


Technical Specifications	
Nano Wave	
SINGLE PHASE (27 TO 200W) UL924 LITHIUM-ION REMOTE EMERGENCY DIMMING INVERTERS	

1. GENERAL

1.1 SCOPE

This guide provides technical information and specifications for OnLine Power's Nano Wave Remote Emergency Inverters (REI). This document will provide information for the following inverter: 27REI, 36REI and 200REI models.

The UL924 Listed REI Series remote emergency lighting inverters operate LED and fluorescent fixtures with Pure Sinusoidal Power during loss of normal AC power. The REI Series 27REI (27W), 36REI (36W), 200REI (200W) inverters support emergency lighting for 90 minutes in accordance with Life Safety Code requirements.

Note: This Guide Specification is subject to change without notice due to product improvement and/or enhancement.

Please use this document as a guide specification and do not hesitate to contact our Application Engineering Department if you have any further questions or special requirements.

You can contact us at: (800) 227-8899 or via email: sales@onlinepower.com.

27REI Technical Guide Specifications

2. DESCRIPTION

The Online Power Emergency Lighting 27REI is a compact, versatile Auto-Test Sine Wave output inverter designed for designated emergency lighting fixtures and includes Emergency Dimming. In the event of a power failure, the inverter will automatically supply up to 27 watts of emergency power to LED or fluorescent luminaires for a minimum of 90 minutes. It can operate with a single or multiple switched, dimmed, non-switched and emergency only luminaires. It can operate as a stand alone 27 watt mini inverter or used with 0-10Vdc controlled dimmable luminaires up to 110 W (or 80W**) and apply approximately 2 Vdc (or 3Vdc**) to the emergency luminaire dimming driver in the emergency operation to achieve 20% (or 30%**) of the luminaire power for emergency fixture(s). It can be used with single and multiple channel LED drivers and Type A, B or C LED lamps. The emergency output will be up to 27 W at temperatures of (0-55C), 20W for 2 hours (0-55C).

3. OPERATION

When AC power is applied, the LED test switch is illuminated, indicating that the batteries are being charged. When AC power fails, the 27REI automatically switches to emergency power, operating the lighting load at approximately 20% (Reprogrammed to 30%) of rated luminaire power (max. 110W (dimmable @ 2 Vdc) or 80W (dimmable @ 3 Vdc) using Emergency Dimming. The 27REI can also be used as a standalone 27W inverter when used with lighting loads less than or equal to 27 watts. During power failure, the LED test switch indicator will be off. When power is restored, the 27REI switches back to normal mode of operation and resumes battery charging. The minimum emergency operating time is 90 minutes. The charging time for a full discharge is 24 hours.

4. TESTING AND MAINTENANCE

The following Periodic testing is recommended to ensure the system is working correctly.

1. Visually inspect the LED test switch (LTS) monthly. It should be illuminated when AC power is applied.
2. Conduct a 30-second discharge test by switching off the emergency breaker every month. The LTS will be off.
3. Conduct a 90-minute discharge test once per year. The LTS will be off during the test.

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4.1 AUTO TEST

1. Initial Auto Test: When the system is connected properly and powered on, the 27REI will perform an initial Auto Test. If any abnormal conditions exist, the LTS will flash rapidly*. Once the abnormal condition is corrected, the LTS will function correctly.

2. Monthly Auto Test: The 27REI will conduct the first Monthly Auto Test after 24 hours and up to 7 days after initial power on. Then monthly tests will be performed every 30 days, and will test transfer function from normal to emergency, emergency function, charging and discharging conditions. Monthly test time is approximately 30 seconds.

3. Annual Auto Test: It will occur every 52 weeks after the initial 24 hours full charge, and will test proper initial battery voltage, 90-minute emergency operation, and acceptable battery voltage at the end of the full 90-minute test.

*If the Auto Test is interrupted by a power failure, a full 90-minute Auto Test will occur again 24 hours after the power is restored. If the power failure causes the battery to fully discharge, the product will restart the Initial Auto Test, Monthly and Annual Auto Test.

4.2 MANUAL TEST

1. Press the LTS 2 times continuously within 5 seconds to force a 30-second monthly test. After the test is completed, the next (30-day) monthly test will count from this date.

2. Press the LTS 3 times continuously within 5 seconds to force a 90-minute annual test. After the test is completed, the next (52-week) annual test will count from this date.

3. During any manual test, press and hold the LTS for greater than 3 seconds to terminate a manual test. The Preprogrammed Scheduled Auto Test time will not change.

4.3 LED TEST SWITCH (LTS) CONDITIONS

LTS Conditions	Default 2 VDC	Selectable 3 VDC
Slow Blinking	-	Normal Charging
On	-	Battery Fully Charged
Long ON, Short OFF, Long ON	Normal Charging and Battery Fully Charged	-
Off	Power Failure	
Gradual Change	Testing Mode	
Quick Blinking	Abnormal Condition - Corrective Action Required	

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5. EMERGENCY DIMMING

The 27REI utilizes Emergency Dimming which allows single or multiple 0-10 Vdc controlled luminaires (up to 110W combined normal luminaire power) to automatically adjust and share up to 27W of emergency AC power. During normal operation, the emergency inverter will pass through normal dimming voltage (0-10 Vdc) on the dim output leads, but then supply a default 2 VDC (or selectable **3VDC) during emergency operation to achieve approximately 20% (or selectable **30%) of rated luminaire power during a power failure.

**** Reduced output mode 3 VDC (~30%) can be selected and easily programmed via the LED test switch (LTS) by pressing the illuminated button for 5 seconds, releasing, then repeating the 5-second button push (i.e. two 5-second extended button pushes within a 13 second timespan). LTS flash conditions confirming 3 VDC mode: Slow Blinking or ON. (Return to the default 2 VDC mode by repeating the extended button press sequence above).**

Example (default 2 VDC setting): Two 50W x 20% dim=10W * 2 luminaires = 20W, Example (3 Vdc setting): Two 40W LED luminaires (80W) will share 12W each. 40W x 30% = 12W, *2 luminaires = 24W total for the 27REI.

See 27REI application details at www.onlinepower.com or contact tech support at: 800-797-7782

When non-dimmable loads are used, the normal and emergency output will be 27W (max.) at temperatures of (0-50°C).

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6. SPECIFICATION

Approvals	UL Listed to UL924
Input Voltage	(Universal Input 120 - 277 Vac, 50 or 60Hz)
Input Current	0.250 A (max.)
Output	120 - 277 Vac, 50 or 60Hz Auto setting output voltage equal to input voltage.
Output Power and Temperature	Max. 27W-Ta 0-55°C (32 to 131°F)
	FEMA 2 Hour run time Max. 20W-Ta 0-55°C (50 to 131°F)
Operating Time	90 Minute minimum can be Prorated to 2 hours.
Auto Test	Monthly and Annual
Transfer Time	1 second to Emergency Dimming
Emergency Dimming Mode	Allows for up to 27W emergency of max. 110W of normal luminaire power (field programmable to 30%) for max. 80W
Recharge Time	24 Hours
Remote Monitoring Distance	1,000 ft (max. w/ 18ga wire)
Battery	Lithium Ion
Dimensions	13.54" L x 3.23" W x 1.18" D
Weight	3.0 Lbs
Warranty	5 years full. See website for warranty details.

27REI - 110W @ 2 VDC (20%) PST W/ EMERGENCY DIMMING

NOTE: 27REI IS PROGRAMMED AT 20% BUT CAN BE REPROGRAMMED BY END USER TO 30%

Luminaire wattage	14	15	16	17	18	19	20	21	22	23
Emergency Dim to 20% (W)	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6
# of Emergency Luminaires	7	7	6	6	6	5	5	5	5	4
Actual wattage from 27-REI used	19.6	21	19.2	20.4	21.6	19	20	21	22	18.4
Lumens per fixture 140 l/w	392	420	448	476	504	532	560	588	616	644
Lumens per EM fixture **	333	357	381	405	428	452	476	500	524	547
Total System Lumens provided	2332	2499	2285	2428	2570	2261	2380	2499	2618	2190
Total fixture wattage (Max. 110 W)	98	105	96	102	108	95	100	105	110	92

Luminaire wattage	24	25	26	27	28	29	30	31	32	33
Emergency Dim to 20% (W)	4.8	5	5.2	5.4	5.6	5.8	6	6.2	6.4	6.6
# of Emergency Luminaires	4	4	4	4	3	3	3	3	3	3
Actual wattage from 27-REI used	19.2	20	20.8	21.6	16.8	17.4	18	18.6	19.2	19.8
Lumens per fixture 140 l/w	672	700	728	756	784	812	840	868	896	924
Lumens per EM fixture **	571	595	619	643	666	690	714	738	762	785
Total System Lumens provided	2285	2380	2475	2570	1999	2071	2142	2213	2285	2356
Total fixture wattage (Max. 110 W)	96	100	104	108	84	87	90	93	96	99

Luminaire wattage	34	35	36	37	38	39	40	41	42	43
Emergency Dim to 20% (W)	6.8	7	7.2	7.4	7.6	7.8	8	8.2	8.4	8.6
# of Emergency Luminaires	3	3	3	3	2	2	2	2	2	2
Actual wattage from 27-REI used	20.4	21	21.6	22.2	15.2	15.6	16	16.4	16.8	17.2
Lumens per fixture 140 l/w	952	980	1008	1036	1064	1092	1120	1148	1176	1204
Lumens per EM fixture **	809	833	857	881	904	928	952	976	1000	1023
Total System Lumens provided	2428	2499	2570	2642	1809	1856	1904	1952	1999	2047
Total fixture wattage (Max. 110 W)	102	105	108	111	76	78	80	82	84	86

Luminaire wattage	44	45	46	47	48	49	50	51	52	53
Emergency Dim to 20% (W)	8.8	9	9.2	9.4	9.6	9.8	10	10.2	10.4	10.6
# of Emergency Luminaires	2	2	2	2	2	2	2	2	2	2
Actual wattage from 27-REI used	17.6	18	18.4	18.8	19.2	19.6	20	20.4	20.8	21.2
Lumens per fixture 140 l/w	1232	1260	1288	1316	1344	1372	1400	1428	1456	1484
Lumens per EM fixture **	1047	1071	1095	1119	1142	1166	1190	1214	1238	1261
Total System Lumens provided	2094	2142	2190	2237	2285	2332	2380	2428	2475	2523
Total fixture wattage (Max. 110 W)	88	90	92	94	96	98	100	102	104	106

Luminaire wattage	54	55	56	58	60	62-100			up to 27	
Emergency Dim to 20% (W)	10.8	11	11.2	11.6	12	15-25			up to 27	
# of Emergency Luminaires	2	2	1	1	1	1			1	
Actual wattage from 27-REI used	21.6	22	11.2	11.6	12				1	
lumens per fixture 140 l/w	1512	1540	1568	1624	1680				140	
Lumens per EM fixture **	1285	1309	1333	1380	1428					
Total System Lumens provided	2570	2618	1333	1380	1428					
Total fixture wattage (Max. 110 W)	108	110	56	58	58	60				

The 27REI can be re-programmed to enable 3.0 Vdc in emergency from the Violet/Blk and Pink/Blk leads when using the Emergency Dimming feature. See instructions.

All calculations based on 10-55C

1. Define the wattage of the normal/emergency luminaire.
2. Determine from the chart how many emergency luminaires can be used with the 27REI for 90 minutes
3. Use a lighting calculation program to determine spacing of emergency luminaires to meet life safety and local code requirements for egress.
4. Ensure that the total normal/(emergency) luminaire(s) or connected loads do not exceed 110 W.
5. LED Luminaires must incorporate linear 0-10Vdc dimming drivers and be wired with the 27REI when using the Emergency Dimming functions. Not compatible with logarithmic dimming drivers.
6. **All Selection Chart Calculations are based on 85% driver efficiency and 140Lm/W efficacy.

27REI - 80W @ 3 VDC (30%) PST W/ EMERGENCY DIMMING

NOTE: 27REI IS PROGRAMMED AT 20% BUT CAN BE REPROGRAMMED BY END USER TO 30%

Luminaire wattage	14	15	16	17	18	19	20	21	22	23
Emergency Dim to 30% (W)	4.2	4.5	4.8	5.1	5.4	5.7	6	6.3	6.6	6.9
# of Emergency Luminaires	5.0	5.0	5.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0
Actual wattage from 27-REI used	21	22.5	24	20.4	21.6	22.8	24	18.9	19.8	20.7
Lumens per fixture 140 l/w	588	630	672	714	756	798	840	882	924	966
Lumens per EM fixture **	500	536	571	607	643	678	714	750	785	821
Total System Lumens provided	2499	2678	2856	2428	2570	2713	2856	2249	2356	2463
Total fixture wattage (Max. 110 W)	70	75	80	68	72	76	80	63	66	69

Luminaire wattage	24	25	26	27	28	29	30	31	32	33
Emergency Dim to 30% (W)	7.2	7.5	7.8	8.1	8.4	8.7	9	9.3	9.6	9.9
# of Emergency Luminaires	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Actual wattage from 27-REI used	21.6	22.5	23.4	16.2	16.8	17.4	18	18.6	19.2	19.8
Lumens per fixture 140 l/w	1008	1050	1092	1134	1176	1218	1260	1302	1344	1386
Lumens per EM fixture **	857	893	928	964	1000	1035	1071	1107	1142	1178
Total System Lumens provided	2570	2678	2785	1928	1999	2071	2142	2213	2285	2356
Total fixture wattage (Max. 110 W)	72	75	78	54	56	58	60	62	64	66

Luminaire wattage	34	35	36	37	38	39	40	41	42	43
Emergency Dim to 30% (W)	10.2	10.5	10.8	11.1	11.4	11.7	12	12.3	12.6	12.9
# of Emergency Luminaires	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0
Actual wattage from 27-REI used	20.4	21	21.6	22.2	22.8	23.4	24	12.3	12.6	12.9
Lumens per fixture 140 l/w	1428	1470	1512	1554	1596	1638	1680	1722	1764	1806
Lumens per EM fixture **	1214	1250	1285	1321	1357	1392	1428	1464	1499	1535
Total System Lumens provided	2428	2499	2570	2642	2713	2785	2856	1464	1499	1535
Total fixture wattage (Max. 110 W)	68	70	72	74	76	78	80	41	42	43

Luminaire wattage	44	45	46	47	48	49	50	51	52	53
Emergency Dim to 30% (W)	13.2	13.5	13.8	14.1	14.4	14.7	15	15.3	15.6	15.9
# of Emergency Luminaires	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Actual wattage from 27-REI used	13.2	13.5	13.8	14.1	14.4	14.7	15	15.3	15.6	15.9
Lumens per fixture 140 l/w	1848	1890	1932	1974	2016	2058	2100	2142	2184	2226
Lumens per EM fixture **	1571	1607	1642	1678	1714	1749	1785	1821	1856	1892
Total System Lumens provided	1571	1607	1642	1678	1714	1749	1785	1821	1856	1892
Total fixture wattage (Max. 110 W)	44	45	46	47	48	49	50	51	52	53

Luminaire wattage	54	55	56	58	60	62-80			up to 27	
Emergency Dim to 30% (W)	16.2	16.5	16.8	17.4	18	18-27		NON-DIM APP	up to 27	
# of Emergency Luminaires	1.0	1.0	1.0	1.0	1.0	1			1	
Actual wattage from 27-REI used	16.2	16.5	16.8	17.4	18					
Lumens per fixture 140 l/w	2268	2310	2352	2436	2520					
Lumens per EM fixture **	1928	1964	1999	2071	2142					
Total System Lumens provided	1928	1964	1999	2071	2142					
Total fixture wattage (Max. 110 W)	54	55	56	58	60					

36REI Technical Guide Specifications

2. DESCRIPTION

The Online Power Emergency Lighting 36REI is a compact, versatile Auto- Test Sine Wave output inverter designed for designated emergency lighting fixtures and includes Emergency Dimming. In the event of a power failure, the inverter will automatically supply up to 36 watts of emergency power to LED or fluorescent luminaires for a minimum of 90 minutes. It can operate with a single or multiple switched, dimmed, non-switched and emergency only luminaires. It can operate as a stand alone 36 watt mini inverter or used with 0-10Vdc controlled dimmable luminaires up to 120W (or 180W**) and apply 3 Vdc (or 2Vdc**) to the emergency luminaire dimming driver in the emergency operation to achieve 30% (or 20%**) of the luminaire power for emergency fixture(s). It can be used with single and multiple channel LED drivers and Type A, B or C LED lamps. The emergency output will be 36 W at temperatures of (10-55C), 27 W for (0-55C), 27W for 2 hours (10-55C) and 20W for 2 hours for (0-55C).

3. OPERATION

When AC power is applied, the LED test switch is illuminated, indicating that the batteries are being charged. When AC power fails, the 36REI automatically switches to emergency power, operating the lighting load at approximately 30% (Reprogrammed to 20%) of rated luminaire power (max. 120W (dimmable @ 3 Vdc) or 180W (dimmable @ 2 Vdc) using Emergency Dimming. The 36REI can also be used as a stand alone 36W inverter when used with lighting loads less than or equal to 36 watts. During power failure, the LED test switch indicator will be off. When power is restored, the 36REI switches back to normal mode of operation and resumes battery charging. The minimum emergency operating time is 90 minutes. The charging time for a full discharge is 24 hours.

4. TESTING AND MAINTENANCE

The following Periodic testing is recommended to ensure the system is working correctly.

1. Visually inspect the LED test switch (LTS) monthly. It should be illuminated when AC power is applied.
2. Conduct a 30-second discharge test by switching off the emergency breaker every month. The LTS will be off.
3. Conduct a 90-minute discharge test once per year. The LTS will be off during the test.

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4.1 AUTO TEST

1. Initial Auto Test: When the system is connected properly and powered on, the 36REI will perform an initial Auto Test. If any abnormal conditions exist, the LTS will flash rapidly*. Once the abnormal condition is corrected, the LTS will function correctly.

2. Monthly Auto Test: The 36REI will conduct the first Monthly Auto Test after 24 hours and up to 7 days after initial power on. Then monthly tests will be performed every 30 days, and will test transfer function from normal to emergency, emergency function, charging and discharging conditions. Monthly test time is approximately 30 seconds.

3. Annual Auto Test: It will occur every 52 weeks after the initial 24 hours full charge, and will test proper initial battery voltage, 90-minute emergency operation, and acceptable battery voltage at the end of the full 90-minute test.

*If the Auto Test is interrupted by a power failure, a full 90-minute Auto Test will occur again 24 hours after the power is restored. If the power failure causes the battery to fully discharge, the product will restart the Initial Auto Test, Monthly and Annual Auto Test.

4.2 MANUAL TEST

1. Press the LTS 2 times continuously within 5 seconds to force a 30-second monthly test. After the test is completed, the next (30-day) monthly test will count from this date.

2. Press the LTS 3 times continuously within 5 seconds to force a 90-minute annual test. After the test is completed, the next (52-week) annual test will count from this date.

3. During any manual test, press and hold the LTS for greater than 3 seconds to terminate a manual test. The Preprogrammed Scheduled Auto Test time will not change.

4.3 LED TEST SWITCH (LTS) CONDITIONS

LTS Slow Blinking: Normal Charging

LTS On: Battery Fully Charged - Normal Condition

LTS Off: Battery Failure

LTS Gradual Change: In Testing Mode

LTS Quickly Blinking: Abnormal Condition - Corrective Action Required

**LTS (selectable 2 VDC): Long ON, Short OFF, Long ON

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5. EMERGENCY DIMMING

The 36REI utilizes Emergency Dimming which allows single or multiple 0-10 Vdc controlled luminaires (up to 120W combined normal luminaire power) to automatically adjust and share up to 36W of emergency AC power. During normal operation, the emergency inverter will pass through normal dimming voltage (0-10 Vdc) on the dim output leads, but then supply a default 3 VDC (or selectable **2VDC) during emergency operation to achieve approximately 30% (or selectable **20%) of rated luminaire power during a power failure.

**** Reduced output mode 2 VDC (~20%) can be selected and easily programmed via the LED test switch (LTS) by pressing the illuminated button for 5 seconds, releasing, then repeating the 5-second button push (i.e. two 5-second extended button pushes within a 13 second timespan). LTS flash conditions confirming 2 VDC mode: Long ON, Short OFF, Long ON. (Return to the default 3 VDC mode by repeating the extended button press sequence above).**

Example (default 3 VDC setting): Three 40W x 30% dim=12W. Similarly, if each luminaire is 30W, then 4 units can 9W each; whereas if the luminaire power is over 40W, then 2 or less luminaires can be operated.

Example (2 VDC setting): Four 45W LED luminaires (180W) would share 9W each of the total 36W emergency power per 36REI.

See 36REI application details at www.onlinepower.com or contact tech support at: 800-797-7782

When non-dimmable loads are used, the normal and emergency output will be 36W (max.) at temperatures of (10-55°C), 27W for (0-55°C) and 27W for 2 hours (10-55°C).

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6. SPECIFICATION

Approvals	UL Listed to UL924
Input Voltage	(Universal Input 120 - 277 Vac, 50 or 60Hz
Input Current	0.335 A (max.)
Output	120 - 277 Vac, 50 or 60Hz Auto setting output voltage equal to input voltage.
Output Power and Temperature	Max. 36W-Ta 0-55°C (50 to 131°F) Max. 27W-Ta 0-55°C (32 to 131°F) FEMA 2 Hour run time Max. 27W-Ta 0-55°C (50 to 131°F) FEMA 2 Hour run time Max. 20W-Ta 0-55°C (32 to 131°F)
Operating Time	90 Minute minimum can be Prorated to 2 hours.
Auto Test	Monthly and Annual
Transfer Time	1 second to Emergency Dimming
Emergency Dimming Mode	Allows for up to ~30% of max. 120W of normal luminaire power (field programmable to 20%) 20% of max. 180W of normal luminaire
Recharge Time	24 Hours
Remote Monitoring Distance	1,000 ft (max. w/ 18ga wire)
Battery	Lithium Ion
Dimensions	13.54" L x 3.23"W x 1.18" D
Weight	3.0 Lbs
Warranty	5 years full. See website for warranty details.

36REI - 180W @ 2 VDC (20%) PST W/ EMERGENCY DIMMING

20% Setting 180W Max Load

Luminaire wattage	35	36	37	38	39	40	41	42	43	44
Emergency Dim to 20% (W)	7	7.2	7.4	7.6	7.8	8	8.2	8.4	8.6	8.8
# of Emergency Luminaires	5	5	4	4	4	4	4	4	4	4
Actual wattage from 36REI used	35	36	29.6	30.4	31.2	32	32.8	33.6	34.4	35.2
Lumens per EM fixture **	833	857	881	904	928	952	976	1000	1023	1047
Total System Lumens provided	4165	4284	3522	3618	3713	3808	3903	3998	4094	4189
Total fixture wattage (Max. 180 W)	175	180	148	152	156	160	164	168	172	176

Luminaire wattage	45	46	47	48	49	50	51	52	53	54
Emergency Dim to 20% (W)	9	9.2	9.4	9.6	9.8	10	10.2	10.4	10.6	10.8
# of Emergency Luminaires	4	3	3	3	3	3	3	3	3	3
Actual wattage from 36REI used	36	27.6	28.2	28.8	29.4	30	30.6	31.2	31.8	32.4
Lumens per EM fixture **	1071	1095	1119	1142	1166	1190	1214	1238	1261	1285
Total System Lumens provided	4284	3284	3356	3427	3499	3570	3641	3713	3784	3856
Total fixture wattage (Max. 180 W)	180	138	141	144	147	150	153	156	159	162

Luminaire wattage	55	56	57	58	59	60	61	62	63	64
Emergency Dim to 20% (W)	11	11.2	11.4	11.6	11.8	12	12.2	12.4	12.6	12.8
# of Emergency Luminaires	3	3	3	3	3	3	2	2	2	2
Actual wattage from 36REI used	33	33.6	34.2	34.8	35.4	36	24.4	24.8	25.2	25.6
Lumens per EM fixture **	1309	1333	1357	1380	1404	1428	1452	1476	1499	1523
Total System Lumens provided	3927	3998	4070	4141	4213	4284	2904	2951	2999	3046
Total fixture wattage (Max. 180 W)	165	168	171	174	177	180	122	124	126	128

Luminaire wattage	65	66	67	68	69	70	71	72	73	74
Emergency Dim to 20% (W)	13	13.2	13.4	13.6	13.8	14	14.2	14.4	14.6	14.8
# of Emergency Luminaires	2	2	2	2	2	2	2	2	2	2
Actual wattage from 36REI used	26	26.4	26.8	27.2	27.6	28	28.4	28.8	29.2	29.6
Lumens per EM fixture **	1547	1571	1595	1618	1642	1666	1690	1714	1737	1761
Total System Lumens provided	3094	3142	3189	3237	3284	3332	3380	3427	3475	3522
Total fixture wattage (Max. 180 W)	130	132	134	136	138	140	142	144	146	148

Luminaire wattage	75	80	85	88	90	91-180	150	175	180	
Emergency Dim to 20% (W)	15	16	17	17.6	18	18-36	30	35	36	
# of Emergency Luminaires	2	2	2	2	2	1	1	1	1	
Actual wattage from 36REI used	30	32	34	35.2	36	cal.	30			
Lumens per EM fixture **	1785	1904	2023	2094	2142	2140-4280	4200			
Total System Lumens provided	3570	3808	4046	4189	4284	2140-4280				
Total fixture wattage (Max. 180 W)	150	160	170	176	180	91-120	150			

** 140 lumens/watt & 85% system eff.

The 36REI may need to be re-programmed to enable 2.0 Vdc in emergency from the Violet/Wht and Gray/Wht leads. See instructions.

All calculations based on 10-55C

- 1- Define the wattage of the normal/emergency luminaire.
- 2- Determine from the chart how many emergency luminaires can be used with the 36REI for 90 minutes
- 3- Use a lighting calculation program to determine spacing of emergency luminaires to meet life safety and local code requirements for egress.
- 4- Ensure that the total normal/(emergency) luminaire(s) or connected loads do not exceed 180 W.
- 5- LED Luminaires must incorporate linear 0-10Vdc dimming drivers and be wired with the 36REI when using the Emergency Dimming Feature functions. Not compatible with logarithmic dimming drivers.
- 6- **All Selection Chart Calculations are based on 85% driver efficiency and 140Lm/W efficacy.

36REI - 120W @ 3 VDC (30%) PST W/ EMERGENCY DIMMING

NOTE: 120W @ 3 Vdc standard setting for Emergency Dimming feature.
Emergency Dimming feature can be reprogrammed for 2 Vdc and 180W loads.

Luminaire wattage	14	15	16	17	18	19	20	21	22	23
Emergency Dim to 30% (W)	4.2	4.5	4.8	5.1	5.4	5.7	6	6.3	6.6	6.9
# of Emergency Luminaires	8	8	7	7	6	6	6	5	5	5
Lumens per EM fixture **	500	536	571	607	643	678	714	750	785	821
Total System Lumens provided	3998	4284	3998	4248	3856	4070	4284	3749	3927	4106
Total fixture wattage (Max. 120 W)	112	120	112	119	108	114	120	105	110	115

Luminaire wattage	24	25	26	27	28	29	30	31	32	33
Emergency Dim to 30% (W)	7.2	7.5	7.8	8.1	8.4	8.7	9	9.3	9.6	9.9
# of Emergency Luminaires	5	4	4	4	4	4	4	3	3	3
Lumens per EM fixture **	857	893	928	964	1000	1035	1071	1107	1142	1178
Total System Lumens provided	4284	3570	3713	3856	3998	4141	4284	3320	3427	3534
Total fixture wattage (Max. 120 W)	120	100	104	108	112	116	120	93	96	99

Luminaire wattage	34	35	36	37	38	39	40	41	42	43
Emergency Dim to 30% (W)	10.2	10.5	10.8	11.1	11.4	11.7	12	12.3	12.6	12.9
# of Emergency Luminaires	3	3	3	3	3	3	3	2	2	2
Lumens per EM fixture **	1214	1250	1285	1321	1357	1392	1428	1464	1499	1535
Total System Lumens provided	3641	3749	3856	3963	4070	4177	4284	2927	2999	3070
Total fixture wattage (Max. 120 W)	102	105	108	111	114	117	120	82	84	86

Luminaire wattage	44	45	46	47	48	49	50	51	52	53
Emergency Dim to 30% (W)	13.2	13.5	13.8	14.1	14.4	14.7	15	15.3	15.6	15.9
# of Emergency Luminaires	2	2	2	2	2	2	2	2	2	2
Lumens per EM fixture **	1571	1607	1642	1678	1714	1749	1785	1821	1856	1892
Total System Lumens provided	3142	3213	3284	3356	3427	3499	3570	3641	3713	3784
Total fixture wattage (Max. 120 W)	88	90	92	94	96	98	100	102	104	106

Luminaire wattage	54	55	56	58	60	61-120			Up to 36	
Emergency Dim to 30% (W)	16.2	16.5	16.8	17.4	18	18.3-36		NON-DIM APPS	up to 36	
# of Emergency Luminaires	2	2	2	2	1				1	
Lumens per EM fixture **	1928	1964	1999	2071	2142	2140-4280			up to 4282	
Total System Lumens provided	3856	3927	3998	4141	4284	2140-4280			up to 4282	
Total fixture wattage (Max. 120 W)	108	110	112	116	120	61-120			36	

- 1 - Define the wattage of the normal/emergency luminaire.
- 2 - Determine from chart how many emergency luminaires can be used with the 36REI.
- 3 - Use lighting calculation program to determine spacing of emergency luminaires to meet life safety and local requirements for egress.
- 4 - Ensure that the total normal/emergency lighting luminaire(s) wattage does not exceed 120W.
- 5 - LED Luminaires must incorporate 0-10Vdc dimming driver and be wired with the 36REI when using the Emergency Dimming function.
- 6 - **All Selection Chart calculations based on 85% driver efficiency and 140Lm/W efficacy.

200REI Technical Guide Specifications

2. DESCRIPTION

The Online Power Emergency Lighting 200REI is a compact, versatile Auto- Test Pure Sine Wave Mini inverter designed for designated emergency lighting fixtures and includes Emergency Dimming. In the event of a power failure, the inverter will automatically supply up to 200 watts of emergency power to LED or fluorescent luminaires for ninety (90) minutes. It can operate with single or multiple switched, dimmed, non-switched or emergency only luminaires. It can operate as a standalone 200 watt inverter. It can be used with 0-10 Vdc controlled dimmable luminaires (up to 900W @120Vac or 2000W @277Vac) and adjust the 0-10 Vdc dimming voltage to the AC drivers for rated emergency output.

3. OPERATION

When AC power is applied, the LED test switch is illuminated, indicating that the batteries are being charged. When AC power fails, the 200REI automatically switches to emergency power, operating the lighting load at rated emergency power. During power failure, the LED test switch indicator will be off. When the AC power is restored, the 200REI switches the system back to normal mode of operation and resumes battery charging. The minimum emergency operation time is 90 minutes. A short term discharge test may be conducted after unit has been charging for 1 hour. Charge for 24 hours before conducting a long term discharge test. Refer to page 2 for Emergency Dimming applications.

4. TESTING AND MAINTENANCE

The following Periodic testing is recommended to ensure the system is working correctly.

1. Visually inspect the LED test switch (LTS) monthly. It should be illuminated when AC power is applied.
2. Conduct a 30-second discharge test by switching off the emergency breaker every month. The LTS will be off.
3. Conduct a 90-minute discharge test once per year. The LTS will be off during the test.

200REI Technical Guide Specifications

4.1 AUTO TEST

The 200REI Nano Inverter has an Auto Test feature which saves costs by reducing the need for manual testing.

4.1A Initial Auto Test

When the system is connected properly and powered on (make sure the load is switched on), the 200REI will perform an initial Auto Test. If any abnormal conditions exist, the LTS will blink quickly. Once the abnormal condition is corrected, the LTS will function correctly. The initial Auto Test will be restarted automatically when the connected dimmable loads maximum power increases.

4.1B Preprogrammed Scheduled Auto Test

- a) The unit will conduct the first Monthly Auto Test after 24 hours and up to 7 days after initial power on. Then monthly tests will be performed every 30 days.
- b) Annual Auto Test It will occur every 52 weeks after the initial power on.

Monthly Auto Test:

The Monthly Auto Test shall be executed every 30 days, and will test: Normal to emergency transfer function, emergency, charging and discharging conditions are normal. Monthly test time is approximately 60 seconds.

Annual Auto Test:

Annual Auto Test will occur every 52 weeks after the initial 24 hours full charge, and will test: Proper initial battery voltage, 90-minute emergency operation and acceptable battery voltage at the end of the full 90-minute test.

If the Auto Test is interrupted by a power failure, a full 90-minute Auto Test will occur again 24 hours after the power is restored. If the power failure causes the battery to fully discharge, the product will restart the Initial Auto Test and Preprogrammed Scheduled Auto Test.

200REI Technical Guide Specifications

4.2 MANUAL TEST

1. Press the LTS one time to simulate emergency mode for 10 seconds.
2. Press the LTS 2 times continuously within 5 seconds to force a 60-second monthly test. After the test is completed, the next (30-day) monthly test will count from this date.
3. Press the LTS 3 times continuously within 5 seconds to force a 90-minute annual test. After the test is completed, the next (52-week) annual test will count from this date. Note - unit must be 24-hour fully charged.
4. In Normal mode, press and hold the LTS for greater than 3 seconds to restart initial Auto Test.
5. During any manual test, press and hold the LTS for greater than 3 seconds to terminate a manual test. The Preprogrammed Scheduled Auto Test will not change.

4.3 LED TEST SWITCH (LTS) CONDITIONS

LTS Slow Blinking: Normal Charging

LTS On: Battery Fully Charged - Normal Condition

LTS Off: Power Failure

LTS Gradual Change: In Testing Mode

LTS Quickly Blinking: Abnormal Condition - Corrective Action Required

200REI Technical Guide Specifications

6. SPECIFICATION

Approvals	UL Listed to UL924
Input Voltage	(Universal Input 120 - 277 Vac, 50 or 60Hz)
Input Current	0.33 A (max.)
Output	120 - 277 Vac, 50 or 60Hz Auto setting output voltage equal to input voltage.
Output Power and Temperature	200 Watts
	150 Watts for 2 hour applications
Operating Time	90 Minute minimum
Auto Test	Monthly and Annual
Transfer Time	2 seconds (Max.)
Emergency Dimming Mode	Patent Pending Auto Adjust 0-10 Vdc to achieve rated 200W emergency power for 90 minutes
Recharge Time	24 Hours
Remote Monitoring Distance	1,000 ft (max. w/ 18ga wire)
Battery	Lithium Ion
Dimensions	19" L x 4.5" W x 1.63" D
Weight	8.5 Lbs
Warranty	5 years full. See website for warranty details.