City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

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

MAX POWER
FIRE SYSTEM INSTALLATION

PANEL F1 (IPA-4000) BATTERY CALCULATION
(SECONDARY POWER SOURCE REQUIREMENTS)

					STANDBY CURRENT		SECONDARY ALARM CURRENT	
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	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	PFC 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	KM	4	PAD100-DIM	DUAL INPUT MODULE	0.00024	0.00096	0.00024	0.00096
	H	7	PAD300-HD W/PAD300-6DB	HEAT DETECTOR WITH 6" STANDARD BASE	0.0003	0.0021	0.0003	0.0021
	S	1	PAD300-PD W/PAD300-6DB	PHOTOELECTRIC SMOKE DETECTOR WITH 6" STANDARD BASE	0.0003	0.0003	0.0003	0.0003
F1•N1	NAC	1	PSN-106	10A CONVENTIONAL POWER SUPPLY WITH 6 OUTPUTS	0.015	0.015	0.015	0.015
F1•N2	F LF	10	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.980
F1•N3	F LF	12	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	1.18
F1•N4	SW WP	6	HS-24WR-WP	OUTDOOR HORN STROBE, FIXED 75 CANDELA, STANDARD ENCLOSURE, RED 75CD	0	0	0.14	0.840
F1•N5	SW WP	1	HS-24WR-WP	OUTDOOR HORN STROBE, FIXED 75 CANDELA, STANDARD ENCLOSURE, RED 75CD	0	0	0.14	0.14
F1•DACT	CELL	1	INTELLICOM-5GV	5G LTE-M DUAL PATH COMMERCIAL FIRE ALARM COMMUNICATOR (VERIZON)	0	0	0	0
					TOTAL STANDBY (A)	0.16436	TOTAL ALARM (A)	3.40
					REQUIRED STANDBY TIME (HOURS)		24	
					REQUIRED ALARM TIME (MINUTES)		5	
SECONDARY STANDBY LOAD (A)				0.16436	24		3.94	
SECONDARY ALARM LOAD (A)				3.40	0.083		0.283	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					4.23			
DERATING FACTOR					1.25			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					5.28			
PROVIDE (2) 12V 8AH BATTERIES								

PANEL F1•N1•01 EOL 5.1K
P1 (PSN-106) BATTERY CALCULATION
(SECONDARY POWER SOURCE REQUIREMENTS)

					STANDBY CURRENT		SECONDARY ALARM CURRENT	
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
		1	PSN-106 MAIN BOARD	PSN-106 MAIN BOARD	0.075	0.075	0.075	0.075
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
P1•N1	F LF	3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.294
	SW LF	3	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	0.7680
		1	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.022
P1•N2	F LF	3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.294
	SW LF	2	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	0.5120
		1	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.022
P1•N3	F LF	3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.294
	SW LF	2	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	0.5120
		1	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.022
P1•N4	F LF	3	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.294
	SW LF	3	PE-LFHSW	LED LOW PROFILE HORN STROBE, LOW FREQUENCY, 177 CANDELA, WHITE 177CD	0	0	0.256	0.7680
		1	PE-STW	LED STROBE, 24 VDC, WHITE 15CD	0	0	0.022	0.022
P1•N5	F LF	12	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	1.18
P1•N6	F LF	10	PE-LFHNW	LOW PROFILE HORN, LOW FREQUENCY, WHITE	0	0	0.098	0.980
					TOTAL STANDBY (A)	0.075	TOTAL ALARM (A)	6.06
					REQUIRED STANDBY TIME (HOURS)		24	
					REQUIRED ALARM TIME (MINUTES)		5	
SECONDARY STANDBY LOAD (A)				0.075	24		1.80	
SECONDARY ALARM LOAD (A)				6.06	0.083		0.505	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					2.30			
DERATING FACTOR					1.25			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					2.88			
PROVIDE (2) 12V 7AH BATTERIES								

RADIO FIRE ALARM COMMUNICATOR

Battery Calculation Worksheet **4/29/2025**

(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**

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/KFT)	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	3.15	6.85	**68.46 %**	3	0.015	2.99	**99.50 %**	14	2.60	3	0.016839	20.40	16	0	20.40	**0.00 %**
	N2						3	0.980	2.02	**67.33 %**	14	2.60	319	1.66	20.40	16	1.62	18.78	**7.96 %**
	N3						3	1.18	1.82	**60.80 %**	14	2.60	398	2.07	20.40	16	2.43	17.97	**11.93 %**
	N4						3	0.840	2.16	**72.00 %**	14	2.60	268	1.40	20.40	16	1.17	19.23	**5.75 %**
	N5						3	0.14	2.86	**95.33 %**	14	2.60	21	0.10858	20.40	16	0.02	20.38	**0.07 %**
P1 (PSN-106)	N1	PSN-106 MAIN BOARD	10	5.98	4.02	**40.20 %**	3	1.08	1.92	**63.87 %**	14	2.60	182	0.944	20.40	16	1.02	19.38	**5.02 %**
	N2						3	0.8280	2.17	**72.40 %**	14	2.60	251	1.30	20.40	16	1.08	19.32	**5.29 %**
	N3						3	0.8280	2.17	**72.40 %**	14	2.60	262	1.36	20.40	16	1.13	19.27	**5.52 %**
	N4						3	1.08	1.92	**63.87 %**	14	2.60	234	1.22	20.40	16	1.32	19.08	**6.47 %**
	N5						3	1.18	1.82	**60.80 %**	14	2.60	319	1.66	20.40	16	1.95	18.45	**9.56 %**
	N6						3	0.980	2.02	**67.33 %**	14	2.60	285	1.48	20.40	16	1.45	18.95	**7.11 %**

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)

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

REVISION:
FIRST RELEASE

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
PROJECT CALCULATIONS

DRAWN BY: JEM SYSTEMS
DATE: 05.06.2025
SCALE: SEE DRAWINGS

SHEET:
FA-02