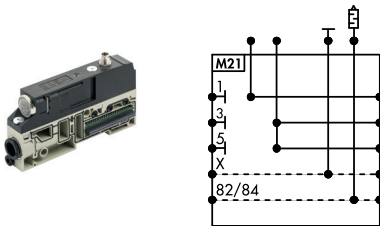


Intermediate support

Art. No. 153219

Type No. 02282M321Z31



Exemplary illustration

The "Intermediate support – M" modules serve multiple functions within an EB 80 valve island. They support increased flow rates when several valves operate simultaneously and allow the division of the island into zones with different pressures. In systems with many solenoid pilots activated simultaneously, they can provide additional electrical power. They also enable the electrical isolation of specific island sections, for example to turn off part of the island during an emergency.

These modules are freely positionable within the EB-80 island and available in various versions with fittings for different pipe diameters. Relief ports 3 and 5 can either be connected using a silencer or conveyed via a single fitting. A variant with separate ports 3 and 5 is also offered, which is particularly useful for pilot-assisted valves operating at different pressures, ranging from vacuum to 8 bar.

The lower body of the intermediate plate features different air flow configurations, including versions with full-flow or selectively closed ducts, allowing precise control of the air supply.

Technical data

Module type	M
Module description	intermediate support
Version	with conveyed relief
Duct separation	ports 1/3/5 sectioned
Additional electric power supply	with (M8, 4-pin)
Port 1	Ø 12 mm
Port 3+5	1x Ø 12 mm
Medium	filtered, unlubricated compressed air
Required purity class in accordance w. ISO 8573-1	4.7.3
Op. pressure min. 5/2-, 5/3-way valves with int. pilot air	3 bar
Op. pressure min. 2/2-, 3/2-way valves with int. pilot air	3,5 bar
Operating pressure max. with int. pilot air	8 bar
Operating pressure min. with external pilot air	-0,99 bar

Technical data

Operating pressure max. with external pilot air	10 bar
Pilot pressure min. 5/2- and 5/3-way valves	3 bar
Pilot pressure min. 2/2- and 3/2-way valves	3-5 bar, dep. on operating pressure (see Metal Work data sheet)
Max. pilot pressure	8 bar
Flow rate measurement 1	Air supply via port 1, at 6.3 bar Δp 1 bar
Flow rate 1	3500 NI/min
Flow rate measurement 2	Air supply via port 3/5, at 6.3 bar Δp 1 bar
Flow rate 2	4400 NI/min
Supply voltage range	12 -10 % to 24 +30 % V DC
Operating voltage min.	10.8 V DC
Operating voltage max.	31.2 V DC
Max. admissible voltage	32 V DC
Max. number of simultaneous solenoid controls on activation	24 V DC: 48 / 12 V DC: 32
Min. ambient temperature	-10 °C
Max. ambient temperature	50 °C
Housing	technopolymer
Sealant	NBR
Protection IP	IP 65
Series	EB 80

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

Commercial data

eCl@ss 5.1.4	27291501
eCl@ss 9.0	27291390
UNSPSC_Code_v190501	40141603
UNSPSC_CodeDesc_v190501	Pneumatic valves

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
Exhaust with fitting (ports 3 and 5)	Nl/min	2000	3200	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
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			
	IP65 (with connectors connected or plugged if not used)			
Degree of protection				
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 triqaered; 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

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



WIRING DIAGRAM INTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

M8 male connector

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

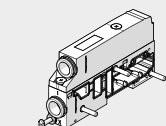


Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT WITH	Weight [g]
Full-flow ports 	Ø 8 (5/16")	02282M100Z00 02282M101Z01	160
	Ø 10	02282M200Z00 02282M201Z01	160
	Ø 12	02282M300Z00 02282M301Z01	150
	Ø 1/2"	02282M500Z00 02282M501Z01	150
Port 1 closed 	Ø 8 (5/16")	02282M110Z00 02282M111Z01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

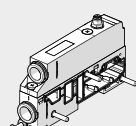
VALVES

EB 80 - INTERMEDIATE SUPPORT - M

INTERMEDIATE MODULE - CONVEYED RELIEF

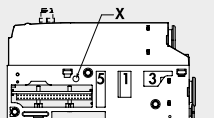
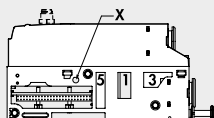
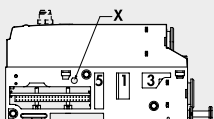
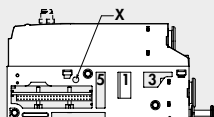
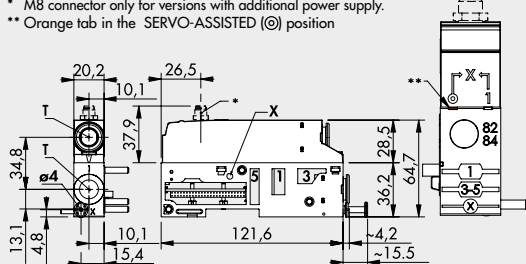


WITHOUT additional electrical power supply



WITH additional electric power supply

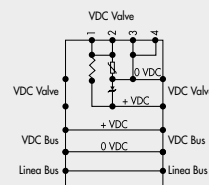
- * M8 connector only for versions with additional power supply.
- ** Orange tab in the SERVO-ASSISTED (©) position

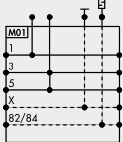
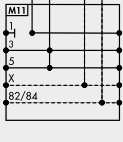
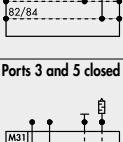
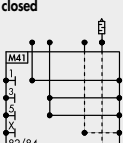
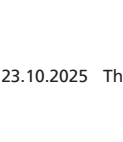


WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

M8 male connector

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



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

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 INTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

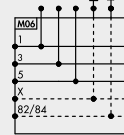
M8 male connector

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



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

Symbol	T Pipe fitting	Code		Weight [g]
		Additional electric power supply WITHOUT	WITH	
Full-flow ports	Ø 8 (5/16")	02282M100Z_0	02282M101Z_1	190
	Ø 10	02282M200Z_0	02282M201Z_1	190
	Ø 12	02282M300Z_0	02282M301Z_1	180
	Ø 1/2"	02282M500Z_0	02282M501Z_1	180



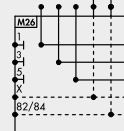
Port 1 closed

Ø 8 (5/16")	02282M110Z_0	02282M111Z_1	190
Ø 10	02282M210Z_0	02282M211Z_1	190
Ø 12	02282M310Z_0	02282M311Z_1	180
Ø 1/2"	02282M510Z_0	02282M511Z_1	180



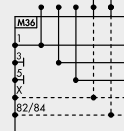
Ports 1, 3 and 5 closed

Ø 8 (5/16")	02282M120Z_0	02282M121Z_1	190
Ø 10	02282M220Z_0	02282M221Z_1	190
Ø 12	02282M320Z_0	02282M321Z_1	180
Ø 1/2"	02282M520Z_0	02282M521Z_1	180



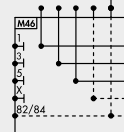
Ports 3 and 5 closed

Ø 8 (5/16")	02282M130Z_0	02282M131Z_1	190
Ø 10	02282M230Z_0	02282M231Z_1	190
Ø 12	02282M330Z_0	02282M331Z_1	180
Ø 1/2"	02282M530Z_0	02282M531Z_1	180



Ports 1, 3, 5 and X closed

Ø 8 (5/16")	02282M140Z_0	02282M141Z_1	190
Ø 10	02282M240Z_0	02282M241Z_1	190
Ø 12	02282M340Z_0	02282M341Z_1	180
Ø 1/2"	02282M540Z_0	02282M541Z_1	180



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

VALVES

EB 80 - INTERMEDIATE SUPPORT - M

KEY TO CODES

02282 FAMILY	M SUBSYSTEM	3 PORT FITTING 1	0 PORTS IN THE BASE	0 ADDITIONAL ELECTRICAL POWER SUPPLY	Z UPPER PART	3 PORTS 3 AND 5 FITTING	0 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 $\varnothing$ 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

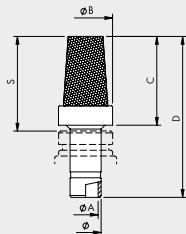
* Very flexible cables, class 6 according to IEC 60228

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

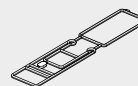
BASE INTERFACE GASKET



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 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
Non-assisted valves	bar	3 to 8
	MPa	0.3 to 0.8
	psi	43 to 116
Assisted valves	bar	Vacuum to 10
	MPa	Vacuum to 1
	psi	Vacuum to 145
Servo pressure	bar	3 to 8
	MPa	0.3 to 0.8
	psi	43 to 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		Ex II 3G Ex ec IIC T5 Gc X -10°C<Ta<50°C
		Ex II 3D Ex tc IIIC T100°C Dc X
Certifications		CE - ENEC - cRUus - Ex

* 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 **CE** 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** Electrical connection
- P** Pneumatic supply
- B** Bases for solenoid valves; the valves are fixed on the bases
- M** InterMediate Modules
- C** Closed end-plate



VALVES

EB 80 ELECTRO-PNEUMATIC SYSTEM

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

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 be fixed either protruded or concealed.
- N.B.:** Planar surfaces are required to ensure correct fixing. Avoid twisting or bending the valve units.



LUBRICATION



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.



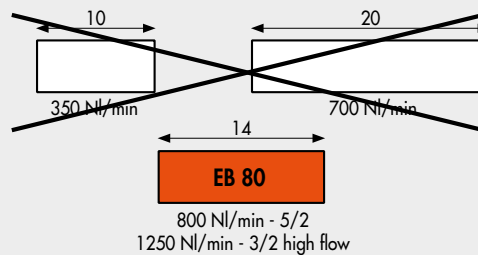
VERTICAL MODULARITY

- 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.

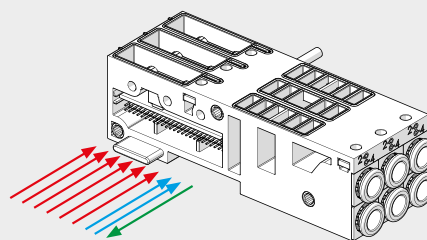
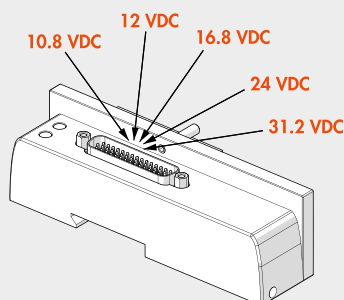
N.B.: All protocols can be mounted on the base for field buses and all input or output modules can be mounted on the same base for signals.


VALVES
ONE SIZE FITS ALL

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


EB 80 ELECTRO-PNEUMATIC SYSTEM
THE SAME BASE FITS BOTH MULTI-POLE CONNECTIONS AND FIELD BUSES

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


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 $\varnothing$ 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



VALVES

EB 80 ELECTRO-PNEUMATIC SYSTEM

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-B4086666VWKN-M300Z30-B30388800VVN-C2

EB 80	- S01	- E0EN	- P3XZ00	- B4086666VWKN	- 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.



Accessories

	Art. No.	Type No.
Power cable, M8 female connector straight / open ended, 4-pin, length 3 m	153709	0240009060
Power cable, M8 female connector straight / open ended, 4-pin, length 5 m	153710	0240009037
Power cable, M8 female connector straight / open ended, 4-pin, length 10 m	153711	0240009058
Power cable, M8 female connector straight / open ended, 4-pin, length 15 m	153712	0240009059
Power cable, M8 female connector straight / open ended, 4-pin, High-Flex class 6 acc. to DIN EN 60228, length 3 m	153713	0240009P60
Power cable, M8 female connector straight / open ended, 4-pin, High-Flex class 6 acc. to DIN EN 60228, length 5 m	153714	0240009P37
Power cable, M8 female connector straight / open ended, 4-pin, High-Flex class 6 acc. to DIN EN 60228, length 10 m	153715	0240009P58
Power cable, M8 female connector straight / open ended, 4-pin, High-Flex class 6 acc. to DIN EN 60228, length 15 m	153716	0240009P59
Connection cable, M8 female connector 90° / open ended, 4-pin, shielded cable, length 5 m	153718	0240009103
Sintered bronze silencer with plug nipple, Ø 12 mm	153756	W0970530086
Splash area kit for valve island EB 80, for 3-8 positions, aluminium	153690	02282R7080
Splash area kit for valve island EB 80, for 3-8 positions, stainless steel	153691	02282R7081
Splash area kit for valve island EB 80, for 8-12 positions, aluminium	153692	02282R7120
Splash area kit for valve island EB 80, for 8-12 positions, stainless steel	153693	02282R7121

Spareparts

	Art. No.	Type No.
EB 80 square cartridge with push-in fitting Ø 12 mm for compressed air supply and intermediate support, PU 10 pcs.	153919	02282R2115
EB 80 base interface gasket, PU 10 pcs.	153860	02282R1000
EB 80 gasket for compressed air supply and intermediate support, for sealing between upper and lower part, PU 10 pcs.	153908	02282R1001