

Vickers® Amplifier Cards



Power Amplifiers for Proportional Valves

EEA-PAM-56*-A-14 Design

EEA-PAM-561-A-14 for use with valve types:

KDG5V-5, 3* and KDG5V-7, 1* series

EEA-PAM-568-A-14 for use with valve types:

KDG5V-8, 1* series

General Description

This basic amplifier is designed for driving Vickers type KFDG5V-5/7/8, 2-stage proportional valves in applications requiring only one (adjustable) ramp setting for both acceleration and deceleration.

Analog command input signals can be non-inverting current, or non-inverting, inverting or differential voltages. The amplifier requires a power supply of 24V DC and is enabled by a 24V logic signal.

The ramp is normally enabled but can be selectively disabled by suitable wiring to an external switch.

The amplifier front panel contains LEDs showing the status of power, control supply and outputs. Potentiometers for adjusting ramp, deadband compensation and gain are also mounted in the front panel.

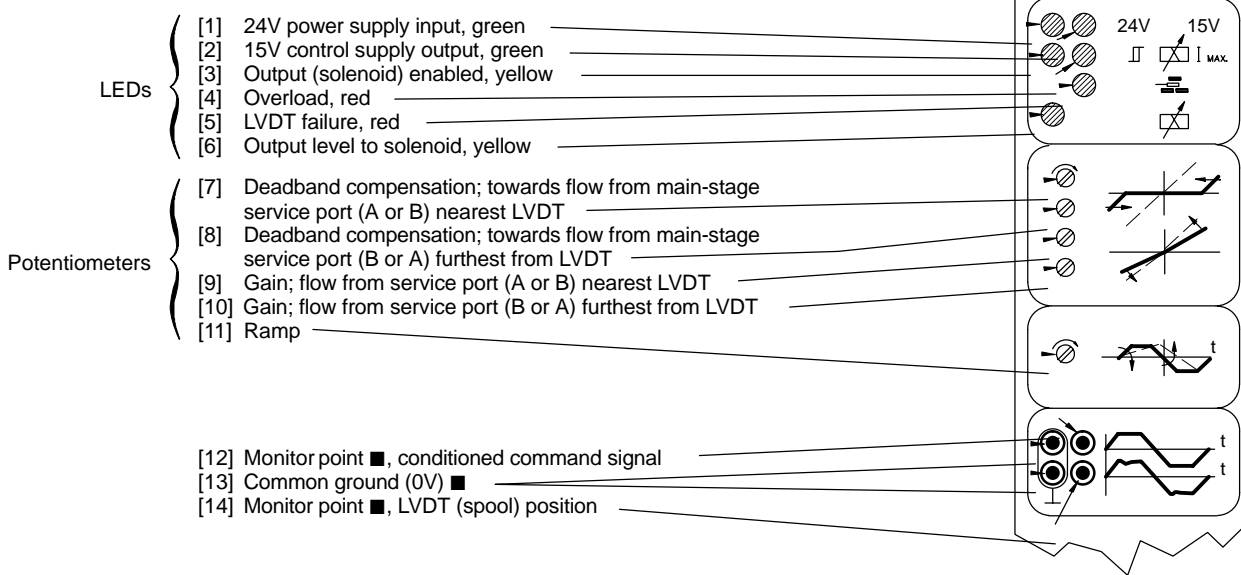
Features

- Basic valve amplifier
- Voltage and current command signals
- 1 ramp for acceleration and deceleration
- 24V DC power supply
- Pulse-width-modulated coil drives

14-design Features

- Wider supply voltage range plus increased tolerance to ripple
- Low supply voltage protection
- Additional monitor points on edge connector
- Gain re-positioned in circuitry to give:
 - Ramp setting unaffected by gain adjustment
 - Constant trigger voltage for deadband compensation

Front Panel



■ Ø 2 (0.0787 dia.) sockets

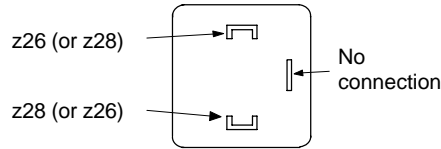


Warning: Electromagnetic Compatibility (EMC)

This product does not conform to the European Community directives for electromagnetic compatibility (EMC). It is only suitable for use within the European Economic Area in a sealed electromagnetic environment or as a spare for an existing machine. (Ref. UK Electromagnetic Compatibility Regulations 14 & 18, 1995.)

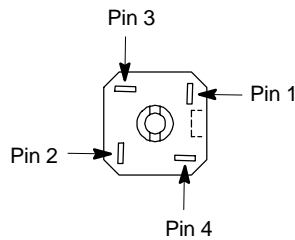
Valve Wiring Connections

Solenoid Connections



Note: Connections *not* polarity sensitive

LVDT Connections



| LVDT plug pin | Amplifier pin |
|---------------|---------------|
| 1 | b14 |
| 2 | z22 |
| 3 | b16 |
| 4 | Not connected |

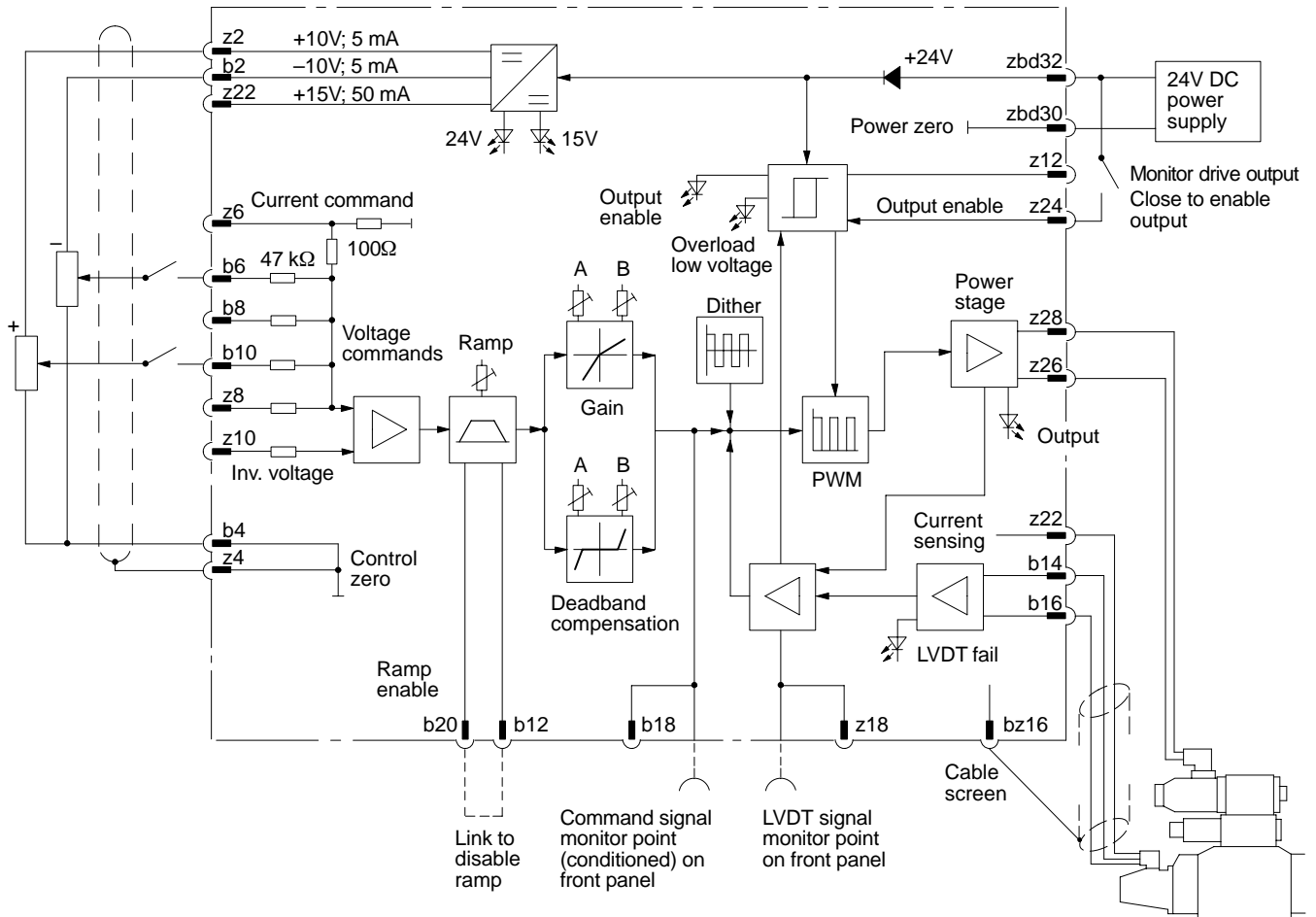
Operating Data

| | |
|---|--|
| Power (input) supply | 20 to 34V DC x 40W max. 24V DC nominal <4V pk-to-pk ripple Amplifier shuts down below 19V |
| Control (output) supplies: | z22 +15V x 50 mA max. in addition to LVDT demand z2 +10V x 5 mA max. b2 -10V x 5 mA max. |
| Command signal inputs: | |
| Direct voltage pins | b8, b6, z8, b10 |
| Inverting voltage pin | z10 |
| Voltage range | ± 10V |
| Input impedance (voltage) | 47 kΩ |
| Current pin | z6 |
| Current range | ± 20 mA |
| Input impedance (current) | 100Ω |
| Standing solenoid current at zero command signal | 1,4A |
| Note: A positive signal to a non-inverting signal pin reduces solenoid current | |
| Deadband compensation, separate controls for each direction from spool-centered position: | |
| Factory setting | 10% of max. stroke ▲ |
| Adjustment per direction from centered position | 0 to 50% of max. stroke ▲ |
| Gain, separate controls for each direction from spool-centered position: | |
| Factory setting | Max. spool stroke at 10V command signal ▲ |
| Adjustment per direction from centered position | 1,9 to 20% of max. spool stroke per 1 volt ▲ |
| Ramp time adjustment, linear: | |
| Factory setting | Max. time |
| Adjustment range | 50 ms to 2s, under pre-set deadband compensation and gain conditions specified above |
| Dither | Factory-set |
| Feedback from LVDT to b14 | 4 to 20 mA (100Ω) |
| Overload protection, factory-set | Automatic reset when fault removed |
| Output enabled (power available to solenoid) | z24 Apply 10 to 30V (6.8 kΩ) |
| Output disabled (no power output to solenoid) | z24 Apply ≤ 0,8V or open circuit |
| Ramp enabled (machine actuator acceleration and deceleration limited by ramp potentiometer) | b12, b20 Open circuit between b20 and b12 |

▲ From spool-centered position

Continued on next page

Circuit and Connections



Command Signals and Outputs

| Command signals | | | | Valve flow |
|------------------------|----------------------|-------------------------------|----------------------------------|------------|
| Type | Ref. | Input pins Signal polarity | Secondary pins ref. | |
| Non-inverting voltages | b6/8/10 or z8 | + | b24 | P-B |
| | | - | | P-A |
| Non-inverting current | z6 | + | b24 | P-B |
| | | - | | P-A |
| Inverting voltage | z10 | - | Link one of b6/8/10 or z8 to b24 | P-B |
| | | + | | P-A |
| Differential voltage | One of b6/8/10 or z8 | - | One of b6/8/10 or z8 | P-B |
| | | + | | P-A |
| | | + | z10 | P-B |
| | | - | | P-A |

Installation Dimensions mm (inches)

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

