

### PTV03010 3.3 Vin single output



DC-DC CONVERTERS

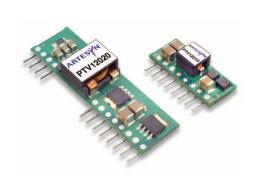
POLA Non-isolated

NEW Product



- 3.3 V input voltage
- Wide-output voltage adjust (0.8 Vdc to 2.5 Vdc)
- Auto-track<sup>™</sup> 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 PTV03010 is a non-isolated dc-dc converter from Artesyn under the Point of Load Alliance (POLA) standard. The vertical mounting option of the PTV03010 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 PTV03010 has an input voltage of 2.95 Vdc to 3.65 Vdc and offers a wide 0.8 Vdc to 2.5 Vdc 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)	0.8-2.5 Vdc
Setpoint accuracy	(See Note 8)	±2.0% Vo
Line regulation		±5 mV typ.
Load regulation		±5 mV typ.
Total regulation	(See Note 8)	±3.0% Vo
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	20 mV pk-pk
Temperature co-efficient	-40 °C to +85 °C	±0.5% Vo
Transient response (See Note 5)	Overshoo	70 µs recovery time t/undershoot 100 mV

### **INPUT SPECIFICATIONS**

Input voltage range	(See Note 3)	2.95-3.65 Vdc
Input standby current		10 mA typ.
Remote ON/OFF	(See Note 1)	Positive logic
Undervoltage lockout	(Increasing)	2.45 V typ.
Track input current	Pin 5 (See Note 6, 7)	-0.13 mA

### EMC CHARACTERISTICS

Electrostatic discharge Conducted immunity Radiated immunity EN61000-4-2, IEC801-2 EN61000-4-6 EN61000-4-3

### GENERAL SPECIFICATIONS

Efficiency	(See Efficiency Table)		93% max.	
Insulation voltage			Non-isolated	
Switching frequency	550-650 kHz		600 kHz typ.	
Approvals and standards			EN60950 UL/cUL60950	
Material flammability			UL94V-0	
Dimensions	(L x W x H)		.38 x 10.16 mm 0.330 x 0.400 in	
Weight			2.5 g (0.09 oz)	
MTBF	Telcordia SR-	332 5	5,000,000 hours	

### **ENVIRONMENTAL SPECIFICATIONS**

Thermal performance	Operating ambient,	-40 °C to +85 °C
(See Note 2)	temperature	
	Non-operating	-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. LIS/8292/LII

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



### PTV03010



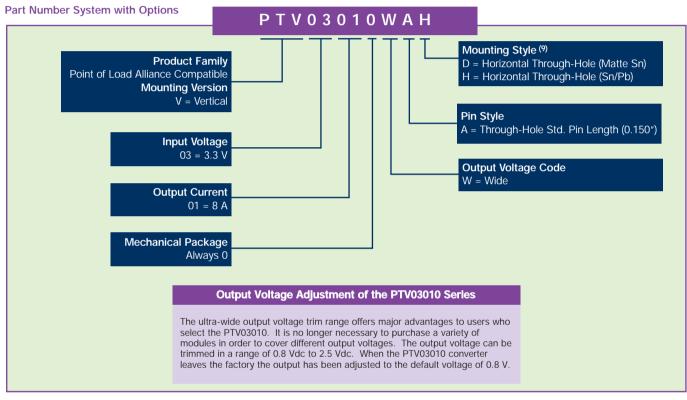
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OUTPUT POWER	INPUT	OUTPUT	OUTPUT	OUTPUT	EFFICIENCY	REGU	ILATION	MODEL
(MAX.)	VOLTAGE	VOLTAGE	(MIN.)	(MAX.) <sup>(2)</sup>	(MAX.)	LINE	LOAD	NUMBER <sup>(9,10)</sup>
20 W	2.95-3.65 Vdc	0.8-2.5 Vdc	0 A	8 A	93%	±5 mV	±5 mV	PTV03010W



Remote ON/OFF. Positive logic

Pin 7 open; or V > (Vin - 0.5 V) Pin 7 GND; or V < 0.6 V. ON: OFF:

- See Figure 1 for safe operating curve.
- A 100  $\mu F$  electrolytic input capacitor is required for proper operation as well as a 10  $\mu F$  high-frequency ceramic capacitor. The electrolytic capacitor must be rated for a minimum of 300 mArms 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
- 1A/ $\mu$ s load step, 50 to 100% l $_{omax}$ , C3 = 100  $\mu$ F. If utilized Vout will track applied voltage by ±0.3 V (up to Vo set point).
- The pre-bias start-up feature is not compatible with Auto-Track 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 the function must either be disabled, or the module's output held off using the Inhibit pin. Refer to Application Note 194 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. PTV03010WAD.
- 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.

EFFICIENCY TABLE (I <sub>O</sub> = I <sub>O</sub> MAX )			
OUTPUT VOLTAGE	EFFICIENCY		
Vo = 2.5 V	93		
Vo = 1.8 V	90		
Vo = 1.5 V	89		
Vo = 1.2 V	87		
Vo = 1.0 V	85		



## PTV03010 3.3 Vin single output



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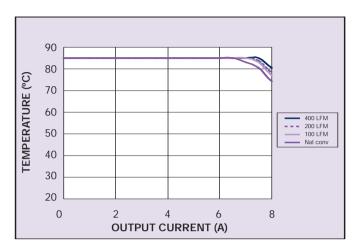


Figure 1 - Safe Operating Area Vin = 3.3 V, Output Voltage = 2.5 V (See Note A)

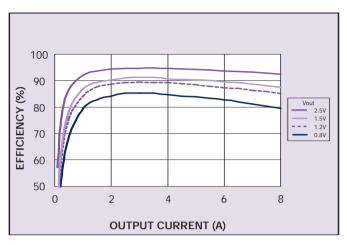


Figure 2 - Efficiency vs Load Current Vin = 3.3 V (See Note B)

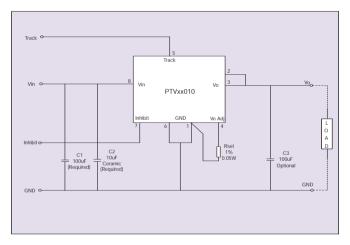


Figure 3 - Standard Application

### 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.



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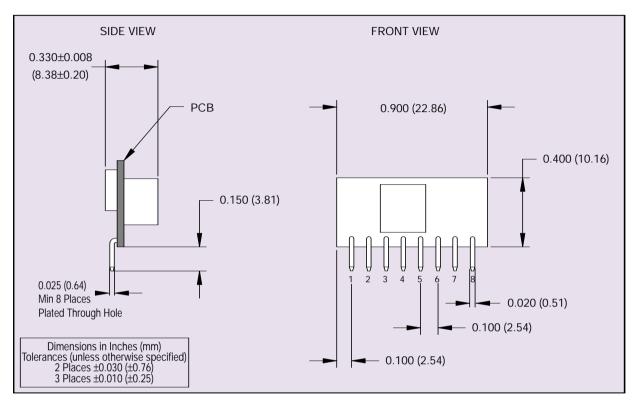


Figure 4 - Mechanical Drawing

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

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Application Note

www.artesyn.com