

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.

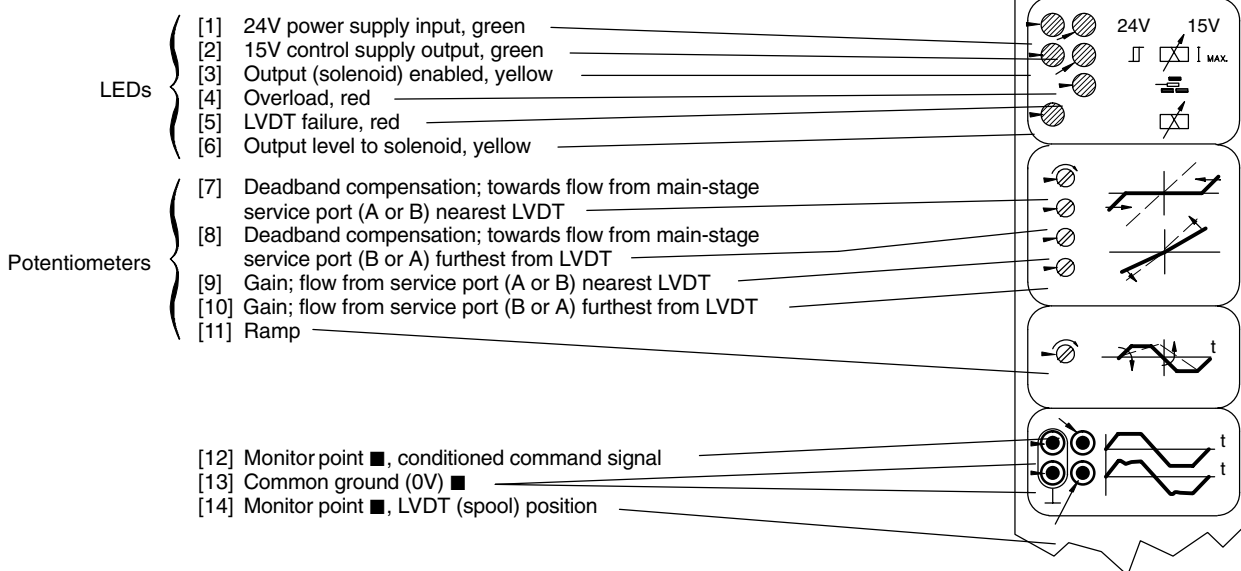
Features

- 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

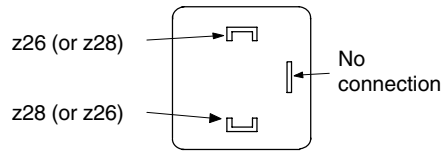


Warning: Electromagnetic Compatibility (EMC)

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.)

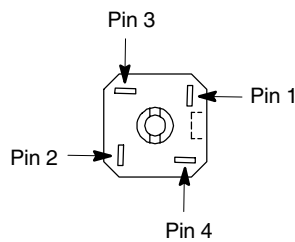
Valve Wiring Connections

Solenoid Connections



Note: Connections *not* polarity sensitive

LVDT Connections



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

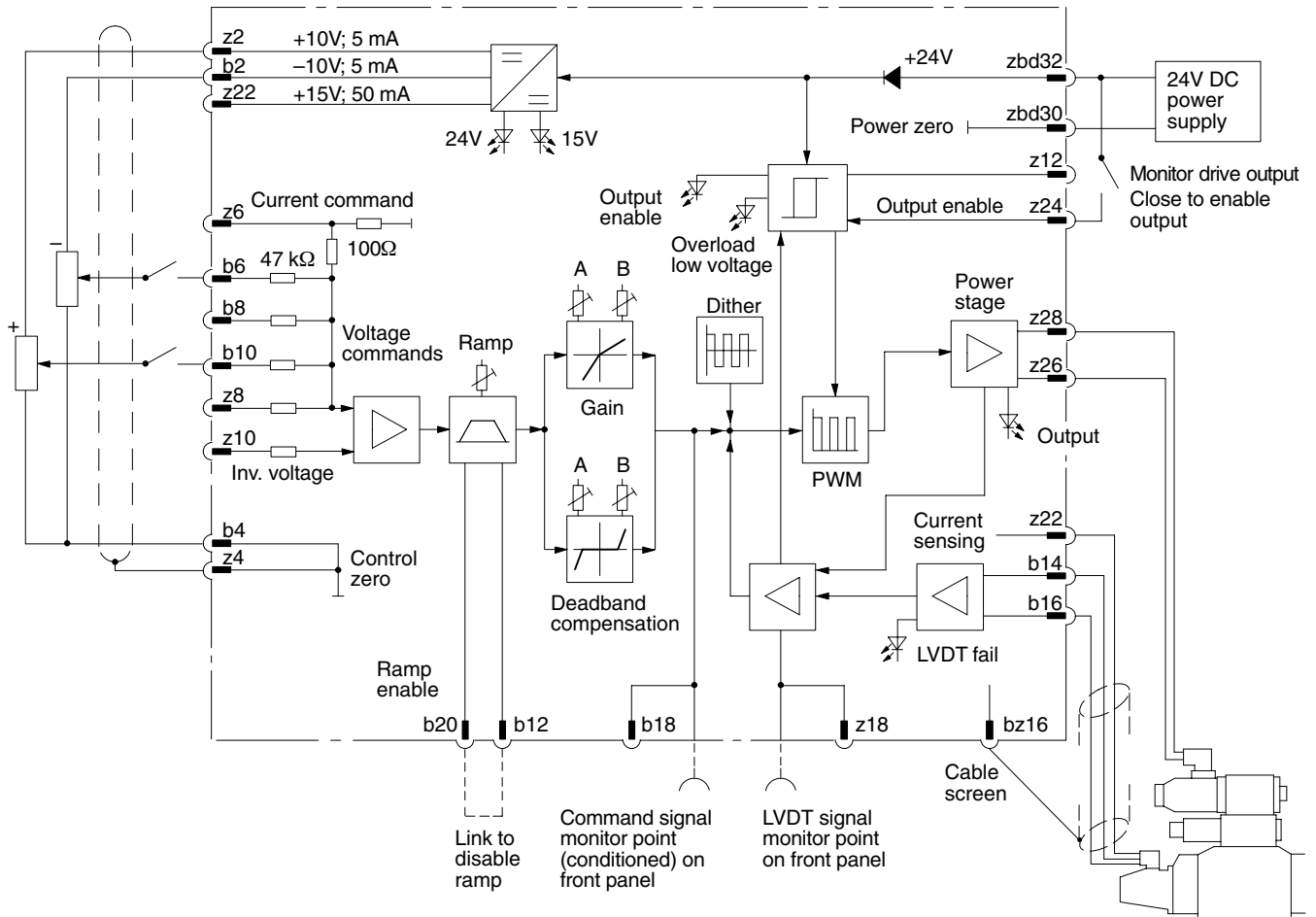
Operating Data

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 bz4	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

