

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

2562 QUICK START GUIDE

CTI P/Ns: 2562 Quick Start Guide: 062-00348-010 2562 Installation and Operation Guide: 062-00332-011

Summary: The 2562 is designed to translate a digital word from the programmable logic controller (PLC) into an equivalent analog voltage and/or current output signal. Configuration of the module, taken from the full-length Installation and Operation Guide's Chapter 2, is as follows.

2.3 Configuring the Module for Operation

The 2562 must be configured for voltage output range, unipolar or bipolar mode, offset mode, and zero/last value mode before wiring the output connectors and inserting the module into the I/O base. As shipped, all output channels are configured for the 5V output range, unipolar outputs, disabled offset mode, and last value output at power up (see Table 2.1 and Figure 2.3).

Configuring the 2562 for operation consists of the following steps (notations in parenthesis are actual printed board titles):

1. Selecting 0-5V (5V) or 0-10V (10V) output voltage range for each channel.
2. Selecting unipolar (UNI) or bipolar (BI) mode for each output channel.
3. Setting DIP switches for each channel to match the hardware configuration.
4. Selecting offset scaling enabled (EN) or disabled (DIS) for the entire module.
5. Selecting either zero (ZERO) or last value (LAST VALUE) at power up for the module.

Channel Number	**Voltage Range Jumper**	**Jumper Position** ***5V or 10V***	**Unipolar/Bipolar Jumper**	**Jumper Position** ***Uni or Bi***
1	JP28	5V	JP24	UNI
2	JP6	5V	JP5	UNI
3	JP2	5V	JP1	UNI
4	JP12	5V	JP11	UNI
5	JP8	5V	JP7	UNI
6	JP4	5V	JP3	UNI
7	JP10	5V	JP9	UNI
8	JP14	5V	JP13	UNI

All Channels	**Offset Mode Jumper**	**Offset Mode Jumper Position**	**Outputs at Power Up Jumper**	**Outputs at Power Up Jumper Position**
1-8	JP40	DISABLED	JP25	LAST VALUE

Table 2.1 Jumper Configuration as Shipped

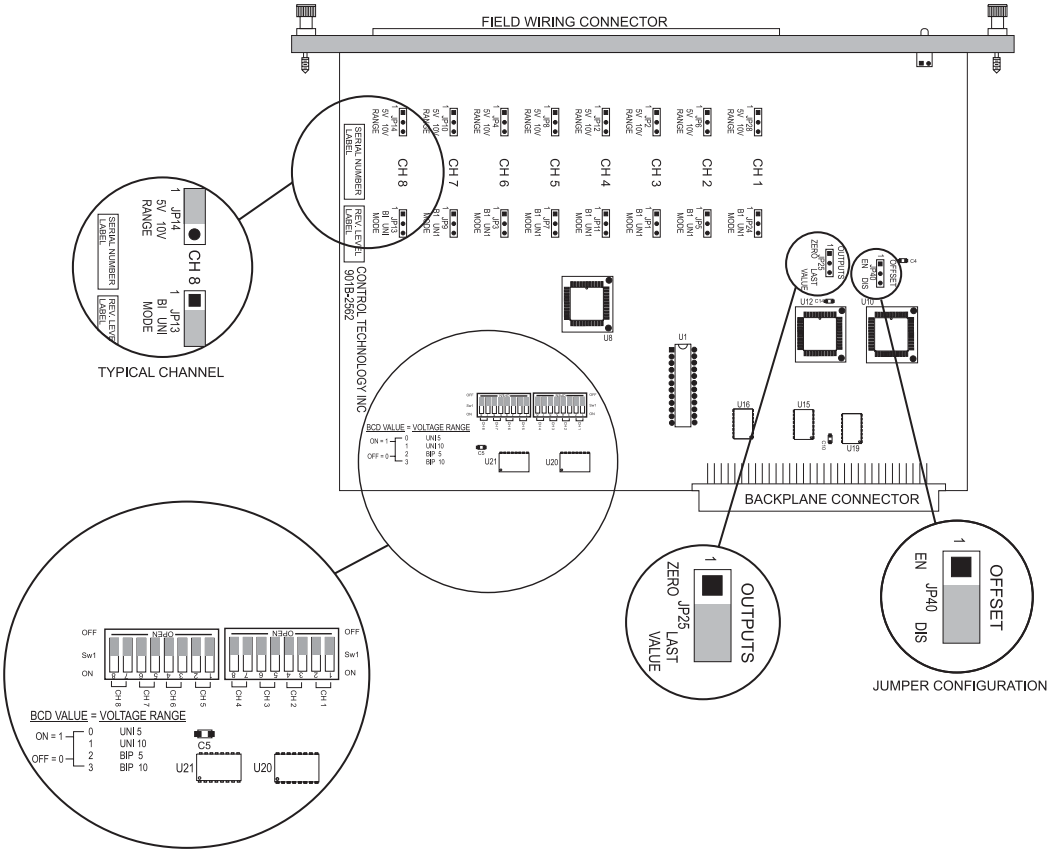


Figure 2.3 Configuring the Module
(jumper settings shown as shipped)

2.3.1. Selecting Either 5 VDC or 10 VDC Range for Each Channel

The 2562 is capable of supporting Unipolar or Bipolar applications with an output range of 0 to +5 VDC, 0 to +10 VDC, -5 to +5 VDC or -10 to +10 VDC. For each channel a hardware jumper selects the range for that output circuit. (See Figure 2.3.) Select 5 VDC range for all current applications. As shipped, the 5V range is selected.

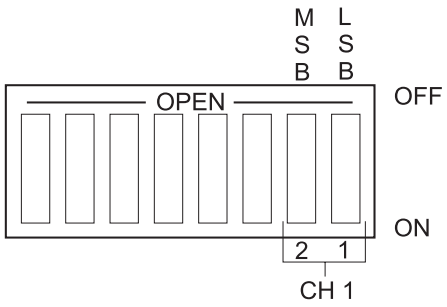
2.3.2. Selecting Unipolar or Bipolar Output

Each output channel on the 2562 supports Unipolar or Bipolar output operation. Hardware jumpers select operation of the output. (See Figure 2.3.) Select Bipolar for applications that drive the outputs from -5 to +5 VDC, -10 to +10 VDC, or -20 to +20 mA. As shipped, Unipolar range is selected.

2.3.3. Setting DIP Switches to Match the Hardware Selections

Once the hardware jumpers are selected this information needs to be reported to the microcomputer. The information is reported via DIP switches SW1 and SW2. Each output channel uses 2 switches with a BCD code to indicate the state of the hardware jumpers. As shipped, Unipolar 5VDC is selected.

2 (MSB)	1 (LSB)	Range
OFF	OFF	Unipolar 5VDC
OFF	ON	Unipolar 10VDC
ON	OFF	Bipolar 5VDC
ON	ON	Bipolar 10VDC



2.3.4. Selecting Automatic Offset Mode for the Entire Module

Some applications require an Offset mode of 4-20 mA or 1-5 VDC. The SIMATIC® TI PLC can adjust an output loop calculation to provide an offset output. If the application does not use the PID control block then the processing must be done in relay ladder logic. The 2562 can perform this offset calculation and output an offset signal independent of the PLC. Selecting this function with JP40 causes all eight outputs to be scaled. Move the jumper to the ENABLED position to select this function. As shipped the module offset is DISABLED.

2.3.5. Selecting Either Zero or Last Value Output at Power Up

Upon power up of the base power, the 2562 allows the user to choose between either a zero output value or last output value when transitioning to the next update. A hardware JP25 jumper setting (see Figure 2.3) sets the entire module for the mode chosen. Section 2.9. Power Cycling explains the details of each selection. As shipped the module power up mode is LAST VALUE.

2.4. Inserting the Module into the I/O Base

When the module is fully seated in the slot, captive screws at the top and bottom will hold the module in place. To remove the module from the I/O base, loosen these captive screws, and then remove the module from the I/O base. Do not damage the edge connector at the back of the module when inserting or removing the module.

2.5. Wiring the Output Connector

Output signals are provided through a connector assembly located on the front of the module. The connector assembly consists of a header attached to the printed circuit card and a mating removable screw terminal plug (see Figure 2.4). Wiring is connected through the removable screw terminal plug.

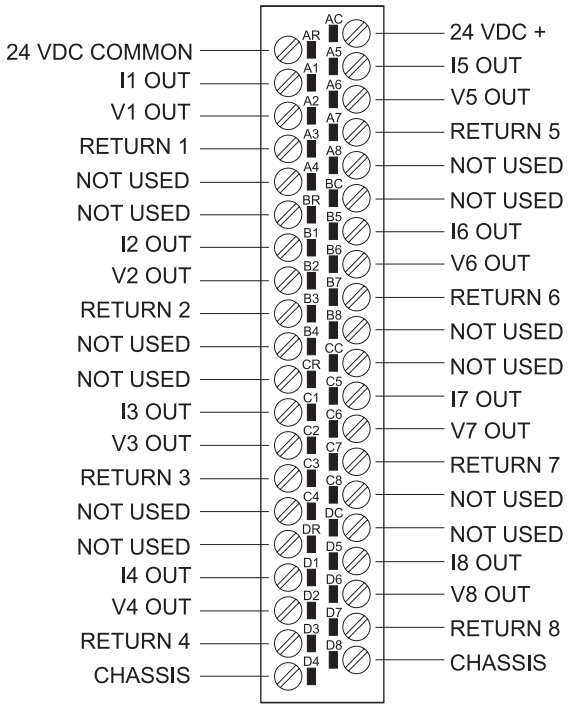


Figure 2.4 Output Screw Terminal Plug Wiring

2.5.1. Connecting Voltage Output Wiring

First, loosen the wire locking screws on the output screw terminal plug. For voltage output circuits, connect the signal wire to the VO screw terminal, and the return wire to the Return (channel ground) screw terminal. Insert the wires in the appropriate holes next to the screws. When the wires are inserted, tighten the screws. Repeat this procedure for the remaining voltage output channels.

2.5.2. Connecting Current Output Wiring

For current output circuits, connect the signal wire to the IO screw terminal, and the return wire to the Return (channel ground) screw terminal. Insert the wires in the appropriate holes next to the screws. When the wires are inserted, tighten the screws. Repeat this procedure for the remaining current output channels.

2.5.3. Connecting the Shield Wiring

See Figure 2.5 below that describes cable grounding and chassis ground.

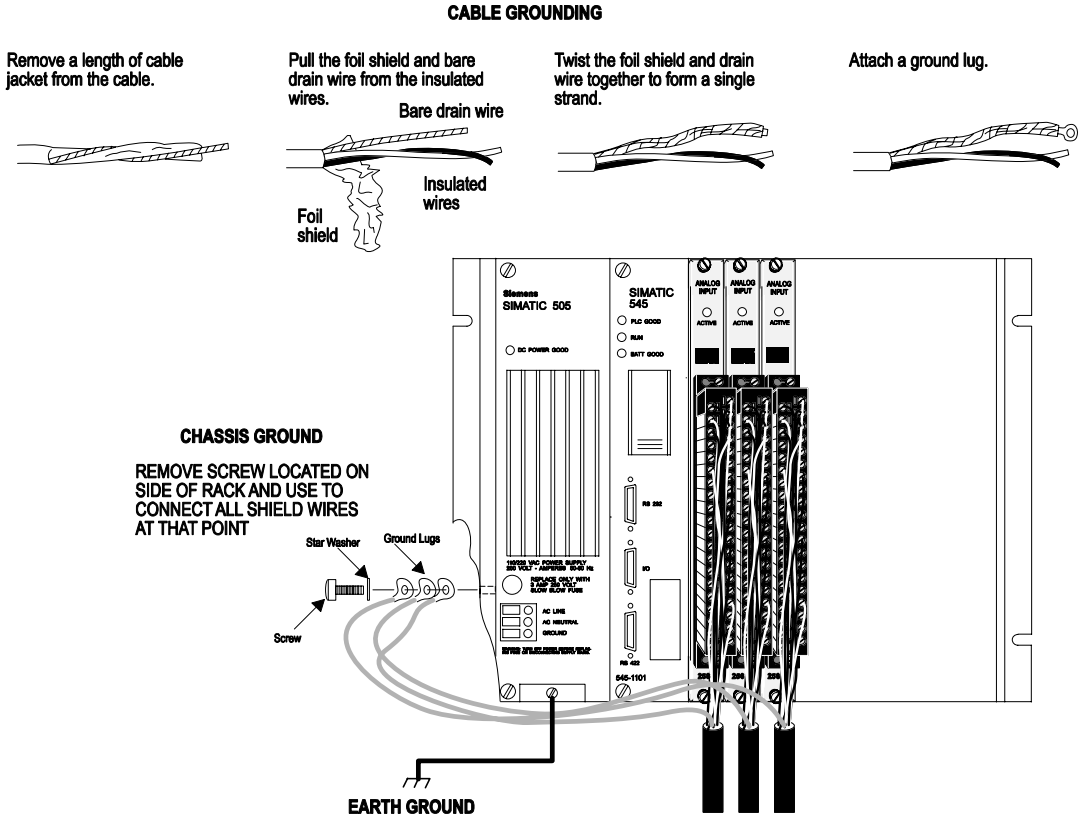


Figure 2.5 Connecting the Shield Wiring

Note:
A static drain is recommended on the 2562 to prevent a static charge buildup from occurring. A 10K to 1M resistor from any analog common to earth ground (chassis ground is front panel output connector pins D4 or D8) is sufficient for protection.

2.6. Inserting the Screw Terminal Plug

When all the output signal wires are connected to the screw terminal plug, carefully insert the plug into its header. Both the plug and header are keyed to prevent reverse wiring. When the screw terminal is fully inserted onto the header, use the captive screws to secure the plug to the front panel.

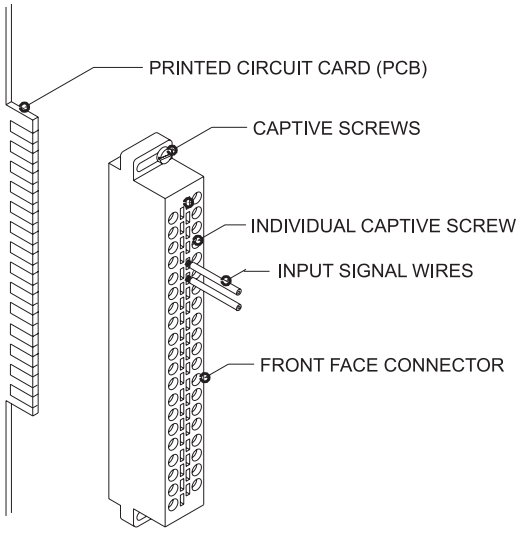


Figure 2.6 Attaching the Screw Terminal Plug

WARNING:
Always remove power from the I/O base before inserting a module to minimize the risk of injury of damage to equipment. Never insert a module into a powered I/O base.

2.7. Connecting the 24 VDC User Power Supply

The power supply is connected to the top 2 positions of the top connector on the front of the module as shown in Figure 2.7 below. Be sure to check that the 24V fuse is present and intact. See Chapter 3 Troubleshooting recommendations for replacement fuses.

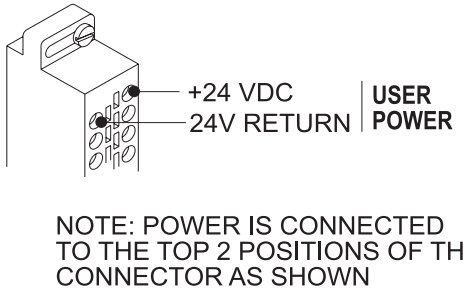


Figure 2.7 Power Supply Connections

2.8. Checking Module Operation

First turn on the base supply power. If diagnostics detects no problems, the front panel status indicator will light. If the indicator does not light (or goes out during operation), the user 24VDC is not present or the module has detected a different failure. For information on viewing failed module status, refer to your SIMATIC® TISOFT Programming Manual. To diagnose and correct a module failure, refer to the next section on troubleshooting.

NOTE:
If 24 VDC power fails or is removed and then later restored, the module will automatically resume normal operation. No external reset is required after power is restored.

You must also check that the module is configured in the memory of the PLC. This is important because the module will appear to be functioning regardless of whether it is communicating with the PLC. To view the PLC memory configuration chart listing all slots on the base and the inputs or outputs associated with each slot, refer to your SIMATIC® TISOFT Programming Manual. An example chart is shown in the following figure.

In this example, the 2562 Module is inserted in slot 1 in I/O base 0. Data for channel 1 appears in word location WY1, data for channel 2 appears in word location WY2, etc. For your particular module, look in the chart for the number corresponding to the slot occupied by the module. If word memory locations appear on this line, then the module is registered in the PLC memory and the module is ready for operation.

```
I/O MODULE DEFINITION FOR CHANNEL . . . 1    BASE . . . . . 00

                 I/O    NUMBER OF BIT AND WORD I/O    SPECIAL
  SLOT  ADDRESS          X     Y     WX    WY         FUNCTION

   01 . . . . 0001 . . . . . . . . 00 . . 00 . . 00 . . 08 . . . . . . . NO
   02 . . . . 0000 . . . . . . . . 00 . . 00 . . 00 . . 00 . . . . . . . NO
                                    .
                                    .
                                    .
   15 . . . . 0000 . . . . . . . . 00 . . 00 . . 00 . . 00 . . . . . . . NO
   16 . . . . 0000 . . . . . . . . 00 . . 00 . . 00 . . 00 . . . . . . . NO
```

Figure 2.8 I/O Configuration Chart

If the line is blank or erroneous, re-check the module to ensure that it is firmly seated in the slots. Generate the PLC memory configuration chart again. If the line is still incorrect, contact your local distributor or CTI at 1-800-537-8398 for further assistance.

NOTE:
In the event a CTI analog module detects no user 24VDC or an onboard module failure, the module will assert the module fail line and report the module failure in the I/O Status Word, which is reported to the PLC CPU. CTI strongly recommends the user application monitor the I/O Module Status Words which are Status Words 11-26 and apply to SIMATIC® Controllers TI/545, TI/555, TI/560 & 565, and the TI/575. The I/O Module Status Word can be used to report a module failure for an I/O Module in any of the SIMATIC® 505 I/O slots. Please refer to Siemens® SIMATIC® 505 Programming Reference Manual for more information. If a module failure is reported by the status word, the module should be replaced with a working unit and the failed module sent in for repair.

2.9. Power Cycling

The 2562 reacts the following ways upon various power cycling scenarios:

Base Power (5V)	User Power (24V)	2562 in Last Value Mode	
		Unipolar Mode*	Bipolar Mode*
On	Transition off	Output to zero.	Output to zero.
On	Transition on	Output from zero to PLC value.	Output from zero to full scale (+), then PLC value.
Transition off	On	Maintains last value.	Maintains last value.
Transition on	On	Maintains last value.	Maintains last value.
Off	Transition on	Output stays at zero.	Output to full scale.

Figure 2.9 Last Value Mode Module Reactions

Base Power (5V)	User Power (24V)	2562 in Zero Mode	
		Unipolar Mode*	Bipolar Mode*
On	Transition off	Output to zero.	Output to zero.
On	Transition on	Output from zero to PLC value.	Output from zero to full scale (+), then to zero, then to PLC value.
Transition off	On	Maintains last value.	Maintains last value.
Transition on	On	Output to zero for several seconds, then to PLC value.	Output to zero, then to PLC value.
Off	Transition on	Output stays at zero.	Output from zero to full scale (+).

Figure 2.10 Zero Mode Module Reactions

*see Section 2.3.5. Selecting Either Zero or Last Value Output at Power Up for further explanation.

CHAPTER 3. TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Indicator is not lit	Not receiving power	Check power supply and connections
	Base or PC power is off	Turn base or PC on
	User 24 VDC not present	Check 24 VDC power
Incorrect outputs	Wrong connections	Trace wiring to check connections
	Wrong addresses for word output	Check program for correct word output addresses
	Not logged-in	Read I/O configuration
	Incorrectly calibrated	Return the module to CTI for calibration
	24 VDC user supply not within specification	Repair /replace user supply
Incorrect output values	Output load < 1K ohm voltage mode or > 1000 ohm current mode	Verify output load impedance is within specifications
No output	Blown fuse, or failed isolator	Contact CTI

Figure 3.1 Troubleshooting Matrix

When it is inconvenient to visually check the status indicator, use the TISOFT "Display Failed I/O" or "Show PLC Diagnostics" support functions. Note that if the module power supply (user supply) fails, the module will still be logged into the PLC even though it is not operating.

In the event the user serviceable fuse blows, its replacement should be a 1 A, 250V Fast Blow 5x20mm fuse (Littelfuse 217-001 or equivalent).

If after consulting the chart above, you are unable to diagnose or solve the problem, contact your local distributor or CTI at 1-800-537-8398 for further assistance.

SPECIFICATIONS

Output Channels:	8 analog output channels	
Response Time:	4 mSec total module (includes settling time)	
Output Range:	Unipolar:	0 to +5.12 VDC 0 to +10.24 VDC 0 to +20 mA
	Bipolar:	-5.12 to +5.12 VDC -10.24 to +10.24 VDC -20 to +20 mA
Resolution 12 bits:	0-5 VDC range = 1.25 mV/step 0-10 VDC range = 2.5 mV/step 0-20 mA range = 5 μA/step -5 to +5 VDC range = 2.5mV/step -10 to +10 VDC range = 5.0 mV/step -20 to +20 mA range = 10 μA/step	
Isolation:	1500 VDC channel-to-PLC	
Capacitance Drive:	0.01 microfarads	
Load Resistance:	Voltage: 1KΩ minimum, no maximum Current: 0Ω to 1KΩ max. @ 24VDC or greater	
Voltage Accuracy:	0.125% of full scale from 0° to 60°C over total load range	
Current Accuracy:	0.225% of full scale from 0° to 60°C over total load range	
User Supply:	20 to 30 VDC @ 0.50 Amps (maximum ripple of 0.4 V) UL Class 2 power supply	
Backplane Power Consumption:	1.7 Watts	
Module Size:	Single-wide	
Operating Temperature:	0° to 60°C (32° to 140°F)	
Storage Temperature:	-40° to 85°C (-40° to 185°F)	
Humidity, Relative:	5% to 95% non-condensing	
Agency Approvals:	UL, UL-C	

Specifications subject to change without notice.

APPENDIX A. COMPATIBILITY WITH SIEMENS® 505-6208-A/B

Overview

The CTI 2562 Analog Output Module was designed to be a drop-in replacement for the Siemens® models 505-6208-A and 505-6208-B. From set up of the module to wiring and PLC reporting, the user will find many similarities between the CTI and Siemens® models.

Using the CTI 2562 in a 505-6208-A and/or 505-6208-B application

The CTI 2562 should fulfill all the following requirements for the 505-6208-A and 505-6208-B replacement(s), as outlined below:

Module setup

Since the CTI 2562 allows for both Unipolar and Bipolar setup, the module does have a slightly different module setup. See Chapter 2.3 Configuring the Module for Operation to determine the details in module setup.

Wiring

The wiring of the output connector is the same between the modules. See Chapter 2.5. Wiring the Output Connector for a detailed explanation of how this is accomplished.

If the module is used to supply voltage, the requirements of the input voltage to the module (20-30VDC) remains the same in order to supply the resistive load of the field device (>1000Ω). However, the maximum load resistance for current output drops to 600Ω at 20VDC and then climbs linearly to 1000Ω at 24-30VDC.

Also noteworthy is the isolation achieved module to module with the same power supply by using the CTI 2562 versus the Siemens® modules. With the 2562, each module is dielectrically isolated from a common 24V power supply.

PLC Reporting

The word format is the same between the modules. See Chapter 1.3 for a more detailed explanation on PLC reporting.

Power Cycling

When the user power is supplied and the base power is transitioning on, the 2562 has the option to either transition to hold the last output value until the next PLC update, as the Siemens® modules do, or to go to zero until the next PLC update. See section 2.3.5. Selecting Either Zero or Last Value Output at Power Up for further details.

APPENDIX B: JUMPER SETTINGS LOG SHEET

Channel Number	Voltage Range Jumper	Jumper Position *5V or 10V*	Unipolar/Bipolar Jumper	Jumper Position *Uni or Bi*
1	JP28		JP24	
2	JP6		JP5	
3	JP2		JP1	
4	JP12		JP11	
5	JP8		JP7	
6	JP4		JP3	
7	JP10		JP9	
8	JP14		JP13	

All Channels	Offset Mode Jumper	Offset Mode Jumper Position	Outputs at Power Up Jumper	Outputs at Power Up Jumper Position
1-8	JP40		JP25	

Record the configuration jumper settings on this log for future reference. Make additional copies if necessary.

This manual is published by Control Technology Inc., 5734 Middlebrook Pike, Knoxville, TN 37921. This manual contains references to brand and product names that are tradenames, trademarks, and/or registered trademarks of Control Technology Inc. Siemens® and Simatic® are registered trademarks of Siemens AG. Other references to brand and product names are tradenames, trademarks, and/or registered trademarks of their respective holders.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP