AC/DC Power Modules

TML 100C Series, 85-100 Watt

CB Scheme CE cULus UL 60950-1

Features

- Very compact power modules with screw terminal connection
- Active PFC, power factor >0.95 (230VAC), >0.99 (115 VAC)
- High efficiency up to 93% typ.
- Remote On/Off input
- Adjustable output voltage ±5%
- LED output indicator
- Universal input 100-240 VAC nominal
- Low leakage current
- EMI meets EN 55022, class B
- Protection class II prepared

The TML 100C series modules are very compact 85–100 Watt power supplies in a fully encapsulated plastic case. Active power factor correction and high efficiency across full load range qualify these modules for installation in energy related products. They feature screw terminals for easy installation. The TML 100C series is accompanied by an international safety approval package for worldwide markets.

Models

Order code	Output power max.	Output voltage	Output current max.	Efficiency 115 VAC / 230 VAC
TML 100-112C	85	12 VDC	7000 mA	89.5 % / 91.0 %
TML 100-115C	85	15 VDC	5660 mA	90.0 % / 91.5 %
TML 100-124C	100	24 VDC	4200 mA	92.5 % / 93.5 %
TML 100-148C	100	48 VDC	2100 mA	93.0 % / 94.5 %

Full TML and TMLM Series Model Range

Series	Description	Datasheet
TMLM 04	4 Watt, PCB mount, single and dual output models	www.tracopower.com/products/tmlm.pdf
TMLM 05	5 Watt, PCB mount, single output models	
TMLM 10	10 Watt, PCB mount, single output models	
TMLM 20	20 Watt, PCB mount, single output models (compact design)	
TML 20	20 Watt, PCB & chassis mount, single, dual and triple output models	www.tracopower.com/products/tml.pdf
TML 40	40 Watt, PCB & chassis mount, single, dual and triple output models	

Input Specifications

Input voltage ranges	– nominal – AC full range – DC Input		100 – 240 VAC (universal input) 90 – 264 VAC 120 – 370 VDC
Input frequency			47 – 63 Hz
Input current at full load (115 VAC / 230 VAC nominal input)			< 2.0 A / < 1.0 A max.
Leakage current			0.5 mA max.
Harmonic limits	– Power factor		EN 61000-3-2, Class A >0.99 at 115 VAC, >0.95 at 230 VAC
Leakage current			<250 µA

Output Specifications

Voltage set accuracy			±2 %
Output voltage adjustment range			±5% (see page 3)
Minimum load			3% of rated max current (operation at lower load condition is safe but a higher output ripple will be experianced)
Ripple and noise (20 MHz bandwidth)		12 VDC model: 15 VDC model: 24 VDC model: 48 VDC model:	120 mV max. 150 mV max. 200 mV max. 240 mV max.
Regulation	– input variation – load variation		±1% ±1%
Current limitation			105% – 180% of rated output power. (automatic recovery)
Overvoltage protection			by Zehner diode.
Short circuit protection			indefinite (hiccup, automatic recovery)
Hold-up time			10 ms min. (110VAC)
Max. capacitive load		12 VDC model: 15 VDC model: 24 VDC model: 48 VDC model:	50'000 µF 40'000 µF 6'000 µF 1'000 µF

General Specifications

Temperature ranges	– Operating – Power derating above +50°C – Case max. – Storage (non operating)		–25°C to +70°C 2.0 %/K +95°C –25°C to +85°C
Temperature coefficient			0.03 %/°C
Efficiency			see model table
Remote On/Off control			On: open or connection to -Vout Off: external +5VDC
Humidity (non condensing)			95 % rel max.
Switching frequency (pulse width modulation PWM)			100–133 kHz
Isolation voltage	– Input/Output		3'000 VAC
Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)			>250'000 h
Environmental compliance	– Reach – RoHS		www.tracopower.com/products/tml-reach.pdf RoHS directive 2011/65/EU

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

General Specifications

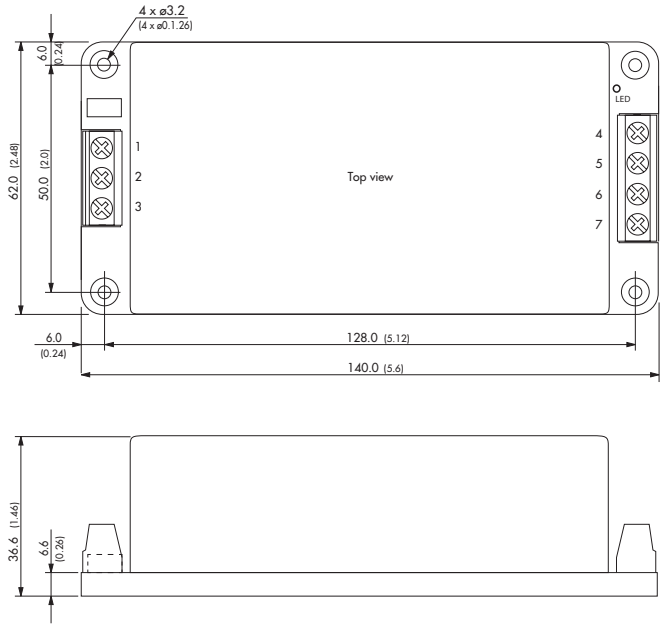
Electromagnetic compatibility (EMC), Emissions		EN 61000-3-2:2006+A1:2009+A2:2009 EN 61000-3-3:2008 EN 55022, class B
Electromagnetic compatibility (EMC), Immunity		EN 55024 : 2010
	– Electrostatic discharge ESD (air/contact)	EN 61000-4-2 ±2 kV / ±4 kV, criteria A
	– RF field susceptibility	EN 61000-4-3 3 V/m, criteria A
	– Electrical fast transient / burst immunity input	EN 61000-4-4 ±1 kV, criteria A
	– Surge immunity line – neutral	EN 61000-4-5, ±1 kV, criteria A
	– Surge immunity line – PE, neutral – PE	EN 61000-4-5 ±2 kV, criteria A
	– Immunity to conducted RF disturbances	EN 61000-4-6 3 V, criteria A
	– Power frequency magnetic field immunity	EN 61000-4-8 1 A/m, criteria A
	– Mains voltage dips and interruptions	EN 61000-4-11 30 % 500 ms, criteria A 95 % 10 ms, criteria A 95 % 2500 ms, criteria C
Protection class		class I and class II prepared
Safety standards		IEC 60950-1 2nd ed +Am1 EN 60950-1:2006/A11:2009/A1:2010/A12:2011 UL 60950-1 2nd ed +Am1
Safety approvals	– CB certificate for IEC/EN 60950-1 – UL/cUL 60950-1 (online certification)	www.tracopower.com/products/tml100c-cb.pdf www.ul.com File e188913
Casing material		plastic resin + fiberglass (UL 94V-0 rated)

Output voltage adjustment (Trim resistor [KOhm])

Trim up: Resistor from Trim to -Vout (conection 7-6)
Trim down: Resistor from Trim to +Vout (conection 7-5)

output voltage	12 VDC	15 VDC	24 VDC	48 VDC
+5%	85	95	90	85
nominal	open	open	open	open
–5%	220	300	600	1500

Outline Dimensions



Connection	
con.	**Output**
1	AC in (L)
2	AC in (N)
3	FG
4	Remote On/Off
5	+Vout
6	-Vout
7	Trim

Weight : 440 g (11.5 oz)

Dimensions in[mm], () = Inches
Tolerances = 0.5mm (0.02)