

FCP Battery Calculation			
PROJECT NAME: RUNNING WITH SCISSORS			
Required Standby Time: 24 Hours		Required Alarm Time: 5 Minutes	
Regulated Load in Standby			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
MS-9550UD Main Circuit Board	1	0.12000	=
ANH-80 Remote Annunciator	1	0.01500	=
SD355 Smoke Detector	1	0.00030	=
H355 Heat Detector	1	0.00030	=
MMF-300 Monitor Module	2	0.00040	=
BC-12LX Pull Station	2	0.00023	=
TOTAL STANDBY LOAD			0.15686
Regulated Load in ALARM			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
MS-9550UD Main Circuit Board	1	0.20000	=
ANH-80 Remote Annunciator	1	0.04000	=
All Addressable Devices - Maximum Draw	1	0.40000	=
TOTAL ALARM LOAD			0.64000
Battery Requirements			
Standby Load	0.15686	X	Required Standby Time in Hours
Alarm Load			24.00000 =
Current (Amps)	0.64000	X	Required Alarm Time in Hours
Derating Factor			0.08333 =
Total Ampere Hours (before derating factor)			3.33797
TOTAL AMPERE HOURS REQUIRED			=
BATTERIES TO BE PROVIDED (2 - 12v)			4.00587
			7 AH

MAC Circuit Voltage Drop Calculation			
Project Name: RUNNING WITH SCISSORS			
Circuit Number: FPS1-1			
Nominal System Voltage		20.4 volts	
Minimum Device Voltage		20.0 volts	
Distance from source to 1st device		6.14	
Wire Gauge for balance of circuit		14	
Max Output Current		2.0 amps	
Total Circuit Current		1.718 amps	
Circuit is within limits			
Device	Distance previous device	Voltage at Device	Drop from source
Device 1	0.094	20.19	0.21
Device 2	0.176	19.99	0.41
Device 3	0.094	19.84	0.56
Device 4	0.079	19.65	0.75
Device 5	0.079	19.63	0.77
Device 6	0.107	19.38	1.02
Device 7	0.107	19.37	1.03
Device 8	0.094	19.24	1.16
Device 9	0.176	19.17	1.23
Device 10	0.094	19.10	1.29
Device 11	0.066	19.10	1.30
Device 12	0.066	19.01	1.40
Device 13	0.066	19.00	1.48
Device 14	0.066	18.92	1.48
Device 15	0.066	18.83	1.57
Device 16	0.158	18.83	1.57
Device 17	0.158	18.83	1.57
Totals	1.718	272	8%

MAC Circuit Voltage Drop Calculation			
Project Name: RUNNING WITH SCISSORS			
Circuit Number: FPS1-3			
Nominal System Voltage		20.4 volts	
Minimum Device Voltage		20.0 volts	
Distance from source to 1st device		6.14	
Wire Gauge for balance of circuit		14	
Max Output Current		2.0 amps	
Total Circuit Current		1.319 amps	
Circuit is within limits			
Device	Distance previous device	Voltage at Device	Drop from source
Device 1	0.066	20.12	0.28
Device 2	0.066	20.10	0.30
Device 3	0.066	20.01	0.39
Device 4	0.094	19.89	0.51
Device 5	0.079	19.69	0.71
Device 6	0.066	19.54	0.86
Device 7	0.066	19.53	0.87
Device 8	0.079	19.51	0.89
Device 9	0.176	19.32	1.08
Device 10	0.066	19.23	1.17
Device 11	0.066	19.23	1.18
Device 12	0.066	19.21	1.19
Device 13	0.218	19.18	1.22
Device 14	0.066	19.17	1.23
Device 15	0.066	19.17	1.23
Totals	1.319	237	6%

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	6/5/2013

RESERVED FOR CITY STAMP

CUNNINGHAM
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10 Prices Point Road, Yarmouth, Maine 04096
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RUNNING WITH SCISSORS
PORTLAND, MAINE 04101
250 ANDERSON STREET
CALCULATIONS

DRAWN	JPB UNICAD JOB #13273
CHECKED	WAYNE B. HAWES NICET # 90496
DATE	6/4/2013
REVISION	0
SCALE	NONE

FA-3

FPS1 Battery Calculation			
PROJECT NAME: RUNNING WITH SCISSORS			
Required Standby Time: 24 Hours		Required Alarm Time: 3 Minutes	
Regulated Load in Standby			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FCPS-24F35 Main Circuit Board	1	0.06500	=
TOTAL STANDBY LOAD			0.06500
Regulated Load in ALARM			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FCPS-24F35 Main Circuit Board	1	1.4500	=
FPS1-4	1	1.71800	=
FPS1-2	1	1.30300	=
FPS1-3	1	1.31900	=
FPS1-4	1	0.37000	=
TOTAL ALARM LOAD			4.85500
Battery Requirements			
Standby Load	0.06500	X	Required Standby Time in Hours
Alarm Load			24.00000 =
Current (Amps)	4.85500	X	Required Alarm Time in Hours
Derating Factor			0.08333 =
Total Ampere Hours (before derating factor)			1.96458
TOTAL AMPERE HOURS REQUIRED			=
BATTERIES TO BE PROVIDED (2 - 12v)			2.35750
			7 AH

MAC Circuit Voltage Drop Calculation			
Project Name: RUNNING WITH SCISSORS			
Circuit Number: FPS1-2			
Nominal System Voltage		20.4 volts	
Minimum Device Voltage		20.0 volts	
Distance from source to 1st device		6.14	
Wire Gauge for balance of circuit		14	
Max Output Current		2.0 amps	
Total Circuit Current		1.303 amps	
Circuit is within limits			
Device	Distance previous device	Voltage at Device	Drop from source
Device 1	0.079	20.32	0.08
Device 2	0.079	20.18	0.22
Device 3	0.066	20.06	0.34
Device 4	0.094	19.91	0.49
Device 5	0.066	19.86	0.54
Device 6	0.066	19.75	0.65
Device 7	0.066	19.74	0.66
Device 8	0.066	19.66	0.74
Device 9	0.066	19.65	0.75
Device 10	0.079	19.44	0.96
Device 11	0.066	19.39	1.01
Device 12	0.066	19.35	1.04
Device 13	0.066	19.30	1.10
Device 14	0.218	19.28	1.12
Device 15	0.066	19.28	1.12
Device 16	0.066	19.28	1.12
Totals	1.303	244	5%

MAC Circuit Voltage Drop Calculation			
Project Name: RUNNING WITH SCISSORS			
Circuit Number: FPS1-4			
Nominal System Voltage		20.4 volts	
Minimum Device Voltage		20.0 volts	
Distance from source to 1st device		6.14	
Wire Gauge for balance of circuit		14	
Max Output Current		2.0 amps	
Total Circuit Current		0.370 amps	
Circuit is within limits			
Device	Distance previous device	Voltage at Device	Drop from source
Device 1	0.158	20.37	0.03
Device 2	0.212	20.30	0.10
Totals	0.370	66	0%

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SCALE	NONE

FA-3

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Fire Alarm Design & Drafting Services
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