

### 30 Watts

- 4:1 DC Input Range
- 5 V to 24 V DC Output
- Low Profile Design
- Ambient Operation from -40 °C to +70 °C
- Remote On/Off
- 1500 VDC Isolation
- Class A Conducted and Radiated Emissions
- High Efficiency – Up to 85%
- 3 Year Warranty



#### Dimensions:

##### DDC30:

1.38 x 3.58 x 2.22" (35.0 x 91.0 x 56.5 mm)

The DDC series is a range of DIN Rail mounting DC/DC converters designed to offer additional voltages in DIN Rail power systems, provide isolated outputs & noise immunity or support battery powered or battery backed applications. With a 4:1 wide input range the DDC series converters can be supplied by both a 12V or 24V nominal input and offer output voltages between 5VDC and 24VDC.

### Models & Ratings

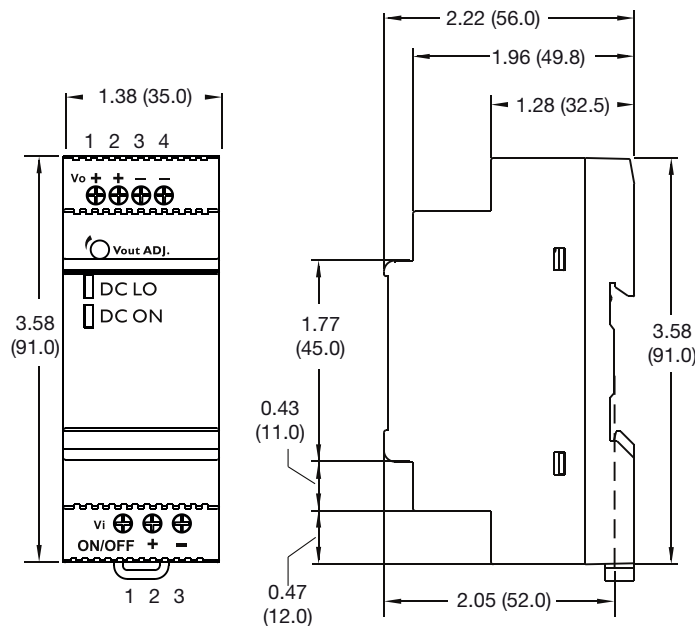
| Output Voltage | Output Power | Output Voltage Trim | Output Current <sup>(1)</sup> | Input Current Typical, Max | Maximum Capacitive Load | Efficiency <sup>(2)</sup> | Model Number |
|----------------|--------------|---------------------|-------------------------------|----------------------------|-------------------------|---------------------------|--------------|
| 5 V            | 22.5 W       | 4.75-5.5 V          | 4.5 A                         | 1.13 A, 3.1 A              | 3500 µF                 | 81%                       | DDC3024S05   |
| 9 V            | 25.0 W       | 8.55-9.9 V          | 2.8 A                         | 1.25 A, 3.4 A              | 2200 µF                 | 82%                       | DDC3024S09   |
| 12 V           | 30.0 W       | 11.4-13.8 V         | 2.5 A                         | 1.48 A, 4 A                | 1000 µF                 | 83%                       | DDC3024S12   |
| 15 V           | 30.0 W       | 14.25-16.5 V        | 2.0 A                         | 1.48 A, 4 A                | 1000 µF                 | 84%                       | DDC3024S15   |
| 24 V           | 30.0 W       | 22.8-27.6 V         | 1.25 A                        | 1.48 A, 4 A                | 470 µF                  | 85%                       | DDC3024S24   |

### Notes

1. Output current should be limited so that nominal output power is not exceeded

2. Typical efficiency at nominal input and full load.

### Mechanical Details



| Pin Connector |     |               |
|---------------|-----|---------------|
| Conn          | Pin | Designation   |
| DC I/P        | 1   | Remote On/Off |
|               | 2   | +Vin          |
|               | 3   | -Vin          |
| DC O/P        | 1   | +Vout         |
|               | 2   | +Vout         |
|               | 3   | -Vout         |
|               | 4   | -Vout         |

### Input

| Characteristic       | Minimum                    | Typical | Maximum | Units | Notes & Conditions                 |
|----------------------|----------------------------|---------|---------|-------|------------------------------------|
| Input Voltage Range  | 10                         |         | 36      | VDC   | Input polarity reversal protection |
| Input Current        |                            |         |         |       | See Models and Ratings table       |
| Inrush Current       |                            |         | 90      | A     | at 36V                             |
| Input Filter         | Pi type                    |         |         |       |                                    |
| Undervoltage Lockout | On at >8.5V                |         |         |       |                                    |
| Input Surge          |                            |         | 40      | VDC   | No Damage                          |
| Input Protection     | T7.0A/63 VDC Internal Fuse |         |         |       |                                    |

### Output

| Characteristic           | Minimum   | Typical | Maximum | Units       | Notes & Conditions   |
|--------------------------|---|---------|---------|-------------|--|
| Output Voltage           | 5   |         | 24      | V           | See Models and Ratings table   |
| Output Voltage Trim      |   |         |         | %           | See Models and Ratings table   |
| Initial Set Accuracy     | 0   |         | +1      | %           |  |
| Minimum Load             | 0   |         |         | A           | No minimum load required   |
| Start Up Delay           |   | 50      |         | ms          |  |
| Start Up Rise Time       |   | 7       |         | ms          |  |
| Line Regulation          |   |         | ±1.0    | %           |  |
| Load Regulation          |   |         | ±1.0    | %           | 0 - 100% load  |
| Transient Response       |   |         | 4       | % deviation | Recovery to within 1% in <1 ms for a 50% load change at 0.25 A/μs rate |
| Ripple & Noise           |   |         | 100     | mV pk-pk    | 20 MHz bandwidth   |
| Short Circuit Protection |   |         |         |             | Constant Current, auto recovery  |
| Overload Protection      | 110   |         | 165     | %           | Constant Current   |
| Overvoltage Protection   | 115   |         | 135     | %           | Of nominal output voltage  |
| Temperature Coefficient  |   |         | 0.03    | %/°C        |  |
| Remote On/Off            | Output On: Open circuit or 8-10 VDC WRT -Vin<br>Output Off: -0.3 - 2 VDC WRT -Vin |         |         |             |  |

### General

| Characteristic            | Minimum | Typical     | Maximum | Units             | Notes & Conditions            |
|---------------------------|---------|-------------|---------|-------------------|-------------------------------|
| Efficiency                |         | 83          |         | %                 | See Models and Ratings table  |
| Isolation                 | 1500    |             |         | VDC               |                               |
| Switching Frequency       | 100     |             | 200     | kHz               |                               |
| Power Density             |         |             | 2.7     | W/in <sup>3</sup> |                               |
| Mean Time Between Failure | 680     |             |         | kHrs              | MIL-HDBK-217F, +25 °C GB      |
| Weight                    |         | 0.265 (120) |         | lb (g)            |                               |
| DC ON Indicator           | 90      |             |         | %                 | Of nominal voltage. Green LED |
| DC Low Indicator          | 70      |             | 90      | %                 | Of nominal voltage. Red LED   |

### Environmental

| Characteristic        | Minimum   | Typical | Maximum | Units | Notes & Conditions |
|-----------------------|---|---------|---------|-------|--------------------|
| Operating Temperature | -40   |         | +70     | °C    | See derating curve |
| Storage Temperature   | -55   |         | +100    | °C    |                    |
| Humidity              | 5   |         | 90      | %RH   | Non-condensing     |
| Operating Altitude    |   |         | 4850    | m     |                    |
| Cooling               |   |         |         |       | Natural convection |
| Shock                 | ±3 shocks in each plane, total 36 shocks of 15 g : 11 ms halfsine. Conforms to EN60068-2-27 |         |         |       |                    |
| Vibration             | 10-500 Hz at 2 g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6  |         |         |       |                    |

### EMC: Emissions

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|------------|----------|------------|----------|--------------------|
| Conducted  | EN55022  | Class A    |          |                    |
| Radiated   | EN55022  | Class A    |          |                    |

### EMC: Immunity

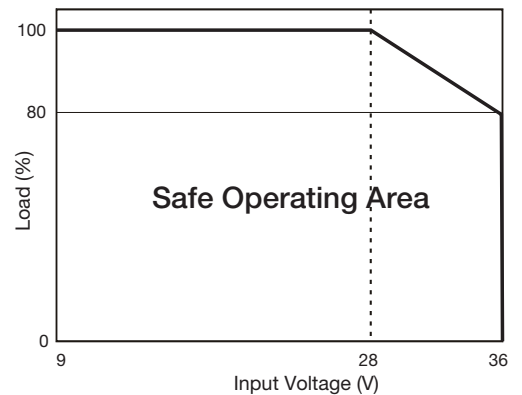
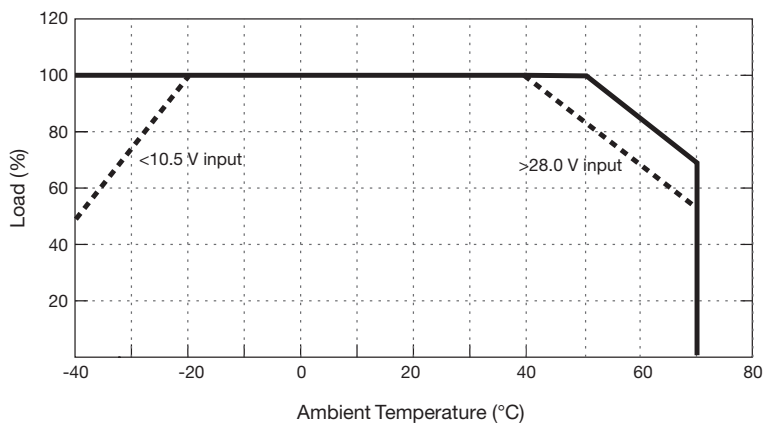
| Phenomenon        | Standard    | Test Level | Criteria | Notes & Conditions |
|-------------------|-------------|------------|----------|--------------------|
| ESD Immunity      | EN61000-4-2 | 6 kV       | A        | Contact            |
|                   |             | 8 kV       |          | Air Discharge      |
| Radiated Immunity | EN61000-4-3 | 10 V/m     | A        |                    |
| EFT/Burst         | EN61000-4-4 | 2          | A        |                    |
| Surge             | EN61000-4-5 | 2          | A        |                    |
| Conducted         | EN61000-4-6 | 10 V       | A        |                    |
| Magnetic Fields   | EN61000-4-8 | 4          | A        |                    |

### Safety Approvals

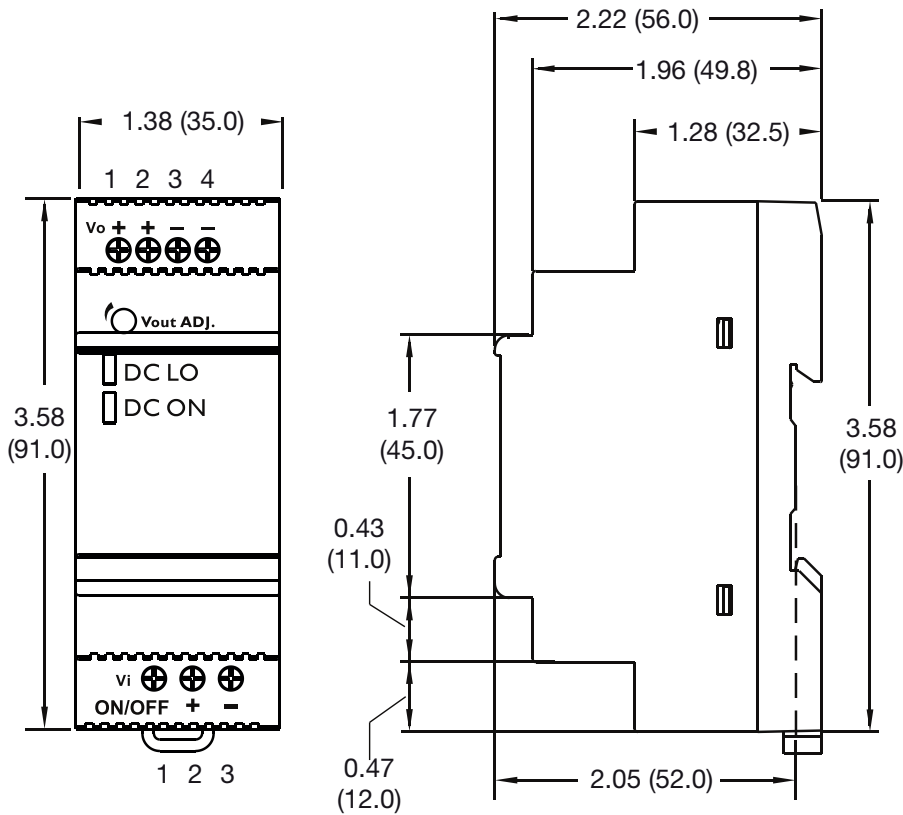
| Safety Agency | Safety Standard     | Notes & Conditions           |
|---------------|---------------------|------------------------------|
| UL            | UL508               | Industrial Control Equipment |
| TUV           | EN60950-1 A12:2011  | Information Technology       |
| CB            | IEC60950-1 +A1:2009 | Information Technology       |

### Application Notes

#### Derating Curves



### Mechanical Details



| Pin Connector |     |               |
|---------------|-----|---------------|
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|               | 2   | +Vout         |
|               | 3   | -Vout         |
|               | 4   | -Vout         |

### Notes

1. All dimensions in inches (mm)
2. Weight: 0.265 lbs (120 g)
3. Tolerance:  $\pm 0.02$  in ( $\pm 0.5$  mm)

4. Screw terminal: 12-24 AWG cables size.
5. Connection screw maximum torque: Input: 6 lbs-in (0.68 Nm)



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.