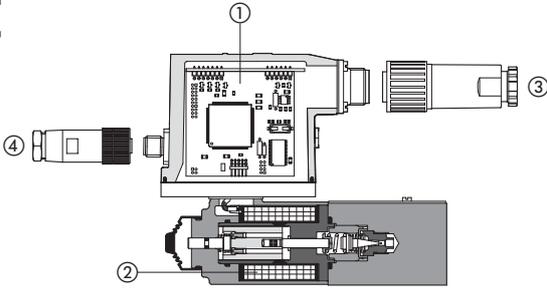
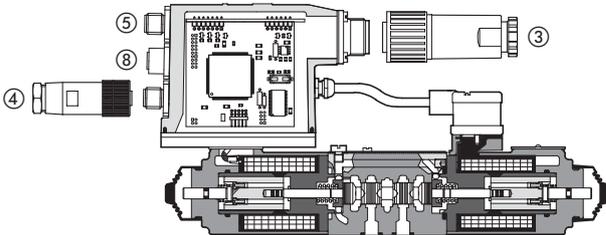


Digital electronic AES drivers

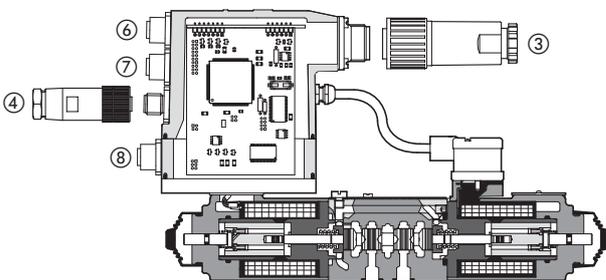
integral-to-valve format, for proportional valves without transducer

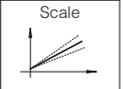
RZMO-AES- PS Serial



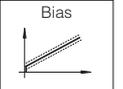
**DHZO-AES- BC CANopen
BP PROFIBUS DP**



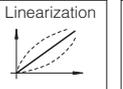
DHZO-AES- EH EtherCAT



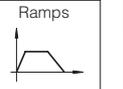
Scale



Bias



Linearization



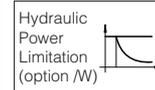
Ramps



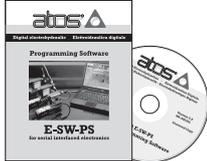
Real Time
Fieldbus
Reference



Enhanced
Diagnostic



Hydraulic
Power
Limitation
(option /W)



E-SW
programming software

Connectors ③ and ④ not included, to be ordered separately

Digital AES drivers ① supply and control the current to the solenoid of Atos proportional valves without transducer, according to the electronic reference input signal. The solenoid ② proportionally transforms the current into a force, acting on the valve spool or poppet, against a reacting spring, thus providing the valve's hydraulic regulation.

AES can drive one single or one double solenoid proportional valve.

The electronic main connector is fully interchangeable with the analog drivers one.

Atos PC software allows to customize the driver configuration to the specific application requirements.

Electrical Features:

- Functional factory preset parameters for best performances
- 7 pin main connector ③ for power supply, analog input reference and monitor signals
- 5 pin serial communication port ④ (always present)
- 5 pin CANopen or PROFIBUS DP communication connector ⑤
- 4 pin EtherCAT communication connectors ⑥ and ⑦ (input - output)
- /Q option 7 pin main connector for enable signal
- /Z option 12 pin main connector for additional double power supply, enable and fault signals
- /W option 5 pin connector ⑧ for external pressure transducer
- Electrical protection against reverse polarity of power supply
- IP67 protection degree
- CE mark according to EMC directive

Software Features:

- Intuitive graphic interface
- Setting of valve's functional parameters: bias, scale, ramps, dither
- Linearization function for hydraulic regulation
- Setting of valve's dynamic response to optimize the application performances
- Selection of analog IN / OUT range
- /W option software selectable max power limitation function (see 6.7)
- Complete diagnostics of driver status
- Internal oscilloscope function
- In field firmware update through serial communication port ④

1 VALVES RANGE FOR AES DRIVERS

Driver model	AES								
	Pressure				Directional		Cartridge	Flow	Ex-proof proportional valves (*)
Valves model	RZMO	RZGO	AGMZO	AGRCZO	DHZO DKZOR	DPZO	LICZO LIMZO LIRZO	QVHZO QVKZOR	ATEX or IECEx certification
Data sheet	F007 F065	F015 F070	F035	F050	F160	F170	F300	F410	F600

(*) Note: AES drivers are available also in Ex-proof execution, refer to technical table F600.

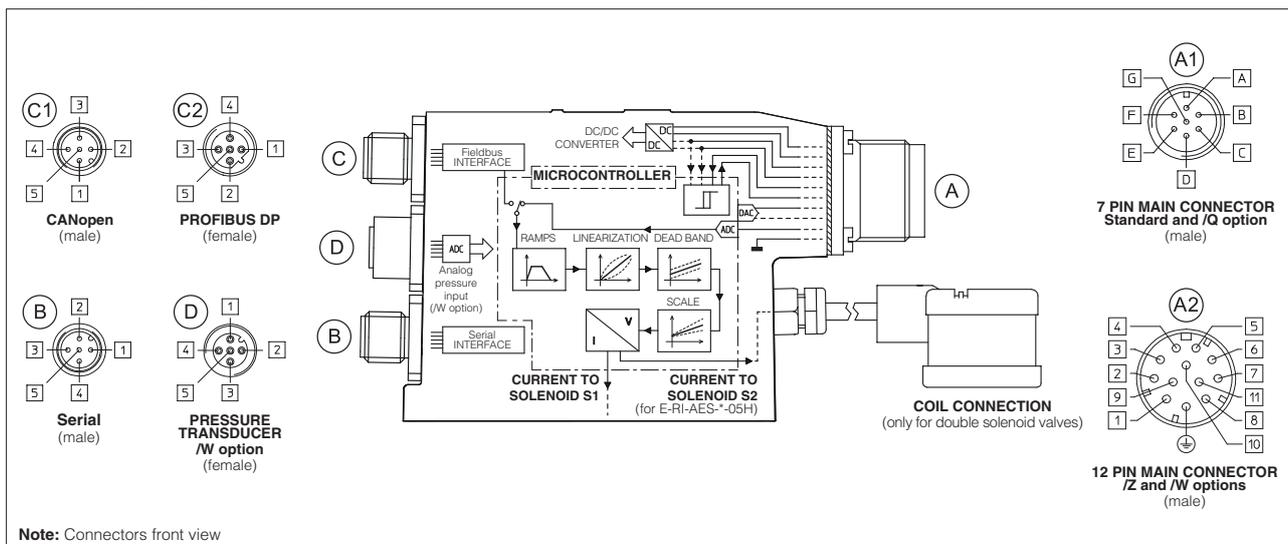
2 MAIN CHARACTERISTICS

Power supply (see 4.1, 4.4)	Nominal : +24 V _{DC} Rectified and filtered : $V_{RMS} = 21 \div 32 V_{MAX}$ (ripple max 10 % V_{PP})
Max power consumption	50 W
Reference input signal (see 4.2)	Voltage: range $\pm 10 V_{DC}$ Input impedance: $R_i > 50 k\Omega$ Current: range $\pm 20 mA$ Input impedance: $R_i = 500 \Omega$
Monitor output (see 4.3)	Output range : $\pm 5 V_{DC}$ (max 5 mA)
Enable input (see 4.5)	Range : 0 \div 9 V _{DC} (OFF state), 15 \div 24 V _{DC} (ON state), 9 \div 15 V _{DC} (not accepted); Input impedance: $R_i > 37 k\Omega$
Fault output (see 4.6)	Output range : 0 \div 24 V _{DC} (ON state $\cong V_L +$ [logic power supply] ; OFF state $\cong 0 V$) @ max 50 mA
Alarms	Solenoid not connected/short circuit, cable break with current reference signal, over/under temperature, pressure transducer cable break with current signal (/W option)
Format	Sealed box on the valve; IP67 protection degree
Operating temperature	-20 \div 60 °C (storage -20 \div 70 °C)
Mass	approx. 455 g (approx. 570 g for -EH execution)
Additional characteristics	Short circuit protection of solenoid current supply; current control by P.I.D. with rapid solenoid switching
Electromagnetic compatibility (EMC)	According to Directive 2004/108/CE (Immunity: EN 61000-6-2; Emission: EN 61000-6-3)
Communication interface	-PS Serial -BC CANopen -BP PROFIBUS -EH EtherCAT
Communication physical layer	not insulated serial RS232 optical insulated CAN ISO 11898 optical insulated RS485 Fast Ethernet 100 Base TX
Communication protocol	Atos ASCII coding CANopen EN50325-4 + DS408 PROFIBUS DP EN50170-2/IEC61158 EtherCAT IEC61158
Recommended wiring cable (see 8)	LiYCY shielded cables

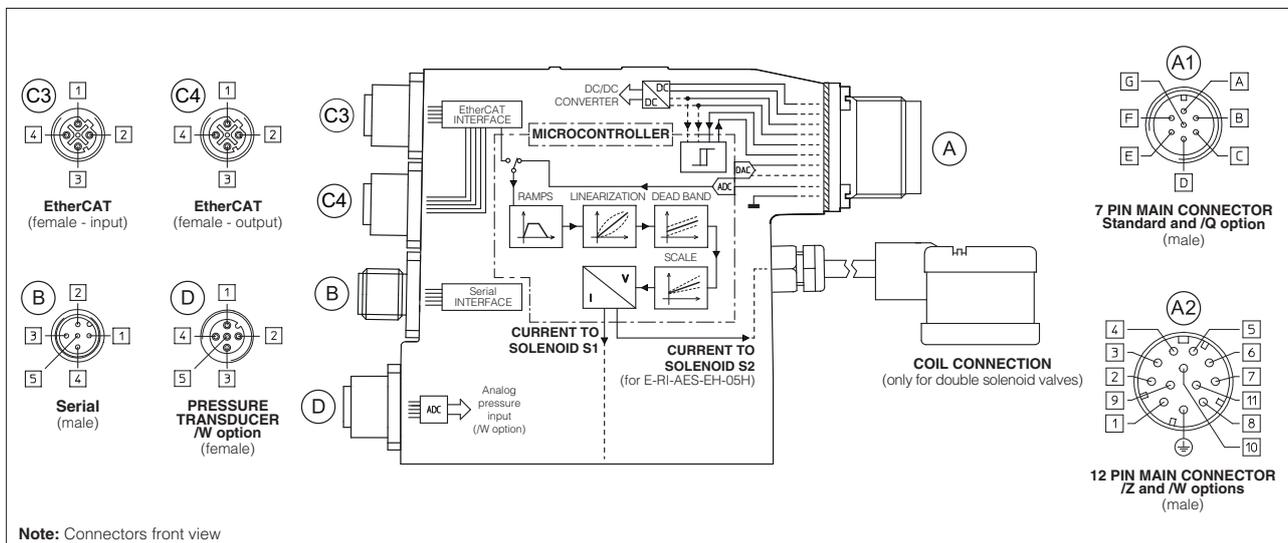
Note: A maximum time of 380 ms (depending on communication type) have be considered between the driver energizing with the 24 VDC power supply and when the valve is ready to operate. During this time the current to the valve coils is switched to zero.

3 CONNECTIONS

3.1 Serial -PS, CANopen -BC and PROFIBUS DP -BP executions



3.2 EtherCAT -EH execution



3.3 MAIN CONNECTORS A

3.3.1 Main connector - 7 pin - see 8.1

A1 Standard and /Q option			
PIN	SIGNAL	TECHNICAL SPECIFICATIONS	NOTES
A	V+	Power supply 24 Vdc for solenoid power stage (see 4.1)	Input - power supply
B	V0	Power supply 0 Vdc for solenoid power stage (see 4.1)	Gnd - power supply
C	AGND	Ground - signal zero for MONITOR signal (applying 24 Vdc to AGND electronics will be damaged)	Gnd - analog signal
	ENABLE	Enable (24 Vdc) or disable (0 Vdc) the driver (see 4.5) (for /Q option)	Input - on/off signal
D	INPUT+	Reference analog differential input: ± 10 Vdc / ± 20 mA maximum range software selectable (see 4.2) - default settings are 0 ÷ 10 Vdc for directional valves 2 positions, pressure or flow controls and ± 10 Vdc for directional valves 3 positions	Input - analog signal
E	INPUT -		
F	MONITOR	Monitor analog output: ± 5 Vdc maximum range (see 4.3)	Output - analog signal
G	EARTH	Internally connected to driver housing	

3.3.2 Main connector - 12 pin - see 8.2

A2 /Z and /W options			
PIN	SIGNAL	TECHNICAL SPECIFICATIONS	NOTES
1	V+	Power supply 24 Vdc for solenoid power stage (see 4.1)	Input - power supply
2	V0	Power supply 0 Vdc for solenoid power stage (see 4.1)	Gnd - power supply
3	ENABLE	Enable (24 Vdc) or disable (0 Vdc) the driver (see 4.5)	Input - on/off signal
4	INPUT+	Reference analog input: ± 10 Vdc / ± 20 mA maximum range software selectable (see 4.2)	Input - analog signal
5	AGND	Ground - signal zero for INPUT+ signal	Gnd - analog signal
6	MONITOR	Monitor analog output: ± 5 Vdc maximum range (see 4.3)	Output - analog signal
7	NC	do not connect	
8	NC	do not connect (for /Z option)	
	MONITOR2	2nd monitor analog output: ± 5 Vdc maximum range (see 4.3) (for /W option)	Output - analog signal
9	VL+	Power supply 24 Vdc for driver's logic and communication (see 4.4)	Input - power supply
10	VL0	Power supply 0 Vdc for driver's logic and communication (see 4.4)	Gnd - power supply
11	FAULT	Driver status : Fault (0 Vdc) or normal working (24 Vdc) (see 4.6)	Output - on/off signal
PE	EARTH	Internally connected to driver housing	

3.4 COMMUNICATION CONNECTORS B - C

3.4.1 Serial connector - M12 - 5 pin - see 8.3.1

B -PS serial execution		
PIN	SIGNAL	TECHNICAL SPECIFICATION (*)
1	NC	do not connect
2	NC	do not connect
3	RS_GND	Signal zero data line
4	RS_RX	Valves receiving data line
5	RS_TX	Valves transmitting data line

3.4.2 CANopen connector - M12 - 5 pin - see 8.3.2

C1 -BC fieldbus execution		
PIN	SIGNAL	TECHNICAL SPECIFICATION (*)
1	CAN_SHLD	Shield
2	NC	do not connect
3	CAN_GND	Signal zero data line
4	CAN_H	Bus line (high)
5	CAN_L	Bus line (low)

3.4.3 PROFIBUS DP connector - M12 - 5 pin - see 8.3.3

C2 -BP fieldbus execution		
PIN	SIGNAL	TECHNICAL SPECIFICATION (*)
1	+5V	Termination supply signal
2	LINE-A	Bus line (high)
3	DGND	Data line and termination signal zero
4	LINE-B	Bus line (low)
5	SHIELD	

3.4.4 EtherCAT connector - M12 - 4 pin - see 8.3.4

C3 C4 -EH fieldbus execution		
PIN	SIGNAL	TECHNICAL SPECIFICATION (*)
1	TX+	Transmitter
2	RX+	Receiver
3	TX	Transmitter
4	RX-	Receiver
Housing	SHIELD	

(*) Note: Shield connection on connector's housing is recommended.

3.5 PRESSURE TRANSDUCER CONNECTOR - M12 - 5 pin (only for /W option) - see 8.4 D

Voltage Input (*)			Current Input (*)	
PIN	SIGNAL	TECHNICAL SPECIFICATION	SIGNAL	TECHNICAL SPECIFICATION
1	VT	Remote transducer power supply 24 Vdc	VT	Remote transducer power supply 24 Vdc
2	TR	Remote transducer signal (0 ÷ 10 Vdc) - see 4.7	TR	Remote transducer signal (0 ÷ 20 mA) - see 4.7
3	AGND	Signal zero for power supply and signal	NC	do not connect
4	NC	do not connect	NC	do not connect
5	NC	do not connect	NC	do not connect

(*) Note: Analog input range is software selectable - see 4.7

4 SIGNALS SPECIFICATIONS

Atos proportional valves are CE marked according to the applicable directives (e.g. Immunity/Emission EMC Directive). Installation, wirings and start-up procedures must be performed according to the general prescriptions shown in table F003 and in the user manuals included in the E-SW programming software.

The electrical signals of the driver (e.g. monitor signals) must not be directly used to activate safety functions, like to switch-ON/OFF the machine's safety components, as prescribed by the European standards (Safety requirements of fluid technology systems and components-hydraulics, EN-982).

4.1 Power supply and wirings (V+ and V0)

The power supply must be appropriately stabilized or rectified and filtered: apply at least a 10000 μ F/40 V capacitance to single phase rectifiers or a 4700 μ F/40 V capacitance to three phase rectifiers.

A safety fuse is required in series to each driver power supply: 2,5 A fuse.

Note: pin 2 and 10 (zero Volt) are connected together inside the electronics.

4.2 Reference Input Signal (INPUT+ and INPUT-)

The driver controls in closed loop the current to the valve proportionally to the external reference input signal.

The driver is designed to receive one analog reference input (INPUT+, INPUT- differential mode input).

The input range and polarity are software selectable among voltage ($0 \div \pm 10$ Vdc) and current ($4 \div 20$ mA with cable break detection or ± 20 mA); default settings are $0 \div 10$ Vdc for two position and pressure single solenoid valves and ± 10 Vdc for double solenoid valves and three position single solenoid valves (see valve's tech. table). Other ranges can be set by software.

Drivers with fieldbus interface (-BC, -BP or -EH) can be software set to receive reference value directly from the machine control unit (fieldbus master); in this case the analog reference input signal can be used for start-up and maintenance operations.

Option /Z and Option /W

The reference input is available in common mode (INPUT+ referred to AGND) instead of the standard differential mode

4.3 Monitor Output Signals (MONITOR and MONITOR2 - only for /W option)

The driver generates an analog output signal (MONITOR) to monitor the actual valve's coil current referred to AGND for standard version or to V0 for /Q option; the monitor output signal can be software set to show other signals available in the driver (e.g. analog reference, fieldbus reference).

The output maximum range is ± 5 Vdc : $0 \div 5$ Vdc for two position and pressure single solenoid valves and ± 5 Vdc for double solenoid valves and three position single solenoid valves (see valve's tech. table).

Option /W

The driver generates a second analog output signal (MONITOR2) to monitor the actual system pressure referred to AGND. The output maximum range is ± 5 Vdc; default setting is $0 \div 5$ Vdc

4.4 Power supply for driver's logic and communication (VL+ and VL0 - for /Z and /W options)

The power supply to the solenoids must be appropriately stabilized or rectified and filtered: apply at least a 10000 μ F/40 V capacitance to single phase rectifiers or a 4700 μ F/40 V capacitance to three phase rectifiers.

Separate power supply (pin 9,10) allow to cut solenoid power supply (pin 1,2) while maintaining active diagnostics, serial and fieldbus communication.

A safety fuse is required in series to each driver power supply: 500 mA fast fuse.

Note: pin 2 and 10 (zero Volt) are connected together inside the electronics.

4.5 Enable Input Signal (ENABLE - for /Q, /Z and /W options)

To enable the driver, supply 24 Vdc on pin 3 (pin C) referred to pin 2 (pin B): Enable input signal allows to enable/disable the current supply to the solenoid, without removing the electrical power supply to the driver; it is used to active the communication and the other driver functions when the valve must be disabled for safety reasons. This condition does not comply with European Norms EN13849-1 (ex EN954-1).

4.6 Fault Output Signal (FAULT - for /Z and /W options)

Fault output signal indicates fault conditions of the driver (solenoid short circuits/not connected, reference signal cable broken for $4 \div 20$ mA input, etc.).

Fault presence corresponds to 0 Vdc, normal working corresponds to 24 Vdc (pin 11 referred to pin 2).

Fault status is not affected by the Enable input signal.

4.7 Pressure Transducer Input signal (TR - only for /W options)

When hydraulic power limitation is active (see 6.7), input signal TR must be connected to an external pressure transducer installed on the hydraulic system. The input signal is software selectable as voltage or current (default $0 \div 10$ Vdc). The maximum range of external pressure transducer for voltage input is $0 \div 10$ Vdc. For current input the selection is among $0 \div 20$ mA or $4 \div 20$ mA for cable break detection.

Note: transducer feedback can be read as a digital information through fieldbus communication - software selectable.

5 PROGRAMMING DEVICES

The functional parameters and configuration of digital drivers, can be easily set and optimized with the Atos E-SW programming software, available in different versions according to the driver's communication interface: E-SW-PS (Serial), E-SW-BC (CANopen), E-SW-BP (PROFIBUS DP) and E-SW-EH (EtherCAT). Fieldbus programming softwares allow to use also the serial communication port to program the AES integral driver. The double communication features allow to keep the driver connected to the central machine unit via fieldbus and modify the valve's parameterization through serial communication port by Atos software.

A proper connection is required between the PC and the electronic driver communication port: for a more detailed description of software interface, PC requirements, adapters, cables and terminators, please refer to technical table G500.

Programming software, must be ordered separately:

E-SW-* (mandatory - first supply) = Dvd including E-SW-* software installer and operator manuals; it allows the registration to Atos digital service

E-SW-*-N (optional - next supplies) = as above but for supplies after the first

On first supply of the E-SW-* software, it is required to apply for the registration in the Atos download area : www.download.atos.com

Once the registration is completed, the password will be sent by email.

The software remains active for 10 days from the installation date and then it stops until the user inputs his password.

With the password it is also possible to download free of charge the latest releases of the Atos software, manuals, drivers and configuration files.

USB Adapters, Cables and Terminators can be ordered separately (see tab. G500)

6 MAIN SOFTWARE PARAMETER SETTINGS

The following is a brief description of the main settings and features of digital AES drivers. For a detailed descriptions of available settings, wirings and installation procedures, please refer to the programming manual E-MAN-RI-AES included in the E-SW-* Dvd programming software (see section 5).

6.1 Scale

Scale function allows to set the maximum current supplied to the solenoid, corresponding to the max valve regulation, at maximum reference signal value. This regulation allows to adapt the maximum current supplied from the driver to the specific nominal current of the proportional valves to which the driver is coupled; it is also useful to reduce the maximum valve regulation in front of maximum reference signal. Two different Scale regulations are available for double solenoid valves: ScaleA for positive reference signal and ScaleB for negative reference signal.

6.2 Bias and Threshold

Proportional valves may be provided with a dead band in the hydraulic regulation corresponding to their switch-off status. This dead band discontinuity in the valve's regulation can be compensated by activating the Bias function, which adds a fixed preset Bias value to the reference signal (analog or fieldbus external input). The Bias function is activated when the reference signal overcomes the Threshold value, preset into the driver. The Bias setting allows to calibrate the Bias current to the specific proportional valve to which the driver is coupled. The Threshold setting is useful to avoid undesired valve regulation at zero reference signal when electric noise is present on the analog input signal: smaller threshold reduces the reference signal dead band, greater values are less affected by electric noise presence. If fieldbus reference signal is active (see 4.2), threshold should be set to zero. Two different Bias regulations are available for double solenoid valves: positive reference signals activate BiasA and negative reference signals activate BiasB. Refer to the programming manuals for a detailed description of other software selectable Bias functions.

6.3 Offset

Proportional valves may be provided with zero overlapping in the hydraulic regulation corresponding to zero reference input signal (valve's central spool position). The Offset function allows to calibrate the Offset current, required to obtain valve's spool central position, to the specific hydraulic system setup (e.g. valve applied to cylinder with differential areas).

6.4 Ramps

The ramp generator allows to convert sudden change of electronic reference signal into smooth time-dependent increasing/decreasing of the current supplied to the solenoid. Different ramp mode can be set:

- single ramp for any reference variation
- two ramps for increasing and for decreasing reference variations
- four ramps for positive/negative signal values and increasing/decreasing reference variations

Ramp generator is useful for application where smooth hydraulic actuation is necessary to avoid machine vibration and shocks. If the proportional valve is driven by a closed loop controller, the ramps can lead to unstable behaviour, for these applications ramp function can be software disabled (default setting).

6.5 Linearization

Linearization function allows to set the relation between the reference input signal and the controlled valve's regulation. Linearization is useful for applications where it is required to linearize the valve's regulation in a defined working condition.

6.6 Variable Dither

The dither is the frequency modulation of the current supplied to the solenoid. To reduce the hysteresis should be selected a lower value of frequency, despite a lower regulation stability, because a small vibration in the valve regulating parts considerably reduces static friction effects. To improve the regulation stability, should be selected a high value of frequency, despite a higher hysteresis. This solution in some application can lead to vibration and noise. Normally, the right setting is a compromise and depends on system setup.

Digital AES drivers series 30 allow to realize a variable dither frequency that linearly depends on the demanded current: variable dither frequency allows an higher degree to optimize the valve hysteresis.

6.7 Hydraulic Power Limitation (only for /W option)

Digital AES drivers with /W option electronically perform hydraulic power limitation on:

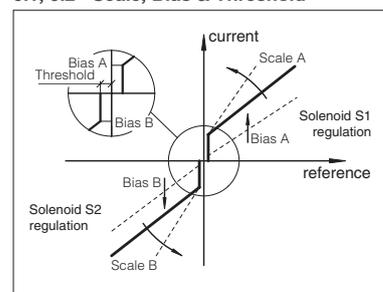
- direct and pilot operated flow control valves
- direct and pilot operated directional control valves + mechanical pressure compensator
- variable displacement pumps with proportional flow regulator (e.g. PVPC*-LQZ, tech.tab. A170)

The driver receives the flow reference signal by the analog external input INPUT+ (see 4.2) and a pressure transducer, installed in the hydraulic system, has to be connected to the driver's analog input TR (see 4.7).

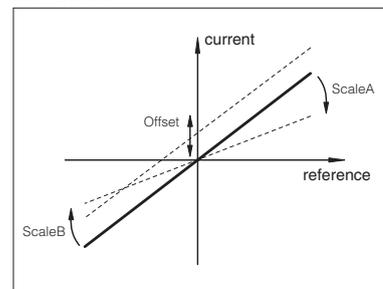
When the actual requested hydraulic power $p \times Q$ (TR x INPUT+) reaches the max power limit ($p_1 \times Q_1$), internally set by software, the driver automatically reduces the flow regulation of the valve. The higher is the pressure feedback the lower is the valve's regulated flow:

$$\text{Flow regulation} = \text{Min} \left(\frac{\text{PowerLimit [sw setting]}}{\text{Transducer Pressure [TR]}} ; \text{Flow Reference [INPUT+]} \right)$$

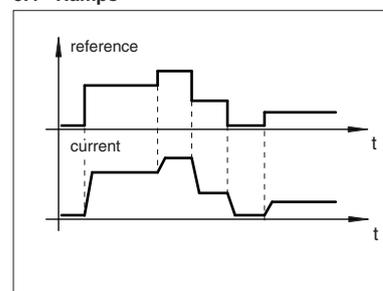
6.1, 6.2 - Scale, Bias & Threshold



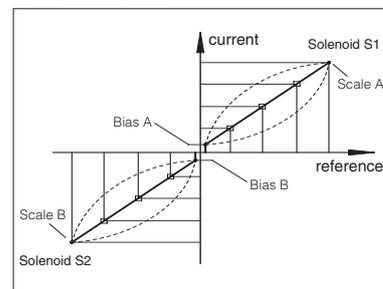
6.3 - Offset



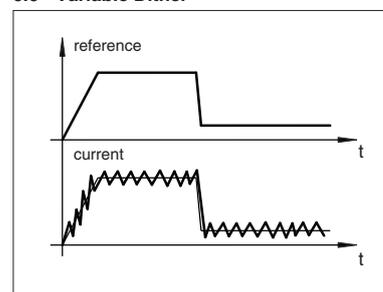
6.4 - Ramps



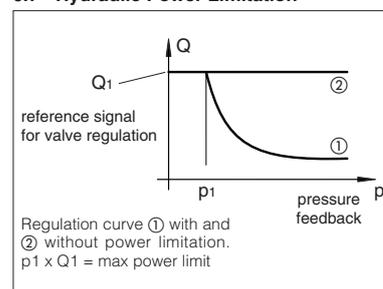
6.5 - Linearization



6.6 - Variable Dither

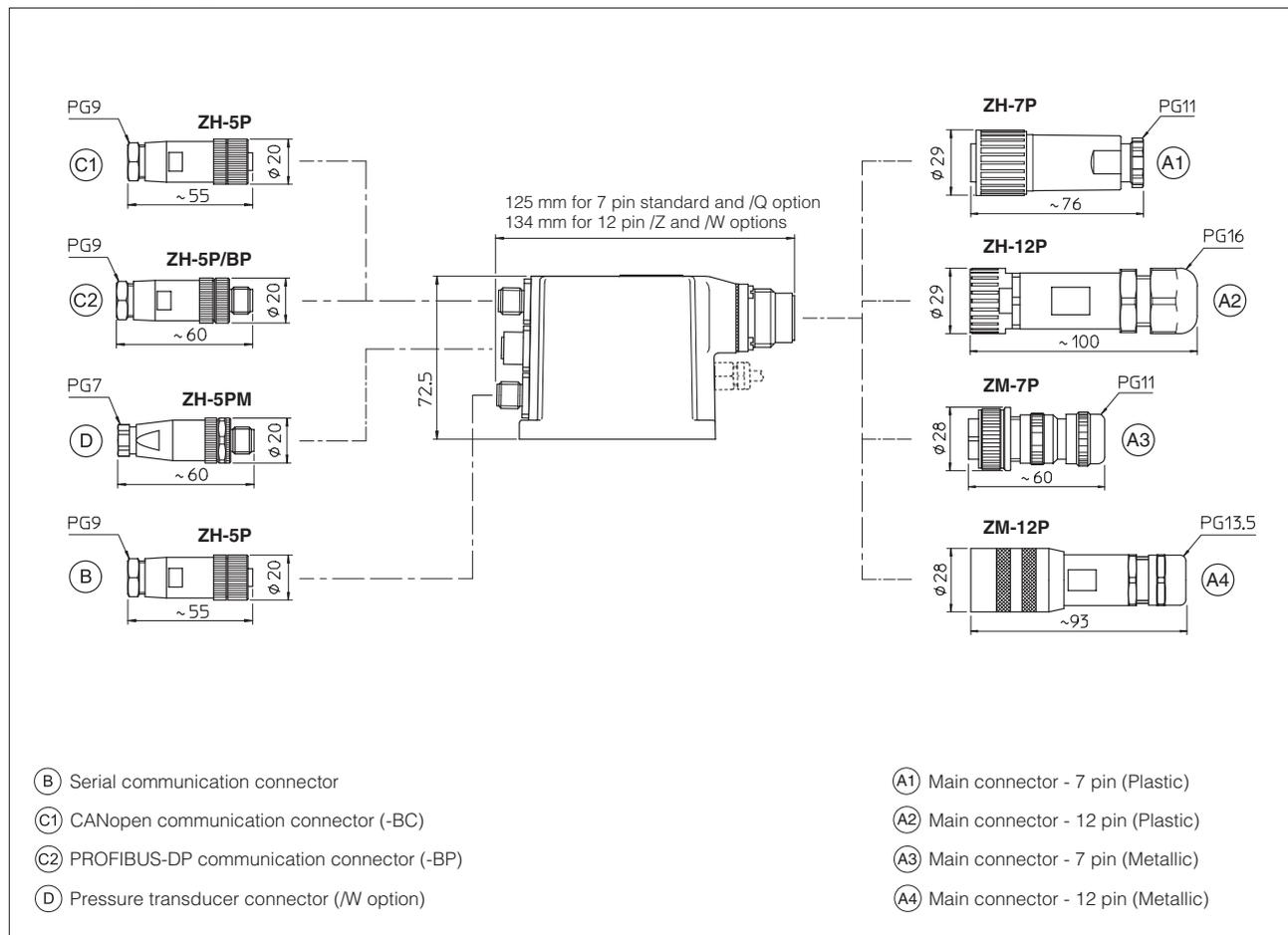


6.7 - Hydraulic Power Limitation

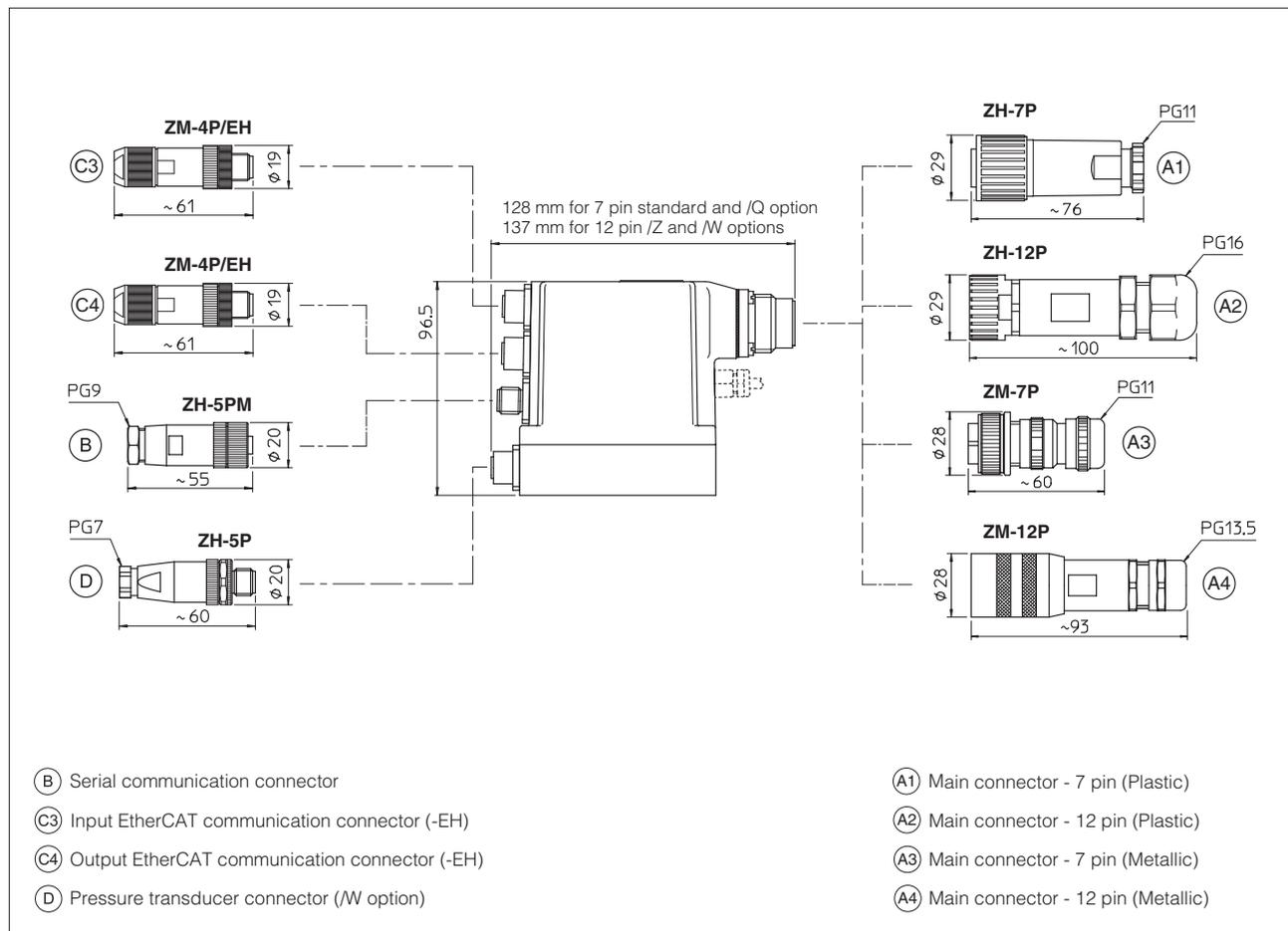


7 OVERALL DIMENSIONS [mm]

7.1 Serial -PS, CANopen -BC and PROFIBUS -BP executions



7.2 EtherCAT -EH execution



8 CONNECTORS CHARACTERISTICS (to be ordered separately)

8.1 MAIN CONNECTORS - 7 pin

CONNECTOR TYPE	POWER SUPPLY	POWER SUPPLY
CODE	(A1) ZH-7P	(A3) ZM-7P
Type	7pin female straight circular	7pin female straight circular
Standard	DIN 43563-BF6-3-PG11	According to MIL-C-5015 G
Material	Plastic reinforced with fiber glass	Aluminium alloy with cadmium plating
Cable gland	PG11	PG11
Cable	LiYCY 7 x 0,75 mm ² max 20 m (logic and power supply) LiYCY 7 x 1 mm ² max 40 m (logic and power supply)	LiYCY 7 x 0,75 mm ² max 20 m (logic and power supply) LiYCY 7 x 1 mm ² max 40 m (logic and power supply)
Connection type	to solder	to solder
Protection (DIN 40050)	IP 67	IP 67

8.2 MAIN CONNECTORS - 12 pin

CONNECTOR TYPE	POWER SUPPLY	POWER SUPPLY
CODE	(A2) ZH-12P	(A4) ZM-12P
Type	12pin female straight circular	12pin female straight circular
Standard	DIN 43651	DIN 43651
Material	Plastic reinforced with fiber glass	Metallic
Cable gland	PG16	PG13,5
Cable	LiYCY 10 x 0,14mm ² max 40 m (logic) LiYY 3 x 1mm ² max 40 m (power supply)	LiYCY 12 x 0,75 mm ² max 20 m (logic and power supply)
Connection type	to crimp	to crimp
Protection (DIN 40050)	IP 67	IP 67

8.3 COMMUNICATION CONNECTORS

8.3.1 Serial connector (always present)

CONNECTOR TYPE	-PS SERIAL RS232
CODE	(B) ZH-5P
Type	5pin female straight circular
Standard	M12 coding A – IEC 60947-5-2
Material	Plastic
Cable gland	PG9
Cable	LiYCY 5 x 0,25 mm ² shielded
Connection type	screw terminal
Protection (DIN 40050)	IP 67

8.3.2 CANopen connector (-BC execution)

CONNECTOR TYPE	-BC CANopen (1)
CODE	(C1) ZH-5P
Type	5pin female straight circular
Standard	M12 coding A – IEC 60947-5-2
Material	Plastic
Cable gland	PG9
Cable	CANBus Standard (DR303-1)
Connection type	screw terminal
Protection (DIN 40050)	IP 67

8.3.3 PROFIBUS DP connector (-BP execution)

CONNECTOR TYPE	-BP PROFIBUS DP (1)
CODE	(C2) ZH-5P/BP
Type	5pin male straight circular
Standard	M12 coding B – IEC 60947-5-2
Material	Plastic
Cable gland	PG9
Cable	PROFIBUS DP Standard
Connection type	screw terminal
Protection (DIN 40050)	IP 67

8.3.4 EtherCAT connector (-EH execution)

CONNECTOR TYPE	-EH EtherCAT (2)
CODE	(C3) (C4) ZM-4P/EH
Type	4pin male straight circular
Standard	M12 coding D – IEC 61076-2-101
Material	Metallic
Cable gland	Pressure nut (4-8 mm)
Cable	Ethernet Standard CAT-5
Connection type	terminal block
Protection (DIN 40050)	IP 67

Notes:

- (1) E-TRM-** terminators can be ordered separately (see tab. G500).
 (2) Internally terminated.

8.4 PRESSURE TRANSDUCER CONNECTOR (W option)

CONNECTOR TYPE	TRANSDUCER
CODE	(D) ZH-5PM
Type	5 pin male straight circular
Standard	M12 coding A – IEC 60947-5-2
Material	Plastic
Cable gland	PG7
Cable	3 x 0,25 mm ²
Connection type	screw terminal
Protection (DIN 40050)	IP 67

9 MODEL CODE FOR SPARE PARTS

E-RI-AES drivers are available as spare parts only for Atos authorized service centers.

E-RI	-	AE	-	S	-	PS	-	01H	/	*	-	**	/	*
Integral electronic driver (1)		AE = for proportional valves without transducer		S = digital executions		PS = Serial communication interface BC = CANopen communication interface BP = PROFIBUS DP communication interface EH = EtherCAT communication interface		01H = for single solenoid proportional valves 05H = for double solenoid proportional valves		Options, see section 3: Q = enable signal Z = adds double power supply, enable and fault signals W = power limitation function		Series number		Set code (2)

Notes:

(1) For Ex-proof execution, please contact Atos technical support.

(2) The set code identifies the correspondance between the integral driver and the relevant valve; it is assigned by Atos when the driver is ordered as spare part.