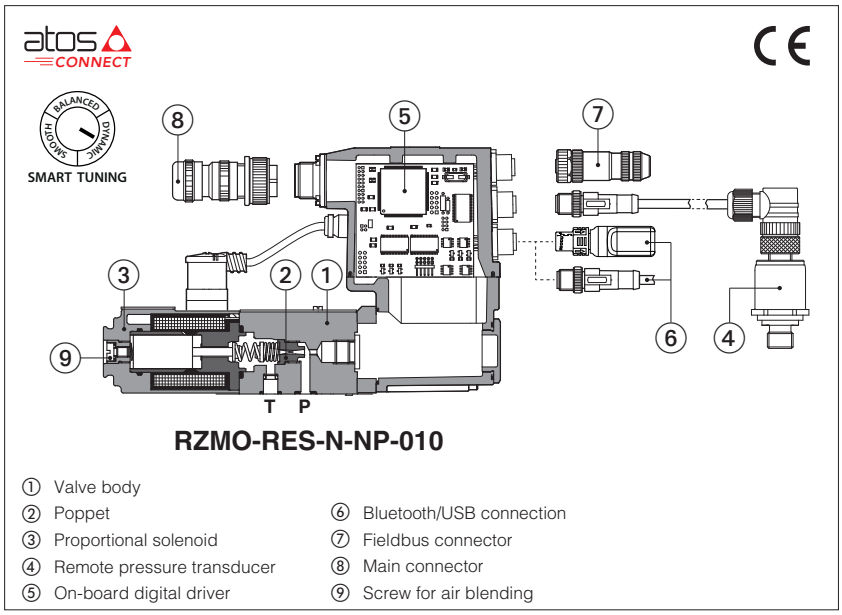
Digital proportional pressure valves **high performance**

direct and piloted, with remote pressure transducers - compensator, relief, reducing functions

Available only on request



RZMO-RES-N-NP-010

① Valve body
② Poppet
③ Proportional solenoid
④ Remote pressure transducer
⑤ On-board digital driver
⑥ Bluetooth/USB connection
⑦ Fieldbus connector
⑧ Main connector
⑨ Screw for air blending

Digital proportional valves with remote pressure transducer, respectively performing: compensator, relief and reducing closed loop function.

REB-N basic execution, with on-board digital driver, with analog reference signal or IO-Link interface for digital reference signals, valve settings, and real-time diagnostics

RES-N full execution, with on-board digital driver which includes also fieldbus interfaces for digital reference signals, valve settings, and real-time diagnostics

Bluetooth/USB connection is always present for valve settings via mobile App and Atos PC software.

The remote pressure transducer type E-ATR-8 must be ordered separately, see section 15

Typical application: installations where the proportional valve is far from the point of the hydraulic circuit in which the pressure has to be monitored.

1 MODEL CODE

RZMO	-	REB	-	N	-	NP	-	*	/	*	/	*	*	/	*

Pressure relief:
RZMO = size 06 (ISO 4401)
AGMZO = size 10, 20, 32 (ISO 6264)
LIMZO = size 16÷80 (ISO 7368)

Pressure compensator:
LICZO = size 16÷50 (ISO 7368)

Pressure reducing:
RZGO = size 06 (ISO 4401)
AGRCZO = size 10, 20 (ISO 6264)
LIRZO = size 16÷40 (ISO 7368)

REB = basic on-board digital driver
RES = full on-board digital driver

N = remote pressure transducer

IO-Link interface, only for REB, see section 7 :
NP = Not present **IL** = IO-Link

Fieldbus interfaces, only for RES, see section 8 :
BC = CANopen **EH** = EtherCAT
BP = PROFIBUS DP

Valve size configuration and max regulated pressure (2)

Hydraulic options (1) (2)

Electronic options, only for **REB-NP** and **RES (1)**:
C = current feedback for remote transducer 4÷20 mA
I = current reference input and monitor 4÷20 mA
Q = enable signal
Z = double power supply, enable, fault and monitor signals (12 pin connector)

Bluetooth option (1), see section 5 :
T = Bluetooth adapter supplied with the valve

Series number

Seals material,
see section 11 :
- = NBR
PE = FKM
BT = NBR low temperature

(1) For possible combined options, see section 13

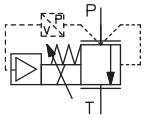
(2) Please refer the following technical tables according to the valve type:

Pressure Relief		Pressure Compensator		Pressure Reducing	
RZMO-RE*-N-010	see tech. table FS010	**LICZO**	see tech. table FS305	**RZGO-RE*-N-010**	see tech. table FS020
RZMO-RE*-N-030	see tech. table FS067			**RZGO-RE*-N-033**	see tech. table FS075
AGMZO	see tech. table FS040			**AGRCZO**	see tech. table FS055
LIMZO	see tech. table FS305			**LIRZO**	see tech. table FS305

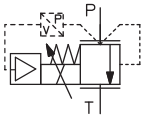
2 HYDRAULIC SYMBOLS

2.1 Pressure relief

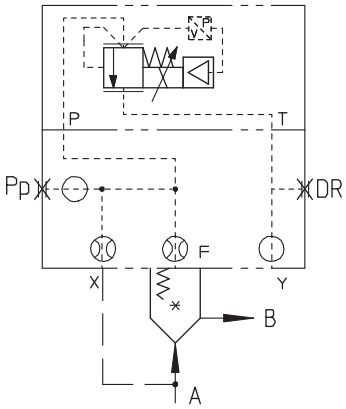
RZMO-REB-N-*-010
RZMO-RES-N-*-010



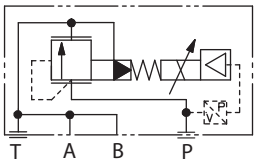
AGMZO-REB-N-*
AGMZO-RES-N-*



LIMZO-REB-N-*
LIMZO-RES-N-*

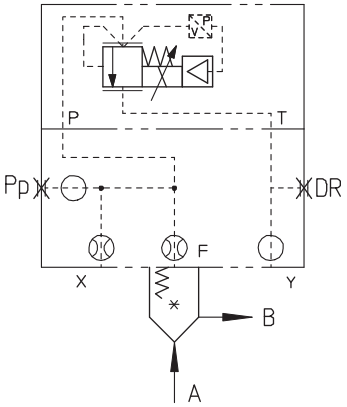


RZMO-REB-N-*-030
RZMO-RES-N-*-030



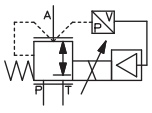
2.2 Pressure compensator

LICZO-REB-N-*
LICZO-RES-N-*

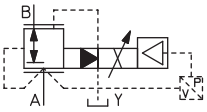


2.3 Pressure reducing

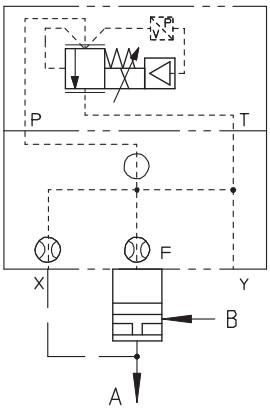
RZGO-REB-N-*-010
RZGO-RES-N-*-010



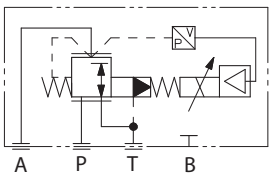
AGRCZO-REB-N-*-010
AGRCZO-RES-N-*-010



LIRZO-REB-N-*
LIRZO-RES-N-*



RZGO-REB-N-*-033
RZGO-RES-N-*-033



3 GENERAL NOTES

Atos digital proportionals valves are CE marked according to the applicable directives (e.g. Immunity and Emission EMC Directive).
Installation, wirings and start-up procedures must be performed according to the general prescriptions shown in tech table **FS900** and in the user manuals included in the E-SW-SETUP programming software.

4 VALVE SETTINGS AND PROGRAMMING TOOLS - see tech. table **GS500**

4.1 Atos CONNECT mobile App

Free downloadable App for smartphones and tablets which allows quick access to valve main functional parameters and basic diagnostic information via Bluetooth, thus avoiding physical cable connection and significantly reducing commissioning time.
Atos CONNECT supports Atos digital valve drivers equipped with E-A-BTH adapter or with built-in Bluetooth. It does not support valves with p/Q control or axis controls.

Download on the App Store

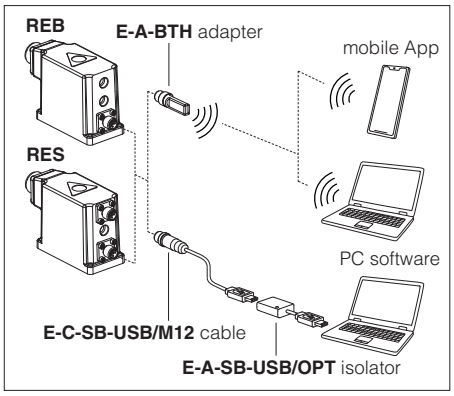
GET IT ON Google Play

4.2 E-SW-SETUP PC software

Free downloadable software for PC allows to set all valve functional parameters and to access complete diagnostic information of digital valve drivers via Bluetooth/USB service port.
Atos E-SW-SETUP PC software supports all Atos digital valve drivers and it is available at www.atos.com in MyAtos area.

WARNING: drivers USB port is not isolated! For E-C-SB-USB/M12 cable, the use of E-A-SB-USB/OPT isolator adapter is highly recommended for PC protection

Bluetooth or USB connection



5 BLUETOOTH OPTION - see tech. table **GS500**

T option adds Bluetooth® connectivity to Atos valve drivers thanks to E-A-BTH adapter, which can be left permanently installed on-board, to allow the Bluetooth connection with the valve drivers at any time. E-A-BTH adapter can also be purchased separately and used to connect with any supported Atos digital product.
Bluetooth connection to the valve can be protected against unauthorised access by setting a personal password. The adapter leds visually indicates the status of valve driver and Bluetooth connection.

WARNING: for the list of countries where the Bluetooth adapter has been approved, see tech. table **GS500**
T option is not available for the Indian market, so the Bluetooth adapter must be ordered separately.

6 SMART TUNING

Smart tuning allows to adjust the valve dynamic response in order to match different hydraulic conditions and performance requirements.

The valve is provided with 3 factory settings for the pressure control:

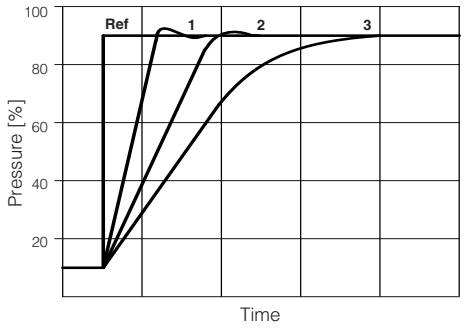
- **dynamic** fast response time for best dynamic performances. Default factory setting for pressure valves
- **balanced** average response time suitable for major applications
- **smooth** attenuated response time for slow regulation without overshoots

Smart tuning setting can be switched from Dynamic (default) to Balanced or Smooth via software or fieldbus; if requested, performances can be further customized directly tuning each single control parameter. For details consult related manuals E-MAN-* and Quickstart, see section 24.

Below indications have to be considered as a general guideline, being affected by hydraulic circuit stiffness, working flow and dead volume.

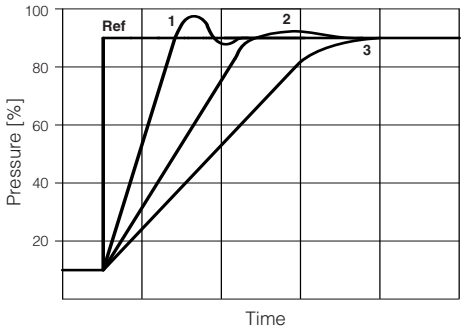
High stiffness - Low flow - Small volume

1 = dynamic
2 = balanced
3 = smooth



Low stiffness - High flow - Large volume

1 = dynamic
2 = balanced
3 = smooth



7 IO-LINK - only for **REB**, see tech. table **GS520**

IO-Link allows low cost digital communication between the valve and machine central unit. The valve is directly connected to a port of an IO-Link master (point-to-point connection) via low-cost unshielded cables for digital reference, diagnostic and settings. The IO-Link master works as a hub exchanging this information with the machine central unit via fieldbus.

8 FIELDBUS - only for **RES**, see tech. table **GS510**

Fieldbus allows valve direct communication with machine control unit for digital reference, valve diagnostics and settings. These execution allow to operate the valves through fieldbus or analog signals available on the main connector.

9 GENERAL CHARACTERISTICS

Assembly position	Any position
Subplate surface finishing to ISO 4401	Acceptable roughness index: Ra ≤ 0,8, recommended Ra 0,4 – Flatness ratio 0,01/100
MTTFd values according to EN ISO 13849	75 years: **RZMO-*-030** , **RZGO-*-033** , **AGMZO** , **AGRCZO** , **LI*ZO** 150 years: **RZMO-*-010** , **RZGO-*-010** For further details see technical table P007
Ambient temperature range	**Standard** = -20°C ÷ +60°C **/PE** option = -20°C ÷ +60°C **/BT** option = -40°C ÷ +60°C
Storage temperature range	**Standard** = -20°C ÷ +70°C **/PE** option = -20°C ÷ +70°C **/BT** option = -40°C ÷ +70°C
Surface protection	Zinc coating with black passivation, galvanic treatment (driver housing)
Corrosion resistance	Salt spray test (EN ISO 9227) > 200 h
Vibration resistance	See technical table G004
Compliance	CE according to EMC directive 2014/30/EU (Immunity: EN 61000-6-2; Emission: EN 61000-6-3) RoHS Directive 2011/65/EU as last update by 2015/863/EU REACH Regulation (EC) n°1907/2006

10 ELECTRICAL CHARACTERISTICS

Power supplies	Nominal : +24 VDC Rectified and filtered : VRMS = 20 ÷ 32 VMAX (ripple max 10 % VPP)				
Max power consumption	50 W				
Max. solenoid current	3 A				
Coil resistance R at 20°C	3 ÷ 3,3 Ω				
Analog input signals	Voltage: range ±10 VDC (24 VMAX tolerant) Input impedance: Ri > 50 kΩ Current: range ±20 mA Input impedance: Ri = 500 Ω				
Monitor output	Voltage: maximum range 0 ÷ 10 VDC @ max 5 mA Current: maximum range 0 ÷ 20 mA @ max 500 Ω load resistance				
Enable input	Range: 0 ÷ 9 VDC (OFF state), 15 ÷ 24 VDC (ON state), 9 ÷ 15 VDC (not accepted); Input impedance: Ri > 87 kΩ				
Fault output	Output range: 0 ÷ 24 VDC (ON state ≅ VL+ [logic power supply] ; OFF state ≅ 0 V) @ max 50 mA; external negative voltage not allowed (e.g. due to inductive loads)				
Remote pressure transducer	Power supply: +24VDC @ max 100 mA Pressure input: voltage, maximum range ±10 VDC Input impedance, Ri > 50 Ω current, maximum range ±20 mA Input impedance, Ri = 500 Ω				
Alarms	Solenoid not connected/short circuit, cable break with current reference signal, over/under temperature, current control monitoring, power supplies level, pressure transducer failure				
Insulation class	H (180°) Due to the occurring surface temperatures of the solenoid coils, the European standards ISO 13732-1 and EN982 must be taken into account				
Protection degree to DIN EN60529	IP66 / IP67 with mating connectors				
Duty factor	Continuous rating (ED=100%)				
Tropicalization	Tropical coating on electronics PCB				
Additional characteristics	Short circuit protection of solenoid's current supply; current control by P.I.D. with rapid solenoid switching; protection against reverse polarity of power supply				
Communication interface	USB Atos ASCII coding	IO-Link Interface and System Specification 1.1.3	CANopen EN50325-4 + DS408	PROFIBUS DP EN50170-2/IEC61158	EtherCAT IEC 61158
Communication physical layer	not insulated USB 2.0+USB OTG	SDCI class port B	optical insulated CAN ISO11898	optical insulated RS485	Fast Ethernet, insulated 100 Base TX
Recommended wiring cable	LiYCY shielded cables, see section 19				

Note: a maximum time of 500 ms (depending on communication type) has to be considered between the driver energizing with the 24 VDC power supply and when the valve is ready to operate. During this time the current to the valve coils is switched to zero.

11 SEALS AND HYDRAULIC FLUIDS - for other fluids not included in below table, consult our technical office

Seals, recommended fluid temperature		NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C NBR low temp. seals (/BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C		
Recommended viscosity		20 ÷ 100 mm²/s - max allowed range 15 ÷ 380 mm²/s		
Max fluid contamination level	normal operation	ISO4406 class 18/16/13 NAS1638 class 7		see also filter section at www.atos.com or KTF catalog
	longer life	ISO4406 class 16/14/11 NAS1638 class 5		
Hydraulic fluid		**Suitable seals type**	**Classification**	**Ref. Standard**
Mineral oils		NBR, FKM, NBR low temp.	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water		FKM	HFDU, HFDR	ISO 12922
Flame resistant with water		NBR, NBR low temp.	HFC	

12 ELECTRONIC OPTIONS - only for **REB-NP** and **RES**

I = This option provides 4 ÷ 20 mA current reference and monitor signals, instead of the standard 0 ÷ 10 VDC.
Input signal can be reconfigured via software selecting between voltage and current, within a maximum range of ±10 VDC or ±20 mA.
It is normally used in case of long distance between the machine control unit and the valve or where the reference signal can be affected by electrical noise; the valve functioning is disabled in case of reference signal cable breakage.

Q = This option permits to inhibit the valve function without removing the power supply to the driver. Upon disable command the current to the solenoid is zeroed and the valve's spool moves to rest position.
The option /Q is suggested for all cases where the valve has to be frequently inhibited during the machine cycle – see 16.5 for signal specifications.

Z = This option provides, on the 12 pin main connector, the following additional features:
Fault output signal - see 16.6
Enable input signal - see above option /Q
Power supply for driver's logics and communication - see 16.2

C = This option is available to connect pressure transducers with 4 ÷ 20 mA current output signal, instead of the standard 0 ÷ 10 VDC.
Input signal can be reconfigured via software selecting between voltage and current, within a maximum range of ±10 VDC or ±20 mA.

13 POSSIBLE COMBINED OPTIONS

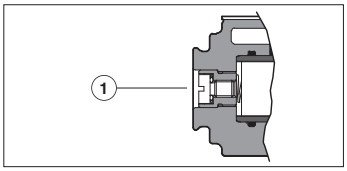
Hydraulic options: all combination possible

Electronic options: /CI, /IQ, /IZ, /CIQ, /CIZ

Note: **/T** Bluetooth adapter option can be combined with all other options

14 AIR BLEEDING

At the first valve commissioning the air eventually trapped inside the solenoid must be bled-off through the screw y located at the rear side of the solenoid housing.
The presence of air may cause pressure instability and vibrations.



15 REMOTE PRESSURE TRANSDUCER

15.1 Pressure transducer failure - only for **/C** option

In case of pressure transducer failure, only for 4 ÷ 20 mA pressure transducer feedback, the valve's reaction can be configured through Atos E-SW-SETUP software to:
- cut off the current to solenoid, therefore the regulated pressure will be reduced to minimum value (default setting)
- automatically switch the pressure control from closed loop (dynamic, balanced, smooth) to open loop, to let the valve to temporarily operate with reduced regulation accuracy

15.2 Remote pressure transducer factory preset

The valve is factory preset to operate with pressure transducer type E-ATR-8 having a standard measuring range specifically sized to match the valve max regulated pressure. Please refer to below table to select the correct E-ATR-8 measuring range:

Valve model	**Valve max regulated pressure**	**E-ATR-8 standard pressure measuring range** (table GS465)
RZGO	**32** = 32 bar	**60** = 0 ÷ 60 bar
RZGO, RZMO AGMZO, AGRCZO LIMZO, LIRZO, LICZO	**100** = 100 bar	**160** = 0 ÷ 160 bar
	210 = 210 bar	**250** = 0 ÷ 250 bar
	315 = 315 bar	**400** = 0 ÷ 400 bar
	350 = 350 bar	

In case the selected pressure transducer has a measuring range different to the above standard, the valve pressure feedback scale must be set according to the new measuring range, using E-SW-SETUP software.

Please consider that a different pressure measuring range respect to the standard may cause following situations:
- selected range higher than standard = the valve regulation accuracy will be reduced in consequence of the lower pressure feedback resolution
- selected range lower than standard = the transducer could be damaged if the system pressure will exceed transducer max measuring range

16 POWER SUPPLY AND SIGNALS SPECIFICATIONS - only for **REB-NP** and **RES**

Generic electrical output signals of the valve (e.g. fault or monitor signals) must not be directly used to activate safety functions, like to switch-ON/OFF the machine's safety components, as prescribed by the European standards (Safety requirements of fluid technology systems and components-hydraulics, ISO 4413).

For **REB-IL** signals see section 17

16.1 Power supply (V+ and V0)

The power supply must be appropriately stabilized or rectified and filtered: apply at least a 10000 µF/40 V capacitance to single phase rectifiers or a 4700 µF/40 V capacitance to three phase rectifiers. In case of separate power supply see 16.2.

⚠ A safety fuse is required in series to each power supply: 2,5 A time lag fuse.

16.2 Power supply for driver's logic and communication (VL+ and VL0) - only for **/Z** option

The power supply for driver's logic and communication must be appropriately stabilized or rectified and filtered: apply at least a 10000 µF/40 V capacitance to single phase rectifiers or a 4700 µF/40 V capacitance to three phase rectifiers.
The separate power supply for driver's logic on pin 9 and 10, allow to remove solenoid power supply from pin 1 and 2 maintaining active the diagnostics, USB and fieldbus communications.

⚠ A safety fuse is required in series to each driver's logic and communication power supply: 500 mA fast fuse.

16.3 Pressure reference input signal (P_INPUT+)

The driver controls in closed loop the current to the valve pressure proportionally to the external reference input signal.
Reference input signal is factory preset according to selected valve code, defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /I option.
Input signal can be reconfigured via software selecting between voltage and current, within a maximum range of ±10 VDC or ± 20 mA.
Drivers with fieldbus interface (BC, BP, EH) can be software set to receive reference signal directly by the machine control unit (fieldbus reference).
Analog reference input signal can be used as on-off commands with input range 0 ÷ 24 VDC.

16.4 Pressure monitor output signal (P_MONITOR)

The driver generates an analog output signal proportional to the actual pressure of the valve; the monitor output signal can be software set to show other signals available in the driver (e.g. analog reference, fieldbus reference).
Monitor output signal is factory preset according to selected valve code, defaults settings are 0 ÷10 VDC for standard and 4 ÷ 20 mA for /I option.
Output signal can be reconfigured via software selecting between voltage and current, within a maximum range of 0 ÷10 VDC or 0 ÷ 20 mA.

16.5 Enable input signal (ENABLE) - not for standard

To enable the driver, supply a 24 VDC on pin 3 (pin C): Enable input signal allows to enable/disable the current supply to the solenoid, without removing the electrical power supply to the driver; it is used to active the communication and the other driver functions when the valve must be disabled for safety reasons. This condition **does not comply** with norms IEC 61508 and ISO 13849.
Enable input signal can be used as generic digital input by software selection.

16.6 Fault output signal (FAULT) - only for **/Z** option

Fault output signal indicates fault conditions of the driver (solenoid short circuits/not connected, reference signal broken for 4 ÷ 20 mA input, etc.).
Fault presence corresponds to 0 VDC, normal working corresponds to 24 VDC. Fault status is not affected by the Enable input signal.

16.7 Remote pressure transducer input signal (TR)

Analog pressure transducers can be directly connected to the driver (see 18.5).
Analog input signal is factory preset according to selected driver code, defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /C option.
Input signal can be reconfigured via software selecting between voltage and current, within a maximum range of ±10 VDC or ± 20 mA.
Note: transducer feedback can be read as a digital information through fieldbus and IO-Link communication - software selectable.

17 IO-LINK SIGNALS SPECIFICATIONS - only for **REB-IL**

17.1 Power supply for IO-Link communication (L+ and L-)

The IO-Link master provides dedicated 24 VDC power supply for IO-Link communication.
Maximum power consumption: 2 W
Internal electrical isolation of power L+, L- from P24, N24

17.2 Power supply for driver's logic and valve regulation (P24 and N24)

The IO-Link master provides dedicated 24 VDC power supply for valve regulation, logics and diagnostics.
Maximum power consumption: 50 W
Internal electrical isolation of power P24, N24 from L+, L-

17.3 IO-Link data line (C/Q)

C/Q signal is used to establish communication between IO-Link master and valve.

18 ELECTRONIC CONNECTIONS

18.1 Main connector signals - 7 pin (A1) **Standard** and **/Q** option - for **REB-NP** and **RES**

PIN	Standard	/Q	TECHNICAL SPECIFICATIONS	NOTES
A	**V+**		Power supply 24 VDC	Input - power supply
B	**V0**		Power supply 0 VDC	Gnd - power supply
C	**AGND**		Analog ground	Gnd - analog signal
		ENABLE	Enable (24 VDC) or disable (0 VDC) the driver, referred to V0	Input - on/off signal
D	**P_INPUT+**		Pressure reference input signal: ±10 VDC / ±20 mA maximum range Defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /I option	Input - analog signal **Software selectable**
E	**INPUT-**		Negative reference input signal for P_INPUT+	Input - analog signal
F	**P_MONITOR** referred to: AGND / V0		Pressure monitor output signal: 0 ÷ 10 VDC / 0 ÷ 20 mA maximum range Defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /I option	Output - analog signal **Software selectable**
G	**EARTH**		Internally connected to driver housing	

18.2 Main connector signals - 12 pin (A2) /Z option - for **REB-NP** and **RES**

PIN	/Z	TECHNICAL SPECIFICATIONS	NOTES
1	**V+**	Power supply 24 VDC	Input - power supply
2	**V0**	Power supply 0 VDC	Gnd - power supply
3	**ENABLE**	Enable (24 VDC) or disable (0 VDC) the driver, referred to VL0	Input - on/off signal
4	**P_INPUT+**	Pressure reference input signal: ±10 VDC / ±20 mA maximum range Defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /I option	Input - analog signal **Software selectable**
5	**INPUT-**	Negative reference input signal for INPUT+	Input - analog signal
6	**P_MONITOR**	Pressure monitor output signal: 0 ÷ 10 VDC / 0 ÷ 20 mA maximum range, referred to VL0 Defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /I option	Output - analog signal **Software selectable**
7	**NC**	Do not connect	
8	**NC**	Do not connect	
9	**VL+**	Power supply 24 VDC for driver's logic and communication	Input - power supply
10	**VL0**	Power supply 0 VDC for driver's logic and communication	Gnd - power supply
11	**FAULT**	Fault (0 VDC) or normal working (24 VDC), referred to VL0	Output - on/off signal
PE	**EARTH**	Internally connected to driver housing	

Note: do not disconnect VL0 before VL+ when the driver is connected to PC USB port

18.3 IO-Link connector signals - M12 - 5 pin - Coding A, port class B (A) only for **REB-IL**

PIN	SIGNAL	TECHNICAL SPECIFICATIONS	NOTES
1	**L+**	Power supply 24 VDC for IO-Link communication	Input - power supply
2	**P24**	Power supply 24 VDC for valve regulation, logics and diagnostics	Input - power supply
3	**L-**	Power supply 0 VDC for IO-Link communication	Gnd - power supply
4	**C/Q**	IO-Link data line	Input / Output - signal
5	**N24**	Power supply 0 VDC for valve regulation, logics and diagnostics	Gnd - power supply

Note: L+, L- and P24, N24 are electrically isolated

18.4 Communication connectors - for **REB** (B) and **RES** (B) - (C)

(B) **USB connector - M12 - 5 pin** always present		
PIN	**SIGNAL**	**TECHNICAL SPECIFICATION (1)**
1	**+5V_USB**	Power supply
2	**ID**	Identification
3	**GND_USB**	Signal zero data line
4	**D-**	Data line -
5	**D+**	Data line +

(C1) **BC fieldbus execution, connector - M12 - 5 pin (2)**		
PIN	**SIGNAL**	**TECHNICAL SPECIFICATION (1)**
1	**CAN_SHLD**	Shield
2	**NC**	do not connect
3	**CAN_GND**	Signal zero data line
4	**CAN_H**	Bus line (high)
5	**CAN_L**	Bus line (low)

(C2) **BP fieldbus execution, connector - M12 - 5 pin (2)**		
PIN	**SIGNAL**	**TECHNICAL SPECIFICATION (1)**
1	**+5V**	Termination supply signal
2	**LINE-A**	Bus line (high)
3	**DGND**	Data line and termination signal zero
4	**LINE-B**	Bus line (low)
5	**SHIELD**	

(C3) (C4) **EH fieldbus execution, connector - M12 - 4 pin (2)**		
PIN	**SIGNAL**	**TECHNICAL SPECIFICATION (1)**
1	**TX+**	Transmitter
2	**RX+**	Receiver
3	**TX-**	Transmitter
4	**RX-**	Receiver
Housing	**SHIELD**	

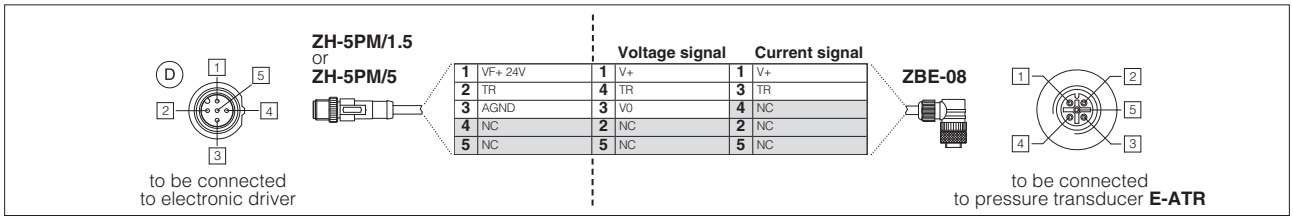
(1) Shield connection on connector's housing is recommended

(2) Only for **RES** execution

18.5 Remote pressure transducer connector - M12 - 5 pin (D)

PIN	SIGNAL	TECHNICAL SPECIFICATION	Voltage	Current
1	**VF +24V**	Power supply +24VDC	Connect	Connect
2	**TR**	Signal transducer maximum range ±10 VDC / ±20 mA, software selectable Defaults are 0 ÷ 10 VDC for standard and 4 ÷ 20 mA for /C option	Connect	Connect
3	**AGND**	Common GND for transducer power and signals	Connect	/
4	**NC**	Not Connect	/	/
5	**NC**	Not Connect	/	/

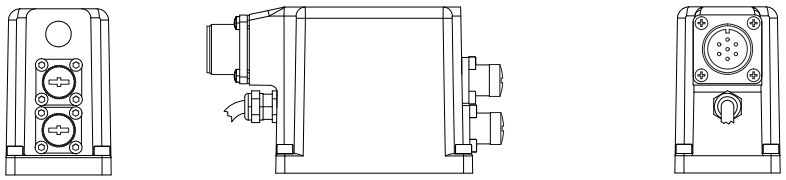
Remote pressure transducer connection - example



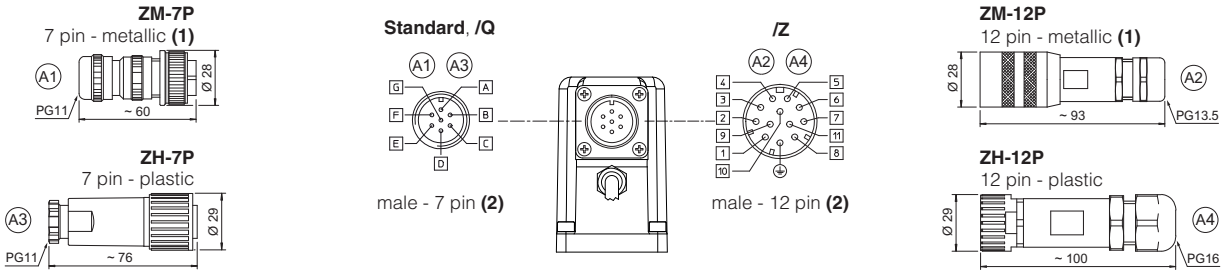
Note: connectors front view

18.6 REB-NP connections layout

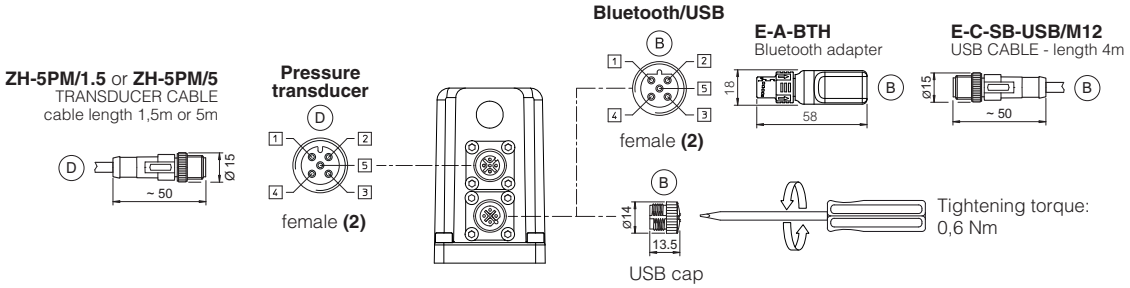
DRIVER OVERVIEW



MAIN CONNECTORS



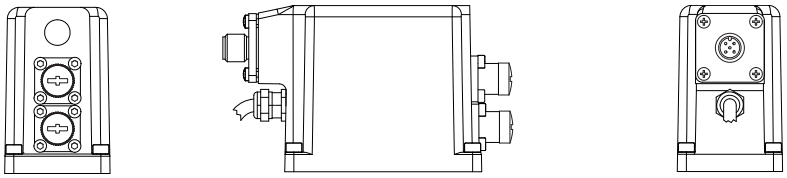
TRANSDUCER CONNECTOR - BLUETOOTH ADAPTER AND USB CONNECTOR



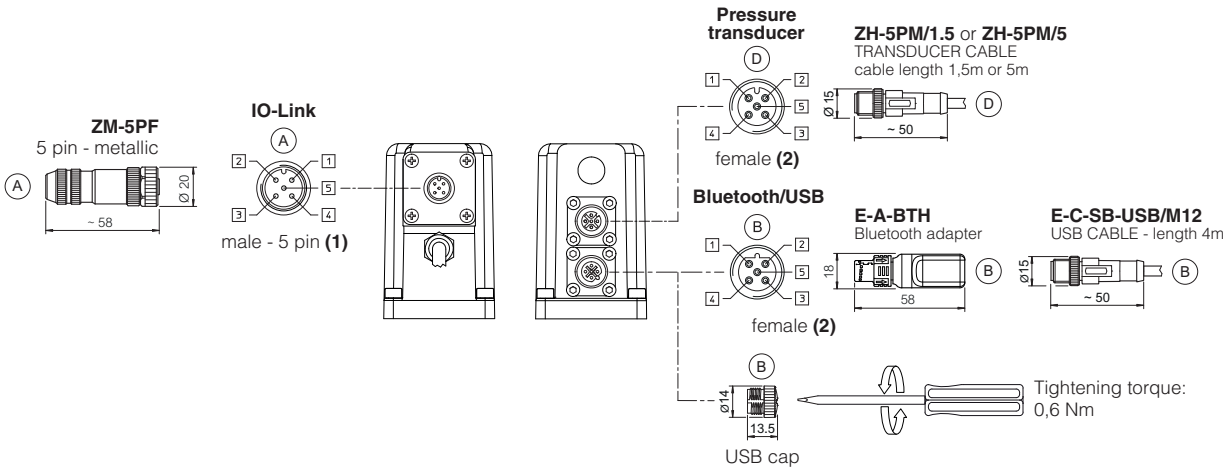
(1) Use of metallic connectors is strongly recommended in order to fulfill EMC requirements **(2)** Pin layout always referred to driver's view

18.7 REB-IL connections layout

DRIVER OVERVIEW



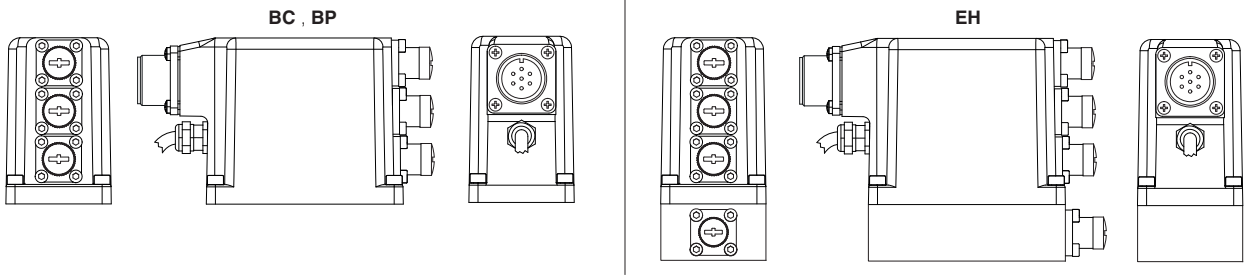
IO-Link AND TRANSDUCER CONNECTORS - BLUETOOTH ADAPTER AND USB CONNECTOR



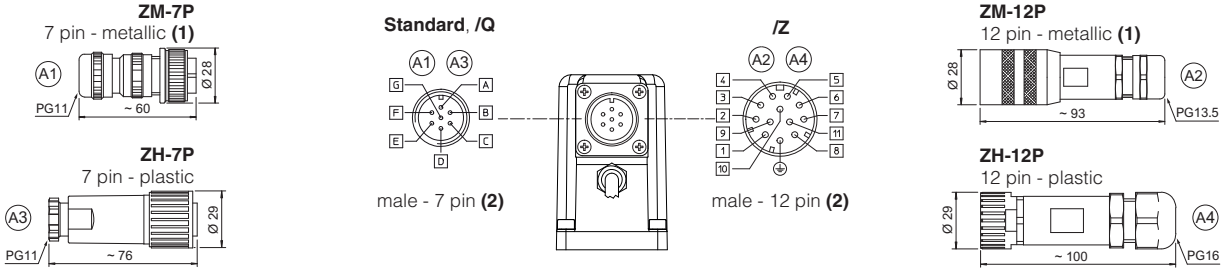
(1) Use of metallic connectors is strongly recommended in order to fulfill EMC requirements **(2)** Pin layout always referred to driver's view

18.8 RES connections layout

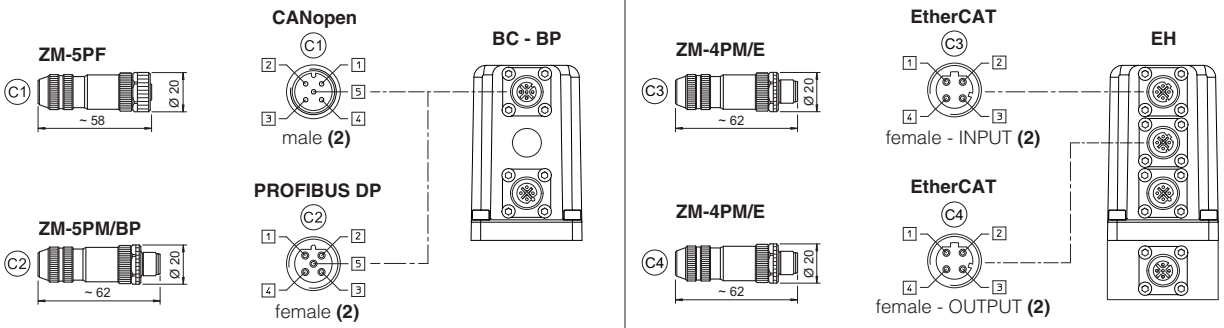
DRIVER OVERVIEW



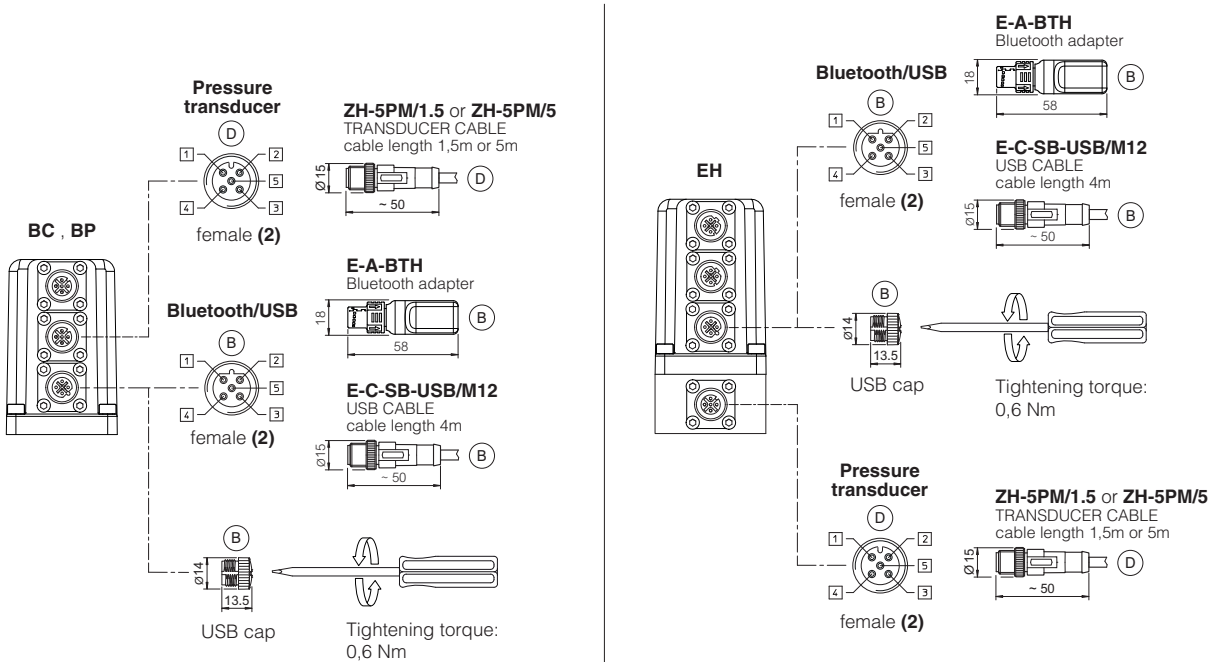
MAIN CONNECTORS



FIELDBUS CONNECTORS



TRANSDUCER CONNECTOR - BLUETOOTH ADAPTER AND USB CONNECTOR



(1) Use of metallic connectors is strongly recommended in order to fulfill EMC requirements **(2)** Pin layout always referred to driver's view

19 CONNECTORS CHARACTERISTICS - to be ordered separately

19.1 Main connectors - 7 pin - for **REB-NP** and **RES**

CONNECTOR TYPE	POWER SUPPLY AND SIGNALS	POWER SUPPLY AND SIGNALS
CODE	(A1) **ZM-7P**	(A3) **ZH-7P**
Type	7pin female straight circular	7pin female straight circular
Standard	According to MIL-C-5015	According to MIL-C-5015
Material	Metallic	Plastic reinforced with fiber glass
Cable gland	PG11	PG11
Recommended cable	LiYCY 7 x 0,75 mm² max 20 m (logic and power supply) or LiYCY 7 x 1 mm² max 40 m (logic and power supply)	LiYCY 7 x 0,75 mm² max 20 m (logic and power supply) or LiYCY 7 x 1 mm² max 40 m (logic and power supply)
Conductor size	up to 1 mm² - available for 7 wires	up to 1 mm² - available for 7 wires
Connection type	to solder	to solder
Protection (EN 60529)	IP 67	IP 67

19.2 Main connectors - 12 pin - for **REB-NP** and **RES**

CONNECTOR TYPE	POWER SUPPLY AND SIGNALS	POWER SUPPLY AND SIGNALS
CODE	(A2) **ZM-12P**	(A4) **ZH-12P**
Type	12pin female straight circular	12pin female straight circular
Standard	DIN 43651	DIN 43651
Material	Metallic	Plastic reinforced with fiber glass
Cable gland	PG13,5	PG16
Recommended cable	LiYCY 12 x 0,75 mm² max 20 m (logic and power supply)	LiYCY 10 x 0,14mm² max 40 m (logic) LiYY 3 x 1mm² max 40 m (power supply)
Conductor size	0,5 mm² to 1,5 mm² - available for 12 wires	0,14 mm² to 0,5 mm² - available for 9 wires 0,5 mm² to 1,5 mm² - available for 3 wires
Connection type	to crimp	to crimp
Protection (EN 60529)	IP 67	IP 67

19.3 IO-Link connector - only for **REB-IL**

CONNECTOR TYPE	IL IO-Link
CODE	(A) **ZM-5PF**
Type	5pin female straight circular
Standard	M12 coding A – IEC 61076-2-101
Material	Metallic
Cable gland	Pressure nut - cable diameter 6÷8 mm
Recommended cable	5 x 0,75 mm² max 20 m
Connection type	screw terminal
Protection (EN 60529)	IP 67

19.4 Fieldbus communication connectors - only for **RES**

CONNECTOR TYPE	**BC CANopen** (1)		**BP PROFIBUS DP** (1)		**EH EtherCAT** (2)
CODE	(C1) **ZM-5PF**	(C2) **ZM-5PM**	(C1) **ZM-5PF/BP**	(C2) **ZM-5PM/BP**	(C1) (C2) **ZM-4PM/E**
Type	5 pin female straight circular	5 pin male straight circular	5 pin female straight circular	5 pin male straight circular	4 pin male straight circular
Standard	M12 coding A – IEC 61076-2-101		M12 coding B – IEC 61076-2-101		M12 coding D – IEC 61076-2-101
Material	Metallic		Metallic		Metallic
Cable gland	Pressure nut - cable diameter 6÷8 mm		Pressure nut - cable diameter 6÷8 mm		Pressure nut - cable diameter 4÷8 mm
Cable	CANbus Standard (DR 303-1)		PROFIBUS DP Standard		Ethernet standard CAT-5
Connection type	screw terminal		screw terminal		terminal block
Protection (EN 60529)	IP67		IP 67		IP 67

(1) E-TRM-** terminators can be ordered separately - see tech table **GS500**

(2) Internally terminated

19.5 Remote pressure transducer connector

CONNECTOR TYPE	TRANSDUCER	
CODE	(D1) **ZH-5PM/1.5**	(D1) **ZH-5PM/5**
Type	5 pin male straight circular	
Standard	M12 coding A – IEC 61076-2-101	
Material	Plastic	
Cable gland	Connector moulded on cables 1,5 m length	5 m length
Cable	5 x 0,25 mm²	
Connection type	molded cable	
Protection (EN 60529)	IP 67	

20 RELATED DOCUMENTATION

FS001	Basics for digital electrohydraulics	**K800**	Electric and electronic connectors
FS900	Operating and maintenance information for proportional valves	**P005**	Mounting surfaces for electrohydraulic valves
GS500	Programming tools	**P006**	Mounting surfaces and cavities for cartridges valves
GS510	Fieldbus		
GS520	IO-Link interface		