



Powerterm L120P/L120R Transformer/Rectifiers

Model C2151B and C2152B 20V/6A Transformer/Rectifier Module with Remote Control

DATASHEET

- Control Corrosion using this field-proven 6 Amp 20 Volt Transformer/Rectifier
- Communication Interface built in for full remote monitoring and control.
- 3 highly accurate control modes: Constant Voltage, Constant Current and Constant Reference Potential
- High Efficiency for reduced heat loading
- Alarm Output Contact (L120P only)
- Instant Off Control Input (L120P only)
- Reference Cell input (L120P only)



Features

- **Accurate stable control for Impressed Current CP**
- **Designed for remote monitoring and control**
- **Built-in shunt for current monitoring**
- **Indefinite Open/Short circuit protected output**
- **Wide operating temperature range**
- **Universal 100-240Vac input voltage**
- **DIN Rail mounting with small panel footprint**
- **Fanless efficient design for high reliability**

Overview

The Powerterm L120P and L120R are high efficiency Transformer/Rectifier modules for use in Impressed Current Cathodic Protection systems.

Both models can supply up to 6 Amps at 20Volts with short-circuit and surge protection.

Both models can be configured to control constant voltage, constant current, or constant reference potential. All configuration settings can be changed via the serial communications link from a locally mounted **PowerView CP Touch Screen**, and/or remotely using the Omniflex **Data2Desktop Web Portal** from a standard web browser.

Communications Interface

Both Powerterm L120P/R T/R modules have an integrated RS485 communications ports making these products compatible with the Omniflex PowerView CP Remote Monitoring and Control System. This provides the capability to distribute the TR modules for optimum cabling of the structure while keeping a single point of monitoring and control for the system.

See the system diagram later in this datasheet for examples of how to connect Powerterm L120 module into distributed CP systems.

Automatic Control

Both models include a fully configurable feedback controller for automatic control of current, voltage or reference potential.

Independent Current and Voltage Limit settings ensure that safe operating conditions selected by the user are not exceeded in automatic modes.

Half-Cell Reference Input (L120P only)

The Powerterm L120P has a high-impedance (>100Mohm) half-cell reference input for monitoring or control purposes.

This reference input is buffered and made available on another terminal on the unit allowing reference voltage monitoring using conventional metering equipment without risk of burdening the half-cell, or upsetting the control. This input can be used for local constant reference potential control of the T/R module.

Alarm Contact Output (L120P only)

An Alarm contact output can be used to give an independent signal of problems in the cathodic protection system, such as high impedance or short circuits in the anode connections

Instant Off Control

Both Powerterm L120P/R models allow automated Instant Off Control remotely via the serial communications links. This allows Instant Off testing to be conducted from a central location, or remotely from the Data2Desktop website. Using the companion PowerView CP Touch Screen, instant of readings can be taken automatically from any number of reference inputs co-ordinated with the cycling of the T/R modules ON/OFF using user settable cycle times.

In addition, a dry contact input can be applied to terminals on the Powerterm PTL120P to interrupt the power supply for manual testing purposes.

Powerview CP Touch Screen

Configuration and monitoring of the PowerView L120 T/R modules is done through a single easy-to-use touch screen in the system without the need for special test equipment or custom software packages.

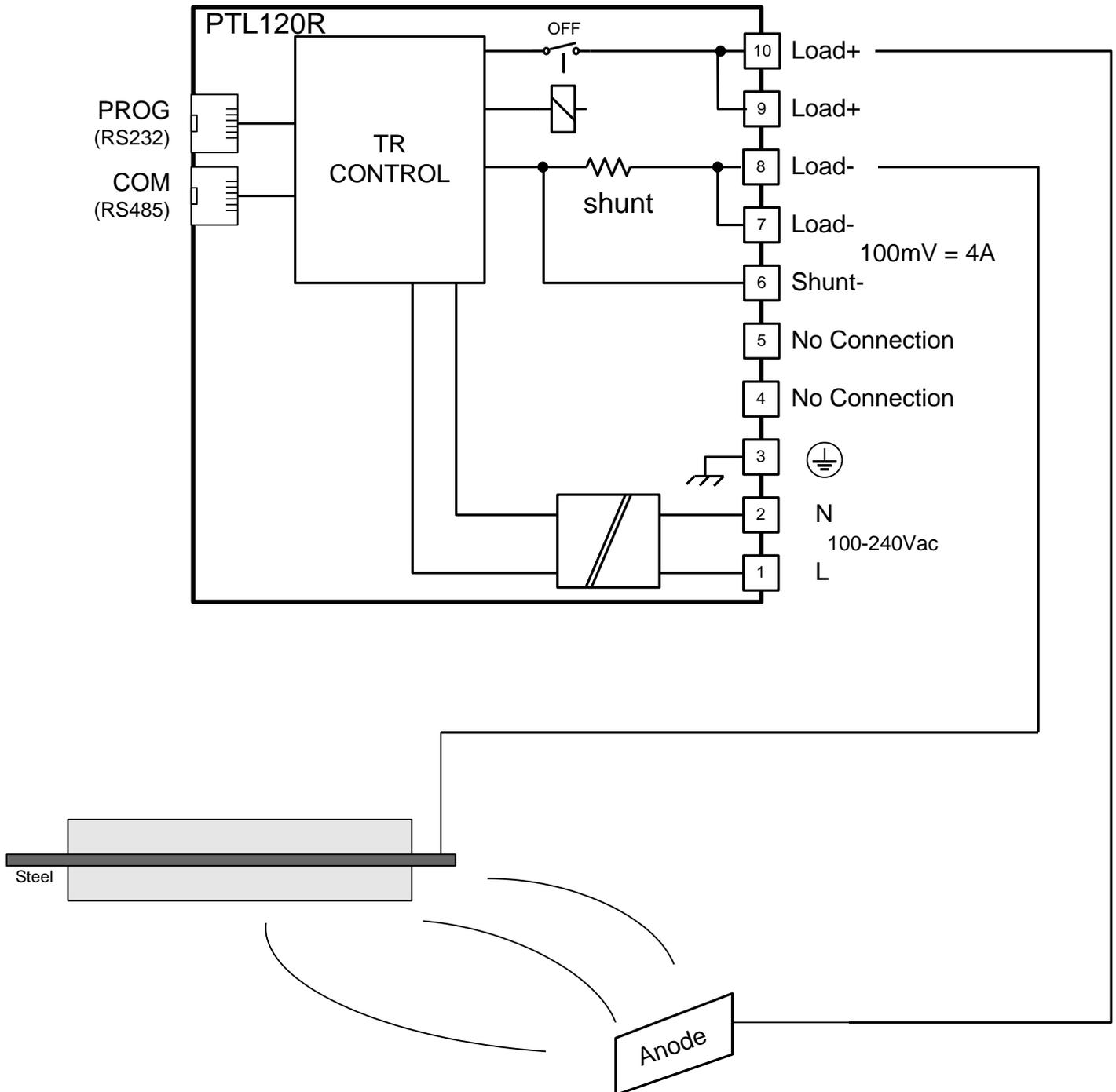




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Typical L120R System Connection Diagram

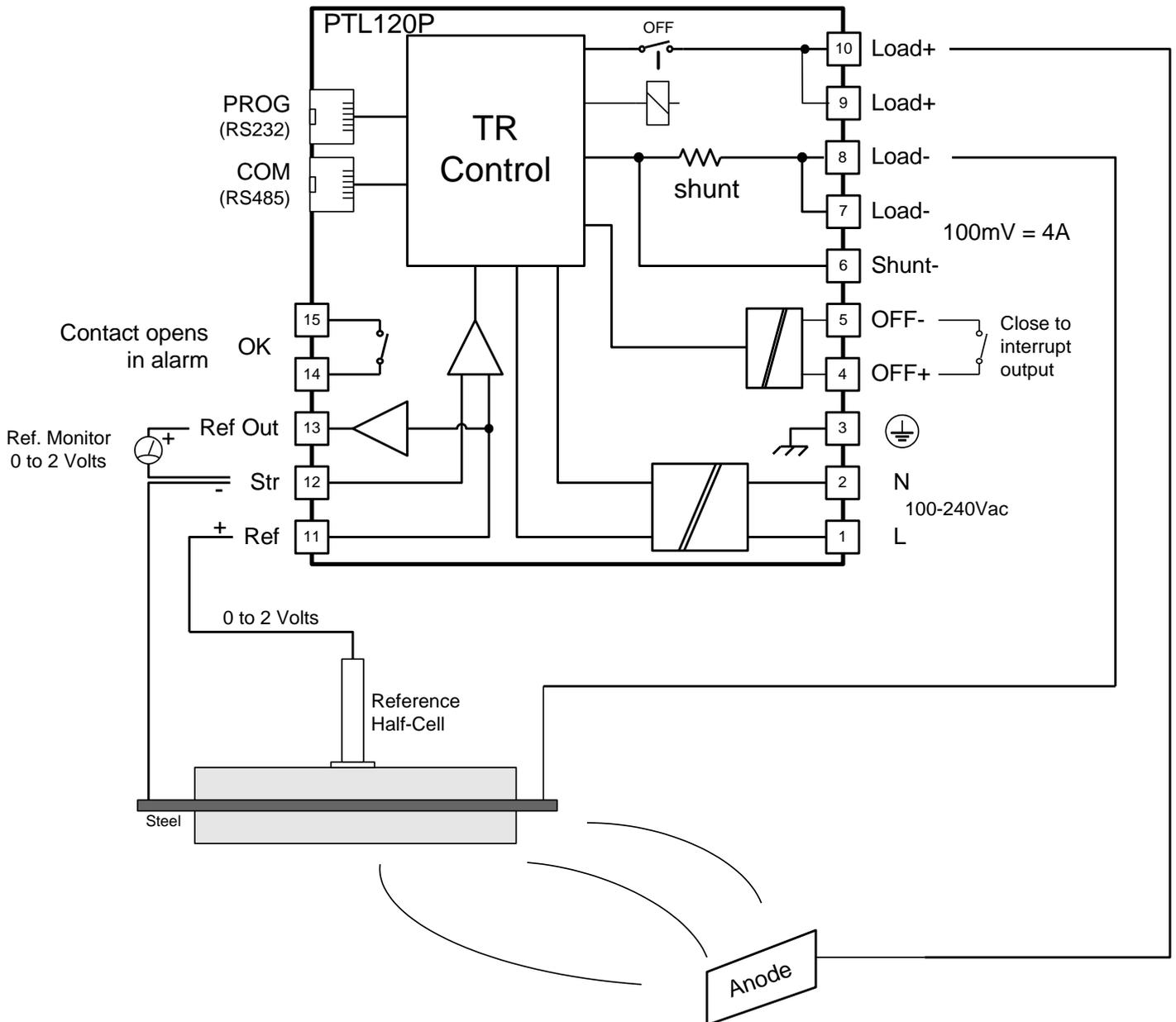




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Typical L120P System Connection Diagram

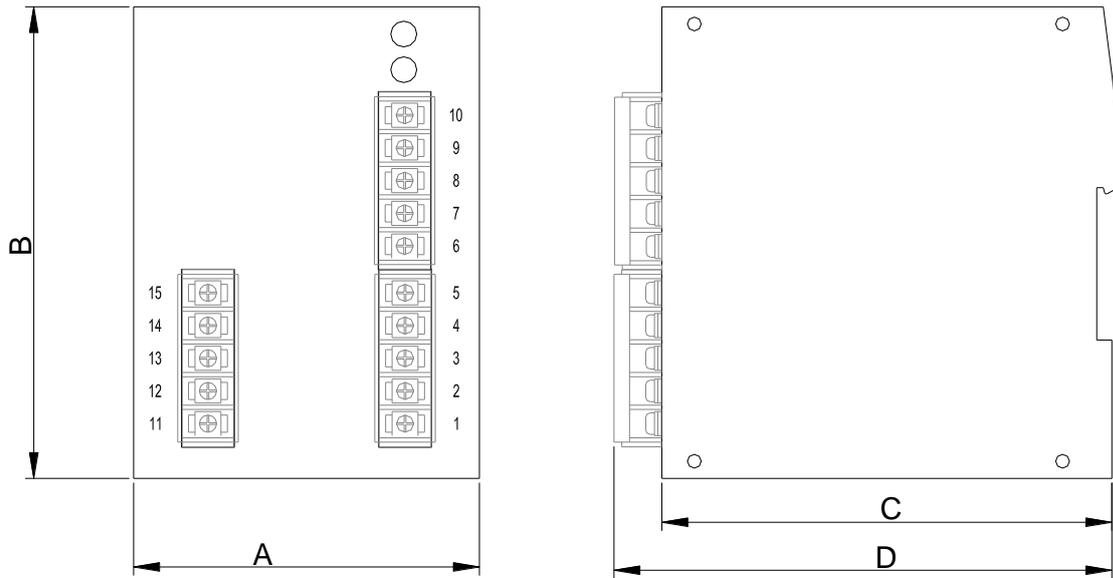




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Mechanical Details



A	80mm
B	110mm
C	110mm
D	120mm



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Specifications

AC Input

AC input voltage range	85-264Vac
AC input frequency	47-63 Hz
Input current at full load	<2.2A rms at 115Vac <1.0A rms at 230Vac
Switch-on inrush current	15A for <10ms
Surge withstand	2.5kA 8/20us pulse 40 joules max.
Fast Transients	2 kV

DC Output (Terminals 7,8 and 9,10)

Output Voltage Range	0-20Vdc
Output Current Range	0-6Adc
Maximum Continuous Total Power	120 Watts at 60°C ambient (see de-rating under Environment)
AC line regulation	0.5% max over 85-132 & 170-264Vac
Load Regulation	2% max over 10-100% of total load
Output Ripple	<250mVrms
Efficiency	>80% at full load

Shunt Output (measure across terminals 6 and 7)

Shunt Impedance	25 milliohms ± 2%
Shunt Voltage	25mV per Amp

OFF Input (Terminals 4,5) L120P Only

Operation	Interrupts Output when shorted
Max. open circuit voltage	15V dc
Max. closed circuit current	3mA
Interrupt Threshold	<-0.2mA (>10V) Guaranteed ON >-1.5mA (<6V) Guaranteed OFF
Time to interrupt	<10ms

Reference Input (Terminals 11,12) L120P Only

Input Range	0 to 2Volts (referenced to Terminal 12)
Input Impedance (0-2V)	>100MΩ (while powered)
Input Leakage (0-2V)	<2.1nA (while powered)
Input Leakage (0-2V)	<120nA (power removed)
Accuracy	<0.25% at 25°C
Temperature Drift	<200ppm/°C over 0-60°C

Reference Output (Terminals 13) L120P Only

Output Range	0 to 2Volts (referenced to Terminal 12)
Output Impedance	<10Ω
Accuracy	<0.25%

OK Output Contact(Terminals 14,15) L120P Only

Max. open circuit voltage	30V dc
Max. closed circuit current	100mA
Operation	Closed when AC is ON and DC power is healthy. Opens on Alarm Condition (see Indicator Lights for Alarm List)

Indicator Lights

AC (Green)	ON when AC power is ON
DC (Red)	ON when DC Output is ON
CC (Green)	ON when in constant current mode Flashing when out of control
REF (Green)	ON when in constant reference mode Flashing when out of control
ALM (Red)	ON when Alarm is present
Detected Alarms	1. Output out of control 2. Voltage out of preset limits 3. Current out of preset limits 4. Reference out of preset limits 5. Power failure

Environment

Operating Temperature	0 to +60°C at continuous full load
Temperature derating	derate 4 Watts/°C up to 70°C max
Storage Temperature	-10°C – 70 °C (+14°F – 158°F)
Design Life at 50°C full load	50 000hours

Mechanical

Width	80mm
Height	110mm
Depth	120mm (including terminals)

Weight

Unpacked	750gm approx.
Packed	780gm approx.

Compliance to Standards

Safety	IEC950; EN60950:1995
Emissions	EN 55011 and EN50081-2:1994 Group I, Class A
Immunity – ESD	IEC 61000-4-2:1995, level 3
Immunity – RF Fields	IEC 61000-4-3:1995, level 3
Immunity – Fast Transients	IEC 61000-4-4:1995 2 kV – AC & DC power ports 1 kV – other input/output lines
Insulation Resistance (100% tested)	100Mohm at 500Vdc input to outputs to ground.
Insulation Breakdown (100% tested)	1500Vac input to earth for 1s 1000Vac output to earth for 1s

Ordering Information

ORDER CODE	DESCRIPTION
C2151B	Powerterm L120P Transformer/Rectifier for local control
C2151B-1	Powerterm L120P Transformer/Rectifier for local control (24Vdc Input)
C2152B	Powerterm I120R Transformer/Rectifier for remote control.

