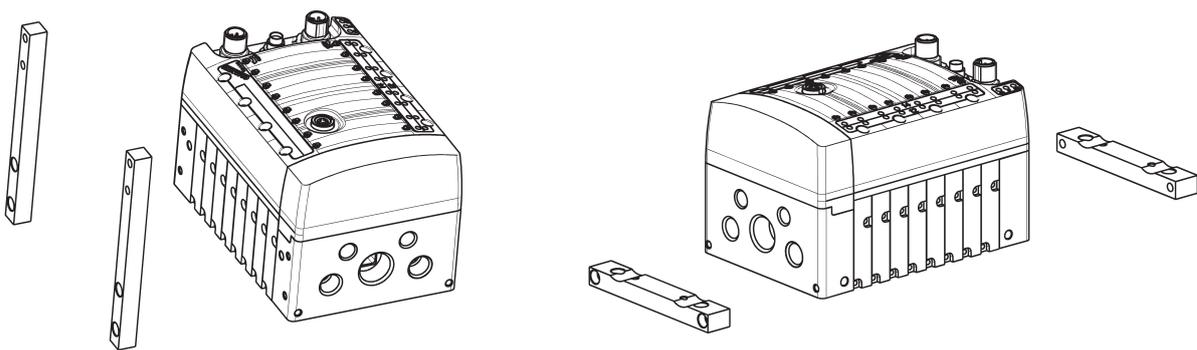
Mod.

YA1K-HB

Mounting solutions on DIN EN 50022 rail



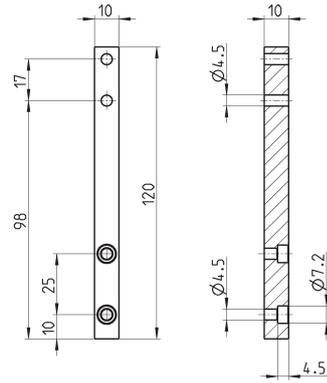
Wall mounting solutions



**Vertical foot**



Supplied with:  
2x vertical feet  
2x screws M4x10 UNI 5931

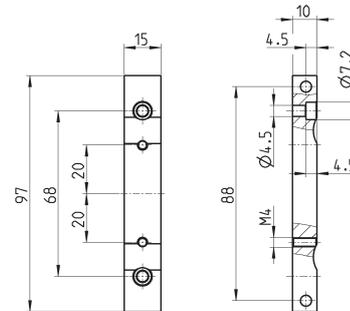


Mod.  
**YA1K-B2**

**Horizontal foot**



Supplied with:  
2x horizontal feet  
2x screws M4x14 UNI 5931



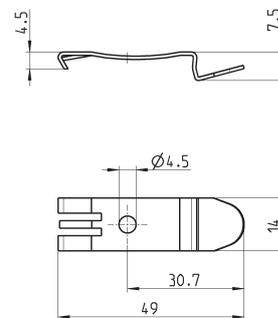
Mod.  
**YA1K-B1**

**Mounting brackets for DIN rail**

DIN EN 50022 (7,5mm x 35mm - width 1)



Supplied with:  
2x plates  
2x screws M4x6 UNI 5931



DIMENSIONS  
Mod.  
**PCF-E520**