

Alexander Hall
Portland, Maine

NAC Circuit Voltage Drop/Maximum Length Calculations

Strobe Booster Panel (BPS10A) (Candela Ratings are Indoor per UL 1971 UON)

	G1RF-HDVM				G1RF-VM			Quies (Amp)	Alarm (Amp)	Remaining % Circuit Capacity
	15cd	30cd	75cd	110cd	15cd	30cd	75cd			
	81	94	161	203	59	82	152			
BPS 1								0.0700	0.2700	
1-1		2	2		2		1		0.7800	74.00
1-2		2	4			1			0.9140	69.53
1-3	2	2	3	1	2	1			1.2360	58.80
1-4	5		2		3				0.9040	69.87
								0.0700	4.1040	58.96
								Total Quiescent	Total Alarm	

All currents are expressed as mA.

Max current per ckt = 3 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)	1.026 AmpHr
Total Battery Required (Quiescent + Alarm AmpHr)	2.706 AmpHr
Total Battery Required + 25%	3.383 AmpHr
Battery Supplied	7.2 AmpHr

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
 $D =$ Total Circuit Length (Feet)
 $R_w =$ Wire Resistance (Ω) per 1000' Pair (Ohms)
 $V_D =$ Circuit Voltage Drop (Max allowed is 4.0Vdc)

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 24Vdc.

STROBE CIRCUIT MAX WIRE LENGTH CALCULATION

	G1RF-HDVM				G1RF-VM			Total Circuit Current	Ω per 1000' Pair
	15cd	30cd	75cd	110cd	15cd	30cd	75cd		
	81	94	161	203	59	82	152		14AWG (5.2)
1-1	0	2	2	0	2	0	1	0.7800	986.19 Ft
1-2	0	2	4	0	0	1	0	0.9140	841.61 Ft
1-3	2	2	3	1	2	1	0	1.2360	622.35 Ft
1-4	5	0	2	0	3	0	0	0.9040	850.92 Ft