

MARRIOTT COURTYARD FACP 4100es FACP						
Module	Qty	Description	Standby Current	Total Standby	Alarm Current	Total Alarm
Panel Equipment						
4100-9111	1	4100 CONFIG DOMESTIC 120V	0.3730	0.3730	0.4700	0.4700
4100-5101	1	EXPANSION PWR SUPPLY (XPS) - 120VAC 60HZ	0.0500	0.0500	0.0500	0.0500
4100-5115	1	EXPANSION NAC MODULE - 3 NACS	0.0250	0.0250	0.0250	0.0250
4100-6031	1	CITY MODULE W/DISCONNECT	0.0200	0.0200	0.0360	0.0360
4100-6038	1	DUAL RS-232 IF CARD	0.1320	0.1320	0.1320	0.1320
4100-6052	1	EVENT REPORTING DACT	0.0300	0.0300	0.0400	0.0400
4100-3104	1	IDNET MODULE, UP TO 127 POINTS	0.0750	0.0750	0.1150	0.1150
4100-3206	1	8 RELAYS - 3 AMP	0.0150	0.0150	0.1900	0.1900
4100-0632	1	UTILITY BLOC, 16 TERMINALS	0.0000	0.0000	0.0000	0.0000
4100-2153	1	INDICATOR ONLY, 3 BAY GLASS DOOR	0.0000	0.0000	0.0000	0.0000
4100-1279	8	2" BLANK DISPLAY MODULE	0.0000	0.0000	0.0000	0.0000
4100-0634	1	POWER DISTRIBUTION MODULE 120V	0.0000	0.0000	0.0000	0.0000
4100-2300	1	EXPANSION BAY (PHASE 10 ONLY)	0.0000	0.0000	0.0000	0.0000
4100-2302	1	8 SLOT EXP BAY FILLER PANEL	0.0000	0.0000	0.0000	0.0000
Panel Totals			0.7200	0.7200	1.0580	1.0580

IDNet Addressable Devices (SLC)						
4099-9003	22	IDNET DOUBLE ACTION PULL STATION	0.0000	0.0000	0.0000	0.0000
4090-9001	56	IDNET SUPERVISED IAM	0.0000	0.0000	0.0000	0.0000
4090-9002	16	IDNET RELAY IAM	0.0000	0.0000	0.0000	0.0000
4098-9714	206	TRUEALARM PHOTO SMOKE SENSOR	0.0000	0.0000	0.0000	0.0000
4098-9733	4	TRUEALARM HEAT SENSOR	0.0000	0.0000	0.0000	0.0000
4098-9756	19	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT	0.0000	0.0000	0.0000	0.0000
4009-9201	5	4009 IDNET NAC EXTENDER, 120 VAC	0.0000	0.0000	0.0000	0.0000
4098-9792	58	TRUEALARM SENSOR BASE	0.0000	0.0000	0.0000	0.0000
4098-9794	135	TRUEALARM SENSOR SOUNDER BASE	0.0000	0.0000	0.0000	0.0000
4098-9798	17	SSD SOUNDER BASE W/ CO MODULE	0.0000	0.0000	0.0000	0.0000

Miscellaneous Peripheral Devices That May Require System Power						
4098-9843	19	ENCAPSULATED RELAY PAM-SD	0.0000	0.0000	0.0150	0.2850
4098-9756	19	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT	0.0030	0.0570	0.0150	0.2850
4098-9794	135	TRUEALARM SENSOR SOUNDER BASE	0.0000	0.0000	0.0200	2.7000
4098-9798	17	SSD SOUNDER BASE W/ CO MODULE	0.0000	0.0000	0.0170	0.2890
DH24120FPC	5	DOOR HOLDER,SEM-FLUSH,CHROME	0.0200	0.1000	0.0000	0.0000

Notification Appliances						
4098-9798	6	SSD SOUNDER BASE W/ CO MODULE	0.0000	0.0000	0.0170	0.1020
4905-9835	1	TEMPORAL CODE 4 MODULE	0.0002	0.0002	0.0150	0.0150
4906-9101	3	V/O MC NON-ADDRESS, RED, WALL	110	0.0000	0.0000	0.2520
4906-9101	3	V/O MC NON-ADDRESS, RED, WALL	15	0.0000	0.0000	0.0600
4906-9101	3	WP V/O MC NON-ADDRESS, RED, WALL	30	0.0000	0.0000	0.0940
4906-9105	1	WP V/O MC NON-ADDRESS, RED, WALL	15	0.0000	0.0000	0.0770
4906-9127	3	A/V MC NON-ADDRESS, RED, WALL	110	0.0000	0.0000	0.2850
4906-9127	3	A/V MC NON-ADDRESS, RED, WALL	15	0.0000	0.0000	0.0750
4906-9127	3	A/V MC NON-ADDRESS, RED, WALL	30	0.0000	0.0000	0.1160
4906-9127	16	A/V MC NON-ADDRESS, RED, WALL	75	0.0000	0.0000	0.2210
4906-9131	1	WP MC A/V NON-ADDR WALL MT RED	75	0.0000	0.0000	0.2490
Peripheral Totals			0.1572	0.1572	10.6040	10.6040
RUI Totals			0.0000	0.0000	0.0000	0.0000
Address Totals			328	0.2619	0.3265	0.3265
Total Standby			1.1391	1.1391	11.9885	11.9885

* Current draw included under "Device Addresses Used" (See "Additional Current Draws")
 1. 2-wire detector alarm current is included in the alarm current of the Initiating Device Circuit.
 2. Backup Amplifier assumes Main Amplifier alarm current on failure.

Battery Set #1 (Cabinet/Charger #1)						
Select ALL Power Supplies on this battery set:						
SPS-1			0.6700			6.2060
XPS-2			0.2072			5.4560
Sub Total			0.8772			11.6620
Additional Current Draws:						
RUI Connected Peripheral Devices	0	x 0.0035	= 0.0000	x 0.0035	=	0.0000
MAPNET/IDNet Device Addresses ordered / used	328	x 0.000798	= 0.2619	x 0.000995	=	0.3265
Sub Total			1.1391			11.9885
Spare addressable point capacity 0% 0 x 0.000798 = 0.0000 x 0.000995 = 0.0000						
Total			1.1391			11.9885
Standby Time = 24 Hrs x 1.1391 = 27.3379 Standby Ah						
Alarm Time = 5 Min 0.08333 x 11.9885 = 0.9990 Alarm Ah						
Additional Spare Capacity = 0% + 0.0000						
Battery Discharge Factor = 20% + 5.6674						
Minimum Battery Required 2081-9296 50AH (2x) 34.0044						
Battery Supplied 2081-9296 50AH (2x)						

MARRIOTT COURTYARD FACP 4100es FACP VOLTAGE DROPS													
WIRE RESISTANCE BASED ON TABLE 8 FROM NATIONAL ELECTRICAL CODE (UNCOATED SOLID COPPER WIRE) @ 75 Celsius													
Notification Circuit Description	Power Supply	Plan Ckt	Dist. (ft)	Wire Gauge / Ft. (ft)	Wire Res. / Ft. (ft)	Total Alarm (A)	V. Drop @ End (V)	Volt Drop / Alarm (V)	% Volt Drop	Min Device Voltage	Max Distance	PID Candelula Device Type	Supv. Current Alarm
1ST FL POOL/RETAIL SPACE/ELEV LOBBY	SPS-1	V1	438	14ga	0.0031	1.274	3.426	16.074	17.57%	16vdc	447 Ft.		
1ST FL MAIN LOBBY/CAFE/RETAIL SPACE	SPS-1	V2	326	14ga	0.0031	1.506	3.014	16.486	15.46%	16vdc	379 Ft.		
1ST FL RETAIL SPACE	SPS-1	V3	359	14ga	0.0031	0.791	1.744	17.756	8.94%	16vdc	721 Ft.		
2ND FL BOARD RM/LAUNDRY RM/MEETING RM	XPS-2	V4	347	14ga	0.0031	1.342	2.859	16.641	14.66%	16vdc	425 Ft.		
2ND FL ELEV LOBBY/CORRIDOR	XPS-2	V5	385	14ga	0.0031	1.079	2.551	16.949	13.08%	16vdc	528 Ft.		
2ND FL ADA GUEST RM 216	XPS-2	V6	203	14ga	0.0031	0.312	0.363	19.117	1.96%	16vdc	1827 Ft.		
2ND FL ADA GUEST RM 225	XPS-2	V7	149	14ga	0.0031	0.312	0.285	19.215	1.46%	16vdc	1827 Ft.		
2ND FL ADA GUEST RM 231	XPS-2	V8	106	14ga	0.0031	0.312	0.203	19.297	1.04%	16vdc	1827 Ft.		
SOUNDER/CO BASES	XPS-2	V9	488	14ga	0.0031	0.117	0.351	19.149	1.80%	18vdc	2088 Ft.		

NOTE:
 LUMP SUM METHOD WAS USED TO CALCULATE ALLOWABLE VOLTAGE DROP. THIS METHOD ALLOWS FOR A SMALL MARGIN OF SAFETY, TAKING INTO CONSIDERATION THAT THE ACTUAL INSTALLED CIRCUIT ROUTING MAY DIFFER FROM WHAT IS SHOWN ON THE SHOP DRAWINGS. IF THE ACTUAL CIRCUIT LENGTH IS GOING TO EXCEED THE MAXIMUM ALLOWABLE CIRCUIT LENGTH, CONTACT YOUR LOCAL SIMPLEXGRINNELL DISTRICT OFFICE.

MARRIOTT COURTYARD - NAC1 4009 NAC						
Module	Qty	Description	Standby Current	Total Standby	Alarm Current	Total Alarm
Panel Equipment						
4009-9201	1	4009 IDNET NAC EXTENDER, 120 VAC	0.0850	0.0850	0.1850	0.1850
4009-9807	1	NAC CARD, 4PT, IDNET	0.0400	0.0400	0.0400	0.0400
Panel Totals			0.1250	0.1250	0.2250	0.2250
Notification Appliances						
4098-9794	73	TRUEALARM SENSOR SOUNDER BASE	0.0000	0.0000	0.0200	1.4600
4906-9101	6	V/O MC NON-ADDRESS, RED, WALL	110	0.0000	0.0000	0.2520
4906-9101	6	V/O MC NON-ADDRESS, RED, WALL	15	0.0000	0.0000	0.0600
4906-9127	13	A/V MC NON-ADDRESS, RED, WALL	15	0.0000	0.0000	0.0750
4906-9127	4	A/V MC NON-ADDRESS, RED, WALL	75	0.0000	0.0000	0.2210
Peripheral Totals			0.0000	0.0000	0.0000	5.1910
Total Standby			0.1250	0.1250	0.2250	5.4160

* Current draw included under "Device Addresses Used" (See "Additional Current Draws")
 1. 2-wire detector alarm current is included in the alarm current of the Initiating Device Circuit.
 2. Backup Amplifier assumes Main Amplifier alarm current on failure.

Battery Set #1 (Cabinet/Charger #1)						
Select ALL Power Supplies on this battery set:						
4009			0.1250			5.4160
Sub Total			0.1250			5.4160
Additional Current Draws:						
Spare addressable point capacity 0% 0 x 0 = 0.0000 x 0 = 0.0000						
Total			0.1250			5.4160
Standby Time = 24 Hrs x 0.1250 = 3.0000 Standby Ah						
Alarm Time = 5 Min 0.08333 x 5.416 = 0.4513 Alarm Ah						
Additional Spare Capacity = 0% + 0.0000						
Battery Discharge Factor = 20% + 3.4513						
Minimum Battery Required 2081-9272 6.2AH (2x) 4.1416						
Battery Supplied 2081-9272 6.2AH (2x)						

MARRIOTT COURTYARD - NAC1 4009 NAC VOLTAGE DROPS														
WIRE RESISTANCE BASED ON TABLE 8 FROM NATIONAL ELECTRICAL CODE (UNCOATED SOLID COPPER WIRE) @ 75 Celsius														
Notification Circuit Description	Power Supply	Panel Ckt	Plan	Dist. (ft)	Wire Gauge / Ft. (ft)	Wire Res. / Ft. (ft)	Total Alarm (A)	V. Drop @ End (V)	Volt Drop / Alarm (V)	% Volt Drop	Min Device Voltage	Max Distance	PID Candelula Device Type	Supv. Current Alarm
3RD FL CORRIDOR/ELEV LOBBY	4009	SIG1	NAC1V1	523	14ga	0.0031	0.671	2.163	17.337	11.09%	16vdc	850 Ft.		
3RD FL ADA RM/MAINTENANCE RM	4009	SIG2	NAC1V2	111	14ga	0.0031	1.378	0.939	18.561	4.82%	16vdc	414 Ft.		
3RD FL SOUNDER BASES	4009	SIG3	NAC1V3	351	14ga	0.0031	0.400	0.862	18.638	4.42%	18vdc	611 Ft.		
3RD FL CORRIDOR/GUEST ROOMS	4009	SIG4	NAC1V4	374	14ga	0.0031	0.320	0.735	18.765	3.77%	18vdc	763 Ft.		
4TH FL CORRIDOR/GUEST ROOMS	4009	SIG5	NAC1V5	279	14ga	0.0031	1.070	1.833	17.667	9.40%	16vdc	533 Ft.		
4TH FL CORRIDOR/GUEST ROOMS	4009	SIG6	NAC1V6	261	14ga	0.0031	0.612	0.981	18.519	5.03%	16vdc	931 Ft.		
4TH FL SOUNDER BASES	4009	SIG7	NAC1V7	391	14ga	0.0031	0.420	1.008	18.492	5.17%	18vdc	582 Ft.		
4TH FL SOUNDER BASES	4009	SIG8	NAC1V8	374	14ga	0.0031	0.320	0.735	18.765	3.77%	18vdc	763 Ft.		

NOTE:
 LUMP SUM METHOD WAS USED TO CALCULATE ALLOWABLE VOLTAGE DROP. THIS METHOD ALLOWS FOR A SMALL MARGIN OF SAFETY, TAKING INTO CONSIDERATION THAT THE ACTUAL INSTALLED CIRCUIT ROUTING MAY DIFFER FROM WHAT IS SHOWN ON THE SHOP DRAWINGS. IF THE ACTUAL CIRCUIT LENGTH IS GOING TO EXCEED THE MAXIMUM ALLOWABLE CIRCUIT LENGTH, CONTACT YOUR LOCAL SIMPLEXGRINNELL DISTRICT OFFICE.

NO.	DATE	REVISION DESCRIPTION
1	11/08/13	PER SUBMITAL REVIEW DATED 10/31/13

DRAWN BY: STEPHENS	DATE: 8/27/13
CHECKED BY: KALAFARSKI	DATE: 9/4/13
PROJECT NUMBER: 972833401	
SHEET TITLE: FIRE ALARM SYSTEM CHARTS AND CALCULATIONS	
SHEET NUMBER: FA-602	