



浙江顶峰技术服务有限公司
ZENITH INTERNATIONAL COMPLIANCES SERVICES CO., LTD

TEST REPORT

Client Name: Gateway International 360 LLC

Report No.: 1715481

Issued on: July 24, 2018

GENERAL INFORMATION AND CONCLUSION PAGE

CLIENT INFORMATION	
Client Name	Gateway International 360 LLC
Address	260 Quigley Blvd Suite 135 New Castle DE 19720 USA
Manufacturer Name	Wenzhou Lead Top Electrical Co Ltd
Address	No 270 Wei 20 Rd Yueqing Economic Development Area Wenzhou Zhejiang 325600 China

PROJECT INFORMATION	
Product Name	Photoelectric Controller
Model(s)	GW-LL127-1.5BK-40
Additional Description	Direct Plug-In Locking Type Photoelectric Controller with NC Relay
Standard/Edition	UL773, 5 th Edition
Tested Period	2018-7-9 ~ 2018-7-20
Requested Service	<input checked="" type="checkbox"/> Full or partial pretest for the following certification: <input checked="" type="checkbox"/> UL <input type="checkbox"/> GS <input type="checkbox"/> CE-LVD <input type="checkbox"/> CE-EMC <input type="checkbox"/> others: _____ <input type="checkbox"/> Other commercial inspection and testing service: _____




SAMPLE RECORDS			
Sampling Information	<input checked="" type="checkbox"/> Submitted by the client <input type="checkbox"/> Selected by ZICS		
Sample	Quantity	Description	Date Received
GW-LL127-1.5BK-40	40	Well for testing	2018-7-6

ONLY FOR SELECTION SAMPLING			
Selected by	N/A	Signature	---
Location	N/A	Date	---

CONCLUSION:

At the request of the client, the submitted sample(s) were subjected to tests according to the standard(s) specified as above. The test results are shown in the test report.

Issued on: 2018-7-24

Approved by: Shawn Fei (Printed Name)	Reviewed by: Shawn Fei (Printed Name)	Handled by: Kelvin Xu (Printed Name)
		
(Signature)	(Signature)	(Signature)

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Test 1

RAINTIGHTNESS TEST:

UL 773, Sec. 21

METHOD

A sample of the control unit was firmly secured to a control receptacle and positioned so that the water spray was applied to the top front of the control unit at an angle of 45 degrees to the vertical. The control unit was positioned in the focal area of the three spray heads. The water pressure was maintained at 5 psi (34.5 kPa) at each spray head for 1 hour. Within 5 minutes after completion of the Spray Test, the control unit shall be subjected to a Dielectric Voltage-Withstand Test. The control unit shall be capable of withstanding, for 1 minute without breakdown.

RESULTS

Model: GW-LL127-1.5BK-40

The results of this test ~~[-were -/ were not-]~~ considered acceptable since water ~~[-entered -/ did not enter-]~~ the enclosure and there ~~[-was -/ was no-]~~ dielectric breakdown.

Note: Photocontroller was inserted into a control receptacle during rain test.

Sample Number: 07-A001

Test 2**EXPOSURE TO LOW TEMPERATURE TEST:****UL 773, Sec. 24****METHOD**

A control unit, shall be capable of withstanding exposure to low temperature for 72 hours by exposing a complete control unit to an ambient temperature of minus 29.0°C. At the end of the 72 hours, the complete assembly is to be removed from the cold chamber and the control unit enclosure is to be visually inspected for cracks. Following the visual inspection, and within 1 minute of removal from the cold chamber, the control unit is to be subjected to an impact of 1 ft-lbf (1.38 N-m) by means of a solid, smooth, steel sphere, 2 inches (50.8 mm) diameter, applied to external surfaces.

The sphere is allowed to fall freely, from rest, through the distance required to cause the specified impact upon the surface under test. For surfaces other than horizontal, the sphere may be suspended by a cord and allowed to fall as a pendulum through the required distance. The control unit is to be inserted in a mating control receptacle, which is rigidly held in place during the impact test

RESULTS

Model: GW-LL127-1.5BK-40

An inspection of the control unit after the cold conditioning ~~did~~ / did not ~~reveal cracks in the enclosure. The results of this test {were / were not}~~ reveal cracks in the enclosure. The results of this test ~~{were / were not}~~ considered acceptable since there ~~{were / were not}~~ live parts accessible through an opening created by the impact.

Following the impact testing, the samples were subjected to a dielectric voltage withstand test as described below.

PRE-IMPACT CONDITIONING

Test Parameter	Prescribed	Actual
Intended Application	[Outdoor]	
Conditioning Temperature, °C	Minus 29.0 °C	Minus 29.0 °C
Conditioning Duration, hr	72	72
Conditioning Start Time		2018-7-9 9:00
Conditioning End Time		2018-7-12 9:00

Test 2

EXPOSURE TO LOW TEMPERATURE TEST(Con'd):

UL 773, Sec. 24

Distance to drop ball for impact test
Formula for 1 ft-lb Impact Test

$$\frac{1 \text{ ft-lb}}{1.18 \text{ lb}} \times \frac{12 \text{ inches}}{1 \text{ ft}}$$

$$\frac{1}{1.18} \times \frac{12 \text{ inches}}{1}$$

$$0.847458 \times 12 \text{ inches}$$

— Drop Height 10.16949 inches

Test 2**EXPOSURE TO LOW TEMPERATURE TEST(Con'd):****UL 773, Sec. 24**

RESULTS

Sample No.	Area of Impact	Impact Motion	Actual Drop Dist., in.	Remarks	
				Damage Noted (+)	Mech. performance Effect
07-A002	Top	Free Fall	0.5m	No Damage	No Effect
07-A003	Side	Free Fall	0.5m	No Damage	No Effect
07-A004	Bottom	Free Fall	0.5m	No Damage	No Effect

(+) Lab Technician – Note whether there was cracking, denting, displacement of parts or the development of openings. If an opening is developed, contact Project Engineer to determine if finger probe can access live parts.

The results of the test indicate ~~{compliance}~~ ~~{noncompliance}~~ with the requirements since:

- 1) There ~~{was no}~~ ~~{was}~~ reduction in spacings below the minimum allowable.
- 2) There ~~{were no}~~ ~~{were}~~ exposed live parts or internal wiring or any other condition that would increase the risk of shock or fire hazard of the equipment.
- 3) There ~~{was no}~~ ~~{was}~~ development of a condition that might affect the safety related mechanical performance of the equipment.

Test 3

RESISTANCE TO IMPACT TEST:

UL 773, Sec. 26

METHOD

A control unit, shall be dropped from a height of 3 feet (0.9 m) onto a concrete surface, not less than 2 inches (51 mm) thick. The control unit is then to be inserted into a control receptacle connected to a rated supply source and a load circuit equivalent to the load rating of the control unit.

Three thicknesses of cloth are to be arranged below the control unit, while another three thicknesses are to be draped over the control unit during insertion into the control unit receptacle.

The cloth to be used is to be bleached cheesecloth, 36 inches (914 mm) wide, running 14 to 15 yd/lb (28 - 30 m/kg), and having what is known to the trade as a count of 32 by 28. In placing the cloth in position for this test, the material is to be folded in such a manner that cut or torn edges will not be exposed directly to the arc or flash which may result from plugging the control unit into the control receptacle.

Inability of the control unit to operate normally after being subjected to this test shall not constitute unacceptable results; however scorching of the cloth indicators or accessibly

RESULTS

Model: GW-LL127-1.5BK-40

The results of this test ~~{were / were not}~~ considered acceptable since there ~~{were / were not}~~ live parts accessible through an opening created by the impact. There ~~{was / was not}~~ scorching of the cheesecloth indicators.

Test 3

RESISTANCE TO IMPACT TEST(Con'd):

UL 773, Sec. 26

Model No: GW-LL127-1.5BK-40 Material: PC(cover,lens) PBT(base) Color: Cover(Blue) Base(Black) Lens(Transparent)
Drop of 3 feet (0.9 m) onto a concrete surface, not less than 2 inches (51 mm) thick
Conditioning: n/a Impact Height:

Sample	Impact	Cracks, Breakage	Live Parts Exposed	Other (See Notes)
07-A005	1	No	No	No

Notes: The control unit is then to be inserted into a control receptacle connected as in Temperature Test.

Three thicknesses of cloth (see 20.4 of UL 773) are to be arranged below the control unit, while another three thicknesses are to be draped over the control unit during insertion into the control unit receptacle.

Test 4**MOLD STRESS-RELIEF DISTORTION TEST:****UL 773, Sec. 25****METHOD**

Three samples of the complete control unit were placed in a full-draft, circulating air-oven maintained at a uniform temperature of at least 10°C higher than the maximum temperature of the material, measured under normal operating conditions, but not less than 70°C in any case, for 7 hours. At the end of this time, the samples were carefully removed from the oven and allowed to return to room temperature. The samples were then closely examined for deterioration.

RESULTSTest Oven Temperature: 75°C

As a result of this test the following materials were evaluated:

Test Parameters	Prescribed	Actual
Sample No.		07-A006,07-A007,07-A008
Method Used	[A]	
Chamber Temperature, °C	75.0°C	75.0°C
Exposure Duration	7 hrs	7 hrs
Exposure Start Time	-	2018-7-16 9:00
Exposure End Time	-	2018-7-16 16:00

Test 4**MOLD STRESS-RELIEF DISTORTION TEST(Con'd):****UL 773, Sec. 25**

RESULTS

Sample No.	Observed Effect			Reduced Electrical Spacing	Exposed Live Parts or Intern. Wiring	Mech. performance Effectuated
	Shrinkage [Y/N]	Warpage [Y/N]	Distortion [Y/N]			
07-A006	N	N	N	N	N	N
07-A007	N	N	N	N	N	N
07-A008	N	N	N	N	N	N

The results of the test indicate ~~{compliance}~~ ~~[noncompliance]~~ with the requirements since:

- 1) There ~~{was not}~~ ~~[was]~~ reduction in spacings below the minimum allowable.
- 2) There ~~{were not}~~ ~~[were]~~ exposed live parts or internal wiring or any other condition that would increase the risk of shock or fire hazard of the equipment.
- 3) There ~~{was not}~~ ~~[was]~~ development of a condition that might affect the safety related mechanical performance of the equipment, such as adversely affecting the functionality of any safety controls or constructional features such as thermostats, overload protective devices, water seals, or strain relief.

Final Condition	Softening of Material?	Shrinkage or Warpage?	Cracking?
When removed from oven.	NO	NO	NO
After cooling to room temperature.	NO	NO	NO

The results ~~{were / were not}~~ considered acceptable since the enclosure ~~{did / did not}~~ crack, distort, or expose live parts.

The materials in question ~~{did / did not}~~ reduce spacings below the minimum acceptable values, or ~~{did / did not}~~ have any adverse effect on the insulation.

Test 5

INTERCHANGEABILITY TEST:

UL 773, Sec. 20

METHOD

A suitable control receptacle was connected to a 480 V ac, 60 Hz supply. Three thickness of cheesecloth were arranged below the control receptacle and three thickness of cheesecloth were draped over each unit. The control unit was plugged into the control receptacle and the supply voltage was then applied. The control unit was allowed to operate until ultimate results were achieved.

The cloth to be used is to be bleached cheesecloth, 36 inches (914 mm) wide, running 14 to 15 yd/lb (28 - 30 m/kg), and having what is known to the trade as a count of 32 by 28. In placing the cloth in position for this test, the material is to be folded in such a manner that cut or torn edges will not be exposed directly to the arc or flash which may result from plugging the control unit into the control receptacle.

RESULTS

Model: GW-LL127-1.5BK-40 Sample No: 07-A009

The control unit ~~[was / was not]~~ allowed to operate and it ~~[did / did not]~~ function properly.

There ~~[was / was not]~~ indication of fire or electrical shock.
The integrity of the enclosure ~~[remained / did not remain]~~ intact.

Test 6**EXPOSURE TO HUMID ATMOSPHERE TEST:****UL 773, Sec. 23**

METHOD

A sample of control unit, shall resist the absorption of moisture when subjected to a humid atmosphere for not less than 168 hours by exposing the control unit, firmly secured to a control receptacle, to air at a relative humidity of 96 ± 2 percent, at a temperature of $50 \pm 2^\circ\text{C}$ ($122 \pm 4^\circ\text{F}$). The sample is then to be removed from the humidity chamber and, within 1 minute of removal, subjected to the Dielectric-Voltage Withstand Test.

RESULTS

The results of this test ~~were / were not~~ considered acceptable since there ~~was / was no~~ dielectric breakdown.

RESULTS

[X] CONDITIONING - OUTDOOR APPLICATIONS:

Model: GW-LL127-1.5BK-40

Characteristic	Test Parameters	
	Prescribed	ACTUAL
Sample Nos.	one Sample	07-A010
Humidity Conditioning	Temperature: 50°C	50°C
	Humidity: 96% RH	96% RH
	Duration: 168 Hours	168 Hours
		2018-7-10
		20108-7-17

The sample is then to be removed from the humidity chamber and, within 1 minute of removal, subjected to the Dielectric Voltage-Withstand Test.

Test 7**HUMIDITY CYCLING TEST:****C22.2 NO.182.2, Sec.7.11.2****METHOD**

A sample of Control units, shall resist the absorption of moisture when subjected to a humid atmosphere. The test chamber was initially set to maintain a temperature of $70 \pm 1^\circ\text{C}$ and a relative humidity of 92 ± 3 percent. The device was placed in the chamber and held at these condition for 4 hours. The test chamber was then reset to maintain a related humidity of $40 \pm 3^\circ\text{C}$, the temperature at $75 \pm 1^\circ\text{C}$. The device was retained in the chamber and held at these conditions for 18 hours. Finally, the test chamber was reset to maintain a temperature of $30 \pm 1^\circ\text{C}$, and a relative humidity of $60 \pm 3\%$. The device was retained in the chamber and held at these conditions for 4 hours. The sample is then to be removed from the humidity chamber and, within 1 minute of removal, subjected to the Dielectric-Voltage Withstand Test.

RESULTS

The results of this test ~~{were / were not}~~ considered acceptable since there ~~{was / was not}~~ dielectric breakdown.

RESULTS**[X] CONDITIONING - OUTDOOR APPLICATIONS:**

Model: GW-LL127-1.5BK-40

Characteristic	Test Parameters	
	Prescribed	ACTUAL
Sample Nos.	One Sample	07-A011
Humidity Conditioning Step 1	Temperature: 70°C	70°C
	Humidity: 92 % RH	92 % RH
	Duration: 4 Hours	4 Hours
		2018-7-11 9:00
		2018-7-11 13:00
Humidity Conditioning Step 2	Temperature: 75°C	75°C
	Humidity: 40% RH	40% RH
	Duration: 18 Hours	18 Hours
		2018-7-11 13:00
		2018-7-12 7:00
Humidity Conditioning Step 3	Temperature: 30°C	30°C
	Humidity: 60% RH	60% RH
	Duration: 4 Hours	4 Hours
		2018-7-12 7:00
		2018-7-12 11:00

Test 8**BLADE SECURITY TEST:****(C22.2 NO.182.2, Sec. 7.2)**

METHOD

A Control units shall be capable of withstanding, for 2 minute, a direct force of 90 N on each blade of a male device. The test was made with the device supported on a horizontal steel test plat with the blades projecting downward through a hole, the size or shape of which is such that it will not interfere with the possibility of the blades pulling out of the device body. The force was gradually applied to each blade separately and then to all blades together.

RESULTS

Model: GW-LL127-1.5BK-40	Displacement Yes / No	Comments
Line Blade	NO	Compliance
Load Blade	NO	Compliance
Neutral Blade	NO	Compliance
All Blades Connected Together	NO	Compliance

Sample No: 07-A012

Test 9**GASKET (RESISTANCE TO AGING) TEST:****(UL 773, Section 21)**

METHOD

A Control units provided with a sealing gasket was placed for 70 hours in a full-draft circulating-air oven at a temperature of $100 \pm 2^{\circ}\text{C}$ ($212 \pm 3.6^{\circ}\text{F}$).
Per

Model: GW-LL127-1.5BK-40

Gasket: Thermoplastic Elastomer

RESULTS

Final Condition	Softening of Material?	Shrinkage or Warpage?	Cracking?
When removed from oven.	No	No	No
After cooling to room temperature.	No	No	No

The gasket ~~{was / was not}~~ considered resistant to aging since there ~~{was / was not}~~ visible evidence of deterioration such as softening, hardening, or cracking after flexing. The results of this test ~~{are / are not}~~ considered acceptable.

Sample No: 07-A013

Test 10

NORMAL TEMPERATURE TEST:

UL 773, Sec. 28

METHOD

A sample of the Control Unit was connected to its rated supply and load while inserted into an appropriate control receptacle as indicated below. The unit was then operated, under full-load conditions, until constant temperatures were attained under the following conditions. All temperatures were recorded by using thermocouples attached with sodium silicate.

A temperature is considered to be constant when three successive readings, taken at intervals of 10 percent of the previously elapsed duration of the test, but not less than 5-minute intervals, indicate no change.

Model: GW-LL127-1.5BK-40

Ratings: 120V 15A; 277V 8.7A

Ambient: 25°C

Engineering Note:

For Models LT124,LT134,LT154, Use Max 8.7 A/277V to represent 208-277V 1800 VA Ballast

Test 10

NORMAL TEMPERATURE TEST (Con'd):

UL 773, Sec. 28

RESULTS

Model: GW-LL127-1.5BK-40 Sample No:07-A014

Line No.	Thermocouple Location	Measured Temperature, °C		Limits °C
		2018-7-13 9:26	2018-7-13 13:23	
	Start Date / Time			
	Test Condition	Night	Night	REF
	Input Voltage	120V ac	277V ac	REF
	Test Current	15A	8.7A	-
	PCB trace of Relay Output Pin, Common	61.5	52.5	105
	PCB trace of Relay Output Pin, N.C.	57.6	50.0	105
	PCB trace of Line Terminal	56.9	52.1	105
	PCB trace of Load Terminal	50.1	63.6	105
	PCB trace of Node R11, Bridge Diodes	41.0	49.9	105
	PCB trace of Node D7 and Q1	40.2	44.0	105
	PCB trace of Node D2 and Q2	43.0	47.5	105
	Coil of Relay	55.1	50.4	Class A insulation 90
	Center external surface of base of control unit / plugged into the receptacle	44.0	46.5	90
	Photocontrol Cover, Plastic internal surface near relay	31.7	36.7	105
	Inside Lens	31.3	45.2	105
	Gasket under Base	28.5	32.9	50
	Room Ambient	25.2	24.9	25
	Stop Date / Time	2018-7-13 11:52	2018-7-13 15:25	REF
	Test Duration	2h26min	2h2min	Until Stable

The results of this test ~~are / are not~~ considered acceptable since the temperatures attained ~~were / were not~~ sufficiently high to constitute a risk of fire or to damage the materials used in the device.

Test 11

OPERATION TEST:

UL 773, Sec. 29

METHOD

The supply voltage to the control units noted below was steadily increased to 110% of its rated voltage. The control unit was then operated in a daylight condition at the increased voltage until constant temperatures were attained. The control unit shall be capable of normal operation, at the increased voltage, after temperatures have stabilized.

Following operation at the increased voltage, the supply voltage to the control unit was decreased to 100% or rated voltage and the control unit was allowed to operate in daylight condition until temperatures stabilize. The supply voltage was then reduced to 85% of rated voltage. The control unit shall be capable of normal operation at the reduced voltage.

RESULTS

Model Designation	Rated Voltage	Under Voltage	Over Voltage	Operate Normally (Y/N)
GW-LL127- 1.5BK-40	120-277V	102V	305	Y

The results of this test ~~are~~ ~~are not~~ considered acceptable since the control unit ~~operated~~ ~~did not operate~~ normally each time.

Notes: Sample No: 07-A014

Test 12

OVERLOAD AND ENDURANCE TEST

UL 773, Sec. 30 and 31

OVERLOAD METHOD

The Control Unit tabulated in the table was subjected to an overload condition for 50 cycles of operation.

A control unit was plugged into a suitable control receptacle, connected to a supply source of rated voltage and a load adjusted in accordance with the Table. The control unit was operated in such a manner that the specified load current was interrupted and then restored, for a total of 50 cycles of operation, at the rate of 6 cycles of load interruption and restoration per minute. Each test cycle was 1 second on and 9 seconds off.

The open-circuit voltage of the supply circuit is to be not less than 100 percent, nor more than 105 percent, of the test voltage specified. The closed circuit voltage of the supply circuit is to be not less than 97-1/2 percent of the test voltage specified.

These tests were conducted in a 25 °C ambient.

A 3 A non-time delay, non-renewable, Class H fuse having a voltage rating not less than the voltage rating of the control unit being tested was connected to indicate arc-over to ground, by means of a 4 to 6 ft long No. ~~10-12~~ [14] AWG copper wire, between the grounded metal parts and earth ground in a grounded supply system; and un-switched line of the supply circuit in other than grounded supply system.

In addition to the Overload Test, a control unit shall be made to interrupt and restore the same test load, by withdrawal and insertion into its associated control receptacle for 10 cycles. A separate sample may be used for this test.

Test 12

OVERLOAD AND ENDURANCE TEST (Con'd):

UL 773, Sec. 30 and 31

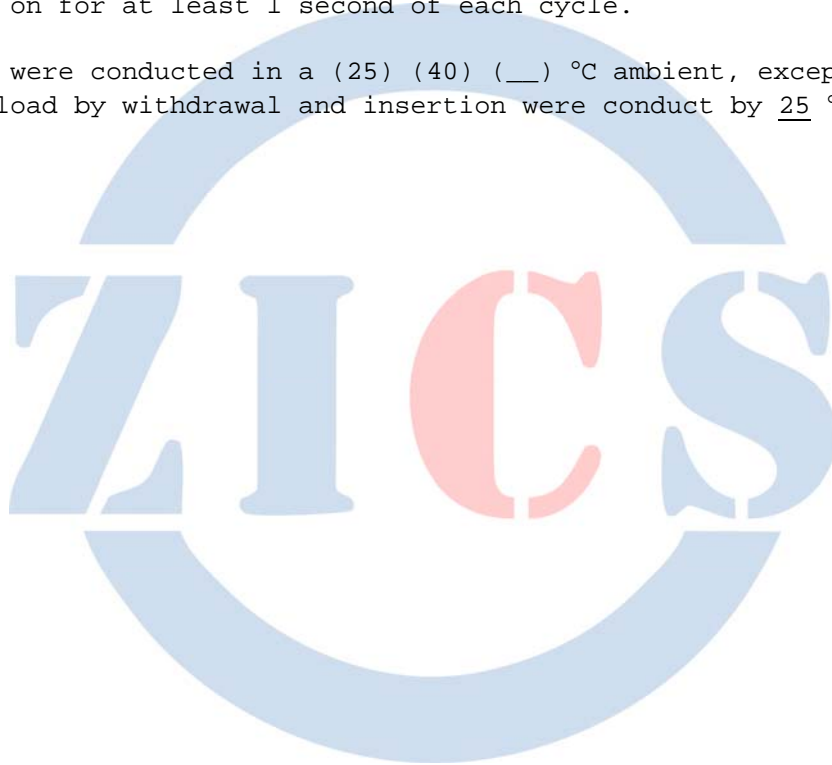
ENDURANCE METHOD

Following the Overload Test each photocontrol unit tabulated in the tables were subjected to specified cycles of operation.

A control unit was plugged into a suitable control receptacle, connected to a supply source of rated voltage and a load adjusted in accordance with the Table. The control unit was operated in such a manner that the specified load current was interrupted and then restored,

When tungsten-filament lamps are used as the load, such load is to be made up of the smallest number of lamps having standard ratings not more than 500 W and the operating cycle is to be such that the lamps are off for at least 55 seconds and on for at least 1 second of each cycle.

These tests were conducted in a (25) (40) (___) °C ambient, except for the 10 cycles overload by withdrawal and insertion were conduct by 25 °C ambient.



Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

A 3 A non-time delay, non-renewable, Class H fuse having a voltage rating not less than the voltage rating of the control unit being tested was connected to indicate arc-over to ground, by means of a 4 to 6 ft long No. ~~{10}{12}~~ [14] AWG copper wire, between the grounded metal parts and earth ground in a grounded supply system; and un-switched line of the supply circuit in other than grounded supply system.

CONDITION	TEST	RELAY	RATINGS
1	OVERLOAD	AUTOMATIC OPERATION BY LIGHT SENSING	120-277Vac, 1000W Tungsten;
2	ENDURANCE		120-277Vac, 1800VA Ballast;
3	OVERLOAD INTERRUPTION	MANUALLY	120-277Vac, 8A Electronic Ballast

Note:

Use 277V 4.8A to represent 208-277V 1000W Tungsten for test.

Use 277V 8.7A to represent 208-277V 1800VA Ballast for test.

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 1A	Overload		Overload	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A015		07-A016	
Wire size, AWG No. or MCM	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (Tungsten)	8.4	8.4	4.8	4.8
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	124.3	-----	278.6
Test Current, A	12.6	12.6	7.2	7.2
Percent of rated current	150	150	150	150
Power factor, percent	75-80	76	75-80	77
Shunting resistance, ohms	-----	-----	-----	-----
Number of test operations	50	50	50	50
Ambient, °C	25	23.9	25	23.9
Method of operation	Electronically		Electronically	
Time on, s (FWD/REV)	1	1	1	1
Time off, s	9	9	9	9

All samples were subjected to the Overload and Endurance Test.

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 1B	Overload		Overload	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A017		07-A018	
Wire size, AWG No. or MCM	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (Ballast)	15	15	8.7	8.7
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	122.7	-----	277.2
Test Current, A	45	45.1	26.1	26.3
Percent of rated current	300	300	300	300
Power factor, percent	40-50	47	40-50	46
Shunting resistance, ohms	-----	-----	-----	-----
Number of test operations	50	50	50	50
Ambient, °C	25	24.2	25	24.2
Method of operation	Electronically		Electronically	
Time on, s (FWD/REV)	1	1	1	1
Time off, s	9	9	9	9

All samples were subjected to the Overload and Endurance Test.

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 1C	Overload		Overload	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A019		07-A020	
Wire size, AWG No. or MCM	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (E-Ballast)	8	8	8	8
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	123.5	-----	277.5
Test Current, A	24	24.1	24	24.0
Percent of rated current	300	300	300	300
Power factor, percent	40-50	47	40-50	46
Shunting resistance, ohms	-----	-----	-----	-----
Number of test operations	50	50	50	50
Ambient, °C	25	24.5	25	24.2
Method of operation	Electronically		Electronically	
Time on, s (FWD/REV)	1	1	1	1
Time off, s	9	9	9	9

All samples were subjected to the Overload and Endurance Test.

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 2A	Endurance		Endurance	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A015		07-A016	
Wire size, AWG No. or MCM	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (Tungsten)	8.4	8.4	4.8	4.8
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	124.7	-----	278.9
Test Current, A	8.4	8.4	4.8	4.9
Percent of rated current	100	100	100	100
Power factor, percent	Tungsten Filament Lamps	Synthetic Load	Tungsten Filament Lamps	Synthetic Load
Shunting resistance, ohms	-----	-----	-----	-----
Number of test operations	3650	3650	3650	3650
Ambient, °C	25	23.9 / 24.5	25	23.9 / 24.5
Method of operation	Electronically		Electronically	
Time on, s (FWD/REV)	1	1	1	1
*Time off, s	9	9	9	9

All samples were subjected to the Overload and Endurance Test.

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

*The operating cycle was such that the lamps are off for at least 55 seconds for each test cycle.

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 2B	Endurance		Endurance	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A017		07-A018	
Wire size, AWG No. or MCM	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (Ballast)	15	15	8.7	8.7
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	123.2	-----	278.2
Test Current, A	30	30.1	17.4	17.5
Percent of rated current	200	200	200	200
Power factor, percent	40-50	46	40-50	47
Shunting resistance, ohms	-----	-----	-----	-----
Number of test operations	3650	3650	3650	3650
Ambient, °C	25	24.2 / 23.9	25	24.2 / 23.9
Method of operation	Electronically		Electronically	
Time on, s (FWD/REV)	1	1	1	1
Time off, s	9	9	9	9

All samples were subjected to the Overload and Endurance Test.

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 2C	Endurance		Endurance	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A019		07-A020	
Wire size, AWG No. or MCM	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle	14 AWG provide on receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (E-Ballast)	8	8	8	8
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	124.9	-----	278.8
120Vac Peak Current, A	221	222	-	-
277Vac Peak Current, A	-	-	370	372
120Vac Pulse Width, ms	1.25	1.25	-	-
277Vac Pulse Width, ms	-	-	1.25	1.26
Test Current, A	8	8.0	8	8.1
Percent of rated current	100	100	100	100
Power factor, percent	Electronic Ballast	Electronic Ballast	Electronic Ballast	Electronic Ballast
Shunting resistance, ohms	-----	-----	-----	-----
Number of test operations	3650	3650	3650	3650
Ambient, °C	25	24.5 / 24.2	25	24.2 / 24.7
Method of operation	Electronically		Electronically	
Time on, s (FWD/REV)	1	1	1	1
Time off, s	9	9	9	9

All samples were subjected to the Overload and Endurance Test.

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

Test 12**OVERLOAD AND ENDURANCE TEST (Con'd):****UL 773, Sec. 30 and 31**

RESULTS

Condition 3A	Overload Interruption		Overload Interruption	
	Rated	Actual	Rated	Actual
Cat. No.	GW-LL127-1.5BK-40		GW-LL127-1.5BK-40	
Sample No.	07-A021		07-A022	
Wire size, AWG No. or MCM	14 AWG provide on Receptacle	14 AWG provide on Receptacle	14 AWG provide on Receptacle	14 AWG provide on Receptacle
Test based on rating of - Interrupting poles	Single	Single	Single	Single
Contact Configuration NO/NC	NC	NC	NC	NC
Horsepower	-	-	-	-
A, locked rotor	-	-	-	-
A (Ballast)	15	15	8.7	8.7
Phase	Single	Single	Single	Single
Frequency, Hz	60	60	60	60
V	120	120	277	277
Open-circuit voltage	-----	125.8	-----	279.7
Closed-circuit voltage	-----	122.7	-----	277.2
Test Current, A	45	45.1	26.1	26.3
Percent of rated current	300	300	300	300
Power factor, percent	40-50	47	40-50	46
Shunting resistance, ohms	-----	-----	-----	-----
Number of manual insertions and withdrawals	10	10	10	10
Ambient, °C	25	24.2	25	24.2
Method of operation	Manually		Manually	
Time on, s (FWD/REV)	1	1	1	1
Time off, s	9	9	9	9

NO - Designates normally open contact.

NC - Designates normally closed contact.

Cycle rate expressed as number of seconds load is energized ("on")

Versus number of seconds load is de-energized ("off").

Test 12

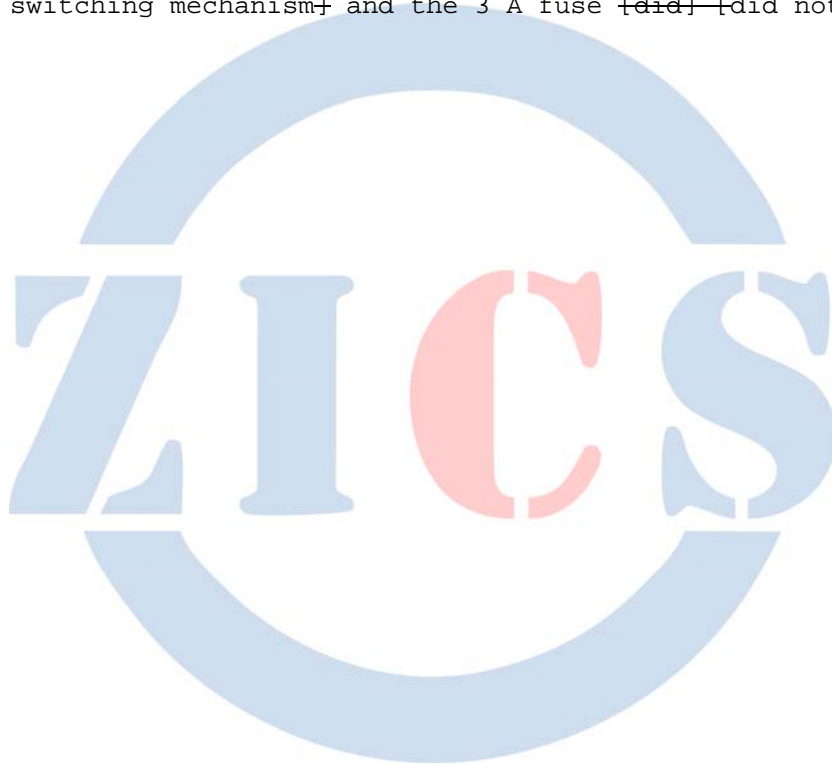
OVERLOAD AND ENDURANCE TEST (Con'd):

UL 773, Sec. 30 and 31

RESULTS

Load (Test Condition) No. of Cycles Completed Did 3 A Fuse Open?	Overload	Overload Interruption	Endurance
	1A,1B,1C	3A	2A,2B,2C
	50	10	3650
	NO	NO	NO

The results of these tests ~~{are}~~ ~~{are not}~~ considered to be acceptable since the device ~~{was}~~ ~~{was not}~~ able to complete the specified number of cycles, there ~~{was}~~ ~~{was no}~~ ~~{undue pitting of the contacts}~~ ~~{failure of the solid state switching mechanism}~~ and the 3 A fuse ~~{did}~~ ~~{did not}~~ open.

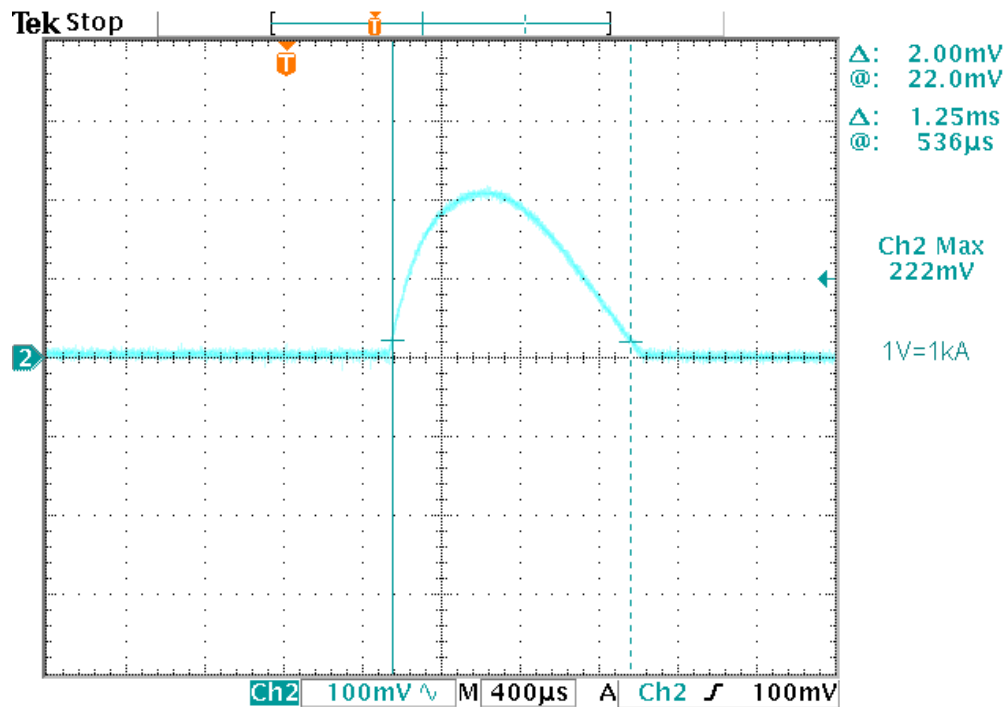


Test 12

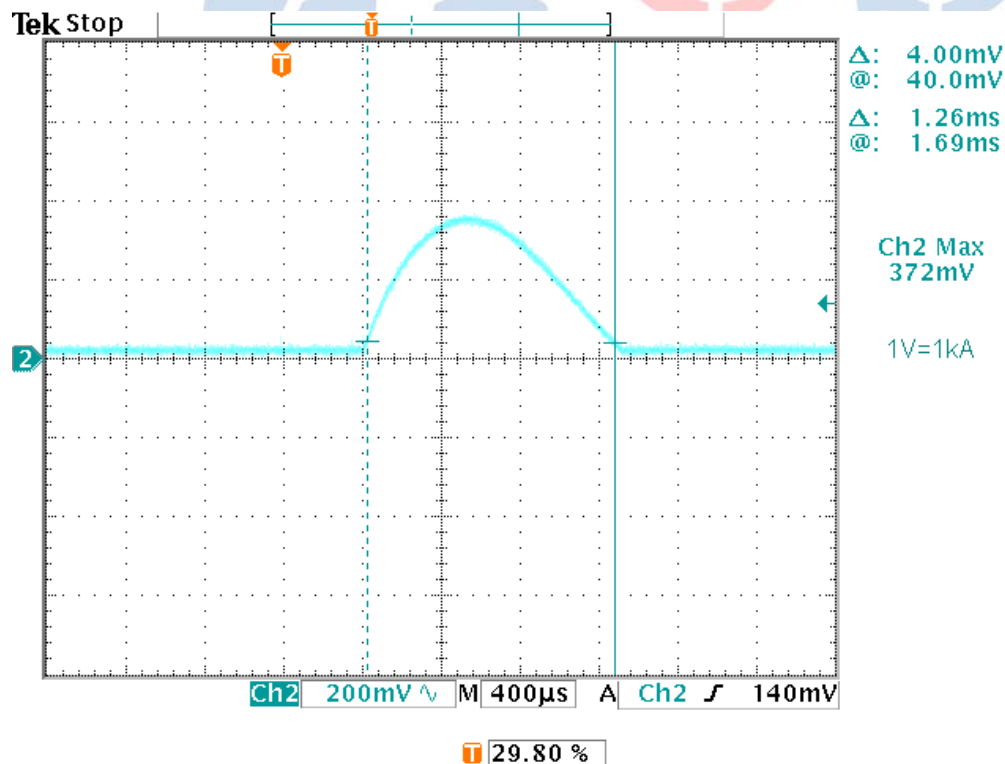
OVERLOAD AND ENDURANCE TEST (Con'd):

UL 773, Sec. 30 and 31

120V, 8A E-Ballast Load Calibration Waveform



277V, 8A E-Ballast Load Calibration Waveform



Test 13**DIELECTRIC VOLTAGE WITHSTAND TEST:****UL 773, Sec. 32****METHOD**

Immediately after the following tests in RESULTS, the control units shall be capable of withstanding, without breakdown, the application of a 60 Hz, sinusoidal potential of 2,500 Vac between live parts and grounded metal parts (Enclosure wrapped in foil) or dimmer contacts. The applied potential is to be increased from zero to the required test value, and is to be held at that voltage for 1 minute. The increase in the applied potential is to be at a uniform rate and as rapidly as is consistent with its value being correctly indicated by a voltmeter.

RESULTS

<u>Model</u>	<u>Volts AC</u>	<u>Dielectric Breakdown from Live Parts to Enclosure?</u>
FOLLOWING TEMPERATURE TEST	2500	NO
FOLLOWING OPERATIONS TEST	2500	NO
FOLLOWING RAIN TIGHTNESS TEST	2500	NO
FOLLOWING EXPOSURE TO HUMID ATMOSPHERE	2500	NO
FOLLOWING RESISTANCE TO IMPACT TEST	2500	NO
FOLLOWING INTERCHANGEABILITY TEST	2500	NO
FOLLOWING EXPOSURE TO LOW TEMPERATURE	2500	NO
FOLLOWING MOLD STRESS	2500	NO
HUMIDITY CYCLING TEST	2500	NO
FOLLOWING OVERLOAD AND ENDURANCE	2500	NO
FOLLOWING OVERLOAD INTERRUPTION	2500	NO

The results of this test ~~{were / were not}~~ considered acceptable since there ~~{was / was not}~~ dielectric breakdown.

TEST 14

LIMITED POWER POINT DETERMINATION TEST:

UL 244A, Sec.25

METHOD

Connect respective sample(s) to the rated supply power and load, as intended in service. Measure the watts available and subject to short-circuited at the test points indicated below.

1. Measure the watts available Using a wattmeter across an adjustable resistor, and with the resistor initially set for maximum resistance. Energize the circuit, starting at the Line side of the circuit, connect the adjustable resistor between each circuit point and its supply return. Adjust the resistor so as to draw maximum available power. Continue measurements along the circuit path until the available power is no greater than 15 watts. Indicate below all components in the circuit between the line input and the point where the available power was no greater than 15 watts. Highlight the Schematic trace(s) leading to these components in greater than 15 watt circuits.

2. Subject to short-circuited

The sample is to be tested on softwood surface covered with white tissue paper. Cover the sample with a single layer of cheesecloth. A 3 Amp non-time delay fuse is to be installed between any dead-metal parts and ground. Energize the circuit, starting at the Line side of the circuit, short-circuit between each circuit point and its supply return. Unless ultimate results were obtained in less time, each test was conducted for a minimum of 1 h. If at the end of 1 h, there was no evidence of overheating of parts, the test was discontinued. If there was evidence of overheating, i.e., odor, smoke, discoloration, etc., the test was to be continued for 7 h.

Repeat the Dielectric Withstand test after each determination.

Engineering Note - If a circuit element or printed wiring foil opens to terminate a test, the test is to be repeated two additional times. Exception: Operation of a thermal or overcurrent device that is rated for the application does not require repeating the test.

TEST 14**LIMITED POWER POINT DETERMINATION TEST (Con'd):****UL 244A, Sec.25****RESULTS**

1. Measure the watts available, Components between return and the 15 W maximum availability point:

Test Model:	GW-LL127-1.5BK-40	Sample No:	Available Power(W)
		07-A023, 07-A024	
Component			
Node between R2 and D5, measured at 277 Vac input			0.02
Node between D9 and Q1, measured at 277 Vac input			0.07

2. Subject to short-circuited between return and the 15 W maximum availability point:

Test Model:	GW-LL127-1.5BK-40	Sample No: 07-A023, 07-A024	Remarks (Ignition, Dielectric Breakdown, Fuse Condition, etc.)
Component			No ignition or dielectric breakdown, fuse remained intact
Node between R2 and D5, at 277 Vac input			
Node between D9 and Q1, at 277 Vac input			

(If "Yes" To Any Of The Following, Please Describe.)

Was there any ignition of the cheesecloth, wood, or tissue? ~~{Yes}~~ ~~{No}~~

Was there any ignition of the cheesecloth, wood, or tissue? ~~{Yes}~~ ~~{No}~~

Did the 3 Amp fuse open? ~~{Yes}~~ ~~{No}~~

Was there any breakdown during Dielectric Test? ~~{Yes}~~ ~~{No}~~

The results of this test ~~{indicated}~~ ~~{did not indicate}~~ compliance with the requirements.

Dielectric Withstand results

Test Model:	GW-LL127-1.5BK-40	
Sample No	Voltage, V	Breakdown, Yes/ No
07-A023 07-A024	2500	NO

TEST 15**COMPONENT FAILURE:****UL244A, Sec.31****METHOD**

Connect the sample as in the Temperature Test. Using the list of components generated in the Limited Power Point Determination Test above, each component in the circuit carrying over 15 watts is to be open or short-circuited, one at a time. The sample is to be tested on softwood surface covered with white tissue paper. Cover the sample with a single layer of cheesecloth. A 3 Amp non-time delay fuse is to be installed between any dead-metal parts and ground. The sample is to be functioning in its normal operating mode at rated load before introducing the open or short-circuit condition. Operate the unit for one hour or until ultimate results occur. If the sample is still operational after one hour, de-energize the sample and reconnect the adjustable resistor/wattmeter used in the limited Power Point Determination Test to determine if, while the open or short-condition existed, there is greater than 15 watts available power at any point in the circuit than previously measured. If so, record the additional components in the 15+ watts circuit below, and highlight the schematic trace leading to them (using a different color). (Note: These additional components are not to be subjected to the open short-circuit conditions)

Repeat the Dielectric Withstand test after each of the above determinations then repeat the entire sequence on the next component from the list.

Engineering Note - If a circuit element or printed wiring foil opens to terminate a test, the test is to be repeated two additional times. Exception: Operation of a thermal or overcurrent device that is rated for the application does not require repeating the test.

RESULTS

Test Model:	GW-LL127-1.5BK-40	
Component	Open/Short	Description of Results
R2	Short	R11 opened, unit shutdown, repeated on additional two samples
R3	Short	R11 opened, unit shutdown, repeated on additional two samples
Q1(S-D)	Short	R11 opened, unit shutdown, repeated on additional two samples
Q2(S-D)	Short	R11 opened, unit shutdown, repeated on additional two samples

Sample Number: 07-A025 ~ 01-A036

(If "Yes" To Any Of The Following, Please Describe)

Did branch circuit protection open? No

Was there any ignition of the cheesecloth, wood, or tissue? No

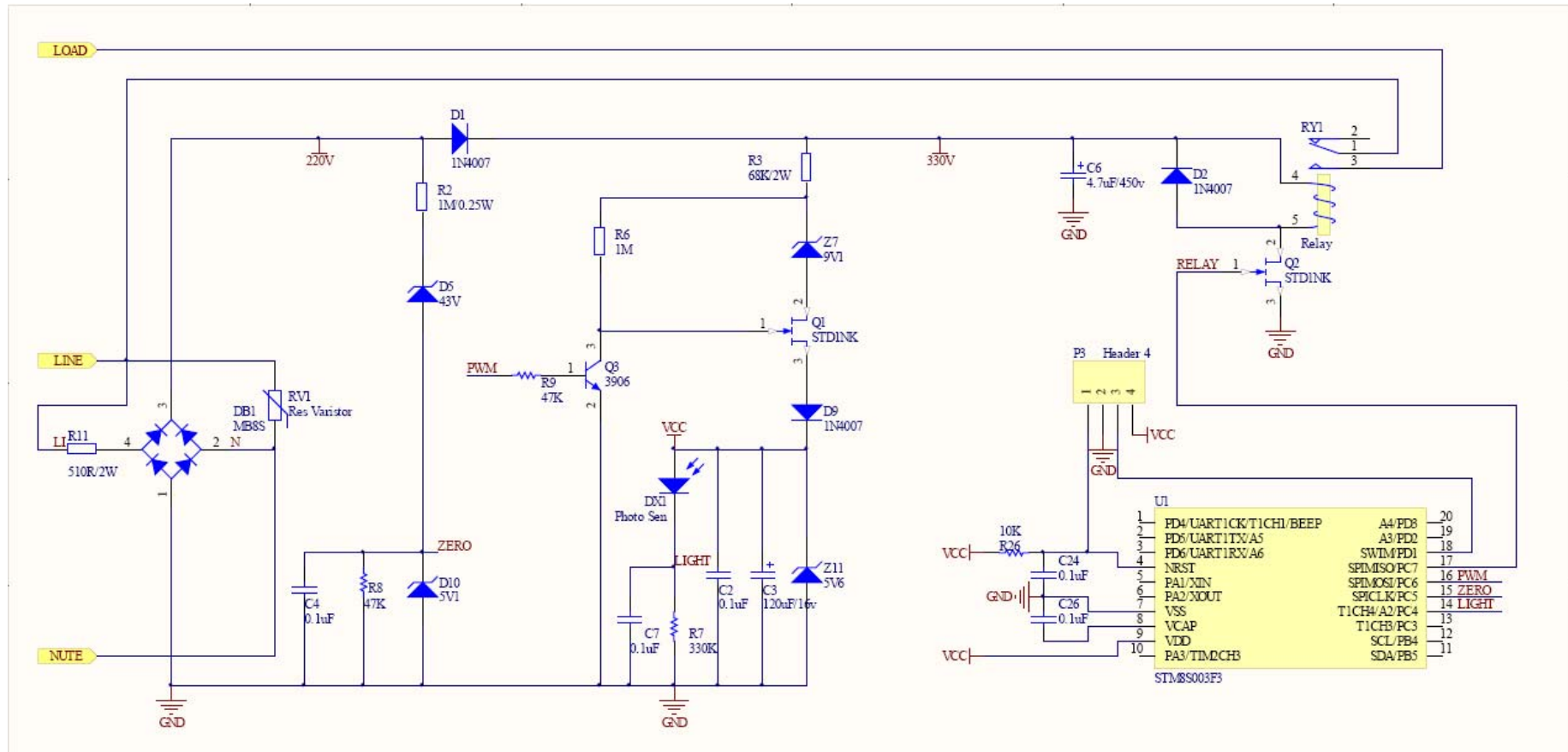
Did the 3 Amp fuse open? No

Was there any breakdown during Dielectric Test? No

Dielectric Withstand results

Test Model:	GW-LL127-1.5BK-40	
Component	Voltage, V	Breakdown, Yes/ No
R2	2500	NO
R3	2500	NO
Q1(S-D)	2500	NO
Q2(S-D)	2500	NO

Circuit Diagram - GW-LL127-1.5BK-40



Photos - GW-LL127-1.5BK-40



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