ARTESYN SIL15E SERIES

Non-Isolated DC-DC Converters



DATA SHEET

Total Power:

49.5 Watts

Input Voltage:

10 - 14 Vdc

# of Outputs:

Single

RoHS 6/6 COMPLIANT

Advanced Energy's Artesyn SIL15E series of non-isolated DC-DC converters comprises four SIL15E_05V models and a single SIL15_12V model.

The SIL15E_12V converter accepts a 10 to 14 Vdc input and provides an output that can be adjusted over the range 0.8 to 3.63 Vdc. It can deliver up to 15 amps output current.

Depending on the particular model, SIL15E series converters offer output power ratings of to 54.4 watts and conversions efficiencies as high as 94%. Standard features include remote On/Off, remote sense and comprehensive protection against short-circuit and overtemperature conditions. Packaged as through-hole vertical mount modules with a single-in-line footprint of just 0.3 x 2 inches (7.8 x 50.8 mm), SIL15E series converters have an installed height of 0.5 inch (12.7 mm).

SPECIAL FEATURES

- 15 A current rating
- Input voltage range: 10 - 14 Vdc
- Output voltage range: 0.8 - 3.63 V
- Ultra high efficiency: 94% @ 12 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-332
- Ideal solution where board space is at a premium or tighter card pitch is required
- Industry standard footprint and pinout
- Available RoHS compliant
- Two year warranty

SAFETY

- UL, cUL CAN/CSA 22.2 No. E174104
- UL6950 File No. E174104
- TÜV Product Service (EN60950) Certificate No. B 03 10 38572 037
- CB report and certificate to DE3-51686M1

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ELECTRICAL SPECIFICATIONS

Input		
Input voltage range		10 - 14 Vdc
Input current	No load	70 mA
Input current (max.)		5.5 A @ Io max. and Vout = 3.3 V
Input current ripple		60 mA rms
Remote ON/OFF		See Note 1
Start-up time		35ms
Output		
Voltage adjustability		0.8 - 3.63 Vdc
Setpoint accuracy		±0.4% typical
Line regulation		±0.2% typical
Load regulation		±1.0% typical
Total error band		±3.0% typical
Minimum load		0 A
Overshoot/undershoot		None
Ripple and noise	5 - 20 MHz	60 mV pk-pk 25 mV rms max.
Temperature coefficient		±0.01% / °C
Transient response		100 mV max deviation 50 µs recovery to within ±1.0%
Remote sense		10% Vo compensation
Short circuit protection		Continuous
Thermal protection		Automatic recovery

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	200 kHz typical
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions (vertical model)	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		0.135 ± 0.02 inches 3.43 ± 0.5 mm
Weight		5 g (0.18 oz)
MTBF	Telcordia SR-332	7,042,000 hours

EMC CHARACTERISTICS

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

ENVIRONMENTAL SPECIFICATIONS

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

ORDERING INFORMATION

Model Number [3]	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SIL15E-12W3V3-VJ	49.5 W	10 - 14 Vdc	0.8 - 3.63 Vdc	0 A	15 A	94%	±0.2%	±1.0%

PART NUMBER SYSTEM WITH OPTIONS

Product Family	Rated Output Current	Performance		Input Voltage	Type of Output	Output Voltage		Mounting Option	Packaging Options
SIL	15	E	-	12	W	3V3	-	V	J
SIL = Single In Line	15 = 15 Amps	E = Enhanced Performance		12 = 10 - 14 Vdc	W = Wide	0.8 - 3.63 Vdc		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 SIL15E-12W3V3. 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 SIL15E-12W3V3 converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

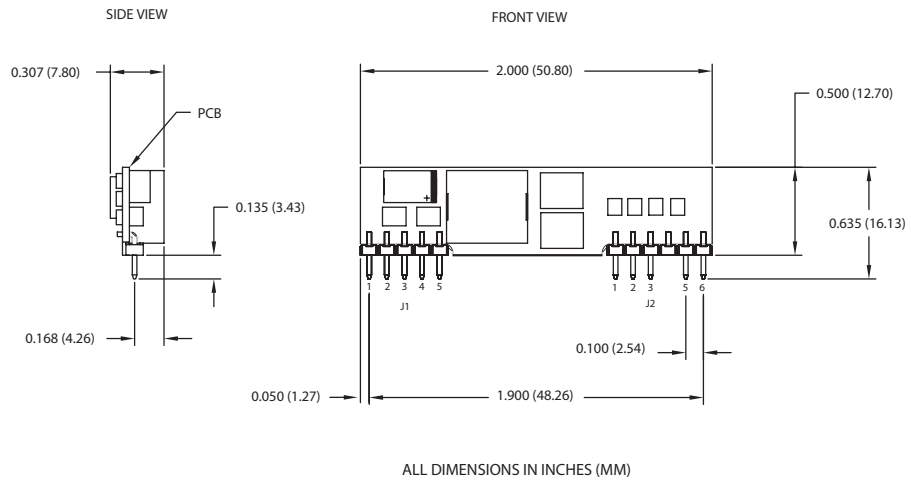
Notes:

1. The SIL15E features an 'Positive 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 SIL15E:

Configuration	Converter Operation
Remote pin open circuit	Unit is ON
Remote pin pulled low [Von/off <0.8V]	Unit is OFF
Remote pin pulled high [Von/off >1.6 V]	Unit is ON

   An 'Negative Logic' Remote ON/OFF version is also possible with this converter. To order please place the suffix 'R' towards the end of the model number, e.g. SIL15E-12W3V3-VRJ.
2. Full derating curves available in both the Longform Datasheet and Application Note.
3. 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 to find a suitable alternative.

MECHANICAL DRAWINGS



ALL DIMENSIONS IN INCHES (MM)

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