450 Watt Industrial



Features

- 4 x 6.5 x 1.61 inches
- Universal Input
- Low No Load Power
- Current Sharing Option
- Cover and Fan Options
- Now IEC/EN/UL62368-1 Compliant New
- Peak Power Capability
- Class B EMI

Electrical Specifications

Input Voltage	90–264 VAC/120–390 VDC, Universal	
Input Frequency	47–63 Hz	
Input Current	120 VAC: 4.5 A max.	230 VAC: 2.3 A max.
Input Protection	Dual Fusing, T8A/250 V in Live & Neutral	
No Load Power	120 VAC: 0.4	230 VAC: 0.8
Inrush Current	120 VAC: 40 A max.	230 VAC: 75 A max.
Efficiency	120 VAC: 88% (24 V, 48 V, 30 V) 86% (12 V) 83% (5 V) Typical	230 VAC: 90% (24 V, 48 V, 30 V)
Hold-up Time	120 VAC: 10 ms	230 VAC: 10 ms
Power Factor	120 VAC: 0.98	230 VAC: 0.95
Output Power	155 to 450 W (475 W for 24 V, 30 V & 500 W for 48 V model only for 5 seconds max.)	
Line Regulation	+/–0.5%	
Load Regulation	+/–3%	
Transient Response	< 10%, 50% to 100% load change, 50 Hz, 50% duty cycle, 0.1 A/µs, recovery time < 5 ms	
Rise Time	< 100 ms	
Set Point Tolerance	+/–1%	
Output Adjustability	+/–3%	
Over Current Protection	120 to 150%, Hic-Up Type	
Over Voltage Protection	> 114%, Latch Type	
Short Circuit Protection	Short term, autorecovery	
Over Temperature Protection	130°C primary heat sink, autorecovery	
Current Share	Up to 2 supplies connected in parallel (optional)	
Switching Frequency	PFC converter:Variable, 45-160 kHz typical Resonant converter:Variable, 35-250 kHz; 90 kHz typical	
Operating Temperature	0 to +70°C, refer derating curve; –20 to 0°C, start-up is guaranteed	
Storage Temperature	–40 to +85°C	
Relative Humidity	95% Rh, noncondensing	
Altitude	Operating: 10,000 ft.; Nonoperating: 40,000 ft.	
MTBF	1.28m Hours, Telcordia -SR332-issue 3	
Isolation Voltage	4242 VDC between input to output, 2121 VDC input to Earth	
Cooling	Convection: 300 W; 420 LFM: 450 W (24 V, 30 V & 48 V model) Convection: 250 W; 420 LFM: 450 W (12 V & 15 V model) Convection: 155 W; 420 LFM: 275 W (5 V model)	

Model Number	Type	Voltage	Max. Load (Convection)	Max. Load (420 LFM)	Min. Load	Ripple[1]
LFWLT450–1000	U-Channel	5 V	31.0 A	55.0 A	0.0 A	2%
LFWLT450–1000-I	U-Channel + OR-ing MOSFET	5 V	31.0 A	55.0 A	0.0 A	2%
LFWLT450–1000-T	Top Fan	5 V	31.0 A	55.0 A	0.0 A	2%
LFWLT450–1000-I-T	Top Fan + OR-ing MOSFET	5 V	31.0 A	55.0 A	0.0 A	2%
LFWLT450–1000-S	Side Fan	5 V	31.0 A	55.0 A	0.0 A	2%
LFWLT450–1000-I-S	Side Fan + OR-ing MOSFET	5 V	31.0 A	55.0 A	0.0 A	2%
LFWLT450–1001	U-Channel	12 V	20.83 A	37.5 A	0.0 A	2%
LFWLT450–1001-I	U-Channel + OR-ing MOSFET	12 V	20.83 A	37.5 A	0.0 A	2%
LFWLT450–1001-T	Top Fan	12 V	20.83 A	37.5 A	0.0 A	2%
LFWLT450–1001-I-T	Top Fan + OR-ing MOSFET	12 V	20.83 A	37.5 A	0.0 A	2%
LFWLT450–1001-S	Side Fan	12 V	20.83 A	37.5 A	0.0 A	2%
LFWLT450–1001-I-S	Side Fan + OR-ing MOSFET	12 V	20.83 A	37.5 A	0.0 A	2%
LFWLT450–1002	U-Channel	15 V	16.66 A	30.0 A	0.0 A	2%
LFWLT450–1002-I	U-Channel + OR-ing MOSFET	15 V	16.66 A	30.0 A	0.0 A	2%
LFWLT450–1002-T	Top Fan	15 V	16.66 A	30.0 A	0.0 A	2%
LFWLT450–1002-I-T	Top Fan + OR-ing MOSFET	15 V	16.66 A	30.0 A	0.0 A	2%
LFWLT450–1002-S	Side Fan	15 V	16.66 A	30.0 A	0.0 A	2%
LFWLT450–1002-I-S	Side Fan + OR-ing MOSFET	15 V	16.66 A	30.0 A	0.0 A	2%
LFWLT450–1003	U-Channel	24 V	12.3 A	18.75 A	0.0 A	2%
LFWLT450–1003-I	U-Channel + OR-ing MOSFET	24 V	12.3 A	18.75 A	0.0 A	2%
LFWLT450–1003-T	Top Fan	24 V	12.3 A	18.75 A	0.0 A	2%
LFWLT450–1003-I-T	Top Fan + OR-ing MOSFET	24 V	12.3 A	18.75 A	0.0 A	2%
LFWLT450–1003-S	Side Fan	24 V	12.3 A	18.75 A	0.0 A	2%
LFWLT450–1003-I-S	Side Fan + OR-ing MOSFET	24 V	12.3 A	18.75 A	0.0 A	2%
LFWLT450–1004	U-Channel	48 V	6.25 A	9.37 A	0.0 A	2%
LFWLT450–1004-I	U-Channel + OR-ing MOSFET	48 V	6.25 A	9.37 A	0.0 A	2%
LFWLT450–1004-T	Top Fan	48 V	6.25 A	9.37 A	0.0 A	2%
LFWLT450–1004-I-T	Top Fan + OR-ing MOSFET	48 V	6.25 A	9.37 A	0.0 A	2%
LFWLT450–1004-S	Side Fan	48 V	6.25 A	9.37 A	0.0 A	2%
LFWLT450–1004-I-S	Side Fan + OR-ing MOSFET	48 V	6.25 A	9.37 A	0.0 A	2%
LFWLT450–1005	U-Channel	30 V	10.0 A	15.0 A	0.0 A	2%
LFWLT450–1005-I	U-Channel + OR-ing MOSFET	30 V	10.0 A	15.0 A	0.0 A	2%
LFWLT450–1005-T	Top Fan	30 V	10.0 A	15.0 A	0.0 A	2%
LFWLT450–1005-I-T	Top Fan + OR-ing MOSFET	30 V	10.0 A	15.0 A	0.0 A	2%
LFWLT450–1005-S	Side Fan	30 V	10.0 A	15.0 A	0.0 A	2%
LFWLT450–1005-I-S	Side Fan + OR-ing MOSFET	30 V	10.0 A	15.0 A	0.0 A	2%

Connectors		
J1	Pin 1	AC LINE
	Pin 3	AC NEUTRAL
	Pin 5	EARTH
Spade Connector (J5)		
J2	Pin 1	V1
	Pin 2	RTN
J3	Pin 1	NC
	Pin 2	PF OK
	Pin 3	POWER GOOD
	Pin 4	DC RETURN
	Pin 5	+5 VSTBY
	Pin 6	+VE REMOTE SENSE
	Pin 7	-VE REMOTE SENSE
	Pin 8	CS
	Pin 9	DC RETURN
	Pin 10	REMOTE ON/OFF
J4 (FAN OUTPUT)	Pin 1	+VE
	Pin 2	-VE

Notes

1. Ripple is peak to peak with 20 MHz bandwidth and 10 µF (Electrolytic capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges. Please contact factory/ sales representative for minimum load required for ripple to be within specification.
2. Combined output power of main output, fan supply and standby supply shall not exceed max. power rating.
3. Standby output voltage 5 V/ 1.5A(convection) / 2A(420LFM) with tolerance including set point accuracy, line and load regulation is +/–10%. Ripple and noise is less than 5%.
4. Fan supply output voltage 12V/ 500mA with tolerance including set point accuracy, line and load regulation is +/–30% and needs min. 1% load on main output to be within regulation band. Ripple and noise is less than 10%.
5. Specifications are for nominal input voltage, 25°C unless otherwise stated.
6. PSU is supplied with J3 housing, pin–9 and pin–10 shorted to enable main output without remote on/off feature.
7. Derate output power linearly to 80% from 90 VAC to 80 VAC input.
8. For ordering current sharing with OR-ing option add –I suffix with the model number.
9. The J5(Earth) spade connector can be used for U-Channel option products only. When fan options are required the earth connection provided in the input AC connector should be used (Pin 5 – J1)

Mechanical Specifications

AC Input Connector (J1)	Tyco: 1-1123724-3 Mating: 1-1123722-5
EARTH (J5)	Molex: 19705−4301 Mating: 190030001
DC Output Connector (J2)	6-32 inches Screw Pan HD Mating: Designed to accept Ring Tongue Terminal AMP : 8-31886-1, wherein one 16 AWG(max) wire can be crimped. Note : One Ring Tongue Terminal with 16 AWG is recommended for current upto 11A only. Use multiple tongue terminals with wire for more current.
Signal Connector (J3)	Molex: 22−23−2101 Mating : 22-01-2107; Pins 08-50-0113
Dimensions	4.0 x 6.5 x 1.61 inches (101.6 x 165.01x 41.0 mm)
Weight	900 g

EMC

Parameter	Conditions/Description	Criteria
Conducted Emissions	EN55032-B, CISPR22-B, FCC PART15-B	Pass
Radiated Emissions	EN 55032 B	Pass
Input Current Harmonics	EN 61000-3-2	Class D
Voltage Fluctuation and Flicker	EN 61000-3-3	Pass
ESD Immunity	EN 61000-4-2	Level 3, Criterion A
Radiated Field Immunity	EN 61000-4-3	Level 3, Criterion A
Electrical Fast Transient Immunity	EN 61000-4-4	Level 3, Criterion A
Surge Immunity	EN 61000-4-5	Level 3, Criterion A
Conducted Immunity	EN 61000-4-6	Level 3, Criterion A
Magnetic Field Immunity	EN 61000-4-8	Level 3, Criterion A
Voltage dips, interruptions	EN 61000-4-11	Criterion A & B

Safety

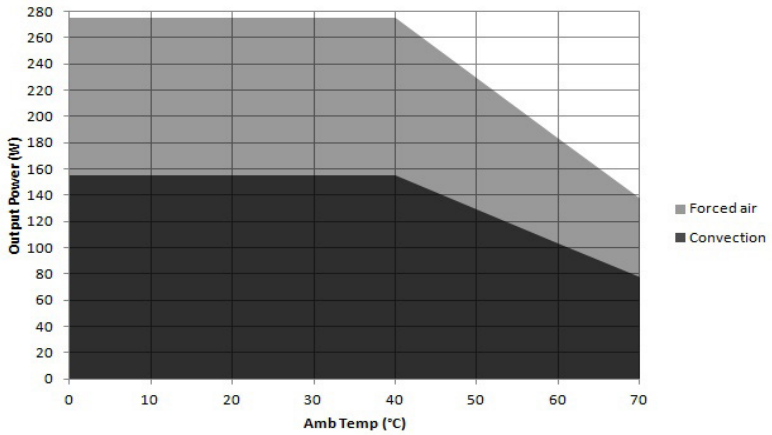
CE Mark	Complies with LVD Directive
Approval Agency	Nemko, UL, C-UL
Safety Standard(s)	EN 62368-1:2020;A11, IEC 62368-1:2018, UL 62368-1 (ed.3), CSA C22.2
Safety File Number(s)	Class-I : UL: Certificate Number 20201221-E515384, Nemko: Certificate No. P20224614, CB Certificate No.: NO112473,

Signal(s)

Power Good Signal	TTL signal goes high after main output is within regulation band, delay is 0.1 to 0.3 s
Remote Sense	Compensates for 200 mV drop
Remote on/off	To turn on PSU short remote pin to ground

Derating Curve (From 90 V to 264 V AC I/P)

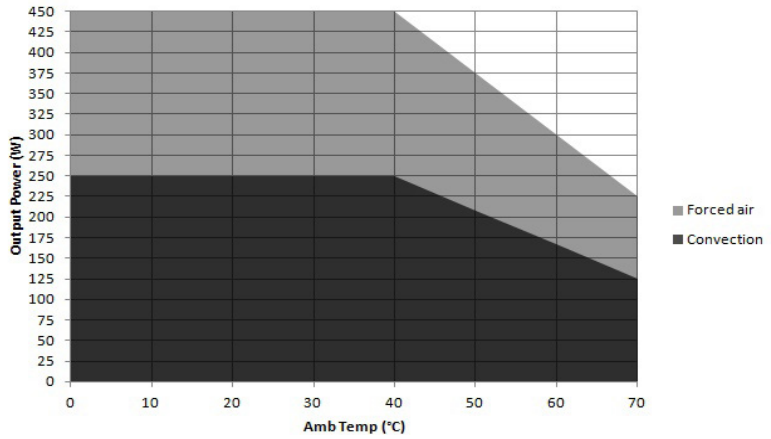
Power de-rating : 5V



Convection load: 155W up to 40 °C
De-rate above 40 °C @ 1.67% per °C

Forced air cooled load : 275W up to 40°C
De-rate above 40 °C @ 1.67% per °C

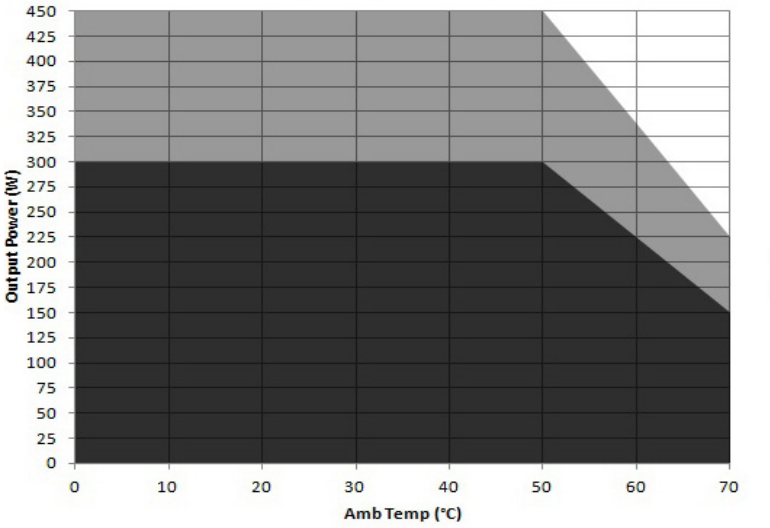
Power de-rating : 12V, 15V



Convection load: 250W up to 40 °C
De-rate above 40 °C @ 1.67% per °C

Forced air cooled load : 450W up to 40°C
De-rate above 40 °C @ 1.67% per °C

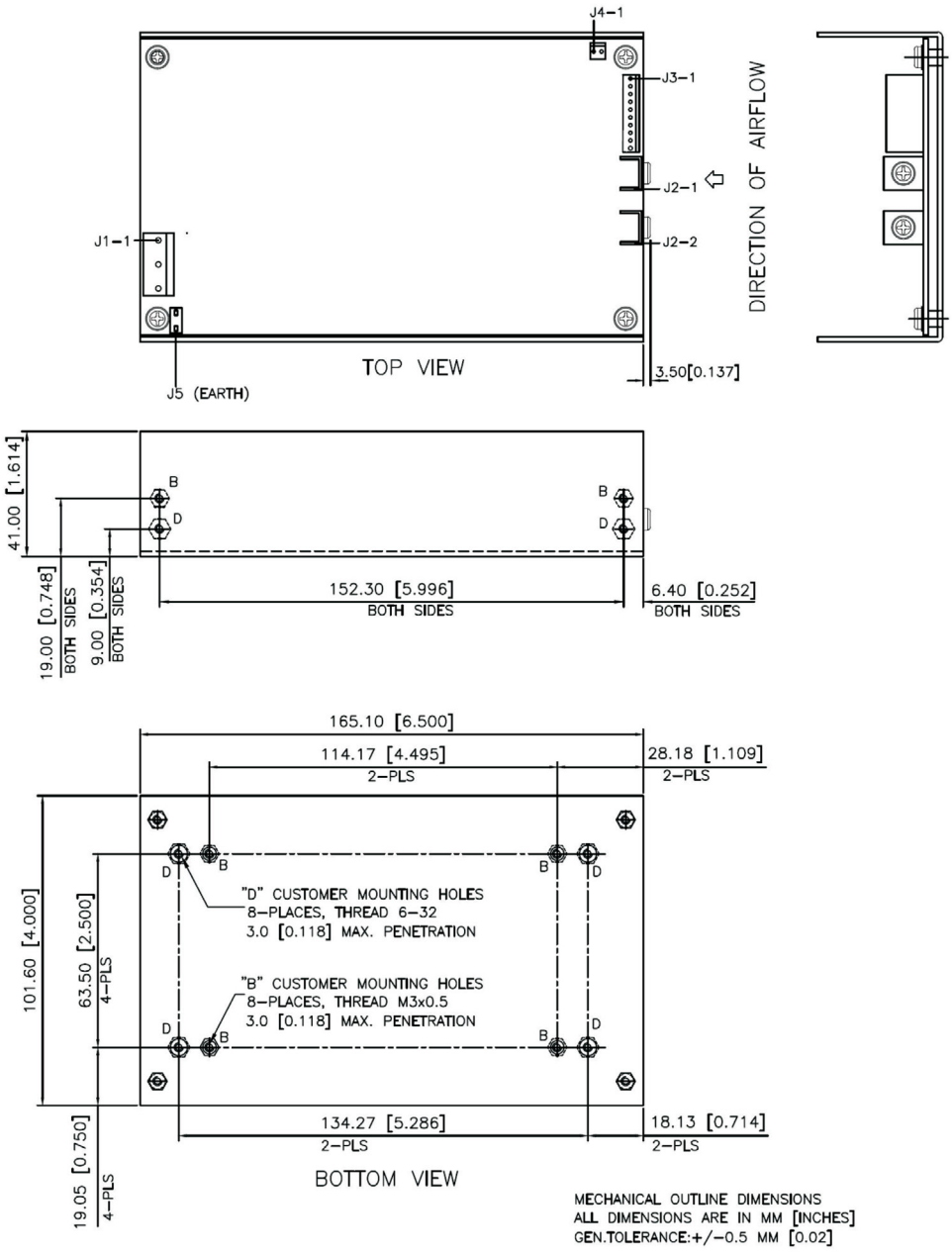
Power de-rating : 24V, 30V, 48V



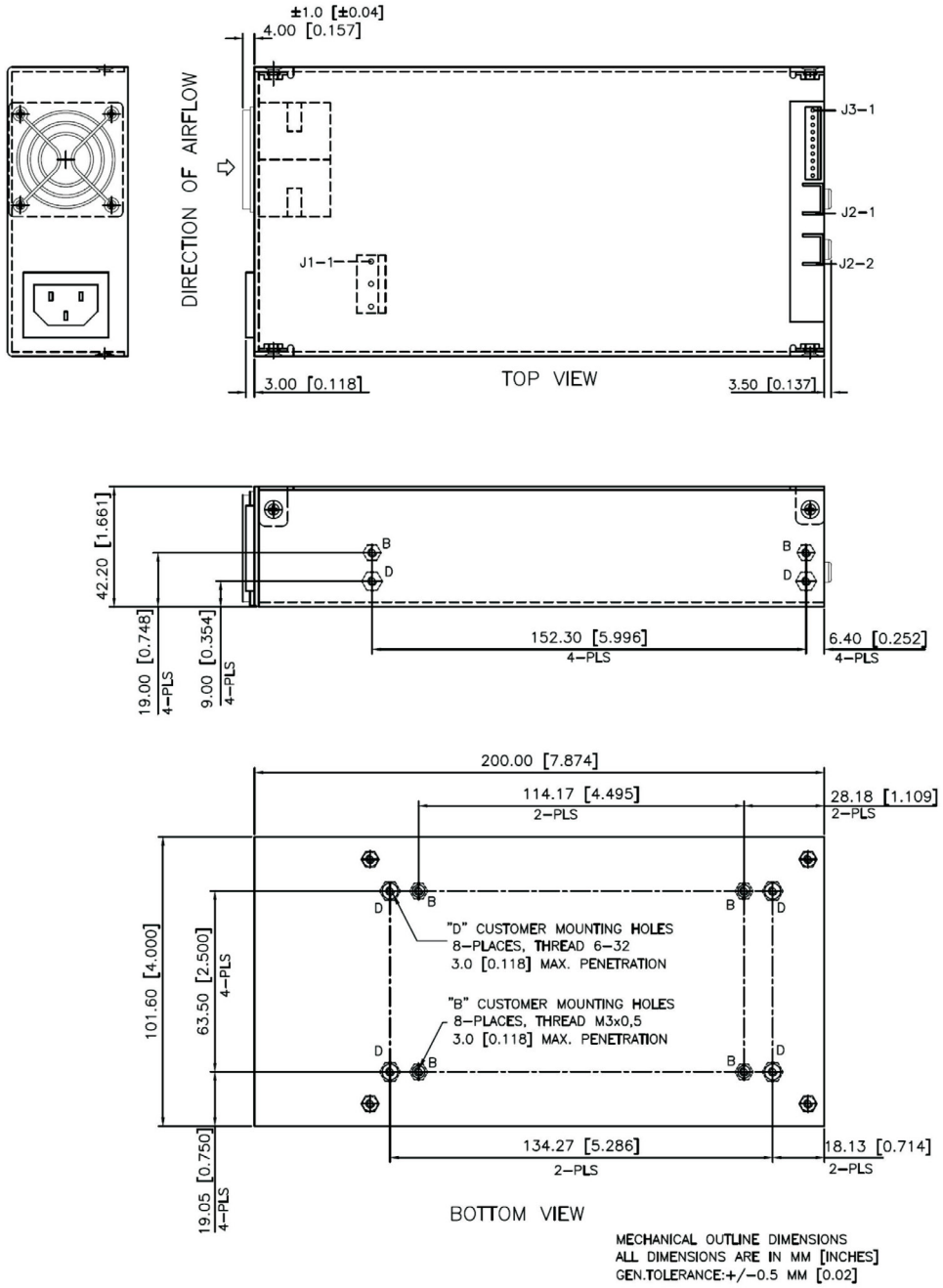
Convection load: 300W up to 50 °C
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 450W up to 50°C
De-rate above 50 °C @ 2.5% per °C

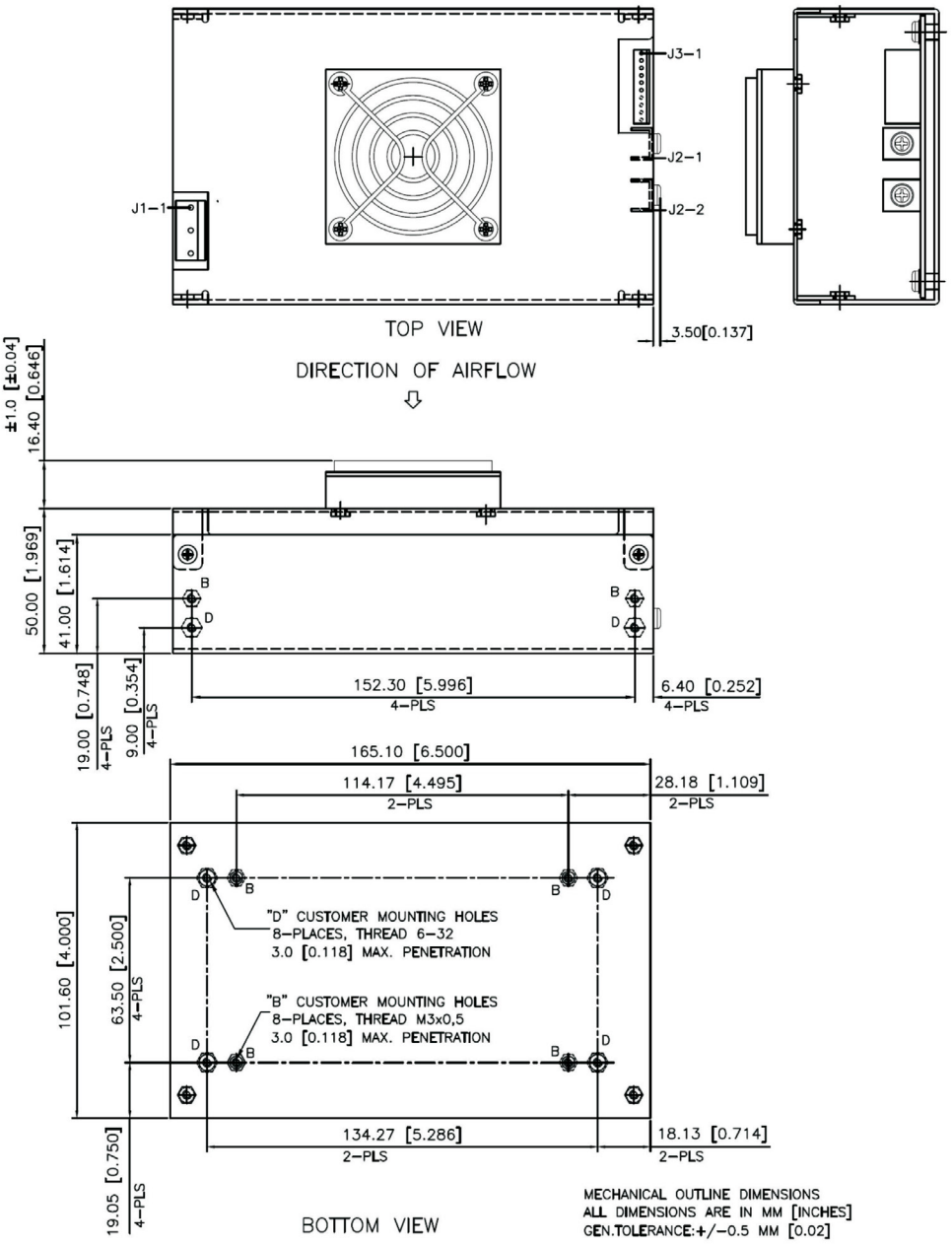
Option 1: Without Fan Mounting



Option 2: Side Fan Mounting



Option 3: Top Fan Mounting



Installtion instruction for current sharing:

During the installation and setup of parallel supplies in a system it is important that a single remote sense point be used for all the supplies. The remote sense voltage between the supplies must be adjusted to within 2% to ensure the supplies are inside the 3% capture window. If the supplies are not initially adjusted inside the capture window the supplies will not current share.

Note:

"CURRENT SHARING " facility is inclusive with the unit only with ordering of the " CURRENT SHARING " option unit i.e. LFWLT450-1XXX-I or LF(M)WLT450-1XXX-I.

Set-Up Procedures:

1. Connect load cables to the outputs of each supply.
2. Connect the remote sense lines to the load in twisted style . (A common remote sense point must be used for all the supplies in parallel).
3. Connect all the "current share" pins on the J3 connector between the supplies.
4. Adjust remote sense voltage of each supply to within 1% of rated output voltage or readjust to required set point. (Adjustment to be done with all other parallel supplies off).
5. Current sharing between the supplies can be verified by monitoring the output current of each supply with a hall effect DC current probe. The supplies should share to within 10% of the total load current.
6. The current share circuit has a capture window voltage of +/- 3% of the rated output voltage. If the output remote sense voltage of one of the supplies is adjusted outside the 3% window the supplies will not current share.

CURRENT SHARING BLOCK DIAGRAM

