

Bay State Bldg - 2nd, 3rd, & 4th Floor Renovation Booster Power Supply Standby Battery Calculations

Strobe Booster Panel 1 (BPS10A)

	G1RF-HDVM Horn/Strobe (20v)				G1RF-VM (20v) Strobe Unit				GCF-VM (20v) Strobe Unit				Quiescent (Amp)	Alarm I (Amp)	Spare Capacity (%)
	15cd	30cd	75cd	95cd	15cd	30cd	75cd	110cd	15cd	30cd	75cd	95cd			
	88	109	193	248	71	98	188	240	74	108	205	244			
Panel													0.0700		
Circuit 1	1		3		6									1.0930	56.28
Circuit 2														0.0000	100
													0.0700	1.0930	83.1846
													Total Quies	Total Alarm	

All currents are expressed as mA.
Max current per ckt = 2.5 Amps. Max current per panel = 10 Amps.

Total Quiescent Amp x Time Required (24 Hours) 1.680 AmpHr
 Total Alarm Amp x Time Required (15 Minutes) 0.273 AmpHr
 Total Battery Required 1.953 AmpHr
 Total Battery Required + 20% **2.344** AmpHr
 Battery Supplied **7.2** AmpHr

NAC Circuit Voltage Drop/Maximum Length Calculations

Formulas Used:

$$R_t = (D) \times (R_w) / 1000'$$

$$V_d = (R_t) \times (I_t)$$

Substitute for (R_t) and solve for D

$$D = ((4.0) \times (1000)) / ((R_w) \times (I_t))$$

R_t= Total Circuit Resistance
 D= Distance Total
 R_w= Wire Resistance (Per 1,000' Pair)
 V_d= Voltage Drop
 I_t= Total Circuit Current

Notes:

- 1 NAC Circuit terminal voltage 24Vdc.
- 2 A maximum allowable voltage drop of 4Vdc will provide a minimum of 20 Vdc per circuit.
- 3 Current values listed per device are based on 20Vdc.

STROBE CIRCUIT MAX WIRE LENGTH CALCULATION

	G4RF-S2VM Speaker/Strobe (20v)				G1RF-VM (20v) Strobe Unit				GCF-VM (20v) Strobe Unit				Total Circuit Current	Ω per 1000' Pair	
	15cd	30cd	75cd	95cd	15cd	30cd	75cd	110cd	15cd	30cd	75cd	95cd		14AWG (5.2Ω)	12AWG (3.9Ω)
	88	109	193	248	71	98	188	240	74	108	205	244			
Circuit 1	1	0	3	0	6	0	0	0	0	0	0	0	1.0930	703.78 Ft	938.37 Ft
Circuit 2	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	#DIV/0! Ft	#DIV/0! Ft