AM10CW-LPZ

Click to ORDER samples



1” x 1”

The AM10CW-LPZ is a 10W DC/DC converter that offers a regulated output which contributes to a more stable and reliable output performance. It features a wide 4:1 input voltage range of 9-160VDC, which will benefit your new system design.

This series offers great operating temperatures, from -40°C to 85°C. Furthermore, an isolation of 1500VDC/2250VDC, a high MTBF of 1,000,000h, continuous output short circuit protection (OSCP), over-current protection (OCP), over-voltage protection (OVP), and under voltage lock-out (UVLO) come standard with the series.

The AM10CW-LPZ is suitable for distributed power supply systems, industrial controls, power grid, instruments and communications applications.

Features

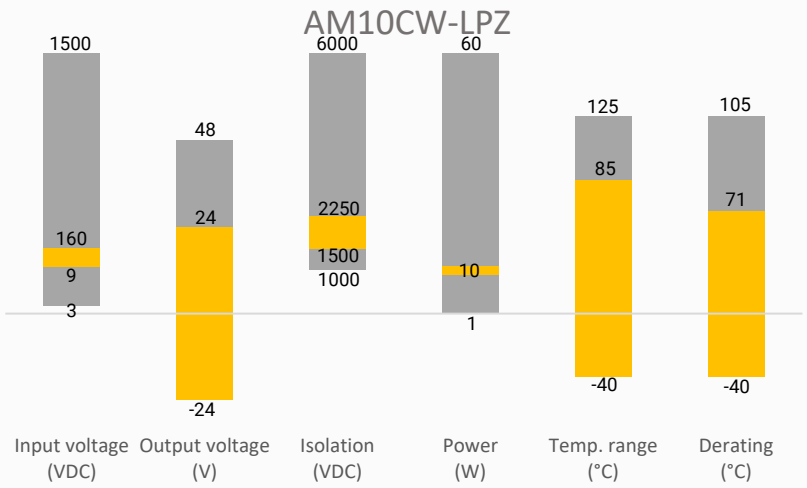
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 1500VDC/2250VDC
- Low ripple & noise, 80mV (p-p), typ.
- Regulated Output
- 1” x 1” package
- Output short circuit, over-current, over-voltage, input under voltage protection

RoHS

3yr Warranty

CE

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications



Power Grid | Industrial | Telecom | Instrumentation

Downloaded from Arrow.com.

Models & Specifications

Single Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current (mA typ.)		Output Current Max (mA)	Maximum Capacitive Load (µF)	Efficiency Full Load Typ. (%)
			No Load	Full Load			
AM10CW-2403SLPZ	24 (9-36)	3.3	5	429	2400	2200	77
AM10CW-2405SLPZ	24 (9-36)	5	5	508	2000	2200	82
AM10CW-2406SLPZ	24 (9-36)	6	5	508	1667	1000	82
AM10CW-2409SLPZ	24 (9-36)	9	5	508	1111	680	83
AM10CW-2412SLPZ	24 (9-36)	12	5	484	833	470	86
AM10CW-2415SLPZ	24 (9-36)	15	5	484	667	330	86
AM10CW-2424SLPZ	24 (9-36)	24	5	484	417	100	86
AM10CW-4803SLPZ	48 (18-75)	3.3	5	212	2400	2200	78
AM10CW-4805SLPZ	48 (18-75)	5	5	257	2000	2200	81
AM10CW-4806SLPZ	48 (18-75)	6	5	257	1667	1000	81
AM10CW-4809SLPZ	48 (18-75)	9	5	257	1111	680	85
AM10CW-4812SLPZ	48 (18-75)	12	5	245	833	470	86
AM10CW-4815SLPZ	48 (18-75)	15	5	245	667	330	87
AM10CW-4824SLPZ	48 (18-75)	24	5	245	417	100	85
AM10CW-11003SH22LPZ	110 (40-160)	3.3	3	95	2400	5400	76
AM10CW-11005SH22LPZ	110 (40-160)	5	3	115	2000	5400	79
AM10CW-11012SH22LPZ	110 (40-160)	12	3	115	833	470	84
AM10CW-11015SH22LPZ	110 (40-160)	15	3	115	667	330	84
AM10CW-11024SH22LPZ	110 (40-160)	24	3	115	417	100	85

Note 1: Add suffix "-ST" for optional screw terminal bottom plate or "-STD" for optional DIN rail screw terminal bottom plate. Add suffix "-K" for optional heatsink, "-K-ST" for optional heatsink and screw terminal bottom plate or "-K-STD" for optional heatsink and DIN rail screw terminal bottom plate.
Note 2: Models with terminal bottom plates include input reverse polarity protection. Due to the input reverse polarity protection, models with "-ST", "-STD", "-K-ST" and "-K-STD" option have their minimum input and start-up voltage increased by 1VDC and efficiency decreased by 2%.
Note 3: Exceeding the maximum input voltage may cause permanent damage.

Dual Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current (mA typ.)		Output Current Max (mA)	Maximum Capacitive Load (µF)	Efficiency (%) Full Load Typ.
			No Load	Full Load			
AM10CW-2403DLPZ	24 (9-36)	±3.3	5	408	±1200	±1000	81
AM10CW-2405DLPZ	24 (9-36)	±5	5	503	±1000	±1000	83
AM10CW-2409DLPZ	24 (9-36)	±9	5	484	±556	±680	86
AM10CW-2412DLPZ	24 (9-36)	±12	5	484	±417	±470	87
AM10CW-2415DLPZ	24 (9-36)	±15	5	484	±333	±330	87
AM10CW-2424DLPZ	24 (9-36)	±24	5	484	±208	±100	86
AM10CW-4803DLPZ	48 (18-75)	±3.3	5	203	±1200	±1000	82
AM10CW-4805DLPZ	48 (18-75)	±5	5	251	±1000	±1000	82
AM10CW-4809DLPZ	48 (18-75)	±9	5	245	±556	±680	83
AM10CW-4812DLPZ	48 (18-75)	±12	5	245	±417	±470	85
AM10CW-4815DLPZ	48 (18-75)	±15	5	245	±333	±330	85
AM10CW-4824DLPZ	48 (18-75)	±24	5	245	±208	±100	85

Downloaded from Arrow.com.

Note 1: Add suffix "-ST" for optional screw terminal bottom plate or "-STD" for optional DIN rail screw terminal bottom plate. Add suffix "-K" for optional heatsink, "-K-ST" for optional heatsink and screw terminal bottom plate or "-K-STD" for optional heatsink and DIN rail screw terminal bottom plate.
Note 2: Models with terminal bottom plates include input reverse polarity protection. Due to the input reverse polarity protection, models with "-ST", "-STD", "-K-ST" and "-K-STD" option have their minimum input and start-up voltage increased by 1VDC and efficiency decreased by 2%.
Note 3: Exceeding the maximum input voltage may cause permanent damage.

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Types			4:1	
Filter	Pi Filter			
Startup time		10		mS
Startup input voltage	24Vin models		9	VDC
	48Vin models		18	VDC
	110Vin models		40	VDC
Input under-voltage lockout	24Vin models	5.5 ~ 6.5		VDC
	48Vin models	12 ~15.5		VDC
	110Vin models	28~33		VDC
Absolute maximum rating	24Vin models, 1 sec.	≥-0.7	50	VDC
	48Vin models, 1 sec.	≥-0.7	100	VDC
	110Vin models, 1 sec.	≥-0.7	180	VDC
Input reflected current	24/48Vin models	30		mA
	110Vin models	25		mA
On/Off control	ON - open or pulled high (2.7- 12 VDC) OFF - pulled low to GND (0 - 1.2 VDC), idle current 10mA max.			

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output 60 sec, ≤ 1mA, 24/48Vin models	≥1500		VDC
	Input / output 60 sec, ≤ 1mA, 110Vin models	≥2250		VDC
	Input to case/ output to case 60 sec, ≤ 1mA, 110Vin models	≥1600		VDC
Resistance	500VDC	≥1000		MΩ
Capacitance	Input to output, 100KHz/0.1V, 24/48Vin models	1000		pF
	Input to output, 100KHz/0.1V, 110Vin models	2200		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	5~100% load, main output	±1	±3	%
	5~100% load, other output	±3	±5	%
Line regulation	Full load, main output	±0.2	±0.5	%
	Full load, other output	±0.5	±1	%
Load regulation**	5~100% load, main output	±0.5	±1	%
	5~100% load, other output	±1.0	±1.5	%
Cross Regulation	Dual output models, 50% load on 1st output and 100% load on 2nd output		±5	%
Transient recovery time	25% load step change	300	500	µs

Downloaded from Arrow.com.

Transient recovery deviation	25% load step change, 24/48Vin models	±5	±8	%
	25% load step change, 110Vin models	±3	±8	%
Ripple & Noise*	20MHz bandwidth, 5~100% load, 24/48Vin models	80	150	mV pk-pk
	20MHz bandwidth, 5~100% load, 110Vin models	50	100	mV pk-pk

*** Ripple and Noise are measured at 20MHz bandwidth by using a 0.1µF (M/C) and 47µF (E/C) parallel capacitor.**
**** Operating with less than 5% of rated load will not cause permanent damage to the converters, but the performances data may not fall into the specifications, and reliable operating is not assured.**

General Specifications

Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency	100% load		300		KHz
Over Current protection	Input voltage range	110	140		%Io
Over voltage protection	Input voltage range	110		160	%Vo
Short Circuit Protection	Continuous, Auto recovery				
Operating temperature	With derating	-40		85	°C
Storage temperature		-55		125	°C
Temperature coefficient	100% Load			± 0.03	%/ °C
Cooling	Free air convection				
Humidity	Non-condensing	5		95	% RH
Maximum soldering temperature	1.5mm from case for 10 sec			+300	°C
Case material	Aluminum alloy				
Weight	PCB mountable models		12		g
	With optional heatsink		18		g
	With optional -ST mounting plate		32		g
	With optional -STD mounting plate		52		g
	With optional heatsink and -ST mounting plate		38		g
	With optional heatsink and -STD mounting plate		57		g
Dimensions (L x W x H)	PCB mountable models	1.00 x 1.00 x 0.47 inches (25.40 × 25.40 × 12.00 mm)			
	With optional heatsink	1.00 x 1.00 x 0.73 inches (25.40 × 25.40 × 18.60 mm)			
	With optional -ST mounting plate	2.99 x 1.24 x 0.83 inches (76.00 × 31.50 × 21.20 mm)			
	With optional -STD mounting plate	2.99 x 1.24 x 1.02 inches (76.00 × 31.50 × 25.80 mm)			
	With optional heatsink and -ST mounting plate	2.99 x 1.24 x 1.08 inches (76.00 × 31.50 × 27.40 mm)			
	With optional heatsink and -STD mounting plate	2.99 x 1.24 x 1.26 inches (76.00 × 31.50 × 32.00 mm)			
MTBF	> 1 000 000 hrs (MIL-HDBK -217F, t=+25°C)				

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Safety Specifications

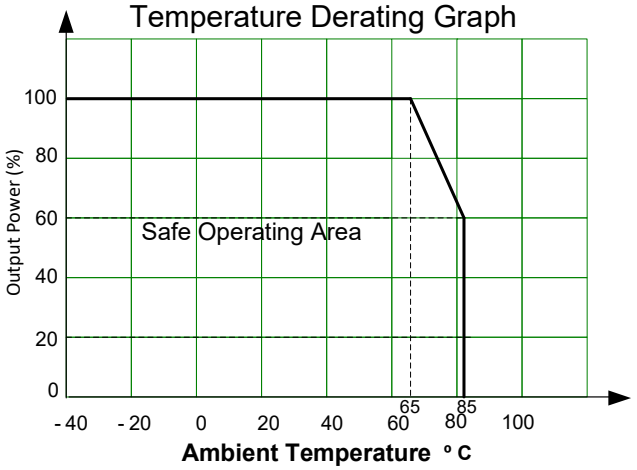
Parameters		
Standards	Designed to meet UL/EN/IEC62368-1, EN50155 (for 110Vin models only)	
	EMI - Conducted and radiated emission	CISPR32/EN55032, Class B with recommended EMC circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2, Contact ±4KV, Criteria B, 24/48Vin models IEC/EN 61000-4-2, Contact ±6KV Air ±8KV, Criteria B, 110Vin models

Downloaded from Arrow.com.

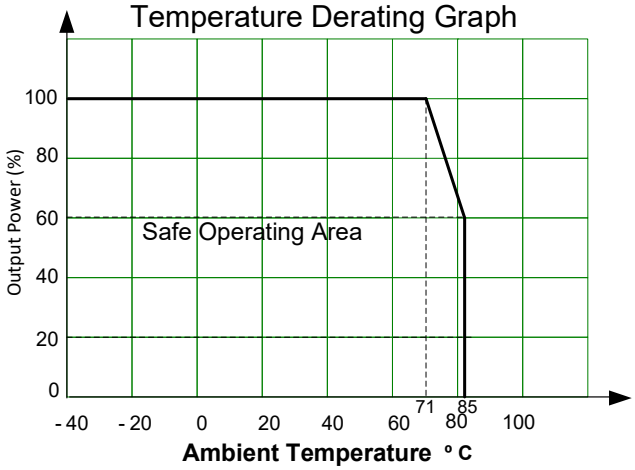
	RF, Electromagnetic Field Immunity	IEC/EN 61000-4-3, 10V/m, Criteria A, 24/48Vin models IEC/EN 61000-4-3, 20V/m, Criteria A, 110Vin models
	Electrical Fast Transient/Burst Immunity	IEC/EN 61000-4-4, ±2KV, Criteria B with the recommended EMC circuit
	Surge Immunity	IEC/EN 61000-4-5, L-L ±2KV, Criteria B with the recommended EMC circuit
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6, 3Vrms, Criteria A

Derating

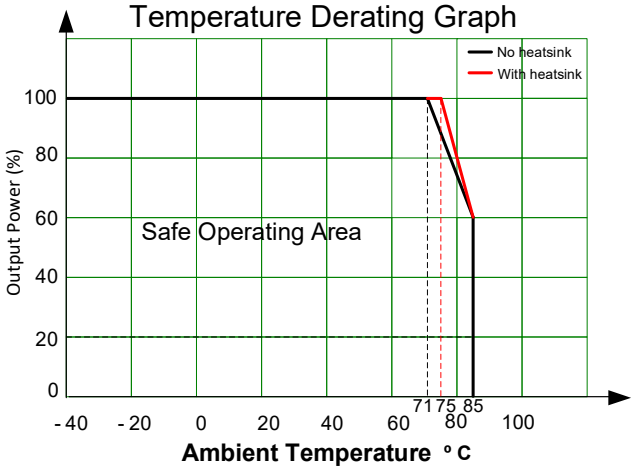
3.3/5/6Vout models, 24/48Vin models



9/12/15/24Vout models, 24/48Vin models



110Vin models

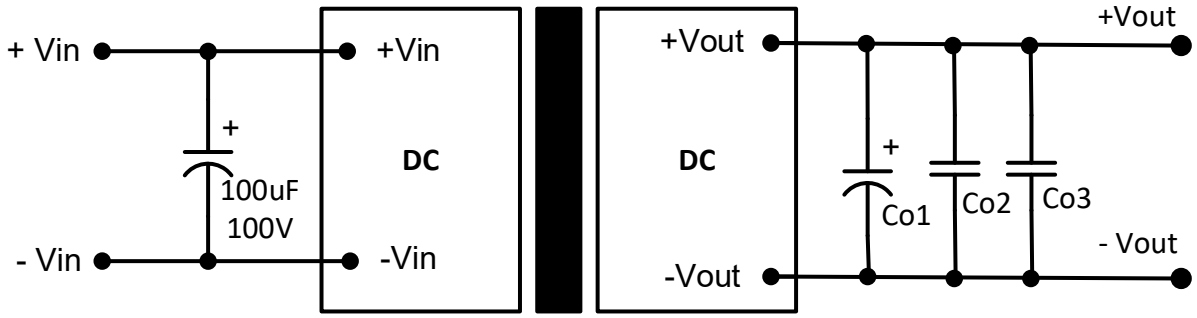


Downloaded from Arrow.com.

Typical Application Circuit

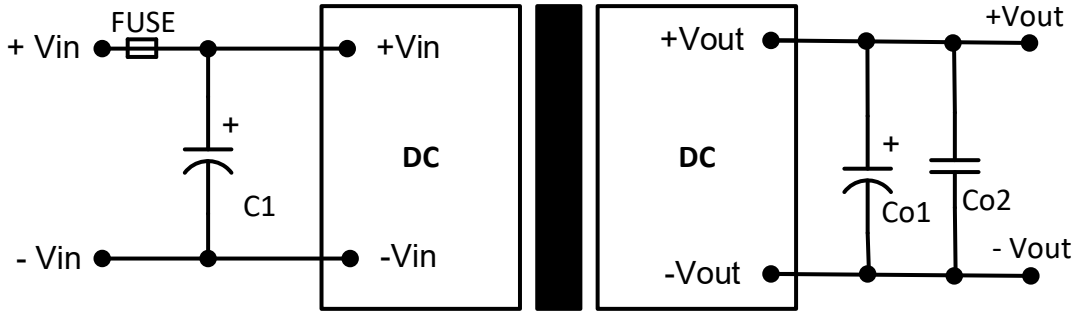
Typical application circuit is to further lower the input and output ripple. It is not required for general use.
For dual output models, output capacitors are connected to each output.

24/48Vin models



Vout	Co1	Co2	Co3
3.3, 5, 6V	100uF, 16V	10uF, 50V	0.1uF, 16V
9, 12, 15V	100uF, 25V	10uF, 50V	0.1uF, 25V
24V	47uF, 50V	10uF, 50V	0.1uF, 50V

110Vin models



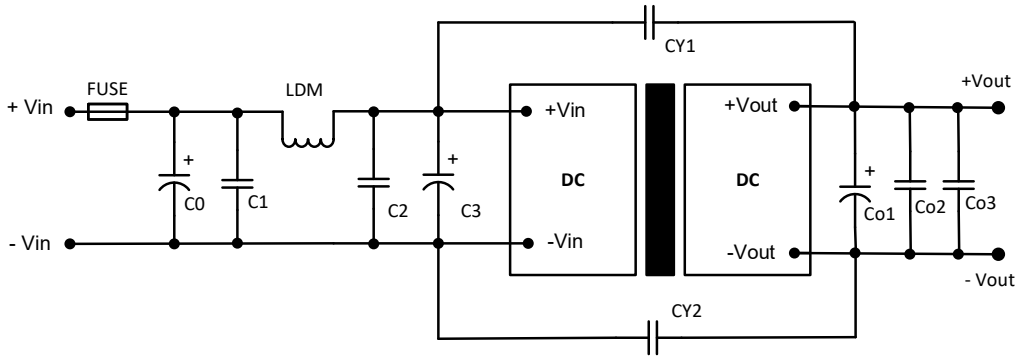
Vout	FUSE	C1	Co1	Co2
3.3, 5V	2A, slow below	10~47uF	100uF, 16V	0.1uF, 16V
12, 15V	2A, slow below	10~47uF	47uF, 25V	0.1uF, 25V
24V	2A, slow below	10~47uF	22uF, 50V	0.1uF, 50V

Downloaded from Arrow.com.

Recommended EMC Circuit

For dual output models, output capacitors are connected to each output.

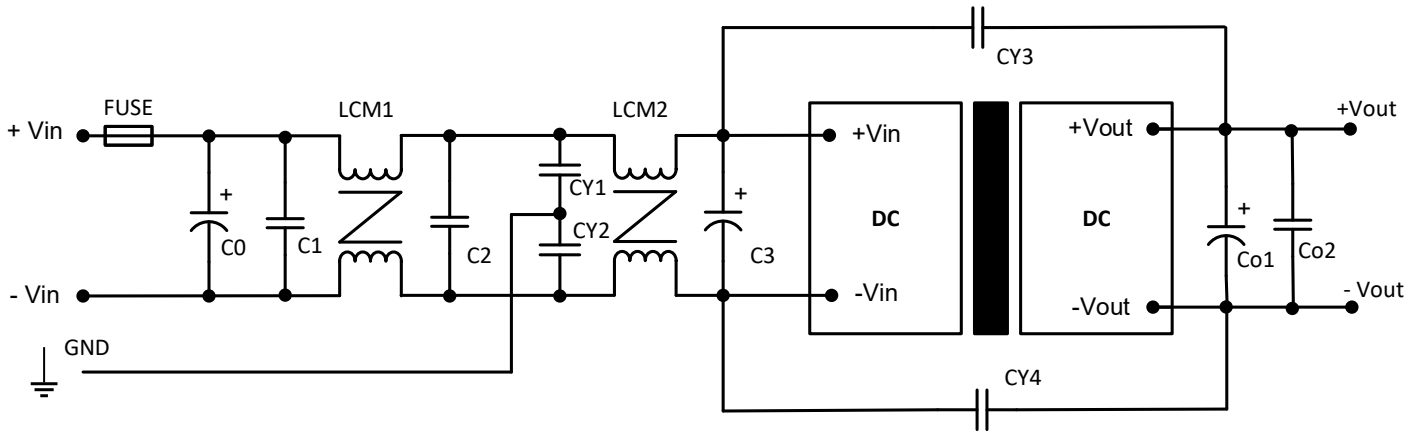
24/48Vin models



Vin	C0, C3	C1, C2	LDM	CY1, CY2
24V	330uF, 50V	4.7uF, 50V	10uH, 4A	1nF, 2KV
48V	330uF, 100V	4.7uF, 100V	10uH, 2A	1nF, 2KV

Fuse to be selected according to application needs. Output components refer to Typical Application Circuit.

110Vin models



Vin	C0	C1, C2	C3	LCM1	LCM2	CY1, CY2, CY3, CY4
110V	100uF, 200V	0.22uF, 250V	10~47uF	2.2mH	1.1mH	1nF, 400VAC

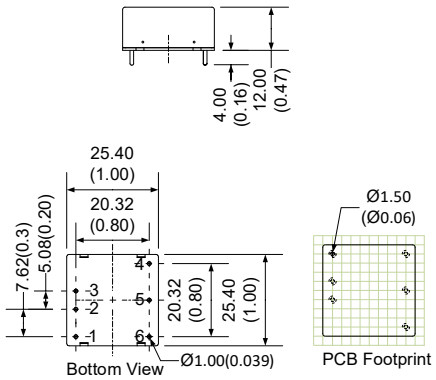
Fuse to be selected according to application needs. Output components refer to Typical Application Circuit.

Downloaded from Arrow.com.

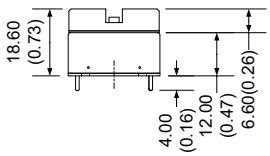
Dimensions

24/48Vin models

No Suffix

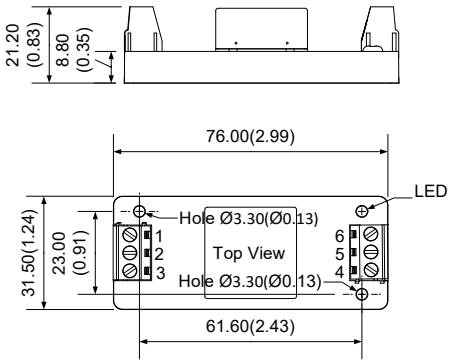


Suffix ***"-K"*** for optional heatsink

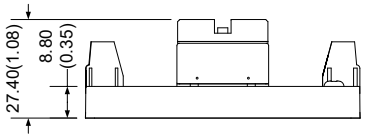


Unit: mm (inch)
General tolerance: ±0.50 (0.02)
Pin thickness: ±0.10 (0.004)
Footprint grid 2.54 x 2.54 mm

Suffix ***"-ST"*** for optional chassis



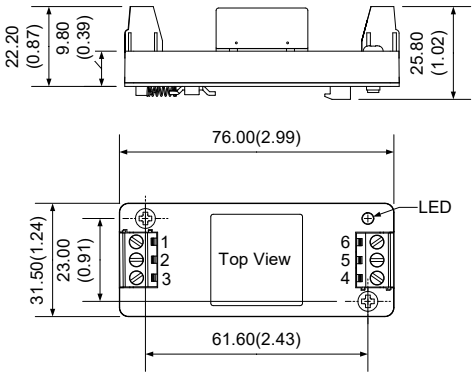
Suffix ***"-K-ST"*** for optional heatsink & chassis



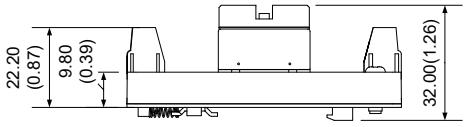
Unit: mm (inch)
General tolerance: ±1.00 (0.04)
Tightening torque: 0.4 Nm Max.
Wire gauge to chassis:12~24 AWG

Pin Out Specifications		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	-V Input	-V Input
3	+V Input	+V Input
4	+V Output	+V Output
5	No Pin	Com
6	-V Output	-V Output

Suffix ***"-STD"*** for optional DIN Rail



Suffix ***"-K-STD"*** for optional heatsink & DIN Rail

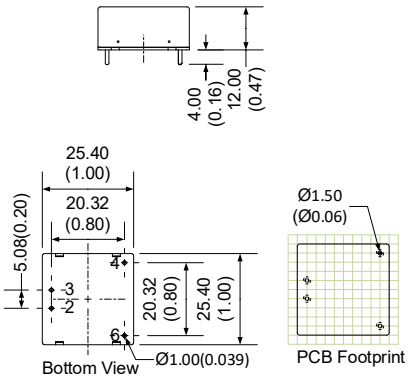


Unit: mm (inch)
General tolerance: ±1.00 (0.04)
Tightening torque: 0.4 Nm Max.
Wire gauge to chassis:12~24 AWG

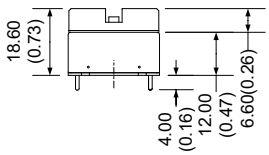
Downloaded from Arrow.com.

110Vin models

No Suffix

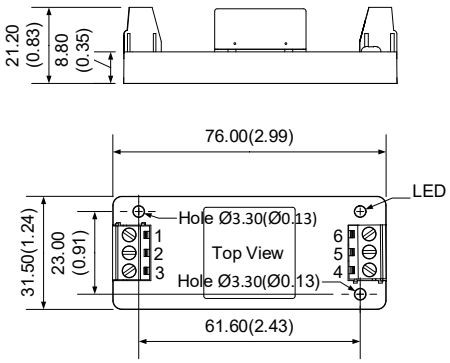


Suffix *"-K"* for optional heatsink

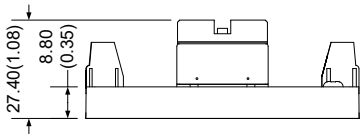


Unit: mm (inch)
General tolerance: ±0.50 (0.02)
Pin thickness: ±0.10 (0.004)
Footprint grid 2.54 x 2.54 mm

Suffix *"-ST"* for optional chassis



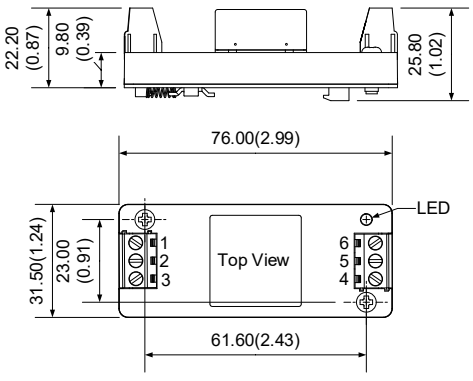
Suffix *"-K-ST"* for optional heatsink & chassis



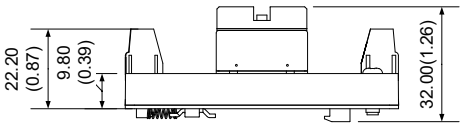
Unit: mm (inch)
General tolerance: ±1.00 (0.04)
Tightening torque: 0.4 Nm Max.
Wire gauge to chassis:12~24 AWG

Pin Out Specifications	
Pin	Single
2	-V Input
3	+V Input
4	+V Output
6	-V Output

Suffix *"-STD"* for optional DIN Rail



Suffix *"-K-STD"* for optional heatsink & DIN Rail



Unit: mm (inch)
General tolerance: ±1.00 (0.04)
Tightening torque: 0.4 Nm Max.
Wire gauge to chassis:12~24 AWG

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.

Downloaded from Arrow.com.