







## 【B to B : Professional LED】

### Panasonic GU5.3 12V Halogen LED Non-Dimmer Transformer Compatibility – Recommended Transformer List

|  |   |
|--|---|
|  | : No Flicker 1~5 lamp                           |
|  | : No flicker with X-Y lamp(X,Y:number of lamps) |
|  | : No Compatibility                              |
|  | : Configuration not tested                      |



28-02-2014

| No. | Company           | Model #                |  <br>LDR12V4L27MG5<br>LDR12V4L27WG5<br>LDR12V4W40MG5<br>LDR12V4W40WG5<br>(4W type) |  <br>LDR12V6L27MG5D<br>LDR12V6L27WG5D<br>LDR12V6W40MG5D<br>LDR12V6W40WG5D<br>(6W type) |  <br>LDR12V10L27MG5D<br>LDR12V10L27WG5D<br>LDR12V10W40MG5D<br>LDR12V10W40WG5D<br>(8W type) |
|-----|-------------------|------------------------|--|---|--|
| 1   | ABB               | ETR 50-230/12KF        | x  | x   | 1-5  |
| 2   |                   | ETR 70-230/12KF        | x  | x   | 1-5  |
| 3   |                   | ETR 105-230/12KF       | x  | x   | 1-5  |
| 4   | ALS               | TRE-105                | x  | x   | -  |
| 5   | Art.              | 125/105SA              | -  | -   | -  |
| 6   | GENERAL LIGHTING  | 1200-0                 | -  | -   | -  |
| 7   | GIRA              | 0366 00                | 1-5  | 1-5   | -  |
| 8   |                   | 0367 00 SNT40          | 1-5  | 1-5   | 1-5  |
| 9   | JUNG              | SNT 40                 | 1-5  | 1-5   | -  |
| 10  |                   | SNT 70 Q               | 1-5  | 1-5   | -  |
| 11  |                   | SNT 105 F              | 1-5  | 1-5   | -  |
| 12  | MOLTO LUCE        | T 105                  | x  | x   | 1-5  |
| 13  | NATIONAL ELECTRIC |                        | -  | -   | 1-5  |
| 14  | nobile            | EN-60D                 | 1-5  | 1-5   | 2-5  |
| 15  |                   | EN-110D                | 1-5  | 1-5   | -  |
| 16  |                   | EN-150D                | 1-5  | 1-5   | -  |
| 17  |                   | EN-200D                | x  | x   | -  |
| 18  |                   | EN 250D                | x  | x   | -  |
| 19  | OSRAM             | ET-A 60/220-240        | x  | x   | 1-5  |
| 20  |                   | ET PARROT 150W/220-240 | x  | x   | 1-5  |
| 21  |                   | ET 70VA/220-240        | x  | x   | 1-5  |
| 22  |                   | ET 105VA/220-240       | x  | x   | 1-5  |
| 23  |                   | HTL 105/230-240        | 3-5  | 3-5   | 1-5  |
| 24  |                   | HTL 225/230-240        | x  | x   | -  |
| 25  |                   | HTM 70/230-240         | 1  | x   | 1-5  |
| 26  |                   | HTM 105/230-240        | 1-5  | 1-5   | 1-5  |
| 27  |                   | HTM 150/230-240        | x  | x   | 1-5  |
| 28  | HTN 75/230-240    | x                      | x  | 1-5   |  |
| 29  | Philips           | ET-E 60/220-240        | 2-5  | 2-5   | 1-5  |
| 30  |                   | Primaline70 230-240    | x  | x   | 2-5  |
| 31  |                   | Primaline150 230-240   | 1-5  | 1-5   | 1-5  |
| 32  | PROTEC            | PTEL E 35              | 1-5  | 1-5   | 2-5  |
| 33  |                   | PTEL R 60              | 2-5  | 1-5   | 1-5  |
| 34  |                   | PTEL 70K               | 1-5  | 1-5   | -  |
| 35  |                   | PTEL 110               | 1-5  | 1-5   | 2-5  |
| 36  |                   | PTEL SK 110            | x  | x   | -  |
| 37  | Relco             | RN1604                 | x  | x   | 5  |
| 38  |                   | RN1650                 | 2-5  | 1-5   | 2-5  |
| 39  | VOSSLOH SCHWABE   | EST35/12.650           | 1-5  | 1-5   | 1-5  |
| 40  |                   | EST60/12.388           | x  | x   | 2-5  |
| 41  |                   | EST60/12.633           | x  | x   | 1-5  |
| 42  |                   | EST60/12.635           | x  | x   | 1-5  |
| 43  |                   | EST70/12.380           | x  | x   | 1-5  |
| 44  |                   | EST105/12.381          | x  | x   | 1-5  |
| 45  |                   | EST105/12.644          | x  | 4-5   | 1-5  |
| 46  | EST150/12.622     | x                      | x  | 1-5   |  |

- In specific range, there is possibility that flicker happen.
  - Please reference the Transformer manufacturer's instructions for installation.
  - The recommended list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors.
  - This experimental results only checked with 230V.
- In case of input voltage is very high, there is some possibility the result may change.
- This list is not guarantee performance and safty. Please check in actual situation.

**[B to B : Professional LED]**

**Panasonic GU5.3 35W equivalent Halogen LED Dimmer Compatibility – Recommended Dimmer and Transformer List**

X-Y Lx percentage of dimming range  
 10-100% Dimmable range is from 10%-100%  
 30-100% Dimmable range is from 30%-100%  
 40-100% Dimmable range is from 40%-100%  
 Not recommended: The majority of configurations show undesirable dimming behavior  
 Configuration not tested  
 Lamp is not designed for use with this dimmer type  
 New added since previous version



| Recommended Dimmer & Transformer List                                |              |              |              |            |                  |             |           | Transformer          |       |                |       |                |       |                 |       |                |       |                |       |                |
|--|--------------|--------------|--------------|------------|------------------|-------------|-----------|----------------------|-------|----------------|-------|----------------|-------|-----------------|-------|----------------|-------|----------------|-------|----------------|
| LDR12V8L27MG5D<br>LDR12V8L27WG5D<br>LDR12V8L30MG5D<br>LDR12V8L30WG5D |              |              |              |            |                  |             |           | Relco                |       | Osram          |       | Nobile         |       | VOSSLOH SCHWABE |       | PROTEC         |       |                |       |                |
| Manufacturer   |              |              |              |            |                  |             |           | S 50 DT-C (Magnetic) |       | ICE 105 PFS TH |       | HTM105/230-240 |       | EN-60D          |       | EST 105/12.644 |       | PTL110         |       |                |
| Type   |              |              |              |            |                  |             |           | L                    |       | C              |       | R.L.C          |       | C               |       | L.C            |       | C              |       |                |
| Load   |              |              |              |            |                  |             |           | L                    |       | C              |       | R.L.C          |       | C               |       | L.C            |       | C              |       |                |
| Dimmer   | Manufacturer | Type         | Load W/VA    | DownTrans  | Trailing/Leading | Adjust vol. | Lamps     | Dimmable range       | Lamps | Dimmable range | Lamps | Dimmable range | Lamps | Dimmable range  | Lamps | Dimmable range | Lamps | Dimmable range | Lamps | Dimmable range |
|  |              |              |              |            |                  |             |           |                      |       |                |       |                |       |                 |       |                |       |                |       |                |
| ALTEMBURGER  | 50.13.010    | R.L          | 1300W<br>/VA | 60-        | Magnetic         | Leading     | Min./Max. | 1                    | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     | 1              | 1     | 1              |
|  |              |              |              |            |                  |             |           | 2                    | 2     | 2              | 2     | 2              | 2     | 2               | 2     | 2              | 2     | 2              | 2     |                |
|  |              |              |              |            |                  |             |           | 5                    | 5     | 5              | 5     | 5              | 5     | 5               | 5     | 5              | 5     | 5              | 5     |                |
|  | 50.13.110    | R.C          | 700W<br>/VA  | 15-        | Electronic       | Trailing    | Min./Max. | 1                    | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     | 1              | 1     | 1              |
|  |              |              |              |            |                  |             |           | 2                    | 2     | 2              | 2     | 2              | 2     | 2               | 2     | 2              | 2     | 2              | 2     | 2              |
|  | 50.13.111    | R.C          | 1400W<br>/VA | 15-        | Electronic       | Trailing    | Min./Max. | 1                    | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     | 1              | 1     | 1              |
| 2  |              |              |              |            |                  |             |           | 2                    | 2     | 2              | 2     | 2              | 2     | 2               | 2     | 2              | 2     | 2              |       |                |
| 50.13.210  | R.L          | 2000W<br>/VA | 60-          | Magnetic   | Leading          | Min./Max.   | 1         | 1                    | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     | 1              | 1     |                |
|  |              |              |              |            |                  |             | 2         | 2                    | 2     | 2              | 2     | 2              | 2     | 2               | 2     | 2              | 2     | 2              |       |                |
| 80.13.064  | R.C          | 1400W<br>/VA | 60-          | Electronic | Trailing         | Min./Max.   | 1         | 1                    | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     | 1              | 1     |                |
|  |              |              |              |            |                  |             | 2         | 2                    | 2     | 2              | 2     | 2              | 2     | 2               | 2     | 2              | 2     | 2              |       |                |

| Recommended Dimmer & Transformer List                                |              |       |                 |                         |                  |             |       | Transformer    |       |                |       |                |       |                |       |                 |       |                |       |                |
|--|--------------|-------|-----------------|-------------------------|------------------|-------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|-----------------|-------|----------------|-------|----------------|
| LDR12V8L27MG5D<br>LDR12V8L27WG5D<br>LDR12V8L30MG5D<br>LDR12V8L30WG5D |              |       |                 |                         |                  |             |       | TRIDONIC ATCO  |       | Relco          |       | Osram          |       | Nobile         |       | VOSSLOH SCHWABE |       | PROTEC         |       |                |
| Manufacturer   |              |       |                 |                         |                  |             |       | TMDD 105 A601W |       | ICE 105 PFS TH |       | HTM105/230-240 |       | EN-60D         |       | EST105/12.644   |       | PTL110         |       |                |
| Type   |              |       |                 |                         |                  |             |       | L              |       | C              |       | R.L.C          |       | C              |       | L.C             |       | C              |       |                |
| Load   |              |       |                 |                         |                  |             |       | L              |       | C              |       | R.L.C          |       | C              |       | L.C             |       | C              |       |                |
| Dimmer   | Manufacturer | Type  | Load W/VA       | DownTrans               | Trailing/Leading | Adjust vol. | Lamps | Dimmable range | Lamps | Dimmable range | Lamps | Dimmable range | Lamps | Dimmable range | Lamps | Dimmable range  | Lamps | Dimmable range | Lamps | Dimmable range |
|  |              |       |                 |                         |                  |             |       |                |       |                |       |                |       |                |       |                 |       |                |       |                |
| BUSCH-JAEGER<br>(Busch-Memory-Semiconductor)                         | 6565U        | -     | 2x40<br>-315    | Electronic              | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     | 1              |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     | 2              |       |                |
| BUSCH-JAEGER   | 6591U-101    | -     | 1.83A<br>60-420 | Electronic/Magnetic     | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| BUSCH-JAEGER   | 6513U-102    | -     | 40-420          | Electronic              | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| BUSCH-JAEGER   | 6513-102     | -     | 40-420          | Electronic              | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| JUNG   | 1252 UDE     | R.L.C | 50-260          | Electronic/Magnetic/All | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| JUNG   | 225 TDE      | R.C   | 20-525          | Electronic              | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| GIRA   | 0307 00/102  | R.C   | 20-525          | Electronic              | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Berker   | 286710       | R.C   | 20-360          | Electronic              | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| KOPP   | 80.33        | R.L   | 40-400          | Magnetic                | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| BUSCH-JAEGER   | 2250U        | -     | 60-600          | -                       | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| GIRA   | 0300 00      | R     | 60-400          | No                      | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| GIRA   | 2262 00      | R.L   | 60-400          | Magnetic                | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Berker   | 2873         | R.L   | 20-500          | Magnetic                | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| TCL  | L2.0         | R.L   | 630             | -                       | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Panasonic  | WMSS49       | R.L   | 40-400          | -                       | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Lonon  | NB12TG       | R.L   | 630             | -                       | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| PEHA   | 433          | R.C   | 20-315          | -                       | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Varilight  | JQP401W      | -     | 10-400          | -                       | Trailing         | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| MK   | 52471SL      | -     | 60-500          | Only use                | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Hamilton   | LK400/2      | -     | 40-400          | Low                     | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Click  | MD9042       | -     | 60-400          | -                       | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Aurora   | AU-DSP400X   | -     | 60-400          | -                       | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |
| Schneider Electric   | GU6012       | -     | 60-400          | Only use                | Leading          | -           | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1              | 1     | 1               | 1     | 1              | 1     |                |
|  |              |       |                 |                         |                  |             | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2              | 2     | 2               | 2     |                |       |                |

**Please Note**

- In specific range, there is possibility that flicker happen.
- Please reference the dimmer and Transformer manufacturer's instructions for installation.
- The recommended list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors.
- This experimental results only checked with 230V.
- In case of input voltage is very high, there is some possibility the result may change.
- The absence of a dimmer from this chart does not necessarily imply incompatibility.
- This list is not guarantee performance and safety. Please check in actual situation.
- The lamp may be flashing once when turning on, if the dimmer is already at position zero.
- In general, Leading dimmer is used with Magnetic transformer.
- Trailing dimmer is used with Electronic transformer.
- Please note that in case of dimming, and depending on the dimmer type, the LED can generate more or less buzzing noise, which is not abnormal.

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**[B to B : Professional LED]**

**Panasonic GU5.3 45W equivalent Halogen LED Dimmer Compatibility – Recommended Dimmer and Transformer List**

X-Y Lx percentage of dimming range  
 10-100% Dimmable range is from 10%-100%  
 30-100% Dimmable range is from 30%-100%  
 40-100% Dimmable range is from 40%-100%  
 Not recommended. The majority of configurations show undesirable dimming behavior  
 Configuration not tested  
 Lamp is not designed for use with this dimmer type  
 New added since previous version



28-02-2014

| Recommended Dimmer & Transformer List                                    |             |           |       |              |                  |             | Transformer    |                |                |                |                |                |         |                |         |                |
|--|-------------|-----------|-------|--------------|------------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|---------|----------------|---------|----------------|
| LDR12V10L27MG5D<br>LDR12V10L27WG5D<br>LDR12V10W40MG5D<br>LDR12V10W40WG5D |             |           |       |              |                  |             | TRIDONIC ATCO  |                | Relco          |                | Osram          |                | Nobile  |                | PROTEC  |                |
|  |             |           |       |              |                  |             | TMDD 105 A601W |                | ICE 105 PFS TH |                | HTM105/230-240 |                | EN-60D  |                | PTL110  |                |
|  |             |           |       |              |                  |             | L              |                | C              |                | R.L.C          |                | C       |                | C       |                |
| Manufacturer   | Type        | Load      | W./VA | DownTrans    | Trailing/Leading | Adjust vol. | Lamps          | Dimmable range | Lamps          | Dimmable range | Lamps          | Dimmable range | Lamps   | Dimmable range | Lamps   | Dimmable range |
| Dimmer   | ALTENBURGER | 50.13.010 | R.L   | 60-1300W /VA | Magnetic         | Leading     | Min./Max.      | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100% | 1<br>2<br>5    |         | 1<br>2<br>5    |
|  |             | 50.13.110 | R.C   | 15-700W /VA  | Electronic       | Trailing    | Min./Max.      | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5    | 10-100% | 1<br>2<br>5    | 30-100% | 1<br>2<br>5    |
|  |             | 50.13.111 | R.C   | 15-1400W /VA | Electronic       | Trailing    | Min./Max.      | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5    | 10-100% | 1<br>2<br>5    | 30-100% | 1<br>2<br>5    |
|  |             | 50.13.210 | R.L   | 60-2000W /VA | Magnetic         | Leading     | Min./Max.      | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100% | 1<br>2<br>5    |         | 1<br>2<br>5    |
|  |             |           |       |              |                  |             |                |                |                |                |                |                |         |                |         |                |

| Recommended Dimmer & Transformer List                                    |                    |             |       |               |                                    |             | Transformer    |                |                |                |                |                |             |                |             |                |
|--|--------------------|-------------|-------|---------------|------------------------------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|----------------|-------------|----------------|
| LDR12V10L27MG5D<br>LDR12V10L27WG5D<br>LDR12V10W40MG5D<br>LDR12V10W40WG5D |                    |             |       |               |                                    |             | TRIDONIC ATCO  |                | Relco          |                | Osram          |                | Nobile      |                | PROTEC      |                |
|  |                    |             |       |               |                                    |             | TMDD 105 A601W |                | ICE 105 PFS TH |                | HTM105/230-240 |                | EN-60D      |                | PTL110      |                |
|  |                    |             |       |               |                                    |             | L              |                | C              |                | R.L.C          |                | C           |                | C           |                |
| Manufacturer   | Type               | Load        | W./VA | DownTrans     | Trailing/Leading                   | Adjust vol. | Lamps          | Dimmable range | Lamps          | Dimmable range | Lamps          | Dimmable range | Lamps       | Dimmable range | Lamps       | Dimmable range |
| Dimmer   | BUSCH-JAEGER       | 6565U       | -     | 2x40-315      | Electronic                         | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 40-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | BUSCH-JAEGER       | 6591U-101   | -     | 1,83A, 60-420 | Electronic /Magnetic               | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | BUSCH-JAEGER       | 6513U-102   | -     | 40-420        | Electronic                         | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | BUSCH-JAEGER       | 6513-102    | -     | 40-420        | Electronic                         | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | JUNG               | 1252 UDE    | R.L.C | 50-280        | Electronic /Magnetic /All          | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | JUNG               | 225 TDE     | R.C   | 20-525        | Electronic /Magnetic /No operation | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | GIRA               | 0307 00/002 | R.C   | 20-525        | Electronic /Magnetic /No operation | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Berker             | 286710      | R.C   | 20-360        | Electronic /Magnetic /No operation | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | KOPP               | 80.33       | R.L   | 40-400        | Magnetic /Electronic /No operation | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 30-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | BUSCH-JAEGER       | 2250U       | -     | 60-600        |                                    | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | GIRA               | 0300 00     | R     | 60-400        | No (Down Trans /No operation)      | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | GIRA               | 2262 00     | R.L   | 60-400        | Magnetic /Electronic /No operation | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Berker             | 2873        | R.L   | 20-500        | Magnetic /Electronic /No operation | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | TCL                | L2.0        | R.L   | 630           |                                    | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Panasonic          | WMSS49      | R.L   | 40-400        |                                    | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Lonon              | NB12TG      | R.L   | 630           |                                    | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | PEHA               | 433         | R.C   | 20-315        |                                    | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Vanlight           | JOP401W     | -     | 10-400        |                                    | Trailing    | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | MK                 | 52471SL     | -     | 60-500        | Only use Leading type              | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Hamilton           | LK400/2     | -     | 40-400        | Low voltage is OK                  | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Click              | MD9042      | -     | 60-400        |                                    | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Aurora             | AU-DSP400X  | -     | 60-400        |                                    | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |
|  | Schneider Electric | GU6012      | -     | 60-400        | Only use Leading type              | Leading     | 1<br>2<br>5    |                | 1<br>2<br>5    |                | 1<br>2<br>5    | 10-100%        | 1<br>2<br>5 |                | 1<br>2<br>5 |                |

**Please Note**

- In specific range, there is possibility that flicker happen.
- Please reference the dimmer and Transformer manufacturer's instructions for installation.
- The recommended list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors.
- This experimental results only checked with 230V.
- In case of input voltage is very high, there is some possibility the result may change.
- The absence of a dimmer from this chart does not necessarily imply incompatibility.
- This list is not guarantee performance and safety. Please check in actual situation.
- The lamp may be flashing once when turning on, if the dimmer is already at position zero.
- In general, Leading dimmer is used with Magnetic transformer.
- Trailing dimmer is used with Electronic transformer.
- Please note that in case of dimming, and depending on the dimmer type, the LED can generate more or less buzzing noise, which is not abnormal.







## [B to B : Professional LED]

### Panasonic 230V LED Dimmer Compatibility – recommended dimmer list

|         |  |
|---------|--|
| 10-100% | Dimmable range is from 10%-100%  |
| 30-100% | Dimmable range is from 30%-100%  |
| 40-100% | Dimmable range is from 40%-100%  |
|         | Not recommend.The majority of configurations show undesirable dimming behavior |
|         | Configuration not tested   |
|         | Lamp is not designed for use with this dimmer type                             |
| Name    | New added since previous version   |

**Panasonic**

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| Panasonic     |                |               |            | LED Candle  | LED Candle  | LED Candle/PinzPong  | LED Clear   | LED Reflector   | LED Reflector   |
|---------------|----------------|---------------|------------|---|---|--|---|---|---|
| Panasonic     |                |               |            | LDAHV4L27CE14D  | LDAHV5L27CE14DE   | LDAHV5L27CGE14DE<br>LDGHV5L27CGE14DE   | LDAHV8L27CGDE*  | LDRHV7L27MG10D<br>LDRHV7L27WG10D  | LDRHV7L27MG10D*<br>LDRHV7L27WG10D<br>LDRHV7W40MG10D<br>LDRHV7W40WG10D<br>(2013 Refresh model) |
| Panasonic     |                |               |            |  |  |  |  |  |            |
| Brand         | Model          | Load Range(W) | Edge Type  | E14   | E14   | E14  | E27   | GU10  | GU10  |
| Altenburger   | 50.13.110      | 15-700        | Trailing   | 10-100%   | 10-100%   | 10-100%  | 10-100%   | 10-100%   | 10-100%   |
| Altenburger   | 50.13.111      | 15-1400       | Trailing   | 10-100%   | 30-100%   | 30-100%  | 10-100%   | 30-100%   | 10-100%   |
| Altenburger   | 50.13.010      | 60-1300       | Leading    | 10-100%   |   | 10-100%  | 10-100%   |   | 10-100%   |
| Altenburger   | 50.13.210      | 60-2000       | Leading    | 10-100%   |   | 10-100%  | 10-100%   |   | 10-100%   |
| Berker        | 286710         | 20-360        | Trailing   |   | 30-100%   | 10-100%  | 10-100%   |   | 40-100%   |
| Berker        | 2873           | 20-500        | Leading    |   |   | 30-100%  | 10-100%   |   |   |
| CLIPSAL       | 32V500 Series  | 500VA         | Leading    |   |   |  |   |   |   |
| GIRA          | 0300.00/101    | 60-400        | Leading    | 30-100%   |   |  | 30-100%   | 30-100%   |   |
| GIRA          | 0302.00/101    | 60-600        | Leading    |   |   | 30-100%  | 10-100%   | 10-100%   |   |
| GIRA          | 0305.00/104    | 50-420        | Universal  |   |   | 10-100%  | 10-100%   |   |   |
| GIRA          | 0307.00/102    | 20-525        | Trailing   | 30-100%   | 30-100%   | 30-100%  | 10-100%   |   | 40-100%   |
| GIRA          | 1176.00/103    | 50-420        | Universal  |   |   |  |   |   |   |
| GIRA          | 2262.00/101    | 20-500        | Leading    | 30-100%   |   | 10-100%  | 10-100%   | 10-100%   |   |
| BUSCH JAEGER  | 2250U          | 60-600        | Leading    |   |   | 30-100%  | 10-100%   | 30-100%   |   |
| BUSCH JAEGER  | 6513-102       | 40-420        | Trailing   | 30-100%   |   | 10-100%  | 10-100%   | 10-100%   |   |
| BUSCH JAEGER  | 6513U-102      | 40-420        | Trailing   |   |   | 10-100%  | 10-100%   | 10-100%   |   |
| BUSCH JAEGER  | 6523U          | 2-100         | Leading    |   |   | 10-100%  | 10-100%   | 10-100%   |   |
| BUSCH JAEGER  | 6524U          | 2-100         | LED Dimmer |   |   | 10-100%  | 10-100%   |   |   |
| BUSCH JAEGER  | 6565U          | 80-315        | Trailing   | 10-100%   |   | 10-100%  | 10-100%   |   |   |
| BUSCH JAEGER  | 6591U-101      | 60-420        | Universal  |   |   |  |   | 10-100%   |   |
| JUNG          | 225 TDE        | 20-525        | Trailing   | 30-100%   | 30-100%   | 10-100%  | 10-100%   | 10-100%   | 40-100%   |
| JUNG          | 1252 UDE       | 50-260        | Trailing   | 30-100%   |   | 10-100%  | 30-100%   | 30-100%   |   |
| KOPP          | 80.33          | 40-400        | Leading    | 30-100%   |   | 30-100%  | 10-100%   | 30-100%   |   |
| KOPP          | 8077.0208.0    | 20-275        | Trailing   |   |   |  | 10-100%   | 10-100%   |   |
| Lonon         | NB12TG         | 630           | Leading    |   |   | 10-100%  | 10-100%   |   |   |
| Panasonic     | WMS549         | 40-400        | Leading    |   |   | 30-100%  | 30-100%   | 30-100%   |   |
| PEHA          | 431            | 6-120         | LED Dimmer |   |   | 10-100%  |   |   |   |
| PEHA          | 433            | 20-315        | Trailing   |   | 30-100%   | 10-100%  | 10-100%   |   | 30-100%   |
| PEHA          | 435            | 60-600        | Leading    |   |   | 10-100%  | 10-100%   |   |   |
| TCL (Legrand) | L2.0           | 630           | Leading    | 10-100%   |   | 10-100%  | 10-100%   | 10-100%   |   |
| Wickes        | Harrow HA1.2QB | 60-400        | Leading    |   |   |  | 10-100%   | 30-100%   |   |
| Varilight     | JQP401W        | 10-400        | Trailing   |   |   | 10-100%  | 10-100%   |   | 10-100%   |
| MK            | 52471SL        | 60-500        | Leading    |   |   |  |   |   |   |
| Hamilton      | LK400/2        | 40-400        | Leading    |   |   | 30-100%  | 20-100%   |   |   |
| Click         | MD9042         | 60-400        | Leading    |   |   | 10-100%  | 10-100%   |   |   |
| Aurora        | AU-DSP400X     | 60-400        | Leading    |   |   | 10-100%  | 10-100%   |   |   |

#### Please Note

- In specific range, there is possibility that flicker happen.
- Please reference the dimmer manufacturer's instructions for installation.
- The recommended list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors.
- This experimental results only checked with 230V and one lamp operation.
- In case of input voltage is very high, there is some possibility the result may change.
- The absence of a dimmer from this chart does not necessarily imply incompatibility.
- This list is not guarantee performance and safty. Please check in actual situation.
- The lamp may be flashing once when turning on, if the dimmer is already at position zero.
- The lamp may become lightly bright, if the Semiconductor Switch is off.
- Please note that in case of dimming, and depending on the dimmer type, the LED can generate more or less buzzing noise, which is not abnormal.

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## [B to C : Home Consumer LED]

### Panasonic GU5.3 12V Halogen LED Non-Dimmer Transformer Compatibility – Recommended Transformer List

|  |   |
|--|---|
|  | : No Flicker 1~5 lamp                           |
|  | : No flicker with X-Y lamp(X,Y:number of lamps) |
|  | : No Compatibility                              |
|  | : Configuration not tested                      |

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| No. | Company           | Model #                |                              |                              |                               |
|-----|-------------------|------------------------|------------------------------|------------------------------|-------------------------------|
|     |                   |                        | LDR12V4L27WG5EP<br>(4W type) | LDR12V6L27WG5EP<br>(6W type) | LDR12V10L27WG5EP<br>(8W type) |
| 1   | ABB               | ETR 50-230/12KF        | x                            | x                            | 1-5                           |
| 2   |                   | ETR 70-230/12KF        | x                            | x                            | 1-5                           |
| 3   |                   | ETR 105-230/12KF       | x                            | x                            | 1-5                           |
| 4   | ALS               | TRE-105                | x                            | x                            | -                             |
| 5   | Art.              | 125/105SA              | -                            | -                            | -                             |
| 6   | GENERAL LIGHTING  | 1200-0                 | -                            | -                            | -                             |
| 7   | GIRA              | 0366 00                | 1-5                          | 1-5                          | -                             |
| 8   |                   | 0367 00 SNT40          | 1-5                          | 1-5                          | 1-5                           |
| 9   | JUNG              | SNT 40                 | 1-5                          | 1-5                          | -                             |
| 10  |                   | SNT 70 Q               | 1-5                          | 1-5                          | -                             |
| 11  |                   | SNT 105 F              | 1-5                          | 1-5                          | -                             |
| 12  | MOLTO LUCE        | T 105                  | x                            | x                            | 1-5                           |
| 13  | NATIONAL ELECTRIC |                        | -                            | -                            | 1-5                           |
| 14  | nobile            | EN-60D                 | 1-5                          | 1-5                          | 2-5                           |
| 15  |                   | EN-110D                | 1-5                          | 1-5                          | -                             |
| 16  |                   | EN-150D                | 1-5                          | 1-5                          | -                             |
| 17  |                   | EN-200D                | x                            | x                            | -                             |
| 18  |                   | EN 250D                | x                            | x                            | -                             |
| 19  | OSRAM             | ET-A 60/220-240        | x                            | x                            | 1-5                           |
| 20  |                   | ET PARROT 150W/220-240 | x                            | x                            | 1-5                           |
| 21  |                   | ET 70VA/220-240        | x                            | x                            | 1-5                           |
| 22  |                   | ET 105VA/220-240       | x                            | x                            | 1-5                           |
| 23  |                   | HTL 105/230-240        | 3-5                          | 3-5                          | 1-5                           |
| 24  |                   | HTL 225/230-240        | x                            | x                            | -                             |
| 25  |                   | HTM 70/230-240         | 1                            | x                            | 1-5                           |
| 26  |                   | HTM 105/230-240        | 1-5                          | 1-5                          | 1-5                           |
| 27  |                   | HTM 150/230-240        | x                            | x                            | 1-5                           |
| 28  | HTN 75/230-240    | x                      | x                            | 1-5                          |                               |
| 29  | Philips           | ET-E 60/220-240        | 2-5                          | 2-5                          | 1-5                           |
| 30  |                   | Primaline70 230-240    | x                            | x                            | 2-5                           |
| 31  |                   | Primaline150 230-240   | 1-5                          | 1-5                          | 1-5                           |
| 32  | PROTEC            | PTEL E 35              | 1-5                          | 1-5                          | 2-5                           |
| 33  |                   | PTEL R 60              | 2-5                          | 1-5                          | 1-5                           |
| 34  |                   | PTEL 70K               | 1-5                          | 1-5                          | -                             |
| 35  |                   | PTEL 110               | 1-5                          | 1-5                          | 2-5                           |
| 36  |                   | PTEL SK 110            | x                            | x                            | -                             |
| 37  | Relco             | RN1604                 | x                            | x                            | 5                             |
| 38  |                   | RN1650                 | 2-5                          | 1-5                          | 2-5                           |
| 39  | VOSSLOH SCHWABE   | EST35/12.650           | 1-5                          | 1-5                          | 1-5                           |
| 40  |                   | EST60/12.388           | x                            | x                            | 2-5                           |
| 41  |                   | EST60/12.633           | x                            | x                            | 1-5                           |
| 42  |                   | EST60/12.635           | x                            | x                            | 1-5                           |
| 43  |                   | EST70/12.380           | x                            | x                            | 1-5                           |
| 44  |                   | EST105/12.381          | x                            | x                            | 1-5                           |
| 45  |                   | EST105/12.644          | x                            | 4-5                          | 1-5                           |
| 46  |                   | EST150/12.622          | x                            | x                            | 1-5                           |

- In specific range, there is possibility that flicker happen.
  - Please reference the Transformer manufacturer's instructions for installation.
  - The recommended list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors.
  - This experimental results only checked with 230V.
- In case of input voltage is very high, there is some possibility the result may change.
- This list is not guarantee performance and safty. Please check in actual situation.



## [B to C : Home Consumer LED]

### Panasonic 230V LED Dimmer Compatibility – recommended dimmer list

|         |  |
|---------|--|
| 10-100% | Dimmable range is from 10%-100%  |
| 30-100% | Dimmable range is from 30%-100%  |
| 40-100% | Dimmable range is from 40%-100%  |
|         | Not recommend.The majority of configurations show undesirable dimming behavior |
|         | Configuration not tested   |
|         | Lamp is not designed for use with this dimmer type                             |
| Name    | New added since previous version   |

**Panasonic**

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| Panasonic    |                |               |            | LED Candle/PinzPonz   | LED Reflector   |
|--------------|----------------|---------------|------------|---|---|
| Panasonic    |                |               |            | LDAHV5L27CGE14DEP<br>LDGHV5L27CGE14DEP  | LDRHV7L27WG10DEP<br>(2013 Refresh model)  |
| Panasonic    |                |               |            |  |  |
| Brand        | Model          | Load Range(W) | Edge Type  | E14   | GU10  |
| Altenburger  | 50.13.110      | 15-700        | Trailing   | 10-100%   | 10-100%   |
| Altenburger  | 50.13.111      | 15-1400       | Trailing   | 30-100%   | 10-100%   |
| Altenburger  | 50.13.010      | 60-1300       | Leading    | 10-100%   |   |
| Altenburger  | 50.13.210      | 60-2000       | Leading    | 10-100%   |   |
| Berker       | 286710         | 20-360        | Trailing   | 10-100%   | 40-100%   |
| Berker       | 2873           | 20-500        | Leading    | 30-100%   |   |
| CLIPSAL      | 32V500 Series  | 500VA         | Leading    |   |   |
| GIRA         | 0300 00/101    | 60-400        | Leading    |   |   |
| GIRA         | 0302 00/101    | 60-600        | Leading    | 30-100%   |   |
| GIRA         | 0305 00/104    | 50-420        | Universal  | 10-100%   |   |
| GIRA         | 0307 00/102    | 20-525        | Trailing   | 30-100%   | 40-100%   |
| GIRA         | 1176 00/103    | 50-420        | Universal  |   |   |
| GIRA         | 2262 00/101    | 20-500        | Leading    | 10-100%   |   |
| BUSCH JAEGER | 2250U          | 60-600        | Leading    | 30-100%   |   |
| BUSCH JAEGER | 6513-102       | 40-420        | Trailing   | 10-100%   |   |
| BUSCH JAEGER | 6513U-102      | 40-420        | Trailing   | 10-100%   |   |
| BUSCH JAEGER | 6523U          | 2-100         | Leading    | 10-100%   |   |
| BUSCH JAEGER | 6524U          | 2-100         | LED Dimmer | 10-100%   |   |
| BUSCH JAEGER | 6565U          | 80-315        | Trailing   | 10-100%   |   |
| BUSCH JAEGER | 6591U-101      | 60-420        | Universal  |   |   |
| JUNG         | 225 TDE        | 20-525        | Trailing   | 10-100%   | 40-100%   |
| JUNG         | 1252 UDE       | 50-260        | Trailing   | 10-100%   |   |
| KOPP         | 80.33          | 40-400        | Leading    | 30-100%   |   |
| KOPP         | 8077.0208.0    | 20-275        | Trailing   |   |   |
| Lonon        | NB12TG         | 630           | Leading    | 10-100%   |   |
| Panasonic    | WMS549         | 40-400        | Leading    | 30-100%   |   |
| PEHA         | 431            | 6-120         | LED Dimmer | 10-100%   |   |
| PEHA         | 433            | 20-315        | Trailing   | 10-100%   | 30-100%   |
| PEHA         | 435            | 60-600        | Leading    | 10-100%   |   |
| TCL(Legrand) | L2.0           | 630           | Leading    | 10-100%   |   |
| Wickes       | Harrow HA1 2QB | 60-400        | Leading    |   |   |
| Varilight    | JQP401W        | 10-400        | Trailing   | 10-100%   | 10-100%   |
| MK           | 52471SL        | 60-500        | Leading    |   |   |
| Hamilton     | LK400/2        | 40-400        | Leading    | 30-100%   |   |
| Click        | MD9042         | 60-400        | Leading    | 10-100%   |   |
| Aurora       | AU-DSP400X     | 60-400        | Leading    | 10-100%   |   |

#### Please Note

- In specific range, there is possibility that flicker happen.
- Please reference the dimmer manufacturer's instructions for installation.
- The recommended list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors.
- This experimental results only checked with 230V and one lamp operation.
- In case of input voltage is very high, there is some possibility the result may change.
- The absence of a dimmer from this chart does not necessarily imply incompatibility.
- This list is not guarantee performance and safty. Please check in actual situation.
- The lamp may be flashing once when turning on, if the dimmer is already at position zero.
- The lamp may become lightly bright, if the Semiconductor Switch is off.
- Please note that In case of dimming, and depending on the dimmer type, the LED can generate more or less buzzing noise, which is not abnormal.

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