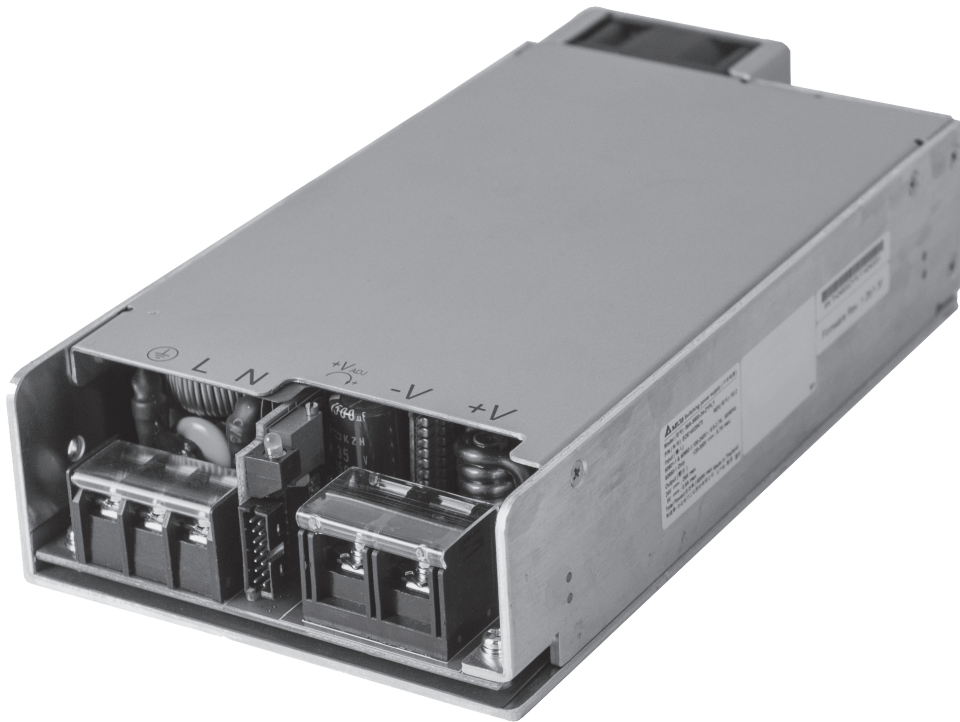




# IMA 600 Watts Power Supply Series

for medical and industrial applications

Product data sheet

## 600 Watts Power Supply Series

for medical and industrial applications

### Features

- Safety approval for Medical (IEC 60601-1-2), Industrial (IEC 62368) and IT
- Wide operating input voltage range: 80 Vac to 275 Vac or 120 Vdc to 300 Vdc
- Wide adjustable output voltage range (+/- 20%)
- 5 Vdc standby output
- High efficiency: up to 94%
- Size: 4 x 8 x 1.6 in (1U design)
- Variable speed fan control
- Low acoustic noise level of less than 38.5 dB(A)
- Active current sharing
- 2 × MOPP
- PMBus™ compatible for control, programming and monitoring
- 500,000 hour MTBF
- Optional conformal coating
- 3 years warranty

### Model variants

| Model number <sup>1)</sup> | Input voltage range |            | Main DC Output |             | Auxiliary DC Output |             | Remote ON/OFF standard setting <sup>2)</sup> | Parallel operation |
|----------------------------|---------------------|------------|----------------|-------------|---------------------|-------------|----------------------------------------------|--------------------|
|                            | AC (Vac)            | DC (Vdc)   | Voltage (Vdc)  | Current (A) | Voltage (Vdc)       | Current (A) |                                              |                    |
| IMA-x600-12-ZYPLI          | 80 to 275           | 120 to 300 | 12             | 50          | 5                   | 0.5         | OFF                                          | Yes                |
| IMA-x600-12-ZYPLY          |                     |            |                |             |                     |             | ON                                           | Yes                |
| IMA-x600-24-ZYPLI          |                     |            | 24             | 25          |                     |             | OFF                                          | Yes                |
| IMA-x600-24-ZYPLY          |                     |            |                |             |                     |             | ON                                           | Yes                |
| IMA-x600-24-ZYSLI          |                     |            |                |             |                     |             | OFF                                          | No                 |
| IMA-x600-48-ZYPLI          |                     |            | 48             | 12.5        |                     |             | OFF                                          | Yes                |
| IMA-x600-48-ZYPLY          |                     |            |                |             |                     |             | ON                                           | Yes                |

<sup>1)</sup> IMA-x600: x = S for standard version (e.g. IMA-S600-24-ZYPLY),  
x = C for conformal coated version (e.g. IMA-C600-24-ZYPLY)

<sup>2)</sup> Model ZYPLI and ZYPLY have different settings for Remote ON/OFF, see "Other features", p. 4

### AC/DC input (J1)

|                                     | IMA-x600-12                              | IMA-x600-24 | IMA-x600-48 |
|-------------------------------------|------------------------------------------|-------------|-------------|
| Nominal input voltage               | 100 Vac to 240 Vac                       |             |             |
| AC operating input voltage range    | 80 Vac to 275 Vac                        |             |             |
| Nominal input frequency             | 50 / 60 Hz                               |             |             |
| Input frequency range               | 47 Hz to 63 Hz                           |             |             |
| DC Input voltage range              | 120 Vdc to 300 Vdc                       |             |             |
| Maximum input current               | 9 A at 80 Vac / 5.7 A at 120 Vdc         |             |             |
| Efficiency @ 70% load <sup>1)</sup> | see Fig. 15 to Fig. 17, page 11          |             |             |
| @ 230 Vac                           | 92%                                      | 94%         | 94%         |
| @ 115 Vac                           | 90%                                      | 92%         | 92%         |
| Max inrush current <sup>2)</sup>    | < 20 A                                   |             |             |
| Input fuse                          | DC input compliant, dual 10 A fuses used |             |             |
| Power factor <sup>3)</sup>          | 0.9 (typical)                            |             |             |

<sup>1)</sup> Excluding fan power

<sup>2)</sup> Hot and cold turn on

<sup>3)</sup> EN 61000-3-2, Class A compliant

**Main DC output (J2)**

|                                              |                                                                                                              | IMA-x600-12                                                   | IMA-x600-24      | IMA-x600-48      |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------|------------------|
| <b>Nominal output voltage</b>                |                                                                                                              | 12 V                                                          | 24 V             | 48 V             |
| <b>Output voltage adjustment range</b>       |                                                                                                              | 9.6 V to 14.4 V                                               | 19.2 V to 28.8 V | 38.4 V to 56.0 V |
| <b>Maximum output power</b>                  |                                                                                                              | 600 W                                                         |                  |                  |
| <b>Output voltage regulation</b>             |                                                                                                              |                                                               |                  |                  |
| Total                                        |                                                                                                              | 2.25%                                                         |                  |                  |
| Over line                                    | Full input range, full load                                                                                  | 0.25%                                                         |                  |                  |
| Over load                                    | Nominal input, full load range                                                                               | 1%                                                            |                  |                  |
| Over temperature                             | Nominal input, full load, full temperature                                                                   | 1%                                                            |                  |                  |
| <b>Maximum output current</b>                |                                                                                                              | 50 A                                                          | 25 A             | 12.5 A           |
| <b>Maximum output capacitive load</b>        |                                                                                                              | 10,000 $\mu$ F                                                |                  |                  |
| <b>Dynamic load regulation <sup>1)</sup></b> |                                                                                                              | < 5%                                                          |                  |                  |
| <b>PARD (20 MHz) <sup>2)</sup></b>           |                                                                                                              | < 1% peak to peak                                             |                  |                  |
| <b>Turn on overshoot</b>                     |                                                                                                              | < 2%                                                          |                  |                  |
| <b>Output rising time</b>                    |                                                                                                              | < 150 ms                                                      |                  |                  |
| <b>Hold up time</b>                          |                                                                                                              | 20 msec nominal                                               |                  |                  |
| <b>Start up time</b>                         |                                                                                                              |                                                               |                  |                  |
| AC OFF --> ON                                | Nominal input, max. load                                                                                     | < 2.5 s                                                       |                  |                  |
| REMOTE OFF --> ON                            | Nominal input, max. load                                                                                     | < 150 ms                                                      |                  |                  |
| <b>Output over voltage protection</b>        |                                                                                                              | Yes, latch mode                                               |                  |                  |
|                                              |                                                                                                              | 15 V to 17.5 V                                                | 30 V to 35 V     | 58.5 V to 63 V   |
| <b>Output over current protection</b>        |                                                                                                              | YES, at 108% to 140% of nominal output current; auto recovery |                  |                  |
| <b>Short circuit protection</b>              |                                                                                                              | Yes, auto recovery                                            |                  |                  |
| <b>Over temperature protection</b>           |                                                                                                              | Yes auto recovery                                             |                  |                  |
| <b>Remote sense <sup>3)</sup></b>            | Total voltage drop compensation for +V_SENSE and -V_SENSE connections (J3 Pins 13 and 14) to the output load | 200 mV                                                        |                  |                  |

<sup>1)</sup> 50% step from 5% load, 1 A/ $\mu$ s, 10  $\mu$ F Tan and 1  $\mu$ F ceramic capacitor

<sup>2)</sup> 10  $\mu$ F Tan and 1  $\mu$ F ceramic capacitor

<sup>3)</sup> Do not short or reversely connect +V\_SENSE and -V\_SENSE. Doing this can cause damage to the power supply

**Auxiliary DC output (J3) <sup>1)</sup>**

|                                        |                                            | IMA-x600-xx                                                 |
|----------------------------------------|--------------------------------------------|-------------------------------------------------------------|
| <b>Connector type</b>                  |                                            | Molex, Part number 87833-1420, 14 pin, see Fig. 18, page 12 |
| <b>Nominal output voltage</b>          |                                            | 5 V                                                         |
| <b>Output voltage adjustment range</b> |                                            | —                                                           |
| <b>Output voltage regulation</b>       |                                            |                                                             |
| Total                                  |                                            | 2.25%                                                       |
| Over line                              | Full input range, full load                | 0.25 %                                                      |
| Over load                              | Nominal input, full load range             | 1%                                                          |
| Over temperature                       | Nominal input, full load, full temperature | 1%                                                          |
| <b>Maximum output current</b>          |                                            | 0.5 A                                                       |
| <b>Maximum output capacitive load</b>  |                                            | 1,000 $\mu$ F                                               |
| <b>Output over voltage protection</b>  |                                            | Yes, at 5.5 V to 6 V, latch mode                            |
| <b>Output over current protection</b>  |                                            | Yes, at 1.0 A to 1.3 A, auto recovery                       |
| <b>Short circuit protection</b>        |                                            | YES, auto recovery                                          |
| <b>Over temperature protection</b>     |                                            | YES, auto recovery                                          |

<sup>1)</sup> There is no galvanic isolation between 5VSB GND and Main DC Output GND.

## Galvanic isolation

|                 |            | IMA-x600-xx        |
|-----------------|------------|--------------------|
| Input to Output | Reinforced | 4000 Vac; 2 x MOPP |
| Input to Case   | Basic      | 1500 Vac; 1 x MOPP |
| Output to Case  | Basic      | 1500 Vac; 1 x MOPP |

## Leakage currents

| IMA-x600-xx                                    |                           |                                |                                      |                       |
|------------------------------------------------|---------------------------|--------------------------------|--------------------------------------|-----------------------|
| AC Leakage current from Input to earth ground  | Measured at mains voltage | at 60 Hz                       | at 63 Hz                             |                       |
| Normal condition (low line)                    | 132 Vac                   | < 150 $\mu$ A                  | < 150 $\mu$ A                        |                       |
| Single fault condition (low line)              | 132 Vac                   | < 250 $\mu$ A                  | < 260 $\mu$ A                        |                       |
| Normal condition (high line)                   | 264 Vac                   | < 300 $\mu$ A                  | < 300 $\mu$ A                        |                       |
| Single fault condition (high line)             | 264 Vac                   | < 500 $\mu$ A                  | < 520 $\mu$ A                        |                       |
| AC Leakage current from Output to earth ground | Measured at mains voltage | Typical at 60 Hz <sup>1)</sup> | Maximum value at 63 Hz <sup>1)</sup> | Limit per IEC 60601-1 |
| Normal condition (low line)                    | 264 Vac                   | 45 $\mu$ A                     | < 60 $\mu$ A                         | 100 $\mu$ A           |
| Single fault condition (neutral open)          | 264 Vac                   | 45 $\mu$ A                     | < 80 $\mu$ A                         | 500 $\mu$ A           |
| Single fault condition (ground open)           | 264 Vac                   | 114 $\mu$ A                    | < 150 $\mu$ A                        | 500 $\mu$ A           |
| AC Backdrive fault                             | 264 Vac                   | < 450 $\mu$ A                  | < 550 $\mu$ A                        | 5000 $\mu$ A          |

<sup>1)</sup> Meets IEC 60601-1 BF leakage current limit

## Other features

|                       |                             | IMA-x600-xx                                                                                                                                                  |
|-----------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current Share Bus Pin | J3 Pin 11 (CURRENT_SHARE_V) | Voltage at CS Pin will vary linearly with load current on main output, and will be 6 V at rated load current, when the output voltage is at its rated value. |
| Power Good Pin        | J3 Pin 9 (PWR_GOOD)         | Open collector. As soon as AC input voltage and DC output voltage are in the predefined range, the PWR_GOOD signal is set to HIGH.                           |
| Green LED             |                             | Will turn ON as soon as PWR_GOOD signal is set to HIGH                                                                                                       |
| Derating Guideline    |                             | Refer to IPC 9592B and Delta Internal Guideline                                                                                                              |
| OR-ing                |                             | Redundant operation with active circuit sharing, <i>see Application Note "Redundant operation", p. 10</i>                                                    |
| SDA, SCL for I2C      |                             | Internal 10 k $\Omega$ pull-up resistor to internal 3.3 V                                                                                                    |

|                                 |                           | IMA-x600-xx-ZYPLI                                                         |                | IMA-x600-xx-ZYPLY                                                         |                |
|---------------------------------|---------------------------|---------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------|----------------|
| Remote On/Off Pin <sup>1)</sup> | J3 Pin 10 (REMOTE_ON/OFF) | REMOTE ON/OFF (J3 Pin 10) and 5VSB_RTN (J3 Pin 3 or J3 Pin 4 or J3 Pin 7) | Main DC Output | REMOTE ON/OFF (J3 Pin 10) and 5VSB_RTN (J3 Pin 3 or J3 Pin 4 or J3 Pin 7) | Main DC Output |
|                                 |                           | Shorted                                                                   | OFF            | Shorted                                                                   | ON             |
|                                 |                           | Open                                                                      | ON             | Open                                                                      | OFF            |

<sup>1)</sup> Logic can be switched with PMBus™

**Environmental conditions**

|                                                          | IMA-x600-12                                                                                                            | IMA-x600-24                                                                                               | IMA-x600-48                                                                                               |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Ambient operating temperature range</b> <sup>1)</sup> | -20 °C ... +70 °C (-4°F to +158 °F) (see Fig. 8, page 10)                                                              |                                                                                                           |                                                                                                           |
| <b>Ambient storage temperature range</b>                 | -40 °C ... +85 °C (-40 °F to +185 °F)                                                                                  |                                                                                                           |                                                                                                           |
| <b>Output power derating</b>                             |                                                                                                                        |                                                                                                           |                                                                                                           |
| Versus input voltage                                     | When AC input voltage is < 90 Vac, the output power will be reduced by 6 W per 1 V. (see Fig. 7, page 10)              |                                                                                                           |                                                                                                           |
| Versus ambient temperature                               | When ambient temperature is > 50 °C (122 °F), the output power will be reduced by 15 W per 1 °C. (see Fig. 8, page 10) |                                                                                                           |                                                                                                           |
| <b>Output current derating</b> Versus output voltage     | When output voltage is > 12 Vdc, the output current is reduced by 3.5 A per 1 V. (see Fig. 9, page 10)                 | When output voltage is > 24 Vdc, the output current is reduced by 0.875 A per 1 V. (see Fig. 10, page 10) | When output voltage is > 48 Vdc, the output current is reduced by 0.225 A per 1 V. (see Fig. 11, page 10) |
| <b>Relative humidity</b>                                 | < 95% (non-condensing)                                                                                                 |                                                                                                           |                                                                                                           |
| <b>Operating altitude</b> <sup>1) 2)</sup>               | -200 m to 5,000 m (-650 ft to 16,400 ft)                                                                               |                                                                                                           |                                                                                                           |
| <b>Shock test (non-operating)</b>                        | IEC 60068-2-27 compliant, 50 g, 11 ms, 3 shocks for each direction                                                     |                                                                                                           |                                                                                                           |
| <b>Vibration (non-operating)</b>                         | IEC 60068-2-6 compliant, 2.09 Grms, 5 ... 500 Hz, 20 minutes per side (3 planes)                                       |                                                                                                           |                                                                                                           |
| <b>Pollution degree</b>                                  | 2                                                                                                                      |                                                                                                           |                                                                                                           |

<sup>1)</sup> Ambient operating temperature decreases by 1 °C per 305 m (1000 ft) altitude increase

<sup>2)</sup> Maximum operating altitude requirements for different types of products, see "Safety standards and directives 1)", p. 6

**Reliability**

|                                                   | IMA-x600-xx   |
|---------------------------------------------------|---------------|
| <b>CMTBF</b> <sup>1)</sup>                        | 500,000 hours |
| <b>Expected capacitor life time</b> <sup>2)</sup> | 10 years      |
| <b>Fan L<sub>10</sub> life @ 40 °C</b>            | 70,000 hours  |
| <b>Warranty</b>                                   | 3 years       |

<sup>1)</sup> Telecordia SR-332, Issue 3, 25 °C, 90% confidence level

<sup>2)</sup> Nominal input voltage, 45 °C (113 °F), 80% load

## EMC

This device has been fully tested according to EN 60601-1-2:2015 (4th edition).

|                                          | IMA-x600-xx                                                |          |
|------------------------------------------|------------------------------------------------------------|----------|
|                                          | Applied standards                                          | Criteria |
| <b>Radiated emissions</b> <sup>1)</sup>  | EN 55011, EN 55022 and FCC, Class B                        |          |
| <b>Conducted emissions</b> <sup>1)</sup> | EN 55011, EN 55022 and FCC, Class B                        |          |
| <b>Power line harmonics</b>              | EN 61000-3-2, Class A                                      |          |
| <b>Voltage flicker</b>                   | EN 61000-3-3                                               |          |
| <b>ESD</b>                               | EN 61000-4-2, level 4, 8 kV contact, 15 kV air             | A        |
| <b>Radiated immunity</b>                 | EN 61000-4-3, level 3, 10 V/m                              | A        |
| <b>Electrical fast transient</b>         | EN 61000-4-4, level 4, $\pm 4$ kV                          | A        |
| <b>Surge immunity</b>                    | EN 61000-4-5, level 4, 2 kV DM, 4 kV CM                    | A        |
| <b>Conducted RF immunity</b>             | EN 61000-4-6, level 2, 3 Vrms, 6 Vrms in ISM band          | A        |
| <b>Power frequency magnetic field</b>    | EN 61000-4-8, 30 A/m                                       | A        |
| <b>Voltage dips and sags</b>             | EN 61000-4-11, 30%, 500 ms                                 | A        |
|                                          | EN 61000-4-11, 60%, 100 ms                                 | B        |
|                                          | EN 61000-4-11, 100%, 20 ms                                 | A        |
|                                          | EN 60601-1-2:2015 (4 <sup>th</sup> edition), 30%, 500 ms   | A        |
|                                          | EN 60601-1-2:2015 (4 <sup>th</sup> edition), 60%, 100 ms   | B        |
|                                          | EN 60601-1-2:2015 (4 <sup>th</sup> edition), 100%, 20 ms   | A        |
|                                          | EN 60601-1-2:2015 (4 <sup>th</sup> edition), 100%, 5000 ms | B        |
| <b>Ring wave</b>                         | EN 61000-4-12, level 3, 1 kV DM, 2 kV CM                   | A        |
| <b>Voltage fluctuations</b>              | EN 61000-4-14, Class 3                                     | A        |

<sup>1)</sup> Power Supply Unit inside a dummy system

## Safety standards and directives <sup>1)</sup>

|                                                                                              | IMA-x600-xx                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IEC 62368 Edition 2</b>                                                                   | IEC 62368-1 (2014) Edition 2<br>5000 m (16,400 ft) altitude, 120 V to 300 Vdc and 100 V to 240 $\pm 10\%$ Vac                                                                       |
| <b>IEC/EN 60950-1, Edition 2 and all national deviations</b>                                 | UL 60950-1/CSA 22.2 No 60950-1, Edition 2;<br>5,000 m (16,400 ft) altitude, 120 V to 300 Vdc and 100 V to 240 $\pm 10\%$ Vac<br>(UL File E191395)                                   |
| <b>IEC/EN 60601-1, Edition 3 (tested against Edition 2, too) and all national deviations</b> | IEC 60601-1(2005), EN60601-1(2006)<br>ANSI/AAMI ES 60601-1(2005)<br>CAN/CSA C22.2 No. 60601-1 (2008);<br>3,000 m (9,800 ft) altitude, 100 V to 240 Vac $\pm 10\%$ (UL File E325662) |
| <b>IEC 60601-1-2 Edition 4</b>                                                               | IEC 60601-1-2 (2014)                                                                                                                                                                |
| <b>Protection class</b>                                                                      | I                                                                                                                                                                                   |

<sup>1)</sup> Designed to support Type B Applied Part End Product Requirements

## Ecological characteristics

| IMA-x600-xx                                                           |
|-----------------------------------------------------------------------|
| Waste Electrical and Electronic Equipment Directive (WEEE) 2002/96/EC |
| RoHS - EU DIRECTIVE 2011/65/EC RoHS compliance                        |

**Mechanical data**

|                                           | IMA-x600-12                                  | IMA-x600-24       | IMA-x600-48       |
|-------------------------------------------|----------------------------------------------|-------------------|-------------------|
| <b>Dimensions (L x W x D)</b>             | 203.1 x 101.6 x 40.6 mm (8.0 x 4.0 x 1.6 in) |                   |                   |
| <b>Weight</b>                             | 1.1 kg (2.43 lb)                             |                   |                   |
| <b>Indicator</b>                          | Green LED                                    |                   |                   |
| <b>Cooling system <sup>1)</sup></b>       | Fan with variable speed control              |                   |                   |
| <b>AC/DC input port</b>                   | Block M3.5 x 3 pins                          |                   |                   |
| <b>Main DC output port</b>                | Block M5 x 2 pins                            | Block M4 x 2 pins | Block M4 x 2 pins |
| <b>Auxiliary DC output + signals port</b> | Connector x 14 pins                          |                   |                   |
| <b>Noise <sup>1) 2)</sup></b>             | < 38.5 dB(A)                                 |                   |                   |

<sup>1)</sup> To keep the noise low the fan will be turned off under the following conditions: a) in standby mode b) when main output load is less than 10 % c) when the ambient temperature is lower than a typical value 18 °C

<sup>2)</sup> At 1 Hz to 20 kHz and a distance of 1 m. Test conditions: 100 Vac, 100% load, ambient temperature 30 °C (86 °F)

**Options**

| Model              | Main Output voltage | Standby Output | Leakage current | Main Output adjustable | Open frame | U channel | Enclosed | Convection cooling | Fan | Fan, airflow from end to front | Fan, airflow from front to end | Top FAN solution | Active current sharing | Remote ON/OFF | Conformal Coated |
|--------------------|---------------------|----------------|-----------------|------------------------|------------|-----------|----------|--------------------|-----|--------------------------------|--------------------------------|------------------|------------------------|---------------|------------------|
| IMA-S600-12V       | 12 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ●                      | ●             | -                |
| IMA-S600-24V       | 24 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ●                      | ●             | -                |
| IMA-S600-24V-ZYSLI | 24 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ○                      | ●             | -                |
| IMA-S600-48V       | 48 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ●                      | ●             | -                |
| IMA-C600-12V       | 12 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ●                      | ●             | ●                |
| IMA-C600-24V       | 24 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ●                      | ●             | ●                |
| IMA-C600-48V       | 48 V                | 5 V/0.5 A      | 300 µA          | ●                      | ○          | ○         | ●        | ○                  | ●   | ●                              | ○                              | ○                | ●                      | ●             | ●                |

- included
- on request
- not available

## Mounting orientations

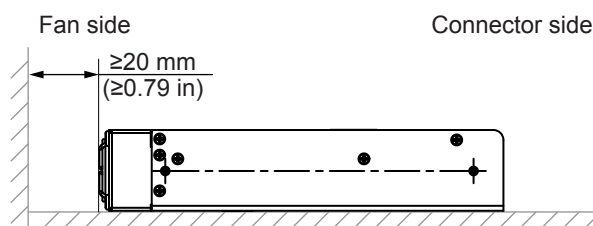


Fig. 1: Standard mounting orientation

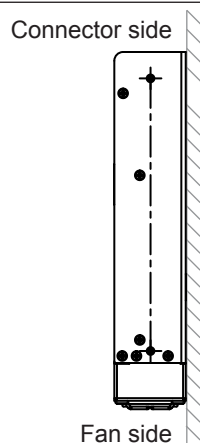


Fig. 2: Vertical mounting

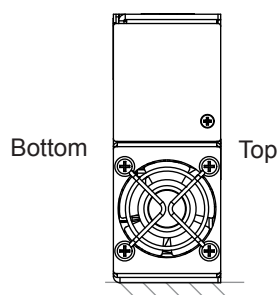


Fig. 3: Mounting on the left side

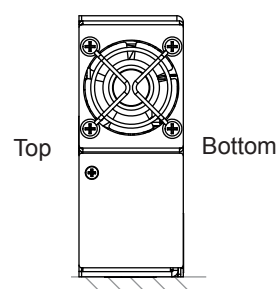


Fig. 4: Mounting on the right side

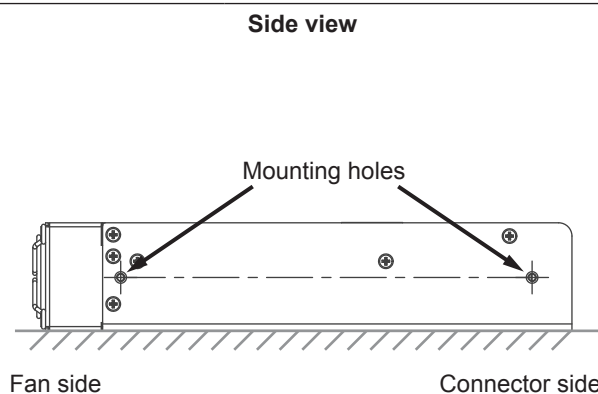
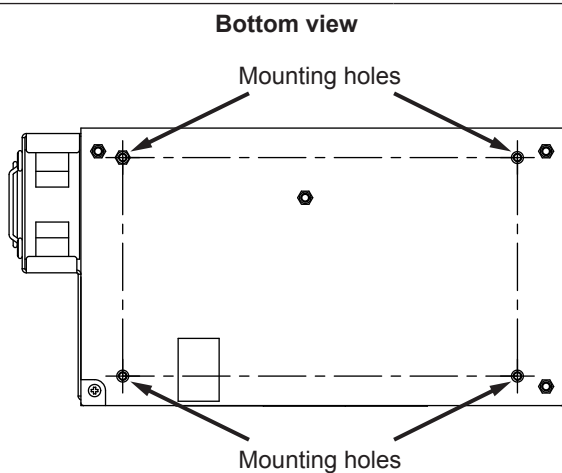


Fig. 5: Position of the mounting holes



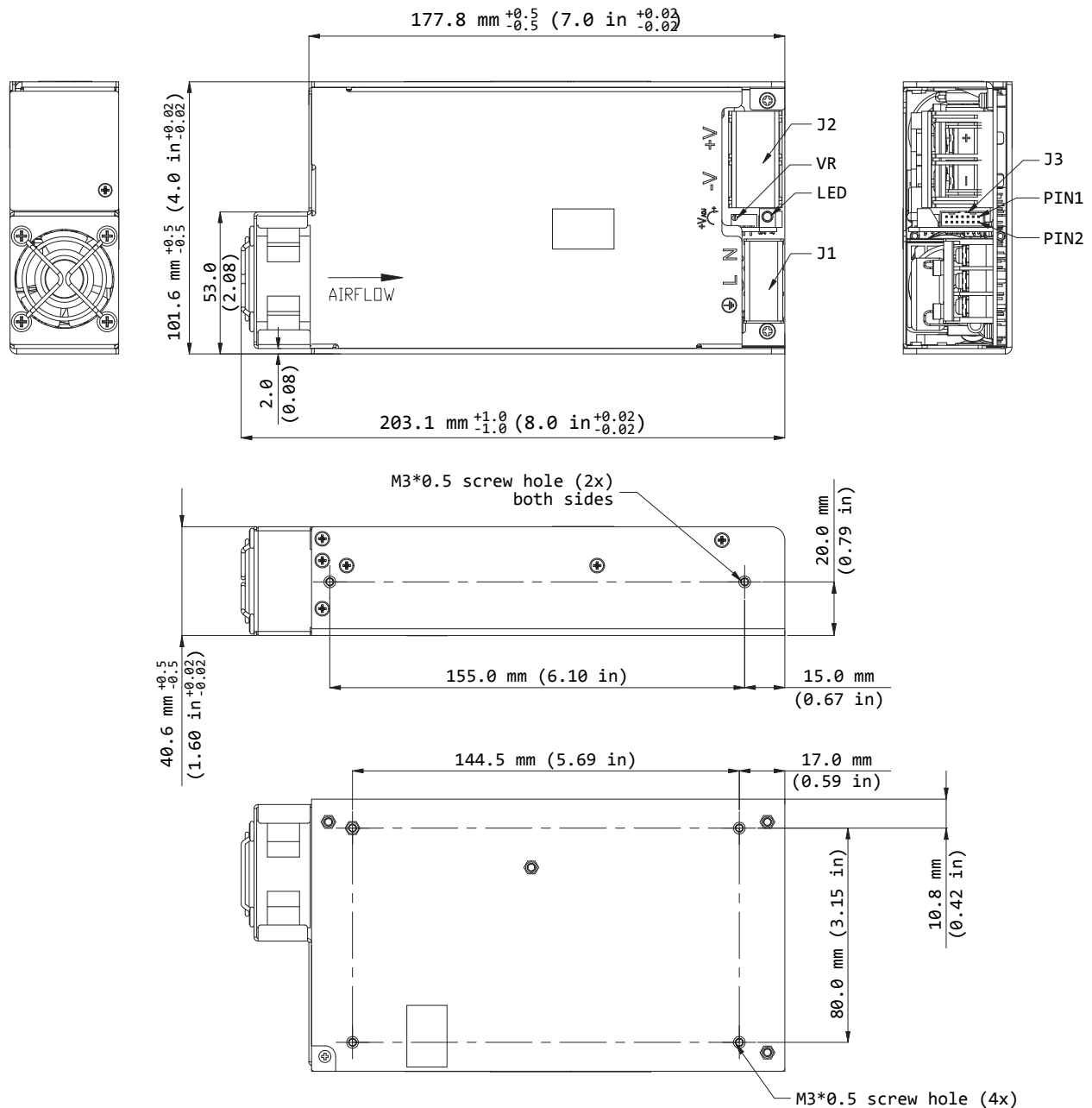
**Dimensional drawings**


Fig. 6: Dimensional drawing IMA-x600-xx

**Notes:**

- Base plate mounting, M3 thread holes, maximum penetration 4.0 mm (0.16 in) (from outside face of chassis), maximum torque 0.6 Nm (5.31 lb-in)
- (J1) Input terminal block, Switchlab T14-EMII03, M3.5 screw in 3 positions, maximum torque 1.3 Nm (11.5 lb-in)
- (J2) Output terminal block, Dinkle DT-7C-B01W-3943-02 (for 24 V and 48 V), M4 screw in 2 positions, maximum torque 1.5 Nm (13.28 lb-in) Dinkle 0166-8002C (for 12 V), M5 screw in 2 positions, maximum torque 2.4 Nm (21.24 lb-in)
- (J3) Signal connector and Auxiliary DC Output, Mating connector for J3 is either Molex, part number 51110-1450 (without locking ramp), or Molex part number 51110-1451 (with locking ramp). The connector is not shipped with the power supply unit.
- General tolerance:  $\pm 0.3 \text{ mm}$  (0.012 in)

## Curves

IMA-x600-xx

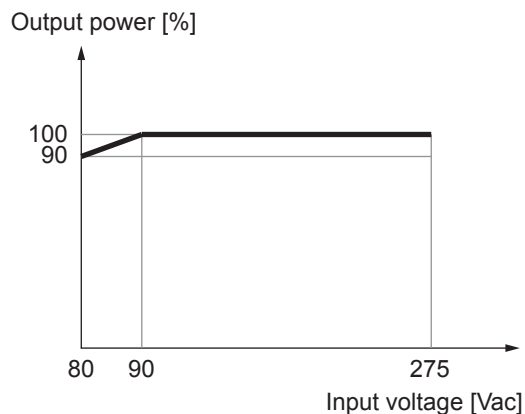


Fig. 7: Output power versus input voltage

IMA-x600-xx

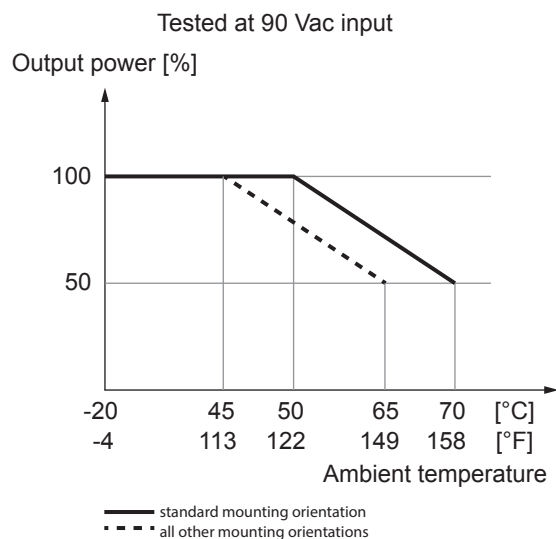


Fig. 8: Output power versus ambient temperature

IMA-x600-12

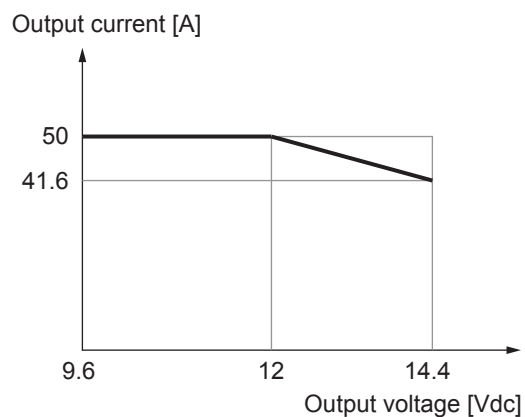


Fig. 9: Output current versus output voltage 12 V

IMA-x600-24

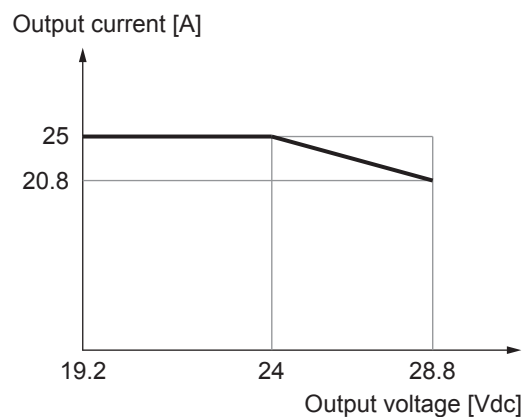


Fig. 10: Output current versus output voltage 24 V

IMA-x600-48

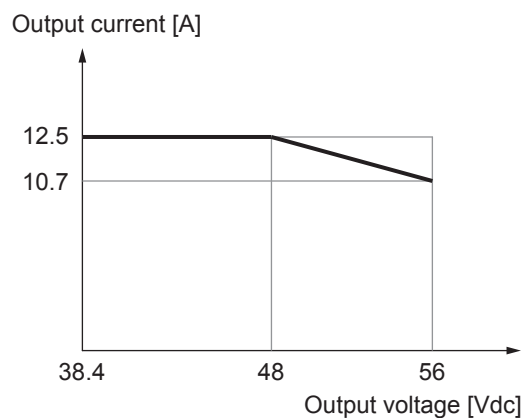


Fig. 11: Output current versus output voltage 48 V

IMA-x600-12

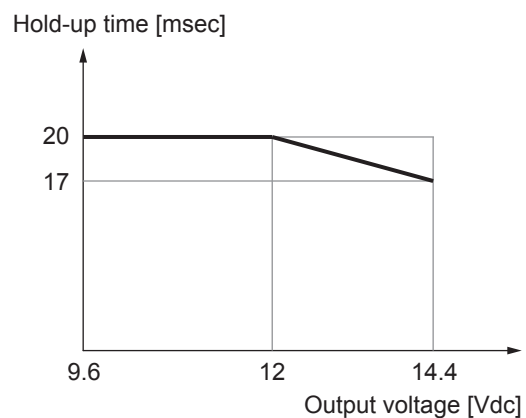


Fig. 12: Hold-up time versus output voltage 12 V

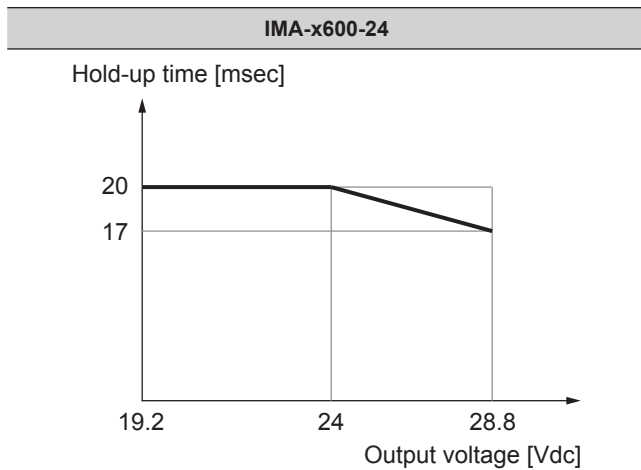
**Curves (continued)**


Fig. 13: Hold-up time versus output voltage 24 V

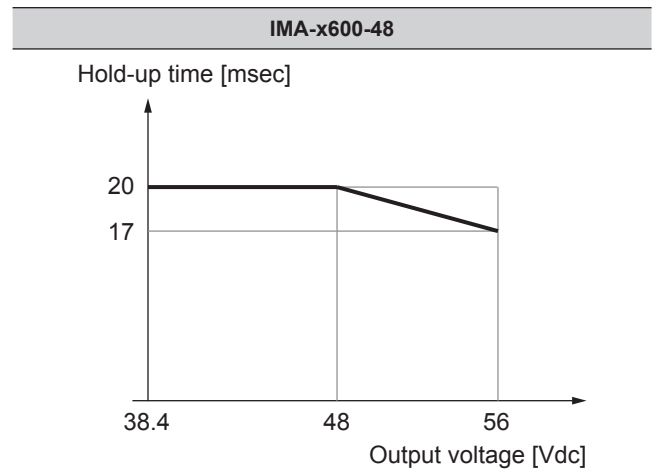


Fig. 14: Hold-up time versus output voltage 48 V

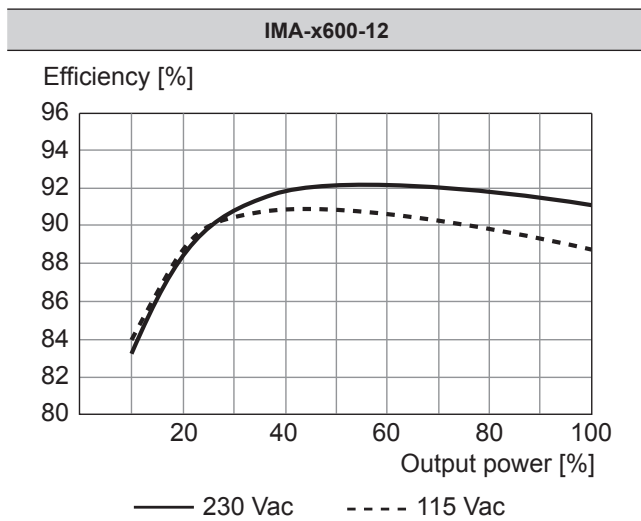


Fig. 15: Typical efficiency curves 12 V

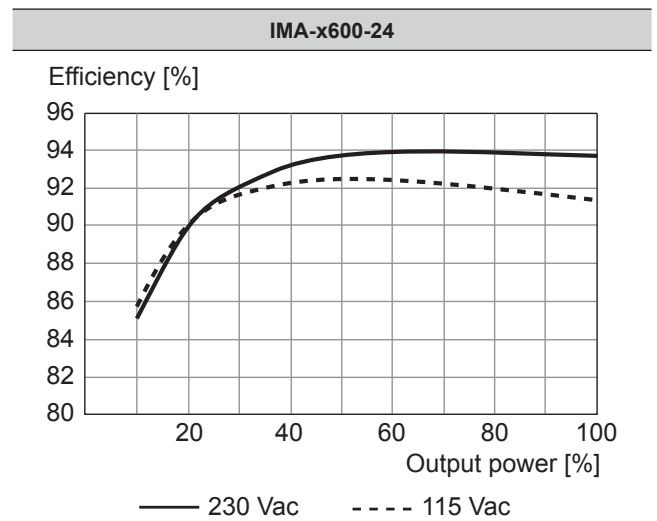


Fig. 16: Typical efficiency curves 24 V

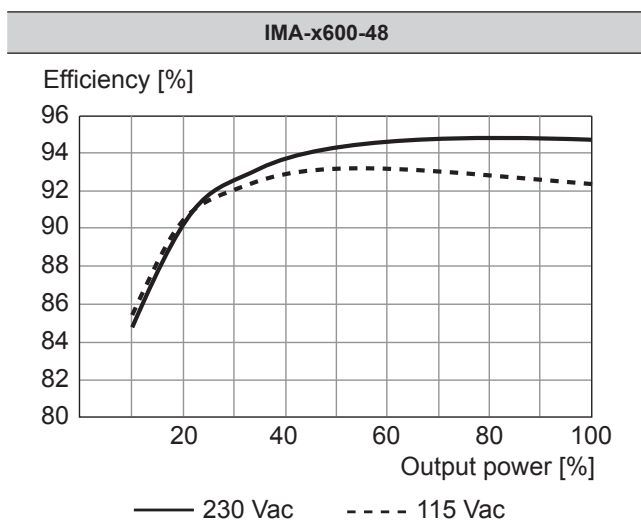


Fig. 17: Typical efficiency curves 48 V

## Pin assignment (J3)

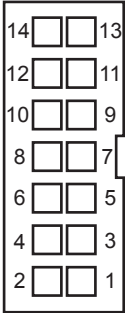
| IMA-x600-xx                                                                       |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
|-----------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|------------|-----|------------|----|----------|----|----------|----|---------|----|-----------------|----|---------------|---|----------|---|-------|---|----------|---|-----|---|-----|---|----------|---|----------|---|-------|---|-------|
|  |               | <table> <tr> <th>Pin</th><th>Assignment</th><th>Pin</th><th>Assignment</th></tr> <tr> <td>14</td><td>-V_SENSE</td><td>13</td><td>+V_SENSE</td></tr> <tr> <td>12</td><td>Address</td><td>11</td><td>Current_Share_V</td></tr> <tr> <td>10</td><td>Remote ON/OFF</td><td>9</td><td>PWR_GOOD</td></tr> <tr> <td>8</td><td>+5VSB</td><td>7</td><td>5VSB_RTN</td></tr> <tr> <td>6</td><td>SDA</td><td>5</td><td>SCL</td></tr> <tr> <td>4</td><td>5VSB_RTN</td><td>3</td><td>5VSB_RTN</td></tr> <tr> <td>2</td><td>+5VSB</td><td>1</td><td>+5VSB</td></tr> </table> |                 | Pin | Assignment | Pin | Assignment | 14 | -V_SENSE | 13 | +V_SENSE | 12 | Address | 11 | Current_Share_V | 10 | Remote ON/OFF | 9 | PWR_GOOD | 8 | +5VSB | 7 | 5VSB_RTN | 6 | SDA | 5 | SCL | 4 | 5VSB_RTN | 3 | 5VSB_RTN | 2 | +5VSB | 1 | +5VSB |
| Pin                                                                               | Assignment    | Pin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Assignment      |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 14                                                                                | -V_SENSE      | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | +V_SENSE        |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 12                                                                                | Address       | 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Current_Share_V |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 10                                                                                | Remote ON/OFF | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PWR_GOOD        |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 8                                                                                 | +5VSB         | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5VSB_RTN        |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 6                                                                                 | SDA           | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SCL             |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 4                                                                                 | 5VSB_RTN      | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5VSB_RTN        |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| 2                                                                                 | +5VSB         | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | +5VSB           |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |
| Mating connector type: Molex, Part number 51110-145x                              |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |     |            |     |            |    |          |    |          |    |         |    |                 |    |               |   |          |   |       |   |          |   |     |   |     |   |          |   |          |   |       |   |       |

Fig. 18: Pin assignment J3 terminal block

## Circuit diagrams

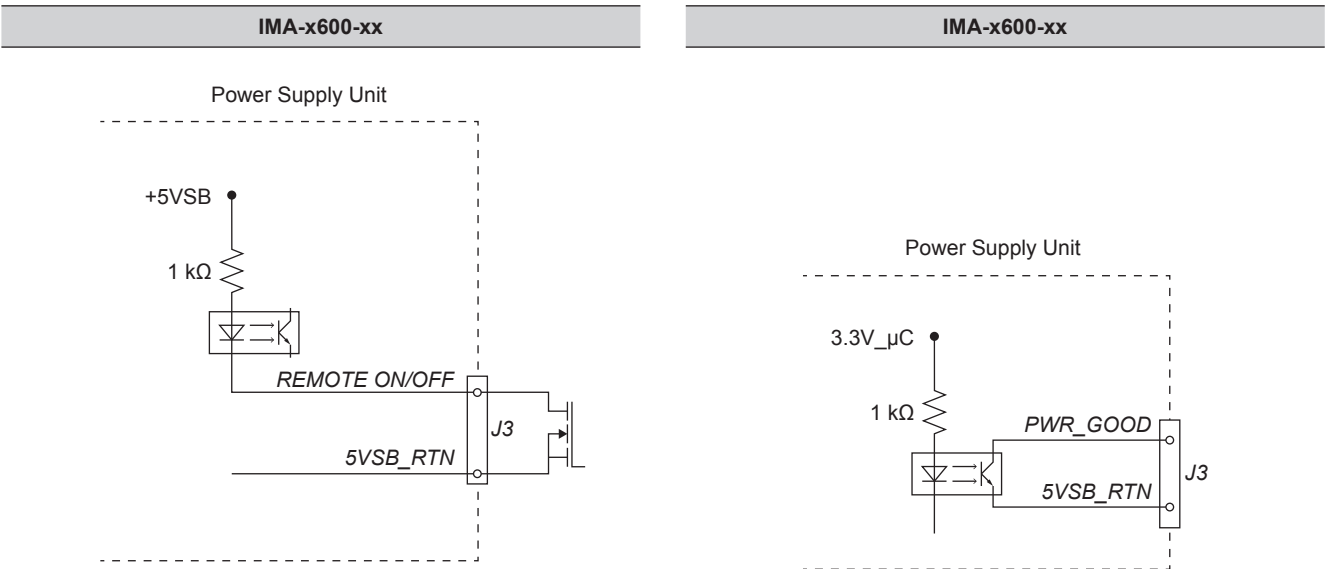


Fig. 19: Circuit diagram J3 Pin 10 (REMOTE ON/OFF)

Fig. 20: Circuit diagram J3 Pin 9 (PWR\_GOOD)

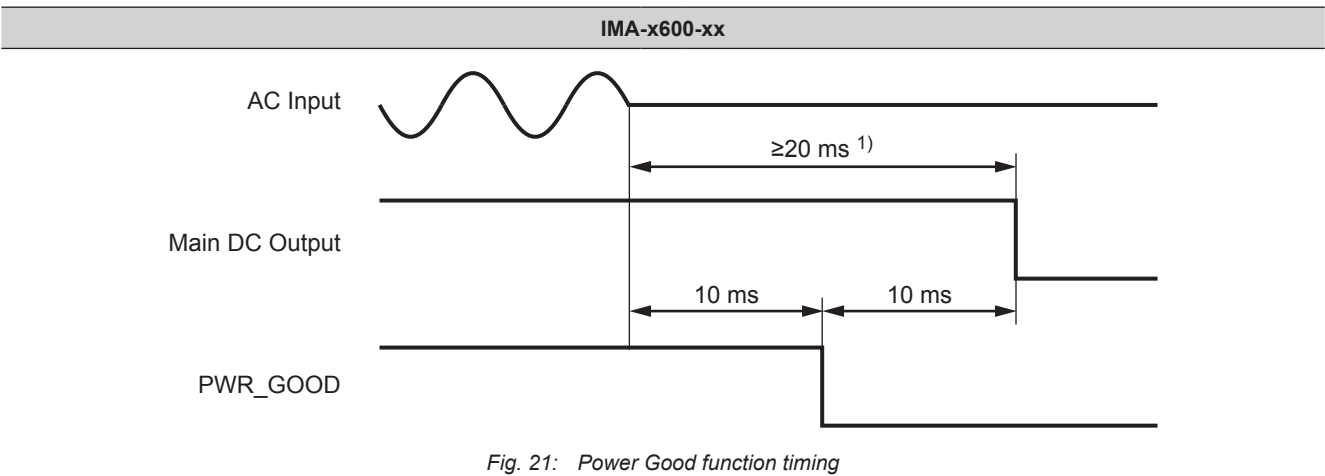


Fig. 21: Power Good function timing

<sup>1)</sup> For DC output voltage ≤ Nominal output voltage; will reduce at DC output voltages > Nominal output voltage

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