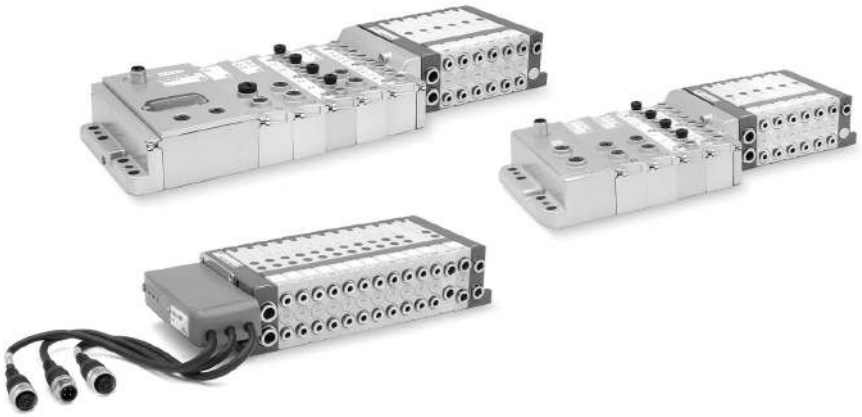
Series F valve islands, Multipole and Fieldbus

Multipole integrated electrical connection (PNP)
Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC
It can interface with all major serial communication protocols.



- Valve size: 12 and 14 mm
- Modularity: single
- Valve positions: from 2 to 24
- Manual override: Push or Push & Turn
- Available Protocols: PROFIBUS-DP, CANopen, DeviceNet, EtherNet/IP, PROFINET, EtherCAT

The Multipole version of Series F valve island can be easily integrated with the accessories of the new Series CX multi-serial module, thus connecting to the different serial nets provided.
It is also possible to manage a standard multipole island by means of a Sub-D adapter or through an integrated node in the island. The typical Series F single modularity allows the installation of up to 24 solenoids on 24 valve positions, even in the Fieldbus version.

The use of technopolymer in this Series has allowed to realize a valve island which is characterized by small dimensions, high flow and reduced weight. The reduced dimensions, its flexibility during the assembly as well as the wide range of valve functions make Series F a highly innovative product which is suitable for several application requirements.

Manuals, instruction sheets and configuration files can be found on catalogue.camozzi.com or on the QR code on the lable of the product.

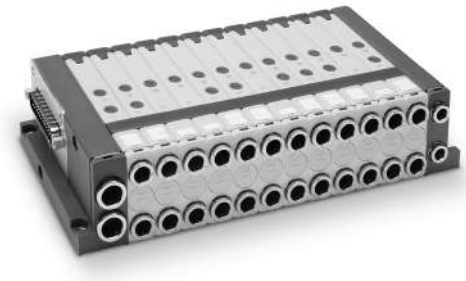
GENERAL CHARACTERISTICS

PNEUMATIC SECTION	
Valve construction	spool with seals
Valve functions	5/2 monostable and bistable 5/3 CC 2x2/2 NO 2x2/2 NC 1x2/2 NC + 1x2/2 NO 2x3/2 NO 2x3/2 NC 1x3/2 NC + 1x3/2 NO
Materials	aluminium spool HNBR seals other seals in NBR brass cartridges technopolymer body and end covers
Connections	Inlets 2 and 4, size 1 (12 mm) = tube ø4; ø6 Inlets 2 and 4, size 2 (14 mm) = tube ø4; ø6; ø8 Supply 1, size 1 and 2 = tube ø8; ø10 Servo pilot 12/14, size 1 and 2 = tube ø6 Exhausts 3/5, size 1 and 2 = tube ø8; ø10 Exhausts 82/84, size 1 and 2 = tube ø6
Temperature	0 ÷ 50°C
Air specifications	Filtered compressed air, non lubricated, class 6.4.4 according to ISO 8573-1:2010 standard. If lubrication is necessary, please use only oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 6.4.4 according to ISO 8573-1:2010 standard.
Valve sizes	12 mm 14 mm
Working pressure	- 0,9 ÷ 10 bar
Pilot pressure	3 ÷ 7 bar 4.5 ÷ 7 bar (with working pressure exceeding 6 bar for the versions 2x2/2 and 2x3/2)
Flow rate	250 Nl/min (12 mm) 500 Nl/min (14 mm)
Mounting position	any position
Duty cycle	ED 100%
Protection class (according to EN 60529)	IP40

ELECTRICAL SECTION - MULTIPOLE VERSION	
Supply voltage	24 V DC +/- 10%
Max number of solenoids	24
Max number of valve functions	24 (monostable)
Type of Sub-D connection	Sub-D 25 pin
Max absorption	0.8 A

ELECTRICAL SECTION - FIELDBUS VERSION	
General characteristics	see the section about the Series CX multi-serial module (2.3.50)
Max absorption	digital outputs / analogic outputs and inputs 3 A digital/analogic inputs 3 A
Supply voltage	logic supply 24 V DC +/- 10% power supply 24 V DC +/- 10%
Max number of operable coils	24 on 24 valve functions (monostable)

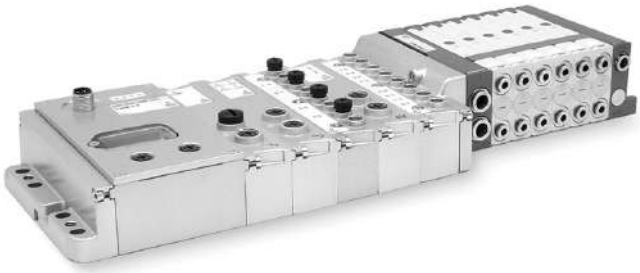
MULTIPOLE VERSION AND MULTIPOLE WITH SUB-D ADAPTER



In the Multipole version the front position of the 25 pin Sub-D connector makes the connection easier.
The connectors with pre-wired cable, which are available in different lengths and with axial or radial orientation, simplify the electrical connection. The Island can be configured up to a max. of 24 solenoids on 24 valve positions (24 monostable).

It is possible to create zones with differentiated pressure.
It is available with PNP logic connection, internal electrical connections on boards.
The Multipole Island can be connected by means of a Sub-D adapter.
In this way a Multipole Island can be inserted as expansion in the subnet of the Fieldbus version.

VERSIONS: FIELDBUS WITH CPU MODULE AND EXPANSION FIELDBUS



Thanks to the CX multi-serial node and a specific direct interface module with the pneumatic part of the island, Series F can be interfaced with the PROFIBUS-DP, DeviceNet, CANopen, PROFINET, EtherCAT, EtherNet/IP serial protocols. The Fieldbus version with CPU module follows the same configuration rules of the Multipole island and can be equipped with different electrical modules like digital/analog inputs/outputs of 0-10 V and 4-20 mA, as well as with Initial subnet modules.

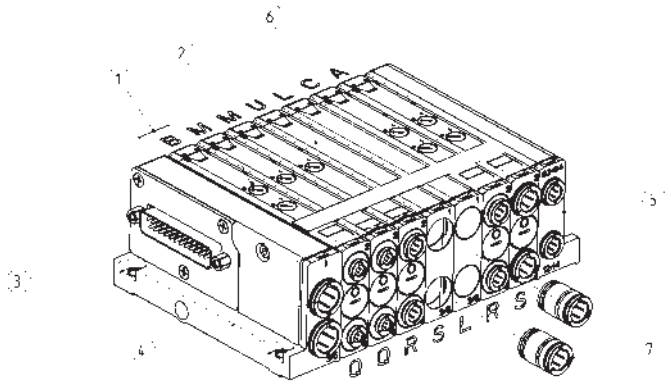
It is possible to insert Initial Subnet Modules in the version with CPU module. These Modules enable to create a subnet with tree structure or in series. On the subnet you can connect Expansion Islands. These expansions have the same possibilities to use the different electric modules, like digital and analog inputs and outputs and further Initial Subnet Modules. Also with this version the same rules as the CPU module and Multipole apply.

CODING EXAMPLE - MULTIPOLE VERSION

F	P	2	R	M	T	A	-	MB2CMUL2B	-	2QR3SLQR

F	SERIES
P	TYPE: P = pneumatic A = accessories
2	SIZE: 1 = 12 mm 2 = 14 mm
R	MANUAL OVERRIDE: P = pressure actuation control R = actuation control with push & turn device
M	ELECTRICAL CONNECTION: M = multipole
T	CARTRIDGES FOR LEFT TERMINAL: S = tube Ø 8 T = tube Ø 10 Note: the cartdriges for the right terminal are for tube Ø 6.
A	SERVO-PILOT SUPPLY: A = internal B = external
MB2CMUL2B	SOLENOID VALVES AND ADDITIONAL PLATES *: M = 5/2 monostable D = 5/2 monostable with bistable electric board B = 5/2 bistable C = 2x3/2 NC A = 2x3/2 NO G = 3/2 NC + 3/2 NO E = 2x2/2 NC F = 2x2/2 NO I = 2/2 NC + 2/2 NO V = 5/3 CC L = free position with passing electric board W = free position with bistable electric board Z = free position with monostable electric board X = supplementary supply and exhaust T = separated supply and exhaust U = separated supply, supplementary exhaust K = supplementary supply, separated exhaust
2QR3SLQR	CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES *: Q = tube Ø 4 R = tube Ø 6 S = tube Ø 8 (not for Size 1) L = free position (no cartridges) W = free position with bistable electric board (no cartridges) Z = free position with monostable electric board (no cartridges)
	* in case of identical and consecutive codes, in the choices "SOLENOID VALVES AND ADDITIONAL PLATES" and "CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES", replace the letters with the number. With the choice "CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES" both of the following connections are defined: 2 and 4; 1 and 3/5. Examples: FP2RMTA-MBCCMULMMMBB-QQRSSLRRRQRR FP2RMTA-MB2CMUL3M2B-2QR2SL3RQ2R

CODING - MULTIPOLE VERSION



1 2 3 4 5 6 7

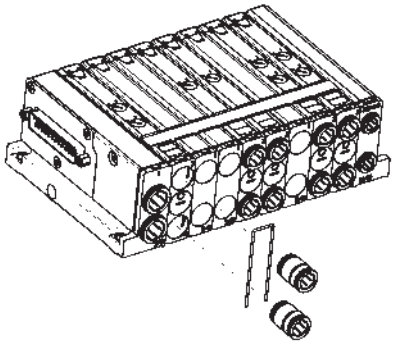
FP2RMTA - B2MULCA - 2QRSLRS

FP...

SIZE (1)	MANUAL OVERRIDE (2)	ELECTRICAL CONNECTION (3)	CARTRIDGES for LEFT TERMINAL (4)	SERVO-PILOT SUPPLY (5)	SOLENOID VALVES and ADDITIONAL PLATES (6)	CARTRIDGES for SOLENOID VALVES and ADDITIONAL PLATES (7)
1	P	M	S	A	M	Q
2	R		T	B	D	R
					B	S
					C	L
					A	W
					G	Z
					E	
					F	
					I	
					V	
					L	
					W	
					Z	
					X	
					T	
					U	
					K	

INTERCHANGEABLE CONNECTIONS

Thanks to a fixing clip the cartridge fittings can be substituted with another one according to the size of the tube that has to be connected: Ø4, Ø6 and Ø8 for solenoid valves and Ø8, Ø10 for supply and exhaust plates.

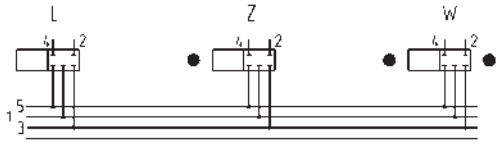


TYPE OF BOARDS ON INTERMEDIATE PLATES

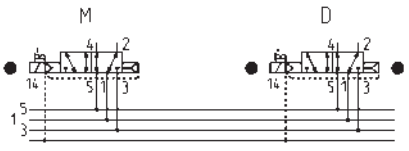
The solenoid valves Mod. M are equipped with an electrical board using a single signal. This enables to take full advantage of the characteristic of the Sub-D connector being able to connect up to 24 monostable valves.
To avoid that, in case of a change in the valve island, the addresses of the electrical coils positioned after the modification would change too, for example by replacing a monostable valve with a bistable one, the version with Cod. D is available and corresponds to a monostable valve equipped with a board that occupies two electrical signals.

The free position Cod. L is also available in the Z and W versions.

Cod. L: free position, no electrical signals are used
Cod. Z: free position with board
with 1 electrical signal (not used)
Cod. W: free position with board
with 2 electrical signals (not used)

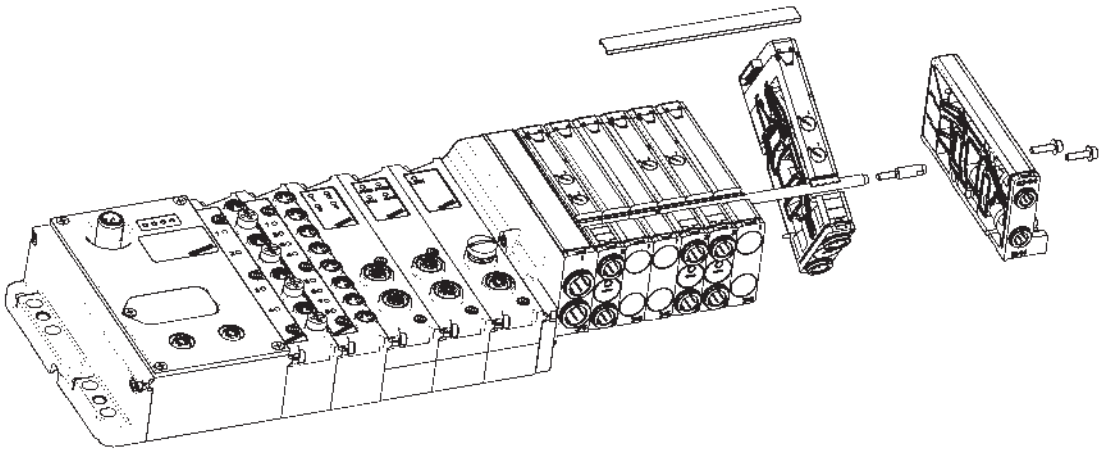


Cod. M: 5/2-way monostable valve with board
with 1 electrical signal
Cod. D: 5/2-way monostable valve with board
with 2 electrical signals (one is not used)

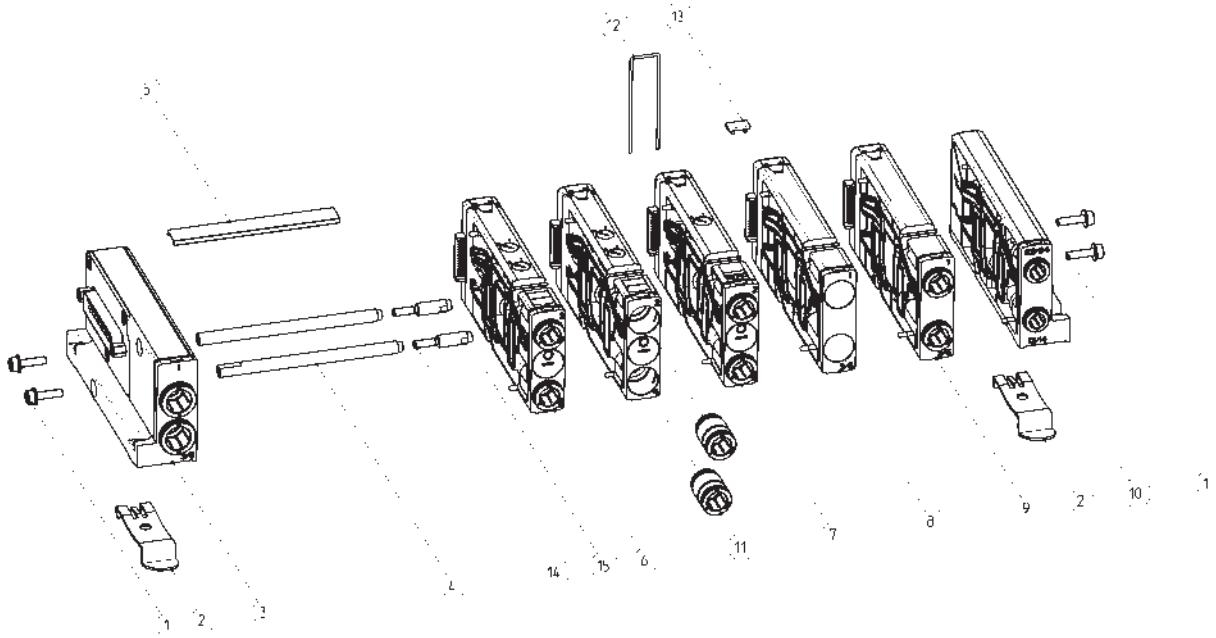


HOW TO MODIFY THE VALVE ISLAND (example)

In order to integrate or modify the valve island, it is enough to loosen the tie-rods, separate the valve function that has to be replaced and turn it so that it can be taken off.
Tie-rods can be supplied with even positions from 2 to 24 (see the following pages).
A single position joint bolt is supplied in case of a valve island with odd positions (see the following pages).
This operation can be performed on both versions with integrated serial node or with expansion module.

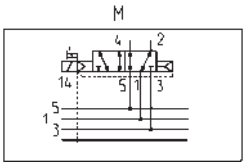


MULTIPOLE version - COMPONENTS

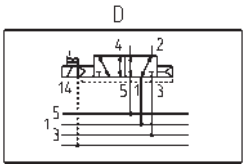


LIST OF COMPONENTS	
1	Grip screws with built-in washer
2	Bracket for the DIN rail connection
3	Left terminal
4	Tie-rods
5	Tie-rod plastic cover
6	Bistable solenoid valve
7	Monostable solenoid valve
8	Intermediate plate for free position
9	Intermediate plate for pressure zones with supplementary inlet and exhaust
10	Right terminal
11	Interchangeable cartdrige fittings
12	Fixing clip for the cartdrige fittings
13	Identification plates
14	Joint bolt for odd positions
15	Interface seal that cannot be lost

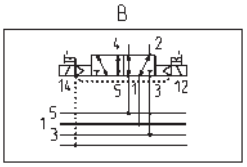
AVAILABLE FUNCTIONS - SOLENOID VALVES SYMBOLS for FP..R - manual override WITH push&turn device



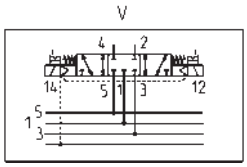
M = 5/2, monostable



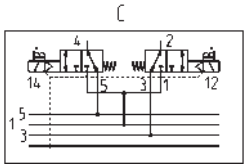
D = 5/2, monostable with bistable board



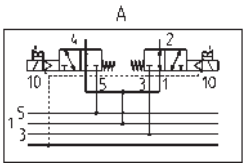
B = 5/2, bistable



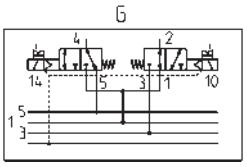
V = 5/3, Centres Closed



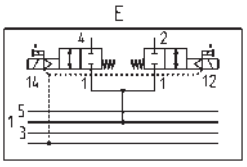
C = 2x3/2 NC



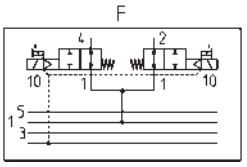
A = 2x3/2 NO



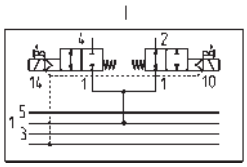
G = 1x3/2 NC +1x3/2 NO



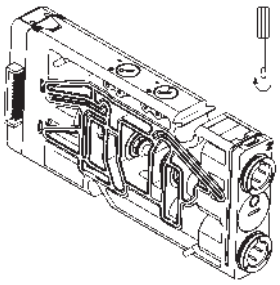
E = 2x2/2 NC



F = 2x2/2 NO

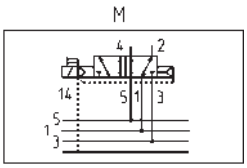


I = 1x2/2 NC + 1x2/2 NO

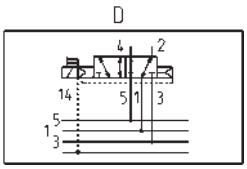


Manual override, version R: pressure actuation control with PUSH & TURN device.

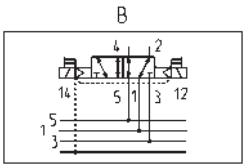
AVAILABLE FUNCTIONS - SOLENOID VALVES SYMBOLS for FP..P - manual override WITHOUT push&turn device



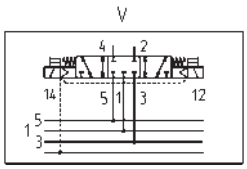
M = 5/2, monostable



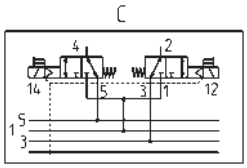
D = 5/2, monostable with bistable board



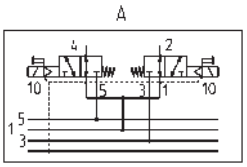
B = 5/2, bistable



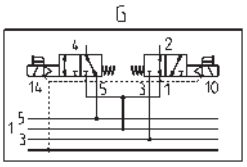
V = 5/3, Centres Closed



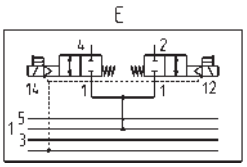
C = 2x3/2 NC



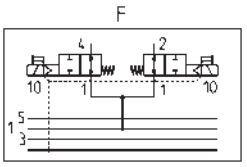
A = 2x3/2 NO



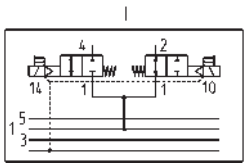
G = 1x3/2 NC +1x3/2 NO



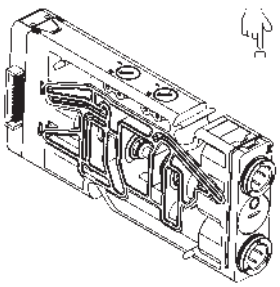
E = 2x2/2 NC



F = 2x2/2 NO



I = 1x2/2 NC + 1x2/2 NO

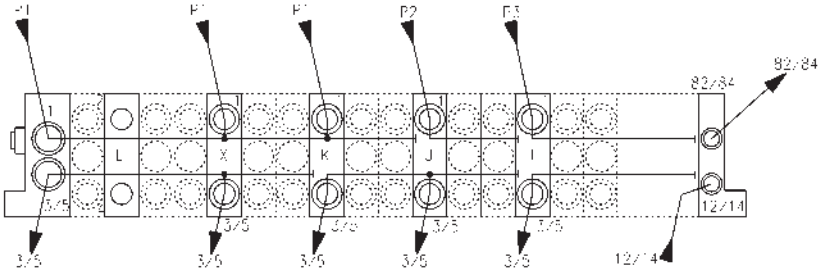


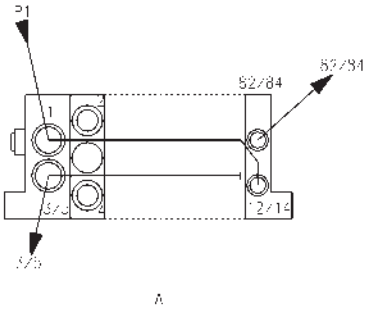
Manual override, version P: pressure actuation control without PUSH & TURN device (PUSH only).

AVAILABLE FUNCTIONS - INTERMEDIATE AND TERMINAL PLATES

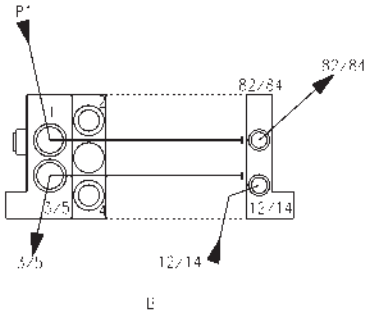
Example of valve island with differentiated pressures and exhausts.

DRAWING LEGEND:
A = internal servo-pilot
B = external servo-pilot
X = supplementary supply and exhaust
K = supplementary supply, separated exhaust
U = separated supply, supplementary exhaust
T = separated supply and exhaust
L = free position

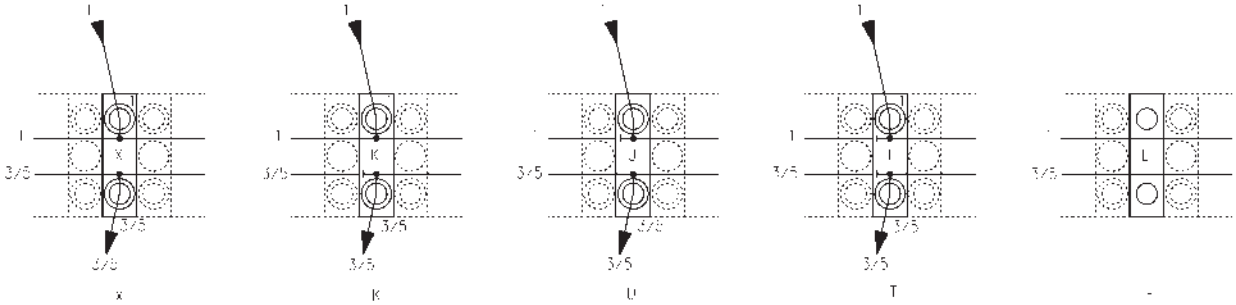




A

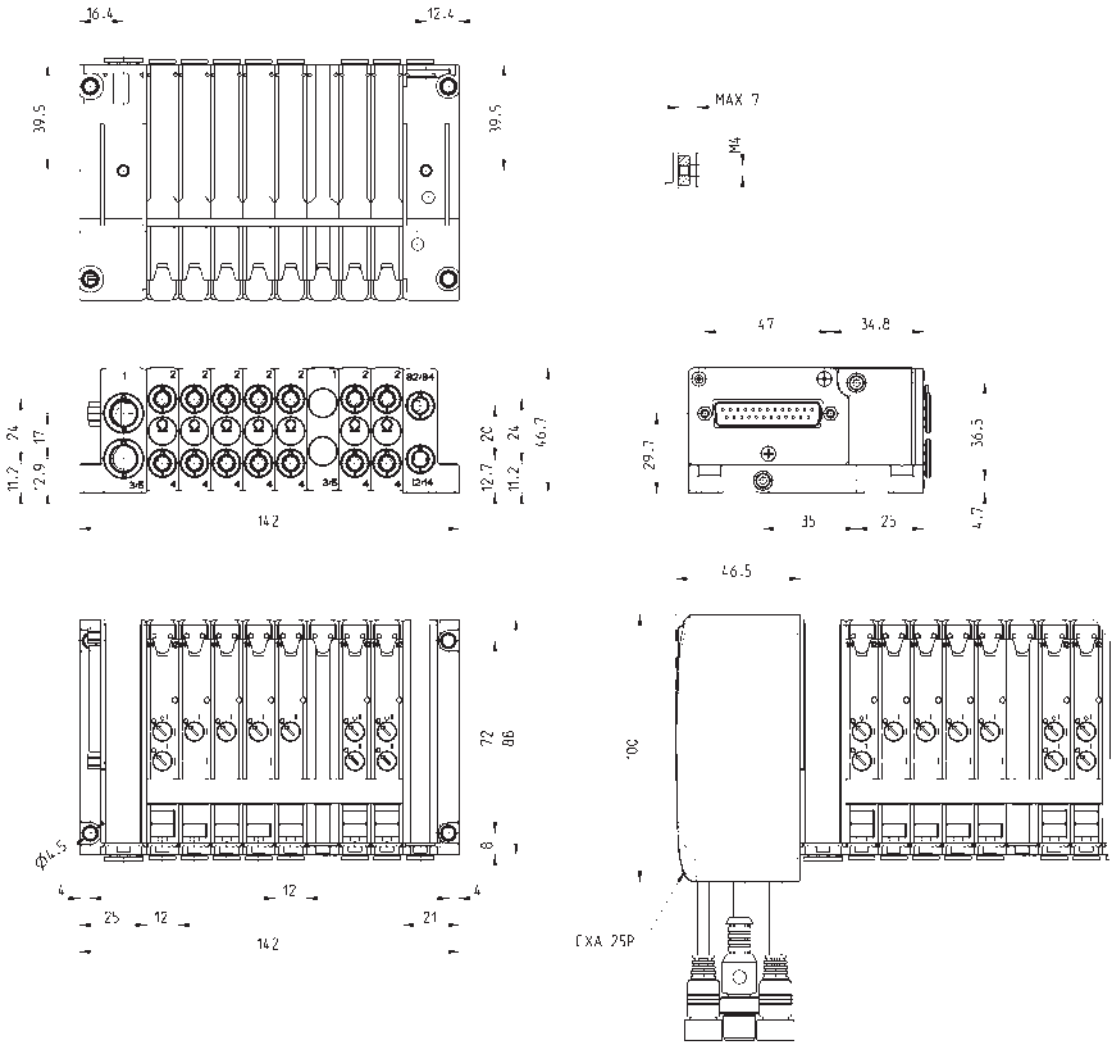


B

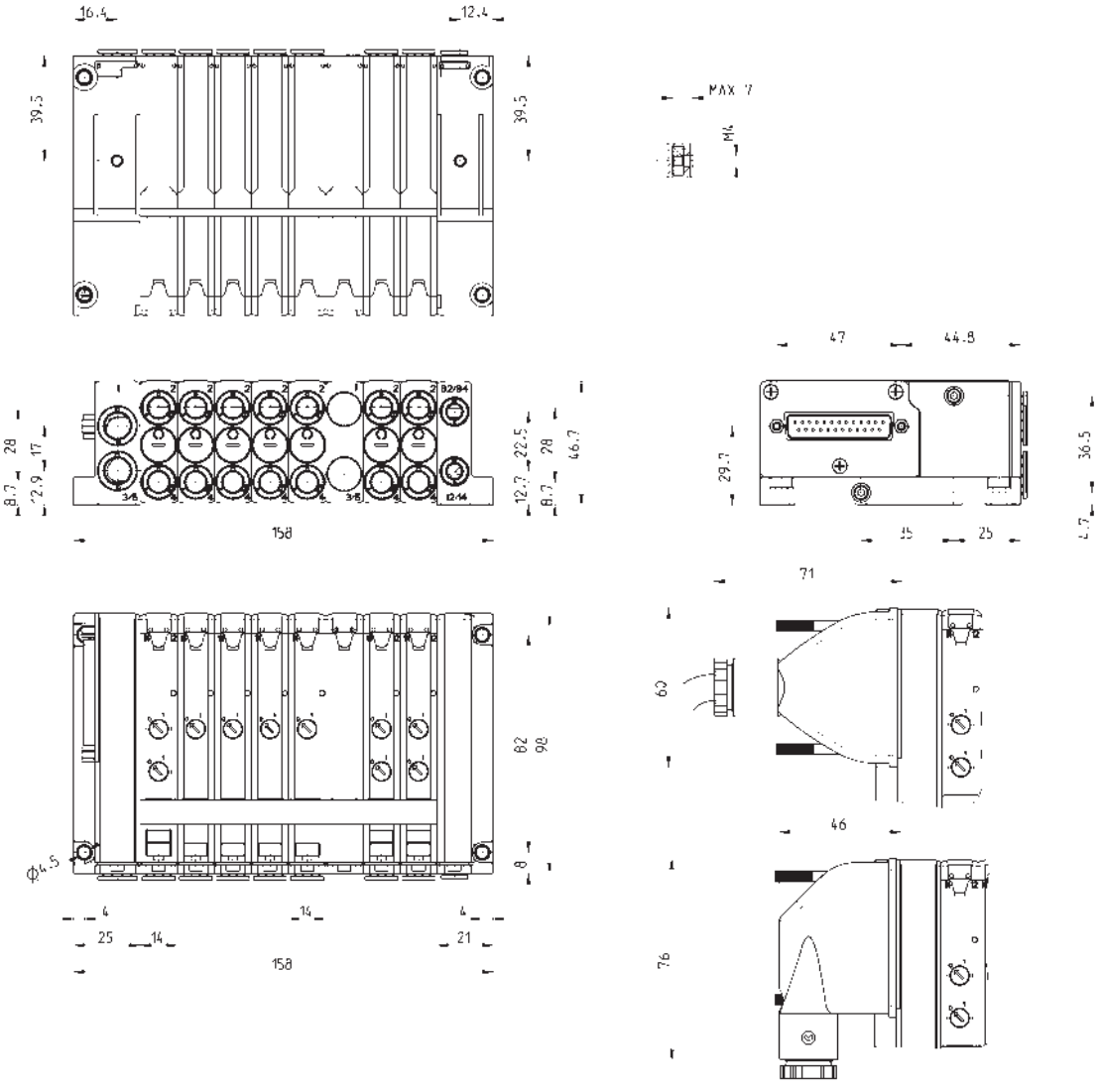


X K U T -

MULTIPOLE version - DIMENSIONS of size 12mm

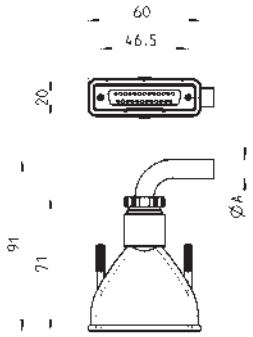


MULTIPOLE version - DIMENSIONS of size 14mm



Straight Sub-D 25 pin female connector with axial cable

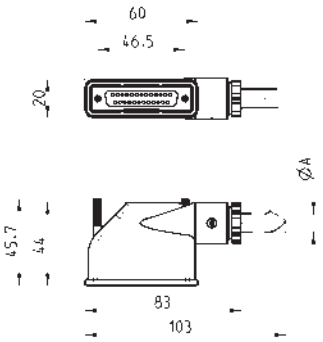
Protection class IP65



Mod.	øA	PIN	cable length (m)
G3X-3	7.7	16	3
G3X-5	7.7	16	5
G3X-10	7.7	16	10
G3X-15	7.7	16	15
G3X-20	7.7	16	20
G3X-25	7.7	16	25
G4X-3	9	25	3
G4X-5	9	25	5
G4X-10	9	25	10
G4X-15	9	25	15
G4X-20	9	25	20
G4X-25	9	25	25

Right angle Sub-D 25 pin female connector with radial cable

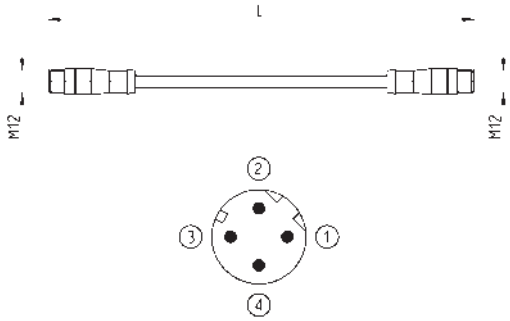
Protection class IP65



Mod.	øA	PIN	cable length (m)
G3X1-3	7.7	16	3
G3X1-5	7.7	16	5
G3X1-10	7.7	16	10
G3X1-15	7.7	16	15
G3X1-20	7.7	16	20
G3X1-25	7.7	16	25
G4X1-3	10	25	3
G4X1-5	10	25	5
G4X1-10	10	25	10
G4X1-15	10	25	15
G4X1-20	10	25	20
G4X1-25	10	25	25

Cables with straight connectors

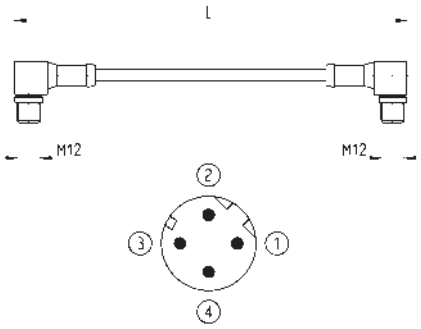
For PROFINET, EtherCAT, EtherNet/IP and for the subnet



Mod.	description	type of connector	connection	L [cable length] (m)
CS-SB04HB-D100	moulded cable	straight	2x M12 D 4 pin male	1
CS-SB04HB-D500	moulded cable	straight	2x M12 D 4 pin male	5
CS-SB04HB-DA00	moulded cable	straight	2x M12 D 4 pin male	10
CS-SB04HB-DD00	moulded cable	straight	2x M12 D 4 pin male	15
CS-SB04HB-DG00	moulded cable	straight	2x M12 D 4 pin male	20
CS-SB04HB-DJ00	moulded cable	straight	2x M12 D 4 pin male	25

Cables with angular 90° connectors

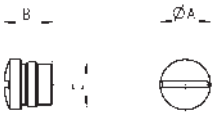
For PROFINET, EtherCAT, EtherNet/IP and for the subnet



Mod.	description	type of connector	connection	L [cable length] (m)
CS-SC04HB-D100	moulded cable	90°	2x M12 D 4 pin male	1
CS-SC04HB-D500	moulded cable	90°	2x M12 D 4 pin male	5
CS-SC04HB-DA00	moulded cable	90°	2x M12 D 4 pin male	10
CS-SC04HB-DD00	moulded cable	90°	2x M12 D 4 pin male	15
CS-SC04HB-DG00	moulded cable	90°	2x M12 D 4 pin male	20
CS-SC04HB-DJ00	moulded cable	90°	2x M12 D 4 pin male	25

M8 and M12 connector cover caps

For digital and analog input/output modules and subnet

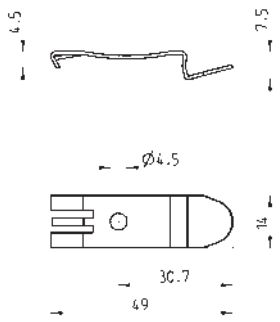


Mod.	A	B	C [Connection]
CS-DFTP	10	11	M8
CS-LFTP	13.5	13	M12

Mounting brackets for DIN rail

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

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



Mod.
PCF-E520

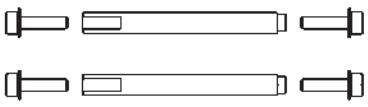
CODING EXAMPLES of SINGLE VALVE (spare part) and TERMINALS (accessories)

CODING EXAMPLE OF A SINGLE SOLENOID VALVE		CODING EXAMPLE OF INTERMEDIATE PLATES	
FP2V-MQR		**FP2V-WQ**	
F	Series	**F**	Series
P	Type: P = pneumatic	**P**	Type: P = pneumatic
2	Size: 1 = 12 mm 2 = 14 mm	**2**	Size: 1 = 12 mm 2 = 14 mm
V	Solenoid valve or additional plate	**V**	Solenoid valve or additional plate
-		**-**	
M	Type of function: M = 5/2 monostable D = 5/2 monostable with bistable board B = 5/2 bistable C = 2 x 3/2 NC A = 2 x 3/2 NO G = 3/2 NC + 3/2 NO E = 2 x 2/2 NC F = 2 x 2/2 NO I = 2/2 NC + 2/2 NO V = 5/3 CC	**W**	Type of function: L = free position W = free position with bistable board Z = free position with monostable board X = supplementary power supply and exhaust T = separated power supply and exhaust U = separated power supply and supplementary exhaust K = supplementary power supply and separated exhaust
Q	Cartridges for solenoid valves: Q = Ø4 R = Ø6 S = Ø8 (not for Size 1)	**Q**	Cartridges for plates: Q = Ø4 R = Ø6 S = Ø8 (not for Size 1) L = free position (no cartridges) W = free position with bistable board (no cartridges) Z = free position with monostable board (no cartridges)
R	Type of manual override: R = push and turn (bistable) P = pressure (monostable)		
CODING EXAMPLE OF A LEFT TERMINAL		CODING EXAMPLE OF A RIGHT TERMINAL	
FA2T-S		**FA2T-AR**	
F	Series	**F**	Series
A	Accessory	**A**	Accessory
2	Size: 1 = 12 mm 2 = 14 mm	**2**	Size: 1 = 12 mm 2 = 14 mm
T	Type of accessory: T = terminal	**T**	Type of accessory: T = terminal
-		**-**	
S	Cartridges: = no cartridge S = Ø8 T = Ø10	**A**	Type of servo-pilot: A = internal B = external
		R	Cartridges: R = Ø6

Tie-rods for valves size 1 (12mm)

FA..K-1

FA..K-2 ⟷ FA..K-24



Mod.	Valve positions	NOTE
FA1K-2	2	*
FA1K-4	4	*
FA1K-6	6	*
FA1K-8	8	*
FA1K-10	10	*
FA1K-12	12	*
FA2K-12	14	*
FA1K-16	16	*
FA1K-18	18	*
FA1K-20	20	*
FA1K-22	22	*
FA1K-24	24	*
FA1K-1	-	**

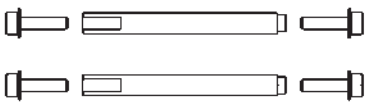
* Tie-rod.
The supply includes
2 tie-rods and 4 screws.

** Joint bolt for odd positions.
The supply includes 2 joint bolts.

Tie-rods for valves size 2 (14mm)

FA..K-1

FA..K-2 ⟷ FA..K-24



Mod.	Valve positions	NOTE
FA2K-2	2	*
FA2K-4	4	*
FA2K-6	6	*
FA2K-8	8	*
FA2K-10	10	*
FA2K-12	12	*
FA2K-14	14	*
FA2K-16	16	*
FA2K-18	18	*
FA2K-20	20	*
FA2K-22	22	*
FA2K-24	24	*
FA2K-1	-	**

* Tie-rod.
The supply includes
2 tie-rods and 4 screws.

** Joint bolt for odd positions.
The supply includes 2 joint bolts.

Tie-rod plastic cover

When ordering the cover, specify the length, measured in metres.

Mod.
LAMINA-EST-32

Interchangeable cartridges for valves/plates and for terminals

TABLE LEGEND:

✖ = compatible with
V F1 = solenoid valve or additional plate, size 1
Tdx F1 = right terminal, size 1
Tsx F1 = left terminal, size 1
V F2 = solenoid valve or additional plate, size 2
Tdx F2 = right terminal, size 2
Tsx F2 = left terminal, size 2

Mod.	ØA	V F1	Tdx F1	Tsx F1	V F2	Tdx F2	Tsx F2
6700 4-F1	4	✖					
6700 4-F2	4				✖		
6700 6-F1	6	✖	✖			✖	
6700 6-F2	6				✖		
6700 8-F1	8			✖			✖
6700 8-F2	8				✖		
6700 10-F1	10			✖			✖

Identification plates

The packaging contains
45 identification plates 9x5mm

Mod.
HP1/E