2501
8in/4out Analog Module

Description
The 2501 module provides an eight channel analog input and four channel analog output design in a compact, single-wide module to fit in the CTI 2500 Series TM or Simatic® 505 Series I/O base. It is useful in applications such as machine control, loop temperature control and weighing systems. The 2501 replaces Siemens® 505-7012 and 505-7016 modules, except in applications which use the built-in scaling feature.

Features
- CTI 2500 Series TM or Simatic® 505 base format
- Fast 6 mSec update time for all channels
- Selectable input/output or input only operating mode
- Bipolar or unipolar inputs per channel
- Inputs: 1500VDC channel-to-PLC isolation
- Outputs:
  - 1500V channel-to-channel isolation
  - Voltage and current outputs available simultaneously
  - Bipolar or unipolar outputs per channel

Specifications
Update Time: 6 mSec - LO density 7 mSec - HI density (all channels including settling time)
Connector: For new installations this module will require a 2500-40F removable wiring connector sold separately. Part Number 2500-40F.
Backplane Power: 3 Watts (maximum)
Wire Gauge: 14-22 AWG
Module Size: Single-wide
Shipping Weight: 1.5 lb. (0.68 Kg)

Additional Product Information:
On CTI's Website you will find links to the 2500 Series Std Environmental Specifications and the UL Agency Certificates of Compliance.

2501 Wiring Connector Diagram

Note: For new installations this connector must be ordered separately. Part Number 2500-40F.
**2501 8in/4out Analog Module**

**Input Specifications:**

**Input Channels:** 8 analog input channels

**Signal Range:**
- Unipolar: 0 to 5VDC, 0 to 10VDC, or 0 to 20mA
- Bipolar: -5 to +5VDC, -10 to +10VDC, or -20 to +20mA

**Resolution:**
- Unipolar 15 bits plus sign:
  - 0 - 5VDC range = 156mV/step
  - 0 - 10VDC range = 312mV/step
  - 0 - 20mA range = .625mA/step
- Bipolar 15 bits plus sign:
  - -5 to +5VDC range = 156mV/step
  - -10 to +10VDC range = 312mV/step
  - -20 to +20mA range = .625mA/step

**Accuracy:**
- Voltage mode: 0.125% of full scale from 0° to 60°C
- Current mode: 0.225% of full scale from 0° to 60°C

**Digital Filtering Time Constant:** 0.3 Sec

**DC Input Resistance:**
- Voltage mode: 780kW
- Current mode: 250W

**Repeatability:** 0.003125%

**Common Mode Rejection:**
> 120db @ 60Hz (digital filtering disabled)

**Normal Mode Rejection:**
> 40db @ 500Hz (digital filtering enabled)

**Isolation:**
- 1500VDC channel-to-PLC
- 140Vrms channel-to-PLC

**Output Specifications:**

**Output Channels:** 4 analog output channels

**Output Range:**
- Unipolar: 0 to 5VDC, 0 to 10VDC, 0 to 20mA
- Bipolar: -5 to +5VDC, -10 to +10VDC, or -20 to +20mA

**Resolution:**
- Unipolar 12 bits:
  - 0 - 5VDC range = 1.25mV/step
  - 0 - 10VDC range = 2.5mV/step
  - 0 - 20mA range = 5μA/step
- Bipolar 12 bits:
  - -5 to +5VDC range = 2.5mV/step
  - -10 to +10VDC range = 5.0mV/step
  - -20 to +20mA range = 10μA/step

**Accuracy:**
- Voltage mode: 0.125% of full scale from 0° to 60° C over total load range
- Current mode: 0.225% of full scale from 0° to 60° C over total load range

**Capacitance Drive:** 0.01 microfarad

**Load Resistance:**
- Voltage mode: 1kΩ minimum, no maximum
- Current mode: 0Ω to 1kΩ max. @ 24VDC or greater

**User Supply:** 20 to 30VDC @ 0.25 Amps (maximum ripple of 0.4V)
- UL Class 2 power supply

**Isolation:**
- 1500VDC channel-to-channel
- 1500VDC channel-to-PLC

![Typical Internal Circuit - Input Current Mode](image1)

![Typical Internal Circuit - Output Current Mode](image2)

![Typical Internal Circuit - Input Voltage Mode](image3)

![Typical Internal Circuit - Output Voltage Mode](image4)