



Potter AFC-1000
Battery & Voltage Drop
Calculations

Project Name: Larson Jeep
 300 River Road Puyallup, WA
 Installed By: E-Squared Systems
 Designed By: Sandifer Deer
 Date: 6/14/2022

Standby Hours:
 Alarm Mins: 5
 Efficiency Factor: 20%
 SLC Type: Class B
 NAC Source Voltage: 20.4

Model #: AFC-1000
 Panel ID: FACP
 Location: Riser 117

Max Panel Current (amps): 10

User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to submittal.

Qty	Addressable Fire Panel		Standby (amps)		Alarm (amps)	
	Part #	Description	Each	Total	Each	Total
1	AFC-1000	Analog Addressable FACP	0.130	0.130	0.220	0.220
			Panel Standby:	0.130	Panel Alarm:	0.220

P-LINK (RS-485) (Both P-Link Circuits Combined)			Standby		Alarm	
1	UD-2000 / UD-1000	DACT Card	0.016	0.016	0.023	0.023
1	RA-6075	LCD Annunciator	0.020	0.020	0.025	0.025
	RA-6500F	Flush Mount LCD Annunciator	0.020		0.050	
	LED-16F	Flush Mount LED Annunciator	0.025		0.025	
	LED-16F	LED Annunciator LED Power*	0.015		0.210	
	CA-6500	Class A Module	0.060		0.100	
	PSN-1000(E)	Power Expander	0.015		0.015	
	NOHMI-SLCE-127*	SLC Expander (9 Max)	0.060		0.060	
	PAD100-SLCE-127	SLC Expander (9 Max)	0.060		0.060	
	IDC-6	Initating Zone Expander	0.020		0.020	
	IDC-6	Initating Zone Expander Power*	0.020		0.270	
	RLY-5	Relay Expander	0.025		0.035	
	RLY-5	Relay Expander Power*	0.010		0.135	
	DRV-50	LED Driver Module	0.025		0.025	
	DRV-50	LED Driver Module LED Power*	0.010		0.215	
	FCB-1000	Fire Communications Bridge	0.025		0.025	
	FIB-1000	Fiber Interface Board	0.030		0.030	
	MC-1000	Multi-Connect Expander	0.010		0.010	
	SPG-1000	Serial Parallel Gateway	0.040		0.040	
	NCE-1000	Network Card Ethernet	0.050		0.050	
	NCF-1000	Network Card Fiber	0.095		0.095	

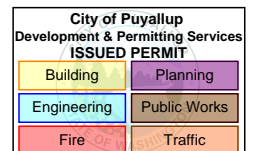
**REQUIRED IF USING NOHMI PROTOCOL SLC DEVICES

(Max current draw is 1 Amp per P-Link circuit, with 2 amps total)

P-LINK Standby: 0.036 P-LINK Alarm: 0.048

*Only enter quantity if PLINK power is being used to power devices

SLC Devices			Standby		Alarm	
AFC / ARC Series						
76	PAD-PD	Analog Photo Smoke	0.000300	0.022800	0.000300	0.022800
	PAD-PHD	Analog Photo Smoke/Heat	0.000300		0.000300	
	PAD-HD	Analog Fixed Temp Heat	0.000300		0.000300	
	PAD-CD	Analog Carbon Monoxide Detector	0.000300		0.000300	
	PAD-PCD	Analog Smoke/Carbon Monoxide Detector	0.000300		0.000300	
	PAD-PHCD	Analog Smoke/Heat/Carbon Detector	0.000300		0.000300	
1	PAD-DUCT	Addressable Duct Detector	0.000300	0.000300	0.000300	0.000300
	PAD-DUCTR*	Add. Duct Detector w/Relay	0.000500		0.000500	
	PAD100-DRTS	Duct Remote Test Switch	0.010000		0.015000	
	PAD100-PSSA/PSDA	Add. Pull Station Single/Dual Action	0.000200		0.000200	
	PAD100-MIM	Micro Input Module	0.000200		0.000200	
7	PAD100-SIM	Single Input Module	0.000240	0.001680	0.000240	0.001680
	PAD100-DIM	Dual Input Module	0.000240		0.000240	
	PAD100-RM	Relay Module	0.000240		0.000240	
	PAD100-OROI	One Relay One Input Module	0.000240		0.000240	
	PAD100-TRTI	Two Relay Two Input Module	0.000240		0.000240	
	PAD100-ZM*	Conventional Zone Module	0.000240		0.000240	
	PAD100-NAC*	Notification Appliance Circuit	0.000200		0.000200	
	PAD100-SM	Speaker Module	0.000200		0.000200	
	PAD100-IM	Isolator Module	0.000150		0.000150	
	PAD100-LED	LED Module	0.000240		0.000240	
	PAD100-LEDK	Addressable LED w/ Key Switch	0.000200		0.000200	
	PAD100-SB*	Addressable Sounder Base	0.000200		0.000200	
	PAD100-RB	Addressable Relay Base	0.000200		0.000200	
	PAD100-IB	Addressable Isolator Base	0.000150		0.000150	



PFC-6000 Series

PSA	Analog Photo Smoke	0.000325	0.000325
PSHA	Analog Photo Smoke/Heat	0.000325	0.000325
RHA	Analog Rate of Rise Heat	0.000325	0.000325
FHA	Analog Fixed Temp Heat	0.000325	0.000325
DDA	Addressable Duct Detector	0.000325	0.000325
APS-SA/APS-DA	Addressable Pull Station Single/Dual Action	0.000325	0.000325
MCM	Mini Contact Input Module	0.000325	0.000325
SCM-4	Single Contact Input Module	0.000325	0.001000
DCM-4	Dual Contact Input Module	0.000325	0.001000
TRM-4	Twin Relay Output Module	0.000325	0.001000
CIZM-4 *	Conventional Zone Input Mod	0.000325	0.001000
MOM-4 *	Monitored Output Module	0.000325	0.001000
ARB *	Detector Base w/Relay	0.000325	0.000325
ASB *	Detector Base w/Sounder	0.000325	0.000325
SCI **	Short Circuit Isolator (Class A)	0.000325	0.002340
AIB **	Detector Base w/Isolator (Class A)	0.000325	0.002340
IM/IB/SCI/AIB Class B **	Current Draw from Install Manual		
SLC Loop Alarm LED Current		0.000000	0.036000
		SLC Standby:	0.024780
			SLC Alarm: 0.060780

* Requires Aux Power (Configure Below)

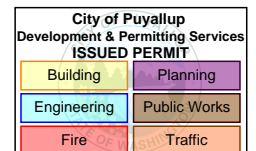
** See the installation manual for special considerations when installing IM, IB, AIB, SCI devices on Class B loops.

NAC Circuits (See NAC Configuration below)			Standby (amps)	Alarm (amps)
Ckt	Use	Description	Total	Total
1	Notification	Main Bldg West	0.00000	0.47500
2	Notification	Main Bldg East	0.00000	0.33200
3	Notification	Maint Bldg West	0.00000	0.52800
4	Notification	Maint Bldg East	0.00000	0.62900
5	Unused		0.00000	0.00000
6			0.00000	0.00000
			NAC Standby:	NAC Alarm:
			0.00000	1.96400

I/O Circuits (See I/O Configuration below)			Standby (amps)	Alarm (amps)
Ckt	Use	Description	Total	Total
1			0.00000	0.00000
2			0.00000	0.00000
3			0.00000	0.00000
4			0.00000	0.00000
			I/O Standby:	I/O Alarm:
			0.00000	0.00000

Battery Calculation Summary		Standby (amps)	Alarm (amps)
	Panel Current:	0.13000	0.22000
	P-Link Current:	0.03600	0.04800
	SLC Device Current:	0.02478	0.06078
	NAC Circuit Current:	0.00000	1.96400
	I/O Circuit Current:	0.00000	0.00000
	Total Standby:	0.190780	Total Alarm: 2.29278
	Standby Hours:	0	Alarm Mins: 5
	AH Required:	0.00	AH Required: 0.20
	Total Combined Standby & Alarm Amp Hours Required:		0.20
			Efficiency Factor: 20%
			Required Battery AmpHours: 0.24
			Battery AmpHours Provided: 8

Note: The cabinet will house two 8 AH or 18 AH batteries. The charging circuit is rated for up to two 55 AH batteries.



NAC 1 MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

Usage: Notification Description: Main Bldg West

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#14 Solid	3.19	250	1.595	0.475	19.64	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
2	User Defined	PC2*L 15CD		0.000000	0.000000	0.054000	0.108000
3	User Defined	PC2*L 30CD		0.000000	0.000000	0.071000	0.213000
1	User Defined	P2RK 75CD		0.000000	0.000000	0.154000	0.154000
		User can add devices on the fly to these bottom 5 rows (No lookup function)					
				Total Standby:	0.00000	Total Alarm:	0.47500

NAC 2 MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

Usage: Notification Description: Main Bldg East

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#14 Solid	3.19	180	1.148	0.332	20.02	16

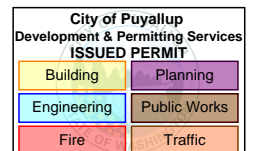
Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
2	User Defined	PC2*L 15CD		0.000000	0.000000	0.054000	0.108000
2	User Defined	PC2*L 30CD		0.000000	0.000000	0.071000	0.142000
2	User Defined	SC*L 15CD		0.000000	0.000000	0.041000	0.082000
		User can add devices on the fly to these bottom 5 rows (No lookup function)					
				Total Standby:	0.00000	Total Alarm:	0.33200

NAC 3 MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

Usage: Notification Description: Maint Bldg West

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#14 Solid	3.19	200	1.276	0.528	19.73	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
3	User Defined	PC2*L 15CD		0.000000	0.000000	0.054000	0.162000
4	User Defined	PC2*L 30CD		0.000000	0.000000	0.071000	0.284000
2	User Defined	SC*L 15CD		0.000000	0.000000	0.041000	0.082000
		User can add devices on the fly to these bottom 5 rows (No lookup function)					
				Total Standby:	0.00000	Total Alarm:	0.52800



NAC Circuit Configuration & Voltage Drop (cont'd)

NAC 4	MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
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Usage: Notification	Description: Maint Bldg East
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Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#14 Solid	3.19	300	1.914	0.629	19.20	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
5	User Defined	PC2*L 30CD		0.000000	0.000000	0.071000	0.355000
2	User Defined	PC2*L 75CD		0.000000	0.000000	0.137000	0.274000
			User can add devices on the fly to these bottom 5 rows (No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.62900

NAC 5	MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
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Usage: Unused	Description:
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Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#14 Solid	3.19		0.000	0.000	20.40	16

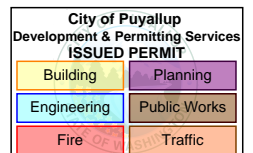
Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
			User can add devices on the fly to these bottom 5 rows (No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.00000

NAC 6	MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
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Usage:	Description:
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Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#12 Solid	2.01		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
			User can add devices on the fly to these bottom 5 rows (No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.00000



I/O 1 MAX Circuit Current (amps): 1 Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#12 Solid	2.01		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
			User can add devices on the fly to these bottom rows				
			(No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.00000

I/O 2 MAX Circuit Current (amps): 1 Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#12 Solid	2.01		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
			User can add devices on the fly to these bottom rows				
			(No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.00000

I/O 3 MAX Circuit Current (amps): 1 Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#12 Solid	2.01		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
			User can add devices on the fly to these bottom rows				
			(No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.00000

I/O 4 MAX Circuit Current (amps): 1 Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#12 Solid	2.01		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices	Description	Standby (amps)		Alarm (amps)	
				Each	Total	Each	Total
			User can add devices on the fly to these bottom rows				
			(No lookup function)				
				Total Standby:	0.00000	Total Alarm:	0.00000

