

## Overview

This chapter describes the four-channel 1746-NR4 RTD/Resistance Input Module and explains how the SLC controller gathers RTD (Resistance Temperature Detector) temperature or resistance-initiated analog input from the module. Included is:

- a general description of the module's hardware and software features.
- an overview of system operation.

For the rest of the manual, the 1746-NR4 RTD/Resistance Input Module is referred to as simply the RTD module.

## Description

The RTD module receives and stores digitally converted analog data from RTD units or other resistance inputs such as potentiometers into its image table for retrieval by all fixed and modular SLC 500 processors. An RTD module consists of a temperature-sensing element connected by two, three, or four wires that provide input to the RTD module. The module supports connections from any combination of up to four RTD units of various types (for example: platinum, nickel, copper, or nickel-iron) or other resistance inputs.

The RTD module supplies a small current to each RTD unit connected to the module inputs (up to 4 input channels). The module provides on-board scaling and converts RTD unit input to temperature (°C, °F) or reports resistance input in ohms.

Each input channel is individually configurable for a specific input device. Broken sensor detection (open- or short-circuit) is provided for each input channel. In addition, the module provides indication if the input signal is out-of-range.

For more detail on module functionality refer to System Overview page 18.

**Simplified RTD Module Circuit**

