

4010es FACP VOLTAGE DROPS

WIRE RESISTANCE BASED ON TABLE 8 FROM NATIONAL ELECTRICAL CODE (UNCOATED SOLID COPPER WIRE) @ 75 Celsius

NOTIFICATION CIRCUIT DESCRIPTION

| Notification Circuit | Power Supply | Panel Circuit | Wire Gauge | Wire Res. / Ft. (R) | Total Alarm (A) | Volt @ End | Min Device Voltage | Max Distance |
|----------------------|--------------|---------------|------------|---------------------|-----------------|------------|--------------------|--------------|
| BUILDING A | 4010es | NAC 1 | 14ga | 0.00307 | 0.273 | 19.500 | 16vdc | 2088 FT. |
| BUILDING B | 4010es | NAC 2 | 14ga | 0.00307 | 0.273 | 19.500 | 16vdc | 2088 FT. |
| BUILDING C | 4010es | NAC 3 | 14ga | 0.00307 | 0.273 | 19.500 | 16vdc | 2088 FT. |
| BUILDING D | 4010es | NAC 4 | 14ga | 0.00307 | 0.273 | 19.500 | 16vdc | 2088 FT. |

NOTE:

LUMP SUM METHOD WAS USED TO CALCULATE ALLOWABLE VOLTAGE DROP. THIS METHOD IS RECOMMENDED FOR THE MARGIN OF SAFETY IT PROVIDES FOR THE UNKNOWN. IT TAKES INTO CONSIDERATION THAT THE ROUTING SHOWN ON THE SHOP DRAWINGS MAY DIFFER FROM WHAT IS THE ACTUAL INSTALLED CIRCUIT. IF THE ACTUAL CIRCUIT LENGTH IS GOING TO EXCEED THE MAXIMUM ALLOWABLE CIRCUIT LENGTH, CONTACT YOUR LOCAL SIMPLEXGRINNELL DISTRICT OFFICE.

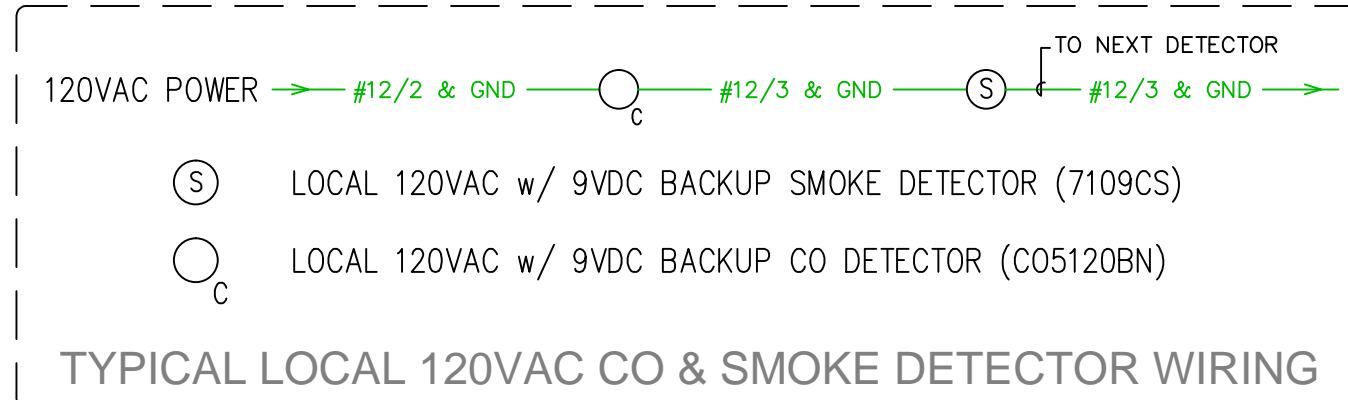
| | |
|---------------|-----------|
| PID | 4906-9105 |
| Candela | WP75 |
| Device Type | WP V/O |
| Supv. Current | 0.0000 |
| Alarm Current | 0.2730 |

LEGEND

- [F] PULL STATION (4099-9001)
- [S] SMOKE SENSOR (4098-9714 HEAD, 4098-9792 BASE)
- [M] MONITOR MODULE - SUPERVISED (4090-9001 MODULE, 4090-9810 BRACKET, 4090-9806 COVER)
- [FS] SPRINKLER WATER FLOW SWITCH (F.B.O.)
- [TS] SPRINKLER TAMPER SWITCH (F.B.O.)
- [TC] TRANSIENT CUBE, IDNET (2081-9027)
- [TN] TRANSIENT CUBE (2081-9028)
- [L] STROBE - WEATHER PROOF (4906-9105 w/4905-9828 BACKBOX)
- [EOL] END OF LINE RESISTOR (6.8K = 4081-9004)
- [E] EARTH GROUND

GENERAL NOTES

- All Fire Alarm System wiring shall comply with the National Electrical Code, applicable state and local Fire and Safety Codes, as well as being coordinated with the Local Authority having jurisdiction.
- CAUTION: Fire Alarm System Wiring shall be isolated from all other conductors and **MUST** test free of all grounds.
- CAUTION: **DO NOT** connect any power to Control Panel (batteries or 120 vac) until all other field wiring is tested, connected and free of all grounds.
- DO NOT** install any A.C. current carrying conductors close to or in the same raceway with fire alarm system conductors.
- CAUTION: Minimum no. 18 AWG wire for 24 VDC wiring, or local code.
- See SimplexGrinnell model 4010ES manual or your Technical representative for further instructions.
- All wiring is to be copper conductors only. If shielded wire is used, the following must be observed:
 - Metallic continuity of the shield must be maintained throughout the entire length of the cable.
 - The entire length of the cable must have a resistance greater than 1 MEGOHM to earth ground.
- Underground wiring must be free of all water.
- In areas of high lightning activity or which have large power surges, transient suppressors should be used on the monitor points and any system wires that leave the building.
- Wires must not be run through elevator shafts.
- A system ground **MUST** be provided for earth detection and lightning protection devices. The connection shall be made to an approved dedicated earth connection per NFPA78.



4010es FACP BATTERY BACKUP CALCULATION

| Module | Qty | Description | Standby Current | Total Standby | Alarm Current | Total Alarm |
|---|-----|-------------------------------------|-----------------|---------------|---------------|-------------|
| Panel Equipment | | | | | | |
| 4010-9401 | 1 | FACP, 248PT IDNET, 1 BAY, 120V, RED | 0.3160 | 0.3160 | 0.4300 | 0.4300 |
| 4010-9912 | 1 | SERIAL DACT | 0.0300 | 0.0300 | 0.0400 | 0.0400 |
| Panel Totals | | | | 0.3460 | | 0.4700 |
| IDNet Addressable Devices (SLC) | | | | | | |
| 4099-9001 | 4 | IDNET SINGLE ACTION PULL STATION | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 4090-9001 | 8 | IDNET SUPERVISED IAM | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 4098-9714 | 4 | TRUEALARM PHOTO SMOKE SENSOR | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 4098-9792 | 4 | TRUEALARM SENSOR BASE | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Miscellaneous Peripheral Devices That May Require System Power | | | | | | |
| 4606-9102 | 3 | LCD ANNUN FOR 4010ES FACP (RUI) | 0.0650 | 0.1950 | 0.1400 | 0.4200 |
| Notification Appliances | | | | | | |
| 4906-9105 | 4 | WP V/O MC NON-ADDRESS, RED, WALL | 0.0000 | 0.0000 | 0.2730 | 1.0920 |
| Peripheral Totals | | | | 0.1950 | | 1.5120 |
| RUI Totals | | | | 0.0000 | | 0.0000 |
| Address Totals | | | 16 Addresses | 0.0128 | | 0.0160 |
| Total Standby | | | | 0.5538 | | 1.9980 |
| Total Alarm | | | | | | 1.9980 |

* Additional Current included under "Device Addresses Used" (See below under "Additional Current Draws:")

| Battery Set #1 (Cabinet/Charger #1) | Standby Current | Standby Total | Alarm Current | Alarm Total |
|--|-----------------|----------------------|---------------------|---------------------|
| Select ALL Power Supplies on this battery set: | | 0.5410 | | 1.9820 |
| 4010es | | 0.5410 | | 1.9820 |
| Additional Current Draws: | | | | |
| RUI Connected Peripheral Devices | 0 | x 0.0035 = 0.0000 | x 0.0035 = 0.0000 | |
| MAPNET/IDNet Device Addresses ordered / used | 16 | x 0.000800 = 0.0128 | x 0.001000 = 0.0160 | |
| Sub Total | | 0.5538 | | 1.9980 |
| Spare addressable point capacity | 0% | 0 | x 0.001 = 0.0000 | |
| Total | | 0.5538 | | 1.9980 |
| Standby Time = 24 Hrs | x 0.5538 | = 13.2912 Standby Ah | | |
| Alarm Time = 5 Min | 0.08333 x 1.998 | = 0.1665 Alarm Ah | | |
| Additional Spare Capacity = 0% | | | + 0.0000 | |
| | | | + 13.4577 | |
| Battery Discharge Factor = 20% | | | + 2.6915 | |
| Minimum Battery Required | | | | 16.1492 |
| Battery Supplied | | | | 2081-9275 18AH (2x) |

