

1600W 1U Industrial Power Supplies

<https://product.tdk.com/en/power/rfe>  
[www.emea.lambda.tdk.com/uk/products/rfe](http://www.emea.lambda.tdk.com/uk/products/rfe)



The RFE1600 AC-DC industrial power supplies are high efficiency and are 1U in height. They have internal ORing MOSFETs and current share for parallel operation. Communication is possible with the power supplies using the optional isolated PMBus™ (I<sup>2</sup>C) interface. AC fail, DC good, remote output adjust, remote on/off and a 12V auxiliary output are fitted as standard.

| Features                                  | Benefits                                           |
|-------------------------------------------|----------------------------------------------------|
| • Internal ORing MOSFET and Current Share | • Suitable For N+1 Redundancy                      |
| • Up to 1600W in 1U Height                | • Utilizes Less System Space                       |
| • Full Array of Signals Available         | • Easy Remote Monitoring                           |
| • PMBus™ (I <sup>2</sup> C)               | • Industry Standard Communication Interface        |
| • Analog Output Adjustment                | • Simple External Resistance or Voltage Connection |

| Model Selector |                    |                                     |                                           |                                         |                                                              |                                                            |
|----------------|--------------------|-------------------------------------|-------------------------------------------|-----------------------------------------|--------------------------------------------------------------|------------------------------------------------------------|
| Model          | Output Voltage (V) | Adjustment Range (V) <sup>(1)</sup> | Max Current (A) (V <sub>in</sub> >170Vac) | Max Power (W) (V <sub>in</sub> >170Vac) | Max Current (A) (100<V <sub>in</sub> <170Vac) <sup>(2)</sup> | Max Power (W) (100<V <sub>in</sub> <170Vac) <sup>(2)</sup> |
| RFE1600-12     | 12                 | 9.6 - 13.2                          | 133                                       | 1596                                    | 100                                                          | 1200                                                       |
| RFE1600-24     | 24                 | 19.2 - 29                           | 67                                        | 1608                                    | 50                                                           | 1200                                                       |
| RFE1600-32     | 32                 | 25.6 - 38.4                         | 47                                        | 1504                                    | 37.5                                                         | 1200                                                       |
| RFE1600-48     | 48                 | 38.4 - 58                           | 33                                        | 1584                                    | 25                                                           | 1200                                                       |

|          |                               |   |                                                                             |
|----------|-------------------------------|---|-----------------------------------------------------------------------------|
| RFE1600- | 12                            | / | S                                                                           |
|          | Output voltage 12, 24, 32, 48 |   | blank No PMBus™ / I <sup>2</sup> C<br>S PMBus™ / I <sup>2</sup> C interface |

**Specifications**

| Model                              |     | RFE1600-12                                                     | RFE1600-24 | RFE1600-32 | RFE1600-48 |
|------------------------------------|-----|----------------------------------------------------------------|------------|------------|------------|
| <b>Input</b>                       |     |                                                                |            |            |            |
| AC Input Voltage Range (Operating) | Vac | 85 - 265. See model selector for power derating <sup>(2)</sup> |            |            |            |
| Nominal Input Voltage Range        | Vac | 100 - 240 (Note: Safety certified for 90-264Vac)               |            |            |            |
| Input Frequency                    | Hz  | 47 - 63 (Note: Safety certified for 50/60Hz only)              |            |            |            |
| Input Current (115/230Vac)         | A   | 11.6 / 8.1                                                     |            |            |            |
| Inrush Current                     | A   | <35                                                            |            |            |            |
| Leakage Current                    | mA  | Less than 0.75/1.5 at 115/230Vac                               |            |            |            |
| Power Factor Correction            | -   | Meets EN61000-3-2, PF>0.98 at full load                        |            |            |            |
| Harmonic Compliance                | -   | Meets IEC61000-3-2                                             |            |            |            |
| Hold Up Time                       | ms  | >10, 100/230Vac Input, 80% loading                             |            |            |            |
| Efficiency                         | %   | 87 / 90                                                        | 88 / 90    | 88 / 90    | 89 / 92    |
| Conducted & Radiated EMI           | -   | EN55032 & FCC part 15; Conducted class B, Radiated class A     |            |            |            |
| Immunity                           | -   | See immunity section                                           |            |            |            |
| Safety Certifications and Markings | -   | IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark           |            |            |            |

**Immunity**

| Test                            | Standard     | Test Level              | Criteria | Notes |
|---------------------------------|--------------|-------------------------|----------|-------|
| Radiated Susceptibility         | EN61000-4-3  | 2                       | A        | -     |
| Electrical Fast Transient Burst | EN61000-4-4  | 2                       | B        | -     |
| Surge                           | EN61000-4-5  | 3,4                     | B        | -     |
| Conducted Susceptibility        | EN61000-4-6  | 2                       | A        | -     |
| Magnetic fields                 | EN61000-4-8  | 4                       | A        | -     |
| Voltage Dips                    | EN61000-4-11 | >95% for 0.5 cycles     | B        | -     |
|                                 |              | 30% for 25/30 cycles    | C        | -     |
| Interruptions                   |              | >95% for 250/300 cycles | C        | -     |

**Specifications**

| Model                      |        | RFE1600-12                                                                                       | RFE1600-24 | RFE1600-32 | RFE1600-48 |
|----------------------------|--------|--------------------------------------------------------------------------------------------------|------------|------------|------------|
| <b>Output</b>              |        |                                                                                                  |            |            |            |
| Line Regulation            | mV     | 30                                                                                               | 60         | 80         | 120        |
| Load Regulation            | mV     | 60                                                                                               | 120        | 160        | 240        |
| External Load Capacitance  | uF/A   | 1000                                                                                             |            |            |            |
| Ripple & Noise             | mV     | 240                                                                                              | 240        | 320        | 480        |
| Temperature Coefficient    | %/°C   | <0.02                                                                                            |            |            |            |
| Minimum Load               | -      | No minimum load required                                                                         |            |            |            |
| Overcurrent Protection     | %      | 105-115 (Programmable)                                                                           |            |            |            |
| Overvoltage Protection (1) | %      | 110% (Tracking). Cycle AC to reset or utilize Remote On/Off                                      |            |            |            |
| Overtemperature Protection | -      | Shutdown with automatic reset. Warning signal provided (1)                                       |            |            |            |
| Remote Sense Compensation  | V/wire | 0.25V                                                                                            | 0.5V       | 0.75       | 1.0V       |
| Remote On/Off              | -      | Yes, inhibit & enable                                                                            |            |            |            |
| AC Good Signal             | -      | Open Collector, ON when AC is within 85-270Vac                                                   |            |            |            |
| DC Good Signal             | -      | Open Collector, ON when output is above 85 to 95% of setpoint (tracking)                         |            |            |            |
| Communication              | -      | Optional isolated PMBus™ (I²C) interface ( /S suffix) or plug-in LAN module. See model selectors |            |            |            |
| Auxiliary Output           | -      | 11.2 - 12.5V, 0.5A, 240mV ripple and noise                                                       |            |            |            |
| Indicators                 | -      | AC OK: Green LED; DC OK / Fail: Green / Red LED                                                  |            |            |            |
| Parallel Operation         | -      | Yes, single wire current share, 5% accuracy of max current, up to 10 units                       |            |            |            |

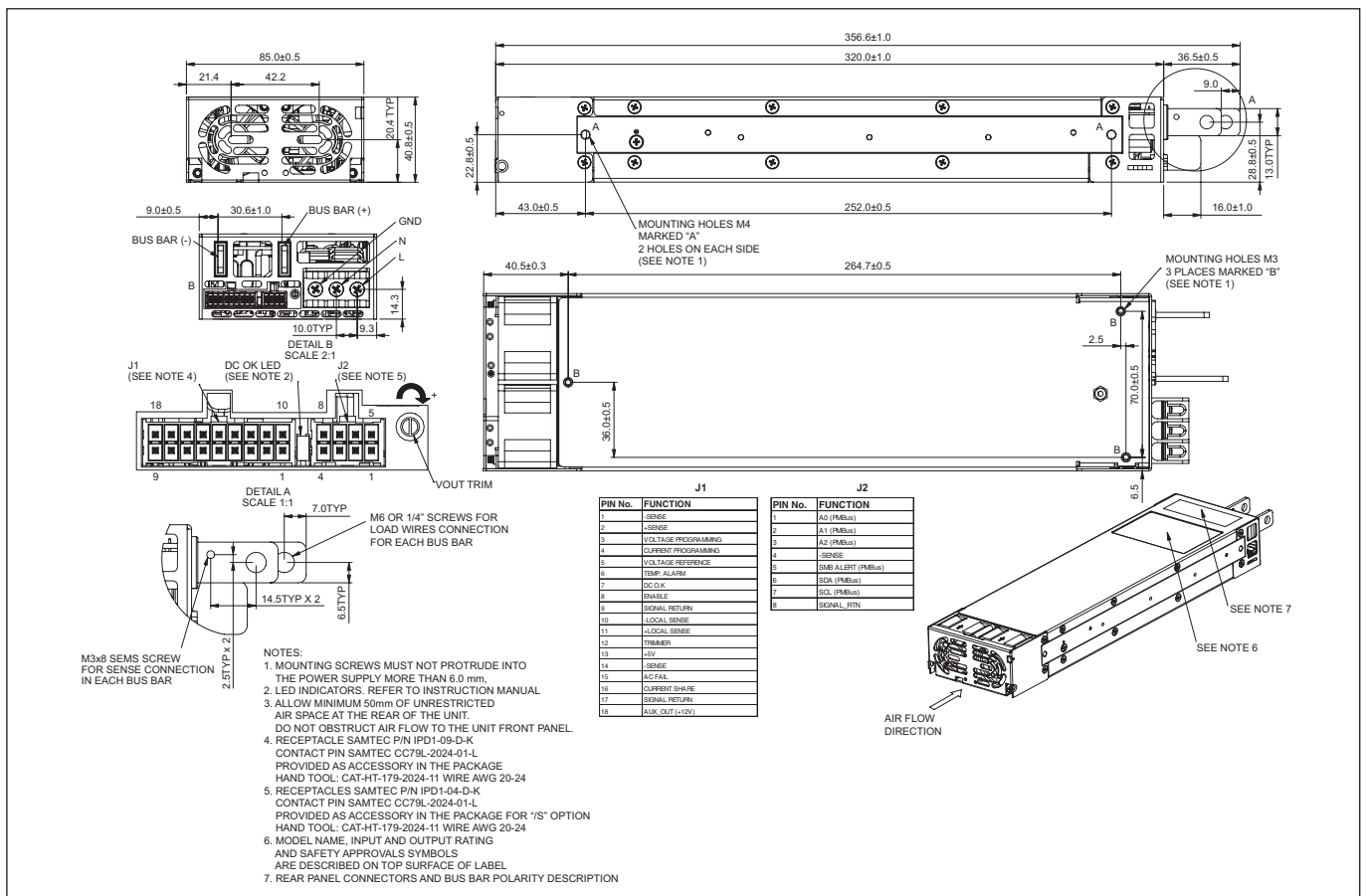
## Specifications

| Model                            |        | RFE1600-12                                                                                                                                   | RFE1600-24 | RFE1600-32 | RFE1600-48    |
|----------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|---------------|
| Environmental                    |        |                                                                                                                                              |            |            |               |
| Operating Temperature            | °C     | -10 to +50: 100% load; +50 to +60 derate: 2%/°C of load; +60 to +70 derate: 2.5%/°C of load.<br>For models with reverse air contact factory. |            |            |               |
| Storage Temperature              | °C     | -30 to +85                                                                                                                                   |            |            |               |
| Humidity (non condensing)        | %RH    | Operating: 10 - 90, Storage: 10 - 95                                                                                                         |            |            |               |
| Cooling                          | -      | Internal variable speed fans. Airflow enters from the front.<br>Contact factory for reverse airflow option.                                  |            |            |               |
| Altitude                         | m      | 3000 max. Derate output current 2%/100m above 2000m.                                                                                         |            |            |               |
| Withstand Voltage (For 1 minute) | -      | Input to Output 3kVac, Input to Ground 2kVac, Output to Ground:                                                                              |            |            |               |
|                                  |        | 500Vac                                                                                                                                       | 500Vac     | 500Vac     | 2250Vdc (POE) |
| Isolation Resistance             | MΩ     | >100 at 25°C, 70%RH & Output to Ground 500Vdc                                                                                                |            |            |               |
| Vibration (Non-operating)        | -      | Meets IEC60068-2-64 (Basic Transportation)                                                                                                   |            |            |               |
| Shock (Non-operating)            | -      | Meets IEC60068-2-27 (Basic Transportation)                                                                                                   |            |            |               |
| Other                            |        |                                                                                                                                              |            |            |               |
| Weight (Typ)                     | g      | 1,550                                                                                                                                        |            |            |               |
| Size (LxWxH)                     | mm     | 320 x 85 x 40.1                                                                                                                              |            |            |               |
| Size (LxWxH)                     | Inches | 12.6 x 3.35 x 1.61                                                                                                                           |            |            |               |
| PMBus™ / I²C Interface (1)       | -      | Isolated from output, Add suffix /S, PMBus™ compatible                                                                                       |            |            |               |
| MTBF - Telcordia                 | Hours  | 199426 (Estimated based on HFE1600 figures)                                                                                                  |            |            |               |
| Warranty                         | Years  | 3                                                                                                                                            |            |            |               |

### Notes

- (1) See installation manual for detailed specifications and test methods
- (2) Derate linearly 1%/V from 100Vac to 85Vac input

## Outline Drawing RFE1600



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