

Linnell 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			GCFR-HDVM		GCFR-VM	Quies (Amp)	Alarm (Amp)	Remaining % Circuit Capacity
	15cd	30cd	75cd	110cd	15cd	30cd	75cd	15cd	95cd	15cd			
	81	94	161	203	59	82	152	80	212	74			
BPS 1											0.0700	0.2700	
1-1	2				1			1		1		0.3750	87.50
1-2	2				4			2		1		0.6320	78.93
1-3	1				1				2			0.5640	81.20
1-4												0.0000	100.00
											0.0700	1.8410	81.59
											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)	0.460 AmpHr
Total Battery Required (Quiescent + Alarm AmpHr)	2.140 AmpHr
Total Battery Required + 25% Battery Supplied	2.675 AmpHr
	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			GCFR-HDVM		GCFR-VM	Total Circuit Current	Ω per 1000' Pair 14AWG (5.2)
	15cd	30cd	75cd	110cd	15cd	30cd	75cd	15cd	95cd	15cd		
	81	94	161	203	59	82	152	80	212	74		
1-1	2	0	0	0	1	0	0	1	0	1	0.3750	2051.28 Ft
1-2	2	0	0	0	4	0	0	2	0	1	0.6320	1217.14 Ft
1-3	1	0	0	0	1	0	0	0	2	0	0.5640	1363.88 Ft
1-4	0	0	0	0	0	0	0	0	0	0	0.0000	#DIV/0! Ft

