

# Limitimer®

Rackmount

Model: PRO-2000<sup>RM</sup>



Limitimer PRO-2000<sup>RM</sup> is a speaker timer system for studio installation. Housed in a 1U rackmount enclosure, it combines the Limitimer controller with an Ethernet port and a serial data port to popular touch panels and show control systems. It can drive Limitimer signal lights by hardwire, over Bluetooth wireless, or across local and wide area networks. It can also be controlled by other client-configured timers in the Limitimer family.

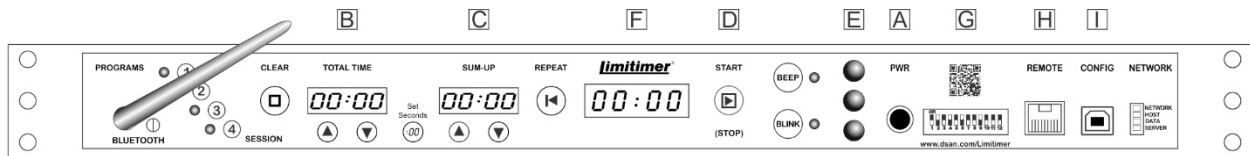
Front DIP switches allow for easy access to set sound cues, volume, counting format, seconds display, and wireless channels. Through a front panel USB port, a PC can access user guides, set-up examples and touch panel interface documents, as well as store personal documents or launch an application to configure network properties (IP address, gateway, mask, port and DHCP).

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## Timer Operation

### Quick Start – Setup

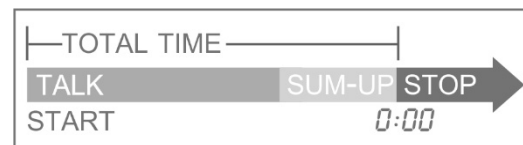
Plug the power supply into the rear panel. Use the DSAN Power Supply Model WP (110-220 V AC) which can provide 12 volts at up to 1 amp — enough to drive the timer and two connected signal lights. (For additional signal lights, use a larger power supply or a power booster hub. The signal lights may also be powered locally. See **Accessories**, Page 8.)



Push the power switch (A) to turn on.

Set Total Time – Use the Up-Down arrow buttons below the Total Time display (B). Each button-press increments or decrements one minute. To set seconds, press the "Set Seconds" button. The displays will blink. While blinking, each button-press increments or decrements one second.

Set Sum-up Time – Use the Up-Down arrow buttons below the Sum-Up display (C). Sum-Up time represents the amount of time remaining when the yellow phase light (E) is illuminated. Note: Sum-Up Time cannot be greater than Total Time.



Press Start (D) – The time displays turn bright red, the phase lights (E) illuminate, and the Time Remaining display (F) begins counting. Note: Counting is, by default, in the down direction and by **MINUTES: SECONDS**. This can be changed to the counting up direction and/or by **HOURS: MINUTES** using dip switches. (See **Dip Switch Settings** page 5.)

### Programs

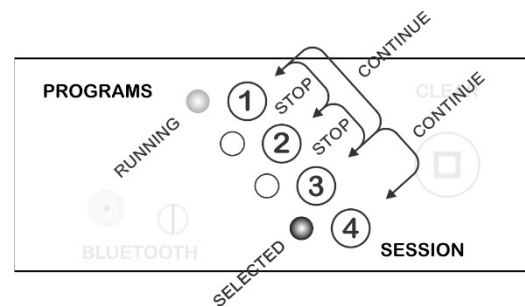
Programs are useful for debates or contests where pre-set timing formats must be selected quickly or where timekeeping is separate for each speaker.

To pre-set a program, select that program.

Set Total Time, Sum-up Time, Blink, and Beep.

These settings are saved for the selected program.

Programs 1, 2, and 3 cannot run simultaneously with each other. Toggling between these programs stops the clock if it is running. Program 4 (Session) can run simultaneously in background while Program 1, 2 or 3 is running and is selected for display.



A dimly lit Program LED indicates that a program is running in background. A brightly lit LED indicates that the program is selected for display. A signal light set to display all programs will display the program that is selected on the timer. Signal lights can be set to display any or all programs using the signal light dip switches 1-4.

Press Clear to return the settings of a selected program to 0:00. Press Repeat to reset Time Remaining to Total Time.

### Options: Beep – Blink

*Note:* Beep and blink settings, like time settings, are set for each individual Program.

**Blink on:** Red light starts to blink after it comes on at Time Remaining = 0:00.

**Beep:** Audible cue is sounded when Time Remaining is 0:00 and when red phase light is illuminated. It continues to beep every other second. See **DIP Switch Settings** to select the type of sound.

*Note:* Hold Beep button to manually trigger a single beep.

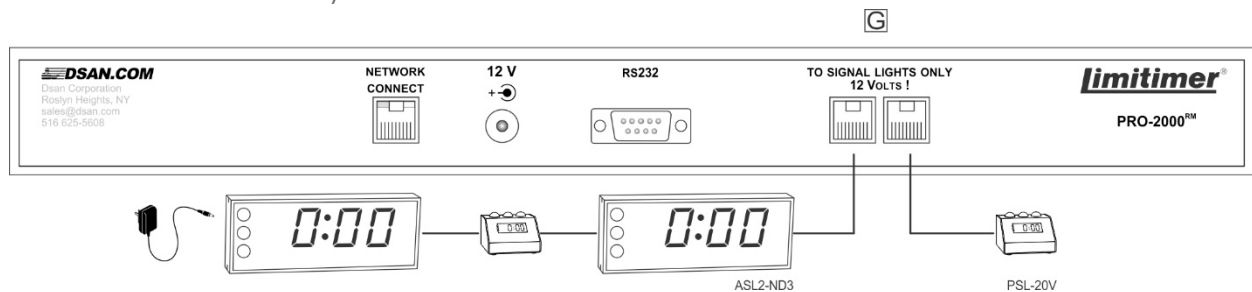
## Signal Light Connections

*Note:* Signal lights may be purchased separately. (See Signal Lights and Accessories Page 10.)

### Hardwire Connections

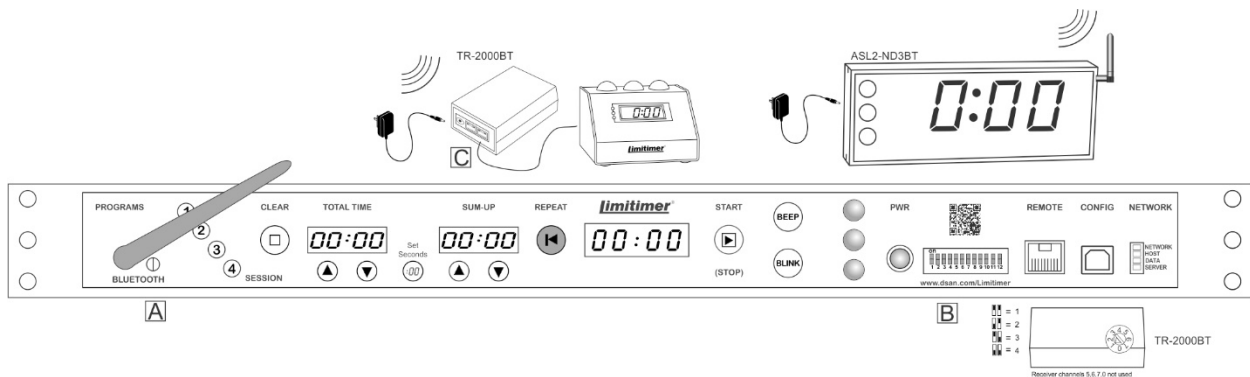
Signal lights connect with Cat-5 cable. (XLR cable can be used with KES-882 cable adapter. See **Accessories**.) The cable uses twisted wire pairs to carry 12 volts, differential data, and ground reference. *Do not connect Signal Light jacks to standard network ports.* Dual RJ45 jacks are available on the rear panel (G) and one on the front panel (H) for signal light connections.

Multiple signal lights can be interconnected via daisy chain or through a power booster hub (PSL-PB6 or PSL-PB18. See **Accessories**).



## Wireless Connections

Limitimer PRO-2000RM has an integrated Class II Bluetooth transceiver. It can send data to Bluetooth-equipped signal lights or client-configured timers at distances up to 300 feet. Communication can take place over four channels with up to 6 Bluetooth receivers connected on each channel. Multiple signal lights can be connected to a single Bluetooth receiver or a signal light with an integrated receiver.



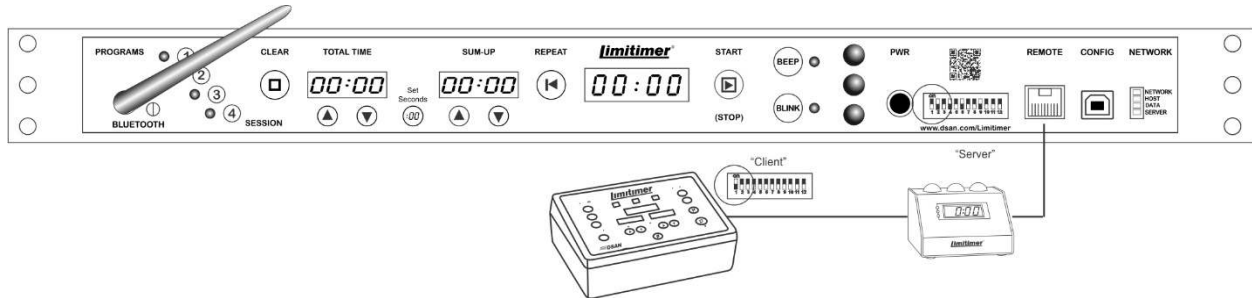
Match receiver and timer Bluetooth channels using DIP switches 11 and 12 (B). Keep the signal light and the timer < 20-feet apart during the initial setup. Yellow LEDs on the timer (A) and on the receiver (C) will illuminate during the first minute of setup. When both LEDs turn green, the timer and signal light are paired, and they may be separated up to 300 feet.

## DIP Switch Settings

Timer and signal lights have DIP switches that control behavior particular to each device. The default settings are all switches in the UP or ON position. **Note:** Signal lights use a different DIP switch labelling where one switch position is marked "OPEN". In this context, the open position means "OFF."

### Switch 1. Client-Server

When two or more timers are connected to one or more signal lights, set one timer as Server [ON] and the other(s) as Client [OFF]. When only one timer is used, it must be a Server (default setting – Switch 1 UP). The Client timer acts as a thin client that sends keystroke commands to control the Server and displays the Time Remaining. All the time processing is done on the Server.



### Switch 2. Counting Program 4 (Session)

MINUTES: SECONDS [ON]; HOURS: MINUTES [OFF]

### Switch 3. Counting Programs 1, 2, 3

MINUTES: SECONDS [ON]; HOURS: MINUTES [OFF]

### Switch 4. Count direction

Count-Down [ON] or Count-Up [OFF].

If Count-Up, Time Remaining display shows elapsed time.

### Switch 5. Count Behavior

Continue after zero [ON] else, stop display at zero. Note, in OFF mode, red light stays on until user presses "stop".

### Switch 6. Sound Volume

High [ON] Low [OFF]

### Switch 7+8. Sound Selection

- |        |        |       |  |
|--------|--------|-------|--|
| 7. ON  | 8. ON  | None: | An empty sound. "Beep" pressed on timer outputs a cue to activate a sound at a signal light that is set for an audible sound |
| 7. OFF | 8. ON  | Buzz  |  |
| 7. ON  | 8. OFF | Ring  |  |
| 7. OFF | 8. OFF | Chime |  |

### Switch 9. Time Settings Permission

Allow time changes while clock is running [ON]

### Switch 10. Enable Wireless Transceiver

Set to [OFF] when not using Bluetooth communication

### Switch 11+12. Bluetooth Wireless Channel

Match with switches 11 + 12 of any signal lights with an integrated Bluetooth receiver or with the rotary switch on the Bluetooth receiver Model TR-2000BT.

**limitimer®**


**TR-2000BT**

Bluetooth® Signal Light Transceiver


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**Match Channels - Timer with Receiver**




on



=




PRO-2000BT can communicate with up to 6 receivers (Model TR-2000BT) or other timers on each channel

	=	2	Receiver channels
	=	3	5,6,7,0 not used
	=	4	

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Turn on timer. Power receiver. Wait for yellow light on jack to become green.

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## Network Settings

When a PC is connected to the front USB port of Limitimer PRO-2000RM, a flash memory drive "Limitimer" is enumerated and visible on Windows Explorer. Click on the application "Configure-Networking ". (Windows® only.) A form appears that shows the network properties of the device.

**A** Make sure that Device "Limitimer" is selected [A]. (This application is used for other DSAN products as well.)

**B** By default, PRO-2000RM is set to be a "server" [B] and use a dynamically assigned IP address. DHCP is unchecked [C]. This is so it will not disable other devices that may be connected to your network that are assigned the same IP.

**C**

However, it is important for the server to have a known IP address so that clients can be configured to point to it. You can change to a fixed IP address if you are running your own network or if the network administrator provides an unused IP address [B]. In this context, Server is the Device IP Address.

**D** If you are trying to establish a connection outside of the local area network, you will need to input the Gateway IP address. This is often the address of the router itself. Quite frequently, it is the first address in the range of addresses that the router can assign to connected devices. Many consumer routers use 192.168.1.1 thru 192.168.1.255 as the range of addresses. In this case, the gateway address may be 192.168.1.1 and the connected Limitimer Rackmount may be any other unused addresses in that range.

**E**

**F**

The Network Mask determines what part of the IP address is the local area network.

This value should be obtained from your network administrator. Most consumer routers allow a maximum of 255 IP addresses which are completely contained within the final octet of the router address. Thus, the mask is usually "255.255.255.0."

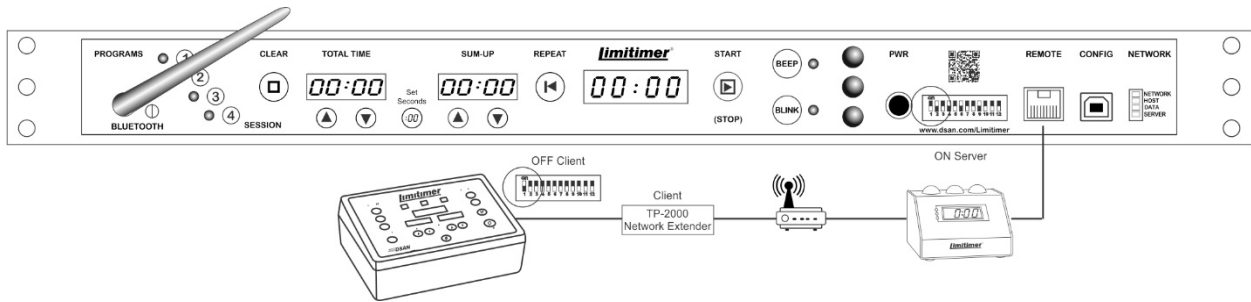
An unused port number must also be obtained from the network administrator to send outside requests to the PRO-2000RM to its assigned internal IP address.

**CONFIG NETWORK** Network status LEDs indicate connection to a network (**NETWORK**); whether a client Limitimer (**HOST**) is connected to the PRO-2000RM; if data is flowing (**DATA**); and, if the device is configured as a server (**SERVER**). (If configured as a client, the Server LED is off.)



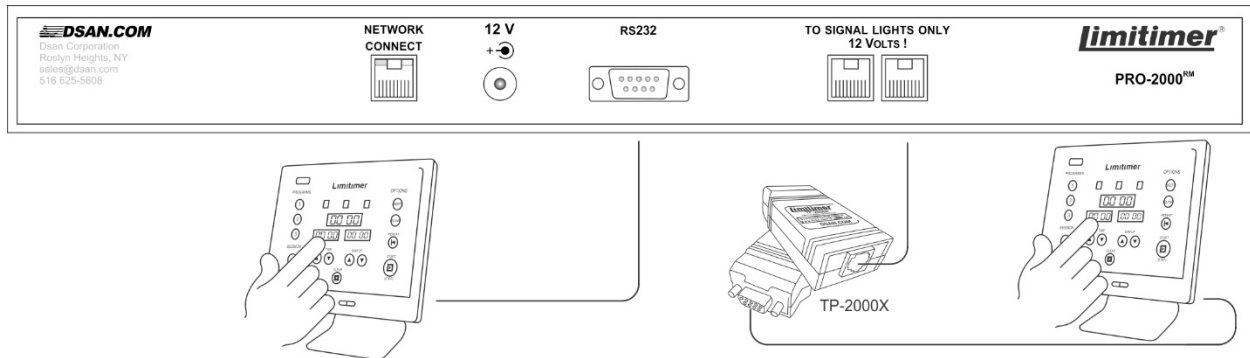
If Limitimer Rackmount is configured as a client, make sure that its DIP switch #1 is the OFF position. This means that it is not generating its own time data. The DATA LED will not blink until it connects to a remote timer configured as a server.

If Limitimer Rackmount is configured as a server, make sure that DIP switch #1 is in the ON position so that it generates all the time data.



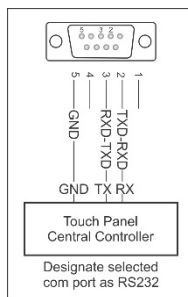


## Serial Communications



Limitimer communicates with signal lights and client timers via high speed serial connection.

Limitimer Rackmount translates the serial data into easy-to-read and easy-to-send plain-text format and adds information about the phase lights and other status indicators to the message so that touch panel controller can simulate the Limitimer console. The text format is available on the RS-232 serial port.



RS-232 protocol uses separate wires for transmit and receive. Limitimer uses a half-duplex RS-485 protocol where transmit and receive happen on the same wire, but at separate times in the message. An internal RS-232—RS-485 adapter handles the interface between Limitimer and touch panel controllers. An external adapter (TP-2000x) is also available as an accessory.

The touch panel controller port should be configured at 9600 baud with 8 data bits, no parity, and one stop bit.

The message on the RS-232 port incorporates a checksum.

The Touch Panel API is found in a separate document "LimitimerTouchPanel\_API.pdf" on the Limitimer Rackmount flash drive.

## Signal Lights and Accessories

These display devices are available to connect to Limitimer Rackmount and are sold separately.

### Podium Signal Light - PSL-20V

A small light pod ( $3\frac{3}{4}'' \times 3\frac{3}{4}'' \times 2\frac{1}{2}''$ ) designed to sit on the top or in the well of a lectern.



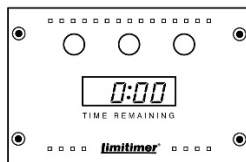
### Audience Signal Light – ASL2-ND3

Digital time clock with 2" digits and green-yellow-red phase lights. ( $11'' \times 4\frac{1}{4}'' \times 1\frac{1}{2}''$ ). Available with integrated Bluetooth® receiver



### Flush Podium Signal Light - PSL-20VF

Signal light for flush-mount installation ( $4\frac{3}{4}'' \times 3'' \times 1\frac{1}{4}''$ ).



### Audience Signal Light – ASL4-ND3

Digital time clock with 4" digits and green-yellow-red phase lights. ( $22'' \times 6\frac{1}{2}'' \times 3''$ ) Available with integrated Bluetooth® receiver.



**VideoClock – VC-2000**

Cat-5–USB dongle and PC software to display Limitimer data on a video screen.



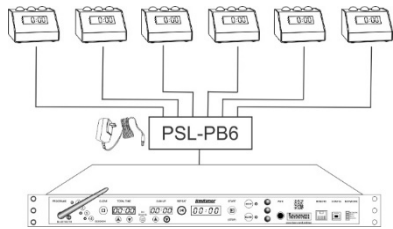
**Network Extender – IP-2000X**

IP-Address configurable adapter to transmit or receive Limitimer time data over Ethernet.



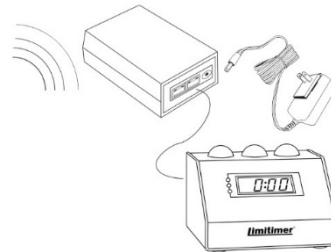
**PSL-PB6/18 – Signal Light Extender**

6- / 18 port power distributor to connect additional signal lights to one Limitimer



**TR-200BT – Bluetooth Wireless Receiver**

Bluetooth wireless receiver for Limitimer signal lights.



## Setups

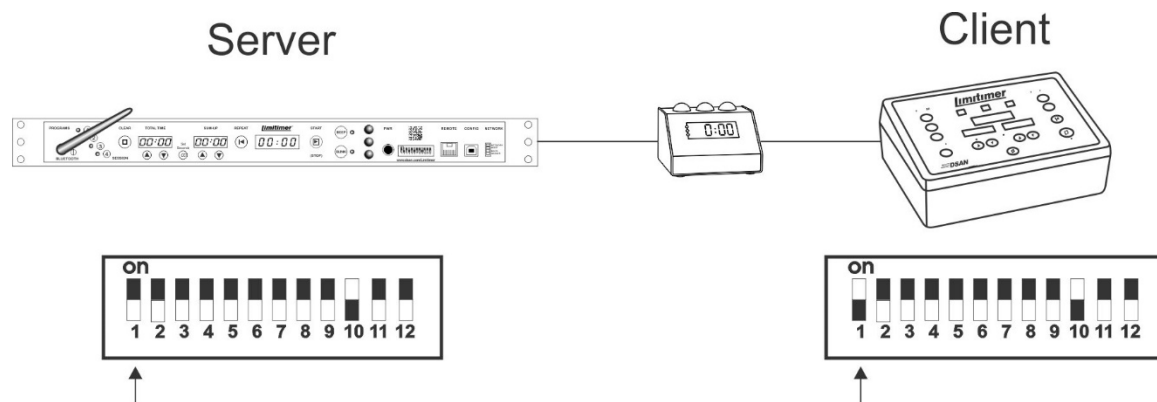
Limitimer timers and signal lights may be configured in numerous ways. The RS-485 wiring allows many devices to be interconnected and the number is limited only by available power. Power may be introduced anywhere but is best connected nearest the most remote lights. Wireless and network connections may be combined with hard-wired connections. Any number of "client"-configured timers may be connected to provide multi-point control.

These illustrations show a range of setup possibilities.

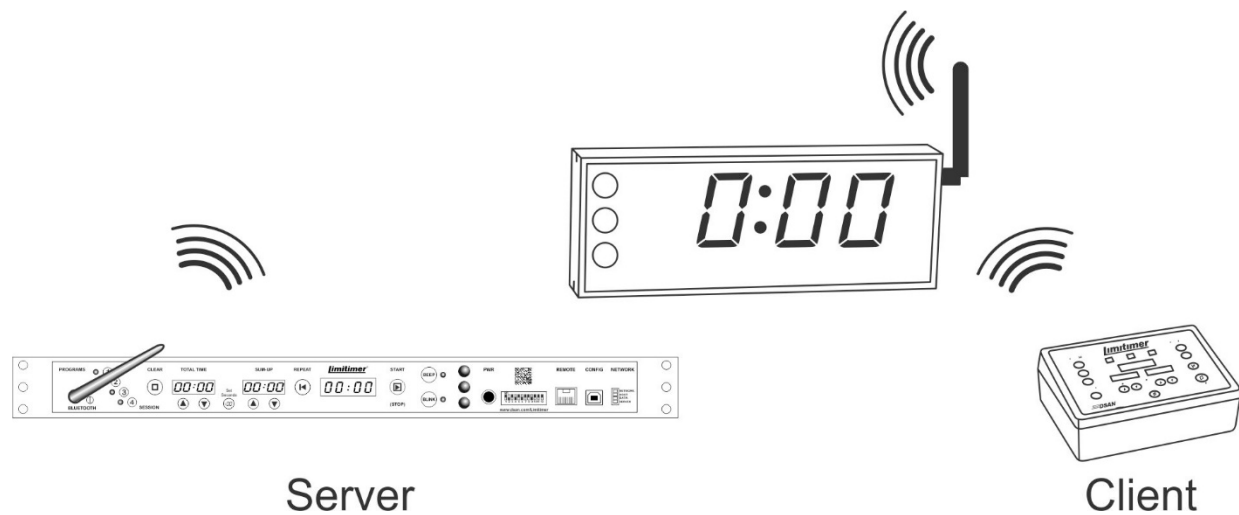
### Multi-point Time Control

Note: Make sure one timer has DIP switch 1 in the UP (ON) position. The other timers should have the switch in the OFF position.

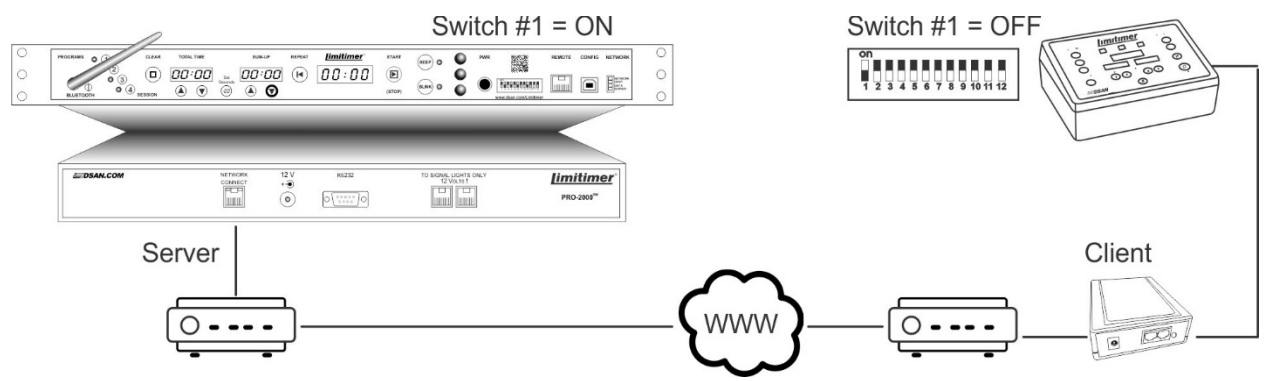
Multi-point control can be setup over hard-wire, Bluetooth wireless or Ethernet or any combination.



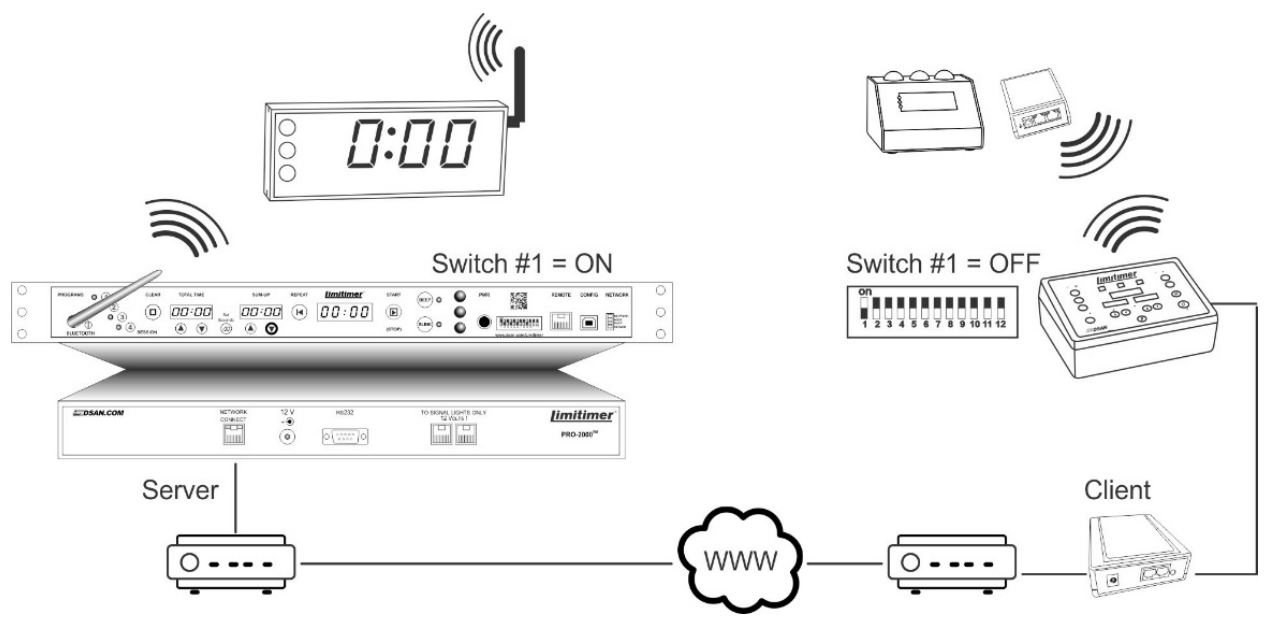
This works with wireless operation as well.



Client-Server can work over network operation



Integrate Bluetooth wireless with network operation



## Specifications

Program Presets	4	Additional presets and programmed operation may be managed by a touch panel or show control systems
Signal Light Ports	3	2 in back. 1 in front. RS-485 data communications over Cat-5 cable with 12-volt power allows long runs (1500 feet), multi-drop, or daisy-chain configurations. Additional signal lights via Bluetooth wireless.
Network Ports	1	Windows application is stored in flash memory in order to configure IP address, client/server designation, gateway, mask, and DHCP or static IP
Wireless Channels	4	Integrated Class II Bluetooth transceiver. Can support up to 7 Bluetooth receivers. Four timer-signal light networks can operate without interference on 4 unique channels. Effective wireless distance: 300 feet.
Serial Connections	1	RS-232 port supports ASCII-based API. Transmits count-down time of the active program as well as the state of green-yellow-red phase lights. Receives any command corresponding to the buttons on the timer.
Power	110-220 VAC	Provided 1-Amp power supply can drive timer and two PSL-20V signal lights. Larger power supplies, power booster hubs, or local power supplies available
Sounds	3	Selectable: Beep, Chime, Buzz, None. Sounds are set locally. The timer emits a sound flag in the timer message if the timer sound switch is engaged. Local signal lights will emit the sound if Beep, Chime, or Buzz is selected.
Weight		4 lbs. (with power supply)
Dimensions		Standard 1U rackmount chassis. 1.75" (H) x 8.0" (D) x 17.0" (W)

## Warranty

Dsan warrants that the products it sells shall be free from material defects in materials and workmanship and will materially conform to any applicable specifications posted on the Dsan website. Such limited warranty will be effective for one (1) year from date of delivery. For any product under the warranty, Dsan shall provide buyer with a replacement product; repair the product; provide replacement parts for the product; or provide a refund to buyer of the sale price of the product, upon return of the defective product. To report a defective product, please email Dsan at [support@dsan.com](mailto:support@dsan.com), and Dsan will provide instructions for remedy of the defective product. In the email, please include full name, address, name of product, explanation of the defect, and either Invoice Number or Purchase Order Number. Please see Dsan's Terms and Conditions for our full limited warranty.

## Support

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