

DIRECT OPERATED PROPORTIONAL DIRECTIONAL AND FLOW VALVES

Valve model:
DHZO-AES QVHZO-AES
DKZOR-AES QVKZOR-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

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			Transducer cable
		std./Q	/Z, /W	BC	BP	EH	/W
see STEP 1 and STEP 3		see STEP 2.1		see STEP 2.2			see STEP 2.3

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)	IL (IO-Link)	PS (Serial)	IR (Infrared)
		BC (CANopen)	BP (PROFIBUS DP)	EH (EtherCAT)	
		EW (POWERLINK)	EI (EtherNet/IP)	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

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
FS160 DHZO, DKZOR positive spool overlap - tech. table	E-MAN-RI-AES AES - driver operating manual
FS410 QVHZO, QVKZOR flow controls - tech. table	E-MAN-S-BC CANopen protocol programming manual
P005 Mounting surface - tech. table	E-MAN-S-BP PROFIBUS DP protocol programming manual
GS500 Programming tools - tech. table	E-MAN-S-EH EtherCAT protocol programming manual
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.

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PRODUCTS OVERVIEW

EH

BP BC

STEP 1

STEP 2.2

STEP 4

STEP 2.3

STEP 2.1

STEP 2.2

STEP 2.3

STEP 4

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

DHZO-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)
 T, A, B, P, n°4 OR 108
 Fastening bolts socket head screws
 Tightening torque: 8 Nm
 n°4 M5x50 class:12.9
 wrench 4 mm

DKZOR-AES
 Mounting surface layout
 4401-05-04-0-05
 4401-05-05-0-05 (for /Y without X port)
 Valve size ISO 4401: 10
 n°1 OR 108 (for option /Y)
 P, A, B, T, n°5 OR 2050
 Fastening bolts socket head screws
 Tightening torque: 15 Nm
 n°4 M6x40 class:12.9
 wrench 5 mm

QVHZO-AES
 Mounting surface layout
 4401-03-02-0-05
 Valve size ISO 4401: 06
 T, A, B, P, n°4 OR 108
 Fastening bolts socket head screws
 Tightening torque: 8 Nm
 n°4 M5x50 class:12.9
 wrench 4 mm

QVKZOR-AES
 Mounting surface layout
 4401-05-04-0-05
 Valve size ISO 4401: 10
 P, A, B, T, n°5 OR 2050
 Fastening bolts socket head screws
 Tightening torque: 15 Nm
 n°4 M6x40 class:12.9
 wrench 5 mm

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

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

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

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

2.2 FIELDBUS CONNECTORS

1 Remove fieldbus connectors caps **P3**

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

male
M12 Coding A
Cable diameter 6 ÷ 8 mm

female
M12 Coding B
Cable diameter 6 ÷ 8 mm

female - IN
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

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

BC
ZM-5PF - 5 pin
C1

BP
ZM-5PM/BP - 5 pin
C2

EH
ZM-4PM/E - 4 pin
C3
ZM-4PM/E - 4 pin
C4

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

2.3 REMOTE TRANSDUCER CONNECTOR - only for /W option

1 Remove transducer connector cap **P4**

2 Proceed with wirings operations

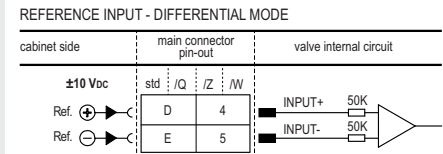
Recommended cable:
3 x 0,25 mm²

3 Connect the valve to the transducer

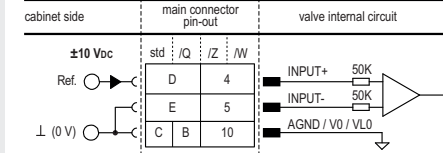
ZH-5PM/5 - 1.5 m length
ZH-5PM/5 - 5 m length
5 pin plastic - single cable

ELECTRICAL WIRING EXAMPLES

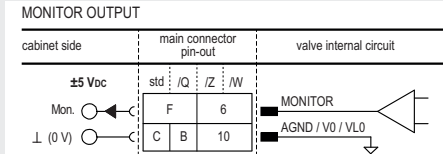
MAIN CONNECTOR - VOLTAGE



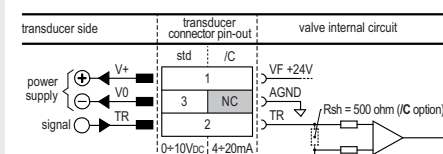
REFERENCE INPUT - COMMON MODE



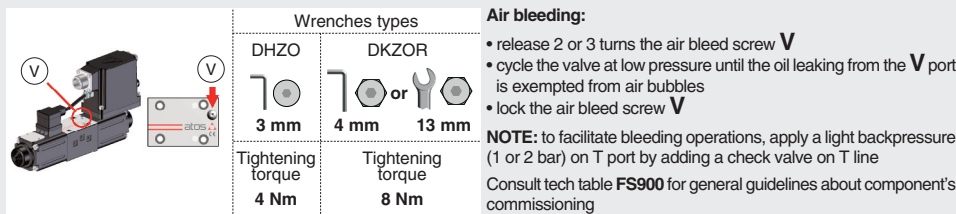
MAIN CONNECTOR - MONITORS VOLTAGE ONLY



REMOTE TRANSDUCER - only for /W option



STEP 3 HYDRAULICS

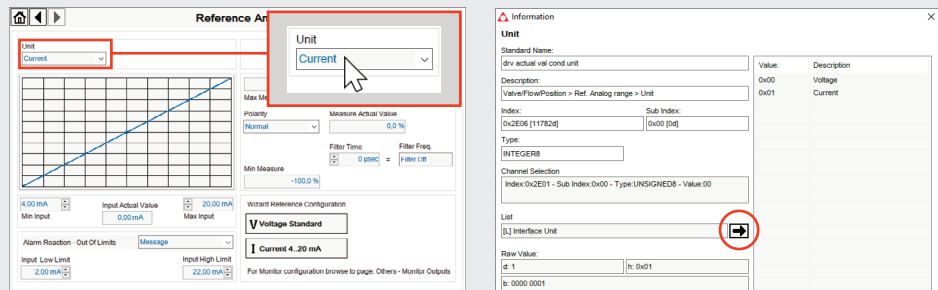


HINT ! - Wizard objects dictionary - only for BC, BP, EH

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

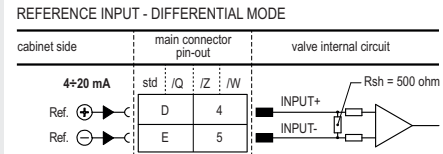
Move arrow on parameter (e.g. **Unit**) to display the objects dictionary information to access the parameter via fieldbus

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

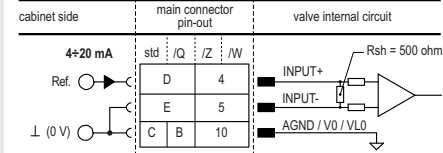


NOTE: alternatively right click on any parameter

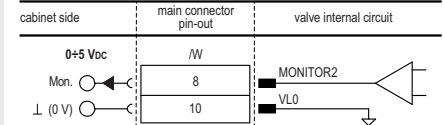
MAIN CONNECTOR - CURRENT



REFERENCE INPUT - COMMON MODE



MONITOR2 OUTPUT - only for /W option



STEP 4 PC SOFTWARE

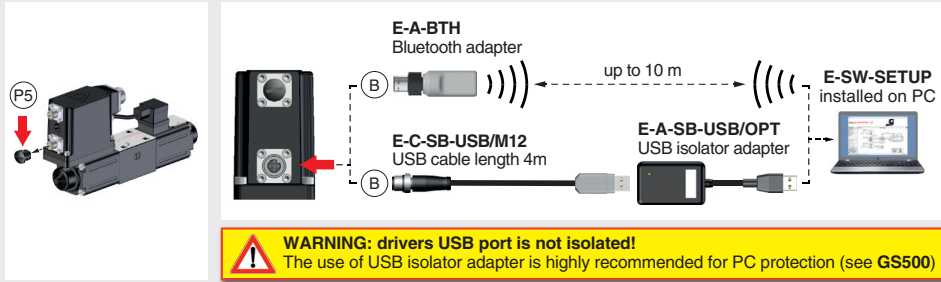
REMARK proportional valves with on-board electronics are factory preset with default parameters, only few programming operations are mandatory for:

- setup the network parameters and the source of reference signals
- setup the feedback's scale for remote transducers only for /W option; please refer the E-MAN-RI-AES manual

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

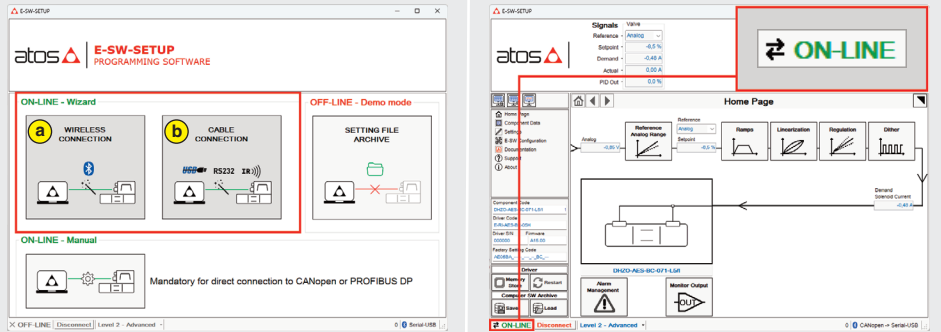
4.1 CONNECTION

- 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 **P5** and connect valve to the PC as shown below via Bluetooth (adapter only) or USB (cable and isolator adapter)



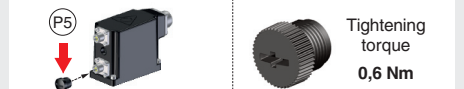
- Launch the PC software using E-SW-SETUP icon:
 - **PC software does NOT detect valid connection** communication is not established, please follow wizard procedure
 - **PC software detects valid connection** communication automatically established - valve is **ON-LINE** see

- 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

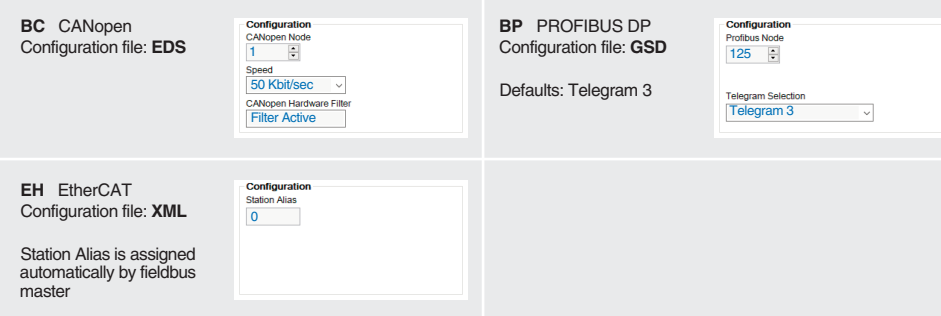
REMARK: once removed the E-A-BTH Bluetooth adapter or E-C-SB-USB/M12 USB cable, screw the plastic protection cap **P5** applying the correct tightening torque, in order to preserve valve's IP protection characteristics



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:

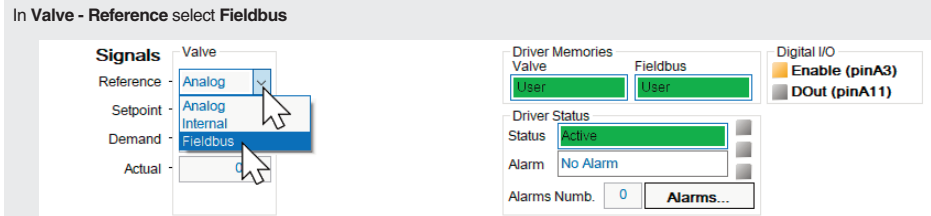


- press **Memory Store** button and press **Save User Set** button to save new setting into the driver (see 4.4)
 - network configuration settings will be applied at next driver power on or pressing the **Restart** button
- NOTE:** configuration files are available in MyAtos area - www.atos.com

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**



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**

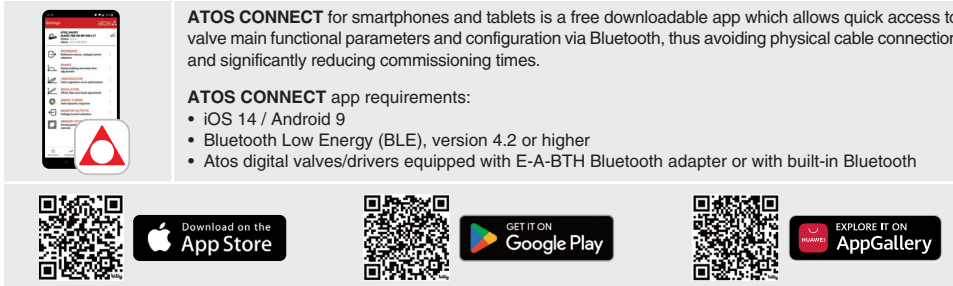
WARNING: during valve parameters storing operations, the driver automatically shuts down the solenoid power supply for a short time. Do not perform any storing commands while the system is working.

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, /Z and /W 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!