EXTENDED INPUT RANGE DC-DC CONVERTERS

FOR 74-V LOCOMOTIVE AND 36-V RAIL/TRANSIT APPLICATIONS

Features:

- 20V-130V INPUT RANGE ALLOWS OPERATION THROUGH LOCOMOTIVE CRANKING AND OTHER VEHICLE POWER ANOMALIES
- 13V OR 24V OUTPUT
- 200-WATT AND 100-WATT MODELS
- FIELD-PROVEN INPUT TRANSIENT PROTECTION
- -40°C TO 70°C TEMPERATURE RANGE

Model 1620XR-13-15-1

Model 1620XR-13-7.5-1

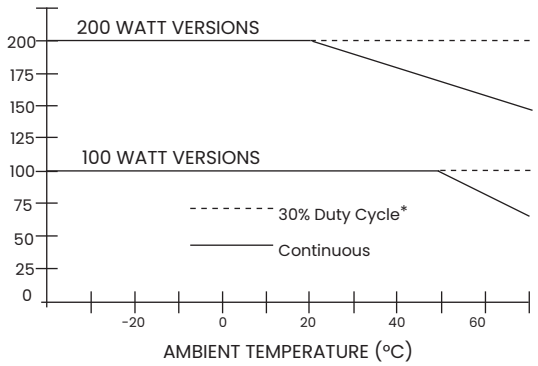
Series 1620XR dc-to-dc converters provide an isolated, regulated and well-filtered dc output voltage from 74-Vdc and 37-Vdc electrical systems on locomotives and other rail vehicles. An extended input voltage range enables these converters to continuously power onboard electronics in the presence of large variations in the vehicle's battery voltage. A field-proven input-transient protection system, conservative electrical design and extremely rugged mechanical construction make them especially suited for powering voice-data radios and other sensitive electronic loads in the harsh railroad vehicle environment.

Table 1

Input Voltage Range (Vdc)	Nominal Output Voltage (Vdc)	Maximum[1] Output Current/Power	Model Number
20 - 130	13.6	7.5A/100W	1620XR-13-7.5-1
	13.6	15A/200W	1620XR-13-15-1
	24	4A/100W	1620XR-24-4-1
	24	8A/200W	1620XR-24-8-1

[1] Depending upon the ambient temperature, a duty-cycle rating may apply.

Figure 1.



*Intermittent duty for powering a voice/data two-way radio with a duty cycle of 30%.
**Mounted in any attitude with free-air convection cooling.

SPECIFICATIONS

INPUT VOLTAGE RANGE (VDC)	20 Vdc to 130
OUTPUT VOLTAGE AND CURRENT	See Table 1. See Figure 1 for information on output power versus ambient operating temp. The no-load input-current drain is less than 160 mA.
OUTPUT VOLTAGE REGULATION	Versus line: ±1% Versus load: ±1%
OUTPUT VOLTAGE RIPPLE	Typically less than 10 mV rms and 50 mV peak-to-peak
AMBIENT TEMPERATURE RANGE	-40°C to +70°C (-40°F to +158°F) (Convection Cooling)
ISOLATION	Isolation capable of passing a 2,000-Vdc stress test is provided between the input and output and between the input and chassis. Isolation capable of passing a 500-Vdc stress test is provided between the output and chassis.
PROTECTION	Protection against overloads, short circuits and output overvoltages is provided electronically. Recovery to normal operating conditions is automatic upon removal of the overload or short-circuit fault. Following an overvoltage shutdown, input power to the converter may need to be removed and reapplied to resume converter operation. Protection against accidental reversal of the dc input-voltage polarity during installation is provided by a shunt diode working in conjunction with a user-supplied input fuse or circuit breaker rated at 20 amperes for 200-watt versions or 10 amperes for 100-watt versions. See section titled “Installation”.
TRANSIENT-WITHSTAND CAPABILITY	The converter will not be damaged when its input is subjected to high-energy transients as specified in IEC 1000-4-5, Surge Immunity Test, Level 3, applied line-to-line or line-to-chassis.
INPUT/OUTPUT CONNECTIONS	The input and output connections are made via heavy-duty barrier-strip terminal blocks accommodating lugs for use with #6 hardware. The chassis/ground connection is made via a #6 sems screw.
INSTALLATION	Good installation practice for mobile electronic equipment dictates that input fuses or circuit breakers should be located at the power-source end of the cables feeding the converter. For this reason, no protection devices are built inside the Model 1620XR to protect against fault conditions at the input to the converter. Instead, a 20-A (for 200-watt versions) or a 10-A (for 100-watt versions) fuse or circuit breaker should be installed near the dc-input source in series with the positive (+) input line when this source is negative-grounded, or when the dc source is positive-grounded, installed in series with the negative (-) input line.
DIMENSIONS IN INCHES (MM)	For 100-watt models: 1.9 (48) high x 7.0 (177) wide x 9.0 (228) deep (excluding flanges and terminal blocks). For 200-watt models: 3.0 (76) high x 7.0 (177) wide x 9.0 (228) deep (excluding flanges and terminal blocks) Terminal blocks extend 0.5 (13) from front panel
WEIGHT LBS. (KG)	For 100-watt models: 3.5 (1.6); For 200-watt models: 5 (2.3)
MOUNTING	Mounting flange on base accepts four #10 screws. Hole pattern is 6.6 (168) front-to-back and 7.6 (193) wide.

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