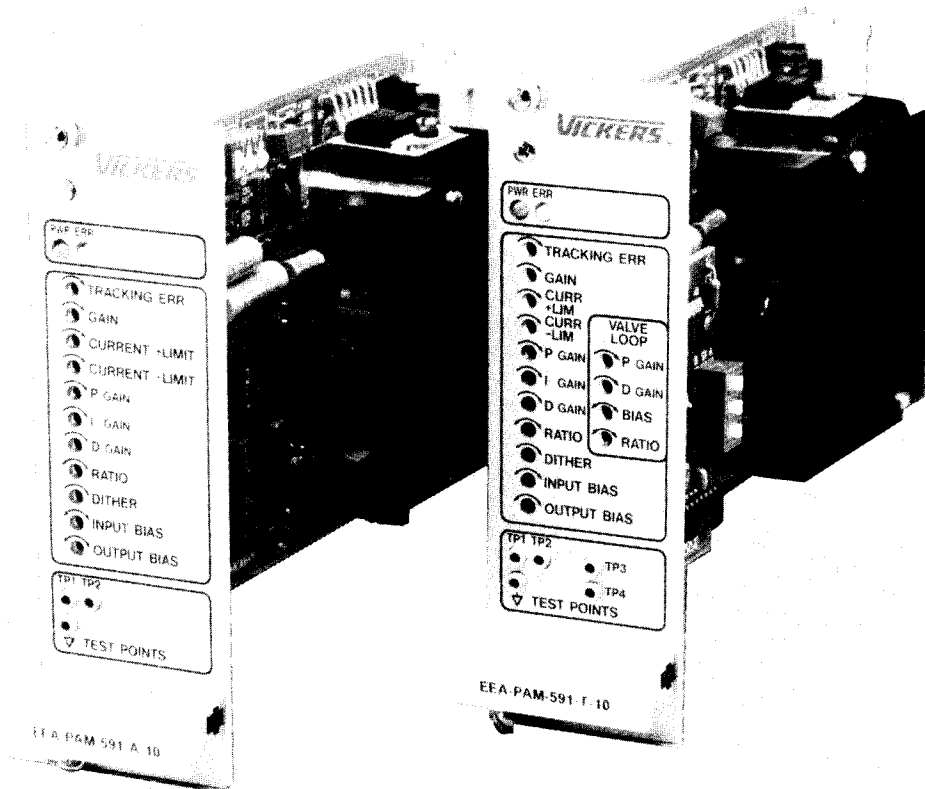


## Universal Servovalve Amplifier

EEA-PAM-591-A-10 (2 stage)

EEA-PAM-591-T-10 (3 stage)



# Universal Servovalve Amplifier for 2 and 3 Stage Servovalves

These cards are designed to drive Vickers SM4 and SP4 servovalves as well as other industry standard servovalves, such as Moog, Atchley, Pegasus, Rexroth, etc., in open and closed loop servo systems. This package offers flexible circuitry in a standard rack mount format requiring a single +24 vdc supply. The EEA-PAM-591-A-10 is for use with 2 stage servovalves, while the EEA-PAM-591-T-10 can control 3 stage servovalves accepting DC inner loop feedback.

By selecting the appropriate on board switches the circuitry can be easily configured for use in position, force, and velocity applications.

These cards have the ability to accept both voltage and current control signals, independently invert them and generate drive currents up to  $\pm 200$  ma.

By utilizing the independently adjustable proportional, derivative, and integral gain networks, improved servo system performance can be achieved.

In addition, a jumper selectable "output current range" has been included for multiple output resolution settings.

## Features and Benefits

- Single +24 vdc supply.
- Standard Din 41612 F48 interface.
- Acceptance of voltage or current control signals.
- Command and feedback signal ratio adjustment.
- Switch selectable control signal inversion.
- Independently adjustable P.I.D. networks.
- Independent P.D. compensation for inner loop feedback. (591-T only)
- External integrator reset input.
- Switch selectable gain ranges for derivative and integral.
- Adjustable frequency and amplitude dither signal.
- Adjustable tracking alarm with opto-coupled output.
- Jumper selectable output current ranges:  $\pm 50$ , 100, 200 ma.
- Front panel LEDs, test points and adjustments for quick, easy set up and diagnostics.

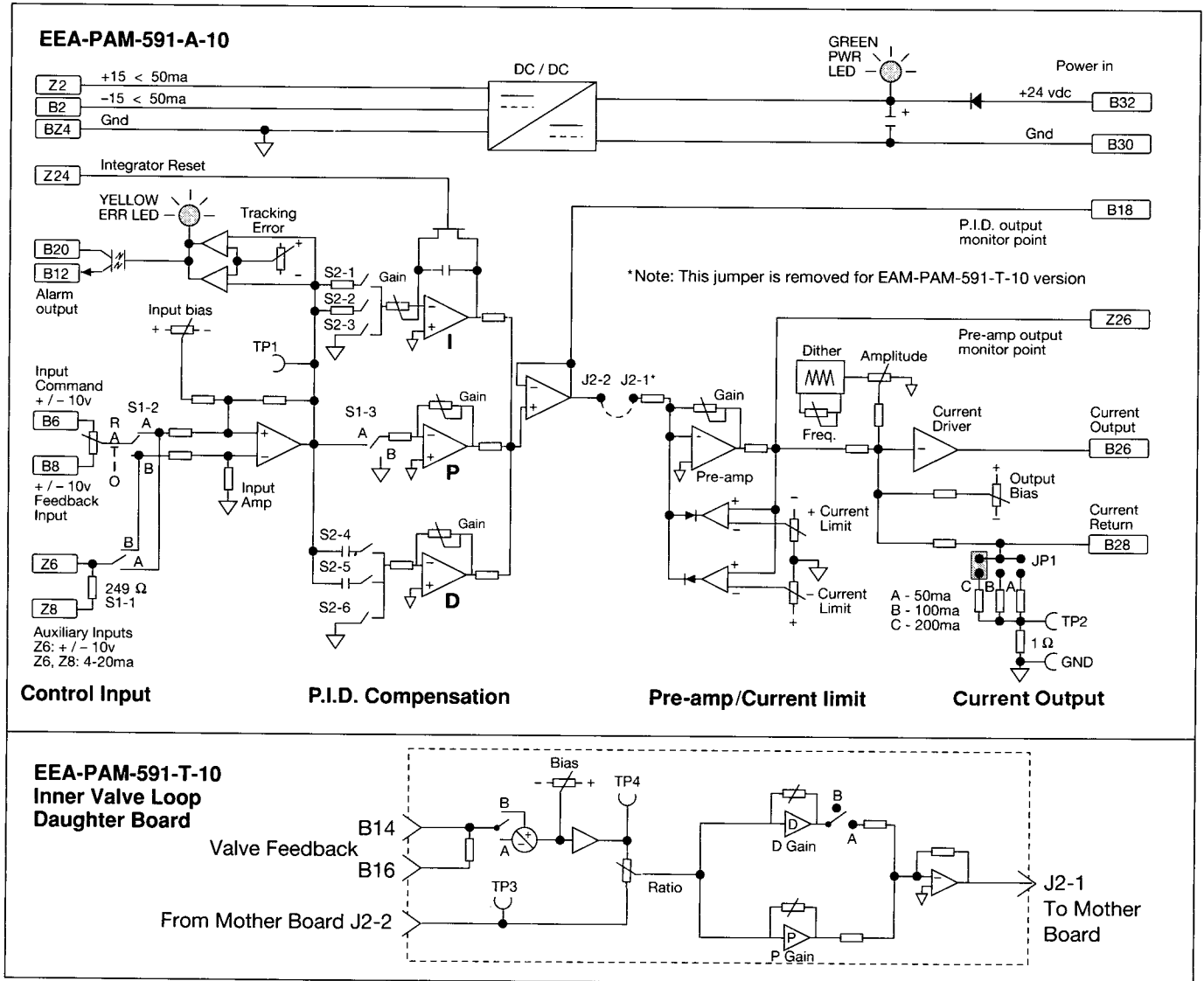
## Operating Data EEA-PAM-591-A/T-10

Power requirements	Nominal +24vdc < 500 ma: (at 200 ma load) Range +20 to +32 vdc. Maximum ripple $\pm 5\%$ pk: Reverse polarity protected. Amplifier shuts down below +20 vdc.
Output voltages At pins B2 and Z2	$\pm 15$ vdc < 50 ma: Ripple < 50 mv pk/pk (- 15vdc not short circuit protected)
Command signal inputs Voltage input  Current input	At pins B6, B8 or Z6: Range $\pm 10$ vdc. Impedance: 100k ohms. At pins Z6 and Z8: Range 0 to 20 ma. Impedance: 249 ohms.
Output current drive Jumper selectable (jumper "JP1")	(A) position $\pm 50$ ma (B) position $\pm 100$ ma (C) position $\pm 200$ ma
Front panel test points Tracking error monitor (TP1) Output current monitor	$\pm 10$ v full scale: short circuit protected. 1 mv/ma: short circuit protected.
Edge connector monitor points P.I.D. output monitor Pre-amp output monitor	At pin B18: $\pm 10$ v at 5 ma At pin Z26: $\pm 6$ v at 2 ma
Input bias	0 to $\pm 10$ vdc
Output bias	0 to $\pm 12\%$ of full scale output.
Current limiters	0 to $\pm$ full scale output current.
Dither Amplitude Frequency	0 to 20% of full scale output current. 50 to 400 hz.
Proportional gain	.1 v/v to 20 v/v
Integral gain Low range High range	0 to 40 v/v-sec 2 to 300 v/v-sec
Derivative gain Low range High range	.05 to .2 v-sec/v .3 to 2 v-sec/v
Pre-amp driver gain	1 to 15 v/v
Drift over operating temperature range	< $\pm .03\%$ of full scale output at maximum gain
Operating temperature range	0 to 50°C
Storage temperature range	-25 to 85°C

## Additional Data, EEA-PAM-591-T-10

Valve loop P gain	.1 v/v to 5-5 v/v
Valve loop D gain	.05 to .2v-sec/v
Valve loop Bias	0 to $\pm 10$ v
Valve loop feedback	0 to $\pm 10$ v or 4-20 ma

## Diagrams



## Accessory Products

### Power Supplies

- EHA-PSU-704-A-10

Assembly (order) number: 732166  
 Input power: 110/130/220/240 vac  
 Output: +24 vdc @ 4 amps  
 Dimensions: 9.84 in x 4.53 in x 2.76 in  
 Style: Open frame, panel mount

- EHA-PSU-704-B-10

Assembly (order) number: 732167  
 Input power: 110/130/220/240 vac  
 Output: + 24 vdc @ 4 amps  
           ± 15 vdc @ 250 ma  
           ± 10 vdc @ 50 ma  
 Dimensions: 9.84 in x 4.53 in x 2.76 in  
 Style: Open frame, panel mount

### Universal card holder

- Card holder

Assembly (order) number: 732683  
 Connector: Din 41612 F48 female  
 Connections: Screw terminals  
 Dimensions: 5.1 in x 5.7 in x 2.2 in  
 Style: Accepts Eurocard format of 3U height

### Female edge connector for 19' rack

- Edge connector

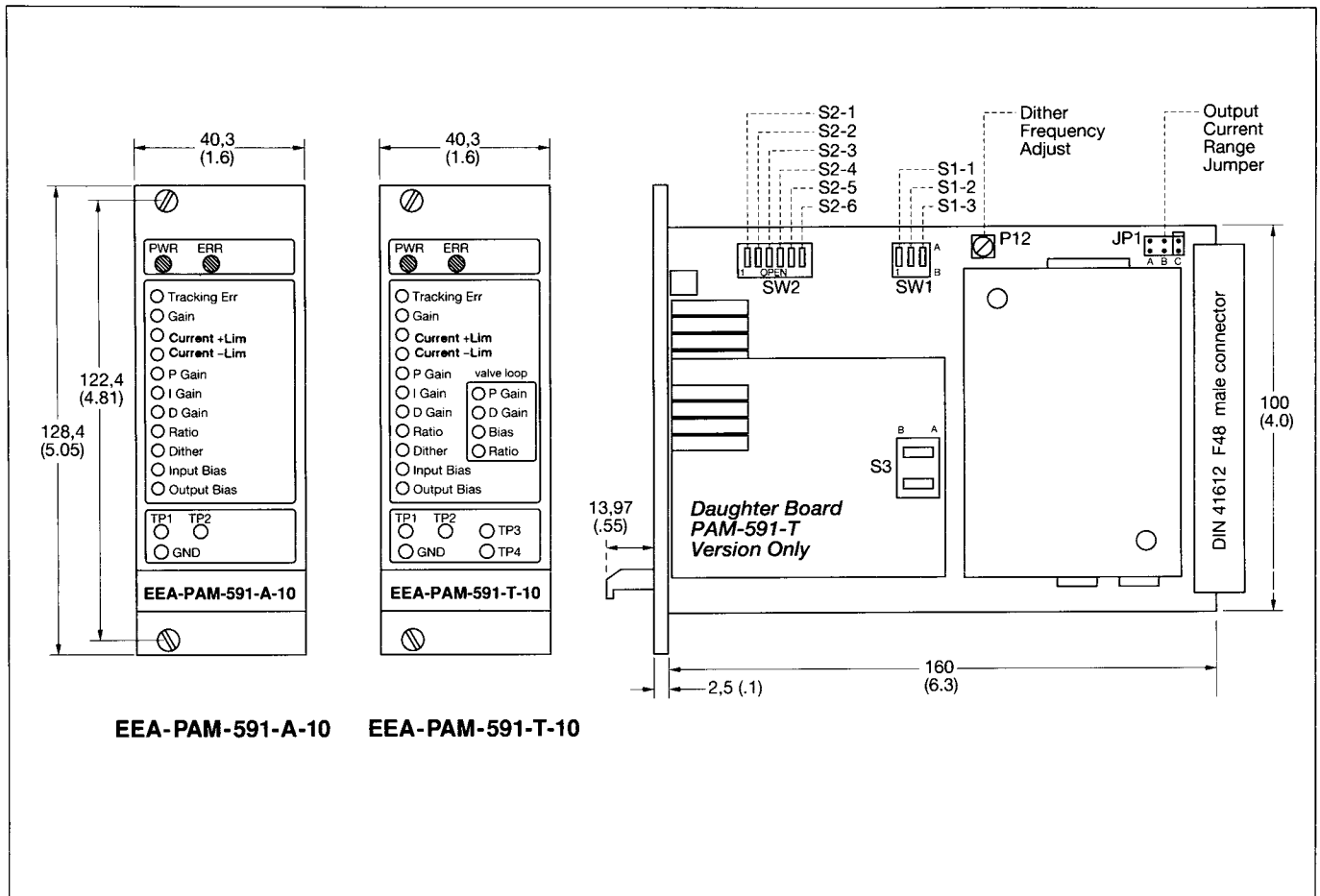
Assembly (order) number: 508178  
 Connector: Din 41612 F48 female  
 Connections: Solder terminals  
 Dimensions: 3.74 in x 1.15 in x .69 in  
 Style: Adaptable into rack housing

### Command and ramp generator

- EEA-DSG-453-A-10

Assembly (order) number: 02104128  
 Command selects: 5 (± 10 v range)  
 Range selects: 5 (.1 to 10 s range)  
 Style: Eurocard format, 3U height

## Installation Dimensions in mm (inches)



## Ordering Information

EEA - PAM - 591 - \* - 10

- Design Number
- A — 2 Stage Value, Part #884956
- T — 3 Stage Value, Part #884957

884956 (A)  
 884957 (T)

# VICKERS

A TRINOVIA Company

Vickers, Incorporated  
 10410 Holly Road  
 P.O. Box 180  
 Grand Blanc, MI 48439  
 U.S.A.  
 Phone: (313) 695-7000  
 Fax: (313) 695-7039  
 Technical Support:  
 Phone: (313) 853-1100  
 Fax: (313) 853-1134