

PROPORTIONAL PRESSURE CONTROL CARTRIDGES

Valve model:
LICZO-AEB LIMZO-AEB LIRZO-AEB

Driver model:
E-RI-AEB

IDENTIFICATION

Valve identification plates and label

Cartridge name plate : M

Pilot valve name plate : N

Driver label : L

1 : cartridge code
2 : pilot valve code
3 : pilot valve matrix code
4 : pilot hydraulic symbol
5 : driver code
6 : driver serial number
7 : factory firmware version

INSTALLATION TOOLS ACCORDING TO VALVE MODEL- not included

Fastening bolts	Wrenches	Screwdriver	Main connectors
			std, /Q /Z
socket head screws	for fastening bolts mechanical pilot relief	for air bleeding	7 pin - metallic 12 pin - metallic
see STEP 1 and STEP 3			see STEP 2

PROGRAMMING TOOLS - not included

Software	USB connection KIT	OR	Bluetooth connection KIT
	Cable Isolator		Cable Adapter
E-SW-BASIC free basic software download from MyAtos at www.atos.com	E-C-SB-USB/M12 E-A-SB-USB/OPT		E-C-SB-M12/BTH E-A-SB-USB/BTH

PROGRAMMING SOFTWARE

The software is available in different versions according to the driver's options:

E-SW-BASIC	supports NP (USB)	IL (IO-Link)	PS (Serial)	IR (Infrared)
E-SW-FIELDBUS	supports BC (CANopen)	BP (PROFIBUS DP)	EH (EtherCAT)	EW (POWERLINK)
E-SW-*/PQ	supports valves with SP, SF, SL alternated P/Q control	EI (EtherNet/IP)	EP (PROFINET RT/IRT)	

E-SW-FIELDBUS supports also valves without fieldbus communication; E-SW-*/PQ supports also valves without P/Q control

REMARK Atos software is designed for Windows based operative systems - Windows XP SP3 or later

DOWNLOAD AREA

Perform the registration at www.atos.com/en-it/login by filling the form. In MyAtos area, perform login with personal username and password and then press the **Download area electronics** button

Free version of E-SW-BASIC can be downloaded and used by the "FREE Activation Code"

The software remains active for 10 days from the installation date and then it stops until the user inputs the Activation Code

RELATED DOCUMENTATION - www.atos.com - section Catalog on-line

FS900 Operating and maintenance information - tech. table	STARTUP E-SW-BASIC Software startup guide
FS300 LI*ZO cartridges - tech. table	STARTUP BLUETOOTH Bluetooth adpater startup guide
P006 Mounting surface - tech. table	E-MAN-RI-AEB AEB - driver operating manual
GS500 Programming tools - 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 support@atos.com

PRODUCTS OVERVIEW

STEP 1 (Mechanical)

STEP 2 (Electrical)

STEP 3 (Hydraulics)

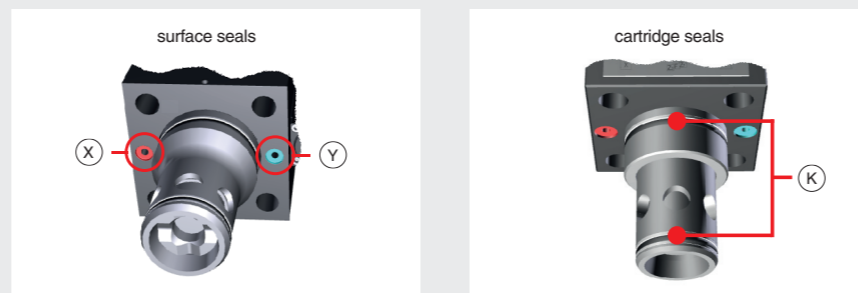
STEP 4 (Software)

INSTALLATION			PROGRAMMING
STEP 1	STEP 2	STEP 3	STEP 4
MECHANICAL	ELECTRICAL	HYDRAULICS	SOFTWARE

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:

- remove the cartridge protection (do not remove connectors caps)
- check the presence and correct positioning of the seals on the mounting surface ports (X - Y) and on the cartridge (K)



- verify that valve mounting surface and the manifold cavity are 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 tightening torque according to valve model

SIZE 16 to 63
mounting surface layout ISO 7368

LIRZO, LICZO, LIMZO

locating pin

n°2 OR

n°4 fastening bolt (supplied with the valve)

SIZE 80
mounting surface layout ISO 7368

LIMZO

locating pin

n°2 OR

n°8 fastening bolt (supplied with the valve)

Type	Size	Pressure limiter	Fastening Bolt class: 12.9	Wrench (mm)	Tightening Torque (Nm)	O-Ring (X - Y)
LIRZO LICZO LIMZO	16	standard	n°4 M8 x 45	6	35	n°2 OR-108
	25	standard	n°4 M12 x 45	10	125	n°2 OR-108
	32	standard	n°4 M16 x 55	14	300	n°2 OR-2043
	40	/P option	n°4 M20 x 70	17	600	n°2 OR-3043
LICZO LIMZO	50	/P option	n°4 M20 x 80	17	600	n°2 OR-3043
LIMZO	63	/P option	n°4 M30 x 90	22	2100	n°2 OR-3050
	80	/P option	n°8 M24 x 90	19	1000	n°2 OR-4075

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

1 Remove main connector cap P2

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

3 Connect the valve to the system

ZM-7P (metallic) 7 PIN MAIN CONNECTOR

ZM-12P (metallic) 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

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

ELECTRICAL WIRING EXAMPLES

MAIN CONNECTOR - VOLTAGE

REFERENCE INPUT - DIFFERENTIAL MODE

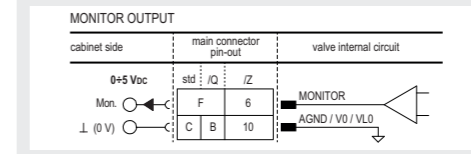
REFERENCE INPUT - COMMON MODE

MAIN CONNECTOR - CURRENT

REFERENCE INPUT - DIFFERENTIAL MODE

REFERENCE INPUT - COMMON MODE

MAIN CONNECTOR - MONITORS VOLTAGE ONLY



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 LIRZO, LICZO, LIMZO sizes 16, 25, 32 and /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 SOFTWARE

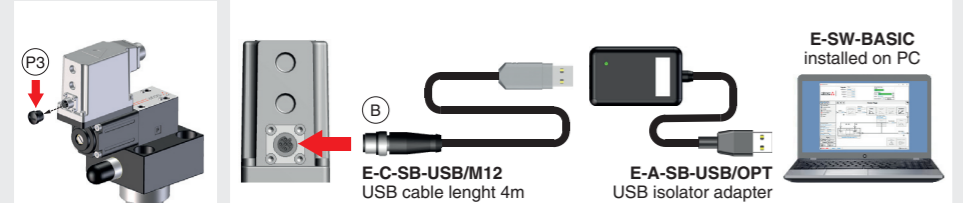
REMARK proportional valves with integral electronics are factory preset with default parameter and ready to use after piping and electrical connections. **Play with parameters is optional, not mandatory!**

PROGRAMMING			PC
4.1	4.2	4.3	4.4
CONNECTION	CONFIGURATION	STORE	BACK UP

4.1 CONNECTION

- In order to access valve parameterization:
 - Install E-SW-BASIC software on PC
 - Insert main connector to the valve and power on with 24Vdc

- Remove USB plastic protection cap **P3** and connect valve to the PC as shown below

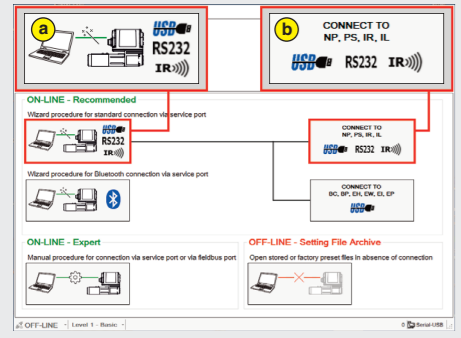


WARNING: drivers USB port is not isolated!
The use of USB isolator adapter is highly recommended for PC protection (see GS500)

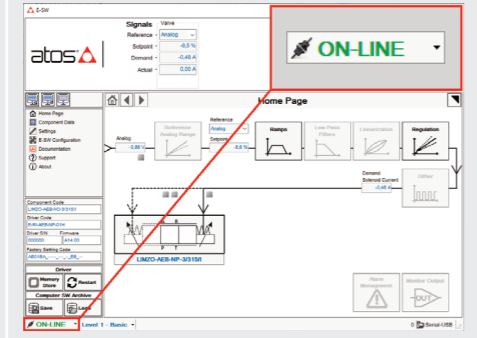
- Launch the software using E-SW icon:
 - software does NOT detect valid connection communication is not established, please follow wizard procedure
 - software detects valid connection communication automatically established - valve is ON-LINE see



- Press buttons according the below sequence:
 - a** : ON-LINE - Recommended Wizard procedure for standard connection
 - b** : CONNECT TO NP, PS, IR, IL

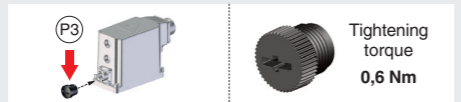


- Communication established, valve is ON-LINE and it is possible change parameters



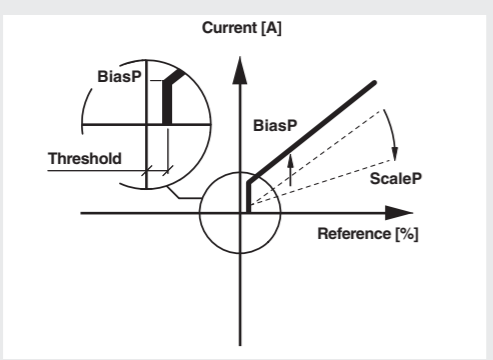
NOTE: Bluetooth adapter available!
For more info please refer to STARTUP BLUETOOTH guide

REMARK: once removed the USB cable E-C-SB-USB/M12, screw the plastic protection cap **P3** applying the correct tightening torque, in order to preserve valve's IP protection characteristics



4.2 CONFIGURATION

All valves



BiasP positive bias
ScaleP positive scale
Threshold = 2%
(200mV or 0,32mA for /I option)

BIAS AND SCALE

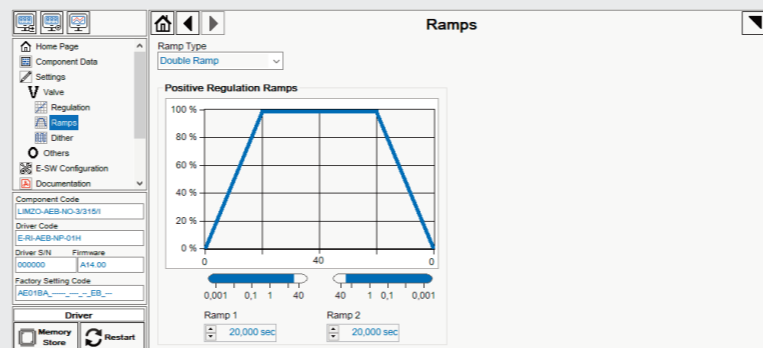
- Bias setting:** supply the input signal equal to 0%
- relief valves:** increase the Bias until the pressure starts to increase, then lightly reduce the Bias just to bring back the pressure lightly over the minimum regulated value
 - reducing valves:** increase the Bias until is reached the minimum desired value of starting pressure
- Scale setting:** supply the max input signal; adjust the Scale to obtain the max regulated pressure



RAMPS

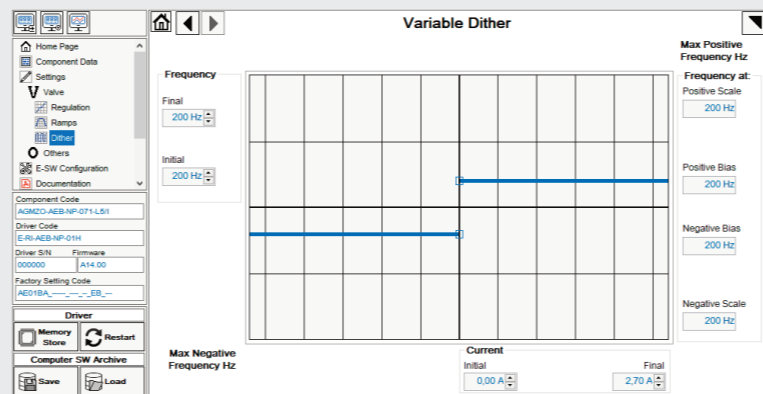
Ramps setting: select the required ramp configuration and adjust the ramp time to optimize the pressure response according to the system characteristics

- No Ramp: no ramps selected Single Ramp: setup Ramp 1 Double Ramp: setup Ramp 1 and 2



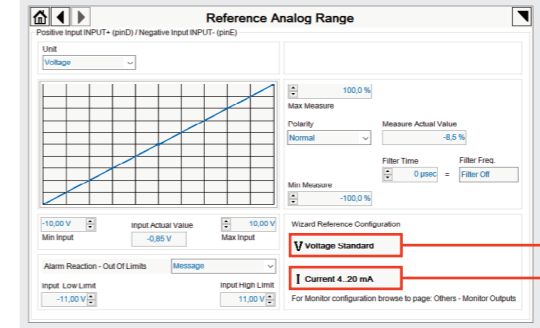
DITHER

- 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 level 2 functionality

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, browsing to **Reference Analog Range** page:



press **Voltage Standard** button to automatically set the analog input signal to voltage

press **Current 4..20 mA** button to automatically set the analog input signal to current

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 Outputs**

4.3 STORE

Parameters modifications will be stored into driver permanent memory:

- press **Memory Store** button to access **Driver - Memory Store** window
- press **Store User** 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

TROUBLESHOOTING

- Valve vibration or noise**
- presence of air in the solenoid; perform air bleeding procedure – see STEP 3
- 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 (only LIRZO, LICZO, LIMZO sizes 16, 25, 32 and /P option) – check the pressure limiter setting
 - poppet sticking – contact Atos service center
- 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
- Software parameters modifications have no effect on the valve**
- valve is OFF LINE, check connection procedure – see STEP 4, section 4.1
- After the modification of valve parameters, the valve doesn't match the desired behavior**
- restore factory default settings pressing 'Restore Factory' button, located in 'Driver - Memory Store' window:
 - during restore, the current to the solenoid(s) will be temporarily switched off!
 - factory parameters will be applied at next driver restart or after power off-on sequence!