

# AC/DC Converter

## TGCM40-K



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## Features

## Regulated Converter

- 1.6"x3", optional 2"x3", low profile
- 40W power from -40°C up to +60°C ambient
- Operating temp. up to +85°C with derating.
- OVCIII, 4 kVac/1min reinforced isolation
- 2MOPP medical certified, B and BF compliant
- 5000m (medical/ITE) operating altitude
- Class B EMC filter built-in

# TGCM40-K

## Description

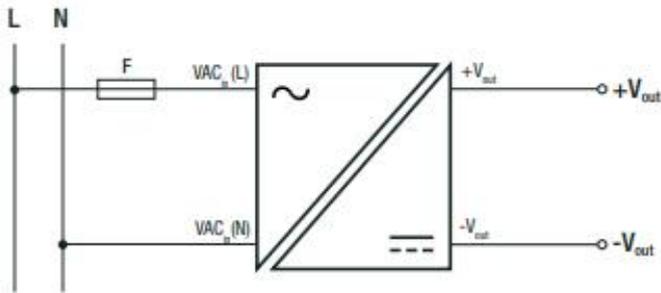
The ultra-compact versatile, industrial + household + medical grade AC/DC converter series TGCM40-K delivers 40 watts of output power from -40°C to +60°C with natural air convection only, and up to +85°C with derating or forced air cooling. With a clear focus on extended thermal performance for systems where space is limited, these 1.6" x 3" compact modules are designed to gain highest overall efficiency levels over the full output load range from universal AC inputs. The TGCM40-K/OF has ANSI/AAMI/IEC 60601-1 medical safety and EN 60601-1-2 medical EMC certifications, 2MOPP, to meet B and BF requirements, 4kVac/1min isolation and offers OVCIII certified to IEC61558. It is additionally certified (CB Report) IEC/EN 62368-1; IEC61010 and IEC61558-1/-2-16 for industrial applications and IEC/EN 60335-1 for household appliances. The robust built-in class B EMC filter has sufficient margin to allow either Class II or Class I PELV with grounded output installations. A range of mechanical fixing options makes the TGCM40-K suitable for many different mounting conditions: the standard chassis-mount part mates with Molex connectors, and the /PCB option permits direct installation in printed circuit boards. Additionally, a 2" x 3" footprint for backward-compatibility retrofit for legacy designs is available on request.

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

BASIC CHARACTERISTICS					
Parameter	Condition		Min.	Typ.	Max.
Nom. Input Voltage	60Hz 50Hz		100VAC		240VAC
Input Voltage Range <sup>(3)</sup>	47-63Hz DC		80VAC 120VDC		264VAC 370VDC
Input Current	115VAC 230VAC				1000mA 500mA
Inrush Current	cold start	115VAC 230VAC			15A 30A
ErP Standby Mode Conformity: (Maximum output power available for stated maximum input power)	115VAC	RACM40 input power max. 0.5W	0.3W		
		RACM40 input power max. 1.0W	0.7W		
	230VAC	RACM40 input power max. 0.5W	0.27W		
		RACM40 input power max. 1.0W	0.65W		
No load Power Consumption	230VAC			100mW	
Input Frequency Range	AC Input		47Hz		63Hz
Minimum Load			0%		
Power Factor	115VAC 230VAC		0.6 0.5		
Start-up Time				160ms	
Rise Time				70ms	
Hold-up Time	115VAC 230VAC		16ms 60ms		
Internal Operating Frequency	100% load at nominal Vin			100kHz	
Output Ripple and Noise <sup>(4)</sup>	20MHz BW	5Vout others			80mVp-p 1% of Vout

**Notes:** Note4: No proper operation with DC input voltage Note5: The products were submitted for safety files at AC-Input operation Note6: Refer to "Line Deratin

## Protection Circuitm

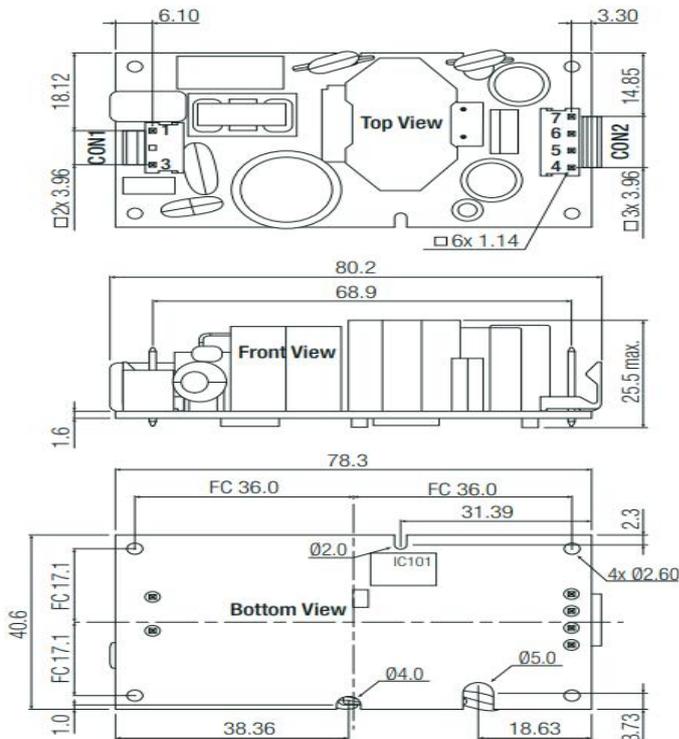


Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

ENVIRONMENTAL			
Parameter	Condition		Value
Operating Temperature Range	@ natural convection 0.1m/s	refer to "Derating Graph (2)"	-40°C to +85°C
Temperature Coefficient			±0.02%/K
Operating Altitude (7)	according to 62368-1/61010 and 60601-1		5000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
Vibration	according to MIL-STD-202G		10-500Hz, 2G 10min./1 cycle, period 60min. along x,y,z axes
MTBF	according to MIL-HDBK-217F, G.B.		+25°C
			+40°C
Design Lifetime	nom. Vin= 230VAC, +40°C		>1006 x 10 <sup>3</sup> hours >790 x 10 <sup>3</sup> hours >98 x 10 <sup>3</sup> hours

## Dimension Drawing (mm)

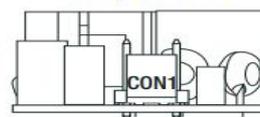
Dimension Drawing "OF" (mm)



General tolerances according to ISO 2768-m (table for reference only)

Dimension range	Tolerances
0.5 - 6 mm	±0.1 mm
6 - 30 mm	±0.2 mm
30 - 120 mm	±0.3 mm
120 - 400 mm	±0.5 mm

AC Input Side View



DC Output Side View



Connector Information

#	Function	Terminal
<b>AC Input (CON1)</b>		
1	VAC in (N)	3 Pins (Pin2 removed)
3	VAC in (L)	with 3.96mm pitch
<b>DC Output (CON2)</b>		
4,5	-VDC out	4 Pins
6,7	+VDC out	with 3.96mm pitch

FC= fixing centers

Compatible Connector

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