Time Electronics
7054 and 7055 High Voltage Power Supply Modules

7054 Power Supply

7055 Power Supply

7054: 0 to 120V / 0.01mA to 750mA (90W max.)

7055: 0 to 250V / 0.01mA to 375mA (94W max.)

Standard Features:

- **Linear regulation - for the best performance**

- *True Analog controls - for ease of use*

- **S-Lock function - instantly lock settings**

- *V-Span function - customise the voltage range*

- **Low current range and current meter averaging**

- *DC output switches and "view limits" button*

- **Selectable remote sense terminals**

7054P and 7055P Programmable Versions

Remote Control Features:

- **Full digital remote control and readback**

- *RS-232 or USB (from rear of bench console)*

- **Interfaces are opto-isolated from outputs**

- *Analog remote control of voltage and current*

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7054 and 7055 Specifications

TECHNICAL SPECIFICATION (applies to 7054, 7054P, 7055, 7055P)

OUTPUT

Voltage/Current Ranges

7054 - 0 to 120V / 0.01mA to 750mA (90W max.)

7055 - 0 to 250V / 0.01mA to 375mA (94W max.)

Note: Actual maxima for voltage and current are typically 1% greater than the figures given above except for the voltage control on the 7055 which is limited to 250.0V

Output Setting & Control

Voltage Setting: By coarse and fine controls.

Current Setting: By single logarithmic control.

Low Current Range: Reduces max. current to 75mA and increases resolution to 0.01mA.

Output Mode: Constant voltage or constant current with automatic cross-over. CC indicator lit in constant current mode.

Output Switch: Electronic, non isolating. Preset voltage & current limit displayed when Output is off. Output rise time no load <20ms.

View Settings: With the output On, the meters show actual voltage and current. The preset levels can be viewed and adjusted at any time by pressing the View Settings button.

V-Span (Voltage Span Control)

The voltage adjustment range can be controlled by digital setting of the end-stop values of the coarse voltage control to any desired values. The range for Vmax is 1V to 120V or 250V depending on model. The range for Vmin is 0 to (Vmax − 1V).

S-Lock (Settings Lock)

Voltage and current settings can be locked by a single button press. Lock accuracy is equal to the meter accuracy (see Meter Specification).

Output Performance

Ripple & Noise: Normal mode voltage: <2mV rms and 10mV p-p. Normal mode current: <10uA rms ; <1uA rms on 75mA range. Common mode current: <20uA rms

Load Regulation: Voltage <0·01% + 10mV. Current - typically 0·01% + 50μA.

Line Regulation: Voltage <0·01% + 10mV for 10% line change. Current <0·01% + 50μA. for 10% line change.

Transient Response: <250μs to within 50mV of setting for a 90% load change.

Temp. Coefficient: Voltage: typically <(50ppm + 2mV)/°C
Current: typically <(100ppm + 0.1mA)/°C; <(100ppm + 0.01mA)/°C on 75mA range.

Output Protection

Output Protection: Output will withstand forward voltages of up to rated output voltage. Reverse protection by diode clamp for currents to 3A.

OVP and OCP Trips: Voltage or current measured to be in excess of 105% of the rated maximum will cause the output to trip off.

Over-temperature: Output trips off for over-temperature.

Safety Interlocks: Operations that could cause an unexpected change in voltage or current settings are interlocked with the output switch.

Output Connections

Output Terminals: Universal 4mm safety binding posts on 19mm (0.75") spacing.
Terminals can accept fixed shroud 4mm plugs, standard 4mm plugs, fork terminals and bare wires.

Remote Sense

Sense Selection: Voltage sensing can be selected as Local or Remote by front panel switch.
Sense Terminals: Sprung loaded screw-less terminals.

METER SPECIFICATIONS

Display Type: Dual 4-digit meters, 10mm (0.39") LED.

Voltage Meter

Resolution: 100mV

Accuracy: ± (0.1% of reading + 100mV)

Current Meter

Resolution: 0.1mA (0·01mA on 75mA range)

Accuracy: ± (0·3% + 0.3mA); ± (0·3% + 0·03mA) on 75mA range

Meter Damping: Normally 20ms, switchable to 2 sec for averaging rapidly varying loads.

7054P & 7055P Remote Control Specifications

TECHNICAL SPECIFICATION - REMOTE CONTROL (7054P and 7055P)

7054P - 0 to 120V at 0 to 750mA, programmable. 7055P - 0 to 250V at 0 to 360mA, programmable.

Digital Bus Interfaces - RS-232 or USB
Full remote control and read-back using RS-232 or USB. All interfaces are at ground potential and opto-isolated from the outputs.

RS-232
Standard 9-pin D connector. Baud rate 9,600 max.

USB
Standard USB hardware connection. Operates as a virtual COM port.

Digital Programming Performance

Voltage Setting
Setting Resolution: 10mV
Setting Accuracy: ± (0.05% +50mV)

Current Setting
Setting Resolution: 0.1mA (0.01mA on 75mA range)
Setting Accuracy: ± (0.3% +0.1mA); ± (0.3% +0.01mA) on 75mA range

Programming Speed
Command Delay: Typically <25ms (this must be added to any of the figures below)
Voltage Up Time: Typically <45ms to 1%
Voltage Down Time: Typically <200ms to 1% (full load); typically <500ms to 1% (no load)

Voltage Readback
Resolution: 10mV
Accuracy: ± (0.1% +50mV)

Current Readback
Resolution: 0.1mA (0.01mA on 75mA range)
Accuracy: ± (0.3% +0.1mA); ± (0.3% +0.01mA) on 75mA range

Variable OVP and OCP Protection
Measure-and-compare over-voltage and over-current protection are implemented in firmware and can be set via the remote interfaces only. Output trips Off for OVP and OCP conditions.
Setting resolution: 100mV and 0.1mA.
Response time: typically 500ms

Analog Remote Control
Isolated analog voltage control of voltage and current. Non-isolated analog control outputs are also provided to enable easy parallel connection of multiple units in a master-slave configuration.

Control Inputs (Isolated)
Reference Point: Control input voltages are referenced to their own return points.
Set Voltage Input: 0V to 10V sets 0 to 100% of rated output (e.g. 0 to 120V for 7054P). *Alternative scaling of 0V to 5V (using internal link).*
Set Current Input: 0V to 10V sets 0 to 100% of rated output (0 to 750mA for 7054P). *Alternative scaling of 0V to 5V (using internal link).*
Set Voltage Accuracy: ± (0.3% +100mV); Input Impedance = 10kW
Set Current Accuracy: ± (0.5% +0.5mA); Input Impedance = 10kW

Control Outputs (Non-isolated)
Reference Point: Control output voltages are referenced to the positive output terminal.
Voltage Output: 0 to 100% of rated output voltage generates 0V to 5V.
Current Output: 0 to 100% of rated output current generates 0V to 5V.
Voltage Out Accuracy: ± (0.3% +100mV); Output Impedance = 125W
Current Out Accuracy: ± (0.5% +0.5mA); Output Impedance = 125W
Note that Analog control of current can not be used with the low current range selected.

GENERAL SPECIFICATION and ORDERING INFORMATION

Module Widths
7054, 7054P, 7055 and 7055P: 150mm (*Both modules can only be fitted in the CalBench primary console*)

Ordering Information
7054: 120V DC 750mA Adjustable Power Supply

7054P: 120V DC 750mA Programmable Power Supply - RS-232 or USB

7055: 250V DC 375mA Adjustable Power Supply

7055P: 250V DC 375mA Programmable Power Supply - RS-232 or USB