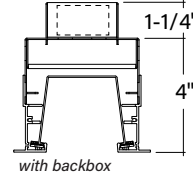


# CHUTE CRD

## 4" Open Recessed Linear Direct

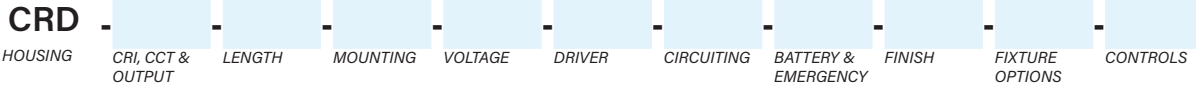


### Key Features

- Extruded aluminum trim with formed cold rolled 18 gauge steel housing and back box
- Room side maintenance for LED system
- Recessed with a 2 1/2" fully luminous aperture
- Small, integral driver option for quick, easy installation
- Light Protection Guard (LPG) covers LEDs for optimal performance
- 5-year limited warranty covers LED, driver and fixture
- ETL listed conforming to UL 1598 in US and CSA 250 in Canada
- Buy American Act compliant



Example Part #: CRD-830HO-26'-G1-U-EL1-1-0-W



HOUSING	CRI, CCT & OUTPUT	LENGTH	MOUNTING	VOLTAGE	DRIVER	CIRCUITING	BATTERY & EMERGENCY	FINISH	FIXTURE OPTIONS	CONTROLS
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<b>CRI, CCT &amp; OUTPUT<sup>1</sup></b>		<b>LENGTH<sup>2</sup></b>		<b>MOUNTING</b>			<b>VOLTAGE</b>			
_27_ - 2700K _30_ - 3000K _35_ - 3500K _40_ - 4000K CL - Custom Lumens CW - Custom Watts <i>CRI, CCT &amp; Output pg. 2</i>		__ - Individual Fixture __ - Continuous Row <i>Length pg. 2</i>		G1 - 1" (15/16") T Bar G9 - 9/16" T Bar GS - Screw Slot T Bar FL - 3/8" Flange SF - Spackle Flange <i>Mounting pg. 3</i>			U - Universal (120 thru 277V) 1 - 120V 2 - 277V 3 - 347V <i>Voltage pg. 3</i>			
<b>DRIVER</b>		<b>CIRCUITING</b>		<b>BATTERY &amp; EMERGENCY<sup>3</sup></b>			<b>FINISH</b>			
4" Housing EL1 - ERP Power (1%, 0-10v, 120v or 277v) Housing with Backbox FSD - Factory Select Driver (1%, 0-10v) PL2 - Advance Xitanium (1%, 0-10v) OL2 - eldoLED Optotronic (1%, 0-10v) OL4 - eldoLED Optotronic 347v (1%, 0-10v) EE1 - eldoLED ECOdrive (1%, 0-10v) ES1 - eldoLED SOLOdrive (0.1%, 0-10v) LH1 - Lutron Hi-lume (1%, EcoSystem) <i>Driver pg. 3</i>		1 - Single Circuit M - Multi Circuit E - Emergency (entire fixture) N - Night Light (entire fixture) <i>Circuiting pg. 4</i>		0 - None _FSB - Factory Select Battery _FSG - Factory Select ALCR _GI - Iota ETS DR _GB - Bodine GTD _ILL - Iota 10W (remote) _PLL - Bodine 10W (remote) _E - Emergency Section _N - Night Light Section _L - Life Safety Section <i>Battery &amp; Emergency pg. 4</i>			W - White S - Metallic Silver BL - Textured Black BR - Bronze GR - Graphite CC - Custom Color <i>Finish pg. 4</i>			
<b>FIXTURE OPTIONS<sup>4</sup></b>		<b>CONTROLS</b>								
OE - Open End (use when coming thru bulkhead) CP - Chicago Plenum DSP - Customer Supplied Battery/Driver/Sensor FW6 - 6' Flew Whip <i>Fixture Options pg. 5</i>		Pinnacle is able to accommodate different control solutions from different manufacturers. Consult Factory for more information.								

<sup>1</sup>When specifying CRI, CCT & OUTPUT the first \_ is for specifying either 8 - 80CRI, 9 - 90CRI The ending \_ are for specifying output, example HO - High Output. <sup>2</sup>Individual fixtures come in 2', 3', 4', 5', 6', 7' & 8' lengths. Continuous row come in 1' increments. <sup>3</sup>Enter quantity for Battery and Emergency, Example 2P. <sup>4</sup>Open End (OE) option for Spackle Flange (SF) mounting ONLY. The Open End (OE) will be on one side of the fixture.

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## CRI, CCT & Output

- 90 CRI = R9≥50

### Custom Output - Lumens OR Wattage

<b>CL</b> _____	Specify CRI, CCT and desired lumens (i.e. CL835500)	Specify lumens between standard offering listed below. Lumens are specified per color temp
<b>CW</b> _____	Specify CRI, CCT and desired wattage (i.e. CW9407)	Specify watts between standard offering listed below

### 80 CRI

	Color	Output <sup>1</sup>		
		Lumens/ft	LPW	Watts/ft
<b>830</b>	3000K	500	115	4.3
<b>830HO</b>	3000K	750	116	6.5
<b>830VHO</b>	3000K	1000	116	8.6
<b>835</b>	3500K	500	123	4.1
<b>835HO</b>	3500K	750	124	6.0
<b>835VHO</b>	3500K	1000	125	8.0
<b>840</b>	4000K	500	128	3.9
<b>840HO</b>	4000K	750	128	5.9
<b>840VHO</b>	4000K	1000	128	7.8

### 90 CRI (longer lead times may apply, consult factory)

<b>927</b>	2700K	500	97	5.2
<b>927HO</b>	2700K	750	97	7.7
<b>927VHO</b>	2700K	1000	100	10.0
<b>930</b>	3000K	500	105	4.8
<b>930HO</b>	3000K	750	105	7.1
<b>930VHO</b>	3000K	1000	106	9.4
<b>935</b>	3500K	500	110	4.6
<b>935HO</b>	3500K	750	110	6.8
<b>935VHO</b>	3500K	1000	111	9.0
<b>940</b>	4000K	500	107	4.7
<b>940HO</b>	4000K	750	107	7.0
<b>940VHO</b>	4000K	1000	108	9.3

<sup>1</sup>LPW and watts/ft based off 48" fixture size.

## Length

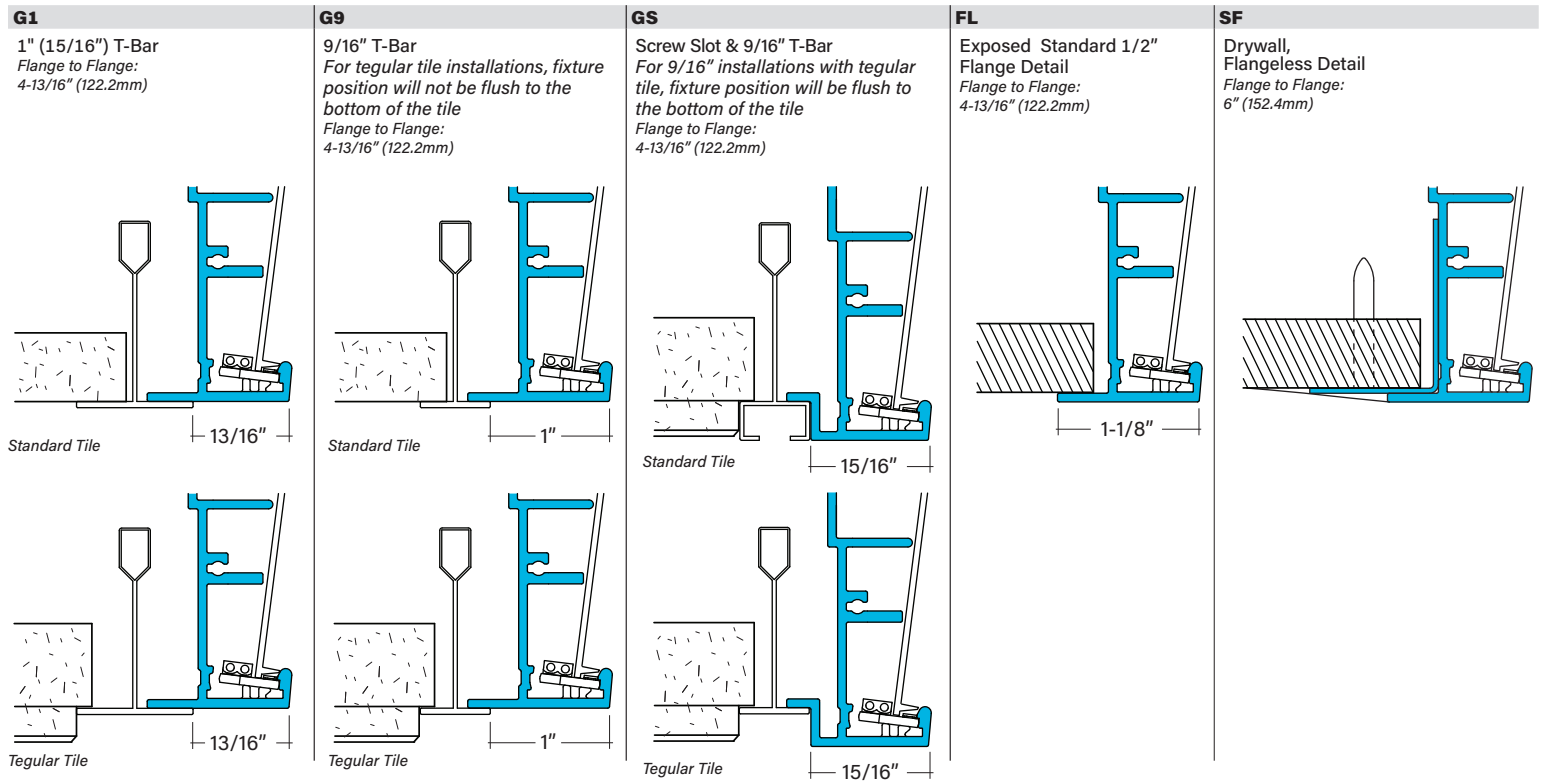
- Individual units cannot be joined, end plates are factory installed and cannot be removed
- Continuous Rows are made up of even and odd lengths designed to fall on grid

2	3	4	5	6	7	8	—
Indiv. Fixture	Indiv. Fixture	Indiv. Fixture	Indiv. Fixture	Indiv. Fixture	Indiv. Fixture	Indiv. Fixture	Cont. Run
23" (584.2mm)							Specify nominal overall row length to the foot
	35" (889mm)						
		47" (1193.8mm)					
			59" (1498.6mm)				
				71" (1803.4mm)			
					83" (2108.2mm)		
						95" (2413mm)	
Specify to the foot							



## Mounting

- Individual units cannot be joined, end trims are factory installed and cannot be removed
- Designed to install into acoustical grid and inaccessible ceilings
- Grid retention brackets to be installed on site and require mechanical attachment
- Each housing contains four grid retention brackets
- Tie off fixture to structure with retention wires
- Approved for dry/damp location unless otherwise noted



## Voltage

- Some CHUTE configurations will not accommodate all voltage options; consult with factory
- For EL1 driver, must specify 120v or 277v

<b>U</b>	Universal
<b>1</b>	120 volt
<b>2</b>	277 volt
<b>3</b>	347 volt

## Driver

- Standard Driver Option = EL1
- Driver Lifetime: 50,000 hours at 25°C ambient operating conditions
- For more driver options, see Pinnacle Resource Guide
- Some CHUTE configurations will not accommodate all driver options; consult with factory
- Backbox necessary for all drivers OTHER THAN the EL1

### 4" Housing

**EL1** ERP Power 1%, 0-10v, requires 120 or 277

### Housing with Back Box

#### 0-10V Drivers

<b>FSD</b>	Factory Select Driver (1%, 0-10v)
<b>PL2</b>	Signify Advance Xitanium 1%, 0-10v
<b>PL4</b>	Advance Xitanium 347v 1%, 0-10v, requires 347v
<b>OL2</b>	eldoLED Optotronic, 1%, 0-10v
<b>OL4</b>	eldoLED Optotronic 347v, 1% 0-10v, requires 347v option
<b>EE1</b>	eldoLED ECOdrive 1%, 0-10v Logarithmic
<b>ES1</b>	eldoLED SOLOdrive 0-10v, 0.1% Logarithmic

#### DALI Drivers

<b>EE3</b>	eldoLED ECOdrive .1%, DALI (logarithmic)
<b>ES3</b>	eldoLED SOLOdrive .1%, DALI (logarithmic)
<b>OD1</b>	eldoLED Optotronic 1%, DEXAL
<b>OD2</b>	eldoLED Optotronic 1%, DALI 2 Channel

#### Lutron Drivers

<b>LH1</b>	Lutron Hi-lume Soft-on, Fade-to-black 1%, EcoSystem, LDE1
<b>LH4</b>	Lutron Hi-Lume 1%, 2-wire, Lutron-LTEA2W, 120v only

#### Alternate Drivers

<b>EH1</b>	ELV 120v only, 0-10v universal
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## How to specify Circuiting, Battery and Emergency

- 1**
- Select fixture circuiting from options below
  - Some CHUTE configurations will not accommodate all circuiting options, consult with factory

### Circuiting

<b>1</b>	Single Circuit
<b>M</b>	Multi Circuit
<b>E</b>	Emergency Circuit only
<b>N</b>	Night Light Circuit only

- 2** + **3**
- Battery and emergency section options are available in addition to fixture circuit
  - Select battery and emergency section options below; factory shop drawing required
  - Some CHUTE configurations will not accommodate all circuiting options, consult with factory

### Battery and/or Emergency If Required

- 0** No battery or specific emergency section required

### Battery

- Select battery section type if required, indicate total QTY. *Example 2PL*
- 90 minute battery runtime; test button is remote to fixture and requires an additional drop
- No battery option available for 2' lengths
- Entire fixture housing is on battery for 2' and 4' lengths
- 4' of fixture is on battery for 6' or 8' housing lengths
- For more battery options available, see Pinnacle Resource Guide

<b>0</b>	No Battery
<b>_FSB</b>	Factory Select Battery (10w option)
<b>_FSBST</b>	Factory Select Battery (10w, Self Testing)
<b>_ILL</b>	10w Integral Lithium, Self Testing
<b>_IRC</b>	10w Remote
<b>_IRH</b>	20w Remote
<b>_PRL</b>	Bodine 7w Remote
<b>_PRS</b>	Bodine 7w Remote, Self Testing
<b>_PRH</b>	Bodine 20w Remote
<b>_PLL</b>	Bodine 10w Integral Lithium, Self Testing
<b>_PRD</b>	Bodine 10w Remote, Dual Flex

#### For Approximate Battery Lumen Output

- Multiply battery wattage X fixture LPW shown on Lumen Table
- $92.3 \text{ (LPW)} \times 10 \text{ (watts)} = 923 \text{ battery lumen output}$

### Emergency

- Select emergency section type if required, indicate total QTY. *Example 1E*
- Combine battery and emergency section ordering codes if both options are selected

<b>_FSG</b>	Factory Select Automatic Load Control Relay (ALCR), UNV
<b>_GI</b>	Emergency Transfer Switch (ETS) DR Emergency Control Device, UNV
<b>_GB</b>	Bodine GTD, Generator Transfer Device, 120v or 277v
<b>_E</b>	Emergency circuit section
<b>_N</b>	Night Light circuit section
<b>_L</b>	Life Safety circuit section NO THROUGH WIRE

#### Battery OR Emergency Ordering Examples

- Single circuit, 10w Integral Battery      Ordering Code: 1-1PLL
- Emergency only, 10w Integral Battery      Ordering Code: E-1PLL
- Single circuit, GTD required      Ordering Code: 1-1G

#### Combination Section Ordering Examples

- Single circuit, (1) 10w battery, (1) emergency section      Ordering Code: 1-1PLL1E
- Multi circuit, (2) 10w battery, (2) emergency sections      Ordering Code: M-2PLL2E
- Single circuit, (1) night light section      Ordering Code: 1-1N

### Finish

- Standard powder-coat textured white, metallic silver, textured black, graphite or bronze painted finish; consult factory for chip of standard paint finishes
- Selecting a fixture finish other than white may impact lumen output; consult factory for more information
- Closed endcap on recessed fixtures will be painted white, not a specified color. Consult Factory.

<b>W</b>	White
<b>S</b>	Metallic Silver
<b>BL</b>	Textured Black
<b>GR</b>	Graphite
<b>BR</b>	Bronze
<b>CC</b>	Custom Color



## Fixture Options

- Additional options to enhance the fixture and finish of the product
- The Open End will only be on one side of the fixture.

<b>OE</b>	Open End Fixture, use to come thru bulkhead, SF ONLY
<b>CP</b>	Chicago Plenum
<b>DSP</b>	Customer Supplied Battery/Driver/Sensor
<b>FW6</b>	6' Flex Whip

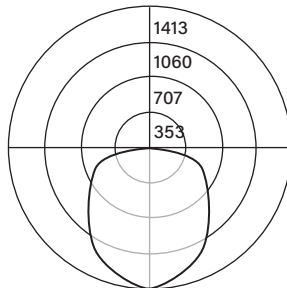
## Controls

- Pinnacle is able to accommodate different control solutions from different manufacturers. Consult Factory for more information.

## Photometrics

### Open

Test #	ITL93073
Catalog #	CRD-835VHO-4
Lumens	3983 lm
Watts	30.7 W
Efficacy	130 LPW



### Candela Distribution

Vert Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1411	1411	1411	1411	1411
5	1410	1394	1397	1393	1386
10	1395	1369	1360	1347	1337
15	1369	1332	1311	1292	1280
20	1335	1285	1256	1228	1215
25	1289	1229	1191	1157	1141
30	1234	1164	1117	1075	1055
35	1169	1093	1037	986	964
40	1095	1014	946	891	869
45	1010	927	850	798	782
50	918	833	751	722	716
55	816	733	661	656	656
60	709	627	585	598	603
65	593	521	517	545	552
70	476	421	456	492	500
75	357	341	397	427	428
80	235	272	322	299	272
85	121	193	111	61	46
90	31	60	40	18	0

### Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	17498	8801	7048
55	17058	7119	5990
65	16247	5991	5270
75	14843	5147	4422
85	11127	1692	536

## Applications & Certificates

**Construction:** Extruded aluminium rails and formed cold-rolled 18 gauge steel housing. Highly reflective coextruded acrylic reflector with LED protection guard.

**Mounting:** CHUTE is designed to install into acoustical grid and inaccessible ceilings. Specify GXG, FLF, SFS for individual, unjoinable units (individual units will fall on-grid). Specify GX, FL, SF for continuous runs (runs designed to fall on-grid). Consult factory for detailed installation instructions. Maximum fixture weight is 15lbs per 4' fixture.

**LED:** 25°C test environment. Lumen output/wattage has a margin of +/- 5%; 2' or 3' lengths may have a greater wattage deviation. Luminaire configurations tested in accordance with IES LM-79. Diodes tested in accordance with IES LM-80. Lifetime calculated using IES TM-21. Minimum lifetime greater than 60,000 hours. Lifetime Projection L70 = 146,500 hours and L90 = 45,000 hours. MacAdam 3-Step Ellipses. Not all products are Lighting Facts listed. For all available IES files, please visit our website at pinnacle-ltg.com.

**CRI, CCT & Lumen Output:** Three lumen packages available. Standard, High (HO) and Very High (VHO). Custom outputs are available. Specify custom lumens or watts between standard offering listed on CRI, CCT & Output page. 80 CRI is available for 3000K, 3500K, and 4000K. 90 CRI is available for 2700K, 3000K, 3500K, and 4000K. 90 CRI = R9≥50.

**Voltage:** Universal (U), 120 volt (1), 277 volt (2) and 347 volt (3) options available. Must specify OL4 in Driver section when 347 volt (3) is selected. Some CHUTE configurations will not accommodate all voltage options; consult with factory.

**Driver:** Standard INTEGRAL Driver Option is EL1. All other driver options will be in driver backbox. EL1 designed for use with 120v or 277v only. Electronic driver, Power factor is >0.9 with a THD <20%. Driver Lifetime: 50,000 hours at 25°C ambient operating conditions. Ambient operating range: -20°F/-30°C to 81°F/27°C, preliminary using 4" data. When ND is specified, a spec grade driver will be provided. For more driver options, see Pinnacle

Resource Guide. Some CHUTE configurations will not accommodate all driver options.

**Circuiting:** Select from single circuit (1), Multi circuit - For multiple circuiting and zone control, requires factory shop drawing (M), Emergency circuit (E), Life Safety (L) or Night Light circuit (N). For emergency circuiting situations that require no through wire or circuit separation, Life Safety Circuit should be selected. This will provide a separate power feed and only the Life Safety Circuit in that section. Some CHUTE configurations will not accommodate all circuiting options; consult with factory.

**Battery & Emergency:** Select battery or emergency options if required. If battery or emergency option is not required, enter 0. Battery duration is 90 minutes as standard. Test button is remote to fixture. For more Battery options, see Pinnacle Resource Guide.

**Finish:** Standard powder-coat textured white, metallic silver, textured black, graphite or bronze painted finish; consult factory for chip of standard paint finishes or for additional custom color and finish options.

**Labels:** UL and cUL 1598 listed. Standard, HO and VHO lumen packages are IC Rated, approved for dry/damp location unless otherwise noted.

**Fixture Weight:** Maximum fixture weight is 15lbs per 4' fixture.

**Buy American Act Compliant**

**Warranty:** CHUTE LED offered with a 5-year limited warranty. Covers LED, driver and fixture.