

EA3024

AC/DC KILOVOLT AMPLIFIER



OPERATION GUIDE

EA3024

Kilovolt Amplifier

Operation Manual

Guarantee and service

Transmille Ltd. guarantees this instrument to be free from defects under normal use and service for a period of 1 years from purchase. This guarantee applies only to the original purchaser and does not cover fuses, or any instrument which, in Transmille's opinion, has been modified, misused or subjected to abnormal handling or operating conditions.

Transmille's obligation under this guarantee is limited to replacement or repair of an instrument which is returned to Transmille within the warranty period. If Transmille determines that the fault has been caused by the purchaser, Transmille will contact the purchaser before proceeding with any repair.

To obtain repair under this guarantee the purchaser must send the instrument in its original packaging (carriage prepaid) and a description of the fault to Transmille at the address shown below. The instrument will be repaired at the factory and returned to the purchaser, carriage prepaid.

Note :

TRANSMILLE ASSUMES NO RESPONSIBILITY FOR DAMAGE IN TRANSIT

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TABLE OF CONTENTS

GUARANTEE AND SERVICE.....	2
EA3024 AC / DC KILOVOLT AMPLIFIER.....	4
<i>Main Features</i>	4
<i>Design Notes</i>	5
<i>Features</i>	5
<i>Rear Panel Connections</i>	6
<i>Operating Notes</i>	6
<i>Using the EA3024 with the Virtual Front Panel Software</i>	8
Installing the Software	8
Selecting a COM Port.....	8
Operation of the Virtual Front Panel.....	9
<i>kV Amplifier Software Control</i>	10
EA3024 kV Amplifier Control Commands Overview	10
Controlling The EA3024 kV Amplifier Using Transmille ProCal Software.....	11
AC Voltage.....	11
DC Voltage	12
<i>Specifications</i>	13
<i>Care & Maintenance</i>	14
Cleaning the EA3024.....	14
Handling Precautions	14
Servicing Information.....	14

EA3024 AC / DC Kilovolt Amplifier



The EA3024 is a powerful AC / DC kilovolt amplifier designed exclusively for use with the 3000 Series calibrators which provides a cost effective solution to calibrating high voltage probes and meters.

Connecting to the 3000 Series calibrator using the feature connector, the EA3024 extends the output voltage range to 10kV DC / 5kV AC.

Main Features

- **Controlled by ProCal or Virtual Front Panel Software (Supplied)**
- **Up to 10V DC • 5kV AC Output**
- **Ideal For Calibrating High Voltage probes and Meters**

Design Notes



- ❑ Dedicated DC and AC outputs using safety terminals.
- ❑ Separate ground terminal

Features

Functions of the terminal connections :

EA3024 Terminal Post	Function
DC	DC output
AC	AC output
GND	Ground connection



Label Reference	Information
Model Number	Model number reference for product
Serial Number	Unique serial number for product

Rear Panel Connections



Connection to the 3000 Series dedicated kV amplifier interface is provided via a D-Type connection

Operating Notes

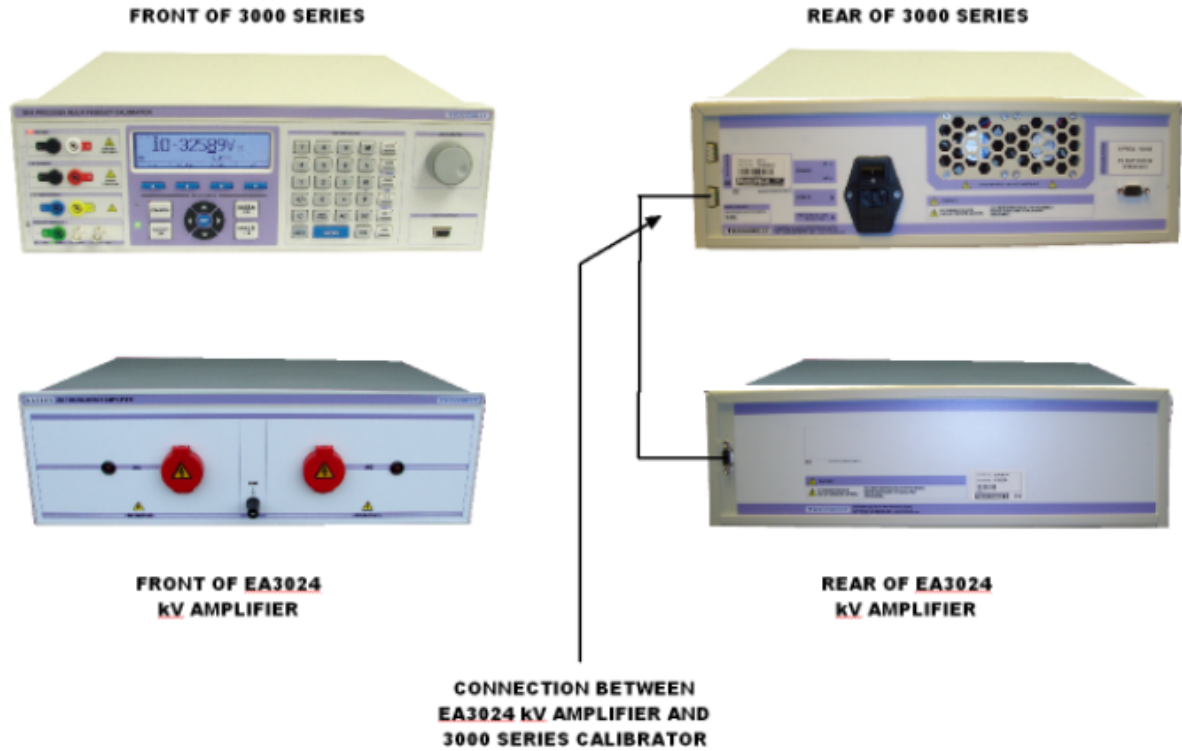
This section details operational and environmental considerations for the EA3024 kilovolt amplifier. Follow these instructions when operating or storing the transconductance amplifier



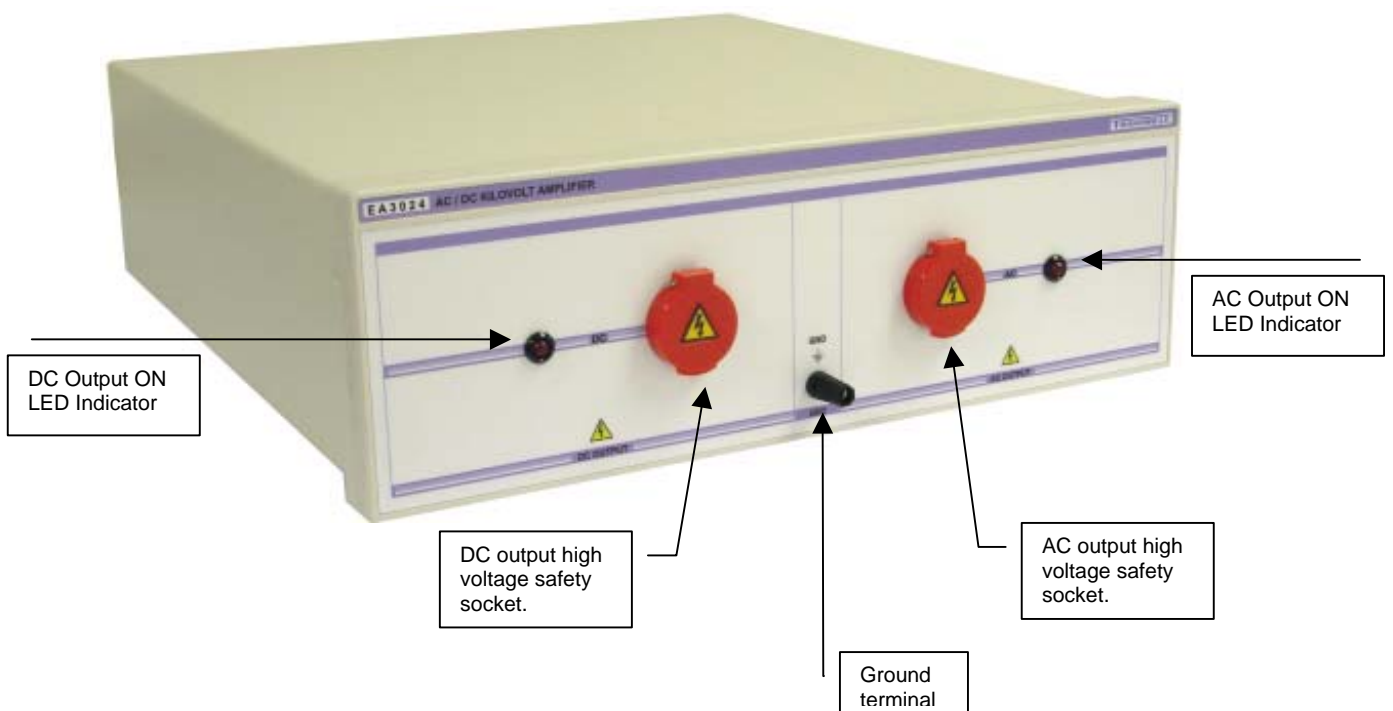
IMPORTANT
The EA3024 kV amplifier does not use the 3000 Series adapter interface for control – a dedicated connection on the REAR of the 3000 Series calibrator MUST be used.

Connection Recommendations

To connect the EA3024 Kilovolt Amplifier to the 3000 Series multi product calibrator, use the supplied kV Amplifier interface cable :



NOTE : CONNECTION TO REAR OF 3000 SERIES TO SPECIFIC EA3024 INTERFACE PORT



Using the EA3024 with the Virtual Front Panel Software

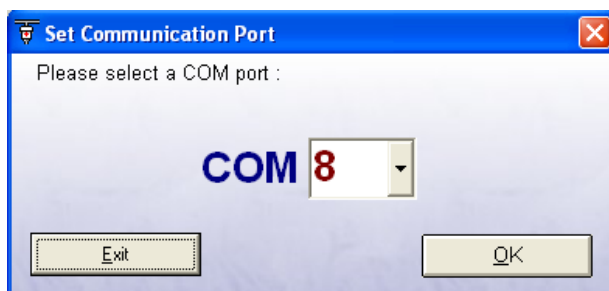
Installing the Software

Insert the CD supplied with the EA3024 kV Amplifier – this should auto run. If it does not auto run, click START -> Run then run x:\Setup.exe where x is the drive letter of your CD drive.

Once installation is complete choose START -> ALL PROGRAMS -> EA3024 kV Amplifier to run the virtual front panel



Selecting a COM Port



On starting the virtual front panel for the first time, a COM port selection screen will be displayed. Click on the COM port which is connected to your 3000 Series calibrator to continue.

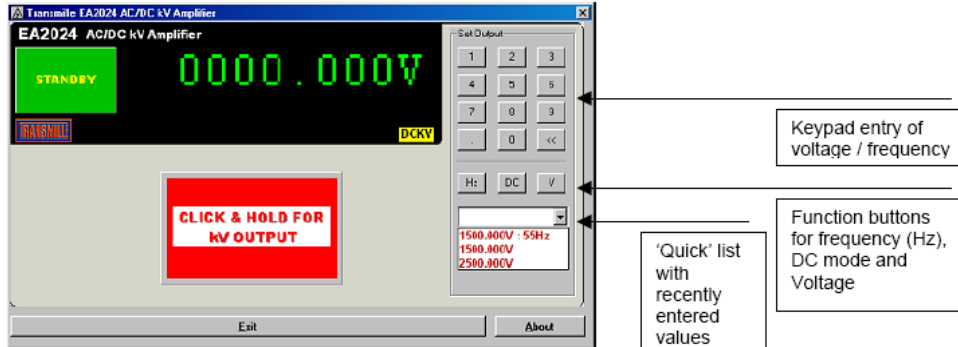
A different COM port can be selected at any time using the **Change COM** button.



If you are using a laptop to connect to the calibrator, the COM port will usually be COM 1. A desktop computer will usually be COM 2

Operation of the Virtual Front Panel

Once the correct COM port is selected, the calibrator will be detected, and the main screen displayed :



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 the upper connector on the rear of the 3000 series calibrator.

The connection from the 3000 Series to the kV amplifier is the lower connector on the 3000 Series rear panel. This is a communications ports between the 3000 series and the kV amplifier, and is not a conventional COM port.

EA3024 kV Amplifier Control Commands Overview

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

KV Amplifier 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 Amplifier Output

Command	Description
Onnnn (n=digit)	Set kV Output : Divide required voltage by 10 e.g. 1000V = 0100 • 5000V = 0500

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.

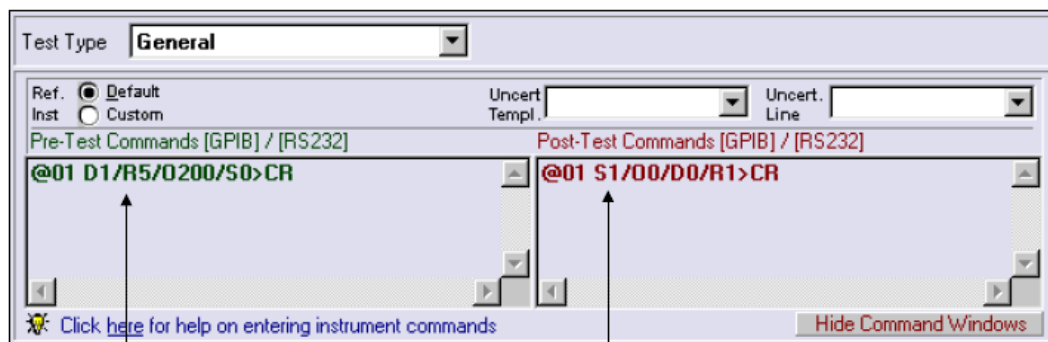
D1 Sets kV Amplifier mode on
R16 Sets 1000V AC Range for kV amplifier
O150 Sets 1500V Output value
F60 Sets 60Hz Frequency
S0 Turns output on

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 EA3024 kV Amplifier Using Transmille ProCal Software

DC Voltage

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

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.

S1 Turns output off (standby)

O0 Sets 0V Output value

D0 Turns off kV Amplifier mode on

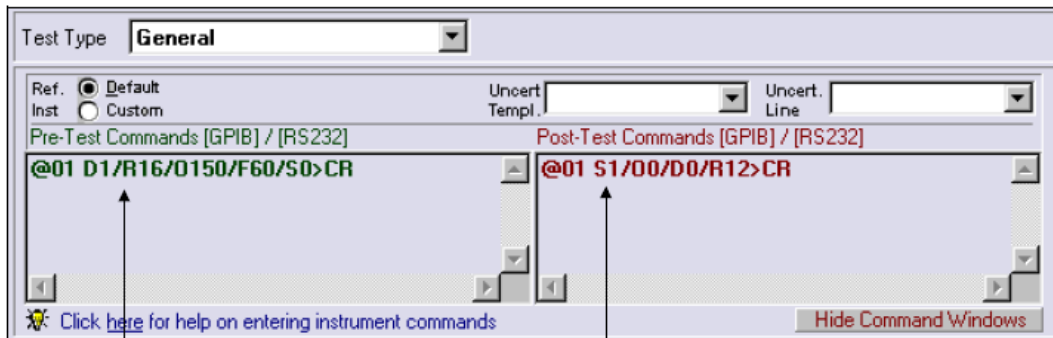
R1 Sets lowest DCV Range

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

@01 #kV Amp : 1kV DC>CR

AC Voltage

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

GENERAL SPECIFICATIONS	
Output Connections	2x High Voltage Safety Terminals 1x 4mm Ground Terminal
Control Interface	'D' type connector for use with dedicated 3000 Series kV Amplifier Interface
Dimensions	14cm x 43cm x 46cm
Weight	20kg

PERFORMANCE SPECIFICATIONS	
AC Output	5kV Maximum
DC Output	10kV Maximum
AC/DC Accuracy	0.5%
Output Current	100uA
Frequency	DC / 40Hz to 60Hz

Care & Maintenance

The only maintenance instructions for the EA3024 Transconductance Amplifier is periodic cleaning. See below for details on the cleaning procedure and precautions for handling.

Cleaning the EA3024

To keep the external enclosure of the EA3024 in good condition, clean the outer case with a soft cloth. Do not use any liquids in cleaning the enclosure – removal of surface dust is all that is recommended.

 **CAUTION**

Do not use cleaning fluids or solvents for cleaning as these may damage the enclosure and affect the plastic materials used in the transconductance amplifier.

Handling Precautions

The EA3024 is designed for mechanical stability, but should not be subjected to excessive shock or be dropped. Transportation is recommended using the original packaging with avoidance of extreme changes of temperature.

Servicing Information

The EA3024 is provided certified from the factory, and uses precision components that are not user repairable. If the instrument is damaged it should be returned to the factory for repair and recalibration.