LT Series Data Sheet

LT001, LT2.5, LT005, LT010, LT015, LT020, LT030

PRECISION HIGH VOLTAGE MODULES

Application: (3W max)

Mass Spectrometers, Electron Microscopes, Surface Science & Analysis, Nuclear Instruments, Photomultiplier tubes

- Highest Stability, Lowest Ripple, Lowest Drift
- Short Circuit & Flashover proof
- 24 hour burn in
- Positive, Negative & Remote Reversible versions
- Differential 0V-10V Control Input

The LT Series builds on the new standard for high voltage precision and stability set by the LS 1 W family. By optimising the Low Stress™ technologies pioneered in the LS family, the LT Series provides 3W o/p capability, but still has less than 2ppm ripple, 10pp-m/°C temperature coefficient, and 75ppm drift/hr throughout the range, while retaining the same LS case dimensions. Each of the units includes a differential control input.

All units are short circuit proof and use proven techniques to drive a high frequency oscillator and ferrite high voltage step-up transformer. These advanced power supplies build on Applied Kilovolts' legendary reputation for reliability, being constructed from conservatively rated components, their reliability further enhanced by information gained over many years of field operation.

Unipolar Unit Type	Output Voltage	Output Current	Ripple at Full Load	Temp-Co (/ °C)	Size (mm)	Weight (kg)
LT001xIP010	10V to 1kV	3mA	<4mV (pk-pk)	<10ppm	152 x 124 x 63	1.2
LT2.5xIP010	10V to 2.5kV	1.2mA	<5mV (pk-pk)	<10ppm	152 x 124 x 63	1.2
LT005xIP010	10V to 5kV	600uA	<10mV (pk-pk)	<10ppm	152 x 124 x 63	1.2
LT010xIP010	20V to 10kV	300uA	<20mV (pk-pk)	<10ppm	152 x 124 x 63	3
LT015xIP010	30V to 15kV	200uA	<30mV (pk-pk)	<10ppm	207 x 148 x 74	4
LT020xIP010	50V to 20kV	150uA	<40mV (pk-pk)	<10ppm	207 x 148 x 74	4
LT030xIP010	100V to 30kV	100uA	<60mV (pk-pk)	<10ppm	207 x 148 x 74	4

Reversible Unit Type	Output Voltage	Output Current	Ripple at Full Load	Temp-Co (/ °C)	Size (mm)	Weight (kg)
LT001RIP010	±10V to ±1kV	3mA	<4mV (pk-pk)	<10ppm	162 x 152 x 71.5	1.7
LT2.5RIP010	±10V to ±2.5kV	1.2mA	<5mV (pk-pk)	<10ppm	162 x 152 x 71.5	1.7
LT005RIP010	±10V to ±5kV	600uA	<10mV (pk-pk)	<10ppm	162 x 152 x 71.5	1.7
LT010RIP010	±20V to ±10kV	300uA	<20mV (pk-pk)	<10ppm	162 x 152 x 71.5	1.7
LT015RIP010	±30V to ±15kV	200uA	<30mV (pk-pk)	<10ppm	233 x 204 x 114	10
LT020RIP010	±50V to ±20kV	150uA	<40mV (pk-pk)	<10ppm	233 x 204 x 114	10
LT030RIP010	±100V to ±30kV	100uA	<60mV (pk-pk)	<10ppm	333 x 204 x 119	12.5

Electrical Specification

Input:	+24 volt dc ±1V [<0.5A Unipolar] [<0.6A Reversible] . 0V input common to HV return and chassis
Control of output	• 10V analogue signal. (0 to +10V gives zero to max o/p, tolerance ±2%). Zin 20Kohm • INTERNAL potentiometer.—see options • EXTERNAL potentiometer—see options
Polarity control	oc or <5V = -ve, >10V =+ve
Voltage monitor	0V to +10V ±2% for 0% to 100% (Zout= 0k)
Current monitor	0V to +10V ±2% for 0% to 100%, Offset ±0.1% of FS (Zout=10k)
Line regulation	<4ppm for a 1V change in input voltage
Load regulation	<10ppm for load changes from 10% to 100%
Drift (after 1 hour warm up)	<75ppm per hour, <150ppm per 8 hours
Protection (all outputs)	Protected against intermittent arcing and continued short circuit to ground

Mechanical Specification

Mountings	Blind Fasterners in base M3 & M4 see Outline Drgs
Input / control	15W D-type Connector
Output	By 1 metre screened cable, N.B. Reducing the cable length may increase the ripple voltage.

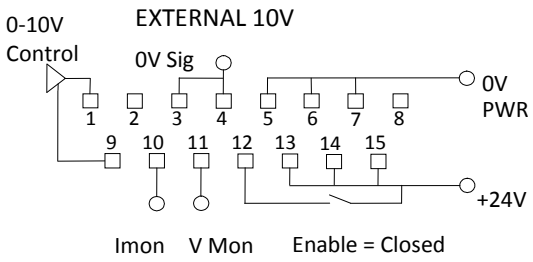
Environmental Specification

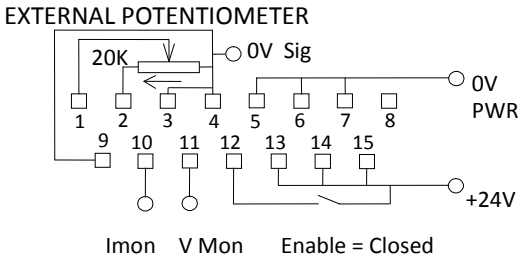
Temperature, operating	+10°C to +50°C.	Humidity (RH) <30°C non-condensing	80% maximum
Temperature, storage	-35°C to +85°C.	Humidity (RH) >30°C non-condensing	Decrease linearly to 50% at 40°C
Altitude, operating	Up to 2,000m.	Altitude, storage	Up to 18,000m

The unit is to be supplied from a current limited supply providing 24Vdc, impulse limited to overvoltage Category I (of IEC60364-4-443) . For use in an environment of pollution degree 2.

Pin Assignment

1	+ve Control Input	5	0V Power return	9	-ve Control Input	13	+24V dc input
2	+10V Internal Reference (if fitted)	6	0V Power return	10	Current monitor o/p	14	+24V dc input
3	Signal ground	7	0V Power return	11	Voltage monitor o/p	15	+24V dc input
4	Signal ground	8	Polarity select i/p	12	Enable		





Part Number Selection

		o/p kV	Polarity	Options Code	Temp Co
Series Code	**LT**	001= 1kV	P= +ve	IP = current monitor only	<10ppm/°C
		010= 10kV	N= -ve	PP = External Potentiometer	
		030= 30kV	R= Reversible	FP = Internal Potentiometer	

Example: +10kV LT series with Internal Potentiometer Control: LT010PFP010

We manufacture a large number of special versions of these units and would be pleased to discuss your application with you.

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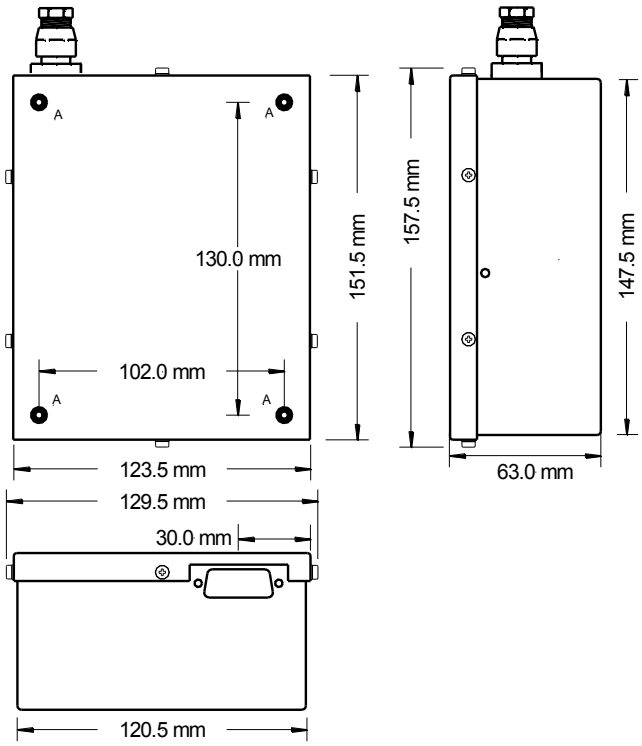
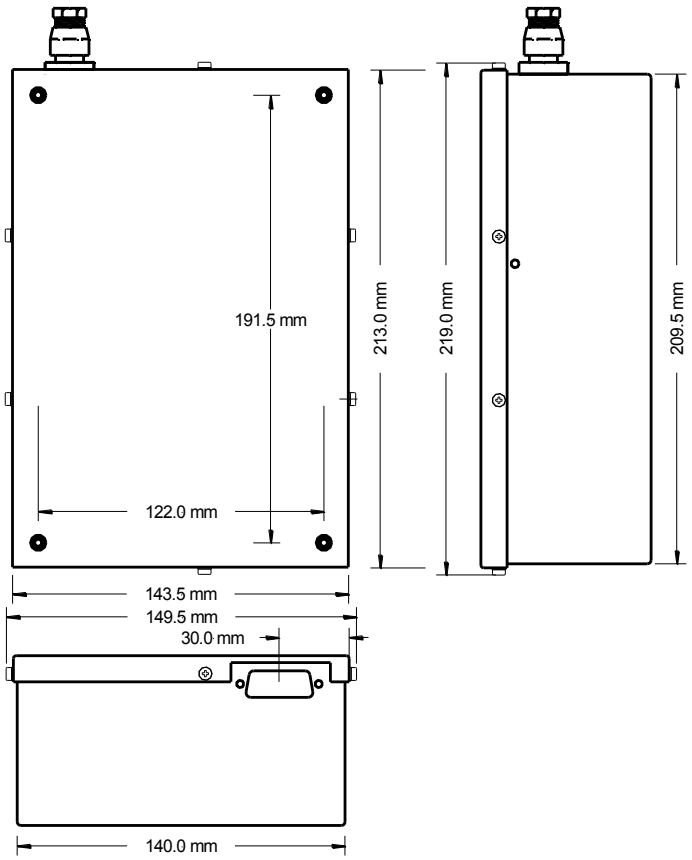
LT Series Unipolar Outline Drawings



Mounting Holes 'A'
4 off M3 blind fastener

1kV to 10kV Unipolar
Case Dimensions & Fixings



Mounting Holes 'A'
4 off M3 blind fastener

15kV to 30kV Unipolar
Case Dimensions & Fixings

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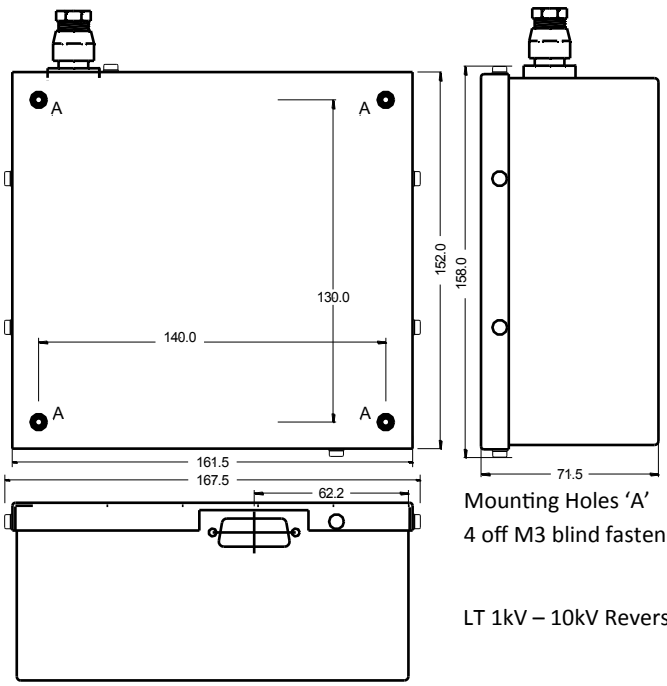
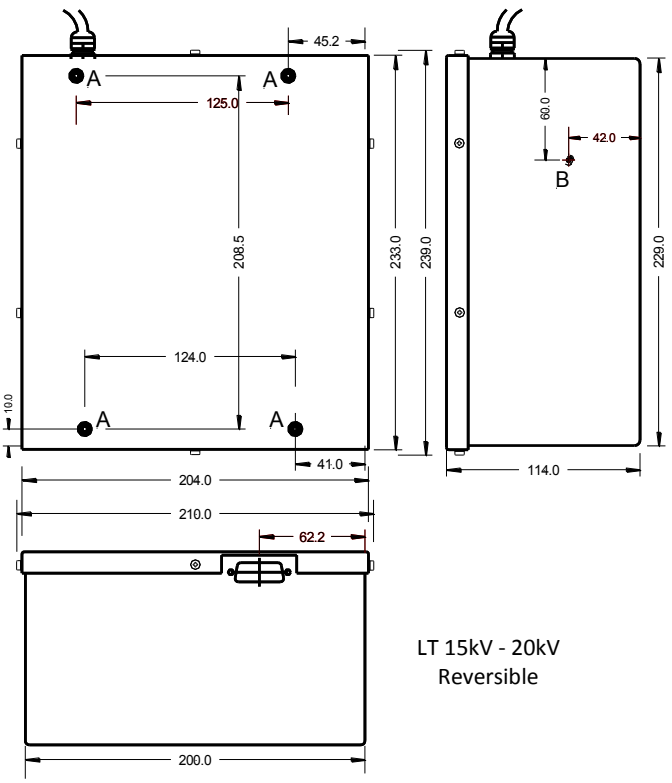
LT Series Reversible Outline Drawings

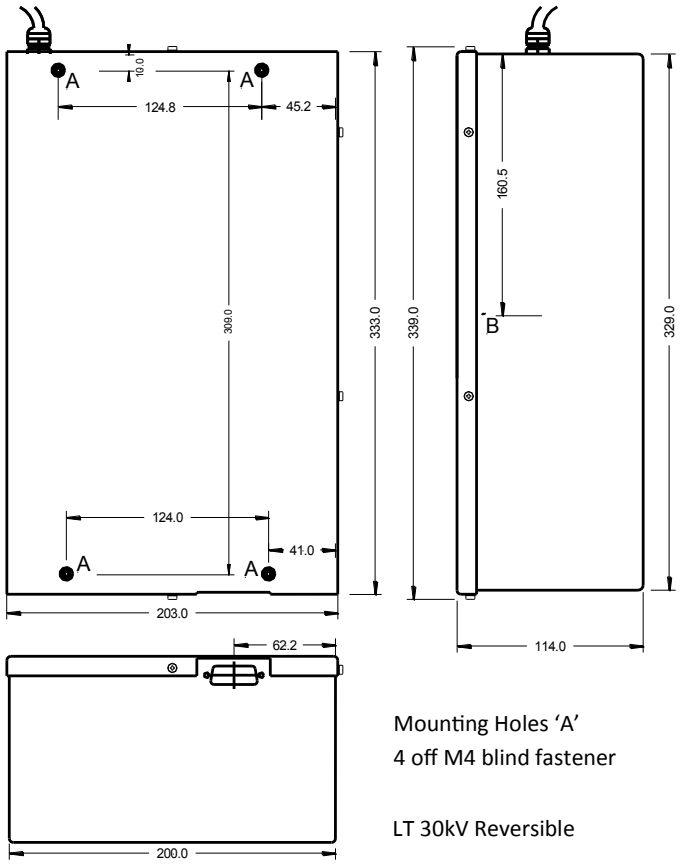


Mounting Holes 'A'
4 off M3 blind fastener

LT 1kV – 10kV Reversible



LT 15kV - 20kV
Reversible



Mounting Holes 'A'
4 off M4 blind fastener

LT 30kV Reversible

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