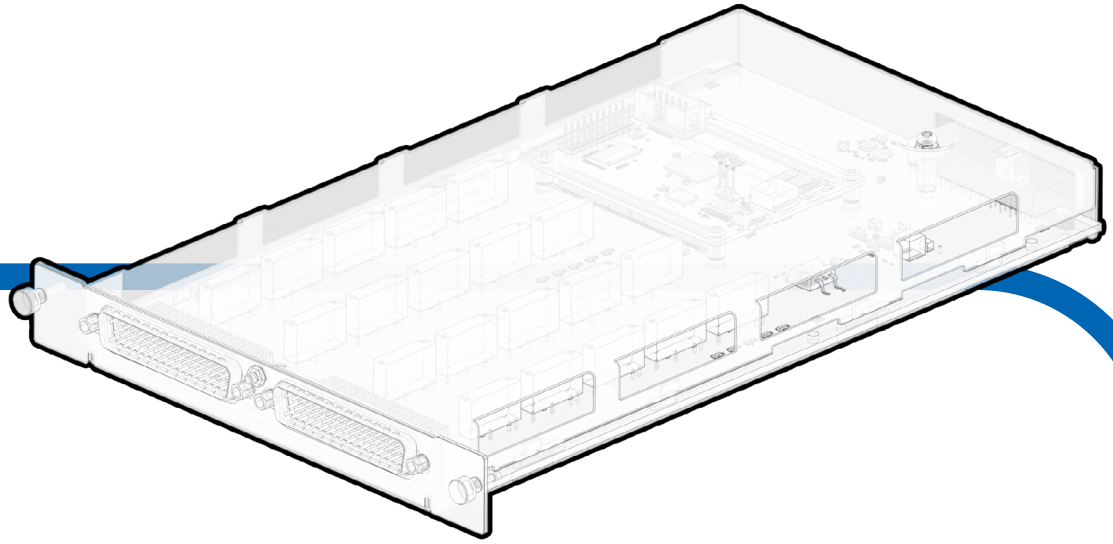
Datasheet



DE2103

General Purpose Relay Module

20 CH 5 A SPST

DEICO

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Contents

1. Description

DE2103 General Purpose Relay Module 20 CH 5 A SPST is a high current general purpose switch module. The module uses non-latching relays. In the event of a power interruption, relay coils de-energize and contacts revert to their default state (NO default). Non-latching relay architecture ensures fail-safe behavior: when supply power is removed, all relays drop out and contacts return to their default position. Module can be used with DE2000 Switching and DAQ Mainframe 8 Slot and DE2001 Single Module Mainframe.

1.1. Key Features

- 20 form A channels
- Fail-safe on power loss
- 5 A switching capability
- Hot or cold switching
- Max. 125 V DC or 277 V AC switching voltage
- Max. 100 mΩ contact resistance
- 10 ms operate and 5 ms release time

Standards and Compliance

DE2103 is compatible with IEC 60068-2-1 / IEC 60068-2-2 / IEC 60068-2-78 / IEC 60068-2-27 / IEC 60068-2-64 / EN 61326 (IEC 61326) / EN 55011 (CISPR 11) / AS/NZS CISPR 11 / FCC 47 CFR Part 15B / ICES-001 standards.

Typical Applications

- LAB usage
- Power switching applications
- Automated Test Equipment (ATE)

2. Hardware Overview

2.1. Circuitry

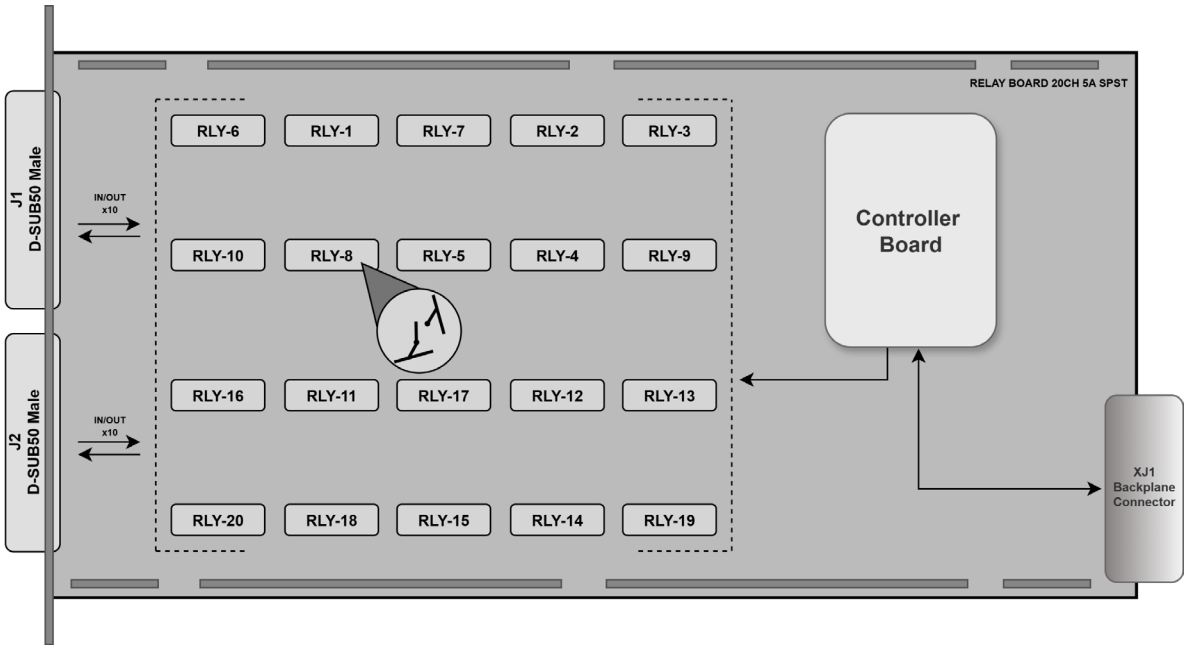

Figure 1: DE2103 Functional Block Diagram

2.2. Hardware Specifications

2.2.1. Electrical

Table 1: Electrical Specifications

Specification	Min	Typ	Max	Notes
Channel Voltage	–	–	277 V AC, 125 V DC	–
Channel Current	–	–	5 A	–
Switch Operate Time	–	–	10 ms	–
Switch Release Time	–	–	5 ms	–
Contact Resistance	–	–	100 mΩ	–
Rated Load (Resistive)	–	–	5 A 250 V AC 5 A 30 V DC	–
Rated Load (Inductive)	–	–	2 A 250 V AC 2 A 30 V DC	(cos φ = 0.4)(L/R = 7 ms)
Durability-Mechanical Operations	20.000.000	–	–	18.000 operations/hr
Durability-Electrical Operations	100.000	–	–	3 A - 250 V AC 3 A - 30 V DC **Resistive Load**
	80.000	–	–	5 A - 250 V AC 5 A - 30 V DC **Resistive Load**
	100.000	–	–	2 A - 250 V AC 2 A - 30 V DC **Inductive Load**

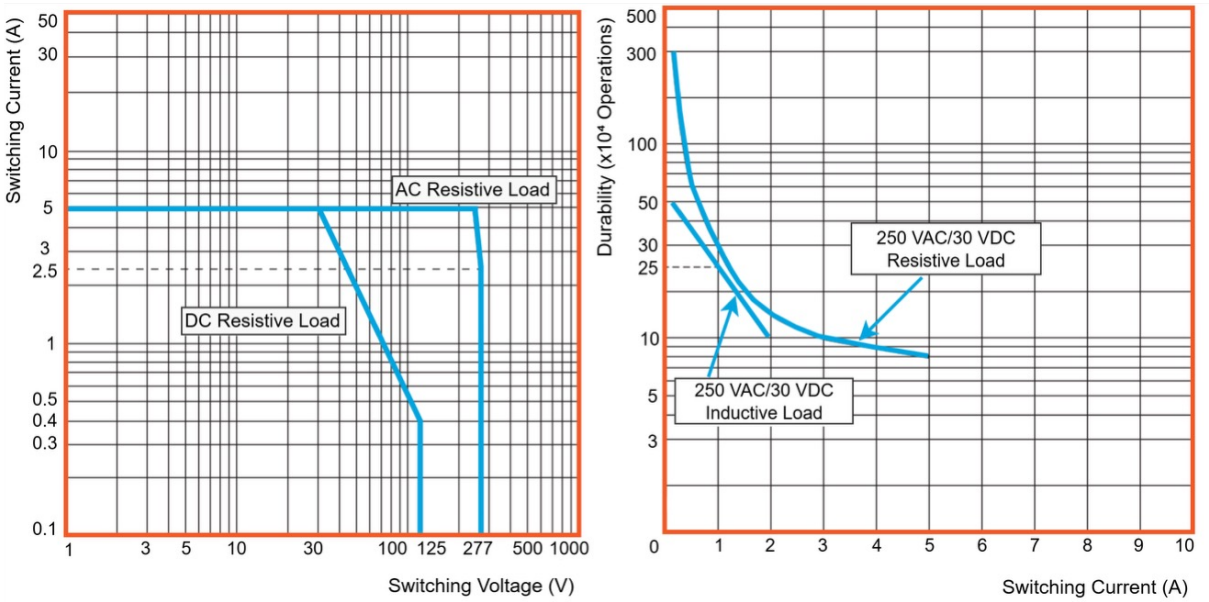

Figure 2: Maximum Switching Capacity – Durability Graphs

2.2.2. Physical

Table 2: Physical Specifications

Specification	Description
Dimensions (L / W)	278 mm x 180 mm
Height (H)	25.7 mm
Front Panel Connectors (x2)	Amphenol ICC DSUB50 PN: DD50P564GTXLF

2.2.3. Environmental

Table 3: 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 - +55 °C
Storage Temperature	–	-40 °C – +71 °C

3. Software Overview

This module is compatible with IVISwtch class.

4. Signal Connections

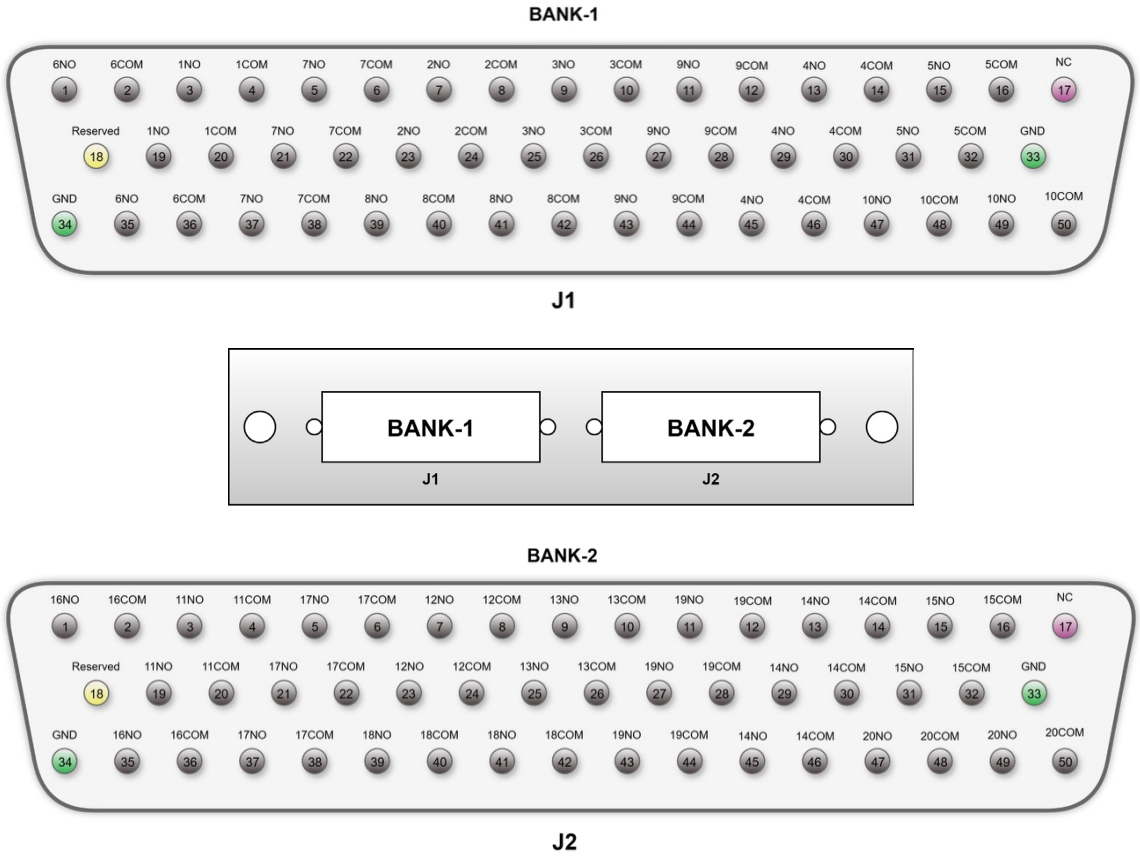

Figure 3: Module Front Panel Connectors

Table 4: Analog I/O Connector Pin Assignments

J1 Pin	J1 Pin Description	J2 Pin	J2 Pin Description
1	RLY6_NO	1	RLY16_NO
2	RLY6_COM	2	RLY16_COM
3	RLY1_NO	3	RLY11_NO
4	RLY1_COM	4	RLY11_COM
5	RLY7_NO	5	RLY17_NO
6	RLY7_COM	6	RLY17_COM
7	RLY2_NO	7	RLY12_NO
8	RLY2_COM	8	RLY12_COM
9	RLY3_NO	9	RLY13_NO
10	RLY3_COM	10	RLY13_COM
11	RLY9_NO	11	RLY19_NO
12	RLY9_COM	12	RLY19_COM
13	RLY4_NO	13	RLY14_NO
14	RLY4_COM	14	RLY14_COM
15	RLY5_NO	15	RLY15_NO
16	RLY5_COM	16	RLY15_COM
17	NC	17	NC
18	RESERVED	18	RESERVED
19	RLY1_NO	19	RLY11_NO
20	RLY1_COM	20	RLY11_COM
21	RLY7_NO	21	RLY17_NO
22	RLY7_COM	22	RLY17_COM
23	RLY2_NO	23	RLY12_NO
24	RLY2_COM	24	RLY12_COM
25	RLY3_NO	25	RLY13_NO
26	RLY3_COM	26	RLY13_COM
27	RLY9_NO	27	RLY19_NO
28	RLY9_COM	28	RLY19_COM
29	RLY4_NO	29	RLY14_NO
30	RLY4_COM	30	RLY14_COM
31	RLY5_NO	31	RLY15_NO
32	RLY5_COM	32	RLY15_COM
33	GND	33	GND
34	GND	34	GND
35	RLY6_NO	35	RLY16_NO
36	RLY6_COM	36	RLY16_COM
37	RLY7_NO	37	RLY17_NO
38	RLY7_COM	38	RLY17_COM
39	RLY8_NO	39	RLY18_NO
40	RLY8_COM	40	RLY18_COM
41	RLY8_NO	41	RLY18_NO
42	RLY8_COM	42	RLY18_COM
43	RLY9_NO	43	RLY19_NO
44	RLY9_COM	44	RLY19_COM
45	RLY4_NO	45	RLY14_NO
46	RLY4_COM	46	RLY14_COM
47	RLY10_NO	47	RLY20_NO
48	RLY10_COM	48	RLY20_COM
49	RLY10_NO	49	RLY20_NO
50	RLY10_COM	50	RLY20_COM

5. Safety Guidelines

Caution

The DE2103 shall not be operated in any manner not specified in this document. Misuse of the product may result in a hazard. Safety protection features may be compromised if the product is damaged. In the event of damage, the product shall be returned for repair.

6. Compatibility Guidelines

This product has been tested and found to comply with the applicable regulatory requirements and limits for electromagnetic compatibility (EMC). These requirements and limits are intended to provide reasonable protection against harmful interference when the product is operated within the specified electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in certain installations if the product is connected to peripheral devices or test objects, or if it is used in residential or commercial areas. To minimize interference with radio and television reception and to prevent unacceptable performance degradation, the product shall be installed and operated in strict accordance with the instructions specified in the product documentation.

Any changes or modifications to the product not expressly approved by DEICO may void the user's authority to operate the equipment under local regulatory rules.

Caution

To ensure the specified EMC performance, the product shall be operated only with shielded cables and accessories.

Caution

To ensure the specified EMC performance, the length of any cable attached to the front connectors shall not exceed 3 m (10 ft.).

7. Supporting Products & Software

DE2103 should be used with DE2000 Switching and DAQ Mainframe 8 Slot or DE2001 Single Module Mainframe.

Note

When the DE2103 is used with the DE2001, the ethernet speed shall be limited to 100 Mb/s.

Caution

The DE2103 shall not be operated without the DE2000 or DE2001. No connections shall be made to the rear panel connector.