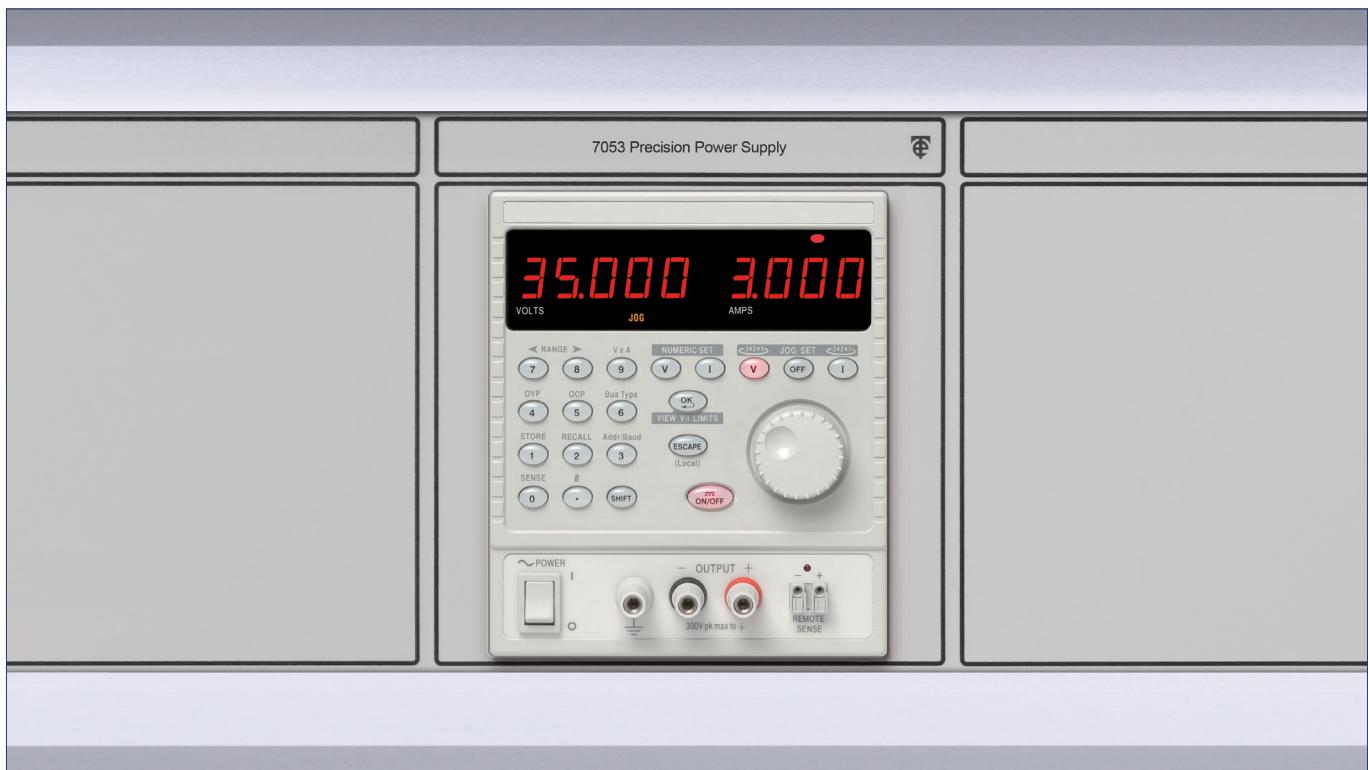


**Time Electronics****7053 Precision Adjustable DC Power Supply Module**

## Description

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 1 mV resolution even at full output. The accuracy is sufficient for the 7053 to be used as a calibration source for some hand-held multimeters.

## 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 fast, requiring only three key presses to set to 5 V (for example: V, 5, OK). To set a more precise level such as 12.725 V 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 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.

## Features

- Single output, 3 ranges: 56V/2A, 25V/4A, 56V/500mA
- 1 mV setting resolution at all output voltages
- 1 mV resolution at up to 56 V
- 112 W 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





## Technical Specifications

### Main Output

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

### Output Protection

<i>Output will withstand forward voltages of up to 20 V above rated output voltage. Reverse protection by diode clamp for currents up to 3 A.</i>	
<b>Fault Condition Trip</b>	..... The output will be shut down if any of the four trip conditions listed below occur.
<b>Over Voltage (OVP)</b>	..... Settable 1 V to 62 V in 0.1 V steps.
<b>Over Current (OCP)</b>	..... Settable 0.1 A to 4.4 A in 0.01 A steps.
<b>Over Temperature</b>	..... Monitors internal temperature rise to protect against excess ambient temperature or blocked ventilation.
<b>Sense Error</b>	..... Monitors the voltage between the remote sense and output terminals to protect against mis-wiring.

### Metering

<b>Display Type</b>	..... Dual digital meters per output using 14 mm (0.56 ") high brightness LEDs. 5 digit voltmeter, 4 digit current meter. Reading rate 4 per second.
<b>Meter Function</b>	..... 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.
<b>Limits Display</b>	..... 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.
<b>Watts (VxA) Display</b>	..... 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.
<b>Meter Resolution</b>	..... Voltage: 1 mV (CV mode) or 10 mV (CI mode). Current: 1 mA or 0.1 mA depending on range. Power: 0.01 W or 0.001 W depending on range.
<b>Meter Accuracy</b>	..... Voltage: 0.05 % of reading $\pm$ 10 mV (CI mode). Current: 0.2 % of reading $\pm$ 0.005 A or 0.5 mA (CV mode). Power: 0.3 % of reading $\pm$ 0.05 W or 0.005 W.

### Setting Memories

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

## General Specifications

<b>Power Requirements</b>	..... 230 V or 115 V. Installation category II. Power is dependant on the line power to the CalBench.
<b>Operating Range</b>	..... 5 $^{\circ}$ C to 40 $^{\circ}$ C, 20 % to 80 % RH. Storage Range: -20 $^{\circ}$ C to +60 $^{\circ}$ C.
<b>Electrical Safety</b>	..... Designed and manufactured to comply with IEC1010-1.
<b>EMC</b>	..... Designed and manufactured to comply with EN61326.
<b>Module width</b>	..... 180 mm (primary console fitting only).

## Ordering Information

<b>7053</b>	..... Precision Adjustable DC Power Supply Module
<b>7053P</b>	..... Programmable Precision Adjustable DC Power Supply Module

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