



## Features

- SMD package with industry standard pinout
- Operating temperature range -40 ~ +100°C
- Comply to EN55032 radiated Class A without additional components
- High efficiency up to 82%
- Protection: Short circuit
- 3KVDC I/O isolation
- Low cost
- Optional reel packing
- 3 years warranty

## Applications

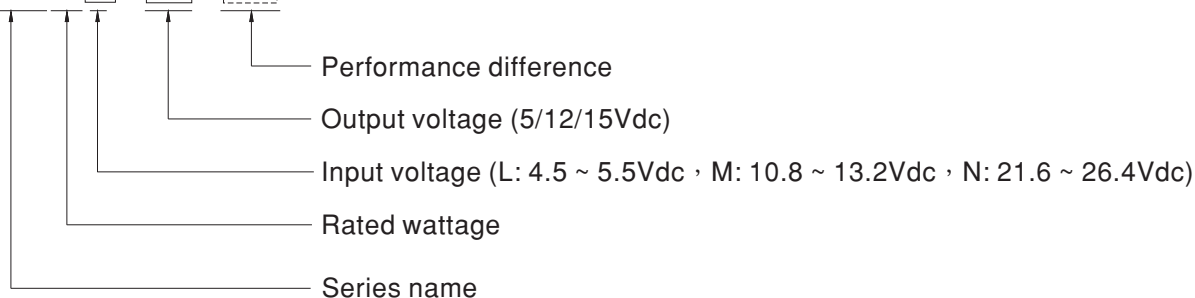
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

## Description

SFTN02 series is 2W isolated and unregulated module type DC-DC converter with SMD package. It features international standard pins, a high efficiency up to 82%, wide working temperature range -40~+100°C, 3KVDC I/P-O/P isolation voltage, compliance to EN55032 radiated Class A without additional components, short circuit protection, etc. The models account for different input voltage 5V/12V/24V±10%, and various output voltage, 5V/12V/15V for single output which are suitable for all kinds of systems, Such as industrial control, telecommunication field, distributed power architecture, and so on.

## Model Encoding

SFTN02L-12-SC



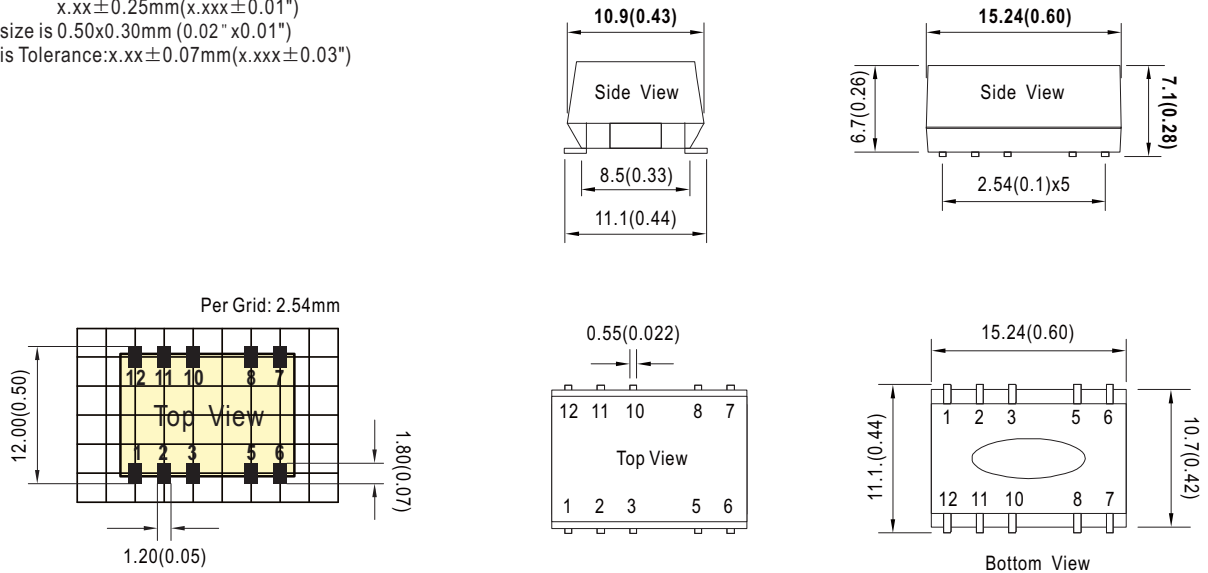
| Type  | Description                                                          | Note     |
|-------|----------------------------------------------------------------------|----------|
| Blank | -40~+100°C working temperature with max. 0.5 second short protection | In Stock |
| SC    | -40~+105°C working temperature with continuous short protection      | Optional |

| MODEL SELECTION TABLE |                              |               |           |                   |                   |                      |                          |
|-----------------------|------------------------------|---------------|-----------|-------------------|-------------------|----------------------|--------------------------|
| ORDER NO.             | INPUT                        |               |           | OUTPUT            |                   | EFFICIENCY<br>(TYP.) | CAPACITOR LOAD<br>(MAX.) |
|                       | INPUT VOLTAGE<br>(RANGE)     | INPUT CURRENT |           | OUTPUT<br>VOLTAGE | OUTPUT<br>CURRENT |                      |                          |
|                       |                              | NO LOAD       | FULL LOAD |                   |                   |                      |                          |
| SFTN02L-05            | Normal 5V<br>(4.5 ~ 5.5V)    | 50mA          | 513mA     | 5V                | 40 ~ 400mA        | 78%                  | 220μF                    |
| SFTN02L-12            |                              | 50mA          | 500mA     | 12V               | 33 ~ 167mA        | 80%                  | 220μF                    |
| SFTN02L-15            |                              | 50mA          | 494mA     | 15V               | 27 ~ 133mA        | 81%                  | 220μF                    |
| SFTN02M-05            | Normal 12V<br>(10.8 ~ 13.2V) | 25mA          | 208mA     | 5V                | 40 ~ 400mA        | 80%                  | 220μF                    |
| SFTN02M-12            |                              | 25mA          | 206mA     | 12V               | 33 ~ 167mA        | 81%                  | 220μF                    |
| SFTN02M-15            |                              | 25mA          | 200mA     | 15V               | 27 ~ 133mA        | 83%                  | 220μF                    |
| SFTN02N-05            | Normal 24V<br>(21.6 ~ 26.4V) | 15mA          | 107mA     | 5V                | 40 ~ 400mA        | 78%                  | 220μF                    |
| SFTN02N-12            |                              | 15mA          | 105mA     | 12V               | 33 ~ 167mA        | 79%                  | 220μF                    |
| SFTN02N-15            |                              | 15mA          | 104mA     | 15V               | 27 ~ 133mA        | 80%                  | 220μF                    |

| SPECIFICATION               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                    |                                 |                                        |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------|
| INPUT                       | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | L: 4.5 ~ 5.5Vdc<br>M: 10.8 ~ 13.2Vdc<br>N: 21.6 ~ 26.4Vdc                                                                          |                                 |                                        |
|                             | SURGE VOLTAGE (100ms max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5Vin models : 9Vdc<br>12Vin models : 16Vdc<br>24Vin models : 30Vdc                                                                 |                                 |                                        |
|                             | FILTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Internal capacitor                                                                                                                 |                                 |                                        |
|                             | PROTECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Fuse recommended.<br>5Vin models: 800mA Slow-Blow Type<br>12Vin models: 300mA Slow-Blow Type<br>24Vin models: 170mA Slow-Blow Type |                                 |                                        |
|                             | INTERNAL POWER DISSIPATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 500mW                                                                                                                              |                                 |                                        |
|                             | OUTPUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VOLTAGE ACCURACY                                                                                                                   | ±2.0%                           |                                        |
| RATED POWER                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2W                                                                                                                                 |                                 |                                        |
| RIPPLE & NOISE   Note.2     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75mVp-p                                                                                                                            |                                 |                                        |
| LINE REGULATION   Note.3    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.2% for 1% input variation                                                                                                        |                                 |                                        |
| LOAD REGULATION   Note.4    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±8%                                                                                                                                |                                 |                                        |
| SWITCHING FREQUENCY (Typ.)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 100KHz                                                                                                                             |                                 |                                        |
| PROTECTION                  | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Standard model: 0.5 second max.<br>Optional models (SC-suffix): Continuous                                                         |                                 |                                        |
| ENVIRONMENT                 | COOLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Free-air convection                                                                                                                |                                 |                                        |
|                             | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Standard model: -40 ~ +100℃ (Refer to "Derating Curve") ; Optional models (SC-suffix): -40 ~ +105℃                                 |                                 |                                        |
|                             | CASE TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +105℃ max.                                                                                                                         |                                 |                                        |
|                             | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20% ~ 90% RH non-condensing                                                                                                        |                                 |                                        |
|                             | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -55 ~ +125℃, 10 ~ 95% RH non-condensing                                                                                            |                                 |                                        |
|                             | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.03% / °C (0 ~ 90℃)                                                                                                               |                                 |                                        |
|                             | SOLDERING TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.5mm from case of 1 ~ 10sec./240℃ max.                                                                                            |                                 |                                        |
|                             | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                            |                                 |                                        |
| SAFETY & EMC<br>( Note.5,6) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | EAC TP TC 004 approved                                                                                                             |                                 |                                        |
|                             | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P-O/P:3KVDC                                                                                                                      |                                 |                                        |
|                             | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH                                                                                           |                                 |                                        |
|                             | ISOLATION CAPACITANCE (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 80pF                                                                                                                               |                                 |                                        |
|                             | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Parameter                                                                                                                          | Standard                        | Test Level / Note( Note.6)             |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Conducted                                                                                                                          | EN55032(CISPR32)                | N/A                                    |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Radiated                                                                                                                           | EN55032(CISPR32)                | Class A                                |
|                             | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Parameter                                                                                                                          | Standard                        | Test Level / Note                      |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ESD                                                                                                                                | EN61000-4-2                     | Level 3, ±8KV air, Level 2±4KV contact |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Radiated Susceptibility                                                                                                            | EN61000-4-3                     | Level 2, 3V/m                          |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | EFT/Burest                                                                                                                         | EN61000-4-4                     | Level 1, 0.5KV at power                |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Surge                                                                                                                              | EN61000-4-5                     | Level 2, 0.5KV Line-Line               |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Conducted                                                                                                                          | EN61000-4-6                     | Level 2, 3V(e.m.f.)                    |
| Magnetic Field              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | EN61000-4-8                                                                                                                        | Level 1, 1A/m                   |                                        |
| OTHERS                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MTBF                                                                                                                               | 880Khrs min. MIL-HDBK-217F(25℃) |                                        |
|                             | DIMENSION (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 15.24*10.9*7.1mm (0.6*0.43*0.28 inch)                                                                                              |                                 |                                        |
|                             | CASE MATERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Non-Conductive black plastic (UL 94V-0 rated)                                                                                      |                                 |                                        |
|                             | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.2g                                                                                                                               |                                 |                                        |
| NOTE                        | 1.All parameters are specified at normal input(L:5Vdc, M:12Vdc, N:24Vdc), rated load, 25℃ 70% RH ambient.<br>2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf & 47μf capacitor.<br>3.Line regulation is measured from low line to high line at rated load.<br>4.Load regulation is measured from 10% to 100% rated load.<br>5.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.”(as available on http://www.meanwell.com)<br>6.An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.<br>The filter capacitor Power Mate suggest: 470μF/100V.<br>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx |                                                                                                                                    |                                 |                                        |

### ■ Mechanical Specification

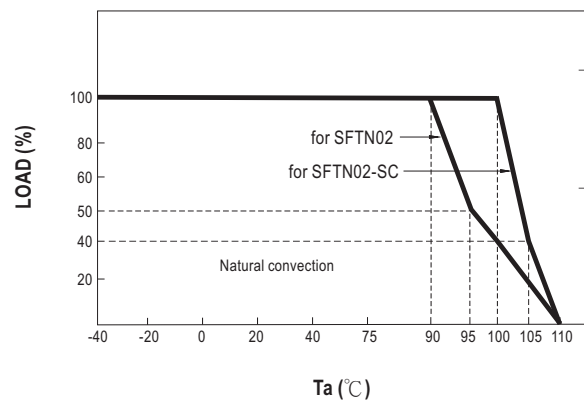
- All dimensions in mm(inch)
- Tolerance:  $x.xx \pm 0.5\text{mm}$  ( $x.xx \pm 0.02"$ )  
 $x.xx \pm 0.25\text{mm}$  ( $x.xxx \pm 0.01"$ )
- Pin size is  $0.50 \times 0.30\text{mm}$  ( $0.02" \times 0.01"$ )
- Pin is Tolerance:  $x.xx \pm 0.07\text{mm}$  ( $x.xxx \pm 0.03"$ )



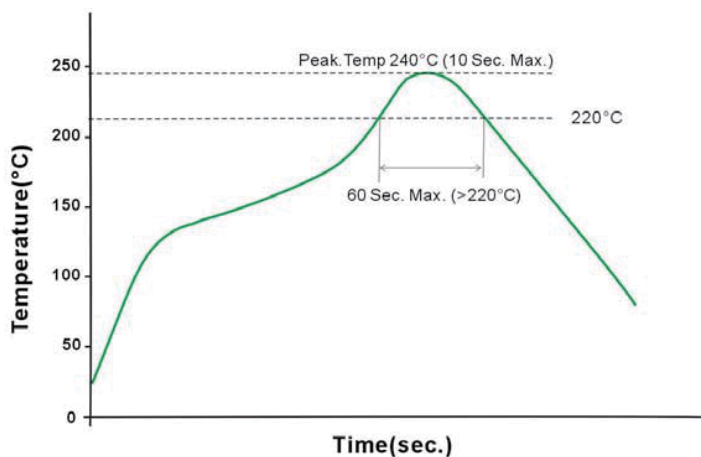
### ■ Plug Assignment

| Pin No.        | Pin-Out |
|----------------|---------|
| 1              | -Vin    |
| 2              | +Vin    |
| 5              | -Vout   |
| 8              | +Vout   |
| 3,6,7,10,11,12 | N.C.    |

### ■ Derating Curve

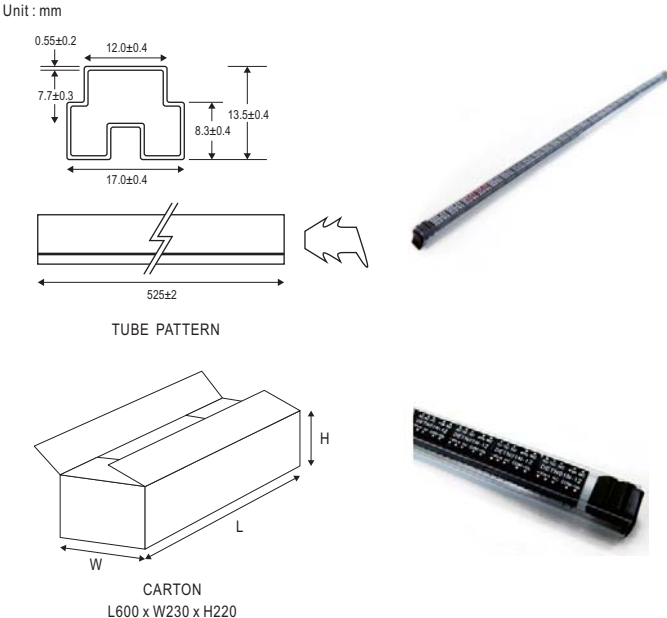
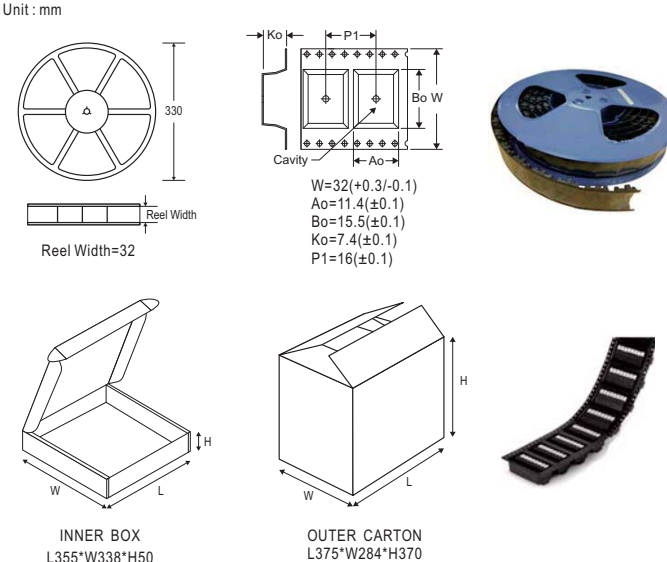


### ■ Reflow Soldering Curve



Remark: The curve applies only to the hot air reflow soldering.

## Packing

| Standard Tube Packing                                                                                                                                                                                                                                                                                                                                                                                                                                 | MPQ<br>Per Tube<br>(PCS) | One Box<br>G.W. | Max. Q'TY/<br>Carton(PCS) | One Carton<br>G.W. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|---------------------------|--------------------|
| <p>Unit : mm</p>  <p>TUBE PATTERN</p> <p>CARTON<br/>L600 x W230 x H220</p>                                                                                                                                                                                                                                                                                          | 32                       | 0.061Kg         | 3840                      | 8.12Kg             |
| Optional Reel Packing                                                                                                                                                                                                                                                                                                                                                                                                                                 | MPQ<br>Per Tube<br>(PCS) | One Box<br>G.W. | Max. Q'TY/<br>Carton(PCS) | One Carton<br>G.W. |
| <p>Unit : mm</p>  <p>Reel Width=32</p> <p>Reel diameter=330</p> <p>Reel width=32</p> <p>Reel dimensions:<br/> <math>W=32(+0.3/-0.1)</math><br/> <math>Ao=11.4(\pm 0.1)</math><br/> <math>Bo=15.5(\pm 0.1)</math><br/> <math>Ko=7.4(\pm 0.1)</math><br/> <math>P1=16(\pm 0.1)</math> </p> <p>INNER BOX<br/>L355*W338*H50</p> <p>OUTER CARTON<br/>L375*W284*H370</p> | 500                      | 1.3Kg           | 2500                      | 7.3Kg              |

## Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>