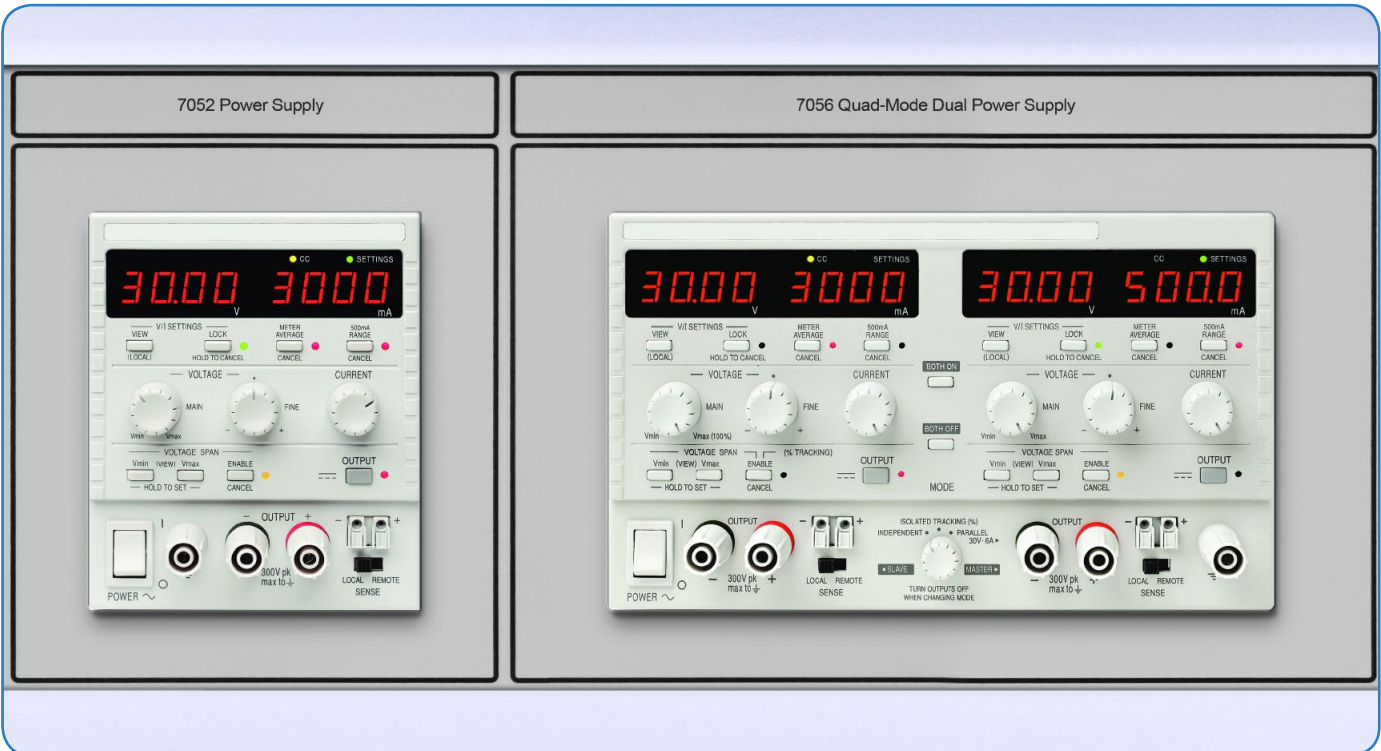




# Time Electronics

## 7052 and 7056 Power Supply Modules



7052: 0V to 30V/1mA to 3A; 0V to 30V/0.1mA to 500mA; (90W max.)

7056: Two identical outputs as per the 7052, with Tracking and Parallel modes

### 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**
- **Independent, Isolated Tracking, Ratio Tracking and True Parallel modes on 7056**

7052P and 7056P 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 V and I (7052P)**

# 7052 and 7056 Specifications

## TECHNICAL SPECIFICATION (applies to 7052, 7052P, 7056, 7056P)

### OUTPUT

#### Voltage/Current Ranges

7052 - 0V to 30V/1mA to 3A; 0V to 30V/0.1mA to 500mA; (90W max.)

7056 - two identical outputs as per 7052, with Tracking and Parallel modes (see Modes section)

*Note: Actual maxima for voltage and current are typically 1% greater than the figures given above.*

#### Output Setting & Control

Voltage Setting: By coarse and fine controls.

Current Setting: By single logarithmic control.

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

Output Switch: Electronic, non isolating. Preset voltage and current limit displayed when Output off.

Output rise time no load <15ms.

#### 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 0.1V to 30V The range for Vmin is 0 to (Vmax – 0.1V).

#### 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 and Noise: Normal mode voltage: <0.4mV rms and 2mV p-p; Normal mode current: <0.2mA rms; (<40µA on 500mA range); Common mode current: <5mA rms

Load Regulation: Voltage - <0.01% + 2mV. Current - typically 0.01% + 500µA.

*Voltage specification applies for any load change, measured at the output terminals. When using remote sense add 0.5mV per 0.1V drop in the positive output lead (max. sense lead resistance 0.5 Ohm).*

Line Regulation: Voltage <0.01% + 2mV for 10% line change. Current <0.01% + 250µA. for 10% line change.

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

Temp. Coefficient: Voltage: typically <(50ppm + 0.5mV)/°C; Current: typically <(100ppm + 1mA)/°C; (100ppm + 0.1mA)/°C on 500mA range.

#### Output Protection

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.

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

Safety Interlocks: Operations that could cause an unpredictable 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.

### MODES OF OPERATION (7056 only)

The 7056 has four modes of operation - Independent, Isolated Tracking, Isolated Ratio Tracking, and True Parallel.

**Independent:** The two outputs are completely independent and electrically isolated from each other.

**Tracking:** The two outputs remain electrically isolated, but the voltage control of the Master output sets an identical voltage on the Slave output.

**Ratio Tracking:** As Tracking, but the Slave voltage can be set to any percentage of the Master output and will retain that percentage ratio as the Master voltage is varied.

**Parallel:** All of the power (up to 180 watts) is channelled to the Master output which can consequently supply up to 6 amps. The Slave output is turned off and its meters are blanked.

**Both On/Both Off:** The Both On and Both Off buttons are in addition to the individual switches for each output, and allow both outputs to be turned on or off synchronously by a single button press.

### METER SPECIFICATIONS

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

#### Voltage Meter

Resolution: 10mV; Accuracy: ± (0.1% of reading + 10mV)

#### Current Meter

Resolution: 1mA (0.1mA on 500mA range); Accuracy: ± (0.3% + 0.005A) to 3A; ± (0.5% + 0.005A) to 5A; ± (0.3% + 0.5mA) on 500mA range

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

# 7052P & 7056P Remote Control Specifications

## TECHNICAL SPECIFICATION - REMOTE CONTROL (7052P and 7056P)

### VERSIONS

7052P - 0 to 30V at 0 to 3A, programmable. 7056P - 2 x (0 to 30V at 0 to 3A), 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.

*Note: Remote/Local Sense, and Operational Mode (7056P) are manually selectable only.*

### RS-232

Standard 9-pin D connector. Baud rate 19,200 max.

### USB

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

### Digital Programming Performance

Voltage Setting

Setting Resolution: 1mV

Setting Accuracy:  $\pm (0.05\% + 10\text{mV})$

Current Setting

Setting Resolution: 0.1mA (0.01mA on 500mA range)

Setting Accuracy:  $\pm (0.3\% + 0.005\text{A})$  to 3A,  $\pm (0.5\% + 0.005\text{A})$  to 6A,  $\pm (0.3\% + 0.5\text{mA})$  on 500mA range.

### Programming Speed

Command Delay: Typically <80ms (this must be added to any of the figures below)

Voltage Up Time: Typically <45ms\* to 1%

Voltage Down Time: Typically <20ms\* to 1% (full load); typically <150ms\* to 1% (no load)

### Analog Remote Control (7052P only)

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

*Note that the 7056P does not have analog remote control.*

### Scaling

Reference Point: All control voltage are referenced to the positive output terminal

Set Voltage Input: 0V to 10V sets 0 to 100% of rated output (e.g. 0 to 30V for 7052P).

Alternative scaling of 0V to 5V (selectable using internal link).

Set Current Input: 0V to 10V sets 0 to 100% of rated output (e.g. 0 to 3A for 7052P).

Alternative scaling of 0V to 5V (selectable using internal link).

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.

### Accuracy

Set Voltage Input:  $\pm (0.3\% + 10\text{mV})$ ; Input Impedance = 100k $\Omega$

Set Current Input:  $\pm (0.5\% + 0.005\text{A})$ ;  $\pm (0.5\% + 0.5\text{mA})$  on 500mA range

Input Impedance = 64k $\Omega$

Voltage Output:  $\pm (0.3\% + 10\text{mV})$ ; Output Impedance = 125 $\Omega$

Current Output:  $\pm (0.5\% + 0.005\text{A})$ ;  $\pm (0.5\% + 0.5\text{mA})$  on 500mA range; Output Impedance = 125 $\Omega$

### Remote Analog On/Off Control (7052P only)

Non-isolated terminal which sets the output to Off when pulled low by gate signal or relay closure. Signal is reference to the positive output terminal. *Note that the 7056P does not have this facility.*

## GENERAL SPECIFICATION and ORDERING INFORMATION

### Module Widths

7052 and 7052P: 150mm

7056 and 7056P: 295mm

*Both modules can only be fitted in the CalBench primary console*

### Ordering Information

7052: 30V DC 3A Adjustable Power Supply

7052P: 30V DC 3A Programmable Adjustable Power Supply - RS-232 or USB

7056: 2 x 30V DC 3A Dual Adjustable Power Supply

7056P: 2 x 30V DC 3A Programmable Dual Adjustable Power Supply - RS-232 or USB

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](mailto:mail@timeelectronics.co.uk)

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