

**INSTALLATION**

**AND**

**MAINTENANCE**

**MANUAL**

**TORONTO TRANSIT COMMISSION**

**STRAY CURRENT**

**ELECTROLYSIS**

**DIODES**

**Model CTL-ED20**

**Manufactured By Cathodic Technology Limited**

---

**Table of Contents**

**Installation**..... 3  
**Operation**..... 4  
**Maintenance**..... 5  
**Parts List**..... 6

---

## **Installation**

The electrolysis switch should be installed indoors in a protected area close to the negative buss of the TTC DC traction system. The Electrolysis Diode cabinet is equipped with four mounting feet which stand the cabinet of the wall. Suitable anchors should be provided for the material to which the Electrolysis Diode is to be mounted. We recommend the use of four anchor bolts of minimum ¼” diameter (6.3mm). The mounting centers are given in millimeters on the drawing appended to this manual.

The Electrolysis Diode comes in a Right hand or Left hand configuration. Chose the configuration most suited to the location where they are to be installed. The right hand version accepts the utility drain on the right hand side of the Electrolysis Diode cabinet and the TTC bus on the left hand side of the cabinet. The left hand configuration is the opposite to the right hand configuration. On the door of each Electrolysis Diode cabinet is a diode symbol indicating the current flow direction.

The utility drain cable must be connected such that the current flow is from the utility to the negative buss and a current is not allowed to flow from the buss to the utility drain.

The utility drain to the electrolysis Diode and the drainage cable from the Electrolysis Diode shall be connected to the copper buss bars on the diode with a Burndy Electrical Compression connector Catalogue Number YA34-2N or equal. The bolts shall be ½ “ diameter and manufactured of brass.

---

## **Operation**

The Electrolysis Diode is a robust device capable of conducting up to 9.1 K amps RMS and 81K amps surge at 25C for 10 ms.

The forward voltage drop of the diode is < 700 millivolts at 300 amps. The forward voltage drop characteristics are shown on the enclosed drawing in Appendix B.

The CATH-TECH Model CTLED20 does not require a fuse and is rated for PIV of 600 volts with a 1200 volt snubber circuit to kill transients.

The operation of the Electrolysis Diode can be monitored with a data logger connected across the diode. The forward voltage drop should not exceed 700 millivolts at 300 amps and the reverse voltage can vary up to 600 volts. We would recommend logging the voltage drop across the diode for several minutes. Current flow through the diode can be measured on a standard shunt ratted for 300 amps.

---

## **Maintenance**

Little maintenance of the Electrolysis Diode is required. The case should be kept clean and dry and the interior of the case should be cleaned on a regular basis to remove dust and particulate matter that would interfere with heat dissipation.

We recommend wiping the case inside and out with a clean moist cloth. The bus bars and heat sink can be cleaned with compressed air or vacuumed to remove dust.

Should the diode fail replacement parts are available from Cathodic Technology Limited.

Cathodic Technology Limited  
10 McEwan Drive  
Bolton, Ontario  
Canada  
L7E 1H1

Phone (905) 857-1050  
Fax (905) 857-3499  
Email [ctl@corrosion-rust.com](mailto:ctl@corrosion-rust.com)

---

## Parts List

01	Case	CTL-TTC-ED-01
02	Latch	CTL 110-144
03	Panel Right	CTL-PH-RH
04	Panel Left	CTL-PH-LH
05	Diode	CTL-D5807N
06	Copper Bar	CTL-CBUSS
07	Diode Clamp	CTL-DCLAMP
08	Diode Washers	CTL-BELV
09	Heat Sink	CTL-HE-110
10	Snubber	CTL-SNUB
11	Heat Sink Isolator Kit	CTL-ISO1
12	Buss Isolator Kit	CTL-ISO2
13	#10-24 Brass Bolt	CTL-10-24HEX
14	#10-24SS Bolt	CTL-10-24SSHEX
15	#10 Brass Nut	CTL-10NUT
16	#10 SS Nut	CTL-10SSNUT