

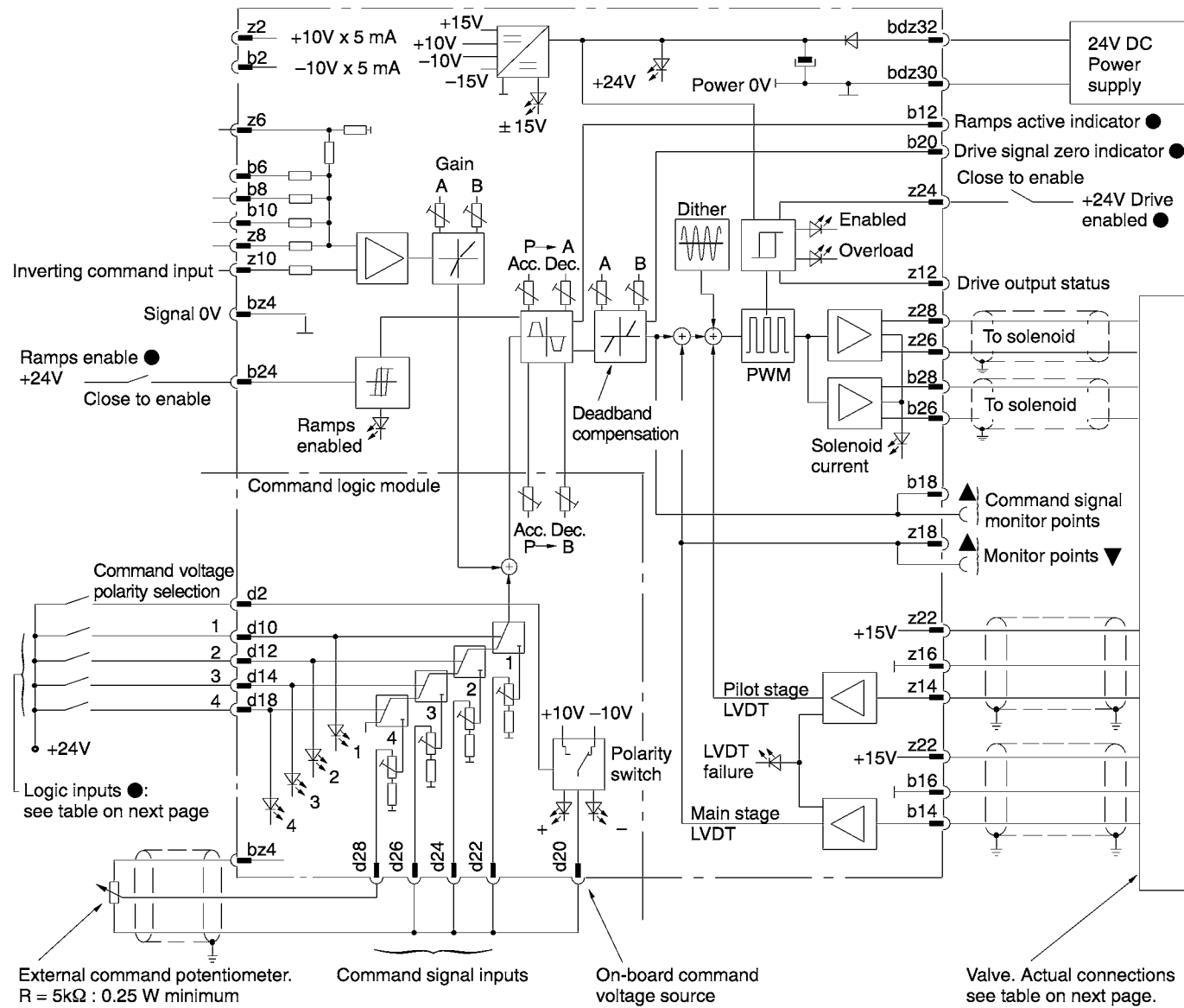
# Circuit and Connections

## EEA-PAM-5\*\*-C-32

Shown with command logic module. Individual ramp adjustments of spool acceleration and deceleration for each direction of movement, are provided. The circuit here includes the essential

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.

Read circuit in conjunction with that for relevant base amplifier EEA-PAM-5\*\*-A



⏏ Customer's protective ground connection.  
 ▼ Solenoid current for 523/525-C models; LVDT position for all others.  
 ▲ On front panel.  
 ● See under this heading in "Operating Data" table, on previous two pages.

## Logic Selection Inputs

Logic input pin	Command pot.	Secondary pin	Voltage to pin d2	Valve flow
d10	1	bdz30	0 +24V	P-A } P-B } ■
d12	2	bdz30	0 +24V	P-A } P-B } ■
d14	3	bdz30	0 +24V	P-A } P-B } ■
d18	4	bdz30	0 +24V	P-A } P-B } ■

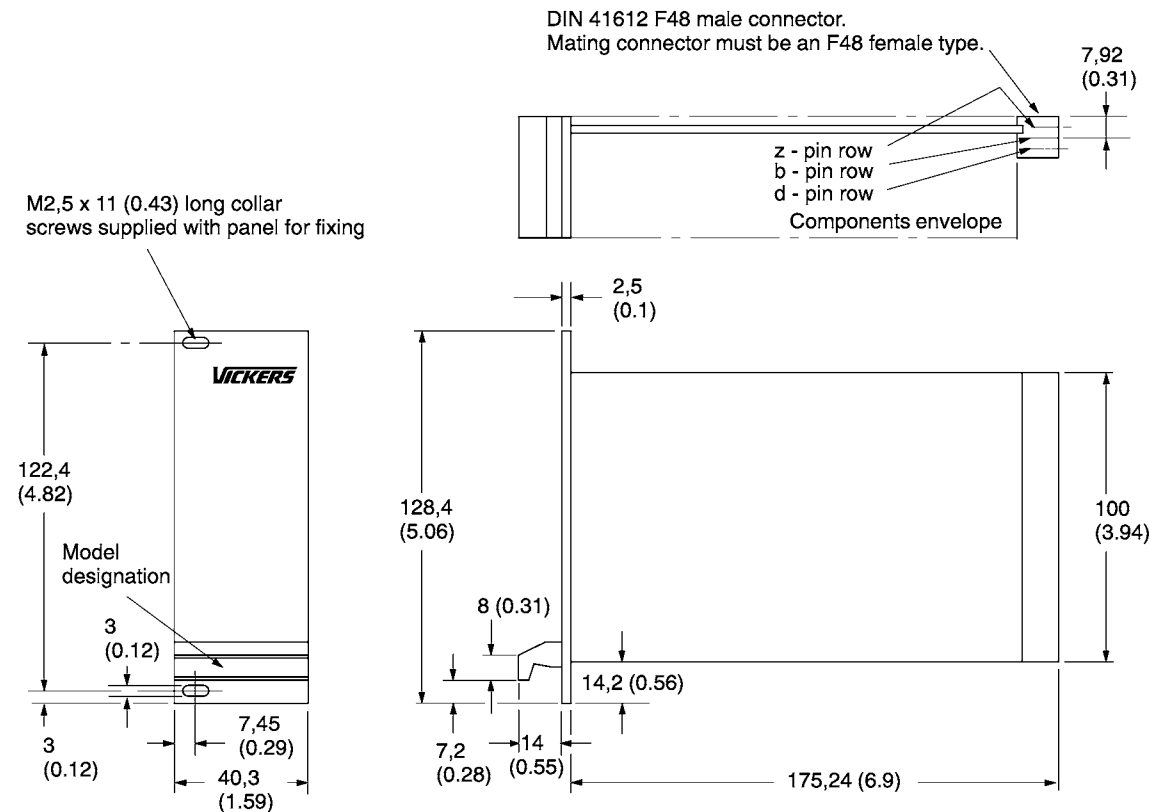
■ In the case of EEA-PAM-523/525-C models, one of these relationships may not apply if two single-solenoid valves are connected.

## Solenoid and LVDT Connections for Proportional Valves

Amplifier type	Solenoid with LVDT and/or for flow P to B	Solenoid without LVDT, or on pilot valve	Pilot-stage LVDT, (black plug):				Main-stage LVDT, (gray plug):			
			Pin 1	Pin 2	Pin 3	Pin 4	Pin 1	Pin 2	Pin 3	Pin 4
EEA-PAM-523-C-32	b26/b28	z26/z28	-	-	-	Not connected	-	-	-	Not connected
EEA-PAM-525-C-32	b26/b28	z26/z28	-	-	-	Not connected	-	-	-	Not connected
EEA-PAM-533-C-32	b26/b28	z26/z28	-	-	-	Not connected	b14	z22	b16	Not connected
EEA-PAM-535-C-32	b26/b28	z26/z28	-	-	-	Not connected	b14	z22	b16	Not connected
EEA-PAM-561-C-32	-	z26/z28	-	-	-	Not connected	b14	z22	b16	Not connected
EEA-PAM-568-C-32	-	z26/z28	-	-	-	Not connected	b14	z22	b16	Not connected

# Installation Dimensions in mm (inches)

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



Alarm output: Set alarm Signal	z12	Enable amplifier (on pin z24) 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 z24
Reset after failure		
Ramps enabled (valve switching rate limited by ramp potentiometers)	b24	Apply >9,8V 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 I = 50 mA max.
Drive active Output resistance		Output = 0 ±2V 50Ω
Ambient temperature range		0 to 50°C (32 to 122°F)
Storage temperature range		-25 to +85°C (-12 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-5**-A-32
Installation and start-up guidelines (supplied with product)		9166
Installation wiring requirements for Vickers electronics products		2468
Application notes (available on request)		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.

## Model Codes

Amplifier model	For valves
EEA-PAM-523-C-32	K*G4V-3; KDG5V-5/7/8 } With type "H" coils only
EEA-PAM-525-C-32	
EEA-PAM-533-C-32	KF*G4V-3
EEA-PAM-535-C-32	KF*G4V-5
EEA-PAM-561-C-32	KFDG5V-5/7
EEA-PAM-568-C-32	KFDG5V-8

## Operating Data

Power requirements		See appropriate base amplifier, e.g. for EEA-PAM-535-C-32 see EEA-PAM-535-A-32
Control (output) supplies	z22	+15V for LVDTs only
Output voltages for control: At pin z2 At pin b2 At pins z2 and b2		+10V ( $\pm 1\%$ ) x 5 mA -10V ( $\pm 1\%$ ) x 5 mA Ripple <20 mV pk.-to-pk. Temperature drift <1 mV/°C (<0,5 mV/°F) thru' 0-50°C (32-122°F) range All outputs short-circuit protected
Command signal inputs: Direct-voltage pins Inverting-voltage pin Voltage range Input impedance (voltage) Current pin Current range Input impedance (current)	b8, b6, z8, b10 z10   z6	$\pm 10V$ 47 k $\Omega$  $\pm 20$ mA 100 $\Omega$
Command voltage source	d20	$\pm 10V$ x 10 mA
Command voltage polarity selection: For flow from (main) port P to A▲ For flow from (main) port P to B▲ Input impedance <b>Warning:</b> Loss of signal at pin d2 causes polarity reversal and possible erratic motion. ▲ In the case of EEA-PAM-523/525 amplifiers, one of these relationships may not apply if two single-solenoid valves are connected.		Pin d2 at 0 to +5V Pin d2 at +10 to +40V 47 k $\Omega$
Logic inputs: Switch-on voltage Switch-off voltage Input current	d10, d12, d14 or d18	+10 to +40V <+5V $\leq 10$ mA
Command voltage inputs: Voltage and source Input impedance External command potentiometer	d22, d24, d26 and d28	+10V gives valve flow from port P to B, or -10V gives flow from P to A◆ Four 50 k $\Omega$ pots 5 k $\Omega$ ; 0,25W minimum Part no. 714127; see catalog 2460 ◆ Not applicable when using EEA-PAM-523/525 amplifiers to drive two single-solenoid valves.
Drive enabled (power available to solenoid)	z24	Apply >9,8V to <40V (22 k $\Omega$ )
Drive disabled (no power to solenoid)	z24	Apply open circuit or up to 4,5V

Continued on next page

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## 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

#### LEDs

- [1] 24V power supply input, green
- [2] ± 15V control supply output, green
- [3] Drive (solenoid) enabled, yellow
- [4] Overload, red
- [5] LVDT failure, red ▼ ▲
- [6] Drive to solenoid, yellow ★

#### Potentiometers

- [7] Deadband compensation, flow from port P to B ◆ ▲
- [8] Deadband compensation, flow from port P to A ◆ ▲
- [9] Gain, flow from port P to B ◆ ▲
- [10] Gain flow from port P to A ◆ ▲

#### LED

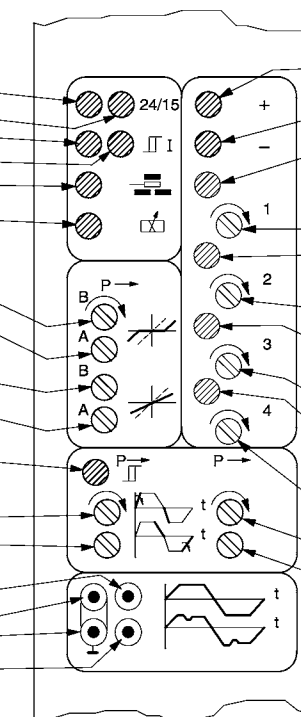
- [11] Ramps enabled, yellow

#### Potentiometers

- [12] Spool acceleration, flow from port P to B ◆ ▲
- [13] Spool deceleration, flow from port P to B ◆ ▲

#### Monitor points ■

- [14] Conditioned command signal
- [15] Common ground 0V
- [16] ▲ ●



#### LEDs

- [17] Positive input polarity ON, yellow
- [18] Negative input polarity ON, yellow
- [19] Input 1 ON, yellow

#### Potentiometer

- [20] Input 1 adjustment

#### LED

- [21] Input 2 ON, yellow

#### Potentiometer

- [22] Input 2 adjustment

#### LED

- [23] Input 3 ON, yellow

#### Potentiometer

- [24] Input 3 adjustment

#### LED

- [25] Input 4 ON, yellow

#### Potentiometers:

- [26] Input 4 adjustment
- [27] Spool acceleration, flow from port P to A ◆ ▲
- [28] Spool deceleration, flow from port P to A ◆ ▲

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▼ LED and symbol not on EEA-PAM-523/525 amplifiers.

▲ Main-stage spool in the case of K\*DG5V valves.

● Of solenoid current in the case of EEA-PAM-523/525 models, of spool position for others.

■ Ø2,0 mm (0.0787" dia.) sockets.

★ Indicates drive to whichever solenoid is energized.

◆ In the case of EEA-PAM-523/525 amplifiers, one of these relationships may not apply if two single solenoid valves are connected.

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