

EA015

MULTI FUNCTION WORKSTATION ADAPTER



OPERATION MANUAL

EA015

Multi Function Workstation

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

THIS GUARANTEE IS THE PURCHASER'S SOLE AND EXCLUSIVE GUARANTEE AND IS IN LEIU OF ANY OTHER GUARANTEE, EXPRESSED OR IMPLIED. TRANSMILLE SHALL NOT BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS.



Transmille Ltd.
Unit 4, Select Business Centre
Lodge Road
Staplehurst
Kent
TN12 0QW
United Kingdom

Tel : +44 0 1580 890700
Fax : +44 0 1580 890711

EEmail : sales@transmille.com
Web : www.transmille.com

TABLE OF CONTENTS

GUARANTEE AND SERVICE	2
EA015 MULTI FUNCTION WORKSTATION	4
<i>Design Notes</i>	5
Clamp Meters	5
Insulation Testers	5
Process Control Calibrators	5
Digital Thermometers	6
Optical Tachometers	6
<i>Features</i>	6
<i>Using the EA015 with the Virtual Front Panel Software</i>	8
Installing the Software	8
Selecting a COM Port	8
Operation of the Virtual Front Panel	9
Functions : Thermocouple Simulation	9
Functions : Tachometer Calibration	10
Functions : Insulation Resistance	10
Functions : Insulation Test Voltage	11
Functions : Continuity Resistance & Current	11
Functions : mA & mV Measurement	12
STEP 1 : Enter an output value	13
STEP 2 : Setting to DC or AC.....	14
STEP 3 : Select a function	14
STEP 4 : Select a Voltage / Current output	14
Terminals	15
STEP 5 : Set Output	16
Changing Output Values	16
<i>Specifications</i>	17
<i>Care & Maintenance</i>	18
Cleaning the Adapter	18
Handling Precautions	18
Servicing Information	18

EA015 Multi Function Workstation



The multi function workstation provides a central work area with all connections routed conveniently to remote terminals mounted at the front of the adapter.

The adapter extends the capabilities of the calibrator to include :

- ❑ 2 / 10 / 50 TURN CLAMP COIL
- ❑ INSULATION RESISTANCE OUTPUT
- ❑ CONTINUITY RESISTANCE OUTPUT
- ❑ INS. TEST VOLTAGE MEASUREMENT
- ❑ CONTINUITY CURRENT MEASUREMENT
- ❑ OPTICAL TACHOMETER CALIBRATION
- ❑ THERMOCOUPLE SIMULATION
- ❑ VOLTAGE MEASUREMENT : 3 RANGES
- ❑ CURRENT MEASUREMENT TO 30mA
- ❑ CALIBRATOR OUTPUT ROUTING :
VOLTAGE, CURRENT AND HIGH CURRENT TO
DEDICATED WORKSTATION TERMINALS

Design Notes



Incorporating the advanced clamp coil, thermocouple simulation and tachometer calibration adapters as well as process control source / measure capabilities, this workstation adapter provides a versatile platform for efficient calibration of a wide range of equipment.

Selection of the specific functions on the workstation requires use of either the EA015 Workstation adapter virtual front panel software (supplied) or use of ProCal software procedure wizards to create procedures with built in commands for setting up the adapter functions.



NOTE : The supplied virtual front panel software or ProCal software (optional) must be used to set output functions.

Clamp Meters

Using the built in 2, 10 and 50 turn coils, clamp meters can be accurately and quickly calibrated. Using a high accuracy balanced design both wound (AC only) & Magnetic field (hall effect) AC/DC clamp meters can be calibrated. Three coils in one provide the ability to calibrate a wide range of coils, from small lower clamps down to 10mm jaw diameter to larger 2000A clamps.

Insulation Testers

Insulation tester calibration is a common requirement and is now easy to perform using the workstation. Insulation to 2GOhms @ 1000V and continuity to 1kOhm is available from dedicated terminals. Using the measurement capabilities of the adapter interface, the workstation also provides insulation test voltage measurement to 1000V and continuity current measurement.

Process Control Calibrators

Source/measure process control calibrators are commonplace in industry and previously required several references to calibrate. The workstation integrates all the functions required to both source and measure the required signals.

Digital Thermometers

Digital thermometers can be easily calibrated accurately using the workstation's built in thermocouple simulation output with automatic cold junction compensation.

NOTE : The EA015 Workstation adapter requires the use of thermocouple compensation cables for connection between the adapter and the digital thermometer (UUT)

Optical Tachometers

Using a high intensity LED light source, optical tachometers can be calibrated quickly and easily using the workstation.

Features



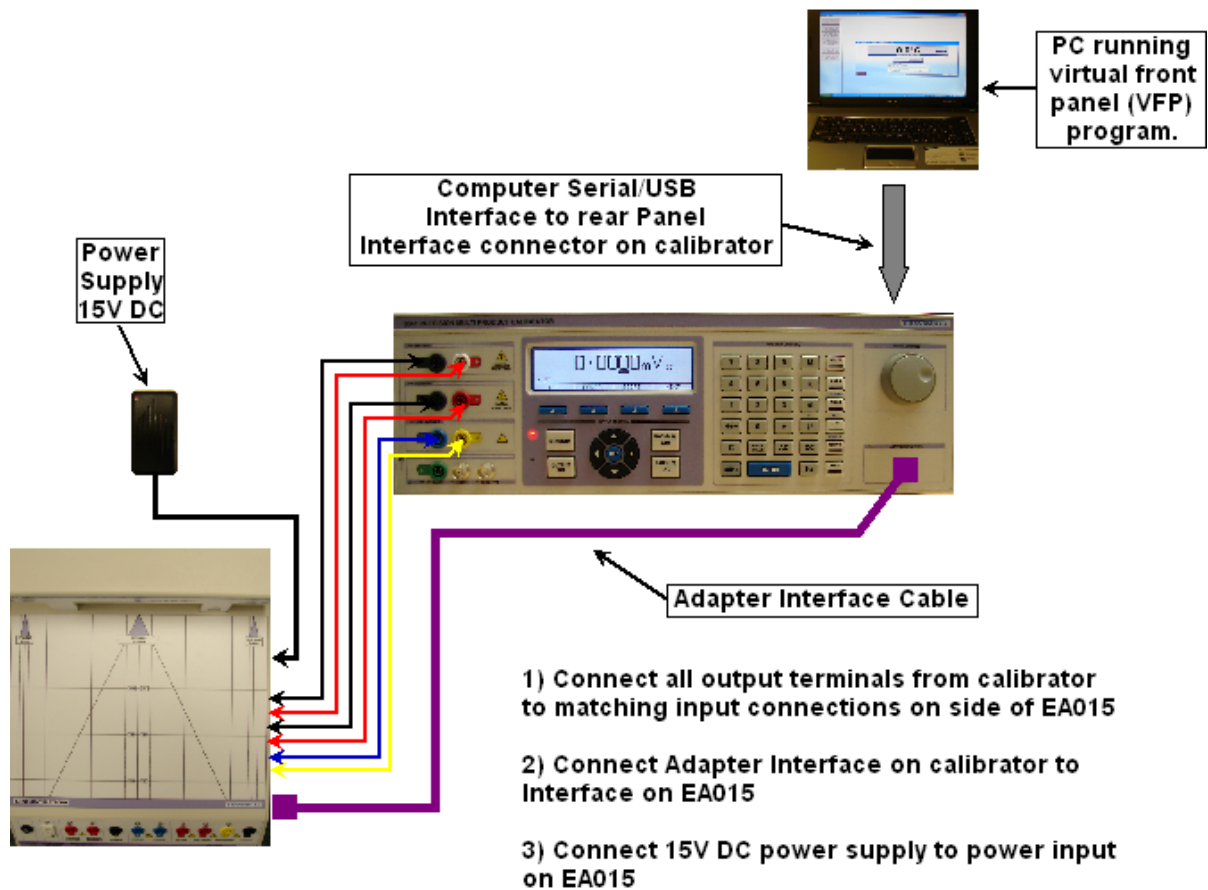
Functions of the terminal connections :

EA015 Output / Input	Function
Optical Tacho	Optical Tachometer Calibration Source (LED)
Thermocouple Simulation	Thermocouple Simulation Output (requires compensating leads)
Continuity Resistance	Continuity Resistance Output / Continuity Current Input
Insulation Resistance	Insulation Resistance Output / Insulation Test Voltage Input
Common	Common for Continuity Resistance, Insulation Resistance, Voltage Measure and Current Measure

Voltage Measure	DC Voltage Measurement Input
Current Measure	DC Current Measurement Input
Voltage Output	Voltage output from calibrator
Low Current Output	Current output from calibrator (to 2A)
High Current Output	Current output from calibrator (to 30A)
Common	Common for calibrator output terminals

Connection Recommendations

To connect the EA015 Multi function workstation to the 3000 Series multi product calibrator, follow the connection diagram below :



EA015 Output / Input	Function
Power Supply	15V Adapter Power Supply
Calibrator Outputs	3000 Series Voltage & Current Outputs
Adapter Interface	Adapter control interface from calibrator

Using the EA015 with the Virtual Front Panel Software

- ❑ The EA015 workstation adapter should be connected as shown above.
- ❑ The main terminals from the calibrator should be connected to the corresponding terminals on the side of the adapter.
- ❑ The adapter interface on the calibrator should be connected to the adapter interface on the EA015 Workstation adapter.
- ❑ The 15V external power supply should also be connected to the power socket of the EA015 workstation adapter.

Installing the Software

Insert the CD which is supplied with the EA015 workstation adapter – this should autorun and install the software.

Once installed run the software by clicking START > ALL PROGRAMS > EA015 Workstation Adapter

Selecting a COM Port



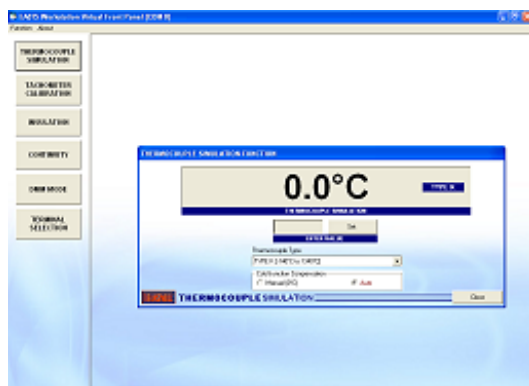
On starting the virtual front panel for the first time, a COM port selection screen will be displayed. Click on the COM port that is connected to your 3000 Series calibrator to continue.



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

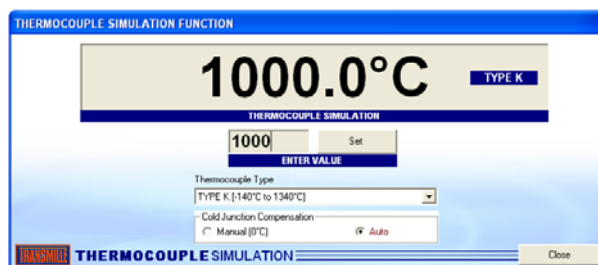
Once the correct COM port is selected, the calibrator will be detected, and the main screen displayed :



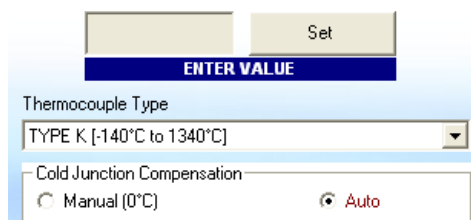
The main functions of the workstation are :

- Thermocouple Simulation
- Tachometer Calibration
- Insulation Resistance & Voltage
- Continuity Resistance & Current
- mA & mV Measurement
- Terminal Switching

Functions : Thermocouple Simulation

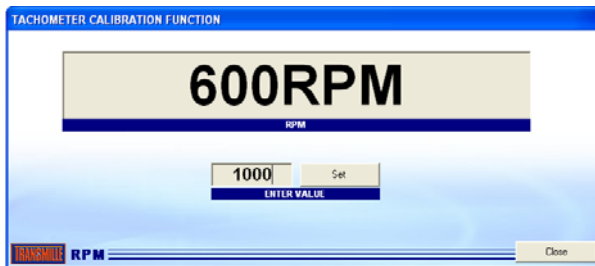


Connect temperature meter to thermocouple connector on workstation **using thermocouple compensating cables for the correct thermocouple type**. Select a thermocouple type from the drop down list. Set manual or automatic cold junction.



Enter a temperature in the box marked ENTER VALUE, then click SET. Note if the temperature is outside the range available, a message will be displayed.

Functions : Tachometer Calibration



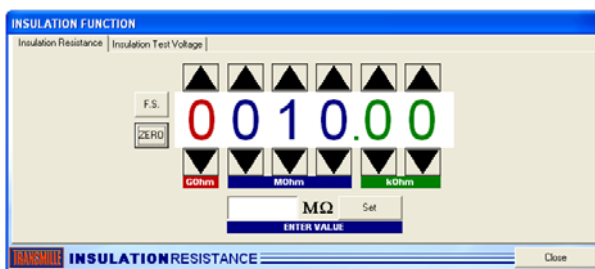
Enter an RPM value in the box marked ENTER VALUE, then press the SET button. The tachometer LED will illuminate – point the optical tachometer at the LED.



Note : The workstation RPM output must be set using the virtual front panel software – the 3000 Series front panel function cannot be used.

Functions : Insulation Resistance

Select the INSULATION RESISTANCE tab



Connect meter to terminals marked Insulation resistance. Select a resistance by either :

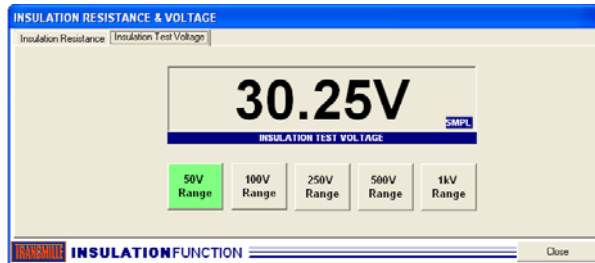
- 1 : Selecting a value using the up/down buttons
2. Entering a value (in M Ohms) in the box marked

Use the F.S. button to set to 199999

Use the zero button to jump directly to ZERO

Functions : Insulation Test Voltage

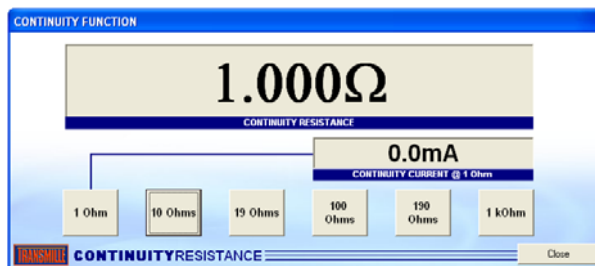
Select the INSULATION TEST VOLTAGE tab



Connect meter to terminals marked Insulation resistance.

- 1 : Select a voltage range using the range buttons
2. Apply voltage from the Insulation tester

Functions : Continuity Resistance & Current



Connect meter to terminals marked continuity resistance.

Function will default to 1 Ohm range, with continuity current measurement. Select continuity resistance as required by clicking the buttons available.

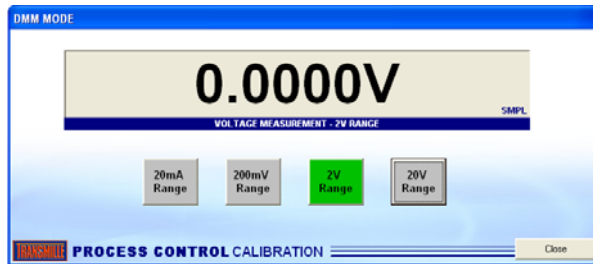
Note : Continuity current is available on the 1 Ohm range only

Functions : mA & mV Measurement

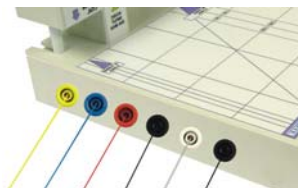


Connect meter to terminals marked voltage measure or current measure as required

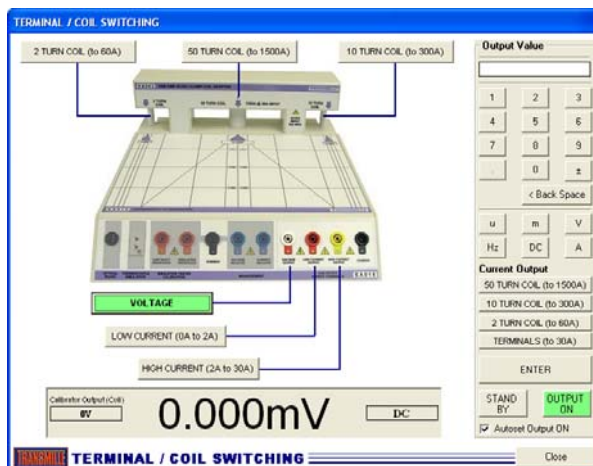
Select current or voltage range as appropriate – voltage / current will be displayed on the virtual front panel display.



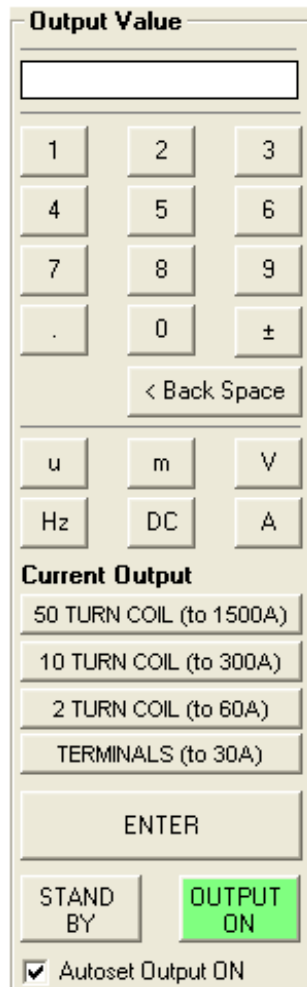
Functions : Terminal / Coil Switching



This function requires the calibrator to be connected to the workstation using the side terminals, shown left



This function allows the calibrator output to be controlled for voltage and either direct current or current via the 2/10/50 turn coil. The current output can be routed through the coil for clamp meter calibration.



The output panel, shown left, allows the user to select a value to output and then automatically set the calibrator output and switch to the appropriate terminals / coil output on the workstation adapter.

STEP 1 : Enter an output value

The output value is entered using the keypad. Micro or milli can be selected using the buttons provided :



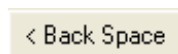
micro milli



Numeric buttons 0-9 and decimal point – use these to enter a value.



Set positive or negative value – note a number must be entered first before clicking this Button.



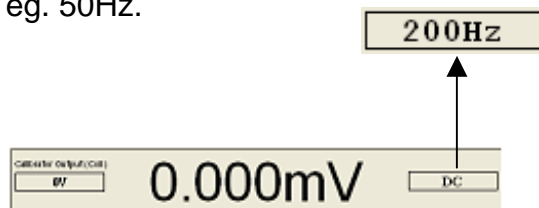
Backspace – use this to erase the last character entered in the output value box.

STEP 2 : Setting to DC or AC



Use the DC button to set to DC, or enter a frequency using the keypad, then press Hz to set an AC frequency.

Frequency display within main window – DC or a frequency, eg. 50Hz.



STEP 3 : Select a function

Select either Voltage or Current by using the buttons provided :



Volts Amps

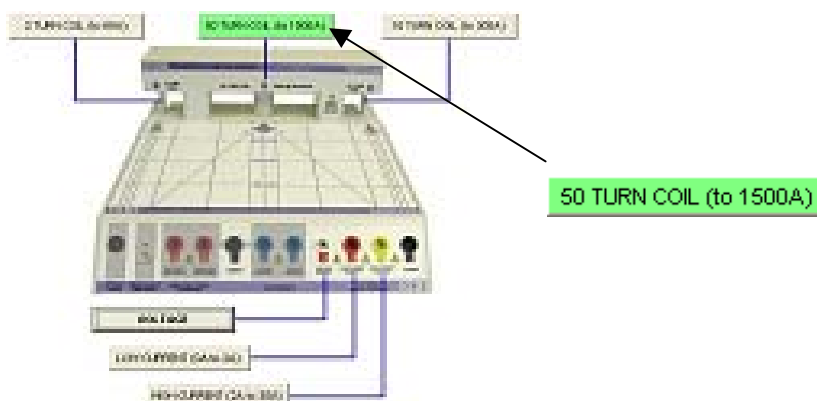
STEP 4 : Select a Voltage / Current output

For voltage, once the output value is set and V is pressed, proceed directly to STEP 5.

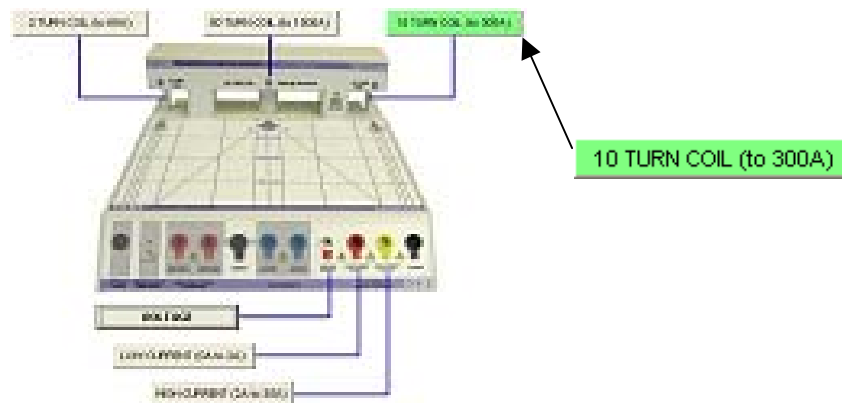
If the value entered is a current, the choice of where this should be output from is available using the buttons shown right. The available buttons will flash, indicating that a choice should be made.

Current Output
50 TURN COIL (to 1500A)
10 TURN COIL (to 300A)
2 TURN COIL (to 60A)
TERMINALS (to 30A)

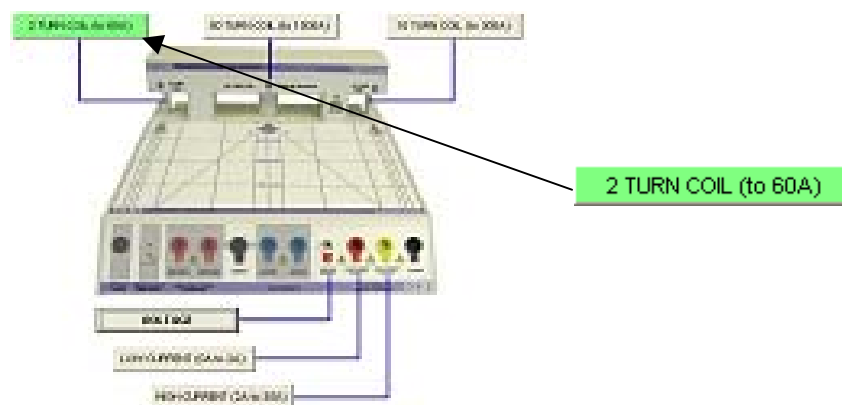
50 Turn Coil : **Available for currents between 100A and 1500A**



10 Turn Coil : **Available for currents between 10A and 300A**



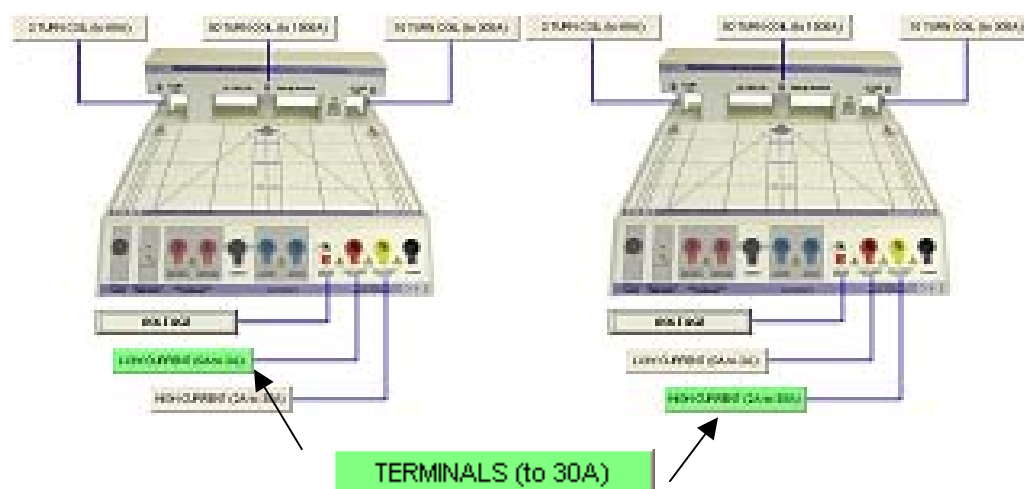
2 Turn Coil : **Available for currents between 4A and 60A**



Terminals

Available for currents between

- 0A and 2A (Low Current Terminals)
- 2A and 30A (High Current Terminals)



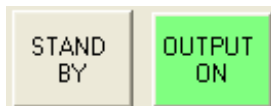


Note : Only the outputs which are available for current value entered are enabled – if the button is not available (greyed out) this means it is not possible to output this value using that specific output (eg. It is not possible to output 2A using the 50 turn coil – minimum value from 50 turn coil is 100A : 2A x 50 turns).

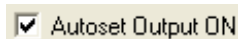
STEP 5 : Set Output



Once the output value is set, press the enter button to set the output.



Use the STANDBY and OUTPUT ON buttons to control the output.



The Autoset Output On option allows the output to be automatically switched on when a value is entered. If this option is unchecked, the output will not be switch on automatically, but left set in standby.

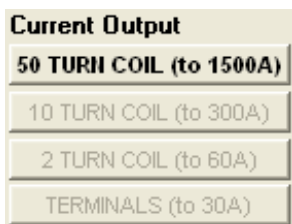


When high voltage (>40V) is output, the Autoset Output ON is not available.

Changing Output Values

If the output value is changed, the VFP program will check if this is possible using the current range selected. If it is not possible to output this value, the current output buttons will flash to indicate that a different output should be selected.

Note : Only the outputs which are available for current value entered are enabled, e.g.



Example : 1000A Output Set

50 TURN COIL (to 1500A) enabled,
all other modes disabled as not possible with 1000A Selected.

10 TURN COIL – Max. Output = 300A
2 TURN COIL – Max. Output = 60A
TERMINALS – Max. Output = 30A

Specifications

GENERAL SPECIFICATIONS	
Output Connections	9x 4mm Safety Terminals 1x thermocouple socket (neutral copper) 1x Optical LED output
Control Interface	'D' type connector for use with 3000 Series Adapter Interface
Power Supply	15V External Power Supply Unit

PERFORMANCE SPECIFICATIONS	
Clamp Meter Calibration	2 / 10 / 50 Turn Up to 1500A (Simulated)
Insulation Tester Calibration <input type="checkbox"/> Continuity Resistance <input type="checkbox"/> Insulation Resistance <input type="checkbox"/> Continuity Current Measurement <input type="checkbox"/> Insulation Test Voltage Measurement	Up to 1kOhm Up to 2Gohms / 1000V Up to 300mA Up to 1000V
Digital Thermometer Calibration	J, K, T, R, S, B, N, E
Process Control Calibration <input type="checkbox"/> DCV Measurement <input type="checkbox"/> DCI Measurement <input type="checkbox"/> DCV/I Source from calibrator	100mV/1V/10V Ranges 30mA Range AC/DC 1000V • 30A
Optical Tachometer Calibration	Range : 60 to 60,000 RPM

Care & Maintenance

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

Cleaning the Adapter

To keep the external enclosure of the adapter 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 adapter 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 adapter 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.