



Potter IPA-4000
Battery & Voltage Drop
Calculations

Project Name: Standby Hours:
 Alarm Mins:
 Installed By: Batt Efficiency:
 Designed By: SLC Type:
 Date: NAC Source Voltage:

Model #: IPA-4000

Max Panel Current (amps): 10

Panel ID:

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

Location:

Qty	FACP Part #	Description	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
1	IPA-4000	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	
	MC-1000	Multi-Connect Expander	0.010		0.010	
1	UD-1000	DACT Card	0.016	0.016	0.023	0.023
	RA-6075	LCD Annunciator	0.020		0.025	
1	RA-6500F	Flush Mount LCD Annunciator	0.020	0.020	0.050	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 (31 Max)	0.060		0.060	
	PAD100-SLCE-127	SLC Expander (31 Max)	0.060		0.060	
	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	
	SPG-1000	Serial Parallel Gateway	0.040		0.040	

***REQUIRED IF USING NOHMI PROTOCOL SLC DEVICES**

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

P-LINK Standby: 0.036 P-LINK Alarm: 0.073

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

SLC Devices			Standby		Alarm	
45	PAD100-PD	Analog Photo Smoke	0.000300	0.013500	0.000300	0.013500
	PAD100-PHD	Analog Photo Smoke/Heat	0.000300		0.000300	
3	PAD100-HD	Analog Fixed Temp Heat	0.000300	0.000900	0.000300	0.000900
	PAD100-CD	Analog Carbon Monoxide Detector	0.000300		0.000300	
	PAD100-DRTS	Duct Remote Test Switch	0.010000		0.015000	
	PAD100-DUCT	Addressable Duct Detector	0.000300		0.000300	
	PAD100-DUCTR*	Addressable Duct Detector w/Relay	0.000500		0.000500	
	PAD100-PSSA/PSDA	Addressable Pull Station Single/Dual Action	0.000200		0.000200	
45	PAD100-MIM	Micro Input Module	0.000200	0.009000	0.000200	0.009000
	PAD100-SIM	Single Input Module	0.000240		0.000240	
5	PAD100-DIM	Dual Input Module	0.000240	0.001200	0.000240	0.001200
6	PAD100-RM	Relay Module	0.000240	0.001440	0.000240	0.001440
	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	
6	PAD100-LED	LED Module	0.000240	0.001440	0.000240	0.001440
	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	
	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	
	ATB **	Detector Base w/Isolator (Class A)	0.000325		0.002340	

<input type="text"/>	IM/IB/SCI/AIB Class B **	Current Draw from Install Manual	<input type="text"/>	<input type="text"/>		
		SLC Loop Alarm LED Current	0.000000	0.000000	0.036000	0.036000

* Requires Aux Power (Configure Below) **SLC Standby: 0.027480** **SLC Alarm: 0.063480**

** 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			0.00000	3.00000
2			0.00000	3.00000
3			0.00000	3.00000
4			0.00000	0.00000
5			0.00000	0.00000
6			0.00000	0.00000
NAC Standby:			0.00000	NAC Alarm: 9.00000

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:			0.00000	I/O Alarm: 0.00000

Battery Calculation Summary			Standby (amps)	Alarm (amps)
Panel Current:			0.13000	0.22000
P-Link Current:			0.03600	0.07300
SLC Device Current:			0.02748	0.06348
NAC Circuit Current:			0.00000	9.00000
I/O Circuit Current:			0.00000	0.00000
Total Standby:			0.193480	Total Alarm: 9.35648
Standby Hours:			24	Alarm Mins: 5
AH Required:			4.65	AH Required: 0.78
Total Combined Standby & Alarm AmpHours Required:			5.43	
Efficiency Factor:			80%	
Required Battery AmpHours:			6.79	
Battery AmpHours Provided:				

SLC Loop Type: Class B
Device Addresses Used: 110
Device Addresses Available: 127

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 Circuit Configuration & Voltage Drop

NAC 1 MAX Circuit Current (amps): 3 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
#14 Solid	2.5		0.000	3.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
1	Maximum				3.000000	3.000000
Total Standby:				0.00000	Total Alarm: 3.00000	

NAC 2 MAX Circuit Current (amps): 3 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
#14 Solid	2.5		0.000	3.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
1	Maximum				3.000000	3.000000
Total Standby:				0.00000	Total Alarm: 3.00000	

NAC Circuit Configuration & Voltage Drop (cont'd)

NAC 3 **MAX Circuit Current (amps): 3** **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
#14 Solid	2.5		0.000	3.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
1	Maximum				3.000000	3.000000
Total Standby:				0.00000	Total Alarm:	3.00000

NAC 4 **MAX Circuit Current (amps): 3** **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
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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 Circuit Configuration & Voltage Drop (cont'd)

NAC 5 MAX Circuit Current (amps): 3 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
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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 Circuit Configuration & Voltage Drop

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
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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 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
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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 Circuit Configuration & Voltage Drop (cont'd)

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
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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 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
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	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