

**PROPORTIONAL PRESSURE RELIEF AND REDUCING VALVES**

Valve model: RZMO-AES RZGO-AES AGMZO-AES AGRCZO-AES

Driver model: E-RI-AES

**IDENTIFICATION**

Valve identification plates and label

Valve name plate : M  
 Pilot valve name plate : N  
 Driver label : L

1 : valve code  
 2 : valve matrix code  
 3 : valve hydraulic symbol

4 : pilot valve code  
 5 : pilot valve matrix code  
 6 : pilot hydraulic symbol

7 : driver code  
 8 : driver serial number  
 9 : factory firmware version

**INSTALLATION TOOLS ACCORDING TO VALVE MODEL- not included**

Fastening bolts	Wrenches	Screwdriver	Main connectors		Fieldbus connectors		
			std./Q	/Z	BC	BP	EH
socket head screws	for fastening bolts and mechanical pilot relief	for air bleeding	7 pin metallic	12 pin metallic	5 pin metallic	5 pin metallic	4 pin metallic
see STEP 1 and STEP 3			see STEP 2.1		see STEP 2.2		

**PROGRAMMING TOOLS - not included**

PC software	mobile App	Bluetooth	OR	USB connection KIT
E-SW-SETUP	Atos CONNECT	E-A-BTH Adapter		E-C-SB-USB/M12 Cable, E-A-SB-USB/OPT Isolator

NOTE: Atos CONNECT supports Atos digital valve drivers equipped with E-A-BTH or with built-in Bluetooth, see STEP 5

**PC SOFTWARE**

E-SW-SETUP	supports	NP (USB)	IL (IO-Link)	PS (Serial)	IR (Infrared)
		BC (CANopen)	BP (PROFIBUS DP)	EH (EtherCAT)	EP (PROFINET RT/IRT)
		supports valves with SP, SF, SL alternated p/Q control			

REMARK Atos PC software is designed for Windows based operative systems - Windows 10 or later

**PC SOFTWARE DOWNLOAD**

Download PC software at [www.atos.com](http://www.atos.com) accessing to "MyAtos -> Download area electronics"

Free registration by filling the form at [www.atos.com/en-it/login](http://www.atos.com/en-it/login)

E-SW-SETUP is free and available in Download area

**RELATED DOCUMENTATION - www.atos.com**

FS900 Operating and maintenance information - tech. table	STARTUP BLUETOOTH Bluetooth adapter startup guide
FS007 RZMO-010 pressure relief, direct - tech. table	E-MAN-RI-AES AES - driver operating manual
FS015 RZGO-010 pressure reducing, direct - tech. table	E-MAN-S-BC CANopen protocol programming manual
FS035 AGMZO pressure relief, two stage - tech. table	E-MAN-S-BP PROFIBUS DP protocol programming manual
FS050 AGRCZO pressure reducing, two stage - tech. table	E-MAN-S-EH EtherCAT protocol programming manual
FS065 RZMO-030 pressure relief, piloted - tech. table	
FS070 RZGO-033 pressure reducing, piloted - tech. table	
P005 Mounting surface - tech. table	
GS500 Programming tools - tech. table	
GS510 Fieldbus - tech. table	
K800 Electric and electronic connectors - tech. table	

**ATTENTION !**

The purpose of this quickstart guide is show a logical sequence of basic operations. This guide does not cover all details or variants of Atos valves. All operations described in this document should be performed only by qualified personnel. Operations and images could be subject to change without notice. For further information please refer to related documentation.

**CONTACT US**

Atos spa - Italy - 21018 Sesto Calende [www.atos.com](http://www.atos.com) [support@atos.com](mailto:support@atos.com)

**PRODUCTS OVERVIEW**

INSTALLATION			PROGRAMMING	
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
MECHANICAL	ELECTRICAL	HYDRAULICS	PC SOFTWARE	MOBILE APP

**STEP 1 MECHANICAL**

In case of first commissioning, before the valve installation the whole system must be correctly flushed to grant the required cleanliness level

During the flushing operation use on-off or by-pass valves in place of the proportional valve

- remove protection pad P1 located on the valve bottom face only immediately before installation (do not remove connectors caps)
- check the presence and correct positioning of the seals on valve ports
- verify that valve mounting surface is clean and free from damages or burrs
- verify the correct valve orientation according to the pattern of the relevant mounting interface
- lock the fastening bolts respecting below sequence and tightening torque according to valve model

<b>RZMO-AES / RZGO-AES</b> Mounting surface layout 4401-03-02-0-05 (RZMO without A and B ports) Valve size ISO 4401: 06 T, P, X, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ	<b>AGMZO-AES-10</b> Mounting surface layout 6264-06-09-1-97 Valve size ISO 6264: 10 T, P, X, n°1 OR 109/70, n°2 OR 123
<b>AGMZO-AES-20</b> Mounting surface layout 6264-08-13-1-97 Valve size ISO 6264: 20 T, P, X, n°1 OR 109/70, n°2 OR 4112	<b>AGMZO-AES-32</b> Mounting surface layout 6264-10-17-1-97 Valve size ISO 6264: 32 T, P, X, n°1 OR 109/70, n°2 OR 4131
<b>AGRCZO-AES-10</b> Mounting surface layout 5781-06-07-0-00 Valve size ISO 5781: 10 y, B, A, x, n°2 OR 109/70, n°2 OR 3068	<b>AGRCZO-AES-20</b> Mounting surface layout 5781-08-10-0-00 Valve size ISO 5781: 20 y, B, A, x, n°2 OR 109/70, n°2 OR 4100

**STEP 2 ELECTRICAL**

This section considers the different valves options, illustrating the multiple variants of the available electrical connections. The electrical connections have to be wired according to the selected valve code

**2.1 MAIN CONNECTOR**

- Remove main connector cap P2

**ZM-7P - 7 pin MAIN CONNECTOR**  
**ZM-12P - 12 pin MAIN CONNECTOR**

**WARNING:** remove power supply before any electrical or wiring operations

**WARNING:** a safety fuse is required in series to driver power supply - 2.5 A time lag fuse

- Select main connector according to valve code and proceed with wirings operations

Recommended LiYCY shielded cables:  
 7 x 0,75 mm<sup>2</sup> max 20 m  
 7 x 1 mm<sup>2</sup> max 40 m

Recommended LiYCY shielded cable:  
 12 x 0,75 mm<sup>2</sup> max 20 m

Standard		/Z option	
A	V+ (power supply 24Voc)	1	V+ (power supply 24Voc)
B	V0 (power supply 0Voc)	2	V0 (power supply 0Voc)
C	AGND	3	ENABLE (input 24Voc)
D	INPUT+ (0 ÷ 10Voc / 4 ÷ 20mA)	4	INPUT+ (0 ÷ 10Voc / 4 ÷ 20mA)
E	INPUT- (0 ÷ 10Voc / 4 ÷ 20mA)	5	INPUT- (0 ÷ 10Voc / 4 ÷ 20mA)
F	MONITOR (0 ÷ 5Voc 1V=1A)	6	MONITOR (0 ÷ 5Voc 1V=1A)
G	EARTH	7	NC
		8	NC
		9	VL+ (logic power supply 24Voc)
		10	VLO (logic power supply 0Voc)
		11	FAULT (output 24Voc)
		PE	EARTH

/Q option	
A	V+ (power supply 24Voc)
B	V0 (power supply 0Voc)
C	ENABLE (input 24Voc)
D	INPUT+ (0 ÷ 10Voc / 4 ÷ 20mA)
E	INPUT- (0 ÷ 10Voc / 4 ÷ 20mA)
F	MONITOR (0 ÷ 5Voc 1V=1A)
G	EARTH

NOTE: the use of above metallic connectors is strongly recommended in order to fulfill EMC requirements

**2.2 FIELDBUS CONNECTORS**

- Remove fieldbus connectors caps P3
- Select fieldbus connectors according to valve code and proceed with wirings operations

**BC, BP**  
**EH**

M12 Coding A Cable diameter 6 ÷ 8 mm  
 M12 Coding B Cable diameter 6 ÷ 8 mm  
 M12 Coding D Cable diameter 4 ÷ 8 mm

BC	BP	EH
1 CAN_SHLD Shield	1 +5V Termination supply signal	1 TX+ Transmitter
2 not used	2 LINE-A Bus line (high)	2 RX- Receiver
3 CAN_GND Signal zero data line	3 DGND Data line - termination signal zero	3 TX- Transmitter
4 CAN_H Bus line (high)	4 LINE-B Bus line (low)	4 RX- Receiver
5 CAN_L Bus line (low)	5 SHIELD	housing SHIELD

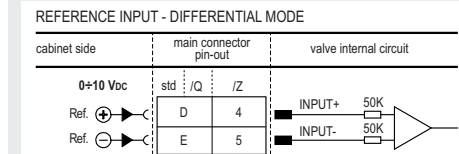
- Connect the valve to the fieldbus network. For information about fieldbus terminators see GS500

**ZM-5PF - 5 pin**  
**ZM-5PM/BP - 5 pin**  
**ZM-4PM/E - 4 pin**  
**ZM-4PM/E - 4 pin**

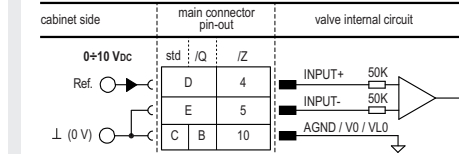
NOTE: the use of above metallic connectors is strongly recommended in order to fulfill EMC requirements

## ELECTRICAL WIRING EXAMPLES

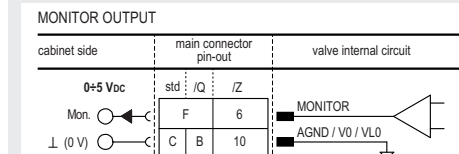
### MAIN CONNECTOR - VOLTAGE



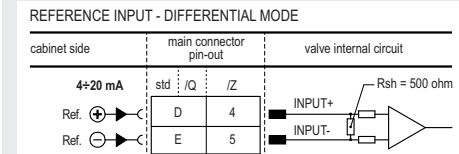
### REFERENCE INPUT - COMMON MODE



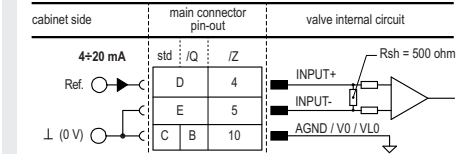
### MAIN CONNECTOR - MONITORS VOLTAGE ONLY



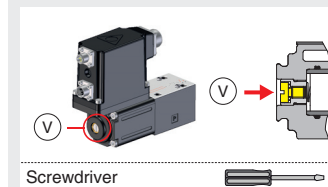
### MAIN CONNECTOR - CURRENT



### REFERENCE INPUT - COMMON MODE

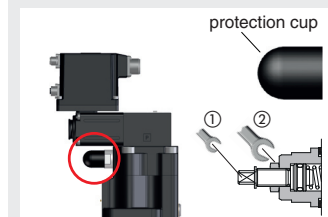


## STEP 3 HYDRAULICS



### Air bleeding:

- release 2 or 3 turns the air bleed screw **V**
- cycle the valve at low pressure until the oil leaking from the **V** port is exempted from air bubbles
- lock the air bleed screw **V**



### Mechanical pressure limiter setting – only AGMZO and AGRCZO with /P option

- For safety reasons the factory setting of the mechanical pressure limiter is fully unloaded (min pressure). At the first commissioning it must be set at a value lightly higher than the max pressure regulated with the proportional control, proceeding as follow:
- apply the max reference input signal to the valve's driver. The system pressure will not increase until the mechanical pressure limiter remains unloaded
  - release the locknut ②, turn clockwise the adjustment screw ① until the system pressure will increase up to a stable value corresponding to the pressure set-point at max reference input signal
  - turn clockwise the adjustment screw ① of additional 1 or 2 turns to ensure that the mechanical pressure limiter remains closed during the proportional valve working, then tighten the locknut ②

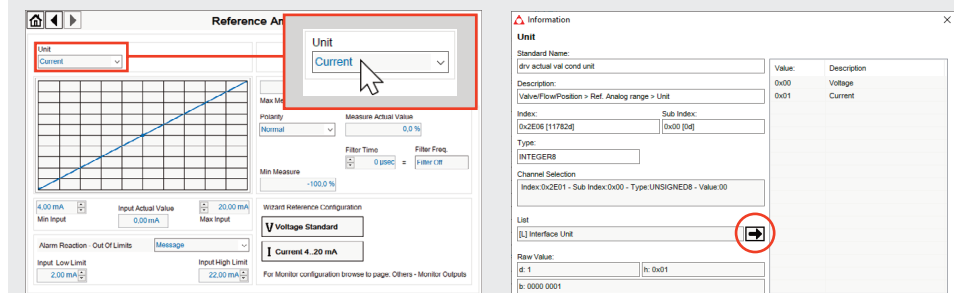
Consult tech table **FS900** for general guidelines about component's commissioning

## HINT ! - Wizard objects dictionary - only for BC, BP, EH

Press **CTRL + H** on the PC keyboard to open the context help form

Move arrow on parameter (e.g. **Unit**) to display the objects dictionary information to access the parameter via fieldbus

If present **List**, press **→** to display values accepted by the parameter



**NOTE:** alternatively right click on any parameter



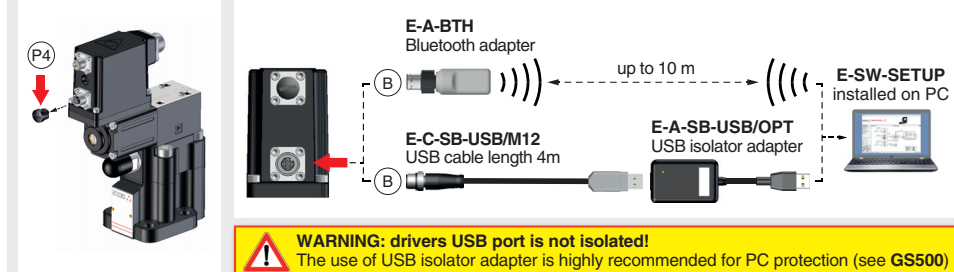
## STEP 4 PC SOFTWARE

**REMARK** proportional valves with on-board electronics are factory preset with default parameters, only few programming operations are mandatory for setup the network parameters and the source of reference signals

Valve programming can be performed through E-SW-SETUP software or via fieldbus

### 4.1 CONNECTION

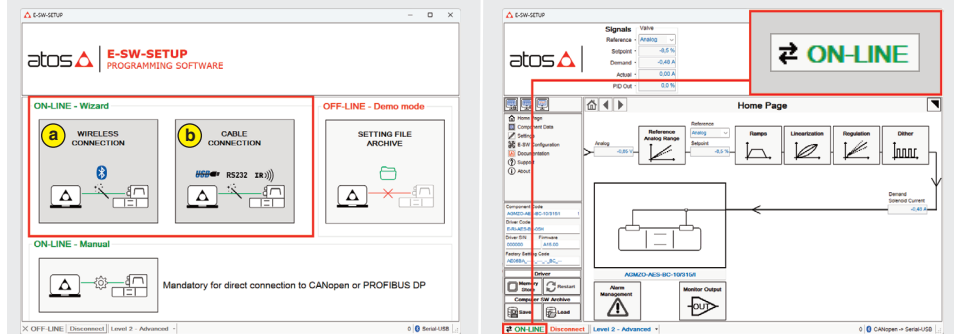
- In order to access valve parameterization:
  - Install E-SW-SETUP software on PC
  - Insert main connector to the valve and power on with 24Vdc
- Remove USB plastic protection cap **P4** and connect valve to the PC as shown below via Bluetooth (adapter only) or USB (cable and isolator adapter)



**WARNING:** drivers USB port is not isolated!  
The use of USB isolator adapter is highly recommended for PC protection (see GS500)

- Launch the PC software using E-SW-SETUP icon:
  - PC software does NOT detect valid connection** communication is not established, please follow wizard procedure
  - PC software detects valid connection** communication automatically established - valve is **ON-LINE** see

- In **ON-LINE** - Wizard press button:
  - a : WIRELESS CONNECTION** Wizard procedure for connection via Bluetooth
  - b : CABLE CONNECTION** Wizard procedure for connection via USB cable



**NOTE:** for more info about E-A-BTH Bluetooth adapter, please refer to STARTUP BLUETOOTH guide

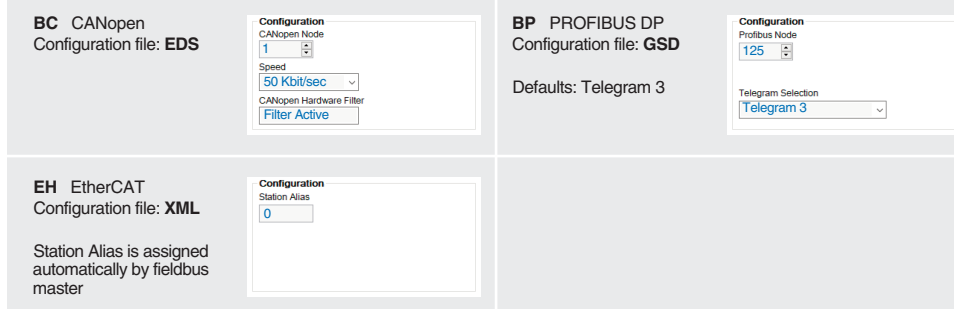
**REMARK:** once removed the E-A-BTH Bluetooth adapter or E-C-SB-USB/M12 USB cable, screw the plastic protection cap **P4** applying the correct tightening torque, in order to preserve valve's IP protection characteristics



### 4.2 FIELDBUS - Network Management

Node, Station Alias, IP Address, Baudrate, etc... can be set through:

- Machine central unit (master)** - please refer to E-MAN-S-\*\* fieldbus protocol programming manual
- E-SW-SETUP**
  - browse to **Network Management - Configuration** to change below default settings:



- press **Memory Store** button and press **Save User Set** button to save new setting into the driver (see 4.4)
- network configuration settings will be applied at next driver power on or pressing the **Restart** button

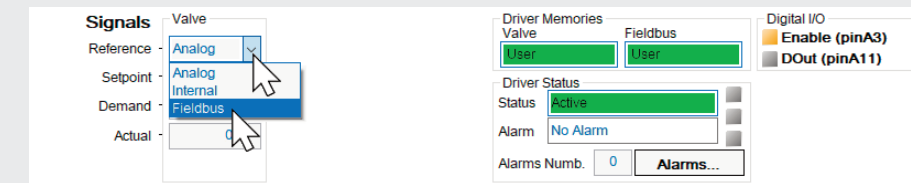
**NOTE:** configuration files are available in MyAtos area - [www.atos.com](http://www.atos.com)

### 4.3 REFERENCES

The source of reference signals for valves with fieldbus:

- is preset as **Analog** by factory default
- can be managed through machine control unit by setting the source from **Analog** to **Fieldbus**

In Valve - Reference select **Fieldbus**



### 4.4 STORE

Parameters modifications will be stored into driver permanent memory:

- press **Memory Store** button to access **Driver - Memory Save** window
- press **Save User Set** button to store **Valve Parameters**

**WARNING:** during valve parameters storing operations, the driver automatically shuts down the solenoid power supply for a short time. Do not perform any storing commands while the system is working.

### 4.5 BACK UP

Parameter modifications will be saved into PC memory:

- press **Save** button to access **Computer SW Archive - Setting Files** page, **Setting File Name** pop-up appears
- input a valid name into **Description** field and press **Ok** button

## STEP 5 MOBILE APP

**ATOS CONNECT** for smartphones and tablets is a free downloadable app which allows quick access to valve main functional parameters and configuration via Bluetooth, thus avoiding physical cable connection and significantly reducing commissioning times.

**ATOS CONNECT** app requirements:

- iOS 14 / Android 9
- Bluetooth Low Energy (BLE), version 4.0 or higher
- Atos digital valves/drivers equipped with E-A-BTH Bluetooth adapter or with built-in Bluetooth



## TROUBLESHOOTING

### Valve vibration or noise

- presence of air in the solenoid; perform air bleeding procedure – see STEP 3
- dither frequency too low; increase value of the frequency – please refer to E-MAN-RI-AES operating manual

### The valve does not follow the reference signal

- valve is powered off, verify presence of 24 Vdc power supply
- valve is disabled, verify presence of 24 Vdc on enable pin - only for /Q and /Z options
- the mechanical pressure limiter interferes with the regulation (AGMZO and AGRCZO with /P option) – check the pressure limiter setting
- spool sticking (RZMO-030 and RZGO-033) – contact Atos service center
- wrong pilot/drain configuration (AGMZO) – check if the pilot/drain configuration of the valve corresponds to the effective system layout

### PC software parameters modifications are lost when valve is switched off

- parameter store operation was not performed, check store procedure – see STEP 4, section 4.4

### PC software parameters modifications have no effect on the valve

- valve is OFF LINE, check connection procedure – see STEP 4, section 4.1

### After the modifications of PC software parameters the valve does not work properly

- restore valve factory parameters using 'Load Factory Set' button, located in 'Driver - Memory Save' window:
  - during restore, the current to the solenoid(s) will be temporarily switched to off!
  - factory parameters will be applied at next driver restart or after power off-on sequence!