

**JUNO**

Project: \_\_\_\_\_

Fixture Type: \_\_\_\_\_

Location: \_\_\_\_\_

Contact/Phone: \_\_\_\_\_

# 4" IC AND TC 1000 LUMEN INTERNALLY ADJUSTABLE LED DOWNLIGHT NEW CONSTRUCTION

## IC104AL, TC104AL RECESSED HOUSING SQUARE TRIMS



### PRODUCT DESCRIPTION

Patent pending dedicated LED, Air-Loc® sealed new construction housing with integral internally adjustable light engine • Double wall, shallow housing construction • IC104AL series can be completely covered with insulation and installs in 2 x 6 construction • TC104AL series for use in non-insulated areas (If installed where insulation is present, the insulation must be pulled back 3" from all sides of the TC housing) • Fully sealed housing stops infiltration and exfiltration of air, reducing heating and cooling costs without the use of additional gaskets • LED housing is designed to provide 50,000 hours of life • 5 year limited warranty on LED components.

### ENVIRONMENTALLY FRIENDLY, ENERGY EFFICIENT

- No harmful ultraviolet or infrared wavelengths
- No lead or mercury, RoHS compliant
- Comparable light output to 75W incandescent

### PRODUCT SPECIFICATIONS

**LED Light Engine** LED array attached to cast aluminum sliding heatsink integrated directly with housing provides superior heat transfer to ensure long life of the LED • Replaceable light engine mounts directly to inner housing assembly and incorporates the latest generation, high lumen output LED array • LEDs are binned within a 3-step MacAdam Ellipse exceeding ENERGY STAR® requirements for superior fixture to fixture color uniformity • 2700K, 3000K, 3500K, or 4100K color temperatures available • 90 CRI minimum.

**Optics** Three field interchangeable, TIR optics available in 18°, 30° and 40° beam angles • Module can accommodate one 2-inch diameter beam control lens or filter • Adjustable light engine module provides up to 35° vertical adjustment and 360° rotation.

**Aesthetic Trim Selections** Die cast aluminum square angle cut downlight, downlight only and lensed trim options • Downlights feature black insert to minimize glare at the aperture • Lensed trim 41LSQ is wet location approved for covered ceiling applications.

**LED Driver** Choice of dedicated 120 volt driver or universal voltage driver that accommodates input voltages from 120-277 volts AC at 50/60Hz • Power factor > 0.9 at 120V input • 120 volt only driver is dimmable with the use of most incandescent, magnetic low voltage and electronic low voltage wall box dimmers • Universal voltage driver is dimmable with the use of most 0-10V wall box dimmers • For a list of compatible dimmers, see [JUNOICLED-DIM](#).

**Life** Rated for 50,000 hours at 70% lumen maintenance.

**Labels** ENERGY STAR® Qualified • Certified to the high efficacy requirements of California T24 • UL listed for U.S. and Canada for through-branch wiring, damp locations (41LSQ listed for wet locations, covered ceilings) • Union made • UL and cUL.

**Testing** All reports are based on published industry procedures; field performance may differ from laboratory performance.

Product specifications subject to change without notice.

### HOUSING FEATURES

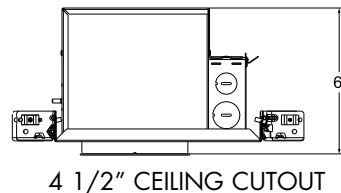
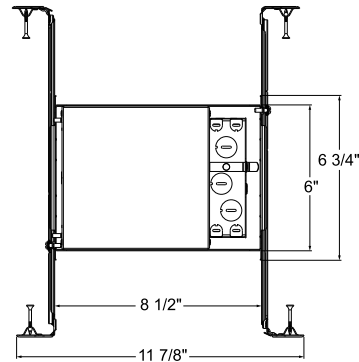
**Housing** IC104AL designed for use in IC (insulated ceiling) or non-IC construction • TC104AL designed for use in non-IC construction • Aluminum housing sealed for Air-Loc® compliance • Housing is vertically adjustable to accommodate up to a 1 1/2" ceiling thickness.

**Junction Box** Pre-wired junction box provided with (6) 1/2" and (1) 3/4" knockouts, (4) knockouts for 12/2 or 14/2 NM cable and ground wire • UL listed and cUL listed for through-branch wiring, maximum 4 #12 branch circuit conductors • Junction box provided with removable access plates • Knockouts equipped with pryout slots • Quick connect electrical connectors supplied as standard for fast, secure installation.

**Mounting Frame** 22-gauge die-formed galvanized steel mounting frame • Rough-in section (junction box, mounting frame, housing and bar hangers) fully assembled for ease of installation.

**Real Nail 3 Bar Hangers** Patented (US Patent D552,969) Real Nail® 3 bar hangers: telescoping system permits quick placement of housing anywhere within 24" O.C. joists or suspended ceilings • Includes removable nail for repositioning of fixture in wood joist construction • Integral T-bar notch and clip for suspended ceilings.

### DIMENSIONS



### ELECTRICAL DATA

#### Dedicated 120V Only Driver Option (-1) 120V

Input Power	16.4W (+/-5%)
Input Current	0.15A
Frequency	50/60Hz
EMI/RFI	FCC Title 47 CFR, Part 15, Class B (Residential)
Minimum starting temp	-25°C (-13°F)

#### Universal Voltage Driver (-U)

	120V	277V
Input Power	16.0W (+/-5%)	16.0W (+/-5%)
Input Current	0.15A	0.06A
Frequency	50/60Hz	50/60Hz
EMI/RFI	FCC Title 47 CFR, Part 15, Class A (Commercial)	FCC Title 47 CFR, Part 15, Class A (Commercial)
Minimum starting temp	-20°C (-4°F)	-20°C (-4°F)

#### Lutron Hi-Lume® LED Driver (-L)

	120V	277V
Input Power	16.4W (+/-5%)	16.6W (+/-5%)
Input Current	0.15A	0.07A
Frequency	50/60Hz	50/60Hz
EMI/RFI	FCC Title 47 CFR, Part 15, Class A (Commercial)	FCC Title 47 CFR, Part 15, Class A (Commercial)
Minimum starting temp	0°C (32°F)	0°C (32°F)

# 4" IC AND TC 1000 LUMEN INTERNALLY ADJUSTABLE LED DOWNLIGHT NEW CONSTRUCTION

## IC104AL, TC104AL RECESSED HOUSING SQUARE TRIMS











### ORDERING INFORMATION: Housing and trim each ordered separately.

Example: IC104AL-3K-F-1

Series	Color Temperature	Beam Optics	Input Voltage
IC104AL	27K 2700K† 3K 3000K† 35K 3500K 41K 4100K	S 18° Spot N 30° Narrow Flood F 40° Flood	I Dedicated 120V Only (Forward Phase + ELV Dimmable) U Universal Voltage 120-277V (0-10V Dimmable)

Series	Color Temperature	Beam Optics	Input Voltage
TC104AL	27K 2700K† 3K 3000K† 35K 3500K 41K 4100K	S 18° Spot N 30° Narrow Flood F 40° Flood	L† Lutron Hi-Lume® 3-Wire Dimming EcoSystem Compatible † Not ENERGY STAR® or T24 compliant

Example: 47LSQ-HZ-WH

Trim/Description	
	47LSQ-HZ-WH Square Frame with Angle Cut Cone
	47LSQ-WHZ-WH
	47LSQ-B-WH
	47LSQ-W-WH
	42LSQ-HZ-WH Square Frame with Downlight Cone
	42LSQ-WHZ-WH
	42LSQ-B-WH
	42LSQ-W-WH
	41LSQ-WH* Square Frosted Lens with Clear Center
	

Trim Size: 5" O.D.

Trim Finish: WH - White.

Note: In Canada when insulation is present, Type IC fixtures must be used.

♦ Wet Location

### ACCESSORIES

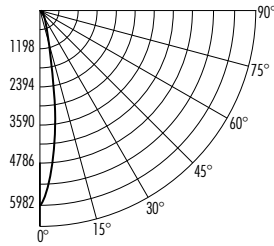
Catalog No.	Description
T741	Med. Pink Color Filter
T742	Warm Red Color Filter
T743	Daylight Blue Color Filter
T744	Med. Blue Color Filter
T745	Med. Amber Color Filter
T746	Med. Green Color Filter
T7401	Red Dichroic Lens
T7403	Med. Green Dichroic Lens
T7404	Med. Blue Dichroic Lens
T7405	Yellow Dichroic Lens
T7406	Magenta Dichroic Lens
T7411	Blue Green Dichroic Lens
T7416	Daylight Blue Correction Lens
T7420	Diffuse Spread Lens
T7422	UV Filter Lens
T7459BL	Hexcell Louver
T7478	Linear Spread Lens
T7477	Prismatic Lens
TIR-2-SP	18° Spot Optic
TIR-2-NFL	30° Narrow Flood Optic
TIR-2-FL	40° Flood Optic

# 4" IC AND TC 1000 LUMEN INTERNALLY ADJUSTABLE LED DOWNLIGHT NEW CONSTRUCTION

## IC104AL, TC104AL RECESSED HOUSING SQUARE TRIMS

### PHOTOMETRIC REPORT

Test Report#: PT09152802R  
 Catalog No: IC104AL-35K-S-1  
 with 42LSQ-HZ-WH, Downlight Cone Haze Finish Square Trim and Spot Optic  
 Luminaire Spacing Criteria: 0.30  
 Luminaire LPW: 56



### CANDLEPOWER DISTRIBUTION (Candelas)

Degrees Vertical	0°
0	5982
5	4561
15	1241
25	221
35	31
45	4
55	0
65	0
75	0
85	0
90	0

Multipliers:  
 27K - 0.93 35K - 1.00  
 3K - 0.96 41K - 1.03

### AVERAGE INITIAL FOOTCANDLES

Multiple Units (Square Array, 60'x60' room)  
 Ceiling 80%, Wall 50%, Floor 20%

Spacing	RCR1	RCR3	RCR5
4.0'	64	59	55
5.0'	41	38	35
6.0'	29	26	24
7.0'	23	21	20
8.0'	18	17	16
9.0'	14	13	12
10.0'	10	9	9

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixture
0-30°	875	N/A	96.0
0-40°	905	N/A	99.4
0-60°	911	N/A	100.0
0-90°	911	N/A	100.0

### INITIAL FOOTCANDLES

(One Unit, 16.4W, 17.0° Beam)

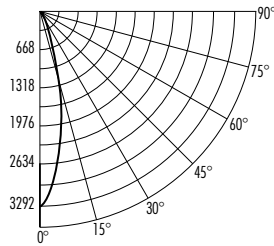
Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Beam Diameter
4	373.9	1.2
6	166.2	1.8
8	93.5	2.4
10	59.8	3.0

### LUMINANCE (Average cd/m<sup>2</sup>)

Degrees	Average 0° Luminance
45	850
55	0
65	0
75	0
85	0

### PHOTOMETRIC REPORT

Test Report#: PT09152804R  
 Catalog No: IC104AL-35K-N-1  
 with 42LSQ-HZ-WH, Downlight Cone Haze Finish Square Trim and Narrow Flood Optic  
 Luminaire Spacing Criteria: 0.48  
 Luminaire LPW: 53



### CANDLEPOWER DISTRIBUTION (Candelas)

Degrees Vertical	0°
0	3292
5	3101
15	1467
25	213
35	58
45	6
55	0
65	0
75	0
85	0
90	0

Multipliers:  
 27K - 0.93 35K - 1.00  
 3K - 0.96 41K - 1.03

### AVERAGE INITIAL FOOTCANDLES

Multiple Units (Square Array, 60'x60' room)  
 Ceiling 80%, Wall 50%, Floor 20%

Spacing	RCR1	RCR3	RCR5
4.0'	61	56	51
5.0'	39	36	33
6.0'	27	25	23
7.0'	22	20	19
8.0'	17	16	15
9.0'	13	12	11
10.0'	10	9	8

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixture
0-30°	813	N/A	93.8
0-40°	858	N/A	98.9
0-60°	867	N/A	100.0
0-90°	867	N/A	100.0

### INITIAL FOOTCANDLES

(One Unit, 16.4W, 27.7° Beam)

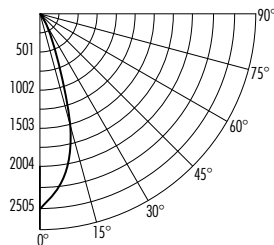
Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Beam Diameter
4	205.8	2.0
6	91.4	3.0
8	51.4	3.9
10	32.9	4.9

### LUMINANCE (Average cd/m<sup>2</sup>)

Degrees	Average 0° Luminance
45	1264
55	0
65	0
75	0
85	0

### PHOTOMETRIC REPORT

Test Report#: PT09152806R  
 Catalog No: IC104AL-35K-F-1  
 with 42LSQ-HZ-WH, Downlight Cone Haze Finish Square Trim and Flood Optic  
 Luminaire Spacing Criteria: 0.60  
 Luminaire LPW: 61



### CANDLEPOWER DISTRIBUTION (Candelas)

Degrees Vertical	0°
0	2505
5	2408
15	1597
25	498
35	106
45	9
55	0
65	0
75	0
85	0
90	0

Multipliers:  
 27K - 0.93 35K - 1.00  
 3K - 0.96 41K - 1.03

### AVERAGE INITIAL FOOTCANDLES

Multiple Units (Square Array, 60'x60' room)  
 Ceiling 80%, Wall 50%, Floor 20%

Spacing	RCR1	RCR3	RCR5
4.0'	70	63	57
5.0'	45	40	36
6.0'	31	28	25
7.0'	25	23	20
8.0'	20	18	16
9.0'	15	14	12
10.0'	11	10	9

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixture
0-30°	906	N/A	90.6
0-40°	986	N/A	98.6
0-60°	1000	N/A	100.0
0-90°	1000	N/A	100.0

### INITIAL FOOTCANDLES

(One Unit, 16.4W, 34.7° Beam)

Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Beam Diameter
4	156.6	2.5
6	69.6	3.7
8	39.1	5.0
10	25.1	6.2

### LUMINANCE (Average cd/m<sup>2</sup>)

Degrees	Average 0° Luminance
45	1853
55	0
65	0
75	0
85	0

Fixtures tested to IES recommended standard for solid state lighting per LM-79-08. Photometric performance on a single unit represents a baseline of performance for the fixture. Results may vary in the field.

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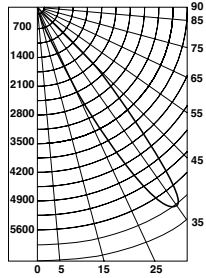
# 4" IC AND TC 1000 LUMEN INTERNALLY ADJUSTABLE LED DOWNLIGHT NEW CONSTRUCTION

IC104AL, TC104AL RECESSED HOUSING  
SQUARE TRIMS

**PHOTOMETRIC REPORT**

Test Report: PT09153002R  
Catalog No: IC104AL-35K-S-1  
with 47LSQ-HZ-WH  
and Spot Optic

Watts: 16.4  
Lumens: 983  
Luminaire LPW: 60



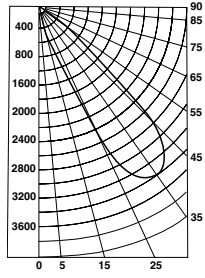
**Candlepower Distribution (Candelas)**

Degrees	Vertical	Candela
0°	85	
5°	164	
10°	365	
15°	709	
20°	1229	
25°	2351	
30°	4494	
35°	6059	
40°	4676	
45°	2416	
50°	1133	
55°	370	
60°	96	
65°	32	
70°	14	
75°	4	
80°	0	
85°	0	
90°	0	

**PHOTOMETRIC REPORT**

Test Report: PT09152922R  
Catalog No: IC104AL-35K-N-1  
with 47LSQ-HZ-WH  
and Narrow Flood Optic

Watts: 16.4  
Lumens: 990  
Luminaire LPW: 60



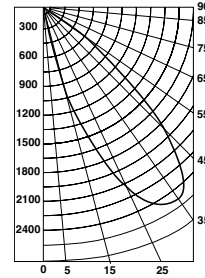
**Candlepower Distribution (Candelas)**

Degrees	Vertical	Candela
0°	85	
5°	145	
10°	280	
15°	655	
20°	1510	
25°	2571	
30°	3241	
35°	3465	
40°	3231	
45°	2596	
50°	1642	
55°	604	
60°	143	
65°	73	
70°	32	
75°	8	
80°	0	
85°	0	
90°	0	

**PHOTOMETRIC REPORT**

Test Report: PT09152902R  
Catalog No: IC104AL-35K-F-1  
with 47LSQ-HZ-WH  
and Flood Optic

Watts: 16.4  
Lumens: 1050  
Luminaire LPW: 64

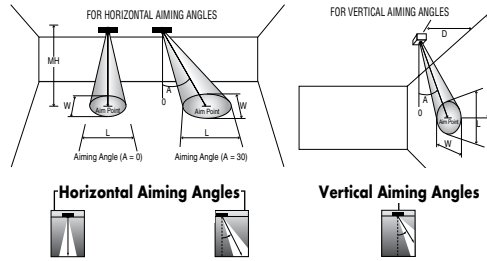


**Candlepower Distribution (Candelas)**

Degrees	Vertical	Candela
0°	159	
5°	321	
10°	628	
15°	1072	
20°	1621	
25°	2129	
30°	2452	
35°	2537	
40°	2356	
45°	1970	
50°	1406	
55°	729	
60°	378	
65°	188	
70°	72	
75°	12	
80°	0	
85°	0	
90°	0	

**CBCP** • Centerbeam candlepower  
**FC** • Footcandles at beam center (aim point)

In vertical aiming applications, aim point (X) is determined by dividing distance from the wall (D) by the tangent of the desired aim angle (A) (0.5774 for 30°, 1.0 for 45°).



FIXTURE	Beam Type	Beam Spread°	CBCP	0°			30°			30°					
				MH	FC	L	W	FC	L	W	D	FC	X	L	W
<b>IC104AL LED, 3500K Spot</b>	S	18°	6059	4	379	1.3	1.3	246	1.7	1.5	2	189	3.5	2.7	1.3
				6	168	1.9	1.9	109	2.6	2.2	3	84	5.2	4.1	1.9
				8	95	2.5	2.5	61	3.4	2.9	4	47	6.9	5.5	2.5
				10	61	3.2	3.2	39	4.3	3.7	5	30	8.7	6.9	3.2
				12	42	3.8	3.8	27	5.1	4.4	6	21	10.4	8.2	3.8
<b>IC104AL LED, 3500K Narrow Flood</b>	N	30°	3465	4	217	2.1	2.1	141	2.9	2.5	2	108	3.5	5.5	2.1
				6	96	3.2	3.2	63	4.4	3.7	3	48	5.2	8.2	3.2
				8	54	4.3	4.3	35	5.9	5.0	4	27	6.9	10.9	4.3
				10	35	5.4	5.4	23	7.3	6.2	5	17	8.7	13.7	5.4
				12	24	6.4	6.4	16	8.8	7.4	6	12	10.4	16.4	6.4
<b>IC104AL LED, 3500K Flood</b>	F	40°	2537	4	159	2.9	2.9	103	4.1	3.4	2	79	3.5	9.7	2.9
				6	70	4.4	4.4	46	6.1	5.0	3	35	5.2	14.5	4.4
				8	40	5.8	5.8	26	8.1	6.7	4	20	6.9	19.3	5.8
				10	25	7.3	7.3	16	10.2	8.4	5	13	8.7	24.2	7.3
				12	18	8.7	8.7	11	12.2	10.1	6	9	10.4	29.0	8.7

Multipliers:  
27K - 0.93  
3K - 0.96  
35K - 1.00  
41K - 1.03

