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.

DATA SHEET

Total Power:

Up to 49.9 W

Input Voltage:

3.0 - 5.5 Vdc

# of Outputs:

Single

RoHS 6/6 COMPLIANT

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 out
- Available RoHS compliant
- Two year warranty

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

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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	L x W x H	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

Model Number[3,4]	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							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	Performance		Input Voltage	Type of Output		Output Voltage	Mounting / Packaging Options
SIL	10	E	-	05	W	-	3V3	VJ
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.

· 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:

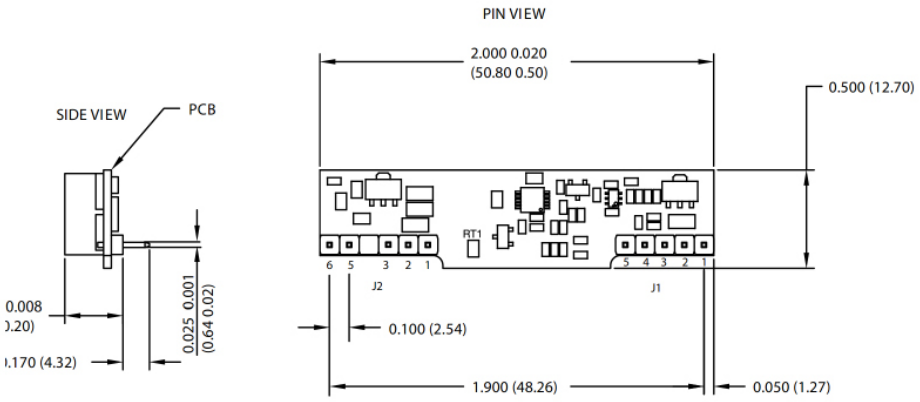
1. When Vin > 4.5 V, then Vout can be adjusted from 0.8 V to 3.6 V.
   When Vin < 4.5 V, then Vout can be adjusted from 0.8 V to 2.75 V.
2. The SIL10E features a 'Negative Logic' Remote ON/OFF operation. If not using the Remote ON/OFF pin, leave the pin open (the converter will be on). The Remote ON/OFF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

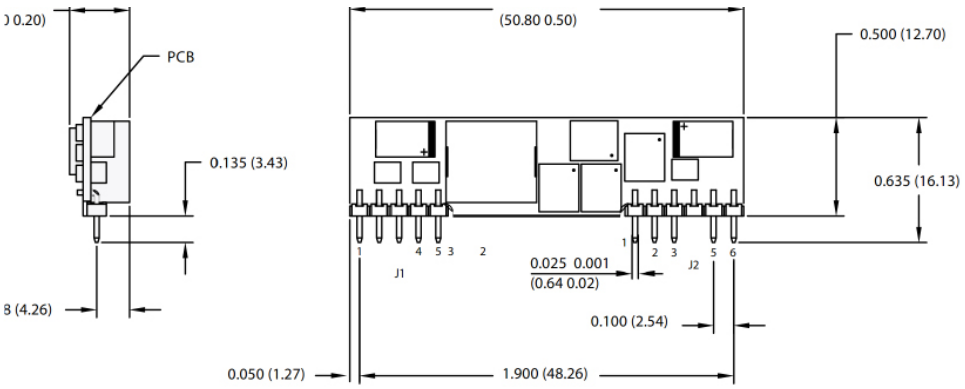
3. Full derating curves available in both the Longform (Technical Reference) and Application Note 136.
4. For certain applications that use low ESR capacitors on the output of the convertor and to insure maximum converter stability, please add the suffix '02' to the model, e.g. SIL10E-05S2V5-V02J.
5. 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.

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