

ARTESYN SIL10E Series

Non-Isolated DC-DC Converters



Advanced Energy's Artesyn SIL10E series of non-isolated DC-DC converters comprises eight fixed output models covering voltages from 0.8 to 3.3 Vdc and one wide output trim model that can adjusted over the range 0.8 to 3.63 Vdc. All models can deliver up to 10 amps output current. The 3.3 V fixed output and trimmable models accept a 4.5 to 5.5 Vdc input, while all other fixed output models accept a 3 to 5.5 Vdc input.

SAFETY

- UL, cUL CAN/CSA 22.2 No. 60950
 1-03/UL 60950-1, File No. E186249
- TÜV Product Service (EN60950) Certificate No. B 08 05 51485 378
- CB report and certificate to IEC60950, Certificate No. DE3-51686M1

DATA SHEET

Total Power:

Up to 49.9 W

Input Voltage:

3.0 - 5.5 Vdc

of Outputs:

Single



SPECIAL FEATURES

- 10 A current rating
- Input voltage range: 3.0 5.5 Vdc
- Output voltage: 0.8 3.63 V
- Ultra-high efficiency: 96% @ 5 Vin and 3.3 Vout
- Extremely low internal power dissipation
- Minimal thermal design concerns
- Designed in reliability: MTBF of >7 million hours per Telcordia SR-322
- Ideal solution where board space is at a premium or tighter card pitch is required
- Industry standard footprint and pin
- Available RoHS compliant
- Two year warranty

ELECTRICAL SPECIFICATIONS

Input						
Input range		3.3 - 5.5 Vdc				
Input current	No load	70 mA				
	Max	8 A max. @ Io max. and Vout = 3.3 V				
Input reflected ripple		65 mA rms				
Remote ON/OFF		See Note 2				
Start-up time		<20 ms				
Output						
Voltage adjustability (See Note 1)	Fixed output versions 5 V input with wide trim 3.3 V input with wide trim	±10% 0.8 - 3.63 Vdc 0.8 - 2.75 Vdc				
Output setpoint accuracy		±0.4%				
Line regulation		±0.2%				
Load regulation		±1.0%				
Minimum load		0 A				
Overshoot / undershoot		None				
Ripple and noise	5 Hz to 20 MHz	50 mV pk=pk 25 mV rms max				
Transient response		50 mV max. deviation 50 μs recovery to within ±1.0%				
Remote sense		10% Vo compensation				

Note: All specifications are typical at nominal input, full load at 25 °C unless otherwise stated.

GENERAL SPECIFICATIONS

Efficiency		See Table
Insulation voltage		Non-isolated
Switching frequency	Fixed	300 kHz typical
Approvals and standards		EN60950, UL/cUL60950
Material flammability		UL94V-0
Dimensions	LxWxH	50.8 x 7.8 x 12.7 mm 2.0 x 0.31 x 0.5 inches
Pin length	Vertical	0.135 ± 0.002 in (3.43 ± 0.5 mm)
Weight		5 g (0.18 oz)
MTBF	Telcordia SR-332 MIL-HDBK-217F	7,042,000 hours 680,000 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient temperature	-40 °C to +100 °C				
See Note 3	Non-operating temperature -40 °C to +125 °C					
Protection						
Short-circuit	Continuous					
Thermal	Automatic recovery					



EMC CHARACTERISTICS

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

ORDERING INFORMATION

	Output			Output	Output		Regu	ılation
Model Number ^(3,4)	Power (Max.)	Input Voltage	Output Voltage	Current Current (Min.) (Max.)		Efficiency (Typical)	Line	Load
SIL10E-05W3V3-VJ	36.3 W	4.5 - 5.5 Vdc	0.8 - 3.63 V	0 A	10A	95%	±0.2%	±1.0%

PART NUMBER SYSTEM WITH OPTIONS

Product Family	Rated Output Current 10	Performance E	-	Input Voltage	Type of Output	-	Output Voltage	Mounting / Packaging Options
SIL = Single In Line	10 = 10 Amps	E = Enhanced Performance		05 = 3.0 - 5.5 V 12 = 10 - 12 V	W = Wide		2.5V, 3.3V, etc.	V = Vertical H = Horizontal J = Pb free (RoHS 6/6 compliant)

OUTPUT VOLTAGE ADJUSTMENT

The ultra-wide output voltage trim range offers major advantages to users who select the SIL10E-05W3V3J. It is no longer necessary to purchase a variety of modules in order to cover different output voltages. The output voltage can be trimmed in a range of 0.8 Vdc to 3.63 Vdc. When the SIL10E-05W3V3J series converter leaves the factory the output has been adjusted to the default voltage of 3.3 V.

- \cdot When Vin >4.5 V, then Vout can be adjusted from 0.8 3.63 Vdc
- · When Vin <4.5 V, then Vout can be adjusted from 0.8 2.75 Vdc

Notes:

- 1. When Vin > 4.5 V, then Vout can be adjusted from 0.8 V to 3.6 V.
 - When Vin < 4.5 V, then Vout can be adjusted from 0.8 V to 2.75 V.
- 2. The SIL10E features a 'Negative Logic' Remote ON/OFF operation. If not using the Remote ON/OFF pin, leave the pin open (the converter will be on). The Remote ON/OFF pin is referenced to ground. The following conditions apply for the SIL10E:

Configuration Converter Operation

Remote pin open circuit

Unit is ON

Remot pin pulled low

Unit is ON

Remote pin pulled high [Von/off > 1.2 V]

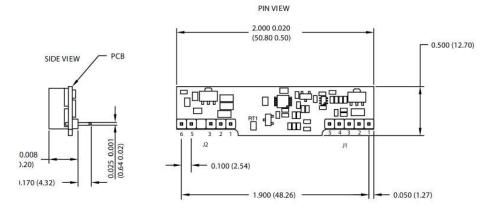
Unit is OFF

- 3. Full derating curves available in both the Longform (Technical Reference) and Application Note 136.
- 4. For certain applications that use low ESR capacitors on the output of the convertor and to insure maximum converter stability, please add the suffix '02' to the model, e.g. SIL10E-05S2V5-V02J.
- 5. NOTICE: Some models do not support all options. Please contact your local Advanced Energy's Artesyn representative or use the on-line model number search tool at http://www.artesyn.com to find a suitable alternative.
- 6. All specifications are typical at nominal input, full load at 25 °C unless otherwise stated.

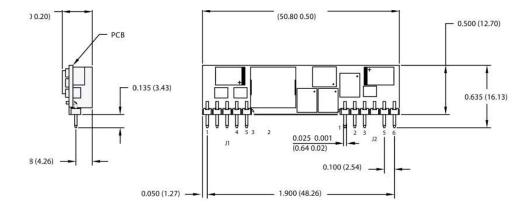


MECHANICAL DRAWINGS

Horizontal Mount



Vertical Mount



Dimensions in Inches (mm)

Tolerances (unless other wise speci.ed)

- 2 Place 0.15
- 3 Place 0.006

	Output Pin Assignments (J1)
Pin	Function
1	+Vout
2	+Vout
3	Remote Sense (+)
4	+Vout
5	Ground

Input Pin Assignments (J2)					
Pin	Function				
1	Ground				
2	+Vin				
3	+Vin				
4	No Pin				
5	Trim				
6	Remote ON/OFF				





ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

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For international contact information, visit advancedenergy.com.

powersales@aei.com (Sales Support) productsupport.ep@aei.com (Technical Support) +1 888 412 7832