

PROPORTIONAL PRESSURE REDUCING VALVES

Valve model:
DHRZO-AES

Driver model:
E-RI-AES

IDENTIFICATION

Valve identification plates and label

Valve name plate : N

Driver label : L

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

4 : driver code
5 : driver serial number
6 : factory firmware version

INSTALLATION TOOLS ACCORDING TO VALVE MODEL- not included

Fastening bolts	Wrenches	Main connectors		Fieldbus connectors		
		std./Q	/Z	BC	BP	EH
socket head screws	for fastening bolts and 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	
		Adapter		Cable	Isolator
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) BC (CANopen) EW (POWERLINK) supports valves with SP, SF, SL alternated p/Q control	IL (IO-Link) BP (PROFIBUS DP) EI (EtherNet/IP)	PS (Serial) EH (EtherCAT) EP (PROFINET RT/IRT)	IR (Infrared)
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REMARK Atos PC software is designed for Windows based operative systems - Windows 10 or later

PC SOFTWARE DOWNLOAD

atos

My Atos

WELCOME

enter your email

Password

Forgot your password?

Register

Download area

electronics

Download PC software at www.atos.com accessing to "MyAtos -> Download area electronics"

Free registration by filling the form at 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
FS025	DHRZO 3-way reducing - tech. table	E-MAN-RI-AES	AES - driver operating manual
P005	Mounting surface - tech. table	E-MAN-S-BC	CANopen protocol programming manual
GS500	Programming tools - tech. table	E-MAN-S-BP	PROFIBUS DP protocol programming manual
GS510	Fieldbus - tech. table	E-MAN-S-EH	EtherCAT protocol programming manual
K800	Electric and electronic connectors - tech. table		

PRODUCTS OVERVIEW

EH

STEP 2.2

STEP 4

BP

STEP 2.2

STEP 4

STEP 1

STEP 3

STEP 2.1

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

DHRZO-AES

Mounting surface layout

4401-03-02-0-05
4401-03-03-0-05 (for /Y without X port)
Valve size ISO 4401: 06

n°1 OR 2025 (for option /Y)

n°4 OR 108

Fastening bolts
socket head screws

n°4 M5x50
class:12.9

wrench
4 mm

Tightening torque: 8 Nm

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

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

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

WARNING: remove power supply before any electrical or wiring operations

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

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

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

2.2 FIELDBUS CONNECTORS

1

Remove fieldbus connectors caps **P3**

2

Select fieldbus connectors according to valve code and proceed with wirings operations

3

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

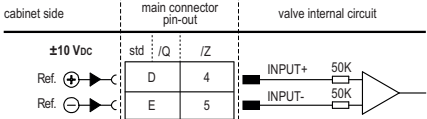
BC	BP	EH
1 CAN_SHLD Shield	1 +5V Termination supply signal	1 TX+ Transmitter
2 not used	2 LINE-A Bus line (high)	2 RX- Receiver
3 CAN_GND Signal zero data line	3 DGND Data line - termination signal zero	3 TX- Transmitter
4 CAN_H Bus line (high)	4 LINE-B Bus line (low)	4 RX- Receiver
5 CAN_L Bus line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

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

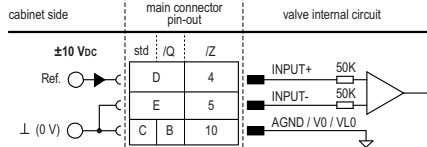
ELECTRICAL WIRING EXAMPLES

MAIN CONNECTOR - VOLTAGE

REFERENCE INPUT - DIFFERENTIAL MODE

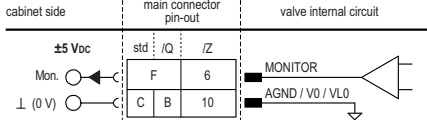


REFERENCE INPUT - COMMON MODE



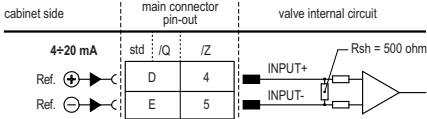
MAIN CONNECTOR - MONITORS VOLTAGE ONLY

MONITOR OUTPUT

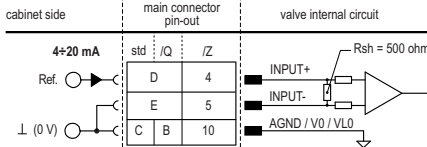


MAIN CONNECTOR - CURRENT

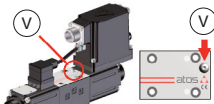
REFERENCE INPUT - DIFFERENTIAL MODE



REFERENCE INPUT - COMMON MODE



STEP 3 HYDRAULICS



Wrenches types

DHRZO

3 mm

Tightening torque

4 Nm

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**

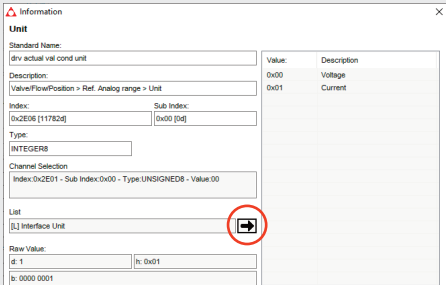
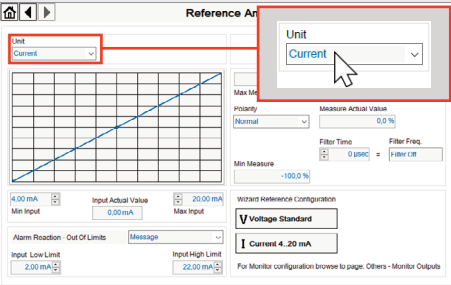
NOTE: to facilitate bleeding operations, apply a light backpressure (1 or 2 bar) on T port by adding a check valve on T line
Consult tech table **FS900** for general guidelines about component's commissioning

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

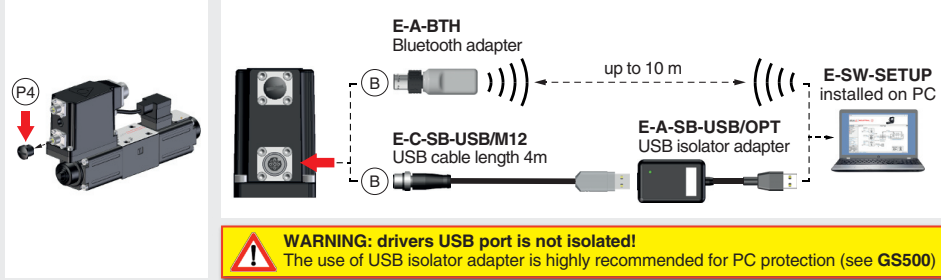
Valve programming can be performed through E-SW-SETUP software or via fieldbus

4.1 CONNECTION

1 In order to access valve parameterization:

- Install E-SW-SETUP software on PC
- Insert main connector to the valve and power on with **24Vdc**

2 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)



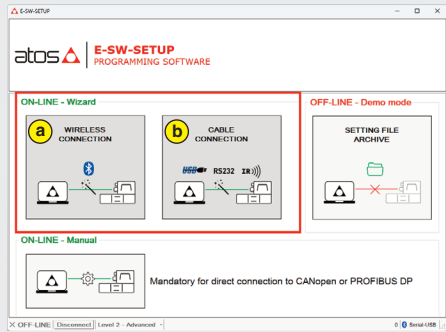
3 Launch the PC software using E-SW-SETUP icon:

- **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



4 In **ON-LINE** - Wizard press button:

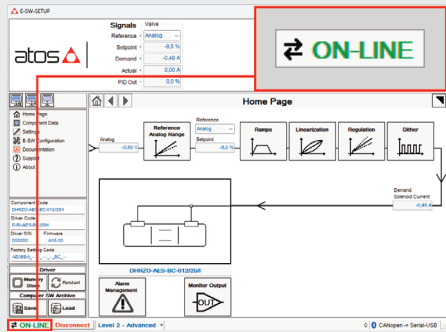
- a) : WIRELESS CONNECTION**
Wizard procedure for connection via Bluetooth
- b) : CABLE CONNECTION**
Wizard procedure for connection via USB cable



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

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

- NOTE:** please also refer to the following parameter settings:
- see step 4.2 to change the network setup
- see step 4.3 to change the reference signals setup



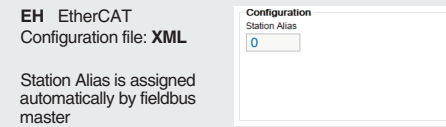
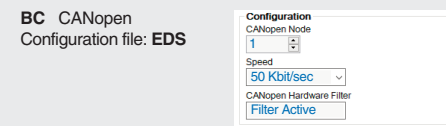
REMARK: once removed the E-A-BTH Bluetooth adapter or E-C-SB-USB/M12 USB cable, screw the plastic protection cap **P4** applying the correct tightening torque, in order to preserve valve's IP protection characteristics



4.2 FIELDBUS - Network Management

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

- 1) **Machine central unit (master)** - please refer to E-MAN-S-** fieldbus protocol programming manual
- 2) **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

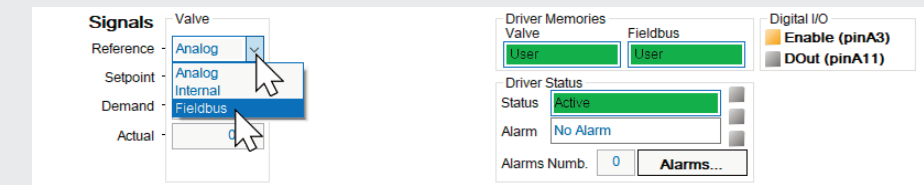
NOTE: configuration files are available in MyAtos area - www.atos.com

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**

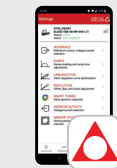
WARNING: during valve parameters storing operations, the driver automatically shuts down the solenoid power supply for a short time. Do not perform any storing commands while the system is working.

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 4.2 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
- flow/pressure values exceeding the valve's performance limits, verify that hydraulic operating conditions are in compliance with the valve's characteristics
- big hysteresis or spool stick-slip, reduce the dither frequency
- spool sticking, contact Atos service center

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!