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USER MANUAL

1257-S-1916
SWITCHING SYSTEM

PUBLICATION NO. 980862-S-1916

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Customization Specifics

Overview

The 1257 Switching System and associated drawer have been customized to meet your exact needs. This section is provided and bound with the standard 1257 manual to highlight differences and deviations from the main manual that are only applicable to this customized system. Additionally, this section also provides physical channel maps and wire lists for the application that are typically necessary for troubleshooting and development of application software.

Hardware Specifics

1257 Controller

The standard 1257 switching system provides a 12 VDC 150W power supply for powering relays, switches, and other equipment in the drawer. Per your request, the standard power supply has been replaced with a +24 VDC 150W power supply.



CAUTION

Do not plug in other 1257 drawers in this system unless they are designed for +24 VDC service. Failure to observe this precaution can result in permanent damage to switching components and driver cards in the drawer.

Driver Pinout and Channel Mapping

Per your request, the gateway card found on the drawer has been loaded with three driver cards. Driver card 1 and 2 have Racal P/N 405177 modules which each have 48 channels of open-drain outputs. Driver card 3 has a 405177-001 module which provides 48 channels of TTL-compliant outputs. Refer to **Figure A, Driver Card Pinout and Placement** for physical module orientation and connector numbering conventions for the 160-pin DIN connector. Pin assignments for the 160-pin DIN connectors are as follows:

+24VDC:	A17-A32, B17-B32, C17-C32
Ground:	D2-D4, D6-D8, D10-D32 E2-E4, D6-E8, E10-E32
Port 0:	A1 = Bit 0, A2 = Bit 1, A3 = Bit 2, A4 = Bit 3, A5 = Bit 4, A6 = Bit 5, A7 = Bit 6, A8 = Bit 7
Port 1:	A9 = Bit 0, A10 = Bit 1, A11 = Bit 2, A12 = Bit 3, A13 = Bit 4, A14 = Bit 5, A15 = Bit 6, A16 = Bit 7
Port 2:	B1 = Bit 0, B2 = Bit 1, B3 = Bit 2, B4 = Bit 3, B5 = Bit 4, B6 = Bit 5, B7 = Bit 6, B8 = Bit 7
Port 3:	B9 = Bit 0, B10 = Bit 1, B11 = Bit 2, B12 = Bit 3, B13 = Bit 4, B14 = Bit 5, B15 = Bit 6, B16 = Bit 7
Port 4:	C1 = Bit 0, C2 = Bit 1, C3 = Bit 2, C4 = Bit 3, C5 = Bit 4, C6 = Bit 5, C7 = Bit 6, C8 = Bit 7
Port 5:	C9 = Bit 0, C10 = Bit 1, C11 = Bit 2, C12 = Bit 3, C13 = Bit 4, C14 = Bit 5, C15 = Bit 6, C16 = Bit 7

Additionally, auxiliary +5 VDC / 0.5 A service is available inside the drawer. Up to 1A of +5 VDC can be obtained from each auxiliary connector located on the driver cards. Refer to **Figure B, Auxiliary Voltage Pinout and Placement** for specifics.

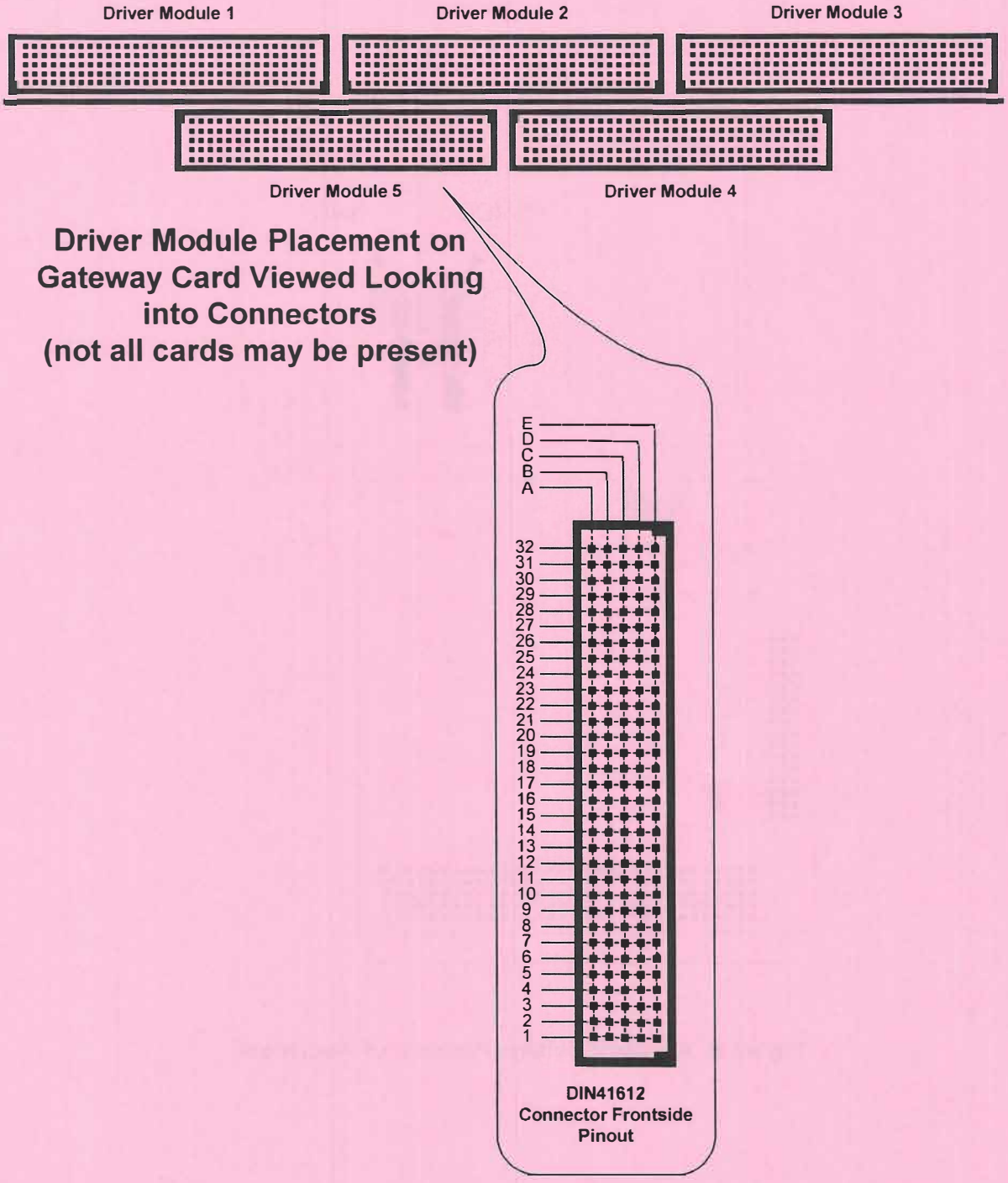


Figure A, Driver Card Pinout and Placement

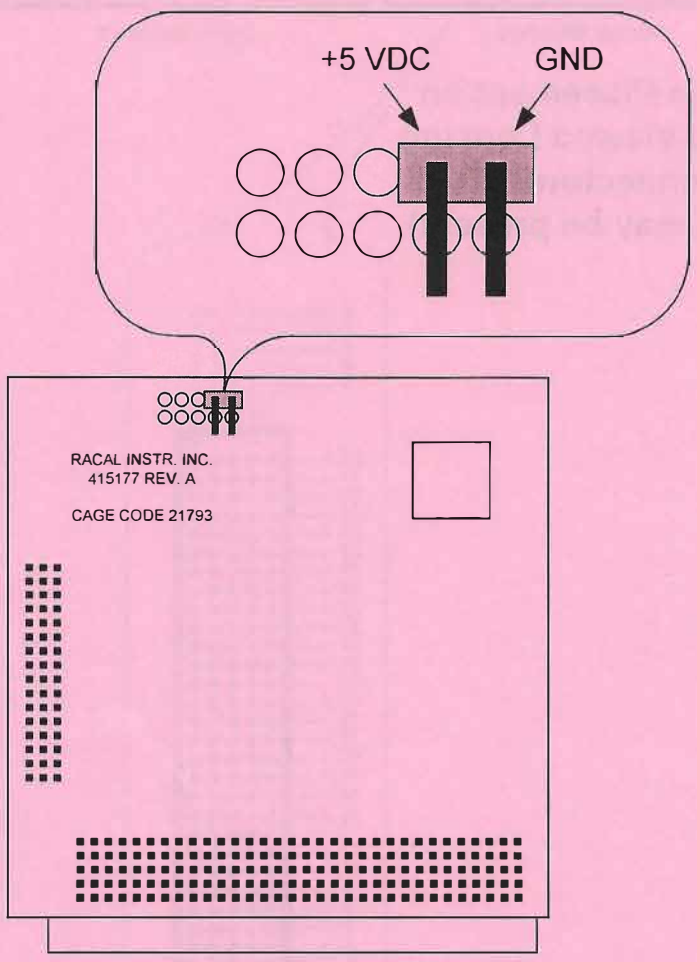


Figure B, Auxiliary Voltage Pinout and Placement

Replaceable Components

This particular drawer is suitable for end-user prototyping. To facilitate rapid customization in a machine shop, the drawer utilizes replaceable flat sheet metal inserts for both the drawer panel and mezzanine. Because these inserts are flat when removed from the drawer assembly, they can be punched with ease in any machine shop.

The process of designing switch gear often entails change during the prototyping phase. It is possible to order replacement panels through Racal Instruments. These part numbers are as follows:

Drawer Panel Insert	Racal P/N 457023
Mezzanine Insert	Racal P/N 457024

Connector Components

The 1257 driver cards use the DIN 41612-series connectors to provide relay control/TTL outputs, relay power, and grounds to the drawer components. The following mating components are recommended for use with the driver cards:

Backshell: DIN41612 Type E160
Erni P/N: 024-070
Racal P/N: 602258-116

Pins: Crimp Contacts (24-28 AWG)
Erni P/N: 014-748
Racal P/N: 602258-901

Pins: Crimp Contacts (20-26 AWG)
Erni P/N: 014-728
Racal P/N: 602258-900

Crimp Tool: Hand Tool Loose Contacts
Erni P/N: 014-374

Connector retention force is solely a product of the number of contacts in use. For designs that use limited I/O, the connector retention force may be too low to insure that the connector does not come loose during normal use. In these situations, the backshell should be filled with an adequate number of dummy crimped contacts (less wire) to insure that the connector is properly retained.

Software Specifics

Drawer Descriptor

The 1257 drawer used in this product operates with a standard descriptor known as the 1260-CDS. The descriptor is a small EPROM located on the driver gateway card which tells the 1257 controller what channels are present or available and how to act on them. The nomenclature of a channel number in the 1260-CDS descriptor is a three digit number.

The first leftmost digit corresponds to the card number 1-5 and selects which card is to be accessed. Even though this descriptor maps channels across all five driver cards and will indicate the channel as valid, only the channel numbers associated with cards actually present in the system will perform.

The second middle digit corresponds to the port number on the selected card and has a value of 0-5. Each module has 48 channels or a total of six ports of eight bits each.

The third and rightmost digit corresponds to the bit number of the selected port and has a value of 0-7.

Example 1:

```
----OPERATIONS----
  Drawer: 1260-CDS
 Channel: 165
< Set to: Closed?
```

or the SCPI command:

```
CLOSE(@1(135))
```

would turn on the output located on card one, port three, bit five.

Example 2:

```
----OPERATIONS----
  Drawer: 1260-CDS
 Channel: 202
< Set to: Closed?
```

or the SCPI command:

```
CLOSE(@1(202))
```

would turn on the output located on card two, port zero, bit two.

Since every channel correlates directly to a physical location on a card, it is easy to convert a channel number into a direct pin connection for wiring purposes.

Unavailable Features

Confidence mode features outlined in the standard manual are not applicable to this drawer. For confidence mode to be functional, the descriptor must tell the 1257 which channels are in use and those that are not. The 1260-CDS is a general purpose descriptor that allows access to all available channels, whether they are in use or not. The 1257 controller therefore can not distinguish an unused channel from a bad channel that is indicating an incorrect readback voltage. If confidence mode is enabled, the error log will always indicate a confidence mode failure with this drawer.

CE Compliance

This system is covered under the existing CE declaration found in the standard 1257 manual. While this special utilizes a different fixed-output power supply, both the original power supply and the replacement are Cosel LEA-150 supplies. They are functionally identical from an EMI and performance standpoint.

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