AC / DC kV Amplifier   EA3024


- **DC Output 1 to 10 kVolts**
- **AC Voltage 1 to 5 kVolts**
- **Controlled by ProCal or VFP Software**

Overview

Working with and controlled from the 3000 series calibrator the kV amplifier provides the solution to the calibration of High Voltage probes and dividers. The amplifier/calibrator combination can be used only with our VFP or ProCal Software.

KV Amplifier - Connections

The kV amplifier unit has a built in connection lead to plug into the 3000 Series kV Amplifier output connector, as shown below :

Connection lead from rear of kV Amplifier to rear of 3000 Series calibrator (supplied)
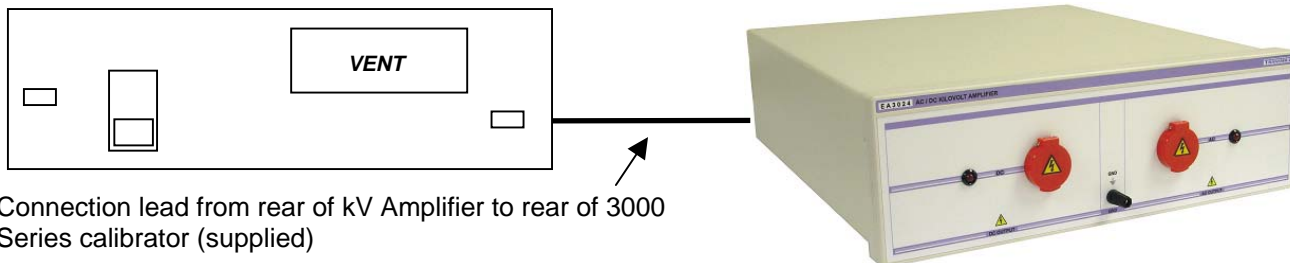
Front Panel Terminal Connections

Connect for DC or AC output is via independent sockets, with each socket having an individual LED indicator.

The ground connection is a 4mm terminal post.

Output ON
LED indicator

AC Voltage
Output Socket

Output ON
LED indicator

DC Voltage
Output Socket
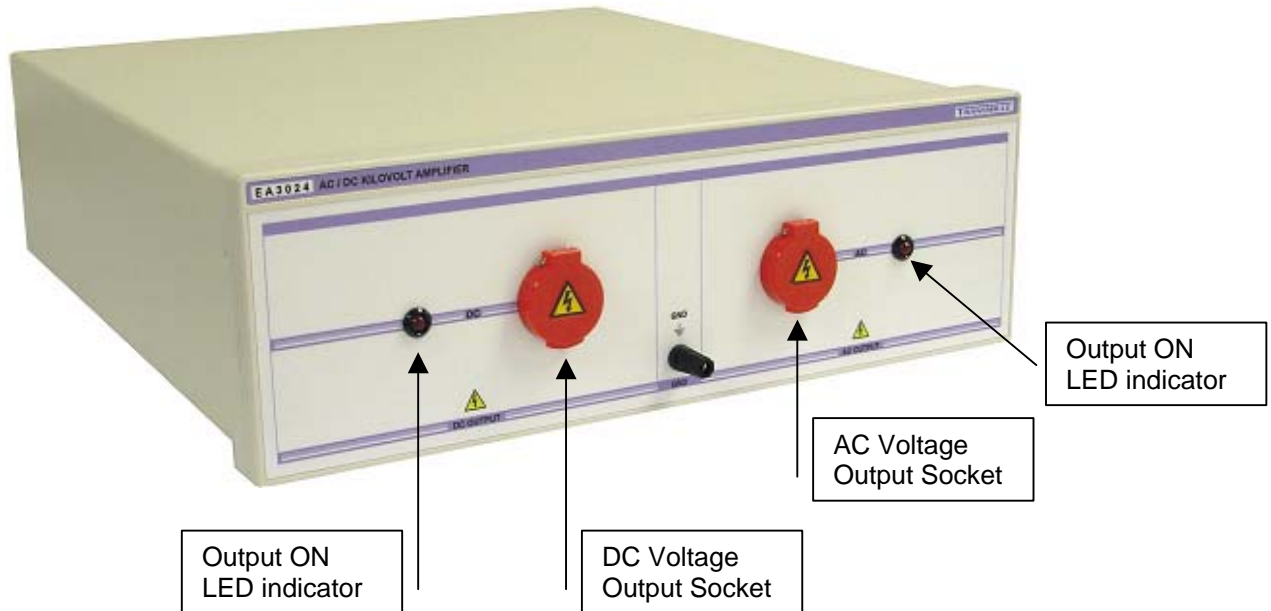
KV Amplifier – Virtual Front Panel Control

The initial startup screen will display first for 2 seconds.
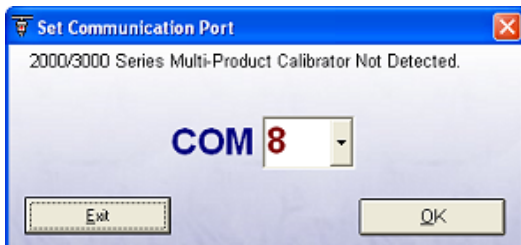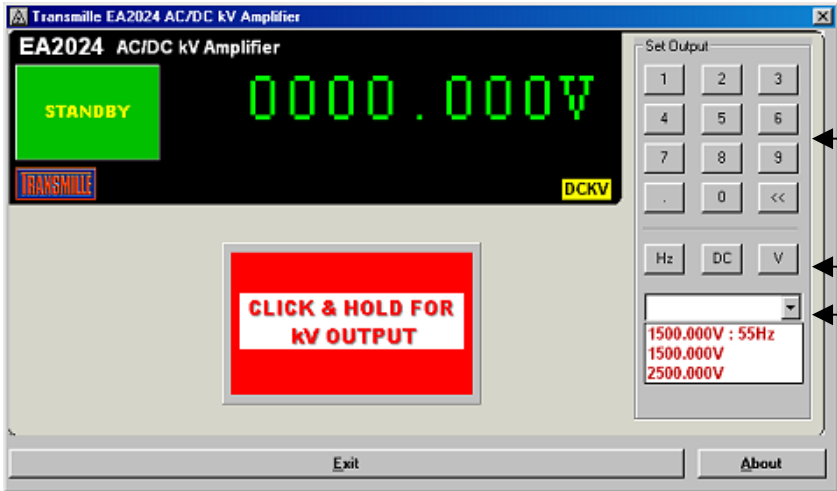

If the 3000 Series VFP is not detected, or no COM port has been chosen before, the COM select screen will be displayed.

Simply select the COM port the 3000 Series calibrator is connected to and click to proceed.

Keypad entry of voltage / frequency

Function buttons for frequency (Hz), DC mode and Voltage

'Quick' list with recently entered values stored in a list.- simply select to reset output to these values.

Operation example

Type 2 5 0 0 V
Output will display 2500V DCKV
Click and hold output button for voltage

Type 1 5 0 0 V
Then type 5 5 Hz
Output will display 1500V 55Hz ACKV
**Click and hold** output button for voltage

KV Amplifier - Software Control

Important Note : The kV Amplifier must be connected to a 3000 series calibrator –
it is not designed to be used as a stand-alone unit.

To control the kV Amplifier using a computer and software other than the supplied virtual front panel, it is necessary to send the control commands to the 3000 Series RS232 port. The connection from the 3000 Series to the computer is on the left hand side of the unit, when looking at it from the rear.

The connection from the 3000 Series to the kV amplifier is on the right – this is a communication port between the 3000 Series and the kV Amplifier, and is not a conventional COM port.

3000 RS232 COM Port (to computer)

VENT

KV Amplifier control port
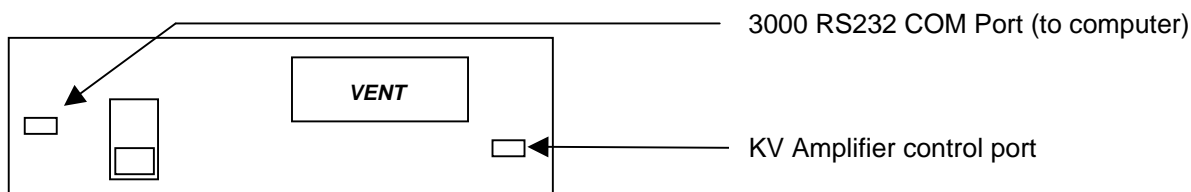
Sending the commands below to the 3000 Series calibrator RS232 COM Port will set up the kV Amplifier for use

KV Amplifer Mode

Command	Description
D1	Set calibrator to kV Amplifier Mode
D0	Set calibrator to Normal Mode

kV Amplifier Function

Command	Description
R5	Set DC kV Function
R16	Set AC kV Function

KV Amplifer Output

Command	Description
Onnnn (n=digit)	Set kV Output : Divide required voltage by 10 e.g. **1000V = O100 • 5000V = O500**

All commands must be terminated with a carriage return (ASCII character 13), for example

@01 D1/R5/O50/S0>*CR*

This will set the kV amplifier to DC mode and output 500V (>*CR* denotes a carriage return)

This will set the kV Amplifier to 5000V DC

@01 Directs the command to the COM port of the instrument at position 1 of the traceable instrument list in ProSet, e.g. the 3000 Series calibrator.
D1 Sets kV Amplifier mode on
R5 Sets 1000V DC Range for kV amplifier
O500 Sets 5000V Output value
S0 Turns output on

@01 D1/R16/O150/F60/S0>CR

This will set the kV Amplifier to 1500V 60Hz AC

@01 Directs the command to the COM port of the instrument at position 1 of the traceable instrument list in ProSet, e.g. the 3000 Series calibrator.
D1 Sets kV Amplifier mode on
R16 Sets 1000V AC Range for kV amplifier
O150 Sets 1500V Output value
**F60** Sets 60Hz Frequency
S0 Turns output on

Serial commands to control the adaptor can be sent to the calibrator using either the Virtual Front Panel, ProCal

Calibration Software or using any RS232 COM program, such as Hyper Terminal.

Controlling the adaptor using ProCal

Setting DCV output using the kV Amplifier

Commands to control the kV amplifier using ProCal can be added to each test of a ProCal procedure.

Use the instruments tab in ProEdit, and edit the **pre-test** and **post-test** command boxes to enter commands, as shown below :
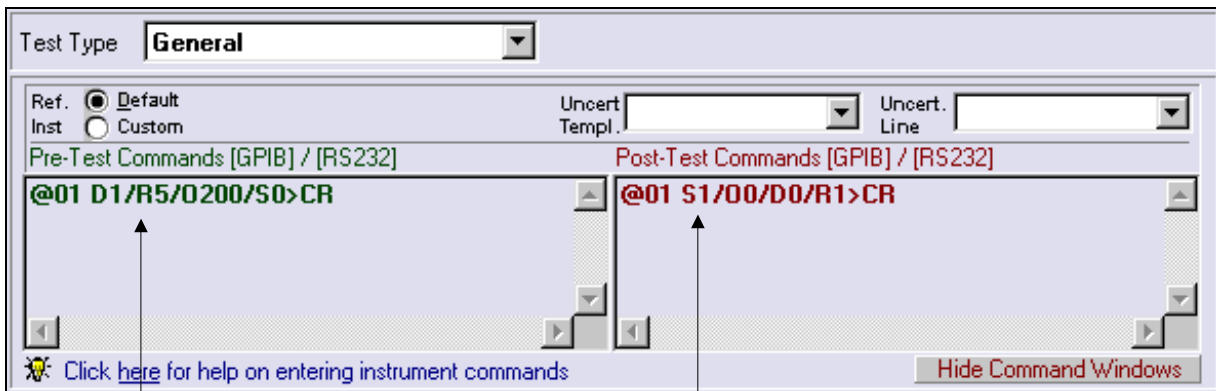
Pre-Test Command
This will send the command

@01 D1/R5/O200/S0>CR

followed by a carriage return to the calibrator.

This will set the kV Amplifier to 2000V DC

@01 Directs the command to the COM port of the instrument at position 1 of the traceable instrument list in ProSet, e.g. the 3000 Series calibrator.

D1 Sets kV Amplifier mode on

R5 Sets 1000V DC Range for kV amplifier

O200 Sets 2000V Output value

S0 Turns output on

Post-Test Command
This will send the command

@01 S1/O0/D0/R1>CR

followed by a carriage return to the calibrator.

This will turn off the kV Amplifier mode and set the outputs to zero at the end of the test.

@01 Directs the command to the COM port of the instrument at position 1 of the traceable instrument list in ProSet, e.g. the 3000 Series calibrator.

S1 Turns output off (standby)

O0 Sets 0V Output value

D0 Turns off kV Amplifier mode on

R1 Sets lowest DCV Range

Note : To display a message on the 3000 Series display use the # command, for example

@01 #kV Amp : 1kV DC>CR

Setting ACV output using the kV Amplifier

Commands to control the kV amplifier using ProCal can be added to each test of a ProCal procedure.

Use the instruments tab in ProEdit, and edit the **pre-test** and **post-test** command boxes to enter commands, as shown below :
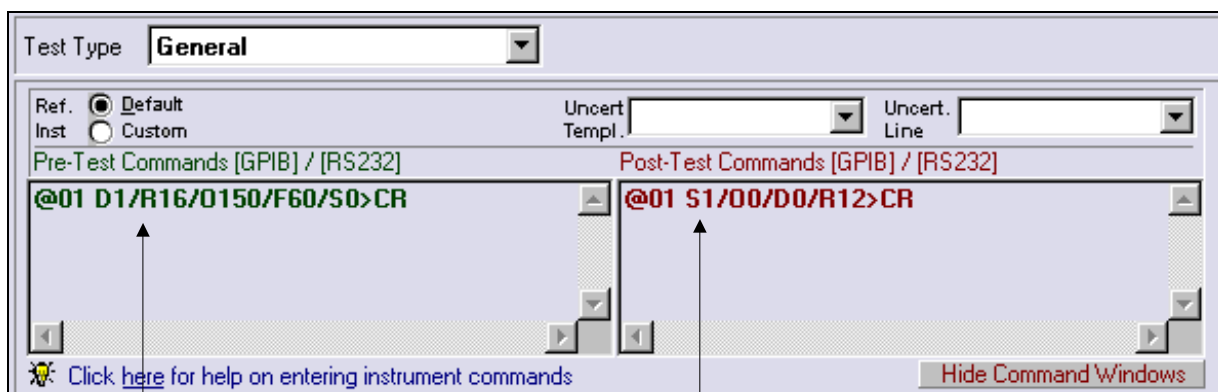
Pre-Test Command
This will send the command

@01 D1/R16/O150/F60/S0>CR

followed by a carriage return to the calibrator.

This will set the kV Amplifier to 1500V AC 60Hz

@01 Directs the command to the COM port of the instrument at position 1 of the traceable instrument list in ProSet, e.g. the 3000 Series calibrator.

D1 Sets kV Amplifier mode on

R16 Sets 1000V AC Range for kV amplifier

O150 Sets 1500V Output value

F60 Sets 60Hz Frequency

S0 Turns output on

Post-Test Command
This will send the command

@01 S1/O0/D0/R12>CR

followed by a carriage return to the calibrator.

This will turn off the kV Amplifier mode and set the outputs to zero at the end of the test.

@01 Directs the command to the COM port of the instrument at position 1 of the traceable instrument list in ProSet, e.g. the 3000 Series calibrator.

S1 Turns output off (standby)

O0 Sets 0V Output value

D0 Turns off kV Amplifier mode on

R12 Sets lowest ACV Range

Note : To display a message on the 3000 Series display use the # command, for example

```
@01 #kV Amp:1kV AC 60Hz>CR
```

Specifications

DC Voltage		AC Voltage	
Range	1kV to 10kV	Range	1kV to 5kV
Resolution	100mV	Resolution	100mV
Accuracy	0.5% O/P ± 0.1% F.S.	Accuracy	0.8% O/P ± 0.2% F.S.
DCI Load (Max.)	100uA	Freq. Range	50Hz to 60Hz