

Multi-Gang Dimmers, De-rating, and Face Plates

Product: Renoir® II Architectural Wall Box Dimmers **Article ID:** 20091214-DLB-RenoirII-01

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Summary: One of the Renoir II dimmer line features is that you can install multiple dimmers under a single face plate giving a unified installed appearance. This is called a multi-gang installation. When you have a multi-gang installation, dimmers may require de-rating and a special face plate may be required. This article discusses and gives guidance to these applications.

Information: When planning a multi-gang installation there are several factors which need to be considered:

1. What dimmer model do I need to control my load?
2. How many dimmers will be installed at the same location?
3. Are the installed dimmers, switches, remotes, etc. “narrow” or “wide”?
4. Do my dimmers have to be installed in a specific order?
5. Will my dimmers have fins broken or not?
6. Since I have a multi-gang application, do I need to de-rate my dimmers?
7. What size back box do I need?
8. What face plate do I need?
9. How can I ensure alignment of dimmers so that they don't sag?

This article gives you enough background information to guide you through the decision making process for each one of these items.

What dimmer model do I need to control my load?

This question is best answered by a review of the product data sheets. Critical information is

1. the amount of load, expressed in Watts, VA, or Amps,
2. the load type, and
3. the desired dimmer aesthetic.

How many dimmers will be installed at the same location?

The answer to this question is specific to each application. The Renoir II line supports installations with 0-6 narrow dimmers plus 0-4 wide dimmers under the same face plate. This is called a multi-gang installation.

Are the installed dimmers, switches, remotes, etc. “narrow” or “wide”?

Depending on the dimmer model and load capacity, the dimmers in use could be considered “narrow” or “wide” dimmers. The terms narrow or wide refer to the width of the heat sink. A narrow dimmer is 2.89” wide, and a wide dimmer is 4.7” wide. Wider heat sinks are required in higher load capacity dimmers because more heat must be dissipated in order to keep the dimmer operating correctly.

Reference the product data sheets to see which dimmers are narrow or wide.

Do my dimmers have to be installed in a specific order?

Yes, please reference the “Dimmer Sequence, Back-Box Size, and Fin Removal Chart” within this document. It stipulates the sequence of dimmer installation. A specific sequence is required to ensure that device mounting holes line up with your back-box device mounting ears. The installation sequence is expressed by indicating where wide and/or narrow dimmers should be installed. For example, if you have an installation with (3) wide dimmers and (1) narrow dimmer, the indicated sequence is: “**W+W+N+W**” indicating that the installation or order is **WIDE-WIDE-NARROW-WIDE**.

Will my dimmers have fins broken or not?

For most configurations including narrow and wide dimmers, there are two installation options, one with fins removed where possible and ones with all fins intact. The fins removed configuration allows you to keep the width to an absolute minimum while still getting the maximum performance out of the dimmer. Although there are dimmer rating implications when fins are broken, the decision to break them off or not is purely subjective. When in doubt, do not break fins off.

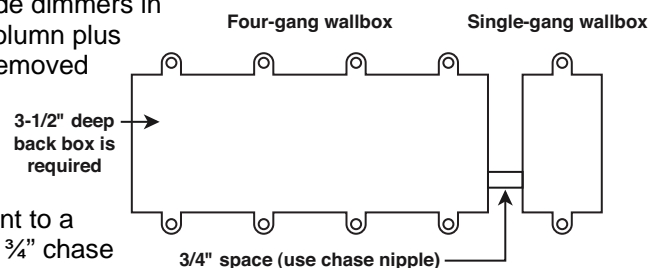
When the decision has been made to remove fins, not all fins should be removed. Please reference the “Dimmer Sequence, Back-Box Size, and Fin Removal Chart” within this document. It stipulates which fins should be removed and which ones should be left intact. The * indicates which fins are to be removed. For example, the string **W*+*W+N+W** indicates that when you have (3) wide dimmers and (1) narrow dimmer and you intend to remove fins, the fins should only be removed between the two adjacent Wide dimmers.

Since I have a multi-gang application, do I need to de-rate my dimmers?

Most multi-gang installations require some sort of de-rating to ensure that the dimmers do not surpass their maximum internal temperature ratings. The amount of required de-rating is determined by the dimmer model and whether 0, 1, or 2 fins have been removed. Reference the charts below showing the rating of your dimmer determined by the number of broken fins.

What size back box do I need?

Once you’ve determined the number of narrow and/or wide dimmers and whether or not you will be removing fins, the required back-box size can be simply determined by reviewing the “Dimmer Sequence, Back-Box Size, and Fin Removal Chart.” Find the number of narrow dimmers in the rows and the number of wide dimmers in the columns. The intersection of the row/column plus information about whether or not fins are removed will lead you to the cell showing the required back-box size. When you find the syntax 4+1 in the chart, it means that in order to accommodate this installation a 1-gang wall box should be installed adjacent to a 4-gang wall box. The two are joined with a 3/4” chase nipple.

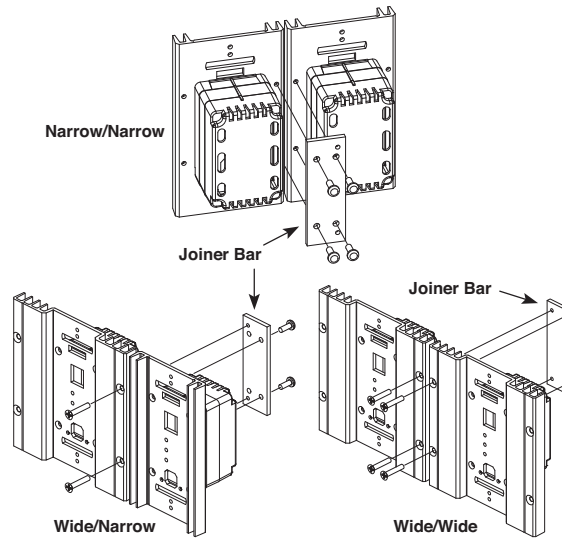


What face plate do I need?

Like back-box size, the required face plate is determined by first establishing the number of narrow and/or wide dimmers and secondly, whether or not fins will be broken. The “Dimmer Sequence, Back-Box Size, and Fin Removal Chart” also indicates which face plate is required for each installation. Required face plates for common configurations are in stock at all times. However, other configurations have a 4-6 week lead time for the face plate. Please make sure to account for this lead time in your project schedule.

How can I ensure alignment of dimmers so that they don't sag?

In a multi-gang installation, alignment/joiner bars are provided to ensure uniform horizontal alignment across the installation. They are affixed to the dimmers prior to installation in the back-box by simply screwing them into the back of the heat sink. Note that joiner bars cannot be used in applications where fins have been removed.



De-rating Chart: Incandescent Dimmer (with Neutral), 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-MA_ AWSMG-MA_ AMSMT-MA_	Amps	5.0		
	VA @ 120V	600		
	VA @ 230V	1150		
	VA @ 277V	1385		
AWSMT-MB_	Amps	8.3	6.5	5.3
	VA @ 120V	1000	780	636
	VA @ 230V	1917	1495	1219
	VA @ 277V	2308	1801	1468
AWRMG-MC_ AWSMG-MC_	Amps	12.5		12.3
	VA @ 120V	1500		1476
	VA @ 230V	2875		2829
	VA @ 277V	3463	2885	3407
AWRMG_MD_ AWSMG_MD_	Amps	16.0	13.5	12.3
	VA @ 120V	1920	1620	1479
	VA @ 230V	3680	3105	2829
	VA @ 277V	4432	3740	3407
AWRMG-MB_ AWSMG-MB_	Amps	8.3	7.0	5.5
	VA @ 120V	1000	840	660
	VA @ 230V	1917	1610	1265
	VA @ 277V	2308	1939	1524
AWSMT-MC_	Amps	12.5	10.2	8.7
	VA @ 120V	1500	1224	1044
	VA @ 230V	2875	2346	2001
	VA @ 277V	3463	2825	2410
AWSMT_MD_	Amps	16.0	13.0	11.1
	VA @ 120V	1920	1560	1332
	VA @ 230V	3680	2990	2553
	VA @ 277V	4432	3601	3075

De-rating Chart: Fluorescent - 0-10VDC Sinking Control, 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-7D_ AWRMT-7D_ AWSMG-7D_ AWSMT-7D_	Amps	16.0		
	VA @ 120V	1920		
	VA @ 230V	3680		
	VA @ 277V	4432		

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De-rating Chart: Incandescent Non-Neutral Dimmer, 120VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-IA_ AWSMG-IA_ AMSMT-IA_	Amps	5.0		
	VA @ 120V	600		
AWSMT-IB_	Amps	8.3	6.5	5.3
	VA @ 120V	1000	780	636
AWRMG-IC_ AWSMG-IC_	Amps	12.5		12.3
	VA @ 120V	1500		1476
AWRMG-ID_ AWSMG-ID_	Amps	16.0	13.5	12.3
	VA @ 120V	1920	1620	1476
AWRMG-IB_ AWSMG-IB_	Amps	8.3	7.0	5.5
	VA @ 120V	1000	840	660
AWSMT-IC_	Amps	12.5	10.2	8.7
	VA @ 120V	1500	1224	1044
AWSMT-ID_	Amps	16.0	13.0	11.1
	VA @ 120V	1920	1560	1332

De-rating Chart: Fluorescent - 3 Wire Phase Control, 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-HA_ AWSMG-HA_ AWSMT-HA_	Amps	5.0		
	VA @ 120V	600		
	VA @ 230V	1150		
	VA @ 277V	1385		
AWRMG-HB_ AWSMG-HB_ AWSMT-HB_	Amps	8.3		
	VA @ 120V	1000		
	VA @ 230V	1917		
	VA @ 277V	2308		
AWRMG-HC_ AWSMG-HC_ AWSMT-HC_	Amps	12.5		
	VA @ 120V	1500		
	VA @ 230V	2875		
	VA @ 277V	3463		
AWRMG-HD_ AWSMG-HD_ AWSMT-HD_	Amps	16.0		
	VA @ 120V	1920		
	VA @ 230V	3680		
	VA @ 277V	4432		

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De-rating Chart: Fluorescent - 2 Wire Phase Control, 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-XA_ AWSMG-XA_ AWSMT-XA_	Amps	5.0		
	VA @ 120V	600		
	VA @ 230V	1150		
	VA @ 277V	1385		
AWSMT-XB_	Amps	8.3	6.5	5.3
	VA @ 120V	1000	780	636
	VA @ 230V	1917	1495	1219
	VA @ 277V	2308	1801	1468
AWRMG-XC_ AWSMG-XC_	Amps	12.5		12.3
	VA @ 120V	1500		1476
	VA @ 230V	2875		2829
	VA @ 277V	3463		3407
AWRMG-XD_ AWSMG-XD_	Amps	16	13.5	12.3
	VA @ 120V	1920	1620	1476
	VA @ 230V	3680	3105	2829
	VA @ 277V	4432	3740	3407
AWRMG-XB_ AWSMG-XB_	Amps	8.3	7.0	5.5
	VA @ 120V	1000	840	660
	VA @ 230V	1917	1610	1265
	VA @ 277V	2308	1939	1524
AWSMT-XC_	Amps	12.5	10.2	8.7
	VA @ 120V	1500	1224	1044
	VA @ 230V	2875	2346	2001
	VA @ 277V	3463	2825	2410
AWSMT-XD_	Amps	16.0	13.0	11.1
	VA @ 120V	1920	1560	1332
	VA @ 230V	3680	2990	2553
	VA @ 277V	4432	3601	3075

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De-rating Chart: Electronic Low Voltage, 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-EA_ AWSMG-EA_ AWSMT-EA_	Amps	5.0		
	VA @ 120V	600		
	VA @ 230V	1150		
	VA @ 277V	1385		
AWRMG-EB_ AWSMG-EB_	Amps	8.3		8.2
	VA @ 120V	1000		984
	VA @ 230V	1917		1886
	VA @ 277V	2308		2271
AWSMT-EB_	Amps	8.3	7.5	6.8
	VA @ 120V	1000	900	816
	VA @ 230V	1917	1725	1564
	VA @ 277V	2308	2078	1884

De-rating Chart: Switches 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWWMG-0D_ AWWMT-0D_	Amps	15.0		
	HP @ 120V	1HP		
	HP @ 230V	1.5HP		
	HP @ 277V	1.5HP		
	VA @ 120V	1920		
	VA @ 230V	3680		
	VA @ 277V	4432		

De-rating Chart: Fan Speed Controls, Full Variable, Fully Quiet, 120-277VAC/VCA, 60Hz

		0 Fins Removed	1 Fin Removed	2 Fins Removed
AWRMG-QA_ AWSMG-QA_ AWSMT-QA_	Amps	5.0		
	VA @ 120V	600		
	VA @ 230V	1150		
	VA @ 277V	1385		
AWSMT-QB_	Amps	8.3	6.5	5.3
	VA @ 120V	1000	780	636
	VA @ 230V	1917	1495	1219
	VA @ 277V	2308	1801	1468
AWRMG-QB_ AWSMG-QB_	Amps	8.3	7.0	5.5
	VA @ 120V	1000	840	660
	VA @ 230V	1917	1610	1265
	VA @ 277V	2308	1939	1524

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Dimmer Sequence, Back-Box Size, and Fin Removal Chart

Number & Type of NARROW			Number & Type of WIDE				
			0	1	2	3	4
0	Fins Left On	Backbox # Gangs	N/A	1	4	6**	9
		Device Configuration		W	W+W	W+W+W	W+W+W+W
		Wall Plate Part #		AWP0F-01x	AWP0F-02x	AWP0F-03x	AWP0F-04x
	Fins Removed	Backbox # Gangs	not supported	3	5	7	
		Device Configuration		W*+W	W*+W*+W	W*+W*+W*+W	
		Wall Plate Part #		AWP00-02X	AWP00-03x	AWP00-04x	
1	Fins Left On	Backbox # Gangs	1	3	5 or 6	8	11
		Device Configuration	N	W+N	W+N+W	W+W+N+W	W+W+N+W+W
		Wall Plate Part #	AWP0F-10x	AWP0F-11x	AWP0F-12x	AWP0F-13x	AWP0F-14x
	Fins Removed	Backbox # Gangs	not supported	7	9		
		Device Configuration		W*+W+N+W	W*+W+N+W*+W		
		Wall Plate Part #		AWP00-13x	AWP00-14x		
2	Fins Left On	Backbox # Gangs	1+1	3+1, or 5	5+1** or 7	10	12
		Device Configuration	N+N	W+N+N	W+N+N+W	W+W+N+N+W	W+W+N+N+W+W
		Wall Plate Part #	AWP0F-20x	AWP0F-21x	AWP0F-22x	AWP0F-23x	AWP0F-24x
	Fins Removed	Backbox # Gangs	2	4	6	8	10
		Device Configuration	N*+N	W+N*+N	W+N*+N+W	W*+W+N*+N+W	W*+W+N*+N+W*+W
		Wall Plate Part #	AWP00-20x	AWP00-21x	AWP00-22x	AWP00-23x	AWP00-24x
3	Fins Left On	Backbox # Gangs	4**	6**	9	11	14
		Device Configuration	N+N+N	W+N+N+N	W+N+N+N+W	W+W+N+N+N+W	W+W+N+N+N+W+W
		Wall Plate Part #	AWP0F-30x	AWP0F-31x	AWP0F-32x	AWP0F-33x	AWP0F-34x
	Fins Removed	Backbox # Gangs	3	5	7	9	11
		Device Configuration	N*+N*+N	W+N*+N*+N	W+N*+N*+N+W	W*+W+N*+N*+N+W	W*+W+N*+N*+N+W*+W
		Wall Plate Part #	AWP00-30x	AWP00-31x	AWP00-32x	AWP00-33x	AWP00-34x
4	Fins Left On	Backbox # Gangs	4+1**	6+1** or 8	8+1** or 10	13	15
		Device Configuration	N+N+N+N	W+N+N+N+N	W+N+N+N+N+W	W+W+N+N+N+N+W	W+W+N+N+N+N+W+W
		Wall Plate Part #	AWP00-40x	AWP00-41x	AWP00-42x	AWP00-43x	AWP00-44x
	Fins Removed	Backbox # Gangs	4	6	8	10	12
		Device Configuration	N*+N*+N*+N	W+N*+N*+N*+N	W+N*+N*+N*+N+W	W*+W+N*+N*+N*+N+W	W*+W+N*+N*+N*+N+W*+W
		Wall Plate Part #	AWP00-40x	AWP00-41x	AWP00-42x	AWP00-43x	AWP00-44x
5	Fins Left On	Backbox # Gangs	7**	9**	11** or 12	14	17
		Device Configuration	N+N+N+N+N	W+N+N+N+N+N	W+N+N+N+N+N+W	W+W+N+N+N+N+N+W	W+W+N+N+N+N+N+W+W
		Wall Plate Part #	AWP0F-50x	AWP0F-51x	AWP0F-52x	AWP0F-53x	AWP0F-54x
	Fins Removed	Backbox # Gangs	5	7	9	11	13
		Device Configuration	N*+N*+N*+N*+N	W+N*+N*+N*+N*+N	W+N*+N*+N*+N*+N+W	W*+W+N*+N*+N*+N*+N+W	W*+W+N*+N*+N*+N*+N+W*+W
		Wall Plate Part #	AWP00-50x	AWP00-51x	AWP00-52x	AWP00-53x	AWP00-54x
6	Fins Left On	Backbox # Gangs	7+1**	9+1** or 11	11+1** or 13	16	18
		Device Configuration	N+N+N+N+N+N	W+N+N+N+N+N+N	W+N+N+N+N+N+N+W	W+W+N+N+N+N+N+N+W	W+W+N+N+N+N+N+N+W+W
		Wall Plate Part #	AWP0F-60x	AWP0F-61x	AWP0F-62x	AWP0F-63x	AWP0F-64x
	Fins Removed	Backbox # Gangs	6	8	10	12	14
		Device Configuration	N*+N*+N*+N*+N*+N	W+N*+N*+N*+N*+N*+N	W+N*+N*+N*+N*+N*+N+W	W*+W+N*+N*+N*+N*+N*+N+W	W*+W+N*+N*+N*+N*+N*+N+W*+W
		Wall Plate Part #	AWP00-60x	AWP00-61x	AWP00-62x	AWP00-63x	AWP00-64x

1. Find the cells that correspond to your application by identifying the row with the number of Wide heatsink dimmers you have, and the columns that correspond to the number of Narrow heat sink dimmers you have. In the cell you'll find the
 2. The number indicates the number of "Gangs" required.
 3. The letters under the number indicate the order dimmers should be installed. N=narrow, W=wide.
 4. W* indicates that the right fin on the wide dimmer, N* indicates that the right fin is broken on the narrow dimmer.
 *W indicates that the left fin on the wide dimmer, *N indicates that the left fin is broken on the narrow dimmer.
 **W* indicates that both fins are broken on the wide dimmer, **N* indicates that both fins are broken on the narrow dimmer.
 5. ** indicates that use of jumper bars is required. Jumper bars can be found in the kit with the faceplate
 6. +1 indicates that in addition to the multi-device box, a second 1 device box shall be installed 3/4" apart from the first. A 3/4" chase nipple shall be used between the two boxes. Reference Figure 4.
 7. Replace 'x' in the wall plate part number with the desired color: W=White, I=Ivory, A=Almond, T=Light Almond, E=Balck, G=Gray, K=24K Gold, L=Satin Stainless, R=Antique Bronze, B=Brushed Brass

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