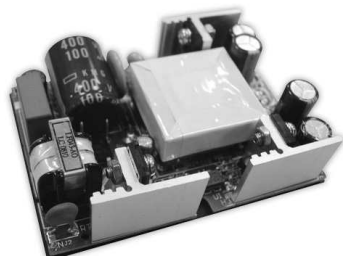


# KADN40 SERIES



AC - DC POWER MODULE  
28 ~ 40W UL / cUL / TUV / CE

## FEATURES

- AC/DC POWER MODULE
- UNIVERSAL INPUT 85 ~ 265 VAC
- HIGH EFFICIENCY UP TO 87%
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 2 YEARS WARRANTY
- OPEN FRAME

## MODEL LIST

| MODEL NO.                   | INPUT VOLTAGE | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (typ.) | EFF. (min.) |
|-----------------------------|---------------|----------------|----------------|----------------|-------------|-------------|
| <b>Single Output Models</b> |               |                |                |                |             |             |
| KADN4003                    | 85~265 VAC    | 28 WATTS       | +3.3 VDC       | 8500 mA        | 78%         | 76%         |
| KADN4005                    | 85~265 VAC    | 40 WATTS       | + 5 VDC        | 8000 mA        | 82%         | 80%         |
| KADN4012                    | 85~265 VAC    | 40.8 WATTS     | + 12 VDC       | 3400 mA        | 86%         | 84%         |
| KADN4015                    | 85~265 VAC    | 40.5 WATTS     | + 15 VDC       | 2700 mA        | 87%         | 85%         |
| KADN4024                    | 85~265 VAC    | 40.8 WATTS     | + 24 VDC       | 1700 mA        | 87%         | 85%         |
| <b>Dual Output Models</b>   |               |                |                |                |             |             |
| KADN4012D                   | 85~265 VAC    | 40.8 WATTS     | ± 12 VDC       | ± 1250 mA      | 85%         | 83%         |
| KADN4015D                   | 85~265 VAC    | 40.5 WATTS     | ± 15 VDC       | ± 1000 mA      | 86%         | 84%         |
| KADN40503D                  | 85~265 VAC    | 31.6 WATTS     | + 5 /+ 3.3 VDC | +5A / +2 A     | 82%         | 80%         |
| KADN40512D                  | 85~265 VAC    | 40 WATTS       | + 5 /+ 12 VDC  | + 5A / + 1.25A | 83%         | 81%         |

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

| CONTROL AND PROTECTION     |                             |      |      |      |      |
|----------------------------|-----------------------------|------|------|------|------|
| Characteristics            | Conditions                  | min. | typ. | max. | unit |
| Input fuse                 | T2A / 250VAC internal       |      |      |      |      |
| Output short circuit       | Hiccup mode                 |      |      |      |      |
| Rated over load protection |                             | 120  |      | 160  | %    |
| APPROVALS AND STANDARDS    |                             |      |      |      |      |
| UL / cUL                   | UL60950-1 Recognized        |      |      |      |      |
| TUV                        | EN60950-1                   |      |      |      |      |
| CE                         | EN61000-6-3,EN55022 class B |      |      |      |      |
|                            | EN61000-6-2,EN55024         |      |      |      |      |
|                            | EN61000-3-2,EN61000-3-3     |      |      |      |      |
|                            | EN61204-3                   |      |      |      |      |

### SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

#### GENERAL

| Characteristics      | Conditions               | min.  | typ. | max. | unit   |
|----------------------|--------------------------|-------|------|------|--------|
| Switching frequency  | Vi nom, Io nom           |       | 65   |      | KHz    |
| Isolation voltage    | Input / Output           | 3,000 |      |      | VAC    |
| Isolation resistance | Input / Output, @ 500VDC | 100   |      |      | MΩ     |
| Ambient temperature  | Operating at Vi nom      | -40   |      | + 71 | °C     |
| Derating             | Vi nom, +51 to +71°C     |       |      | 2.5  | % / °C |
| Storage temperature  | Non operational          | -40   |      | +100 | °C     |
| Relative humidity    | Vi nom, Io nom           | 20    |      | 95   | % RH   |
| Dimension            | L 85.6 x W 60.2 x H 25   |       |      |      | mm     |
|                      | L 3.37 x W 2.37 x H 0.98 |       |      |      | inches |
| Cooling              | Free air convection      |       |      |      |        |

#### INPUT SPECIFICATIONS

| Characteristics         | Conditions     |            | min. | typ. | max. | unit |
|-------------------------|----------------|------------|------|------|------|------|
| Rated input voltage     | Io nom         |            | 100  |      | 240  | VAC  |
| Input voltage range * I | Io nom         | AC in      | 85   |      | 265  | VAC  |
|                         |                | DC in      | 120  |      | 370  | VDC  |
| Line frequency          | Vi nom, Io nom |            | 47   |      | 63   | Hz   |
| Inrush current          | Io nom         | Vi :115VAC |      |      | 20   | A    |
|                         |                | Vi :230VAC |      |      | 40   | A    |

\*I : 89Vac ~ 85Vac input is permissible, but output is derated to 75%

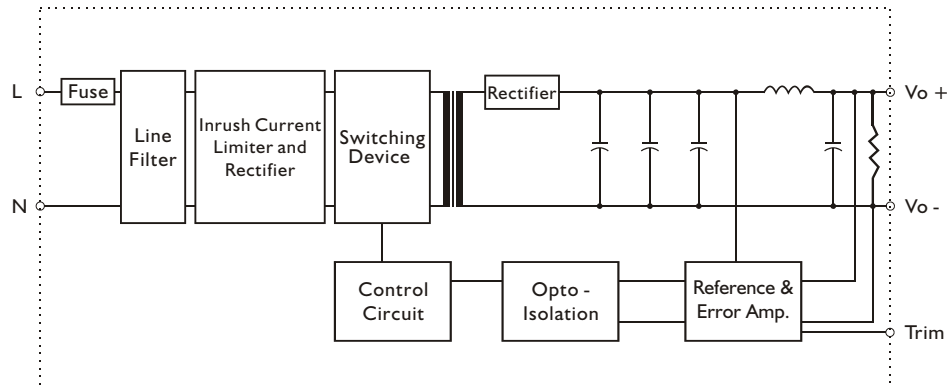
#### OUTPUT SPECIFICATIONS

| Characteristics                                         | Conditions                      |                                  | min.                      | typ. | max.   | unit   |
|---------------------------------------------------------|---------------------------------|----------------------------------|---------------------------|------|--------|--------|
| Output voltage accuracy                                 | Vi nom, Io nom                  |                                  |                           |      | ± 2    | %      |
| Minimum load                                            | Vi nom                          | single output models             | 0                         |      |        | %      |
|                                                         |                                 | dual output models (each output) | 20                        |      |        | %      |
| Line regulation                                         | Io nom, Vi min ... Vi max       |                                  |                           |      | ± 1    | %      |
| Load regulation                                         | Vi nom, Io min ... Io nom       | single output models             |                           |      | ± 1    | %      |
|                                                         |                                 | dual output models               |                           |      | ± 2    | %      |
| Hold up time                                            |                                 |                                  | 10                        |      |        | ms     |
| Transient recovery time                                 | Vi nom, Io nom = I ↔ 0.5 Io nom |                                  |                           | 1000 |        | μs     |
| Temperature coefficient                                 | Vi nom, Io nom                  |                                  |                           |      | ± 0.02 | % / °C |
| Ripple & noise                                          | Vi nom, Io nom, BW = 20MHz      | 3.3V, 5V models                  |                           |      | 100    | mV     |
|                                                         |                                 | 12V ...24V models                |                           |      | 200    | mV     |
| External trim ADJ. Range I)<br>(for single output only) | Io = 5% ... 100%                | 3.3V models                      | - 5                       |      | + 5    | %      |
|                                                         |                                 | 5V ...24V models                 | -10                       |      | +10    | %      |
| Efficiency                                              | Vi nom, Io nom, Po / Pi         |                                  | Up to 87%, See model list |      |        |        |

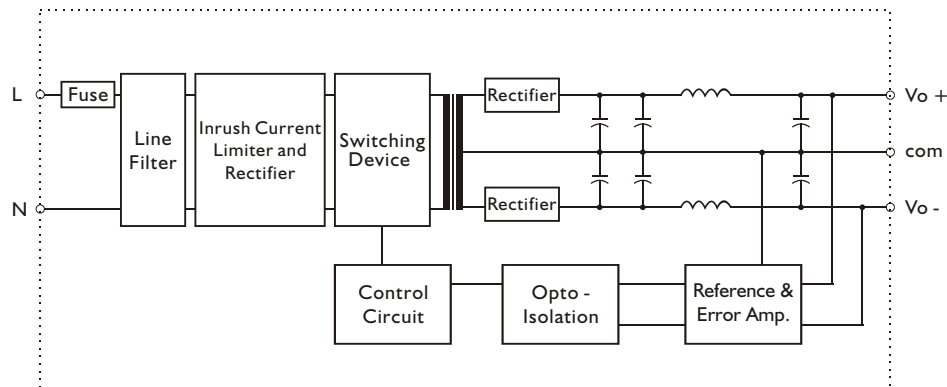
NOTE I : Pls refer to Fig 1 & Table 1 for connection and resistance recommended.

### CIRCUIT SCHEMATIC

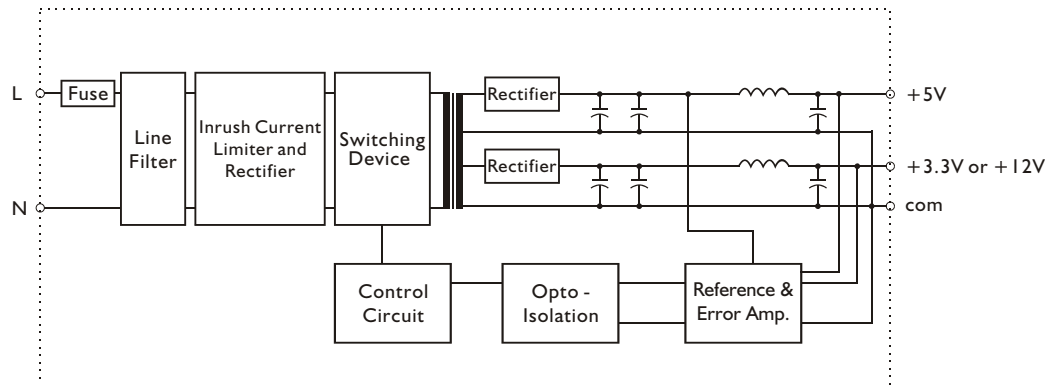
- Block diagram for KADN40 series with single output



- Block diagram for KADN40 series with dual output

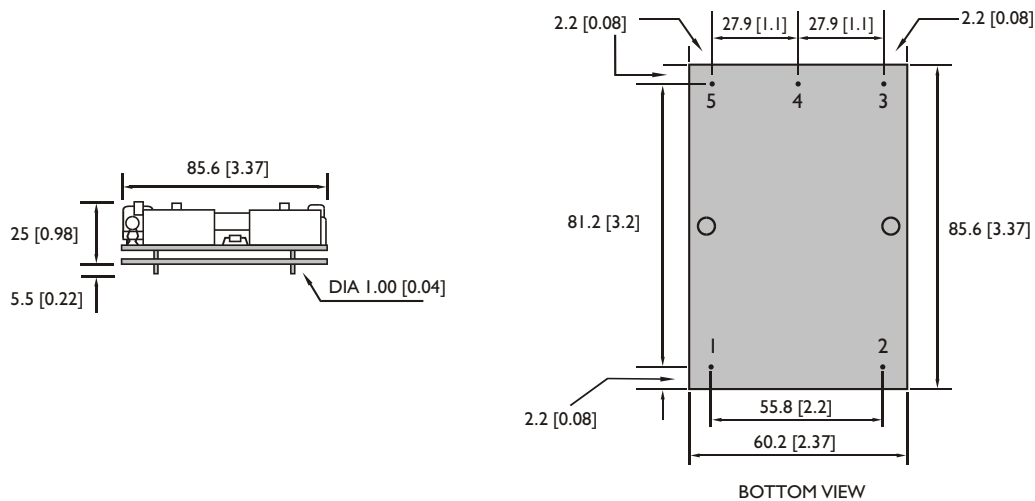


- Block diagram for KADN40503D & KADN40512D



### MECHANISM & PIN CONFIGURATION

mm [inch]



### PHYSICAL CHARACTERISTICS

|           |                                                           |
|-----------|-----------------------------------------------------------|
| CASE SIZE | L 85.6 x W 60.2 x H25mm (L 3.37 x W 2.37 x H 0.98 inches) |
| WEIGHT    | 130g                                                      |

### PIN ASSIGNMENT

| GENERAL |   |   |             |      |                      |
|---------|---|---|-------------|------|----------------------|
| PIN NO. | 1 | 2 | 3           | 4    | 5                    |
| SINGLE  | N | L | Vo +        | Vo - | Trim                 |
| DUAL    | N | L | Vo + or +5V | com  | Vo- or +3.3V or +12V |

### DERATING

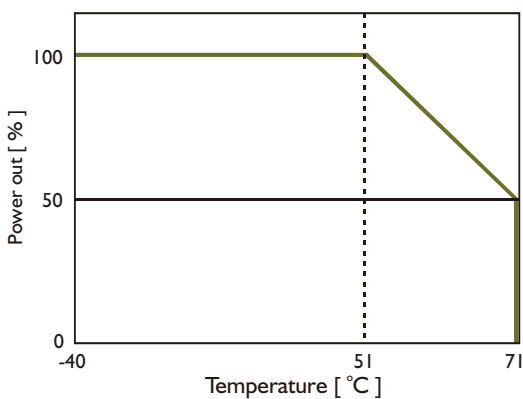


Fig. 1 Trim connection

(For single output only)

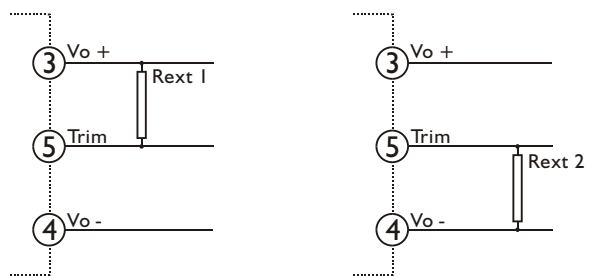


Table 1 Typical resistor values for various output voltage adjustment settings

| Type     | Rext 1     |             | Rext 2     |             |
|----------|------------|-------------|------------|-------------|
|          | Uo nom -5% | Uo nom -10% | Uo nom +5% | Uo nom +10% |
| KADN4003 | 100KΩ      | N / A       | 12KΩ       | N / A       |
| KADN4005 | 4.7KΩ      | 0KΩ         | 5.6KΩ      | 820Ω        |
| KADN4012 | 39KΩ       | 15KΩ        | 15KΩ       | 2.7KΩ       |
| KADN4015 | 120KΩ      | 51KΩ        | 22KΩ       | 2.7KΩ       |
| KADN4024 | 130KΩ      | 56KΩ        | 8.66KΩ     | 510Ω        |