# Low Cost Switched Mode Units

# 25-55 Watts



- CE Marked LVD
- 90 264 V AC Universal Input
- Low Cost for High Volume
- Single, Dual & Triple Outputs
- 127 x 76 x 30 mm Footprint
- Full Safety Approvals
- Optional Safety Covers

# SPECIFICATION

Input Voltage	•	90-264 V AC (120-370 V DC)
Input Frequency	•	47-440 Hz
Inrush Current	•	38 A max @ 230 V 25 W, 32 A max @ 230 V 40 W, 40 A max @ 230 V 55 W
Hold Up Time	•	60 ms at full load and 230 V AC input
Output Voltage	•	See Table (not adjustable)
Line Regulation	•	See Table
Load Regulation	•	See Table
Ripple and Noise	•	See Table
<b>Overload Protection</b>	•	Overall power limit
Overvoltage Protection	•	On +5 V output and on single output units
Temperature Coefficient	•	0.02%/°C
Efficiency	•	68% min at full load
Operating Temperature	•	0 °C to +70 °C. Derate above +50 °C at 2.5%/°C
Storage Temperature	•	-40 °C to +85 °C
Relative Humidity	•	5 to 95% non-condensing
Vibration	•	2.4 G rms over 5 Hz to 500 Hz for 10 min on 3 axis
Shock	•	To MIL-STD-810E 516.4 pt IV
EMC	•	FCC limit B, VDE0871B and EN55022 level B conducted noise
Immunity	•	EN61000-4-2,-4 & -5 level 3
		IEC801-3 level 3
Safety Approvals	•	UL1950, IEC950, CSA22.2-234/950, EN41003, IEC1010 (consult sales)
		EN60950, LVD compliant
MTBF	•	150,000 Hrs to MIL-HDBK-217F @ 25 °C
Cover	•	Model number ACN25/40 Cover Kit, 25 & 40 W models
		Model number ACN55 Cover Kit, 55 W models
		For mechanical details - Contact Sales Office

OUTPUT VOLTAGE & CURRENT RATINGS - 25 WATT MODELS										
Max.	Output		Output (	Currents		Ripple	Total	Model		
Power	Voltage	Minimum <sup>(6)</sup>	Maximum <sup>(1)</sup>	Maximum	Peak <sup>(2)</sup>	Pk-Pk <sup>(3)</sup>	Regulation <sup>(4)</sup>	Number		
	+5.1 V (A)	0 A	2.0 A	-	5.00 A	50 mV	±3%			
25 W	+12 V (B)	0 A	1.5 A	-	3.00 A	120 mV	±5%	ACN25UT08		
	-12 V (C)	0 A	0.2 A	-	1.00 A	120 mV	±5%			
	+5.1 V	0 A	2.0 A	-	5.00 A	50 mV	±3%			
25 W	+12 V <sup>(5)</sup>	0 A	0.2 A	-	1.00 A	120 mV	±5%	ACN25UT28		
	-12 V	0 A	0.2 A	-	1.00 A	120 mV	±5%			
	+5.1 V (A)	0 A	2.0 A	-	5.00 A	50 mV	±3%			
25 W	+12 V (B)	0 A	1.5 A	-	3.00 A	120 mV	±5%	ACN25UT07		
	-5 V (C)	0 A	0.2 A	-	1.00 A	50 mV	±5%			
	+5.1 V (A)	0 A	2.0 A	-	5.00 A	50 mV	±3%			
25 W	+15 V (B)	0 A	1.5 A	-	3.00 A	150 mV	+13%, -0%	ACN25UT10		
	-15 V (C)	0 A	0.2 A	-	1.00 A	150 mV	±5%			
05.144	+5.1 V (A)	0 A	2.0 A	-	5.00 A	50 mV	±3%			
25 VV	+12 V (B)	0 A	1.5 A	-	3.00 A	120 mV	±5%	ACN250D29		
25 W	5 V	0 A	5.0 A	-	5.00 A	50 mV	±3%	ACN25US05		
25 W	12 V	0 A	2.0 A	-	3.00 A	120 mV	±3%	ACN25US12		
25 W	15 V	0 A	1.6 A	-	2.50 A	150 mV	±3%	ACN25US15		
25 W	24 V	0 A	1.0 A	-	1.50 A	240 mV	±3%	ACN25US24		
25 W	48 V	0 A	0.5 A	-	0.75 A	480 mV	±3%	ACN25US48		

#### Notes:-

(1) Natural convection cooling (25 W maximum).

(2) Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total regulation limits.

(3) 50 MHz bandwidth, peak to peak, measured differentially.

(4) Total regulation is defined as the static output regulation at 25 °C, including initial tolerance, line voltage within stated limits, load currents within stated limits, and output voltages adjusted to their factory settings. Also for +5.1 V and +12 V outputs to maintain stated regulation.

 $0.25 \leq I(A) \leq 5, \text{ for } I(B) > 0.3 \text{ A} \quad \& \quad 0.5 \leq I(A) \leq 5, \text{ for } I(B) \leq 0.3 \text{ A}. \text{ For Triple output models for } I(C) \text{ to achieve IMax then } I(A) \text{ min} \geq 0.5 \text{ A and } I(B) \geq I(C).$ 

(5) The ACN25UT28 has separately regulated +12 V output. The loading condition in note (4) does not apply.

(6) A minimum output power of 4 W should be provided in order to meet the reliability and MTBF specifications.

PIN CONNECTIONS												
Inputs Outputs			Triple				Dual	Single				
J	11	J2	-T08	-T28	-T07	-T10	-D29	-S05 -S12 -S15 -S48			-S24	
Pin 3	AC Line	Pin1	+12 V	+12 V	+12 V	+15 V	+12 V	+5 V	+12 V	+15 V	+48 V	+24 V
		Pin 2	+5.1 V	+5 V	+12 V	+15 V	+48 V	+24 V				
Pin 1	AC Neutral	Pin 3	+5.1 V	+5 V	+12 V	+15 V	+48 V	+24 V				
F	P1	Pin 4	Return	Return	Return	Return	Return	Return	Return	Return	Return	Return
		Pin 5	Return	Return	Return	Return	Return	Return	Return	Return	Return	Return
Safety I	Earth (Faston)	Pin 6	-12 V	-12 V	-5 V	-15 V	NC	Return	Return	Return	Return	Return

J1 Mating Connector : Molex 09-50-3031 with Molex 08-50-0105 crimp terminals J2 Mating Connector : Molex 09-91-0600 with Molex 08-50-0164 crimp terminals Part No. **25/40W CON KIT** 

## MECHANICAL DETAILS

#### **Application Notes:-**

- (1) All dimensions are in inches (mm)
- (2) A non-metallic standoff is required in one hole as specified in the mechanical drawing to meet VDE safety requirements.
- (3) Ground pad encircling mounting hole near P1 allows system grounding through a metal standoff of up to 8 mm diameter maximum to metal chassis.
- (4) Output voltages are non-adjustable.
- (5) For optimum reliability, no part of the heatsink should exceed 120 °C, and no semiconductor case temperature should exceed 135 °C.
- (6) CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
- (7) Weight 200g.



OUTPUT VOLTAGE & CURRENT RATINGS - 40 WATT MODELS											
Max.	Output		Output	Current		Ripple	Total	Model			
Power	Voltage	Minimum <sup>(7)</sup>	Maximum <sup>(1)</sup>	Maximum <sup>6)</sup>	Peak <sup>(2)</sup>	Pk-Pk <sup>(3)</sup>	Regulation <sup>(4)</sup>	Number			
	+5.1 V (A)	0 A	3.00 A	4.0 A	7.0 A	50 mV	±3%				
40 W	+12 V (B)	0 A	2.00 A	2.0 A	3.0 A	120 mV	±5%	ACN40UT08			
	-12 V (C)	0 A	0.35 A	0.5 A	1.0 A	120 mV	±5%				
	+5.1 V	0 A	3.00 A	4.0 A	7.0 A	50 mV	±3%				
40 W	+12 V <sup>(5)</sup>	0 A	0.35 A	0.5 A	3.0 A	120 mV	±5%	ACN40UT28			
	-12 V	0 A	0.35 A	0.5 A	1.0 A	120 mV	±5%				
	+5.1 V (A)	0 A	3.00 A	4.0 A	7.0 A	50 mV	±3%				
40 W	+12 V (B)	0 A	2.00 A	2.0 A	3.0 A	120 mV	±5%	ACN40UT07			
	-5 V (C)	0 A	0.35 A	0.5 A	1.0 A	50 mV	±5%				
	+5.1 V (A)	0 A	3.00 A	4.0 A	7.0 A	50 mV	±3%				
40 W	+15 V (B)	0 A	1.50 A	1.5 A	3.0 A	150 mV	+13%, -0%	ACN40UT10			
	-15 V (C)	0 A	0.35 A	0.5 A	1.0 A	150 mV	±5%				
40.144	+5.1 V (A)	0 A	3.00 A	4.0 A	7.0 A	50 mV	±3%				
40 W	+12 V (B)	0 A	2.00 A	2.0 A	3.0 A	120 mV	±5%	ACN400D29			
40 W	5 V	0 A	6.00 A	8.0 A	10.0 A	50 mV	±3%	ACN40US05			
40 W	12 V	0 A	3.30 A	4.0 A	5.0 A	120 mV	±3%	ACN40US12			
40 W	15 V	0 A	2.60 A	3.3 A	4.0 A	150 mV	±3%	ACN40US15			
40 W	24 V	0 A	1.60 A	2.0 A	2.5 A	240 mV	±3%	ACN40US24			
40 W	48 V	0 A	0.80 A	1.0 A	1.0 A	480 mV	±3%	ACN40US48			

#### Notes:-

(1) Natural convection cooling (40 W maximum).

(2) Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total regulation limits.

(3) 50 MHz bandwidth, peak to peak, measured differentially.

(4) Total regulation is defined as the static output regulation at 25 °C, including initial tolerance, line voltage within stated limits, load currents within stated limits, and output voltages adjusted to their factory settings. Also for +5.1 V and +12 V outputs to maintain stated regulation.

 $0.25 \leq I(A) \leq 5, \text{ for } I(B) > 0.3 \text{ A} \quad \& \quad 0.5 \leq I(A) \leq 5, \text{ for } I(B) \leq 0.3 \text{ A}. \text{ For Triple output models for } I(C) \text{ to achieve IMax then } I(A) \text{ min} \geq 0.5 \text{ A and } I(B) \geq I(C).$ 

(5) The ACN40UT28 has separately regulated +12 V output. The loading condition in note (4) does not apply.

(6) Force air cooled.

(7) A minimum of 4 W should be provided in order to meet the reliability and MTBF specifications.

PIN CONNECTIONS												
Inputs Outputs			Triple				Dual	Single				
J	11	J2	-T08	-T28	-T07	-T10	-D29	29 -S05 -S12 -S15 -S24			-S24	-S48
Pin 3	AC Line	Pin 1	+12 V	+12 V	+12 V	+15 V	+12 V	+5 V	+12 V	+15 V	+24 V	+48 V
		Pin 2	+5.1 V	+5 V	+12 V	+15 V	+24 V	+48 V				
Pin 1	AC Neutral	Pin 3	+5.1 V	+5 V	+12 V	+15 V	+24 V	+48 V				
F	21	Pin 4	Return	Return	Return	Return	Return	Return	Return	Return	Return	Return
		Pin 5	Return	Return	Return	Return	Return	Return	Return	Return	Return	Return
Safety I	Earth (Faston)	Pin 6	-12 V	-12 V	-5 V	-15 V	NC	Return	Return	Return	Return	Return

J1 Mating Connector : Molex 09-50-3031 with Molex 08-50-0105 crimp terminals J2 Mating Connector : Molex 09-91-0600 with Molex 08-50-0164 crimp terminals Part No. 25/40W CON KIT

# MECHANICAL DETAILS

#### **Application Notes:-**

- (1) All dimensions are in inches (mm)
- (2) A non-metallic standoff is required in one hole as specified in the mechanical drawing to meet VDE safety requirements.
- (3) Ground pad encircling mounting hole near P1 allows system grounding through a metal standoff of up to 8 mm diameter maximum to metal chassis.
- (4) Output voltages are non-adjustable.
- (5) For optimum reliability, no part of the heatsink should exceed 120 °C, and no semiconductor case temperature should exceed 135 °C.
- (6) CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
- (7) Weight 200g



OUTPUT VOLTAGE & CURRENT RATINGS - 55 WATT MODELS											
Output		Output Current		Ripple <sup>(4)</sup>	Total	Model					
Voltage <sup>(6)</sup>	Minimum <sup>(2)</sup>	Maximum <sup>(1)</sup>	Fan <sup>(3)</sup>		Regulation <sup>(5)</sup>	Number					
+5.2 V (A)	0.0 A	6.50 A	7.2 A	50 mV	±2.0%						
+12.1 V (B)	0.0 A	1.20 A	1.5 A	120 mV	±5.0%	ACN55UT08					
-12 V (C)	0.0 A	0.10 A	0.2 A	120 mV	±5.0%						
+5.2 V (A)	1.0 A	7.00 A	8.0 A	50 mV	±2.0%						
+12 V (B)	0.0 A	0.35 A	0.5 A	120 mV	±5.0%	ACN55UT28					
-12 V (C)	0.0 A	0.35 A	0.5 A	120 mV	±5.0%						
+5.2 V (A)	0.0 A	6.50 A	7.2 A	50 mV	±2.0%						
-12.1 V (B)	0.0 A	1.10 A	1.1 A	120 mV	±5.0%	ACIN550D29					
+5 V	1.0 A	9.00 A	11.0 A	50 mV	±3.0%	ACN55US05					

#### NOTES:

- 1. Natural convection cooling (45 W maximum).
- 2. A minimum output power of 5 Watts should be provided in order to meet the reliability and MTBF specifications.
- 3. Forced air, 5CFM at 1 atmosphere, 55 W maximum for all models.
- Figure is peak-to-peak. Output noise measurements are made across a 50 MHz bandwidth using a 12" twisted pair, terminated with a 47 µF capacitor.
- 5. For ACN55UT08 and ACN55UD29, to maintain stated regulation on +5.2 V, +12.1 V then:  $0.25 \le I(A)/I(B \le 25$ . Also to maintain stated regulation on -12 V of ACN55UT08 then:  $I(A) \ge 0.5$  A. For ACN55UT28 to maintain regulation on the ±12 V then  $I(A) \ge 1.0$  A.
- 6. Output voltages are non-adjustable.
- 7. For optimum reliability, no part of the heatsink should exceed 120 °C, and no semiconductor case temperature should exceed 135 °C.
- 8. Caution: allow a minimum of 1 second after disconnecting line power when making thermal measurements.
- 9. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

PIN CONNECTIONS										
Inputs		Outputs	Tri	ple	Dual	Single				
	J1 J2		-T08	-T28	-D29	-\$05				
Pin 3	AC Line	Pin1	+12 V	+12 V	+12 V	+5 V				
		Pin 2	+5.1 V	+5.1 V	+5.1 V	+5 V				
Pin 1	AC Neutral	Pin 3	+5.1 V	+5.1 V	+5.1 V	+5 V				
F	21	Pin 4	Return	Return	Return	Return				
		Pin 5	Return	Return	Return	Return				
Safety Earth (Faston)		Pin 6	-12 V	-12 V	NC	Return				

J1 Mating Connector : Molex 09-50-3031 with Molex 08-50-0105 crimp terminals J2 Mating Connector : Molex 09-50-3061 with Molex 08-50-0164 crimp terminals

Available from XP as an option



AC (J1) connector Molex 26-60-4030

DC (J2) connector Molex 26-60-4060

#### Application notes

- (1) All dimensions are in inches (mm).
- (2) A non-metallic stand-off is required in one hole as specified in the mechanical drawing to meet safety requirements.
- (3) Ground pad encircling mounting hole near P1 allows system grounding through a metal stand-off of up to 8 mm maximum diameter to metal chassis.
- (4) A standard L-bracket and cover is available for mounting, which contains all screws, connectors and necessary mounting hardware. Order part number "ACN55 COVER KIT".
- (5) A standard L-bracket and cover can be added during manufacturing. To order, add suffix 'C' to the model number, e.g. ACN55UT05-C.
- (6) Maximum component height is 1.2 inches (30.48 mm).
- (7) Weight 200g