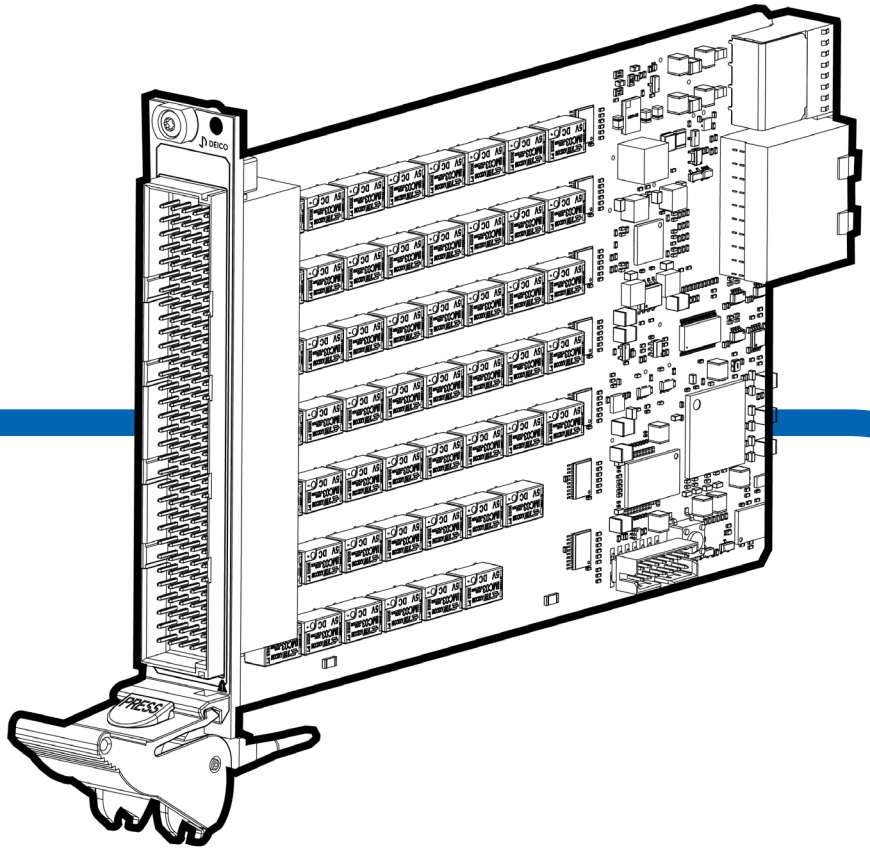
Datasheet



DE140200

PXIe Relay Module

53 CH 2 A SPDT

DEICO

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1. Description

DE140200 PXIe Relay Module 53 CH 2 A SPDT is a general-purpose relay module designed for high-density switching in medium power applications. It features 53 independent SPDT electromechanical relays, providing flexible switching capabilities. Each relay supports switching voltages of up to 220 V DC or 250 V AC and can handle power ratings of up to 60 W (DC) / 62.5 VA (AC). The module has a maximum current capacity of 2 A per channel. A PXIe chassis is required for operation.

1.1. Key Features

- 53-channel SPDT electromechanical relay
- Up to 220 V DC / 250 V AC
- Up to 60 W / 62.5 VA
- 2 A rated current
- Hot or cold switching
- Maximum 200 mΩ DC path resistance
- Maximum 5 ms relay operate time

2. Hardware Overview

2.1. Circuitry

The relay configuration diagram of the DE140200 module is shown in Figure 1.

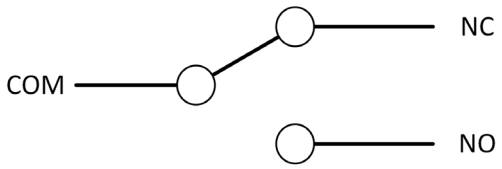


Figure 1: DE140200 Relay Configuration Diagram

2.2. Electrical

The power supply requirements of the DE140200 module are given in Table 1.

Table 1: Power Supply Requirements

Specification	Minimum	Typical	Maximum	Units
Power Supply Current of +12 V (In Full Operation)	—	—	1.65	A
Power Supply Current of +3.3 V (In Full Operation)	—	—	0.3	A

2.3. Relay Type

DE140200 is designed with electromechanical relays for reliable switching performance.

The module's field maintenance is simplified as it utilizes through-hole relays, ensuring easy replacement and servicing. Relay placement is given in "Relay Placement" section.

The information on relays is given in Table 2.

Table 2: Information on Relays

Specification	Value
Manufacturer	TE Connectivity
Part Number	1462042-7
Relay Type	Electromechanical, latching
Relay Contact Material	Palladium-ruthenium, gold covered

The switching specification of the relay are given in Table 3.

Table 3: Relay Switching Specification

Specification	Min	Typical	Max	Units
Switch Voltage	10^{-4}	–	220 250	V DC V AC
Switch Current	10^{-6}	–	2	A
Switch Power	–	–	60 62.5	W VA
Thermal Offset	–	–	10^{-5}	V
DC Path Resistance	–	–	200	mΩ
Operate Time	–	1	5	ms
Bounce Time	–	1	5	ms
Relay Endurance				
At Contact Application (≤ 30 mV / ≤ 10 mA)	$2.5x10^{6}$	–	–	Operations
Resistive, 220 V DC / 0.27 A - 60 W	10^{5}	–	–	Operations
Resistive, 250 V AC / 0.25 A - 62.5 VA	10^{5}	–	–	Operations
Resistive, 30 V DC / 1 A - 30 W	$5x10^{5}$	–	–	Operations

2.4. Connectors

The DE140200 module's front connector is a 160-pin male DIN 41612 with part number 384298-E. The Pickering 40-960A-160-F connector and backshell can be used as the mating connector and backshell. This connector and backshell ensure there are no mechanical interference issues. The pinout of the front connector is given in Table 5, in the "Front Connector Pinout" section.

2.5. Physical

DE140200 is compatible with a single 3U PXIe Peripheral Slot.

2.6. Environmental

The environmental specifications of the module are given in Table 4.

Table 4: Environmental Specifications

Specification	Condition	Value
Operating Humidity	Relative, non-condensing	10% - 90%
Storage Humidity	Relative, non-condensing	5% - 95%
Operating Temperature	Forced-air cooling from chassis	0 °C - +40 °C
Storage Temperature	–	-40 °C - +85 °C

2.7. PXIe Compliance

The DE140200 complies with PXIe Hardware Specification 1.1; however, the Local Bus, Trigger Bus, and Star Trigger are not implemented.

3. Signal Connections

3.1. Front Connector Pinout

DE140200 front connector pinout is given in Table 5. The view of front connector is given in Figure 2.

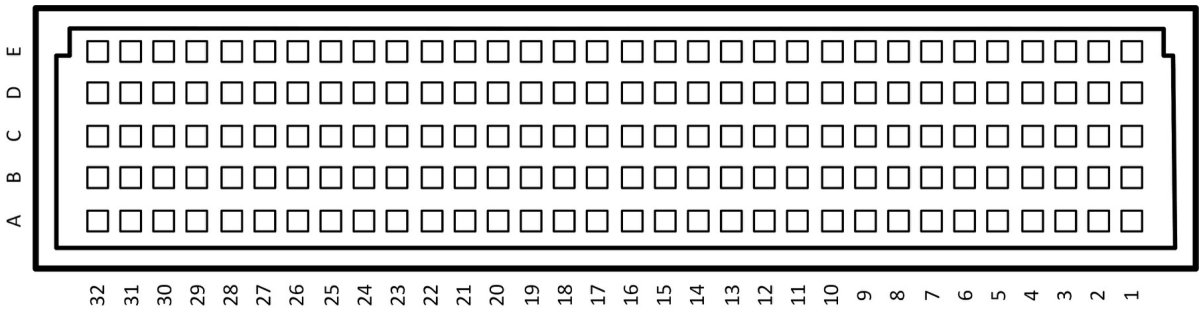


Figure 2: Front Connector

Table 5: Front Connector Pinout

Pin	A	B	C	D	E
1	CH0_NO	CH0_COM	CH0_NC	CH32_NO	CH33_NO
2	CH1_NO	CH1_COM	CH1_NC	CH32_COM	CH33_COM
3	CH2_NO	CH2_COM	CH2_NC	CH32_NC	CH33_NC
4	CH3_NO	CH3_COM	CH3_NC	CH34_NO	CH35_NO
5	CH4_NO	CH4_COM	CH4_NC	CH34_COM	CH35_COM
6	CH5_NO	CH5_COM	CH5_NC	CH34_NC	CH35_NC
7	CH6_NO	CH6_COM	CH6_NC	CH36_NO	CH37_NO
8	CH7_NO	CH7_COM	CH7_NC	CH36_COM	CH37_COM
9	CH8_NO	CH8_COM	CH8_NC	CH36_NC	CH37_NC
10	CH9_NO	CH9_COM	CH9_NC	CH38_NO	CH39_NO
11	CH10_NO	CH10_COM	CH10_NC	CH38_COM	CH39_COM
12	CH11_NO	CH11_COM	CH11_NC	CH38_NC	CH39_NC
13	CH12_NO	CH12_COM	CH12_NC	CH40_NO	CH41_NO
14	CH13_NO	CH13_COM	CH13_NC	CH40_COM	CH41_COM
15	CH14_NO	CH14_COM	CH14_NC	CH40_NC	CH41_NC
16	CH15_NO	CH15_COM	CH15_NC	CH42_NO	CH43_NO
17	CH16_NO	CH16_COM	CH16_NC	CH42_COM	CH43_COM
18	CH17_NO	CH17_COM	CH17_NC	CH42_NC	CH43_NC
19	CH18_NO	CH18_COM	CH18_NC	CH44_NO	CH45_NO
20	CH19_NO	CH19_COM	CH19_NC	CH44_COM	CH45_COM
21	CH20_NO	CH20_COM	CH20_NC	CH44_NC	CH45_NC
22	CH21_NO	CH21_COM	CH21_NC	CH46_NO	CH47_NO
23	CH22_NO	CH22_COM	CH22_NC	CH46_COM	CH47_COM
24	CH23_NO	CH23_COM	CH23_NC	CH46_NC	CH47_NC
25	CH24_NO	CH24_COM	CH24_NC	CH48_NO	CH49_NO
26	CH25_NO	CH25_COM	CH25_NC	CH48_COM	CH49_COM
27	CH26_NO	CH26_COM	CH26_NC	CH48_NC	CH49_NC
28	CH27_NO	CH27_COM	CH27_NC	CH50_NO	CH51_NO
29	CH28_NO	CH28_COM	CH28_NC	CH50_COM	CH51_COM
30	CH29_NO	CH29_COM	CH29_NC	CH50_NC	CH51_NC
31	CH30_NO	CH30_COM	CH30_NC	CH52_COM	CH52_NO
32	CH31_NO	CH31_COM	CH31_NC	CH52_NC	NOT CONNECTED

3.2. Relay Placement

The cross-reference between the module's channels and the relays is given in Table 6. The relay placement of the module is given in Figure 3.

Table 6: Cross-Reference of Channels & Relays

Channel	Relay No	Channel	Relay No	Channel	Relay No	Channel	Relay No
CH0	K1	CH14	K15	CH27	K28	CH40	K41
CH1	K2	CH15	K16	CH28	K29	CH41	K42
CH2	K3	CH16	K17	CH29	K30	CH42	K43
CH3	K4	CH17	K18	CH30	K31	CH43	K44
CH4	K5	CH18	K19	CH31	K32	CH44	K45
CH5	K6	CH19	K20	CH32	K33	CH45	K46
CH6	K7	CH20	K21	CH33	K34	CH46	K47
CH7	K8	CH21	K22	CH34	K35	CH47	K48
CH8	K9	CH22	K23	CH35	K36	CH48	K49
CH9	K10	CH23	K24	CH36	K37	CH49	K50
CH10	K11	CH24	K25	CH37	K38	CH50	K51
CH11	K12	CH25	K26	CH38	K39	CH51	K52
CH12	K13	CH26	K27	CH39	K40	CH52	K53
CH13	K14						

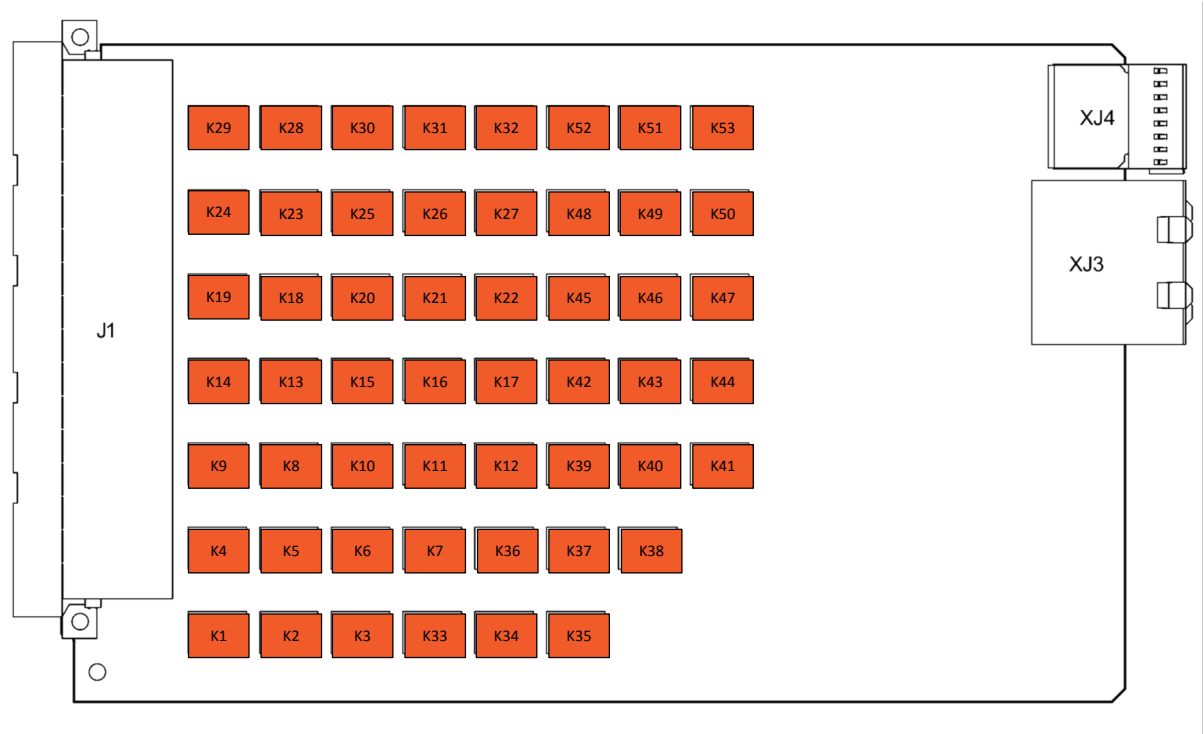


Figure 3: Relay Placement

4. Safety Guidelines



Caution

ESD can damage electronic components without adequate protection and may cause permanent damage to the device.



Caution

Hot-plug is not supported by the DE140200; therefore, the device must not be inserted or removed when the chassis power is on.