

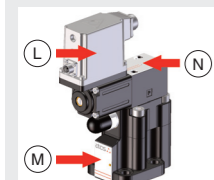
## PROPORTIONAL PRESSURE RELIEF AND REDUCING VALVES

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

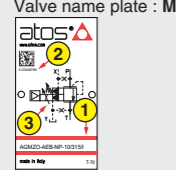
Driver model:  
E-RI-AEB

## IDENTIFICATION

Valve identification plates and label

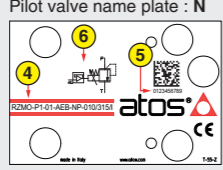


Valve name plate : M



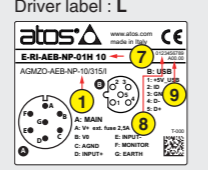
1 : valve code  
2 : valve matrix code  
3 : valve hydraulic symbol

Pilot valve name plate : N









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

Driver label : L








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		IO-Link connector IL
	 and				
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		E-C-SB-USB/M12	E-A-SB-USB/OPT

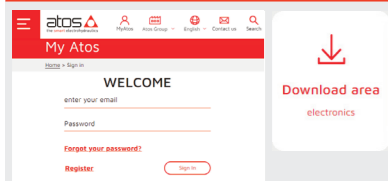
NOTE: Atos CONNECT supports Atos digital valve drivers equipped with E-A-BTH or with built-in Bluetooth, see STEP 5

## PC SOFTWARE

E-SW-SETUP	supports	NP (USB)	IL (IO-Link)	PS (Serial)	IR (Infrared)
		BC (CANopen) EW (POWERLINK)	BP (PROFIBUS DP) EI (EtherNet/IP)	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-AEB	AEB - driver operating manual
FS015	RZGO-010 pressure reducing, direct - tech. table	E-MAN-S-IL	IO-Link protocol programming manual
FS035	AGMZO pressure relief, two stage - tech. table		
FS050	AGRCZO pressure reducing, two stage - tech. table		
FS065	RZMO-030 pressure relief, piloted - tech. table		
FS070	RZGO-033 pressure reducing, piloted - tech. table		
P005	Mounting surfaces - tech. table		
GS500	Programming tools - tech. table		
GS520	IO-Link features - 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.

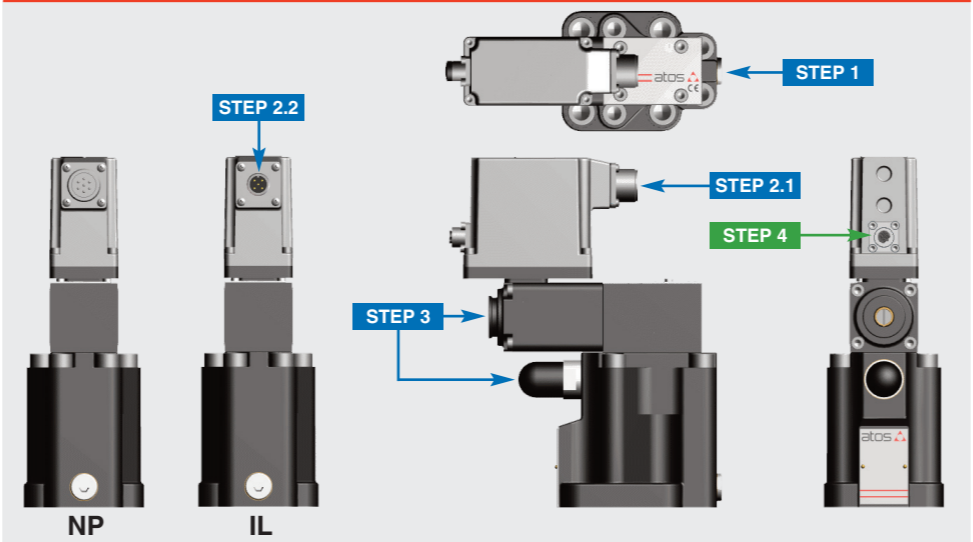
## CONTACT US

Atos spa - Italy - 21018 Sesto Calende

[www.atos.com](http://www.atos.com)

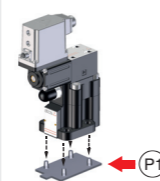
[support@atos.com](mailto:support@atos.com)

## 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

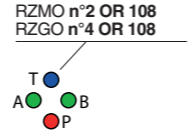
During the flushing operation use on-off or by-pass valves in place of the proportional valve

- 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

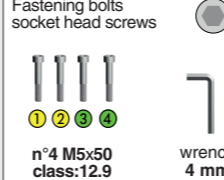
**RZMO-AEB / RZGO-AEB**

Mounting surface layout

4401-03-02-0-05  
(RZMO without A and B ports)  
Valve size ISO 4401: 06



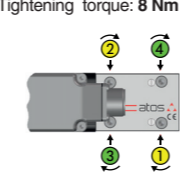
Fastening bolts  
socket head screws



n°4 M5x50  
class:12.9

wrench  
4 mm

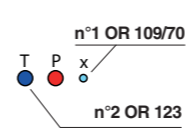
Tightening torque: 8 Nm



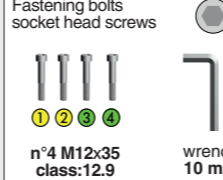
**AGMZO-AEB-10**

Mounting surface layout

6264-06-09-1-97  
Valve size ISO 6264: 10



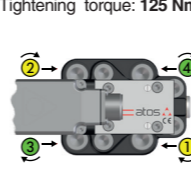
Fastening bolts  
socket head screws



n°4 M12x35  
class:12.9

wrench  
10 mm

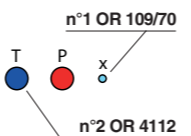
Tightening torque: 125 Nm



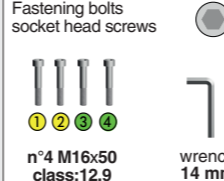
**AGMZO-AEB-20**

Mounting surface layout

6264-08-13-1-97  
Valve size ISO 6264: 20



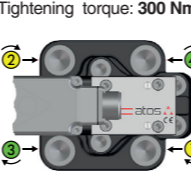
Fastening bolts  
socket head screws



n°4 M16x50  
class:12.9

wrench  
14 mm

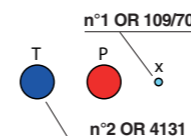
Tightening torque: 300 Nm



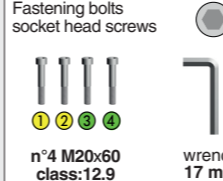
**AGMZO-AEB-32**

Mounting surface layout

6264-10-17-1-97  
Valve size ISO 6264: 32



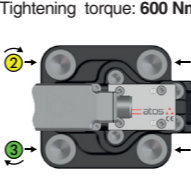
Fastening bolts  
socket head screws



n°4 M20x60  
class:12.9

wrench  
17 mm

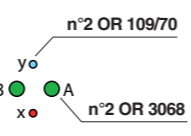
Tightening torque: 600 Nm



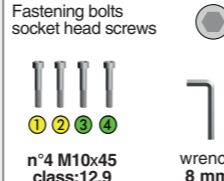
**AGRCZO-AEB-10**

Mounting surface layout

5781-06-07-0-00  
Valve size ISO 5781: 10



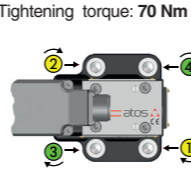
Fastening bolts  
socket head screws



n°4 M10x45  
class:12.9

wrench  
8 mm

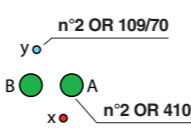
Tightening torque: 70 Nm



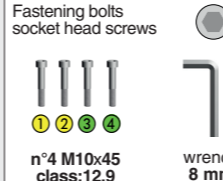
**AGRCZO-AEB-20**

Mounting surface layout

5781-08-10-0-00  
Valve size ISO 5781: 20



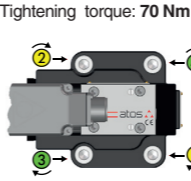
Fastening bolts  
socket head screws



n°4 M10x45  
class:12.9

wrench  
8 mm

Tightening torque: 70 Nm



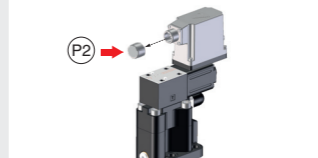
## STEP 2 ELECTRICAL

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 - only for NP

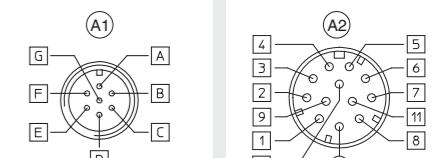
1

Remove main connector cap **P2**



2

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

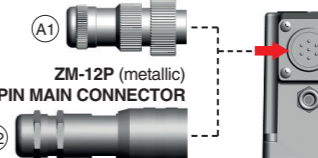


Recommended LiYCY shielded cables:  
7 x 0,75 mm² max 20 m  
7 x 1 mm² max 40 m

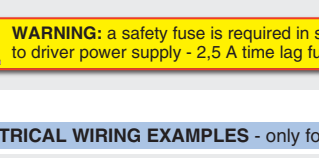
Recommended LiYCY shielded cable:  
12 x 0,75 mm² max 20 m

3

Connect the valve to the system



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



**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

Standard	
A	V+ (power supply 24Vdc)
B	V0 (power supply 0Vdc)
C	AGND
D	INPUT+ (0 ÷ 10Vdc / 4 ÷ 20mA)
E	INPUT- (0 ÷ 10Vdc / 4 ÷ 20mA)
F	MONITOR (0 ÷ 5Vdc 1V=1A)
G	EARTH

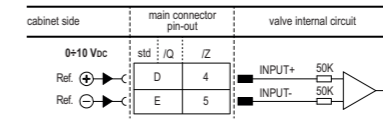
I/Z option	
1	V+ (power supply 24Vdc)
2	V0 (power supply 0Vdc)
3	ENABLE (input 24Vdc)
4	INPUT+ (0 ÷ 10Vdc / 4 ÷ 20mA)
5	INPUT- (0 ÷ 10Vdc / 4 ÷ 20mA)
6	MONITOR (0 ÷ 5Vdc 1V=1A)
7	NC
8	NC
9	VL+ (logic power supply 24Vdc)
10	VLO (logic power supply 0Vdc)
11	FAULT (output 24Vdc)
PE	EARTH

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

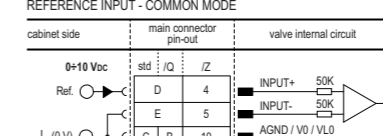
## ELECTRICAL WIRING EXAMPLES - only for NP

**MAIN CONNECTOR - VOLTAGE**

REFERENCE INPUT - DIFFERENTIAL MODE

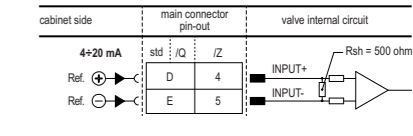


REFERENCE INPUT - COMMON MODE

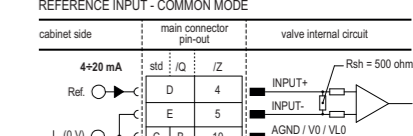


**MAIN CONNECTOR - CURRENT**

REFERENCE INPUT - DIFFERENTIAL MODE

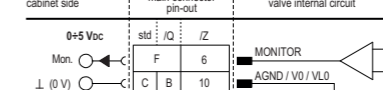


REFERENCE INPUT - COMMON MODE



## MAIN CONNECTOR - MONITORS VOLTAGE ONLY

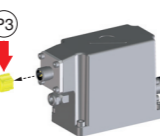
MONITOR OUTPUT



## 2.2 IO-Link CONNECTOR - only for IL

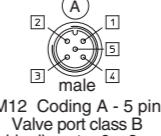
1

Remove IO-Link connector caps **P3**



2

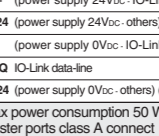
Proceed with wirings operations



M12 Coding A - 5 pin  
Valve port class B  
Cable diameter 6 ÷ 8 mm

3

Connect the valve to the IO-Link network of the system

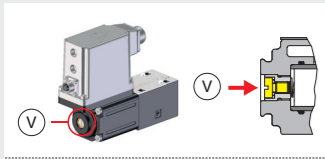


ZM-5PF (metallic)  
5 PIN IO-Link CONNECTOR

1	L+ (power supply 24Vdc - IO-Link)
2	P24 (power supply 24Vdc - others) (1)
3	L- (power supply 0Vdc - IO-Link)
4	CIO IO-Link data-line
5	N24 (power supply 0Vdc - others) (1)

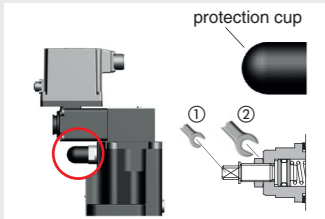
(1) max power consumption 50 W;  
for master ports class A connect P24/N24 to an external power supply

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 setpoint 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

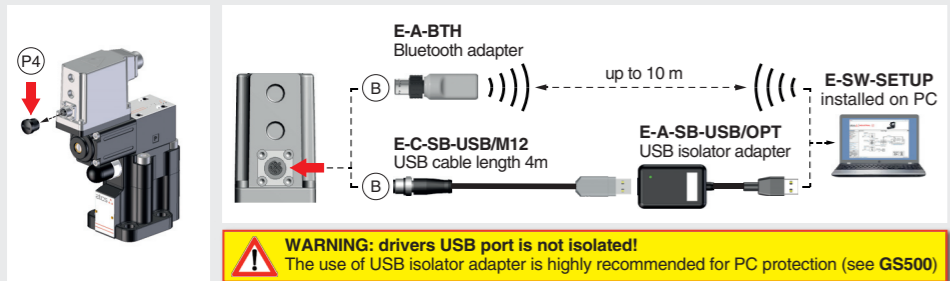
STEP 4 PC SOFTWARE

**REMARK** proportional valves with on-board electronics are factory preset with default parameter and ready to use after piping and electrical connections. **Play with parameters is optional, not mandatory!**

4.1 CONNECTION

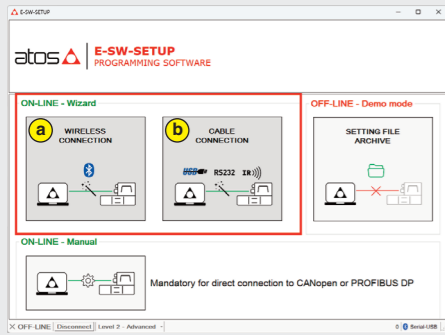
- 1** In order to access valve parameterization:
- Install E-SW-SETUP software on PC
  - Insert main connector or IO-Link connector to the valve and power on with 24V<sub>DC</sub>

- 2** Remove USB plastic protection cap **P4** and connect valve to the PC as show below via Bluetooth (adapter only) or USB (cable and isolator adapter)



- 3** 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 **5**

- 4** 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

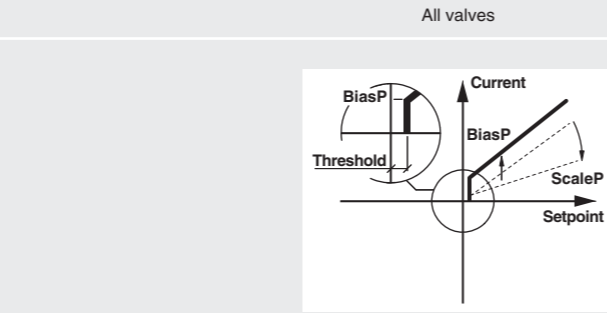


**NOTE:** for more info about E-A-BTH Bluetooth adapter, please refer to STARTUP BLUETOOTH guide

**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 CONFIGURATION



BIAS AND SCALE

- Bias setting:** supply input signal just over the Threshold value
- **relief valves:** increase the Bias until the pressure starts to increase, then lightly reduce the Bias just to bring back the pressure lightly over the minimum regulated value
  - **reducing valves:** increase the Bias until is reached the minimum desired value of starting pressure
- Scale setting:** supply the max input signal; adjust the Scale to obtain the max regulated pressure

RAMPS

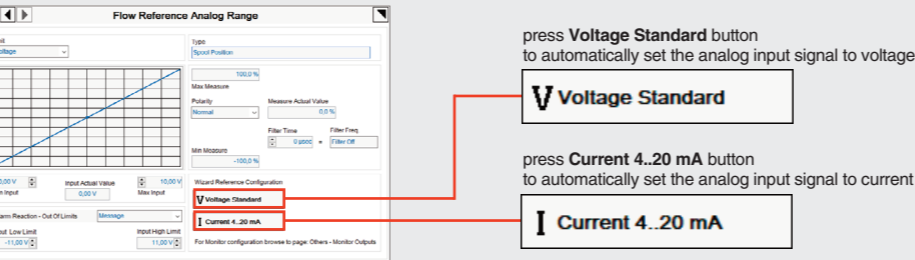
- Ramps setting:** select the required ramp configuration and adjust the ramp time to optimize the pressure response according to the system characteristics
- No Ramp** : no ramps selected
- Single Ramp** : setup **Ramp 1**
- Double Ramp** : setup **Ramp 1** and **2**

DITHER

- Dither setting:** factory default 200 Hz
- lower frequencies reduce the hysteresis of the valve, too low values can affect the valve stability
  - higher frequencies increase regulation stability, but increase also the hysteresis of the valve

WIZARD REFERENCE - E-SW-SETUP - only for NP

Reference input signal is factory preset according to selected valve code, defaults are  $\pm 10$  V<sub>dc</sub> for standard and  $4 \div 20$  mA for /I option. Input signal can be reconfigured via PC software selecting between voltage and current, browsing to **Reference Analog Range** page:



**REMARK:** **Voltage Standard** or **Current 4..20 mA** buttons do not act on Monitor output signal configuration! For Monitor output signal configuration browse to page **Others - Monitor Output**

4.3 STORE

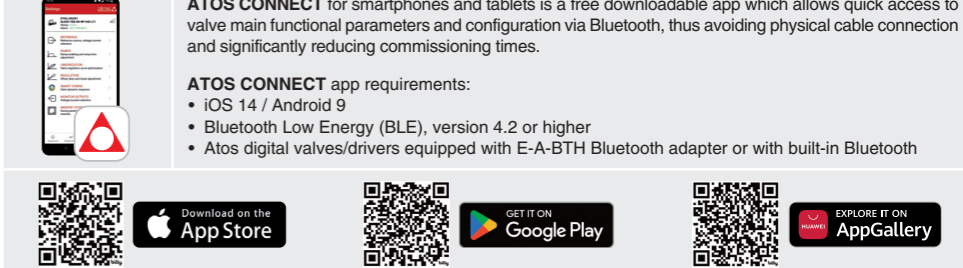
- Parameters modifications will be stored into driver permanent memory:
- press **Memory Store** button to access **Driver - Memory Save** window
  - press **Save User Set** button to store **Valve Parameters**

**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.

4.4 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

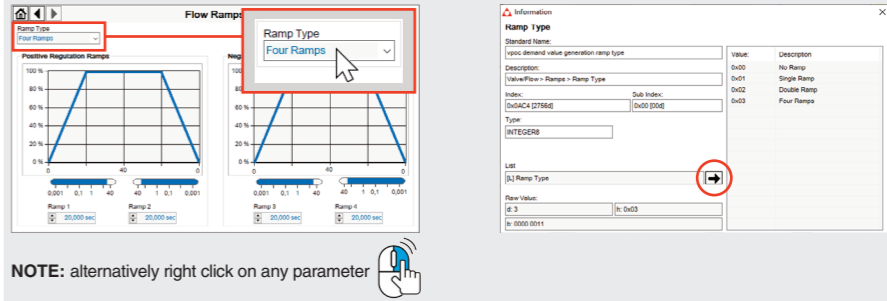


HINT ! - Wizard objects dictionary - only for IL

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

Move arrow on parameter (e.g. **Ramp Type**) to display the objects dictionary information to access the parameter via IO-Link

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



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

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 – see STEP 4.2

- The valve does not follow the reference signal**
- valve is powered off, verify presence of 24 V<sub>dc</sub> power supply
  - valve is disabled, verify presence of 24 V<sub>dc</sub> 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 4.3

- 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!