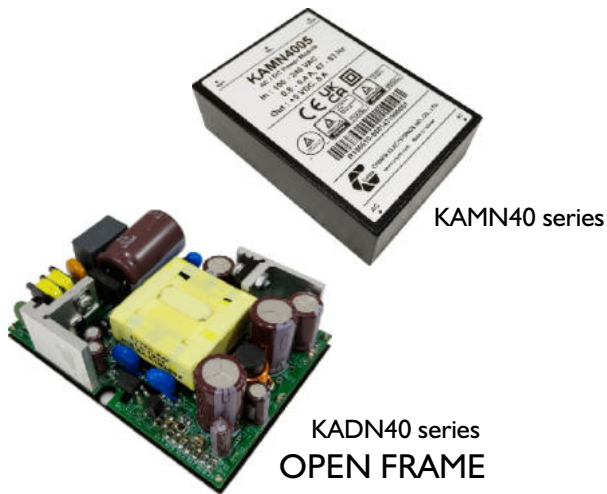


KADN/KAMN40 SERIES



AC - DC POWER MODULE 40W SINGLE & DUAL OUTPUT

FEATURES

- AC/DC POWER MODULE
- UNIVERSAL INPUT 85 ~ 265 VAC
- HIGH EFFICIENCY UP TO 87%
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 3 YEARS WARRANTY
- MEDICAL SAFETY APPROVED
- LOW LEAKAGE CURRENT
- TWO MOPP INSULATIONS



MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
Single Output Models							
KADN/KAMN4005	85 ~ 265 VAC	40 WATTS	+ 5 VDC	8000 mA	80%	82%	7000 μ F
KADN/KAMN4012	85 ~ 265 VAC	40 WATTS	+ 12 VDC	3400 mA	84%	86%	7000 μ F
KADN/KAMN4015	85 ~ 265 VAC	40 WATTS	+ 15 VDC	2700 mA	85%	87%	7000 μ F
KADN/KAMN4024	85 ~ 265 VAC	40 WATTS	+ 24 VDC	1700 mA	85%	87%	3500 μ F

SPECIFICATION

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

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	V_i nom, I_o nom		65		KHz
Isolation voltage	Input - Output	4,236 / 6,000			VAC/VDC
Isolation resistance	Input - Output, @ 500VDC	100			M Ω
Ambient temperature (I)	Operating at V_i nom, I_o nom	-40		+ 71	°C
Case temperature	Operating at V_i nom, I_o nom KAMN40			+ 85	°C
Derating	V_i nom, +61 to + 71°C			2.5	% / °C
Storage temperature	Non operational	-40		+ 100	°C
Relative humidity	V_i nom, I_o nom	20		95	% RH
Temperature coefficient	V_i nom, I_o min			± 0.03	% / °C

NOTE1 : Pls refer to DERATING CURVE.

KADN/KAMN40 SERIES

AC - DC POWER MODULE

SPECIFICATION

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

GENERAL

Characteristics	Conditions		min.	typ.	max.	unit
MTBF	Bellcore issue 6 @40°C, GB	5V		606,000		Hours
		12V		615,000		Hours
		15V & 24V		623,000		Hours
Altitude during operation	EN 62368-1				5,000	m
Dimension	KAMN40		L89 x W63.5 x H25			mm
	KADN40		L85.3 x W60.3 x H24.2			mm
Cooling	Free air convection					

INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Rated input voltage	Io nom		100		240	VAC
Input voltage range	Ta min ... Ta max, Io nom	AC in	85		265	VAC
		DC in	120		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom			0.75 / 0.45		A
Rated input current	Vi : 100 ~ 240 VAC, Io nom				0.8 - 0.4	A
Line frequency (Note 2)	Vi nom, Io nom		47		63	Hz
Inrush current	Vi : 115 / 230 VAC, Io nom				20/40	A
Leakage current (Note 2)	Normal condition				100	μA
	Single fault condition				300	μA

NOTE 2 : The unit can be worked at 440 Hz of line frequency but the leakage current would be 600μA max. , and output load should be derated under 90%

OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom				± 1	%
Minimum load	Vi nom		0			%
Line regulation	Io nom, Vi min ... Vi max				± 1	%
Load regulation	Vi nom, Io min ... Io nom				± 1	%
Hold up time	Vi : 115 / 230 VAC, Io nom		20 / 100			ms
Turn on time	Vi nom, Io nom				1,000	ms
Rise time	Vi nom, Io nom				150	ms
Fall time	Vi nom, Io nom				150	ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom				1	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz				100	mV
External trim ADJ. Range (Note 3)	Io = 5% ... 100%		-10		+10	%
Efficiency	Vi nom, Io nom, Po / Pi		Up to 87%, See model list and typ efficiency curve			

NOTE 3 : Pls refer to Fig 1 & Table 1 for connection and resistance recommended.

CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T2A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Output short circuit		Hiccup mode			
Rated over load protection	Vi nom (see typ current limited curve)	120			%

SPECIFICATION

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

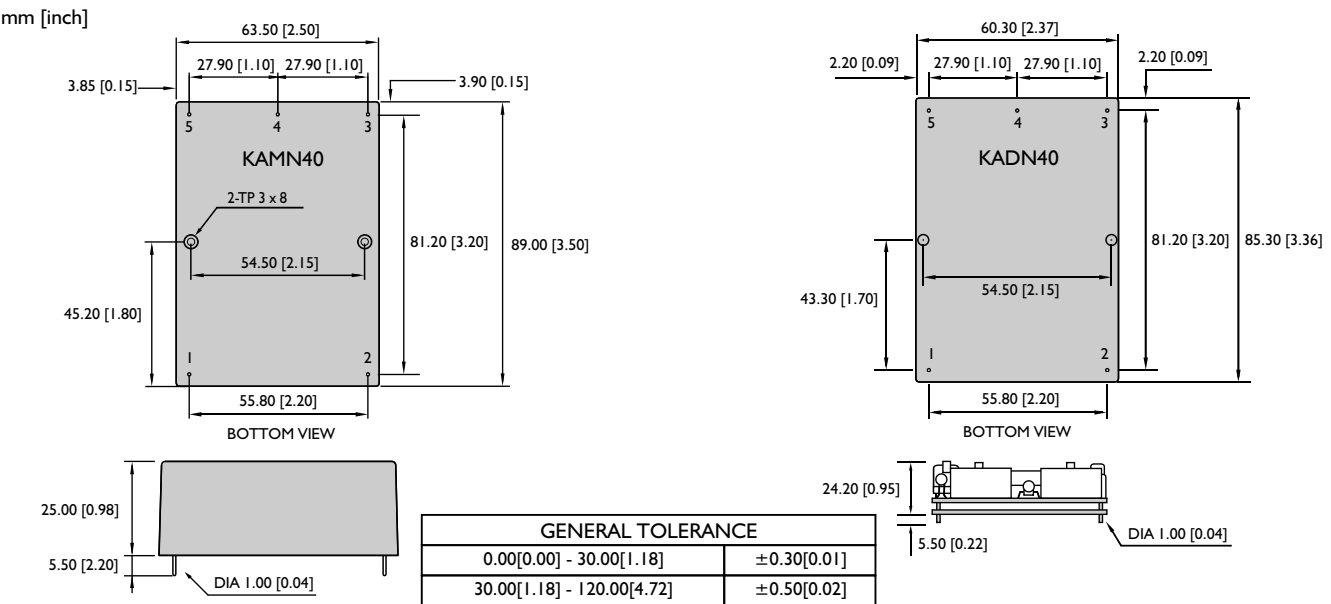
APPROVALS AND STANDARDS

TUV	EN 62368-1, EN 60601-1
cTUVus	UL 62368-1, ANSI / AAMI ES 60601-1
CE	EN 60601-1-2, EN 61000-6-3, EN 55032 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5 EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 61204-3, CISPR 11
Vibration resistance	meet IEC 60068-2-6 (10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 axes, 6 Faces, 3 times for each Face)

PHYSICAL CHARACTERISTICS

Case size	KAMN40 : 89 x 63.5 x 25mm (3.5 x 2.5 x 0.98 inches)	KADN40 : 85.3 x 60.3 x 24.2mm (3.36 x 2.37 x 0.95 inches)
Case material	Plastic case / PCB base	
Weight	KAMN40 : 250g	KADN40 : 130g
Potting material	KAMN40 : Epoxy	

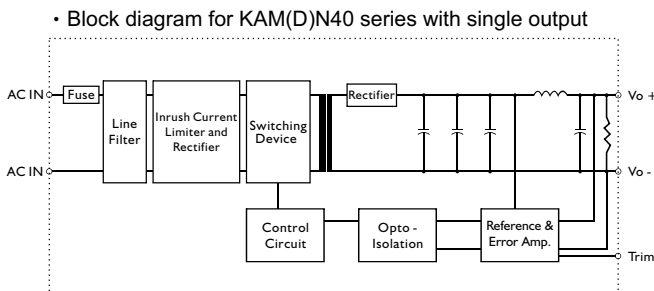
MECHANISM & PIN CONFIGURATION



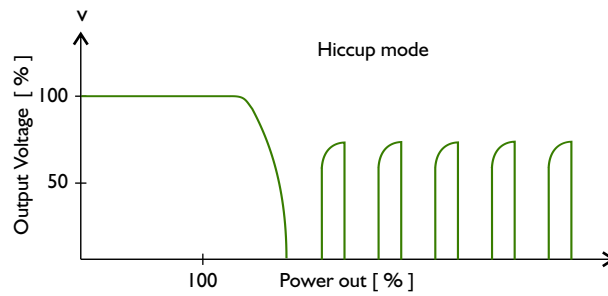
PIN ASSIGNMENT

GENERAL					
PIN NO.	1	2	3	4	5
SINGLE	AC IN	AC IN	Vo +	Vo -	Trim

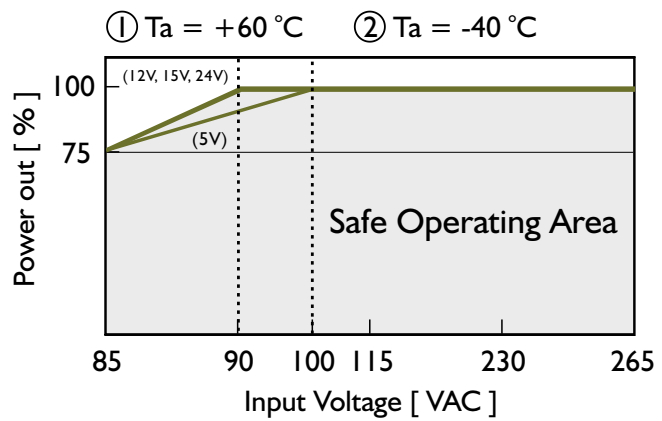
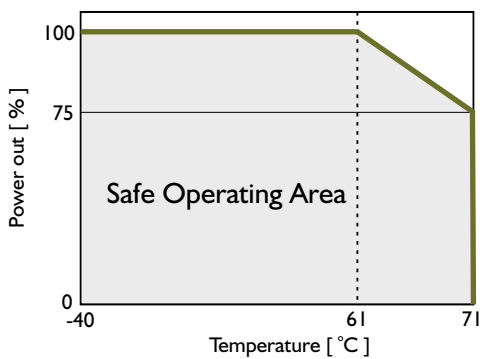
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

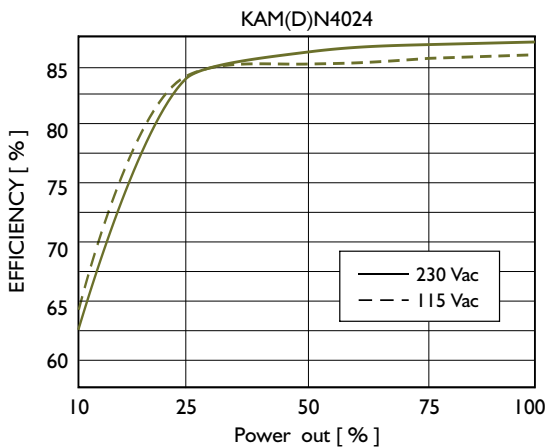


Fig. 1 Trim connection

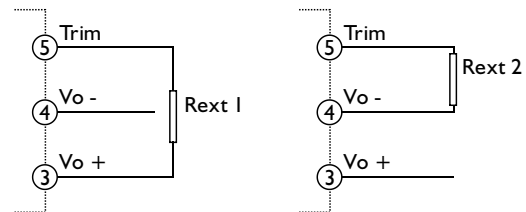


Table 1 Typical resistor values for various output voltage adjustment settings and max continuous power

Type	Rext 1		Rext 2		Max continuous power
	Vo nom -5%	Vo nom -10%	Vo nom +5%	Vo nom +10%	
KAM(D)N4005	5.1KΩ	1KΩ	6.8KΩ	2KΩ	40 W
KAM(D)N4012	39KΩ	20KΩ	10KΩ	0Ω	40.8 W
KAM(D)N4015	180KΩ	56KΩ	30KΩ	5.1KΩ	40.5 W
KAM(D)N4024	150KΩ	51KΩ	8.2KΩ	0Ω	40.8 W