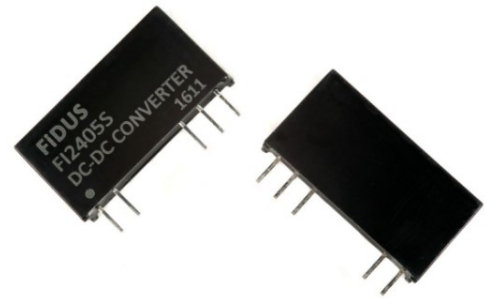


3 Watts

- Single and Dual output
- SIP Package
- 2:1 Input range
- High reliability MTBF >1.3Mhrs
- Remote on/off (Optional)
- High stock on popular models
- 5 Year warranty



The FI series of low cost DC/DC converters come in both single and dual outputs in a SIP 8 pin package. Inputs are available in 5, 12, 24 & 48V versions and outputs from 3.3 to 15V single and dual. The units operate from -40 to +71°C. High volumes are held in stock for the popular models. All models have a FIDUS 5 year warranty.

Dimensions:

0.86 x 0.36 x 0.44" (21.85 x 9.20 x 11.10mm)

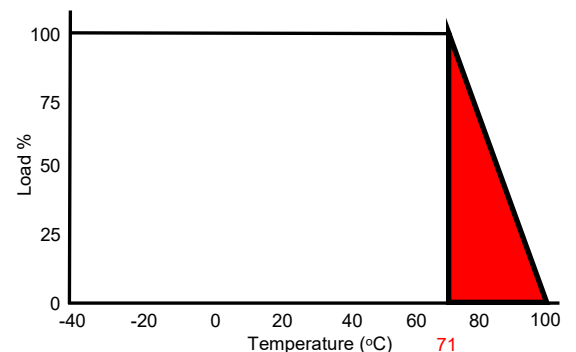
Models & Ratings

| Model Number ⁽³⁾ | Input Voltage | Output Voltage | Output Current | Input Current | | Maximum Capacitive Load | Efficiency |
|-----------------------------|---------------|----------------|----------------|---------------|-----------|-------------------------|------------|
| | | | | No Load | Full Load | | |
| FI0503S | 4.5-9V | 3.3V | 700mA | 65mA | 640mA | 2200uF | 74% |
| FI0505S ⁽¹⁾ | | 5V | 600mA | 70mA | 800mA | 2200uF | 76% |
| FI0512S | | 12V | 250mA | 75mA | 750mA | 470uF | 82% |
| FI0515S | | 15V | 200mA | 75mA | 750mA | 470uF | 82% |
| FI0505SD | | ±5V | ±300mA | 90mA | 800mA | ±470uF | 77% |
| FI0512SD | | ±12V | ±125mA | 90mA | 760mA | ±220uF | 81% |
| FI0515SD | | ±15V | ±100mA | 90mA | 750mA | ±100uF | 82% |
| FI1203S | 9-18V | 3.3V | 700mA | 25mA | 260mA | 2200uF | 76% |
| FI1205S | | 5V | 600mA | 15mA | 320mA | 2200uF | 81% |
| FI1212S | | 12V | 250mA | 35mA | 305mA | 470uF | 84% |
| FI1215S | | 15V | 200mA | 35mA | 305mA | 220uF | 84% |
| FI1205SD | | ±5V | ±300mA | 45mA | 320mA | ±470uF | 80% |
| FI1212SD | | ±12V | ±125mA | 45mA | 308mA | ±220uF | 83% |
| FI1215SD | | ±15V | ±100mA | 45mA | 312mA | ±100uF | 82% |
| FI2403S | 18-36V | 3.3V | 700mA | 15mA | 133mA | 2200uF | 74% |
| FI2405S ⁽¹⁾ | | 5V | 600mA | 15mA | 160mA | 2200uF | 79% |
| FI2412S | | 12V | 250mA | 20mA | 156mA | 470uF | 82% |
| FI2415S | | 15V | 200mA | 20mA | 152mA | 470uF | 84% |
| FI2405SD | | ±5V | ±300mA | 20mA | 160mA | ±470uF | 80% |
| FI2412SD | | ±12V | ±125mA | 20mA | 154mA | ±220uF | 83% |
| FI2415SD | | ±15V | ±100mA | 20mA | 154mA | ±100uF | 83% |
| FI4803S | 36-72V | 3.3V | 700mA | 10mA | 66mA | 2200uF | 75% |
| FI4805S | | 5V | 600mA | 10mA | 82mA | 2200uF | 78% |
| FI4812S | | 12V | 250mA | 15mA | 78mA | 470uF | 81% |
| FI4815S | | 15V | 200mA | 15mA | 78mA | 220uF | 81% |
| FI4805SD | | ±5V | ±300mA | 15mA | 82mA | ±470uF | 78% |
| FI4812SD | | ±12V | ±125mA | 20mA | 80mA | ±220uF | 80% |
| FI4815SD | | ±15V | ±100mA | 15mA | 78mA | ±100uF | 81% |

Notes

1. High stock items
2. Under no load conditions the unit may not meet all specifications
3. Remote on/off option available. Add 'C' to part number
4. Do not operate continuously in the red area of the derating curve

Derating curve



| Input | |
|--------------------------------|--|
| Parameter | Rating |
| Input voltage range | See table |
| Input reflected ripple current | 35mA pk-pk through 12uH inductor |
| Input surge (100mS max) | 5V Models 15V DC Max. 12V Models 36VDC Max. 24V Models 50VDC Max. 48V Models 100VDC Max. |
| Input filter | Capacitor |

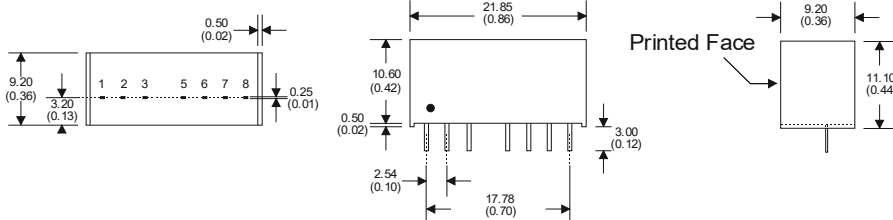
| Output | | | | | |
|--------------------------|--|---------|---------|-------------|---|
| Parameter | Minimum | Typical | Maximum | Units | Notes & Conditions |
| Output voltage | 3.3V | | 15 | VDC | See Model & Ratings table |
| Set point accuracy | | | ±1 | % | |
| Line regulation | | | ±0.5 | % | Low line to High line |
| Load regulation | | | ±1 | % | 25 to 100% load change |
| Minimum load | 25 | | | % | |
| Cross regulation | | | ±5 | % | On dual output models when one load is varied by 25 to 100% and the other is 100% load. |
| Ripple & Noise | | | 75 | mV pk-pk | Measured with 20MHz bandwidth |
| Transient response | | | ±3 | % Deviation | For a 25% load change, recovery to within 3% within 300uS typically. |
| Short circuit protection | | | | | Continuous with automatic recovery |
| Maximum capacitive load | | | | | See Model and Ratings table |
| Remote on/off | Open circuit or high impedance ON. 3 - 6mA via a 1K resistor OFF. See application notes. | | | | |

| General | | | | | |
|-----------------------|---------|---------|---------|-------------------|-------------------------------|
| Parameter | Minimum | Typical | Maximum | Units | Notes & Conditions |
| Efficiency | 74 | | 84 | % | See Model & Ratings table |
| Isolation | | | 1600 | VDC | Input to output |
| Isolation resistance | 1000 | | | M Ohm | |
| Isolation capacitance | | | 680 | pF | |
| Switching frequency | 100 | | 650 | KHz | |
| Power density | | | 22 | W/in ³ | |
| MTBF | | >1.34 | | MHrs | As per MIL-HDBK-217F, 25°C GB |

| Environmental | | | | | |
|-------------------------|---------|---------|---------|-------|--|
| Parameter | Minimum | Typical | Maximum | Units | Notes & Conditions |
| Operating temperature | -40 | | 71 | °C | Derate linearly from 100% load at 71°C to 0% load at 100°C. Do not operate continuously above 71°C |
| Storage temperature | -40 | | 125 | °C | |
| Case temperature | | | 100 | °C | |
| Cooling | | | | | Convection cooled |
| Humidity | | | 95 | % RH | Non-condensing |
| Temperature coefficient | | | ±0.02 | %/°C | |

| EMC: Emissions | | | |
|----------------|----------|------------|-----------------------|
| | Standard | Test level | Notes & Conditions |
| Conducted | EN55022 | Class A | See application notes |
| Radiated | EN55022 | Class A | |

Mechanical Details



| Pin Connections | | |
|-----------------|--------|-------|
| Pin | Single | Dual |
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | N.P | N.C |
| 5 | N.P | N.C |
| 6 | +Vout | +Vout |
| 7 | -Vout | 0V |
| 8 | N.C | -Vout |

Notes

1. All dimensions shown in millimetres (inches)
2. Pin diameter 0.5 ± 0.05 (0.02 ± 0.002)
3. Case tolerance ± 0.5 (± 0.002)
4. For Remote on/off option. Control is pin 3.

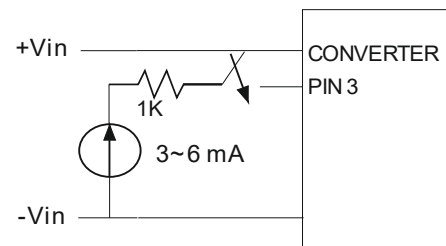
Physical

| Parameter | Rating |
|-----------------------|--|
| Case material | Non-conductive black plastic (UL94V-0) |
| Pin material | C5191R-H Solder coated |
| Potting material | Epoxy (UL94V-0) |
| Weight | 4.8g |
| Dimensions | 0.86 x 0.36 x 0.44" |
| Soldering temperature | 1.5mm from case, 10s and 260°C max. |

Application notes

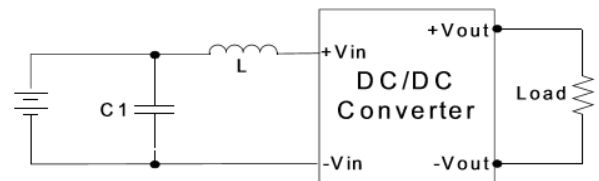
Remote ON/OFF

The FI series output can be turned on and off using the remote on/off function. If Pin 3 is left open circuit or high impedance then the unit is ON. 3 - 6mA of input current via a 1K resistor to turn OFF.



EMI Filter

The input filter components C1 and L1 can be fitted to help meet conducted emission requirements for the system. They should be mounted as close as possible to the module. Lead lengths should be minimized and where possible avoid running input and output tracks under the module as part of good design practice for best EMC performance. If the module is embedded in a system running from an AC/DC converter, this will have its own additional immunity protection and EMI filtering that will impact the overall system EMI performance.



| Model number | C1 | L1 |
|--------------|-----------------------|-------|
| FI05XX | 220uF/25V | 5.6uH |
| FI12XX | Single 100uF/100V | 18uH |
| | Dual 1210, 2.2uF/100V | |
| FI24XX | 1210, 10uF/35V | 18uH |
| FI48XX | 100uF/100V | 56uH |