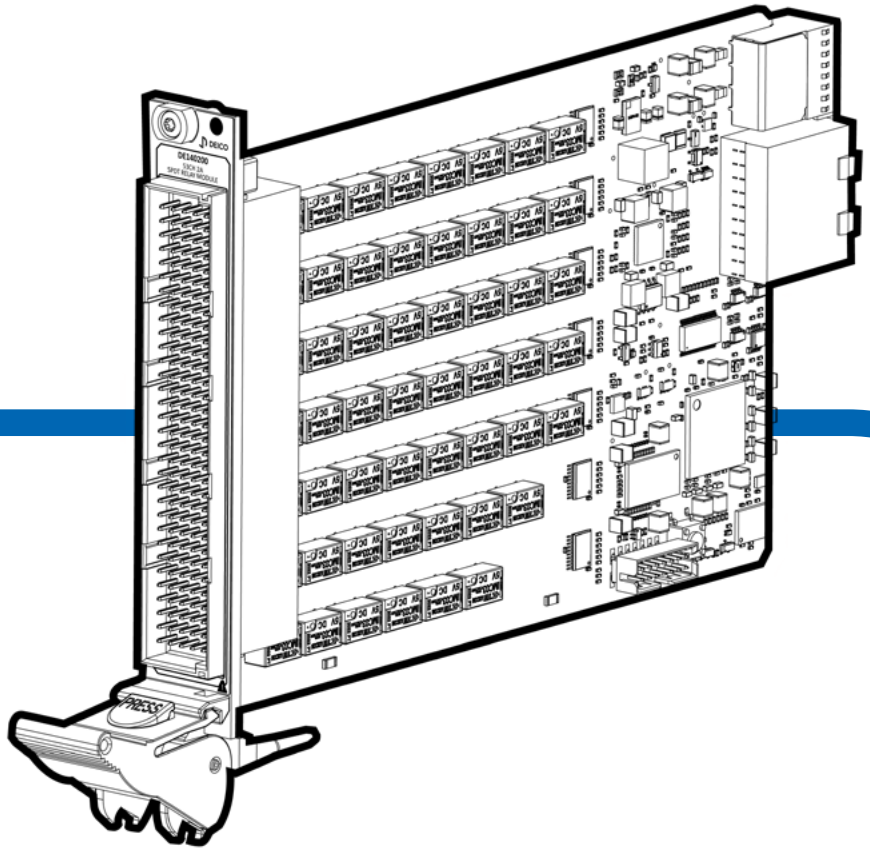
Datasheet



DE140201

PXIe Relay Module

80 CH 2 A SPST

DEICO

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Contents

1. Description

DE140201 PXIe Relay Module 80 CH 2 A SPST is a general-purpose relay module designed for high-density switching in medium power applications. It features 80 independent SPST 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

- 80-channel SPST 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 DE140201 module is shown in Figure 1.

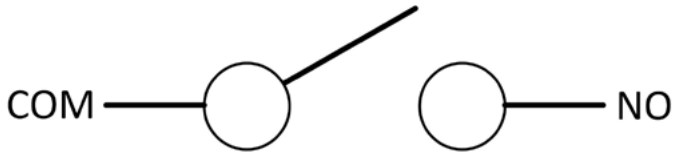

Figure 1: DE140201 Relay Configuration Diagram

2.2. Electrical

The power supply requirements of the DE140201 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)	—	—	2.45	A
Power Supply Current of +3.3 V (In Full Operation)	—	—	0.5	A

2.3. Relay Type

DE140201 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 section "Relay Placement".

The information on relays is given in Table 2.

Table 2: Information on Relays

Specification	Value
Manufacturer	TE Connectivity
Part Number	IM03TS
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 DE140201 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

DE140201 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 DE140201 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

DE140201 front connector pinout is given in Table 5. The view of front connector is given in Figure 2.

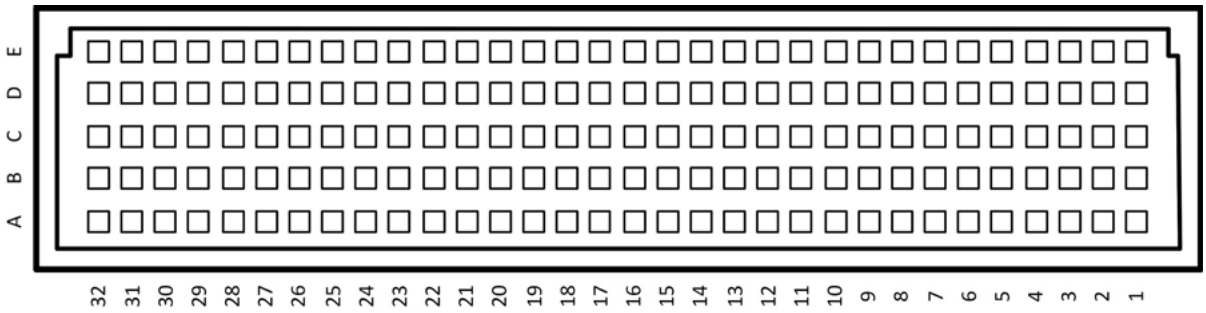

Figure 2: Front Connector

Table 5: Front Connector Pinout

Pin	A	B	C	D	E
1	COM77	NO77	COM78	NO78	NO79
2	COM75	NO75	COM76	NO76	COM79
3	COM72	NO72	COM73	NO73	NO74
4	COM70	NO70	COM71	NO71	COM74
5	COM67	NO67	COM68	NO68	NO69
6	COM65	NO65	COM66	NO66	COM69
7	COM62	NO62	COM63	NO63	NO64
8	COM60	NO60	COM61	NO61	COM64
9	COM57	NO57	COM58	NO58	NO59
10	COM55	NO55	COM56	NO56	COM59
11	COM52	NO52	COM53	NO53	NO54
12	COM50	NO50	COM51	NO51	COM54
13	COM47	NO47	COM48	NO48	NO49
14	COM45	NO45	COM46	NO46	COM49
15	COM42	NO42	COM43	NO43	NO44
16	COM40	NO40	COM41	NO41	COM44
17	COM37	NO37	COM38	NO38	NO39
18	COM35	NO35	COM36	NO36	COM39
19	COM32	NO32	COM33	NO33	NO34
20	COM30	NO30	COM31	NO31	COM34
21	COM27	NO27	COM28	NO28	NO29
22	COM25	NO25	COM26	NO26	COM29
23	COM22	NO22	COM23	NO23	NO24
24	COM20	NO20	COM21	NO21	COM24
25	COM17	NO17	COM18	NO18	NO19
26	COM15	NO15	COM16	NO16	COM19
27	COM12	NO12	COM13	NO13	NO14
28	COM10	NO10	COM11	NO11	COM14
29	COM7	NO7	COM8	NO8	NO9
30	COM5	NO5	COM6	NO6	COM9
31	COM2	NO2	COM3	NO3	NO4
32	COM0	NO0	COM1	NO1	COM4

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	CH20	K21	CH40	K41	CH60	K61
CH1	K2	CH21	K22	CH41	K42	CH61	K62
CH2	K3	CH22	K23	CH42	K43	CH62	K63
CH3	K4	CH23	K24	CH43	K44	CH63	K64
CH4	K5	CH24	K25	CH44	K45	CH64	K65
CH5	K6	CH25	K26	CH45	K46	CH65	K66
CH6	K7	CH26	K27	CH46	K47	CH66	K67
CH7	K8	CH27	K28	CH47	K48	CH67	K68
CH8	K9	CH28	K29	CH48	K49	CH68	K69
CH9	K10	CH29	K30	CH49	K50	CH69	K70
CH10	K11	CH30	K31	CH50	K51	CH70	K71
CH11	K12	CH31	K32	CH51	K52	CH71	K72
CH12	K13	CH32	K33	CH52	K53	CH72	K73
CH13	K14	CH33	K34	CH53	K54	CH73	K74
CH14	K15	CH34	K35	CH54	K55	CH74	K75
CH15	K16	CH35	K36	CH55	K56	CH75	K76
CH16	K17	CH36	K37	CH56	K57	CH76	K77
CH17	K18	CH37	K38	CH57	K58	CH77	K78
CH18	K19	CH38	K39	CH58	K59	CH78	K79
CH19	K20	CH39	K40	CH59	K60	CH79	K80

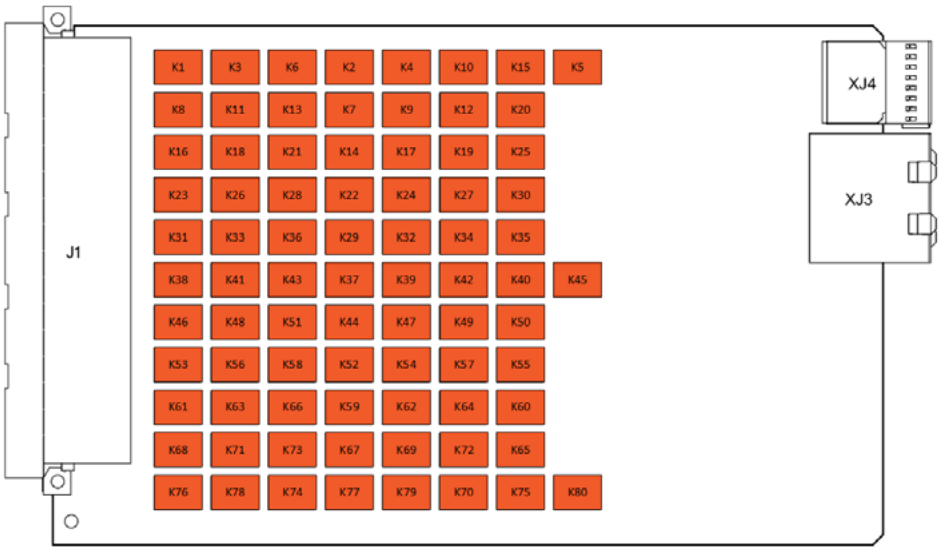

Figure 3: Relay Placement

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 DE140201; therefore, the device must not be inserted or removed when the chassis power is on.

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