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General Questions

1. What is the Lightning Switch[®] and what does it do?

With the revolutionary Lightning Switch[®], you can install switches for lights and appliances – anything that runs on electricity - without running any new wires... using remotes that work without batteries!

Replace, install, add or move one or more switches literally in minutes, without the hassle or mess of traditional re-wiring.

The patented Lightning Switch[®] saves \$100s over the cost of installing or replacing wired switches. But the Lightning Switch[®] is about more than just saving money. It offers flexibility, versatility and convenience that wired switches can never match.

You can make your Lightning[®] system as basic or as sophisticated as you want... just by making a series of simple decisions. And the installation process is so easy and foolproof that you won't even need instructions after the first time.

2. What's the difference between Lightning Switch[®] and other remotes?

The Lightning Switch[®] is designed to replace and improve upon wired switches – as a *permanent* solution. Other remotes are marketed as specialty products and are clearly “temporary”.

Other remote controls need batteries – Lightning Switch[®] does not.

Other remotes might be interfered with by a neighbor who has the same product – Lightning Switch[®] can't be interfered with by others.

The Lightning Switch's[®] unique and remarkably simple system for matching Transmitters to the Receiver(s) they control gives the Lightning[®] system unequalled convenience and flexibility.

Based on years of side-by-side testing, Lightning Switch[®] outperforms all the remotes we've seen in terms of transmission distance and reliability.

3. What Lightning[®] components do I need to buy?

The most basic system **requires** at least one Lightning[®] Transmitter and one Lightning[®] Receiver.

4. What agencies have tested/certified Lightning[®] products?

Lightning[®] products have been tested and approved by agencies around the world, including UL & FCC (US), UL & IC (Canada), TUV & CE (Europe) & SABS (South Africa). Consult the data sheet & labeling for each product for specific information.

5. How does the Lightning[®] Transmitter work with no batteries?



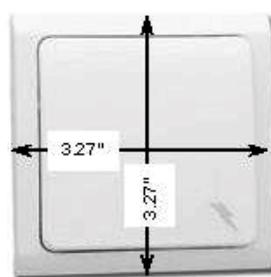
Typical Lightning Transmitter

The Lightning[®] Transmitter converts the mechanical action of pushing its button into enough electricity to send a coded radio frequency signal to the Receiver.

Pushing the Transmitter button "plucks" a piezoelectric device called Lightning[®] - originally developed by NASA and used on the International Space Station. It's Lightning[®] that generates the electricity. That's why Lightning[®] remote controls never need batteries. In normal home use, they can work for decades and never "wear out" and never "get weaker".

Product Dimensions

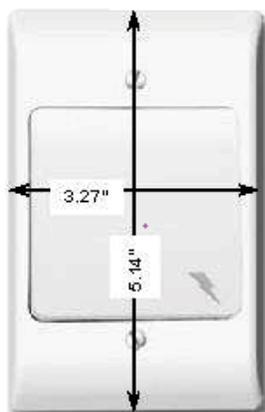
6. How big are Lightning[®] products?



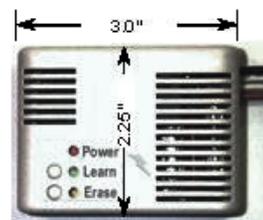
Small Transmitter



Transmitter Side View



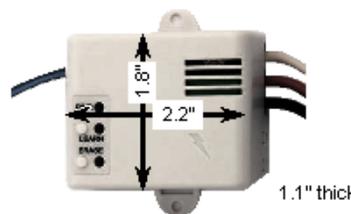
Large Transmitter



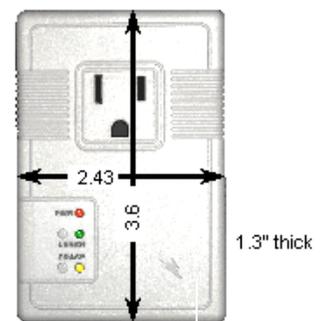
12V Wire-In Receiver



12 V Wire-In Receiver Side View



120V Wire-In Receiver RM/V 120P4



120V Plug-In Receiver RMP 120P4

Setting Up, Expanding and Rearranging

7. How do I set up the Lightning Switch[®] system?

First the basics:

All Lightning[®] Transmitters emit one or more unique coded radio signals when the button of the Transmitter is pushed. These unique codes are built into each Transmitter when it is manufactured.

All Lightning[®] Receivers come out of the factory with blank, imprintable Flash memories, similar to those in digital cameras and cell phones.

A Lightning[®] Receiver will respond only to Transmitter commands that the Receiver has been taught to obey.

Now, here's how to set up the system:

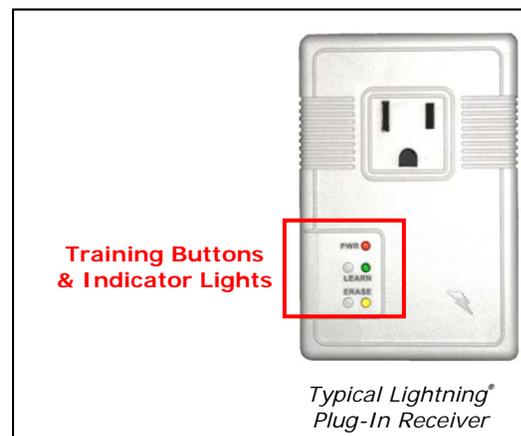
Before you attach any of your Transmitters permanently to a wall (if you choose to do so), you should match your Transmitters to the Receivers you want them to control.

Install your first Receiver by plugging it into the first outlet – or with our Wire-In Receiver, wiring it into the first electrical box.

The red Power light will glow for a few seconds to confirm that the outlet that you're using is powered. *After the initial installation is completed, the red light will turn on whenever the Receiver is "On".*

Press the "Learn" Button on the Receiver and a green light will glow.

While the green light is glowing, press the first Transmitter that you want to use to control that Receiver. The green light goes out when the code has been learned. By doing this, the unique ID code of that Transmitter is imprinted upon the Receiver. Unless you do something else, that Receiver will respond only to commands from that Transmitter and no other Transmitter.



8. What if I want two or more Transmitters to control the same Receiver?

All you have to do is to teach the Receiver the codes of another Transmitter.

By going through the Learning process with one Transmitter after another, the Receiver can be taught to respond to commands from up to 40 different Transmitters.

9. How do I use the Lightning Switch® system to create three or four-way switches?

You can create a 3-way, 4-way or even a 40-way switch system just by having a Receiver learn to obey two, three or more Transmitters. Each Receiver can accept commands from as many as 40 different Transmitters.

10. What if I want a Transmitter to control more than one Receiver?

Just use one “Master” Transmitter to train all of the Receivers. There’s no limit to the number of Receivers that a “Master” Transmitter can command, as long as the Receivers are within broadcast range of the Transmitter. When you do this, be sure to use a “Master” Transmitter and not a “Toggle” Transmitter.

11. What if I want a Receiver to stop taking commands from a Transmitter?

A Transmitter’s ID code can be erased from the memory of a Receiver by using the Erase button on the Receiver.

Press the Erase button and the yellow Erase light will glow. While it is glowing, press the Transmitter button that you want the Receiver to “forget”. The yellow light will go out when the Transmitter’s ID code has been erased from the Receiver’s memory.



12. What if I want a Receiver to stop taking commands from all of the Transmitters in its memory?

To completely Erase a Receiver’s memory:

- Press and hold down the “Learn” and “Erase” buttons at the same time – the green and yellow indicator lights will glow – and will then begin to blink.
- After the green and yellow lights start blinking, release the “Learn” and “Erase” buttons.
- While the green and yellow lights continue to blink, again press both the “Learn” and “Erase” buttons at the same time. Hold them down until the two lights stop blinking and go out.

The Receiver’s memory has been completely erased.

13. Can I use the Lightning Switch[®] with my existing mechanical light switch?

No.

Since the mechanical switch turns "On" and "Off" the electricity to the entire system, including the Receiver – the mechanical switch cannot work together with remote control switches.

In order to use Lightning products in any existing system, you need to remove the existing mechanical switch and connect the wires together so the circuit is always "On".

Then install a Wire-In Lightning Receiver in or adjacent to the electrical junction box at the light fixture... now you can install as many Lightning Transmitters as you want to service that light.

The Lightning Large Frame Transmitter is designed to screw right over the wall junction box in which your mechanical switch is now located, so you won't have an empty box left on your wall.

14. If I buy another Lightning[®] Transmitter or Receiver later, will they work with the system I buy now?

Yes. The Transmitters (or Receivers) you purchase later will be compatible with the system you purchase today.

Powering the Light or Device to Be Controlled

15. Lightning[®] Transmitters need no batteries, but do I still need electricity to power my light?

Lightning[®] Transmitters need no outside source of electricity (no power lines, no batteries) – and no wired connections – to transmit their coded radio signals. They do this because they can produce the tiny amount of electricity that is needed to send a coded radio signal to the Receiver.

However, Lightning[®] Receivers still need to be plugged into the wall or wired into the electrical supply in order to provide electricity to the light or appliance that is being controlled.

Interference Concerns

16. Could my neighbor accidentally turn on my lights?

No. A Lightning[®] Receiver can be controlled only by the one or more Transmitters whose codes have been placed in the Receiver's memory.

Each Lightning[®] Transmitter has a unique code. Unless a Transmitter's unique code is programmed into a Receiver's memory, the Receiver will not respond to that Transmitter.

This system assures that your neighbor (even if he has Lightning[®] products) will never trigger one of your Receivers. Even if the neighbor is within transmission range – because your Receivers have not been taught to obey the codes of your neighbor's Transmitters, your Receivers will ignore your neighbor's Transmitters.

17. Will I have interference problems with other remote controls or wireless telephones?

No. The Lightning[®] System uses unique codes, so it won't have interference problems with other remotes. Wireless phones operate on different frequencies from remote controls, so they aren't a problem either.

Outdoors?

18. Can I use Lightning[®] products outdoors?

Yes. If the products (especially the **Receivers**) are protected in standard plastic weatherproof boxes available for a few dollars at home supply stores.

19. Will Lightning[®] Transmitters work, if they get wet?

Yes. In fact in our testing, we actually operated a Lightning[®] *Transmitter* under a running shower head. And it still worked! However, constantly exposing a Lightning[®] Transmitter to *very* wet conditions may shorten the life of the Transmitter because of potential corrosion, which would not be covered by the warranty.

It is perfectly *safe* to use a Lightning[®] *Transmitter* in wet areas (even if you're sitting in water) since the *Transmitter* produces only a tiny amount of electricity when its button is pushed. **However, all of the usual safety precautions should be taken when installing, training or using a Lightning[®] *Receiver*,**

since the Receiver is plugged or wired into the AC power supply (see **Prevent Unsafe Acts** on the last page of this document).

Lightning[®] Transmitters

20. What is a "Toggle" Transmitter?

The Toggle Transmitter is the basic Lightning[®] Transmitter for controlling one Receiver.

The Toggle Transmitter emits a "Toggle" code – which commands Receivers to "change state".

If a Receiver is "On" when it receives a Toggle Code, it will turn "Off" – if it is "Off", it will turn "On".

Since the Transmitter is not wired to the Receiver, the Transmitter does not know if the receiver is already "On" or not. But if you can see the light, you'll know whether or not to press the Transmitter.

There are two styles – Continental and Decorative – two plate sizes, and several colors to choose from.

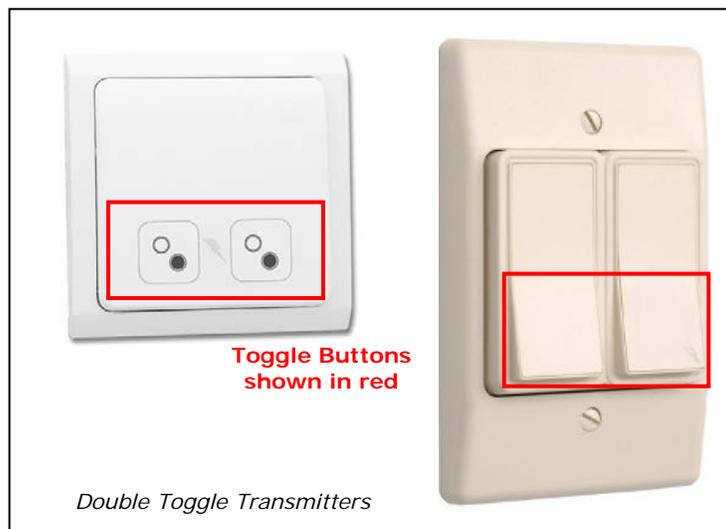


21. What is a "Double Toggle" Transmitter?

The Double Toggle Transmitter is the Transmitter to use to control two Receivers independently.

One Receiver can be commanded by one of the two Toggle buttons on this Transmitter – and another Receiver can be commanded by the second button.

This is similar to the dual light switch you probably have in the front hall of your home now – one switch for the front porch light and one switch for the hall light over your head.



22. What is an "On/Call" Transmitter?

The On/Call Transmitter looks just like a Toggle Transmitter, but the On/Call Transmitter emits only an "On" code.

This Transmitter is designed to be used as a call, alert or announce button. Lightning Switch users asked us to make a Transmitter that continued to send out an "On" command, no matter how many times it was pushed.



On/Call Transmitter

One idea – diners can "call" their waiter without saying a word. Each table in the restaurant has an On/Call Transmitter. Pushing the Transmitter turns on a light connected to a Lightning Receiver to alert the wait staff that help is needed at that table. Other applications include "call" or "announce" buttons for waiting rooms and "attention needed" buttons in offices, factories, warehouses, etc.

Installations using one or more On/Call Transmitters require at least one Master (On/Off) Transmitter to turn "Off" – or *reset* – the Receiver(s). In most cases, resetting is performed by an employee, rather than by a customer.

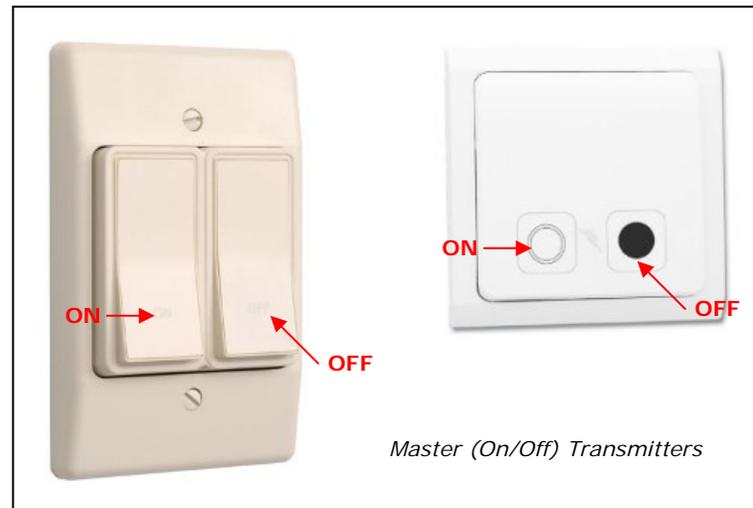
23. What is a "Master" (On/Off) Transmitter?

This is the Transmitter to use to simultaneously "Turn On" or "Turn Off" two or more Receivers as a group.

This is also the best Transmitter to use to control one or more Receivers that you can't see

(such as a Receiver connected to a light in a different room).

The left button is "On" – the right button is "Off".



Master (On/Off) Transmitters

24. Isn't it hard to find the Transmitter's function buttons in a dark room?

The Master Transmitter's left button is "On", and the right button is "Off".

To make it easier to turn the lights on in a dark room, we have designed all the "multifunction" transmitters so that the "On" function works when you press the Transmitter anywhere except the "Off" button. In other words, you do not need to hit the "On" button to turn it "On". When you walk into a dark room, you can turn the light "On" by pressing the Transmitter anywhere except the "Off" button. This makes it much easier to turn the lights "On." When it is time to turn the lights "Off," you can easily see and press the "Off" button.

For Double Toggle Transmitters, pressing the Transmitter anywhere except the right button toggles the device that has been trained to the left button.

Regular Toggle Transmitters don't have "On" and "Off" buttons, so this is not an issue with them.

25. Why should I use a Master (On/Off) Transmitter instead of a Toggle Transmitter?

If you use a Toggle Transmitter to turn "On" a group of lights – and one of the lights is already "On" – that light will be turned "Off", while all of the others will be turned "On".

The Master Transmitter tells all Receivers in its group to turn "On" – or to stay "On", even if one or more of them is already "On".

If you use a Toggle Transmitter to turn "On" a light that you can't see – then you can never tell if you're actually turning it "Off" or "On". By pressing the "On" button, you're sending out a specific command to turn "On".

26. Why are there Small Frame & Large Frame Transmitters?

Most customers prefer Lightning[®] Transmitters in Small Frames, whether they mount the Transmitter permanently to a wall or use the Transmitter as a portable "remote control".

The Small Frame Transmitter is based on a European design and is, in fact, almost the exact dimensions of a standard wired German wall switch.

The Large Frame Lightning[®] Transmitter is designed especially to cover up a standard U.S. electrical switch box when the Large Frame Lightning[®] Transmitter is replacing a standard wired switch. The Large Frame has holes in it that line up with the existing holes on a standard U.S. electrical switch box. The Large Frame Transmitter can also be screwed to a wall just like the Small Frame Transmitter.

Transmission Distance

27. How far does the Lightning Switch[®] transmit?

Up to 75 feet (23 meters) through Obstructions in 99% of Installations / Actuations

Up to 100 feet (30 meters) through Obstructions in 95% of Installations / Actuations

Up to 150 feet - or more (45+ meters) through Air

By "Obstructions", we mean walls, doors, floors, etc... even when they are constructed of brick or concrete.

We're proud to say that the Lightning Switch[®] system has outperformed every other remote control system that we've tested for transmission range.

However, there is always a chance with any Radio Frequency (RF) product that there will be temporary and/or localized interference or signal blockage. For instance, we've found that if you place a Receiver behind a large metal appliance, there's a chance that the system won't work at 75 feet. That's why we say 95% or 99%... and not 100%.

28. What's the "best way" to get the longest transmission range?

All Radio devices work best when they are high up and when they have as clear a line of sight as possible. Radio signals will go through and around objects, but the signal strength is degraded somewhat when this happens.

Lightning[®] Transmitters are designed to transmit the strongest signal when they are firmly fixed to a vertical surface, such as a wall.

If you're holding the Transmitter in your hand, hold it "upright" and try to keep your fingers away from the "top" of the Transmitter, because that's where the antenna is located.

Lightning[®] Wire-In Receivers will have best reception when they are mounted high up away from the floor. Our Wire-In Receivers have a flexible blue antenna wire that can be pulled outside junction boxes for best reception. Whenever possible, be sure to get the blue antenna wire outside of any enclosures, especially metal boxes.

Lightning[®] Plug-In Receivers are designed to be the most sensitive (and thus support the greatest range) when they are plugged into a receptacle on a vertical surface, such as a wall. Plugging the Receiver into an extension cord, on the floor, for instance, may result in shorter effective transmission range. Mounting them higher up away from the ground is always better.

29. Does the signal go through walls and doors?

Yes. We've successfully tested our system while transmitting through wood stud walls, 16-inch brick walls and concrete walls.

30. If I'm at the longest range of my System, how do I increase the chances of a successful transmission?

As you exceed the Lightning[®] System's designed broadcast range, the System is not likely to stop working altogether. It is more likely to begin "missing" on some percentage of transmissions. If you are within sight of the target that you are turning off and on, you can keep transmitting until the target responds. When you push your Transmitter two or more times in a row, pause a second or two between transmissions. In order to avoid System

errors, the Receiver is designed to ignore multiple transmissions that it receives within very short time intervals.

If the target(s) (the light, for instance) is out of sight, it is best to use a Master (On/Off) Transmitter to control it (them). In this case, the more times you press either the "On" or the "Off" button, the higher the likelihood that one of the transmissions will "hit".

Whenever possible, raise the Transmitter and/or the Receiver as high as possible and try to keep large metal objects from between the Transmitter and Receiver.

If you are near the limit of successful transmission under the circumstances, you should consider using a Lightning[®] "System Extender". See below.

31. What is a "System Extender"?

The Lightning[®] "System Extender" is a special device that listens for and repeats any coded signal from a Lightning[®] Transmitter. It acts like a "repeater" so a weak signal can be "heard" by a Receiver that would otherwise be too far away to hear the signal. You just plug the System Extender into any convenient outlet, press the "setup" button once, and forget about it. The System Extender has our most sensitive Receiver built in, and it has the most powerful Transmitter allowed by the FCC. You can string any number of System Extenders together in a long chain or array to transmit very long distances.

A System Extender can help to extend the range of a Lightning System, as described above, and it can also help to "fill in" areas where the coded signal is weak or has been distorted by RF noise. You can think of the System Extender almost as a "magic bullet" that can solve almost all RF transmission problems.

32. What is Radio Frequency "Noise"?

Radio frequency ("RF") noise occurs naturally – it's emitted by the sun, for instance.

But severe RF "noise" – enough to interfere with Lightning System transmissions – is often caused by nearby electrical devices that have high-powered transformers. These devices – especially when they are incorrectly installed – sometimes broadcast large amounts of RF "noise" into the air and through power lines.

All Lightning Receivers are equipped with RF noise filters. The Lightning[®] System Extender is designed to "power through" RF noise.

Lightning[®] Receivers

33. What is the Plug-In Receiver?

This Receiver (in the United States and Canada) is designed to plug into any 110-120 volt, three-prong outlet. The Receiver receives commands from Lightning Transmitters and “Turns On” or “Turns Off” any light or appliance (up to 1800 watts) that’s plugged into it. Plug-in Receivers are frequently used to control floor or table lamps, garage door openers, garbage disposers, fans, radios, (on/off only) holiday window candles, and Christmas trees.

34. What is the Wire-In Receiver?

Wire-In Receivers are currently available for 110-120 volt AC and 12 volt DC applications. These Receivers are wired into your electrical system between the power supply & the light fixture or device that you want to control. Typically, the 120V Receiver is wired into a junction box and remains in or adjacent to the box after installation. These Receivers receive commands from Lightning Transmitters and “Turn On” or “Turn Off” the light or appliance (up to 1800 watts for the 120V Receiver) that’s wired into them.

Wire-in Receivers usually are used to control ceiling light fixtures, recessed lighting, under-counter lights, motors, pumps, transformers for outdoor lighting, and the like.

35. Can I control Lightning Receivers with another brand of transmitter?

No. In order to avoid the Receiver being turned on accidentally, Lightning[®] Receivers will obey commands only from Lightning[®] Transmitters.

36. How much power can the Receiver handle?

The newer model RMP120P4 Plug-In Receiver and the newer model RMP 120P4 Wire-In Receiver can each handle up to 1800 watts of switched 110-120 volt power. That is 15 Amps, a full household circuit. The 12 volt DC Wire-In Receiver can handle up to 84 watts.

37. Can Receivers control fluorescent lights, motors, pumps and inductive loads?

Yes. You can turn pretty much anything “On” or “Off” with a Lightning[®] Receiver.

38. If there's a loss of power – or if I unplug the Receiver – will the Receiver lose its memory?

No. The Receiver will always maintain its memory in normal use, even after being unplugged for years.

39. When power is restored after an outage, will Lightning Receivers that were "On" before the power outage turn back "On" again?

Yes, unless you have disabled the "Virtual Latching" feature. You can choose to set the Receiver to return to the state it was in before power was lost, or you can choose to have the Receiver recover to an "Off" state. The procedure for turning "Virtual Latching" on or off is explained in the installation instructions.

Lightning Applications & Warranty

40. What are the most popular applications of the Lightning Switch[®] ?

The Lightning Switch[®] is most often used where it saves time and money when compared to the inconvenience and high cost of installing or replacing wired switches. This is especially true in remodeling, rehabilitation and restoration projects – although The Lightning Switch[®] is already being specified on new construction projects on two continents.

Many first-time buyers use the Lightning Switch[®] to install a switch where they've always wanted one, but didn't want to go through the hassle and mess of installing a wired switch.

The Lightning Switch[®] is also used as what we call a convenience product. One of the most popular convenience applications is turning on a number of lights around your house from your bedside table... to light the way to the kitchen or bathroom, or just to give you a feeling of security when you think you heard a strange noise at night. Similarly, people are buying Lightning Switches[®] to turn on lights from the outside, so they don't have to enter a dark house.

Holiday window candles and Christmas trees are also popular applications.

41. What is the warranty on the Lightning Switch® ?

Lightning® products are warranted to be free of defects in materials and workmanship at the time of sale within 10 years of the delivery of the product.

This limited warranty applies to home use only and will be considered void if the unit is tampered with or is subject to misuse, negligence or accidental damage.

For complete details, consult warranty information enclosed with each Lightning® product.

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