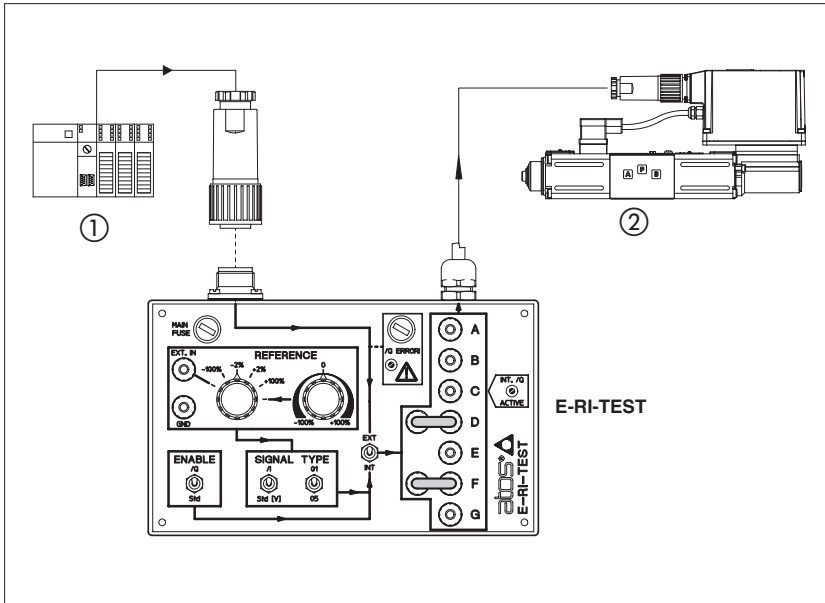


# Testing box type E-RI-TEST

for proportional valves with integral electronic driver



E-RI-TEST testing box allows to test and start-up proportional valves with integral transducer and electronic driver with 7 main pins connector.

It is supplied with 2 m cable with 7 pin main connector to direct interface the valve's driver to test.

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's 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 preliminar 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.

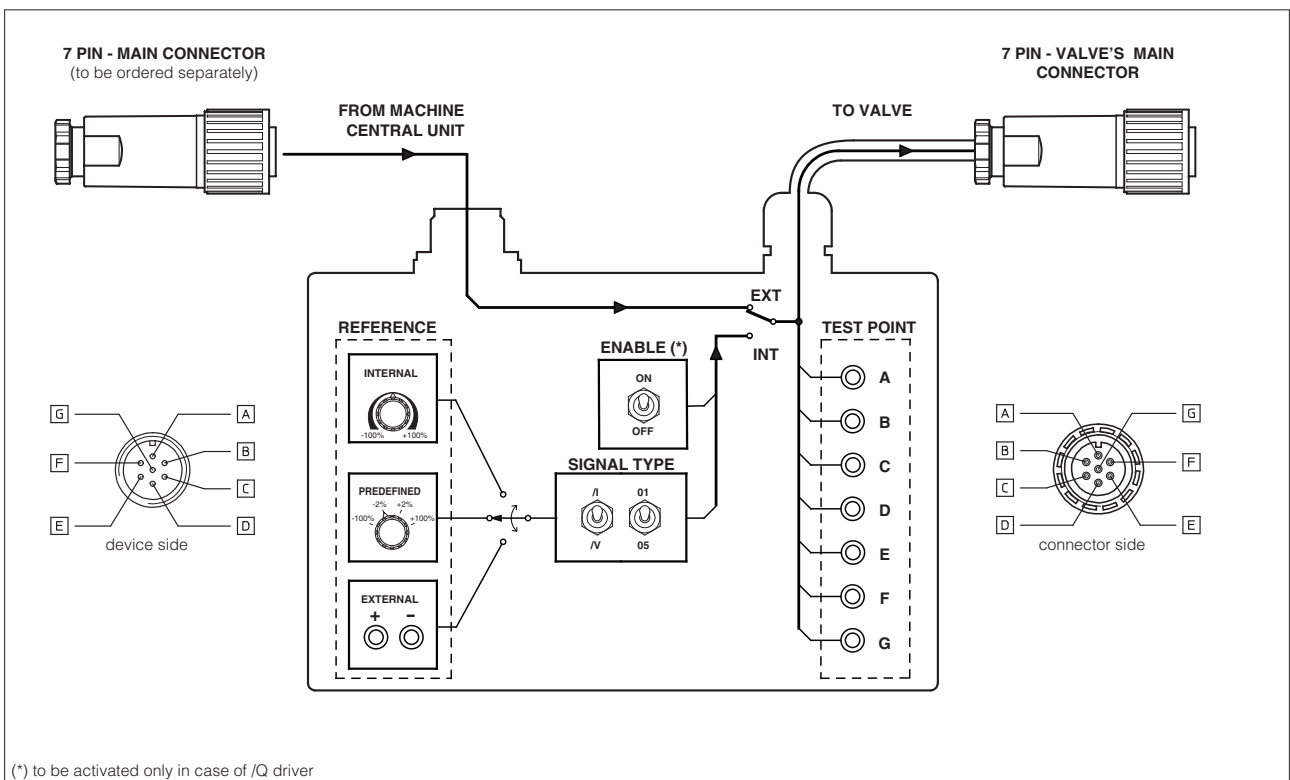
The power supply must be connected to the pin A, B of the main connector (see section ③).

**1 MODEL CODE**

|   |
|---|
| <b>E-RI-TEST</b>  |
| Testing box for valves with integral electronics and 7 pin main connector |

|               |
|---------------|
| **            |
| Series number |

**2 BLOCK DIAGRAM**



(\*) to be activated only in case of /O driver

### 3 ELECTRONIC CONNECTIONS

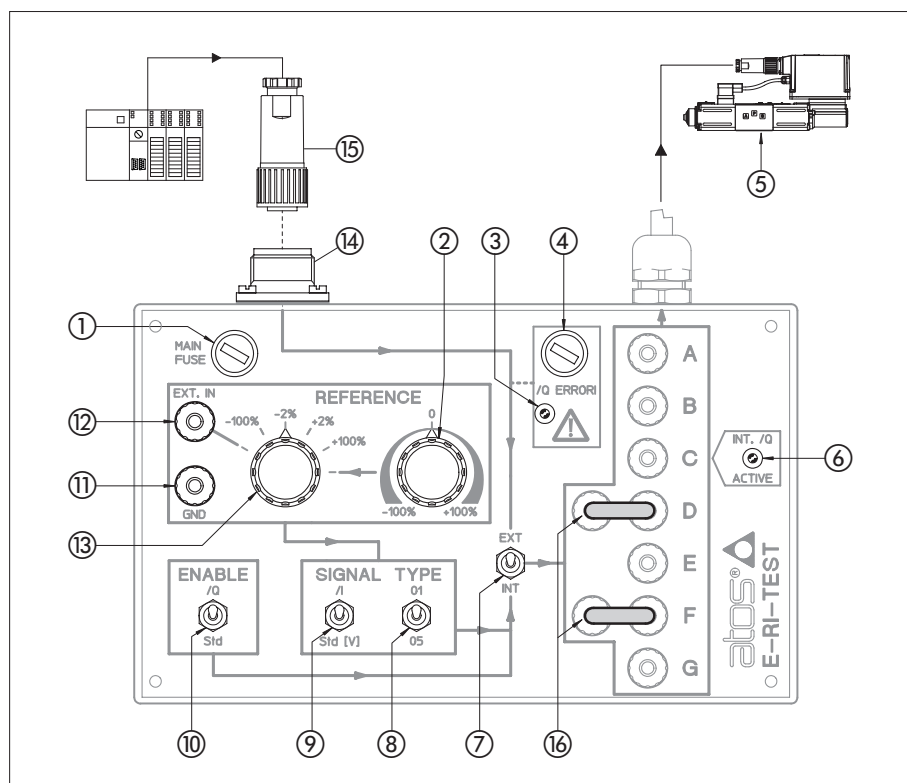
| PIN   | SIGNAL  | TECHNICAL SPECIFICATIONS  | NOTES                  |
|-------|---------|---|------------------------|
| A     | V+      | Power supply 24 Vdc for solenoid power stage and driver logic   | Input - power supply   |
| B     | V0      | Power supply 0 Vdc for solenoid power stage and 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: $\pm 10$ Vdc maximum range (4 $\div$ 20 mA for /I option)<br>For single solenoid valves : 0 $\div$ 10 Vdc (4 $\div$ 20 mA for /I option) | Input - analog signal  |
| E     | INPUT - | For double solenoid valves: $\pm 10$ Vdc (4 $\div$ 20 mA for /I option)   |                        |
| F (2) | MONITOR | Monitor analog output: $\pm 10$ Vdc maximum range (4 $\div$ 20 mA for /I option)  | Output - analog signal |
|       | FAULT   | Fault (0Vdc) or normal working (24Vdc) (for /F option)  | Output - on/off signal |
| G     | EARTH   | Internally connected to the test adapter housing  |                        |

**Notes** (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: $V_{rms} = 20 \div 32 V_{MAX}$ (ripple max 10 % VPP)   |
| Max. power consumption            | 10 W  |
| Reference input signal            | Voltage: $\pm 10$ Vdc Current: 4 $\div$ 20 mA   |
| Input signal impedance            | Voltage: $R_i > 50 k\Omega$ Current: $R_i = 316 \Omega$   |
| External potentiometers Reference | $\pm 2\%$ of input signal range - to be used for positive/negative bias setting<br>$\pm 100\%$ of input signal range - to be used for positive/negative scale setting<br>Continuous range $\pm 100\%$ - to be used for preliminar movements |
| Box format                        | plastic box with alluminium frontend. IP20 protection degree  |
| Operating temperature             | -20 $\div$ 60 °C (storage -20 $\div$ 70 °C)   |
| Dimensions                        | 215x130x70mm  |
| Mass                              | 1,2 kg (included cable + connector)   |

### 5 COMPONENTS IDENTIFICATION



- ① Main fuse, 4A
- ② Internal reference potentiometer:  $\pm 100\%$
- 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 Monosolenoid (01) / bisolenoid (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 ⑥ 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:  $\varnothing 5 \times 20$  (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 ⑥. The user can monitor the valve's 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 integral electronics and it is possible to measure the relevant signals;
- /Q fuse ④ protects erroneous enable signal (24V<sub>DC</sub>) on pin C if the 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 preliminar valve movement
  - to change settings through the reference multi-selector ⑬ of device front panel
  - to test or change the valve's 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 (pos. 01: ref.  $4 \div 20\text{mA} / 0 \div 10\text{V}$ ; pos. 05: ref.  $4 \div 20\text{mA} / 0 \div 10\text{V}$ )

- 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%: 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  $\pm 100\%$

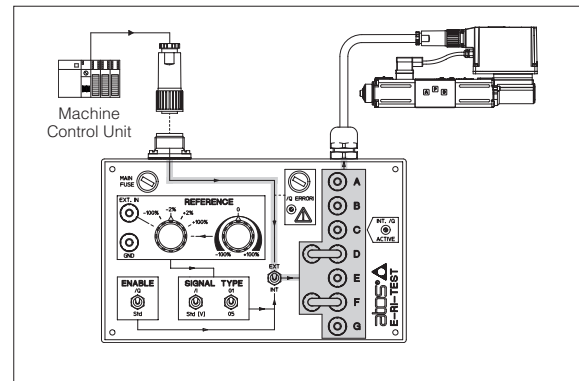
### 6.4 Jumpers

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

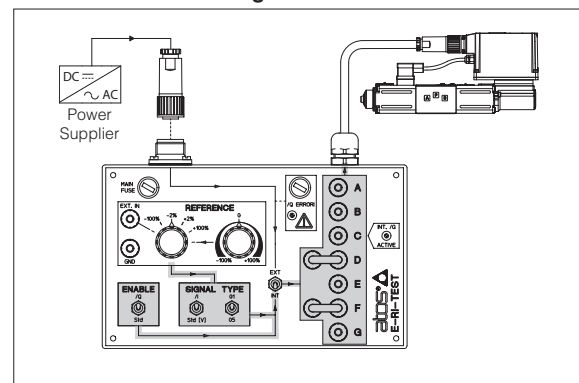
- current measurement ⑰: disconnect jumper on D or F pins and connect probes in-series
- voltage measurement ⑱: connect probes between D or F pins and system ground

**Note:** Jumpers must be connected for regular working operations.

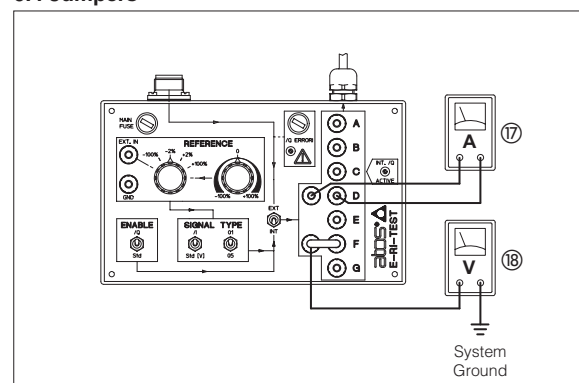
### 6.2 External reference signal



### 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 mm <sup>2</sup> max 20 m (logic and power supply) or LiYCY 7 x 1 mm <sup>2</sup> max 40 m (logic and power supply) | LiYCY 7x 0,75 mm <sup>2</sup> max 20 m (logic and power supply) or LiYCY 7 x 1 mm <sup>2</sup> max 40 m (logic and power supply) |
| Connection type        | to solder  | to solder  |
| Protection (DIN 60529) | IP 67  | IP 67  |

8 OVERALL DIMENSIONS [mm]

7 PINS CONNECTOR

