Testing box type E-RI-TEST
for proportional valves with integral electronic driver
Available only on request

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 directly 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 and the proportional valve. 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 preliminary movements at low speed thanks to an internal reference generator. The machine central unit 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).

(*) to be activated only in case of /I/O driver
3 ELECTRONIC CONNECTIONS

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

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: 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 Continuous range ±100% - to be used for preliminary movements
- Box format: plastic box with aluminium fronted. IP20 protection degree
- Operating temperature: -20 ÷ 60 °C (storage -20 ÷ 70 °C)
- Dimensions: 215x130x70mm
- Mass: 1.2 kg (included cable + connector)

5 COMPONENTS IDENTIFICATION

- Main fuse, 4A
- Internal reference potentiometer: ±100%
- Enable signal in pin C
- Protection fuse in case pin C is supplied by Enable signal (on valves without /Q option)
- Proportional valve
- LED on when Enable is active
- Internal / External reference selector
- Monosolenoid (01) / bisolenoid (05) valve selector
- Voltage (Std V) / Current (/I) reference selector
- Enable signal selector - to be used only on valves with /Q option
- GND external reference plug
- Positive external reference plug
- Reference multi selector
- 7 pin main female connector (not included on the supply)
- 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 and the proportional valve 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: $\phi$ 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 set to EXT. In this condition it is required to connect the Machine Control Unit connector to the plug and to connect E-RI-TEST to the main connector of the proportional valve. The user can monitor the valve’s signals using the test point available on the front panel of the device (see section for details).
- pins A, G replicate the correspondent ones of the integral electronics and it is possible to measure the relevant signals;
- /Q fuse protects erroneous enable signal (24Vdc) on pin C if the electronic driver is not equipped with /Q function: in this case light is on. Replace the fuse and check selector is on Std position

6.3 Internal reference signal

This configuration is used for start-up operation, and it is active with switch set to INT. Possible functions:
- to run preliminary valve movement
- to test or change the valve’s parameter settings
- pins A, G: connect these pins to monitor the relevant signals according to the electronic connections (see section)
- enable for /Q option: when it is active the light is on. If the enable pin is wrong connected, the light is switched on
- reference type (V, I) internal position by selector and valve configuration selection
  (pos. 01: ref. 4 ÷ 20mA / 0 ÷ 10V; pos. 05: ref. 4 ÷ 20mA / 0 ÷ 10V)
- reference signal can be supplied as follows:
  - selection set to EXT:IN: any external reference signal can be supplied to the female jacks and ;
  - selection set to -100%, or -2%, or +2%, or +100%: this way maximum and threshold reference signals are selected;
  - selection set to enable the internal reference : any reference signal can be selected on potentiometer on the range ±100%

6.4 Jumpers

Jumpers are used to simplify any measurements with external multimeters:
- current measurement: disconnect jumper on D or F pins and connect probes in-series;
- voltage measurement: connect probes between D or F pins and system ground.

Note: Jumpers must be connected for regular working operations.

7 CONNECTORS CHARACTERISTICS - to be ordered separately

<table>
<thead>
<tr>
<th>CODE</th>
<th>ZH-7P</th>
<th>ZM-7P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Female straight circular socket plug 7pin</td>
<td>Female straight circular socket plug 7pin</td>
</tr>
<tr>
<td>Standard</td>
<td>According to MIL-C-5015</td>
<td>According to MIL-C-5015</td>
</tr>
<tr>
<td>Material</td>
<td>Plastic reinforced with fiber glass</td>
<td>Aluminium alloy with cadmium plating</td>
</tr>
<tr>
<td>Cable gland</td>
<td>PG11</td>
<td>PG11</td>
</tr>
<tr>
<td>Cable</td>
<td>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)</td>
<td>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)</td>
</tr>
<tr>
<td>Connection type</td>
<td>to solder</td>
<td>to solder</td>
</tr>
<tr>
<td>Protection (DIN 60529)</td>
<td>IP 67</td>
<td>IP 67</td>
</tr>
</tbody>
</table>
7 PINS CONNECTOR

Cable length = 2m