

# 3M™ Digital Projector X90 Series

## Standard and Optional Lenses



### Lens Specifications

Lens Name	Standard Lens	Short Throw Lens	Long Throw Lens	Ultra Long Throw Lens
F Number	1.7 - 2.1	1.94 - 2.55	2.10 - 2.92	2.24 - 3.10
Focal Length	24 - 29 mm	20.0 - 31.9 mm	31.9 - 62.6 mm	63.5 - 117.4 mm
Zoom Ratio	1:1.2	1:1.6	1:2.0	1:1.85
Zoom/Focus	manual	manual	manual	manual
Max Lens Shift (Keystone Correction)	9:1	10:0	10:0	10:0
Distance to Screen Width Ratio (distance/width)	1.5 - 1.8	1.2 - 2.0	1.9 - 3.9	3.9 - 7.4
Projection Distance Range [in meters]	0.9 - 10.8 m (Wide) 1.1 - 13.0 m (Tele)	1.0 - 8.9 m (Wide) 1.6 - 14.2 m (Tele)	1.5 - 20.4 m (Wide) 3.1 - 40.1 m (Tele)	2.3 - 40.7 m (Wide) 4.4 - 76.2 m (Tele)
Projection Distance Range [in feet]	2.9' - 35' (Wide) 3.6 - 42.6' (Tele)	3.3' - 29.2' (Wide) 5.2' - 46.6' (Tele)	4.9' - 66.9' (Wide) 10.2' - 131.6' (Tele)	7.5' - 134' (Wide) 14.4' - 250' (Tele)
Image Size Range	30" - 350"	40" - 350"	30" - 500"	40" - 500"
3M Part Number	Included with X90 Series Projectors	78-6969-9890-1	78-6969-9891-9	78-6969-9892-7

### Screen Size vs. Projection Distance Charts

Note: These are calculated values based on an ideal lens. Actual Lenses may vary +/- 10%. Please build a distance tolerance of +/- 10% into your design.

#### Standard Lens | 4:3 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
30"	3.0 ft	[0.9 m]	3.6 ft	[1.1 m]
40"	3.9 ft	[1.2 m]	4.6 ft	[1.4 m]
60"	5.9 ft	[1.8 m]	7.2 ft	[2.2 m]
70"	6.9 ft	[2.1 m]	8.5 ft	[2.6 m]
90"	8.9 ft	[2.7 m]	10.8 ft	[3.3 m]
100"	9.8 ft	[3.0 m]	12.1 ft	[3.7 m]
120"	12.1 ft	[3.7 m]	14.4 ft	[4.4 m]
150"	15.1 ft	[4.6 m]	18.0 ft	[5.5 m]
200"	20.0 ft	[6.1 m]	24.3 ft	[7.4 m]
300"	30.2 ft	[9.2 m]	36.4 ft	[11.1 m]
350"	35.4 ft	[10.8 m]	42.7 ft	[13.0 m]

#### Standard Lens | 16:9 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
30"	3.2 ft	[1.0 m]	3.9 ft	[1.2 m]
40"	4.3 ft	[1.3 m]	5.1 ft	[1.5 m]
60"	6.4 ft	[2.0 m]	7.9 ft	[2.4 m]
70"	7.5 ft	[2.3 m]	9.3 ft	[2.8 m]
90"	9.7 ft	[3.0 m]	11.8 ft	[3.6 m]
100"	10.9 ft	[3.3 m]	13.2 ft	[4.0 m]
120"	13.2 ft	[4.0 m]	15.7 ft	[4.8 m]
150"	16.4 ft	[5.0 m]	19.7 ft	[6.0 m]
200"	21.8 ft	[6.7 m]	26.5 ft	[8.1 m]
300"	33.0 ft	[10.1 m]	39.8 ft	[12.1 m]
350"	38.6 ft	[11.8 m]	46.5 ft	[14.2 m]

1-800-328-1371

[www.3m.com/meetings](http://www.3m.com/meetings)



### Short Throw | 4:3 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
40"	3.3 ft	[1.0 m]	5.2 ft	[1.6 m]
60"	4.9 ft	[1.5 m]	7.9 ft	[2.4 m]
70"	5.6 ft	[1.7 m]	9.2 ft	[2.8 m]
100"	8.2 ft	[2.5 m]	13.1 ft	[4.0 m]
120"	9.8 ft	[3.0 m]	15.7 ft	[4.8 m]
150"	12.5 ft	[3.8 m]	20.0 ft	[6.1 m]
200"	16.4 ft	[5.0 m]	26.6 ft	[8.1 m]
300"	24.9 ft	[7.6 m]	40.0 ft	[12.2 m]
350"	29.2 ft	[8.9 m]	46.6 ft	[14.2 m]

### Short Throw | 16:9 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
40"	3.6 ft	[1.1 m]	5.7 ft	[1.7 m]
60"	5.3 ft	[1.6 m]	8.6 ft	[2.6 m]
70"	6.1 ft	[1.9 m]	10.0 ft	[3.1 m]
100"	8.9 ft	[2.7 m]	14.3 ft	[4.4 m]
120"	10.8 ft	[3.3 m]	17.3 ft	[5.3 m]
150"	13.5 ft	[4.1 m]	21.8 ft	[6.6 m]
200"	17.9 ft	[5.5 m]	29.0 ft	[8.8 m]
300"	27.2 ft	[8.3 m]	43.5 ft	[13.3 m]
350"	31.8 ft	[9.7 m]	50.8 ft	[15.5 m]

### Long Throw | 4:3 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
30"	3.6 ft	[1.1 m]	7.5 ft	[2.3 m]
40"	4.9 ft	[1.5 m]	10.2 ft	[3.1 m]
60"	7.9 ft	[2.4 m]	15.4 ft	[4.7 m]
70"	9.2 ft	[2.8 m]	18.0 ft	[5.5 m]
100"	13.1 ft	[4.0 m]	25.9 ft	[7.9 m]
120"	15.7 ft	[4.8 m]	31.2 ft	[9.5 m]
150"	19.7 ft	[6.0 m]	39.0 ft	[11.9 m]
200"	26.6 ft	[8.1 m]	52.5 ft	[16.0 m]
300"	40.0 ft	[12.2 m]	78.4 ft	[23.9 m]
350"	46.9 ft	[14.3 m]	91.9 ft	[28.0 m]
400"	53.5 ft	[16.3 m]	105.0 ft	[32.0 m]
500"	66.9 ft	[20.4 m]	131.6 ft	[40.1 m]

### Long Throw | 16:9 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
30"	4.0 ft	[1.2 m]	8.3 ft	[2.5 m]
40"	5.4 ft	[1.7 m]	11.1 ft	[3.4 m]
60"	8.6 ft	[2.6 m]	16.8 ft	[5.1 m]
70"	10.0 ft	[3.1 m]	19.7 ft	[6.0 m]
100"	14.3 ft	[4.4 m]	28.3 ft	[8.6 m]
120"	17.2 ft	[5.2 m]	34.0 ft	[10.4 m]
150"	21.5 ft	[6.6 m]	42.7 ft	[13.0 m]
200"	29.0 ft	[8.8 m]	57.1 ft	[17.4 m]
300"	43.7 ft	[13.3 m]	85.6 ft	[26.1 m]
350"	51.0 ft	[15.6 m]	100.1 ft	[30.5 m]
400"	58.2 ft	[17.7 m]	114.4 ft	[34.9 m]
500"	72.9 ft	[22.2 m]	143.0 ft	[43.6 m]

### Ultra Long Throw | 4:3 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
40"	10.2 ft	[3.1 m]	19.7 ft	[6.0 m]
60"	15.4 ft	[4.7 m]	29.5 ft	[9.0 m]
70"	18.0 ft	[5.5 m]	34.4 ft	[10.5 m]
100"	25.9 ft	[7.9 m]	49.5 ft	[15.1 m]
120"	31.2 ft	[9.5 m]	59.7 ft	[18.2 m]
150"	39.0 ft	[11.9 m]	74.8 ft	[22.8 m]
200"	52.2 ft	[15.9 m]	99.7 ft	[30.4 m]
300"	78.4 ft	[23.9 m]	149.6 ft	[45.6 m]
350"	91.5 ft	[27.9 m]	174.9 ft	[53.3 m]
400"	104.7 ft	[31.9 m]	199.8 ft	[60.9 m]
500"	130.9 ft	[39.9 m]	250.0 ft	[76.2 m]

### Ultra Long Throw | 16:9 Aspect Ratio

Screen Size Diagonal [inch]	Projection Distance feet [meters]			
	Min		Max	
40"	11.1 ft	[3.4 m]	21.4 ft	[6.5 m]
60"	16.8 ft	[5.1 m]	32.2 ft	[9.8 m]
70"	19.7 ft	[6.0 m]	37.6 ft	[11.5 m]
100"	28.3 ft	[8.6 m]	54.1 ft	[16.5 m]
120"	34.0 ft	[10.4 m]	65.1 ft	[19.8 m]
150"	42.6 ft	[13.0 m]	81.5 ft	[24.8 m]
200"	56.9 ft	[17.3 m]	108.7 ft	[33.1 m]
300"	85.5 ft	[26.0 m]	163.2 ft	[49.7 m]
350"	99.8 ft	[30.4 m]	190.5 ft	[58.1 m]
400"	114.1 ft	[34.8 m]	217.7 ft	[66.3 m]
500"	142.6 ft	[43.5 m]	272.0 ft	[82.9 m]

#### Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product or implementation, you must evaluate them and determine if they are suitable for your intended application or situation. You assume all risks and liability associated with such use or implementation. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

© 3M 2007. All Rights Reserved.

#### Warranty; Limited Remedy; Limited Liability

This product will be free from defects in material and manufacture for a period of 3 years from the date of purchase. 3M MAKES NO OTHER WARRANTIES or CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

3M and the 3M logo are trademarks of 3M Company.