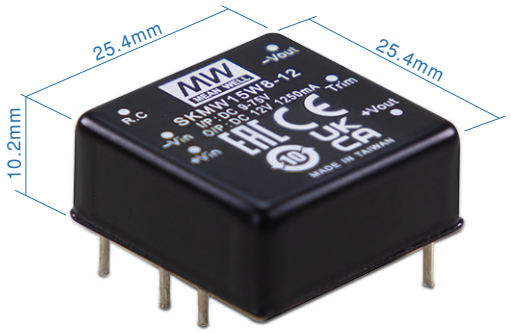
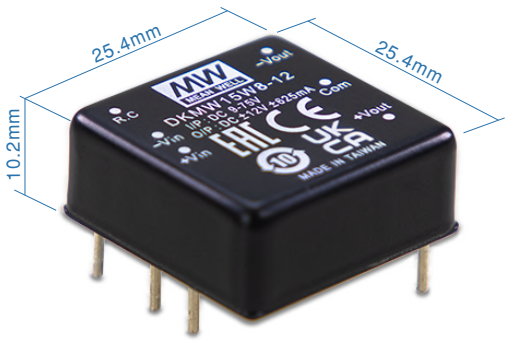
SKMW15W8 & DKMW15W8 series





Automate Industrial Security Network Telecom

Features

- DIP 1"x1" package with industry standard pinout
- 8:1(9~75Vdc) ultra-wide input range
- Operating temperature range -40 ~ +90℃
- No minimum load required
- Comply to BS EN/EN55032 radiated Class A without additional components
- High efficiency up to 88%
- Protections: Short circuit (Continuous) / Overload / Over voltage / UVLO
- 3KVdc I/O isolation
- Remote ON/OFF control
- Triming output (±10%)
- 3 years warranty

Applications

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

GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

SKMW15W8 and DKMW15W8 series are 15W isolated and regulated module type DC-DC converter with DIP 1"x1" package. It features international standard pins, a high efficiency up to 88%, wide working temperature range -40~+90℃, 3KVdc I/P-O/P isolation voltage, compliance to BS EN/EN55032 radiated Class A without additional components, continuous-mode short circuit, overload, over voltage, input under voltage protection etc. The models account for 9~75Vdc 8:1 ultra-wide input range, and various output voltage, 3.3V/5V/12V/15V/24V for single output and ±5V/±12V/±15V for dual outputs, which are suitable for all kinds of systems, such as industrial control, telecommunication field, distributed power architecture, and so on.

Model Encoding

S KMW15 W8 – 12

- 12 → Output voltage (3.3/5/12/15/24Vdc，±5/±12/±15Vdc)
- W8 → 8:1(9~75Vdc) Wide input voltage
- 15 → Rated wattage
- S → Series name { S:Single output / D:Dual output

MODEL SELECTION TABLE

ORDER NO.	INPUT			OUTPUT		EFFICIENCY (TYP.)	CAPACITOR LOAD (MAX.)
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT		
		NO LOAD	FULL LOAD				
SKMW15W8-03	Nominal 12V, 24V,36V,48V,72V (9 ~ 75V)	5mA	485mA	3.3V	0~3000mA	85%	680μF
SKMW15W8-05		6mA	710mA	5V	0~3000mA	88%	680μF
SKMW15W8-12		7mA	718mA	12V	0~1250mA	87%	330μF
SKMW15W8-15		8mA	710mA	15V	0~1000mA	88%	220μF
SKMW15W8-24		13mA	718mA	24V	0~625mA	86%	100μF
DKMW15W8-05		7mA	744mA	±5V	±0~1500mA	84%	*330μF
DKMW15W8-12		13mA	718mA	±12V	±0~625mA	87%	*150μF
DKMW15W8-15		16mA	710mA	±15V	±0~500mA	87%	*100μF

* For each output

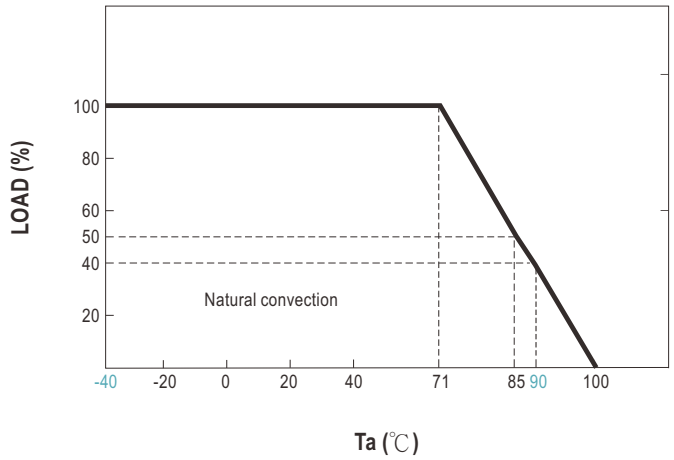
SPECIFICATION

INPUT			
VOLTAGE RANGE	9~75Vdc		
SURGE VOLTAGE (100ms max.)	100Vdc		
FILTER	Pi network		
PROTECTION	Fuse recommended 4A Slow-Blow Type		
OUTPUT			
VOLTAGE ACCURACY	±2%		
RATED POWER	15W		
RIPPLE & NOISE Note.2	100mVp-p for 3.3 ~ 5Vo, 150mVp-p for 12 ~ 24Vo		
LINE REGULATION Note.3	±0.5%		
LOAD REGULATION Note.4	±1% for 3.3Vdc output, ±0.5% for other output		
CROSS REGULATION	±5% @ 25% ~ 100% load only dual output		
SWITCHING FREQUENCY (Typ.)	200KHz (PWM)		
EXTERNAL TRIM ADJ. RANGE (Typ.)	±10% (Single output model only)		
PROTECTION			
SHORT CIRCUIT	Continuous, automatic recovery		
OVERLOAD	110 ~ 200% rated output power		
	Protection type : Recovers automatically after fault condition is removed		
OVER VOLTAGE	Clamp by TVS diode		
UNDER VOLTAGE LOCKOUT (Typ.)	Start-up voltage: 8.8Vdc		
	Shutdown voltage: 8Vdc		
FUNCTION			
REMOTE CONTROL	Power ON: R.C. ~ -Vin >2.5~30Vdc or open circuit ; Power OFF: R.C. ~ -Vin <1Vdc or short		
ENVIRONMENT			
COOLING	Free-air convection		
WORKING TEMP.	-40 ~ +90℃ (Refer to "Derating Curve")		
CASE TEMPERATURE	+110℃ max.		
WORKING HUMIDITY	5% ~ 95% RH non-condensing		
STORAGE TEMP., HUMIDITY	-55 ~ +125℃, 10 ~ 95% RH non-condensing		
TEMP. COEFFICIENT	±0.03% / ℃ (0 ~ 71℃)		
SOLDERING TEMPERATURE	1.5mm from case of 3 ~ 5 sec./265℃ max.		
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes		
SAFETY & EMC (Note.5)			
SAFETY STANDARDS	EAC TP TC 020/2011 approved		
WITHSTAND VOLTAGE	I/P-O/P:3KVdc		
ISOLATION RESISTANCE	I/P-O/P:1000M Ohms / 500Vdc / 25℃/ 70% RH		
ISOLATION CAPACITANCE (Typ.)	1200pF		
EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**
	Conducted	BS EN/EN55032(CISPR32)	N/A
	Radiated	BS EN/EN55032(CISPR32)	Class A without additional components Class B with additional components
EMC IMMUNITY	**Parameter**	**Standard**	**Test Level / Note**
	ESD	BS EN/EN61000-4-2	Level 2, ±4KV contact
	Radiated Susceptibility	BS EN/EN61000-4-3	Level 2, 3V/m
	EFT/Bursts	BS EN/EN61000-4-4	Level 1, ±0.5KV
	Surge	BS EN/EN61000-4-5	Level 2, Line-Line±0.5KV
	Conducted	BS EN/EN61000-4-6	Level 2, 3Vrms
	Magnetic Field	BS EN/EN61000-4-8	Level 1, 1A/m
OTHERS			
MTBF	>570Khrs MIL-HDBK-217F(25℃)		
DIMENSION (L*W*H)	**25.4*25.4*10.2mm (1*1*0.4 inch)**		
CASE MATERIAL	Black coated metal with non-conductive base		
PACKING	18g; 10pcs/per tube, 600pcs/60 tube/per carton		

NOTE

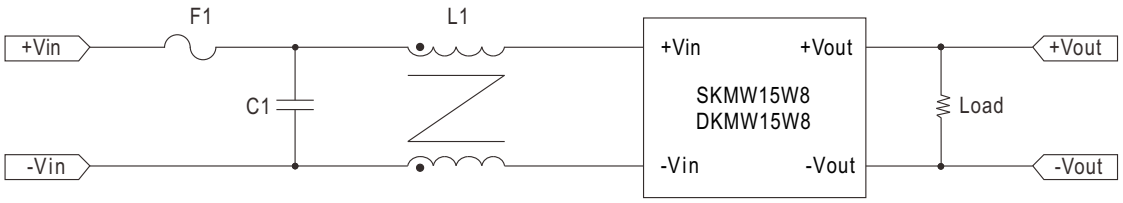
1.All parameters are specified at normal input (24Vdc), rated load, 25℃ 70% RH ambient.
2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf & 47μf capacitor.
3.Line regulation is measured from low line to high line at rated load.
4.Load regulation is measured from 0% to 100% rated load.
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)
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ Derating Curve



■ EMC Suggest Circuit

※ Required external componets to meet BS EN/EN55032 radiated Class B emission as below:



Model No.	BS EN/EN55032 radiated Class B		
	F1	C1	L1
SKMW15W8 DKMW15W8	Suggest 4A Slow-Blow Type	2.2μF/100V MLCC	500μH Common Choke

■ External Output Trimming

In order to trim the voltage up or down one needs to connect the trim resistor either between the trim pin and -Vo for trim-up and between trim pin and +Vo for trim-down. This is shown in Figures 1 and 2:

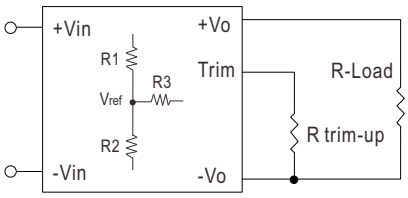


Figure 1. Trim-up Voltage Setup

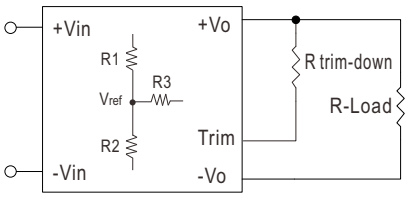


Figure 2. Trim-down Voltage Setup

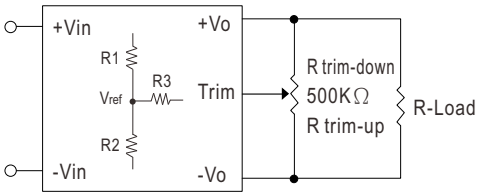


Figure 3. Trim-Connections

Table 1 – Trim up and Trim down Resistor Values

Model Number	Output Voltage(V)	R1 (KΩ)	R2 (KΩ)	R3 (KΩ)	Vref
SKMW15W8-03	3.3	2.43	1.47	7.5	1.24
SKMW15W8-05	5	1	1	4.3	2.5
SKMW15W8-12	12	3.83	1	7.5	2.5
SKMW15W8-15	15	7.5	1.5	11	2.5

1. The value of Rtrim-up defined as:

$A=[Vref/(V_o'-Vref)]*R1$

$R_{trim-up}=[(A*R2)/(R2-A)]-R3$

Where

$R_{trim-up}$ is the external resistor in Kohm.

V_o, nom is the nominal output voltage.

V_o' is the desired output voltage.

R1, R2, R3 and V_{ref} are internal to the unit and defined in Table 1.

For example, to trim-up the output voltage of 12V model (SKMW15W8-12) by 10% to 13.2V, $R_{trim-up}$ is calculated as follows:

$V_o' - V_{o,nom} = 13.2V - 12V = 1.2V$

R1 = 3.83 KΩ

R2 = 1 KΩ

R3 = 7.5 KΩ

Vref = 2.5V

$A=[Vref/(V_o'-Vref)]*R1$

$= [2.5/(13.2-2.5)]*3.83$

$=0.894$

$R_{trim-up}=[(A*R2)/(R2-A)]-R3$

$=[(0.894*1)/(1-0.894)]-7.5$

$=(0.894/0.106)-7.5$

$=8.433-7.5$

$=0.933K\Omega$

2. The value of Rtrim-down defined as:

$A=[(V_o'-Vref)/Vref] *R2$

$R_{trim-down}=[(A*R1)/(R1-A)]-R3$

Where

$R_{trim-down}$ is the external resistor in Kohm.

V_o, nom is the nominal output voltage.

V_o' is the desired output voltage.

R1, R2, R3 and V_{ref} are internal to the unit and defined in Table 1.

For example, to trim-down the output voltage of 12V model (SKMW15W8-12) by 10% to 10.8V, $R_{trim-down}$ is calculated as follows:

$V_{o,nom} – V_o' =$ 12V – 10.8V = 1.2V

R1 = 3.83 KΩ

R2 = 1 KΩ

R3 = 7.5 KΩ

Vref = 2.5V

$A=[(V_o'-Vref)/Vref] *R2$

$= [(10.8-2.5)/2.5]*1$

$=3.32$

$R_{trim-down}=[(A*R1)/(R1-A)]-R3$

$=[(3.32*3.83)/(3.83-3.32)]-7.5$

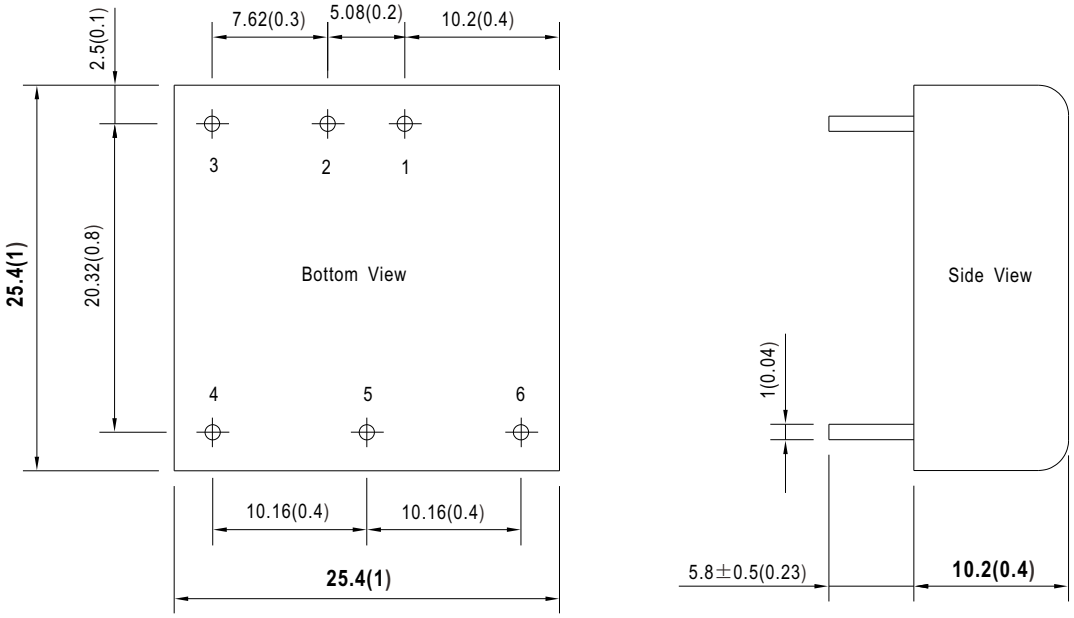
$=(12.715/0.51)-7.5$

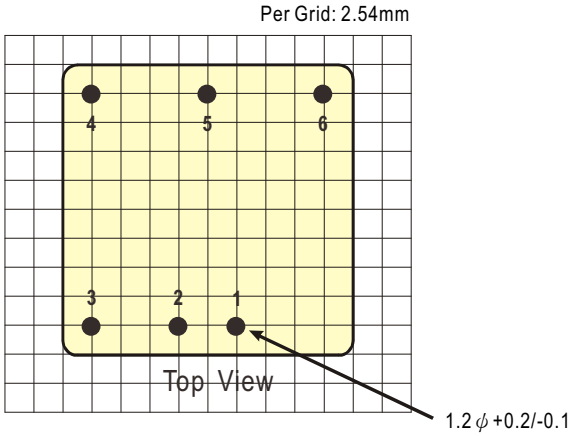
$=24.931-7.5$

$=17.431K\Omega$

■ Mechanical Specification

- All dimensions in mm(inch)
- Tolerance:x.x or x.xx±0.5mm(±0.02")
- Pin size is 1±0.1mm (0.04"±0.004")



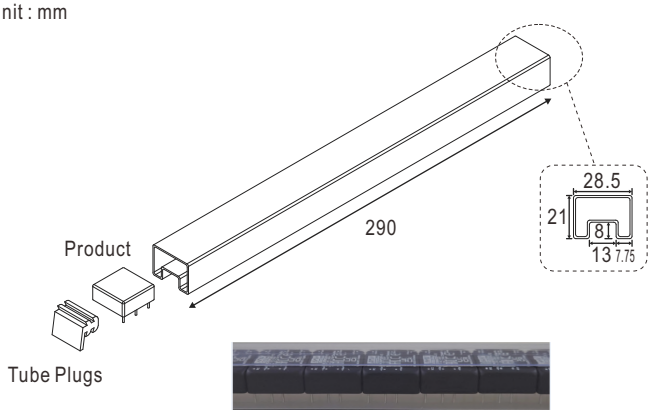
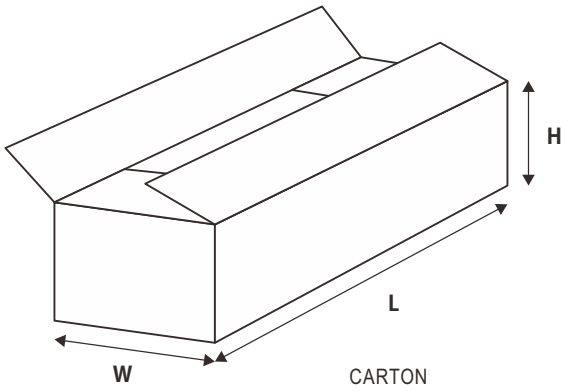


■ Pin Assignment

Pin-Out		
Pin No.	SKMW15W8 (Single output)	DKMW15W8 (Dual output)
1	+Vin	+Vin
2	-Vin	-Vin
3	R.C.	R.C.
4	-Vout	-Vout
5	Trim/N.P.	Common
6	+Vout	+Vout

***N.P.: No pin (For 24V output only)**

■ Packing

Standard Tube Packing	MPQ Per Tube (PCS)	One Tube G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
Unit : mm  Tube pattern  CARTON L620 x W230 x H230	10	230g	600	14.6Kg

■ Installation Manual

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

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