**723.03.12 Wiring Installation.** Affix each wire/cable in the controller cabinet with a permanent identification label 6 inches from the final connecting location. When installing more than one loop lead-in cable within the same conduit, affix permanent identification 6 inches from the top of the conduit per loop schedule. Identification shall be used on cables wherever the wiring emerges, including junction boxes, poles, and pedestals. Affix each splice between loop wire and loop lead-in with a permanent identification label per loop schedule. Use heat shrink tape or vinyl to wrap all wires where they pass through holes. Deburr all holes and provide a grommet at each opening. Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes. The Contractor shall install all cable or wire runs splice-free from the controller to each loop wire, signal head, pedestrian head/detector, camera, blankout sign, and audible pedestrian head/detector.

For all wiring, use connection/color code according to the following charts:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5-Conductor | IMSA 19-1 |  | 7-Conductor | IMSA 19-1 |  | 7-Conductor | IMSA 19-1 |  |
| 3-Section Heads |  | 4-Section Heads |  | 5-Section Heads |   |  |
| Connection |  Color |  | Connection |  Color |  | Connection |  Color |  |
| Red Ball/Arrow |  Red |  | Red Ball |  Red |  | Red Ball |  Red |  |
| Yellow Ball/Arrow | Orange |  | Yellow Ball | Orange |  | Yellow Ball | Orange |  |
| Green Ball/Arrow |  Black |  | Green Ball | Black |  | Yellow Arrow | White/Tracer |  |
| Neutral |  White |  | Green Arrow | Blue |  | Green Ball | Black |  |
| Equipment Ground |  Green |  | Neutral | White |  | Green Arrow | Blue |  |
|  |  |  | Equipment Ground | Green |  | Neutral | White |  |
|  |  |  | Not used | White/tracer |  | Equipment Ground | Green |  |
| 7-Conductor | IMSA 19-1 |  |  |  |  |  |  |  |
| Ped Signal and Button |  |  |  |  |  |  |  |
| Connection |  Color |  |  |  |  |  |  |  |
| Walk | Blue |  |  |  |  |  |  |  |
| Don't Walk | Red |  |  |  |  |  |  |  |
| Button | Black |  |  |  |  |  |  |  |
| Button | Orange |  |  |  |  |  |  |  |
| Neutral | White |  |  |  |  |  |  |  |
| Equipment Ground | Green |  |  |  |  |  |  |  |
| Not used | White/tracer |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

For all wiring of flashing yellow arrow signal heads, use connection/color code according to following charts:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 5-Conductor | IMSA 19-1 |  | 7-Conductor | IMSA 19-1 |  |
| 3-Section Heads |  | 3 OR 4-Section Heads |  |
| Connection |  Color |  | Connection |  Color |  |
| Red Arrow |  Red |  | Red Arrow |  Red |  |
| Steady Yellow Arrow | Orange |  | Steady Yellow Arrow | Orange |  |
| Flashing Yellow Arrow | Black |  | Flashing Yellow Arrow | Black |  |
| Equipment Ground | Green |  | Green Arrow | Blue |  |
| Neutral | White |  | Neutral | White |  |
|  |  |  | Equipment Ground | Green |  |
|  |  |  | Not Used | White/Tracer |  |
|  |  |  |  |  |  |

The Contractor shall connect the connector labeled "2PY 4PY 6PY 8PY" to connector "CMU 13, 16, R, U" behind the output panel. If it is a solid state cabinet, only have two connectors which simply need to be connected together. Phase connection to output file in cabinet for flashing yellow arrow signal heads according to following charts:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |
| Flashing yellow arrow signal wiring on phase 1 & 5 three- section FYA heads |   |   |   |  |
| Special requirements with the use of 5 conductor |  |  |  |  |   |  |
|   |   |   |   |   |   |   |  |  |   |  |
|   |  |   |   | Output file connection |   | Output file connection |   |  |
| Connection |   | Color | For FYA on Phase 1 |   | For FYA on Phase 5 |   |  |
| Red arrow |   | Red | Phase 1 red |   | Phase 5 red |   |  |
| Steady yellow arrow | Orange | Phase 1 yellow |   | Phase 5 yellow |   |  |
| Flashing yellow arrow | Black | Phase 1 green |   | Phase 5 green |   |  |
| Neutral |   |   | White | Neutral |   |   | Neutral |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Flashing yellow arrow signal wiring on phase 3 & 7 three- section fya heads |   |  |
| Special requirements with the use of 5 conductor |  |  |  |   |  |
|   |  |  |  |  |  |  |  |  |   |  |
|   |   |   |   | Output file connection | Output file connection |  |
| Connection |   | Color | For fya on phase 3 |   | For fya on phase 7 |   |  |
| Red arrow |   | Red | Phase 3 red |   | Phase 7 red |   |  |
| Steady yellow arrow | Orange | Phase 3 yellow |   | Phase 7 yellow |   |  |
| Flashing yellow arrow | Black | Phase 3 green |   | Phase 7 green |   |  |
| Neutral |   |   | White | Neutral |   |   | Neutral |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Flashing yellow arrow signal wiring on phase 1 & 5 four-section fya heads |   |  |
| Special requirements with the use of 5 conductor |  |  |  |   |  |
|   |  |  |  |  |  |  |  |  |   |  |
|   |   |   |   | Output file connection | Output file connection |  |
| Connection |   | Color | For fya on phase 1 |   | For fya on phase 5 |   |  |
| Red arrow |   | Red | Phase 1 red |   | Phase 5 red |   |  |
| Steady yellow arrow | Orange | Phase 1 yellow |   | Phase 5 yellow |   |  |
| Flashing yellow arrow | Black | Phase 1 green |   | Phase 5 green |   |  |
| Green arrow |  | Blue | Ped yellow phase 2 |  | Ped yellow phase 6 |   |  |
| Neutral |   |   | White | Neutral |   |   | Neutral |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Flashing yellow arrow signal wiring on phase 3 & 7 four-section fya heads |   |  |
| Special requirements with the use of 5 conductor |  |  |  |   |  |
|   |  |  |  |  |  |  |  |  |   |  |
|   |   |   |   | Output file connection | Output file connection |  |
| Connection |   | Color | For fya on phase 3 |   | For fya on phase 7 |   |  |
| Red arrow |   | Red | Phase 3 red |   | Phase 7 red |   |  |
| Steady yellow arrow | Orange | Phase 3 yellow |   | Phase 7 yellow |   |  |
| Flashing yellow arrow | Black | Phase 3 green |   | Phase 7 green |   |  |
| Green arrow |  | Blue | Ped yellow phase 4 |  | Ped yellow phase 8 |   |  |
| Neutral |   |   | White | Neutral |   |   | Neutral |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |