



# CFM21M SERIES

## 20 WATT SINGLE OUTPUT AC-DC MODULES



IEC  
60601-1  
EN  
60601-1



### Features

- \* Universal Input Range 90~264VAC
- \* Class II
- \* Miniature Size Low Profile 0.8"
- \* Industry-Standard Pin Out
- \* Efficiency to 85%
- \* Option for On-Board, Connector, Screw Terminal or Encapsulated type
- \* Continuous Short Circuit Protection
- \* Over Voltage Protection
- \* No Load Input Power < 0.1W
- \* Leakage Current < 100uA
- \* UL60601-1/IEC60601-1/EN60601-1 Ed.3.1 Medical Safety Approved
- \* 2 MOPP
- \* Peak Load 130% (note 8)
- \* Meet UL62368/IEC62368/EN62368
- \* Meet UL60335-1/IEC60335-1/EN60335-1



MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE 1	VOLTAGE ACCURACY NOTE2	LINE REGULATION NOTE 3	LOAD REGULATION NOTE4	OUTPUT RATED POWER	% EFF.
CFM21M050	5.0 V	4.0 A	50 mV	±1%	±0.5%	±1.0%	20.0 W	81%
CFM21M090	9.0 V	2.3 A	90 mV	±1%	±0.5%	±1.0%	20.7 W	83%
CFM21M120	12 V	1.7 A	100 mV	±1%	±0.5%	±1.0%	20.4 W	85%
CFM21M150	15 V	1.4 A	100 mV	±1%	±0.5%	±1.0%	21.0 W	85%
CFM21M240	24 V	0.9 A	100 mV	±1%	±0.5%	±1.0%	21.6 W	86%

Specifications are subject to change without notice.

## Specifications

### INPUT SPECIFICATIONS:

Voltage ..... 90~264Vac  
 Frequency ..... 47 to 63Hz  
 Input Current ..... 0.3 to 0.5A  
 Inrush Current ..... Cold Start@25°C ..... 40A max. @230Vac  
 Leakage Current ..... 70uA Typical - 100uA max.

### OUTPUT SPECIFICATIONS:

Isolation ..... Input to output = 4000VAC  
 Hold-up Time ..... 10ms typ. @115Vac  
 Short Circuit Protection ..... Continuous  
 Over Voltage Protection(TVS) ..... 110%-140% of Nominal Output Voltage

### GENERAL SPECIFICATIONS:

Efficiency ..... see Table  
 Switching Frequency ..... 65KHz typ.  
 Operating Temperature ..... -25 ~ 70°C (with de-rating)  
 Storage Temperature ..... -40~85°C  
 Cooling ..... Natural Convection  
 Humidity ..... 93% RH max. Non condensing  
 Operating Altitude..... 5000m  
 MTBF ..... MIL-HDBK-217F, GB ..... 500Khrs min.  
 Dimensions ..... 2.38x1.60x0.80inches (60.5x40.6x20.4mm)  
     -T: 3.00x1.60x0.77inches (76.2x40.6x19.5mm)  
     -E: 2.53x1.74x0.80inches (64.2x44.2x20.4mm)  
     -S: 3.00x1.60x0.77inches (76.2x40.6x19.5mm)  
 Weight ..... 55g, 60g(-T, -S), 110g(-E)

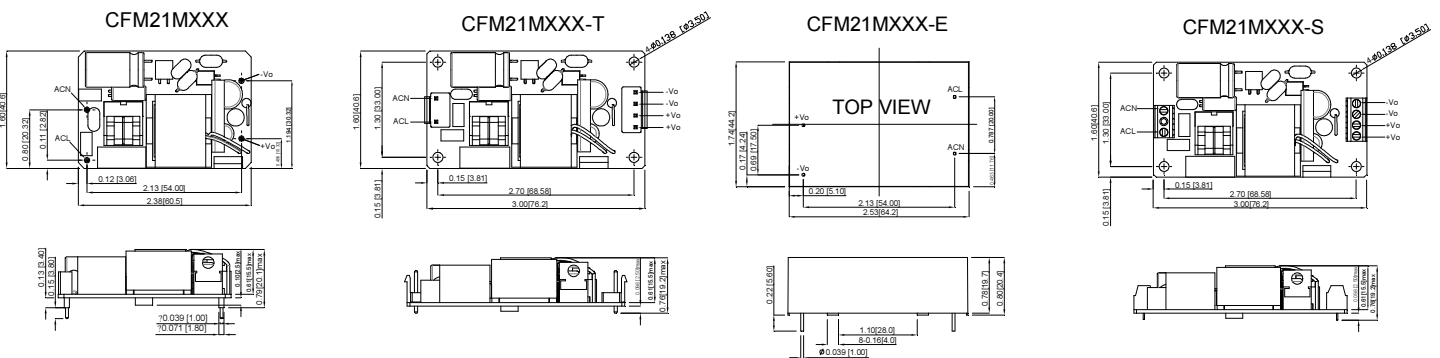
### SAFETY AND EMISSION:

Emissions and Immunity (Ed. 4.0) ..... EN55011 Class B, EN61000-3-2(3)  
     EN60601-1-2 2015, IEC 61000-4-2(3/4/5/6/8/11)  
 Safety Approved (Ed.3.1) ..... IEC60601-1  
 ANSI/AAMI ES 60601-1:2005/A1:2012&C1:2009/(R)2012&2010/(R)2012  
 CAN/CSA-C22.2 NO. 60601-1:14, EN 60601-1: 2006+A11:2011+A1:2013,  
     IEC 60601-1:2005+A1:2012

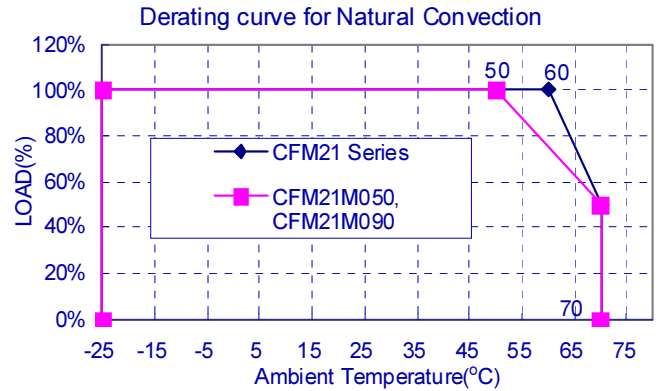
### Mechanical Specification

Annotations: For all models, height does not exceed 34mm max.

All Dimensions In Inches[mm]  
 Tolerance: Inches:x.xx= ±0.02,x.xxx= ±0.01  
 Millimeters:x.x= ±0.5,x.xx= ±0.25



## CFM21M Series De-rating Curve



### NOTE:

1. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for Ripple & Noise measuring @20MHz BW.
2. Voltage accuracy is set of 100% rated load.
3. Line regulation is measured from high line to low line with full load.
4. Load regulation is measured from 10% to 100% full load.
5. T Version Connection: JST B3P-VH / B4P-VH or equivalent.
6. S Version Connection: DECA MB332-381A or equivalent.
7. Typical efficiency at 230VAC and 100% load at 25°C.
8. Peak load 130% lasting < 10 seconds with a maximum duty cycle of 10% at nominal Line.

Typical at 25°C, nominal line and 75% load, unless otherwise Specified