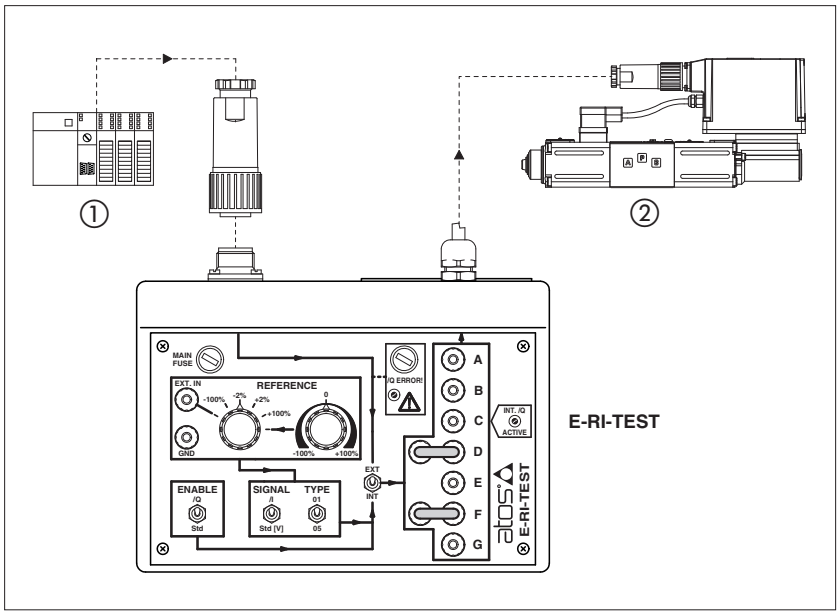
Testing box type E-RI-TEST

for proportional valves with on-board electronic driver

Available only on request



E-RI-TEST

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Testing box allows to test and start-up proportional valves with on-board electronic driver with 7 pin main connector.

It is supplied with 2m cable and with 7 pin main connector, to directly connect the valve driver to be tested.

E-RI-TEST can be used in two operate modalities thanks to a switch selector placed on the frontal panel:

Test:

- the E-RI-TEST has to be connected between the machine central unit ① and the proportional valve ②. During normal working it is possible to monitor the state and value of all signals of the 7 pins connector. It is not necessary to supply the valve electronic driver.

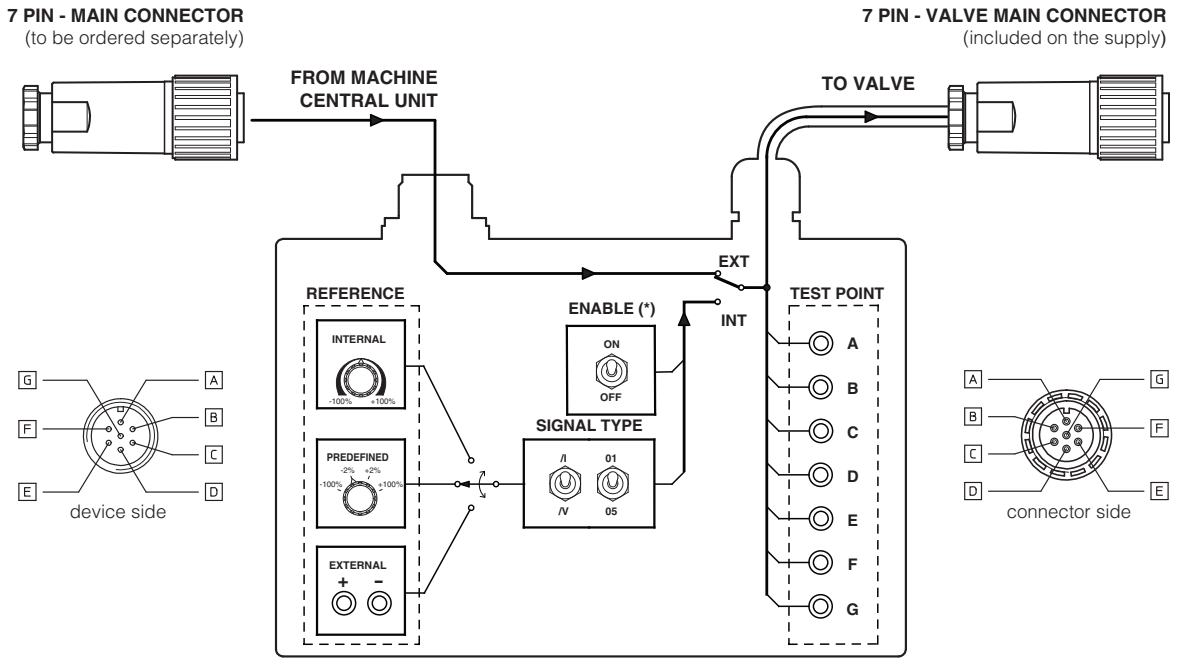
Start-up:

- the E-RI-TEST operates by multi-selectable potentiometers and switches selectors placed on the frontal panel. With this mode it is possible to start-up the valve with preliminary movements at low speed thanks to an internal reference generator. The machine central unit ① and all signal management have not to be connected to the E-RI-TEST. The power supply must be connected to the pin A, B of the main connector (see section 3).

1 MODEL CODE

E-RI-TEST	*
Testing box for valves with on-board electronics and 7 pin main connector	Series number

2 BLOCK DIAGAGRAM



(*) To be activated only for driver with /Q option

3 ELECTRONIC CONNECTIONS

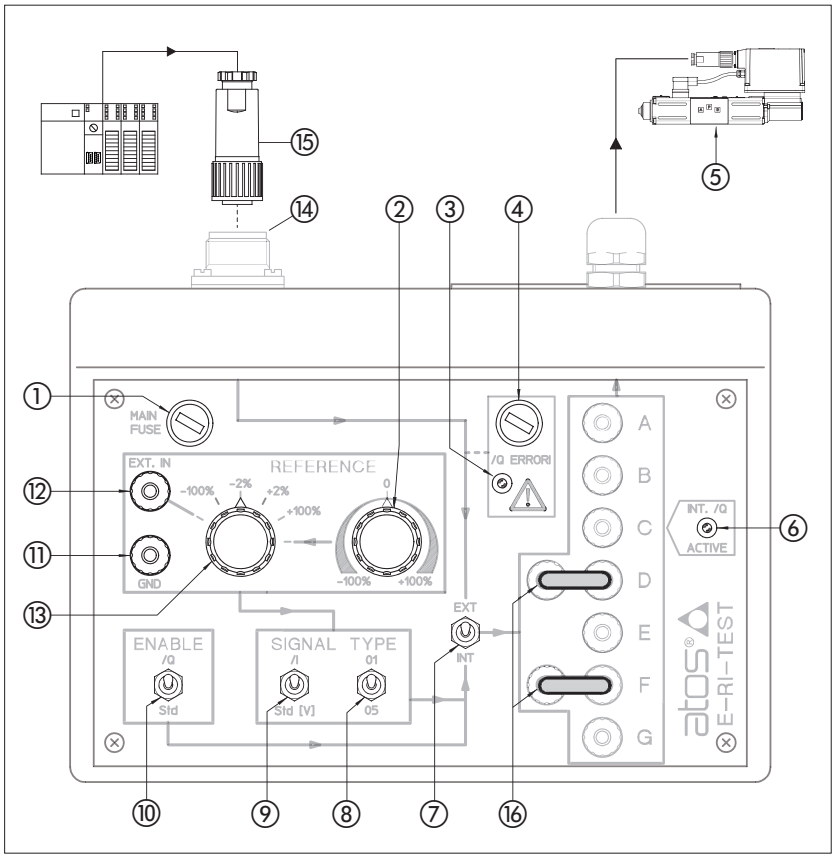
PIN	SIGNAL	TECHNICAL SPECIFICATIONS		NOTES
A	V+	Power supply 24 VDC for solenoid power stage and driver logic		Input - power supply
B	V0	Power supply 0 VDC for solenoid power stage and driver logic		Gnd - power supply
C **(1)**	AGND	Ground - signal zero for MONITOR signal		Gnd - analog signal
	ENABLE	Enable (24 VDC) or disable (0 VDC) the driver	(for /Q option)	Input - on/off signal
D	INPUT+	Reference analog differential input: ±10 VDC maximum range For single solenoid valves : 0÷10 VDC For double solenoid valves: ±10 VDC	(4 ÷ 20 mA for /I option) (4 ÷ 20 mA for /I option) (4 ÷ 20 mA for /I option)	Input - analog signal
E	INPUT -			
F **(2)**	MONITOR	Monitor analog output: ±10 VDC maximum range	(4 ÷ 20 mA for /I option)	Output - analog signal
	FAULT	Fault (0 VDC) or normal working (24 VDC)	(for /F option)	Output - on/off signal
G	EARTH	Internally connected to the test adapter housing		

(1) With /Q option ENABLE signal replaces AGND on pin C; MONITOR signal is referred to pin B
(2) With /F option FAULT signal replaces MONITOR on pin F

4 TECHNICAL CHARACTERISTICS

Power supply	Nominal: +24 VDC rectified and filtered: Vrms = 20 ÷ 32 VMAX (ripple max 10 % VPP)
Max. power consumption	10 W
Reference input signal	Voltage: ±10 VDC Current: 4 ÷ 20 mA
Input signal impedance	Voltage: Ri > 50 kΩ Current: Ri = 316 Ω
External potentiometers Reference	±2% of input signal range - to be used for positive/negative bias setting ±100% of input signal range - to be used for positive/negative scale setting ±100% continous range - to be used for preliminar movements
Box format	plastic box with aluminium front end; IP20 protection degree
Operating temperature	-20 ÷ +60 °C (storage -20 ÷ +70 °C)
Dimensions	221 x 150 x 100 mm
Mass	1,5 kg (included cable + connector)

5 COMPONENTS IDENTIFICATION



① Main fuse, 4A
② Internal reference potentiometer: ±100%
③ Enable signal in pin C;
④ Protection fuse in case pin C is supplied by Enable signal (on valves without /Q option)
⑤ Proportional valve
⑥ LED on when Enable is active
⑦ Internal / External reference selector
⑧ Single solenoid (01) / double solenoid (05) valve selector
⑨ Voltage (Std [V]) / Current (/I) reference selector
⑩ Enable signal selector - to be used only on valves with /Q option)
⑪ GND external reference plug
⑫ Positive external reference plug
⑬ Reference multi selector
⑭ 7 pin panel male connector
⑮ 7 pin main female connector and cable from PLC (not included on the supply)
⑯ Jumpers (see 6.4)

6 OPERATING WITH E-RI-TEST

The E-RI-TEST must be interposed between the Machine Control Unit through the main connector ⑮ and the proportional valve ⑤ through the annexed connector and cable.

6.1 Power supply

The power supply must be provided through pin A and B of the main connector of the E-RI-TEST.
A safety fuse is present in series to the power supply: ∅ 5 x 20 (4A, F).

Never use the test point A and B to provide power supply to the valve connected: these test points must be used to check power supply presence on the pin A and B of proportional valve main connector.

6.2 External reference signal

It is used for test operations and it is active with switch ⑦ set to **EXT**. In this condition it is required to connect the Machine Control Unit connector ⑭ to the plug ⑮ and to connect E-RI-TEST to the main connector of the proportional valve ⑤. The user can monitor the valve signals using the test point available on the front panel of the device (see section 2 for details).

- pins A...G replicate the correspondent ones of the on-board electronics and it is possible to measure the relevant signals
- /Q fuse ④ protects erroneous enable signal (24 VDC) on pin C if the on-board electronic driver is not equipped with /Q function:
  in this case light ③ is on.
  Replace the fuse and check selector ⑩ is on Std position

6.3 Internal reference signal

This configuration is used for start-up operation, and it is active with switch ⑦ set to **INT**.
Possible functions:

- to run preliminary valve movement
- to change settings through the reference multi-selector ⑬ of device front panel
- to test or change the valve parameter settings

It is not requested the Machine Control Unit.

- pins A...G: connect these pins to monitor the relevant signals according to the electronic connections (see section 3)
- enable ⑩ for /Q option: when it is active the light ⑥ is on. If the enable pin is wrong connected, the light ③ is switched on
- reference type (V, I) internal position by selector ⑨ and valve configuration selection ⑧
  position 01: reference 4 ÷ 20 mA / 0 ÷ +10 VDC
  position 05: reference 4 ÷ 20 mA / -10 ÷ +10 VDC
- reference signal can be supplied as follows:
  - selector ⑬ set to EXT.IN: any external reference signal can be supplied to the female jacks ⑪ and ⑫
  - selector ⑬ set at -100%, or -2%, or +2%, or +100%: in this way maximum and threshold reference signals are selected
  - selector ⑬ set to enable the internal reference ② : any reference signal can be selected on potentiometer on the range ±100%

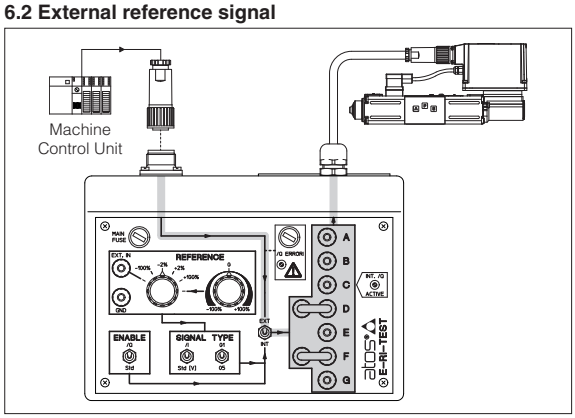
6.4 Jumpers

Jumpers ⑯ are used to simplify any measurements with external multi-meters:

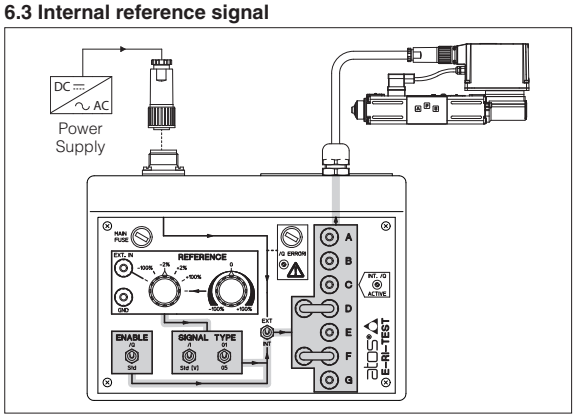
- current measurement ⑰: disconnect jumper on D or F pins and connect probes in-series
- voltage measurement ⑱: connect probes between D or F pins and system ground

Note: jumpers have to be connected for regular working operations

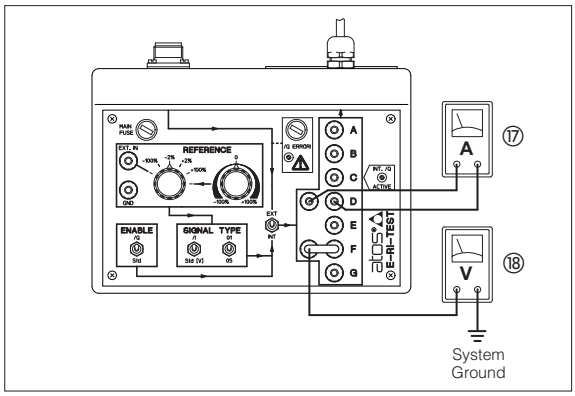
6.2 External reference signal



6.3 Internal reference signal



6.4 Jumpers

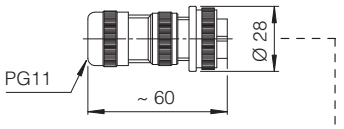


7 CONNECTORS CHARACTERISTICS - to be ordered separately

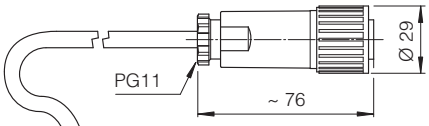
CODE	ZH-7P	ZM-7P
Type	Female straight circular socket plug 7pin	Female straight circular socket plug 7pin
Standard	According to MIL-C-5015	According to MIL-C-5015
Material	Plastic reinforced with fiber glass	Aluminium alloy with cadmiun plating
Cable gland	PG11	PG11
Cable	LiYCY 7x 0,75 mm² max 20 m (logic and power supply) or LiYCY 7 x 1 mm² max 40 m (logic and power supply)	LiYCY 7x 0,75 mm² max 20 m (logic and power supply) or LiYCY 7 x 1 mm² max 40 m (logic and power supply)
Connection type	to solder	to solder
Protection (DIN 60529)	IP 67	IP 67

8 OVERALL DIMENSIONS [mm]

ZM-7P - MAIN CONNECTOR
7 pin - metallic
(to be ordered separately)



ZH-7P - VALVE MAIN CONNECTOR
7 pin - plastic
(included on the supply)



ZH-7P - MAIN CONNECTOR
7 pin - plastic
(to be ordered separately)