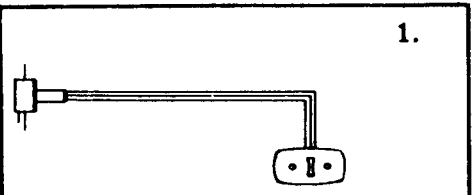
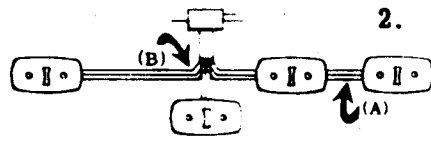


How REMCON Works Electrically

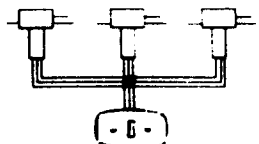
1. SINGLE RELAY TO SINGLE SWITCH
 A basic REMCON hookup...one relay and one switch...is easy to install... saves time and trouble.



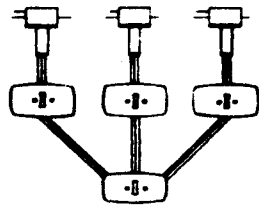
2. SINGLE RELAY TO SEVERAL SWITCHES
 No matter how many low-voltage switches you're installing, working with the REMCON relay is never more complicated than installing one relay and one switch. And you can have as many switching points on a single REMCON relay as you wish. You can add a switch to existing switches (A) or to the relay (B).



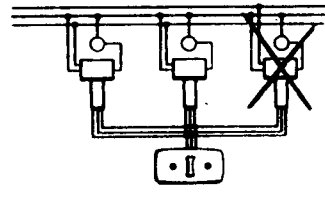
3. SEVERAL RELAYS TO SINGLE SWITCH
 You can simultaneously control as many as five REMCON relays from a single switch. (See note below)



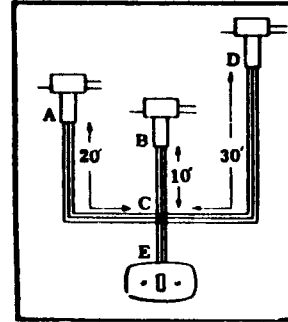
In this type of hookup the relays cannot be individually controlled.



NOTE: When one switch is hooked to several relays in a single-phase 3-wire service, the **BLACK** hi-voltage wire of all the relays must be connected to the same hot leg of the service.



LENGTH OF SWITCH LEG --



In general, #18 gauge 3-conductor jacketed wire is recommended for all your low-voltage switch legs. Length of switch leg should be limited to 160 feet when the supply voltage to relay is 120V. Because of the resistance of the low-voltage cable between the relay and switch, the following size wires are required to work efficiently at 110V and 120V for various lengths of switch legs:

Important Note!

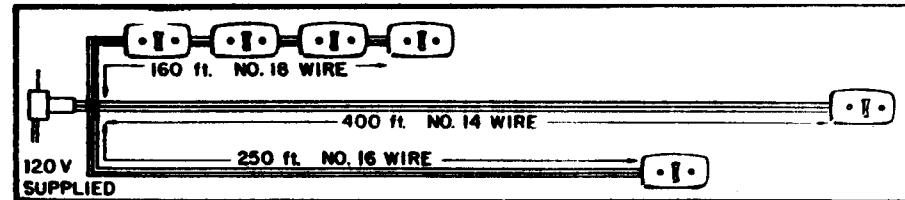
When more than one relay operates on a common switch leg, divide the distances in the table below by the number of relays. In the illustration shown to the left take the distance from the junction point to the furthest relay, CD (30 feet). Subtract 30 feet from the permissible distance, 160 feet, for a total of 130 feet. Divide 130 feet by the number of relays (3) for a total of approximately 45 feet. This is the maximum permissible distance for the leg CE.

LENGTH OF SWITCH LEG (ft) - REMCON RELAYS

3 WIRE CABLE	MAX. LENGTH OF SWITCH LEG RUN	
	CAT. R115 120V. @ Relay	CAT. R115 110V. @ Relay
	CAT. R277 CAT. R4277 277V. @ Relay	CAT. R277 CAT. R4277 254V. @ Relay
# 18*	160 FEET	80 FEET
# 16	250 FEET	125 FEET
# 14	400 FEET	200 FEET

* RECOMMENDED

NOTE: #20 OR TELEPHONE WIRE NOT RECOMMENDED



This wiring diagram illustrates application of the above information. Note that the number of switches on a switch leg run has no effect on length of line.

TEMPERATURE FACTOR ---

Because of REMCON's built-in safety features, REMCON relays will function satisfactorily only in temperatures ranging from -41° F up to 175° F.

TYPE OF SWITCH ---

For maximum efficiency, use REMCON switches only. Do not use rotary-type master controls because they do not work properly with REMCON relays.

TIME DELAY FACTOR --

The REMCON relay is a Thermo operated device which cannot burn out. As a result the relay requires 1/3 of a second to operate. REMCON switches are designed to compensate for the operating time characteristic. Use only REMCON switches with REMCON relays.

How REMCON Components Are Mounted

Now that we've gone into the electrical phases of the REMCON method, let's see how simply it fits together.

1. Where to locate the REMCON relay

Except for recessed fixtures, the REMCON relay should be mounted in the same outlet box that the fixture or convenience outlet is connected to. (See paragraph 4 for placement of REMCON relays with recessed fixtures.)

2. Size of outlet box needed

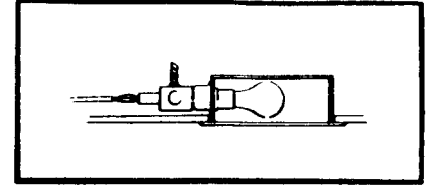
The following boxes are recommended for REMCON installations--

BOXES	WITH FIXTURE STUD	WITHOUT FIXTURE STUD
4-in. octagon, 1 1/2-in. deep	Not recommended	Recommended. Use fixture strap.
4-in. octagon, 2 1/8-in. deep, with shallow strap retainer	Not recommended	Recommended. Use fixture strap.
4-in. square, 1 1/2-in. deep	Recommended. Stud must be removed when relay is inserted or taken out. Use plaster ring to reduce 4-in. square dimension to 3-in. round.	
4-in. square, 2 1/8-in. deep	Recommended. Use plaster ring to reduce 4-in. square dimension to 3-in. round.	
FOR CONVENIENCE OUTLETS		
BOXES	DUPLEX OUTLET	PLASTER RINGS
4-in. octagon, 2 1/8-in. deep, with wall bracket	Standard depth	4-in. round
4-in. square, 1 1/2-in. deep, with wall bracket	Shallow depth	4-in. square
4-in. square, 2 1/8-in. deep, with wall bracket	Standard depth	4-in. square

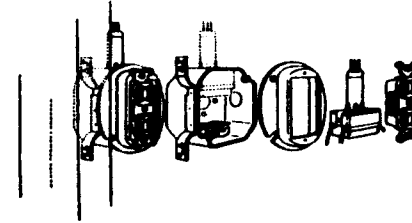
Note: For each box in which a relay is mounted, the number of conductors permitted by the code is reduced by 2.

3. Installing convenience outlets

Place plaster ring over outlet box. It is advisable to use the type of convenience outlet where one outlet is controlled while the remaining outlet is live.

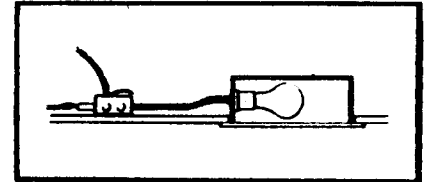


PRE-WIRED - REMCON relay can be installed directly in fixture junction box

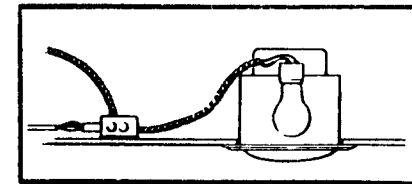


4. Installing REMCON relays in recessed fixtures

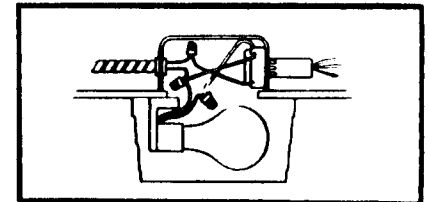
Follow manufacturer's recommendations and code requirements. Remember that REMCON built-in protection limits the use of relays to locations where temperatures are under 175°F. A good rule of thumb to go by is: where asbestos wire must be used to wire a recessed fixture, REMCON relays must be installed in a floating box. The following illustrations show how REMCON relays are installed in three types of recessed fixtures:



RECESSED BUT NOT PRE-WIRED - REMCON relay must be installed in floating box



HI-HAT - REMCON relay must be installed in floating box



NOTE: When pan-type fixtures (shown above) are used and proper fixture ventilation is not provided, temperature build-up in box can exceed 175°F limit. In this event, the relay should be installed in a floating box.

How REMCON Components Are Mounted

5. Type of wire recommended for switch legs

Any 3-conductor low-voltage wire can be used. For best results, #18 cotton-covered or thermoplastic-covered (flat preferably) wire is recommended. Care should be taken when wire is stapled to prevent shorting. Special staplers are available for this purpose.

6. REMCON switches

REMCON switches are precision made to ensure perfect alignment for easy insertion into REMCON mounting brackets.

NOTE: DO NOT PAINT REMCON SWITCHES

Paint can cause switch to stick in ON or OFF position or can interfere with electrical contacts of switch.

7. Switch Mounting Brackets

Because the voltage at the switch is only 6 volts, it is not necessary to use conventional switch boxes. Switch boxes are replaced by REMCON mounting brackets or conventional plaster rings.

REMCON MB-1

REMCON MB-1 mounting brackets are recommended for installing REMCON switch in horizontal or vertical position. They can be used equally well on plaster or sheetrock. Stopguides and square edges are provided to make installation easier.

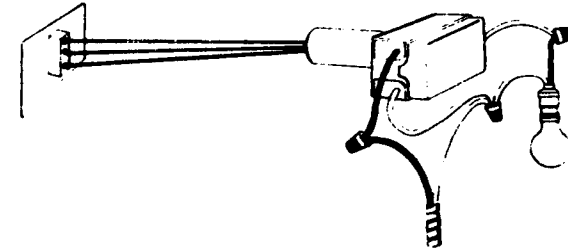


MB-1

Checking a REMCON Installation

Checking a REMCON installation never becomes more involved than testing one relay and any switch connected to it. Complete switch failure throughout the house is impossible because REMCON relays act independently of each other. And remember, the chance of trouble at the low-voltage end of your installation is very small. You should therefore check your service entrance and high-voltage wiring first.

The actual checking of the REMCON installation is so simple it can be accomplished in these few short steps---



CANNOT TURN RELAY ON

1. Check fuses and circuit breakers
2. Check connections at high-voltage end of relay.
Check to see if high voltage is available in the outlet box.
3. Check connections at low-voltage end of relay. Disconnect switch legs from relay. Allow 5 minutes needed for relay to cool off . . . then proceed to --
4. Touch RED and WHITE wires of relay to turn relay ON. If relay works properly at this point, there are 3 possibilities:
 - a) open in switch legs
 - b) short in switch legs
 - c) short or open in switches

5. Disconnect all switches hooked to this relay. Touch RED and WHITE wires at each switch location and see if relay is turned ON. If relay works properly from this point, replace switch. If relays still do not function properly, trouble is in switch leg.

CANNOT TURN RELAY OFF

1. Check connections at the high-voltage end of the relay
2. Check connections at the low-voltage end of the relay.
3. Disconnect all switch legs from relay. Take 10 for your cigarette break . . . you've got the problem just about licked now. This interval allows the 5 minutes needed for the relay to cool off.
4. Touch BLACK and WHITE wires of relay to turn the relay OFF. If the relay works properly at this point, there are 3 possibilities:
 - a) open in switch legs
 - b) short in switch legs
 - c) short or open in switches
5. Disconnect all switches hooked to this relay. Touch BLACK and WHITE and see if the relay is turned OFF. If the relay works properly at this point, replace switch. If the relay still doesn't function properly, the trouble is in the switch leg.