

The logo for ClearOne, featuring the word "ClearOne" in a bold, sans-serif font. The "C" is significantly larger and more prominent than the other letters. The logo is positioned on the left side of the page, above a decorative graphic consisting of several overlapping lines in shades of blue and orange.

Applicable to Converge Pro: 880TA, 880T, TH20  
and 840T units with Firmware 2.0.28 and higher

## Telephone Line Overload Protection

### Introduction

This document explains how the Converge Pro Telco Overload Protection Feature in firmware versions 2.0.28 or higher prevents damage to its telephone interface when excessively high current levels occur on a phone line. High current levels may occur when a unit is mistakenly plugged into a powered digital phone line or when an analog line is not set up according to standard phone line specifications. Older units can be updated with the newer firmware to gain this feature.

The normal loop current on an analog phone line is between about 30 mA and 40 mA. If the loop current levels are significantly higher there is a problem with the phone line. There are three error conditions that can occur when the Converge Pro's telco is taken off-hook and loop current is too high:

**Loop Current is between 116 mA and 140 mA:** Converge Pro System Checks (see the Converge Pro manual section on running System Checks) will report a telco overload on any loop current level above 116 mA. In this condition the telephone interface will still be functional, but may suffer from problems such as poor audio quality or noise on the phone line. Maintenance should be done on the phone line in order to correct the problem.

**Loop Current is between 140 mA and 160 mA:** In this condition the Converge Pro unit will add extra impedance to the telco circuit to prevent damage. Next, the unit will attempt to remove the extra impedance to verify whether or not the excessive current has cleared. If it has, the telephone interface will resume normal operation. If not, the extra impedance will be restored. This process will repeat as long as the phone line is off-hook and the same excessive current level continues. Each time the unit removes the extra impedance to test the line, a buzzing or thumping sound will be heard. If this rapid thumping sound is heard, there is a problem with the phone line that must be corrected before the Converge Pro unit will be able to use this line.

**Loop Current Exceeds 160 mA:** In this condition the unit will automatically disconnect the phone line. The front panel will then show the following message:

*TELCO OVERLOAD!  
Please re-check connection.  
(Digital PBX?)*

After 10 seconds the front panel will clear. If further attempts are made to take the phone off-hook and the same overload condition exists, the process will repeat. The problem with the phone line must be corrected before the Converge Pro unit will be able to use this line.