TECHNICALLY SPEAKING

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Mitsubishi Wiring

There is a lot of confusion about what type of wire that needs to be used with a Mitsubishi unit. This is understandable seeing that there are 3 different series of Mitsubishi equipment (M, P & City Multi) and varying installations where these units can be used. Also, there is a difference if we are talking about power supply wiring to the outdoor unit, controller wiring, M-Net wiring or the wire between the indoor and outdoor units of the Mr. Slim Product line. The common misconception is that bigger is better. This is not the case and care should be taken when selecting wire for a specific application. We will look at each series and define the wire size to be used per application. **ALWAYS** follow the manufacturer's recommendations of acceptable wire size/ type for the most reliable operation of the equipment.

Let's talk about the power supply wiring to the outdoor unit. This wire will be sized per the National Electrical Code. The code book can be purchased at: http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70. The wire size will depend on the length of the wire, insulation type and ampacity of the equipment. Check the unit name plate for maximum over current protection required. Always use a time delay fuse or HVACR circuit breaker.

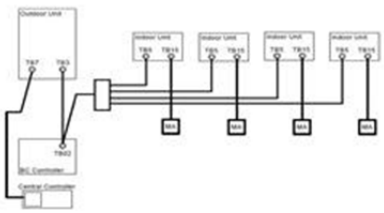
The wiring that connects the outdoor to the indoor unit(s) (control wiring) of the Mr. Slim M&P series will vary depending on length and series. This is the wire that is connected between S1, S2, and S3 on the indoor and outdoor units. Remember- the voltage that is carried between S1 & S2 is 208v/230v A/C. This is the power supply to the indoor unit. The communications signal between the indoor and outdoor unit is carried between S2 & S3 this voltage is 12v to 24v pulsating D/C. All Wires will have a potential to ground of 110v-120v A/C. For this reason the wire that is used must be rated for 300v to 600v A/C.

Mitsubishi recommends the following control wire sizes for the Mr. Slim product line:
Mr. Slim M-Series 14/3 wire with ground (Solid or Stranded), Mr. Slim P-Series 16/3 wire with ground (Solid or Stranded). *(The M-Series may also use 16/3 wire with ground but not all P-Series can use 14/3).* This wiring does not have to be shielded. There may be certain cases where shielded wire is required to help shield the communication lines from electrical interference. If shielded wire is used, it will not hurt communication signal and must be grounded at one end only. Always refer to the technical service manual for correct wire size and limitations. All technical service manuals can be found at: http://www.mylinkdrive.com/MrSlim/mea/webindex.htm

When working with the City Multi product line, size the line voltage power supply to the indoor unit following the same guidelines as the power supply wiring to the outdoor unit. The size of the M-Net wiring must be 16ga, 2 conductor, stranded, and shielded. This is the systems communications network. This wiring connects the system controller (if used) to the outdoor unit (on TB7) and connects the outdoor Unit (TB3) to the BC controller (if used on TB2) and to all of its indoor units (on TB5). This control wire must be run in a "daisy chain" fashion from outdoor unit to closest indoor unit, to next closest indoor unit, and so on. This wiring system carries 28v to 30v D/C between the outdoor and indoor units.

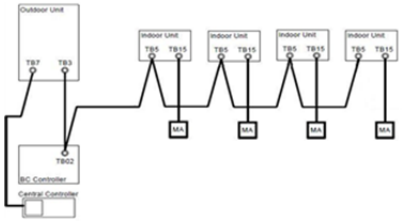
WRONG WAY

"Home Run Wiring"



RIGHT WAY

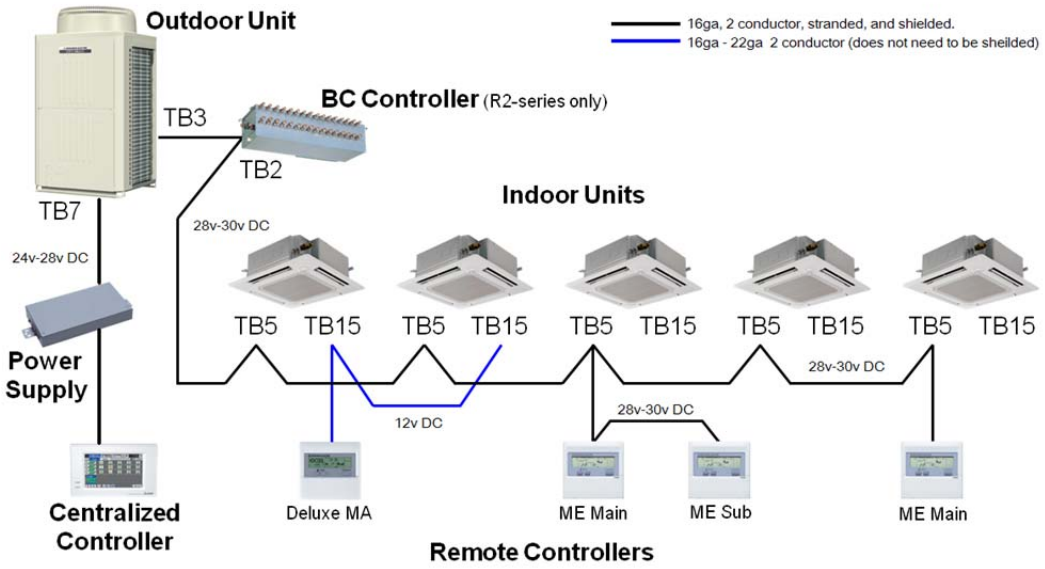
"Daisy Chain Wiring"



In the case where ME remote controllers are used you do not need to daisy chain the M-Net to an ME controller. It is acceptable to T branch to a controller. Connect the same 16/2 stranded shielded wire from the TB5 terminal block of the indoor unit and with only one run to the ME Remote Controller.

When MA controllers are used in the City Multi line the recommended wire size between TB15 and the MA controller is 16ga~22ga wire. These wires should be run by themselves and not run in the same conduit as high voltage wiring. In applications where a single MA Remote Controller is used to control multiple indoor units as in a group the wires should run as follows: The wire is run from the MA controller to its closest indoor unit's TB15 terminal block. From this terminal block the wires should be "daisy chained" to the remaining indoor unit on TB15.

Always refer to the technical service manual for correct wire size and limitations. All technical service manuals can be found at: http://www.mylinkdrive.com/CityMulti/MEA/webindex.htm



One of the other common complaints I get concerning condensate pumps is that they can be noisy. This is commonly due to improper installation of the pump. In the install manual it states *"To avoid siphoning, the end of the discharge line must terminate minimum 4" above the level of the condensate collection tray. If the end of the discharge line is terminated below the level of the condensate collection tray then a siphoning effect will occur in the pipes and the pump will become unprimed. The pump will then periodically vibrate and become noisy. Siphon effect causes fatal damage to the pump."*

In order to prevent off-cycle siphoning of the pump it is recommended to install an air vent on the discharge piping when the outlet is below the collection reservoir. Doing so will increase the life expectancy of the pump and eliminate a lot of the excess noise of the pump.

**** For additional support contact Meier Supply at any of our locations ****

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