

PANEL F1 (IPA-4000) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)								
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	STANDBY CURRENT		SECONDARY ALARM CURRENT	
					CURRENT DRAW (A)	TOTAL (A)	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	0.22
		1	UD-2000	IPFC SERIES DIGITAL ALARM COMMUNICATOR TRANSMITTER	0.016	0.016	0.023	0.023
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
F1-L1		4	PAD100-DIM	DUAL INPUT MODULE	0.00024	0.00096	0.00024	0.00096
		7	PAD300-HD WIPAD300-80B	HEAT DETECTOR WITH 6" STANDARD BASE	0.0003	0.0021	0.0003	0.0021
		1	PAD300-PD WIPAD300-80B	PHOTOELECTRIC SMOKE DETECTOR WITH 6" STANDARD BASE	0.0003	0.0003	0.0003	0.0003
F1-N1		1	PSN-106	10A CONVENTIONAL POWER SUPPLY WITH 6 OUTPUTS	0.015	0.015	0.015	0.015
F1-N2		1	PSN-106	10A CONVENTIONAL POWER SUPPLY WITH 6 OUTPUTS	0.015	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	0.112
F1-N4		6	HS-24WR-WP	OUTDOOR HORN STROBE, FIXED 75 CANDELA, STANDARD ENCLOSURE, RED 75CD	0	0	0.112	0.6720
F1-DACT		1	INTELLICOM-5GV	5G LTE-M DUAL PATH COMMERCIAL FIRE ALARM COMMUNICATOR (VERIZON)	0	0	0	0
					TOTAL STANDBY (A)	0.17936	TOTAL ALARM (A)	1.06
					REQUIRED STANDBY TIME (HOURS)		24	
					REQUIRED ALARM TIME (MINUTES)		5	
SECONDARY STANDBY LOAD (A)				0.17936			4.30	
SECONDARY ALARM LOAD (A)				1.06	0.083		0.088	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)						4.39		
DERATING FACTOR						1.25		
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						5.49		
PROVIDE (2) 12V 8AH BATTERIES								

PANEL F1-N1-EOL 5.1K P1 (PSN-106) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)								
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	STANDBY CURRENT		SECONDARY ALARM CURRENT	
		1	PSN-106 MAIN BOARD	PSN-106 MAIN BOARD	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
P1-N1		4	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.392
P1-N2		4	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	1.02
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.044
P1-N3		3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.294
		3	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	0.7680
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.044
P1-N4		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.7840
P1-N5		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.7840
P1-N6		12	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	1.18
					TOTAL STANDBY (A)	0.075	TOTAL ALARM (A)	5.39
					REQUIRED STANDBY TIME (HOURS)		24	
					REQUIRED ALARM TIME (MINUTES)		5	
SECONDARY STANDBY LOAD (A)				0.075	24	1.80		
SECONDARY ALARM LOAD (A)				5.39	0.083	0.44875		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)						2.25		
DERATING FACTOR						1.25		
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						2.81		
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 (D/KFT)	TOTAL CIRCUIT LENGTH (FT)	TOTAL CIRCUIT RESISTANCE (Ω)	STARTING CALCULATION VOLTAGE	MIN. OPERATING VOLTAGE	MAX. VOLTAGE DROP	END OF LINE VOLTAGE	VOLTAGE DROP %
F1 (IPA-4000)	N1	IPA-4000 MAIN BOARD	10	0.817360	9.18	91.83 %	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	53	0.277853	20.40	16	0.03	20.37	0.15 %
	N4						3	0.6720	2.33	77.60 %	14	2.60	435	2.26	20.40	16	1.52	19.88	7.45 %
P1 (PSN-106)	N1	PSN-106 MAIN BOARD	10	5.31	4.69	46.90 %	3	0.392	2.61	86.93 %	14	2.60	111	0.577	20.40	16	0.23	20.17	1.11 %
	N2						3	1.07	1.93	64.40 %	14	2.60	79	0.410165	20.40	16	0.44	19.96	2.15 %
	N3						3	1.11	1.89	63.13 %	14	2.60	224	1.16	20.40	16	1.29	19.11	6.31 %
	N4						3	0.7840	2.22	73.87 %	14	2.60	291	1.51	20.40	16	1.81	18.21	5.81 %
	N5						3	0.7840	2.22	73.87 %	14	2.60	297	1.54	20.40	16	1.21	19.19	5.93 %
	N6						3	1.18	1.82	60.80 %	14	2.60	398	2.07	20.40	16	2.44	17.96	11.94 %
P2 (PSN-106)	N1	PSN-106 MAIN BOARD	10	5.31	4.69	46.90 %	3	0.392	2.61	86.93 %	14	2.60	223	1.16	20.40	16	0.45	19.95	2.23 %
	N2						3	1.07	1.93	64.40 %	14	2.60	159	0.828	20.40	16	0.880	19.52	4.34 %
	N3						3	1.11	1.89	63.13 %	14	2.60	279	1.45	20.40	16	1.41	18.79	7.87 %
	N4						3	0.7840	2.22	73.87 %	14	2.60	303	1.57	20.40	16	1.23	19.17	6.05 %
	N5						3	0.7840	2.22	73.87 %	14	2.60	337	1.75	20.40	16	1.37	19.03	6.73 %
	N6						3	1.18	1.82	60.80 %	14	2.60	447	2.32	20.40	16	2.73	17.67	13.39 %
CALCULATION METHODS:																			
TOTAL RESISTANCE (Ω) = WIRE RESISTANCE (D/KFT) 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		QTY	PART NO.	DESCRIPTION	STANDBY CURRENT		SECONDARY ALARM CURRENT	
		1	PSN-106 MAIN BOARD	PSN-106 MAIN BOARD	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
P2-N1		4	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.392
P2-N2		4	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	1.02
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.044
P2-N3		3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.294
		3	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	0.7680
		2	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.044
P2-N4		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.7840
P2-N5		8	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.7840
P2-N6		12	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	1.18
					TOTAL STANDBY (A)	0.075	TOTAL ALARM (A)	5.39
					REQUIRED STANDBY TIME (HOURS)		24	
					REQUIRED ALARM TIME (MINUTES)		5	
SECONDARY STANDBY LOAD (A)				0.075	24	1.80		
SECONDARY ALARM LOAD (A)				5.39	0.083	0.44875		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)						2.25		
DERATING FACTOR						1.25		
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						2.81		
PROVIDE (2) 12V 7AH BATTERIES								

RADIO FIRE ALARM COMMUNICATOR

Battery Calculation Worksheet

6/16/2025

(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	1.63
Alarm Minutes * .0167 * (Total Alarm mA * .001) =				Total System Alarm AH	0.01
Total Standby AH + Total Alarm AH =				Total System AH	1.64
Total System AH * 1.25 =				Minimum Required AH	2.05
25% CONTINGENCY FACTOR ADDED					
		INSTALL (1)-12VDC 12AH BATTERY			

REVISION:
FIRST RELEASE
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SHEET DESCRIPTION:
FIRE ALARM SYSTEM
PROJECT CALCULATIONS

DRAWN BY: JEM SYSTEMS
DATE: 06.16.2025
SCALE: SEE DRAWINGS

SHEET:
FA-02