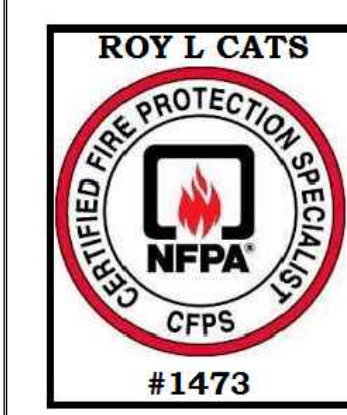




FIRE PROTECTION INC.
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DRAWN BY: DAVID MOW, SET
CHECKED BY: DAVID MOW, SET
REVIEWED BY: ROY L. CATS, NICET IV
SEATTLE FIRE DEPT. #SCP-C 9885
L & L CATS' RUL022CG
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| BATTERY CALCULATION | | | | | | | |
|---|---------------|----------------------------------|---|--|------------------|--------------------------------|-----------|
| (SECONDARY POWER SOURCE REQUIREMENTS) | | | | | | | |
| PANEL POWER SUPPLY MAX CURRENT = 18A | | | | TOTAL USED CAPACITY (IN ALARM) = 3.6685A (20.38 %) | | | |
| | | | | STANDBY CURRENT (AMPS) | | SECONDARY ALARM CURRENT (AMPS) | |
| QTY | PART NO. | DESCRIPTION | CURRENT DRAW (A) | TOTAL (A) | CURRENT DRAW (A) | TOTAL | |
| 1 | ASM-16 | Addressable Switch Module | 0.011 | 0.011 | 0.011 | 0.011 | |
| 1 | E3BB-BCINCC | FACP ENCLOSURE "C" CABINET | 0 | 0 | 0 | 0 | |
| 1 | E3-ILJ-CPLATE | "C" CABINET INNER MOUNTING PLATE | 0 | 0 | 0 | 0 | |
| 1 | IL-HB-E3 | Interface-Main Board | 0.081 | 0.081 | 0.15 | 0.15 | |
| 1 | IL-I-S-E3 | Interface-Expansion Board | 0.081 | 0.081 | 0.15 | 0.15 | |
| 1 | LCD-E3 | LCD Keypad Display | 0.024 | 0.024 | 0.028 | 0.028 | |
| 1 | PM-9 | Power Supply Card | 0.05 | 0.05 | 0.05 | 0.05 | |
| CIRCUIT | QTY | PART NO. | DESCRIPTION | CURRENT DRAW (A) | TOTAL (A) | CURRENT DRAW (A) | TOTAL (A) |
| ANN | 1 | LCD-E3/E3BB-FLUSH-LCD | LCD Keypad Display w/E3BB-FLUSH-LCD | 0 | 0 | 0 | 0 |
| FACP-AUX (RS) | 1 | OSI-RI-GW | Intelligent Single-ended Reflective Imaging Beam Smoke Detector | 0.45 | 0.45 | 0.45 | 0.45 |
| FACP-N1 | 1 | P2WHK | HORNSTROBE, WALL, HIGH OD, WEATHER PROOF 177cd | 0 | 0 | 0.303 | 0.303 |
| | 1 | P2WIK | Horn Strobe, Standard cd, Outdoor 15cd | 0 | 0 | 0.091 | 0.091 |
| | 1 | P2WLED | Horn Strobe, 15cd | 0 | 0 | 0.035 | 0.035 |
| | 2 | P2WLED | Horn Strobe, 30cd | 0 | 0 | 0.038 | 0.076 |
| | 1 | P2WLED | Horn Strobe, 75cd | 0 | 0 | 0.087 | 0.087 |
| | 1 | PC2WLED | Horn Strobe, Ceiling, 75cd | 0 | 0 | 0.087 | 0.087 |
| | 2 | PC2WLED | Horn Strobe, Ceiling, 95cd | 0 | 0 | 0.092 | 0.184 |
| | 1 | SCWLED | Strobe, Ceiling, 15cd | 0 | 0 | 0.018 | 0.018 |
| | 1 | SWLED | Strobe, Wall, 15cd | 0 | 0 | 0.018 | 0.018 |
| | 6 | AMM-2IF | Addressable Dual Monitor Module | 0.0007 | 0.0042 | 0.0007 | 0.0042 |
| 4 | AOM-2RF | Addressable Relay Module | 0.0003 | 0.0012 | 0.0003 | 0.0012 | |
| 1 | AOM-2SF | Addressable Control Module | 0.0004 | 0.0004 | 0.0004 | 0.0004 | |
| L1 | 17 | ASD-PL3 w/B200S-LF-WH | Photoelectric smoke detector, addressable low frequency sounder base, | 0.0002 | 0.0034 | 0.0045 | 0.0765 |
| | 82 | ASD-PL3 w/B300-6 | Photoelectric smoke detector, | 0.0002 | 0.0164 | 0.0045 | 0.369 |
| | 2 | ATD-L3 w/B300-6 | Thermal heat detector, 135°F fixed, | 0.0002 | 0.0004 | 0.0045 | 0.009 |
| | 1 | MCS-COP3 w/B300-6 | Intelligent multi-criteria photo/CO, | 0.0002 | 0.0002 | 0.0045 | 0.0045 |
| | 2 | MMI-10F w/ MBB-2 | MMI-10F w/ MBB-2 backbox | 0.0035 | 0.007 | 0.06 | 0.12 |
| | 11 | MS-7ASF | Addressable Pull Station | 0.0003 | 0.0033 | 0.0003 | 0.0033 |
| | 1 | OSI-RI-GW | Intelligent Single-ended Reflective Imaging Beam Smoke Detector | 0.014 | 0.014 | 0.015 | 0.015 |
| | 4 | AMM-2IF | Addressable Dual Monitor Module | 0.0007 | 0.0028 | 0.0007 | 0.0028 |
| | 6 | AOM-2SF | Addressable Control Module | 0.0004 | 0.0024 | 0.0004 | 0.0024 |
| | 76 | ASD-PL3 w/B200S-LF-WH | Photoelectric smoke detector, addressable low frequency sounder base, | 0.0002 | 0.0152 | 0.0045 | 0.342 |
| L2 | 2 | ASD-PL3 w/B224BI-WH | Photoelectric smoke detector w/ Isolator base, | 0.0002 | 0.0004 | 0.0045 | 0.009 |
| | 66 | ASD-PL3 w/B300-6 | Photoelectric smoke detector, | 0.0002 | 0.0132 | 0.0045 | 0.297 |
| | 4 | MS-7ASF | Addressable Pull Station | 0.0003 | 0.0012 | 0.0003 | 0.0012 |
| | 4 | AMM-2IF | Addressable Dual Monitor Module | 0.0007 | 0.0028 | 0.0007 | 0.0028 |
| | 2 | AOM-2RF | Addressable Relay Module | 0.0003 | 0.0006 | 0.0003 | 0.0006 |
| | 6 | AOM-2SF | Addressable Control Module | 0.0004 | 0.0024 | 0.0004 | 0.0024 |
| | 80 | ASD-PL3 w/B200S-LF-WH | Photoelectric smoke detector, addressable low frequency sounder base, | 0.0002 | 0.016 | 0.0045 | 0.36 |
| | 2 | ASD-PL3 w/B224BI-WH | Photoelectric smoke detector w/ Isolator base, | 0.0002 | 0.0004 | 0.0045 | 0.009 |
| | 64 | ASD-PL3 w/B300-6 | Photoelectric smoke detector, | 0.0002 | 0.0128 | 0.0045 | 0.288 |
| | 2 | DNRW w/ASD-PL3 | Intelligent duct detector housing, non-relay, watertight w/ASD-PL3 | 0.0002 | 0.0004 | 0.0045 | 0.009 |
| 4 | MS-7ASF | Addressable Pull Station | 0.0003 | 0.0012 | 0.0003 | 0.0012 | |
| | | | | TOTAL STANDBY (A) | 0.8193 | TOTAL ALARM (A) | 3.6685 |
| | | | | REQUIRED STANDBY TIME = 24 HOURS | | | |
| | | | | REQUIRED ALARM TIME = 5 MINUTES | | | |
| SECONDARY STANDBY LOAD (A) | | | 0.8193 | 24 | 19.66 | | |
| SECONDARY ALARM LOAD (A) | | | 3.6685 | 0.08 | 0.31 | | |
| STANDBY AND ALARM SUBTOTAL (AMP HOURS) | | | | | | 19.97 | |
| DERATING FACTOR | | | | | | 1.2 | |
| SECONDARY LOAD REQUIREMENTS (AMP HOURS) | | | | | | 23.96 | |
| PROVIDE (2) 12V 26AH BATTERIES | | | | | | | |

| FACP-N1 POINT-TO-POINT REPORT | | | | | | | CIRCUIT SETTINGS | | TOTALS | |
|--|----------|--|--------------------|-----------------------|--------------------------|------------------------------|-------------------------------|-------------------|----------------------------|----------------------|
| Circuit Wiring Properties: 'A' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded | | | | | | | Starting Calculation Voltage: | 20.4 | Max. Voltage Drop: | 0.99 |
| Distance measured using drawn segment lengths with 10.00 % additional length calculated | | | | | | | Min. Operational Voltage: | 16 | End Of Line Voltage: | 19.41 |
| | | | | | | | Max. Circuit Current (A): | 2 | Voltage Drop Percent: | 4.83 % |
| | | | | | | | Wire Resistance (Ω/kft): | 3.07 | Total Circuit Current (A): | 0.899 |
| | | | | | | | Total Circuit Length (ft): | 366 | Spare Current (A): | 1.101 |
| | | | | | | | Total Circuit Resistance (Ω): | 2.244705 | Spare Current (A) Percent: | 55.05 % |
| Device Label | Part No. | Description | Device Current (A) | Remaining Current (A) | Dist. From Previous (ft) | Resistance From Previous (Ω) | Voltage Drop From Previous | Voltage At Device | Total Voltage Drop | Voltage Drop Percent |
| FACP-N1-01 | SCWLED | Strobe, Ceiling, 15cd | 0.018 | 0.899 | 38 | 0.234383 | 0.21 | 20.19 | 0.21 | 1.03 % |
| FACP-N1-02 | P2WHK | HORNSTROBE, WALL, WEATHER PROOF 177cd | 0.303 | 0.881 | 32 | 0.19924 | 0.18 | 20.01 | 0.39 | 1.89 % |
| FACP-N1-03 | PC2WLED | Horn Strobe, Ceiling, 95cd | 0.092 | 0.578 | 15 | 0.092785 | 0.05 | 19.96 | 0.44 | 2.16 % |
| FACP-N1-04 | P2WLED | Horn Strobe, 15cd | 0.035 | 0.486 | 43 | 0.264866 | 0.13 | 19.83 | 0.57 | 2.79 % |
| FACP-N1-05 | P2WLED | Horn Strobe, 30cd | 0.038 | 0.451 | 12 | 0.075541 | 0.03 | 19.8 | 0.6 | 2.95 % |
| FACP-N1-06 | SWLED | Strobe, Wall, 15cd | 0.018 | 0.413 | 37 | 0.227081 | 0.09 | 19.7 | 0.7 | 3.41 % |
| FACP-N1-07 | P2WLED | Horn Strobe, 75cd | 0.087 | 0.395 | 46 | 0.284878 | 0.11 | 19.59 | 0.81 | 3.97 % |
| FACP-N1-08 | PC2WLED | Horn Strobe, Ceiling, 75cd | 0.087 | 0.308 | 49 | 0.302404 | 0.09 | 19.5 | 0.9 | 4.42 % |
| FACP-N1-09 | PC2WLED | Horn Strobe, Ceiling, 95cd | 0.092 | 0.221 | 33 | 0.200204 | 0.04 | 19.45 | 0.95 | 4.64 % |
| FACP-N1-10 | P2WLED | Horn Strobe, 30cd | 0.038 | 0.129 | 28 | 0.173935 | 0.02 | 19.43 | 0.97 | 4.75 % |
| FACP-N1-11 EOL 47k | P2WIK | Horn Strobe, Standard cd, Outdoor 15cd | 0.091 | 0.091 | 31 | 0.189388 | 0.02 | 19.41 | 0.99 | 4.83 % |

Calculation Methods:
Resistance From Previous (Ω) = Wire Resistance (Ω/ft) x 2 x Dist. From Previous (ft)
Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)

REVISION RECORD

DATE / DESCRIPTION

DATE: 04.04.24

HOMWOOD SUITES
3500 S. MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE

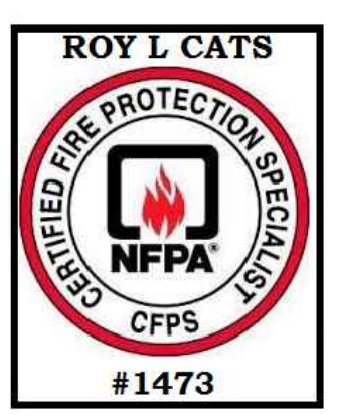
FIRE ALARM
BATTERY AND VOLTAGE
DROP CALCULATIONS
FACP

SHEET NUMBER

FA 8.0



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REVISION RECORD DATE / DESCRIPTION

DATE: 04.04.24

SHEET TITLE FIRE ALARM BATTERY AND VOLTAGE DROP CALCULATIONS RPS 1

SHEET NUMBER FA 8.1

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PANEL RPS1 (HPP-PS10) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS) TABLE WITH COLUMNS: PANEL COMPONENTS, QTY, PART NO., DESCRIPTION, CURRENT DRAW (A), TOTAL (A), CIRCUIT SETTINGS, TOTALS

RPS1 AUX1 POINT-TO-POINT REPORT TABLE WITH COLUMNS: Device Label, Part No., Description, Device Current (A), Remaining Current (A), Dist. From Previous (Ft), Resistance From Previous (Ohm), Voltage Drop From Previous, Voltage At Device, Total Voltage Drop, Voltage Drop Percent

RPS1 N1 POINT-TO-POINT REPORT TABLE WITH COLUMNS: Device Label, Part No., Description, Device Current (A), Remaining Current (A), Dist. From Previous (Ft), Resistance From Previous (Ohm), Voltage Drop From Previous, Voltage At Device, Total Voltage Drop, Voltage Drop Percent

RPS1 N2 POINT-TO-POINT REPORT TABLE WITH COLUMNS: Device Label, Part No., Description, Device Current (A), Remaining Current (A), Dist. From Previous (Ft), Resistance From Previous (Ohm), Voltage Drop From Previous, Voltage At Device, Total Voltage Drop, Voltage Drop Percent

RPS1 N3 POINT-TO-POINT REPORT TABLE WITH COLUMNS: Device Label, Part No., Description, Device Current (A), Remaining Current (A), Dist. From Previous (Ft), Resistance From Previous (Ohm), Voltage Drop From Previous, Voltage At Device, Total Voltage Drop, Voltage Drop Percent

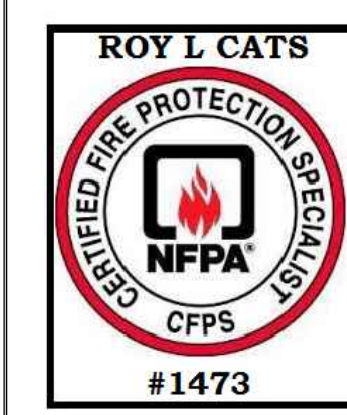
RPS1 N4 POINT-TO-POINT REPORT TABLE WITH COLUMNS: Device Label, Part No., Description, Device Current (A), Remaining Current (A), Dist. From Previous (Ft), Resistance From Previous (Ohm), Voltage Drop From Previous, Voltage At Device, Total Voltage Drop, Voltage Drop Percent

RPS1 N5 POINT-TO-POINT REPORT TABLE WITH COLUMNS: Device Label, Part No., Description, Device Current (A), Remaining Current (A), Dist. From Previous (Ft), Resistance From Previous (Ohm), Voltage Drop From Previous, Voltage At Device, Total Voltage Drop, Voltage Drop Percent

Calculation Methods: Resistance From Previous (Ohm) = Wire Resistance (Ohm/Ft) x 2 x Dist. From Previous (Ft) Voltage Drop From Previous = Resistance From Previous (Ohm) x Remaining Current (A)



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PANEL RPS2 (HPF-PS10) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS) TABLE

RPS2 N1 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N1

RPS2 N2 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N2

RPS2 N3 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N3

RPS2 N4 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N4

RPS2 N5 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N5

RPS2 N6 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N6

RPS2 N7 POINT-TO-POINT REPORT TABLE

CIRCUIT SETTINGS and TOTALS for RPS2 N7

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SHEET TITLE

FIRE ALARM BATTERY AND VOLTAGE DROP CALCULATIONS RPS 2

SHEET NUMBER

FA 8.2



REVISION RECORD DATE / DESCRIPTION

REVISION RECORD

DATE / DESCRIPTION

DATE: 04.04.24

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SHEET TITLE

FIRE ALARM BATTERY AND VOLTAGE DROP CALCULATIONS RPS 5

SHEET NUMBER

FA 8.5

PANEL RPS5 (HPF-PS10) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)

RPS5 M1 POINT-TO-POINT REPORT

RPS5 N2 POINT-TO-POINT REPORT

RPS5 N3 POINT-TO-POINT REPORT

RPS5 N4 POINT-TO-POINT REPORT

RPS5 N5 POINT-TO-POINT REPORT

RPS5 N6 POINT-TO-POINT REPORT

RPS5 N7 POINT-TO-POINT REPORT

RPS5 N5 POINT-TO-POINT REPORT

RPS5 N6 POINT-TO-POINT REPORT

RPS5 N7 POINT-TO-POINT REPORT

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