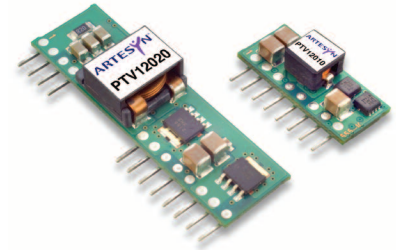




- 8 A output current
- 12 V input voltage
- Wide-output voltage adjust
  - 1.2 Vdc to 5.5 Vdc for suffix 'W' and 0.8 Vdc to 1.8 Vdc for suffix 'L'
- Auto-track™ sequencing\*
- Pre-bias start-up
- Efficiencies up to 93%
- Output ON/OFF inhibit
- Vertical through-hole mounting
- Point-of-Load-Alliance (POLA) compatible
- Undervoltage lockout
- Available RoHS compliant



The PTV12010 is a non-isolated dc-dc converter from Artesyn under the Point of Load Alliance (POLA) standard. The vertical mounting option of the PTV12010 module provides performance in less than 20% of the space that is required by alternative solutions. The Auto-Track™ feature provides for sequencing between multiple modules, a function, which is becoming a necessity for powering advanced silicon including DSP's, FPGA's and ASIC's requiring controlled power-up and power-down. The PTV12010 has an input voltage of 10.8 Vdc to 13.2 Vdc and offers a wide 1.2 Vdc to 5.5 Vdc for suffix 'W' and 0.8 Vdc to 1.8 Vdc for suffix 'L' output voltage range with up to 8 A output current, which allows for maximum design flexibility and a pathway for future upgrades.



2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated  
 $C_{in} = 100 \mu F$  and  $10 \mu F$  (Ceramic),  $C_{out} = 0 \mu F$

## SPECIFICATIONS

OUTPUT SPECIFICATIONS		
Voltage adjustability (See Note 4)	Suffix 'W' Suffix 'L'	1.2-5.5 Vdc 0.8-1.8 Vdc
Setpoint accuracy	(See Note 8)	±2.0% Vo
Line regulation		±10 mV typ.
Load regulation		±12 mV typ.
Total regulation	(See Note 8)	±3.0% Vo
Minimum load		0 A
Ripple and noise 20 MHz bandwidth	Suffix 'W' Suffix 'L'	20 mV pk-pk 15 mV pk-pk
Temperature co-efficient	-40 °C to +85 °C	±0.5% Vo
Transient response (See Note 5)		70 µs recovery time Overshoot/undershoot 100 mV

INPUT SPECIFICATIONS		
Input voltage range	(See Note 3)	10.8V-13.2 Vdc
Input standby current		10 mA typ.
Remote ON/OFF	(See Note 1)	Positive logic
Undervoltage lockout	(Increasing)	9.5 V typ.
Track input current	Pin 5 (See Notes 6 and 7)	-0.13 mA

EMC CHARACTERISTICS		
Electrostatic discharge		EN61000-4-2, IEC801-2
Conducted immunity		EN61000-4-6
Radiated immunity		EN61000-4-3
GENERAL SPECIFICATIONS		
Efficiency		See Tables on page 2
Insulation voltage		Non-isolated
Switching frequency		
Suffix 'W'	250-400 kHz	325 kHz typ.
Suffix 'L'	200-300 kHz	250 kHz typ.
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions	(L x W x H)	22.86 x 8.38 x 10.16 mm 0.90 x 0.330 x 0.400 in
Weight		2.6 g (0.09 oz)
MTBF	Telcordia SR-332	5,000,000 hours

ENVIRONMENTAL SPECIFICATIONS		
Thermal performance (See Note 2)	Operating ambient, temperature Non-operating	-40 °C to +85 °C -40 °C to +125 °C

PROTECTION		
Overcurrent	Auto reset	16 A typ.

### International Safety Standard Approvals



UL/cUL CAN/CSA-C22.2 No. 60950  
File No. E174104

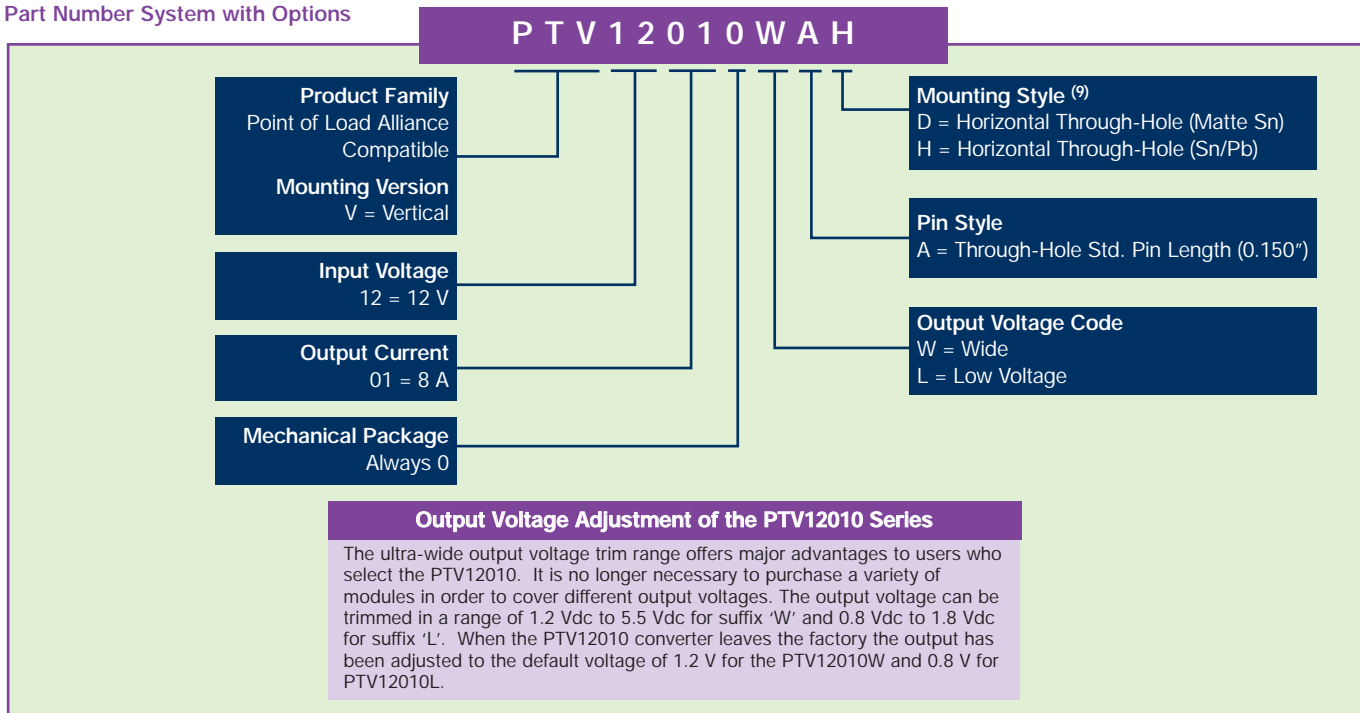


TÜV Product Service (EN60950) Certificate No. B 04 06 38572 044  
CB Report and Certificate to IEC60950, Certificate No. US/8292/UL

\*Auto-track™ is a trade mark of Texas Instruments

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.) (2)	EFFICIENCY (MAX.)	REGULATION		MODEL NUMBER (9,10)
						LINE	LOAD	
15 W	10.8-13.2 Vdc	0.8-1.8 Vdc	0 A	8 A	87%	±10 mV	±12 mV	PTV12010L
44 W	10.8-13.2 Vdc	1.2-5.5 Vdc	0 A	8 A	92%	±10 mV	±12 mV	PTV12010W

Part Number System with Options



**EFFICIENCY TABLE - PTV12010L (I<sub>O</sub> = I<sub>OMAX</sub>)**

OUTPUT VOLTAGE	EFFICIENCY
Vo = 1.8 V	87%
Vo = 1.5 V	86%
Vo = 1.2 V	84%
Vo = 1.0 V	81%
Vo = 0.8 V	78%

**EFFICIENCY TABLE - PTV12010W (I<sub>O</sub> = I<sub>OMAX</sub>)**

OUTPUT VOLTAGE	EFFICIENCY
Vo = 5.0 V	92%
Vo = 3.3 V	90%
Vo = 2.5 V	88%
Vo = 1.8 V	85%
Vo = 1.5 V	83%
Vo = 1.2 V	80%

Notes

- Remote ON/OFF. Positive logic  
ON: Pin 7 open; or V > 2 V  
OFF: Pin 7 GND; or V < 0.6 V
- See Figures 1, 2, 3 and 6 for safe operating curves.
- A 100 µF electrolytic input capacitor is required for proper operation as well as a 10 µF high-frequency ceramic capacitor. The electrolytic capacitor must be rated for the minimum rms of ripple current.
- An external output capacitor is not required for basic operation. Adding 100 µF of distributed capacitance at the load will improve the transient response.
- 1 A/µs load step, 50 to 100% I<sub>Omax</sub>; C3 = 100 µF.
- If utilized V<sub>out</sub> will track applied voltage by ±0.3 V (up to V<sub>o</sub> set point).
- The pre-bias start-up feature is not compatible with Auto-Track™. This is because when the module is under Auto-Track™ control, it is fully active and will sink current if the output voltage is below that of a back-feeding

- source. Therefore to ensure a pre-bias hold-off, one of the following two techniques must be followed when input power is first applied to the module. The Auto-Track™ function must either be disabled, or the module's output held off using the Inhibit pin. Refer to Application Note 196 for more details.
- The set-point voltage tolerance is affected by the tolerance and stability of R<sub>set</sub>. The stated limit is unconditionally met if R<sub>set</sub> has a tolerance of 1% with 100/°C or better temperature stability.
- To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTV12010WAD.
- NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.

PTV12010W Characteristic Data

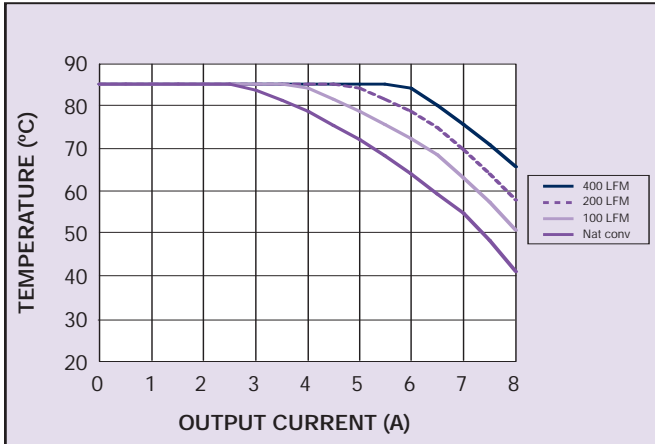


Figure 1 - Safe Operating Area  
Vin = 12 V, Output Voltage = 5 V (See Note A)

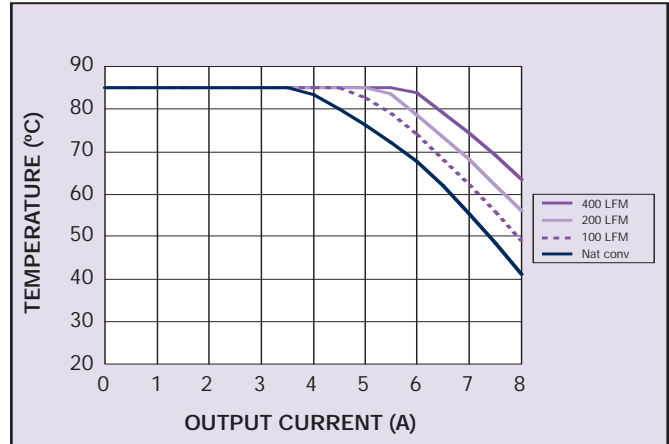


Figure 2 - Safe Operating Area  
Vin = 12 V, Output Voltage = 3.3 V (See Note A)

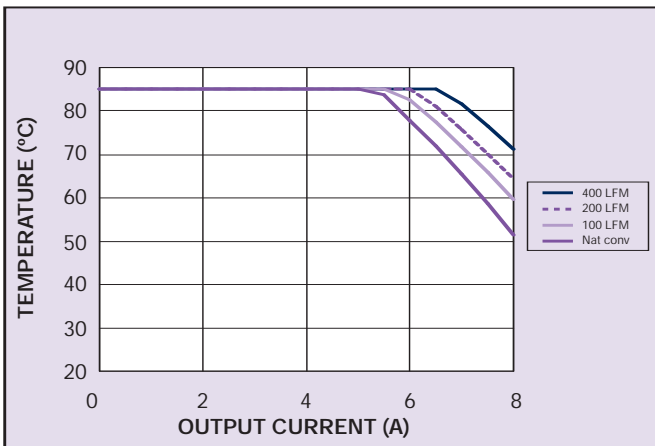


Figure 3 - Safe Operating Area  
Vin = 12 V, Output Voltage = 1.8 V (See Note A)

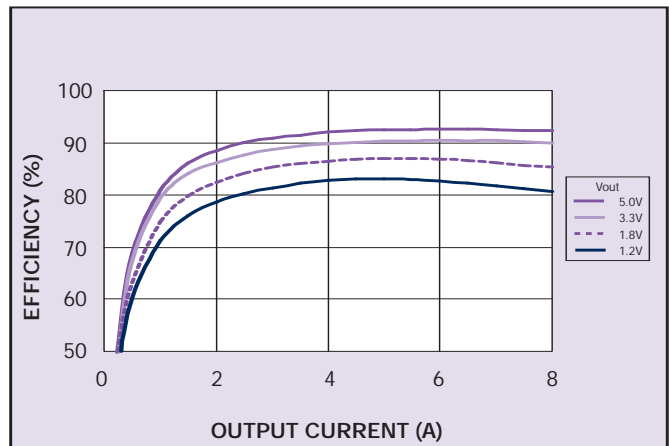


Figure 4 - Efficiency vs Load Current  
Vin = 12 V (See Note B)

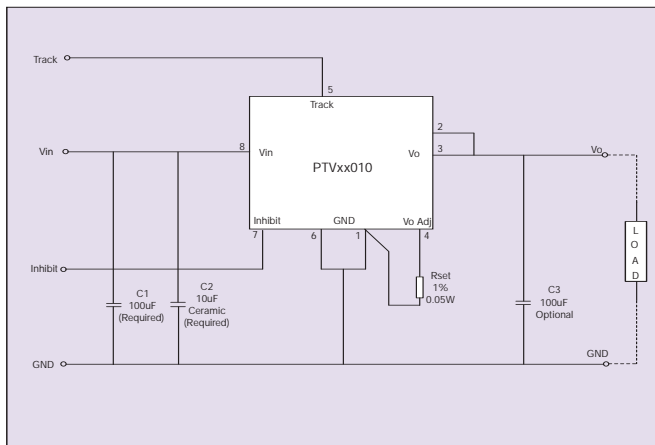


Figure 5 - Standard Application

**Notes**

- A SOA curves represent the conditions at which internal components are within the Artesyn derating guidelines.
- B Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.

PTV12010L Characteristic Data

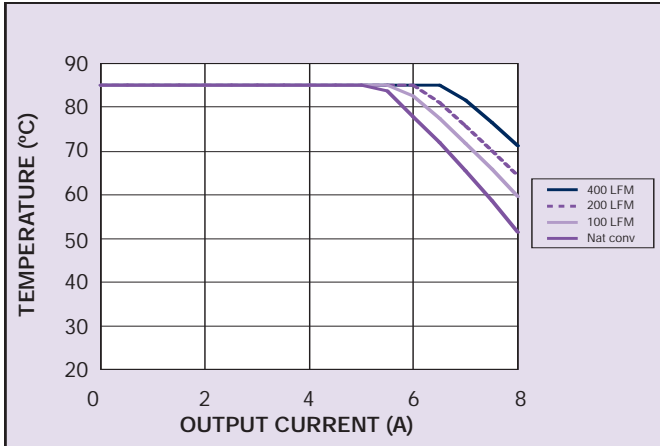


Figure 6 - Safe Operating Area  
Vin = 12 V, Output Voltage 1.8 V (See Note A)

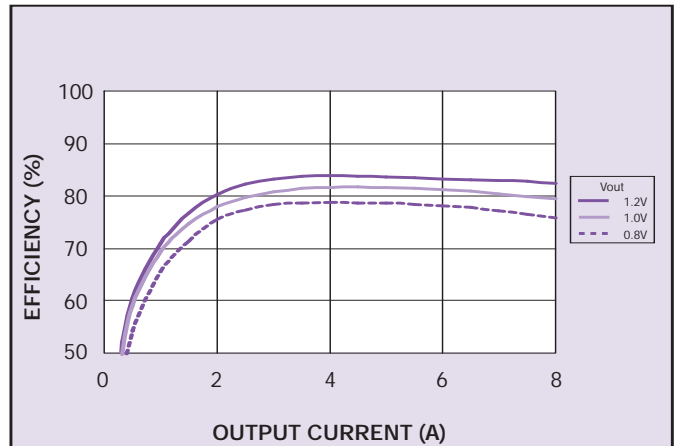


Figure 7 - Efficiency vs Load Current  
Vin = 12 V (See Note B)

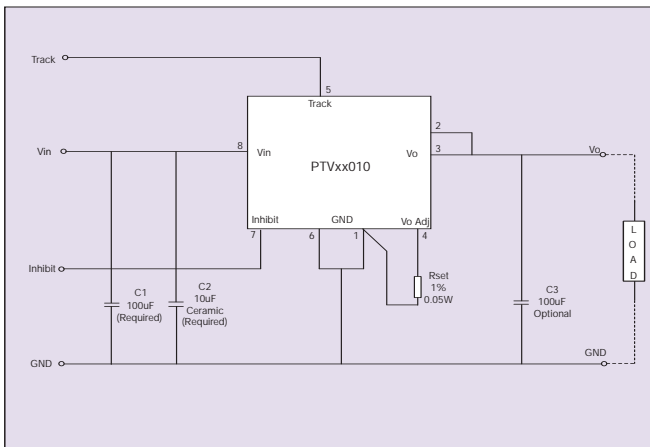
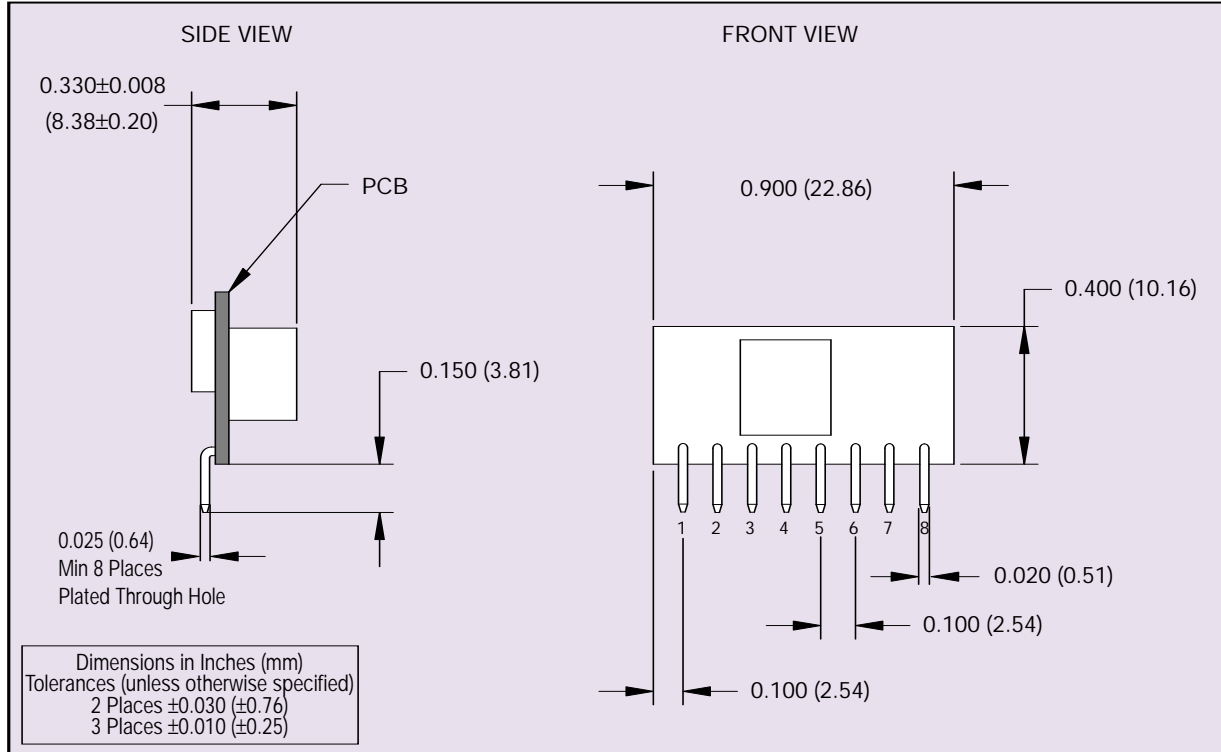


Figure 8 - Standard Application

Notes

- A SOA curves represent the conditions at which internal components are within the Artesyn derating guidelines.
- B Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.



PIN CONNECTIONS	
PIN NO.	FUNCTION
1	Ground
2	Vout
3	Vout
4	Vo Adjust
5	Track
6	Ground
7	Inhibit
8	Vin

Figure 9 - Mechanical Drawing and Pinout Table

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