

Power Amplifiers for PVH-EDC Pumps

EEA-EDC-436-A*-14 Design

- A1 - For use with PVH57 & 74
- A2 - For use with PVH98
- A3 - For use with PVH131



General Description

These amplifiers are designed for controlling Vickers PVH pumps with electronic displacement control.

The pulse-width-modulated power output stage drives a single solenoid proportional spool valve which hydraulically controls the pump yoke position. Feedback of the yoke position and pump output is from a rotary feedback transducer which closes the control loop and ensures accurate pump output flow.

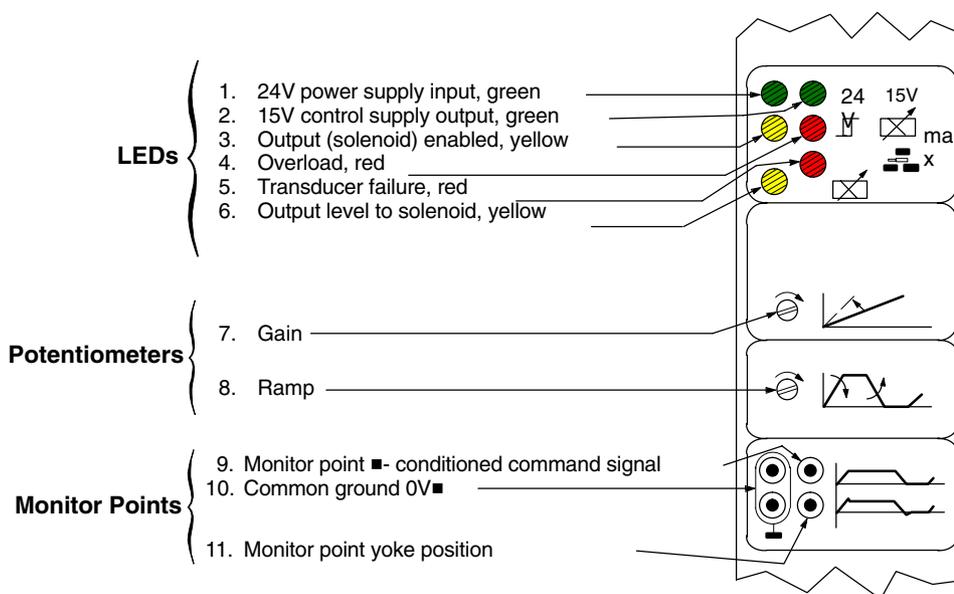
Analog command input signals can be non-inverting current, or non-inverting, inverting or differential voltages. The amplifier requires a power supply of 24V DC and is enabled by a 24V logic signal. The ramp is normally enabled but can be selectively disabled by suitable wiring to an external switch.

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

Features

- Constant current amplifier
- Voltage or current command signals
- 1 ramp for acceleration and deceleration
- 24V DC power supply
- Pulse-width-modulated coil drive
- Wide supply voltage range and tolerance to ripple
- Low supply voltage protection
- Ramp setting unaffected by gain adjustment.

Panel Display



■ Ø2,0 (0.0787 dia.) sockets

Operating Data (Amplifier)

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) supply:	+15V x 50 mA max. +10V x 5 mA max. -10V x 5 mA max. All outputs short-circuit protected
Command signal inputs:	
Direct voltage pins	b8, b6, z8, b10
Inverting voltage pin	z10
Current pin	z6
Voltage range	+10V (b6, b8, b10 or z8) or -10V (z10)
Input impedance (voltage)	47 k Ω
Current range	0-20 mA (z6)
Input impedance (current)	100 Ω
Standing solenoid current at zero command signal	0,8A
Gain adjustment	2% yoke position/volt to 20% yoke position/volt
Ramp time adjustment, linear:	
Factory setting	Minimum time
Adjustment per solenoid	50 ms to 2s,
Dither	Factory-set
Feedback from yoke transducer to b14	4 to 20mA (100 Ω)



WARNING

The control card disables the pump's function whenever an internal function fault or external interface electrical fault is detected. The card automatically re-enables itself whenever the fault ceases. This can lead to a sudden and unexpected actuator motion when the fault clears with the potential of severe personal injury to the operator or maintenance personnel.

- DO NOT** operate the machine if it is experiencing intermittent electrical faults or otherwise functioning in an unreliable manner until the condition has been fully corrected.
- Ensure that operator and maintenance personnel remain clear of any components actuated by the pump when system/machine troubleshooting is conducted with either or both electrical and hydraulic power available to the system.

Overload protection, factory-set	Automatic reset when fault removed
Output enable	
Enabled	Apply 10 to 34V
Disabled	Apply $\leq 0,8V$ or open circuit
Input impedance (voltage)	(6.8 k Ω)
Ramp enable	
Enabled	Open circuit between b20 and b12
Disabled	Link b20 to b12
Command signal monitor point	$\pm 5V$ full scale. Command signal conditioned by gain and ramp functions.
Yoke position monitor point	0 to -5V full scale
Output point (z12) to alarm indicator	> +6V when enabled < -6V when disabled
Ambient temperature range	0 to 50°C (32 to 122°F)
Mass	0,22 kg (0.48 lb)
Supporting products:	Literature No:
Portable test equipment	2315 & 2462
Power supply unit options	2419
Electronic accessories	2460

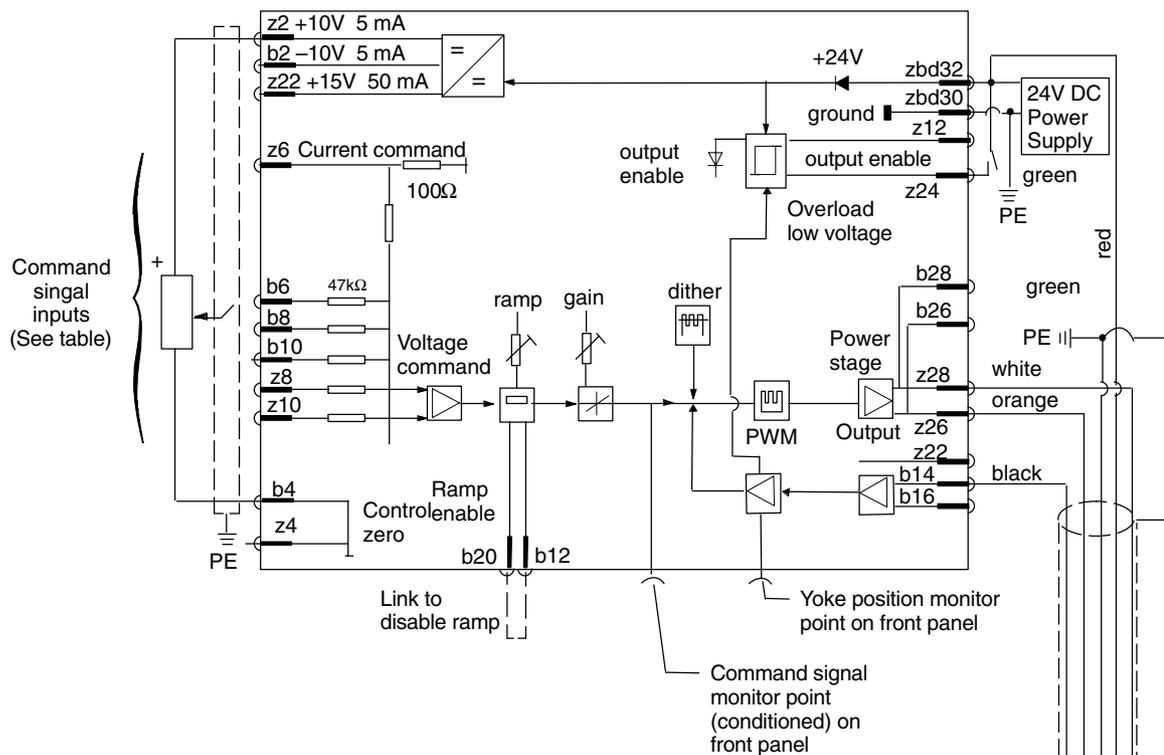


WARNING: Electromagnetic Compatibility (EMC)

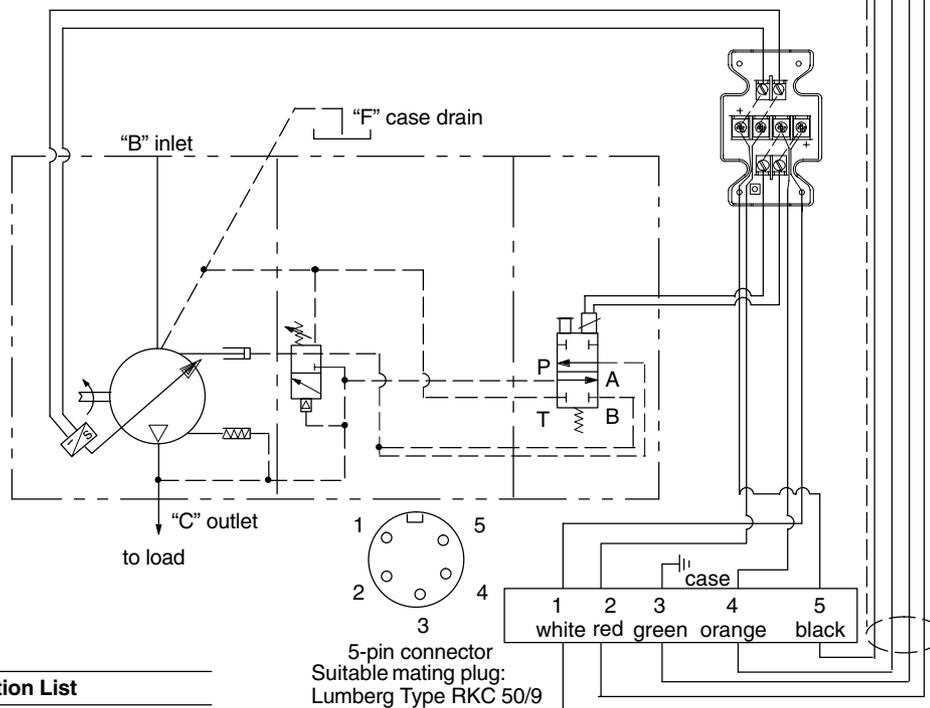
This product does not conform to the European Community directives for electromagnetic compatibility (EMC). It is only suitable for use within the European Economic Area in a sealed electromagnetic environment or as a spare for an existing machine. (Ref. UK Electromagnetic Compatibility Regulations 14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

Circuit and Connections

Eurocard Amplifier



Pump Assembly



Connection List		
Card	Connector	Signal
zbd32	2	+24V
z28	1	Solenoid
z26	4	Solenoid
b14	5	Feedback
-	3	Protective Earth (PE)

Note
All cables to be screened, grounded and connected to PE as shown.

Command Signals/Installation Dimensions for Amplifier

Command Signals

Type	Input pins	Signal polarity	Secondary pins ref.
Non-inverting voltages	b6/8/10 or z8	+	bz4
Non-inverting current	z6	+	
Inverting voltage	z10	-	Link <i>one</i> of b6/8/10 or z8 to bz4
Differential voltage		One of b6/8/10 or z8	+
	One of b6/8/10 or z8	+	z10 and link <i>one</i> of b6/8/10 to bz4

Installation Dimensions

Plug-in unit of 3U height, to IEC 297

mm (inch)

3rd angle
projection

