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REPORT

on

LIGHT-EMITTING-DIODE SURFACE-MOUNTED LUMINAIRES

ANTEC LIGHTING
ONTARIO, CA

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DESCRIPTION

PRODUCT COVERED:

- * USL, CNL - Light-emitting-diode Luminaire, Models: AOK-150WoD-NV-XX-XX-XXXX-BN-P, **AOK-40WiDA-NV-XX-XX-XXXX-BN-P**, **AOK-60WiDA-NV-XX-XX-XXXX-BN-P**, AOK-40WiDB-NV-XX-XX-XXXX-BN-P and **AOK-60WiDB-NV-XX-XX-XXXX-BN-P**. See NOMENCLATURE for suffix details.

NOTE: USL - United States Standard Listed.

CNL - Canadian Standard Listed.

ELECTRICAL RATING:

Model No.	Input Rating				Locations Use	Mounting type
	Voltage (Vac)	Freq. (Hz)	Current (A)	Watt (W)		
AOK-150WoD-NV-XX-XX-XXXX-BN-P	100-277	50/60	1.65	150	Wet	Wall
AOK-40WiDA-NV-XX-XX-XXXX-BN-P	120-277	50/60	0.45	40	Damp	Ceiling/ Pendant
AOK-60WiDA-NV-XX-XX-XXXX-BN-P	120-277	50/60	0.66	60		
AOK-40WiDB-NV-XX-XX-XXXX-BN-P	120-277	50/60	0.45	40		
AOK-60WiDB-NV-XX-XX-XXXX-BN-P	120-277	50/60	0.66	60		

GENERAL CONSTRUCTION:

This product complies with the applicable Standards for USL and/or CNL luminaires as noted under the "Technical Considerations" section noted below, the Section General, and the Description on the following pages.

All components of products bearing the C-UL mark shall be Listed or Recognized for Canada or CSA Certified, in addition to being UL Listed or Recognized.

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

USL indicates product complies with the Standard for Luminaires, UL 1598 and the United States country specific requirements contained within the Standard, along with the relevant parts of the UL Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750.

CNL indicates product complies with the Canadian National Standard for Luminaires, CSA C22.2 No. 250.0 and the Canadian country-specific requirements contained within the Standard.

CONSTRUCTION DETAILS:

The product shall be constructed in accordance with the following description.

Corrosion Protection - All enclosures and covers and all ferrous metal parts exposed directly to weather shall be provided with corrosion protection suitable for wet locations, as specified in the Standard.

MARKINGS:

The following markings shall also be provided in addition to the required markings in Section General in accordance with the Standard.

- a. Listee's Name or UL File Number, Model number and Product Identifier.
- b. Electrical Rating (V, Hz, A, W).
- c. Date Code of at least the month and year of manufacturing.
- d. Use location. "SUITABLE FOR WET LOCATIONS" in Form S24-L2 **for Model AOK-150WoD-NV-XX-XX-XXXX-BN-P series only.**
- e. "THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED" or equivalent in Form S24-L4.
- f) "SUITABLE FOR OPERATION IN AMBIENT NOT EXCEEDING 45°C" in Form S24-L2;

NOMENCLATURE:

Example:	AOK	-	150WoD	-	NV	-	L3	-	SN	-	XXXX	BN	-	P
Group:	AOK	-	W	-	XX	-	XX	-	XX	-	XXXX	BN	-	P

Group	Description
AOK	Represents product series.
W	Represents input wattage, which can be 150, followed by WoD.
XX	Represents input voltage, which can be as following: NV - 100-277 Vac.
XX	Can be "X5" or "L3" to represent brands of LED.
XX	Represents Motions Sensor, which be as following: 00 - No sensor provided, or SN - Sensor function provided.
XXXX	Can be any numbers to represent color temperature and color rendering index.
BN	Can be any letter or number to represent beam angles.
P	Represents mounting means, which can be as following: A - Pole-wall mounted, or B - Wall mounted.

NOMENCLATURE:

Example:	AOK	-	40WiDA	-	NV	-	L3	-	SN	-	XXXX	BN	-	P
Group:	AOK	-	W	-	XX	-	XX	-	XX	-	XXXX	BN	-	P

Group	Description
AOK	Represents product series.
W	Represents input wattage, which can be 40 or 60, followed by WiDA or WiDB.
XX	Represents input voltage, which can be as following: NV - 120-277 Vac.
XX	Can be "X5" or "L3" to represent brands of LED.
XX	Represents Motions Sensor, which be as following: 00 - No sensor provided, or SN - Sensor function provided.
XXXX	Can be any numbers to represent color temperature and color rendering index.
BN	Can be any letter or number to represent beam angles.
P	Represents mounting means, which can be as following: A - Ceiling mounted.

INSTALLATION INSTRUCTION:

Each luminaire shall be provided with installation instructions showing the correct mounting and installation method, electrical connection.

ILLUSTRATIONS:

ILL. No	Model No.	Description
1	AOK-150W _o D-NV-XX-XX-XXXX-BN-P	Enclosure
2		Enclosure Cover
3		Diffuser
4		Gasket for Diffuser
5		Gasket for Enclosure Cover
6		LED PWE layout
7		Strain Relief Bushing
8		Wall Mounting Clamp
9		Arm
10		Slip fitter
11		Mounted bracket
12	AOK-150W _o D-NV-XX-XX-XXXX-BN-P, AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P, AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	Breather
13	AOK-150W _o D-NV-XX-XX-XXXX-BN-P	Installation Manual
14	AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	Lamp Housing
15	AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	
16	AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	Diffuser
17	AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	
18	AOK-40WiDA-NV-XX-00-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	Reflector
18A	AOK-40WiDA-NV-XX-SN-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	
19	AOK-40WiDB-NV-XX-00-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	
19A	AOK-40WiDB-NV-XX-SN-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	Gasket
20	AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	
21	AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	

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ILL. No	Model No.	Description
22	AOK-40WiDA, AOK-40WiDB, AOK-60WiDA and AOK-60WiDB Series	Mounting bracket
23	AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-40WiDB-NV-XX-XX-XXXX-BN-P	LED PWB layout
23A	AOK-60WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	
24	AOK-40WiDA and AOK-60WiDA Series	Installation Manual
25	AOK-40WiDB and AOK-60WiDB Series	

MODEL AOK-150WoD-NV-XX-00-XXXX-BN-P - FIGS. 1 THRU 3

General - Figs. 1 through 3 show overall, internal and disassembly views of Model AOK-150WoD-NV-XX-00-XXXX-BN-P, Fig. 4 shows overall view of Model AOK-150WoD-NV-XX-SN-XXXX-BN-P. Also, represents Model AOK-150WoD-NV-XX-XX-XXXX-BN-P series, except where variations are specifically described below.

1. Enclosure (For models with suffix "XX" = "SN" only) - Die-cast Aluminum, min. 2.4 mm thick. See ILL. 1 for detailed dimensions.

Alternate (For models with suffix "XX" = "00" only) - Same as above except dimension. See ILL. 1A for detailed dimensions.

2. Enclosure Cover - Die-cast Aluminum, min. 2.4 mm thick. See ILL. 2 for detailed dimensions. Secured to Enclosure by Screws.
3. Diffuser - R/C (QMFZ2), SABIC JAPAN LLC (E207780), Model LUX7630C(f1)(gg*), rated 5VA, 120°C, min. 3.0 mm thick. See ILL. 3 for detailed dimensions. Secured to Enclosure by screws.
4. Gasket for Diffuser - Silicone rubber, measured min. 2.5 mm thick. Secured around the integral slot of Diffuser. See ILL. 4 for detailed dimensions.
5. Gasket for Enclosure Cover - Silicone rubber, measured min. 2.5 mm thick. Secured around the integral slot of Enclosure. See ILL. 5 for detailed dimensions.
6. LED Driver - R/C (FKSZ2/8), INVENTRONICS (HANGZHOU) INC (E328335), Model EUP-150S350ST, rated Input 100-240/277 Vac, 50/60 Hz, 1.7/0.7 A; Output 48 Vdc, 3.5 A. Integrally provided with "W" rated input/output leads, min 18 AWG, rated min. 300 V, 105°C. Secured to inside of Enclosure by screws.
7. LED Modules - Consisted of Printed Wiring Board, LED, Lead wire, secured to Heat Sink by screws. See below items for the details.
 - a. Printed Wiring Board - R/C (ZPMV2), metal base, rated min V-1, min. 105°C, measured 1.5 mm thick. Overall 152 mm Diameter. See ILL. 6 for LED PWB layout.
 - b. LED - Each rated max 6.6 V, max 240 mA, 210 pcs provided.
 - c. Lead Wire - R/C (AVLV2/8), min. 24 AWG, rated min. 300 V, 105°C.
8. Strain Relief Bushing - Copper, secured to Enclosure by integral threads. Provided Silicone Rubber Gasket, measures min. 1.5 mm thick. See ILL. 7 for dimensions details.
9. Grounding Wire - In accordance with the standard, min 18 AWG, 300V. Secured to Enclosure by a grounding screw.

10. Power Supply Cord - Listed (ZJCZ/7), type SJTW or SJOW, three-conductor type, min. 18 AWG, rated min. 300 V, min. 105°C.
11. Wire Connector - Listed (ZMVV/7) or CN, rated min. 300 V, min. 90°C, using with suitable wire size and combination and assembled using the connector manufacturer's recommended tools.
12. Wall Mounting Clamp (For models with suffix "P" = "B") - Steel, with plated zinc, 2 mm thick. Secured to Enclosure by screws. See ILL. 8 for detailed dimensions.

Pole Mounted Assembly (For models with suffix "P" = "A") - Consisted of the below items:

- a. Arm - Die-Cast aluminum, minimum 1.2 mm thick. See ILL. 9 for detailed dimensions. Provided with a connecting plate with conduit opening, secured to Arm by screws, see ILL. 9A for details. Secured to Enclosure by Slip fitter with screws.
 - b. Slip Fitter - Steel, minimum 1.0 mm thick. See ILL. 10 for detailed dimensions, Secured to the housing by screws.
 - c. Mounted bracket - Die-Cast aluminum, minimum 1.2 mm thick. See ILL. 11 for detailed dimensions.
13. Photo Control (For models with suffix "XX" = "SN" only) - Listed (WJFX/7), NINGBO BRILLIANT ELECTRONICS CO., LTD (E484113), Model BRI816, rated 120-277 V, 50/60 Hz, suitable for outdoor use.

Alternate - Same as above except for Listed (ATNZ/7), EUCONTROLS CORP (E479515), Model S618-P-DR, rated 120/277 Vac, 50/60 Hz, 800 W/ 1200 VA, suitable for outdoor use.

Alternate - Same as above except for Listed (ANTZ/7) THE WATT STOPPER INC (E101196), Model FSP-211(#), rated 120-277 V, 50/60 Hz, suitable for outdoor use.

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14. Lightning Protector - (Optional), R/C (VZCA2/8), INVENTRONICS (HANGZHOU) INC (E467129), Cat No. PU-20KS10KTTN-xxxx (#), SPD type 4CA, rated 277V, 85°C, 10kA In. Secured to Enclosure by screws.

Alternate - Same as above except for Optional. R/C (VZCA2/8), TDC POWER PRODUCTS CO LTD (E471807), Cat No. SPD277-10K.1, SPD type 5, rated 277, 85°C, 3kA In. Located inside of Enclosure.

Alternate - Same as above except for R/C (VZCA2/8), MW MCWONG INTERNATIONAL INC (E466236), Cat No. SPD-277P-20KA-EC or SPD-277P-20KA-EC1, SPD type 5, rated 277V, 85°C, 10kA In.

Alternate - Same as above except for R/C (VZCA2/8), LITTELFUSE INC (E320116), Cat No. LSP05HST277 (h), SPD type 5, rated 277 VAC, 85°C, 5kA In.

Alternate - Same as above except for R/C (VZCA2/8), LITTELFUSE INC (E320116), Cat No. LSP10277P (h), SPD type 4CA, rated 277V, 85°C, 10kA In.

Alternate - Same as above except for LITTELFUSE INC (E320116), Cat No. LSP05277P (h), SPD type 4CA, rated 277V, 85°C, 5kA In.

15. Photocontroller Assembly (For models with suffix "XX" = "SN" only) - Consisted of the below item:
- a. Photoelectric Switch Receptacle - R/C (WJFX2/8), YANGZHOU NUOKAI ELECYTRONICS CO LTD (E350349), Model NK-DR-103-04, NK-DR-105-04 or NK-DR-107-04, rated 480 V, 15A, 50/60 Hz, suitable for outdoor use.
- Alternate - Same as above except R/C (WJFX2/8), TYCO ELECTRONICS CORP (E66375), AM-1-A-NB or AM-2-A-NB, rated 480 Vac, 50/60 Hz, 1000 W Tugsten.
- b. Photocontroller - Listed (WJFX/7), TYCO ELECTRONICS CORP (E66375), Cat No. 6090, rated 120-277 V, 50/60 Hz, 1800 VA.
- Alternate - Listed (WJFX/7), SHANGHAI LONG-JOIN INTELLIGENT TECHNOLOGY INC (E188110), Model JL-207C5, rated 120/277 V, 50/60 Hz, 1800 W, suitable for outdoor use.
- c. Shorting Cap - Listed (WJFX/7), TYCO ELECTRONICS CORP (E66375), Cat No. SC-10A, rated 120-480 V, 50/60 Hz, 1000 W.
16. Breather - R/C (QMFZ2), SABIC JAPAN L L C (E207780), Model LUX7630C(f1)(gg*), rated 5VA, 120 °C, min. 3.0 mm thick. See ILL. 12 for dimension details. Secured to Enclosure by self- threaded screw.

MODEL AOK-40WiDA-NV-XX-SN-XXXX-BN-P - FIGS. 5 AND 6

MODEL AOK-40WiDB-NV-XX-SN-XXXX-BN-P - FIGS. 7 AND 8

General - Fig. 5 and 6 show overall and views of Model AOK-40WiDA-NV-XX-SN-XXXX-P. Also represent Models AOK-40WiDA-NV-XX-XX-XXXX-BN-P series **and AOK-60WiDA-NV-XX-XX-XXXX-BN-P**, except where variations are specifically described below. Fig. 7 and 8 show overall and views of Model AOK-40WiDB-NV-XX-SN-XXXX-BN-P. Also, represents Models AOK-40WiDB-NV-XX-XX-XXXX-BN-P **and AOK-60WiDB-NV-XX-XX-XXXX-BN-P** series, except where variations are specifically described below.

1. Lamp Housing - Die-cast Aluminum, min. 2.0 mm thick. See below table for detailed dimensions.

Model No.	ILL. No.
AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	14
AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	15

2. Diffuser - R/C (QMFZ2), SABIC JAPAN LLC (E207780), Model LUX7630C(f1)(gg*), rated 5VA, min. 3.0 mm thick, min. 120°C, Secured to Lamp Housing by screws. See below table for detailed dimensions.

Model No.	ILL. No.
AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	16
AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	17

3. Reflector - Painted Aluminum, min. 1.2 mm thick. Secured to Lamp Housing by screws. See below table for detailed dimensions.

Model No.	ILL. No.
AOK-40WiDA-NV-XX-00-XXXX-BN-P, AOK-60WiDA-NV-XX-00-XXXX-BN-P	18
AOK-40WiDA-NV-XX-SN-XXXX-BN-P, AOK-60WiDA-NV-XX-SN-XXXX-BN-P	18A
AOK-40WiDB-NV-XX-00-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	19
AOK-40WiDB-NV-XX-SN-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	19A

Alternate - Same as above except R/C (QMFZ2/8), rated min. HB, min 80°C, 1.0 mm thick.

4. Gasket - Silicone rubber, measured min. 2.5 mm thick, secured around the integral slot of Diffuser See below table for detailed dimensions.

Model No.	ILL. No.
AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDA-NV-XX-XX-XXXX-BN-P	20
AOK-40WiDB-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	21

5. Power Supply Cord - Listed (ZJCZ/7), type SJTW or SJOW, three-conductor type, min. 18 AWG, rated min. 300 V, min. 105°C.
6. Mounting Bracket (For models with suffix "P" = "B") - Die-cast Aluminum, min. 1.2 mm thick. See ILL. 22 for detailed dimensions. Secured to Lamp Housing by screws.
7. Wire Connector - Listed (ZMVV/7) or CN, rated min. 300V, min. 90°C, using with suitable wire size and combination and assembled using the connector manufacturer's recommended tools.
8. Grounding Wire - In accordance with the standard, min. 18 AWG, 300V. Secured to Enclosure by a grounding screw.
9. LED Driver - R/C (FKSZ2/8), SHENZHEN WEIPENG SHIJI TECHNOLOGY CO LTD (E467380), see below table for models and ratings. Secured inside Lamp Housing by screws.

Model	Driver Model	Ratings
AOK-40WiDA-NV-XX-XX-XXXX-BN-P, AOK-40WiDB-NV-XX-XX-XXXX-BN-P	WP-HLA- 040U0450850	Input: 120-277 V, 50/60 Hz, 0.4 A, 46 W; Output: 30-45 Vdc, 0.85 A, Class 2.
AOK-60WiDA-NV-XX-XX-XXXX-BN-P, AOK-60WiDB-NV-XX-XX-XXXX-BN-P	WP-HLA- 060U0441350	Input: 120-277V, 50/60 Hz, 0.65 A Output: 30-44 Vdc, 1.35 A, Class 2.

10. LED Assembly - Consists of below item. Secured to Lamp Housing by screws.
- a. Printed Wiring Board - R/C (ZPMV2), metal-based, rated min. V-1, 105°C, min. 1.2 mm thick, suitable for Direct Support of Current-carrying Parts. Secured to Lamp Housing by screws. See blew table for the PWB Layout
- b. LEDs - See below table for detail.

Model	ILL. for PWB trace layout	LED number	LED Rating
AOK-40WiDA-NV-XX-XX-XXXX-BN-P	23	76 (4S X 19P)	8.4-9.8V, 150 mA
AOK-40WiDB-NV-XX-XX-XXXX-BN-P			
AOK-60WiDA-NV-XX-XX-XXXX-BN-P	23A	104 (4S X 26P)	
AOK-60WiDB-NV-XX-XX-XXXX-BN-P			

- c. Lead Wire - R/C (AVLV2/8), min. 24 AWG, rated min. 300V, 105°C.
- *11. Microwave Control (For models with suffix "XX" = "SN" only) - Listed (WJCT/7), SHENZHEN MERRYTEK TECHNOLOGY CO LTD (E480996), Model MC602S, rated 120 V, 50/60 Hz, **400 W Resistive**; 277 V, 50/60 Hz, **800 W Resistive**.
- Alternate - Same as above except Listed (WJCT/7), SHENZHEN MERRYTEK TECHNOLOGY CO LTD (E480996), Model MC601V, rated 120 V, 50/60 Hz, 800 W Resistive; 277 V, 50/60 Hz, 1000 W Resistive.**
12. Lightning Protector - (Optional), R/C (VZCA2/8), INVENTRONICS (HANGZHOU) INC (E467129), Cat No. PU-20KS10KTTN-xxxx (#), SPD type 4CA, rated 277V, 85°C, 10kA In.
- Alternate-Same as above except for R/C (VZCA2/8), TDC POWER PRODUCTS CO LTD (E471807), Cat No. SPD277-10K.1, SPD type 5, rated 277, 85°C, 3kA In.
- Alternate - Same as above except for R/C (VZCA2/8), MW MCWONG INTERNATIONAL INC(E466236), Cat No. SPD-277P-20KA-EC or SPD-277P-20KA-EC1, SPD type 5, rated 480V, 85°C, 10kA In.
- Alternate - Same as above except for R/C (VZCA2/8), LITTELFUSE INC (E320116), Cat No. LSP05HST277 (h), SPD type 5, rated 277 VAC, 85°C, 5kA In.
- Alternate - Same as above except R/C (VZCA2/8), LITTELFUSE INC (E320116), Cat No. LSP10277P (h), SPD type 4CA, rated 277V, 85°C, 10kA In.
- Alternate - Same as above except R/C (VZCA2/8), LITTELFUSE INC (E320116), Cat No. LSP05277P (h), SPD type 4CA, rated 277V, 85°C, 5kA In.

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13. Breather - R/C (QMFZ2), SABIC JAPAN L L C (E207780), Model LUX7630C(f1) (gg*), rated 5VA, 120°C, min. 3.0 mm thick. See ILL. 12 for dimension details. Secured to Lamp Housing by self-threaded screw.