

FR and FD Luminaires

Nonmetallic Fluorescent

4 foot, 2 lamp fixtures. High-impact fiberglass reinforced polyester fixtures suitable for use in wet and damp locations.

NEC/CEC — FR Series
Wet Locations
IP65 when used with optional polycarbonate lens

NEC/CEC — FD Series
Class I, Division 2, Groups A, B, C, D
Class I, Zone 2, IIC

Applications

- For use in locations where a high degree of corrosion resistance is required.
- FR Series:
 - For use in areas where high humidity or water vapor are present
 - Typical uses include meat- or food-processing plants, dairy or drug plants, breweries, kitchens, chemical plants, car washes, laundries and parking garages.
 - Can be used indoors or outdoors in protected locations (wet locations).
 - Operates safely in 38 °C (100 °F) ambient temperature areas.
- FD Series:
 - For use in hazardous locations defined by the NEC as Class I, Division 2; and Class I, Zone 2.
 - For wet-location use where protection against dirt, water and moisture is necessary.
 - Typical applications include oil refineries, petrochemical facilities, pulp and paper mills, food-processing plants, warehouses, underground tunnels and general manufacturing facilities.
- FD Series fixture is UL listed for Class I, Division 2.

Features

- Fixtures are available with ballasts to support T12 and T8 lamps for nearly all U.S. and foreign voltage and frequency combinations.
- Low operating costs provide more lumens per Watt than incandescent fixtures.
- Housing is smooth, seamless, one-piece injection molded.
- Lens comes in high-impact polycarbonate plastic or impact-resistant acrylic.
- Fixtures are washable, non-conductive and corrosion-resistant.
- Enclosure is rated at IP65 (using polycarbonate lens), dust-proof and protected against water spray.
- A compressible, one-piece, non-thixotropic polyol gasket is bonded to the housing around the entire perimeter. It forms a continuous tight seal with the lens to keep out dirt, vapor and moisture.
- Lens is securely clamped to fixture using six captive corrosion-proof molded celcon tension latches. Lens is impact-resistant acrylic to protect lamps against breakage, and protect work area from broken lamp glass.
- Electrical components are mounted on a metallic wireway. Reflector is supported by internal safety springs to simplify installation and servicing.
- Optional fusing protects circuitry against occasional line voltage spikes.
- FR Series fixtures are available with one or two watertight 1/2" hubs for electrical-feed mounting or single-entry mounting.

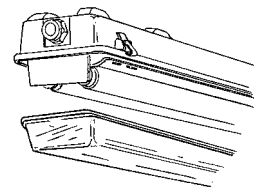
Standard Materials

- Housing: fiberglass reinforced polyester
- Lens: polycarbonate or acrylic. (Fixture has IP65 rating with polycarbonate lens.) Acrylic lens supplied as standard
- Latches: celcon
- Ceiling mounting bracket: stainless steel
- Adjustable wall mount: copperfree (4/10 of 1% max.) aluminum
- Fixed wall mount: stainless steel



Illustrated Features

Non-thixotropic polyol gasket is bonded to housing. With plastic latches closed, it forms a continuous, tight seal with lens. Keeps out moisture, vapor and dirt. Allows fast, easy fixture washing.



- Chain mount: zinc plated steel
- Gasket: non-thixotropic polyol
- Hubs: zinc plated steel with neoprene o-ring
- Lampholders: polycarbonate

Standard Finishes

- Housing: white color finish
- Celcon latches: white color finish
- Adjustable wall mount: epoxy powder coat

Options:

- Add Suffix **-F** for Fused
- Add Suffix **-T** for Terminal Blocks
- Add Suffix **-P** for Polycarbonate Lens for IP65 Rating
- Add Suffix **-E** for Emergency Battery Pack capability in moments of power interruption. Luminaire automatically switches to emergency mode, keeping two lamps illuminated for a minimum of 90 minutes. When AC power is restored, battery automatically recharges in 24 hours. Initial light output is 600-700 lumens.

NEC/CEC Compliances and Certifications

- FR Series:
 - UL Standard: UL 1598
 - UL Listed: E187946
 - CSA Standard: C22.2 No. 250
 - cUL Listed: E187946
- FD Series:
 - UL Standard: UL 1598, UL 844
 - UL Listed: E10794
 - CSA Standard: C22.2 No. 250, C22.2 No. 137
 - cUL Listed: E10794

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NEC/CEC — FR Series

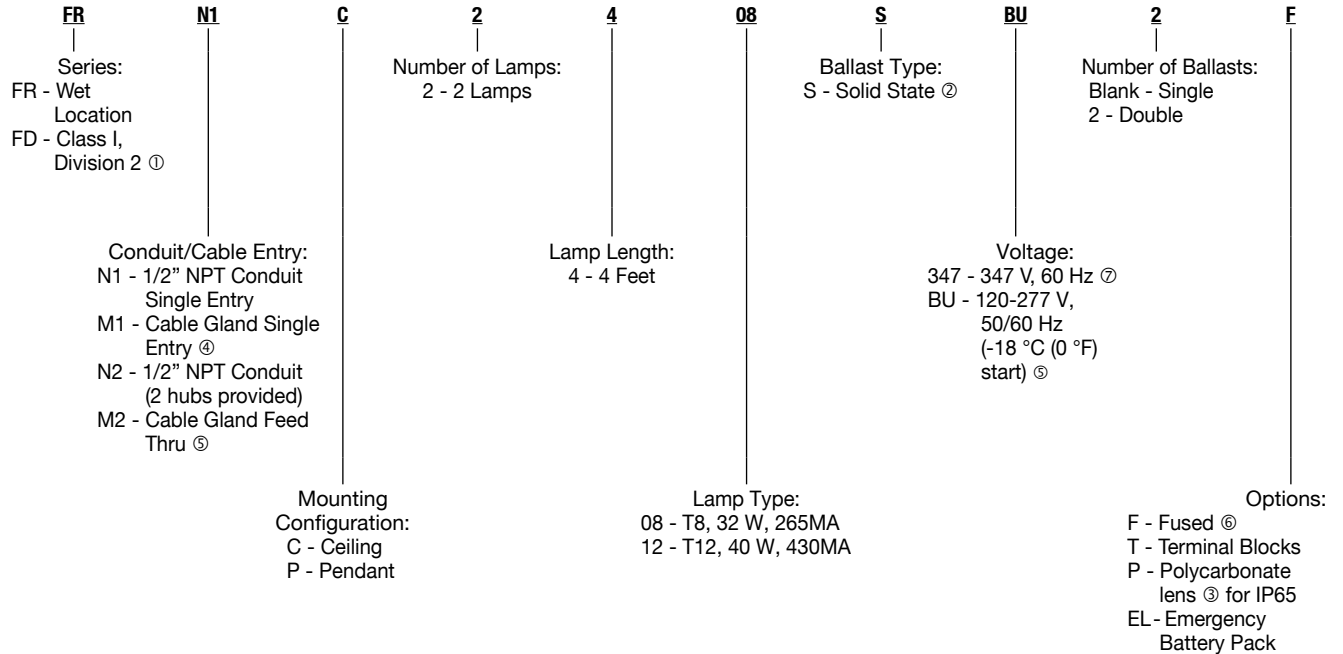
Wet Locations
IP65 when used with optional polycarbonate lens

NEC/CEC — FD Series

Class I, Division 2, Groups A, B, C, D
Class I, Zone 2, IIC

Order using catalog numbering guide below.

Catalog Numbering Guide For FR And FD Nonmetallic Fluorescent Lighting Fixtures



① Fixture is not available with M1 or M2 cable entry options

② Cold weather standard for T8.

③ Use polycarbonate lens for IP65 rating.

④ Fixture will be supplied with a 1.5 m (5') length of #14/3 cord and 3 prong plug (120 V) pre-installed when ordered with cable gland. Fixture with cable gland can only be used with hook and chain mounting.

⑤ T8-RS only.

⑥ Canadian Electrical Code does NOT allow fusing in hazardous locations.

⑦ Certified to meet the Canadian Electrical Code (CEC) only.

FR and FD Luminaires

Nonmetallic Fluorescent

4 foot, 2 lamp fixtures. High-impact fiberglass reinforced polyester fixtures suitable for use in wet and damp locations.

NEC/CEC – FR Series

Wet Locations

IP65 when used with optional polycarbonate lens








NEC/CEC – FD Series

Class I, Division 2, Groups A, B, C, D

Class I, Zone 2, IIC

Appleton

FLUORESCENT/AREA: NEC/CEC ENCLOSED AND GASKETED

Item	Description	Catalog Number
	1/2" NPT watertight conduit hub	FHUB
	Cable gland	FGLAND
	32 W (T8) and 40 W (T12) lampholder	FS0C40
	Standard plastic clips	FPCLIP
	Acrylic lens cover	FLENS
	Polycarbonate lens cover ①	FPLENS
Ceiling Mounting Bracket (Supplied standard with product)		
	Stainless steel bracket with mounting hardware (set of 2)	FBRACKET
Fixed 45° Wall Mount		
	11 gauge (1/8") stainless steel (set of 2)	FWWFM

① When used with FD series, fixture has an IP65 rating.

FR and FD Luminaires

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4 foot, 2 lamp fixtures. High-impact fiberglass reinforced polyester fixtures suitable for use in wet and damp locations.

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Wet Locations

IP65 when used with optional polycarbonate lens

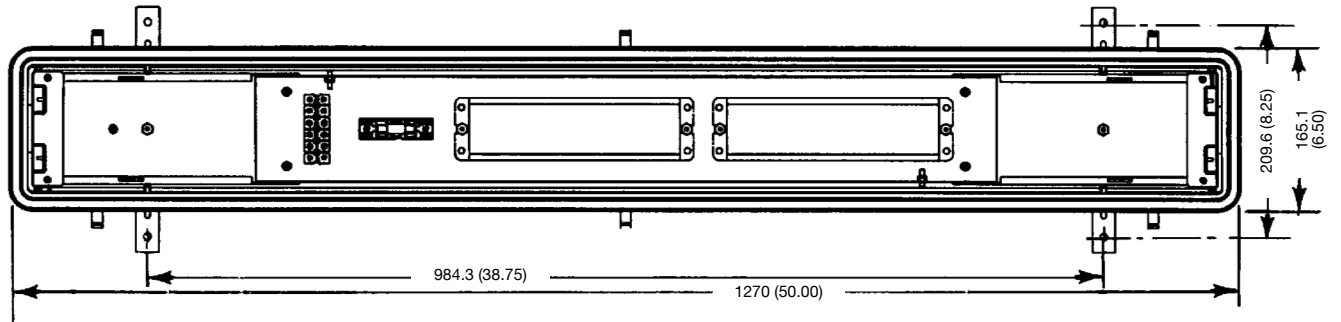
NEC/CEC — FD Series

Class I, Division 2, Groups A, B, C, D

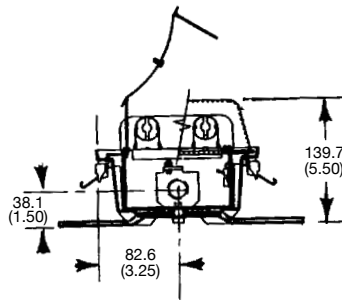
Class I, Zone 2, IIC

Dimensions in Millimeters (Inches)

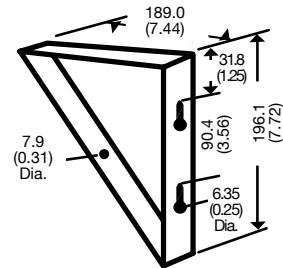
View of Fixture Cover



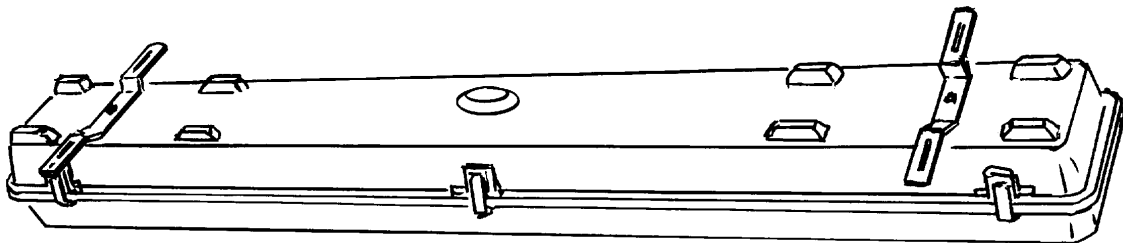
Side View



Fixed 45° Wall Mount — FVWFM



View of Fixture Mounting



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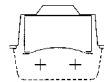
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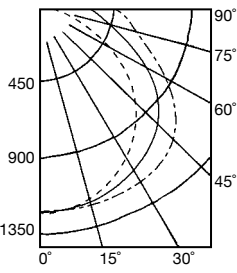
Photometric Data

CANDELA DISTRIBUTION						TOTAL LUMINAIRE EFFICIENCY = 80.7%
0.0	22.5	45.0	67.5	90.0	Flux	CIE Type – Semi-Direct
0	1224	1224	1224	1224	1224	Plane: 0° 90°
5	1228	1223	1221	1219	1218	116 Spacing Criteria: 1.3 1.5
15	1185	1190	1204	1219	1222	341 Shielding Angles: 1 0
25	1097	1122	1158	1200	1214	535
35	974	1020	1090	1166	1192	683
45	811	881	993	1094	1122	759
55	600	701	837	943	967	729
65	358	476	625	736	761	595
75	154	271	443	566	600	441
85	25	136	325	455	490	321
90	5	101	285	401	442	
95	5	84	260	372	415	253
105	2	45	187	294	343	184
115	0	14	85	163	204	91
125	0	3	23	53	81	28
135	0	0	9	16	20	7
145	0	0	0	5	7	2
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0



ZONAL LUMEN SUMMARY

ZONE	LUMENS
0-30	992
0-40	1676
0-60	3164
0-90	4521
90-120	528
90-130	556
90-150	564
90-180	564
0-180	5085



LEGEND
0-deg ————
45-deg ————
90-deg ————

REPORT NUMBER: **ITL 47242**

Lamps: Two 40 W, 4-foot F40WW fluorescents, 3150 lumens per lamp with acrylic lens.

COEFFICIENTS OF UTILIZATION – ZONAL CAVITY METHOD

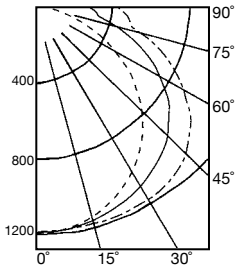
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20																									
% Ceiling RC	% Walls RW	80				70				50				30				10				0			
		70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0			
0	.94	.94	.94	.94	.91	.91	.91	.91	.85	.85	.85	.79	.79	.79	.74	.74	.74	.72							
1	.84	.79	.75	.71	.81	.76	.73	.69	.71	.68	.65	.67	.64	.62	.62	.60	.58	.56							
2	.76	.68	.62	.57	.72	.66	.60	.55	.61	.57	.53	.57	.53	.50	.54	.50	.48	.45							
3	.68	.59	.52	.46	.66	.57	.51	.45	.53	.48	.43	.50	.45	.41	.47	.43	.40	.37							
4	.62	.52	.44	.39	.60	.50	.43	.38	.47	.41	.36	.44	.39	.35	.41	.37	.33	.31							
5	.57	.46	.39	.33	.55	.45	.38	.32	.42	.36	.31	.39	.34	.30	.37	.32	.29	.27							
6	.53	.41	.34	.28	.50	.40	.33	.28	.38	.32	.27	.35	.30	.26	.33	.29	.25	.23							
7	.49	.37	.30	.25	.47	.36	.29	.24	.34	.28	.24	.32	.27	.23	.30	.26	.22	.20							
8	.45	.34	.27	.22	.43	.33	.26	.22	.31	.25	.21	.29	.24	.20	.28	.23	.20	.18							
9	.42	.31	.24	.20	.40	.30	.24	.19	.29	.23	.19	.27	.22	.18	.26	.21	.18	.16							
10	.39	.28	.22	.18	.38	.28	.22	.17	.26	.21	.17	.25	.20	.16	.24	.19	.16	.14							

CANDELA DISTRIBUTION						TOTAL LUMINAIRE EFFICIENCY = 78.9%
0.0	22.5	45.0	67.5	90.0	Flux	CIE Type – Semi-Direct
0	1188	1188	1188	1188	1188	Plane: 0° 90°
5	1188	1186	1186	1184	1183	113 Spacing Criteria: 1.3 1.5
15	1146	1155	1165	1177	1181	330 Shielding Angles: 1 0
25	1060	1085	1122	1165	1178	519
35	940	984	1055	1135	1161	663
45	782	850	970	1073	1102	738
55	589	687	836	950	977	725
65	367	500	652	765	791	618
75	145	293	437	548	563	431
85	12	132	306	428	464	302
90	4	106	270	381	421	
95	5	86	244	348	389	240
105	2	42	178	278	321	172
115	0	8	82	163	201	88
125	0	1	19	54	82	27
135	0	0	8	16	18	6
145	0	0	1	5	8	2
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0



ZONAL LUMEN SUMMARY

ZONE	LUMENS
0-30	961
0-40	1624
0-60	3087
0-90	4438
90-120	500
90-130	527
90-150	535
90-180	535
0-180	4973



LEGEND
0-deg ————
45-deg ————
90-deg ————

REPORT NUMBER: **ITL 47243**

Lamps: Two 40 W, 4-foot F40WW fluorescents, 3150 lumens per lamp with polycarbonate lens.

COEFFICIENTS OF UTILIZATION – ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20																									
% Ceiling RC	% Walls RW	80				70				50				30				10				0			
		70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0			
0	.92	.92	.92	.92	.89	.89	.89	.89	.83	.83	.83	.78	.78	.78	.73	.73	.73	.70							
1	.82	.78	.74	.70	.79	.75	.71	.68	.70	.67	.64	.65	.63	.61	.61	.59	.57	.55							
2	.74	.67	.61	.55	.71	.64	.59	.54	.60	.55	.52	.56	.52	.49	.53	.49	.47	.44							
3	.67	.58	.51	.45	.64	.56	.49	.44	.52	.47	.42	.49	.44	.41	.46	.42	.39	.37							
4	.61	.51	.43	.38	.58	.49	.42	.37	.46	.40	.35	.43	.38	.34	.40	.36	.33	.31							
5	.56	.45	.38	.32	.53	.44	.37	.31	.41	.35	.30	.38	.33	.29	.36	.32	.28	.26							
6	.51	.40	.33	.28	.49	.39	.32	.27	.37	.31	.26	.35	.29	.25	.33	.28	.24	.23							
7	.47	.36	.29	.24	.46	.35	.29	.24	.33	.27	.23	.31	.26	.22	.30	.25	.21	.20							
8	.44	.33	.26	.21	.42	.32	.26	.21	.30	.25	.20	.29	.23	.20	.27	.23	.19	.17							
9	.41	.30	.24	.19	.39	.29	.23	.19	.28	.22	.18	.26	.21	.18	.25	.20	.17	.16							
10	.38	.28	.21	.17	.37	.27	.21	.17	.26	.20	.16	.24	.19	.16	.23	.19	.15	.14							