SUMMARY OF VALVE ISLANDS AND FIELDBUS

EB 80

EB 80 ELECTRO-PNEUMATIC SYSTEM

EB 80 BOXI

EB 80 ACCESSORIES

METAL WORK PNEUMATIC

HDM

CM

MULTIMACH

INPUT/OUTPUT PROFIBUS-DP

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.
NSF H1-certified grease is used to lubricate the valve spool and seals.

TECHNICAL DATA

Supply voltage range	VDC	12 -10% 24 +30%					
Minimum operating voltage	VDC	10.8 *					
Maximum operating voltage	VDC	31.2					
Maximum admissible voltage	VDC	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**.57) / max. 8		
	MPa	0.3 to 0.8			min. (see graph on page **B2**.57) / max. 0.8		
	psi	43 to 116			min. (see graph on page **B2**.57) / 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
valve V3V (R)	Nl/min	-	-	-	-	1000	1000
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	12 / 14					
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)					
Category ATEX		Ⓔx II 3G Ex ec IIC T5 Gc X -10°C<Ta<50°C Ⓔx II 3D Ex tc IIIC T100°C Dc X					
Certifications		CE - EAC - c UL us - Ⓔx					

* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28
** Using high-flow valves or connected valves - see pages **B2**.58
*** **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.

CERTIFICATIONS

The c UL us certification for the part concerning only CSA (Canadian market) is bound to the following conditions of use:

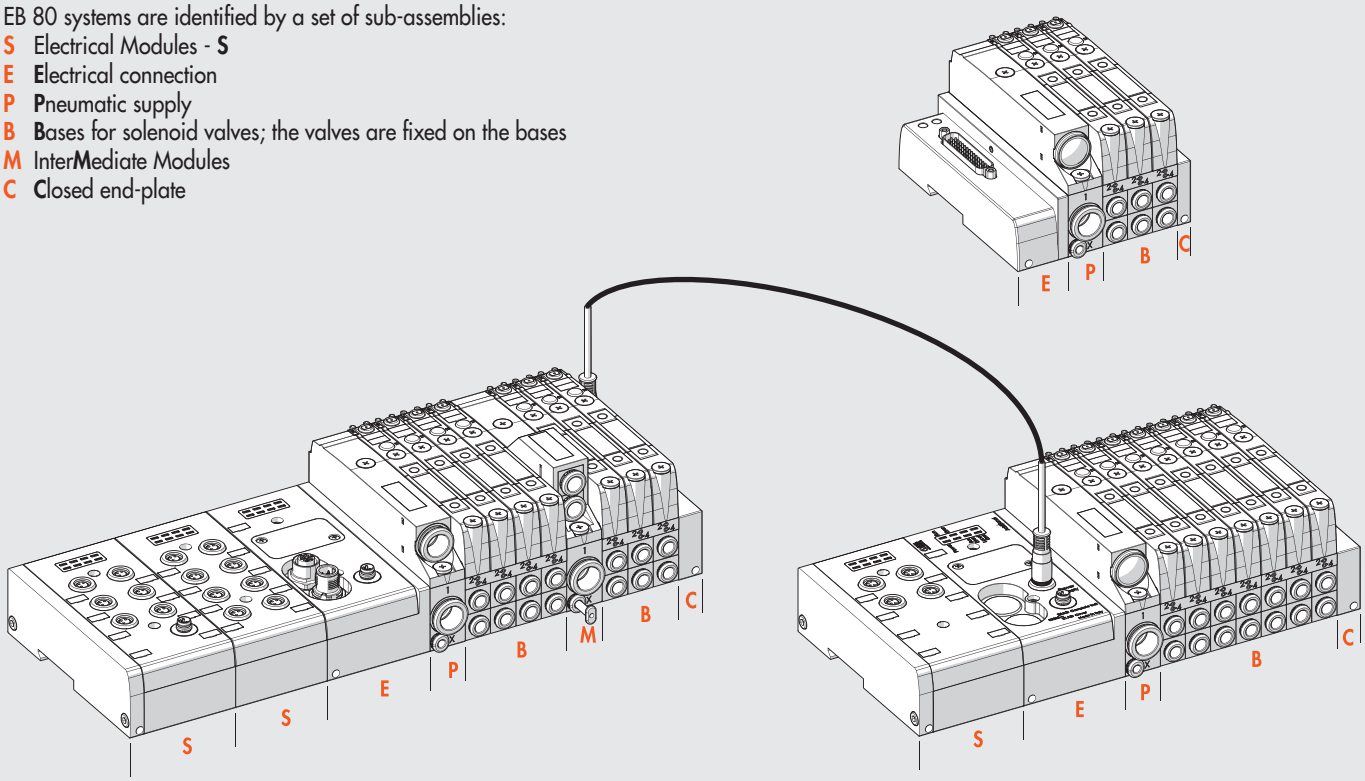
- environment temperature: max 45°C
- ED max 70%

If non-adjoining valves are used, ED max can reach 100% (environment temperature max 45°C)

COMPONENTS

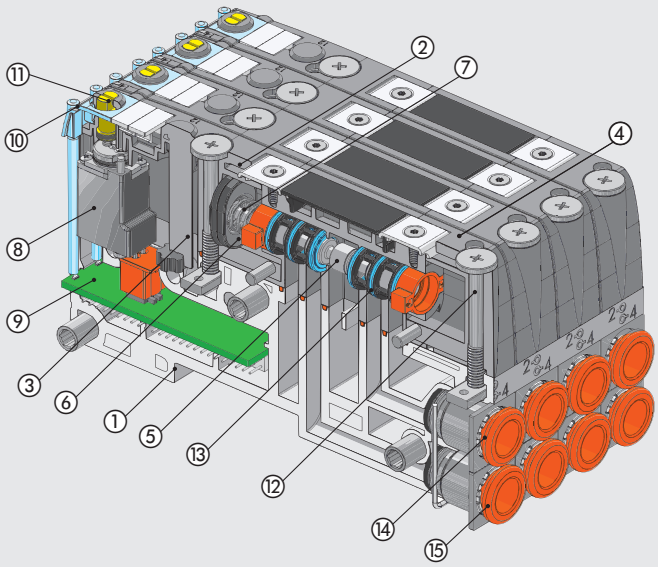
EB 80 systems are identified by a set of sub-assemblies:

S Electrical Modules - **S**
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



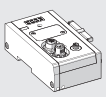
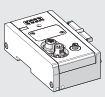
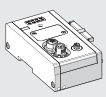
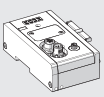
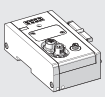
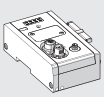
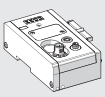
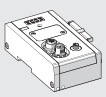
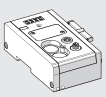
COMPONENTS – SOLENOID VALVE AND BASE

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: zinc-plated steel
⑬ SPOOL GASKET: NBR
⑭ Push-in fitting CARTRIDGE for port 2
⑮ Push-in fitting CARTRIDGE for port 4

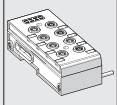
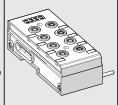
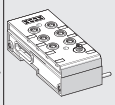
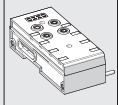
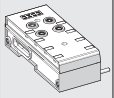
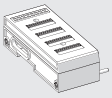
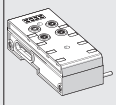
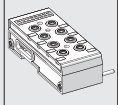


THE EB 80 WORLD

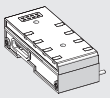
ELECTRICAL CONNECTION - E

E025	E044	E0EN	E0EC	E0PN	E0CN	E0PB	E0PL	E0IO	E0LK	E0CC	E0AD
											
25 PIN	44 PIN	EtherNet/IP	EtherCAT	Profinet IO	CANopen	Profibus-DP	Ethernet POWERLINK	IO-Link 32 IN/32 OUT	IO-Link 64 OUT	CC-Link IE Field Basic	Additional
page **B2**.30	page **B2**.30	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.48

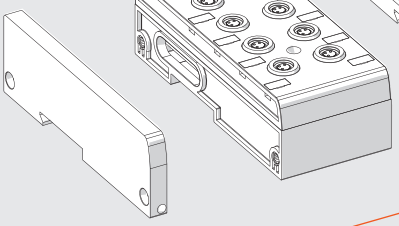
SIGNAL MODULE - S

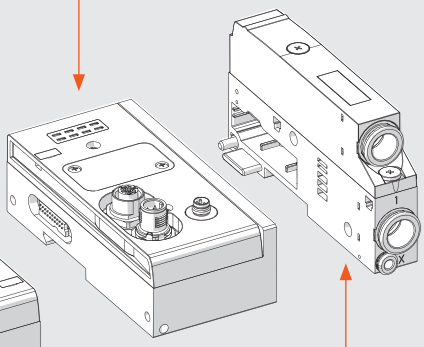
S01	S02	S03	S04	S05	S06	S07	S08	S21
								
8 M8 digital inputs	8 M8 digital outputs	6 M8 digital outputs + electrical supply	4 M8 analogue inputs	4 M8 analogue outputs	16 digital terminal block inputs	16 digital terminal block outputs	4 M8 analogue inputs for temperature measurement	16 M8 configurable digital inputs/ outputs
page **B2**.18	page **B2**.18	page **B2**.19	page **B2**.19	page **B2**.20	page **B2**.20	page **B2**.21	page **B2**.21	page **B2**.22

WIRELESS MODULE - S

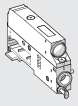
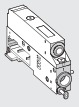
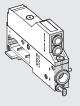
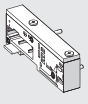
S20

Wireless connection module
page **B2**.16

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

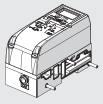
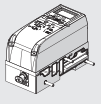




COMPRESSED-AIR SUPPLY - P

P_ _Z00	P_ _Z_ _	P_ _Z_0	P91Z90
			
Silenced relief	Conveyed relief	Separate reliefs	Module for electric version only
page **B2**.51	page **B2**.51	page **B2**.51	page **B2**.52

PROPORTIONAL PRESSURE REGULATOR - A

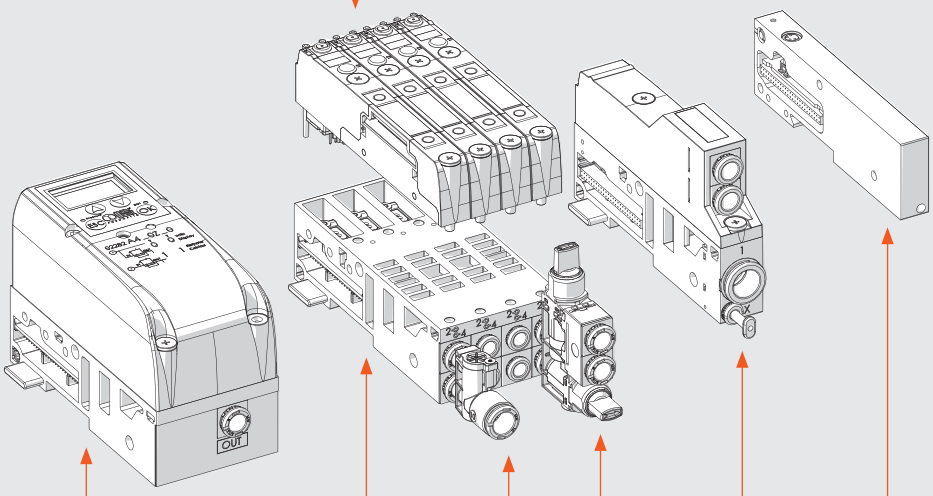
A40_Z_0	A41_Z_0
	
Base port 1 pass-through local outlet	Base port 1 sectioned in-series regulation
page **B2**.65	page **B2**.65

METAL WORK PNEUMATIC

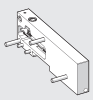
VALVES

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
page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.58	page **B2**.58	page **B2**.59	page **B2**.60	page **B2**.60

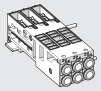
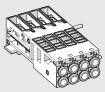
▲ Can only be used with 6 or 8 control bases.
✚ Requires inlet port X slave synchronisation.



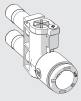
CLOSED END-PLATE - C

C1	C2	C3
		
For islands with multi-pole connector	For islands with fieldbus	For electrical connection of islands with fieldbus to additional islands
page **B2**.74	page **B2**.74	page **B2**.74

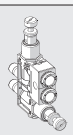
BASES FOR VALVES - B

B3_ _ _ _ _0	B4_ _ _ _ _ _
	
3-position base for valves	4-position base for valves
page **B2**.54	page **B2**.54

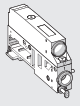
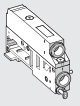
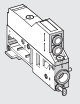
Y-FITTING

R2

Y-fitting
page **B2**.61

MULTI-FUNCTION MODULE


Fittings with pneumatic functions
page **B2**.92

INTERMEDIATE SUPPORT - M

M_ _ _ Z0_	M_ _ _ Z_ _	M_ _ _ Z_ _
		
Silenced relief	Conveyed relief	Separate relief
page **B2**.69	page **B2**.70	page **B2**.71

FIXING OPTIONS

1 - Fixing on a DIN bar: tighten the grub screws into modules E (electrical connection) and C (closed end-plate).
For islands with more than 40 valves or 5 modules, also use the additional plate code 02282R4001.

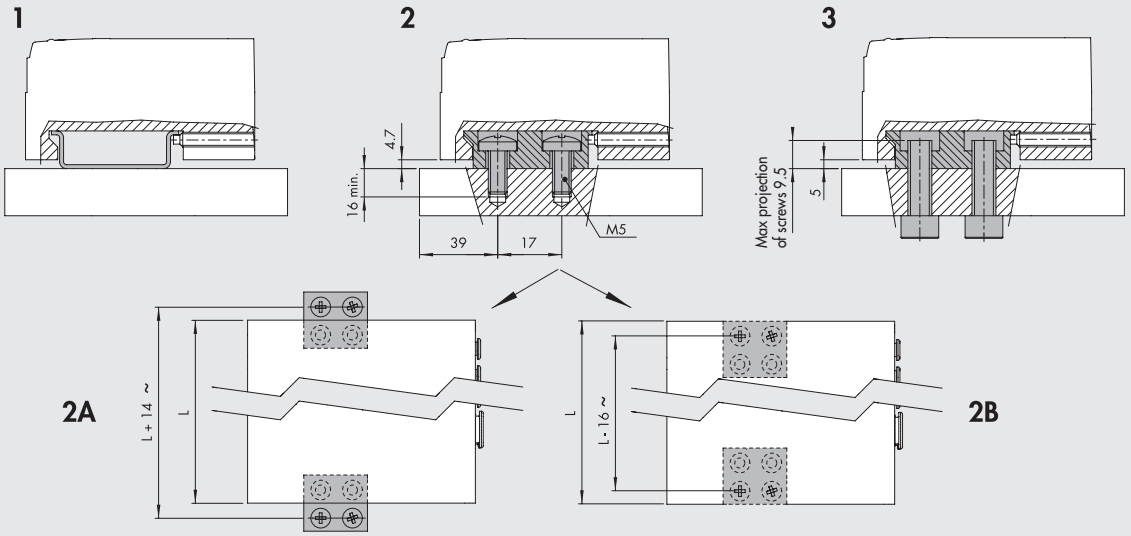
2 - Fixing on a flat surface: use the pair of brackets code 02282R4000 and the M5x20 screws supplied.
You can choose where to position the brackets in relation to the island:

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.

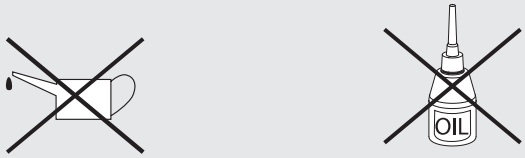
2B - *Concealed brackets*: the overall dimensions of the island are reduced. First secure the brackets to the flat top with M5x20 screws, then place the island onto the brackets and lock the two grub screws provided in the modules E and C.

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



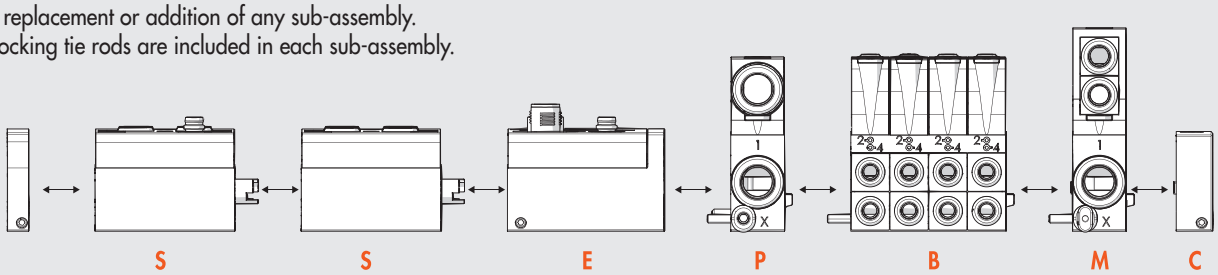
NO LUBE NO OIL

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 and NSF H1 certified. 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.

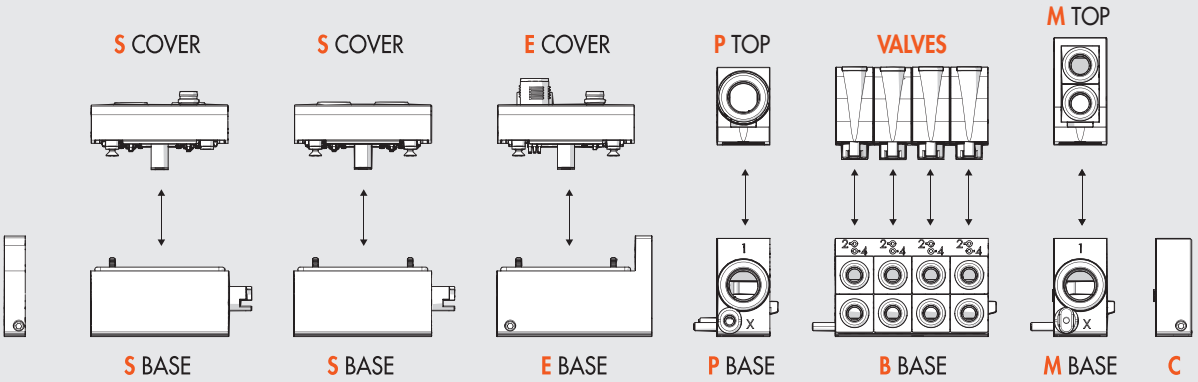


METAL WORK PNEUMATIC

VERTICAL MODULARITY

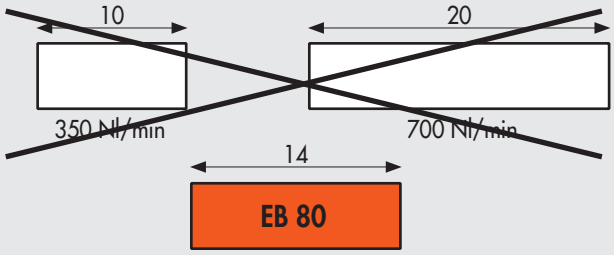
- Easy replacement – no need to disassemble the pack – of the valves on the Bases – B and also of the top part (cover) of subsystems **S**, **E**, **P**, **M** using a single Phillips-head screwdriver.

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.



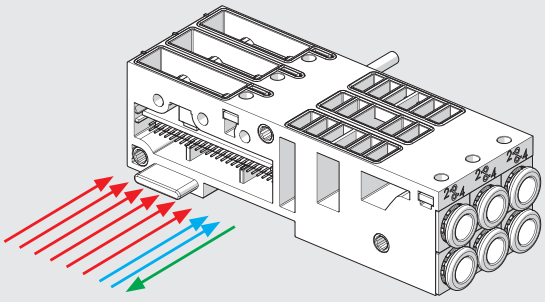
ONE SIZE FITS ALL

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



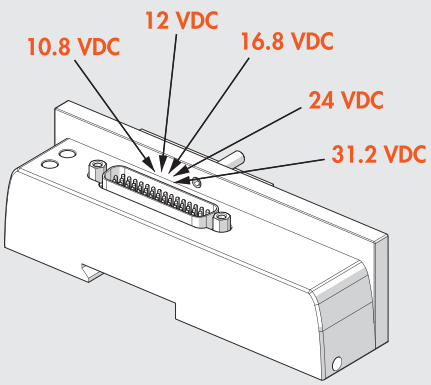
THE SAME BASE FITS BOTH MULTI-POLE CONNECTIONS AND FIELD BUSES

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



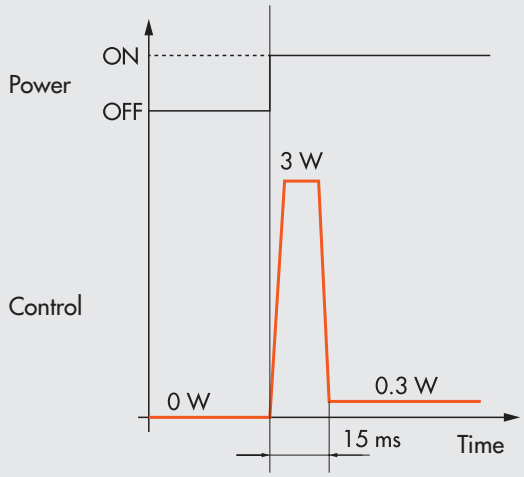
PATENTED

THE SAME ISLAND CAN BE SUPPLIED 10.8 - 31.2 VDC



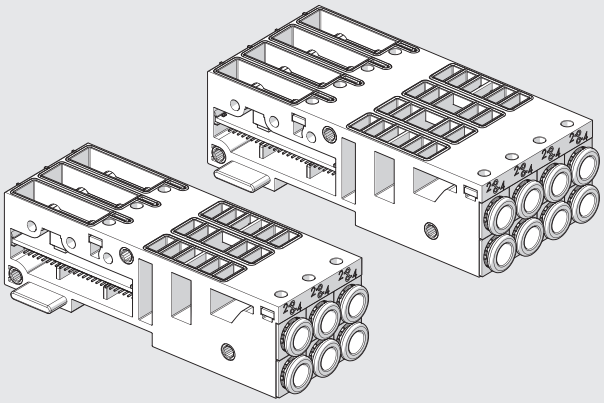
ONLY 0.3 W FOR EACH SOLENOID VALVE

- 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.



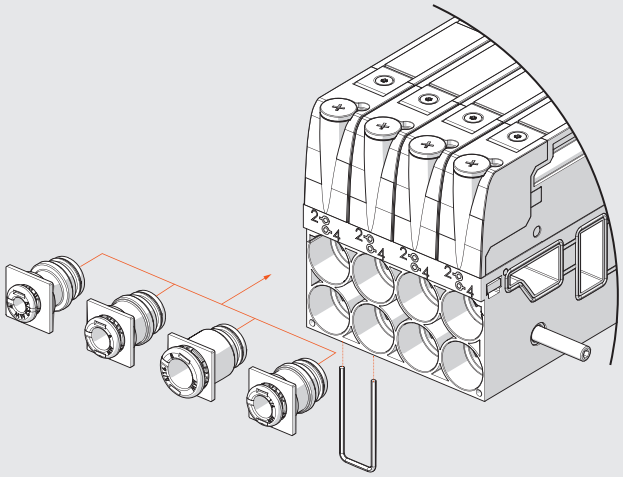
3- OR 4-POSITION BASES FOR VALVES

- 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



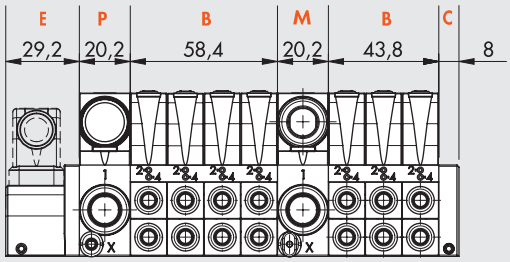
INTERCHANGEABLE CARTRIDGE FITTINGS

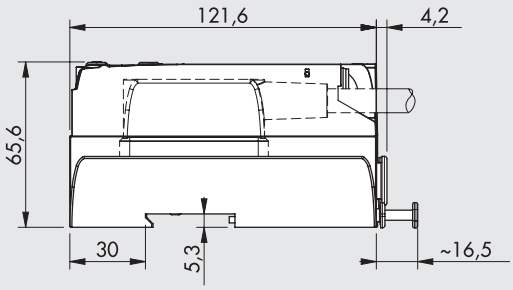
- For pipes Ø 4 (5/32"), 6, 8 (5/16"), 1/4"

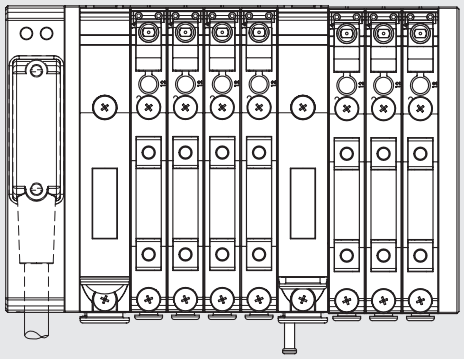


DIMENSIONS

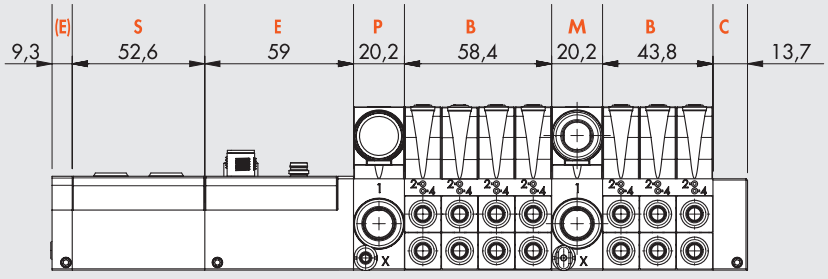
DIMENSION OF VERSIONS WITH MULTI-POLE CONNECTION

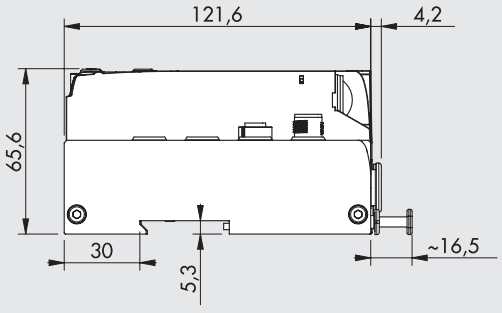


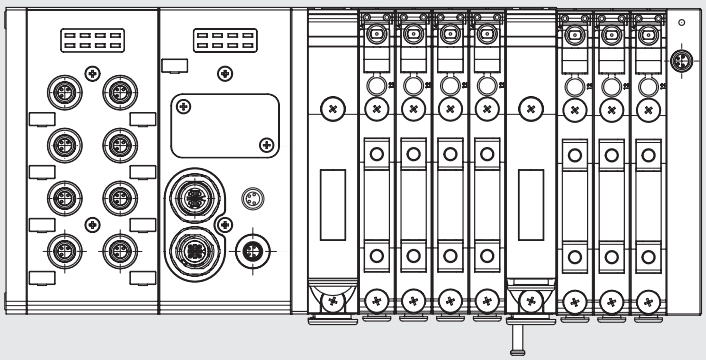




DIMENSION OF VERSIONS WITH FIELD BUS OR ADDITIONAL CONNECTION







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	**Electrical 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**.22	see page **B2**.28	see page **B2**.52	see page **B2**.55 and **B2**.60	see page **B2**.72	see page **B2**.75

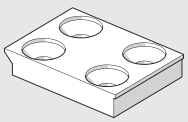
Example:
EB 80-S01-E0EN-P3XZ00-B40866660VWKN-M300Z30-B30388800VVN-C2

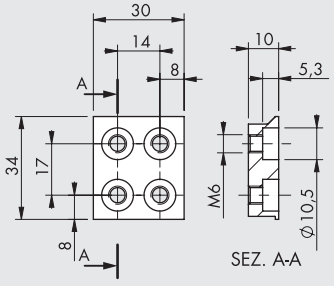
EB 80	**- S01**	**- E0EN**	**- P3XZ00**	**- B40866660VWKN**	**- M300Z30**	**- B30388800VVN**	**- C2**
EB 80 system	**Signal module** complete 8 M8 digital inputs	**Electrical connection** EtherNet/IP	**Compressed air supply** - fitting Ø 12 - pilot servo Ø 4 - silenced relief	**Base for valves** - 4 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.

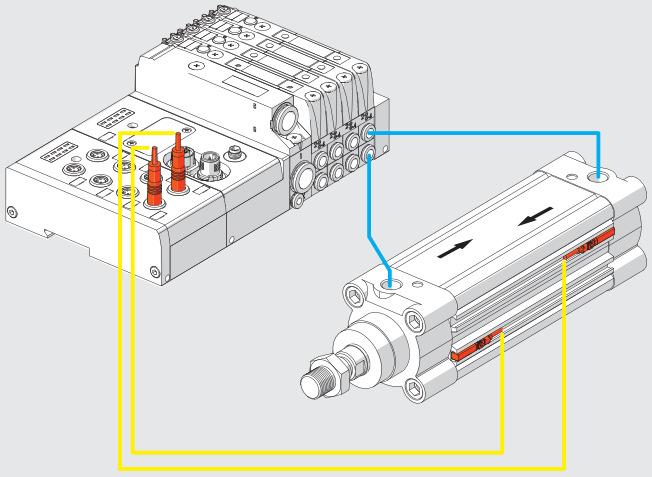
This makes it possible to turn the data collected into concrete actions using standard EB 80 stations without needing additional modules.

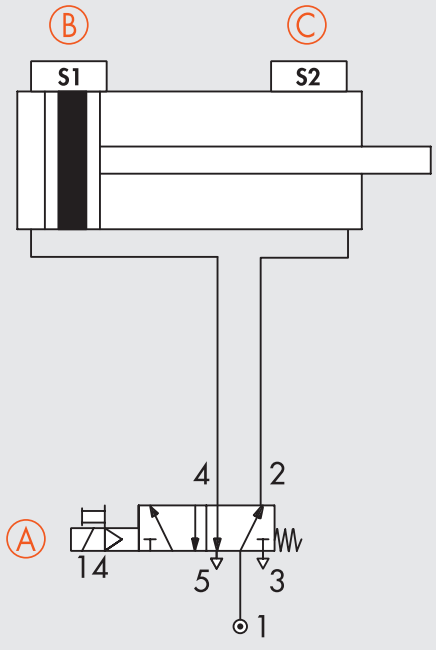
Description of EB 80 I4.0 functions:

• 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.



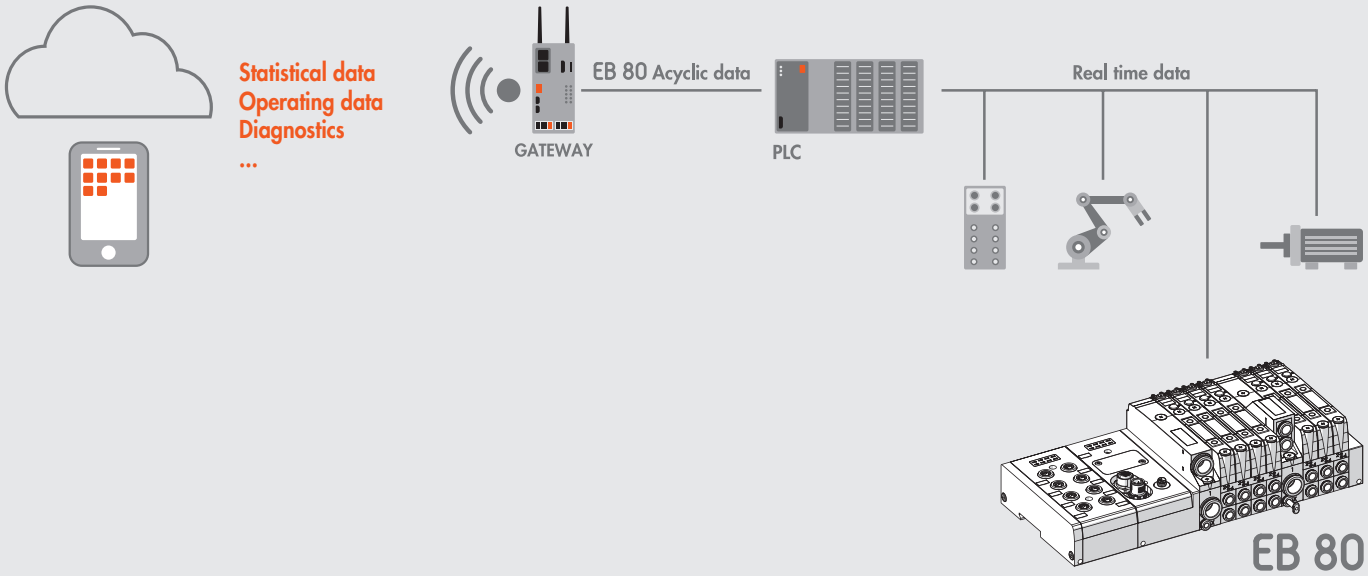


PLC-BASED DATA COLLECTION

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.

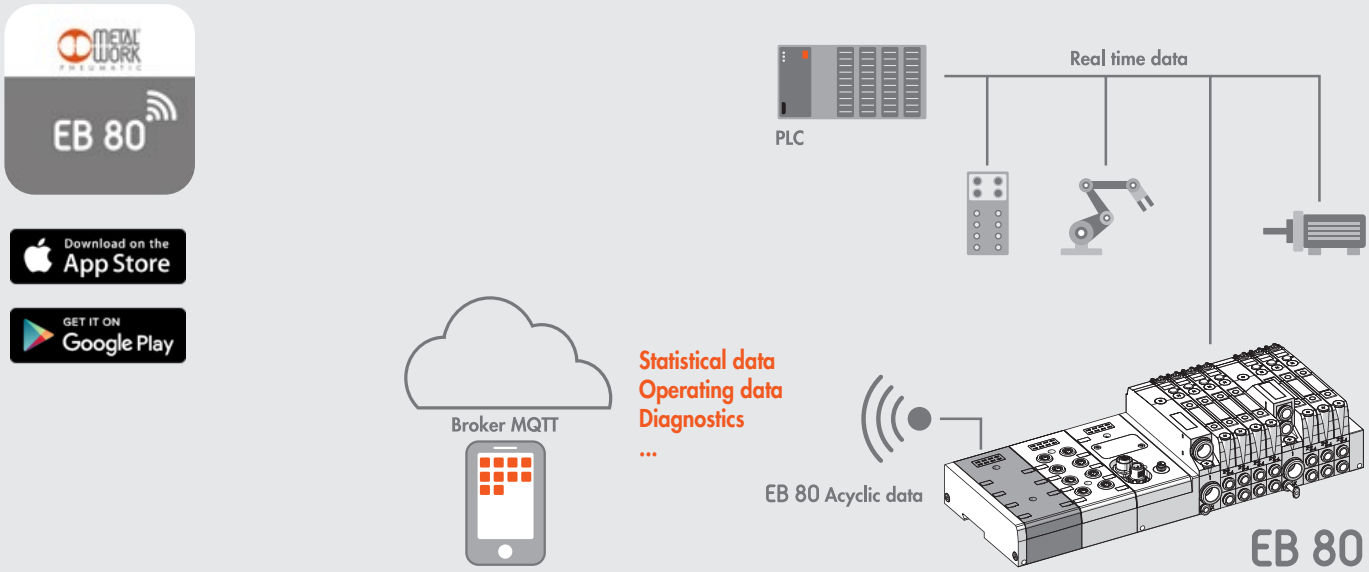
With the introduction of the I4.0 version, the field bus connection modules also send to the network the historical and diagnostic data relating to the behaviour of the island (such as the number of cycles for each solenoid pilot, total activation time and alarms) and the controlled pneumatic circuit (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 WIRELESS DATA COLLECTION

Integrated into the EB 80, this module provides connection to Wi-Fi networks and Bluetooth® devices to display diagnostic and operating data.
The APP specifically developed by Metal Work, called EB80Up, can connect Android and IOS devices for easy viewing of diagnostic and operating data plus the setting of network parameters.



EB 80 ELECTRICAL MODULES - S

EB 80 WIRELESS MODULE - S

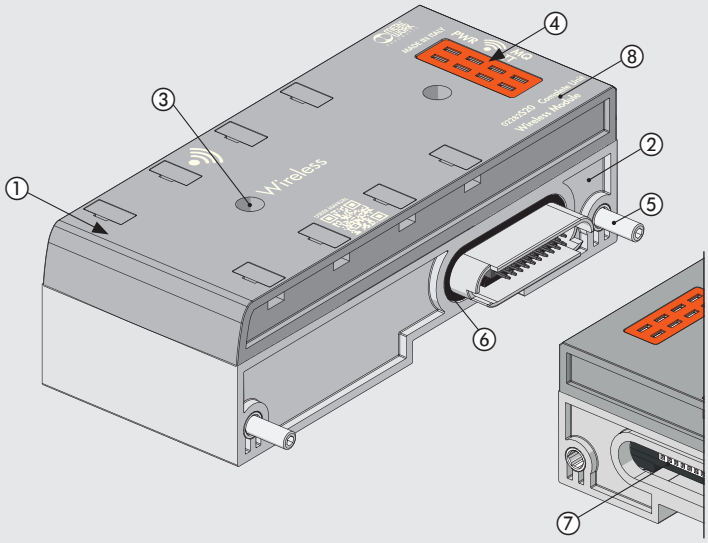
The EB 80 Wireless module complements both Bluetooth® and Wi-Fi communication and displays data made available by the EB 80's advanced diagnostics functions, called EB 80 I4.0.
These functions provide traditional servicing with a powerful analysis tool to ensure reliable, safe and long-lasting operation.
This module can be added at any time: simply unscrew the metal plate on the left side of the 'Electrical connection E' module or the 'Signal module S' module, fit the 'Wireless module S' (ready fitted with tie rods for fixing) and screw the locking plate back on the left side.
Fully compatible with all electrical fieldbus connections, it offers advanced diagnostics in accordance with Industry 4.0 requirements.
Via the dedicated 'Metal Work EB80Up', this module communicates via Bluetooth with mobile devices (smartphones and tablets) to display diagnostic and operating data. On top of that, all network parameters can be set for communication with Ethernet networks via the MQTT protocol.

TECHNICAL DATA

Communication protocols		Wi-Fi MQTT
		Bluetooth® LE
Connection status reporting		3 LED, Power - Wi-Fi - MQTT
Degree of protection		IP 65
Ambient temperature	°C	-10 to + 50
	°F	14 to 122

COMPONENTS

① UPPER PART BODY: technopolymer
② LOWER PART BODY: technopolymer
③ SCREW securing the upper part to the lower part
④ LED
⑤ TIE ROD to secure modules: nickel-plated brass + stainless steel grub screw
⑥ GASKET: NBR
⑦ FEMALE CONNECTOR for other modules - S or fieldbus connection - E
⑧ IDENTIFICATION of wording with laser

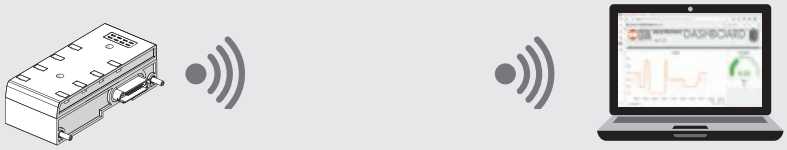


WIRELESS CONNECTION

Connecting to a Wi-Fi network via an Access point to display diagnostic data is also possible.

Layout of the connection via an Access point to an MQTT broker

MQTT **Broker MQTT**



Collecting data from the field provides predictive diagnostics of the plant, i.e:
- managing preventive maintenance;
- keeping the operating parameters under control at all times and optimising the operation of the machines and the pneumatic system.

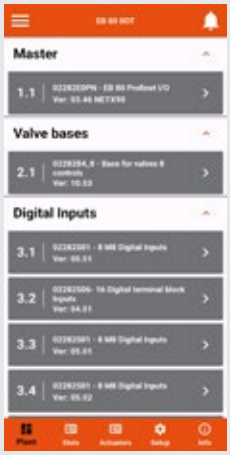
The 'Metal Work EB80Up' App provides a Bluetooth connection from Android smartphones and the iOS to the EB 80 wireless module installed on the island.

Via the 'Metal Work EB80Up' App, you can:
- scan nearby EB 80 devices;
- login and view device diagnostic data;
- reset the number of valve cycles;
- reset the number of cycles of virtual actuators;
- set wireless network parameters.

EB 80

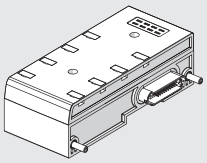
Download on the App Store

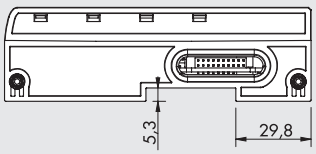
GET IT ON Google Play

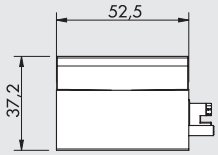


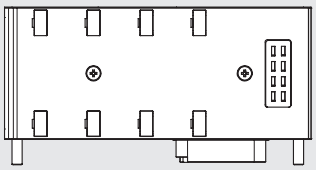
DIMENSIONS - ORDERING CODES

WIRELESS MODULE









Code	Description	Weight [g]
02282**S20**	EB 80 Wireless module	180

KEY TO CODES

02282	S	20
FAMILY	**SUBSYSTEM**	**TYPE**
02282 EB 80	**S** Modules	**20** Wireless

EB 80 SIGNAL MODULES - S

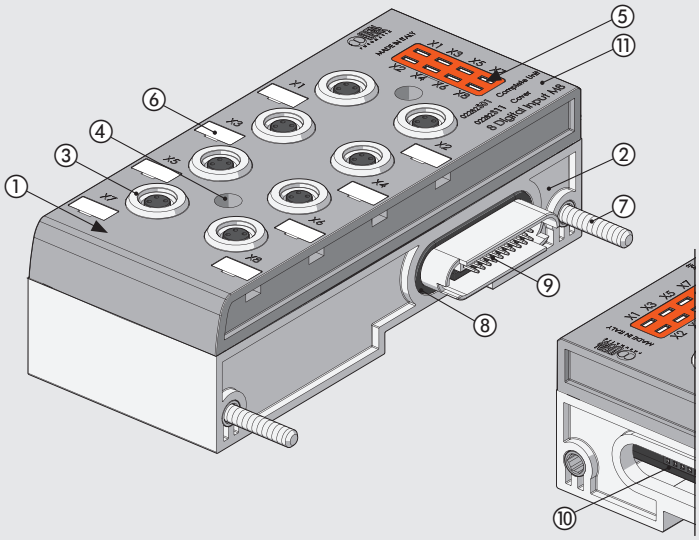
The EB 80 systems come with numerous input or output signal modules, which can be mounted on systems with fieldbus electrical connection or additional systems.
The signal modules can be added at any time. You only need to unscrew the aluminium plate to the left side of the "Electrical connection - E" 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	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	32 ***
Power and current		See individual "Signal Modules - S"
Protection		See individual "Signal Modules - S"
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**.28
** **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.

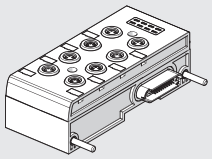
COMPONENTS

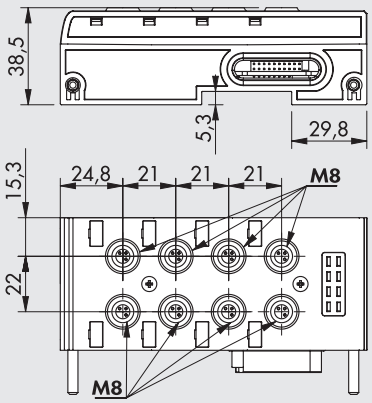
① UPPER PART BODY: technopolymer
② LOWER PART BODY: technopolymer
③ M8 CONNECTOR: signal connection
④ SCREW securing the upper part to the lower part
⑤ LED light
⑥ NAMEPLATE: removable
⑦ TIE ROD to secure modules: nickel-plated brass + stainless steel grub screw
⑧ GASKET: NBR
⑨ MALE CONNECTOR for other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

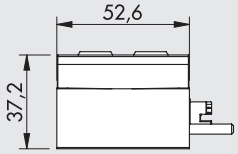


DIMENSIONS - ORDERING CODES

8 M8 DIGITAL INPUTS



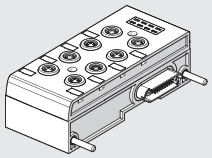


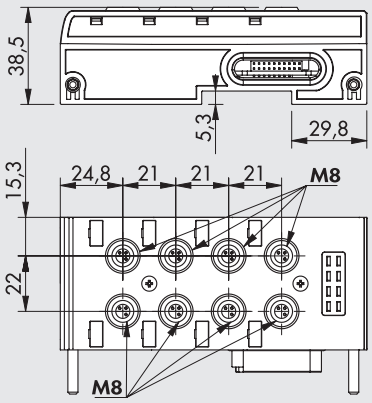


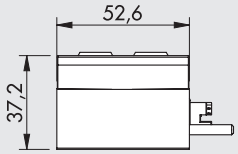
Code	Description	Weight [g]
02282**S01**	EB 80 module with 8 M8 digital inputs	250

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



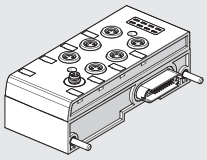


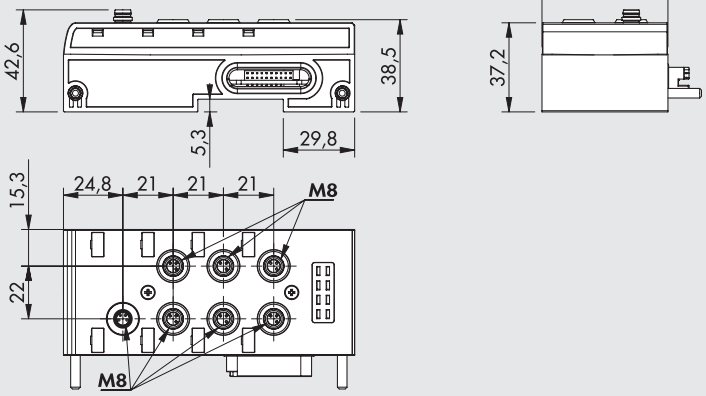


Code	Description	Weight [g]
02282**S02**	EB 80 module with 8 M8 digital outputs	250

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		8 M8 3-pole female connectors
Outputs active signals		One LED for each output

6 M8 DIGITAL OUTPUTS + ELECTRICAL POWER SUPPLY





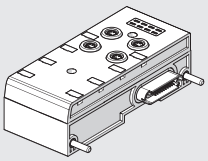
Code	Description	Weight [g]
02282**S03**	EB 80 module with 6 M8 digital outputs + electrical supply	240

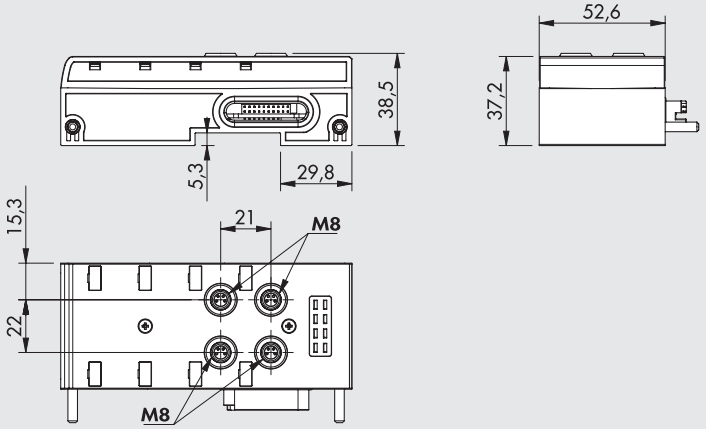
TECHNICAL DATA		
Bus supply voltage range	VDC	12 -10% 24 +30%
Digital out supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	32 ***
Output voltage		Corresponding to the supply voltage
Current for each connector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

* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

4 M8 ANALOGUE INPUTS

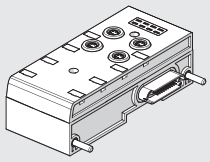


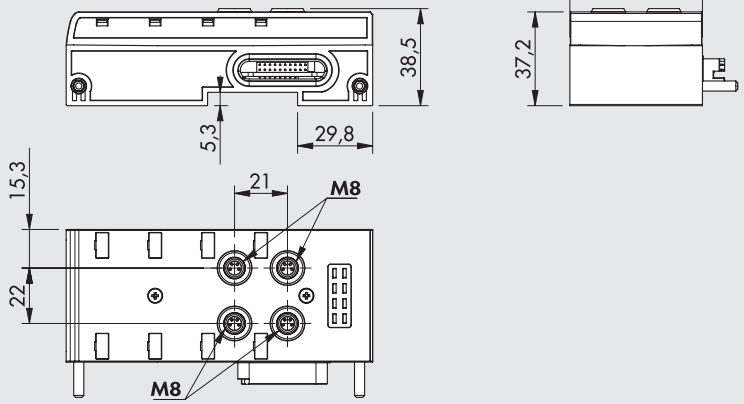


Code	Description	Weight [g]
02282**S04**	EB 80 module with 4 M8 analogue inputs	220

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		0/10VDC; 0/5VDC; +/-10VDC; +/-5VDC; 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

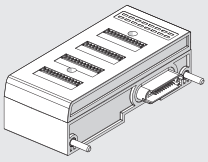


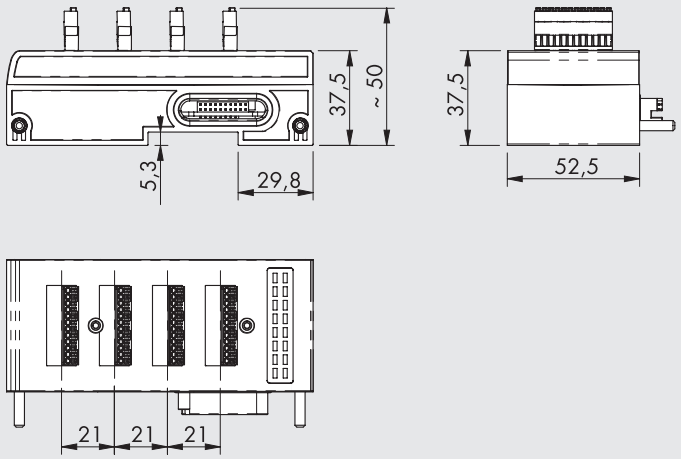


Code	Description	Weight [g]
02282**S05**	EB 80 module with 4 M8 analogue outputs	220

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		0/10VDC; 0/5VDC; +/-10VDC; +/-5VDC; 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

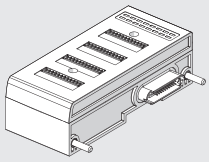


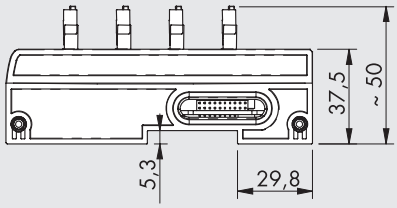


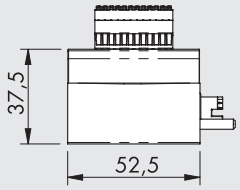
Code	Description	Weight [g]
02282**S06**	EB 80 module with 16 digital terminal block inputs	200

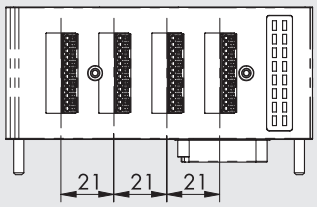
TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		4 12-pin connectors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

16 DIGITAL TERMINAL BLOCK OUTPUTS







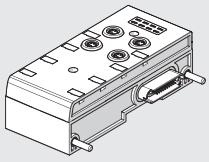


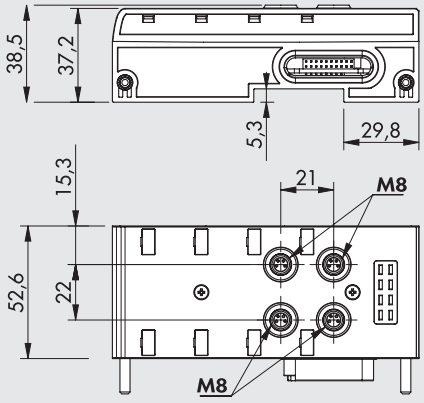
Code	Description	Weight [g]
02282**S07**	EB 80 module with 16 digital terminal block outputs	200

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



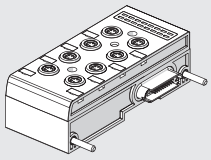


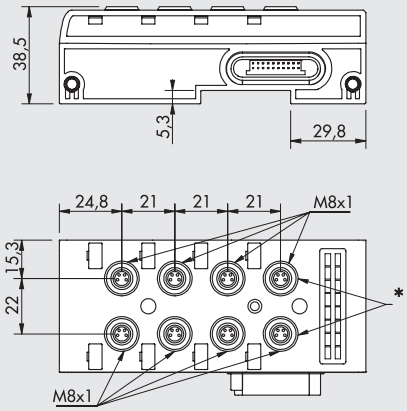
Code	Description	Weight [g]
02282**S08**	EB 80 module with 4 M8 analogue inputs for temperature measurement	220

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Maximum input voltage	VDC	30
Sensor type (RTD)		
platinum (-200 to +850°C)		Pt100, Pt200, Pt500, Pt1000 (TK = 0.00385 and TK = 0.00391)
nickel (-60 to +180°C)		Ni100, Ni120, Ni500, Ni1000 (TK = 0.00618)
Connections type (RTD)		2, 3 or 4-wire
Type of thermocouple (TC)		J, E, T, K, N, S, B, R
Cold junction compensation for thermocouples		
internal		With internal electronic sensor included
external (recommended in case of sudden changes in the ambient temperature)		PT1000 sensor for connection with the M8 thermocouple connector
Temperature range	°C	– 200 to + 800
	°F	– 328 to + 1472
Digital convert resolution		15 bit + prefix
Max error compared to ambient temperature		±0.5% (TC)
		±0.06% (RTD)
Max. basic error (ambient T 25°C)		±0.4% (TC)
	°C	±0.6 (with 4-wire RTD with 0.1 resolution)
	°C	±0.2 (with 4-wire RTD with 0.01 resolution)
Repeatability (ambient T 25°C)		±0.03%
Address employment		2 bytes for each input - 8 bytes per module
Cycle time (module)	ms	240
Software linearization		
for RTD		Piecewise linear approximation
for TC		NIST (National Institute of Standards and Technology) Linearization based on ITS-90 scale (International Temperature Scale of 1990) for the thermocouple linearization
Maximum length of shielded cable for the connection	m	< 30
Diagnostics		One LED for each input and reporting to the Master

16 M8 CONFIGURABLE DIGITAL INPUTS/OUTPUTS

This is an innovative module with 8 connectors and 16 digital signals, each configurable as a digital input or digital output.
The S21 module can be configurated via software by connecting the island's fieldbus module to a PLC . The signals of the first two connectors can also be used as inputs for reading direct current (VDC) motor encoders. Since each 4-pin connector allows the management of two signals (a pair of pins for each signal), dedicated connectors are also provided that allow the separation of the signals.





* Connectors usable also for reading direct current motor encoders

Code	Description	Weight [g]
02282**S21**	EB 80 module with16 M8 configurable digital inputs/outputs	230

TECHNICAL DATA		
Supply voltage		Corresponding to power voltage
Current for each connector	mA	max 1000
Current for each module	mA	max 3000
Current for each output	mA	max 500
Type of output		PNP
Input impedance	kΩ	3.9
Type of input		PNP
Protection		Overload and short-circuit protected inputs /outputs
Connections		8 M8 4-pole female connectors
Input active signals		One LED for each input
Output active signals		One LED for each output
Default configuration		Port X1…X8 Digital inputs
		Port X9…X16 Digital outputs
Encoder Configuration		
Type of input		PNP
Input active signals	V	>12
Input not active signals	V	<12
Maximum Frequency	Hz	300
Value format		32 bit (DWORD)
Maximum count		4.294.967.295

KEY TO CODES

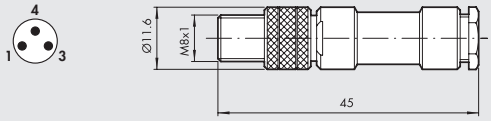
02282	S	01
FAMILY	**SUBSYSTEM**	**TYPE**
02282 EB 80	**S** Modules	**01** 8 M8 digital inputs **02** 8 M8 digital outputs **03** 6 M8 digitaloutputs + electrical supply **04** 4 M8 analogue inputs **05** 4 M8 analogue outputs **06** 16 digital terminal block inputs **07** 16 digital terminal block outputs **08** 4 M8 analogue inputs for temperature measurement **21** 16 M8 configurable digital inputs/outputs

ACCESSORIES

M8 PLUG

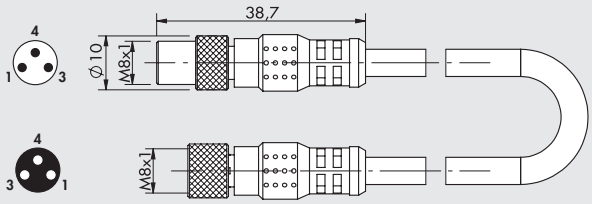
Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR FOR DIGITAL INPUTS / OUTPUTS



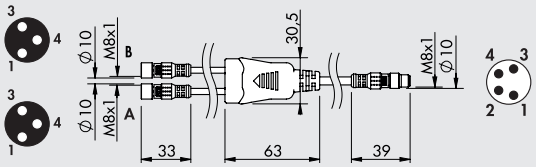
Code	Description
0240009010	M8 3-pin straight connector

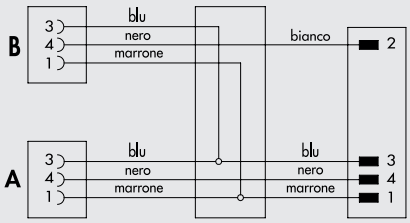
M8 CONNECTOR WITH CABLE FOR DIGITAL INPUTS /OUTPUTS



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

Y-CONNECTOR WITH CABLE FOR DIGITAL INPUT/OUTPUT

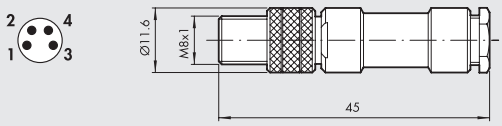




Code	Description
0240009048	Y-connector M8 4-pin M / double M8 3-pin F with cable L = 0.7 m

Note: Can only be used with S21 modules

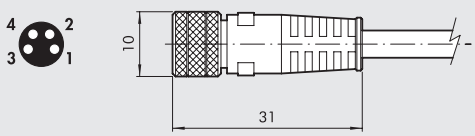
M8 MALE CONNECTOR FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240010300	M8 4-pin male connector

M8 CONNECTOR FOR POWER SUPPLY

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

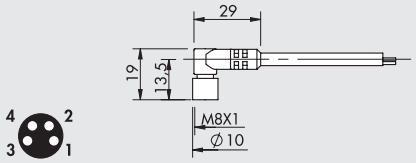


Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m
0240009P60 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 3 m
0240009P37 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 5 m
0240009P58 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 10 m
0240009P59 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 15 m

* Very flexible cables, class 6 according to IEC 60228

90° M8 CONNECTORS WITH SHIELDED CABLE

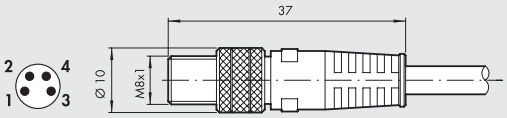
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



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

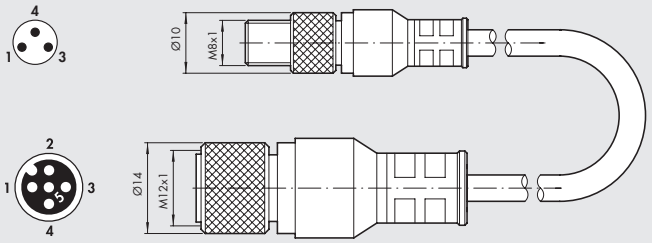
M8 4-POLE MALE CONNECTOR

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



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

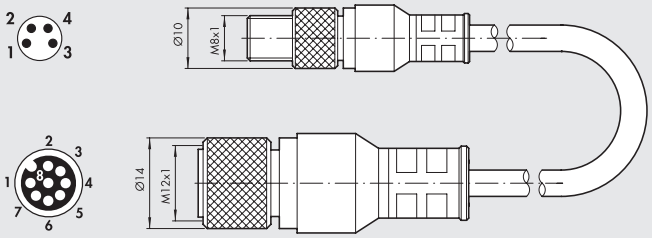
M8 3-POLE MALE – M12 5-POLE FEMALE CONNECTOR WITH CABLE FOR DIGITAL INPUTS/OUTPUTS



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 4	pin 4
pin 3	pin 3

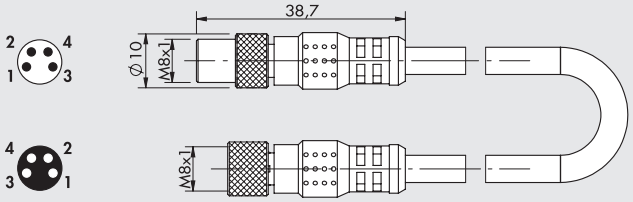
M8 4-POLE MALE – M12 8-POLE FEMALE CONNECTOR WITH CABLE FOR REGTRONIC CONNECTION



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

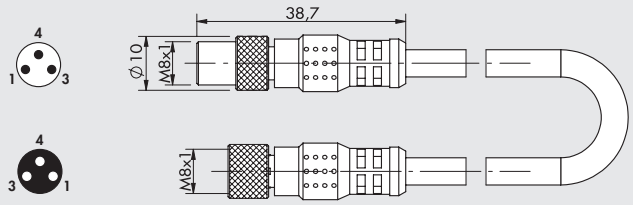
M8	M12
pin 1	pin 8
pin 2	pin 3
pin 3	pin 7
pin 4	disconnect

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

M8 ADAPTER CABLE FOR CONNECTING THE PRESSURE SWITCH TO THE DIGITAL INPUTS MODULE

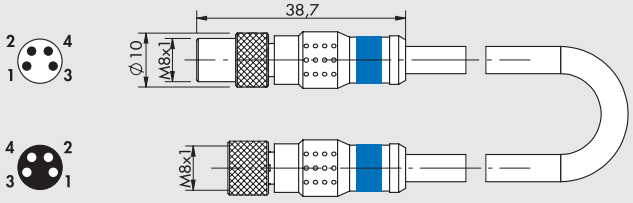


Code	Description
0240010501	M8-M, M8-F 3-pole adapter with cable L = 0.3 m

Note: Can be used for connecting **1/8-1/4**, **Syntesi®**, **Skillair®**, **PRS L** pressure switches to the module of digital INPUT **S01** of the EB 80 valves. Contact type NO (Normally-Open)

M8F	M8M	Function
pin 1	pin 1	Power supply +
pin 3	pin 4	Signal NO
pin 4	pin 3	Disconnect

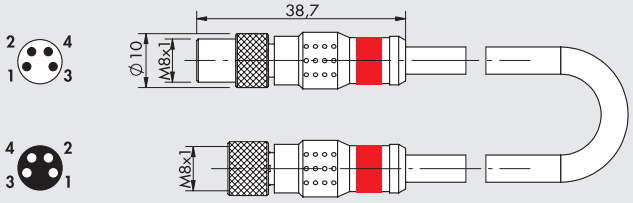
M8 SHIELDED ADAPTER CABLE FOR CONNECTING THE LTS-LTL POSITION TRANSDUCERS TO THE ANALOGUE INPUTS MODULE



Code	Description
0240010601	M8-M, M8-F 4-pole adapter with shielded cable L = 0.3 m (**blue collar**)

Note: Can be used for connecting the **4/20 mA** analog output of the LTL-LTS position sensors to the module of analog INPUT **S04** of the EB 80 valves.

M8F	M8M	Function
pin 1	pin 1	Power supply +
pin 2	pin 2	Signal 4/20 mA
pin 3	pin 3	Power supply –
pin 4	disconnect	

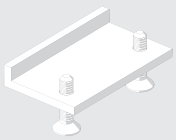


Code	Description
0240010701	M8-M, M8-F 4-pole adapter with shielded cable L = 0.3 m (**red collar**)

Note: Can be used for connecting the **0/10 VDC** analog output of the LTL-LTS position sensors to the module of analog INPUT **S04** of the EB 80 valves.

M8F	M8M	Function
pin 1	pin 1	Power supply +
pin 4	pin 2	Signal 0/10 V
pin 3	pin 3	Power supply –
pin 2	disconnect	

ADDITIONAL FIXING BRACKET TO OMEGA BAR



Code	Description	Weight [g]
02282R4001	Additional fixing bar accessory to EB 80 Omega bar	5

Individually packed

N.B.: to be used to improve the fixing to Omega bars of islands with more than 10 modules. The bracket must be positioned every 5-6 modules.

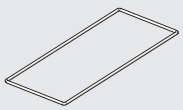
SPARE PARTS

EB 80 BUS/SIGNAL INTERFACE OR SEAL

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

Comes in 10-pc. packs

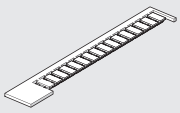
EB 80 GASKET BETWEEN BASE AND BUS/SIGNAL COVER



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

Comes in 10-pc. packs

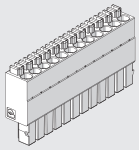
IDENTIFICATION PLATE KIT



Code	Description
0226107000	Identification plate kit

Comes in 16-pc. packs

CONNECTOR 12 POSITIONS



Code	Description
02282R5010	Connector 12 positions for modules S06 and S07

Comes in 4-pc. packs

NOTES

EB 80 ELECTRICAL CONNECTION - E

METAL WORK PNEUMATIC

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 31.2VDC, are admitted.
The minimum voltage for solenoid pilots can be 10.8VDC, i.e. 12VDC-10%.
The body of the multi-pole version is made of metal in one piece (as the IO-Link 64 OUT version); simplified versions that can only manage solenoid valves, but that keeps the whole modularity and diagnostics of the EB 80 family.
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	VDC	12 -10% 24 +30%					
Minimum operating voltage	VDC	10.8 *					
Maximum operating voltage	VDC	31.2					
Maximum admissible voltage	VDC	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	IO-link 32 IN / 32 OUT	IO-link 64 OUT	additional island
Maximum number of controllable solenoid pilots		21	38	128	32	64	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	350	180	320

* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.28**
*** **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 10.8VDC.
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.

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

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 10.8VDC + ΔV

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

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

ΔV = (1.41 x 0.067 x 2x5) = 0.95VDC

This means that at the power supply voltage greater than or equal to 10.8 + 0.95 = 11.75VDC is required.
Vin =12VDC > 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 32 IN / 32 OUT **LK** IO-Link 64 OUT **CC** CC-Link IE Field Basic **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 31.2VDC, are admitted.
The minimum voltage for the solenoid pilots can be 10.8VDC, i.e. 12VDC - 10%.
The body of the multi-pole version is made of metal in a single piece.

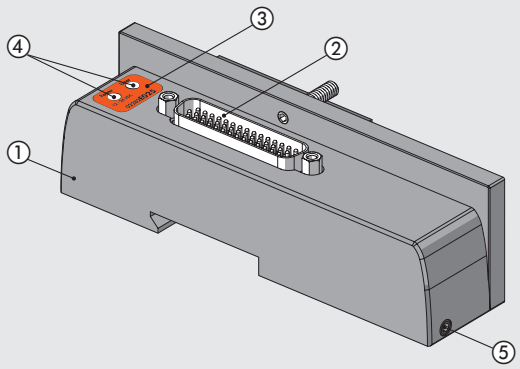
TECHNICAL DATA

Supply voltage range	VDC	12 -10% 24 +30%	
Minimum operating voltage	VDC	10.8 *	
Maximum operating voltage	VDC	31.2	
Maximum admissible voltage	VDC	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**.28	
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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28
** 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.**

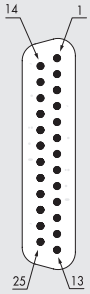
COMPONENTS

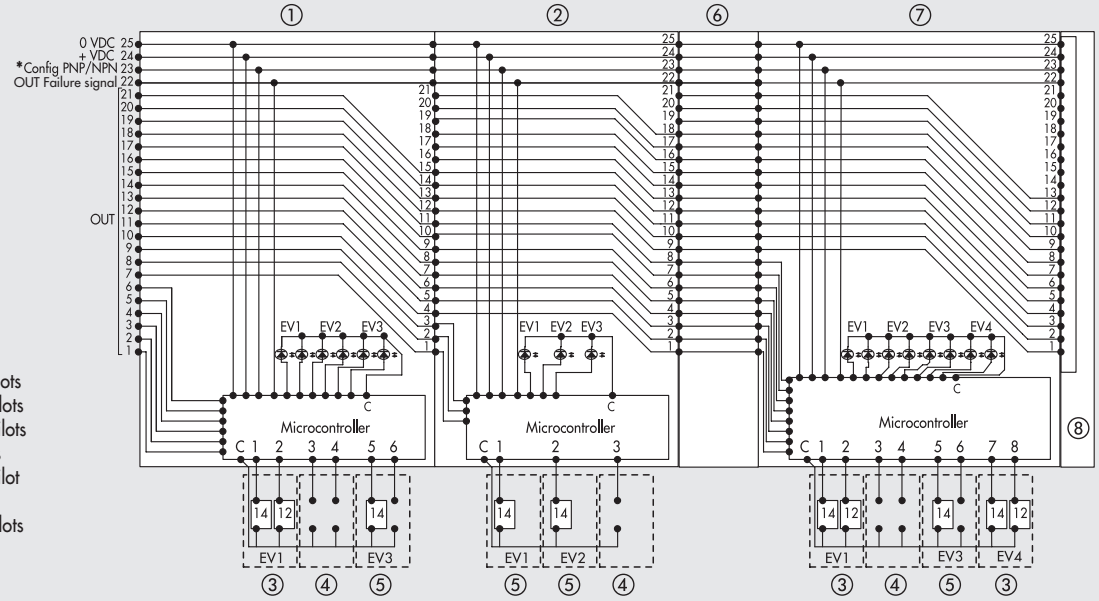
① BODY: painted metal
② CONNECTOR: plug type
③ NAMEPLATE: with product code
④ LED: signal on and alarm
⑤ GRUB SCREW securing the DIN bar or bracket: zinc-plated steel



WIRING DIAGRAM

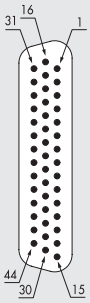
D-Sub 25-pin CONNECTOR

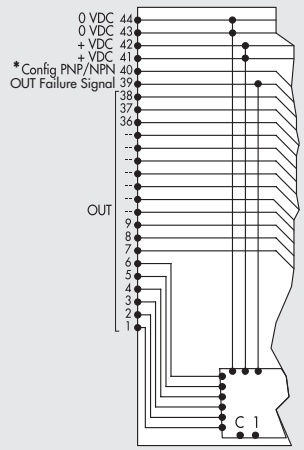




① 3-position base for 6 pilots
② 3-position base for 3 pilots
③ Valve with 2 solenoid pilots
④ Dummy valve or bypass
⑤ Valve with 1 solenoid pilot
⑥ Intermediate module
⑦ 4-position base for 8 pilots
⑧ Closed end-plate

D-Sub 44-pin CONNECTOR

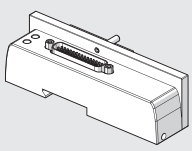


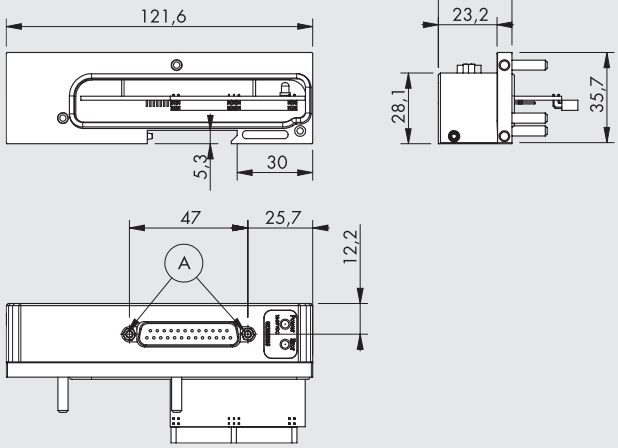


* Connect to +VDC if (Out) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (Out) valves with a NEGATIVE signal are to be controlled

DIMENSIONS - ORDERING CODES

DIMENSION OF A MULTI-POLE ELECTRICAL CONNECTION



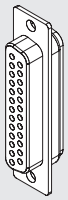


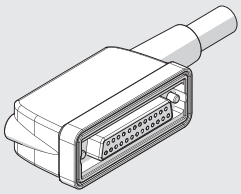
Ⓐ = Holes for D-Sub connector 25-pin or 44-pin

Code	Description	Weight [g]
02282**E025**	EB 80 25-pin electrical connection	260
02282**E044**	EB 80 44-pin electrical connection	260

ACCESSORIES

IP65 25-PIN PRE-WIRED PLUG CONNECTOR





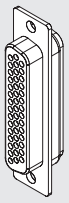
Code	Description	Weight [g]
02269A0100	IP65 25-pin 90° connector, UL cable L = 1 m	180
02269A0250	IP65 25-pin 90° connector, UL cable L = 2.5 m	365
02269A0500	IP65 25-pin 90° connector, UL cable L = 5 m	680
02269A1000	IP65 25-pin 90° connector, UL cable L = 10 m	1220
02269A2000	IP65 25-pin 90° connector, UL cable L = 20 m	2350
02269C0100 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 1 m	180
02269C0250 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 2.5 m	365
02269C0500 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 5 m	680
02269C1000 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 10 m	1220

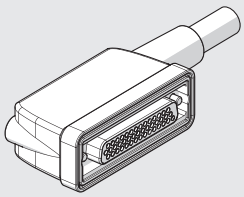
** Very flexible cables, class 6 according to IEC 60228

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 H-FLEX CL6, cable L = 1 m	275
02269D0250 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 2.5 m	630
02269D0500 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 5 m	1180
02269D1000 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 10 m	2210

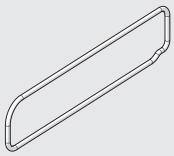
** Very flexible cables, class 6 according to IEC 60228

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	EB 80 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 31.2VDC, are admitted. The minimum voltage for solenoid pilots can be 10.8VDC, i.e. 12VDC - 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.
The exception is the IO-Link 64 OUT version which is composed of a single aluminum element and can only manage solenoid valves (32 or 64) while maintaining all the modularity and diagnostic features of the EB 80 family.

TECHNICAL DATA

Supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 (32 for IO-Link 32 IN / 32 OUT; 64 for IO-Link 64 OUT)
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
		(32 for IO-Link 32 IN / 32 OUT)
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, CC-Link IE Field Basic
Degree of protection		IP65 (with connectors connected or plugged if not used)
Weight	g	350 (180 for IO-Link 64 OUT)

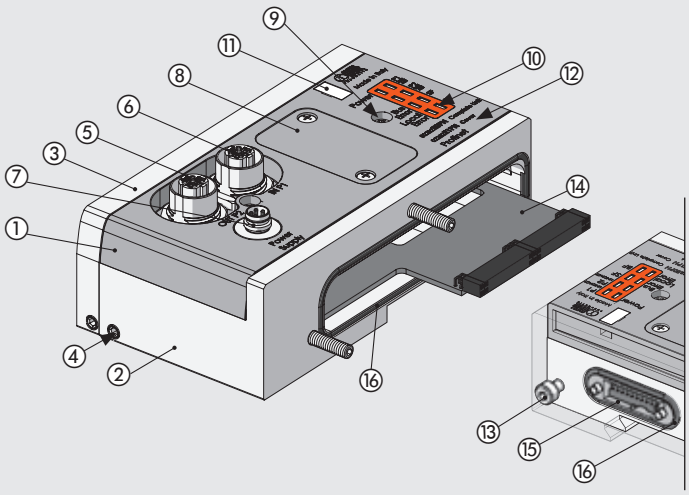
* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.28**

** 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 CLOSING PLATE: painted aluminium
④ GRUB SCREW securing the DIN bar or bracket: zinc-plated 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

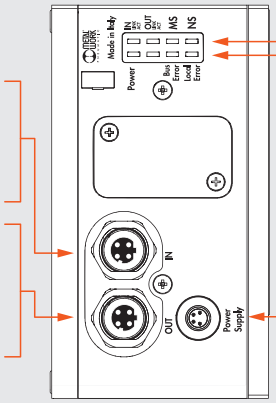
Connection to the EtherNet/IP network

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 = +24VDC bus (Brown)
2 = +24VDC 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		IP address: 192.168.192.32
Addressing		Software - DHCP hardware
Supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 24VDC
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
Maximum number of inputs for temperatures		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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

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

EtherCAT WIRING DIAGRAM

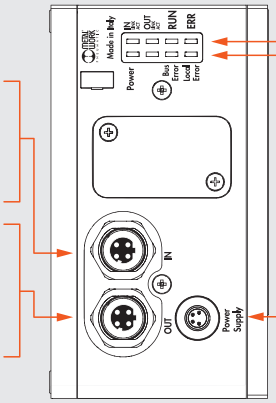
Connection to the EtherCAT network

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



EtherCAT 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 = +24VDC bus (Brown)
2 = +24VDC 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 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	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 24VDC
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
Maximum number of inputs for temperatures		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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

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

CANopen WIRING DIAGRAM

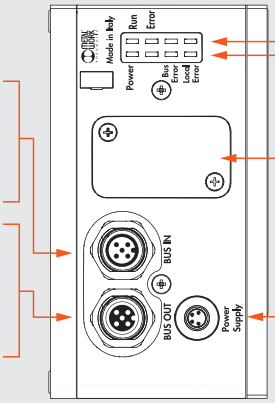
Connection to the CANopen network

BUS IN (M12 male connector, A encoding)

1 = CAN_SHLD
2 = - - -
3 = CAN_GND
4 = CAN_H
5 = CAN_L
Metal ring nut = Shield

BUS OUT (M12 female connector, A encoding)

1 = CAN_SHLD
2 = - - -
3 = CAN_GND
4 = CAN_H
5 = CAN_L
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 = +24VDC bus (Brown)
2 = +24VDC 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	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 24VDC
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
Maximum number of inputs for temperatures		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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

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

Profinet IO WIRING DIAGRAM

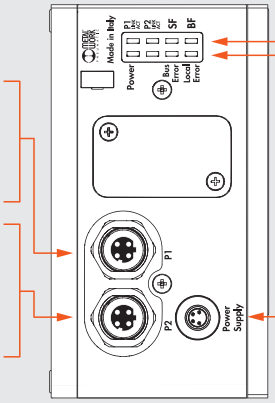
Connection to the Profinet IO network

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 = +24VDC bus (Brown)
2 = +24VDC 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	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 24VDC
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
Maximum number of inputs for temperatures		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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

** 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

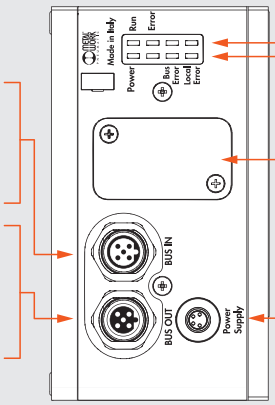
BUS IN (M12 Male Connector, B encoding)

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

BUS OUT (M12 female connector, B encoding)

1 = 5 VDC*
2 = A
3 = 0 VDC*
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 = +24VDC bus (Brown)
2 = +24VDC 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	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 24VDC
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
Maximum number of inputs for temperatures		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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.**28

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

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

Ethernet POWERLINK WIRING DIAGRAM

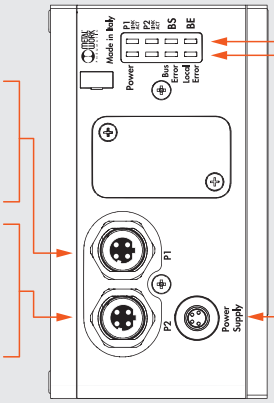
Connection to the Ethernet POWERLINK network

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



Ethernet POWERLINK 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 = +24VDC bus (Brown)
2 = +24VDC 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

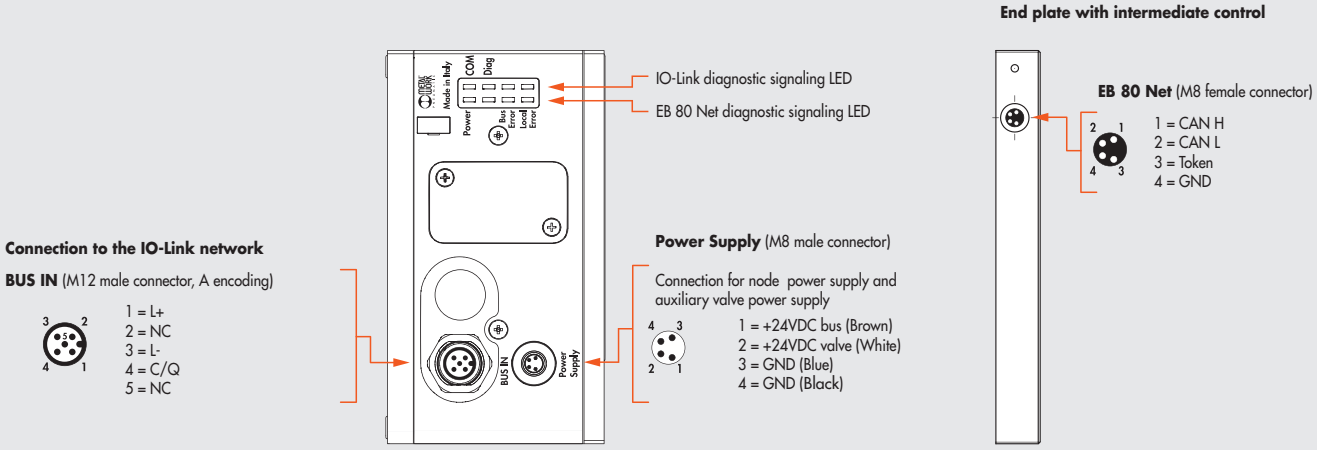
TECHNICAL DATA		
Fieldbus		100 Mbit/S - Half-duplex - Supports auto-negotiation
Factory settings		module denomination: EB80series address number 2
Addressing		Hardware by rotary switch
Supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 24VDC
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
Maximum number of inputs for temperatures		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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

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

IO-Link 32 IN / 32 OUT 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)	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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

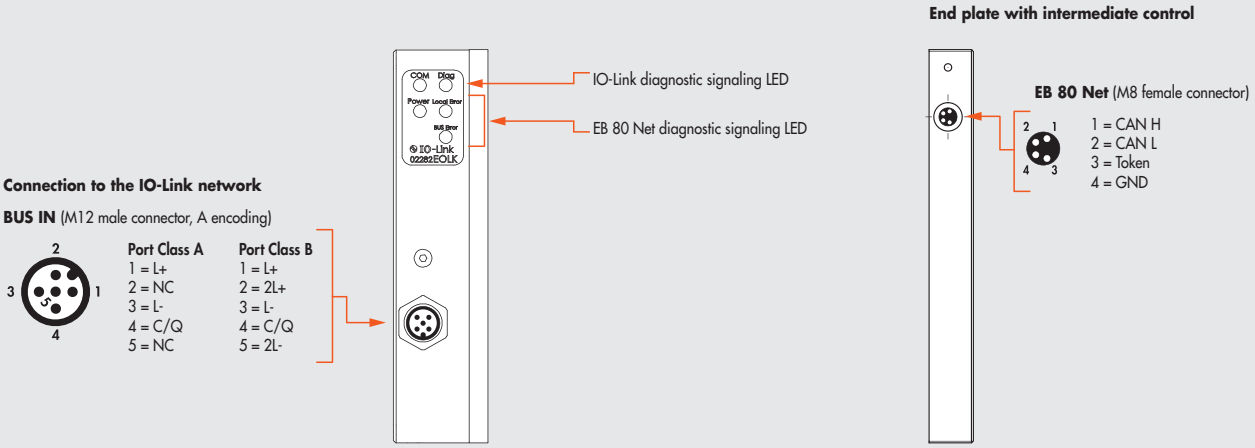
* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.**28

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

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

METAL WORK PNEUMATIC

IO-Link 64 OUT WIRING DIAGRAM



TECHNICAL DATA		
Fieldbus		IO-Link version 1.1
Communication speed	Kbps	230.4 (COM3)
Vendor ID / Device ID		1046 (hex 0x0416) / 64 (hex 0x000040)
Minimum cycle time	ms	2.8
Process data length		1 byte of Input / 8 byte of Output
Valves supply voltage range	VDC	12 -10% 24 +30%
Minimum valves operating voltage	VDC	10.8 *
Maximum valves operating voltage	VDC	31.2
Maximum admissible voltage	VDC	32 ***
IO-Link power supply (L+L - Bus IN connector)	VDC	min 18, 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 - port class B
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 64 OUT instruction manual
Maximum number of pilots		64
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

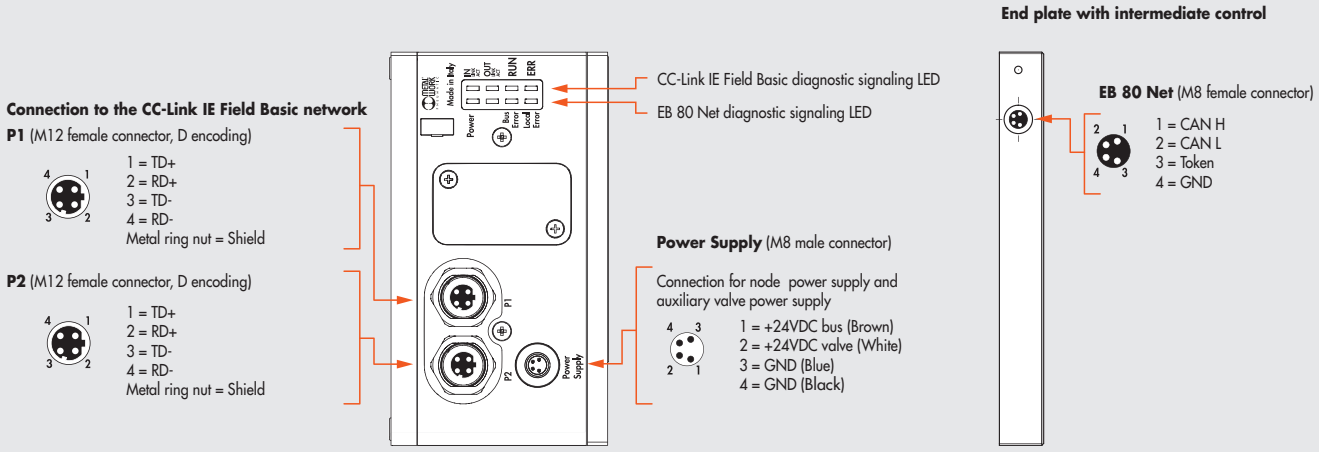
* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

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

N.B.: The EB 80 island with IO-Link 64 OUT can be connected with an EB 80 island with Additional electrical control, but the latter cannot manage IN or OUT modules.

CC-Link IE Field Basic WIRING DIAGRAM



TECHNICAL DATA		
Fieldbus		100 Mbit/s Number of occupied stations: from 1 to 4
Factory settings		IP address: 192.168.3.32 Subnet Mask: 255.255.255.0
Addressing		Software
Supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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 **		CC-Link IE Field Basic: 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 24VDC
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
Maximum number of inputs for temperatures		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

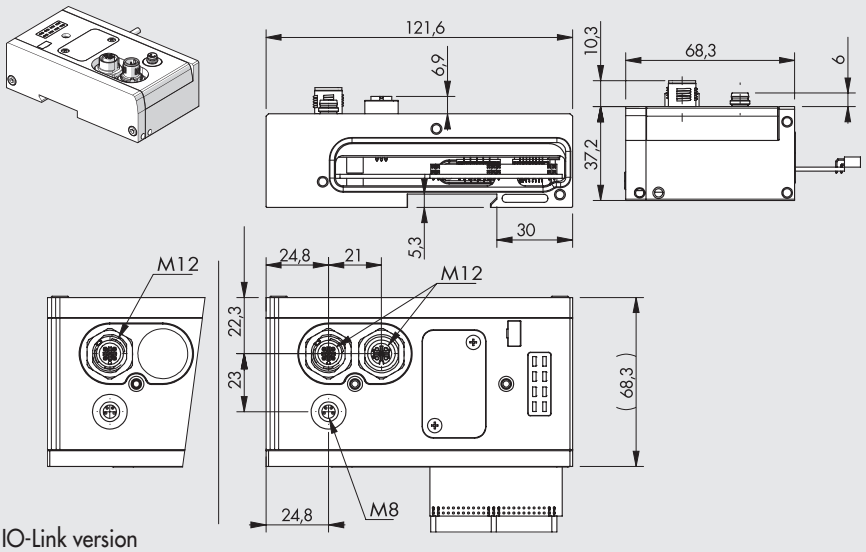
* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28

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

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

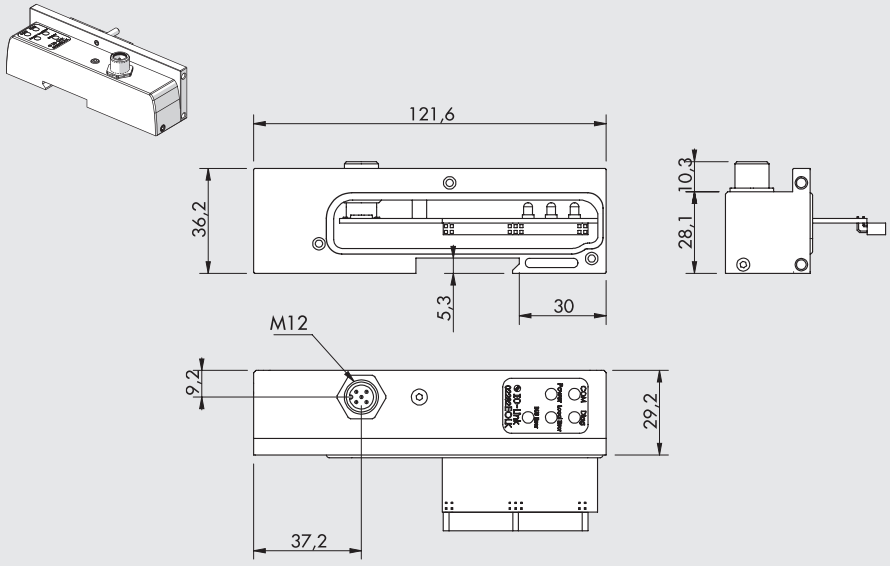
DIMENSIONS - ORDERING CODES

ELECTRICAL CONNECTION FIELDBUS DIMENSION



IO-Link version

Code	Description	Weight [g]
02282**E0EN**	EB 80 Electrical connection EtherNet/IP	600
02282**E0EC**	EB 80 Electrical connection EtherCAT	600
02282**E0PN**	EB 80 Electrical connection Profinet IO	600
02282**E0CN**	EB 80 Electrical connection CANopen	600
02282**E0PB**	EB 80 Electrical connection Profibus-DP	600
02282**E0PL**	EB 80 Electrical connection Ethernet POWERLINK	600
02282**E0IO**	EB 80 Electrical connection IO-Link 32 IN / 32 OUT	580
02282**E0LK**	EB 80 Electrical connection IO-Link 64 OUT	190
02282**E0CC**	EB 80 Electrical connection CC-Link IE Field Basic	580

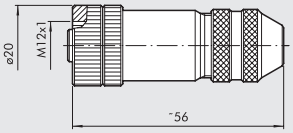


IO-Link 64 Output version

NOTES

ACCESSORIES

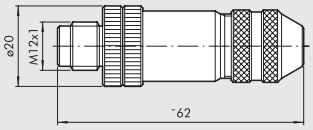
M12 FEMALE CONNECTOR FOR BUS-IN, A ENCODING



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

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

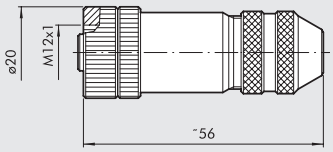
M12 MALE CONNECTOR FOR BUS-IN, A ENCODING



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

Note: Can be used for Bus CANopen

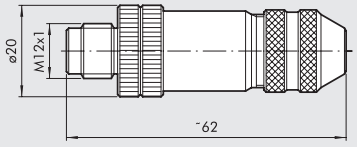
M12 FEMALE CONNECTOR FOR BUS-IN, B ENCODING



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

Note: Can be used for Profibus-DP

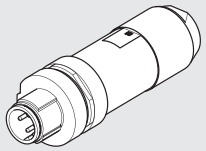
M12 MALE CONNECTOR FOR BUS-IN, B ENCODING



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

Note: Can be used for Profibus-DP

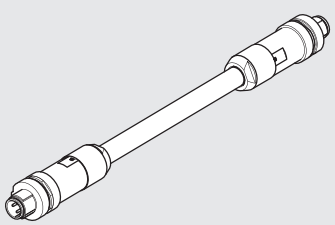
M12 BUS CONNECTOR, D ENCODING



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, CC-Link IE Field Basic)

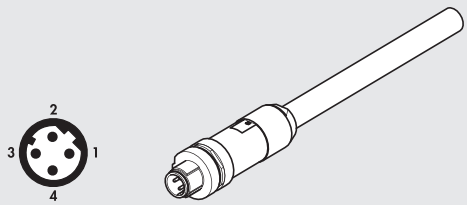
STRAIGHT CONNECTOR FOR M12-M12 BUS, D-CODED



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, CC-Link IE Field Basic)

STRAIGHT CONNECTOR FOR M12 BUS, D-CODED

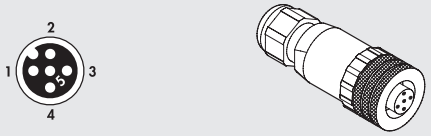


Pin	Cable color
1	Yellow
2	White
3	Red
4	Blue

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, CC-Link IE Field Basic)

STRAIGHT CONNECTOR FOR M12, A-CODED

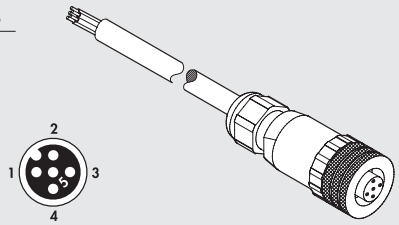


Code	Description
W0970513001	5-PIN M12x1 straight connector

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

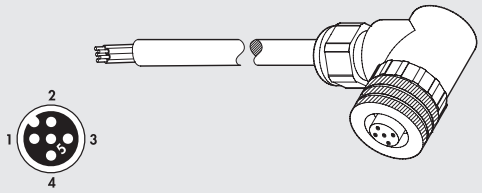
90° CONNECTOR FOR M12, A-CODED

Code	Description
W0970513003	M12x1 5-PIN 90° connector

Note: Can be used for IO-Link

90° CONNECTOR WITH WIRE FOR M12, A-CODED

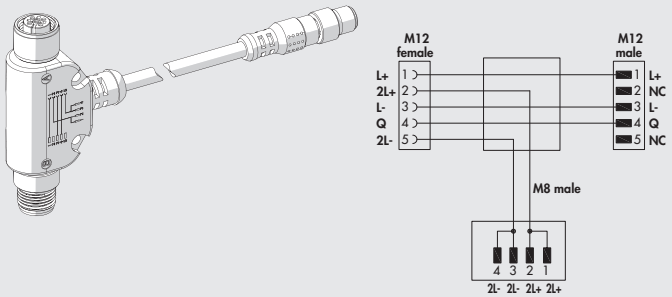
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray



Code	Description
W0970513004	M12x1 5-PIN 90° connector with wire L = 5 m

Note: Can be used for IO-Link

T-CONNECTOR M12 A-CODED / M8 MALE FOR AUXILIARY POWER



Code	Description
0240009070	T - connector for auxiliary power

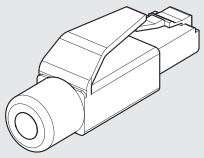
Note: Can be used for IO-Link 64 OUT

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, CC-Link IE Field Basic)

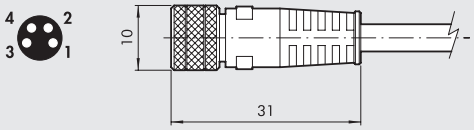
RJ45 CONNECTOR



Code	Description
0240005050	RJ45 connector with 4 contacts according to IEC 60603-7

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
0240009P60 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 3 m
0240009P37 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 5 m
0240009P58 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 10 m
0240009P59 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 15 m

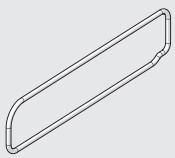
* Very flexible cables, class 6 according to IEC 60228

M8-M12 PLUG

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

SPARE PARTS

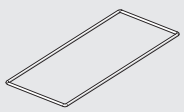
EB 80 ELECTRICAL CONNECTION INTERFACE OR-SEAL



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 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 31.2VDC. The minimum voltage for the solenoid pilots can be 10.8VDC, i.e. 12VDC-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.

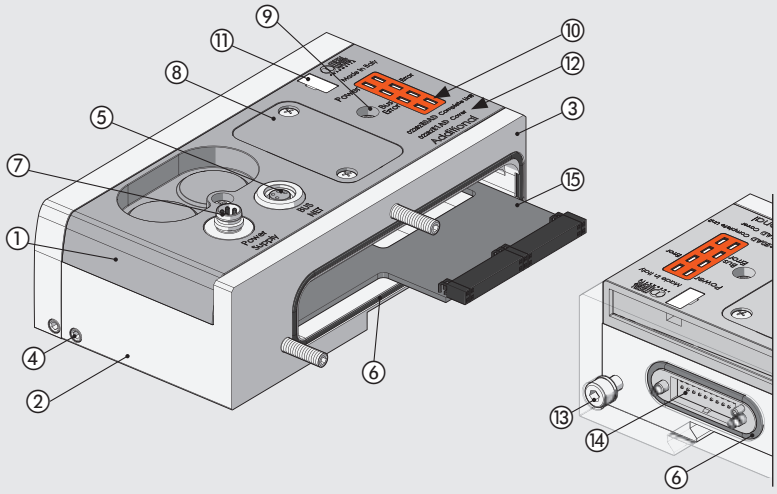
TECHNICAL DATA

Supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	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

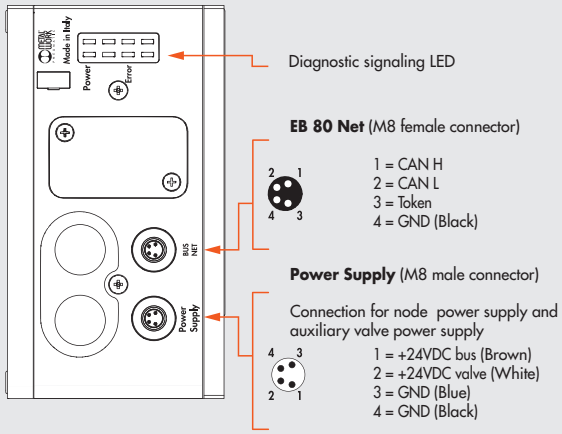
* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28
** Total numbers, by summing up those of the fieldbus connection and all additional connections.
*** **IMPORTANT! Voltage greater than 32VDC will 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: zinc-plated 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

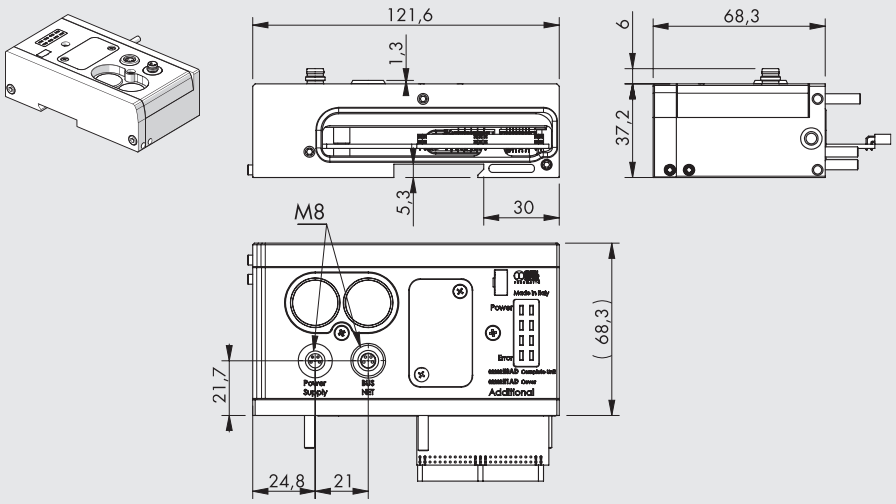


WIRING DIAGRAM



DIMENSIONS - ORDERING CODES

DIMENSION OF ADDITIONAL ELECTRICAL CONNECTION

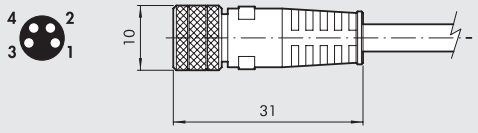


Code	Description	Weight [g]
02282**E0AD**	Additional electrical connection EB 80	570

ACCESSORIES

M8 CONNECTOR FOR POWER SUPPLY

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



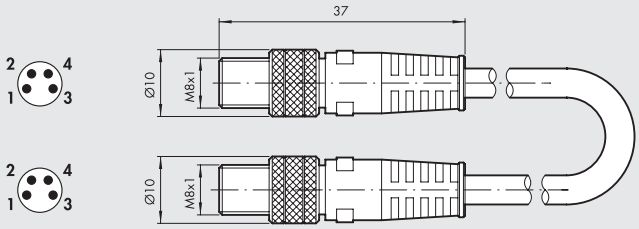
Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m
0240009P60 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 3 m
0240009P37 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 5 m
0240009P58 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 10 m
0240009P59 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 15 m

* Very flexible cables, class 6 according to IEC 60228

M8 PLUG

Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR WITH CABLE FOR CONNECTION BETWEEN EB 80 ISLANDS

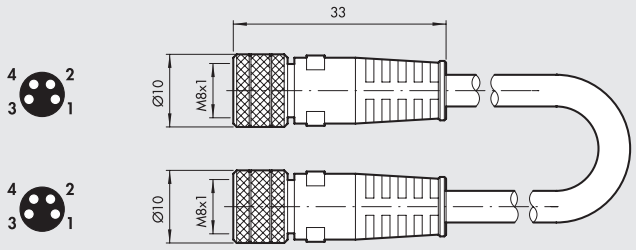


Code	Description	Weight [g]
0240010201	M8-M8 4-pin male straight connector with shielded cable L = 1 m	45
0240010205	M8-M8 4-pin male straight connector with shielded cable L = 5 m	185
0240010210	M8-M8 4-pin male straight connector with shielded cable L = 10 m	330
0240010215	M8-M8 4-pin male straight connector with shielded cable L = 15 m	475
0240010220	M8-M8 4-pin male straight connector with shielded cable L = 20 m	620
0240010405 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 5 m	185
0240010410 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 10 m	330
0240010415 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 15 m	475
0240010420 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 20 m	620

* Very flexible cables, class 6 according to IEC 60228

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

M8 ADAPTER CABLE

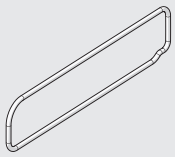


Code	Description	Weight [g]
0240010350	M8-M8 4-pin female adapter cable with shielded cable L = 200 mm	16

N.B.: Cannot be used with cables for mobile laying (H-FLEX CL6)

SPARE PARTS

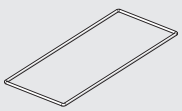
EB 80 ELECTRICAL CONNECTION INTERFACE OR-SEAL



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

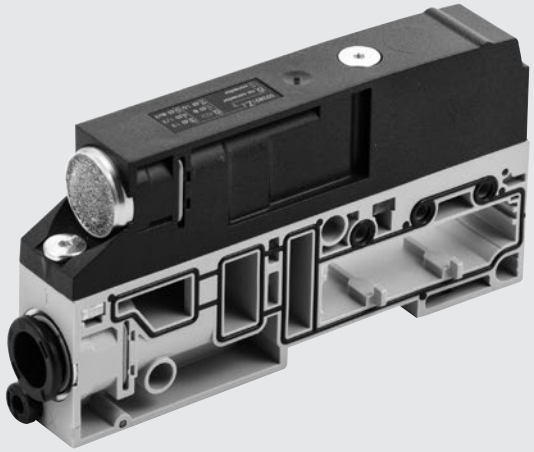
EB 80 BUS/SIGNAL INTERFACE OR-SEAL

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 at different pressures from vacuum to 8 bar, including the version to configure a fieldbus island with signal modules only, without the pneumatic part.

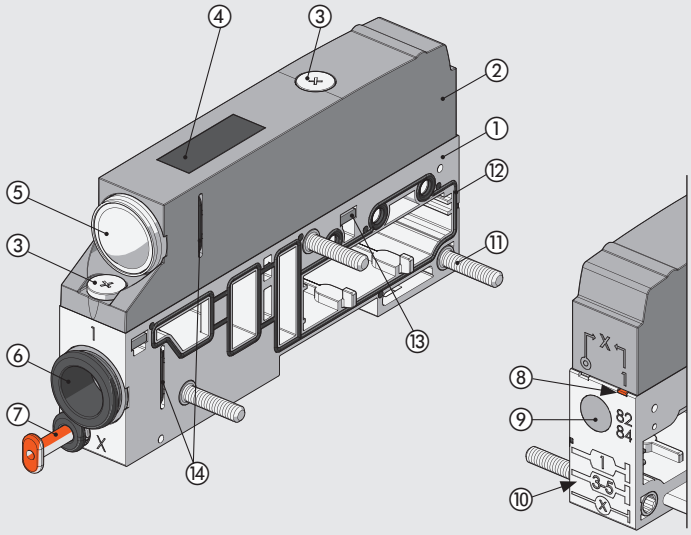


TECHNICAL DATA

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**.57) / max. 8	
	MPa	0.3 to 0.8		min. (see graph on page **B2**.57) / max. 0.8	
	psi	43 to 116		min. (see graph on page **B2**.57) / 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

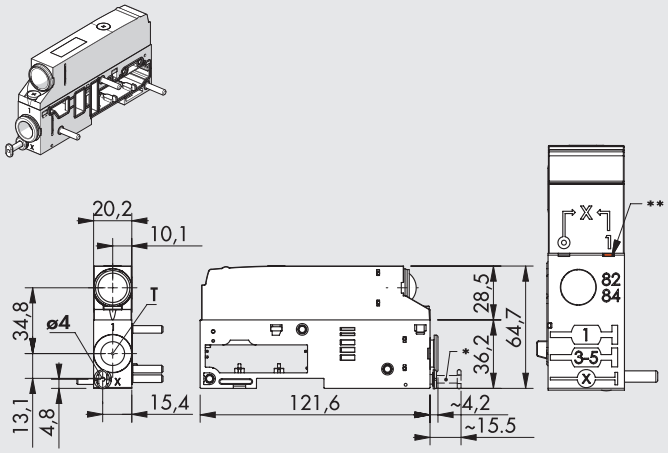
COMPONENTS

① LOWER PART BODY: technopolymer
② UPPER PART BODY: technopolymer
③ SCREWS securing the island bodies: zinc-plated 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: zinc-plated steel
⑫ GASKET: NBR
⑬ THREADED PLATE: zinc-plated steel
⑭ CARTRIDGE FIXING CLIP: stainless steel



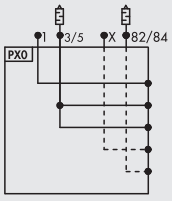
DIMENSIONS - ORDERING CODES

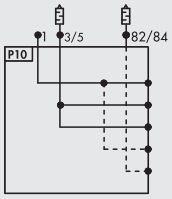
COMPRESSED AIR SUPPLY - SILENCED RELIEF



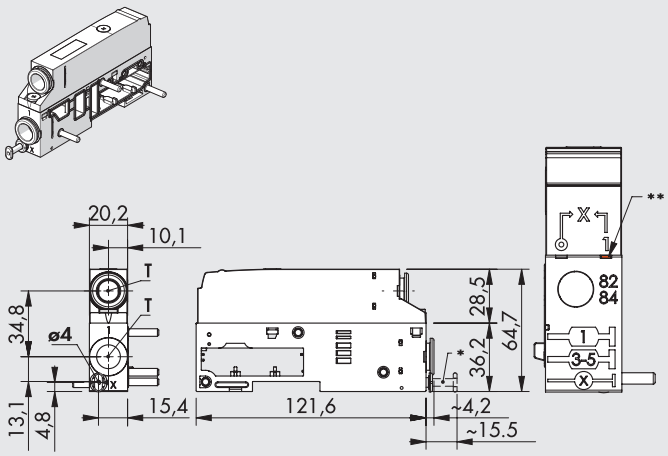
* R9 plug for NON-SERVO-ASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

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



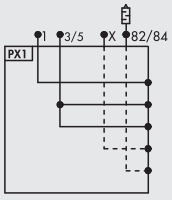


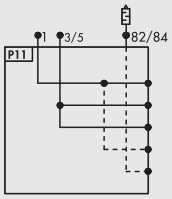
COMPRESSED AIR SUPPLY - CONVEYED RELIEF



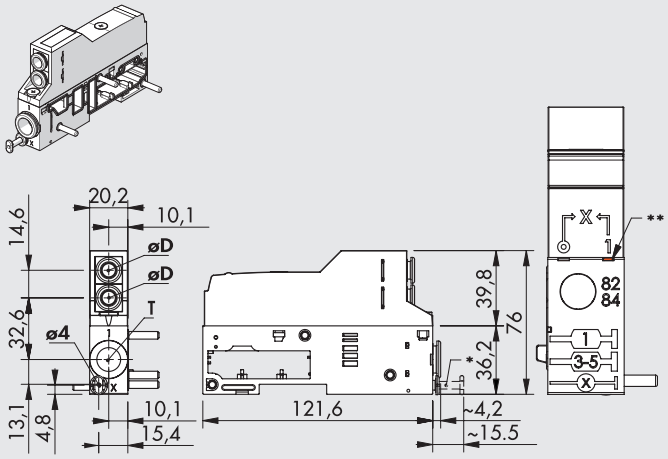
* R9 plug for NON-SERVO-ASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

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





COMPRESSED AIR SUPPLY - SEPARATE RELIEFS

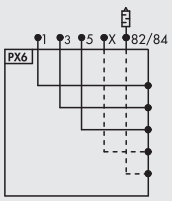


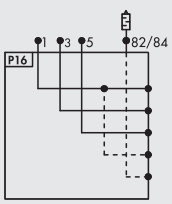
* R9 plug for NON-SERVO-ASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

Symbol	T - Pipe fitting	Code	Weight [g]
Servo-assisted	Ø 8 (5/16")	02282**P1XZ_0**	150
	Ø 10	02282**P2XZ_0**	150
	Ø 12	02282**P3XZ_0**	140
	Ø 1/2"	02282**P5XZ_0**	140
Non-servo-assisted	Ø 8 (5/16")	02282**P11Z_0**	150
	Ø 10	02282**P21Z_0**	150
	Ø 12	02282**P31Z_0**	140
	Ø 1/2"	02282**P51Z_0**	140

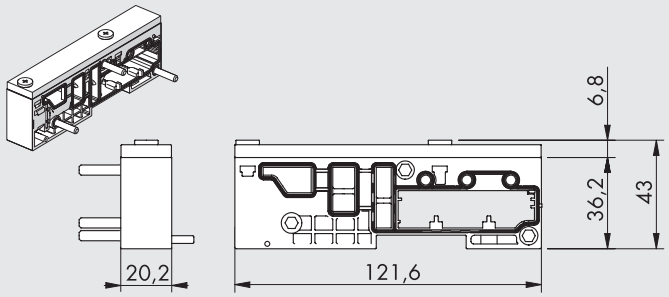
_ = To complete the code enter:
6: øD = 8 mm; **7**: øD = 6 mm; **8**: øD = 4 mm

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



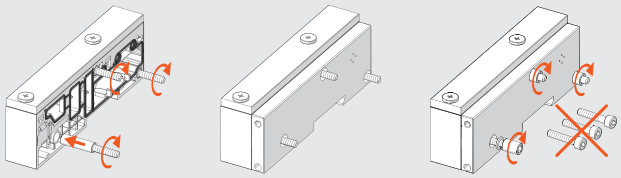


MODULE FOR ELECTRIC VERSION ONLY



Code	Description	Weight [g]
02282**P91Z90**	Module for electric version only	120

N.B.: Version used to make up an EB 80 island without pneumatic part, but only with "S" signal modules and fieldbus or additional electrical connection "E". Bases and valves cannot be added.



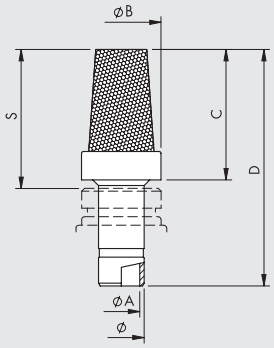
KEY TO CODES

02282	P	3	1	Z	3	0
FAMILY	**SUBSYSTEM**	**PORT FITTING 1**	**PILOT SERVO-ASSISTED**	**UPPER PART**	**PORTS 3 AND 5 FITTING**	**SPECIALTY**
02282 EB 80	**P** Compressed air supply	**1** Pipe fitting Ø 8 (5/16") **2** Pipe fitting Ø 10 **3** Pipe fitting Ø 12 **5** Pipe fitting Ø 1/2" **9** Module for electric version only	**1** Non-servo-assisted **X** Servo-assisted **1** Non-servo-assisted	**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) **7** 2 pipes fitting Ø 6 (one for port 3, one for port 5) **8** 2 pipes fitting Ø 4 (5/32") (one for port 3, one for port 5) **9** Without connection	**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	S
8	6.5	14	23	42	24.5
12	10	18.8	29	51.5	31.5

Code	Description	Flow rate at 6.3 bar [Nl/min]	Weight [g]
W0970530084	Silencer for fitting, Ø 8	2400	15
W0970530086	Silencer for fitting, Ø 12	6000	24

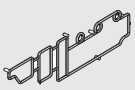
SPARE PARTS

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

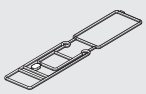
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

LOWER /UPPER BODY GASKET

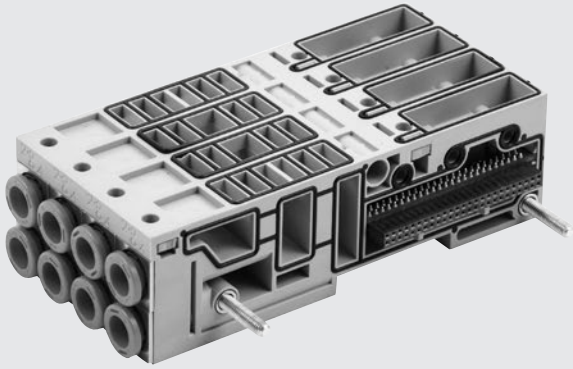


Code	Description
02282R1001	EB 80 lower/upper body gasket kit

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.



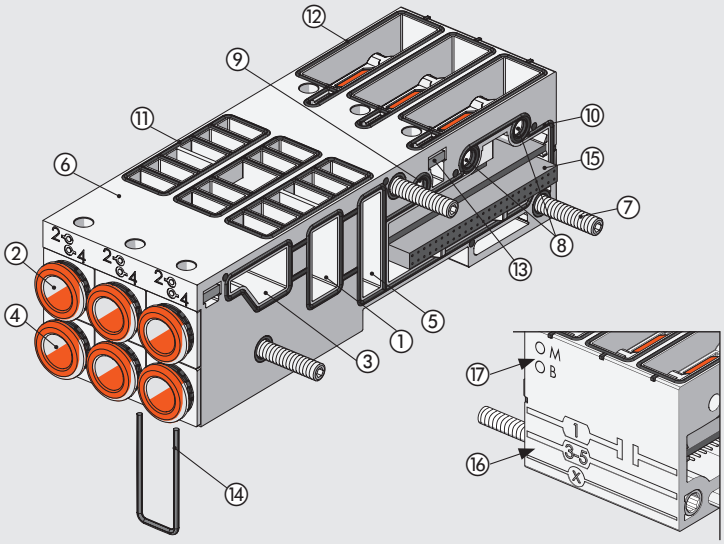
PATENTED

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

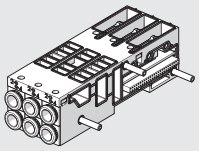
COMPONENTS

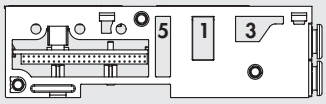
① PORT 1 DUCT
② PORT 2 CARTRIDGE: push-in fitting
③ PORT 3 DUCT
④ PORT 4 CARTRIDGE: push-in fitting
⑤ PORT 5 DUCT
⑥ BODY: technopolymer
⑦ TIE ROD: nickel-plated brass + stainless steel grub screw
⑧ 82/84 DUCT: pilot air relief
⑨ X DUCT: pilot control
⑩ GASKET BETWEEN BASES: NBR
⑪ GASKET FOR THE VALVE: NBR
⑫ GASKET FOR IP65:NBR
⑬ THREADED PLATE for securing the valves: zinc-plated steel
⑭ CLIP for securing the cartridge: stainless steel
⑮ ELECTRONICS
⑯ PICTOGRAM: indication of compressed air system layout
⑰ INDICATION of the type of electronic board:
M = to 3 or 4 controls - B = to 6 or 8 controls

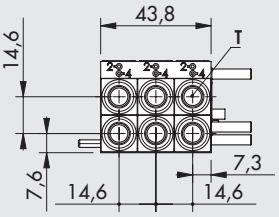


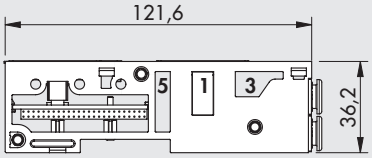
DIMENSIONS - ORDERING CODES

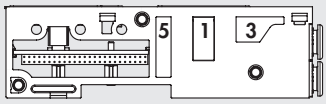
3-POSITION BASE FOR VALVES

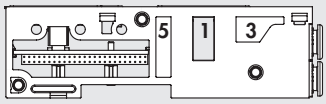




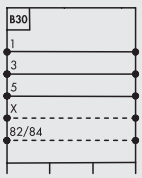


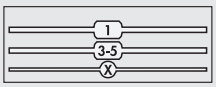


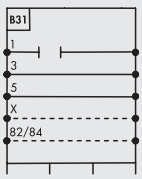


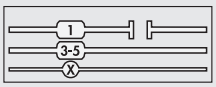


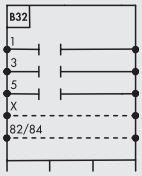
Symbol	T - Pipe fitting	Code 3 CONTROLS	Code 6 CONTROLS	Weight [g]
Full-flow ports	without cartridges	02282**B3031110**	02282**B3061110**	170
	Ø 4 (5/32")	02282**B3034440**	02282**B3064440**	230
	Ø 6	02282**B3036660**	02282**B3066660**	220
	Ø 8 (5/16")	02282**B3038880**	02282**B3068880**	210
	Ø 1/4"	02282**B3032220**	02282**B3062220**	220
Port 1 sectioned after the first position	without cartridges	02282**B3131110**	02282**B3161110**	170
	Ø 4 (5/32")	02282**B3134440**	02282**B3164440**	230
	Ø 6	02282**B3136660**	02282**B3166660**	220
	Ø 8 (5/16")	02282**B3138880**	02282**B3168880**	210
	Ø 1/4"	02282**B3132220**	02282**B3162220**	220
Ports 1, 3 and 5 sectioned after the first position	without cartridges	02282**B3231110**	02282**B3261110**	170
	Ø 4 (5/32")	02282**B3234440**	02282**B3264440**	230
	Ø 6	02282**B3236660**	02282**B3266660**	220
	Ø 8 (5/16")	02282**B3238880**	02282**B3268880**	210
	Ø 1/4"	02282**B3232220**	02282**B3262220**	220
Ports 3 and 5 sectioned after the first position	without cartridges	02282**B3331110**	02282**B3361110**	170
	Ø 4 (5/32")	02282**B3334440**	02282**B3364440**	230
	Ø 6	02282**B3336660**	02282**B3366660**	220
	Ø 8 (5/16")	02282**B3338880**	02282**B3368880**	210
	Ø 1/4"	02282**B3332220**	02282**B3362220**	220

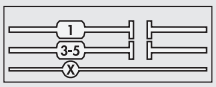


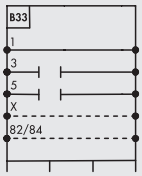


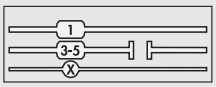




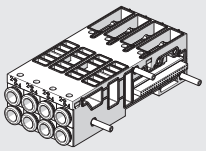


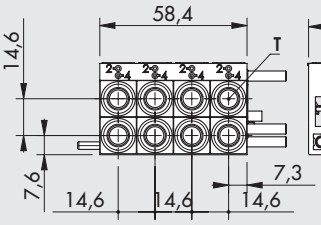


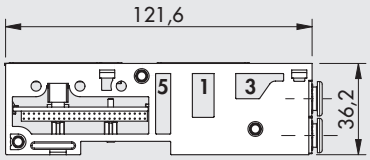




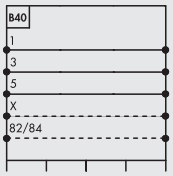
4-POSITION BASE FOR VALVES

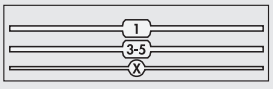






Symbol	T - Pipe fitting	Code 4 CONTROLS	Code 8 CONTROLS	Weight [g]
Full-flow ports	without cartridges	02282**B4041111**	02282**B4081111**	230
	Ø 4 (5/32")	02282**B4044444**	02282**B4084444**	310
	Ø 6	02282**B4046666**	02282**B4086666**	300
	Ø 8 (5/16")	02282**B4048888**	02282**B4088888**	270
	Ø 1/4"	02282**B4042222**	02282**B4082222**	290





METAL WORK PNEUMATIC

KEY TO CODES

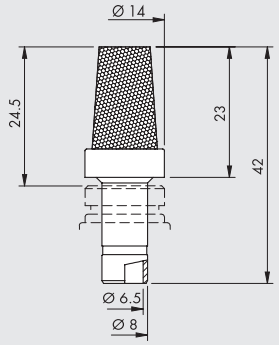
02282	B	3	0	6	8	8	8	0
FAMILY	SUBSYSTEM	NUMBER OF POSITIONS	PORTS IN THE BASE	NUMBER OF SOLENOID PILOT CONTROLS	FITTINGS 1st position (from left)	FITTINGS 2nd position	FITTINGS 3rd position	FITTINGS 4TH position
02282 EB 80	**B** Base for valve	**3** 3 positions **4** 4 positions	**0** Full-flow ports ▲ **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.

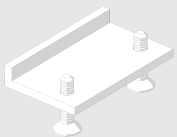
ACCESSORIES

SILENCER FOR FITTING, Ø 8



Code	Description	Flow rate at 6.3 bar [Nl/min]	Weight [g]
W0970530084	Silencer for fitting, Ø 8	2400	15

ADDITIONAL FIXING BRACKET TO OMEGA BAR



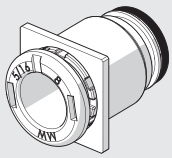
Code	Description	Weight [g]
02282R4001	Additional fixing bar accessory to EB 80 omega bar	5

Individually packed

N.B.: to be used to improve the fixing to Omega bars of islands with more than 40 valves. The bracket must be positioned every 20-25 valves.

SPARE PARTS

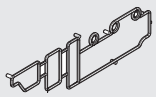
CARTRIDGE



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

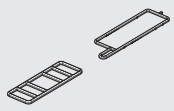
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

BASE-VALVE GASKET

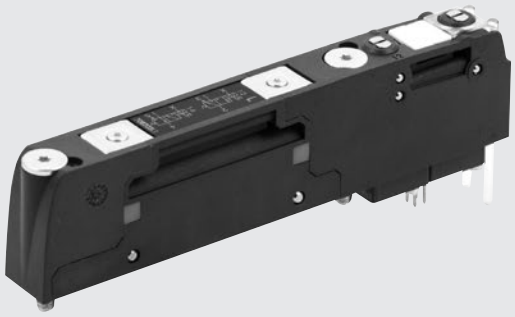


Code	Description
02282R1002	EB 80 base-valve gasket kit

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

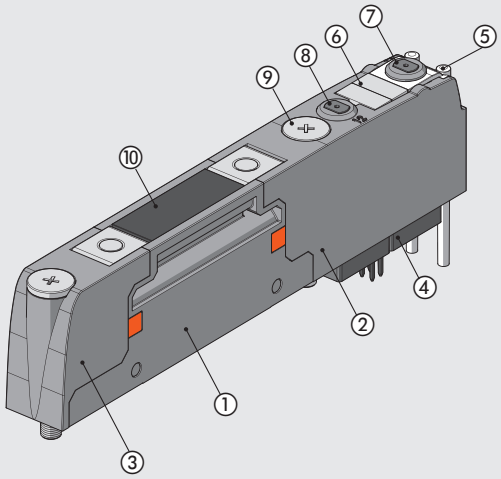
Operating pressure		**5/2 and 5/3**			**2/2 and 3/2**		
Non-assisted valves	bar	3 to 8			3.5 to 8		
	MPa	0.3 to 0.8			0.35 to 0.8		
	psi	43 to 116			51 to 116		
Assisted valves	bar	Vacuum to 10					
	MPa	Vacuum to 1					
	psi	Vacuum to 145					
Servo pressure	bar	3 to 8			min. (see graph on page **B2**.57) / max. 8		
	MPa	0.3 to 0.8			min. (see graph on page **B2**.57) / max. 0.8		
	psi	43 to 116			min. (see graph on page **B2**.57) / 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	12 / 14					
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	VDC	12 -10% 24 +30%					
Minimum operating voltage	VDC	10.8 *					
Maximum operating voltage	VDC	31.2					
Maximum admissible voltage	VDC	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					

* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power pack output using the calculations shown on page B2**.28
** Using high-flow valves or connected valves - see pages **B2**.58
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

METAL WORK PNEUMATIC

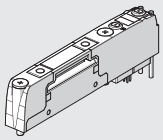
COMPONENTS

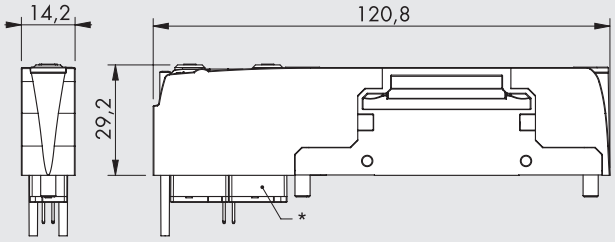
① BODY: technopolymer
② CONTROL: technopolymer
③ BASE: technopolymer
④ SOLENOID PILOT
⑤ DISPLAY: LED light and optical tester in technopolymer
⑥ TAG: removable
⑦ MANUAL CONTROL 14, for port 4: monostable or bistable, in brass
⑧ MANUAL CONTROL 12, for port 2: monostable or bistable, in brass
⑨ SCREW FOR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



DIMENSIONS - ORDERING CODES

EB 80 VALVE



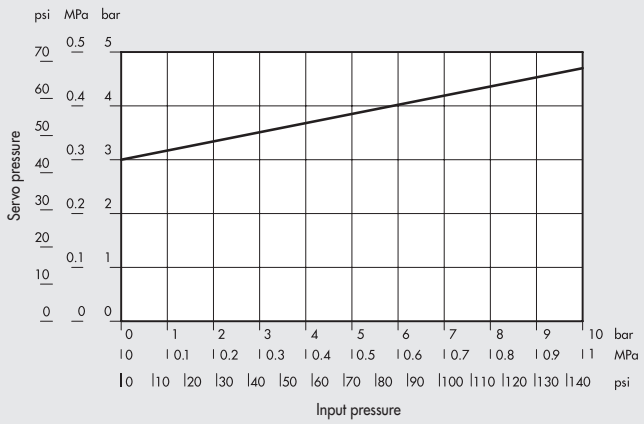


* The second solenoid pilot is not present in the valves V= 5/2 monostable.

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

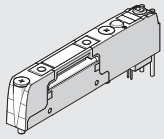
SERVO MINIMUM PRESSURE FOR VALVES 2/2 AND 3/2

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

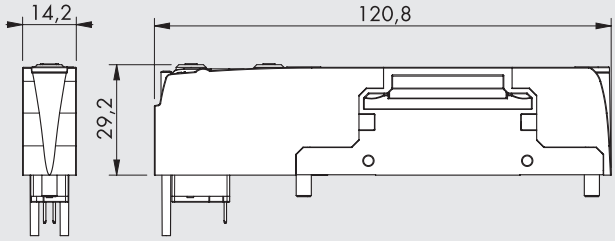


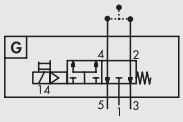
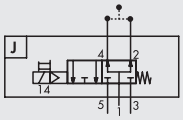
Symbol	Type	Code	Manual control	Weight [g]
Z	2 valves 2/2 NC	708203**Z0**	monostable	80
		708203**Z1**	bistable	80
I	2 valves 3/2 NC	708203**I0**	monostable	80
		708203**I1**	bistable	80
	valid as 5/3 OC			
W	2 valves 3/2 NO	708203**W0**	monostable	80
		708203**W1**	bistable	80
	valid as 5/3 PC			
L	3/2 NC + 3/2 NO	708203**L0**	monostable	80
		708203**L1**	bistable	80
V	monostable 5/2	708203**V0**	monostable	65
		708203**V1**	bistable	65
K	bistable 5/2	708203**K0**	monostable	80
		708203**K1**	bistable	80
O	5/3 CC	708203**O0**	monostable	80
		708203**O1**	bistable	80

EB 80 HIGH-FLOW VALVE



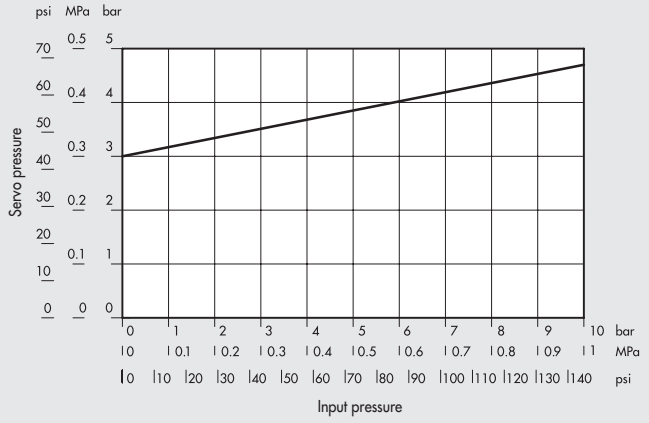
PATENTED



Symbol	Type	Code	Manual control	Weight [g]
G 	3/2 NC high flow	708203**G0**	monostable	65
		708203**G1**	bistable	65
J 	3/2 NO high flow	708203**J0**	monostable	65
		708203**J1**	bistable	65

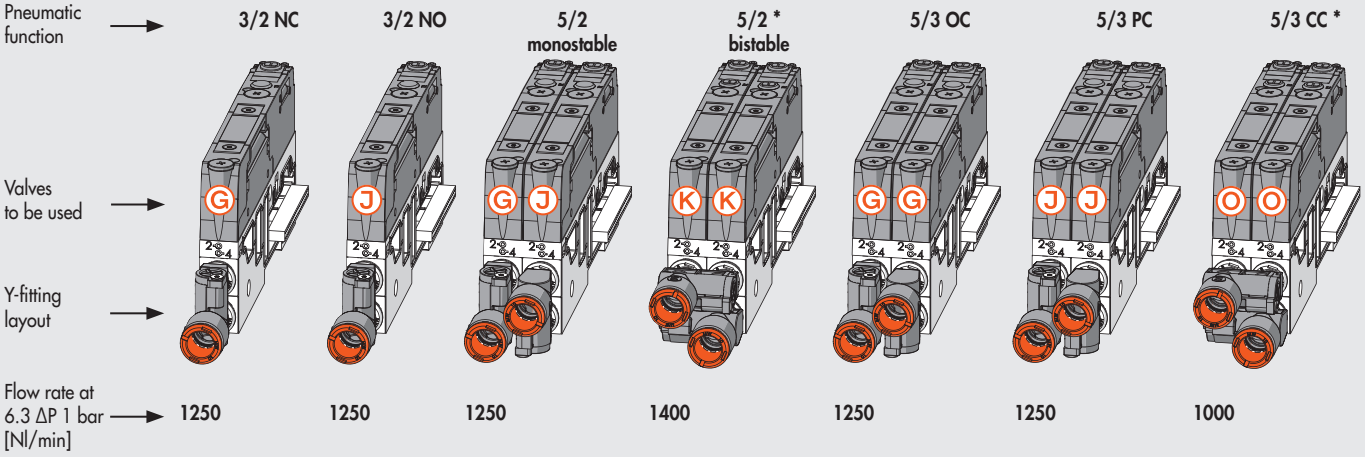
SERVO MINIMUM PRESSURE

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



HOW TO GET HIGH-FLOW RATE FOR EACH PNEUMATIC FUNCTION

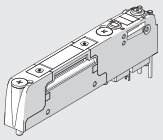
N.B. The two cartridges on the base (2 and 4) must fit the Ø 8 mm pipe.
Outputs 2 and 4 must be connected one to the other. To do this, you can use the special Y-fitting.
When connecting one or more valves using the Y-fitting, the pneumatic system functions must be configured according to the following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



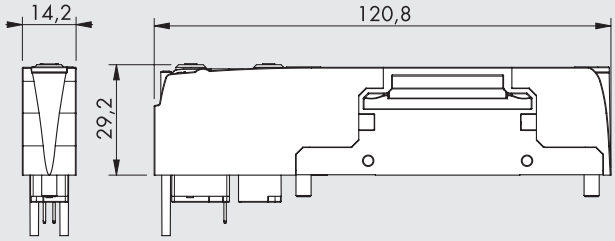
In order to get 5/2 monostable, 5/2 bistable and 5/3 DC high flow, use two parallel valves, by energizing the solenoids simultaneously.

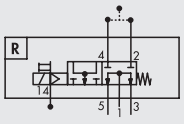
* The Y-fittings of this valve must be installed longitudinally with one Y-fitting connecting the two outputs (2) and the other the two outputs (4).
The solenoid pilots must be operated simultaneously.

EB 80 SHUT-OFF VALVE (V3V)



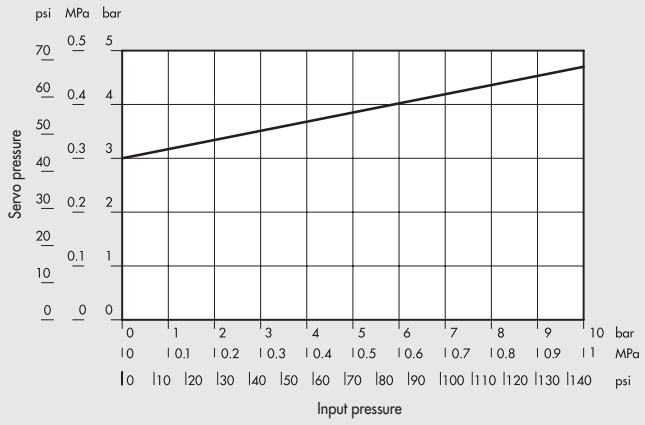
PATENTED



Symbol	Type	Code	Manual control	Weight [g]
R 	Shut-off valve	708203**R0**	monostable	65
		708203**R1**	bistable	65

SERVO MINIMUM PRESSURE

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

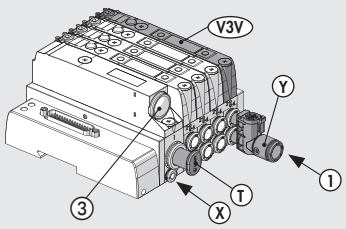


This valve enables the supply/relief of all station valves. The pneumatic supply is delivered via ports 2 and 4 on the base underneath the valve. It is discharged via ports 3 and 5 with general station discharge. Port 1 on pneumatic supply module P must be plugged for the system to operate and slave 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.

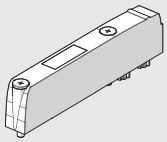
TECHNICAL DATA		
Flow rate at 6.3 bar ΔP 1 bar	Nl/min	1000 (with 2 Ø 8 fittings or a Y fitting, pipe Ø 10 mm or 3/8")
Exhaust flow rate at 6.3 bar	Nl/min	660
Actuation response time (TRA) / reset response time (TRR) at 6 bar	ms	12/45
Servo pressure		See technical data 3/2 valves (page **B2**.56)

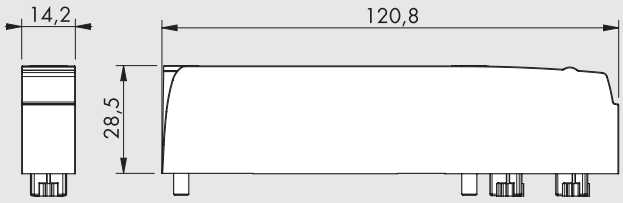
SHUT-OFF VALVE DIAGRAM

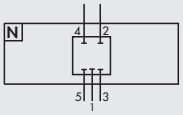
V3V Shut-off valve, can be fitted in any position
1 Pneumatic supply
3 Relief
Y Y-fitting with black bush (page **B2**.59)
T Plug port 1 of pneumatic supply P module
X Always use the pneumatic supply servo version



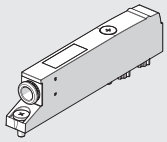
DUMMY VALVE (PLUG)

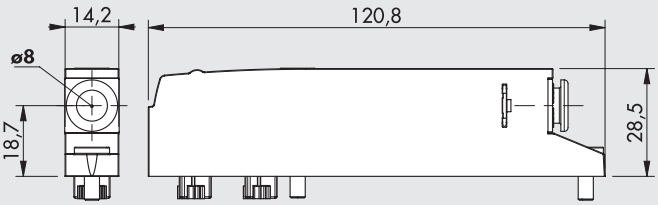


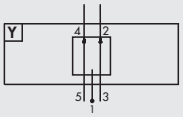


Symbol	Description	Code	Weight [g]
N 	Dummy valve	708203**N0**	45

BYPASS





Symbol	Description	Code	Weight [g]
Y 	Bypass Ø8	708203**Y8**	45

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.

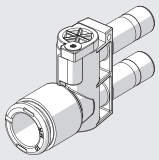
KEY TO CODES

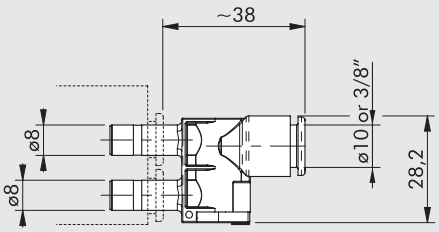
7082	03	V	0
FAMILY	**TYPE**	**SCHEMA**	**MANUAL CONTROL**
7082 EB 80	**03** Electric, servo-assisted	▲ **Z** 2 valves 2/2NC ▲ **I** 2 valves 3/2 NC ▲ **W** 2 valves 3/2 NO ▲ **L** 3/2 NC + 3/2 NO **V** 5/2 monostable ▲ **K** 5/2 bistable ▲ **O** 5/3 CC **G** 3/2 NC high flow **J** 3/2 NO high flow ✚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

▲ Can only be used with 6 or 8 control bases.
✚ Requires inlet port X slave synchronisation.

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

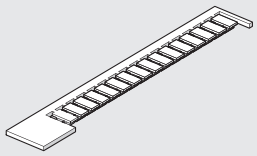
SPARE PARTS

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 PROPORTIONAL PRESSURE REGULATOR - A

The EB 80 proportional pressure regulator is an extremely precise and reliable component part. It is designed to regulate the pressure of a system with varying values according to the electrical control setting.
It can be inserted in any position and on all EB 80 islands.
Highly flexible, it comes in various types: for the 25/44-pin multi-pole islands, it is possible to use the analogue regulator with external M12 electrical connection, it accepts commands in Volts, mA and via RS232 protocol; in all the versions with a fieldbus, the connections and electrical controls are directly incorporated in the internal hardware/software that can be easily managed by the user in a simple and intuitive way every island and can accommodate up to 16 pressure regulators that are connected to all the protocols available for the EB 80 (also in additional islands).
An island of electronic regulators arranged in a row can be created, without necessarily requiring solenoid valves.

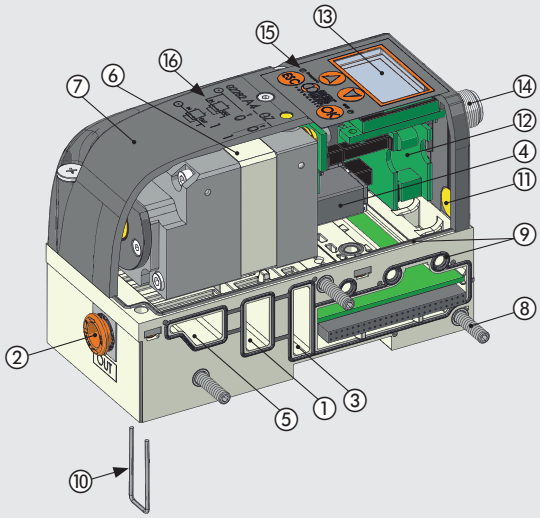
The "closed loop" system has a precision sensor that detects the output pressure value; the control system compares the value read with the value set in real time and two mini-solenoid valves adjust the pressure until the target value is reached.
As for the Regtronic family, in this case too, you can opt for a regulator with a screen that displays the pressure and a whole series of information including diagnostics that facilitates the configuration or a version without display where the configuration is done remotely.
As to the pneumatic system, there are two possibilities: with Local Regulation or Series Regulation. In the former case, the air taken from port 1 of the island is regulated by a quick-fit coupling with the front side in the base; in this way, several regulators can be placed in succession. In the latter case, the pressure is regulated directly at port 1 of the island, so all the valves downstream are supplied with the pressure set by the regulator. The front outlet fitting, which has an RL9 cap in this version, is still present and operational.

TECHNICAL DATA		LOCAL OUTPUT VERSION		SERIES CONTROL VERSION	
Fluid		Filtered, unlubricated air. The air must be filtered at least 10 µm			
MIN inlet pressure	bar	Regulation pressure + 0.5 to 1			
MAX inlet pressure	bar	10.5			
Temperature range	°C	from -10 to 50			
Pressure regulation range	bar	from 0.05 to 10 (settable full scale and minimum pressure)			
Flow rate at 6.3 bar ΔP 0.5	Nl/min	720		850	
Flow rate at 6.3 bar ΔP 1	Nl/min	1000		1250	
Exhaust flow rate at 6.3 bar with 0.1 bar overpressure	Nl/min	380		450	
Exhaust flow rate at 6.3 bar with 0.5 bar overpressure	Nl/min	800		1100	
Response time	Volume [cc]	100	1000	100	1000
from 6 to 7 bar	s	0.1	0.15	0.1	0.15
from 7 to 6 bar	s	0.1	0.15	0.1	0.15
Weight	kg	0.6			
Class of protection		IP 65			
Hysteresis		≤ ± 0.2% (Full scale)			
Repeatability		≤ ± 0.2% (Full scale)			
Sensitivity/Dead-band		setting range 10 to 300 mbar			
Output pressure (display version)	Accuracy	≤ ± 0.3% (Full scale)			
	Unit of measurement	bar, MPa, psi			
	Minimum resolution	0.01 bar - 0.001 MPa - 0.01 psi			
Temperature characteristics		Max 2 mbar / °C			
Installation position		In any position			
Current input in the fieldbus version		Max 220 mA at 12VDC			
Supply voltage range analog version	VDC	12 -10% to 24 +30%			
Minimum operating voltage	VDC	10.8			
Maximum operating voltage	VDC	31.2			
Maximum admissible voltage	VDC	32 *			
Current absorption		Max 220 mA at 12VDC			
Input signal (input impedence)	Voltage	0 to 5 VDC, 0 to 10 VDC (approx. 6.3 KΩ)			
	Current	4 to 20 mA (approx. 100 Ω)			
	Serial ports	RS 232			
	Manual	Keypad			
Output signals in the analogue version					
	Analog in current	4 to 20 mA			
	Analog voltage	0 to 10 VDC (1 VDC = 1 bar) - 1 mA max			
	Digital	PNP open collector output: max 24VDC 60 mA			
		NPN open collector output: max 24VDC 60 mA			
	Analog output accuracy	≤ ± 0.4% (Full scale)			
Notes		The features shown refer to the static condition only. With air consumption the pressure may vary.			
		On all anolog versions you can set the parameters using the software "MWRegtronic" downloadable from the website www.metalwork.eu; to connect the PC to Regtronic you can use the cable code W0970513019			
		For more details, please refer to the User Manual.			

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

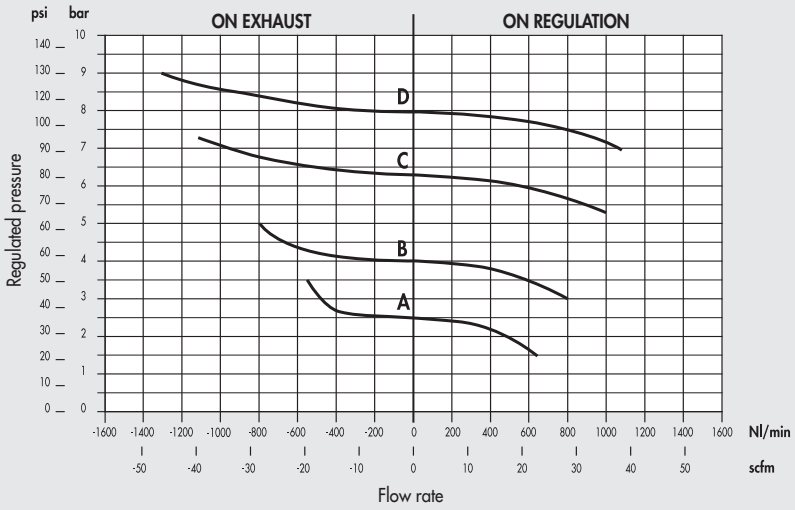
COMPONENTS

① PORT 1 DUCT
② CARTRIDGE Ø8: push-in fitting
③ PORT 3 DUCT
④ SOLENOID VALVE: 10 mm series PLT-10
⑤ PORT 5 DUCT
⑥ BODIES: aluminium
⑦ COVER: technopolymer
⑧ TIE ROD: nickel-plated brass with stainless stell grub screws
⑨ GASKETS: NBR
⑩ CLIP for securing the cartridge: stainless steel
⑪ Compensation DIAPHRAGM: PTFE
⑫ ELECTRONIC BOARDS
⑬ DISPLAY and keypad or cover
⑭ CONNECTOR M12 (for analog version)
⑮ INDICATOR LED
⑯ IDENTIFICATION of wording with laser



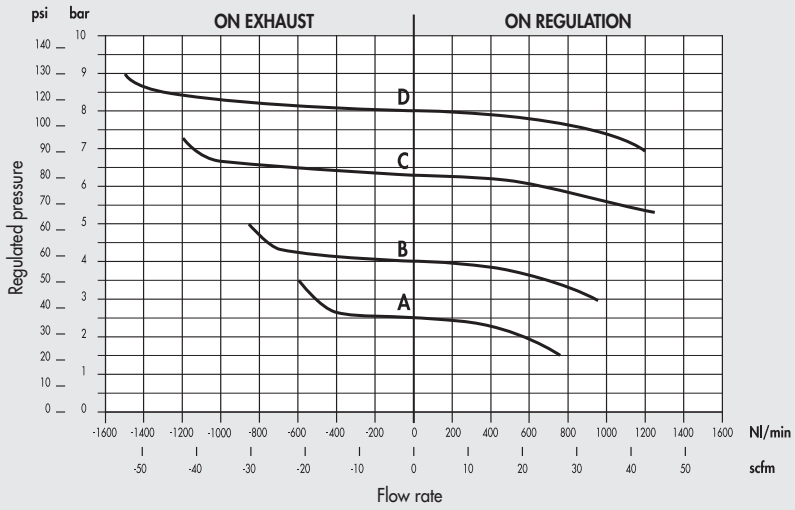
FLOW CHARTS

LOCAL OUTLET (Ø8)



A = 2.5 bar
B = 4 bar
C = 6.3 bar
D = 8 bar
Pm = 10 bar

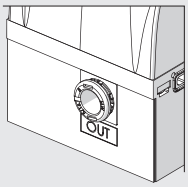
REGULATION IN SERIES

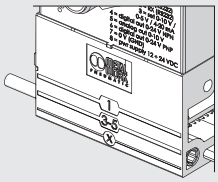


A = 2.5 bar
B = 4 bar
C = 6.3 bar
D = 8 bar
Pm = 10 bar

VERSIONS

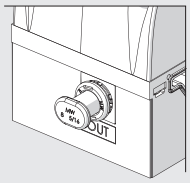
PASS-THROUGH BASE – LOCAL OUTLET

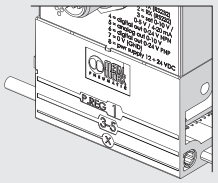




Air outlet regulated only by the front Ø8 fitting.

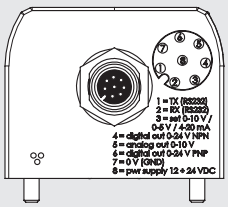
REGULATION IN SERIES





Air outlet adjusted to the next bases.
Front outlet closed, however usable by removing the cap from the fitting.

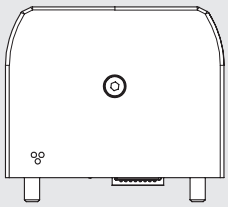
M12 EXTERNAL ANALOGUE CONTROL (MULTI-POLE ISLANDS)



8 PIN M12x1

Pin	Signal	Description	Lead colour
1	TX	RS232	White
2	RX	RS232	Brown
3	Pressure set	0 to 10 VDC / 0 to 5 VDC	Green
		4 to 20 mA	
4	Digital out	NPN	Yellow
5	Analog out	Voltage version 0 to 10 VDC	Gray
		Current version 4 to 20 mA	
6	Digital out	PNP	Pink
7	0 VDC	Power supply	Blue
8	+ VDC	Power supply	Red

FIELDBUS CONTROL



WITH REMOTE-CONTROL

The remote-control version of the Regtronic has two diagnostic LEDs.

WITH DISPLAY

The display version also has buttons for entering the various parameters.

PROGRAMMABLE AND FLEXIBLE

Setting options:

- **LANGUAGE**
- **UNIT OF MEASUREMENT**
- **TYPE OF INPUT**
- **TYPE OF DIGITAL OUTPUT**
- **DEAD-BAND**
- **FULL SCALE**
- **MINIMUM PRESSURE**

PRECISION

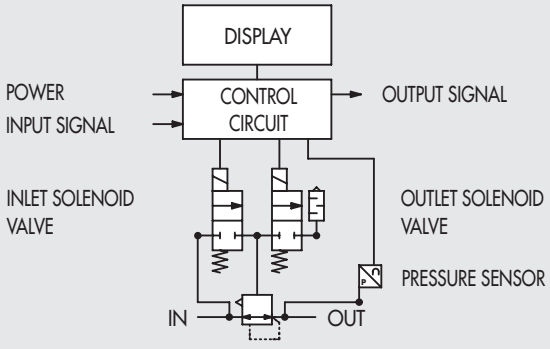
Linearity
± 0.5 % (full scale)

Hysteresis
± 0.2 % (full scale)

Repeatability
± 0.2 % (full scale)

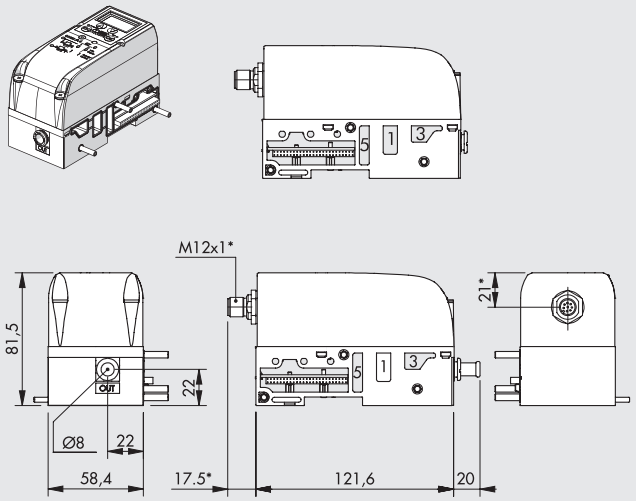
Sensitivity
range 10 to 300 mbar

FUNCTION DIAGRAM



DIMENSIONS - ORDERING CODES

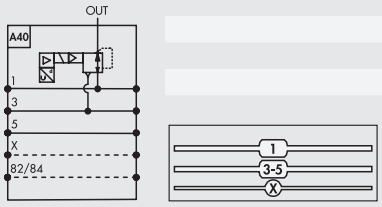
PROPORTIONAL PRESSURE REGULATOR

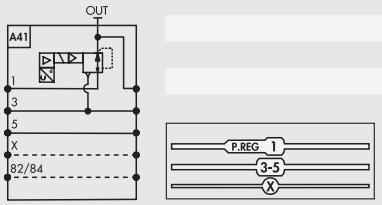


* For version with electrical analogue control only.

Electrical connection with M12 connector

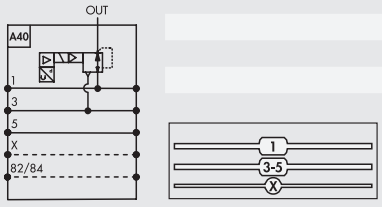
Symbol	Display	Code 0-10V analogue OUT	Code 4-20 mA analogue OUT	Weight [g]
Port 1 pass-through	WITH	02282**A400Z00**	02282**A402Z00**	640
	WITHOUT	02282**A400Z10**	02282**A402Z10**	640
Port 1 sectioned	WITH	02282**A410Z00**	02282**A412Z00**	640
	WITHOUT	02282**A410Z10**	02282**A412Z10**	640

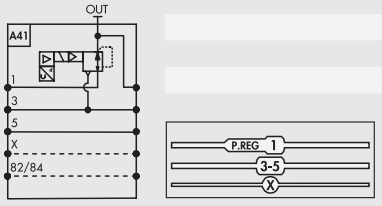




Electrical connection via fieldbus

Symbol	Display	Code	Weight [g]
Port 1 pass-through	WITH	02282**A401Z00**	630
	WITHOUT	02282**A401Z10**	630
Port 1 sectioned	WITH	02282**A411Z00**	630
	WITHOUT	02282**A411Z10**	630



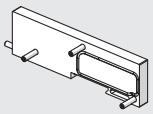


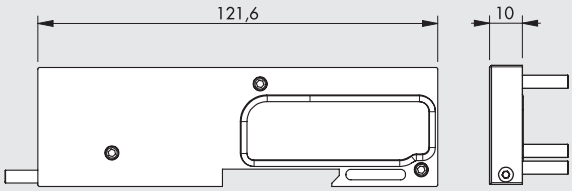
KEY TO CODES

02282	A4	0	1	Z	0	0
FAMILY	**SUBSYSTEM**	**TYPE OF BASE**	**TYPE OF ELECTRICAL CONNECTION**	**SPECIALTY**	**DISPLAY**	**SPECIALTY**
02282 EB 80	**A4** Proportional pressure regulator	**0** Base port 1 pass-through local outlet **1** Base port 1 sectioned in-series regulation	**0** External electrical analogue control connector M12 0-10V analogue OUT **1** Electrical control via fieldbus **2** External electrical analogue control connector M12, 4-20 mA analogue OUT	**Z** Standard	**0** With **1** Without	**0** Standard

ACCESSORIES: ANALOG VERSION

CLOSING PLATE FOR EB 80 MANIFOLD PRESSURE REGULATOR



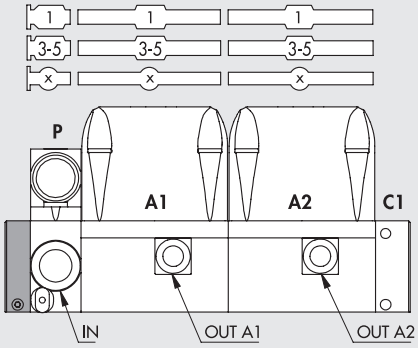


Code	Description	Weight [g]
02282R8000	Closing plate for EB 80 manifold proportional pressure regulator with M12 connector	120

N.B.: Can only be used with regulators code 02282**A400Z00** - 02282**A400Z10** - 02282**A410Z00** - 02282**A410Z10** - 02282**A402Z00** - 02282**A402Z10** - 02282**A412Z00** - 02282**A412Z10**

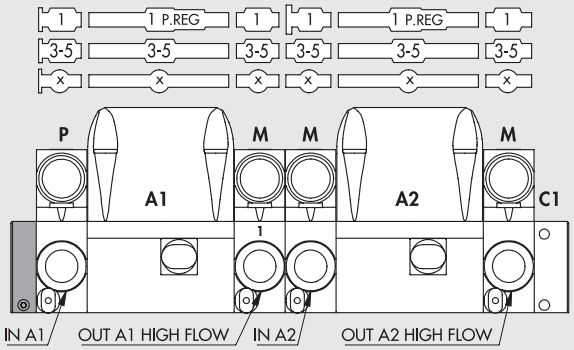
This terminal is used to fit multiple EB 80 pressure proportional regulators controlled by an M12 connector, without using EB 80 power supplies.
Each regular can be controlled individually via its own M12 connector.
Several configurable solutions can thus be obtained, as illustrated in examples below:

COMMON POWER SUPPLY



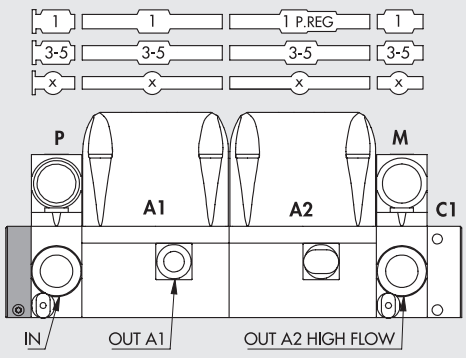
Island consisting of a single pneumatic supply (P) and front outlet from individual regulators.

INDEPENDENT POWER SUPPLY AND HIGH-FLOW RATE



Island consisting of independent regulator power supply, via P supplies and intermediate elements M (with port 1 closed) placed upstream of the regulator. High-flow outputs are obtained via intermediate elements M placed downstream of the individual regulators.

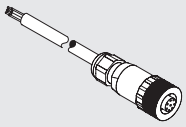
HYBRID



Hybrid island.
It consists of regulators with a local output (**A1**) and in-series high-flow rate regulators via intermediate element **M** downstream of regulator **A2**. Power supply **P** is in common.

P = compressed-air supply, page **B2**.50
M = intermediate support, page **B2**.68
C1 = closed end-plate for islands with multi-pole connector, page **B2**.74
A = proportional pressure regulator

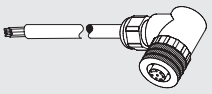
CONNECTOR M12x1, 8-PIN, A-CODED, FEMALE, STRAIGHT



Pin	Cable color
1	White
2	Brown
3	Green
4	Yellow
5	Grey
6	Pink
7	Blue
8	Red

Code	Description
W0970513010	Connector M12x1, 8-pin, A-coded, female, straight, with cable L = 5 m

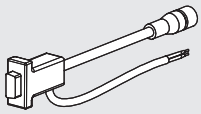
CONNECTOR M12x1, 8-PIN, A-CODED, FEMALE, 90°, WITH CABLE



Pin	Cable color
1	White
2	Brown
3	Green
4	Yellow
5	Grey
6	Pink
7	Blue
8	Red

Code	Description
W0970513011	Connector M12x1, 8-pin, A-coded, female, 90°, with cable L = 5 m

CONFIGURATION CABLE



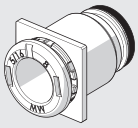
Code	Description
W0970513019	Configuration cable

The cable consists of:
- M12 8-PIN female connector to be connected to regulator
- RS232 serial connector to be connected to PC
- 2 wires to supply 24VDC power

The package also includes a RS232-USB adapter

SPARE PARTS

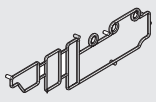
CARTRIDGE



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

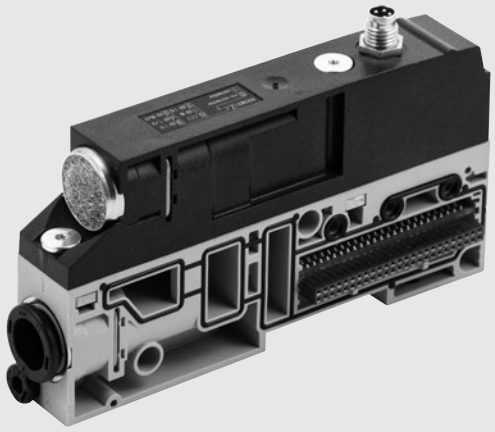


Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

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

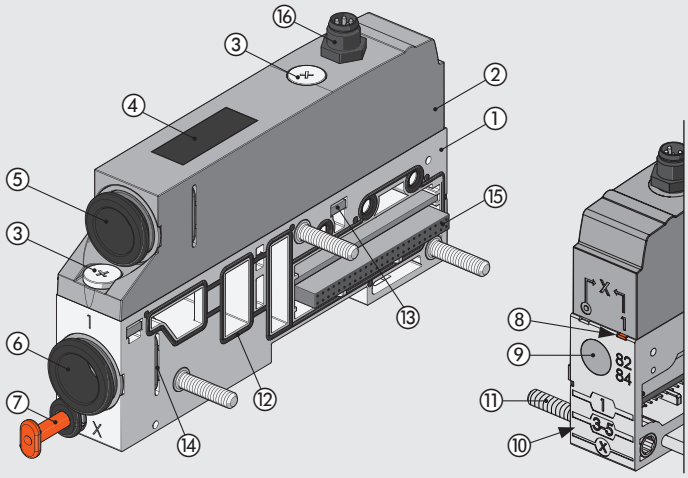
Operating pressure		Vacuum to 10 bar / Vacuum to 1 MPa / Vacuum to 145 psi			
Ambient temperature		-10 to + 50 °C / 14 to 122 °F			
Flow rate at 6.3 bar ΔP 1 bar		Ø 8 (5/16")	Ø 10	Ø 12	Ø 1/2"
Feeding (port 1)	Nl/min	1800	2800	3500	3500
Exhaust with fitting (ports 3 and 5)	Nl/min	2000	3200	4400	4400
Separate 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	VDC	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.

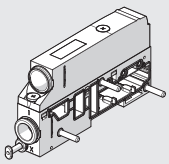
COMPONENTS

① LOWER PART BODY: technopolymer
② UPPER PART BODY: technopolymer
③ SCREWS for fixing between the bodies: zinc-plated 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: zinc-plated steel
⑫ GASKET: NBR
⑬ THREADED PLATE: zinc-plated steel
⑭ CARTRIDGE FIXING CLIP: stainless steel
⑮ ELECTRONIC BOARD
⑯ M8 CONNECTOR: only for version with additional electrical power supply

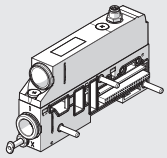


DIMENSIONS - ORDERING CODES

INTERMEDIATE MODULE - SILENCED RELIEF



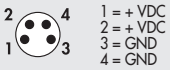
WITHOUT additional electrical power supply



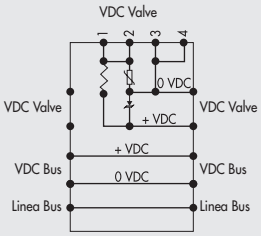
WITH additional electric power supply

WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

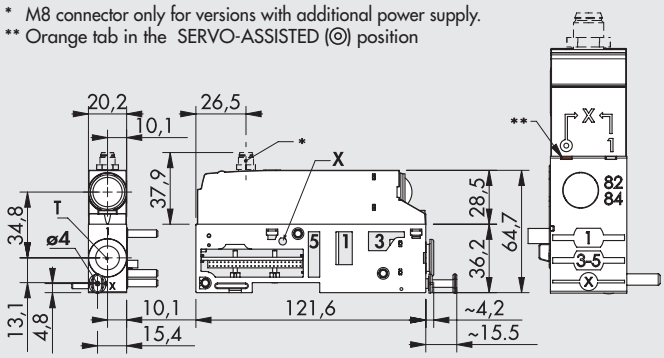
M8 male connector

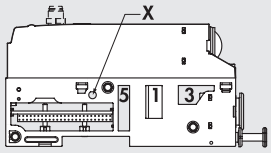


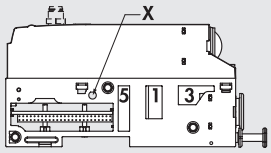
1 = + VDC
2 = + VDC
3 = GND
4 = GND

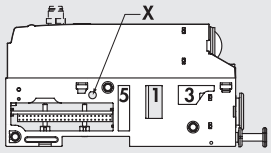


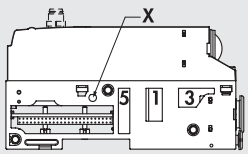
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position

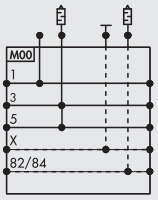
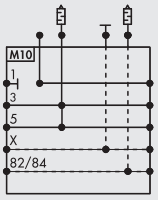
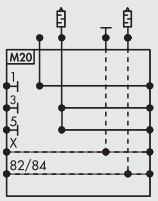
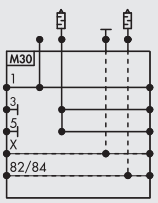
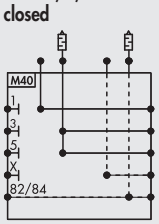




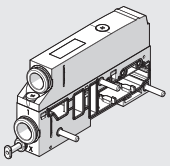




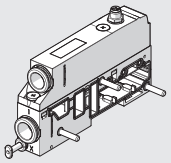


Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	 WITH	Weight [g]
Full-flow ports	Ø 8 (5/16")	02282**M100Z00**	02282**M101Z01**	160
	Ø 10	02282**M200Z00**	02282**M201Z01**	160
	Ø 12	02282**M300Z00**	02282**M301Z01**	150
	Ø 1/2"	02282**M500Z00**	02282**M501Z01**	150
				
Port 1 closed	Ø 8 (5/16")	02282**M110Z00**	02282**M111Z01**	160
	Ø 10	02282**M210Z00**	02282**M211Z01**	160
	Ø 12	02282**M310Z00**	02282**M311Z01**	150
	Ø 1/2"	02282**M510Z00**	02282**M511Z01**	150
				
Ports 1, 3 and 5 closed	Ø 8 (5/16")	02282**M120Z00**	02282**M121Z01**	160
	Ø 10	02282**M220Z00**	02282**M221Z01**	160
	Ø 12	02282**M320Z00**	02282**M321Z01**	150
	Ø 1/2"	02282**M520Z00**	02282**M521Z01**	150
				
Ports 3 and 5 closed	Ø 8 (5/16")	02282**M130Z00**	02282**M131Z01**	160
	Ø 10	02282**M230Z00**	02282**M231Z01**	160
	Ø 12	02282**M330Z00**	02282**M331Z01**	150
	Ø 1/2"	02282**M530Z00**	02282**M531Z01**	150
				
Ports 1, 3, 5 and X closed	Ø 8 (5/16")	02282**M140Z00**	02282**M141Z01**	160
	Ø 10	02282**M240Z00**	02282**M241Z01**	160
	Ø 12	02282**M340Z00**	02282**M341Z01**	150
	Ø 1/2"	02282**M540Z00**	02282**M541Z01**	150
				

INTERMEDIATE MODULE - CONVEYED RELIEF



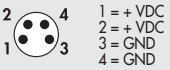
WITHOUT additional electrical power supply



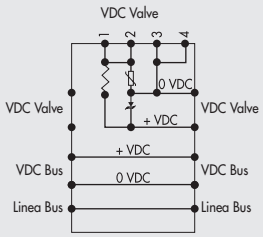
WITH additional electric power supply

WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

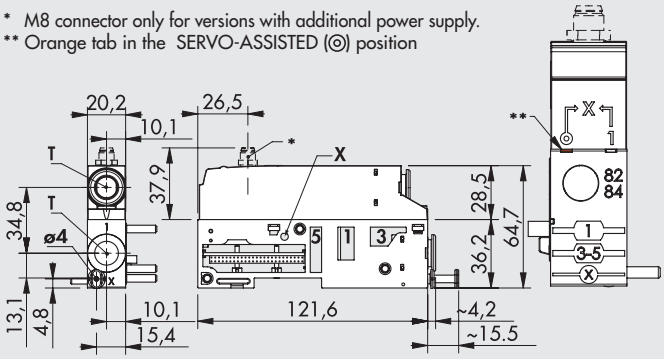
M8 male connector

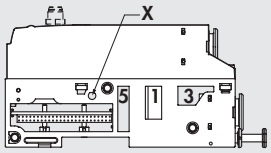


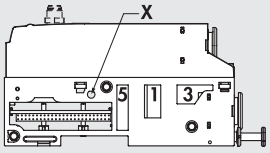
1 = + VDC
2 = + VDC
3 = GND
4 = GND

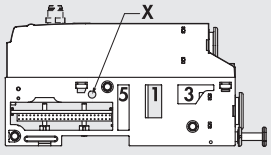


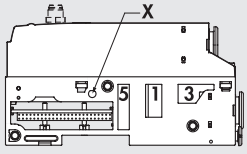
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position



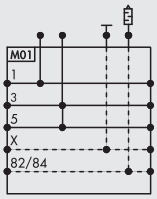


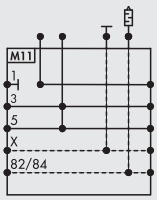


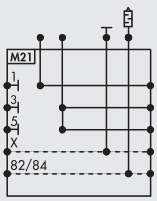


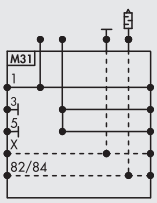


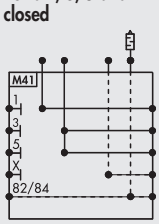
Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	 WITH	Weigh [g]
Full-flow ports	Ø 8 (5/16")	02282**M100Z10**	02282**M101Z11**	160
	Ø 10	02282**M200Z20**	02282**M201Z21**	160
	Ø 12	02282**M300Z30**	02282**M301Z31**	150
	Ø 1/2"	02282**M500Z50**	02282**M501Z51**	150
Port 1 closed	Ø 8 (5/16")	02282**M110Z10**	02282**M111Z11**	160
	Ø 10	02282**M210Z20**	02282**M211Z21**	160
	Ø 12	02282**M310Z30**	02282**M311Z31**	150
	Ø 1/2"	02282**M510Z50**	02282**M511Z51**	150
Ports 1, 3 and 5 closed	Ø 8 (5/16")	02282**M120Z10**	02282**M121Z11**	160
	Ø 10	02282**M220Z20**	02282**M221Z21**	160
	Ø 12	02282**M320Z30**	02282**M321Z31**	150
	Ø 1/2"	02282**M520Z50**	02282**M521Z51**	150
Ports 3 and 5 closed	Ø 8 (5/16")	02282**M130Z10**	02282**M131Z11**	160
	Ø 10	02282**M230Z20**	02282**M231Z21**	160
	Ø 12	02282**M330Z30**	02282**M331Z31**	150
	Ø 1/2"	02282**M530Z50**	02282**M531Z51**	150
Ports 1, 3, 5 and X closed	Ø 8 (5/16")	02282**M140Z10**	02282**M141Z11**	160
	Ø 10	02282**M240Z20**	02282**M241Z21**	160
	Ø 12	02282**M340Z30**	02282**M341Z31**	150
	Ø 1/2"	02282**M540Z50**	02282**M541Z51**	150





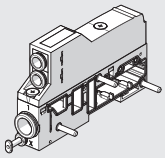




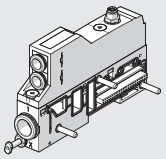


METAL WORK PNEUMATIC

INTERMEDIATE MODULE - SEPARATE RELIEF

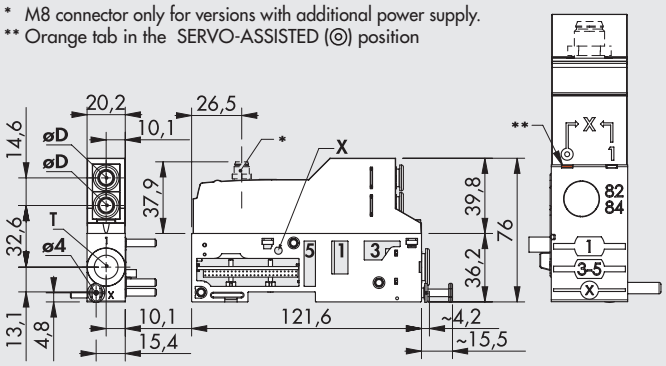


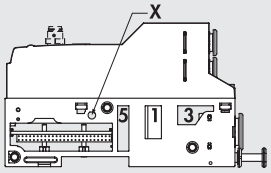
WITHOUT additional electrical power supply

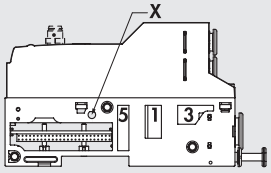


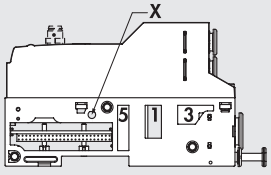
WITH additional electrical power supply

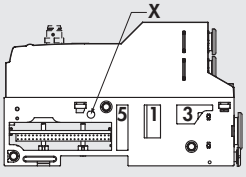
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position





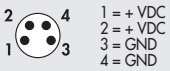




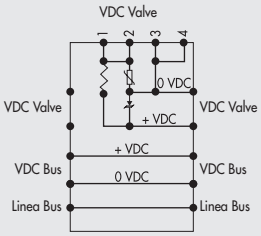


WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

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**M100Z_0**	02282**M101Z_1**	190
	Ø 10	02282**M200Z_0**	02282**M201Z_1**	190
	Ø 12	02282**M300Z_0**	02282**M301Z_1**	180
	Ø 1/2"	02282**M500Z_0**	02282**M501Z_1**	180
Port 1 closed	Ø 8 (5/16")	02282**M110Z_0**	02282**M111Z_1**	190
	Ø 10	02282**M210Z_0**	02282**M211Z_1**	190
	Ø 12	02282**M310Z_0**	02282**M311Z_1**	180
	Ø 1/2"	02282**M510Z_0**	02282**M511Z_1**	180
Ports 1, 3 and 5 closed	Ø 8 (5/16")	02282**M120Z_0**	02282**M121Z_1**	190
	Ø 10	02282**M220Z_0**	02282**M221Z_1**	190
	Ø 12	02282**M320Z_0**	02282**M321Z_1**	180
	Ø 1/2"	02282**M520Z_0**	02282**M521Z_1**	180
Ports 3 and 5 closed	Ø 8 (5/16")	02282**M130Z_0**	02282**M131Z_1**	190
	Ø 10	02282**M230Z_0**	02282**M231Z_1**	190
	Ø 12	02282**M330Z_0**	02282**M331Z_1**	180
	Ø 1/2"	02282**M530Z_0**	02282**M531Z_1**	180
Ports 1, 3, 5 and X closed	Ø 8 (5/16")	02282**M140Z_0**	02282**M141Z_1**	190
	Ø 10	02282**M240Z_0**	02282**M241Z_1**	190
	Ø 12	02282**M340Z_0**	02282**M341Z_1**	180
	Ø 1/2"	02282**M540Z_0**	02282**M541Z_1**	180

_ = To complete the code enter: **6**: øD = 8 mm; **7**: øD = 6 mm; **8**: øD = 4 mm

KEY TO CODES

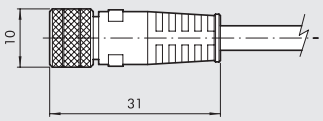
02282	M	3	0	0	Z	3	0
FAMILY	SUBSYSTEM	PORT FITTING 1	PORTS IN THE BASE	ADDITIONAL ELECTRICAL POWER SUPPLY	UPPER PART	PORTS 3 AND 5 FITTING	ELECTRICAL CONNECTOR
02282 EB 80	**M** Intermediate	**1** Pipe fitting Ø 8 (5/16″) **2** Pipe fitting Ø 10 **3** Pipe fitting Ø 12 **5** Pipe fitting Ø 1/2″	**0** 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) **7** 2 pipes fitting Ø 6 (one for port 3, one for port 5) **8** 2 pipes fitting Ø 4 (5/32″) (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

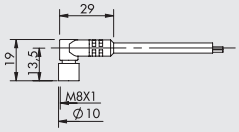


Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m
0240009P60 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 3 m
0240009P37 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 5 m
0240009P58 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 10 m
0240009P59 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 15 m

* Very flexible cables, class 6 according to IEC 60228

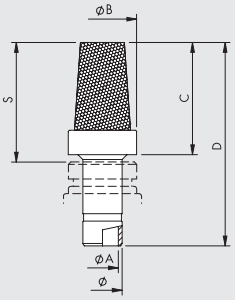
M8 90° CONNECTOR FOR POWER SUPPLY

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

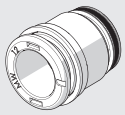


Ø	Ø A	Ø B	C	D	S
8	6.5	14	23	42	24.5
12	10	18.8	29	51.5	31.5

Code	Description	Flow rate at 6.3 bar [Nl/min]	Weight [g]
W0970530084	Silencer for fitting, Ø 8	2400	15
W0970530086	Silencer for fitting, Ø 12	6000	24

SPARE PARTS

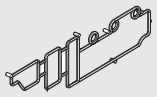
CARTRIDGE



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

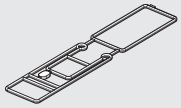
BASE INTERFACE GASKET



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

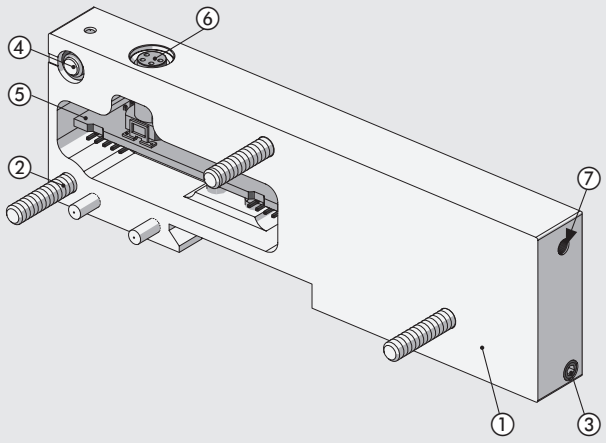
The "Closed end-plate - C" is the last element of each EB 80 system.
A version for islands with multi-pole connector is available.
One for islands with fieldbus, containing a small electronic board; one for connection to other additional EB 80 islands (only for systems with fieldbus).
The end plate houses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

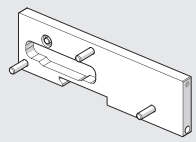
COMPONENTS

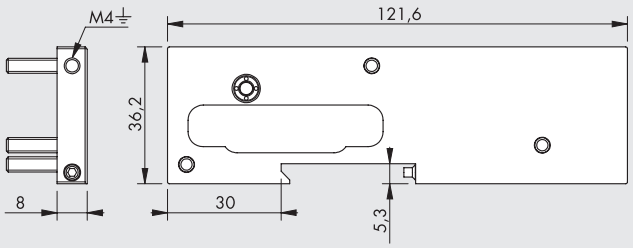
① BODY: painted metal
② FIXING SCREW: TCE M4x20 zinc-plated steel
③ GRUB SCREW securing the DIN bar or bracket: zinc-plated steel
④ RELIEF VALVE: safety in case of internal pressure increase due to temperature or losses
⑤ ELECTRONIC BOARD: none in the Closed end-plate for islands with multi-pole connector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



DIMENSIONS - ORDERING CODES

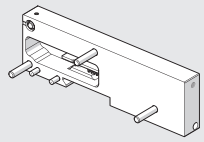
CLOSED END-PLATE FOR ISLANDS WITH MULTI-POLE CONNECTOR

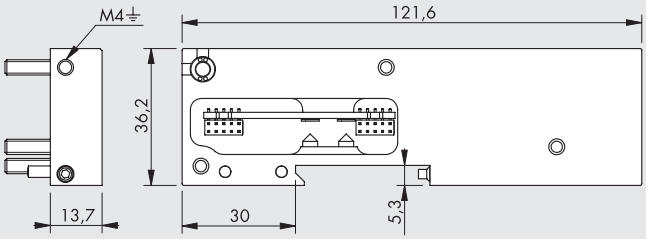




Symbol	Code	Description	Weight [g]
	02282**C1**	Closed end-plate for islands with multi-pole connector	150

CLOSED END-PLATE FOR ISLANDS WITH FIELDBUS

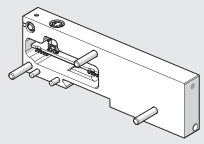


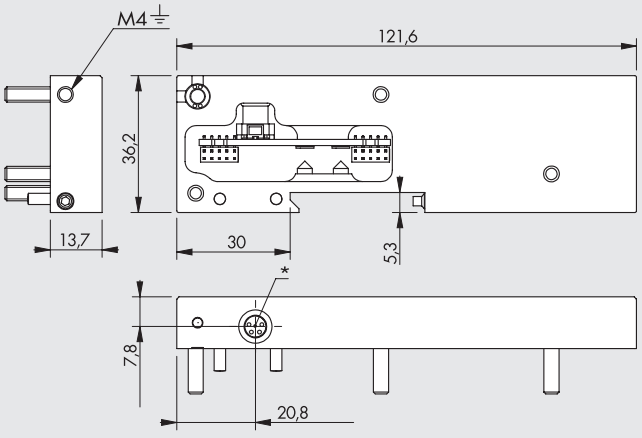


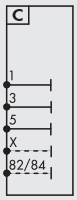
Symbol	Code	Description	Weight [g]
	02282**C2**	Closed end-plate for islands with fieldbus	220

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	150

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.

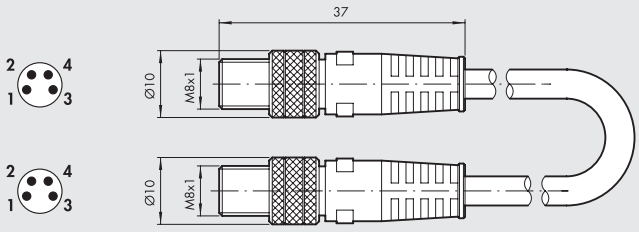
METAL WORK PNEUMATIC

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

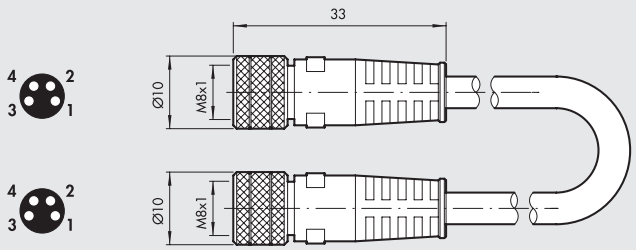


Code	Description	Weight [g]
0240010201	M8-M8 4-pin male straight connector with shielded cable L = 1 m	45
0240010205	M8-M8 4-pin male straight connector with shielded cable L = 5 m	185
0240010210	M8-M8 4-pin male straight connector with shielded cable L = 10 m	330
0240010215	M8-M8 4-pin male straight connector with shielded cable L = 15 m	475
0240010220	M8-M8 4-pin male straight connector with shielded cable L = 20 m	620
0240010405 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 5 m	185
0240010410 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 10 m	330
0240010415 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 15 m	475
0240010420 *	M8-M8 4-pin male straight connector with shielded cable H-FLEX CL6, L = 20 m	620

* Very flexible cables, class 6 according to IEC 60228

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

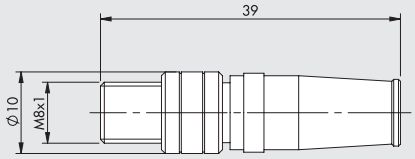
M8 ADAPTER CABLE



Code	Description	Weight [g]
0240010350	M8-M8 4-pin female adapter cable with shielded cable L = 200 mm	16

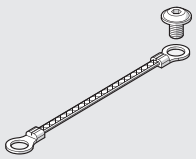
N.B.: Cannot be used with cables for mobile laying (H-FLEX CL6)

M8 END CONNECTOR FOR EB 80 VALVES



Code	Description
02282R5000	M8 end connector for EB 80 valves

BRAIDED GROUNDING CABLE



Code	Description
02282R6000	Braided grounding cable