

PANEL F1 (IPA-4000) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)							
PANEL COMPONENTS		STANDBY CURRENT				SECONDARY ALARM CURRENT	
		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	
		1	IPA-4000 MAIN BOARD	MAIN BOARD FOR IPA-4000 FIRE ALARM CONTROL PANEL	0.13	0.13	0.22
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)
		1	UD-2000	PFC SERIES DIGITAL ALARM COMMUNICATOR TRANSMITTER	0.016	0.016	0.023
F1-L1		4	PAD100-DIM	DUAL INPUT MODULE	0.00024	0.00096	0.00024
		7	PAD300-HD W/PAD300-6DB	HEAT DETECTOR WITH 6" STANDARD BASE	0.0003	0.0021	0.0003
		1	PAD300-PD W/PAD300-6DB	PHOTOELECTRIC SMOKE DETECTOR WITH 6" STANDARD BASE	0.0003	0.0003	0.0003
F1-N1		1	PSN-106	10A CONVENTIONAL POWER SUPPLY WITH 6 OUTPUTS	0.015	0.015	0.015
F1-N2		1	PSN-106	10A CONVENTIONAL POWER SUPPLY WITH 6 OUTPUTS	0.015	0.015	0.015
F1-N3		1	HS-24WR-WP	OUTDOOR HORN STROBE, FIXED 75 CANDELA, STANDARD ENCLOSURE, RED 75CD	0	0	0.112
F1-N4		6	HS-24WR-WP	OUTDOOR HORN STROBE, FIXED 75 CANDELA, STANDARD ENCLOSURE, RED 75CD	0	0	0.6720
F1-DACT		1	INTELLICOM-5GV	5G LTE-M DUAL PATH COMMERCIAL FIRE ALARM COMMUNICATOR (VERIZON)	0	0	0
					TOTAL STANDBY (A)	0.17936	TOTAL ALARM (A)
					REQUIRED STANDBY TIME (HOURS)	24	
					REQUIRED ALARM TIME (MINUTES)	5	
SECONDARY STANDBY LOAD (A)					0.17936		
SECONDARY ALARM LOAD (A)					1.06		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					0.083	4.39	
DERATING FACTOR						1.25	
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						5.49	
PROVIDE (2) 12V 8AH BATTERIES							

PANEL F1-N1-N1 EOL 5.1K P1 (PSN-106) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)							
PANEL COMPONENTS		STANDBY CURRENT				SECONDARY ALARM CURRENT	
		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	
		1	PSN-106 MAIN BOARD	PSN-106 MAIN BOARD	0.075	0.075	0.075
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)
P1-N1		4	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
		4	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE	0	0	0.256
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022
P1-N2		3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
		4	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE	0	0	0.256
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022
P1-N3		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
P1-N4		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
P1-N5		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
P1-N6		6	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
					TOTAL STANDBY (A)	0.075	TOTAL ALARM (A)
					REQUIRED STANDBY TIME (HOURS)	24	
					REQUIRED ALARM TIME (MINUTES)	5	
SECONDARY STANDBY LOAD (A)					0.075		
SECONDARY ALARM LOAD (A)					5.84		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					0.083	2.29	
DERATING FACTOR						1.25	
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						2.86	
PROVIDE (2) 12V 7AH BATTERIES							

LUMP SUM REPORT SUMMARY																			
SOURCE	CIRCUIT	PART NO	MAX. CARD CURRENT (A)	TOTAL CARD CURRENT (A)	SPARE CARD CURRENT (A)	SPARE CARD CURRENT %	MAX. CIRCUIT CURRENT (A)	TOTAL CIRCUIT CURRENT (A)	SPARE CIRCUIT CURRENT (A)	SPARE CIRCUIT CURRENT %	WIRE GAUGE	WIRE RESISTANCE (Ω/FT)	TOTAL CIRCUIT LENGTH (FT)	TOTAL CIRCUIT RESISTANCE (Ω)	STARTING CALCULATION VOLTAGE	MIN. OPERATIONAL VOLTAGE	MAX. VOLTAGE DROP	END OF LINE VOLTAGE	VOLTAGE DROP %
F1 (IPA-4000)	N1	IPA-4000 MAIN BOARD	10	0.817660	9.18	91.82 %	3	0.015	2.99	99.50 %	14	2.60	3	0.013	20.40	16	0	20.40	0.00 %
	N2						3	0.015	2.99	99.50 %	14	2.60	4	0.0195	20.40	16	0	20.40	0.00 %
	N3						3	0.112	2.89	96.27 %	14	2.60	56	0.288936	20.40	16	0.03	20.37	0.16 %
	N4						3	0.6720	2.33	77.60 %	14	2.60	354	1.84	20.40	16	1.24	19.16	6.06 %
P1 (PSN-106)	N1	PSN-106 MAIN BOARD	10	5.76	4.24	42.38 %	3	1.46	1.54	51.33 %	14	2.60	218	1.13	20.40	16	1.65	18.75	8.10 %
	N2						3	1.36	1.64	54.60 %	14	2.60	263	1.37	20.40	16	1.87	18.53	9.15 %
	N3						3	0.7840	2.22	73.87 %	14	2.60	267	1.39	20.40	16	1.09	19.31	5.34 %
	N4						3	0.7840	2.22	73.87 %	14	2.60	247	1.29	20.40	16	1.01	19.39	4.94 %
	N5						3	0.7840	2.22	73.87 %	14	2.60	227	1.18	20.40	16	0.930	19.47	4.54 %
	N6						3	0.5880	2.41	80.40 %	14	2.60	204	1.06	20.40	16	0.620	19.78	3.05 %
P2 (PSN-106)	N1	PSN-106 MAIN BOARD	10	4.54	5.46	54.58 %	3	1.11	1.89	63.13 %	14	2.60	250	1.30	20.40	16	1.44	18.96	7.06 %
	N2						3	1.08	1.92	63.87 %	14	2.60	204	1.06	20.40	16	1.15	19.25	5.63 %
	N3						3	0.5880	2.41	80.40 %	14	2.60	243	1.27	20.40	16	0.740	19.66	3.65 %
	N4						3	0.5880	2.41	80.40 %	14	2.60	238	1.24	20.40	16	0.730	19.67	3.57 %
	N5						3	0.5880	2.41	80.40 %	14	2.60	222	1.15	20.40	16	0.680	19.72	3.33 %
	N6						3	0.5880	2.41	80.40 %	14	2.60	238	1.24	20.40	16	0.730	19.67	3.56 %
CALCULATION METHODS:																			
TOTAL RESISTANCE (Ω) = WIRE RESISTANCE (Ω/FT) X 2 X TOTAL CIRCUIT LENGTH (FT)																			
TOTAL VOLTAGE DROP = TOTAL RESISTANCE (Ω) X TOTAL CIRCUIT CURRENT (A)																			

PANEL F1-N2-N1 EOL 5.1K P2 (PSN-106) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)							
PANEL COMPONENTS		STANDBY CURRENT				SECONDARY ALARM CURRENT	
		QTY	PSN-106 MAIN BOARD	PSN-106 MAIN BOARD	CURRENT DRAW (A)	TOTAL (A)	
		1	PSN-106 MAIN BOARD	PSN-106 MAIN BOARD	0.075	0.075	0.075
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)
P2-N1		3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
		3	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE	0	0	0.256
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022
P2-N2		3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
		3	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE	0	0	0.256
		1	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022
P2-N3		6	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
P2-N4		6	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
P2-N5		6	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
P2-N6		6	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098
					TOTAL STANDBY (A)	0.075	TOTAL ALARM (A)
					REQUIRED STANDBY TIME (HOURS)	24	
					REQUIRED ALARM TIME (MINUTES)	5	
SECONDARY STANDBY LOAD (A)					0.075		
SECONDARY ALARM LOAD (A)					4.62		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					0.083	2.18	
DERATING FACTOR						1.25	
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						2.73	
PROVIDE (2) 12V 7AH BATTERIES							

RADIO FIRE ALARM COMMUNICATOR

Battery Calculation Worksheet
(current values will be expressed in mA)

Device Description	Quantity of Devices	Standby mA Per Device	Alarm mA Per Device	Total Device Standby mA	Total Device Alarm mA
INTELLICOM-5GV	1	68	140	68	140
Total Current				68	140
Summary Section					
Standby Hours Required			24		
Alarm Minutes Required			5		
Total System Standby mA			68		
Total System Alarm mA			140		
Standby Hours * (Total Standby mA * .001) =			Total System Standby AH		
Alarm Minutes * .0167 * (Total Alarm mA * .001) =			Total System Alarm AH		
Total Standby AH + Total Alarm AH =			Total System AH		
Total System AH * 1.25 =			Minimum Required AH		
25% CONTINGENCY FACTOR ADDED			INSTALL (1)-12VDC 12AH BATTERY		

Jeremy Locken, ET
NICET Level III Fire Alarm
Certification #: 95603
Expires 07/2027



PROJECT
EAST TOWN CROSSING BUILDING F
SHAW RD. E. & PIONEER WY. E.
PUYALLUP, WA 98372

REVISION:
FIRST RELEASE
△
△
△
△

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
PROJECT CALCULATIONS

DRAWN BY: JEM SYSTEMS
DATE: 06.13.2025
SCALE: SEE DRAWINGS

SHEET:
FA-02