

140W Convection cooled

AC-DC power supplies

The PGD140 series of 140W external desktop AC-DC power supplies conform to the Power Delivery protocol with outputs from 5V to 28V auto-selected based on the system's charging requirement. The PGD140 is available in either Class I or Class II construction. The Class II construction version with gasketed design and reinforced isolation provides enhanced safety in medical devices and home-healthcare appliances.

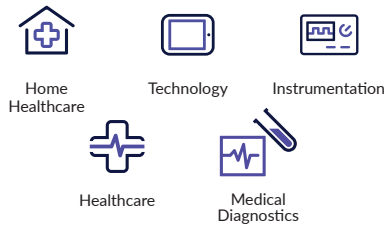
Worldwide medical and ITE safety agency approvals, low leakage currents, compact Gallium-Nitride (GaN) based design, wide 80-264VAC input for universal use, energy efficiency level VI (level VII ready) and support for multiple fast charging protocols, makes the PGD140 ideal for a wide range of industrial and BF-rated medical applications.



Features

- ▶ Output voltages from 5V to 28VDC
- ▶ Universal, single phase input: 80 to 264VAC
- ▶ Energy efficiency level VI (level VII ready) and EU2019/1782
- ▶ Class I or Class II construction
- ▶ Meets USB PD 3.1 & QC4.0+ fast charging protocol
- ▶ Medical, home healthcare & ITE safety agency approvals
- ▶ IP22 environmental rating
- ▶ Low earth leakage current
- ▶ <0.15W standby power
- ▶ Class B conducted & radiated emissions
- ▶ 0 to +60°C operation
- ▶ 3 year warranty

Applications



Dimensions

121 x 65.8 x 32mm (4.76" x 2.59" x 1.26")

Models & ratings

| Model number ⁽¹⁾ | Output voltage Auto-selected by load | Output current | Output power | Total regulation ⁽²⁾ | Efficiency ⁽³⁾ |
|-----------------------------|---|----------------|--------------|---------------------------------|---------------------------|
| PGD140PS28 | 5.0V | 3.0A | 15.0W | ±5% | 82.0% |
| | 9.0V | 3.0A | 26.0W | | 86.8% |
| | 12.0V | 3.0A | 36.0W | | 87.5% |
| | 15.0V | 3.0A | 45.0W | | 88.0% |
| | 20.0V | 5.0A | 100.0W | | 90.0% |
| | 28.0V | 5.0A | 140.0W | | 92.0% |

Notes:

1. The PGD140PS28 is Class I construction and includes a C14 AC inlet.
2. For Class II version with a C8 AC inlet, add suffix C2-8, e.g. PGD140PS28C2-8.

3. Total regulation includes initial set accuracy, line and load regulation.
4. Typical average value measured at 25%, 50%, 75% and 100% at 115VAC & 230VAC.

Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|-----------------------|---|---------|---------|-------|--|
| Input voltage | 80 | | 264 | VAC | Derate output linearly from 100% at 90VAC to 90% at 80VAC |
| Input frequency | 47 | | 63 | Hz | |
| Power factor | 0.9 | | | | 240VAC at full load, complies with EN61000-3-2 for Class A |
| Input current | | | 2.5 | A | 100VAC at full load |
| Inrush current | | | 100 | A | 264VAC, cold start +25°C |
| Earth leakage current | | | 1.0 | mA | 264VAC/60Hz |
| No load input power | | | 0.15 | W | |
| Input protection | T5A/250V Internal fuse fitted in line and neutral | | | | |
| LED indicators | LED (on case) status mode - standby (Amber), normal operation (Green), and fault (flashing Amber) LED (on lead) status mode - standby (Unlit), normal operation (Green), and fault (Unlit or flashing Green) | | | | |

Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|--------------------------|---|---------|---------|----------|--|
| Output voltage | 5 | | 28 | VDC | 5, 9, 12, 15, 20, 28VDC. Auto selected by load |
| Minimum load | 0 | | | A | No minimum load required |
| Start up delay | | | 3 | s | |
| Start up rise time | | 30 | 35 | ms | 115VAC |
| Hold up time | 10 | | | ms | Full load and 115VAC |
| Total regulation | | | ±5 | | See models & ratings table |
| Transient response | | | 10 | % | Recovery within 1% in less than 5ms for a 60% (20% - 80% - 20%) load step and 0.5A/μs slew rate |
| Ripple & noise | | | 200/300 | mV/pk-pk | 20MHz bandwidth and 10μF electrolytic at +25°C in parallel with 0.1μF ceramic capacitor at +25°C (5V, 9V, 12V & 15Vdc / 20V & 28VDC) |
| Overshoot | | | 10 | % | Turn on & turn off |
| Overload protection | 110 | | 150 | % | |
| Overvoltage protection | 115 | | 150 | % | Auto recovery |
| Temperature coefficient | | | 0.2 | %/°C | |
| Short circuit protection | Trip and restart (hiccup), auto resetting | | | | |
| Standby leakage current | | 85 | 100 | μA | 264VAC, 60Hz |

General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|------------------------------|------------|---------|--|-----------------------------------|
| Efficiency | See models and ratings table | | | | |
| Energy efficiency | Level VI (Level VII ready) | | | | |
| Isolation: input to output input to ground | 4000 | | | VAC | 2 x MOPP |
| | 1500 | | | VAC | 1 x MOPP |
| Switching frequency | | 75 | | kHz | PFC converter |
| | 20 | 100 | | | Main converter (varies with load) |
| Power density | | 0.55 (9.0) | | W/cm ³ (W/in ³) | |
| Mean time between failure | 300 | | | khrs | TELECordia SR-332, 25°C, GB |
| Weight | | 380 (0.84) | | g (lb) | |

Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|-----------------------|--------------------|---------|---------|-------|--|
| Operating temperature | 0 | | +60 | °C | Derate linearly from 100% load at +40°C to 50% load at +60°C, safety approved to +40°C |
| Operating humidity | 10 | | 90 | %RH | Non-condensing |
| Operating altitude | | | 5000 | m | |
| Storage temperature | -40 | | +80 | °C | |
| Storage humidity | 5 | | 95 | %RH | Non-condensing |
| Cooling | Natural convection | | | | |

EMC: Emissions

| Phenomenon | Standard | Test level | Notes & conditions |
|------------------|-----------------|------------|--------------------|
| Conducted | EN55032/EN55011 | Class B | |
| Radiated | EN55032/EN55011 | Class B | |
| Harmonic current | EN61000-3-2 | Class A | |
| Voltage flicker | EN61000-3-3 | | |

EMC: Immunity

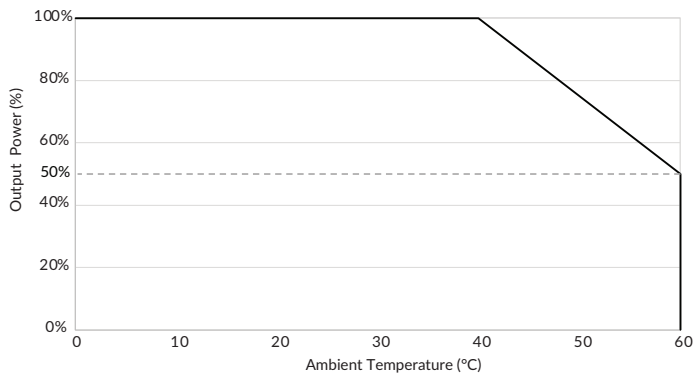
| Phenomenon | Standard | Test level | Criteria | Notes & conditions |
|-------------------------|-------------------------|--------------------------|----------|---------------------------------------|
| ESD immunity | EN61000-4-2 | 4 | A | ±8kV contact / ±15kV air discharge |
| Radiated | EN61000-4-3 | 10V/m | A | |
| EFT/burst | EN61000-4-4 | ±2kV | A | |
| Surges | EN61000-4-5 | Installation class 3 | A | ±1kV line to line, ±2kV line to earth |
| Conducted | EN61000-4-6 | 6V | A | |
| Magnetic field | EN61000-4-8 | 30A/m | A | |
| Dips and interruptions | EN55035 (115VAC) | Dip:100% (0VAC), 10ms | A | |
| | | Dip:30% (80.5VAC), 500ms | A | |
| | | Dip:100% (0VAC), 5000ms | B | |
| | EN55035 (230VAC) | Dip:100% (0VAC), 10ms | A | |
| | | Dip:30% (181VAC), 500ms | A | |
| | | Dip:100% (0VAC), 5000ms | B | |
| | EN60601-1-2 (100VAC) | Dip:100% (0VAC), 10ms | A | |
| | | Dip:100% (0VAC), 20ms | B | |
| | | Dip:30% (70VAC), 500ms | B | |
| | EN60601-1-2 (240VAC) | Dip:100% (0VAC), 5000ms | B | |
| | | Dip:100% (0VAC), 10ms | A | |
| | | Dip:100% (0VAC), 20ms | B | |
| Dip:30% (168VAC), 500ms | | A | | |
| | | Dip:100% (0VAC), 5000ms | B | |

Safety approvals

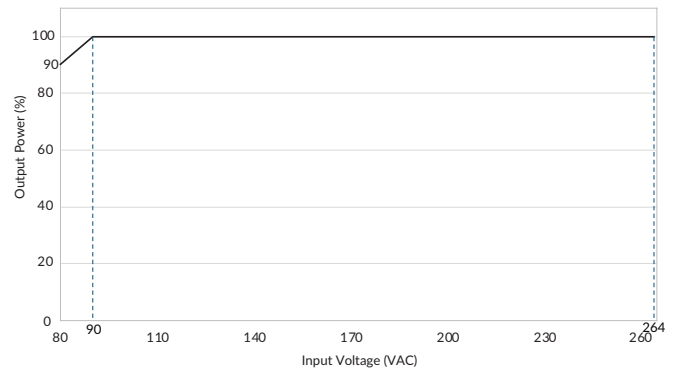
| Safety agency | Standard | Notes & conditions |
|---------------|--|---|
| UL | UL 62368-1 | Audio/video, information and communication technology equipment |
| | ANSI/AAMI ES60601-1 | Medical |
| EN | EN62368-1 | Audio/video, information and communication technology equipment |
| | EN60601-1, EN60601-1-11 | Medical, 60601-1-11 is only for Class II versions |
| CB | IEC62368-1 | Audio/video, information and communication technology equipment |
| | IEC60601-1, IEC60601-1-11 | Medical, 60601-1-11 is only for Class II versions |
| CSA | CAN/CSA C22.2 No. 62368-1-14 | Audio/video, information and communication technology equipment |
| | CSA C22.2 No.60601-1 | Medical |
| CCC | China Compulsory Certification GB17625.1, GB4943.1, GB/T9254 | Audio/video, information and communication technology equipment |
| AU/NZ | AS/NZS 62368.1 | Audio/video, information and communication technology equipment |
| CE | Meets all applicable directives | |
| UKCA | Meets all applicable directives | |

Application notes

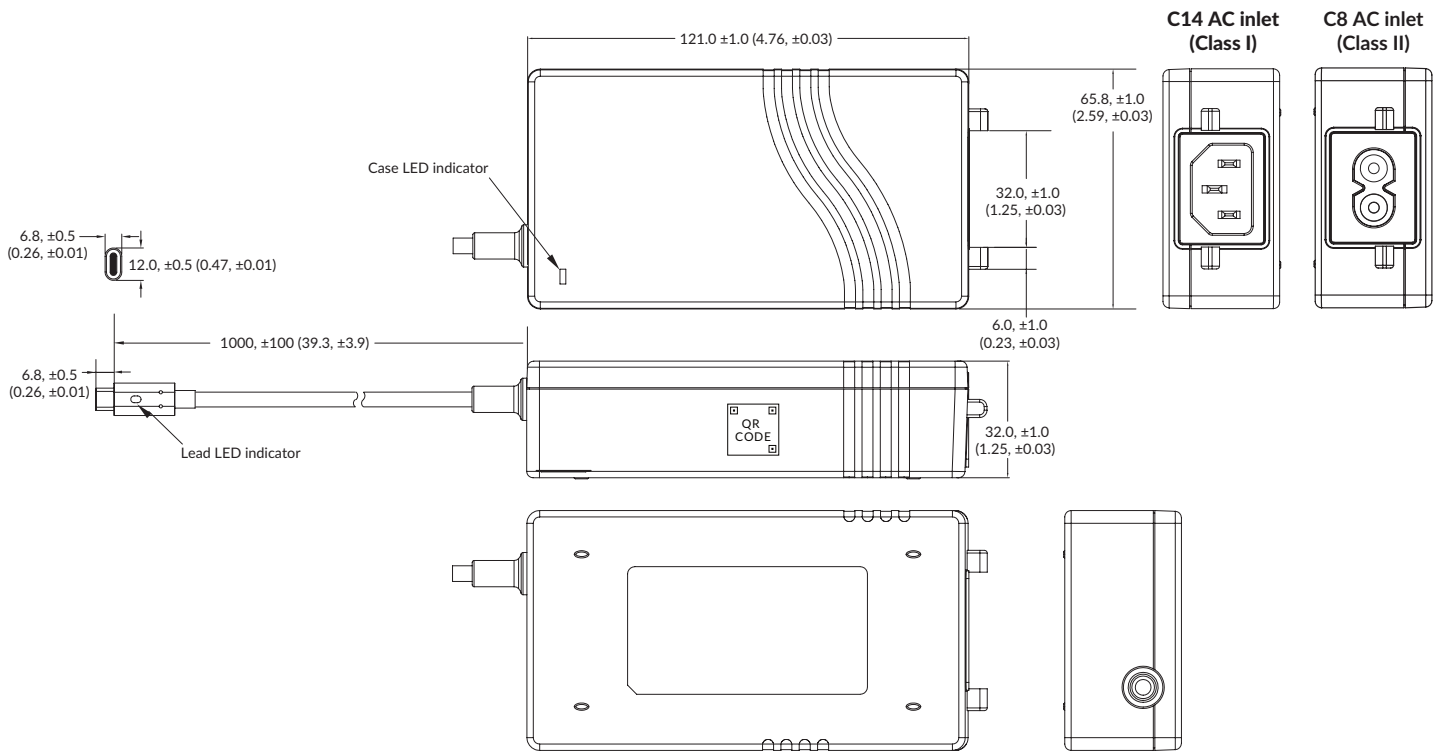
Ambient derating



Input derating



Mechanical details



| LED indicators | | Description |
|----------------|----------------|--|
| Case LED | Lead LED | |
| Amber | Unlit | Charger is connected to AC but not connected to load |
| Green | Green | Charger is connected to AC and connected to load |
| Flashing amber | Flashing green | Charger is connected to AC and there is a charging fault |
| Flashing amber | Unlit | Charger is connected to AC and the load is faulty |

Notes:

1. All dimensions shown in mm (inches).
2. Weight: 380g (0.84lb) approx.

3. Output connector: USB Type-C

Specifications subject to change without notice.