SIEMENS

Data Sheet

SIMATIC® 505

Isolated Discrete Output Module (505–2590–A)

Description

The Model 505–2590–A 16-point Discrete Output Module provides 16 isolated outputs from the Series 505™ I/O base. The module utilizes solid-state output circuits to switch on or off external devices such as pilot lamps, motor starters, or solenoids. The Model 505–2590–A is designed to switch externally supplied 20 to 132 VAC. The internal logic signals are isolated from the external outputs to 1500 VDC. Detailed technical specifications are described in the following information.

Figure 1   505–2590–A Output Module

Features   The following is a list of features for Model 505–2590–A.

- Series 505 I/O base format

- 2 Amps per output (no derating)

- Isolated 1500 VDC channel-to-channel

- Individual fuse for each output channel

- Blown fuse reporting to the controller for each channel

- One common blown fuse indicator LED on bezel

- Logs in as a 16Y or 16X/16Y (jumper selectable)

- Single-wide module

Table 1   General Specifications

Outputs per module	16
Isolation	1500 VDC channel-to-channel 1500 VDC channel-to-backplane
Blown fuse reporting per channel	Reported to the controller as an X input (jumper selectable)
Output voltage	20 – 132 VAC
Output source current per circuit	2.0 Amps (maximum)
Turn on time	1/2 AC cycle
Turn off time	1/2 AC cycle
Minimum current	40 mA per circuit
Maximum surge current	3 Amps for 15 seconds
Total module output current	32 Amps maximum from 0° to 60° C
Non-repetitive surge current	80 Amps (1 cycle)
"OFF" state leakage	1 mA maximum @ 25° C
Connector	Removable
Wire gauge	14 to 22 AWG
Backplane power	1 Watt (maximum)
Module size	Single wide
Agency approvals	UL, UL for Canada; FM (Class I, Div 2), CE
Shipping weight	1.5 lb (0.68 Kg)

Table 2   Environmental Specifications

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

Table 3   Fuses

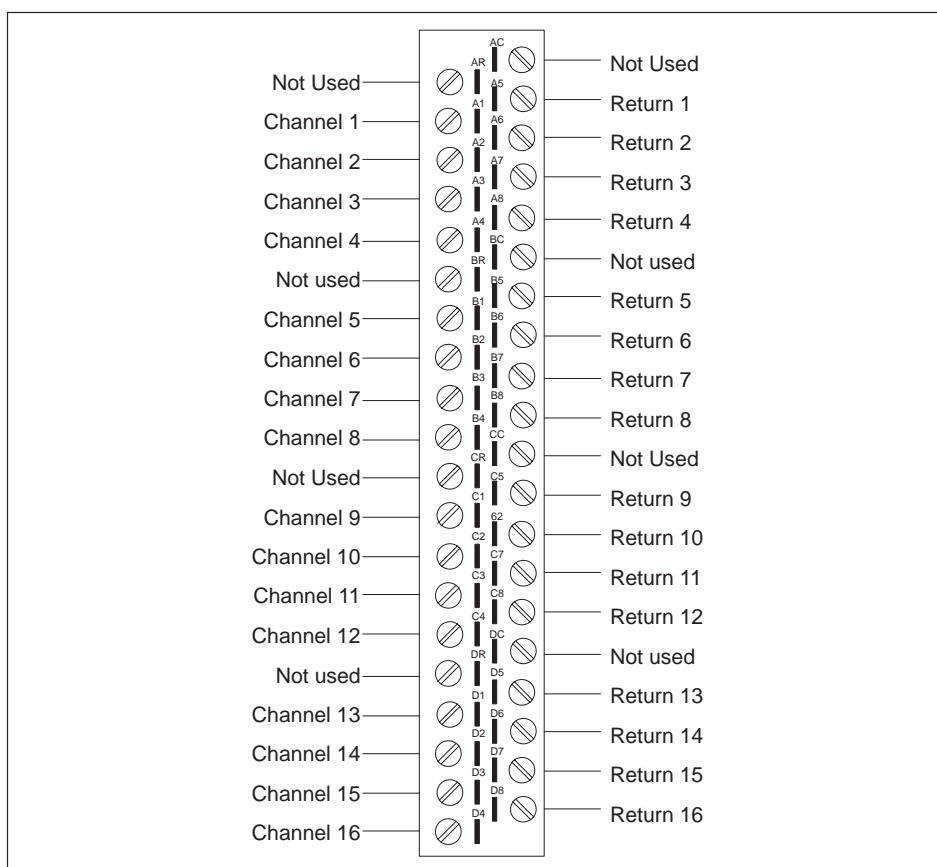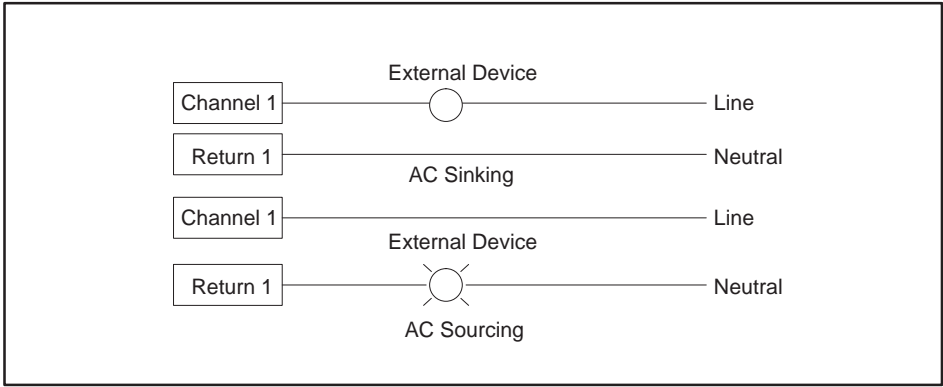| 505–2590–A	16, 3 Amp, 250 V, Type Littlefuse #2173.15, Bussman GMA # GMA–3A, CTI Part #80–65 (field replaceable)

Figure 2   505–2590–A Output Connector

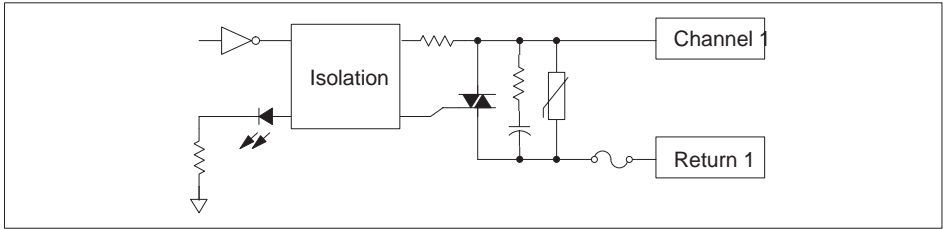**Figure 3   Typical External Wiring Application – 505–2590–A**

Figure 4   Typical Internal Circuit – 505–2590–A

Checking Module Operation

You must check to see that the module is configured in the memory of the controller. This is important because the module will appear to be functioning regardless of whether it is communicating with the controller. To view the controller I/O configuration chart listing all slots on the base and the inputs or outputs associated with each slot, refer to your *SIMATIC TISOFT Programming Manual*. A sample chart is shown in Figure 5.

I/O Module Definition for Channel . . . . 1 Base 00						
Slot	I/O Address	Number of bit and word I/O				Special Function
		X	Y	WX	WY	
01	0001	00	16	00	00	NO
02	0000	00	00	00	00	NO
15	0000	00	00	00	00	NO
16	0000	00	00	00	00	NO

Figure 5   Sample I/O Configuration Chart

In this example, the 505–2590–A module is inserted in slot 1 in I/O base 0. Data appears as 16 Y locations starting at Y1. For your particular module, look in the chart for the number corresponding to the slot occupied by the module. If bit locations appear on this line, then the module is registered in the controller memory and the module is ready for operation.

Operating with Blown Fuse Reporting

The 505–2590–A alerts the controller CPU when an output channel has a blown fuse. The feature is enabled by moving jumper JP9, as shown in Figure 6, to the "Reports 16X Inputs." When JP9 is in this position the module logs on to the base as a 16X/16Y module. The 16X inputs are used for Blown Fuse Reporting and the 16Y outputs are used just as any other discrete output would be used.
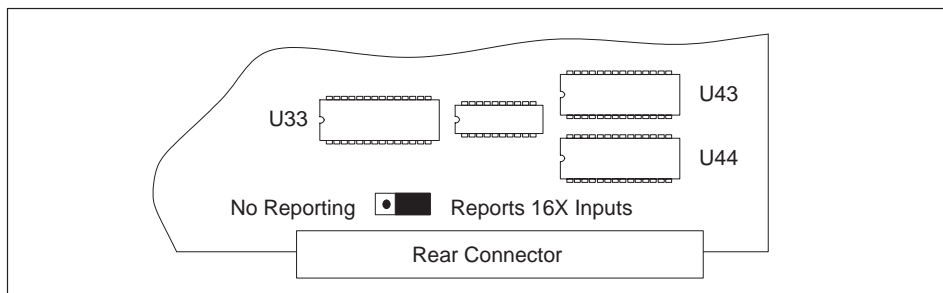

Figure 6   Blown Fuse Reporting Selection

Figure 7 shows an I/O Configuration Chart with a 505–2590–A plugged in the first slot with Blown Fuse Reporting Enabled. X1–X16 are the Blown Fuse Reporting inputs and Y17–Y32 are the respective outputs under PLC ladder logic control.

I/O Module Definition for Channel . . . . 1 Base 00						
Slot	I/O Address	Number of bit and word I/O				Special Function
		X	Y	WX	WY	
01	0001	16	16	00	00	NO
02	0000	00	00	00	00	NO
15	0000	00	00	00	00	NO
16	0000	00	00	00	00	NO

Figure 7   I/O Configuration Chart with Blown Fuse Reporting

NOTE: Only one starting address is needed to log in the module. The controller automatically assigns the first 16 locations as inputs and the next 16 locations as outputs.

NOTE: If the line is blank or erroneous, re-check the module to ensure that it is firmly seated in the slots. Generate the controller I/O configuration chart again. If the line is still incorrect, contact the Siemens Technical Services Group in the U.S.A. at (423) 461–2522. Outside the U.S.A., call 49–911–895–7000.

⚠ **WARNING**

Do not install or remove I/O modules while they are energized.

Accessing energized parts could cause death or serious injury to personnel, and/or damage to equipment.

Disconnect all power to the base before installing or removing I/O modules.

SIMATIC is a registered trademark of Siemens AG.

Series 505 is a trademark of Siemens Energy & Automation, Inc.