

IDENTIFICATION



INSTALLATION TOOLS



PROGRAMMING TOOLS - not included



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) EW (POWERLINK)	BP (PROFIBUS DP) EI (EtherNet/IP)	EH (EtherCAT) EP (PROFINET RT/IRT)	
E-SW-*/PQ supports drivers with SP, SF, SL alternated P/Q control						

E-SW-FIELDBUS supports also drivers without fieldbus communication; E-SW-*/PQ supports also drivers without P/Q control REMARK Atos software is designed for Windows based operative systems - Windows XP SP3 or later

DOWNLOAD AREA



RELATED DOCUMENTATION - www.atos.com - section Catalog on-line				
FS900	Operating and maintenance information - tech. table	STARTUP E-SW-	BASIC Software startup guide	
F***	High performance pressure valves tech. table	STARTUP E-SW-	FIELDBUS Software startup guide	
P005	Mounting surface - tech. table	E-MAN-BM-RES	RES - driver operating manual	
GS203	E-BM-RES drivers - 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			



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

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PRODUCTS OVERVIEW	
	STEP 2.2 STEP 2.2 STEP 3

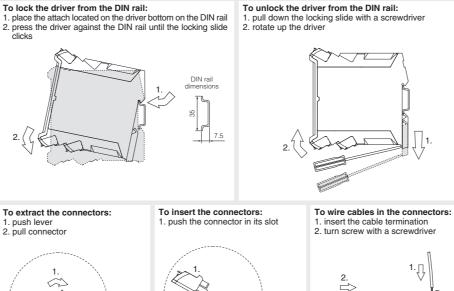


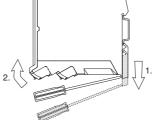
INSTAL	PROGRAMMING		
STEP 1	STEP 2	STEP 3	
MECHANICAL	ELECTRICAL	SOFTWARE	
MECHANICAL	ELECTRICAL	SOFTWARE	

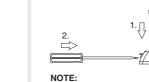
STEP 1 MECHANICAL

(B)

(A)







max conductor size 2,5 mm² tightening torque 0,4 ÷ 0,6 Nm

NOTE: all connectors are supplied with a mechanical coding. This feature ensures a unique insertion of each connector in the own slot (e.g. connector A can not be inserted into connector slot of B,C,E,F,G,H)

STEP 2 ELECTRICAL

This section considers the diffe The electrical connections hav WARNING: remove electrical or wiring ope

2.1 CONNECTORS

Power supply					
	1	V+ (pow	er supply 24Voc)		
Λ 2	V0 (pow	er supply 0Vbc)			
~	3	VL+ (pow	er supply 24Vbc)		
	4	VL0 (pow	er supply 0Vbc)		
		I	Enable and fault signals		
	1	ENABLE	(input 24Vbc)		
D	2	FAULT	(output 24Vbc)		
	3	VL0	(ground for ENABLE and FAULT)		
	4	EARTH			
			Solenoid		
	1	SOL_S1-	(negative current to solenoid S1)		
С	2	SOL_S1+	(positive current to solenoid S1)		
	3	NC			
	4	NC			



BC (DB9 - 9 pin) CAN L Busline (low) CAN_GND Signal zero data line CAN_SHLD Shield 7 CAN_H Bus line (high)

REFERENCE INPUT - VOLTAGE				
DIFFERENTIAL MOD	DIFFERENTIAL MODE			
cabinet side	F connector pin-out			
0÷10 Vpc				
Ref. 🛨 🔶 🖉	F2	0 P		
Ref. 🕞 🔶 🛷	F3	0		
		:		

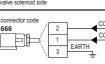
COMMON MODE	
cabinet side	F, G connect pin-out
0÷10 Vpc	
Ref. 🔿 🔶 🛷	F2
	F3
⊥ (0 V) ⊖+⊘	G2

MONITOR OUTPUT - VOLTAGE

MONITOR OUTPUT	
cabinet side	G connector p
0÷10 Vpc	
Mon. 🔾 🔶 🖉	G4
⊥ (0 V) OØ	G2

SOLENOID

01H SINGLE SOLENOID valve solenoid side



7	8	
		2.



(G)

H

DIFFERENTIAL MODE				
cabinet side	F connector pi			
0÷10 Vpc				
Ref. 🛨 🔶 🖉	F2			
Ref. 🕞 🔶 🖉	F3			

rent drivers executions, illustrating the multiple variants of the available electrical connections. e to be wired according to the selected driver code			
ower supply before any	WARNING: a safety fuse is required in series		
erations	to driver power supply - 2,5 A time lag fuse		

Recommended LiYCY shielded cables: 0,5 mm² max 50 m - for logic - 1,5 mm² max 50 m - for power supply and solenoids

	Pressure transducer				
	1	VF +24V (power supply 24Vbc)			
E	2	TR+ (4 ÷ 20mA)			
	3	NC			
	4	AGND (ground for transducer and potentiometer)			
	Valve signal and potentiometer power supply				
	1	+5V_REF (power supply +5Vbc)			
F	2	P_INPUT+ (0 ÷ 10Vpc / 4 ÷ 20mA)			
•	3	INPUT- (negative reference for P_INPUT+)			
	4	-5V_REF (power supply -5Vbc)			
		Monitor signals			
	1	EARTH			
G	2	AGND (ground for P_MONITOR and potentiometer)			
	3	NC			
	4	P_MONITOR (0 ± 10Vpc / 4 ÷ 20mA)			
Digital inputs					
	1	VL0 (power supply 0Vbc for digital input)			
H	2	D_IN1 (input 24Vbc)			
	3	D_IN0 (input 24Vbc)			
	4	VL+ (power supply 24Vbc for digital input)			

2.2 FIELDBUS CONNECTORS - only for BC, BP, EH

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

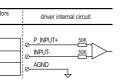


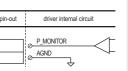


	BP (DB9 - 9 pin)			EH (RJ45 - 8 pin)		
	1	SHIELD		1	TX+	Transmitter
ie	3	LINE-B Bus line (low)		2	RX-	Receiver
	5	DGND Data line - termination signal zero		3	тх-	Transmitter
	6	+5V Termination supply signal		6	RX-	Receiver
	8	LINE-A Bus line (high)	1			

ELECTRICAL WIRING EXAMPLES FOR INDUSTRIAL VALVES - for Ex-Proof valves please refer to relevant tech. tables **REFERENCE INPUT - CURRENT**

out	driver internal circuit		
	0 P_INPUT+ 50K 0 INPUT- 50K		





DIFFERENTIAL MODE

	-	
cabinet side	F connector pin-out	driver internal circuit
4÷20 mA Ref. ⊕ → ⊘ Ref. ⊖ → ⊘		P_INPUT+ 50K NPUT- 50K

COMMON MODE cabinet side driver internal circuit pin-ou 4÷20 mA Rsh = 500 ohm P_INPUT+ 50K Ref. 🔿 🔶 F2 INPUT-<u>1 50K</u> F3 AGND $\pm 000 \bigcirc$ G2

MONITOR OUTPUT - CURRENT

MONITOR OUTPUT

MONITOR OUTFUT		
cabinet side	G connector pin-out	driver internal circuit
4÷20 mA		
Mon. O	G4	
1 (0 V) O To	G2	AGND
Rmax = 500 ohm		. ~

PRESSURE TRANSDUCER - ONLY CURRENT

PRESSURE TRANSDUCER E-ATR-8 transducer side driver ector code CONNECTOR CI ZBE-08 E1 **F** TR+ E2 4÷20mA

	C connector pin-out	driver signals
Ľ_0	C1	© <u>SOL_S1-</u>
Ľ_0	C2	© <u>SOL_S1+</u>

STEP 3 SOFTWARE

3.1

1

2

3

4

N-LINE - Rec

3.1 CONNECTION

atos \Lambda

In order to access valve parameterization:

Connect driver to the PC as shown below

Install E-SW software on PC

REMARK off-board drivers are factory preset with default parameters, only few programming operations are mandatory for setup the network parameters and the source of reference signals

Complete the electrical installation and power on the driver with 24Vpc

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

PROGRAMMING

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CONNECTION CONFIGURATION FIELDBUS REFERENCES SMART TUNING STORE BACK UP

3.3

BIAS, SCALE AND RAMPS Bias setting: supply the input signal equal to 0 bar

PC

3.7

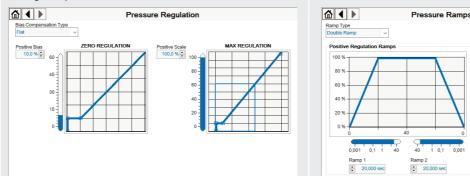
3.6

3.5

• 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

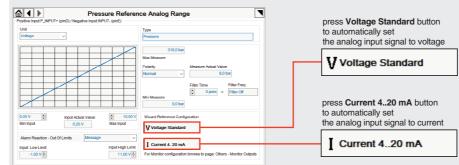
· reducing valves: increase the Bias until is reached the minimum desired value of starting pressure

Scale setting: supply the max input signal; adjust the Scale to obtain the max regulated pressure



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 /l option. Input signal can be reconfigured via 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 Outputs

3.3 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 software • switch to Level 2 - Advanced and browse to Network Management - Configuration to change below default settings:

BC CANopen Configuration file: EDS	Configuration CAtopen Node 1 Speed 50 Kbit/sec ~ CAtopen Hardware Filter Filter Active	BP PROFIBUS DP Configuration file: GSD Defaults: Telegram 3	Configuration Profitous Node 125 😨 Telegram Selection Telegram 3 🗸
EH EtherCAT Configuration file: XML Station Alias is assigned	Configuration Station Alias 0		

automatically by fieldbus

• press Memory Store button and in Fieldbus Parameters press Store User button to save new setting into the driver (see 3.6)

• network configuration settings will be applied at next driver power-on or pressing the Restart button

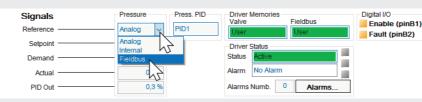
NOTE: configuration files are available in USB memory stick of the software or in MyAtos area - www.atos.com

3.4 REFERENCES - only for BC, BP, EH

- 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 Pressure - Reference select Fieldbus



Ramps setting: select the required ramp

configuration and adjust the ramp time to

to the system characteristics

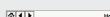
No Ramp: no ramps selected

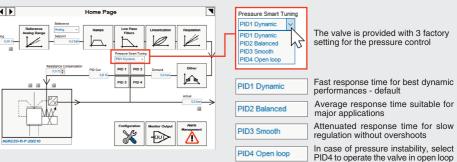
Single Ramp: setup Ramp 1

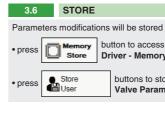
Double Ramp : setup Ramp 1 and 2

optimize the pressure response according

Smart tuning allows to adjust the valve dynamic response in order to match different performance requirements.











Press CTRL + H on the PC I
Move arrow on parameter (e



NOTE: alternatively right click

2.00 mA

TROUBLESHOOTING

Valve vibration or noise

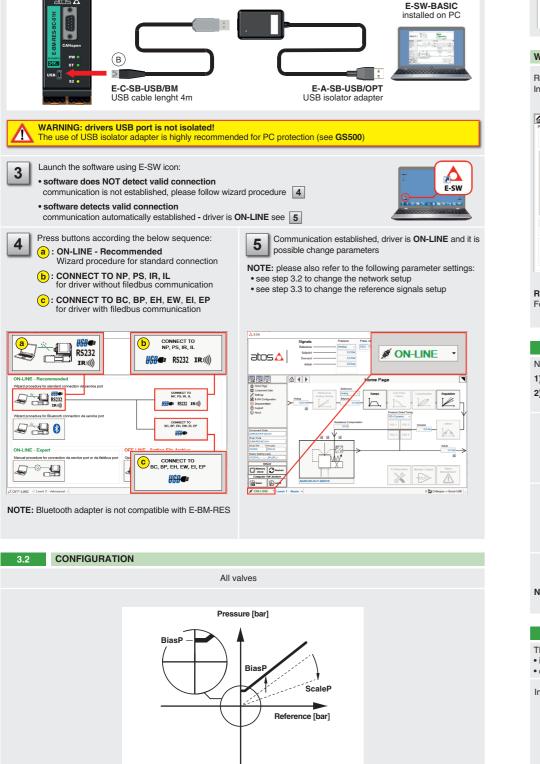
- The valve does not follow the reference signal driver is disabled, verify presence of 24 Vdc on enable pin
- with the valve's characteristics
- big hysteresis or spool stick-slip, reduce the dither frequency
- spool sticking, contact Atos service center

Pressure instability or vibration

- select PID4 to operate the valve in open loop:
- application requirements

desired dynamic response Software parameters modifications are lost when driver is switched off parameter store operation was not performed, check store procedure – see STEP 3, section 3.6 Software parameters modifications have no effect on the valve

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!



BiasP positive bias ScaleP positive scale

3.5 SMART TUNING - E-SW level 2 functionality

NOTE: for more details about smart tuning function, please refer to E-MAN-BM-RES operating manual

Parameters modifications will be stored into driver permanent memory

Driver - Memory Store window

buttons to store Valve Parameters or Fieldbus Parameters WARNING: During valve or fieldbus para meters storing operations, the driver auto matically shuts down the solenoid powe supply for a short time. Do not perforn any storing commands while the system is working.

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

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

keyboard to open the context help form

e.g. Unit) to display the objects dictionary information to access the parameter via fieldbus

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

Unit	Standard Name:				
Current ~	drv actual val cond unit Description: Valve/Flow/Position > Ref. Analog range > Unit		Value:	Description	
5			0x00	Voltage	
x Me			0x01	Current	
arity Measure Actual Value	Index	Sub Index:			
mal v 0,0 %	0x2E06 [11782d]	0x00 [0d]			
Filter Time Filter Freq.	Type:				
Filter Time Filter Freq.	INTEGER8				
Measure	Channel Selection				
-100,0 %	Index:0x2E01 - Sub Index:0x00 - Type:UNSIGNED8 - Value:00				
zard Reference Configuration	List	~			
Voltage Standard	[L] Interface Unit)		
Current 420 mA	Raw Value:	9			
Monitor configuration browse to page. Others - Monitor Outputs	d: 1 h	0x01			
	b: 0000 0001				

• presence of air in the solenoid; perform air bleeding procedure - see tech. table of the connected valve • dither frequency too low; increase value of the frequency - please refer to E-MAN-BM-RES operating manual

driver is powered off, verify presence of 24 Vdc power supply and the coil(s) connection

• flow/pressure values exceeding the valve's performance limits, verify that hydraulic operating conditions are incompliance

the mechanical pressure limiter interferes with the regulation (only AGMZO and AGRCZO with /P option and only LIRZO, LICZO, LIMZO sizes 16, 25, 32 and /P option) – check the pressure limiter setting

• poppet sticking (only LIRZO, LICZO, LIMZO) - contact Atos service center

missing piloting pressure, verify that the system pressure is compliant with valve's characteristics
wrong pilot/drain configuration - check if the pilot/drain configuration of the valve corresponds to the effective system layout

- if the instability still persists, check eventual anomalies in the hydraulic circuit as the presence of air

- if the instability disappears, select an alternative configuration within PID selection 1, 2 or 3 which better matches the

if no one of the above selection fulfills the application, tune P - I - D parameters at E-SW software level 2 to obtain the

driver is OFF LINE, check connection procedure – see STEP 3, section 3.1

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

• restore valve factory parameters using 'Restore Factory' button, located in 'Driver - Memory Store' window: