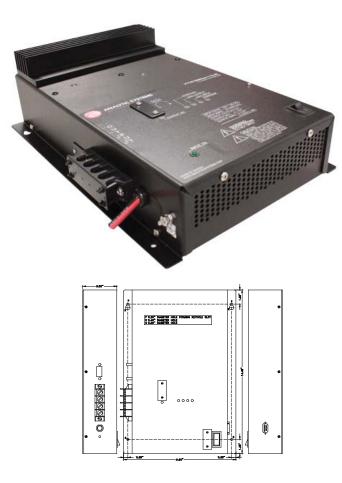
# **MDS**POVVER<sup>®</sup>

#### VTC610 SERIES DC/DC CONVERTER

#### **PRODUCT OVERVIEW**



#### Description

The model VTC610 Voltage Converter supplies 12V, 24V or 48 VDC from a 110V or 250VDC power source. Other input/ output voltages are also available by special order.

The all-new Current Mode switching design offers increased power and reliability in a compact package. Extra input and output filtering reduce EMI to extremely low levels. Reliability features include an input fuse, thermal shutdown, current limiting and short circuit shutdown with automatic recovery.

The output voltage is easily adjusted 1.0 volts above or below the standard output voltage to accommodate special requirements.

Optional features include a Remote Control, a Digital Volt Ammeter, Battery Charging and/or a 19" Rack Mount version.

#### **Benefits**

- Ultra-quiet
- · Power sensitive electronics without interference
- Rugged and reliable to ensure years of safe and trouble free operation

## **Design Features**

- · Adjustable output voltage
- Audible and visual indicators for constant current, low input voltage, low output voltage and over-temperature
- · Over-temperature shutdown
- · Short circuit protection
- · Output overvoltage crowbar
- · Cycle by cycle current limiting
- · Reverse input protection
- Transient Voltage Suppression
- · Ultra-quiet low EMI operation
- · Dry contact output fail relay
- · Custom input voltages from 105 to 360 VDC
- $\cdot$  Custom output voltages from 12 to 55 VDC
- · Remote control option
- Digital Volt/Ammeter option
- · 19" Rackmount Option
- · Wide-Temperature operation available
- · Conformal Coating and/or Harsh Environment Ruggedization available

## Applications

- $\cdot$  VHF Radios
- $\cdot$  CB Radios
- Sound Equipment
- · GPS Receivers
- · Plotters
- 12 Volt Lighting Systems
- Automotive Electronics Displays
- Marine Electronics Displays
- · Security Systems





#### **TECHNICAL SPECIFICATIONS**

Output Crowbar16.0 ± 0.5V32.0 ± 1.0V63.9 ± 2.0VOutput Adjustment± 1.0V0utput Ripple & Noise< 50 mVTransient Response< 2V for 50% SurgeRegulation (Line & Load)< +/- 0.5%Duty CyclePeak 20% for 10 min max Continuous 100% for 24 hours per dayEfficiency> 85% @ Maximum OutputENVIRONMENT SPECIFICATIONOperating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MeCHANICAL SPECIFICATIONMecHanicalMaterialMarine Grade Aluminium Marine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless Steel WeightWarrantyFive years	ELECTRICAL (INPUT)				
Input Amps (max)   8.0   3.5     Input Fuse (MDA)   10   4     Noise on Input   <50 mV     ELECTRICAL (OUTPUT)     Output Nominal (op)   12   24   48     Output Volts (DC)   13.6 ± 0.05   27.2 ± 0.05   54.4 ± 0.05     Output Amps   40 cont. / 45 peak   20 cont. / 25 peak   10 cont. / 12.5 peak     Output Adjustment   ± 1.0V   63.9 ± 2.0V     Output Adjustment   ± 1.0V   63.9 ± 2.0V     Output Adjustment   ± 1.0V   00utput Adjustment   ± 1.0V     Output Adjustment   ± 1.0V   63.9 ± 2.0V   0utput Geo Surge     Regulation (Line & Load)   < +/- 0.5%   724 hours per day     Efficiency   > 85% @ Maximum Output     Duty Cycle   Continuous 100% for 24 hours per day     Efficiency   > 85% @ Maximum output     Derate Linearly 2.5% per °C from 40°C   (Optional 40°C + +55°C extra wide temp. operation avail.)     Operating Temp. Range   - 25° to +40°C @ maximum output     Derate Linearly 2.5% Relative Humidity   (non-condensing) with optional conformal coating     Audible Noise   NONE (26 @ 3 ft     Ty	Nominal (ip)	110	2	50	
Input Fuse (MDA)   10   4     Noise on Input   < 50 mV     ELECTRICAL (OUTPUT)     Output Nominal (op)   12   24   48     Output Volts (DC)   13.6 ± 0.05   27.2 ± 0.05   54.4 ± 0.05     Output Amps   40 cont. / 45 peak   20 cont. / 25 peak   10 cont. / 12.5 peak     Output Crowbar   16.0 ± 0.5V   32.0 ± 1.0V   63.9 ± 2.0V     Output Adjustment   ± 1.0V   63.9 ± 2.0V     Output Alipble & Noise   < 50 mV   54.4 ± 0.05     Transient Response   < 2V for 50% Surge   Regulation (Line & Load)   < +/- 0.5%     Peak 20% for 10 min max   Continuous 100% for 24 hours per day   Efficiency   > 85% @ Maximum output     Duty Cycle   Peak 20% for 10 min max   Continuous 100% for 24 hours per day   Efficiency     VENVIRONMENT SPECIFICATION   -25° to +40°C @ maximum output   Derate Linearly 2.5% per °C form 40°C   (Optional -40°C + 55°C extra wide temp. operation avail.)   0     Munidity   095% Relative Humidity   (non-condensing) with optional conformal coating   NONE Ødb @ 3 ft     Typical Service Life   > 10 yrs. (87,600 hrs)   Input-Case & Input-Coutput 1500VDC   Output-Case & S00VDC	Actual (Vdc)	100-140	230-280		
Noise on Input     < 50 mV       ELECTRICAL (OUTPUT)       Output Nominal (op)     12     24     48       Output Voits (DC)     13.6 ± 0.05     27.2 ± 0.05     54.4 ± 0.05       Output Amps     40 cont. / 45 peak     20 cont. / 25 peak     10 cont. / 12.5 peak       Output Crowbar     16.0 ± 0.5V     32.0 ± 1.0V     63.9 ± 2.0V       Output Adjustment     ± 1.0V     0utput Adjustment     ± 1.0V       Output Ripple & Noise     < 50 mV     50 mV     50 mV       Transient Response     < 2V for 50% Surge     Regulation (Line & Load)     < +/- 0.5%       Duty Cycle     Peak 20% for 10 min max Continuous 100% for 24 hours per day     Continuous 100% for 24 hours per day       Efficiency     > 85% @ Maximum output     Derate Linearly 2.5% per 2° cf rom 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)       Operating Temp. Range     -25° to +40°C @ maximum output Oberate Linearly 2.5% per 2° cf rom 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)       Humidity     0 - 95% Relative Humidity (non-condensing) with optional contormal coating       Audible Noise     NONE Ødb @ 3 ft       Typical Service Life     > 10 yrs. (87,600 hrs)       Length	Input Amps (max)	8.0	3.5		
ELECTRICAL (OUTPUT)     Output Nominal (op)   12   24   48     Output Volts (DC)   13.6 ± 0.05   27.2 ± 0.05   54.4 ± 0.05     Output Amps   40 cont. / 45 peak   20 cont. / 25 peak   10 cont. / 12.5 peak     Output Crowbar   16.0 ± 0.5V   32.0 ± 1.0V   63.9 ± 2.0V     Output Adjustment   ± 1.0V   0utput Hipple & Noise   <50 mV     Transient Response   < 2V for 50% Surge      Regulation (Line & Load)   < +/- 0.5%      Duty Cycle   Peak 20% for 10 min max Continuous 100% for 24 hours per day      Efficiency   > 85% @ Maximum Output      Derate Linearly 2.5% per °C from 40°C (Optional -40°C - 455°C extra wide temp. operation avail.)      Operating Temp. Range   -25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C + 55°C extra wide temp. operation avail.)     Humidity   0 - 95% Relative Humidity (non-condensing) with optional conformal coating     Audible Noise   NONE Ødb @ 3 ft     Typical Service Life   > 10 yrs. (87,600 hrs)     Length   14.5 in / 36.8 cm     Width   10.2 in / 25.9 cm     Height   3.0 in / 7.6 cm  <	Input Fuse (MDA)	10	10 4		
Output Nominal (op)     12     24     48       Output Volts (DC)     13.6 ± 0.05     27.2 ± 0.05     54.4 ± 0.05       Output Amps     40 cont. / 45 peak     20 cont. / 25 peak     10 cont. / 12.5 peak       Output Crowbar     16.0 ± 0.5V     32.0 ± 1.0V     63.9 ± 2.0V       Output Adjustment     ± 0.5%     80.8 Grade       Duty Cycle     Peak 20% for 10 min max Continuous 100% for 24 hours per day       Efficiency     > 85% @ Maximum Output       Derate Linearly 2.5% per °C from 40°C     (Optional -40°C - +55°C extra wide temp. operation avail.)       Operating Temp. Range     -25° to +40°C @ maximum output       Iber Chance     NONE Ødb @	Noise on Input	< 50 mV			
Output Volts (DC)     13.6 ± 0.05     27.2 ± 0.05     54.4 ± 0.05       Output Amps     40 cont. / 45 peak     20 cont. / 25 peak     10 cont. / 12.5 peak       Output Crowbar     16.0 ± 0.5V     32.0 ± 1.0V     63.9 ± 2.0V       Output Adjustment     < 50 mV     54.4 ± 0.5%       Transient Response     < 2V for 50% Surge     72.8 ± 0.05%       Regulation (Line & Load)     < +4' 0.5%     24.4 ± 0.5%       Duty Cycle     Peak 20% for 10 min max Continuous 100% for 24 hours per day       Efficiency     > 85% @ Maximum Output       Derate Linearly 2.5% per °C from 40°C     (Optional -40°C - +55°C extra wide temp. operation avail.)       Operating Temp. Range	ELECTRICAL (OUTPUT)				
Output Amps   40 cont. / 45 peak   20 cont. / 25 peak   10 cont. / 12.5 peak     Output Crowbar   16.0 ± 0.5V   32.0 ± 1.0V   63.9 ± 2.0V     Output Ripple & Noise   < 50 mV   Transient Response   < 20 for 50% Surge     Regulation (Line & Load)   < +/- 0.5%       Duty Cycle   Peak 20% for 10 min max Continuous 100% for 24 hours per day      Efficiency   > 85% @ Maximum Output      Detry Cycle   Peak 20% for 10 min max Continuous 100% for 24 hours per day      Operating Temp. Range   -25° to +40°C @ maximum output Detrate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)      Humidity   0 - 95% Relative Humidity (non-condensing) with optional conformal coating      Audible Noise   NONE Ødb @ 3 ft      Typical Service Life   > 10 yrs. (87,600 hrs)      Isolation   Input-Case & Input-Output 1500VDC Output-Case & S00VDC (1500VDC @ 48V O/P)      Meight   3.0 in / 26 cm       Gearance   1 inch (2.5 cm) all around       Material   Marine Grade Aluminium       Finish   Black Powder Epoxy	Output Nominal (op)	12	24	48	
Output Crowbar16.0 ± 0.5V32.0 ± 1.0V63.9 ± 2.0VOutput Adjustment± 1.0V0utput Ripple & Noise< 50 mVTransient Response< 2V for 50% SurgeRegulation (Line & Load)< +/- 0.5%Duty CyclePeak 20% for 10 min max Continuous 100% for 24 hours per dayEfficiency> 85% @ Maximum OutputEFficiency> 85% @ Maximum OutputDerate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Operating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength1.0.2 in / 25.9 cmHeight3.0 in / 7.6 cmGlearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Output Volts (DC)	$13.6 \pm 0.05$	27.2 ± 0.05	$54.4 \pm 0.05$	
Output Adjustment± 1.0 VOutput Ripple & Noise< 50 mV	Output Amps	40 cont. / 45 peak	20 cont. / 25 peak	10 cont. / 12.5 peak	
Output Ripple & Noise< 50 mV	Output Crowbar	$16.0 \pm 0.5 V$	32.0 ± 1.0V	63.9 ± 2.0V	
Transient Response< 2V for 50% SurgeRegulation (Line & Load)< +/- 0.5%Duty CyclePeak 20% for 10 min max Continuous 100% for 24 hours per dayEfficiency> 85% @ Maximum OutputENVIRONMENT SPECIFICATIONOperating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C - +55° Ce xtra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)Methanical10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade Aluminium FinishBlack Powder EpoxyFasteningsKateningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgKarrantyFive years	Output Adjustment	± 1.0 V			
Regulation (Line & Load)< +/- 0.5%	Output Ripple & Noise	< 50 mV			
Duty CyclePeak 20% for 10 min max Continuous 100% for 24 hours per dayEfficiency> 85% @ Maximum OutputENVIRONMENT SPECIFICATIONOperating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C + 455°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)Methanical14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Transient Response	< 2V for 50% Surge			
Duty CycleContinuous 100% for 24 hours per dayEfficiency> 85% @ Maximum OutputENVIRONMENT SPECIFICATIONOperating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MetcHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 76 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight75 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Regulation (Line & Load)	< +/- 0.5%			
ENVIRONMENT SPECIFICATIONOperating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)Length14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Duty Cycle				
Operating Temp. Range-25° to +40°C @ maximum output Derate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Efficiency	> 85% @ Maximum Output			
Operating Temp. RangeDerate Linearly 2.5% per °C from 40°C (Optional -40°C - +55°C extra wide temp. operation avail.)Humidity0 - 95% Relative Humidity (non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	ENVIRONMENT SPECIFICATION				
Huminity(non-condensing) with optional conformal coatingAudible NoiseNONE Ødb @ 3 ftTypical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Operating Temp. Range	Derate Linearly 2.5% per °C from 40°C			
Typical Service Life> 10 yrs. (87,600 hrs)IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Humidity				
IsolationInput-Case & Input-Output 1500VDC Output-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Audible Noise	NONE Ødb @ 3 ft			
IsolationOutput-Case 500VDC (1500VDC @ 48V O/P)MECHANICAL SPECIFICATIONLength14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Typical Service Life	> 10 yrs. (87,600 hrs)			
Length14.5 in / 36.8 cmWidth10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Isolation				
Width10.2 in / 25.9 cmHeight3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	MECHANICAL SPECIFICATION				
Height3.0 in / 7.6 cmClearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Length	14.5 in / 36.8 cm			
Clearance1 inch (2.5 cm) all aroundMaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Width	10.2 in / 25.9 cm			
MaterialMarine Grade AluminiumFinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Height	3.0 in / 7.6 cm			
FinishBlack Powder EpoxyFasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Clearance	1 inch (2.5 cm) all around			
FasteningsAll 18-8 Stainless SteelWeight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Material	Marine Grade Aluminium			
Weight7.5 lb / 3.4 kgConnectionsFour contact output terminalsWarrantyFive years	Finish	Black Powder Epoxy			
ConnectionsFour contact output terminalsWarrantyFive years	Fastenings	All 18-8 Stainless Steel			
Warranty Five years	Weight	7.5 lb / 3.4 kg			
	Connections	Four	contact output termina	als	
	Warranty	Five years			
	Safety	Designed to meet CSA 22.2.107.1 & UL458			

Note: Specifications are subject to change without notice.

