Circuit and Connections

Characteristics of all amplifiers listed in the "Model Codes" section, two pages back, actual amplifiers omit certain sub-circuits to those connection pins not needed for the valves concerned.

In the case of EEA-PAM-S2/S2S-C models, one of these relationships may not apply if two single-solenoid valves are connected.

Solenoid and LVDT Connections for Proportional Valves

<table>
<thead>
<tr>
<th>Amplifier type</th>
<th>Solenoid with LVDT and/or for flow P to B</th>
<th>Solenoid without LVDT, or on pilot valve</th>
<th>Pilot-stage LVDT,</th>
<th>Main-stage LVDT,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pin 1</td>
<td>Pin 2</td>
<td>Pin 3</td>
<td>Pin 4</td>
</tr>
<tr>
<td>EEA-PAM-S2S-C-32</td>
<td>22/25</td>
<td>25/22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EEA-PAM-S2S-C-32</td>
<td>25/22</td>
<td>22/25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EEA-PAM-S3S-C-32</td>
<td>25/22</td>
<td>22/25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EEA-PAM-S3S-C-32</td>
<td>25/22</td>
<td>22/25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EEA-PAM-S6S-C-32</td>
<td>22/25</td>
<td>25/22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EEA-PAM-S6S-C-32</td>
<td>25/22</td>
<td>22/25</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Customer's protective ground connection. Solenoid current for S2/S2S-C models; LVDT position for all others. On front panel. See under this heading in "Operating Data" table, on previous two pages.
Installation Dimensions in mm (inches)

Plug-in Unit of 3U Height, to IEC 297

DIN 41612 F48 male connector. Mating connector must be an F48 female type.

3rd angle projection

2.5 (0.1)

128.4 (5.06)

8 (0.31)

14.2 (0.56)

7.2 (0.28)

175.24 (6.9)

7.02 (0.31)

2 - pin row
b - pin row
d - pin row
Components envelope

M2.5 x 11 (0.45) long collar screws supplied with panel for fixing

Model designation

139.4 (4.62)

3 (0.12)

128.4 (5.06)

40.3 (1.59)

7.45 (0.29)

100 (3.94)

8 (0.31)

14.2 (0.56)

7.2 (0.28)

175.24 (6.9)

Alarms output:
Set alarm
Signal

217 Enable amplifier (on pin 24) when switching power on
High when alarm is activated
Output = Supply minus 2V
I = 50 mA max.
LOW when solenoid overload has occurred. (Maintained until reset)
Output = 0 to ±2 volts
Output resistance = 50 ohms
Disable and re-enable on pin 224

Reset after failure

Ramps enabled (valve switching rate limited by ramp potentiometers)
b24 Apply +9.6V to +40V (22 kΩ)

Ramps disabled (fastest valve switching; ramp circuit bypassed)
b24 Apply open circuit or up to 4.5V

Ramp active indicator
Drive ramping up
Drive ramping down
Drive not ramping
Output resistance

b12 Output >10V
Output <-10V
Output 0V (±2V ripple)
10 kΩ

Drive signal zero indicator
Drive signal at null (within deadband limits)

b20 Output = Supply minus 1.5V
Output = 0 ±2V
50Ω

Ambient temperature range
0 to 50°C (32 to 122°F)

Storage temperature range
-25 to +85°C (-13 to +185°F)

Edge connectors
DIN 41612 F48 male type on board. Mating connector must be an F48 female type

Installation dimensions and panel display
Dimensions are the same as for the corresponding base amplifier but the panel display is different; see first page

Mass
0.40 kg (0.88 lb) approx.

Other characteristics
See catalog 2464 for the relevant base amplifier EEA-PAM-6**-A-32

Installation and start-up guidelines (supplied with product)
Installation wiring requirements for Vickers electronics products
Application notes (available on request)

9166
2468
9061

Supporting products:
Power unit options
Electronic accessories
Portable test equipment

See catalogs:
2419
2460
2462 and 2315

Warning: Electromagnetic Compatibility (EMC)

It is necessary to ensure that the valve is wired up in accordance with the connection arrangements shown in this leaflet. For effective protection, the user’s electrical cabinet, the valve subplate or manifold and the cable screens should be connected to efficient earth (ground) points. The metal 7-pin connector part no. 934939 should be used for the integral amplifier.

In all cases, both valve and cable should be kept as far away as possible from any source of electromagnetic radiation such as cables carrying heavy current, relays and certain kinds of portable radio transmitters, etc. Difficult environments could mean that extra screening may be necessary to avoid the interference.
### Amplifier Codes

<table>
<thead>
<tr>
<th>Amplifier model</th>
<th>For valves</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEA-PAM-525-C-32</td>
<td>K*G4V-3; KDGSV-5/7/8</td>
<td>With type &quot;H&quot; coils only</td>
</tr>
<tr>
<td>EEA-PAM-525-C-32</td>
<td>K*G4V-5</td>
<td></td>
</tr>
<tr>
<td>EEA-PAM-535-C-32</td>
<td>KF*G4V-3</td>
<td></td>
</tr>
<tr>
<td>EEA-PAM-535-C-32</td>
<td>KF*G4V-6</td>
<td></td>
</tr>
<tr>
<td>EEA-PAM-561-C-32</td>
<td>KFDSG5V-5/7</td>
<td></td>
</tr>
<tr>
<td>EEA-PAM-568-C-32</td>
<td>KFDSGV-8</td>
<td></td>
</tr>
</tbody>
</table>

### Operating Data

<table>
<thead>
<tr>
<th>Power requirements</th>
<th>See appropriate base amplifier, e.g., for EEA-PAM-535-C-32 see EEA-PAM-535-A-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (output) supplies</td>
<td>z22 +15V for LVDTs only</td>
</tr>
</tbody>
</table>

| Output voltages for control:       |                                                                                   |
| At pin z2                         | +10V (± 1%) x 5 mA                                                               |
| At pin b2                         | −10V (± 1%) x 5 mA                                                               |
| At pins z2 and b2                 | Ripple ≤20 mV pk.−pk. - Temperature drift ≤1 mV°C (<0,5 mV/F) thru 0-56°C (32-122°F) range |
| All outputs short-circuit protected |                                                                                   |

| Command signal inputs:            |                                                                                   |
| Direct-voltage pins               | b8, b6, z8, z10                                                                  |
| Inverting-voltage pin             | z10                                                                              |
| Voltage range                     | ± 10V                                                                            |
| Input impedance (voltage)         | 47 kΩ                                                                            |
| Current pin                       | z6                                                                               |
| Current range                     | ± 20 mA                                                                          |
| Input impedance (current)         | 1000Ω                                                                           |
| Command voltage source            | ±10V x 10 mA                                                                     |

| Command voltage polarity selection: |                                                                                   |
| For flow from (main) port P to A   | Pin d2 at 0 to +5V                                                                |
| For flow from (main) port P to B   | Pin d2 at +10 to +40V                                                             |
| Input impedance                   | 47 kΩ                                                                            |

**Warning:** Loss of signal at pin d2 causes polarity reversal and possible erratic motion.

**In the case of EEA-PAM-525/525 amplifiers, one of these relationships may not apply if two single-solenoid valves are connected.**

| Logic inputs:                      |                                                                                   |
| Switch-on voltage                 | d10, d12, d14 or d18                                                             |
| Switch-off voltage                | ±10 to +40V                                                                      |
| Input current                     | ±10 mA                                                                          |

| Command voltage inputs: d22, d24, d26 and d28 | +10V gives valve flow from port P to B, or −10V gives flow from P to A |
| Voltage and source                | Four 50 kΩ pots                                                                  |
| Input impedance                   | 5 kΩ; 0.25 W minimum                                                             |
| External command potentiometer    | Part no. 714127; see catalog 2460                                               |
|                                  | Not applicable when using EEA-PAM-525/525 amplifiers to drive two single-solenoid valves |

| Drive enabled (power available to solenoid) | z24 Apply +9.8V to <400V (22 kΩ)                                           |
| Drive disabled (no power to solenoid)       | z24 Apply open circuit or up to 4.5V                                         |

*Continued on next page*
Power Amplifiers
Models with Command Logic Module and 4 Ramps
EEA-PAM-5**-C-32 Series

General Description
The EEA-PAM-5**-C-32 Eurocards are power amplifiers with a 4-input (demand signal) module and 4-ramp function generator with quadrant detection. The ramp generator allows acceleration and deceleration to be set separately for both directions of movement.

The type of EEA-PAM-5**-C-32 amplifier used depends on the type of proportional valve, see "Model Codes" on next page.

Features and Benefits
- All features of "A" amplifiers
- 4 adjustable ramp times, 4-quadrant acceleration/deceleration
- 4 adjustable command pre-sets selectable by 24V logic signal
- Polarity of the 10V reference voltage selectable by 24V logic signal

Front Panel

** LED and symbol not on EEA-PAM-503/525 amplifiers.
▲ Main-stage spool in the case of KDD5V valves.
● Of solenoid current in the case of EEA-PAM-523/525 models, of spool position for others.

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