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REPORT

on

Light-emitting-diode Drivers

ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD
ZHUHAI GUANGDONG 519060 CN

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DESCRIPTION

PRODUCT COVERED:

USL, CNL – LED Driver, Class P, see electrical ratings table for models.

ELECTRICAL RATINGS:

| Model No. (suffix -YYYYYY) | Rated Input – CC | | | | Output - CC | | | Output-AUX (CW) | |
|---|---|---|---|---|---|---|---|---|---|
| | Voltage (Vac) | Freq. (Hz) | Max. Current (A) | Power (W) Max | Voltage Range (Vdc) | Current Range (mA) | Max. Power (W) | Voltage (Vdc) | Max. Wattage (W) |
| PLH-A20W-07-55-SZ | 120-277 | 50/60 | 0.25 | 28 | 10-55 | 100-700 | 20 | N/A | N/A |
| PLH-A30W-10-55-SZ | 120-277 | 50/60 | 0.35 | 40 | 10-55 | 275-1050 | 30 | N/A | N/A |
| PLH-A50W-14-55-SZ | 120-277 | 50/60 | 0.50 | 58 | 10-55 | 400-1400 | 50 | N/A | N/A |
| PLH-A65W-18-55-SZ | 120-277 | 50/60 | 0.7 | 75 | 10-55 | 600-1800 | 65 | N/A | N/A |
| PLH-A20W-07-55-SXZ | 120-277 | 50/60 | 0.25 | 30 | 10-55 | 100-700 | 20 | 9.5-24 | 1.2 |
| PLH-A30W-10-55-SXZ | 120-277 | 50/60 | 0.35 | 42 | 10-55 | 275-1050 | 30 | 9.5-24 | 1.2 |
| PLH-A50W-14-55-SXZ | 120-277 | 50/60 | 0.50 | 60 | 10-55 | 400-1400 | 50 | 9.5-24 | 1.2 |
| PLH-A65W-18-55-SXZ | 120-277 | 50/60 | 0.7 | 77 | 10-55 | 600-1800 | 65 | 9.5-24 | 1.2 |
| PLH-A20W-07-55-SZN | 120-277 | 50/60 | 0.25 | 28 | 10-55 | 100-700 | 20 | N/A | N/A |
| PLH-A30W-10-55-SZN | 120-277 | 50/60 | 0.35 | 40 | 10-55 | 275-1050 | 30 | N/A | N/A |
| PLH-A50W-14-55-SZN | 120-277 | 50/60 | 0.50 | 58 | 10-55 | 400-1400 | 50 | N/A | N/A |
| PLH-A65W-18-55-SZN | 120-277 | 50/60 | 0.7 | 82 | 10-55 | 600-1800 | 65 | N/A | N/A |
| PLH-A20W-07-55-SXZN | 120-277 | 50/60 | 0.25 | 30 | 10-55 | 100-700 | 20 | 9.5-24 | 1.2 |
| PLH-A30W-10-55-SXZN | 120-277 | 50/60 | 0.35 | 42 | 10-55 | 275-1050 | 30 | 9.5-24 | 1.2 |
| PLH-A50W-14-55-SXZN | 120-277 | 50/60 | 0.50 | 60 | 10-55 | 400-1400 | 50 | 9.5-24 | 1.2 |
| PLH-A65W-18-55-SXZN | 120-277 | 50/60 | 0.7 | 77 | 10-55 | 600-1800 | 65 | 9.5-24 | 1.2 |
| PLH-A20W-07-55-TZN | 120-277 | 50/60 | 0.25 | 28 | 10-55 | 100-700 | 20 | N/A | N/A |
| PLH-A30W-10-55-TZN | 120-277 | 50/60 | 0.35 | 40 | 10-55 | 275-1050 | 30 | N/A | N/A |
| PLH-A50W-14-55-TZN | 120-277 | 50/60 | 0.50 | 58 | 10-55 | 400-1400 | 50 | N/A | N/A |
| PLH-A65W-18-55-TZN | 120-277 | 50/60 | 0.7 | 75 | 10-55 | 600-1800 | 65 | N/A | N/A |

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ELECTRICAL RATINGS (Con't):

| Model No. (suffix -YYYYYY) | Rated Input – CC | | | | Output - CC | | | Output-AUX (CW) | |
|---|---|---|---|---|---|---|---|---|---|
| | Voltage (Vac) | Freq. (Hz) | Max. Current (A) | Power (W) Max | Voltage Range (Vdc) | Current Range (mA) | Max. Power (W) | Voltage (Vdc) | Max. Wattage (W) |
| PLH-A20W-07-55-TXZN | 120-277 | 50/60 | 0.25 | 30 | 10-55 | 100-700 | 20 | 9.5-24 | 1.2 |
| PLH-A30W-10-55-TXZN | 120-277 | 50/60 | 0.35 | 42 | 10-55 | 275-1050 | 30 | 9.5-24 | 1.2 |
| PLH-A50W-14-55-TXZN | 120-277 | 50/60 | 0.50 | 60 | 10-55 | 400-1400 | 50 | 9.5-24 | 1.2 |
| PLH-A65W-18-55-TXZN | 120-277 | 50/60 | 0.7 | 84 | 10-55 | 600-1800 | 65 | 9.5-24 | 1.2 |
| PLH-A20W-07-55-TZ | 120-277 | 50/60 | 0.25 | 28 | 10-55 | 100-700 | 20 | N/A | N/A |
| PLH-A30W-10-55-TZ | 120-277 | 50/60 | 0.35 | 40 | 10-55 | 275-1050 | 30 | N/A | N/A |
| PLH-A50W-14-55-TZ | 120-277 | 50/60 | 0.50 | 58 | 10-55 | 400-1400 | 50 | N/A | N/A |
| PLH-A65W-18-55-TZ | 120-277 | 50/60 | 0.7 | 75 | 10-55 | 600-1800 | 65 | N/A | N/A |
| PLH-A20W-07-55-TXZ | 120-277 | 50/60 | 0.25 | 30 | 10-55 | 100-700 | 20 | 9.5-24 | 1.2 |
| PLH-A30W-10-55-TXZ | 120-277 | 50/60 | 0.35 | 42 | 10-55 | 275-1050 | 30 | 9.5-24 | 1.2 |
| PLH-A50W-14-55-TXZ | 120-277 | 50/60 | 0.50 | 60 | 10-55 | 400-1400 | 50 | 9.5-24 | 1.2 |
| PLH-A65W-18-55-TXZ | 120-277 | 50/60 | 0.7 | 84 | 10-55 | 600-1800 | 65 | 9.5-24 | 1.2 |
| PLH-A20W-07-55-FLT | 120-277 | 50/60 | 0.25 | 30 | 10-55 | 100-700 | 20 | 9.5-24 | 1.2 |
| PLH-A30W-10-55-FLT | 120-277 | 50/60 | 0.35 | 42 | 10-55 | 275-1050 | 30 | 9.5-24 | 1.2 |
| PLH-A50W-14-55-FLT | 120-277 | 50/60 | 0.50 | 60 | 10-55 | 400-1400 | 50 | 9.5-24 | 1.2 |
| PLH-A65W-18-55-FLT | 120-277 | 50/60 | 0.7 | 77 | 10-55 | 600-1800 | 65 | 9.5-24 | 1.2 |
| "FLT", replaced by the suffix YYYYYY. | | | | | | | | | |

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MODEL NOMENCLATURE:

PLH-AEEW-GG-HH-IJ-YYYYYY

| TABLE Series: | PLH | - | AEEW | - | GG | - | HH | - | I | J | - | YYYYYY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group: | 1 | - | 2 | - | 3 | - | 4 | - | 5 | 6 | - | 7 |

| Group | Description |
|---|---|
| 1 | Series name = PLH |
| *2 | Represents maximum output power of driver, “EE”<br><br>= 10 if max. output power < 10W<br>= 20 if 10 W < max. output Power ≤20 W<br>= 30 if 20 W < max. output Power ≤ 30 W<br>= 40 if 30 W < max. output Power ≤ 40 W<br>= 50 if 40 W < max. output Power ≤ 50 W<br>= 55 if 50 W < max. output Power ≤ 55 W<br>= 60 if 55 W < max. output Power ≤ 60 W<br>= 65 if 60 W < max. output Power ≤ 65 W |
| 3 | Represents maximum output current of driver, “GG” any 2 digits number.<br>The current range defined for each segment denoted by “GG” (eg.0.1A-0.7A for 07).<br>“current setting” which can be any value within this defined range.<br><br>0-30W:<br>= 07 not more than 700 (mA);<br>= 10 not more than 1050 (mA);<br><br>>30W:<br>= 14 not more than 1400 (mA);<br>= 18 not more than 1800 (mA); |
| 4 | Represents maximum output voltage of driver, “HH”<br>= any 2 digits number between 10 and 55 (Vdc); |
| 5 | “I” can be<br>“S” for Side leads. “SX” for Side leads/Aux.<br>“T” for Terminal blocks. “TX” for Terminal blocks/Aux.<br><br>or blank. |
| 6 | “J” can be<br>“Z” represents with 0-10V DTO dimming.<br>“ZN” represents with 0-10V DTO dimming /NFC<br><br>or blank. |
| 7 | Represents customer code for market purpose only, “YYYYYY”.<br>May be 0 to 6 digits, any combination of alphanumeric characters or blank.<br>“FLT” for client name code, replaced by the suffix YYYYYY. |

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TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USL – Products designated USL have been investigated using US requirements as noted in the Test Record.

CNL – Products designated CNL have been investigated using Canadian requirements as noted in the Test Record.

MODEL DIFFERENCES

All products covered in this report utilize the same PWB design. The different output voltages and power levels are achieved by means of changes in component values in the primary circuit as well as number of turns in coil windings.

| Models with suffix | All Outputs | 0-10V dimming circuit from DC Ouput | Aux | Enclosure | PWB trace layout and circuit |
|---|---|---|---|---|---|
| SZ | Class 2 | Non-isolated | Not provide | ILL.1 | ILL.13, 14 |
| SXZ | Class 2 | Non-isolated | provide | ILL.2 | ILL.13, 14 |
| SZN | Class 2 | Non-isolated | Not provide | ILL.3 | ILL.13, 14 |
| SXZN | Class 2 | Non-isolated | provide | ILL.4 | ILL.13, 14 |
| TZN | Class 2 | Non-isolated | Not provide | ILL.7 | ILL.15, 16 |
| TXZN | Class 2 | Non-isolated | provide | ILL.8 | ILL.15, 16 |
| TZ | Class 2 | Non-isolated | Not provide | ILL.5 | ILL.15, 16 |
| TXZ | Class 2 | Non-isolated | provide | ILL.6 | ILL.15, 16 |
| FLT | Class 2 | Non-isolated | provide | ILL.2 | ILL.13, 14 |

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Product characteristics-

| | | | |
|---|---|---|---|
| Model No.<br>[x] applies to all models- see electrical ratings | Input Type | [x ] Branch Circuit (Mains)<br>[ ] Isolated Circuit<br>[ ] Class 2 [ ] LED Class 2<br>[ ] LVLE [ ] LPS | |
| | Output Type | [ ] Non-isolated [ ] with PLIMIT @ 15 W<br>[ ] Isolated [ ] with PLIMIT @ 100 W<br>[x ] Class 2 [ ] LED Class 2<br>[ ] LVLE [ ] LPS | |
| | Environmental Conditions | [ ] Dry [x ] Damp [ ] Wet | |
| | [x ] Additionally evaluated to Supplemental requirements related to | [ ] Safety Related Electronic Circuits | [ ] Based on Reliability Evaluation<br>[ ] Based on Alternate criteria to Reliability Evaluation |
| | | [ ] Type HL | |
| | | [ ] Type TL | Tref max/ Measured Tref-<br>xx/ yy ° C |
| | | [x ] Class P | |
| | | [x ] Wired Control Circuits | [ ] Based on Separation of Circuits Evaluation.<br><br>[ ] Based on exception for Control Circuit not exiting the lighting equipment<br><br>[x] Based on exception for LED equipment having a Class 2 output power circuit. |
| | | [x ] Temperature Value @ Tc | 90 ° C |
| | | [ ] Phase Cut Dimming | |
| | | [ ] Type IC LED driver | |
| | | [ ] Double Insulated LED equipment | |
| | | [ ] LED Driver Input Power Factor | |

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CONSTRUCTION DETAILS:

Corrosion Protection - Ferrous metal parts are protected against corrosion by plating or painting.

Soldered Connections - All soldered connections are mechanically secured before soldering.

Printed Wiring Boards –Suitable for the solder time and temperature used by the manufacturer.

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Product markings & information on an instruction sheet or the like;

| | Description | Comment |
|---|---|---|
| x | Company name (as identified in Online directory) or File number | |
| x | Model designation- | |
| x | Factory ID, when more than one factory | |
| x | Date Code | |
| x | Environmental considerations | See product characteristics table- § |
| x | Electrical Ratings | See electrical ratings table- § |
| x | Input & Output Types | See product characteristics table- § |
| x | Class 2 outputs | See product characteristics table- 'Class 2' marked on the device. |
| x | Polarity of supply connections | Applies to [x ]Input, [x ] Output- § |
| x | Push-in terminals | The installation instructions contain the following information:<br>a) For releasing the wire from the terminal connection,<br>b) The intended wire size(s),<br>c) Whether the terminal is intended for both solid and stranded or just solid wire,<br>d) The length to strip the insulation from conductors, and<br>e) The terminal relationship to the internal circuitry. |
| x | Class P LED drivers | See product characteristics table- optional marking 'Class P' on LED driver. If marking is provided, then the LED driver is marked "For Connections Use Wire Rated for at Least 90°C (194°F)" or equivalent - #<br>[x ] Device marked "Use only within an enclosure" or equivalent - §, # |
| x | Wired Control Circuits | See product characteristics table-<br>1. Identification of the terminals or lead wires for control circuits - §<br>2. Identification of the intended industry or proprietary protocols - §<br>3. Instruction sheet<br>4. [X] "Notice: This control circuit is not isolated - see installation instructions" or equivalent - §, #<br>5. [X ] Device wired control circuit marked 'Class 2' |
| x | Temperature Value @ Tc | See product characteristics table-<br>Tc point location marking on device.<br>The Tref max values may be marked on the device in the following format: 90 °C- § |
| x | Grounding | "CASE MUST BE GROUNDED" - Optional |

x- Denotes applicable product markings
§- For built-in products this information may be provided on the product, or on an instruction sheet.
#- For products with the UL Mark for Canada, this marking is also provided in French.

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LED Driver, Model PLS-A65W-18-55-SZ-YYYYYYY – FIGS. 1-3
LED Driver, Model PLS-A65W-18-55-SXZ-YYYYYYY – FIGS. 4-6
LED Driver, Model PLS-A65W-18-55-SZN-YYYYYYY – FIGS. 7-9
LED Driver, Model PLS-A65W-18-55-SXZN-YYYYYYY – FIGS. 10-15
LED Driver, Model PLS-A65W-18-55-TZ-YYYYYYY – FIGS. 16-18
LED Driver, Model PLS-A65W-18-55-TXZ-YYYYYYY – FIGS. 19-21
LED Driver, Model PLS-A65W-18-55-TZN-YYYYYYY – FIGS. 22-24
LED Driver, Model PLS-A65W-18-55-TXZN-YYYYYYY – FIGS. 25-30
LED Driver, Model PLS-A65W-18-55-FLT – FIGS. 31-39

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. Also represents the entire PLH-AEEW-GG-HH-IJ-YYYYYY except where specifically described.

| No. | Item | CCN | Manufacturer (File Number) | Part/Model Number | Description / Technical Data | (F)IG (I)LL |
|---|---|---|---|---|---|---|
| 1 | Enclosure<br><br>(where IJ = SZ or SXZ) | - | Various | Various | Aluminum, 0.6 mm thick. Consists of Top cover and Base enclosure, secured together by snap fit.<br><br>Provided with a 7.7 mm diameter opening on Top cover for PhoneJack and closed off by Phonejack Cover and Phonejack.<br><br>Provided with a 2.9 mm wide by 10.1 mm long opening for Probe tip entry for programming fixtures.<br><br>See ILL. (unit: mm) for detail dimensions. | I1 |
| 1.1 | Alternate (where IJ = SZN or SXZN) | - | - | - | Same as above except for ILL. (unit: mm)<br><br>Not provided phonejack opening.<br><br>Provided with a 17.85 mm wide by 19.5 mm long opening on Top cover for Data Socket and closed off by Data Socket Cover. | I2 |
| 1.2 | Alternate (where IJ =FLT) | - | - | - | Same as above except for ILL. (unit: mm) | I3 |
| 1.3 | Enclosure<br><br>(where IJ = TZ) | - | - | - | Same as above except for ILL. (unit: mm) | I4 |
| 1.4 | Alternate (where IJ = TXZ) | - | - | - | Same as above except for ILL. (unit: mm) | I5 |
| 1.5 | Alternate (where IJ = TZN) | - | - | - | Same as above except for ILL. (unit: mm)<br><br>Not provided phonejack opening.<br><br>Provided with a 17.85 mm wide by 19.5 mm long opening on Top cover for Data Socket and closed off by Data Socket Cover. | I6 |

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