



CURTIS

Power Conversion



DC / DC Converter

Model 1420



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DC/DC Converter

Curtis Model 1420 is a high efficiency DC/DC converter designed to provide a reliable and regulated low voltage output for battery-powered vehicle accessories. Integrated connector, industry standard footprint and important safety protection allows Model 1420 to be easily integrated by vehicle manufacturers.

See a 360° view of the 1420 model at:
curtisinstruments.com/360view

FEATURES

- ▶ Wide input voltage range (18–106 VDC) allows use in most battery powered vehicles with only one part number, thereby minimizing acquisition, inventory, change management and service costs.
- ▶ High efficiency (91% at full load, 48 VDC) minimizes operating and energy costs.
- ▶ Output isolation/regulation, over-voltage protection, reverse polarity protection and ESD protection ensure safe operation.
- ▶ IP67 protection and wide operating temperature range allows use in harsh environments.
- ▶ Convenient and backward compatible mounting.
- ▶ Molex Mini-fit Sr. connectors allow easy installation and wiring.
- ▶ Optional enable pin allows converter to be used in power-down mode to limit current draw in energy critical applications.
- ▶ Integrated fuse holder provide safety and allows easy replacement.
- ▶ Compliance with industry norms ensures safe operation; UL60950, RoHs, CE, EMC (EN12895, CISPR11 Class A), ISO7637-2 transient conduction.



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SPECIFICATIONS

	15495200-0001 (12.4 VDC Output Version)	15495200-0002 (13.7 VDC Output Version)	15495200-0003 (24.0 VDC Output Version)
Input			
Voltage Range	18 – 106 VDC	18 – 106 VDC	18 – 106 VDC
Maximum Input Voltage	126 VDC	126 VDC	126 VDC
Under Voltage Lockout, Turn-On Voltage Threshold	16 – 18 VDC	16 – 18 VDC	16 – 18 VDC
Under Voltage Lockout, Turn-Off Voltage Threshold	14 – 16 VDC	14 – 16 VDC	14 – 16 VDC
Maximum Current (Vin = 18 VDC, 100% load)	13.5 A	13.5 A	13.5 A
Maximum No-Load Current @ 48 VDC	110 mA	100 mA	120 mA
Maximum Reverse Polarity Voltage	106 VDC	106 VDC	106 VDC
Output			
Operating Current Range (Vin = 18-27 VDC)	0 – 16 A	0 – 14.5 A	0 – 8 A
Operating Current Range (Vin = 27-106 VDC)	0 – 24 A	0 – 22 A	0 – 12.5 A
Voltage Set Point (Total Vin range, io = 0)	12.6 VDC Typ	14.1 VDC Typ	25.0 VDC Typ
Voltage Set Point (Vin = 18-27 VDC, io = 8A)	12.4 VDC Typ	13.8 VDC Typ	24.7 VDC Typ
Voltage Set Point (Vin = 27-106 VDC, io = 12.5A)	12.2 VDC Typ	13.7 VDC Typ	24.5 VDC Typ
Voltage Ripple and Noise (Full Load, Vpp, 20 Mhz bandwidth)	150 mV Max	100 mV Max	100 mV Max
Current Limit (Vin = 24 VDC)	23 A	19 A	12 A
Current Limit (Vin = 36, 48, 72, 80 VDC)	32 A	29 A	17 A
Voltage Protection	14 – 17 VDC	15 – 18 VDC	25 – 28 VDC
Output Capacitance (ESR > 10 mohm)	5000 uF Max	5000 uF Max	2000 uF Max
Minimum Efficiency @ 100% Load (Vin = 24 VDC)	85%	85%	85%
Minimum Efficiency @ 100% Load (Vin = 48 VDC)	87%	87%	89%
Minimum Efficiency @ 100% Load (Vin = 72, 80 VDC)	89%	88%	90%
Minimum Efficiency @ 60% Load (Vin = 48 VDC)	88%	87%	89%

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SPECIFICATIONS continued

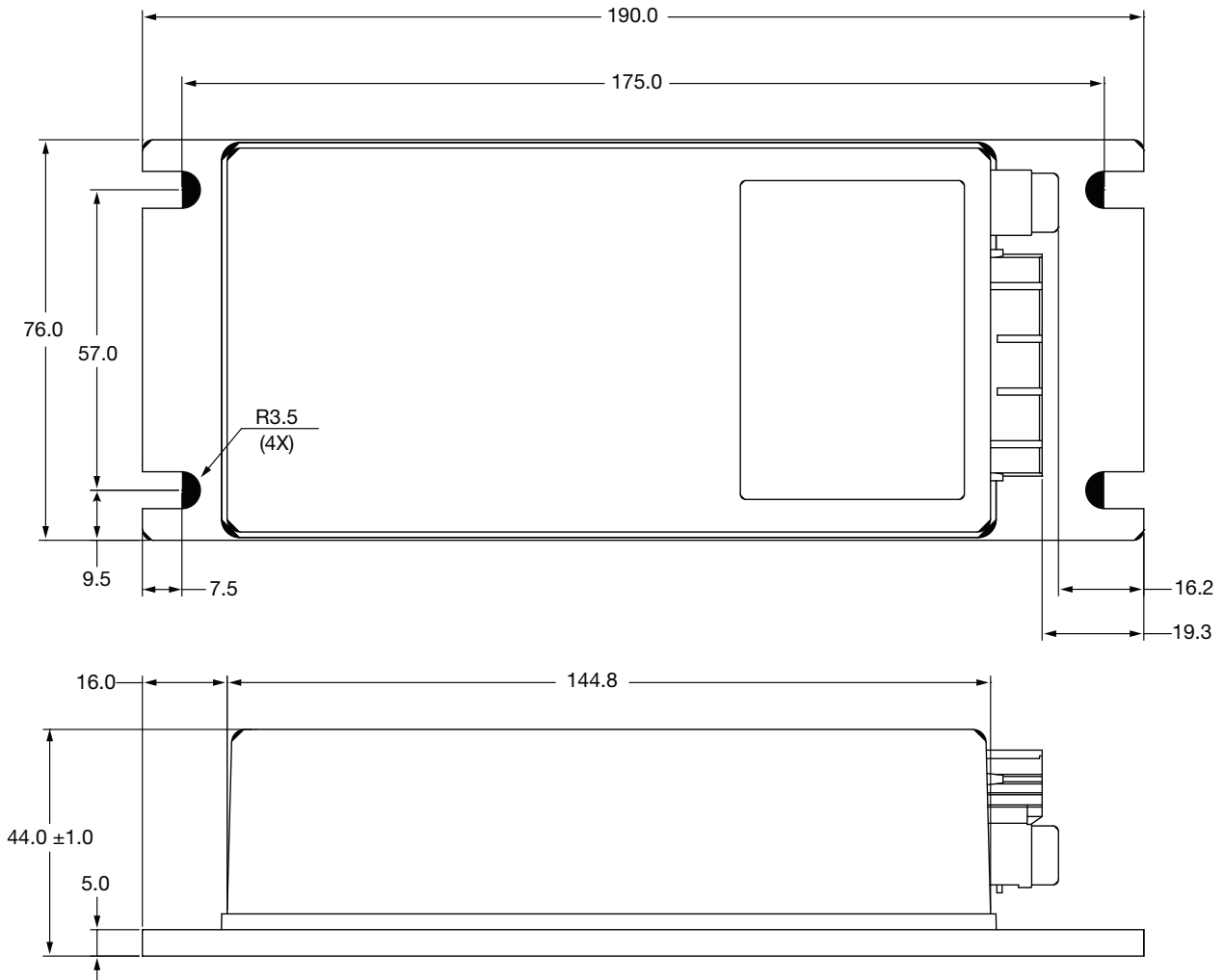
	15495200-0001 (12.4 VDC Output Version)	15495200-0002 (13.7 VDC Output Version)	15495200-0003 (24.0 VDC Output Version)
General			
Maximum Isolation Voltage, Input to Output	2000 VDC	2250 VDC	2250 VDC
Maximum Isolation Voltage, Output to Case	500 VDC	550 VDC	550 VDC
Minimum Isolation Resistance, Input to Output	10 Mohm	10 Mohm	10 Mohm
Typical Isolation Capacitance, Input to Output	2000 pF	9000 pF	7000 pF
Typical Switching Frequency	200 kHz	175 kHz	160 kHz
Weight	950g	950g	950g
Environmental			
Storage Temperature Range	-40° to +125° C	-40° to +125° C	-40° to +125° C
Operating Temperature Range	-40° to +75° C	-40° to +75° C	-40° to +75° C
Over Temperature Protection	120° C	108° C	118° C
Humidity (non-condensing)	95% relative humidity	95% relative humidity	95% relative humidity
Protection Level	IP 67	IP 67	IP 67
Vibration (IEC 60068-2-6)	10g, 15 – 200 Hz, 3 planes	10g, 15 – 200 Hz, 3 planes	10g, 15 – 200 Hz, 3 planes
Shock (IEC 60068-2-27)	50g, 3 planes	50g, 3 planes	50g, 3 planes
Emission (EN12895)	30 – 1000 MHz, 34 – 45 dBuV/m	30 – 1000 MHz, 34 – 45 dBuV/m	30 – 1000 MHz, 34 – 45 dBuV/m
Immunity (EN12895, EN61000-4-3)	10V/m, 27–1000 MHz AM, 10V/m, 900 MHz, FM	10V/m, 27 – 1000 MHz AM, 10V/m, 900 MHz, FM	10V/m, 27 – 1000 MHz AM, 10V/m, 900 MHz, FM
ESD (EN12895, EN61000-4-2)	Direct: ± 2kV, ± 4kV; Air: ± 2kV, ± 4kV, ± 8kV	Direct: ± 2kV, ± 4kV; Air: ± 2kV, ± 4kV, ± 8kV	Direct: ± 2kV ± 4kV; Air: ± 2kV, ± 4kV, ± 8kV

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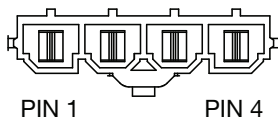
DC/DC Converter



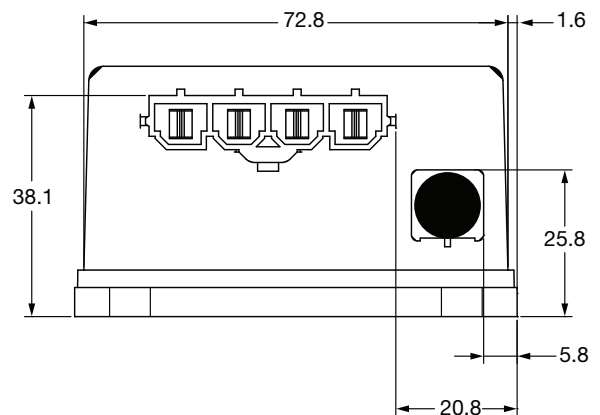
DIMENSIONS mm (typical)



CONNECTOR



Pin #	Function
1	Output -
2	Output +
3	Input -
4	Input +



WARRANTY Two year limited warranty from time of delivery.



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Specifications subject to change without notice

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