
		IntelliKnight 6820 Battery Calculation								
		Secondary Power Source Requirements								
Device Type	Standby Current (amps)			Secondary Alarm Current (amps)						
	Qty	Current Draw	Total	Qty	Current Draw	Total				
1. Control Panel										
6820 Control Panel	1	x	0.190000	=	0.190000	1	x	0.250000	=	0.250000
2. Addressable SLC Devices										
SD500-AIM	61	x	0.000550	=	0.033550	61	x	0.000550	=	0.033550
SD500-MIM		x	0.000550	=			x	0.000550	=	
SD500-ARM	21	x	0.000550	=	0.011550	21	x	0.000550	=	0.011550
SD500-PS	20	x	0.000550	=	0.011000	20	x	0.000550	=	0.011000
SD500-PSDA		x	0.000550	=			x	0.000550	=	
SD505-HEAT		x	0.000550	=			x	0.000550	=	
SD505-PHOTO		x	0.000550	=			x	0.000550	=	
SD505-DTS-K		x	0.000000	=			x	0.000000	=	
SD500-ANM		x	0.000550	=			x	0.000550	=	
SD500-SDM		x	0.000550	=			x	0.000550	=	
SD505-DUCT		x	0.000550	=			x	0.000550	=	
SD505-DUCTR		x	0.000500	=			x	0.000550	=	
3. SLC Accessory Bases										
SD505-4AB		x	0.000000	=			x	0.000000	=	
SD505-6AB		x	0.000000	=			x	0.000000	=	
SD505-6RB	7	x	0.000082	=	0.000574	7	x	0.000082	=	0.000574
SD505-6SB		x	0.000082	=			x	0.000082	=	
4. SLC Isolator Devices										
SD500-LIM	1	x	0.000092	=	0.000092	1	x	0.000092	=	0.000092
SD505-6IB		x	0.000092	=			x	0.000092	=	
5. Auxiliary Power Draw - SLC Devices										
SD500-ANM (Aux. Power)		x	0.008000	=			x	0.060000	=	
SD500-SDM (Aux. Power)		x	0.020000	=			x	0.106000	=	
SD500-LED (Aux. Power)		x	0.010000	=			x	0.220000	=	
SD505-6SB (Aux. Power)		x	0.001000	=			x	0.032000	=	
6. Accessory Modules										
5815XL	2	x	0.055000	=	0.110000	2	x	0.055000	=	0.110000
5860		x	0.020000	=			x	0.025000	=	
5860R		x	0.020000	=			x	0.025000	=	
5824		x	0.045000	=			x	0.045000	=	
5496		x	0.010000	=			x	0.010000	=	
5895XL		x	0.010000	=			x	0.010000	=	
5865-4		x	0.035000	=			x	0.145000	=	
5865-3		x	0.035000	=			x	0.145000	=	
5880		x	0.035000	=			x	0.200000	=	
5883		x	0.000000	=			x	0.220000	=	
SK-IP-2		x	0.093000	=			x	0.136000	=	
SK-IP-2UD		x	0.098000	=			x	0.155000	=	
CELL-MOD		x	0.055000	=			x	0.100000	=	
CELL-CAB-SK		x	0.055000	=			x	0.100000	=	
SK-NIC		x	0.021000	=			x	0.021000	=	
SK-NIC-KIT		x	0.021000	=			x	0.021000	=	
SK-FSL		x	0.079000	=			x	0.079000	=	
SK-FML		x	0.053000	=			x	0.053000	=	
SK-NIC		x	0.021000	=			x	0.021000	=	
SK-NIC-KIT		x	0.021000	=			x	0.021000	=	
SK-FSL		x	0.079000	=			x	0.079000	=	
SK-FML		x	0.053000	=			x	0.053000	=	
SK-FFT		x	0.120000	=			x	0.230000	=	

7. Miscellaneous Devices										
Conventional Detectors		x	0.000000	=		x	0.000000	=		
6860	2	x	0.025000	=	0.050000	2	x	0.050000	=	0.100000
TG-7FS-LTE-V	1	x	0.040000	=	0.040000	1	x	0.160000	=	0.160000
SD505-APS	169	x	0.000055	=	0.009295	169	x	0.000055	=	0.009295
Miscellaneous Device 4		x	0.000000	=			x	0.000000	=	
Miscellaneous Device 5		x	0.000000	=			x	0.000000	=	
Miscellaneous Device 6		x	0.000000	=			x	0.000000	=	
8. Output Circuits										
PGM-I/O #1 (NAC)	1		0.080000	=	0.080000	1		0.080000	=	0.080000
PGM-I/O #2 (NAC)	1		0.000000	=		1		0.155000	=	0.155000
PGM-I/O #3 (AUX)			0.000000	=				0.000000	=	
PGM-I/O #4 (NAC)			0.000000	=				0.000000	=	
PGM-I/O #5 (Initiating Dev. CK)	1		0.040000	=	0.040000	1		0.040000	=	0.040000
PGM-I/O #6 (NAC)			0.000000	=				0.000000	=	
Total Standby Load					0.576061	Total Alarm Load				0.961061

	IntelliKnight 6820 Battery Calculation	
	Note 1: You are fully responsible for verifying these calculations. Note 2: Use the dropdowns in the yellow cells to enter values.	
Calculation in Total Sheet		
	Required Standby Time in Hours	
	24 Hours	
Standby Load Current	0.57606 Amps	x 24 = 13.825 AH
		Required Alarm Time in Minutes
		5 Minutes
Alarm Load Current (Amps)	0.96106 Amps	x 0.084 = 0.081 AH
Total Current Load		13.906 AH
Multiply by the Derating Factor		1.2 = x 1.20
Total Ampere Hours Required		16.69 AH
Recommended Batteries:		6914 - 18AH Batteries

Battery Check

The batteries can be charged by the 6820 Charger.

The batteries can be housed in the 6820 Cabinet.

Current Draw Check

Circuit#1 current is within the limitations of the circuit.

Circuit#2 current is within the limitations of the circuit.

Circuit#3 current is within the limitations of the circuit.

Circuit#4 current is within the limitations of the circuit.

Circuit#5 current is within the limitations of the circuit.

Circuit#6 current is within the limitations of the circuit.

6820 Control Panel:
The output current is within the panel's limitations.



IntelliKnight 6820 Circuit Detail

PGM-I/O# 1: Notification Appliance Circuit

Device	Qty	x	Non-Alarm Draw	=	Total	Qty	x	Alarm Draw	=	Total	
BOSCH FPP-RNAC-8A-4C Po	8	x	0.010000	=	0.080000	8	x	0.010000	=	0.080000	
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
Total Standby Load					0.080000	Total Alarm Load					0.080000

PGM-I/O# 2: Notification Appliance Circuit

Device	Qty	x	Non-Alarm Draw	=	Total	Qty	x	Alarm Draw	=	Total	
Wheelock ASWP-2475W-FR W	1	x	0.000000	=	0.000000	1	x	0.155000	=	0.155000	
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
Total Standby Load					0.000000	Total Alarm Load					0.155000

PGM-I/O# 3: AUX Power Circuit

Device	Qty	x	Non-Alarm Draw	=	Total	Qty	x	Alarm Draw	=	Total	
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
		x	0.000000	=			x	0.000000	=		
Total Standby Load					0.000000	Total Alarm Load					0.000000

PGM-I/O# 4: Notification Appliance Circuit						
Device	Qty	Non-Alarm Draw	Total	Qty	Alarm Draw	Total
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
Total Standby Load			0.000000	Total Alarm Load		0.000000

PGM-I/O# 5: Notification Appliance Circuit						
Device	Qty	Non-Alarm Draw	Total	Qty	Alarm Draw	Total
Bosch FPP-RNAC-8A-4C POW	4	x 0.010000	= 0.040000	4	x 0.010000	= 0.040000
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
Total Standby Load			0.040000	Total Alarm Load		0.040000

PGM-I/O# 6: Notification Appliance Circuit						
Device	Qty	Non-Alarm Draw	Total	Qty	Alarm Draw	Total
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
		x 0.000000	=		x 0.000000	=
Total Standby Load			0.000000	Total Alarm Load		0.000000



IntelliKnight 6820 EOL Voltage Drop

Starting Voltage	20.4 Volts	
Minimum Voltage @ EOL	16 Volts	
Voltage Drop Warning %	10.00%	

	Current Draw	Wire Type	Resistance	Length	Actual Resistance	Voltage @ EOL	Percent Drop
Circuit Name	Amps	AWG	Ohms/1000 ft.	Feet (One Way)	Ohms	Volts	Percent
PGM-I/O# 1: Notification Ap	0.080	#14 Solid	3.07	450	2.76	20.18	1.08%
PGM-I/O# 2: Notification Ap	0.155	#14 Solid	3.07	150	0.92	20.26	0.70%
PGM-I/O# 3: AUX Power Ci	0.000	#14 Solid	3.07	0	0.00	20.40	0.00%
PGM-I/O# 4: Notification Ap	0.000	#14 Solid	3.07	0	0.00	20.40	0.00%
PGM-I/O# 5: Notification Ap	0.040	#14 Solid	3.07	30	0.18	20.39	0.04%
PGM-I/O# 6: Notification Ap	0.000	#14 Solid	3.07	0	0.00	20.40	0.00%

Wire Type	Resistance
AWG	Ohms/1000 ft.
#10 Solid	1.21
#10 Stranded	1.24
#12 Solid	1.93
#12 Stranded	1.98
#14 Solid	3.07
#14 Stranded	3.14
#16 Solid	4.89
#16 Stranded	4.99
#18 Solid	7.77
#18 Stranded	7.95

Note: All Resistance values are taken from Table 8 Conductor Properties of the NFPA 70 National Electrical Code. All values are for Direct Current Resistance at 75°C (167°F).