LiteTouch
Brilliant Solutions in Lighting Automation

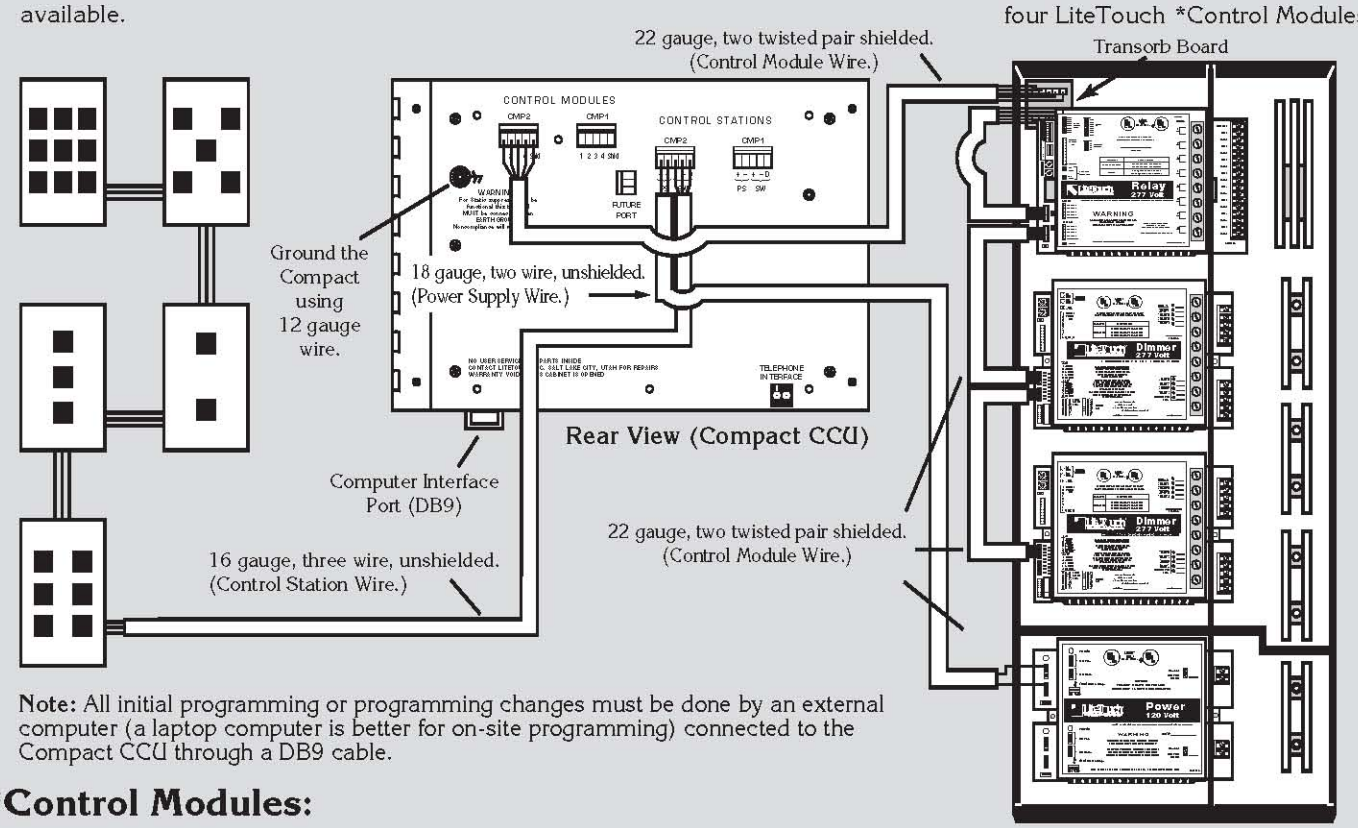
Compact CCU Installation Instructions

Main Components:

Control Stations
One to nine points of control in a single gang. Multiple gangs available.

Central Control Unit
The heart of the LiteTouch System. Only one CCU required per installation.

Enclosure
37" H. X 20" W. X 4" D.
Will hold any combination of up to four LiteTouch *Control Modules.



Note: All initial programming or programming changes must be done by an external computer (a laptop computer is better for on-site programming) connected to the Compact CCU through a DB9 cable.

*Control Modules:

08-2108
Eight Channel Dimmer Module
Provides dimming for eight independent loads. Available in 120, 240, and 277 volt versions.

08-2134
Quad Dimmer Module
Provides dimming for four independent loads. Available in 120 and 240 volt versions.

08-2138
Fluorescent Dimmer Module
Provides dimming for four independent fluorescent loads. Available in 120, 240, and 277 volt versions.

08-2118
Fan Speed Control Module
The module is capable of providing three specific speeds; high, medium, and low using ciruit tuning and capacitive circuitry for each output.

08-2140
Inverse Phase Dimmer Module
Provides dimming for six independent low voltage, solid state electronic transformer loads. Available in 120 and 240 volt versions.

08-2150
Electronic Ballast (0-10 VDC) Dimmer Module
Provides dimming for six independent loads with up to eight ballasts per load. Available in 120, 240, and 277 volt versions.

08-2208
8 Channel Relay Module
Provides switching for eight independent loads or four independent bi-directional motor controls. Available in 120 and 240 volt versions.

08-2210
High Power Relay Module
Intended for jobs that exceed the dimming capacity of the 8 channel dimmer. Available in 120, 240, and 277 volt versions.

08-2235-01
Low Voltage 8 Channel Relay Module
Provides switching for eight low-voltage loads.

08-2290-01
Maintained Contact Data Input Module
Provides interface capability with optional equipment through a maintained signal i.e., photo cells, garage doors, security systems, home automation systems, etc.

08-2290-02
Momentary Contact Data Input Module
Provides interface capability with optional equipment through a momentary signal i.e., LiteTouch strip switches, home automation systems, radio frequency remotes, etc.

POWER SUPPLY MODULE

08-8610-01 (Single)/08-8620-01 (Dual)
Power Supply Module
Power Supply Modules provide DC most LiteTouch Control Modules and CCUs. Power Supplies come in two types: single or dual. Both types fit in a module can which mounts in the system enclosures. Every system needs at least one Power Supply.

Schedules Required for Proper Installation:

The following schedules contain information necessary for proper wiring and installation of the LiteTouch system. You should have a set of the electrical/lighting plans with a two digit address assigned to all control stations and a number assigned to all loads. Enclosure location(s) should be identified on the drawings. If enclosures are in multiple locations, all loads should be labeled as to which enclosure location they will be run to. The information on the blueprint will correspond to the following schedules:

The Enclosure Schedule shows the name and location of the enclosure, modules in the enclosure, the address of each module and loads (from the electrical/lighting plans) controlled by each module.

Station Design Guides show the location and address of the station, the number of switches on the control station, and the loads controlled by each switch.

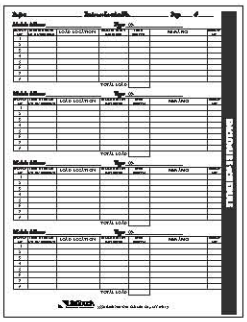
Note: For additional information during the installation process, a copy of the job's Load/Lighting Schedule may also be obtained. This schedule provides wattage, switch type and location information on individual loads. LiteWare can generate this schedule electronically as well.

Important: Prepare and leave a copy of the above documentation, with any changes annotated, at the job site after installation is completed. This simplifies future troubleshooting and modification.

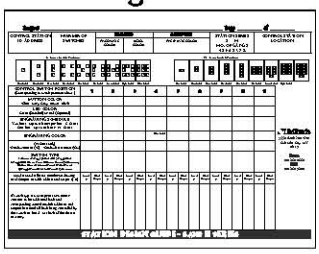
LiteWare Users: These schedules are automatically generated when a job is entered in its entirety into LiteWare. To obtain a hardcopy, simply choose the "Print" option in the "File" dropdown menu or click on the "Print" speed button.

Compact:

Enclosure Schedule

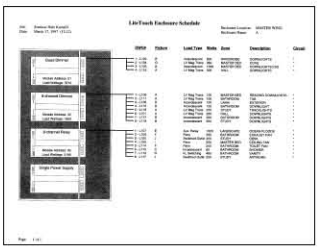


Station Design Guide

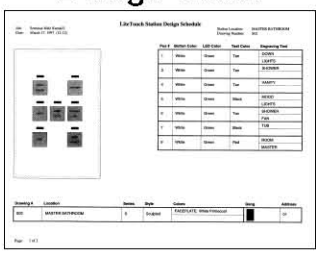


LiteWare:

Enclosure Schedule



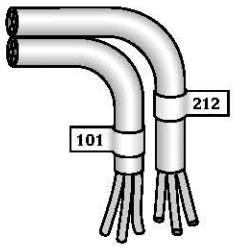
Station Design Guide



Wiring
(Wiring to be done prior to the installation of LiteTouch equipment.)

A. Line Voltage Wiring:

1. Homerun no. 12 wire from each load to its proper enclosure location. Note: multiple enclosure locations are recommended for larger installations to minimize the distance of your home runs. (As noted on the electrical/ lighting plans.) It may be advantageous to install enclosures (step 1) prior to pulling wire so proper wire length can be determined.
2. Label each homerun (at the enclosure end) with its proper load number referenced on the enclosure schedule. (The small amount of time you spend labeling loads now will save you an immense amount of time later on in the installation.)
3. Neutral runs should not be shared; therefore, provide each load with its own neutral.



B. Low Voltage Wiring - Control Stations:

1. Run 16 gauge **unshielded**, 3 conductor, stranded wire (LiteTouch No. 08-2103, or equivalent - do not use lesser substitutions, inferior wire can cause communication problems) from the CCU location out to the control station locations in a simple parallel connection. Do not put more than 20 stations on a single homerun. Several homeruns are preferable to one long homerun and can easily be tied together at the CCU. Do not create closed loops on control station runs. When grouping control stations at the end of a line, use a heavier gauge wire to avoid voltage drops. For control stations runs longer than 1000 ft. consult the factory. Low voltage wire and line voltage wire **should not** be run in parallel! Do not use **shielded** control station wire. Please refer to the installation manual and drawings.

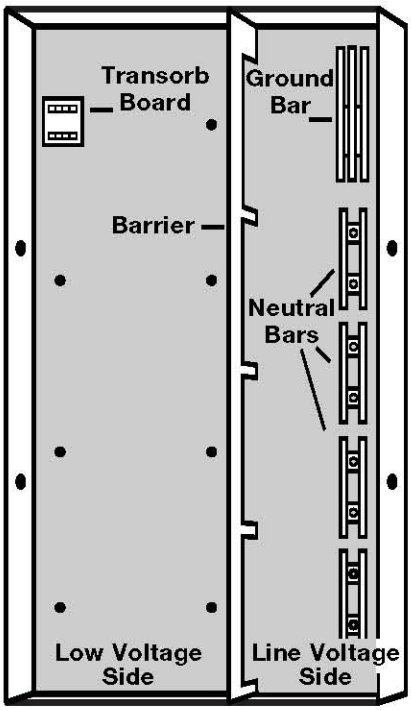
C. Low Voltage Wiring - Enclosures/Control Modules:

1. Homerun 22 gauge, two twisted pair, **shielded** cable (LiteTouch No. 08-2105, or equivalent - do not use lesser substitutions; inferior wire can cause communication problems), from the enclosure(s) to the CCU location. Low voltage wire and line voltage wire **should not** be run in parallel!
2. The homeruns should be distributed, as evenly as possible, among the two control module connectors on the back of the CCU.

D. Ground the CCU using 12 gauge wire.

You are now ready to install the LiteTouch 2000 equipment.

Installation of LiteTouch Equipment

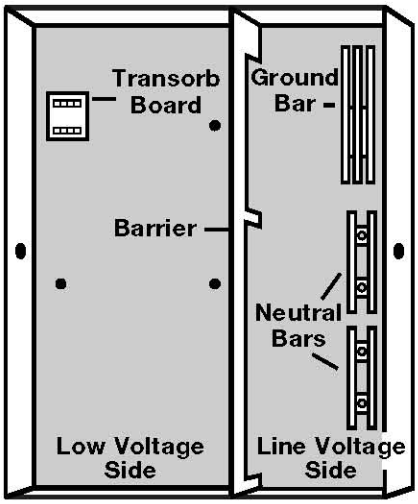


Step 1 - Enclosure Installation

Enclosures may be ordered for flush or surface mounting and can be mounted two or more units high. Each enclosure contains a barrier to isolate high voltage from low voltage. Keep these wires on their respective side of the enclosure. **Do not** cross over or under the barrier with wires.

A. Flush Mount Enclosure - mount enclosure to wall studs using screw holes located on side panels of enclosure. Leave 3" minimum space between enclosures to accommodate flush mount lids.

B. Surface Mount Enclosure - mount enclosure to wall using screw holes located on back panel of enclosure.



Install all enclosures before proceeding with step 2.

Step 2 - Power Supply Installation

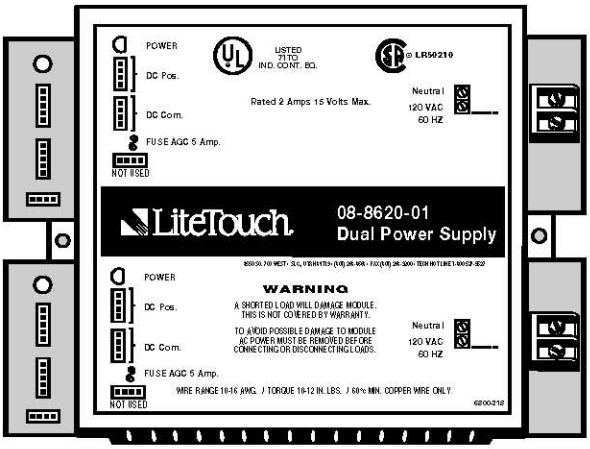
Power supply connection is required for Low Voltage Relay Module and Electronic Ballast (0-10 VDC) Dimmer. See Installation and Troubleshooting manual. Dimmer and Relay modules have built in power and do not require connection to the power supply.

A. Installation

1. The power supply module mounts in the enclosure as specified on the enclosure schedule and is available as a single power supply or dual (two power supplies) in one module can. Each power supply requires a maximum 2 amps of input power from the circuit breaker panel.
2. Do not put more than 8 power supplies on one circuit. Please refer to the enclosure schedule for the location of the power supplies for your job.

B. Power Supply Requirements for LV Relay and Dimmer Modules

1. One power supply will drive a maximum of 5 Electronic Ballast (0-10 VDC) and/or LV Relay Dimmer modules. The Dimmer and Quad Dimmer modules do not require connection to a power supply.
2. Use two 18 gauge wires for power supply connections. A power supply connector is provided with each Electronic Ballast (0-10 VDC) and/or LV Relay Dimmer modules. Make sure positive is connected to positive, etc.

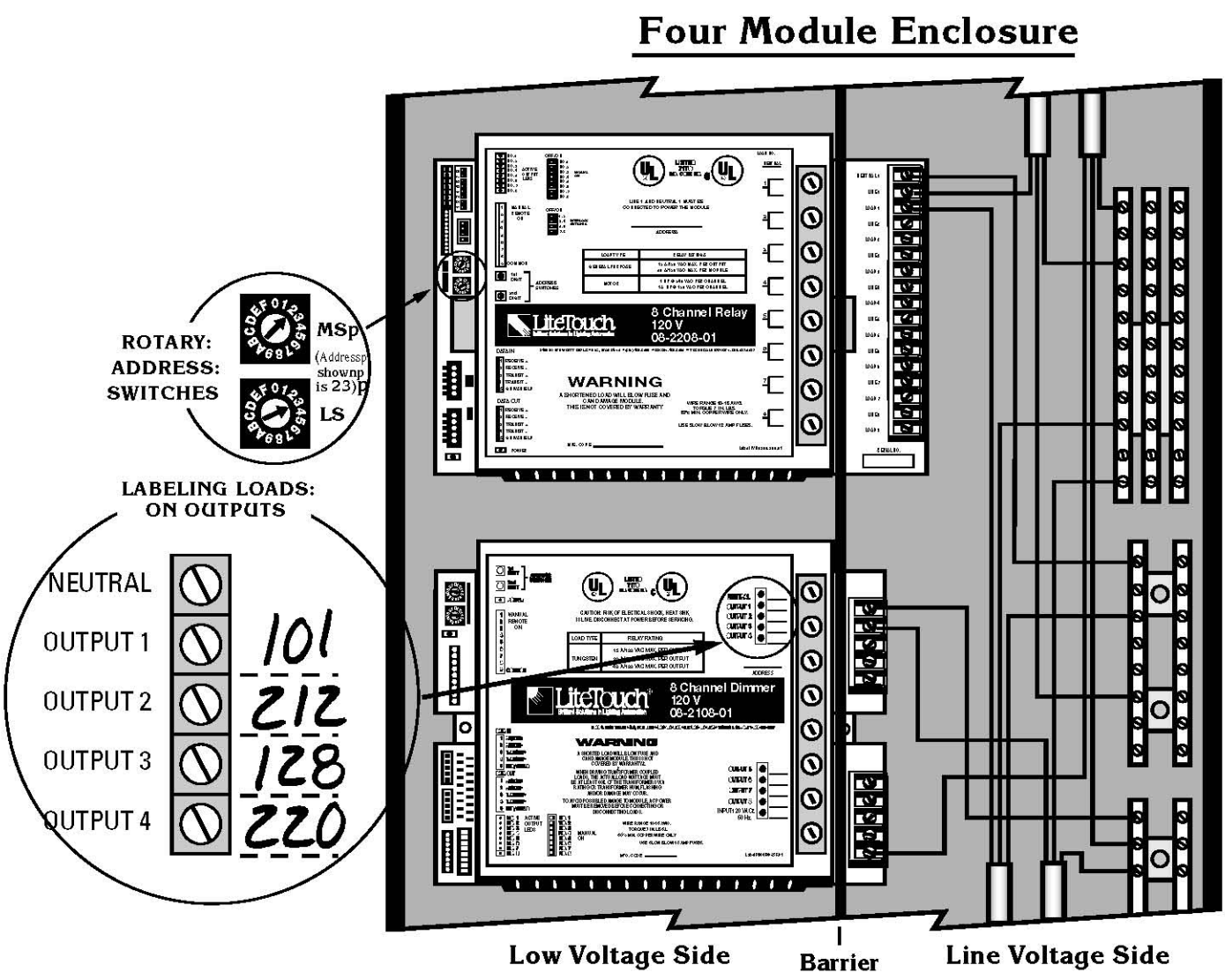


Distance from CCU	Wire Size
0 -20'	2 conductor 18 gauge
20' - 50'	2 conductor 16 gauge
Greater than 50'	Move power supply within 50' of CCU

C. Power Supply Requirements for CCU and Control Stations

1. All control stations and data-inputs are connected in parallel to the CCU. The power supply connection for the control station is made inside the CCU.
2. Following the distance chart above, run two 18 gauge wires for each CCU power supply. Connection is made to one of the two "control station" orange connectors on the back of the CCU. Do not connect more than two power supplies to one Control Station Port. When wiring two power supplies into one port, parallel the power supplies together at the CCU.
3. One power supply will drive a maximum of 35 control stations with an average of 5 buttons each (180 buttons max). Each control station connector at the CCU requires a power supply in order for the control station(s) on that connector to operate. In small systems, jumping the power supply at the CCU is acceptable. The Standard and compact CCUs require a connection from a system power supply to operate. The power supplies wired to the control station connectors on the back of the CCU satisfy this need.

Step 3 - Control Module Installation



Step 3 - Control Module Installation

A. Install modules in their proper location in each enclosure as specified on the enclosure schedule.

B. Modules mount in enclosures by inserting metal screws (provided) through tabs on the module can and tightening to the back panel of the enclosure.

C. Set module address (per enclosure schedule) with the two alpha-numeric rotary address switches located on the left hand side of each module. MS stands for Most Significant Digit, LS means Least Significant Digit. Modules used with a Standard or Compact CCU are limited to numeric address only. Modules used with the 5000LC can use both alpha and numeric addresses.

D. Write the drawing load number (as per the enclosure schedule) on the module label to the side of each load. These numbers will correspond to the numbers previously labeled on your load homeruns.

E. Install all modules before proceeding to step 4.

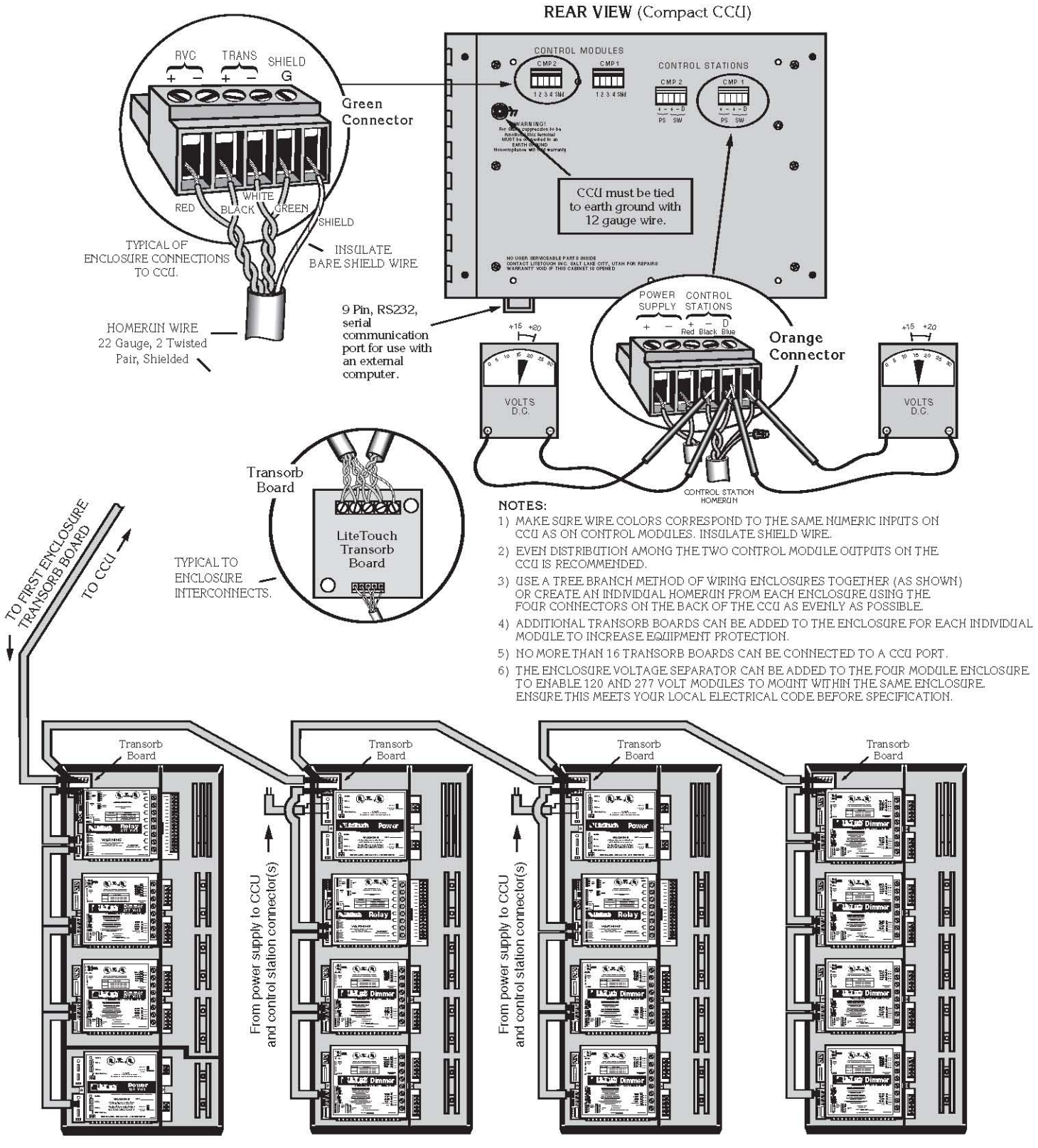
Step 4 - Line Voltage Connections

A. Make line voltage connections, matching load number label on wire to the proper output on the proper module according to the enclosure schedule. (See the installation manual for detailed drawings and instructions.)
Caution! Check for shorts *before* wiring to modules.
There is a barrier in the enclosure to isolate line voltage from low-voltage. Do not cross over or through this barrier with wires. Keep low voltage wires on the low-voltage side and line voltage wires on the line-voltage side.
Note: Each channel has a manual over-ride switch to turn on and off all loads on that module. This switch can be used to turn lights on prior to installation of the CCU or control stations.

Step 5 - Control Module Data Connections

A. Plug in the five pin connector from the transorb board to the data in of the first module and continue on from the data out of one module to the data in of the next module, except for power supply and data input modules.

B. Plug the unused connector at the top module in each enclosure into the five pin connector on the transorb board. The screw terminal at the top of the transorb board can be used to parallel enclosures together. There are two ports for module connections on the back of the CCU. Distribute enclosure homeruns as evenly as possible between the two ports. Wire according to the drawing below. Make sure to insulate the bare shield wire. **Note:** If the installation is large enough, requiring two or more homeruns into a single port, tie the homeruns together at the CCU. (This rule applies to power supply and control station homeruns as well.) The shield must be tied through as it is a reference to ground.

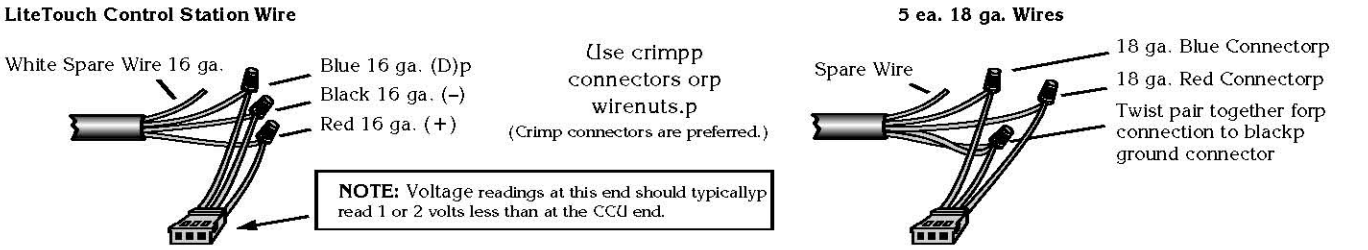


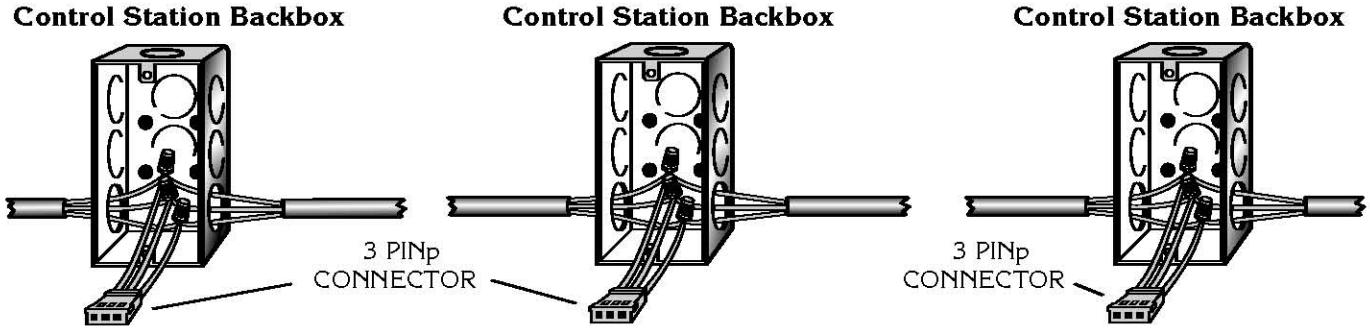
NOTES:

1) MAKE SURE WIRE COLORS CORRESPOND TO THE SAME NUMERIC INPUTS ON CCU AS ON CONTROL MODULES. INSULATE SHIELD WIRE.
2) EVEN DISTRIBUTION AMONG THE TWO CONTROL MODULE OUTPUTS ON THE CCU IS RECOMMENDED.
3) USE A TREE BRANCH METHOD OF WIRING ENCLOSURES TOGETHER (AS SHOWN) OR CREATE AN INDIVIDUAL HOMERUN FROM EACH ENCLOSURE USING THE FOUR CONNECTORS ON THE BACK OF THE CCU AS EVENLY AS POSSIBLE.
4) ADDITIONAL TRANSORB BOARDS CAN BE ADDED TO THE ENCLOSURE FOR EACH INDIVIDUAL MODULE TO INCREASE EQUIPMENT PROTECTION.
5) NO MORE THAN 16 TRANSORB BOARDS CAN BE CONNECTED TO A CCU PORT.
6) THE ENCLOSURE VOLTAGE SEPARATOR CAN BE ADDED TO THE FOUR MODULE ENCLOSURE TO ENABLE 120 AND 277 VOLT MODULES TO MOUNT WITHIN THE SAME ENCLOSURE. ENSURE THIS MEETS YOUR LOCAL ELECTRICAL CODE BEFORE SPECIFICATION.

Step 6 - Control Station Installation

A. Splice the 3 pin connectors (shipped with control stations) to the 3 wire control station homeruns at each control station location as shown.





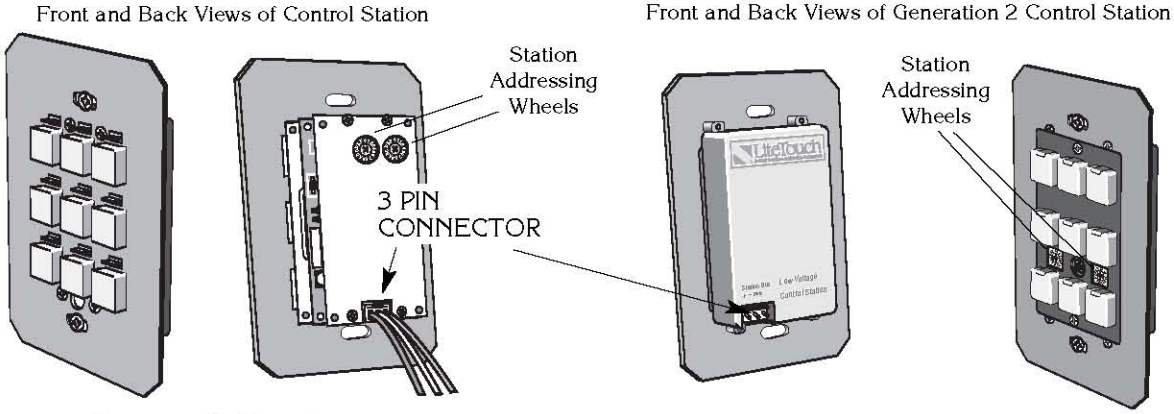
Keep the control station in its protective plastic bag until all construction work is completed.

B. The printed circuit board on the back of the control station measures 3" H x 1⅞" W x ½" D. Use a square-cornered backbox to accommodate these dimensions. The sides of the printed circuit board **should not** touch the sides of the backbox. Single gang metal cut-in boxes, plaster, or tile rings are not acceptable in size.

C. Set the control station address before installation according to the control station schedule with the rotary switches at the back of the control station. Every control station needs a unique address. Make a small slit in the protective bag and plug the 3 pin connector into the control station. The control station connector can only be installed one way. Do not break the connector to force it on upside down. The transistor on the control station board will begin to heat up and eventually blow apart rendering the control station inoperable. These control stations will not be covered under warranty. Using screws provided mount control station to backbox. (See installation instructions packaged with each control station for more detailed instructions.)

CAUTION! The control station is a sensitive piece of electronic equipment with a micro-processor chip on each station. Please keep it in its protective bag until **ALL** construction work is complete. The bag protects the station from construction dirt, sheetrock dust, paint and wallpaper. When construction work is complete remove the protective bag, mark the station address on the backplate label, vacuum out the backbox and re-install the station.

D. There are two control station connectors on the back of the CCU. Distribute control station homeruns as evenly as possible among the two connectors. **NOTE**: If the installation is large enough, requiring two or more homeruns into a single connector, tie the homeruns together at the CCU. This rule applies to power supply homeruns as well.



Step 7 - Operation of System

A. Perform all the install test procedures outlined in the installation manual's trouble-shooting guide. Do this only if the CCU is programmed and ready to operate the system.

LiteTouch®
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