

MUX-2

(P/N: P-MUX-2-V1/2)



User/Installation Manual

The MUX has a AC voltage input in the left side of the box, and 4-communication terminals.

The left side terminals are connected to the ROTEM controllers in the houses and the right ones are connected to the P.C. and the modem as shown on the last page of this manual.

The cable which comes out of the ROTEM Controllers should be 3 wires shielded cable. This cable is connected to all the controllers in a daisy chain connection to the communication input of the controller or to the RCLP-1 in the following manner:

The Black wire **COMMON** is to be connected to **COMMON** in the communication input of the Controllers.

Red wire **TX** (in **MUX**) is to be connected to **RX** in the Controllers.

Green wire **RX** (in **MUX**) is to be connected to **TX** in the Controllers.

The shield should be connected to the earth. (Safety Ground)

The following inputs: **MODEM** and **PC** may be connected to **MODEM** and /or to **PC**. That means that the **MODEM** input is the **PRIORITY CHANNEL** . However, the **PC** is the **NONE PRIORITY CHANNEL** . Nevertheless, a **PC** or a **MODEM** may be connected to each input, when communication is performed simultaneously both in the **MODEM** and **PC**, then the modem channel is being transmitted, and the **PC** channel is blocked till the **MODEM** is completing its transmission.

A 3 wires' cable is coming out of the **MODEM** channel, this cable should be connected to **PC** or to **MODEM**, the following manner;

The grey (not isolated) wire(**COMMON**) is to be connected to **PC/ MODEM - COMMON** pin no. 7 in the **DB25** connector or pin 5 in **DB9** connector.

The red wire **TX** (in **MUX**) is to be connected to **RECEIVE** in **PC** pin no3, in **DB25** or pin no. 2 in **DB9** connector.

The black wire **RX** (in **MUX**) is to be connected to **TRANSMIT** in **PC** pin no 2, in the **DB25** or pin no.3 in **DB9** connector.

NOTE: If communication does not perform, try swapping pin no.2, and pin no3 , in **PC**.

Modem type recommended by ROTEM is: U.S Robotics SPORTSTER external 33.6 modem with external Switches on the back (for programming).

The Switches settings should be: 2,4,5,6,7 in Up position and 1,3,8 in Down position. (1 is Data Terminal Ready Override and it is must be in down position).

1. PC(9) MUX (Priority Or Non Priority Channel)

2 ----- TX RED
3 ----- RX BLACK
5 ----- COM GREY

2. PC(25) MUX (Priority Or Non Priority Channel)

3 ----- TX RED
2 ----- RX BLACK
7 ----- COM GREY

3. MODEM(9) MUX (Priority Or Non Priority Channel)

2 ----- TX BLACK
3 ----- RX RED
5 ----- COM GREY

4. MODEM(25) MUX (Priority Or Non Priority Channel)

2 ----- TX BLACK
3 ----- RX RED
7 ----- COM GREY

5. MUX (ROTEM CONTROLLERS) ROTEM Controller

RX ----- TX
TX ----- RX
COM ----- COM

Technical Specifications

Power supply

Mains voltage	single phase 115/230VAC
Main fuse	315mA
Maximum power consumption	5VA

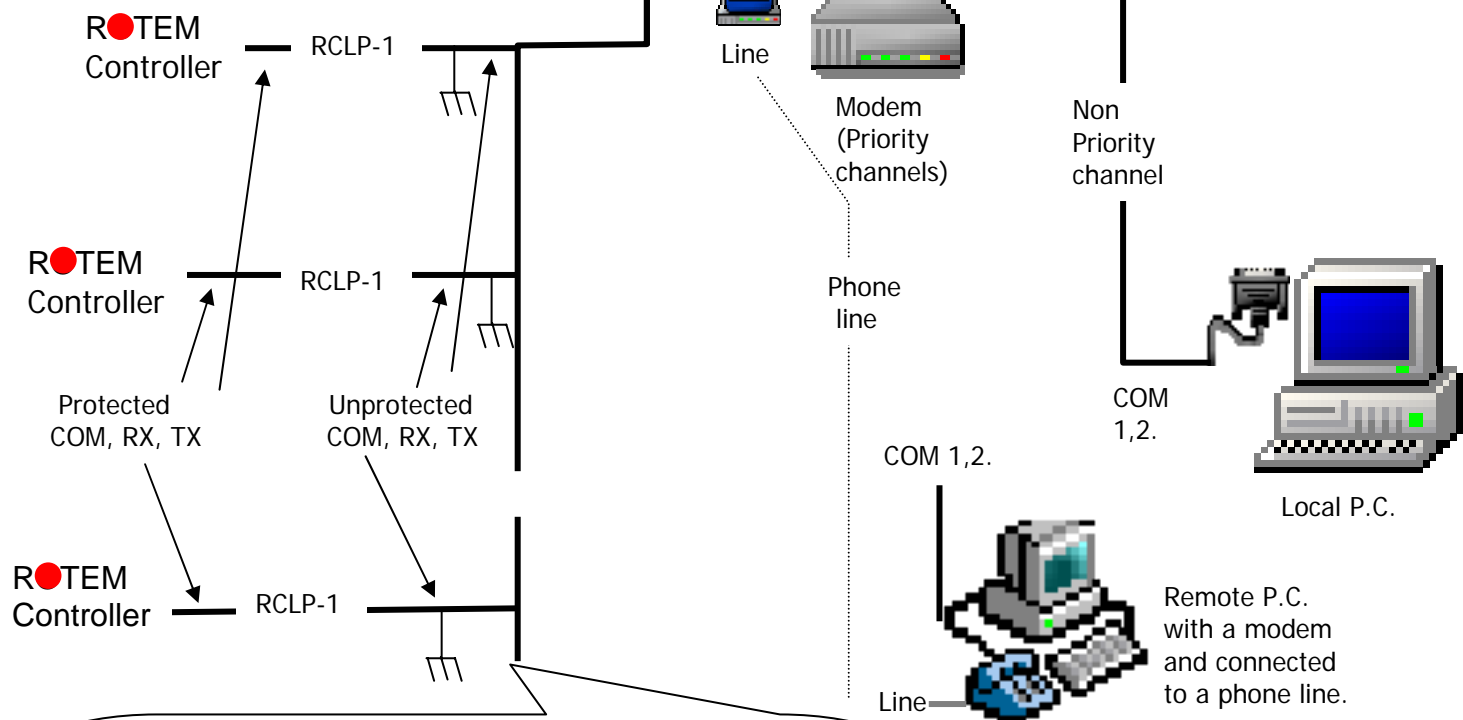
Housing

**Dimensions(LxWxH)
171x137x87mm**



GND
Neutral
Line

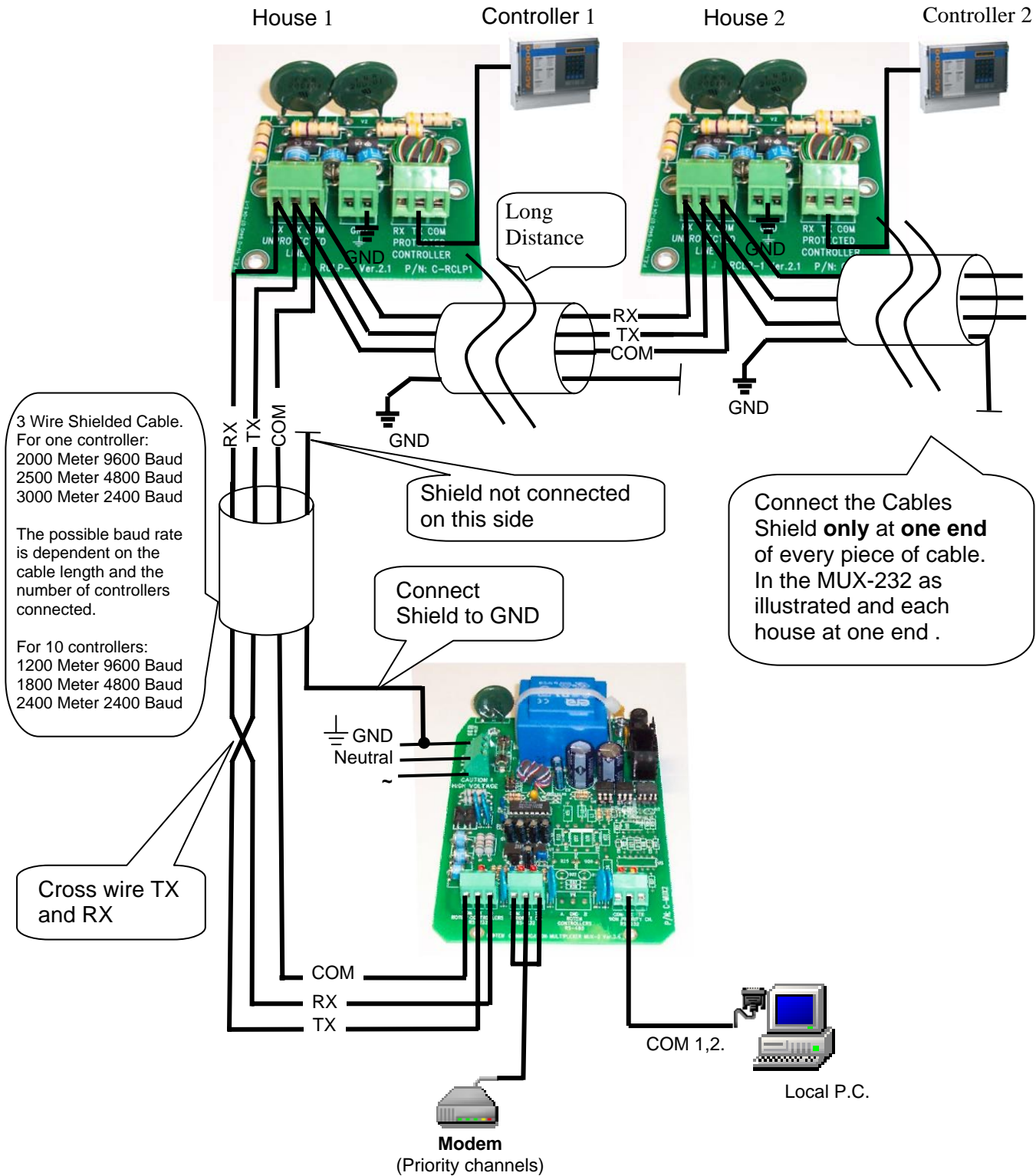
The GND must be connected in order to have lightning protection !



Speed	Cable Length	Number of Houses
2400	1000 m	32 Controllers
2400	1500 m	10 Controllers
4800	500 m	32 Controllers
9600	300 m	10 Controllers

The speed (baud rate) depended on cable length, number of houses, and level of Noise in the lines. These results are Lab testing and may vary in the field according to other parameters.

MUX-2 / RCLP-1 RS-232 Wiring Diagram



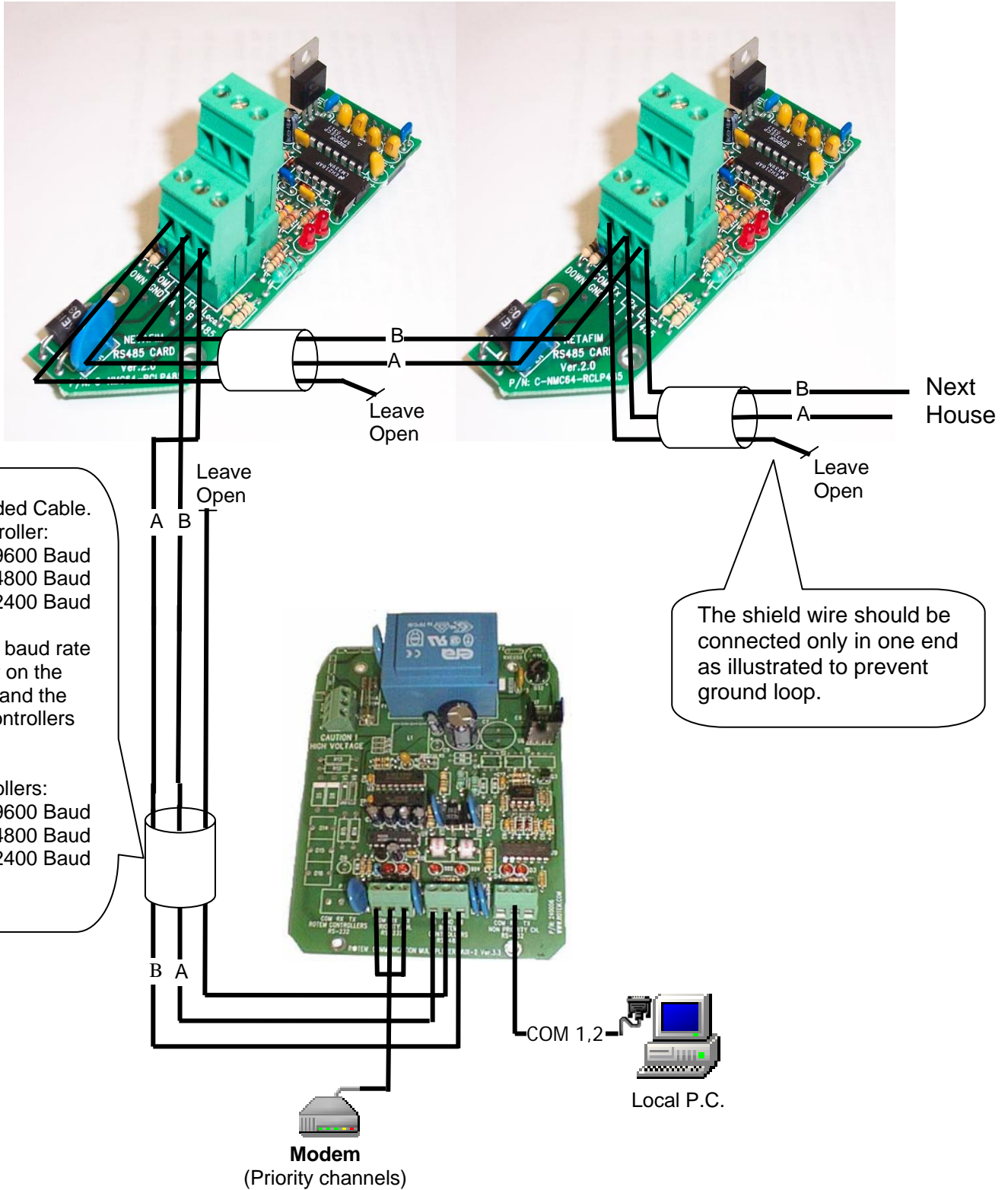
MUX-485 / RCLP-485 Wiring Diagram

RCLP-485

HOUSE-1

RCLP-485

HOUSE-2



COMMUNICATION

Multiplexor

Cables.

The D-type 9 pin female connector is for the PC connection only.

The D-type 25 pin male connector is for the Modem connection only.

Light indication.

The multiplexor's lights are usable for communication tracing.

The lights LD4 and LD6 go ON when Modem or PC transmitting to the MUX.

The light LD1 goes ON when signal transmitted by Modem or PC goes through the MUX. If LD4 and LD6 blink, but LD1 stays OFF the MUX is bad (the optical isolator U5 CNY17).

If the light LD1 goes on, but the Rx light on the Rotem controller stays OFF the MUX is bad (the communication line driver U3 TPS 2811) or signal doesn't reach Rotem controller.

If the Rx light on the Rotem controller blinks, but Tx light stays OFF check the controller's ID and baudrate. Check also that none of the controllers has same ID as another one.

Light LD3 and LD5 go ON when controller transmits back to the Modem or PC.

If Tx light on the on the Rotem controller stays OFF the MUX is bad (the optical isolator U6 CNY17) or signal doesn't reach multiplexor.

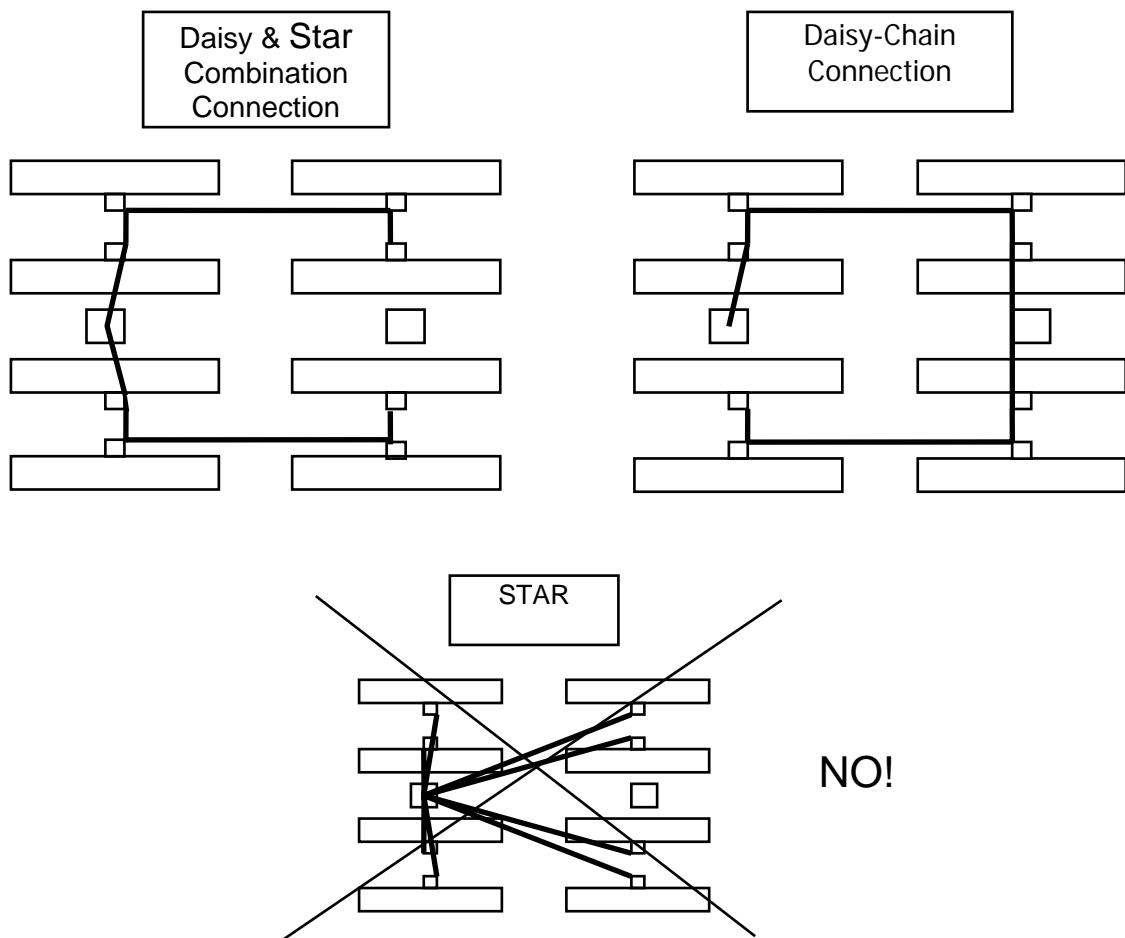
Communications Considerations

1. Rotem Computerized Controllers communicate by means of a three-wire system. These wires are labeled COM (common shared wire), RX (receive wire), and TX (transmit wire). In addition, a shield conductor must protect these wires from interfering signals.
2. The three wires, COM, RX and TX must be connected at each end for communications to take place. The shield wire should be connected to a good earth ground at one end only. This will reduce the possibility of lightning transients and other signals traveling along the shield from one building to another.
3. The COM wire should always connect to the COM terminal at every point, whether in a computerized controller or in a surge protector.
4. The RX wire should always connect to RX terminals at every point, EXCEPT at the multiplexor. Also, the TX wire should always connect to TX terminals at every point EXCEPT at the multiplexor. At the multiplexor the two wires connect to the opposite terminals. This is so that the multiplexor transmits to all the receive terminals on the controls, and receives the transmit from any control on its receive terminal. The multiplexor is the central point of the communications system.

- Connect a good ground to each communications protector. Without a good ground, the communications protector cannot shunt electrical transients away from the controls or the multiplexor. The ground should connect as directly as possible via at least 14 gage wire to the nearest earth ground.

Routing Considerations

There are two common routing methods for running the communications connections: Daisy Chain (recommended) and Star connection (not recommended). The following are two recommended alternatives



Environmental Protection



Recycle raw materials instead of disposing as waste. The controller, accessories and packaging should be sorted for environmental-friendly recycling. The plastic components are labeled for categorized recycling.

