

EA3023

PSU CALIBRATION ADAPTER



OPERATION MANUAL

EA3023

3A POWER SUPPLY CALIBRATION ADAPTER

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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EA3023 Power Supply Calibration Adapter



The EA3023 provides an easy to use solution for the calibration of power supplies up to 3A. The output from the calibrator is converted by the PSU adapter into a precision current load and the supply output voltage is measured by using the calibrators internal high accuracy A/D converter.

The operation is controlled using a PC running either the Virtual front panel program or ProCal software. The software sends commands to the calibrator to set the output or read back the voltage which is displayed on the computer

Traditional techniques of using high current low value load resistors and current shunts can result in unstable/inaccurate readings even with small voltage fluctuations from the power supply or variations in connection and lead resistance. The manual nature of this method is both time consuming and prone to accidental damage of the load resistor and measurement equipment.

Main Features

- **Measure Output Voltage to 100V**
- **Active Current Load to 4A**
- **Measures Output Resistance**
- **Applications Include Battery & UPS Testing**
- **Connects to Adapter Interface on 3000 Series Calibrator**
- **Used with Virtual Front Panel or ProCal Software**

Design Notes



- Provides an accurate, stable electronic load regardless of the power supply output voltage and lead / connection resistances.
- Removes the need for high power load resistors of appropriate values.
- Allows automation for more efficient calibration

Features

Functions of the terminal connections :

| EA3023 Terminal | Function |
|-----------------|---------------------------------|
| VOLTAGE HI | Positive voltage input from UUT |
| VOLTAGE LO | Negative voltage input from UUT |
| CURRENT HI | Positive sense input from UUT |
| CURRENT LO | Negative sense input from UUT |



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

Connections



Connection to the 3000 Series adapter interface is provided via a 9-Pin D-Type connection located on the side of the adapter

Operating Notes

This section details operational and environmental considerations for the EA3023 PSU Adapter. Follow these instructions when operating or storing the PSU Adapter.

Connection Recommendations

To connect the EA3023 PSU Adapter to the 3000 Series multi product calibrator, use the supplied adapter interface cable (9-Pin Male to 9-Pin female straight through lead) :



To use the EA3023 PSU Adapter, connect the positive and negative outputs to the unit under test as shown below :



Fig. 1 : 2 Terminal Power Supply Connection Example



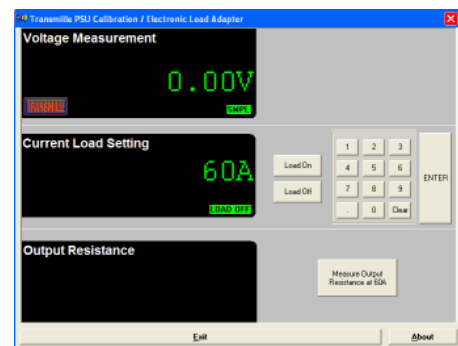
Fig. 2 : 4 Terminal Power Supply Connection Example

Using the EA3023 with the Virtual Front Panel Software

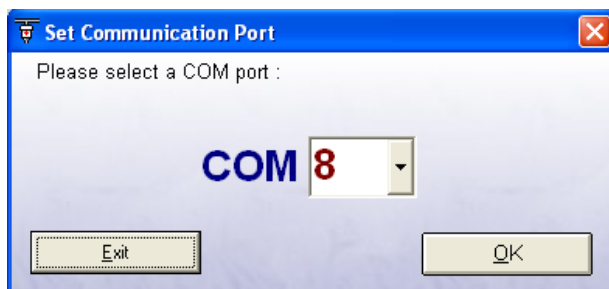
Installing the Software

Insert the CD supplied with the EA3023 PSU Adapter – 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 -> EA3023 PSU Adapter 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.

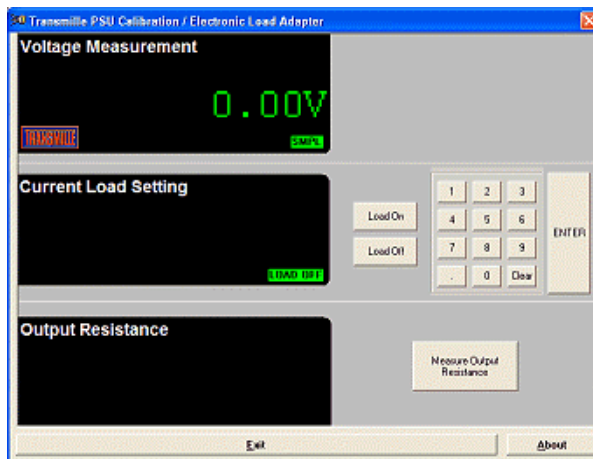
A different COM port can be selected at any time using the **Change COM** button.



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 :



The main screen comprises of three sections :

- Voltage measurement (from power supply)
- Current Load setting
- Output Resistance

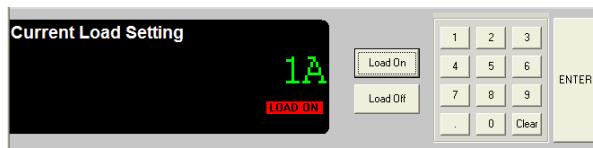
Functions : Measuring A Voltage



Connect the power supply adapter to the voltage and current terminals.


Set an output voltage from the power supply and this will be displayed in the virtual front panel voltage display section. A **SMPL** indicator will flash periodically to indicate a measurement sample is being made.

Functions : Setting A Current Load



Use the on screen keyboard to set the required current load :



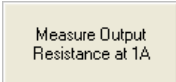
Press the ENTER button to preset the current load, then press  to apply the setting– the applied load will be displayed on the power supply current meter – the VFP will display **LOAD ON**

Use the  button to turn off the current load – the VFP will display **LOAD OFF**

Functions : Output Resistance Measurement



The output resistance measurement function uses the electronic current load to measure the voltage drop on-load and off-load. Using a calculation the output resistance can then be displayed.

 Press the output resistance measurement button - the virtual front panel will display 'Calculating...' while the load is turned on, then off in a controlled sequence to determine the voltage drop and calculating the output resistance.

If no voltage drop is detected a message will be displayed to indicate the resistance could not be determined.

Care & Maintenance

The only maintenance instructions for the EA3023 PSU Adapter is periodic cleaning. See below for details on the cleaning procedure and precautions for handling.

Cleaning the EA3023

To keep the external enclosure of the EA3023 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 PSU Adapter.

Handling Precautions

The EA3023 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 EA3023 is provided certified from the factory, and uses high precision non-adjustable shunts and are not user repairable. If the instrument is damaged it should be returned to the factory for repair and recalibration.

EA3023

Power Supply Calibration Adapter

Appendix A Specifications

EA3023 Power Supply Calibration Adapter Specifications

| General Specifications | |
|--------------------------|--|
| Adaptor connection | Connects to male 'D' type adapter interface on 3000 Series front panel |
| Indicators | Incorporates 1x Power indicator LED : 1 x Overload indicator LED |
| Connections | 1 x 9 way male 'D' type connector 2x Voltage input 4mm terminals (Red & Black) 2x Current load 4mm terminals (Red & Black) |
| Connection to Calibrator | Via supplied 9 Way male to female serial lead (straight through connection) |

| DC Voltage Measurement Accuracy | | | | | |
|---------------------------------|------------|-----------------------|------------------------|-----------------------|-----------------------|
| Range | Resolution | 90 Day Rel. % ± mV | 180 Day Rel. % ± mV | 1 Year Rel. % ± mV | 2 Year Rel. % ± mV |
| 0 to 63 Volts | 0.01V | 0.016 ± 20 | 0.016 ± 20 | 0.02 ± 20 | 0.028 ± 20 |

| DC Current Load Accuracy | | | | | |
|--------------------------|------------|-----------------------|------------------------|-----------------------|-----------------------|
| Range | Resolution | 90 Day Rel. % ± mA | 180 Day Rel. % ± mA | 1 Year Rel. % ± mA | 2 Year Rel. % ± mA |
| 0 to 3 Amps | 0.01A | 0.040 ± 1.0 | 0.045 ± 1.0 | 0.05 ± 1 | 0.070 ± 1.0 |

Specifications apply between 17°C and 27°C.

Outside this range an allowance of 0.18 x 1 Year Spec. per °C should be added.

Due to continuous development specifications may be subject to change.