**ELECTRICAL WIRING EXAMPLES**

**MAIN CONNECTOR - VOLTAGE**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Power In</td>
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<tr>
<td>2</td>
<td>Power In</td>
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<tr>
<td>3</td>
<td>Power In</td>
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<td>4</td>
<td>Power In</td>
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<tr>
<td>5</td>
<td>Power In</td>
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<tr>
<td>6</td>
<td>Power In</td>
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<tr>
<td>7</td>
<td>Power In</td>
</tr>
<tr>
<td>8</td>
<td>Power In</td>
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</table>

**MAIN CONNECTOR - CURRENT**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Power Out</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<tr>
<td>8</td>
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</table>

**REFERENCE INPUT - DIFFERENTIAL MODE**

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<tr>
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**REFERENCE INPUT - COMMON MODE**

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**MONITOR OUTPUT**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
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</tr>
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</table>

**WARNING:** The use of USB isolator adapters is highly recommended for PC protection.

**REMARK:** Valves can be managed through machine control unit by setting the source from Analog to Digital.

**REFERENCES**

**4.1 CONNECTION**

1. In order to access valve parameterization:
   - Install E-SW software on PC.
   - Insert main connector to the valve and power on with 24Vdc.

2. Remove USB plastic protection cap P4 and connect valve to the PC as shown below.

3. Launch the software using E-SW icon.
   - Software does NOT detect valid connection communication is not established, please follow wizard procedure.
   - Software detects valid connection communication automatically established - valve is ON-LINE see 5.

4. Press buttons according to the below sequence:
   - ON-LINE - Recommended Wizard Procedure for Standard Connection
   - Connect to BC, SP, EH, E, EP

5. Communication established, value is ON-LINE and it is possible change parameters

**NOTE:** Bluetooth adapter available!

For more info please refer to STARTUP-BTH guide.

**REM:ark:** once the USB cable E-CS-USBSM/N2, screw the plastic protection cap P4, applying the correct tightening torque, in order to preserve valve IP protections characteristics.

**4.2 FIELDBUS - Network Management**

Node, Station Alias, IP Address, Backbone, etc. can be set through:

1. Machine central unit (master) - please refer to E-000-0-57 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
   - BP PROFIBUS DP
   - Configuration file: GSD
   - Default: Telegram 3
   - EH EtherCAT
   - Configuration file: XML
   - Station slave is assigned automatically by fieldbus master

**REMARK:**
- Press Fieldbus Parameters - Store button to save new setting into the driver (see 4.4)
- Network configuration settings will be applied at next driver power-on or pressing the RESTORE button.

**4.3 SOFTWARE**

**REMARK:** For valves with feedback:
- as an Analog by factory default
- can be managed through machine control unit by setting the source from Analog to Fieldbus

**REFERENCES**

This valve is OFF LINE, check connection procedure. 
- see STEP 4, section 4.4

**4.4 STORE**

Parameters modifications will be stored into driver permanent memory.

**REMARK:** During valve or module parameter setting operations, the driver automatically shuts down the selected power supply for a short time. Do not perform any commands while the system is working.

1. Press Memory Store button to access Driver - Memory Store window

2. Press Store User buttons to store parameters

**REMARK:** Parameter modifications will be saved into PC memory.

1. Press Save button to access Computer SW Archive - Setting Files page

2. Setting File Name pop-up appears.
   - Insert valid name and press Ok button.

**TROUBLESHOOTING**

Value vibration or noise
- presence of air in the solenoid, perform air bleeding procedure – see STEP 3

The valve does not follow the reference signal
- valve is power-off, verify presence of 24 Vdc power supply
- valve is blocked, verify presence of 24 Vdc on enable pin - only for /Z and /Q options.
- the mechanical pressure limiter interferes with the regulation (AGMZO and AGRCZO with /P option) – check the pilot relief
- valve is disabled, verify presence of 24 Vdc power supply
- valve is OFF LINE, check connection procedure – see STEP 4, section 4.4

Pressure instability or vibration
- select TOA to operate the valve in open loop
- if the instability still persists, check eventual anomalies in the hydraulic circuit as the presence of air
- if the instability still disappears, select an alternative configuration (EAMZG, EAMZO, or /R1, /I1, /N1, /P1, /D1) which better matches the application requirements.

Software parameters modifications are lost when valve is switched off
- parameter store operation was not performed, check store procedure – see STEP 4, section 4.4

Software parameters modifications have no effect on the valve
- valve is OFF LINE, check connection procedure – see STEP 4, section 4.4

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:
  - during restart, the current to the solenoid(s) will be temporarily switched off
  - factory parameters will be applied at next driver reset or after power-off sequence on the valve.

**STEP 3 HYDRAULICS**

Air bleeding:
- remove 2 or 3 turns the air bleed screw \( V \)
- close the valve at low pressure until the oil leaking from the \( V \) port is exsanguinated
- lock the air bleed screw \( V \)

**Mechanical pressure limiter setting – only AGMZO and AGRCZO with IP option**

For safety reasons the factory setting of the mechanical pilot relief valve is fully unloaded (min pressure).

To change the mechanical pressure limiter setting:
- remove the locking nut and turn clockwise the adjustment screw \( 11 \, \text{mm} \)
- always advisable to switch off or disable the driver (option 1 or 2)

Consult tech table F500 for general guidelines about component’s commissioning.

**WARNING:** To avoid overheating and possible damage of the electronic driver, the values must be never exceeded without hydraulic adapter, i.e., the driver and valve are not connected to each other.

**REWARK:** When the power supply is switched off during the manual cycle, the atmospheric air is flushed out from the manual control unit, then the valves are disabled.

**HINT:** Direct input to access the parameter via fieldbus

- \( R_{sh} = 500 \, \Omega \)

**REFERENCE INPUT - DIFFERENTIAL MODE**

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**WARNING:** drives USB port is not isolated!

The use of USB isolator adapters is highly recommended for PC protection. (see GS500).

**STEP 4 SOFTWARE**

**REMARK:** proportional valves with integral electronics are factory preset with default parameters, only few programming operations are mandatory for setup the network parameters and the source of reference signals.

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

**PROGRAMMING**

<table>
<thead>
<tr>
<th>CONNECTION</th>
<th>FIELDBUS</th>
<th>REFERENCES</th>
<th>STORE</th>
<th>BACK-UP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.1 CONNECTION</strong></td>
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**REMARK:**
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- Network configuration settings will be applied at next driver power-on or pressing the RESTORE button.

**NOTE:** configuration files are available in E-SW DVD or in Atos Download Area - www.atos.com