

# Surface Squares (TS15, TS24)

## Surface Square Specification

Surface Square luminaires are designed for commercial applications. Available in 70 to 400 watt mogul base high pressure sodium lamp and 175 to 400 watt mogul base metal halide lamp. Available with (specify) 120, 208, 240, 277, 480 volt or 4MT (120, 208, 240, 277V), 60Hz ballast. Luminaire shall be completely pre-wired for ease of installation.

## Basic Product Description

A 20 gauge C.R. steel housing, one piece steel door and trim finished in baked white enamel. Sturdy steel frame supported with concealed torsion spring latches (TS15) or hinges (TS24) is easily removed for cleaning and relamping. Available with a choice of diffusers, Corning #73 (CO), drop opal (DO - TS15 only), drop lexalite (LX), Triumph I (KSH, TS24 only), or Triumph II (KSH-2, TS15 only). Porcelain lamp grip socket with nickel plated screw shell and spring loaded center contact eliminates lamp loosening.

## Ballast Characteristics

Surface Squares shall contain a long lasting U.L. recognized High Power Factor (HPF) auto-transformer type ballast. Will start lamps at -20°F (-30°C) for metal halide and -40°F (-40°C) for high pressure sodium. Mercury vapor lamps may be used in 175-400 watt metal halide fixtures. For availability of 220/240V, 50Hz ballast - consult factory.

## Reflector Assembly

Spun aluminum stucco reflector provides a uniform symmetrical wide beam distribution.

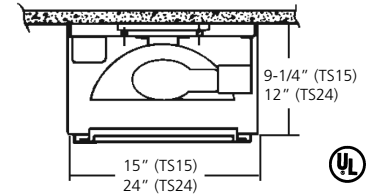
## Suggested Applications

Corridors, lobbies, stores, banks, showrooms, conference rooms, and applications where ceiling does not permit recessed lighting.



Lamp not included

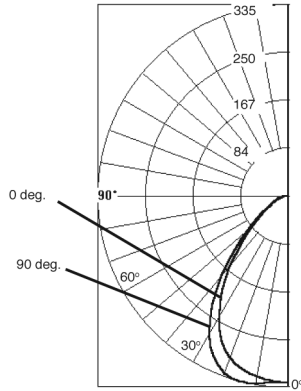
WEIGHT = 26-59 lbs



Ordering Example							
Unit	Wattage	Photometrics	Mounting	Lamp Style	Voltage	Ballast Style	Options
TS-15	2	5	8	H	120	H	CO
Surface Square							
TS15/TS24	0 - 70 1 - 100 2 - 150 3 - 175 4 - 250 6 - 400 200 - 200PS 320 - 320PS 350 - 350PS 400 - 400PS	5 - Wide Beam	8- Surface Mount	H - Metal Halide LS - High Pressure Sodium	120 208 240 277 480 4MT- (120, 208, 240, 277V)	H - High Power Factor	CO - Corning #73 LX - Drop Lexalite KSH - Triumph I (TS24 only) KSH-2 - Triumph II (TS15 only)
			<b>Accessories</b>				
			<b>SIF</b>				
			SIF -	Single Inline Fuse			
			DIF -	Double Inline Fuse			
			EM -	Emergency Quartz Relay and Socket (consult factory)			
			EM60 -	Emergency Quartz Delay Relay and Socket (consult factory)			
			QS -	Quartz Socket Only (aux. power required, consult factory)			
			DP -	Damp Location			
			TP -	Tamper Resistant Screws			
			POS -	Position Oriented Socket			
CSA Certification - consult factory.							

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## Photometrics



ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT
0-30	260.9	26.1	41.2
0-40	404.4	40.4	63.9
0-60	572.6	57.3	90.4
0-90	633.3	63.3	100.0
90-180	0.0	0.0	0.0
0-180	633.3	63.3	100.0

	COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																				
	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	75	75	75	75	74	74	74	74	70	70	70	70	67	67	67	67	65	65	65	65	63
1	71	68	66	65	69	67	65	63	64	63	62	62	61	60	60	60	59	58	58	57	57
2	66	62	59	56	65	61	58	56	59	57	55	55	53	53	53	53	52	51	51	51	51
3	62	57	53	50	61	56	52	49	54	51	49	49	48	48	48	48	47	46	46	46	46
4	58	52	48	45	57	51	47	44	50	46	44	44	43	43	43	43	42	41	41	41	42
5	54	48	43	40	53	47	43	40	46	42	39	39	39	39	39	39	38	37	37	37	37
6	51	44	39	36	50	43	39	36	42	38	35	35	35	35	35	35	34	33	33	33	34
7	47	40	35	32	46	40	35	32	39	35	32	32	32	32	32	32	31	30	30	30	31
8	44	37	32	29	43	36	32	29	36	32	29	29	29	29	29	29	28	27	27	27	28
9	41	34	29	26	40	33	29	26	33	29	26	26	26	26	26	26	25	24	24	24	25
10	38	31	27	24	38	31	26	24	30	26	23	23	23	23	23	23	22	21	21	21	22

Catalog Number: TS24-658H-CO  
Lamp: Phosphor Coated Metal Halide

Reflector: Pyramidal patterned surface reflector; flat prismatic door glass

Efficiency: 63.3%

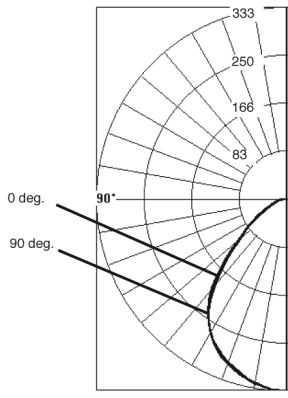
CIE Type: Direct

Luminaire Spacing Criteria: 1.1 - 0 Deg.  
1.2 - 90 Deg.

Candela & Lumen values are based on 1,000 lamp lumens. For other lamp lumen ratings, multiply candela and lumen values by the number: Lumens divided by 1,000.

Per 1,000 Lamp Lumens

DEG	CANDELA	LUMENS
	0.0	90.0
0	326.0	326.0
5	325.0	328.0
15	313.0	335.0
25	277.0	310.0
35	201.0	232.0
45	117.0	133.0
55	59.0	67.0
65	33.0	30.0
75	19.0	18.0
85	6.0	5.0
90	0.0	0.0



ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT
0-30	252.0	25.2	38.4
0-40	400.0	40.0	60.9
0-60	586.0	58.6	89.3
0-90	657.0	65.7	100.0
90-180	0.0	0.0	0.0
0-180	657.0	65.7	100.0

	COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																				
	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	78	78	78	78	76	76	76	76	73	73	73	73	70	70	70	70	67	67	67	67	66
1	73	70	68	66	71	69	66	64	66	64	62	62	61	61	61	61	60	59	59	59	57
2	67	63	59	56	66	61	58	55	59	56	54	54	53	53	53	53	52	51	51	51	50
3	62	56	52	48	61	55	51	47	53	50	47	47	46	46	46	46	45	44	44	44	44
4	58	51	46	42	56	50	45	42	48	44	41	41	41	41	41	41	40	39	39	39	39
5	53	46	41	37	52	45	40	37	44	40	36	36	36	36	36	36	35	34	34	34	34
6	50	42	37	33	49	41	36	33	40	36	33	33	33	33	33	33	32	31	31	31	31
7	46	38	33	30	45	38	33	30	37	33	29	29	29	29	29	29	28	27	27	27	28
8	43	35	30	27	43	35	30	27	34	30	27	27	27	27	27	27	26	25	25	25	25
9	41	33	28	24	40	32	28	24	32	27	24	24	24	24	24	24	23	22	22	22	23
10	38	30	26	22	38	30	25	22	29	25	22	22	22	22	22	22	21	20	20	20	21

Catalog Number: TS15-158H-CO  
Lamp: Phosphor Coated Metal Halide

Reflector: Specular hammertone interior reflector with truncated pyramid shape, clear flat prismatic cover glass in metal door frame, prisms out

Efficiency: 65.7%

CIE Type: Direct

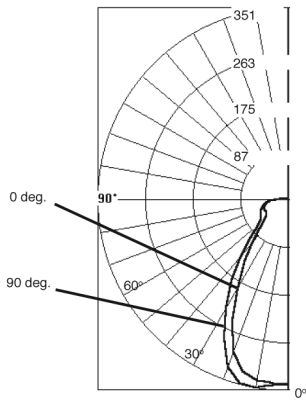
Luminaire Spacing Criteria: 1.2 - 0 Deg.  
1.2 - 90 Deg.

Candela & Lumen values are based on 1,000 lamp lumens. For other lamp lumen ratings, multiply candela and lumen values by the number: Lumens divided by 1,000.

Per 1,000 Lamp Lumens

DEG	CANDELA	LUMENS
	0.0	90.0
0	333.0	333.0
5	331.0	330.0
15	314.0	313.0
25	288.0	287.0
35	237.0	240.0
45	147.0	157.0
55	80.0	80.0
65	37.0	41.0
75	21.0	21.0
85	8.0	8.0
90	0.0	0.0

# Surface Squares (TS15, TS24)



ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT
0-30	259.0	25.9	41.3
0-40	364.0	36.4	58.0
0-60	478.0	47.8	76.2
0-90	608.0	60.8	96.9
90-180	19.0	1.9	3.1
0-180	627.0	62.7	100.0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																		
	80				70				50				30				10	0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	74	74	74	74	72	72	72	72	69	69	69	65	65	65	62	62	62	61
1	68	65	63	60	66	64	61	59	61	59	57	58	56	55	55	54	53	51
2	63	58	55	51	61	57	54	51	55	52	49	52	50	48	50	48	46	45
3	59	53	48	45	57	52	48	44	50	46	43	48	45	42	46	44	41	40
4	55	49	44	40	53	48	43	40	46	42	39	44	41	38	43	40	38	36
5	51	44	40	36	50	44	39	36	42	38	35	41	37	35	40	37	34	33
6	48	41	36	33	47	40	36	33	39	35	32	38	35	32	37	34	31	30
7	45	38	33	30	44	37	33	30	36	32	29	35	32	29	34	31	29	28
8	43	35	31	27	42	35	30	27	34	30	27	33	29	27	32	29	27	25
9	40	33	28	25	39	32	28	25	31	28	25	31	27	25	30	27	24	23
10	38	31	26	23	37	30	26	23	29	26	23	29	25	23	28	25	23	22

Catalog Number: TS24-658H-KSH  
 Lamp: Phosphor Coated Metal Halide

Reflector: Pyramidal patterned surface reflector; pyramidal shaped prismatic drop lens

Efficiency: 62.7%

CIE Type: Direct

Luminaire Spacing Criteria: 1.0 - 0 Deg.  
 1.1 - 90 Deg.

Candela & Lumen values are based on 1,000 lamp lumens. For other lamp lumen ratings, multiply candela and lumen values by the number: Lumens divided by 1,000.

Per 1,000 Lamp Lumens

DEG	CANDELA	LUMENS
0.0	90.0	
0	339.0	339.0
5	340.0	343.0
15	327.0	350.0
25	245.0	282.0
35	142.0	183.0
45	75.0	100.0
55	50.0	63.0
65	48.0	57.0
75	46.0	50.0
85	35.0	25.0
90	24.0	15.0
95	14.0	4.0
105	4.0	2.0
115	2.0	0.0
125	0.0	0.0
135	0.0	0.0