

Maine PERS

Portland, ME

Booster Calculations

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WHEELOCK HORN/STROBE BOOSTER PANEL STANDBY BATTERY CALCULATION

	E50 Speaker/Strobe				STR Strobe Only			Quiescent Supervisory Current	Alarm Current	Remaining % of Ckt Capacity
	15cd	30cd	75cd	110cd	15cd	30cd	75cd			
Candela	41	63	109	140	57	85	135			
Current (ma)										
Panel								0.0800		
Circuit 1			6		3				0.8250	72.50 %
Circuit 2			8		1				0.9290	69.03 %
Circuit 3									0.0000	##### %
Circuit 4									0.0000	##### %
								0.0800	1.7540	
								Total Quiescent	Total Alarm	82.46 % Remaining % Panel

All currents are expressed as 24Vdc mA.

Max current per ckt = 2.0 Amps. Max current per panel = 8.0 Amps.

Total Quiescent Amp x Time Required (60 Hours) 4.800 AmpHr
 Total Alarm Amp x Time Required (15 Minutes) 0.439 AmpHr
 Total Battery Required 5.239 AmpHr
 Total Battery Required + 15% **6.024** AmpHr
 Battery Supplied **7.2** AmpHr

(Based on 24VDC RMS w/ Max Voltage Drop of 3.4VDC)

Field Ckt	E50 Speaker/Strobe				STR Strobe Only			Total Circuit Current	Ω per 1000' Pair		Voltage Drop
	15cd	30cd	75cd	110cd	15cd	30cd	75cd		12AWG (3.5)	14AWG (5.2)	
	41	63	109	140	57	85	135	Amps	Length	Length	
1	0	0	6	0	3	0	0	0.8250	1177	793	3.4VDC
2	0	0	8	0	1	0	0	0.9290	1046	704	3.4VDC
3	0	0	0	0	0	0	0	0.0000	#DIV/0!	#DIV/0!	3.4VDC
4	0	0	0	0	0	0	0	0.0000	#DIV/0!	#DIV/0!	3.4VDC

Formulas used:

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

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

Substitute for (R_t) and solve

$$D = ((3.4) \times (1000)) / ((R_w) \times (I_t))$$

R_t = Total Circuit Resistance
 D = Total Circuit Length (Feet)
 R_w = Wire Resistance per 1000' Pair
 V_D = Circuit Voltage Drop (Max allowed is 3.4Vdc)
 I_t = Total Circuit Current