



- Single output, 3 ranges: 56V/2A, 25V/4A, 56V/500mA
- 1mV setting resolution at all output voltages
- 1mV resolution at up to 56 volts
- 112W maximum output power
- Setting by direct numeric entry or spin wheel
- Multiple ranges for increased current flexibility
- Multiple non-volatile setting memories
- OVP and OCP trips with alarm output
- Selectable remote sense terminals
- Programmable version available - 7053P

### PRECISION DC POWER SUPPLY

A DC linear power supply with high accuracy, resolution, stability and noise. Multiple output ranges provide increased current capability at lower voltages. An advanced user interface gives superior control, combining speed with safety. Voltage and current are controlled using instrumentation quality 16 bit DACs enabling voltages to be set to 1mV resolution even at full output. The accuracy is sufficient for the 7053 to be used as a calibration source for some hand-held DMMs.

### FAST, SIMPLE AND SAFE TO USE

The user interface of the 7053 has been designed to provide rapid control whilst guarding against any possibility of error. The 7053 provides both numeric and rotary control. Illuminated keys and display legends provide instant confirmation of settings and status. Voltage and current setting can be performed in 2 ways.

**Direct numeric entry:** Settings can be made by direct numeric entry using the 0 to 9 keypad. Each new setting is previewed on the display and must be confirmed with the OK key. Settings recalled from memory are similarly previewed and confirmed. Numeric setting is very fast requiring only three key presses to set to 5 volts, for example, (V, 5, OK). To set a more precise level such as 12.725 volts requires more key presses, but can still be done in seconds.

**Incremental rotary control:** For those preferring quasi-analogue control, or for applications where the voltage or current must be gradually changed, the jog wheel is available. The wheel has a positive stepped action but can be spun rapidly when required. Output voltage can be incremented or decremented in steps of 0.1V, 10mV or 1mV. Current steps can be selected from 0.1A down to 0.1mA. The Jog function can be left permanently engaged or can be disabled at the touch of a button.

**Instant Limits view:** The 7053's has storage of up to 10 power supply sets-up in non-volatile memory. Upon mains switch-off, the set-up of the 7053 is saved and is automatically restored at switch-on.

### FLEXIBILITY

Switchable between the 3 ranges provides a higher current capability at lower voltages and increased current resolution when needed.

### LOW NOISE

True linear regulation with output ripple and noise below 0.35 mV in CV mode and down to 20 $\mu$ A in CI mode. Regulation near the limit of measurement. Fast control loop giving exceptional dynamic performance and recovery.

### PROTECTION

The 7053 provides fully adjustable over-voltage and over-current trips which can be used both as a fail-safe against accidental mis-setting and as a protection against inappropriate load conditions. In addition to turning the output off, a trip condition switches the rear panel alarm signal enabling other equipment to be controlled. For complete protection of the power supply, the trip will also be operated by over-temperature or excess voltage on the sense terminals.

### PROGRAMMABLE VERSION

The 7053P programmable version enables full remote control via RS-232 or USB interfaces.

# 7053 Specifications

## TECHNICAL SPECIFICATION

### Main Output

Max. Output Power	112 watts
Output Ranges	Range 1 - 0 to 56V, 0 to 2A Range 2 - 0 to 25V, 0 to 4A. Range 3 - 0 to 56V, 0 to 500.0mA
Voltage Setting	By floating point numeric entry or rotary jog wheel; resolution 1mV.
Current Setting	By floating point numeric entry or rotary jog wheel; resolution 1mA or 0.1mA depending on range.
Setting Accuracy	Voltage - 0.03% $\pm$ 5mV. Current 0.2% $\pm$ 5mA/0.5mA
Output Mode	Operation in constant voltage or current modes with automatic cross-over and mode indication by LEDs.
DC Output Switch	Sets output voltage and current levels to zero when Off.
Output Terminals	4mm terminals on 19mm (0.75") spacing.
Load Regulation	<0.01% of maximum output for 50% load change.
Line Regulation	<0.01% of maximum output for 10% line voltage change.
Ripple and Noise	Typically <0.35mV rms.
Transient Response	<20usec to within 15mV of setting for 90% load change.
Temperature Coefficient	< $\pm$ (50ppm+0.5mV)/ $^{\circ}$ C (voltage)
Remote Sense	Eliminates up to 0.5V drop per lead. This operation is selected from front panel and indicated by LED.
Sense Terminals	Recessed sprung sockets for direct insertion of wires.

### Output Protection

*Output will withstand forward voltages of up to 20V above rated output voltage. Reverse protection by diode clamp for currents up to 3A.*

Fault Condition Trip	The output will be shut down if any of the four trip conditions listed below occur.
Over Voltage (OVP)	Settable 1V to 62V in 0.1V steps
Over Current (OCP)	Settable 0.1A to 4.4A in 0.01A steps
Over Temperature	Monitors internal temperature rise to protect against excess ambient temperature or blocked ventilation slots
Sense Error	Monitors the voltage between the remote sense terminals and output terminals to protect against mis-wiring

### Metering

Display Type	Dual digital meters per output using 14mm (0.56") high brightness LEDs. 5 digit voltmeter, 4 digit current meter. Reading rate 4 per second.
Meter Function	Voltage meter shows set voltage when in CV mode and measured voltage when in CI mode. Current meter shows measured current when in CV mode and set current when in CI mode.
Limits Display	With the dc output switch set to Off, both meters show the set values (i.e. the limits). With the output on, either the voltage meter or current meter will show a measured value (depending on the CV/CI mode). Pressing the Limits button will provide a temporary display of the set values.
Watts (VxA) Display	The voltage meter can be made to show the instantaneous calculated product of voltage and current. The value displayed is equal to the equivalent power at the moment when the button is pressed and remains whilst the button is held.
Meter Resolution	Voltage: 1mV (CV mode) or 10mV (CI mode). Current: 1mA or 0.1mA depending on range. Power: 0.01W or 0.001W depending on range.
Meter Accuracy	Voltage: 0.05% of reading $\pm$ 10 mV (CI mode). Current: 0.2% of reading $\pm$ 0.005A or 0.5mA (CV mode). Power: 0.3% of reading $\pm$ 0.05W or 0.005W

### Setting Memories

Number of Stores	10 plus power-down store.
Memory Type	Non-volatile using EEPROM.
Parameters Stored	Range, Set volts, Set current, OVP, OCP.
Recall system	Settings are previewed onto the displays before being actioned

## GENERAL SPECIFICATION

Power Requirements	230V or 115V. Installation category 11. Power is dependant on the line power to the calibration bench.
Operating Range	5 $^{\circ}$ C to 40 $^{\circ}$ C, 20% to 80% RH. Storage Range: -20 $^{\circ}$ C to +60 $^{\circ}$ C
Electrical Safety	Designed and manufactured to comply with IEC1010-1.
EMC	Designed and manufactured to comply with EN61326.

## ORDERING INFORMATION

7053	<b>Precision Adjustable DC Power Supply Module</b>
7053P	<b>Programmable Precision Adjustable DC Power Supply Module</b> (USB or RS232 - specified on order)

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.

Time Electronics Ltd, Unit 11 Sovereign Way, Botany Industrial Estate, Tonbridge, Kent, TN9 1RH. United Kingdom.

T: +44 (0) 1732 355993 F: +44 (0) 1732 770312 E: mail@timeelectronics.co.uk

[www.timeelectronics.com](http://www.timeelectronics.com)

v1a 25/5/11