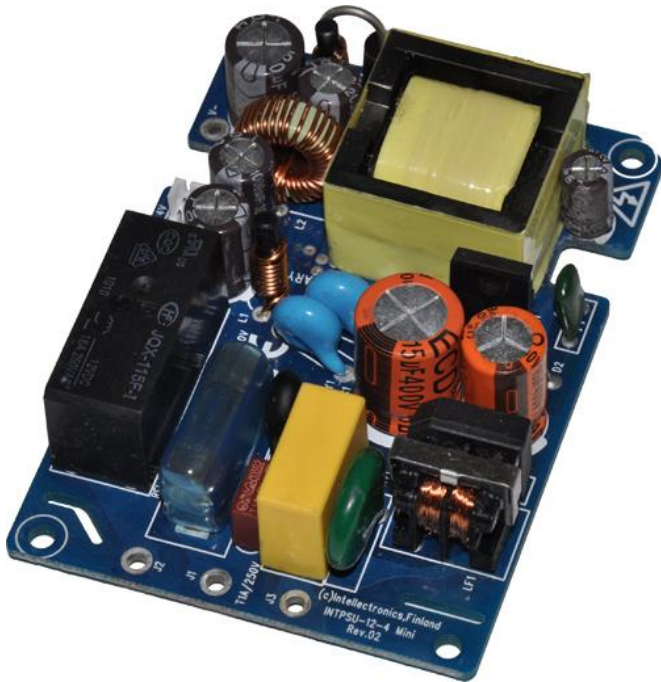


INTPSU-12-4 Mini

Power 4 GSM™

Dual Output Open Frame Switching Power Supply
Proven Solution for GSM Control & Alarm Systems
Patent Pending



Safety

- IEC 60950-1
- UL 60950-1
- EN 60950-1

Main Unique Features¹

- Optimised for GSM modules
- Extra low profile fits 1U application
- Compact dimensions
- Universal input connection
- Relay with fuse protection (optional)
- No additional components needed for EMC compliance, built-in EMI filter
- Can be mounted in plastic or metal housing without negative effect to EMC

Features

- Universal full range input
- High efficiency >70%
- High reliability
- Short circuit, overload and over voltage protection
- Cooling by free air convection
- Low leakage current <0.25mA
- Low stand-by power consumption
- International safety standards compliant
- 100% full load burn-in test
- 2 years warranty

APPLICATIONS

GSM control systems • GSM alarm systems • Microprocessor systems
Peripheral equipment • Data processing equipment • Multimedia equipment
Billing equipment • Mixed logic applications

1. Refer to document *INTPSU-12-4-Mini_Features.pdf* for detailed information about unique features of INTPSU-12-4 Mini.

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General Specification

All values are typical at nominal input 230VAC/50Hz, full load at 25°C unless otherwise stated

| | | | |
|-------------|---------------------------------------|---|--------------------------|
| INPUT | VOLTAGE RANGE | 100-240VAC (nom.), 90-264VAC (max.) | |
| | FREQUENCY RANGE | 47-63 Hz | |
| | AC CURRENT (Typ.) | 0.3A/115VAC, 0.13A/230VAC | |
| | EFFICIENCY | >70% | |
| | INRUSH CURRENT | 41A (cold start), 50A (max.) | |
| OUTPUT | OUTPUT NUMBER | V1 | V2 |
| | DC VOLTAGE | 12V | 4V |
| | RATED CURRENT | 0.6A | 1.5A |
| | RATED PEAK CURRENT¹ | 1.5A / 30min | 2.5A / 30min |
| | RATED POWER | 13.2W (nom.), 24W (max.) | |
| | RIPPLE & NOISE² | 90mVp-p | 60mVp-p |
| | DC VOLTAGE REGULATION | Line regulation, Load regulation, Cross regulation: ±5.0% (max.) | |
| | TURN ON TIME | Less than 2s under all rated load conditions | |
| | RAISE TIME | 20ms/230VAC, 28ms/115VAC | 12ms/230VAC, 12ms/115VAC |
| | HOLD UP TIME (Typ.) | 90ms | 24ms |
| | STAND-BY POWER | 0.57W/230VAC, 0.33W/115VAC, Green Power | |
| PROTECTION | OVERLOAD | Above 120% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed | |
| | OVER VOLTAGE | 15.0 ~ 16.8V Hiccup mode, recovers automatically after fault condition is removed | Zener diode 4.7V±3% |
| ENVIRONMENT | OPERATING TEMP. | 0°C ~ +40°C without de-rating output power | |
| | OPERATING HUMIDITY | 25% ~ 90% RH non-condensing | |
| | STORAGE CONDITIONS | Temperature: -10°C ~ +55°C Humidity: 10% ~ 90% RH non-condensing | |

- When loaded with maximum current the temperature will rise. Do not let PSU work more than 30 minutes with peak current. 4V is transformed from 12V with IC. Consider the total peak power of PSU and do not apply peak current to both outputs at the same time.
- Ripple & noise are measured at 20MHz of bandwidth. The outputs were bypassed with one 0.1uF multilayer capacitor (type X7R) and one 10uF tantalum electrolytic (low ESR) capacitor.

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Safety & EMC Compliance

All values are typical at nominal input 230VAC/50Hz, full load at 25°C unless otherwise stated

| | | |
|--|---|--|
| SAFETY | LEAKAGE CURRENT | <0.25mA |
| | INSULATION RESISTANCE | Primary to Secondary: 50 MOhms min/ 500VDC |
| | WITHSTAND VOLTAGE | Primary to Secondary: 3KVAC, 10mA/1min |
| | SAFETY STANDARDS | IEC60950-1, UL60950-1, EN60950-1 |
| EMMISSION EMI (Electro Magnetic Interference) | Conducted & Radiated emission | EN55022 Class B, FCC Part 15, Class B |
| | Harmonic current emission | EN61000-3-2, Class A |
| | Voltage fluctuations & flicker | EN61000-3-3 |
| IMMUNITY (EN55024) EMS (Electro Magnetic Susceptibility) | IEC61000-4-2 | Electrostatic discharge (ESD) |
| | IEC61000-4-3 | Continuous radiated disturbances |
| | IEC61000-4-4 | Electrical fast transients (EFT) |
| | IEC61000-4-5 | Surges |
| | IEC61000-4-6 | Continuous conducted disturbances |
| | IEC61000-4-8 | Power-frequency magnetic fields |
| | IEC61000-4-11 | Voltage dip interruptions |

Compliance with standards approved by accredited third-party laboratory. The power supply is considered as component which will be installed into final equipment. The compliance of final installation with EMC directives must be re-confirmed. For more information about EMC compliance please read special document *INTPSU-12-4-Mini_EMG.pdf*.

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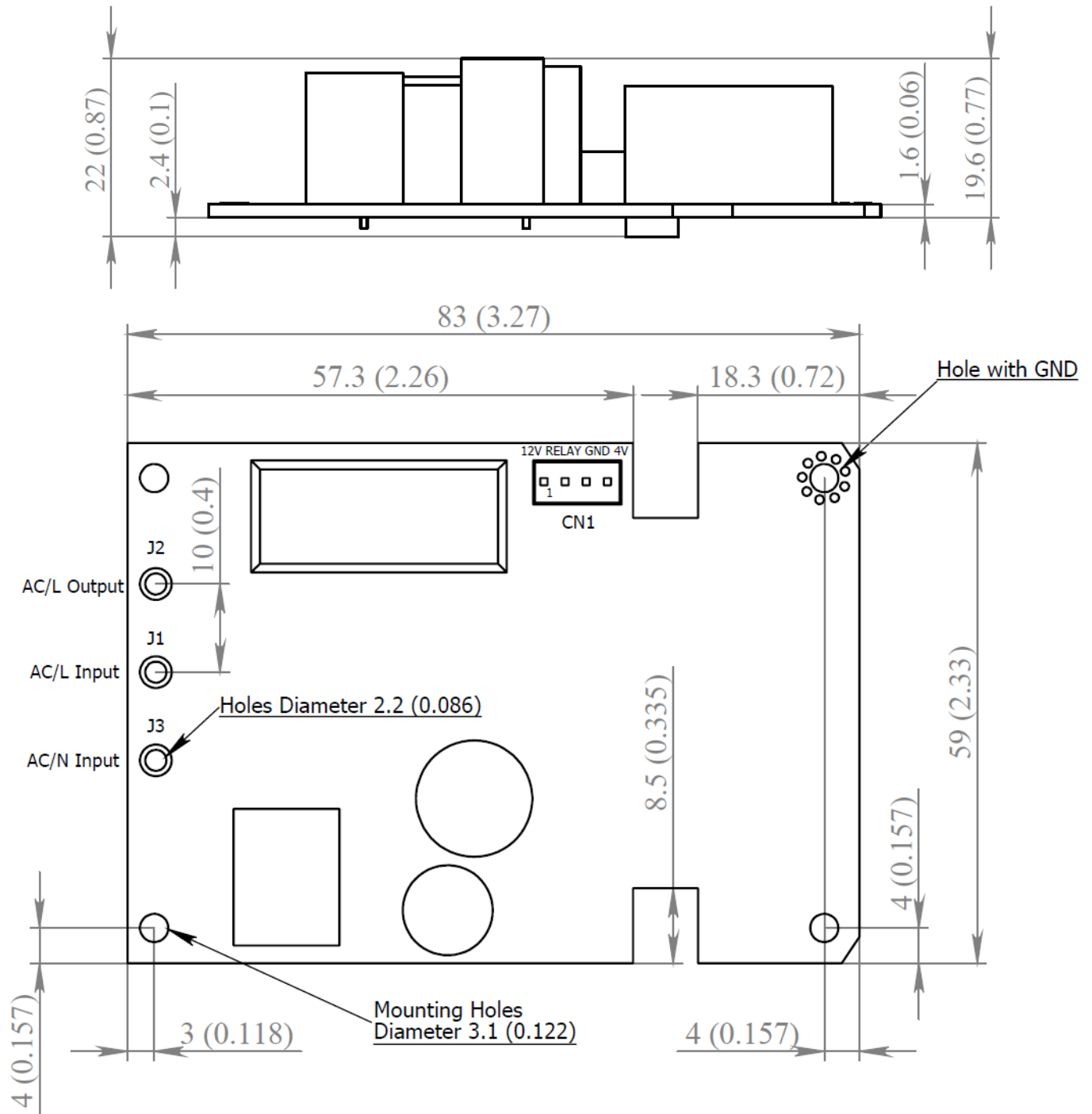
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Mechanical Specification

Units: mm (inch)



Tolerance for height: ± 1 mm. Tolerance for main dimensions: ± 0.4 mm. Tolerance for holes: ± 0.1 mm.
 Dimensions in inches are converted from millimeters.
 Weight of PSU (without relay and fuse) 82g/ 0.18lb, tolerance $\pm 10\%$

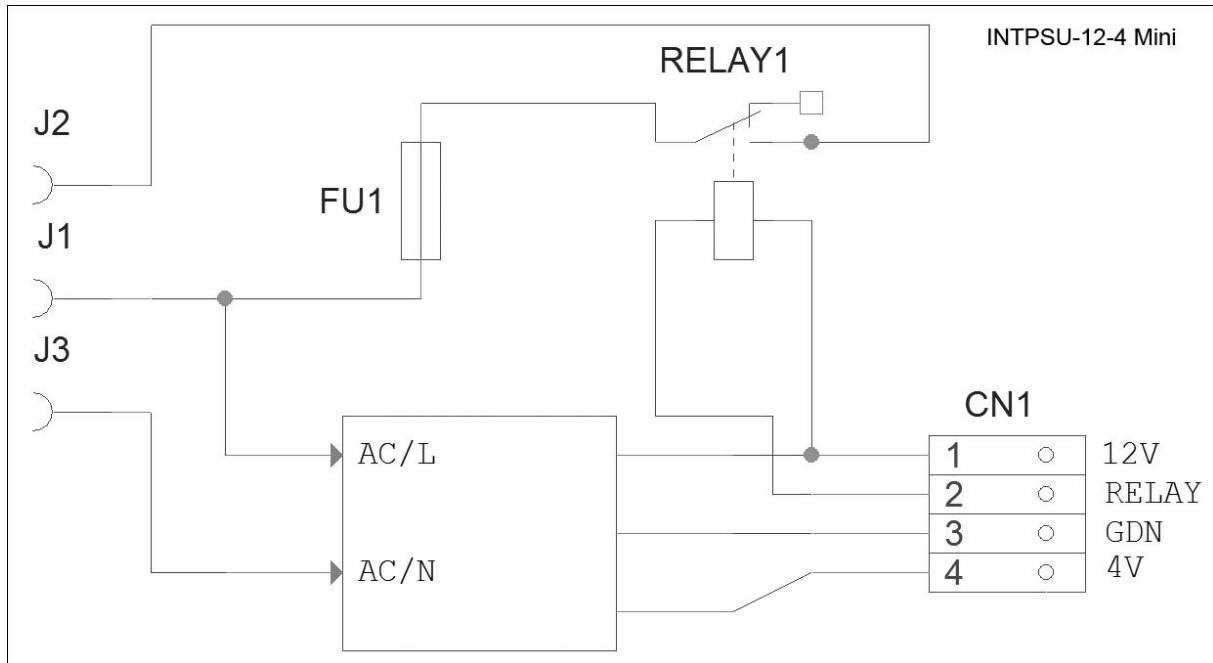
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INTPSU-12-4 Mini

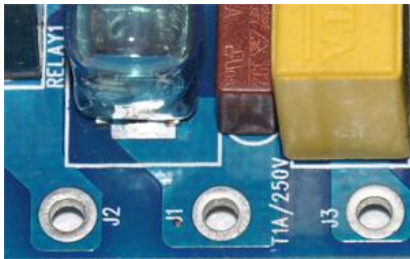
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Connections



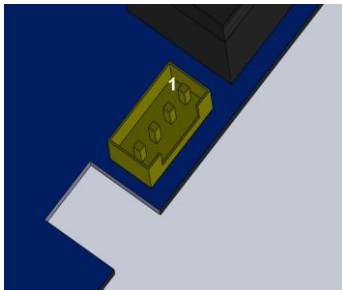
AC Input & Output Connections



| Pin | Assignment |
|-----|-------------|
| J1 | AC/L Input |
| J2 | AC/L Output |
| J3 | AC/N Input |

Input has 3 holes 2.2mm diameter with 10mm pitch. This solution supports both direct wire soldering and connector installation. Different terminals and connectors with pitch 10mm could be used. For your convenience PSU is supplied with terminals, which can be used if needed. Refer to *Application Note for Integrators* for further information.

Output Connector (CN1)



| Pin | Assignment | Remark |
|-----|------------|---------------|
| 1 | +12V | DC Output |
| 2 | RELAY | Relay Control |
| 3 | GND | DC Ground |
| 4 | +4V | DC Output |

Connector type: 2.00mm (.079") pitch Wire-to-Board Header (Wafer), e.g. Molex 089400-0420. Please refer to *Application Note for Integrators* for further information.

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Package Contents



PSU with pre-installed fuse brackets, no relay, no fuse.

or

PSU with installed relay and fuse.

Please refer to Ordering Information.



PCB terminal block, pitch 10mm, 3 poles. Straight (ST) or right angle (RA).

Please refer to Ordering Information.

or



Cable - 70mm to connect PSU with another board. Please refer to *Application Note for Integrators* for specification.

2.00mm (.079") pitch Wire-to-Board Header, 4 pins for installation on another board. Please refer to *Application Note for Integrators* for specification.

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Ordering Information

INTPSU124M – 1 – 2 – 3 – 4

| | | | |
|---|-----------------------------|---------------|--|
| 1 | Relay Type | 0 | No relay installed* |
| | | 16 | 16A relay and 15A fuse installed |
| 2 | Terminals Type | ST | Straight, 3 poles, 10mm pitch, 16A rate* |
| | | RA | Right angle, 3 poles, 10mm pitch, 16A rate |
| 3 | Cable and socket in package | Nil | 70mm cable, reversed and DIP wafer socket* |
| | | Customer Code | According to Request |
| 4 | Customer Requirements | (XXX) | Customer Code |

* Standard

Examples:

INTPSU124MOST – PSU without relay and fuse, straight terminals, 70mm cable and DIP wafer socket included (standard package).

INTPSU124M16ST – PSU with installed 16A relay and 15A fuse, 70mm cable and DIP wafer socket included.

Supporting Documentation

Specification of INTPSU-12-4 Mini Power Supply: [*INTPSU-12-4-Mini_specification.pdf*](#)

Unique Features of INTPSU-12-4 Mini Power Supply: [*INTPSU-12-4-Mini_Features.pdf*](#)

Application Note for Integrators: [*INTPSU-12-4-Mini_AN_Integrators.pdf*](#)

The Benefits of a Tailored Solution: [*INTPSU-12-4-Mini_Tailored_Solution.pdf*](#)

EMC of INTPSU-12-4 Power Supply: [*INTPSU-12-4-Mini_EMC_Note.pdf*](#)

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