SUMMARY

EB 80

EB 80 ELECTRO-PNEUMATIC SYSTEM

EB 80 is defined as an electro-pneumatic system as it would be simplistic to use the term "solenoid valve island". In effect, a single assembly can combine solenoid valves of all types, multi-position bases, pneumatic and electric supplies arranged as desired in a system, digital or analogue input or output signal control modules and much more besides.
The EB 80 system is protected by numerous patents and utility models, which enhance the most innovative design solutions.
The possible combinations are endless, but the most amazing thing is that they can be obtained using a small number of basic components.
In order to achieve this objective, a single size of small yet high-performance valves to cover the vast majority of applications was conceived.
A single electronic control unit is provided when supplying 12VDC or 24VDC valves with multi-pole cables or with a field bus for each protocol.
All EB 80 versions come with an efficient diagnostic system.
The EB 80 catalogue consists of a first overall introductory chapter followed by a chapter for each subsystem.

TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%					
Minimum operating voltage	V	10.8 *					
Maximum operating voltage	V	31.2					
Maximum admissible voltage	V	32 ***					
Power for each controlled pilot	W	3 for 15 ms, then holding 0.3					
Drive (for multi-pole)		PNP or NPN					
Solenoid rating		100% ED					
Solenoid valve supply power		See chapter "Electrical connection - E"					
Signal module supply power		See chapter "Signal module - S"					
Protection		Overload and short-circuit protected solenoid pilot Output					
Diagnostics		See chapter "Electrical connection - E"					
Maximum number of solenoid pilots		21 or 38 multi-pole connection; field bus 128					
Ambient temperature	°C	-10 to + 50 (at 8 bar)					
	°F	14 to 122 (at 8 bar)					
Operating pressure		**5/2 and 5/3**			**2/2 and 3/2**		
Non-assisted valves	bar	3 to 8			3.5 to 8		
	MPa	0.3 to 0.8			0.35 to 0.8		
	psi	43 to 116			51 to 116		
Assisted valves	bar	Vacuum to 10					
	MPa	Vacuum to 1					
	psi	Vacuum to 145					
Servo pressure	bar	3 to 8			min. (see graph on page **B2**.51) / max. 8		
	MPa	0.3 to 0.8			min. (see graph on page **B2**.51) / max. 0.8		
	psi	43 to 116			min. (see graph on page **B2**.51) / max. 116		
Valve flow rate, at 6.3 bar ΔP 1 bar		**Ø 4 (5/32")**	**Ø 6**	**Ø 8 (5/16")**	**Ø 1/4"**	**Ø 10 ****	**Ø 3/8" ****
valve 2/2	Nl/min	350	430	500	430	-	-
valve 3/2	Nl/min	350	600	700	600	1250	1250
valve 5/2	Nl/min	350	650	800	650	1250 - 1400	1250 - 1400
valve 5/3	Nl/min	350	460	500	460	1000 - 1250	1000 - 1250
Actuation response time (TRA) / reset response time (TRR) at 6 bar							
TRA/TRR valve 2/2 and 3/2	ms	14 / 28					
TRA/TRR valves 5/2 monostable and shut-off valve	ms	12 / 45					
TRA/TRR valve 5/2 bistable	ms	9 / 11					
TRA/TRR valve 5/3	ms	15 / 45					
TRA/TRR valve 3/2 high flow	ms	13 / 36					
Fluid		Unlubricated air					
Air quality required		ISO 8573-1 class 4-7-3					
Degree of protection		IP65 (with connectors connected or plugged if not used)					

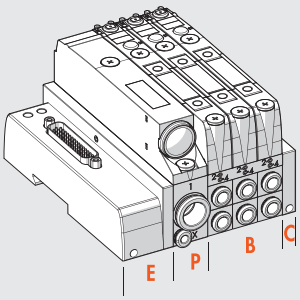
* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24
** Using high-flow valves or connected valves - see pages **B2**.52
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

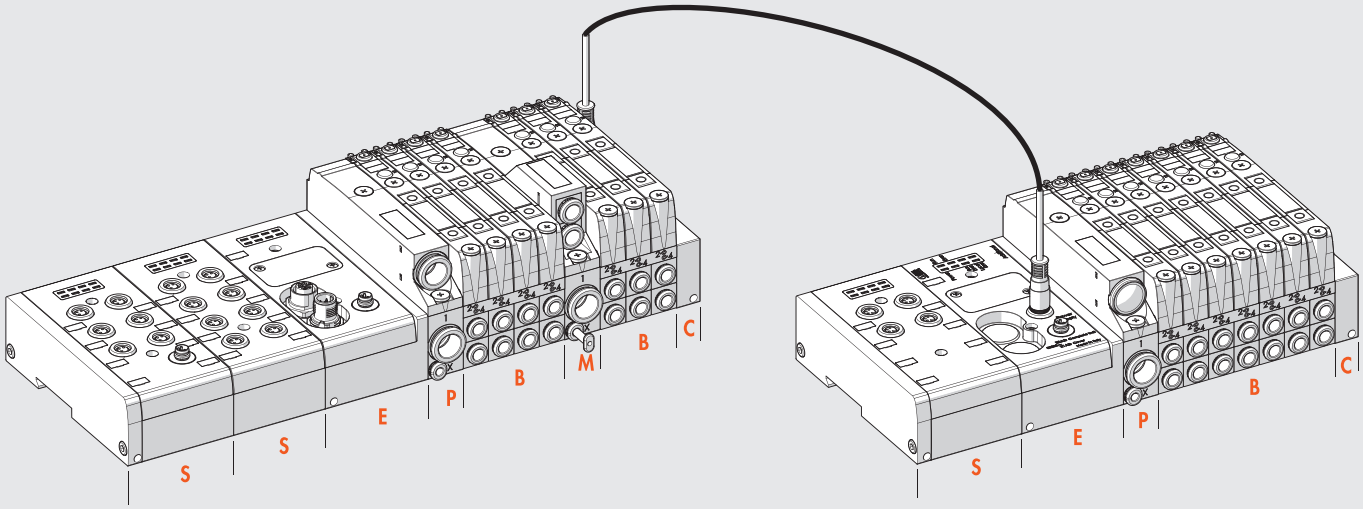
N.B.: Refer to the chapter of each EB 80 sub-assembly for specific technical data.

METAL WORK PNEUMATIC

COMPONENTS

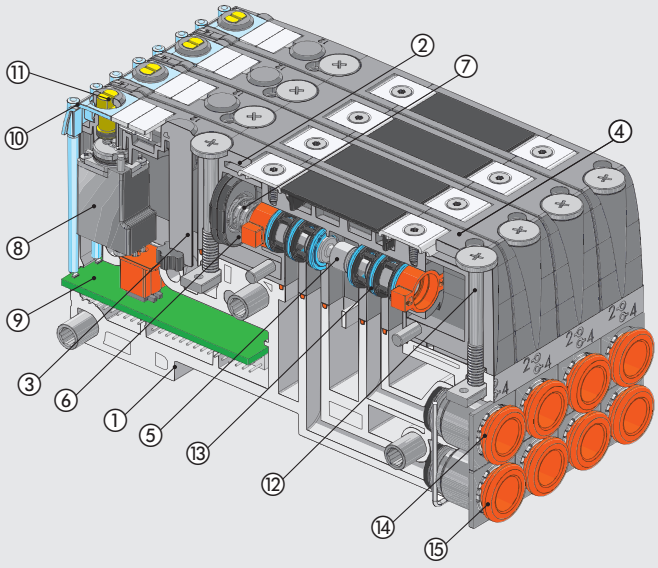
EB 80 systems are identified by a set of sub-assemblies:
- **S** I/O **S**ignal Modules
- **E** **E**lectrical connection
- **P** **P**neumatic supply
- **B** **B**ases for solenoid valves; the valves are fixed on the bases
- **M** Inter**M**ediate Modules
- **C** **C**losed end-plate





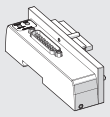
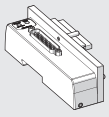
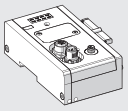
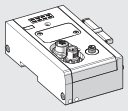
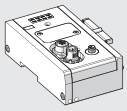
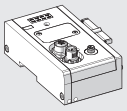
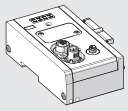
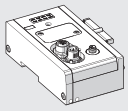
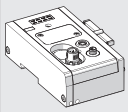
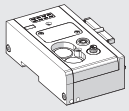
COMPONENTS – SOLENOID VALVE AND BASE

① BASE: technopolymer
② VALVE BODY: technopolymer
③ CONTROL: technopolymer
④ BASE: technopolymer
⑤ SPOOL: chemically nickel-plated aluminium
⑥ CONTROL PISTON: Stainless steel and NBR
⑦ SPRING: Oteva® steel and Dacromet treatment
⑧ SOLENOID VALVE
⑨ ELECTRONIC BOARD
⑩ LED light display: technopolymer
⑪ MANUAL CONTROL: nickel-plated brass
⑫ SCREW SECURING VALVE TO THE BASE: galvanised steel
⑬ SPOOL GASKET: NBR
⑭ Push-in fitting CARTRIDGE for port 2
⑮ Push-in fitting CARTRIDGE for port 4

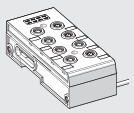
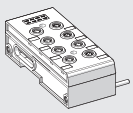
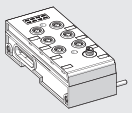
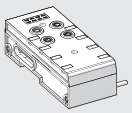
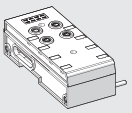
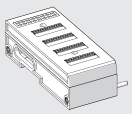
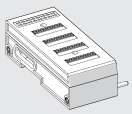
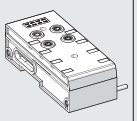


THE EB 80 WORLD

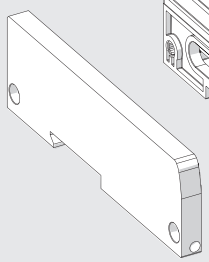
ELECTRICAL CONNECTION - E

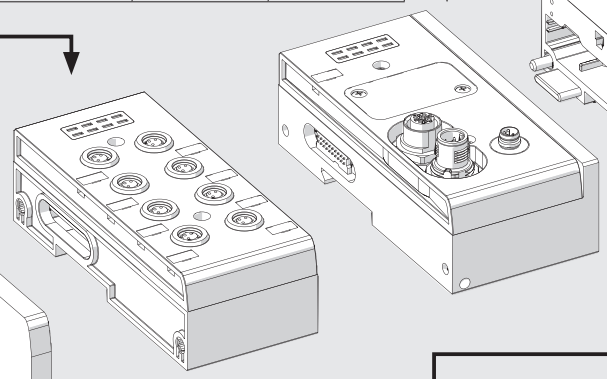
E025	E044	E0EN	E0EC	E0PN	E0CN	E0PB	E0PL	E0IO	E0AD
									
EB 80 25-pin electrical connection	EB 80 44-pin electrical connection	EB 80 Electrical connection EtherNet/IP	EB 80 Electrical connection EtherCAT	EB 80 Electrical connection Profinet IO	EB 80 Electrical connection CANopen	EB 80 Electrical connection Profibus-DP	EB 80 Electrical connection Ethernet POWERLINK	EB 80 Electrical connection IO-Link	Additional electrical connection EB 80
See page **B2**.26	See page **B2**.26	See page **B2**.37	See page **B2**.37	See page **B2**.37	See page **B2**.37	See page **B2**.37	See page **B2**.37	See page **B2**.37	See page **B2**.42

SIGNAL MODULE - S

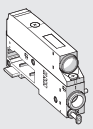
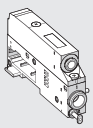
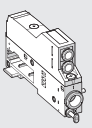
S01	S02	S03	S04	S05	S06	S07	S08
							
EB 80 module with 8 M8 digital inputs	EB 80 module with 8 M8 digital outputs	EB 80 module with 6 M8 digital outputs + electrical supply	EB 80 module with 4 M8 analogue inputs	EB 80 module with 4 M8 analogue outputs	EB 80 module with 16 digital terminal block inputs	EB 80 module with 16 digital terminal block outputs	EB 80 module with 4 M8 analogue inputs for temperature measurement
See page **B2**.16	See page **B2**.16	See page **B2**.17	See page **B2**.17	See page **B2**.18	See page **B2**.18	See page **B2**.19	See page **B2**.19

Part included in the **ELECTRICAL CONNECTION - E** with Fieldbus



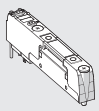
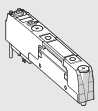
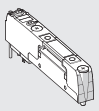
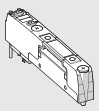
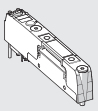
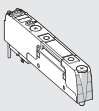
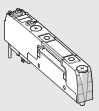
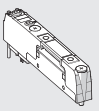
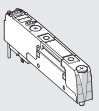
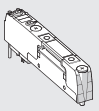
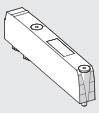
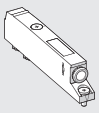


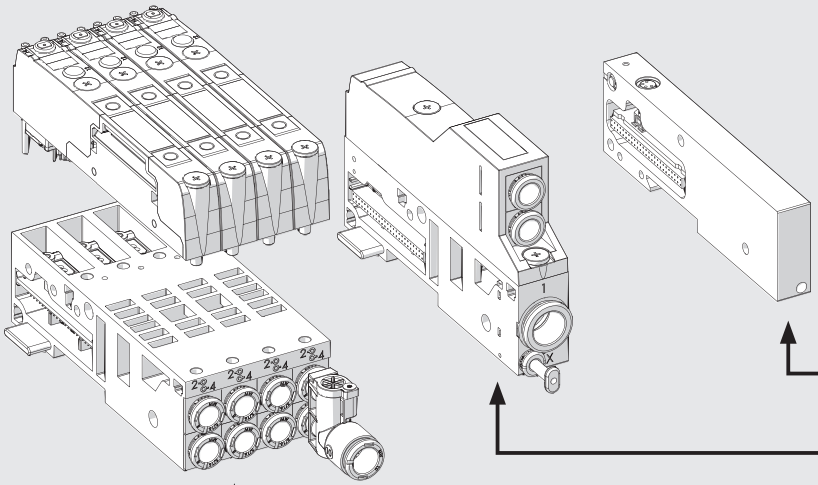
COMPRESSED-AIR SUPPLY - P

P_ _Z00	P_ _Z_ _	P_ _Z60
		
Compressed air supply - Silenced relief	Compressed air supply - Conveyed relief	Compressed air supply - Separate reliefs
See page **B2**.45	See page **B2**.45	See page **B2**.45

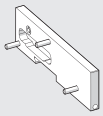
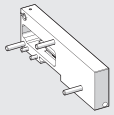
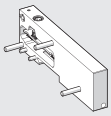
METAL WORK PNEUMATIC

VALVES

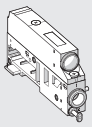
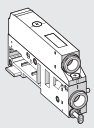
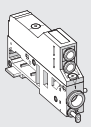
Z_	I_	W_	L_	V_	K_	O_	G_	J_	R_	N0	Y8
											
2 valves 2/2 NC	2 valves 3/2 NC (valid as 5/3 OC)	2 valves 3/2 NO (valid as 5/3 PC)	3/2 NC + 3/2 NO	monostable 5/2	bistable 5/2	5/3 CC	3/2 NC high flow	3/2 NO high flow	Shut-off valve	Dummy valve	Bypass
See page **B2**.51	See page **B2**.51	See page **B2**.51	See page **B2**.51	See page **B2**.51	See page **B2**.51	See page **B2**.51	See page **B2**.52	See page **B2**.52	See page **B2**.53	See page **B2**.54	See page **B2**.54



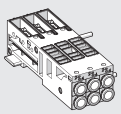
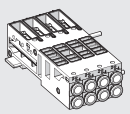
CLOSED END-PLATE - C

C1	C2	C3
		
Closed end-plate for islands with multi-pole connector	Closed end-plate for islands with fieldbus	Closed end-plate for electrical connection of islands with fieldbus to additional islands
See page **B2**.62	See page **B2**.62	See page **B2**.62

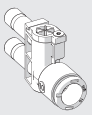
INTERMEDIATE SUPPORT - M

M_ _ _ Z0_	M_ _ _ Z_ _	M_ _ _ Z6_
		
Intermediate module - Silenced relief	Intermediate module - Conveyed relief	Intermediate module - Separate relief
See page **B2**.57	See page **B2**.58	See page **B2**.59

BASES FOR VALVES - B

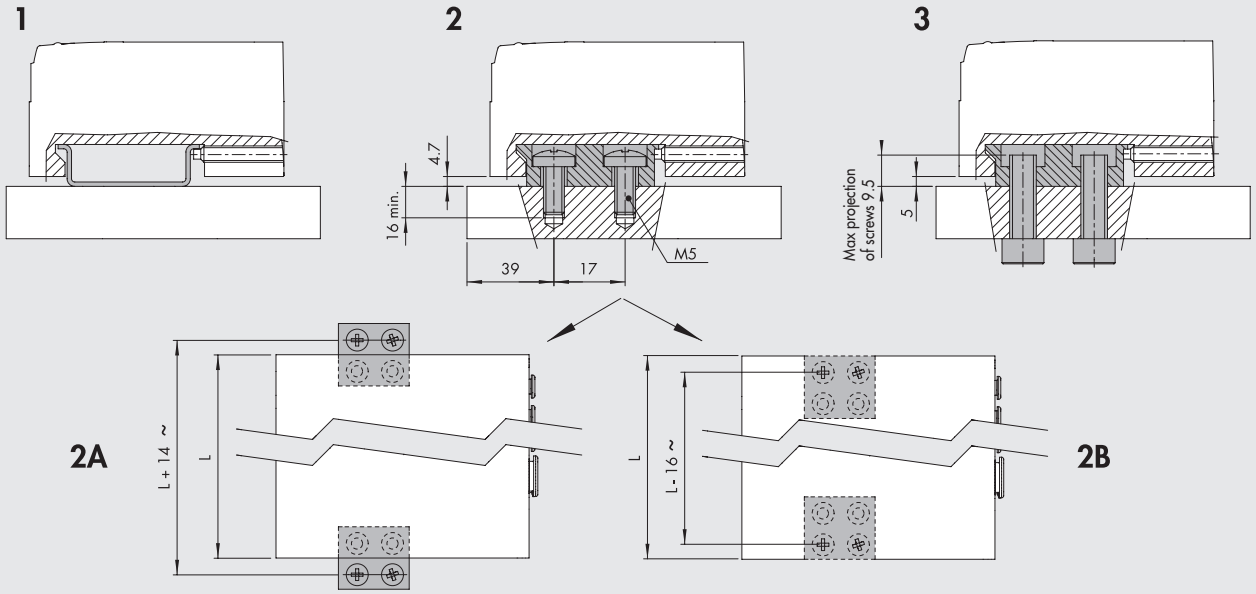
B3_ _ _ _ _0	B4_ _ _ _ _ _
	
3-position base for valves	4-position base for valves
See page **B2**.48	See page **B2**.48

Y-FITTING

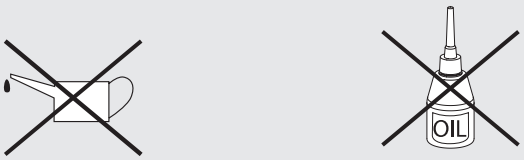
R2

Y-fitting
See page **B2**.55

FIXING OPTIONS

1 - Fixing on a DIN bar: tighten the grub screws into modules E (electrical connection) and C (closed end plate).
2 - Fixing on a flat surface: use the pair of brackets code 02282R4000 and the M5x20 screws supplied.
You can choose where to position the brackets in relation to the island:
2A - *Protruding brackets*: can be used to install the island + brackets unit from above. First secure the brackets to the modules E and C using the grub screws, then secure everything with M5x20 screws.
2B - *Concealed brackets*: the overall dimensions of the island are reduced. First secure the brackets to the flat top with M5x20 screws, then place the island onto the brackets and lock the two grub screws provided in the modules E and C.
3 - Fixing through a wall: use the brackets code 02282R4000. The brackets come with M6 threaded holes and can be fixed with M6 screws (not included in the supply) passing through the wall. The brackets can fixed either protruded or concealed.
N.B.: Planar surfaces are required to ensure correct fixing. Avoid twisting or bending the valve units.



LUBRICATION



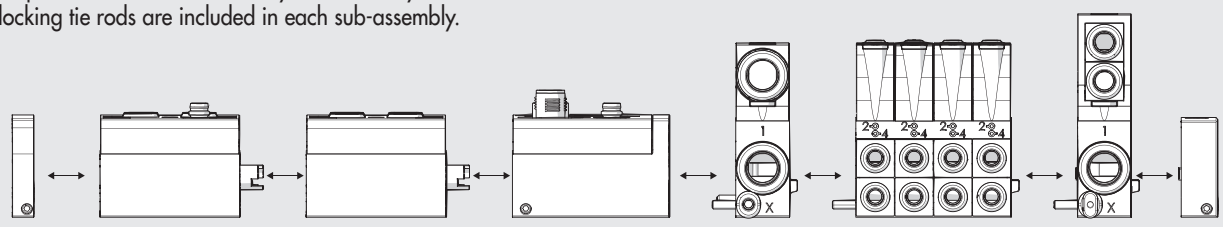
NO LUBE NO OIL

The EB 80 electro-pneumatic system is designed to run millions of cycles without the need for any lubrication. This is possible thanks to the optimisation of its components and the use of a special grease with excellent properties. To avoid removing the grease, it is highly recommended not to lubricate the valve input and output ports and check the quality (to ISO 8573-1 class 4-7-3) of the compressed air used, which is often contaminated by particularly aggressive oils that are released by compressors and are not always compatible with the elastomers used in the valves.

SOME CHARACTERISTICS OF EB 80 SYSTEMS

HORIZONTAL MODULARITY

- Easy replacement or addition of any sub-assembly.
  The locking tie rods are included in each sub-assembly.

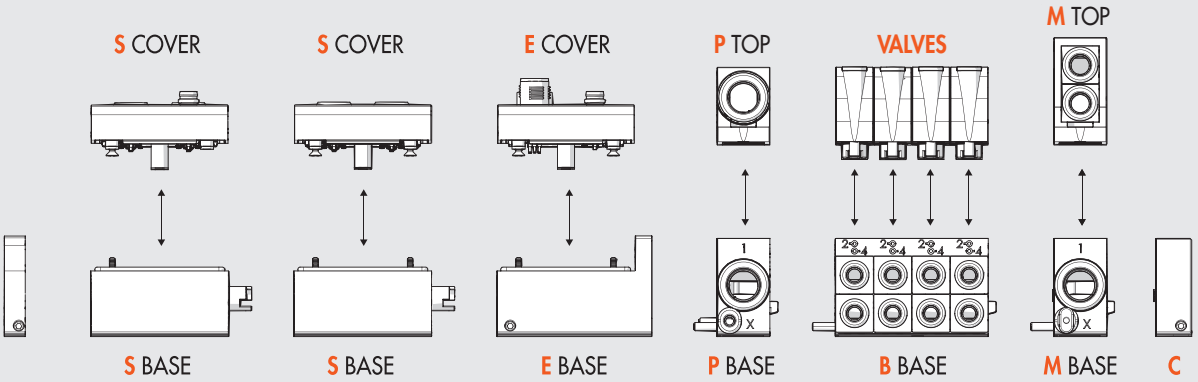


METAL WORK PNEUMATIC

VERTICAL MODULARITY

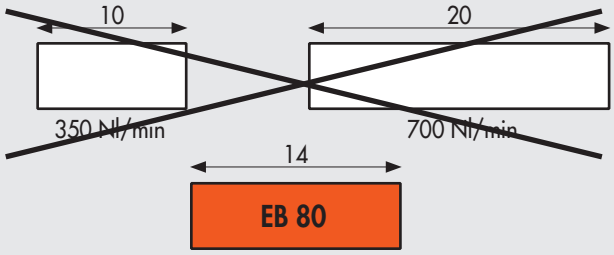
- Easy replacement – no need to disassemble the pack – of the valves on the Bases – B and also of the top part (cover) of subsystems **S**, **E**, **P**, **M** using a single Phillips-head screwdriver.

N.B.: All protocols can be mounted on the base for field buses and all input or output modules can be mounted on the same base for signals.



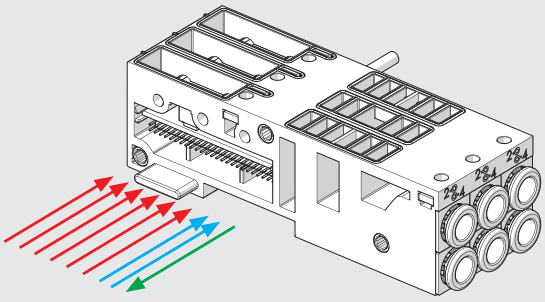
ONE SIZE FITS ALL

- Reduced dimensions
- High flow rate
- One warehouse and spares



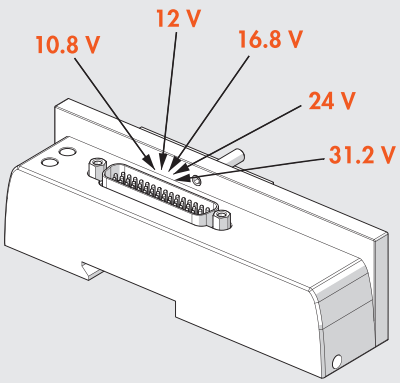
THE SAME BASE FITS BOTH MULTI-POLE CONNECTIONS AND FIELD BUSES

- Controls from multi-pole connection
- Controls from field buses
- Diagnostics



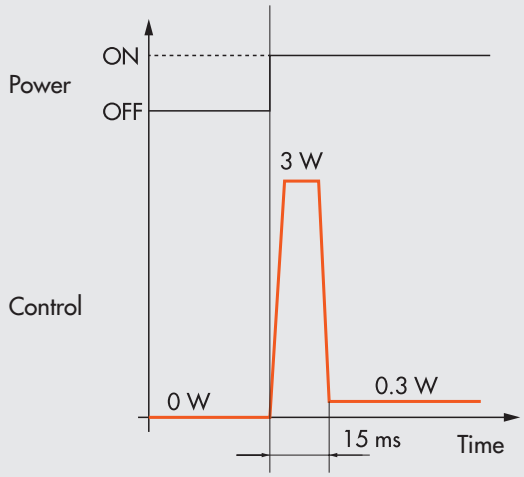
PATENTED

THE SAME ISLAND CAN BE SUPPLIED 10.8 - 31.2 VDC



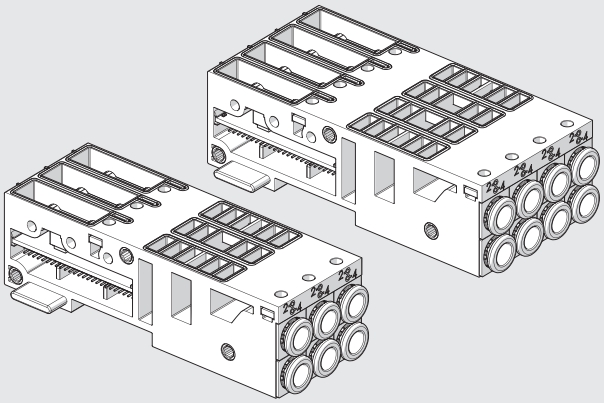
ONLY 0.3 W FOR EACH SOLENOID VALVE

- Speed-up solenoid valve control:
  - high power for a few milliseconds ensures high performance and rapid and safe switching;
  - reduced holding power resulting in reduced temperatures and energy saving.



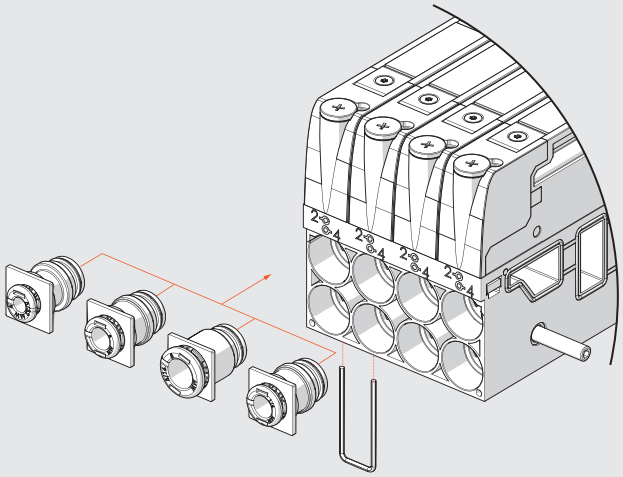
3- OR 4-POSITION BASES FOR VALVES

- Island layout options:
  - **3** 1 base with 3 positions
  - **4** 1 base with 4 positions
  - (**5** 2 bases with 3 positions and 1 dummy valve)
  - **6** 2 bases with 3 positions
  - **7** 1 base with 3 and 1 with 4 positions
  - **8** 2 bases with 4 positions
  - ...
- Compared to single-base solutions, this configuration is advantageous because:
  - just a few bases are required for multiple positions;
  - the base is sturdy and rigid;
  - there is plenty of space to accommodate smart electronics



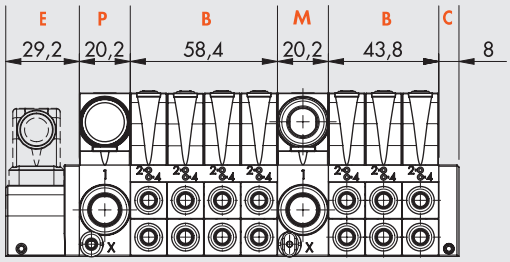
INTERCHANGEABLE CARTRIDGE FITTINGS

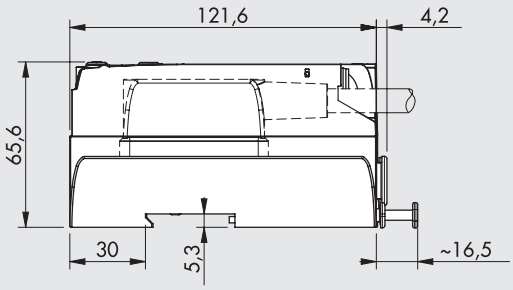
- For pipes Ø 4 (5/32"), 6, 8 (5/16"), 1/4"

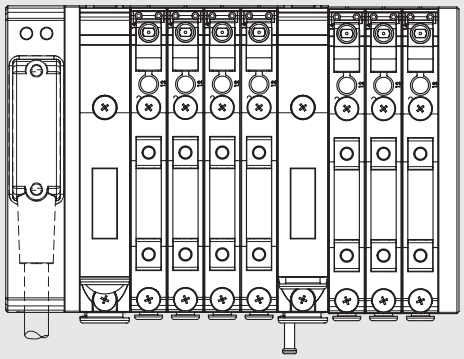


DIMENSIONS

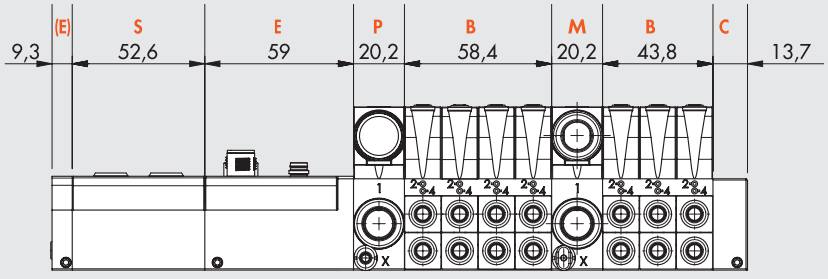
DIMENSION OF VERSIONS WITH MULTI-POLE CONNECTION

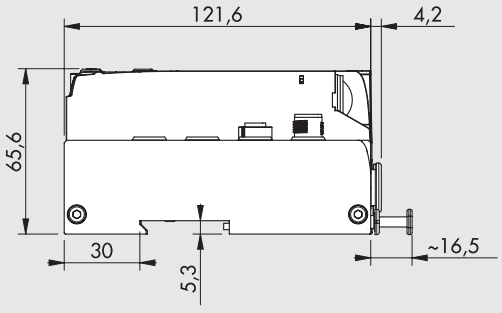


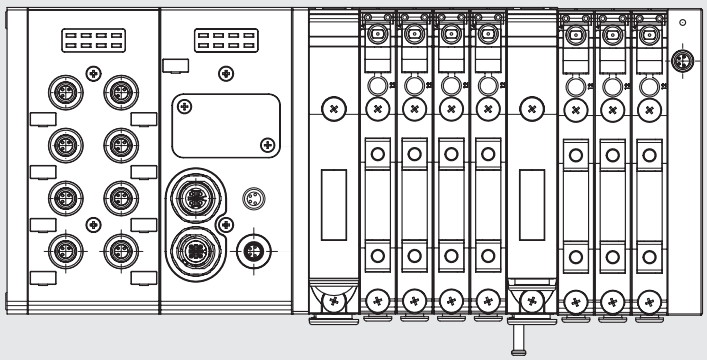




DIMENSION OF VERSIONS WITH FIELD BUS OR ADDITIONAL CONNECTION







DESCRIPTION

A complete system has a compound **description** of all its subsystems listed in sequence from left to right, as shown below.
The abbreviation of each subsystem is obtained by taking the code and omitting the first digits 02282.
For example: the digital 8-input signal module is identified with code 02282S01; only write S01 in the description.

The abbreviation of each base for valves consists of:

Abbreviation of the Base	**Manual valve control**	**Type of valves**
Obtained from the code, after removing 02282	0 = monostable 1 = bistable	Valves Dummy valve Bypass
Example		
4-position base, 8 solenoid pilots, Ø 6 pipe; code 02282B4086666	Monostable	2 monostable 5/2 valves - V 1 double 3/2 NO - W 1 dummy valve - F
Abbreviation		
B4086666	0	VVWF

The description is therefore a sequence of this type:

EB 80	**- S_ _**	**- E_ _ _**	**- P_ _ _ _ _**	**- B_ _ _ _ _ _ _ _ _ _ _**	**- M_ _ _ _ _ _**	**- C_**
EB 80 system	**Signal module** (if present)	**Electrical connection**	**Compressed air supply**	**Base for valves** (as many as there are) with normal or dummy	**Intermediate** (if present)	**Closed end-plate**
For the codes:	see page **B2**.20	see page **B2**.24	see page **B2**.46	see page **B2**.49 and **B2**.54	see page **B2**.60	see page **B2**.63

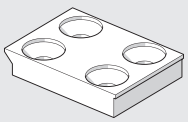
Example:
EB 80-S01-E0EN-P3XZ00-B40866660VWKN-M300Z30-B30388800VVN-C2

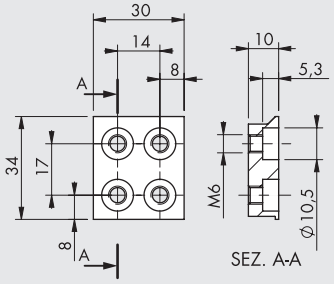
EB 80	**- S01**	**- E0EN**	**- P3XZ00**	**- B40866660VWKN**	**- M300Z30**	**- B30388800VVN**	**- C2**
EB 80 system	**Signal module** complete 8 M8 digital inputs	**Electrical connection** EtherNet/IP	**Compressed air supply** - fitting Ø 12 - pilot servo Ø 4 - silenced relief	**Base for valves** - 4 positions - 8 controls - fittings for pipe Ø 6 - manual monostable control - 5/2 monostable valve - 2 3/2 NO valves - bistable 5/2 valve - dummy valve	**Intermediate** - fittings for pipe Ø 12 - through ports - without supplementary power supply	**Base** - 3 positions - 3 controls - fittings for pipe Ø 8 - manual monostable control - 5/2 monostable valve - 5/2 monostable valve - dummy valve	**Closed end-plate** for valve Island with field bus

Endless number of EB 80 systems can be obtained and their description is variable in length, which can be very extended.
The actual ordering CODE of an EB 80 system is created by Metal Work S.p.a. with a limited number of characters.
The ordering code is not explicative. The description only is univocal, complete and explicative.

ACCESSORIES

FIXING BRACKET





Code	**Description**	**Weight [g]**
02282R4000	EB 80 base fixing bracket	47

Note: 2 pieces per pack complete with 4 M5x20 screws

NOTES

Please refer to the subsystem chapter for other accessories (e.g. connectors) and spare parts.

EB 80 INDUSTRY 4.0

The new advanced EB 80 diagnostic functions, known as EB 80 I4.0, provide a powerful analysis tool for traditional maintenance operations, ensuring the safe, reliable and lasting operation of production units.
They are available for all electrical connections with fieldbuses and bases marked I4.0, with advanced diagnostics integrated in accordance with Industry 4.0 philosophy.
These functions use the original EB 80 diagnostics, integrating them with the ability of the station itself to control IOs.
They re-organise and optimise maintenance management by developing predictive maintenance in order to:
- predict faults;
- intervene early to avoid system downtime;
- have all information on equipment operation available in real time;
- monitor component end-of-lifetime;
- optimise warehouse spare parts management.

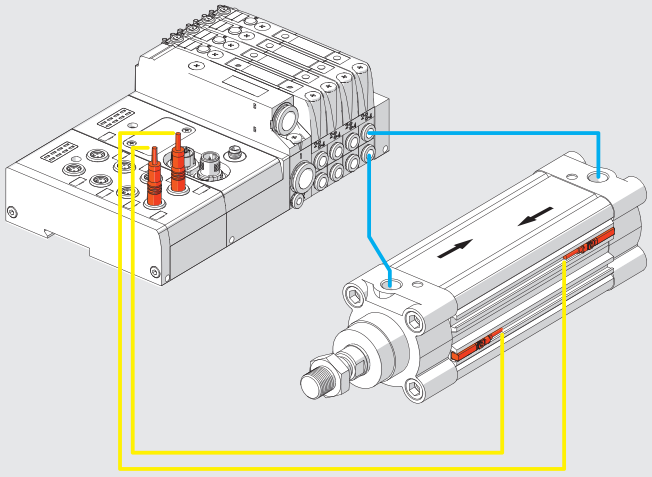
This makes it possible to turn the data collected into concrete actions using standard EB 80 stations without needing additional modules.

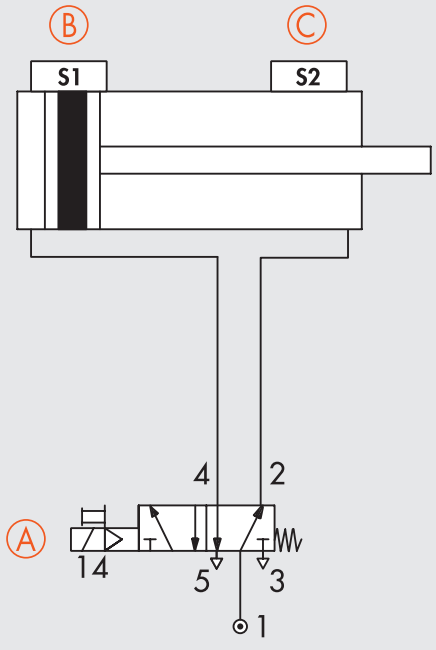
Description of EB 80 I4.0 functions:

• System data:
- EB 80 system startup counter;
- supply alert counter.

• Valve data. Each valve base for each solenoid valve permanently stores the following information:
- cycle counter;
- counter for total solenoid valve excitation time;
- activation of a flag to signal average lifetime exceeded;
- short circuit alert counter;
- open circuit alert counter.

• Electropneumatic system control functions (data updated with each cycle):
- measurement of the delay between activating the solenoid valve "A" and actuator movement commencing via the signal of sensor "B", with delays that exceed the limit flagged;
- measurement of actuator movement time using two linked sensors "B" and "C", with exceeded time limits flagged;
- measurement of the delay between deactivating the solenoid valve "A" (or activating a second valve) and actuator return commencing via the signal of sensor "B", with exceeded time limits flagged;
- measurement of actuator return time using two linked sensors "B" and "C", with exceeded time limits flagged;
- counter for actuator range of motion.

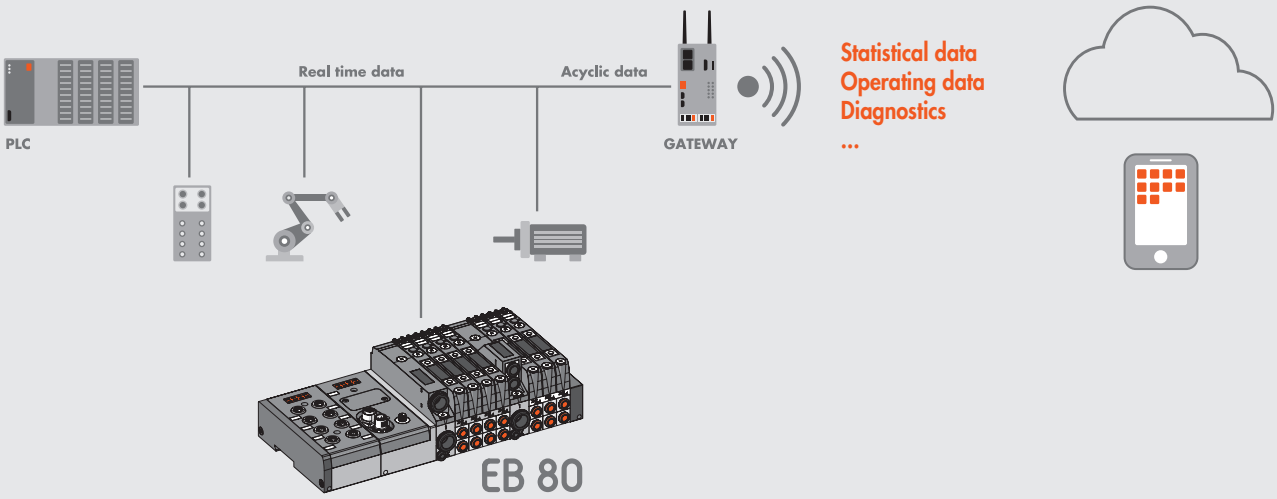




Electrical connection modules can be used to complement the EB 80 with the main field buses available in the market. In this way, the control system (generally a PLC) can handle in real time the behaviour of the solenoid valve island, including signal modules.

With the introduction of the I 4.0 version, the field bus connection modules also send to the network the historical and diagnostic data relating to the behaviour of the island (such as the number of cycles for each solenoid pilot, total activation time and alarms) and the controlled pneumatic circuit (such as the delay times in sensor switching and actuator activation times).

This data is also sent to the control system and can be handled differently depending on the situation: in some cases, it can be used in real time, like in the case of fault alarms; in other cases, it can be sent to a storage local unit or one remotely controlled on a cloud server, and is analysed in a subsequent stage; in other cases, the alarms can be sent to a teleservice station that can monitor the state of the system remotely.



EB 80 SIGNAL MODULES - S

The EB 80 systems come with numerous input or output signal modules, which can be mounted on systems with fieldbus electrical connection or additional systems.
The signal modules can be added at any time. You only need to unscrew the aluminium plate to the left side of the "Electrical connection - E" module and install the "Signal Modules - S" (ready fitted with fixing tie rods) and retighten the end plate to the left.
Each signal module consists of two parts: the lower part, which contains transmission electronics of the controls, is unique and valid for all modules; the upper part, which is specific for each type.
This design highlights the modular features of the EB 80 system: the upper part of the "Signal Module - S" can be replaced either with a similar one by simply unscrewing the screws in the event of failure or one of another type.
All this without having to remove anything from the system.

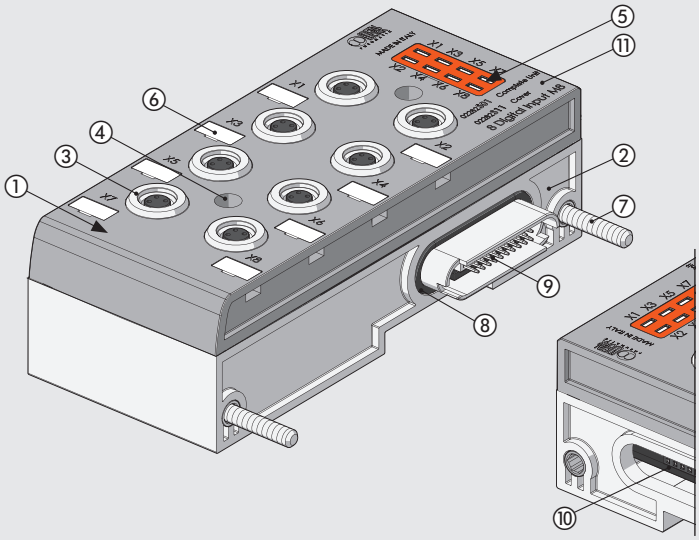
TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Power and current		see individual "Signal Modules - S"
Protection		Overload and polarity inversion protection
Diagnostics		Local via LED light and software message
		Undervoltage, overvoltage, short-circuit and overload of individual connector and the entire module,
Maximum number of signal modules		16 digital inputs modules 8 M8 +
		16 digital outputs modules 8 M8 (or 8 modules with 16 Inputs + 8 modules with 16 Outputs) ** +
		4 analogue inputs modules + 4 analogue outputs modules +
		4 analogue input modules for temperature measurement
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		digital input, digital output, analogue input, analogue output
Degree of protection		IP65 (with connectors connected or plugged if not used)
		IP40 for 16-position I/O modules

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24
** **For 16-IN/OUT modules, powered via the fieldbus. Check that the total current of simultaneously connected Inputs and Outputs is not greater than 3.5 A.**
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
N.B.: Refer to the following pages for specific technical data of each module.

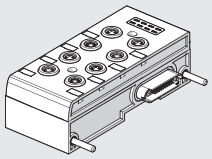
COMPONENTS

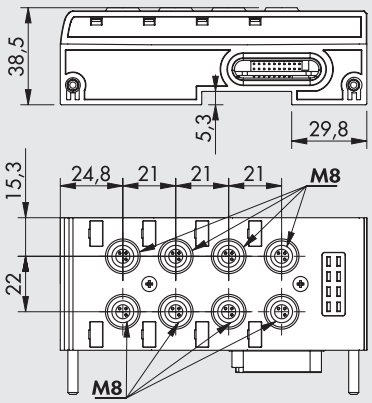
① UPPER PART BODY: technopolymer
② LOWER PART BODY: technopolymer
③ M8 CONNECTOR: signal connection
④ SCREW securing the upper part to the lower part
⑤ LED light
⑥ NAMEPLATE: removable
⑦ TIE ROD to secure modules: galvanized brass and steel
⑧ GASKET: NBR
⑨ MALE CONNECTOR for other modules - S or fieldbus connection - E
⑩ FEMALE CONNECTOR for other modules - S or fieldbus connection - E
⑪ IDENTIFICATION of wording with laser

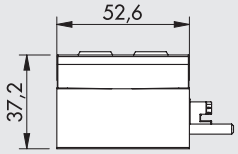


DIMENSIONS - ORDERING CODES

8 M8 DIGITAL INPUTS



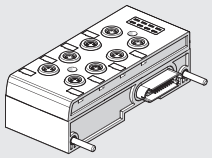


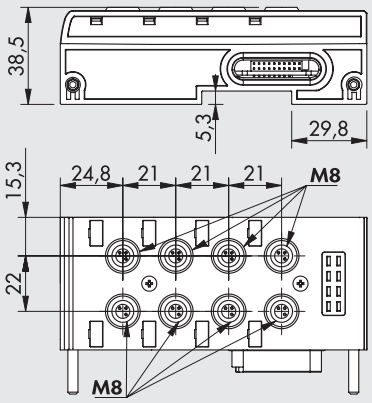


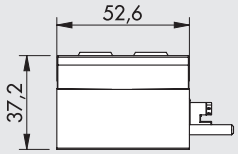
Code	Description	Weight [g]
02282**S01**	EB 80 module with 8 M8 digital inputs	240

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		8 M8 3-pole female connectors
Input active signals		One LED for each input

8 M8 DIGITAL OUTPUTS



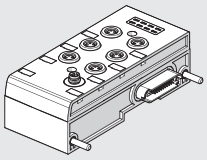


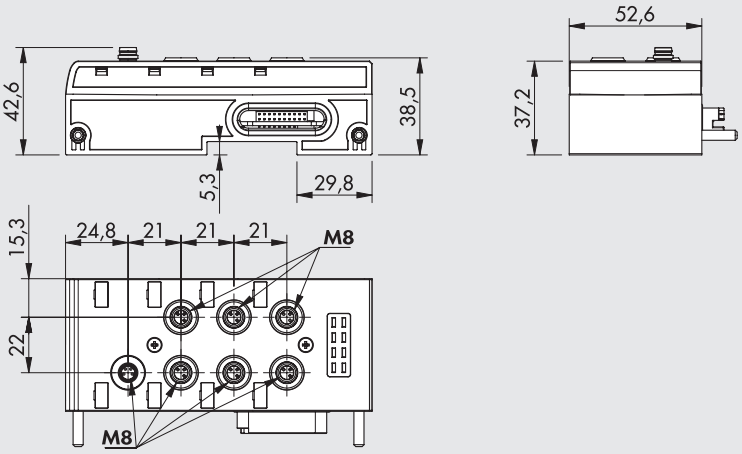


Code	Description	Weight [g]
02282**S02**	EB 80 module with 8 M8 digital outputs	240

TECHNICAL DATA		
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 500
Current for each module	mA	max 3000
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		8 M8 3-pole female connectors
Outputs active signals		One LED for each output

6 M8 DIGITAL OUTPUTS + ELECTRICAL POWER SUPPLY





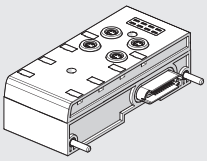
Code	Description	Weight [g]
02282**S03**	EB 80 module with 6 M8 digital outputs + electrical supply	248

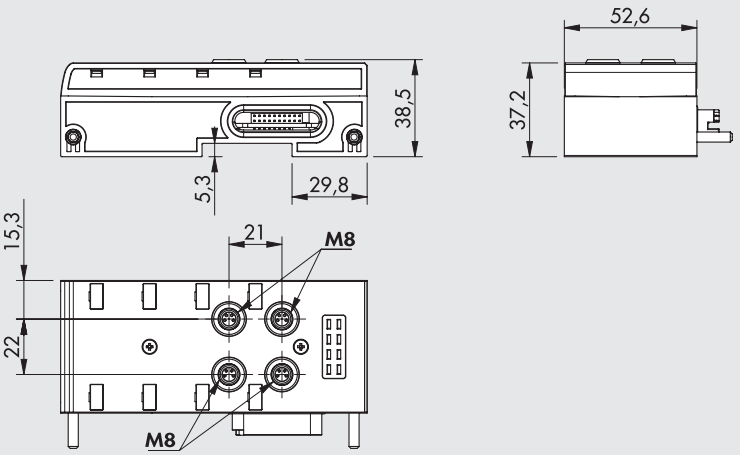
TECHNICAL DATA		
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 1000
Current for each module	mA	max 4000
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		6 M8 3-pole female connectors for Signals
		1 M8 4-pole male connector for Supply
Input active signals		One LED for each input

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

4 M8 ANALOGUE INPUTS

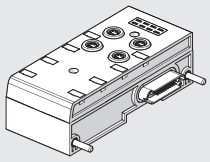


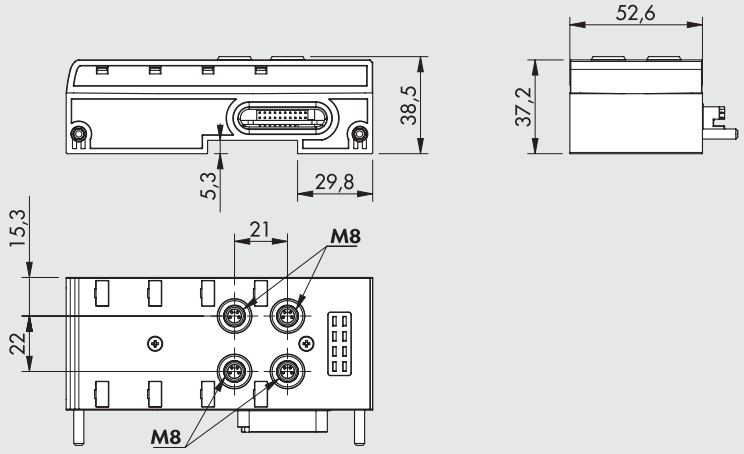


Code	Description	Weight [g]
02282**S04**	EB 80 module with 4 M8 analogue inputs	223

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 650
Type of input, software configurable		0/10 V; 0/5 V; +/-10 V; +/-5 V; 4/20 mA; 0/20 mA
Protection		Overload and short-circuit protected inputs
Connections		4 M8 4-pin female connectors
Local diagnostic signal via LED		Overload, short-circuit or type of input not complying with the configuration
Digital convert resolution		15 bit + prefix

4 M8 ANALOGUE OUTPUTS

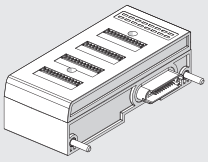


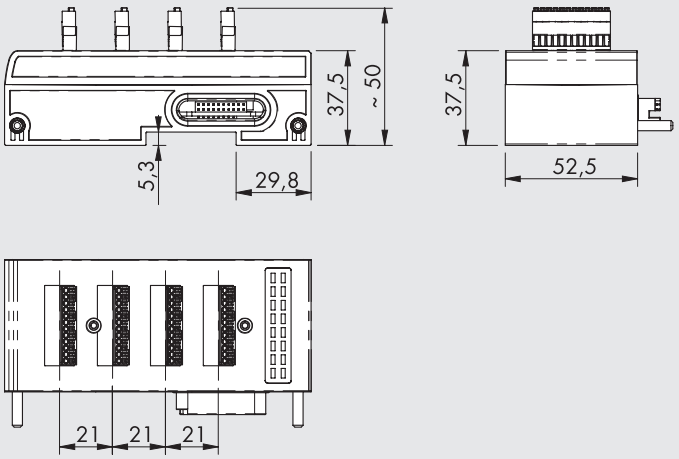


Code	Description	Weight [g]
02282**S05**	EB 80 module with 4 M8 analogue outputs	223

TECHNICAL DATA		
Devices supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 650
Type of output		0/10 V; 0/5 V; +/-10 V; +/-5 V; 4/20 mA; 0/20 mA
Protection		Overload and short-circuit protected outputs
Connections		4 M8 4-pole female connectors
Local diagnostic signal via LED		Overload, short-circuit or type of connection not complying with the configuration
Digital convert resolution		15 bit + prefix

16 DIGITAL TERMINAL BLOCK INPUTS

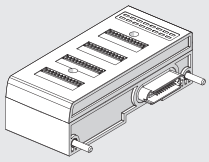


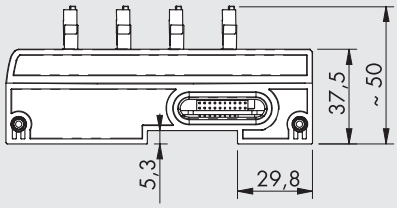


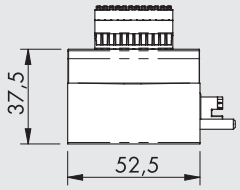
Code	Description	Weight [g]
02282**S06**	EB 80 module with 16 digital terminal block inputs	240

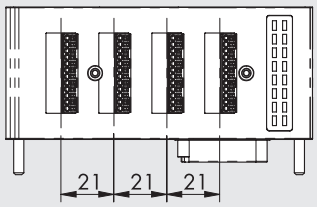
TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		4 12-pin connectors with spring clamping
Input active signals		One LED for each input
Degree of protection		IP40

16 DIGITAL TERMINAL BLOCK OUTPUTS







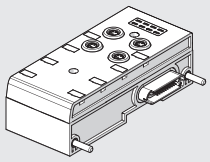


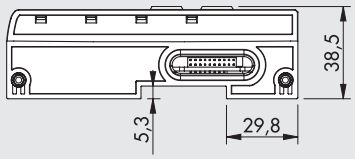
Code	Description	Weight [g]
02282**S07**	EB 80 module with 16 digital terminal block outputs	240

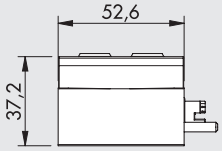
TECHNICAL DATA		
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 500
Current for each module	mA	max 3000 *
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected outputs
Connections		4 12-pin connectors with spring clamping
Outputs active signals		One LED for each Output
Degree of protection		IP40

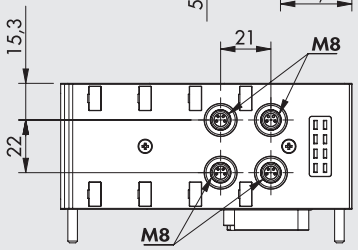
*** IMPORTANT: the module is powered via the fieldbus. Check that the total current of connected outputs is not greater than 3.5A.**

4 M8 ANALOGUE INPUTS FOR TEMPERATURE MEASUREMENT









Code	Description	Weight [g]
02282**S08**	EB 80 module with 4 M8 analogue inputs for temperature measurement	223

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Sensor type, software configurable		Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni500, Ni1000
Type of thermocouple, software configurable		J, E, T, K, N, S, B, R
Temperature range	°C	– 200 to + 800
	°F	– 328 to + 1472
Max error compared to ambient temperature		±0.5% (thermocouples)
		±0.06% (temperature sensors)
Max. basic error (ambient T 25°C)		±0.4% (thermocouples)
		±0.6°C (with 4-wire temperature sensors in the standard interval)
		±0.2°C (with 4-wire temperature sensors in the climate interval)
Repeatability		±0.3%
Minimum cycle time	ms	240
Protection		Overload and short-circuit protected inputs
Connections		4 M8 4-pole female connectors for 2-, 3- or 4-wire connections
Local diagnostic signal via LED		Sensor disconnected, short-circuiting due to out-of-range temperature
Digital convert resolution		15 bit + prefix

KEY TO CODES

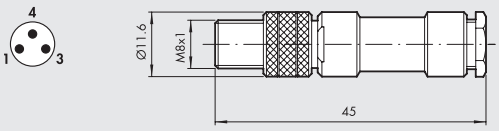
02282	S	0	1
FAMILY	**SUBSYSTEM**	**SUPPLY**	**TYPE**
02282 EB 80	**S** Signals	**0** Complete	**1** 8 M8 digital inputs **2** 8 M8 digital outputs **3** 6 M8 digitaloutputs + electrical supply **4** 4 M8 analogue inputs **5** 4 M8 analogue outputs **6** 16 digital terminal block inputs **7** 16 digital terminal block outputs **8** 4 M8 analogue inputs for temperature measurement

ACCESSORIES

M8 PLUG

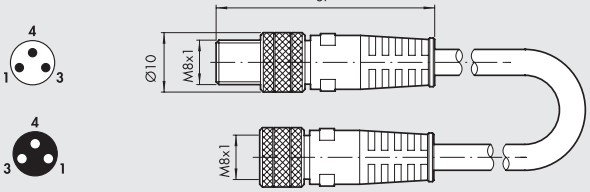
Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR FOR DIGITAL INPUTS / OUTPUTS



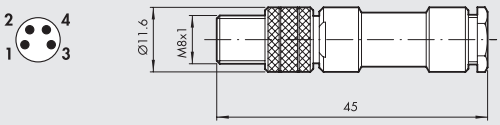
Code	Description
0240009010	M8 3-pin straight connector

M8 CONNECTOR WITH CABLE FOR DIGITAL INPUTS /OUTPUTS



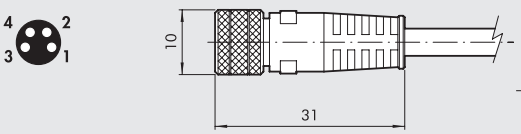
Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

M8 MALE CONNECTOR FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240010300	M8 4-pin male connector

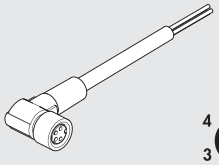
M8 CONNECTOR FOR POWER SUPPLY



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m

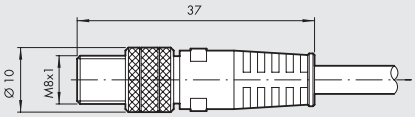
90° M8 CONNECTORS



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009102	M8 4-pin connector - female, 90° angle L = 2 m
0240009103	M8 4-pin connector - female, 90° angle L = 5 m

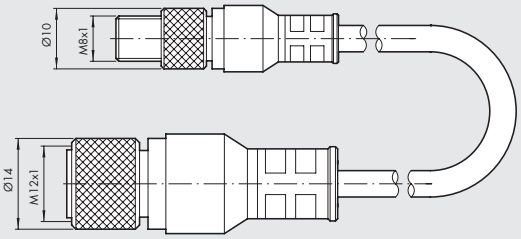
M8 4-POLE MALE CONNECTOR



Pin	Colore cavo
1	Marrone
2	Bianco
3	Blu
4	Nero

Code	Description
0240010105	M8 4-pin connector shielded cable L = 5 m

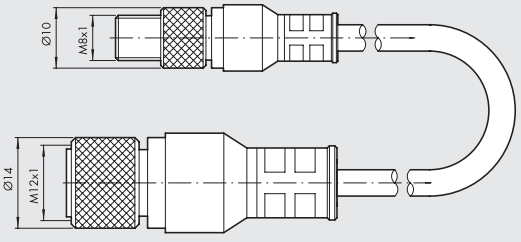
M8 3-POLE MALE – M12 5-POLE FEMALE CONNECTOR WITH CABLE FOR DIGITAL INPUTS/OUTPUTS



Code	Description
0240009045	M8 3-pole male straight - M12 5-pole female connector with cable L= 0.2 m

M8	M12
pin 1	pin 1
pin 2	pin 2
pin 3	pin 3

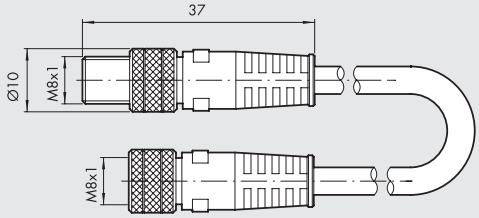
M8 4-POLE MALE – M12 8-POLE FEMALE CONNECTOR WITH CABLE FOR REGTRONIC CONNECTION



Code	Description
0240009046	M8 4-pole male straight - M12 8-pole female connector with cable L= 1 m

M8	M12
pin 1	pin 8
pin 2	pin 3
pin 3	pin 7
pin 4	disconnect

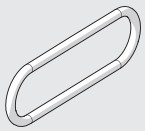
M8 CONNECTOR WITH SHIELDED CABLE FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240005005	M8-M, M8-F 4-pole straight connector with shielded cable L = 1 m
0240005006	M8-M, M8-F 4-pole straight connector with shielded cable L = 3 m
0240005003	M8-M, M8-F 4-pole straight connector with shielded cable L = 5 m
0240005008	M8-M, M8-F 4-pole straight connector with shielded cable L = 10 m

SPARE PARTS

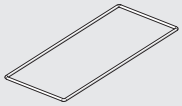
EB 80 BUS/SIGNAL INTERFACE OR SEAL



Code	Description
02282R1005	EB 80 BUS/Signal interface OR seal

Comes in 10-pc. packs

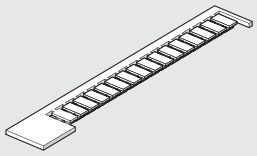
EB 80 GASKET BETWEEN BASE AND BUS/SIGNAL COVER



Code	Description
02282R1004	Kit of gaskets between base and BUS/Signal cover ssssss

Comes in 10-pc. packs

IDENTIFICATION PLATE KIT



Codice	Descrizione
0226107000	Identification plate kit

Comes in 16-pc. packs

NOTES

EB 80 ELECTRICAL CONNECTION - E

The job of the "Electrical Connection - E" subsystem is to power the EB 80 systems, transmit control signals for the solenoid valves, send and receive signals for the input/output management modules and control diagnostics.
Versions with a multi-pole connector or fieldbus are also available.
It is worth noting that the island of solenoid valves functions equally with both systems. This means that all the valves, bases and intermediate elements can work both with parallel and serial controls (patented).
Smart electronics of all electrical connection modules, including multi-pole ones, can be used to control unexpected functions, including very interesting diagnostics.
The system can be supplied with a very wide voltage range, so much so that the EB 80 island can be controlled either at 12VDC or 24VDC (patented).
Overvoltages up to 30% of the rated value, i.e. up to 31.2V, are admitted.
The minimum voltage for solenoid pilots can be 10.8V, i.e. 12V-10%.
The body of the multi-pole version is made of metal in one piece.
Versions with a fieldbus instead consist of two parts: a lower part, with a single metal body separate from the bus protocol; an upper part with a technopolymer body dedicated to each specific bus protocol.

TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%			
Minimum operating voltage	V	10.8 *			
Maximum operating voltage	V	31.2			
Maximum admissible voltage	V	32 ***			
Drive (for multi-pole)		PNP or NPN			
Solenoid rating		100% ED			
Power supply without controlled valves:					
steady rate, with multi-pole connection	W	0.1 for "Electrical connection - E" + 0.25 for each "Base - B"			
steady rate, with fieldbus connection	W	4 for "Electrical connection - E" + 0.25 for each "Base - B"			
Signal module supply power		See chapter "Signal module - S"			
Maximum operating power supply (data useful for the sizing of the power supply unit)	W	3.15 for each solenoid pilot operated simultaneously + input and output			
Maximum current admissible					
with multi-pole connection	A	6 continuous, 9 instantaneous			
with fieldbus connection	A	4 continuous, 6 instantaneous for valve supply			
		4 continuous, 6 instantaneous for bus and signal supply			
Protection		Overload and short-circuit protected solenoid pilot Output			
Diagnostics		LED signal on valve, LED light on electrical connection.			
		With multi-pole: fault signal OUT activation.			
		With field bus: software message.			
Faults signalled		Short-circuited solenoid pilot; Solenoid pilot broken or missing			
		Power supply out of range (under-voltage or over-voltage)			
		With fieldbus only, different configuration, on switching on, compared to that stored; communication control between modules			
Ambient temperature	°C	-10 to + 50			
	°F	14 to 122			
Versions		Plug connectors, fieldbus with various protocols, additional island			
		25-pin connector	44-pin connector	Fieldbus	additional island
Maximum number of controllable solenoid pilots		21	38	128	128
Maximum number of controllable solenoid valves		Ditto as above, depending on the number of solenoid pilots and type of base			
Degree of protection		IP65 (with connectors connected or plugged if not used)			
Weight	g	180	180	350	320

*** Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**
***** IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

SYSTEM VOLTAGE DROP

Voltage drop depends on the input maximum current drawn by the system and the length of the cable for connection to the system.
In a 24VDC-powered system, with cable lengths up to 20 m, voltage drops do not need to be taken into account.
In a 12VDC-powered system, there must be enough voltage to ensure correct operation. It is necessary to take into account any voltage drops due to the number of active solenoid valves, the number of valves controlled simultaneously and the cable length.
The actual voltage supplied to the solenoid pilots must be at least 10.8 V.
More details are given in the instruction manual (please refer to the Metal Work website).
A synthesis of the verification algorithm is shown here below.

Maximum current: I max [A] = $\frac{\text{no. of solenoid pilots controlled simultaneously x 4 + no. of active solenoid valves x 0.5}}{\text{VDC}}$

Voltage drop: with a 25-pole connector: ΔV = Imax [A] x Rs [0.067Ω/m] x 2L [m]
Voltage drop: with a 44-pole connector: ΔV = Imax [A] x Rs [0.067Ω/m] x L [m]
Where Rs is the cable resistance and L its length.

The voltage at the cable inlet, Vin must be at least 10.8 V + ΔV

Example:
12V supply voltage, 5 m cable, 25-pin connector, 3 pilots activate while other 10 are already active:

I max = $\frac{3x4 + 10x0.5}{12}$ = 1.41 A

ΔV = (1.41 x 0.067 x 2x5) = 0.95 V

This means that at the power supply voltage greater than or equal to 10.8 + 0.95 = 11.75 V is required.
Vin =12 V > 11.75 --> OK

KEY TO CODES

02282	E	0	25
FAMILY	**SUBSYSTEM**	**SUPPLY**	**TYPE**
02282 EB 80	**E** Electrical connection	**0** Complete	**25** 25-pin connector **44** 44-pin connector **EN** EtherNet/IP **EC** EtherCAT **PN** Profinet IO **CN** CANopen **PB** Profibus-DP **PL** Ethernet POWERLINK **IO** IO-Link **AD** Additional island

NOTE

EB 80 MULTI-POLE ELECTRICAL CONNECTION - E

The job of the multi-pole version of the electrical connection subsystem is to power the EB solenoid valve islands. The system accepts to be supplied with a very wide range of voltages, to such an extent that the EB 80 island alone can be controlled at either 12VDC or 24VDC (patented). Overvoltages up to 30% of the rated value, i.e. up to 31.2V, are admitted.
The minimum voltage for the solenoid pilots can be 10.8 V, i.e. 12 V - 10%.
The body of the multi-pole version is made of metal in a single piece.

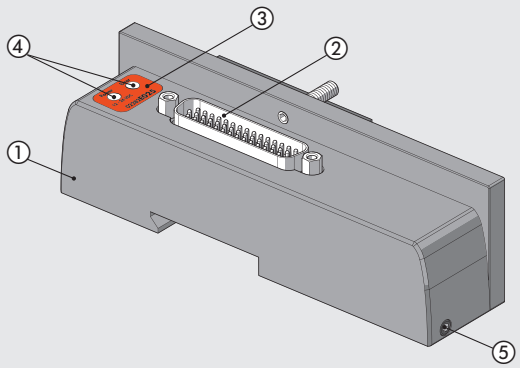
TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%	
Minimum operating voltage	V	10.8 *	
Maximum operating voltage	V	31.2	
Maximum admissible voltage	V	32 ***	
Drive		Configurable PNP or NPN	
Power supply without controlled valves	W	0.1 for "Electrical connection - E" + 0.25 for each "Base - B"	
Solenoid pilot power on start-up (Speed Up)	W	3 for 15 msec	
Solenoid pilot power after start-up (holding)	W	0.3	
Maximum admissible current	A	6 continuous, 9 instantaneous	
Protection		System protected against overload	
		short-circuit protected solenoid pilot Output	
Diagnostics		FAULT signal red light and Out signal on "Electrical connection - E"	
		LED light signal on valve	
Faults signalled		Short-circuited solenoid pilot; Solenoid pilot broken or missing	
		Power supply out of range (under-voltage or over-voltage)	
Ambient temperature	°C	-10 to + 50	
	°F	14 to 122	
Electrical connection		Plug connectors	
		25-pin connector	44-pin connector
Maximum number of controllable solenoid pilots **		21	38
Maximum number of controllable solenoid valves		Ditto as above, depending on the number of solenoid pilots and type of base	
Maximum number of simultaneously controllable solenoid pilots:			
at 24VDC		21	38
at 12VDC		Depending on the voltage drop – see page **B2**.24	
Maximum current at 24VDC	A	3	5
Maximum current at 12VDC	A	6	9
Degree of protection		IP65 (with connectors connected or plugged if not used)	
Weight	g	180	180

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24
** If the units are made up of bases exceeding the maximum number of controllable solenoid pilots (by mounting a dummy valve N or a bypass Y in the excess positions), operation is only possible on the islands with a positive signal (PNP), conversely (with an NPN signal), an error message is generated by the diagnostic system.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

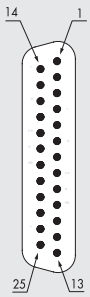
COMPONENTS

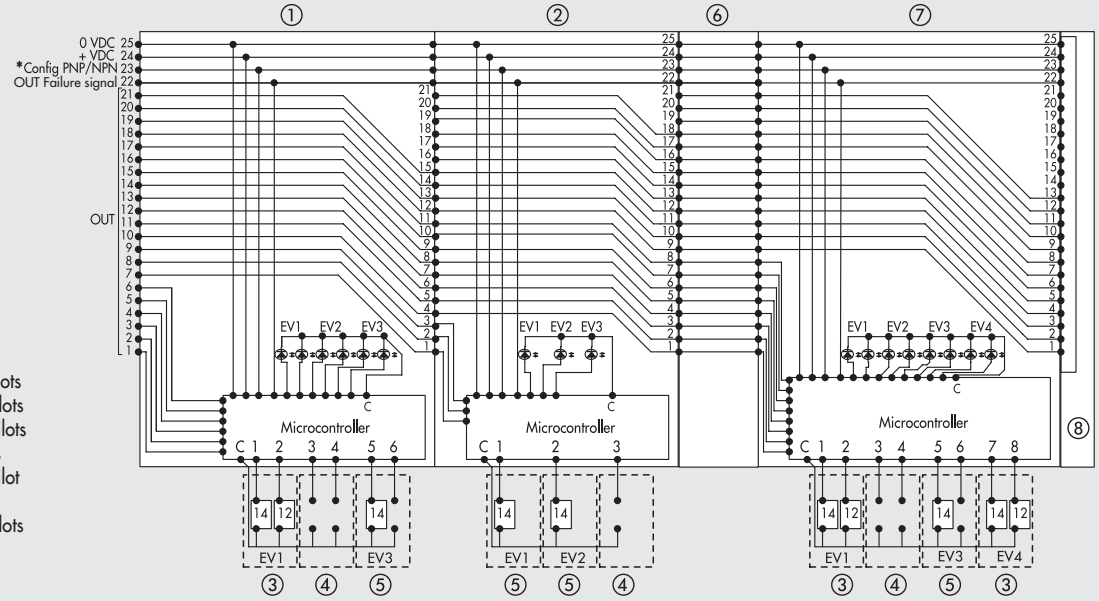
① BODY: painted metal
② CONNECTOR: plug type
③ NAMEPLATE: with product code
④ LED: signal on and alarm
⑤ GRUB SCREW securing the DIN bar or bracket: galvanized steel



WIRING DIAGRAM

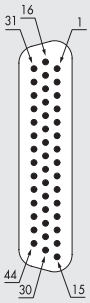
D-Sub 25-pin CONNECTOR

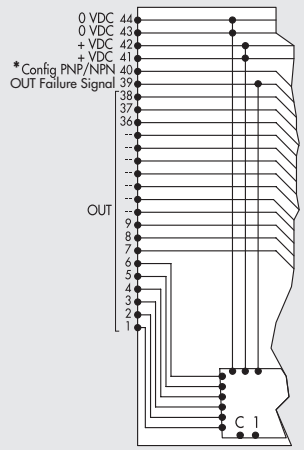




① 3-position base for 6 pilots
② 3-position base for 3 pilots
③ Valve with 2 solenoid pilots
④ Dummy valve or bypass
⑤ Valve with 1 solenoid pilot
⑥ Intermediate module
⑦ 4-position base for 8 pilots
⑧ Closed end-plate

D-Sub 44-pin CONNECTOR

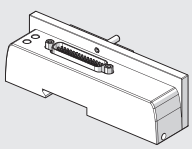


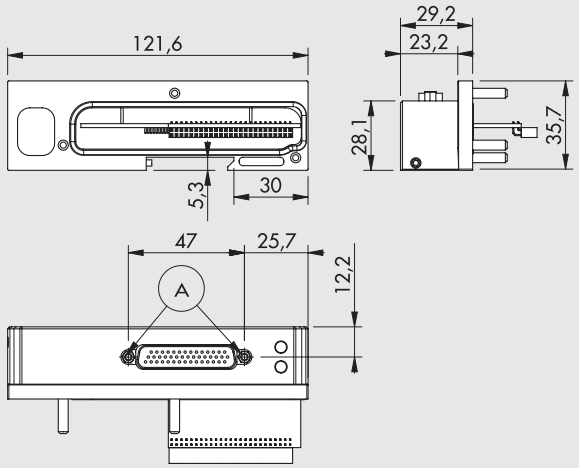


* Connect to +VDC if (OUT) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (OUT) valves with a NEGATIVE signal are to be controlled

DIMENSIONS - ORDERING CODES

DIMENSION OF A MULTI-POLE ELECTRICAL CONNECTION



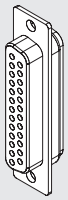


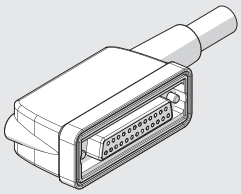
Ⓐ = Holes for D-Sub connector 25-pin or 44-pin

Code	Description	Weight [g]
02282**E025**	EB 80 25-pin electrical connection	180
02282**E044**	EB 80 44-pin electrical connection	180

ACCESSORIES

IP65 25-PIN PRE-WIRED PLUG CONNECTOR



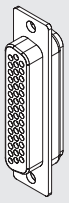


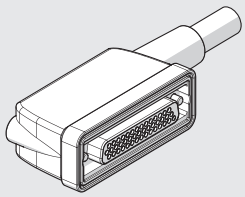
Code	Description	Weight [g]
02269A0100	IP65 25-pin 90° connector, UL cable L = 1 m	180
02269A0250	IP65 25-pin 90° connector, UL cable L = 2.5 m	365
02269A0500	IP65 25-pin 90° connector, UL cable L = 5 m	680
02269A1000	IP65 25-pin 90° connector, UL cable L = 10 m	1220
02269A2000	IP65 25-pin 90° connector, UL cable L = 20 m	2350
02269C0100	IP65 25-pin 90° connector, UL robotics, cable L = 1 m	180
02269C0250	IP65 25-pin 90° connector, UL robotics, cable L = 2.5 m	365
02269C0500	IP65 25-pin 90° connector, UL robotics, cable L = 5 m	680
02269C1000	IP65 25-pin 90° connector, UL robotics, cable L = 10 m	1220

Position of electrical contact	Colour of the corresponding wire	Function
1	White	Out 1
2	Brown	Out 2
3	Green	Out 3
4	Yellow	Out 4
5	Grey	Out 5
6	Pink	Out 6
7	Blue	Out 7
8	Red	Out 8
9	Black	Out 9
10	Violet	Out 10
11	Grey + Pink ring	Out 11
12	Red + Blue ring	Out 12
13	White + Green ring	Out 13
14	Brown + Green ring	Out 14
15	White + Yellow ring	Out 15
16	Yellow + Brown ring	Out 16
17	White + Grey ring	Out 17
18	Grey + Brown ring	Out 18
19	White + Pink ring	Out 19
20	Pink + Brown ring	Out 20
21	White + Blue ring	Out 21
22	Brown + Blue ring	Fault reporting
23	White + Red ring	Config. PNP/NPN *
24	Brown + Red ring	+VDC
25	White + Black ring	0VDC

* Connect to +VDC if (OUT) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (OUT) valves with a NEGATIVE signal are to be controlled

IP65 44-PIN PRE-WIRED PLUG CONNECTOR





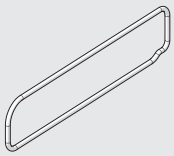
Code	Description	Weight [g]
02269B0100	IP65 44-pin 90° connector, UL cable L = 1 m	275
02269B0250	IP65 44-pin 90° connector, UL cable L = 2.5 m	630
02269B0500	IP65 44-pin 90° connector, UL cable L = 5 m	1180
02269B1000	IP65 44-pin 90° connector, UL cable L = 10 m	2210
02269B2000	IP65 44-pin 90° connector, UL cable L = 20 m	4340
02269D0100	IP65 44-pin 90° connector, UL robotics, cable L = 1 m	275
02269D0250	IP65 44-pin 90° connector, UL robotics, cable L = 2.5 m	630
02269D0500	IP65 44-pin 90° connector, UL robotics, cable L = 5 m	1180
02269D1000	IP65 44-pin 90° connector, UL robotics, cable L = 10 m	2210

Position of electrical contact	Colour of the corresponding wire	Function
1	White	Out 1
2	Brown	Out 2
3	Green	Out 3
4	Yellow	Out 4
5	Grey	Out 5
6	Pink	Out 6
7	Blue	Out 7
8	Red	Out 8
9	Black	Out 9
10	Violet	Out 10
11	Grey + Pink ring	Out 11
12	Red + Blue ring	Out 12
13	White + Green ring	Out 13
14	Brown + Green ring	Out 14
15	White + Yellow ring	Out 15
16	Yellow + Brown ring	Out 16
17	White + Grey ring	Out 17
18	Grey + Brown ring	Out 18
19	White + Pink ring	Out 19
20	Pink + Brown ring	Out 20
21	White + Blue ring	Out 21
22	Brown + Blue ring	Out 22
23	White + Red ring	Out 23
24	Brown + Red ring	Out 24
25	White + Black ring	Out 25
26	Brown + Black ring	Out 26
27	Grey + Green ring	Out 27
28	Yellow + Grey ring	Out 28
29	Pink + Green ring	Out 29
30	Yellow + Pink ring	Out 30
31	Green + Blue ring	Out 31
32	Yellow + Blue ring	Out 32
33	Green + Red ring	Out 33
34	Yellow + Red ring	Out 34
35	Green + Black ring	Out 35
36	Yellow + Black ring	OUT 36
37	Grey + Blue ring	OUT 37
38	Pink + Blue ring	OUT 38
39	Grey + Red ring	Fault reporting
40	Pink + Red ring	Config. PNP/NPN *
41	Grey + Black ring	+VDC
42	Pink + Black ring	+VDC
43	Blue + Black ring	0VDC
44	Red + Black ring	0VDC

* Connect to +VDC if (OUT) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (OUT) valves with a NEGATIVE signal are to be controlled

SPARE PARTS

EB 80 ELECTRICAL CONNECTION INTERFACE OR SEAL



Code	Description
02282R1003	EB80 electrical connection interface OR seal

Comes in 10-pc. packs

NOTES

EB 80 ELECTRICAL CONNECTION WITH FIELDBUS - E

The job of the electrical connection with fieldbus is to power the EB 80 systems, transmit control signals for the solenoid valves, send or receive signals for input/output management modules and control diagnostics.
The system can be supplied with a very wide voltage range, so much so that the EB 80 island can be controlled either at 12VDC or 24VDC (patented).
Overvoltages up to 30% of the rated value, i.e. up to 31.2V, are admitted.
The minimum voltage for solenoid pilots can be 10.8V, i.e. 12V-10%.
The modules come into parts: a lower part, with a single aluminium body separate from the bus protocol; an upper part with a technopolymer body dedicated to each specific bus protocol.

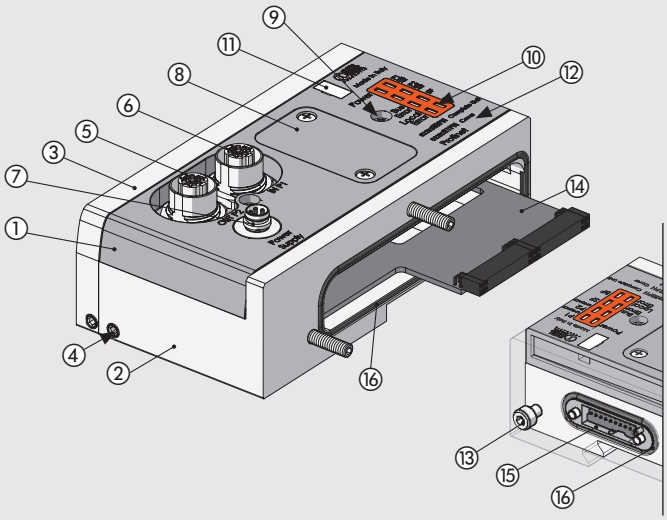
TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Power supply without controlled valves	W	4 for "Electrical connection - E" + 0.25 for each "Base - B"
Solenoid pilot power on start-up (Speed Up)	W	3 for 15 msec
Solenoid pilot power after start-up (holding)	W	0.3
Maximum admissible current	A	4 continuous, 6 instantaneous for valve supply
		4 continuous, 6 instantaneous for bus and signal supply
Protection		Overload and short-circuit protected solenoid pilot Output
Diagnostics		LED signal on valve, LED on electrical connection and software message regarding:
		short-circuited solenoid pilot; solenoid pilot with coil failure;
		voltage out of range (undervoltage and overvoltage); module communication control;
		on switching, configuration other than that stored
Maximum number of solenoid pilots		128
Maximum number of simultaneously controllable solenoid pilots		38
to actuate a greater number of solenoid pilots at the same time, add "Intermediate modules - M" with electrical connection		
Maximum number of signals **		128 digital inputs, 128 digital outputs, 16 analogue inputs, 16 analogue outputs
Maximum number of nodes **		40 Bases for valves + 16 digital inputs+ 16 digital outputs+ 4 analogue inputs + 4 analogue outputs
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		EtherNet/IP, EtherCAT, CANopen, Profinet IO, Profibus-DP, Ethernet POWERLINK, IO-Link
Degree of protection		IP65 (with connectors connected or plugged if not used)
Weight	g	350

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**
** For topological limits (maximum lengths, etc.) see the instructions.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

COMPONENTS

① UPPER PART BODY: technopolymer
② LOWER PART BODY: painted aluminium
③ END PLATE: painted aluminium
④ GRUB SCREW securing the DIN bar or bracket: galvanised steel
⑤ Fieldbus signal receive CONNECTOR
⑥ Fieldbus signal send CONNECTOR
⑦ M8 power supply CONNECTOR
⑧ COVER for access to bus address switches: technopolymer
⑨ SCREW securing the upper part to the lower part
⑩ LED light
⑪ NAMEPLATE: removable
⑫ IDENTIFICATION wording: laser etched
⑬ SCREW securing the end plate
⑭ CONNECTOR for solenoid valve base modules
⑮ CONNECTOR for input/output signal modules
⑯ GASKETS interfacing: NBR



EtherNet/IP WIRING DIAGRAM

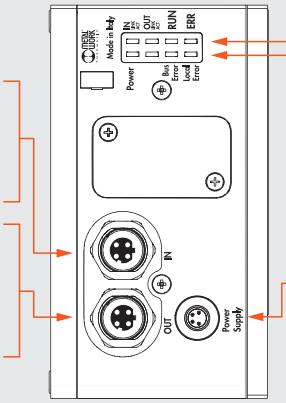
Connection to the EtherNet/IP network

IN (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

OUT ((M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



EtherNet/IP diagnostic signaling LED

EB 80 Net diagnostic signaling LED

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

TECHNICAL DATA		
Fieldbus		10 - 100 Mbit/S - Full-duplex - Half-duplex - Supports auto-negotiation and Quick Connect
Factory settings		Module denomination: EB80series
Addressing		BOOTP/DHCP software
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: 2 M12 F, D encoding, internal switch. Power supply: M8, 4-pin
Diagnostics **		EtherNet/IP: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

EtherCAT WIRING DIAGRAM

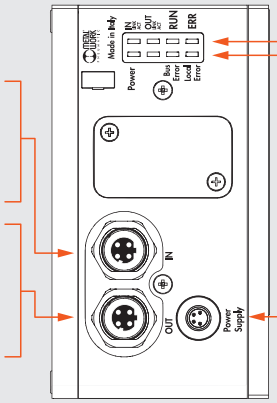
Connection to the EtherCAT network

IN (M12 female connector, D encoding)

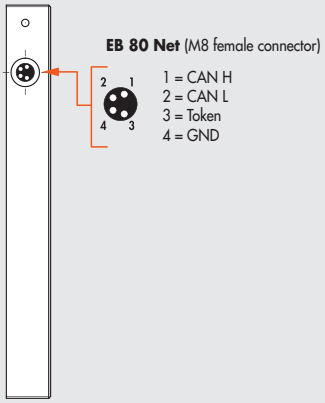
1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

OUT ((M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



End plate with intermediate control



TECHNICAL DATA		
Fieldbus		100 Mbit/S - Full-duplex - Supports auto-negotiation
Factory settings		module denomination: EB80series
Addressing		Automatic from the master depending on its topological position. Fixes with the second slave address function
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. outputs protected from overloads and short-circuits.
Connections		Fieldbus: 2 M12 F D encoding, internal switch. Power supply: M8, 4-PIN
Diagnostics **		EtherCAT: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**
** Refer to the user manual for a detailed description.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

CANopen WIRING DIAGRAM

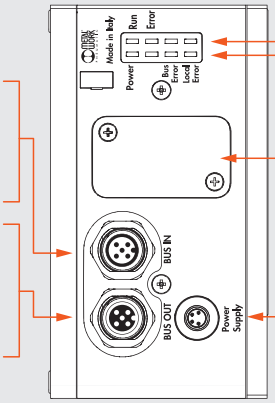
Connection to the CANopen network

IN (M12 male connector, A encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

OUT (M12 female connector, A encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



CANopen diagnostic signaling LED

EB 80 Net diagnostic signaling LED

The following is under the cover plate:
- address assignment switches
- transmission speed setting and the entry of the terminating resistors

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

TECHNICAL DATA		
Fieldbus		Complying with CiA DS401 specification
Factory settings		Module denomination: EB80series - Address 5
Addressing		Hardware via DIP SWITCH
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: BUS IN M12 Male, 5 poles, A encoding - BUS OUT M12 Female, 5 poles, encoding A - Power supply: M8, 4-PIN
Diagnostics*		CANopen: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

METAL WORK PNEUMATIC

Profinet IO WIRING DIAGRAM

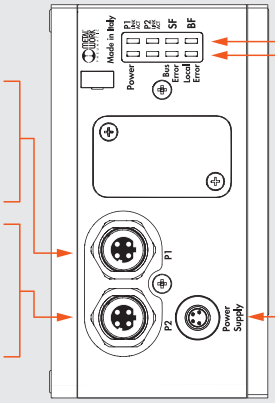
Connection to the Profinet IO network

P1 (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

P2 (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



Profinet IO diagnostic signaling LED

EB 80 Net diagnostic signaling LED

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

TECHNICAL DATA		
Fieldbus		100 Mbit/s - Full-duplex – Supports Fast Start Up, RT communication, Shared Device, Identification & Maintenance 1-4
Factory settings		Module denomination: EB80series – IP address: 0.0.0.0
Addressing		DCP Software
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: 2 M12 Female, D encoding, internal switch. Power supply: M8, 4-PIN
Diagnostics **		Profinet IO: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

Profibus-DP WIRING DIAGRAM

Connection to the Profibus-DP network

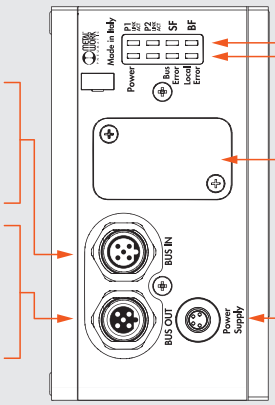
BUS IN (M12 Male Connector, B encoding)

1 = 5 V*
2 = A
3 = 0 V*
4 = B
5 = Shield

BUS OUT (M12 female connector, B encoding)

1 = 5 V*
2 = A
3 = 0 V*
4 = B
5 = Shield

* DO NOT CONNECT PIN 1 and PIN 3:
Only the power supply of external terminating resistors must be used.



Profibus-DP diagnostic signaling LED

EB 80 Net diagnostic signaling LED

The following is under the cover plate:
- address assignment switches
- the entry of the terminating resistors

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

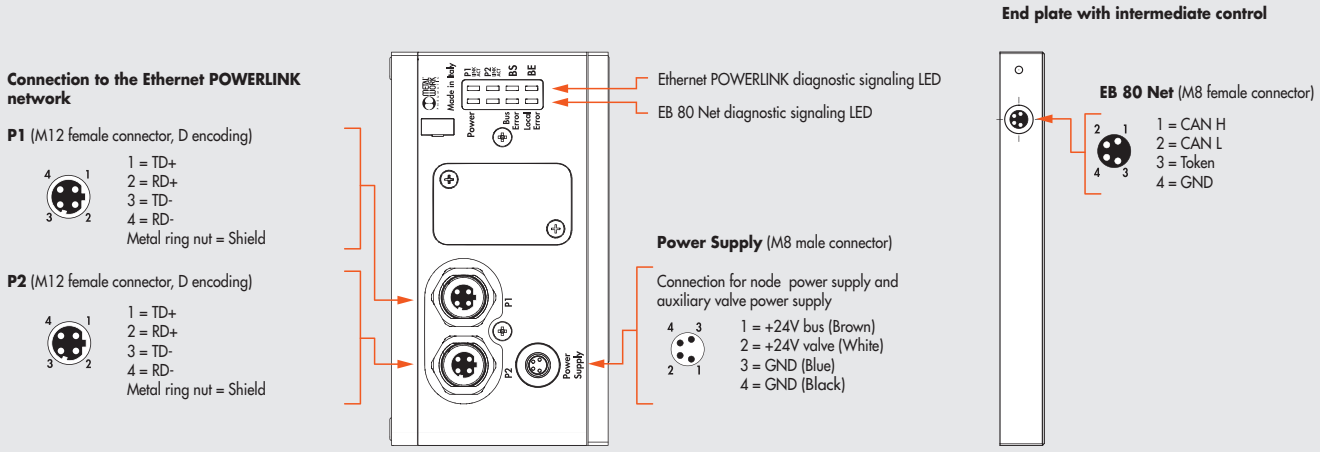
TECHNICAL DATA	
Fieldbus	Complying with Profibus-DP DIN E 1924 specification
Factory settings	Module denomination: EB80series - Address 5
Addressing	Hardware via ROTARY SWITCH
Supply voltage range	12 -10% 24 +30%
Minimum operating voltage	10.8 *
Maximum operating voltage	31.2
Maximum admissible voltage	32 ***
Protection	Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections	Fieldbus: BUS IN M12 Male, 5 poles, B encoding - BUS OUT M12 Female, 5 poles, B encoding - Power supply: M8, 4-PIN
Diagnostics **	Profibus-DP: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption	nominal Icc 180 mA at 24 V
Maximum number of pilots	128
Maximum number of digital inputs	128
Maximum number of digital outputs	128
Maximum number of analogue inputs	16
Maximum number of analogue outputs	16
Data bit value	0 = non-active; 1= active
State of outputs in the absence of communication	Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

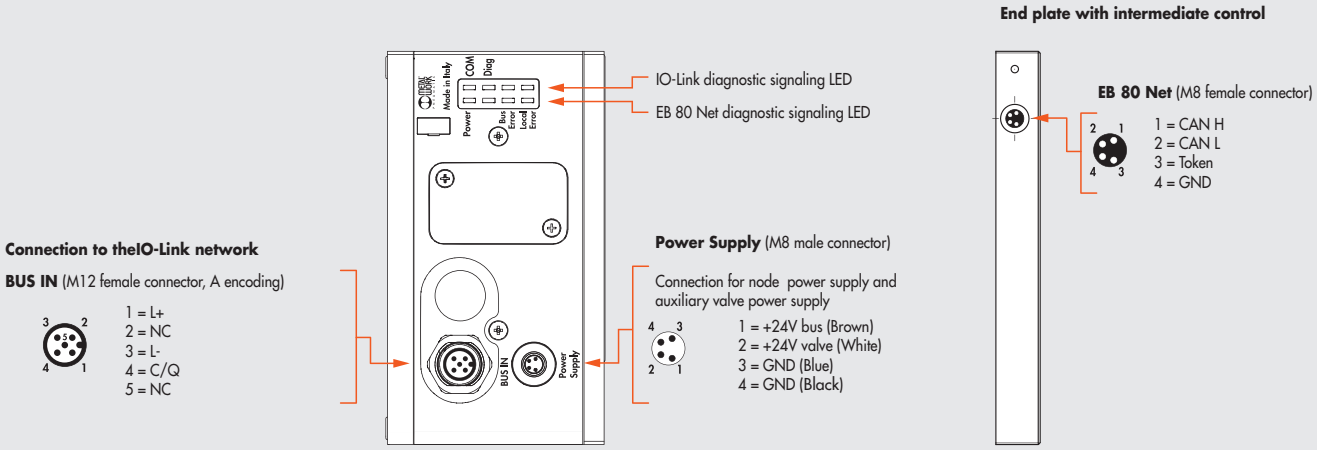
Ethernet POWERLINK WIRING DIAGRAM



TECHNICAL DATA	
Fieldbus	100 Mbit/S - Half-duplex - Supports auto-negotiation
Factory settings	module denomination: EB80series address number 2
Addressing	Hardware by rotary switch
Supply voltage range	12 -10% 24 +30%
Minimum operating voltage	10.8 *
Maximum operating voltage	31.2
Maximum admissible voltage	32 ***
Protection	Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections	Fieldbus: 2 M12 Female, D encoding, internal switch. Power supply: M8, 4-PIN
Diagnostics **	Ethernet POWERLINK: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption	nominal Icc 180 mA at 24 V
Maximum number of pilots	128
Maximum number of digital inputs	128
Maximum number of digital outputs	128
Maximum number of analogue inputs	16
Maximum number of analogue outputs	16
Data bit value	0 = non-active; 1= active
State of outputs in the absence of communication	Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.24**
** Refer to the user manual for a detailed description.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

IO-Link WIRING DIAGRAM

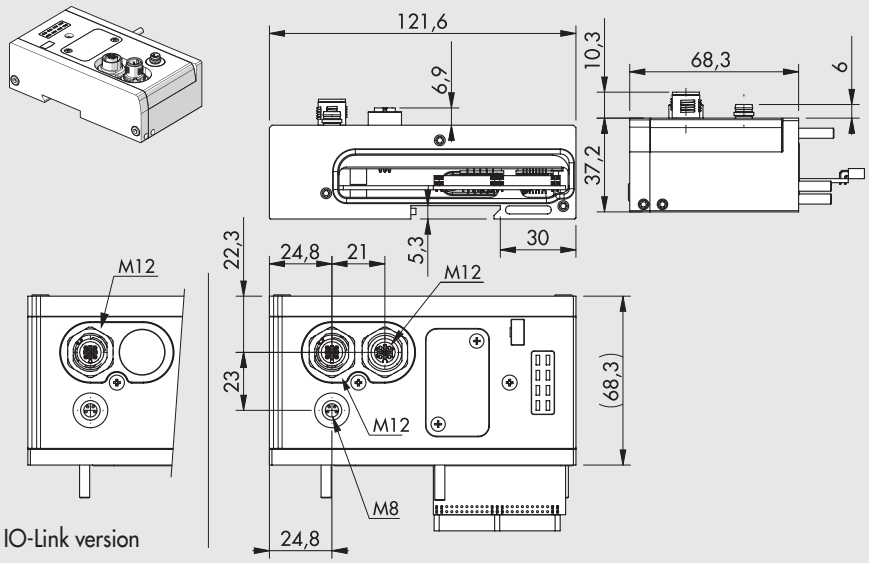


TECHNICAL DATA		
Fieldbus		IO-Link version 1.1
Communication speed	Kbps	230.4 (COM3)
Vendor ID / Device ID		1046 (hex 0x0416) / 32 (hex 0x000020)
Minimum cycle time	ms	2.8
Process data length		5 byte of Input / 4 byte of Output
Supply voltage range (M8 connector)	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
IO-Link power supply (L+L - Bus IN connector)	VDC	min 20, max 30
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: M12 male, A-coded - port class A. Power supply: M8, 4-PIN
Diagnostics **		IO-Link: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Power supply current absorption		See IO-Link instruction manual
Maximum number of pilots		32
Maximum number of digital inputs		32
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24
** Refer to the user manual for a detailed description.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

DIMENSIONS - ORDERING CODES

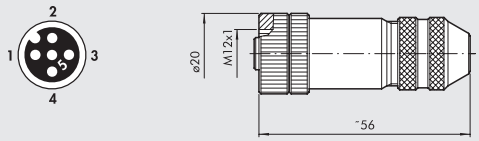
ELECTRICAL CONNECTION FIELDBUS DIMENSION



Code	Description	Weight [g]
02282**E0EN**	EB 80 Electrical connection EtherNet/IP	350
02282**E0EC**	EB 80 Electrical connection EtherCAT	350
02282**E0PN**	EB 80 Electrical connection Profinet IO	350
02282**E0CN**	EB 80 Electrical connection CANopen	350
02282**E0PB**	EB 80 Electrical connection Profibus-DP	350
02282**E0PL**	EB 80 Electrical connection Ethernet POWERLINK	350
02282**E0IO**	EB 80 Electrical connection IO-Link	350

ACCESSORIES

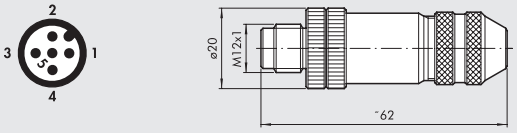
M12 FEMALE CONNECTOR FOR BUS-IN, A ENCODING



Code	Description
0240009055	M12 5-pin female connector, encoding A

Note: Can be used for Bus CANopen and IO-Link

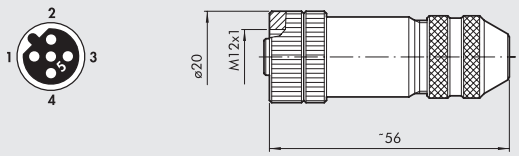
M12 MALE CONNECTOR FOR BUS-IN, A ENCODING



Code	Description
0240009038	M12 5-pin male connector, encoding A

Note: Can be used for Bus CANopen

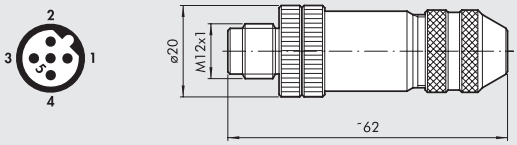
M12 FEMALE CONNECTOR FOR BUS-IN, B ENCODING



Code	Description
0240009036	M12 5-pin female connector, encoding B

Note: Can be used for Profibus-DP

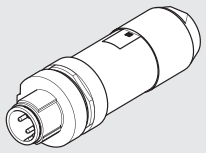
M12 MALE CONNECTOR FOR BUS-IN, B ENCODING



Code	Description
0240009035	M12 5-pin male connector, encoding B

Note: Can be used for Profibus-DP

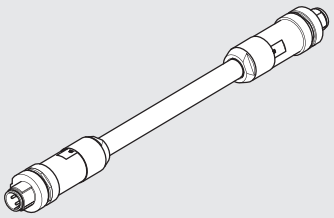
M12 BUS CONNECTOR, D ENCODING



Code	Description
0240005051	M12 4-pin BUS connector, D-coded

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

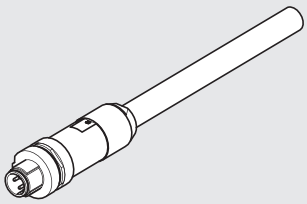
STRAIGHT CONNECTOR FOR M12-M12 BUS, D-CODED



Code	Description
0240005103	Straight connector for M12-M12 4-pin BUS, D-coded, with 3 m cable
0240005105	Straight connector for M12-M12 4-pin BUS, D-coded, with 5 m cable
0240005110	Straight connector for M12-M12 4-pin BUS, D-coded, with 10 m cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

STRAIGHT CONNECTOR FOR M12 BUS, D-CODED

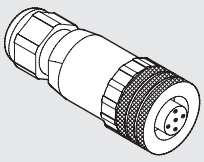


Pin	Cable color
1	Yellow
2	White
3	Red
4	Blue

Code	Description
0240005093	Straight connector for M12 4-pin BUS, D-coded, with 3 m cable
0240005095	Straight connector for M12 4-pin BUS, D-coded, with 5 m cable
0240005100	Straight connector for M12 4-pin BUS, D-coded, with 10 m cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

STRAIGHT CONNECTOR FOR M12, A-CODED

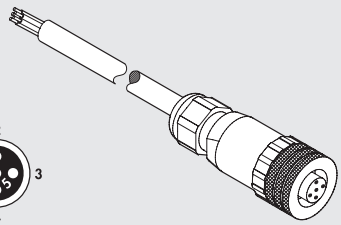


Code	Description
W0970513001	5-PIN M12X1 straight connector

Note: Can be used for IO-Link

STRAIGHT CONNECTOR WITH WIRE FOR M12, A-CODED

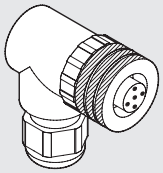
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray



Code	Description
W0970513002	5-PIN M12X1 straight connector with wire L = 5 m

Note: Can be used for IO-Link

90° CONNECTOR FOR M12, A-CODED

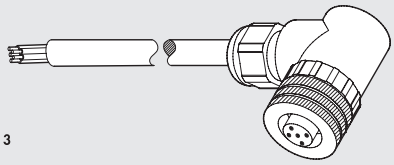


Code	Description
W0970513003	M12X1 5-PIN 90° connector

Note: Can be used for IO-Link

90° CONNECTOR WITH WIRE FOR M12, A-CODED

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray



Code	Description
W0970513004	M12X1 5-PIN 90° connector with wire L = 5 m

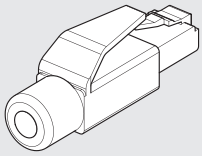
Note: Can be used for IO-Link

CABLE FOR BUS

Code	Description
0240005220*	Cable for BUS 20 m
0240005250	Cable for BUS CANopen BUS 20 m

* Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

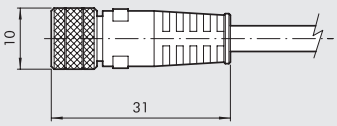
RJ45 CONNECTOR



Code	Description
0240005050	RJ45 connector with 4 contacts according to IEC 60 603-7

M8 CONNECTOR FOR POWER SUPPLY

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m

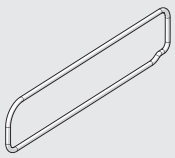
M8-M12 PLUG

Code	Description
0240009039	Plug for M8 connector
0240009040	Plug for M12 connector

NOTES

SPARE PARTS

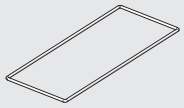
EB 80 ELECTRICAL CONNECTION INTERFACE OR-SEAL



Code	Description
02282R1003	EB 80 electrical connection interface or-seal

Comes in 10-pc. packs

GASKET BETWEEN EB 80 BASE AND COVER BUS/SIGNALS



Code	Description
02282R1004	Kit of gaskets between EB 80 base and cover bus/signals

Comes in 10-pc. packs

EB 80 BUS/SIGNAL INTERFACE OR-SEAL

Code	Description
02282R1005	EB 80 BUS/Signal interface OR-seal

Comes in 10-pc. packs

NOTES

EB 80 ADDITIONAL ELECTRICAL CONNECTION - E

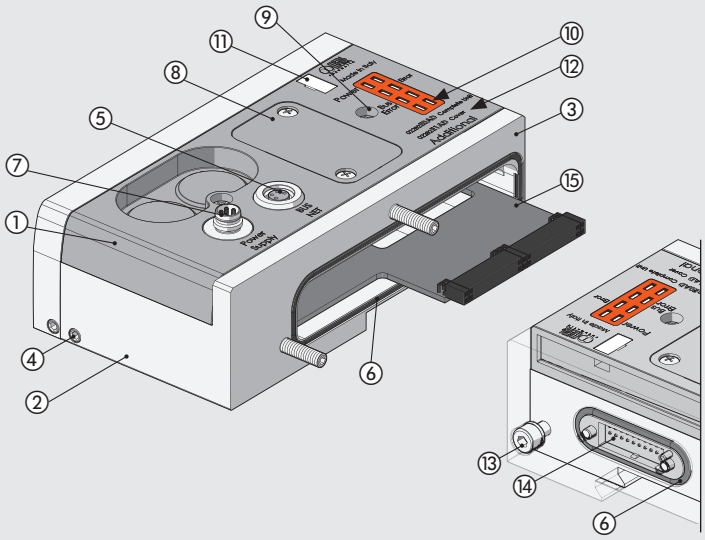
The additional electrical connection can be used to connect different EB 80 systems to a single bus node. To do this, the main island is equipped with a C3-type closed end plate, equipped with an M8 connector.
An M8-M8 connected cable relays the signal to the additional system.
The system can be supplied with a very wide range of voltages, so much so that the EB 80 island can be controlled at either 12VDC or 24VDC (patented). Overvoltages up to 30% of the nominal value are admitted, i.e. up to 31.2V. The minimum voltage for the solenoid pilots can be 10.8V, i.e. 12V-10%.
The modules consist of two parts: a lower part with a single aluminium body similar to that used for fieldbuses; an upper part with a technopolymer body specific for the additional model.

TECHNICAL DATA		
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Power supply without controlled valves	W	4 for "Electrical connection - E" + 0.25 for each "Base - B"
Solenoid pilot power on start-up (Speed Up)	W	3 for 15 msec
Solenoid pilot power after start-up (holding)	W	0.3
Maximum admissible current	A	4 continuous, 6 instantaneous for valve supply
		4 continuous, 6 instantaneous for bus and signal supply
Protection		Overload and short-circuit protected solenoid pilot Output
Diagnostics		LED signal on valve, LED on electrical connection and software message regarding:
		short-circuited solenoid pilot; solenoid pilot with coil failure;
		voltage out of range (undervoltage and overvoltage);
		module communication control; on switching, configuration other than that stored.
Maximum number of solenoid pilots		128 **
Maximum number of simultaneously controllable solenoid pilots		38
(to actuate a greater number of pilots at the same time, add "Intermediate modules - M" with "Electrical connection - E")		
Maximum number of signals **		128 digital inputs, 128 digital outputs, 16 analogue inputs, 16 analogue outputs
Maximum number of nodes **		40 Bases for valves + 16 Digital inputs + 16 Digital outputs + 4 Analogue inputs + 4 Analogue outputs
Maximum length of the connection cables ****	m	40
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Degree of protection		IP65 (with connectors connected or plugged if not used)
Weight	g	320

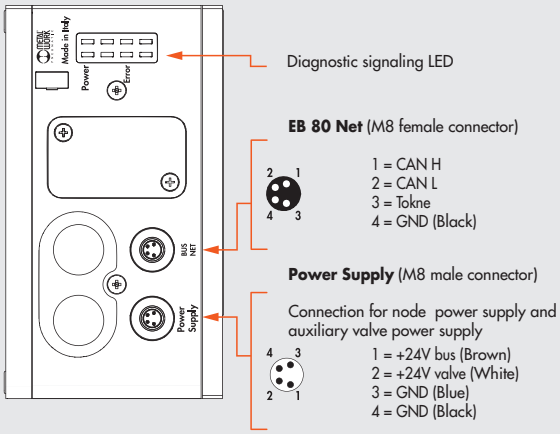
* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.24
** Total numbers, by summing up those of the fieldbus connection and all additional connections.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
**** Sum of the lengths of the cables between the fieldbus electrical connection and any additional electrical connections.

COMPONENTS

① UPPER PART BODY: technopolymer
② LOWER PART BODY: painted aluminium
③ END PLATE: painted aluminium
④ GRUB SCREW securing the DIN bar or bracket: galvanised steel
⑤ CONNECTOR for connection to the valve island (main one)
⑥ GASKETS interfacing: NBR
⑦ M8 power supply CONNECTOR
⑧ COVER for access to bus address switches: technopolymer
⑨ SCREW securing the upper part to the lower part
⑩ LED light
⑪ NAMEPLATE: removable
⑫ IDENTIFICATION wording: laser etched
⑬ SCREW securing the end plate
⑭ CONNECTOR for solenoid valve base modules
⑮ CONNECTOR for Input/Output signal modules

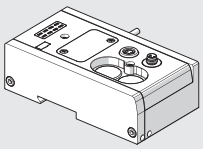


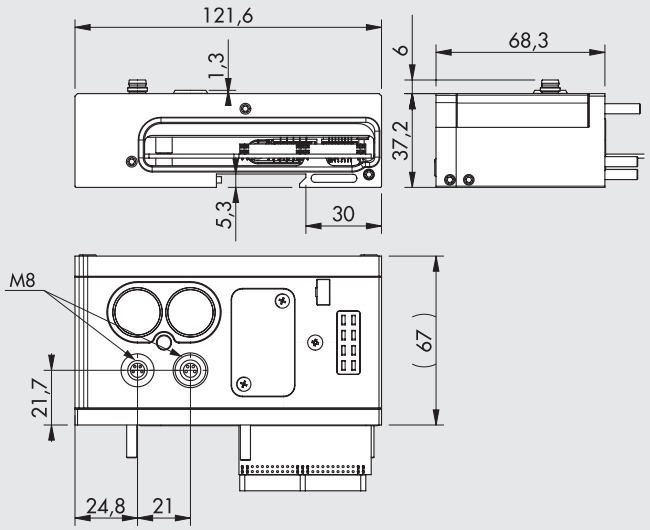
WIRING DIAGRAM



DIMENSIONS - ORDERING CODES

DIMENSION OF ADDITIONAL ELECTRICAL CONNECTION

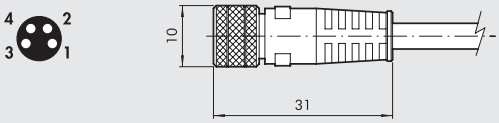




Code	Description	Weight [g]
02282**E0AD**	Additional electrical connection EB 80	320

ACCESSORIES

M8 CONNECTOR FOR POWER SUPPLY



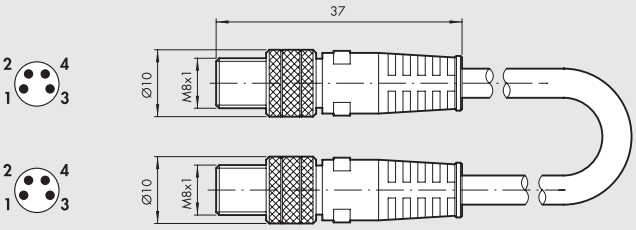
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m

M8 PLUG

Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR WITH CABLE FOR CONNECTION BETWEEN EB 80 ISLANDS

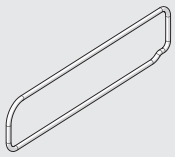


Code	Description	Weight [g]
0240010201	M8-M8 4-pin male shielded cable L = 1 m	45
0240010205	M8-M8 4-pin male shielded cable L = 5 m	185
0240010210	M8-M8 4-pin male shielded cable L = 10 m	330
0240010215	M8-M8 4-pin male shielded cable L = 15 m	475
0240010220	M8-M8 4-pin male shielded cable L = 20 m	620

N.B.: For correct operation of the entire EB 80 system, use M8-M8 pre-wired, twisted and shielded cables only.

SPARE PARTS

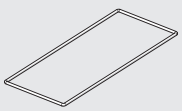
EB 80 ELECTRICAL CONNECTION INTERFACE OR-SEAL



Code	Description
02282R1003	EB 80 electrical connection interface OR-seal

Comes in 10-pc. packs

GASKET BETWEEN EB 80 BASE AND COVER BUS/SIGNALS



Code	Description
02282R1004	Kit of gaskets between EB 80 base and cover bus/signals

Comes in 10-pc. packs

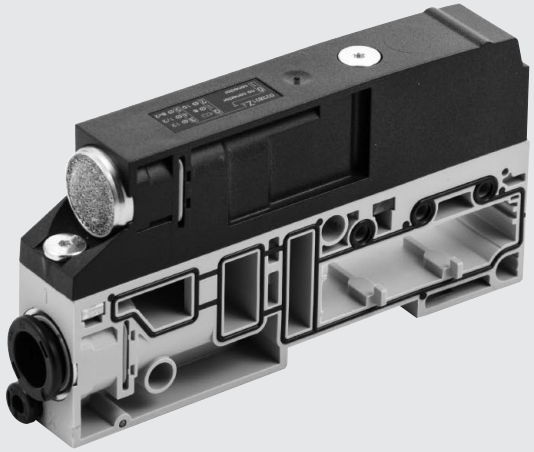
EB 80 BUS/SIGNAL INTERFACE OR-SEAL

Code	Description
02282R1005	EB 80 BUS/Signal interface OR-seal

Comes in 10-pc. packs

EB 80 COMPRESSED-AIR SUPPLY - P

The Compressed air supply - P modules power the valve base and collect the air coming from the relief ports. Various versions are available, with pipe fittings of different diameter. The product code also identifies whether the module is set to supply the pilots without servo-assistance, in which case you only need to connect compressed air to the supply fitting; or with servo-assistance (recommended), in which case you only need to connect the compressed air to the Ø 4 pilot fitting. Switching from servo to non-servo operation or vice versa is possible, however, by changing the position of the orange gasket situated between the lower and the upper part of the module; the configuration is identified by a tab protruding at the back.
Relief ports 3 and 5 can be either connected using a silencer or conveyed via a fitting.
A version with separate ports 3 and 5 is also available. This feature is useful in versions with pilot servo-assistance to power the valves from ports 3 and 5, at different pressures from vacuum to 8 bar.

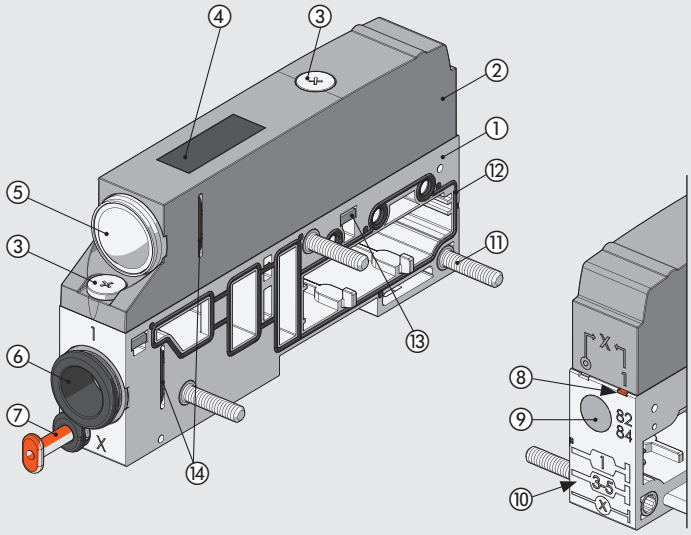


TECHNICAL DATA

Operating pressure					
Non-servo versions and solenoid pilot servo pressure		**5/2 and 5/3**		**2/2 and 3/2**	
	bar	3 to 8		min. (see graph on page **B2**.51) / max. 8	
	MPa	0.3 to 0.8		min. (see graph on page **B2**.51) / max. 0.8	
	psi	43 to 116		min. (see graph on page **B2**.51) / max. 116	
Assisted valves	bar	Vacuum to 10			
	MPa	Vacuum to 1			
	psi	Vacuum to 145			
Ambient temperature	°C	-10 to + 50			
	°F	14 to 122			
Flow rate at 6.3 bar ΔP 1 bar		**Ø 8 (5/16")**	**Ø 10**	**Ø 12**	**Ø 1/2"**
Feeding (port 1)	Nl/min	1800	2800	3500	3500
Exhaust with fitting (ports 3 and 5)	Nl/min	2000	3200	4400	4400
Separate exhausts Ø 8 (N.B.: Pmax 8 bar)	Nl/min	1800 x 2	-	-	-
Flow rate at 6.3 bar free exhaust					
Exhaust with fitting (ports 3 and 5)	Nl/min	2700	3900	6100	6100
Silenced exhaust	Nl/min	3600			
Exhaust with fitting Ø12 and silencer W0970530086	Nl/min	6000			
Separate exhausts Ø 8 (N.B.: Pmax 8 bar)	Nl/min	2700 x 2	-	-	-
Fluid		Unlubricated air			
Versions		Silenced relief or conveyed relief, fittings for pipes Ø 8, 10, 12, 1/2"			
Degree of protection		IP65			
Weight	g	140	130	125	125

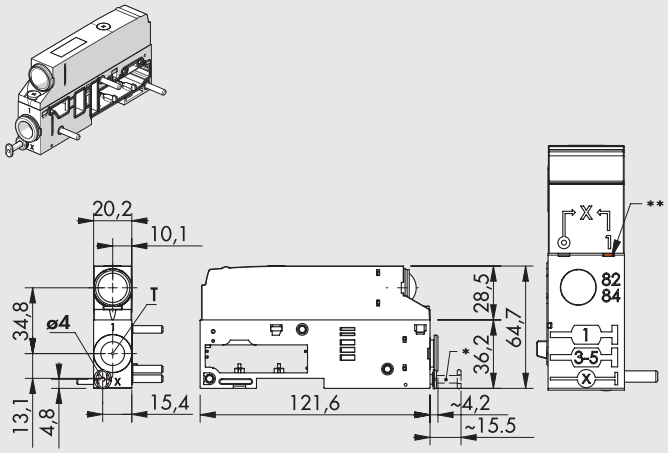
COMPONENTS

① LOWER PART BODY: technopolymer
② UPPER PART BODY: technopolymer
③ SCREWS securing the island bodies: galvanised steel (Tightening torque: 1.2 Nm)
④ TAG: with laser etched wording - technopolymer
⑤ RELIEF: silencer or pipe fitting
⑥ POWER SUPPLY: pipe fitting
⑦ PILOTING (X): Ø 4 pipe fitting
⑧ INDICATOR: indicaes whether pilot power supply is separate or not
⑨ PILOT RELIEF: HDPE silencer
⑩ PICTOGRAM: showing compressed air system layout
⑪ TIE ROD: nickelled steel
⑫ GASKET: NBR
⑬ THREADED PLATE: galvanised steel
⑭ CARTRIDGE FIXING CLIP: stainless steel



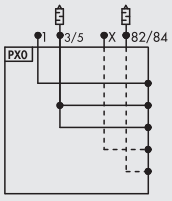
DIMENSIONS - ORDERING CODES

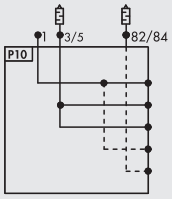
COMPRESSED AIR SUPPLY - SILENCED RELIEF



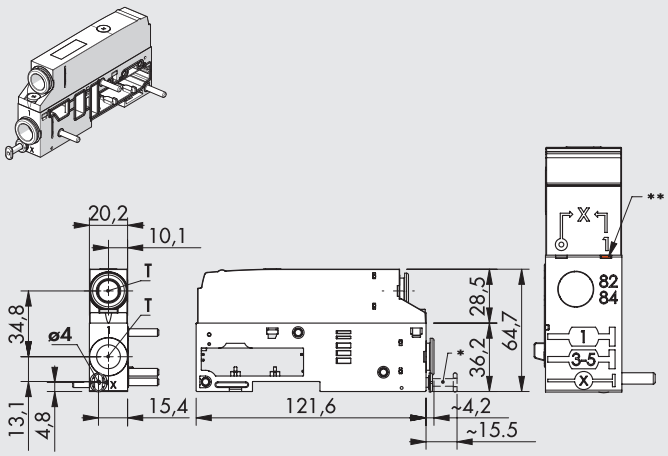
* R9 plug for NON-SERVOASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

Symbol	T - Pipe fitting	Code	Weight [g]
Servo-assisted	Ø 8 (5/16")	02282**P1XZ00**	140
	Ø 10	02282**P2XZ00**	130
	Ø 12	02282**P3XZ00**	125
	Ø 1/2"	02282**P5XZ00**	125
Non-servo-assisted	Ø 8 (5/16")	02282**P11Z00**	140
	Ø 10	02282**P21Z00**	130
	Ø 12	02282**P31Z00**	125
	Ø 1/2"	02282**P51Z00**	125



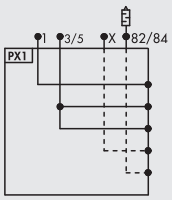


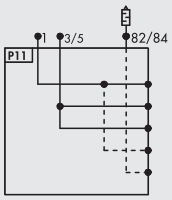
COMPRESSED AIR SUPPLY - CONVEYED RELIEF



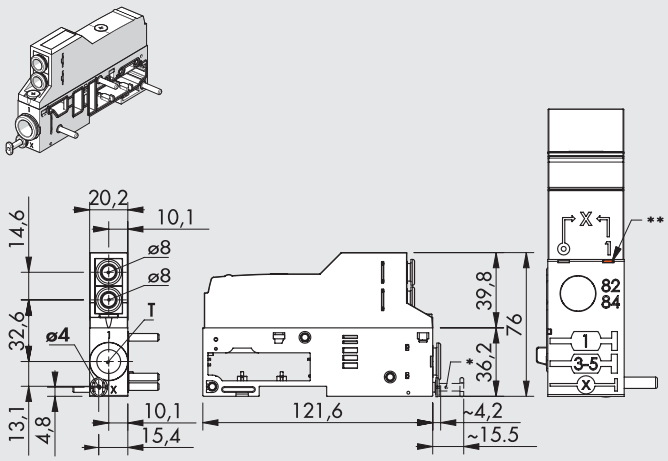
* R9 plug for NON-SERVOASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

Symbol	T - Pipe fitting	Code	Weight [g]
Servo-assisted	Ø 8 (5/16")	02282**P1XZ10**	140
	Ø 10	02282**P2XZ20**	130
	Ø 12	02282**P3XZ30**	125
	Ø 1/2"	02282**P5XZ50**	125
Non-servo-assisted	Ø 8 (5/16")	02282**P11Z10**	140
	Ø 10	02282**P21Z20**	130
	Ø 12	02282**P31Z30**	125
	Ø 1/2"	02282**P51Z50**	125



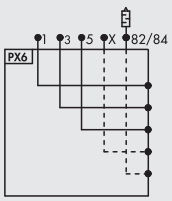


COMPRESSED AIR SUPPLY - SEPARATE RELIEFS

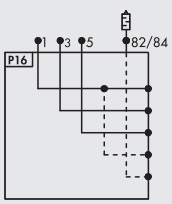


* R9 plug for NON-SERVOASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

Symbol	T - Pipe fitting	Code	Weight [g]
Servo-assisted	Ø 8 (5/16")	02282**P1XZ60**	155
	Ø 10	02282**P2XZ60**	145
	Ø 12	02282**P3XZ60**	140
	Ø 1/2"	02282**P5XZ60**	140
Non-servo-assisted	Ø 8 (5/16")	02282**P11Z60**	155
	Ø 10	02282**P21Z60**	145
	Ø 12	02282**P31Z60**	140
	Ø 1/2"	02282**P51Z60**	140



N.B.: Maximum pressure in the ports 3 and 5: 8 bar



N.B.: Maximum pressure in the ports 3 and 5: 8 bar

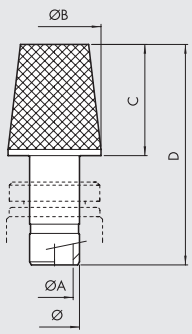
KEY TO CODES

02282	P	3	1	Z	3	0
FAMILY	SUBSYSTEM	PORT PIPE 1	PILOT SERVO-ASSISTED	UPPER PART	PORTS 3 AND 5 CONNECTION	SPECIALTY
02282 EB 80	**P** Compressed air supply	**1** Pipe Ø 8 (5/16″) **2** Pipe Ø 10 **3** Pipe Ø 12 **5** Pipe Ø 1/2″	**1** Non-servo-assisted **X** Servo-assisted	**Z** The upper part is present	**0** Silencer ▲ **1** Pipe Ø 8 (5/16″) ▲ **2** Pipe Ø 10 ▲ **3** Pipe Ø 12 ▲ **5** Pipe Ø 1/2″ **6** 2 pipes Ø 8 (5/16″) (one for port 3, one for port 5)	**0** Standard

▲ For ports 3 and 5 use the same pipe Ø of port 1.

ACCESSORIES

SILENCER FOR FITTING

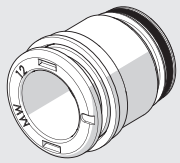


Ø	Ø A	Ø B	C	D
8	6	15	18	35.7
12	10	18.8	29	51.5

Code	Description	Weight [g]
W0970530084	Silencer for fitting, Ø 8	15
W0970530086	Silencer for fitting, Ø 12	24

SPARE PARTS

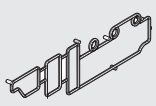
CARTRIDGE



Code	Description	Ø
02282R2110	EB 80 silencer cartridge kit	silencer
02282R2113	EB 80 Ø 8 power supply round cartridge kit	8 (5/16″)
02282R2114	EB 80 Ø 10 power supply round cartridge kit	10
02282R2115	EB 80 Ø 12 power supply round cartridge kit	12
02282R2118	EB 80 Ø 1/2 power supply round cartridge kit	1/2"

Comes in 10-pc. packs

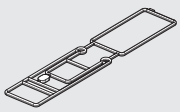
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

LOWER /UPPER BODY GASKET

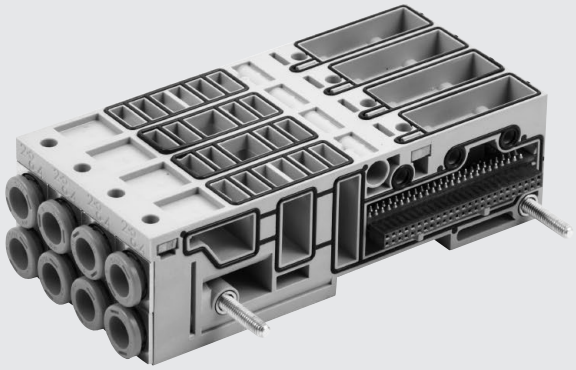


Code	Description
02282R1001	EB 80 lower/upper body gasket kit

Comes in 10-pc. packs

EB 80 BASES FOR VALVES - B

The EB 80 "Bases for valves - B" can be provided with 3 or 4 positions.
A version is available with an electrical connection for a single control of each position, suitable for 5/2 monostable solenoid valves (physically impossible to install other valves). Another version comes with two electrical connections for each position and is suitable for all types of valves.
The electronics in the base controls the signal coming from both the multi-pole connector and the fieldbus, so the base is the same, regardless of the control system of the island.
The air delivery ducts (ports 2 and 4) are made up of cartridge-type push-in fittings. The cartridge can be replaced, for example when the pipe diameter needs to be changed, by pulling out the clip placed under the base.
The air flow ducts (ports 1, 3, 5, X) of the 4-position base are the full flow type. For the 3-position base, either full-flow or one or more sectioned ports can be mounted. With this solution, islands with zones with differentiated pressure can be created.



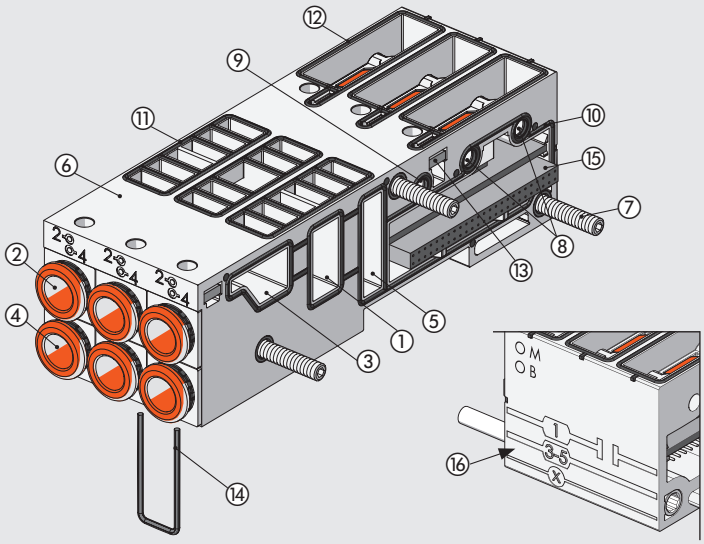
PATENTED

TECHNICAL DATA

Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Fluid		Unlubricated air
Versions		3-position base for controlling 3 solenoid pilots; 3 positions for 6 solenoid pilots; 4 positions for 4 solenoid pilots; 4 positions for 8 solenoid pilots.
		Pipe fittings Ø 4 (5/32"), 6, 8 (5/16"), 1/4" Ducts
		1, 3, 5 and X full flow
		3-position base with 1 sectioned duct; 1, 3 a 5 sectioned; 3 and 5 sectioned (after the first position)
Degree of protection		IP65

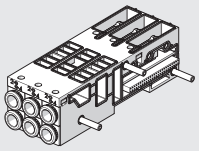
COMPONENTS

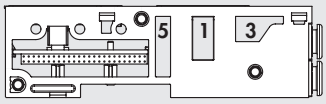
① PORT 1 DUCT
② PORT 2 CARTRIDGE: push-in fitting
③ PORT 3 DUCT
④ PORT 4 CARTRIDGE: push-in fitting
⑤ PORT 5 DUCT
⑥ BODY: technopolymer
⑦ TIE ROD: nickeled brass and galvanised steel threading
⑧ 82/84 DUCT: pilot air relief
⑨ X DUCT: pilot control
⑩ GASKET BETWEEN BASES: NBR
⑪ GASKET FOR THE VALVE: NBR
⑫ GASKET FOR IP65:NBR
⑬ THREADED PLATE for securing the valves: galvanised steel
⑭ CLIP for securing the cartridge: stainless steel
⑮ ELECTRONICS
⑯ PICTOGRAM: indication of compressed air system layout

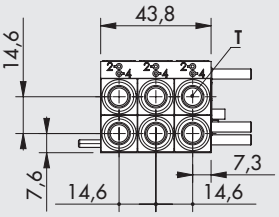


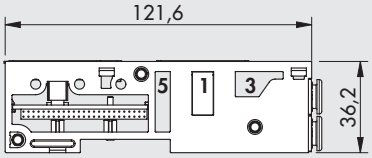
DIMENSIONS - ORDERING CODES

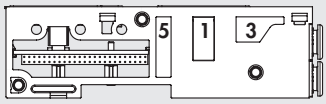
3-POSITION BASE FOR VALVES

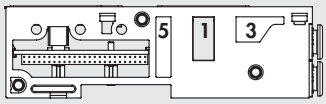




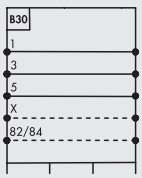


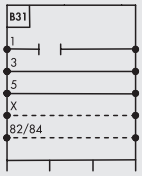


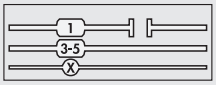


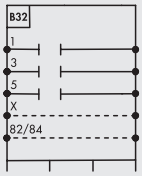


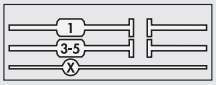
Symbol	T - Pipe fitting	Code 3 CONTROLS	Code 6 CONTROLS	Weight [g]
Full-flow ports	without cartridges	02282**B3031110**	02282**B3061110**	148
	Ø 4 (5/32")	02282**B3034440**	02282**B3064440**	210
	Ø 6	02282**B3036660**	02282**B3066660**	200
	Ø 8 (5/16")	02282**B3038880**	02282**B3068880**	183
	Ø 1/4"	02282**B3032220**	02282**B3062220**	200
Port 1 sectioned after the first position	without cartridges	02282**B3131110**	02282**B3161110**	148
	Ø 4 (5/32")	02282**B3134440**	02282**B3164440**	210
	Ø 6	02282**B3136660**	02282**B3166660**	200
	Ø 8 (5/16")	02282**B3138880**	02282**B3168880**	183
	Ø 1/4"	02282**B3132220**	02282**B3162220**	200
Ports 1, 3 and 5 sectioned after the first position	without cartridges	02282**B3231110**	02282**B3261110**	148
	Ø 4 (5/32")	02282**B3234440**	02282**B3264440**	210
	Ø 6	02282**B3236660**	02282**B3266660**	200
	Ø 8 (5/16")	02282**B3238880**	02282**B3268880**	183
	Ø 1/4"	02282**B3232220**	02282**B3262220**	200
Ports 3 and 5 sectioned after the first position	without cartridges	02282**B3331110**	02282**B3361110**	148
	Ø 4 (5/32")	02282**B3334440**	02282**B3364440**	210
	Ø 6	02282**B3336660**	02282**B3366660**	200
	Ø 8 (5/16")	02282**B3338880**	02282**B3368880**	183
	Ø 1/4"	02282**B3332220**	02282**B3362220**	200

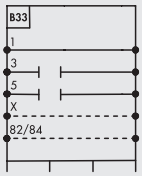


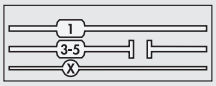




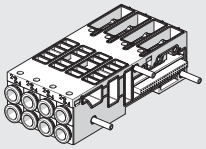


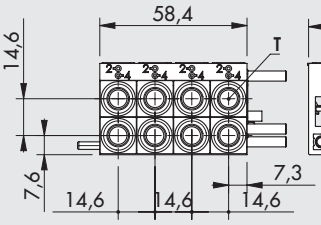


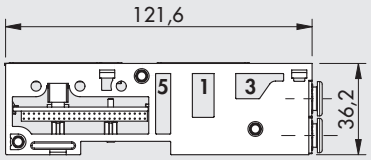




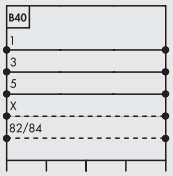
4-POSITION BASE FOR VALVES

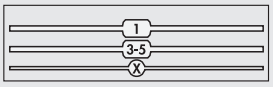






Symbol	T - Pipe fitting	Code 4 CONTROLS	Code 8 CONTROLS	Weight [g]
Full-flow ports	without cartridges	02282**B4041111**	02282**B4081111**	196
	Ø 4 (5/32")	02282**B4044444**	02282**B4084444**	276
	Ø 6	02282**B4046666**	02282**B4086666**	256
	Ø 8 (5/16")	02282**B4048888**	02282**B4088888**	244
	Ø 1/4"	02282**B4042222**	02282**B4082222**	256





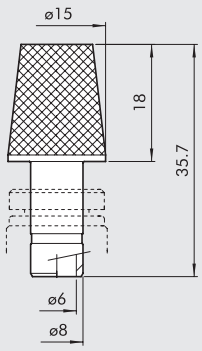
KEY TO CODES

02282	B	3	0	6	8	8	8	0
FAMILY	SUBSYSTEM	NUMBER OF POSITIONS	PORTS IN THE BASE	NUMBER OF SOLENOID PILOT CONTROLS	FITTINGS 1st position (from left)	FITTINGS 2nd position	FITTINGS 3rd position	FITTINGS 4TH position
02282 EB 80	**B** Base for valve	**3** 3 positions **4** 4 positions	**0** Full-flow ports ▲ **1** Port 1 sectioned ▲ **2** Ports 1, 3 and 5 sectioned ▲ **3** Ports 3 and 5 sectioned	▲ **3** 3 controls ■ **4** 4 controls ▲ **6** 6 controls ■ **8** 8 controls	**1** Without cartridges **2** Pipe fitting Ø 1/4" **4** Pipe fitting Ø 4 (5/32") **6** Pipe fitting Ø 6 **8** Pipe fitting Ø 8 (5/16")			▲ **0** (for 3-position base) ■ **1** Without cartridges ■ **2** Pipe fitting Ø 1/4" ■ **4** Pipe fitting Ø 4 (5/32") ■ **6** Pipe fitting Ø 6 ■ **8** Pipe fitting Ø 8 (5/16")

▲ For 3-position base only. ■ For 4-position base only.

ACCESSORIES

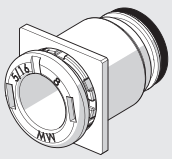
SILENCER FOR FITTING, Ø 8



Code	Description	Weight [g]
W0970530084	Silencer for fitting, Ø 8	15

SPARE PARTS

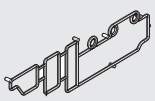
CARTRIDGE



Code	Description	Ø
02282R2001	EB 80 Ø 4 base square cartridge kit	4 (5/32")
02282R2002	EB 80 Ø 6 base square cartridge kit	6
02282R2003	EB 80 Ø 8 base square cartridge kit	8 (5/16")
02282R2006	EB 80 Ø 1/4 base square cartridge kit	1/4"

Comes in 10-pc. packs

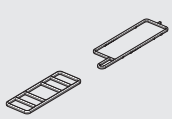
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

BASE-VALVE GASKET

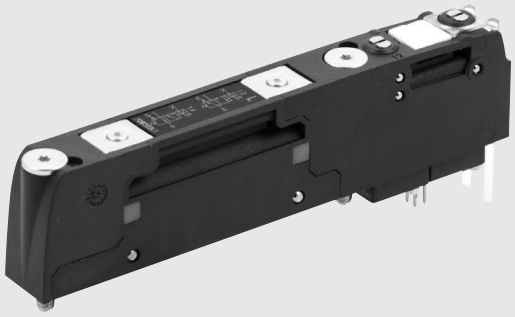


Code	Description
02282R1002	EB 80 base-valve gasket kit

Comes in 10-pc. packs

EB 80 VALVES

The valves in the EB 80 series are designed to ensure high flow using only one small size valve (14 mm wide), without the need of installing a larger size one, to the benefit of component standardisation.
Versions are available with all the main air supply diagrams - from 2/2 to 5/3. The valves are secured to the base with two sturdy M4 captive screws. They come with all the accessories that facilitate their use: manual control, monostable or bistable, LED light, plate with air supply diagram and technical data, white plates available to the customer.
The range also includes:
- High-flow valves which have an innovative system that reaches flow rates that are uncommon for this size of valve.
- Bypass element that makes it possible to boost supply and reliefs or create special pneumatic circuits.
- Circuit shut-off valve (V3V) to connect/disconnect all station valves.
- Dummy valve to plug blank base positions.



TECHNICAL DATA

Operating pressure		**5/2 and 5/3**			**2/2 and 3/2**		
Non-assisted valves	bar	3 to 8			3.5 to 8		
	MPa	0.3 to 0.8			0.35 to 0.8		
	psi	43 to 116			51 to 116		
Assisted valves	bar	Vacuum to 10					
	MPa	Vacuum to 1					
	psi	Vacuum to 145					
Servo pressure	bar	3 to 8			min. (see graph on page **B2**.51) / max. 8		
	MPa	0.3 to 0.8			min. (see graph on page **B2**.51) / max. 0.8		
	psi	43 to 116			min. (see graph on page **B2**.51) / max. 116		
Ambient temperature	°C	-10 to 50 (at 8 bar)					
	°F	14 to 122 (at 8 bar)					
Flow rate at 6.3 bar ΔP 1 bar		**Ø 4 (5/32")**	**Ø 6**	**Ø 8 (5/16")**	**Ø 1/4"**	**Ø 10 ****	**Ø 3/8" ****
valve 2/2	Nl/min	350	430	500	430	-	-
valve 3/2	Nl/min	350	600	700	600	1250	1250
valve 5/2	Nl/min	350	650	800	650	1250 - 1400	1250 - 1400
valve 5/3	Nl/min	350	460	500	460	1000 - 1250	1000 - 1250
valve V3V (R)	Nl/min	-	-	-	-	1000	1000
Actuation response time (TRA) / reset response time (TRR) at 6 bar							
TRA/TRR valves 2/2 and 3/2	ms	14 /28					
TRA/TRR valves 5/2 monostable and shut-off valve	ms	12/45					
TRA/TRR valve 5/2 bistable	ms	9 / 11					
TRA/TRR valve 5/3	ms	15 / 45					
TRA/TRR valve 3/2 high flow	ms	13 / 36					
Fluid		Unlubricated air					
Air quality required		ISO 8573-1 class 4-7-3					
Supply voltage range	V	12 -10% 24 +30%					
Minimum operating voltage	V	10.8 *					
Maximum operating voltage	V	31.2					
Maximum admissible voltage	V	32 ***					
Power for each valve	W	3 for a few milliseconds. Holding 0.3					
Drive		PNP or NPN					
Solenoid rating		100% ED					
Versions		Manual monostable or bistable control. Various compressed air diagrams					
Degree of protection		IP65					

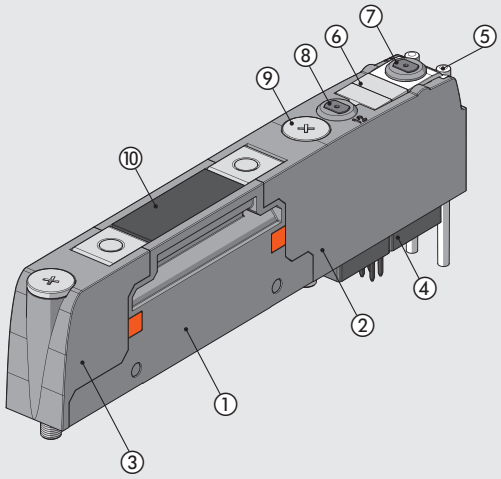
IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power pack output using the calculations shown on page B2**.24
** Using high-flow valves or connected valves - see pages **B2**.52
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

METAL WORK PNEUMATIC

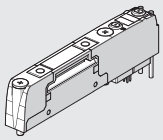
COMPONENTS

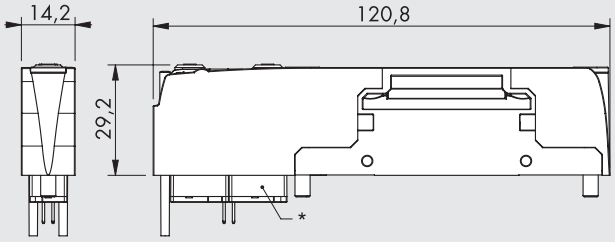
① BODY: technopolymer
② CONTROL: technopolymer
③ BASE: technopolymer
④ SOLENOID PILOT
⑤ DISPLAY: LED light and optical tester in technopolymer
⑥ TAG: removable
⑦ MANUAL CONTROL 14, for port 4: monostable or bistable, in brass
⑧ MANUAL CONTROL 12, for port 2: monostable or bistable, in brass
⑨ SCREW FOR FIXING TO THE BASE: M4 with PH 1 cross-head, galvanised steel. Tightening torque: 1.2 Nm
⑩ TAG: technopolymer with laser-etched wording



DIMENSIONS - ORDERING CODES

EB 80 VALVE



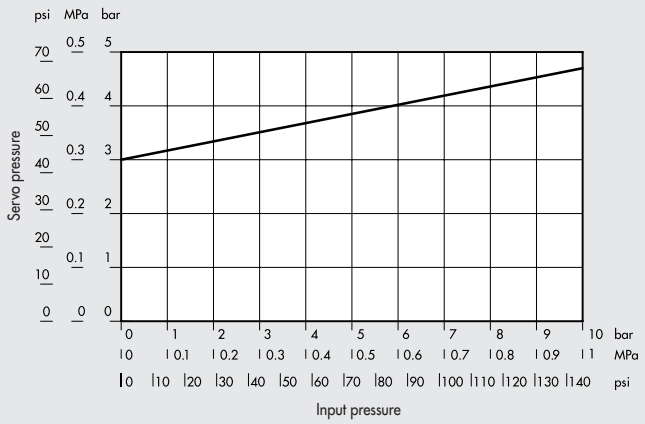


* The second solenoid pilot is not present in the valves V= 5/2 monostable.

N.B.: The valves Z, I, W, L, K, O can be mounted only on bases having 6 or 8 controls.

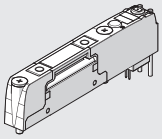
SERVO MINIMUM PRESSURE FOR VALVES 2/2 AND 3/2

If the island is configured without servo, minimum pressure 3.5 bar

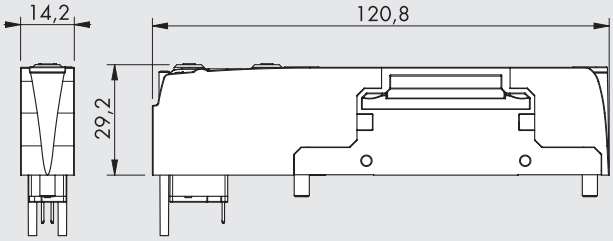


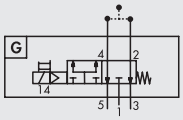
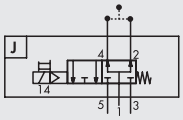
Symbol	Type	Code	Manual control	Weight [g]
Z	2 valves 2/2 NC	708203**Z0**	monostable	82
		708203**Z1**	bistable	82
I	2 valves 3/2 NC	708203**I0**	monostable	82
		708203**I1**	bistable	82
	valid as 5/3 OC			
W	2 valves 3/2 NO	708203**W0**	monostable	82
		708203**W1**	bistable	82
	valid as 5/3 PC			
L	3/2 NC + 3/2 NO	708203**L0**	monostable	82
		708203**L1**	bistable	82
V	monostable 5/2	708203**V0**	monostable	69
		708203**V1**	bistable	69
K	bistable 5/2	708203**K0**	monostable	81
		708203**K1**	bistable	81
O	5/3 CC	708203**O0**	monostable	82
		708203**O1**	bistable	82

EB 80 HIGH-FLOW VALVE



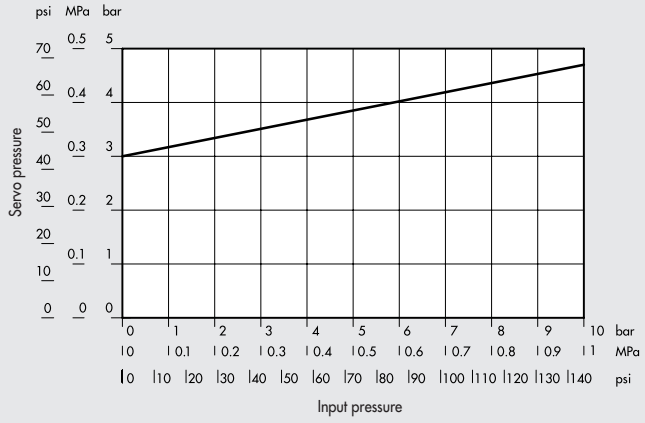
PATENTED



Symbol	Type	Code	Manual control	Weight [g]
G 	3/2 NC high flow	708203**G0**	monostable	69
		708203**G1**	bistable	69
J 	3/2 NO high flow	708203**J0**	monostable	69
		708203**J1**	bistable	69

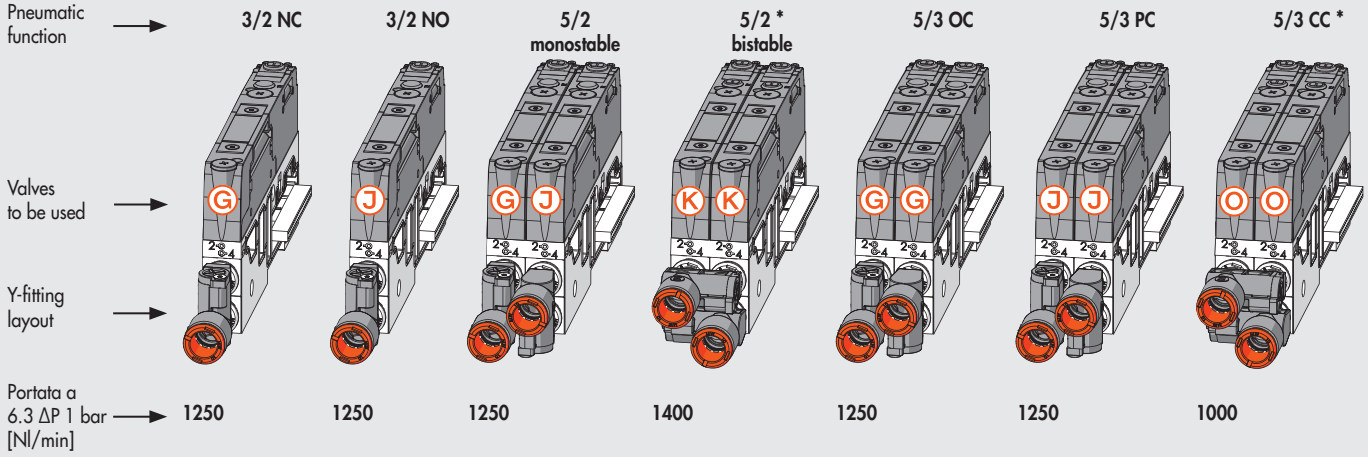
SERVO MINIMUM PRESSURE

If the island is configured without servo, minimum pressure 3.5 bar



HOW TO GET HIGH-FLOW RATE FOR EACH PNEUMATIC FUNCTION

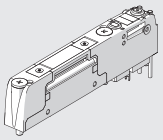
N.B. The two cartridges on the base (2 and 4) must fit the Ø 8 mm pipe.
Outputs 2 and 4 must be connected one to the other. To do this, you can use the special Y-fitting.
When connecting one or more valves using the Y-fitting, the pneumatic system functions must be configured according to the following diagram.



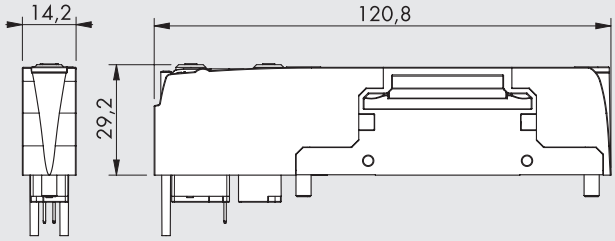
In order to get 5/2 monostable, 5/2 bistable and 5/3 DC high flow, use two parallel valves, by energizing the solenoids simultaneously.

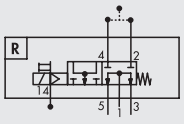
* The Y-fittings of this valve must be installed longitudinally with one Y-fitting connecting the two outputs (2) and the other the two outputs (4).
The solenoid pilots must be operated simultaneously.

EB 80 SHUT-OFF VALVE (V3V)



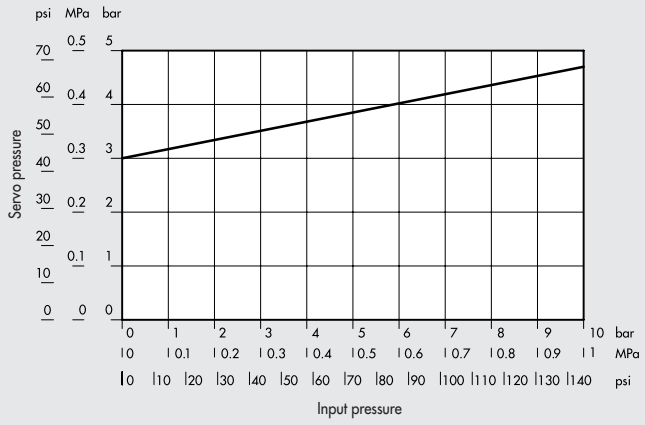
PATENTED



Symbol	Type	Code	Manual control	Weight [g]
R 	Shut-off valve	708203**R0**	monostable	69
		708203**R1**	bistable	69

SERVO MINIMUM PRESSURE

If the island is configured without servo, minimum pressure 3.5 bar

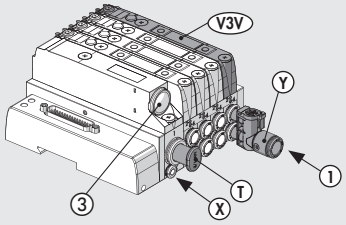


This valve enables the supply/relief of all station valves. The pneumatic supply is delivered via ports 2 and 4 on the base underneath the valve. It is discharged via ports 3 and 5 with general station discharge. Port 1 on pneumatic supply module P must be plugged for the system to operate and slave the island by supplying continuous pressure to port X.
The shut-off valve is designed for the following uses and benefits:
- the valve can be fitted in any position and not necessarily to the left of the others;
- if the station is split into areas with separate channels (1) via intermediate modules M or bases with port 1 selected, the shut-off valve only operates in the area where it is fitted.
- if the capacity of a shut-off valve is not sufficient for its use, two or more can be fitted and operated simultaneously.

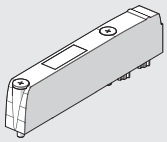
TECHNICAL DATA		
Flow rate at 6.3 bar ΔP 1 bar	Nl/min	1000 (with 2 Ø 8 fittings or a Y fitting, pipe Ø 10 mm or 3/8")
Exhaust flow rate at 6.3 bar	Nl/min	660
Actuation response time (TRA) / reset response time (TRR) at 6 bar	ms	12/45
Servo pressure		See technical data 3/2 valves (page **B2**.50)

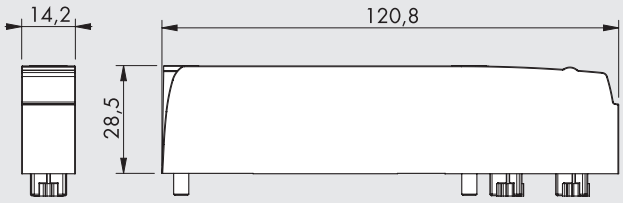
SHUT-OFF VALVE DIAGRAM

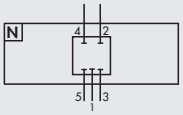
V3V Shut-off valve, can be fitted in any position
1 Pneumatic supply
3 Relief
Y Y-fitting with black bush (page **B2**.55)
T Plug port 1 of pneumatic supply P module
X Always use the pneumatic supply servo version



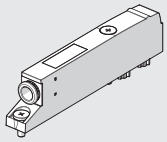
DUMMY VALVE (PLUG)

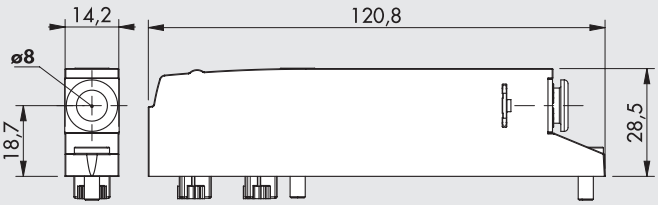


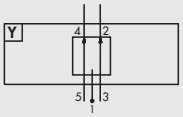


Symbol	Description	Code	Weight [g]
N 	Dummy valve	708203**N0**	47

BYPASS





Symbol	Description	Code	Weight [g]
Y 	Bypass Ø8	708203**Y8**	50

N.B.: Maximum pressure in the ports 2 and 4: 8 bar

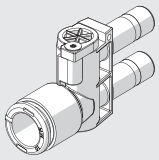
Connects port 3 of the base to port 2 and port 5 to port 4.
The fitting present is connected to port 1.

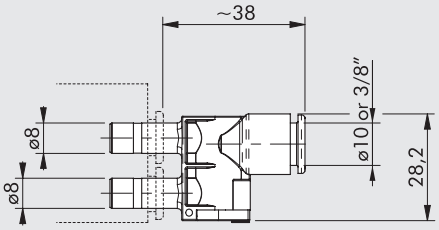
KEY TO CODES

7082	03	V	0
FAMILY	**TYPE**	**SCHEMA**	**MANUAL CONTROL**
7082 EB 80	**03** Electric, servo-assisted	**Z** 2 valves 2/2NC **I** 2 valves 3/2 NC **W** 2 valves 3/2 NO **L** 3/2 NC + 3/2 NO **V** 5/2 monostable **K** 5/2 bistable **O** 5/3 CC **G** 3/2 NC high flow **J** 3/2 NO high flow **R** Shut-off valve **Y** Bypass **N** Dummy valve (plug)	**0** Monostable or for dummy valve **1** Bistable **8** For bypass only

ACCESSORIES

Y-FITTING





Code	Description	Release bushing color
02282R2Y04	Y-fitting for EB 80 Ø 8 (5/16") - Ø 10	Orange
02282R2Y14	Y-fitting for EB 80 Ø 8 (5/16") - Ø 10	Black
02282R2Y07	Y-fitting for EB 80 Ø 8 (5/16") - Ø 3/8"	Orange
02282R2Y17	Y-fitting for EB 80 Ø 8 (5/16") - Ø 3/8"	Black

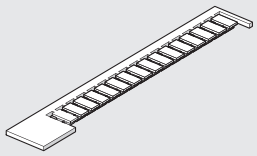
SPARE PARTS

BASE FIXING SCREW

Code	Description
02282R3000	Kit of screws for fixing the EB 80 base

Comes in 10-pc. packs

IDENTIFICATION PLATE KIT



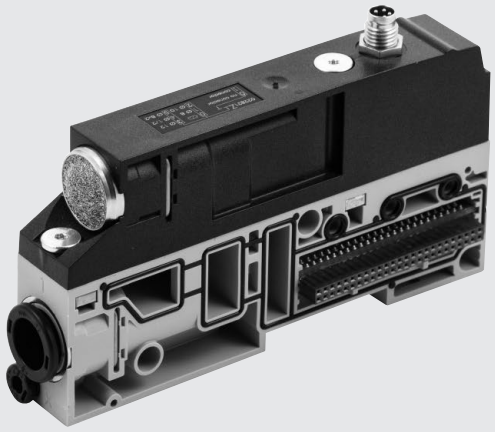
Code	Description
0226107000	Identification plate kit

Comes in 16-pc. packs

NOTES

EB 80 INTERMEDIATE SUPPORT - M

The "Intermediate modules - M" perform a series of functions.
They can help increase the flow rate available in an EB 80 island, when various valves are used at the same time. They can be used to divide an island in areas of different pressures.
They can also be used as additional electrical power supply, when there is a high number of solenoid pilots actuated simultaneously; or to electrically separate and cut out a part of the island, in the event of an emergency, for example.
Intermediate modules can be placed in any position in the EB 80 island.
Several versions are available, with fittings for pipes of different diameter.
Relief ports 3 and 5 can be either connected using a silencer or conveyed via a fitting.
A version with separate ports 3 and 5 is also available. This feature is useful in versions with pilot servo-assistance to power the valves from ports 3 and 5, at different pressures, from vacuum to 8 bar.
The lower body of the intermediate plate comes with different air flow ducts: with full flow ports or one or more closed ports.



TECHNICAL DATA

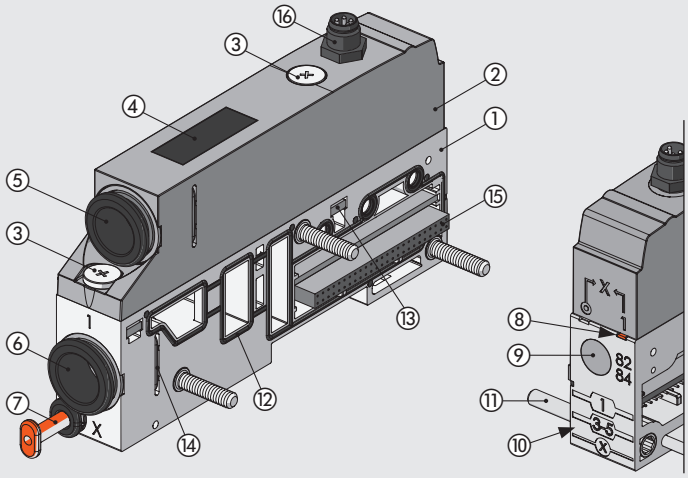
Operating pressure		Vacuum to 10 bar / Vacuum to 1 MPa / Vacuum to 145 psi			
Ambient temperature		-10 to + 50 °C / 14 to 122 °F			
Flow rate at 6.3 bar ΔP 1 bar		Ø 8 (5/16")	Ø 10	Ø 12	Ø 1/2"
Feeding (port 1)	Nl/min	1800	2800	3500	3500
Exhaust with fitting (ports 3 and 5)	Nl/min	2000	3200	4400	4400
Separate exhausts Ø 8	Nl/min	1800 x 2	-	-	-
Flow rate at 6.3 bar free exhaust					
Exhaust with fitting (ports 3 and 5)	Nl/min	2700	3900	6100	6100
Silenced exhaust	Nl/min	3600			
Exhaust with fitting Ø 12 and silencer W0970530086	Nl/min	6000			
Separate exhausts Ø 8 (N.B.: Pmax 8 bar)	Nl/min	2700 x 2	-	-	-
Fluid		Unlubricated air			
Additional electrical power supply		M8 4-pin connector *			
Voltage range	V	12 to 31.2			
Maximum number of solenoid pilots that can be actuated simultaneously					
from the additional electrical connection:					
at 24VDC		With 100% simultaneity: 48 / With 60% simultaneity: 80			
at 12VDC		With 100% simultaneity: 32 / With 60% simultaneity: 64			
Versions		Pipe fittings Ø 8, 10, 12, 1/2"; Silenced relief, conveyed relief, ports 3 and 5 separate			
		Full-flow ports in the base, 1 closed, 1, 3 and 5 closed, 3 and 5 closed, 1, 3, 5 and X closed			
		With or without additional electrical power supply			
Degree of protection		IP65 (with connectors connected or plugged if not used)			

IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.

* If electric power is not supplied: the red power LED light comes on and the LEDs at the base keep flashing (voltage out of range); in the version with multi-pin electrical connection, the "OUT" fault signal is triggered; in the version with fieldbus, a software message is sent.

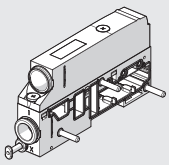
COMPONENTS

① LOWER PART BODY: technopolymer
② UPPER PART BODY: technopolymer
③ SCREWS for fixing between the bodies: galvanised steel (Tightening torque: 1.2 Nm)
④ TAG with laser-etched wording: technopolymer
⑤ AIR RELIEF: silencer or pipe fitting
⑥ POWER SUPPLY: pipe fitting
⑦ PILOTING (X): pipe fitting Ø 4
⑧ INDICATOR: indicating whether power supply to pilots is separate or not
⑨ PILOT RELIEF: silencer in HDPE
⑩ PICTOGRAM: indication of compressed air system layout
⑪ TIE RODS: nickel-plated steel
⑫ GASKET: NBR
⑬ THREADED PLATE: galvanised steel
⑭ CARTRIDGE FIXING CLIP: stainless steel
⑮ ELECTRONIC BOARD
⑯ M8 CONNECTOR: only for version with additional electrical power supply

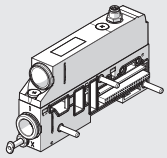


DIMENSIONS - ORDERING CODES

INTERMEDIATE MODULE - SILENCED RELIEF



WITHOUT additional electrical power supply

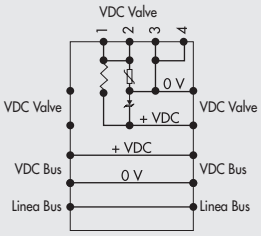


WITH additional electric power supply

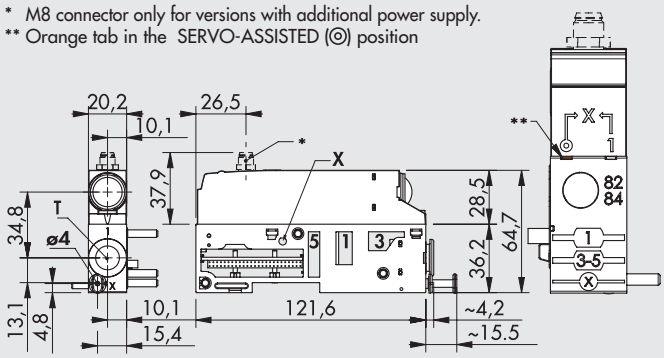
WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

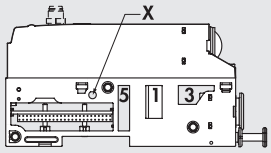
M8 male connector

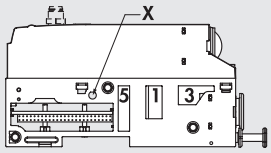
1 = + VDC
2 = + VDC
3 = GND
4 = GND

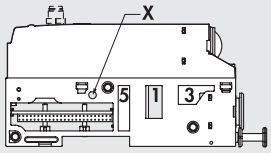


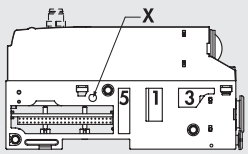
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position

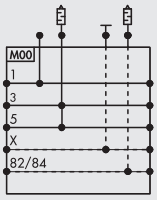
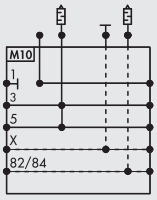
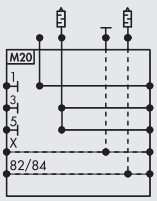
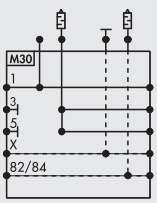
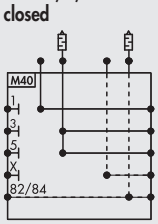




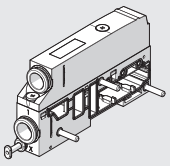




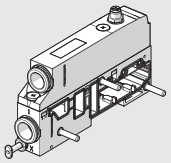


Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	 WITH	Weight [g]
Full-flow ports	Ø 8 (5/16")	02282**M100Z00**	02282**M101Z01**	168
	Ø 10	02282**M200Z00**	02282**M201Z01**	164
	Ø 12	02282**M300Z00**	02282**M301Z01**	160
	Ø 1/2"	02282**M500Z00**	02282**M501Z01**	160
				
Port 1 closed	Ø 8 (5/16")	02282**M110Z00**	02282**M111Z01**	168
	Ø 10	02282**M210Z00**	02282**M211Z01**	164
	Ø 12	02282**M310Z00**	02282**M311Z01**	160
	Ø 1/2"	02282**M510Z00**	02282**M511Z01**	160
				
Ports 1, 3 and 5 closed	Ø 8 (5/16")	02282**M120Z00**	02282**M121Z01**	168
	Ø 10	02282**M220Z00**	02282**M221Z01**	164
	Ø 12	02282**M320Z00**	02282**M321Z01**	160
	Ø 1/2"	02282**M520Z00**	02282**M521Z01**	160
				
Ports 3 and 5 closed	Ø 8 (5/16")	02282**M130Z00**	02282**M131Z01**	168
	Ø 10	02282**M230Z00**	02282**M231Z01**	164
	Ø 12	02282**M330Z00**	02282**M331Z01**	160
	Ø 1/2"	02282**M530Z00**	02282**M531Z01**	160
				
Ports 1, 3, 5 and X closed	Ø 8 (5/16")	02282**M140Z00**	02282**M141Z01**	168
	Ø 10	02282**M240Z00**	02282**M241Z01**	164
	Ø 12	02282**M340Z00**	02282**M341Z01**	160
	Ø 1/2"	02282**M540Z00**	02282**M541Z01**	160
				

INTERMEDIATE MODULE - CONVEYED RELIEF



WITHOUT additional electrical power supply

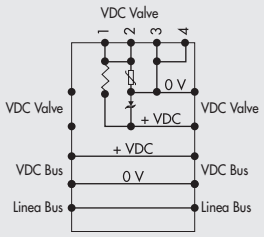


WITH additional electric power supply

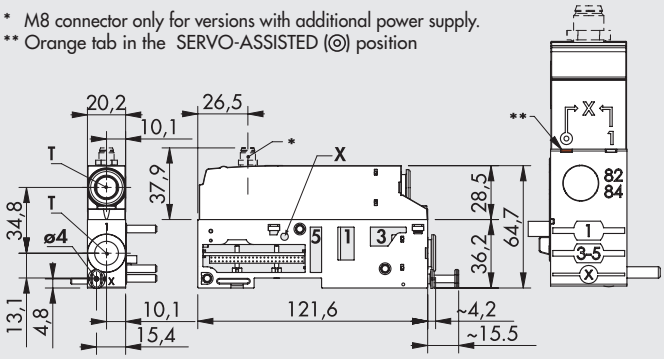
WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

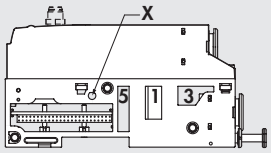
M8 male connector

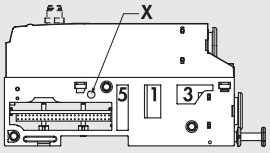
1 = + VDC
2 = + VDC
3 = GND
4 = GND

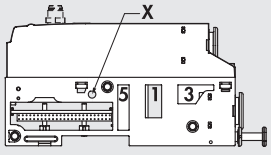


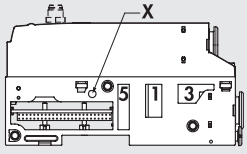
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position



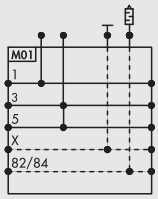


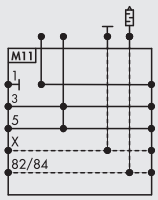


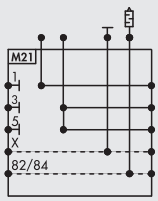


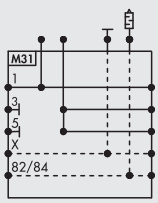


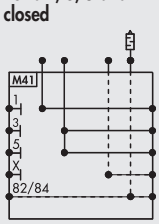
Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	 WITH	Weigh [g]
Full-flow ports	Ø 8 (5/16")	02282**M100Z10**	02282**M101Z11**	168
	Ø 10	02282**M200Z20**	02282**M201Z21**	164
	Ø 12	02282**M300Z30**	02282**M301Z31**	160
	Ø 1/2"	02282**M500Z50**	02282**M501Z51**	160
Port 1 closed	Ø 8 (5/16")	02282**M110Z10**	02282**M111Z11**	168
	Ø 10	02282**M210Z20**	02282**M211Z21**	164
	Ø 12	02282**M310Z30**	02282**M311Z31**	160
	Ø 1/2"	02282**M510Z50**	02282**M511Z51**	160
Ports 1, 3 and 5 closed	Ø 8 (5/16")	02282**M120Z10**	02282**M121Z11**	168
	Ø 10	02282**M220Z20**	02282**M221Z21**	164
	Ø 12	02282**M320Z30**	02282**M321Z31**	160
	Ø 1/2"	02282**M520Z50**	02282**M521Z51**	160
Ports 3 and 5 closed	Ø 8 (5/16")	02282**M130Z10**	02282**M131Z11**	168
	Ø 10	02282**M230Z20**	02282**M231Z21**	164
	Ø 12	02282**M330Z30**	02282**M331Z31**	160
	Ø 1/2"	02282**M530Z50**	02282**M531Z51**	160
Ports 1, 3, 5 and X closed	Ø 8 (5/16")	02282**M140Z10**	02282**M141Z11**	168
	Ø 10	02282**M240Z20**	02282**M241Z21**	164
	Ø 12	02282**M340Z30**	02282**M341Z31**	160
	Ø 1/2"	02282**M540Z50**	02282**M541Z51**	160



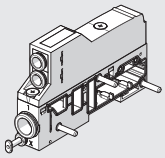




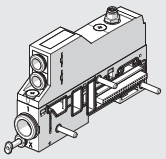




INTERMEDIATE MODULE - SEPARATE RELIEF

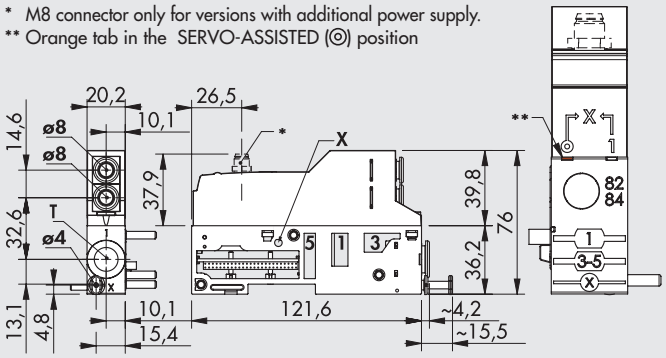


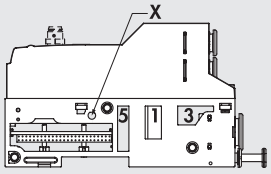
WITHOUT additional electrical power supply

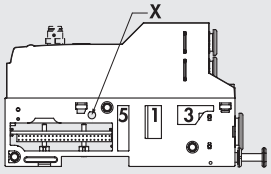


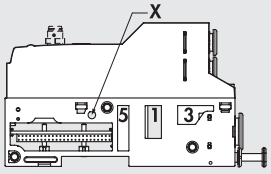
WITH additional electrical power supply

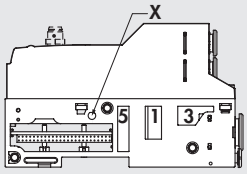
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position





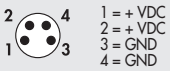




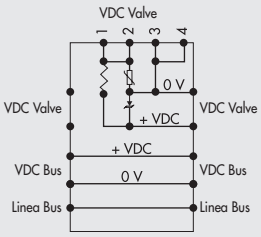


WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

M8 male connector

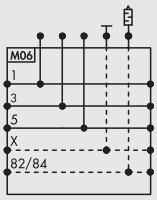


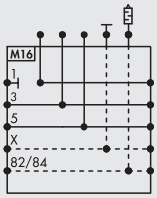
1 = + VDC
2 = + VDC
3 = GND
4 = GND

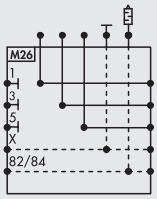


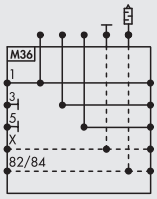
N.B.: Maximum pressure in the ports 3 and 5: 8 bar

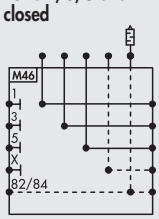
Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	Code Additional electric power supply WITH	Weight [g]
Full-flow ports	Ø 8 (5/16")	02282**M100Z60**	02282**M101Z61**	179
	Ø 10	02282**M200Z60**	02282**M201Z61**	175
	Ø 12	02282**M300Z60**	02282**M301Z61**	171
	Ø 1/2"	02282**M500Z60**	02282**M501Z61**	171
Port 1 closed	Ø 8 (5/16")	02282**M110Z60**	02282**M111Z61**	179
	Ø 10	02282**M210Z60**	02282**M211Z61**	175
	Ø 12	02282**M310Z60**	02282**M311Z61**	171
	Ø 1/2"	02282**M510Z60**	02282**M511Z61**	171
Ports 1, 3 and 5 closed	Ø 8 (5/16")	02282**M120Z60**	02282**M121Z61**	179
	Ø 10	02282**M220Z60**	02282**M221Z61**	175
	Ø 12	02282**M320Z60**	02282**M321Z61**	171
	Ø 1/2"	02282**M520Z60**	02282**M521Z61**	171
Ports 3 and 5 closed	Ø 8 (5/16")	02282**M130Z60**	02282**M131Z61**	179
	Ø 10	02282**M230Z60**	02282**M231Z61**	175
	Ø 12	02282**M330Z60**	02282**M331Z61**	171
	Ø 1/2"	02282**M530Z60**	02282**M531Z61**	171
Ports 1, 3, 5 and X closed	Ø 8 (5/16")	02282**M140Z60**	02282**M141Z61**	179
	Ø 10	02282**M240Z60**	02282**M241Z61**	175
	Ø 12	02282**M340Z60**	02282**M341Z61**	171
	Ø 1/2"	02282**M540Z60**	02282**M541Z61**	171











KEY TO CODES

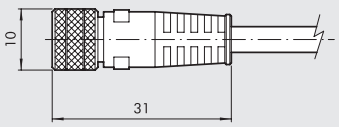
02282	M	3	0	0	Z	3	0
FAMILY	SUBSYSTEM	PORT FITTING 1	PORTS IN THE BASE	ADDITIONAL ELECTRICAL POWER SUPPLY	UPPER PART	PORTS 3 AND 5 FITTING	ELECTRICAL CONNECTOR
02282 EB 80	**M** Intermediate	**1** Pipe fitting Ø 8 (5/16″) **2** Pipe fitting Ø 10 **3** Pipe fitting Ø 12 **5** Pipe fitting Ø 1/2″	**0** Full-flow ports **1** Port 1 closed **2** Ports 1, 3 and 5 closed **3** Ports 3 and 5 closed **4** Ports 1, 3, 5 and X closed	■ **0** Without ● **1** With	**Z** The upper part is present	**0** Silencer ▲ **1** Pipe fitting Ø 8 (5/16″) ▲ **2** Pipe fitting Ø 10 ▲ **3** Pipe fitting Ø 12 ▲ **5** Pipe fitting Ø 1/2″ **6** 2 pipes fitting Ø 8 (5/16″) (one for port 3, one for port 5)	■ **0** Without ● **1** With

▲ For ports 3/5, use the same Ø pipe as port 1.
■ Same number for both positions.
● Same number for both positions.

ACCESSORIES

M8 CONNECTOR FOR POWER SUPPLY

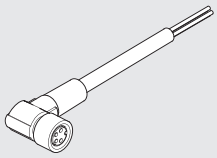
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m

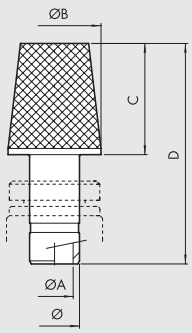
M8 90° CONNECTOR FOR POWER SUPPLY

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240009103	M8 4-pin connector - female, 90° angle L = 5 m

SILENCER FOR FITTING

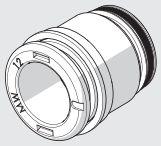


Ø	Ø A	Ø B	C	D
8	6	15	18	35.7
12	10	18.8	29	51.5

Code	Description	Weight [g]
W0970530084	Silencer for fitting, Ø 8	15
W0970530086	Silencer for fitting, Ø 12	24

SPARE PARTS

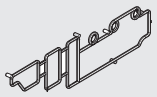
CARTRIDGE



Code	Description	Ø
02282R2110	EB 80 silencer cartridge kit	silencer
02282R2113	EB 80 Ø 8 power supply round cartridge kit	8 (5/16″)
02282R2114	EB 80 Ø 10 power supply round cartridge kit	10
02282R2115	EB 80 Ø 12 power supply round cartridge kit	12
02282R2118	EB 80 Ø 1/2 power supply round cartridge kit	1/2"

Comes in 10-pc. packs

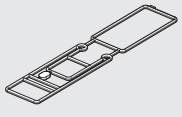
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

LOWER /UPPER BODY GASKET



Code	Description
02282R1001	EB 80 lower/upper body gasket kit

Comes in 10-pc. packs

EB 80 CLOSED END-PLATE - C

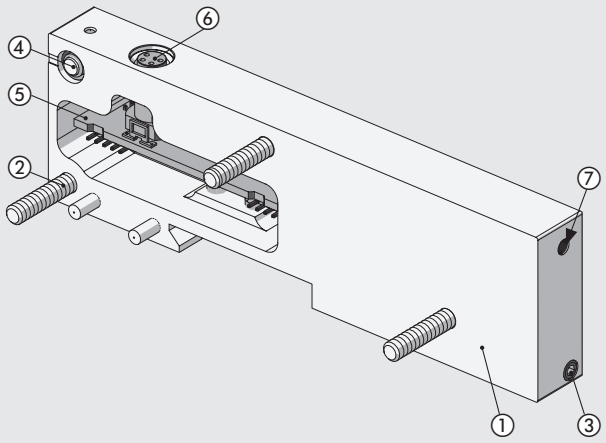
The "Closed end plate - C" is the last element of each EB 80 system.
A version for islands with multi-pole connector is available.
One for islands with fieldbus, containing a small electronic board; one for connection to other additional EB 80 islands (only for systems with fieldbus).
The end plate houses the system for mechanically fixing the island to external supports.

TECHNICAL DATA

Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		For islands with multi-pole connection. For island with fieldbus. For connection to additional islands.
Degree of protection		IP65 (with connectors connected or plugged if not used)
Notes		All valve units (including multi-pole versions) require earthing protection. Use M4 thread on the end plate with braided cable code 02282R6000 provided or, when fixing the unit onto a DIN bar, connect the bar to earthing.

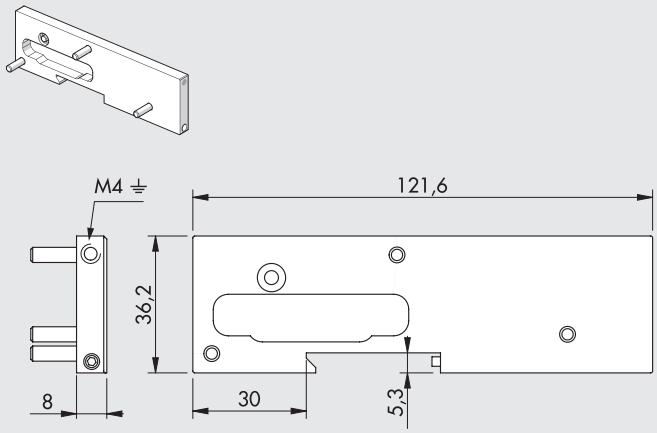
COMPONENTS

① BODY: painted metal
② FIXING SCREW: TCE M4x20 galvanised steel
③ GRUB SCREW securing the DIN bar or bracket: galvanized steel
④ RELIEF VALVE: safety in case of internal pressure increase due to temperature or losses
⑤ ELECTRONIC BOARD: none in the Closed end plate for islands with multi-pole connector
⑥ M8 CONNECTOR: only in the Closed end plate for connection with additional islands
⑦ GROUNDING ⏚



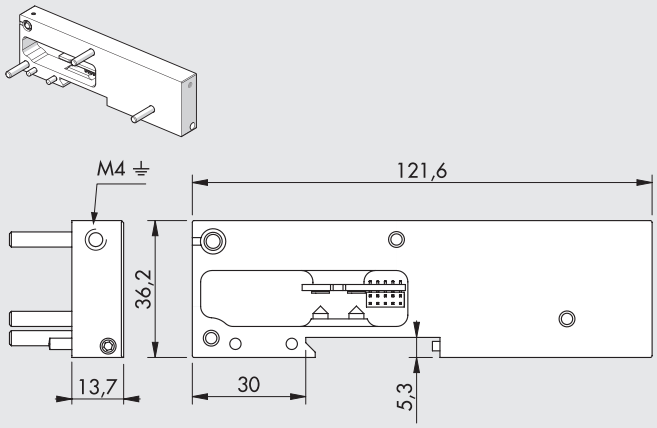
DIMENSIONS - ORDERING CODES

CLOSED END PLATE FOR ISLANDS WITH MULTI-POLE CONNECTOR



Symbol	Code	Description	Weight [g]
	02282**C1**	Closed end-plate for islands with multi-pole connector	92

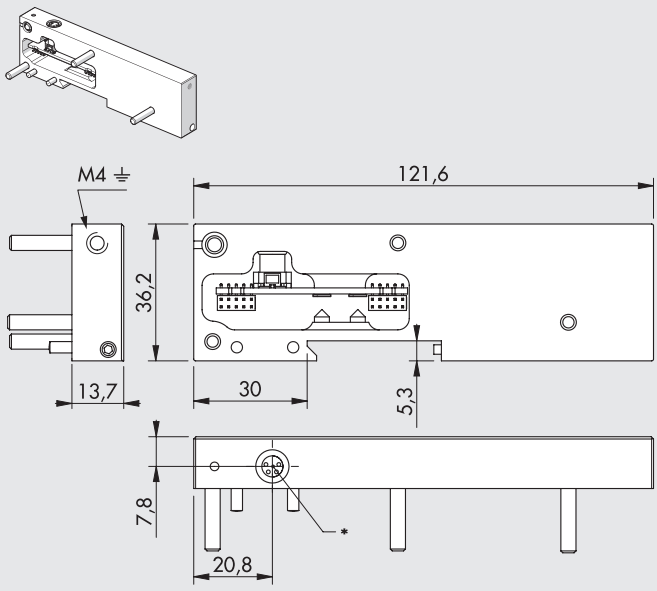
CLOSED END-PLATE FOR ISLANDS WITH FIELDBUS

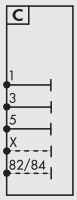


Symbol	Code	Description	Weight [g]
	02282**C2**	Closed end-plate for islands with fieldbus	148

Note: also usable for islands with multi-pole connector

CLOSED END PLATE FOR ELECTRICAL CONNECTION OF ISLANDS WITH FIELDBUS TO ADDITIONAL ISLANDS



Symbol	Code	Description	Weight [g]
	02282**C3**	Closed end-plate for electrical connection to additional islands	148

Note: if you do not connect additional island you must mount the M8 end connector

* M8 connector for connection to additional islands.

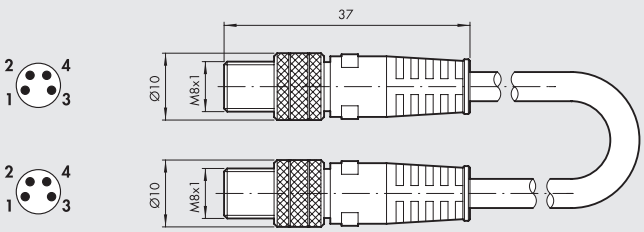
N.B.: The system does not work until the connector is connected to the "Additional electrical connection - E" module.

KEY TO CODES

02282	C	1
FAMILY	SUBSYSTEM	TYPE
02282 EB 80	**C** Closed end-plate	**1** For islands with multi-pole connection **2** For islands with fieldbus **3** For connection to additional islands

ACCESSORIES

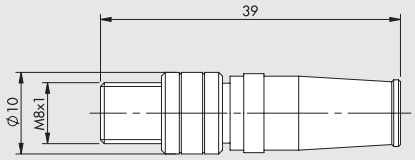
M8 CONNECTOR WITH CABLE FOR CONNECTION BETWEEN EB 80 ISLANDS



Code	Description	Weight [g]
0240010201	M8-M8 4-pin male shielded cable L = 1 m	45
0240010205	M8-M8 4-pin male shielded cable L = 5 m	185
0240010210	M8-M8 4-pin male shielded cable L = 10 m	330
0240010215	M8-M8 4-pin male shielded cable L = 15 m	475
0240010220	M8-M8 4-pin male shielded cable L = 20 m	620

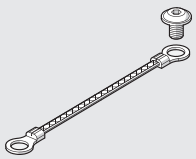
N.B.: For correct operation of the entire EB 80 system, use M8-M8 pre-wired, twisted and shielded cables only.

M8 END CONNECTOR FOR EB 80 VALVES



Code	Description
02282R5000	M8 end connector for EB 80 valves

BRAIDED EARTH CABLE



Code	Description
02282R6000	Braided earth cable

NOTES