

IO-1000RD BATTERY CALCULATIONS WORKSHEET

IO-1000R PANEL		STANDBY (A)	ALARM (A)
MAIN BOARD		0.172	0.267
DEVICE CURRENT DRAW		0.001752	0.002652
NAC 1		0	0.781
NAC 2		0	1.704
NAC 3		0	0.974
NAC 4		0	0.974
AUX POWER		0	0
IO-SDC2	0	0	0
SA-DACT	0	0	0
RLCD-CR	0	0	0

DEVICES	QTY	STANDBY (A)	ALARM (A)
SIGA-PD	1	0.000032	0.000032
SIGA-HRD	0	0	0
SIGA-PHD	0	0	0
SIGA-CR	2	0.00017	0.00017
SIGA-CRH	0	0	0
SIGA-CT1	1	0.0003	0.00045
SIGA-CT2	0	0	0
SIGA-SD	0	0	0
SIGA-IM	0	0	0
SIGA-278	5	0.00125	0.002
<b>TOTAL</b>	<b>9</b>	<b>0.001752</b>	<b>0.002652</b>

TOTAL CURRENT	0.173752	4.702652
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STANDBY TIME	24	4.170048
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ALARM TIME	5	0.3918877
AH REQUIRED (NO RESERVE)		4.5619357
BATTERY RESERVE	125%	

AH REQUIRED (WITH RESERVE)	5.7024196
BATTERIES TO BE INSTALLED	7

**NAC Circuit Voltage Drop Calculation**

Project Name	<b>DL GEARY BREWERY</b>		
Date	<b>4/20/2017</b>		
Circuit Number	<b>Nac#1</b>		
Area Covered	<b>OFFICE AREA</b>		
NAC Source Alarm Voltage	19.1	Wire Gauge	Resistance Per Kft Cable
Minimum Device Voltage	16	14	3.14
Distance to first appliance	20		
Total Circuit Current	0.781		

Wire Gauge for balance of circuit	14	3.14
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	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance 1	0.230		19.05	0.05	0.3%
Appliance 2	0.125	40	18.98	0.12	0.6%
Appliance 3	0.125	40	18.93	0.17	0.9%
Appliance 4	0.125	25	18.90	0.20	1.0%
Appliance 5	0.176	35	18.89	0.21	1.1%
END			18.89	0.21	1.1%
END			18.89	0.21	1.1%
END			18.89	0.21	1.1%
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END			18.89	0.21	1.1%
END			18.89	0.21	1.1%
END			18.89	0.21	1.1%
Totals	0.781	160			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 2014 NEC Table 8 Uncoated DC resistance. All resistance is based on solid conductors

**NAC Circuit Voltage Drop Calculation**

Project Name	<b>DL GEARY BREWERY</b>		
Date	<b>4/20/2017</b>		
Circuit Number	<b>NAC #2</b>		
Area Covered	<b>BOTTLING AREA</b>		
NAC Source Alarm Voltage	19.1	Wire Gauge	Resistance
Minimum Device Voltage	16	14	Per Kft Cable
Distance to first appliance	70		3.14
Total Circuit Current	1.704		

Wire Gauge for balance of circuit	14	3.14
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	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance 1	0.487		18.73	0.37	2.0%
Appliance 2	0.487	55	18.52	0.58	3.1%
Appliance 3	0.730	70	18.35	0.75	3.9%
END			18.35	0.75	3.9%
END			18.35	0.75	3.9%
END			18.35	0.75	3.9%
END			18.35	0.75	3.9%
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END			18.35	0.75	3.9%
END			18.35	0.75	3.9%
END			18.35	0.75	3.9%
END			18.35	0.75	3.9%
Totals	1.704	195			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 2014 NEC Table 8 Uncoated DC resistance. All resistance is based on solid conductors

**NAC Circuit Voltage Drop Calculation**

Project Name	<b>DL GEARY BREWERY</b>		
Date	<b>4/20/2017</b>		
Circuit Number	<b>Nac#3</b>		
Area Covered	<b>BREWING/WAREHOUSE</b>		
NAC Source Alarm Voltage	19.1	Wire Gauge	Resistance
Minimum Device Voltage	16	14	Per Kft Cable
Distance to first appliance	50		3.14
Total Circuit Current	0.974		

Wire Gauge for balance of circuit	14	3.14
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	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance 1	0.487		18.95	0.15	0.8%
Appliance 2	0.487	45	18.88	0.22	1.2%
END			18.88	0.22	1.2%
END			18.88	0.22	1.2%
END			18.88	0.22	1.2%
END			18.88	0.22	1.2%
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END			18.88	0.22	1.2%
END			18.88	0.22	1.2%
END			18.88	0.22	1.2%
END			18.88	0.22	1.2%
Totals	0.974	95			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 2014 NEC Table 8 Uncoated DC resistance. All resistance is based on solid conductors

**NAC Circuit Voltage Drop Calculation**

Project Name	<b>DL GEARY BREWERY</b>		
Date	<b>4/20/2017</b>		
Circuit Number	<b>Nac#4</b>		
Area Covered	<b>BREWING AREA</b>		
NAC Source Alarm Voltage	19.1	Wire Gauge	Resistance Per Kft Cable
Minimum Device Voltage	16	14	3.14
Distance to first appliance	70		
Total Circuit Current	0.974		

Wire Gauge for balance of circuit	14	3.14
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	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance 1	0.487		18.89	0.21	1.1%
Appliance 2	0.487	50	18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
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END			18.81	0.29	1.5%
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END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
END			18.81	0.29	1.5%
Totals	0.974	120			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 2014 NEC Table 8 Uncoated DC resistance. All resistance is based on solid conductors