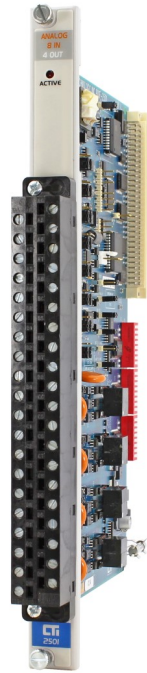


# 2501

## 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™ 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

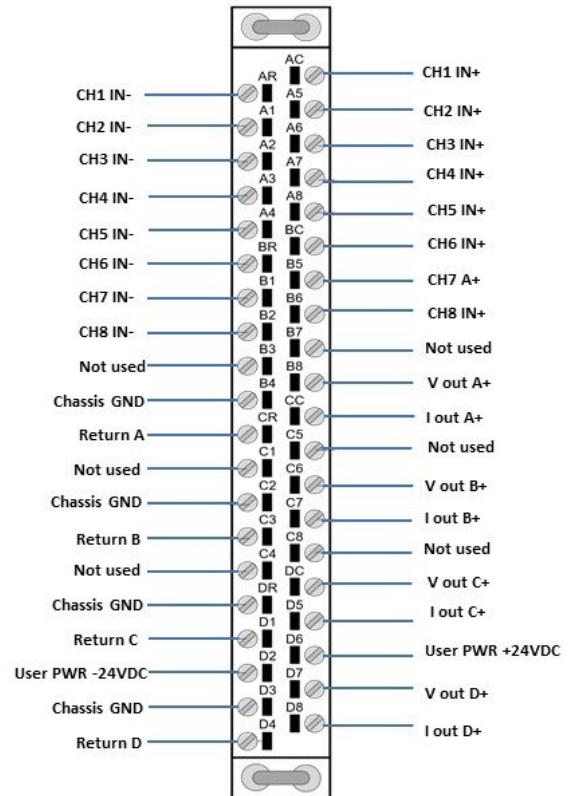
- CTI 2500 Series™ or Simatic® 505 base format
- Fast 6 mSec update time for all channels
- Selectable input/output or input only operating mode
- Bipolar or unipolar inputs per channel
- Inputs: 1500VDC channel-to-PLC isolation
- Outputs:
  - 1500V channel-to-channel isolation
    - Voltage and current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

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# 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: 780k $\Omega$

Current mode: 250 $\Omega$

**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 = 5 $\mu$ A/step

Bipolar 12 bits:

-5 to +5VDC range = 2.5mV/step

0 - 10VDC range = 5.0mV/step

-20 to +20mA range = 10 $\mu$ A/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: 1k $\Omega$  minimum, no maximum

Current mode: 0 $\Omega$  to 1k $\Omega$  max. @ 24VDC  
or greater

**User Supply:** 20 to 30VDC @ 0.25 Amps

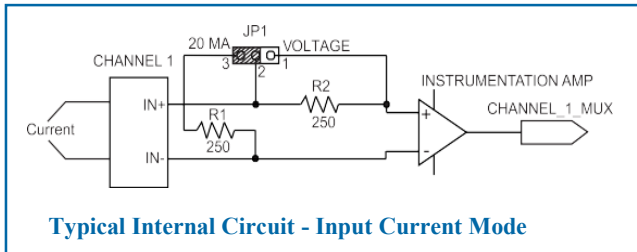
(maximum ripple of 0.4V)

UL Class 2 power supply

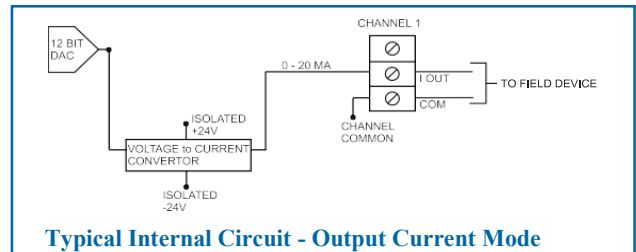
### Isolation:

1500VDC channel-to-channel

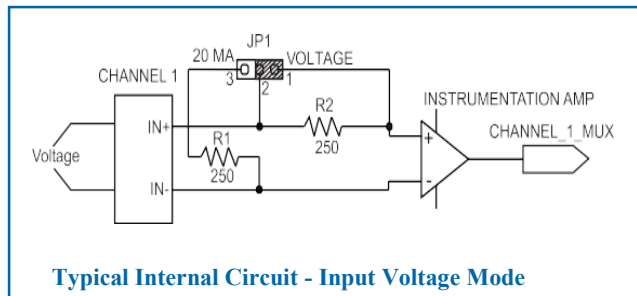
1500VDC channel-to-PLC



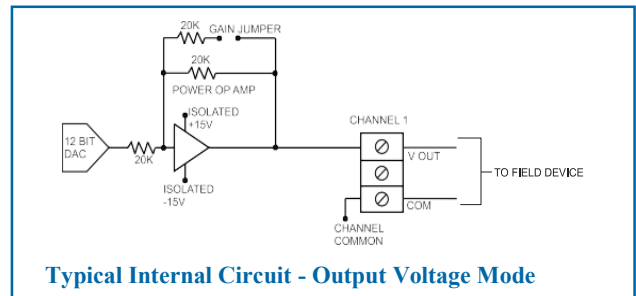
Typical Internal Circuit - Input Current Mode



Typical Internal Circuit - Output Current Mode



Typical Internal Circuit - Input Voltage Mode



Typical Internal Circuit - Output Voltage Mode

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