

FEATURES

- Full load power: -40°C to +60°C
- Reduced load rating to 90°C
- OVC III up to 5000m and LPS
- **Industry standard pinning [P12]**
- Meets EN55032 "B" in PELV configuration
- Medical; household & industrial standard
- 2.0" x 1.5" encapsulated modules THT or Wired
- 3.0" x 1.5" Open Frame card
- Panel Mount and DIN-Rail Clip option
- 3 years warranty



APPLICATIONS















Reach













RoHS²











DESCRIPTION

RACM30-K/277 AC/DC modules provide a leading thermally effective Power yield of 9.2 Watts per inch³ at 60°C still air for continuous loads of 30 Watts plus additional peak capability. These Modules operate in a temperature range of -40° to 90°C in compliance with safety standards of medical MOPP, household-, industrial, and measurement markets. Safety reports rate the series as LPS limited power source and OVCIII for an operating altitude of up to 5000m. A comfortable margin to EMI Class B limits, even with outputs connected to the ground, ease system implementation for quick time-to-market without additional external circuitry such as fuses or filters. For designers, maximum flexibility for these encapsulated, solder-mountable modules is pinto-pin compatible with the well-established series RAC20-K. Further mechanical derivatives are potted modules with wires or a panel mount option with spring-clamp connectors which is convertible to DIN-Rail mounting via available RECOM Clip accessory.

SELECTION GUIDE					
Part Number	Input Voltage Range [VAC]	Output Voltage nom. [VDC]	Output Current max. [mA]	Efficiency typ. ⁽¹⁾ [%]	Max. Capacitive Load ⁽²⁾ [μF]
RACM30-05SK/277	85-305	5	6000	86	10000
RACM30-12SK/277	85-305	12	2500	90	10000
RACM30-15SK/277	85-305	15	2000	90	10000
RACM30-24SK/277	85-305	24	1250	89	8000
RACM30-12DK/277	85-305	±12	±1250	86	±8000
RACM30-15DK/277	85-305	±15	±1000	86	±8000

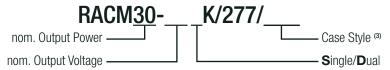
Note1: Efficiency is tested at nominal input (230VAC) and full load at +25°C ambient

Note2: Measured @ T_{AMB}= 25C°, nom. V_{IN}, full load and after warm-up unless otherwise stated



ACCESSIBLE PART		
Part Number	Description	Datasheet Link
R-DR/Clip	Din Rail mounting clip	R-DR/CLIP.pdf

MODEL NUMBERING



Note3: "/277" only = THT printmount, encapsulated, potted

add suffix "/PMP" = panel mount version with push-in terminals add suffix "/PMA" = panel mount version with 45° angled push-in terminal add suffix "/W" for wired version (single output only), encapsulated, potted

add suffix "/OF" = standard 38.1mm x 76.2mm (1.5"x3") open frame version with header connectors

Note4: For other case/connection/footprint options, please contact RECOM Tech-Support.

ORDERING INFORMATION								
Model	nom. Output	Single/Dual		Package Type Suffix				
MOUGI	Voltage	Sirigie/Duai	"THT printmount"	"/PMP"	"/PMA"	"/W"	"/OF"	
RACM30-05SK/277	5	Single	X	Χ	coming soon	Χ	Х	
RACM30-12SK/277	12	Single	Х	Х	coming soon	Х	Х	
RACM30-15SK/277	15	Single	Х	N/A	Х	Х	Х	
RACM30-24SK/277	24	Single	Х	Х	coming soon	Х	Х	
RACM30-12DK/277	±12	Dual	Х	N/A	N/A	N/A	Х	
RACM30-15DK/277	±15	Dual	Х	N/A	N/A	N/A	Х	

x= standard portfolio / on request= MOQ may apply on project base / N/A= not available

Parameter		Min.	Тур.	Max.	
Nominal Input Voltage		50/60Hz	100VAC		277VAC
On susting Days (5)		47-63Hz	85VAC	230VAC	305VAC
Operating Range (5)		DC	120VDC		430VDC
		115VAC			650mA
Input Current		230VAC			350mA
		277VAC 115VAC			300mA
		115VAC			20A
Inrush Current	cold start at 25°C	230VAC			30A
		277VAC			36A
No Load Power Consumption		230VAC			100mW
	V _{IN} =230VAC	P _{IN} = 0.3W			0.22W
Ecodesign Standby Mode Use		P _{IN} = 0.5W			0.39W
(Available output power for stated input power)		P _{IN} = 1W			0.79W
Input Frequency Range			47Hz		63Hz
Minimum Load			0%		
	115VAC			0.6	
Power Factor		230VAC		0.5	
			0.45		
Start-up time					150ms
Rise time					30ms
Hold-up time		230VAC	50ms		
Internal Operating Frequency	1	00% load at nominal V _{IN}			100kHz
Output Ripple and Noise (6)		20MHz BW			100mVp-j

Note5: The products were submitted for safety files at AC-Input operation, and to IEC/EN61010-1 for DC-operation

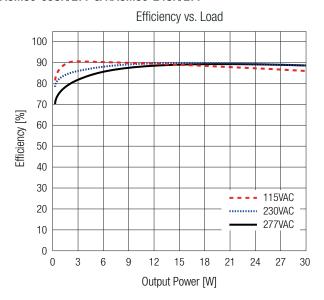
Note6: Measurements are made with a 0.1µF MLCC & 10µF E-cap in parallel across output. (low ESR)

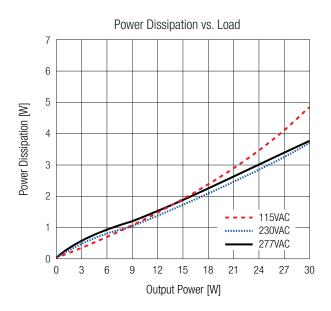
30W / Universal Input 100V - 277VAC



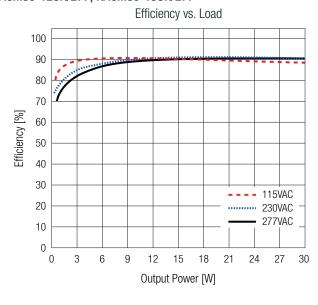
BASIC CHARACTERISTICS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

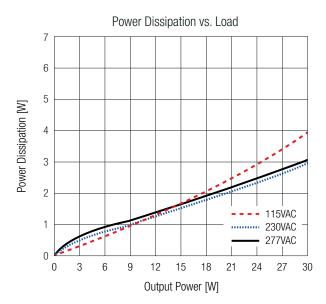
RACM30-05SK/277 & RACM30-24SK/277



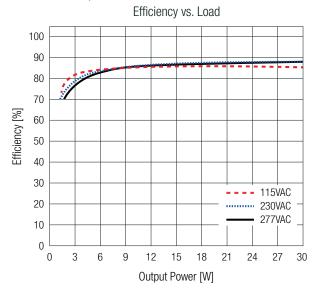


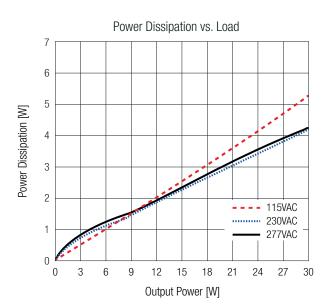
RACM30-12SK/277; RACM30-15SK/277





RACM30-12DK/277; RACM30-15DK/277





Rev. 2-2023



REGULATIONS (measured @ T _{AMB} = 25°C, nom. V _{IN} , full load and after warm-up unless otherwise stated)				
Parameter	Co	ndition	Value	
Output Accuracy	sing	le output	±2.0% typ.	
Output Accuracy	dua	ıl output	±3.0% typ.	
Line Degulation	low line to high line	5V _{out}	±1.0% typ.	
Line Regulation		others	±0.5% typ.	
Load Regulation (7)	100/ to 1000/ load	5V _{out}	3.0% typ.	
Load Regulation 97	10% to 100% load others		1.0% typ.	
Cross Regulation	dual c	dual output only		
Transient Deenenee	25% load	4.0% max.		
Transient Response	reco	very time	500µs typ.	

Note7: Operation below 10% load will not harm the converter, but specifications may not be met

PROTECTIONS (measured @ T _{AMB} = 25°C,	nom. V _{IN} , full load and after warm-up	unless otherw	rise stated)
Parameter	Туре		Value
Input Fuse (8)			T3.15A, slow blow type
Short Circuit Protection (SCP)			hiccup, auto recovery
Over Voltage Protection (OVP)			150% - 195%, hiccup mode
Over Current Protection (OCP)			<180%, hiccup mode
Over Veltage Category (OVO)	"/THT printmount"; "/W"; "/PM	P"; "/PMA"	OVCIII (5000m)
Over Voltage Category (OVC)	"/OF"		OVCIII (3000m) / OVCII (5000m)
DC ON LED	only for "/PMP" and "/P	MA"	green
Class of Equipment			Class II
Isolation Voltage (9)	I/P to O/P, I/P to case, O/P to case	1 minute	4kVAC
Isolation Resistance	$V_{ISO} = 500VDC$		1GΩ min.
Isolation Capacitance	I/P to O/P, 100kHz/0.	1V	100pF max.
Insulation Grade	I/P to O/P		reinforced
Means of Protection	I/P to O/P		2MOPP
Medical Device Classification	built-in power suppl	У	BF ready
Touch Current			100μA max.

Note8: For system integration with DC operation, consider a suitable DC fuse in front of the input Note9: For repeat Hi-Pot testing, reduce the time and/or the test voltage

ENVIRONMENTAL (measured @ T _{AMB} = 25°C, nom. V _{IN} , full load and after warm-up unless otherwise stated)					
Parameter	Condition		Value		
Operating Ambient Temperature Range	@ natural convection (0.1m/s)	refer to "Derating Graph"	-40°C to +90°C		
Maximum Case Temperature			+110°C		
Temperature Coefficient			0.02%/K		
Operating Altitude (10)	according to 6236	8-1, 60601-1, 61558	5000m		
Operating Humidity	non-co	90% RH max.			
Pollution Degree	"/THT printmount";	PD3			
3	и	PD2			
	according to MIL-STD-202G		10-500Hz, 2G 10min./1cycle, period 60min. each along x,y,z axes		
Vibration		according to IEC 60068-2-27	3 axis, 40 g half sine, 11 ms shock		
	"/THT printmount" types only	according to IEC 60068-2-65	5-500Hz, 20m/s², 1 Oct/min, 15min		
		according to IEC 60068-2-64	10-500Hz; RMS 23,4m/s ² ; 15min		



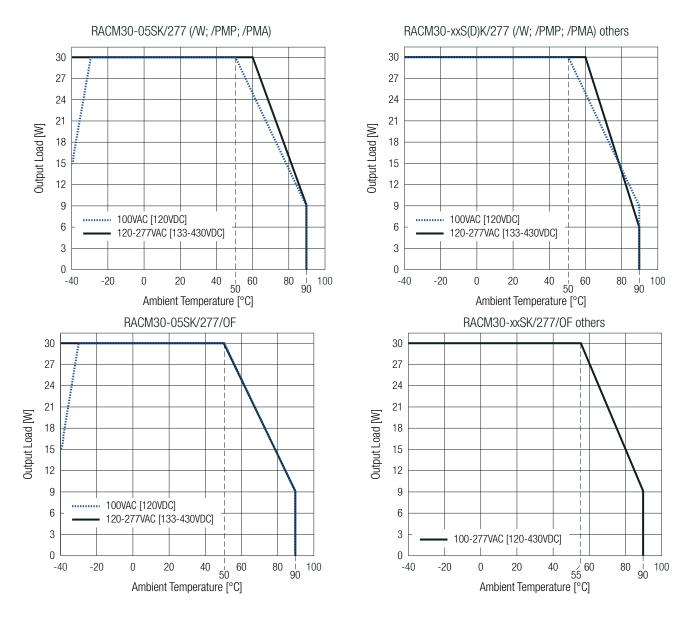


ENVIRONMENTAL (measured @ T _{AMB} = 25°C, nom. V _{IN} , full load and after warm-up unless otherwise stated)							
Parameter		Con	dition			Value	
	according to MIL-HDBK-217, G.B.		"/THT printmount"; "/W"; "/ PMP"; "/PMA"		+25°C	>1357 x 10 ³ hours	
MTBF					+40°C	>1096 x 10 ³ hours	
WITE			"/OF"		+25°C	>1115 x 10 ³ hours	
					+40°C	>873 x 10 ³ hours	
	230VAC/50Hz and full load	"/THT printmount"; "/W"; "/PMP"; "/PMA"	'	oingle output	5V _{out}	+45°C	>30 x 10 ³ hours
				single output	others	+50°C	>30 X 10°110u18
Design Lifetime			,		+40°C	>30 x 10 ³ hours	
					+50°C	>17 x 10 ³ hours	
			"/0F"		+50°C	>30 x 10 ³ hours	

Note10: Recognized by safety agency for safe operation up to 5000m. High altitude operation may impact the performance and lifetime.

Derating Graph

(@ Chamber and natural convection 0.1m/s)



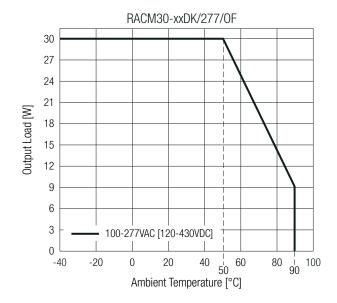
30W / Universal Input 100V - 277VAC



Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Derating Graph

(@ Chamber and natural convection 0.1m/s)



PEAK LOAD CAPABILITY (SINGLE OUTPUT ONLY)

Calculation:

P_{P}	= peak output power	[W]
P_r	= recovery output power	[W]
t_1	= peak time set (10s max.)	[s]
t	= recovery time (min 5 x t)	[2]

= safety fact

tor 1.1	
+ t ₂) -	$(P_P \times t_1)$

Maximum Peak Power

maximum rount round						
nom. V_{OUT} = 5VDC	nom. V_{OUT} = 15VDC					
nom. V_{OUT} = 12VDC	nom. V_{OUT} = 24VDC					
33W	36W					

Practical Example (RACM30-24SK/277):

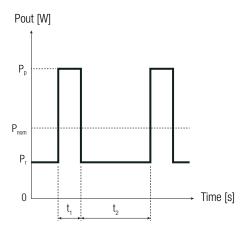
Take the RACM30-24SK/277 at 230VAC input and full load at T_{AMB} = 25°C, with natural convection.

[]

$$P_{P} = 36W$$

 $t_{1} = 10s$
 $t_{2} = 50s$
 $k = 1.1$

$$P_{r} = \frac{30 \times (10 + 50) - (36 \times 10)}{50 \times 1.1} = 26.2W$$



SAFETY & CERTIFICATIONS		
Certificate Type (Safety)	Report Number	Standard
Audio/Video, information and communication technology equipment - Part1: Safety requirements	64.210.22.02737.01	EN62368-1:2014+A11:2017 (2nd Edition)
	085-220273601-100	
Audio/Video, information and communication technology equipment - Safety requirements (CB)	(/THT printmount and open	IEC62368-1:2018 (3rd Edition)
	frame /OF only)	
Audio/Video, information and communication technology equipment - Safety requirements (LVD)	64.210.22.02737.02	EN62368-1:2020+A11:2020 (3rd Edition)
Additional and communication technology equipment - Safety requirements (LVD)	(except open frame /OF)	EN02300-1.2020+A11.2020 (Sid Edition)
Floatrical Equipment For Macourement Control and Laboratory Lloss Part 1: Conoral Paguirements (CD)	085-220277601-000	IEC61010-1:2010+A1:2016 3rd Edition with
Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements (CB)	(/OF models pending)	IEC61010-2-201:2017
Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements (LVD)	64.240.22.02776.01	EN61010-1:2010+A1:2019 with
Lieutical Equipment for Measurement, Control, and Laboratory Ose, Part 1. General nequirements (LVD)	(/OF models pending)	EN IEC 61010-2-201:2018
Medical electrical equipment Part 1: General requirements for basic safety and essential performance (CB)	- 22SBDS06094-02771	IEC60601-1:2005+AM1:2012 3rd Edition
Medical electrical equipment Part 1: General requirements for basic safety and essential performance (LVD)	22300300094-02771	EN60601-1:2006+A1:2013+AC:2014
Madical electrical equipment Port 1. Congrel requirements for begin agents and acceptial performance	F21 400E	ANSI/AAMI ES60601-1:2005+A2:2010/(R)2012
Medical electrical equipment Part 1: General requirements for basic safety and essential performance	E314885	CAN/CSA-C22.2 No. 60601-1:14 3rd Edition



SAFETY & CERTIFICATIONS		
Certificate Type (Safety)	Report Number	Standard
Household and similar electrical appliances – Safety – Part 1: General requirements (CB)		IEC60335-1:2010+C1:2016 5th Edition
Household and similar electrical appliances – Safety – Part 1: General requirements (LVD)	64.260.22.02739.01	EN60335-1:2012+A2:2019+A15:2021
Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	0+1200.22.02100101	EN62233:2008
Safety of power transformers, power supplies, reactors & similar products for supply voltages up to 1100V		IEC61558-1:2017 3rd Edition
Safety of power transformers, power supplies, reactors & similar products for supply voltages up to 1100V Part 2: Particular requirements	085-220273801-000	IEC61558-2-16:2009+A1:2013 1st Edition
Safety of power transformers, power supplies, reactors & similar products for supply voltages up to 1100V		EN IEC 61558-1:2019
Safety of power transformers, power supplies, reactors & similar products for supply voltages up to 1100V Part 2: Particular requirements	64.250.22.02738.01	EN61558-2-16:2009+A1:2013
RoHS2		RoHS-2011/65/EU + AM-2015/863

EMC Compliance according to EN60601-1-2	Condition	Standard / Criterion
Medical electrical equipment Part 1-2: General requirements for basic safety and essential performance		EN60601-1-2:2015+A1:2021, Class B
ESD Electrostatic discharge immunity test	Air: ±2, 4, 8, 15kV Contact ±8kV	EN61000-4-2:2008 IEC61000-4-2:2009
Radiated, radio-frequency, electromagnetic field immunity test	10V/m (80-2700MHz); table 9	IEC/EN61000-4-3:2006 + A2:2010
Fast Transient and Burst Immunity	L-N: ±2kV	IEC/EN61000-4-4:2012
Surge Immunity	L-N: ±0.5, 1, 2kV	IEC/EN61000-4-5:2014 + A1:2017
Immunity to conducted disturbances, induced by radio-frequency fields	3Vrms (0.15-80MHz); 6Vrms (ISM and amateur radio bands within 0.15-80MHz)	IEC61000-4-6:2013 EN61000-4-6:2014
Power Magnetic Field Immunity	30A/m	EN61000-4-8:2010
Voltage Dips and Interruptions	Dips: 100% (0.5P, 1.0P); 30% (25P/30P) Interruption: 100% (250P/300P)	EN61000-4-11:2004 + A1:2017

SAFETY & CERTIFICATIONS		
EMC Compliance according to EN35032/EN35035	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment – Emission Requirements		EN55032:2015, Class B
Electromagnetic compatibility of multimedia equipment – Immunity requirements		EN55035:2017+A11:2020
Radiated, radio-frequency, electromagnetic field immunity test	3V/m (1800, 2600, 3500, 5000MHz)	IEC/EN61000-4-3:2006 + A2:2010, Criteria A
Fast Transient and Burst Immunity	L, N, L-N: 2kV DC load line: 0.5kV	IEC/EN61000-4-4:2012, Criteria A
EMC Compliance according to EN IEC61204-1	Condition	Standard / Criterion
Low voltage power supplies, d.c. output Part 3: Electromagnetic compatibility		EN IEC 61204-3:2018
ESD Electrostatic discharge immunity test	Air: ±2, 4, 8kV Contact ±4kV	EN61000-4-2:2008, Criteria A IEC61000-4-2:2009, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	10V/m (80-1000MHz); 3V/m (1400-2000MHz); 1V/m (2000-2700MHz)	IEC/EN61000-4-3:2006+A2:2010, Criteria A
Fast Transient and Burst Immunity	L-N: ±2kV	IEC/EN61000-4-4:2012, Criteria B
Surge Immunity	L-N: ±0.5, 1, 2kV	IEC/EN61000-4-5:2014+A1:2017, Criteria A
Immunity to conducted disturbances, induced by radio-frequency fields	10Vrms (0.15-80MHz)	IEC61000-4-6:2013, Criteria A EN61000-4-6:2014, Criteria A
Power Magnetic Field Immunity	30A/m	IEC61000-4-8:2009, Criteria A EN61000-4-8:2010, Criteria A



SAFETY & CERTIFICATIONS		
Voltage Dips	100% (0.5P, 1.0P); 20% (250P/300P); 30% (25P/30P)	IEC/EN61000-4-11:2004 + A1:2017, Criteria A
Voltage Interruptions	100% (250P/300P)	IEC/EN61000-4-11:2004 + A1:2017, Criteria B
Limits of Harmonic Current Emissions	N/A (<75W)	EN IEC 61000-3-2:2019
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013+A1:2019
EMC Compliance according to EN55014-1/EN55014-2	Condition	Standard / Criterion
EMC Compliance according to EN55014-1/EN55014-2 Electromagnetic compatibility of household appliances, electric tools and similar apparatus - Emission Requirements	Condition	Standard / Criterion EN55014-1:2006 + A2:2011
Electromagnetic compatibility of household appliances, electric tools and similar	Condition	

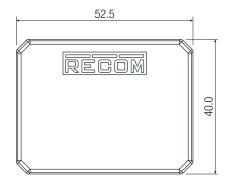
Parameter	Туре	Value
	case/baseplate	plastic, (UL94-V0)
Materials	potting	PU, (UL94-V0)
	PCB	FR4, (UL94-V0)
Dimension (LxWxH)	"/THT printmount"; "/W"	52.5 x 40.0 x 25.5mm 2.0 x 1.5 x 1.0 inch
	"/PMP"; "/PMA"	84.7 x 40.0 x 33.0mm 3.3 x 1.5 x 1.3 inch
	"/OF" Single output; "/OF" Dual output	76.2 x 38.1 x 25.0mm 3.0 x 1.5 x 0.98 inch
Weight	"/THT printmount"	93g / 0.21 lbs
	"/PMP"; "/PMA"	122g / 0.27 lbs
	"/W" type including wires	98g / 0.22 lbs
	"/0F"	49g / 0.11 lbs

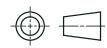
30W / Universal Input 100V - 277VAC



DIMENSION & PHYSICAL CHARACTERISTICS

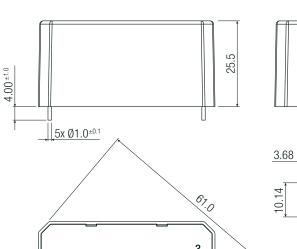
Dimension Drawing "THT printmount" version SINGLE and DUAL Output (mm)



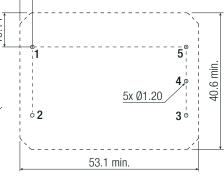




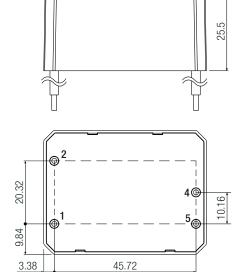
Pin #	Single	Dual
1	VAC in (N)	VAC in (N)
2	VAC in (L)	VAC in (L)
3	no pin	-Vout
4	-Vout	Com
5	+Vout	+Vout

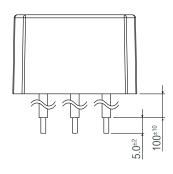






Dimension Drawing Wired version "/W" SINGLE Output (mm)





Wire information

#	Function	Wire color	Type	AWG
1	VAC in (N)	blue	UL-1015	18
2	VAC in (L)	brown	UL-1015	18
4	-Vout	black	UL-1015	18
5	+Vout	red	UL-1015	18

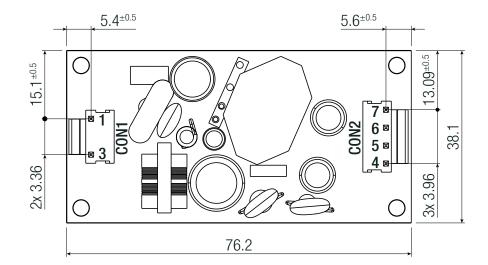
Tolerance: $x.x=\pm0.5$ mm $x.xx=\pm0.25$ mm

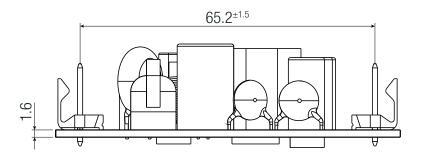
30W / Universal Input 100V - 277VAC



DIMENSION & PHYSICAL CHARACTERISTICS

Dimension Drawing Open Frame "/OF" SINGLE Output (mm)

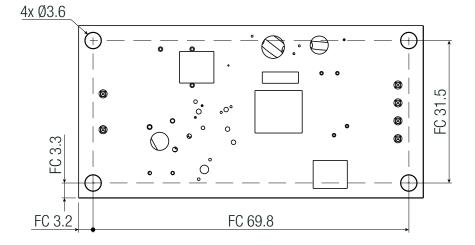




Connector Information - SINGLE

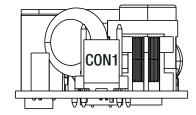
#	Function	Terminal	
	AC Input (CON1)		
1	Vin (L)	Molex 26-62-4030	
3	Vin (N)	(Pin2 removed)	
	DC Output Connector (CON2)		
4, 5	+Vout	Molex 26-60-4040	
6, 7	-Vout	WUURX 20-00-4040	
CC fivin			

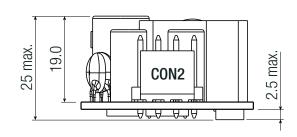
FC= fixing centers



Compatible Connector

Companible Commector	
Housing	
Molex 41695 Series or equivalent	
Crimp Terminal	
Molex 2478 Series or equivalent	





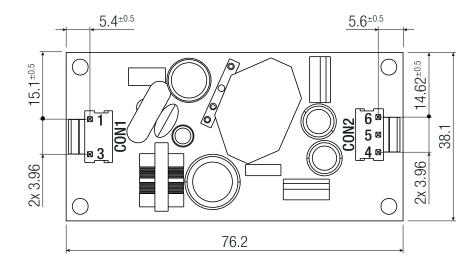
Tolerance: $x.x=\pm0.5$ mm $x.xx=\pm0.25$ mm

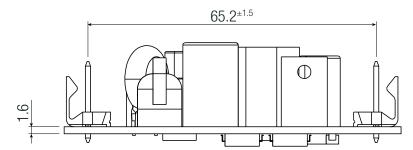
30W / Universal Input 100V - 277VAC



DIMENSION & PHYSICAL CHARACTERISTICS

Dimension Drawing Open Frame "/OF" DUAL Output (mm)

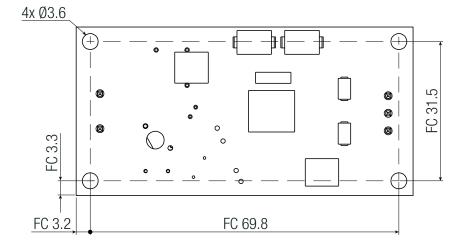




Connector Information - DUAL

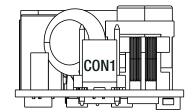
#	Function	Terminal	
	AC Input (CON1)		
1	Vin (L)	Molex 26-62-4030	
3	Vin (N)	(Pin2 removed)	
DC Output Connector (CON2)			
4	+Vout		
5	Com	Molex 26-60-4030	
6	-Vout		

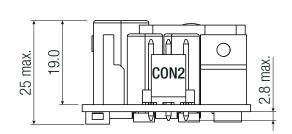
FC= fixing centers



Compatible Connector

•	
Housing	
Molex 41695 Series or equivalent	
Crimp Terminal	
Molex 2478 Series or equivalent	



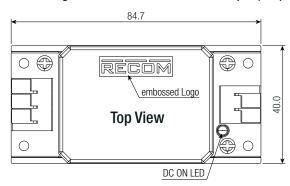


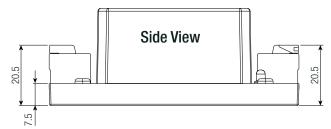
30W / Universal Input 100V - 277VAC



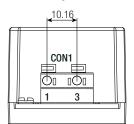
DIMENSION & PHYSICAL CHARACTERISTICS

Dimension Drawing Panel Mount "/PMP" SINGLE Output (mm)

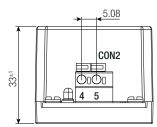




AC Input Side



DC Output Side



Push-In Spring Terminal

#	Function	Pitch	
	AC Input (CON1)		
1	VAC in (L)	10.16mm pitch	
3	VAC in (N)	pin2 removed	
	DC Outp	ut (CON2)	
4	+Vout	2 pins	
5	-Vout	5.08mm pitch	

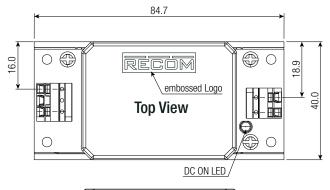
Wire stripping length: 11mm Wire cross section: 22-16AWG (0.2-1.5mm²)

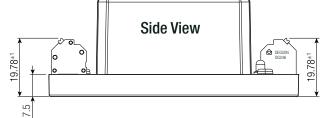
Usable wire cable: Solid and stranded FC= fixing centers

Terminal Information

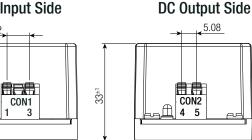
ioiiiiiai iiioiiiiatioii				
AC Input (CON1)				
Degson				
(DG142R-5.08-03P-2Y)				
DC Output (CON2)				
Degson				
(DG142R-5.08-02P-2Y)				

Dimension Drawing Panel Mount "/PMA" SINGLE Output (mm)





AC Input Side



Push-In Spring Terminal

#	Function	Terminal			
AC Input (CON1)					
1	VAC in (L)	7.62mm pitch			
3	VAC in (N)	pin2 removed			
DC Output Connector (CON2)					
4	-Vout	2pins			
5	+Vout	5.08mm pitch			
140					

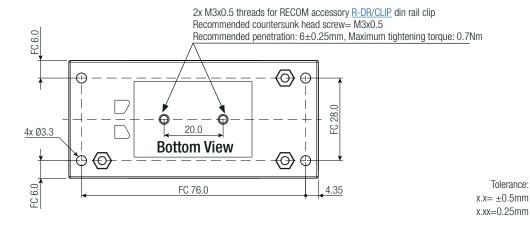
Wire stripping length: 10mm Wire cross section: 22-16AWG (0.2-1.5mm²) Usable wire cable: Solid and stranded

FC= fixing centers

Terminal Information AC Input (CON1)

Degson (DG246-3.81-02P-24) DC Output (CON2)

Degson (DG246-5.08-02P-14)

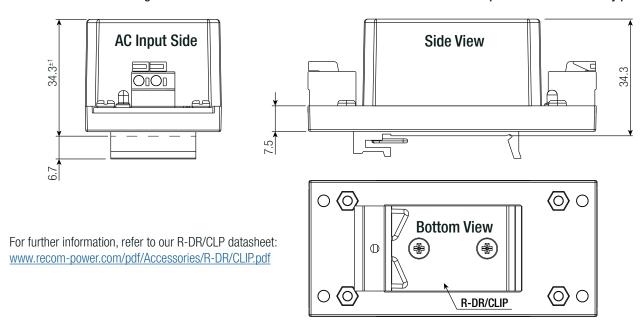


30W / Universal Input 100V - 277VAC



INSTALLATION AND APPLICATION

Dimension Drawing RACM30-K/277/PMP after conversion with the RECOM Din Rail Clip "R-DR/CLIP" accessory part



PACKAGING INFORMATION					
Parameter	туре		Value		
	tube	"/THT printmount"	490.0 x 56.0 x 40.0mm		
Packaging Dimension (LxWxH)	tray	"/W"; "/PMP"; "/PMA"	405.0 x 360.0 x 55.0mm		
		"/OF"	360.0 x 205.0 x 50.0mm		
	"/THT printmount"		11pcs		
Packaging Quantity	"/W"; "/PMP"; "/PMA"		24pcs		
	"/OF"		12pcs		
Storage Temperature Range			-40°C to +90°C		
Storage Humidity	non-condensing		95% RH max.		

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.