

Ditech Control Card Manual

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***DI-944 Relay Card***

*File reference: DI-944*

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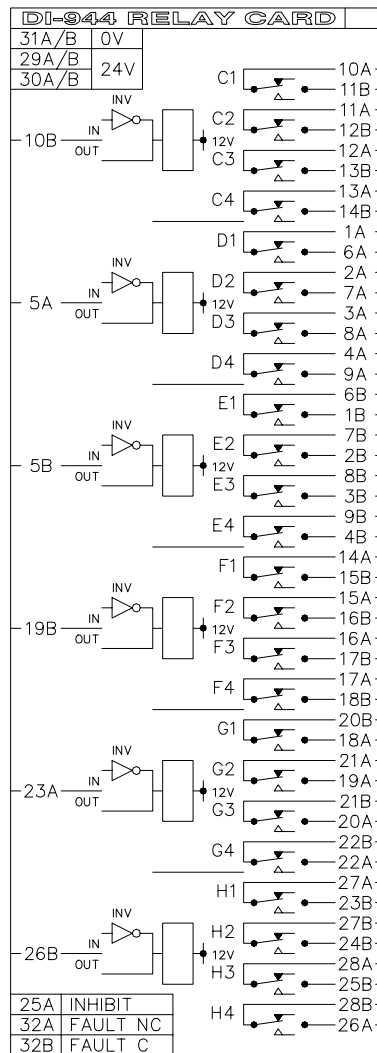
# 1. GENERAL

The DI-944 relay card has six onboard relays each with four pole change over contacts, enabling signals to be accepted and processed from the system logic, external signals or detector control cards outputs giving access to executive outputs.

All input and output connections are made to the card via a 64 way DIN41612 edge connector. This arrangement gives superior reliability over an arrangement of gold plated 'fingers'.

Logic signals received from other cards are of the active low type, a logical "one" being represented by a voltage of approximately 1 Volt and a logical "zero" by a high output impedance or an open circuit.

# 2. INPUTS AND OUTPUTS

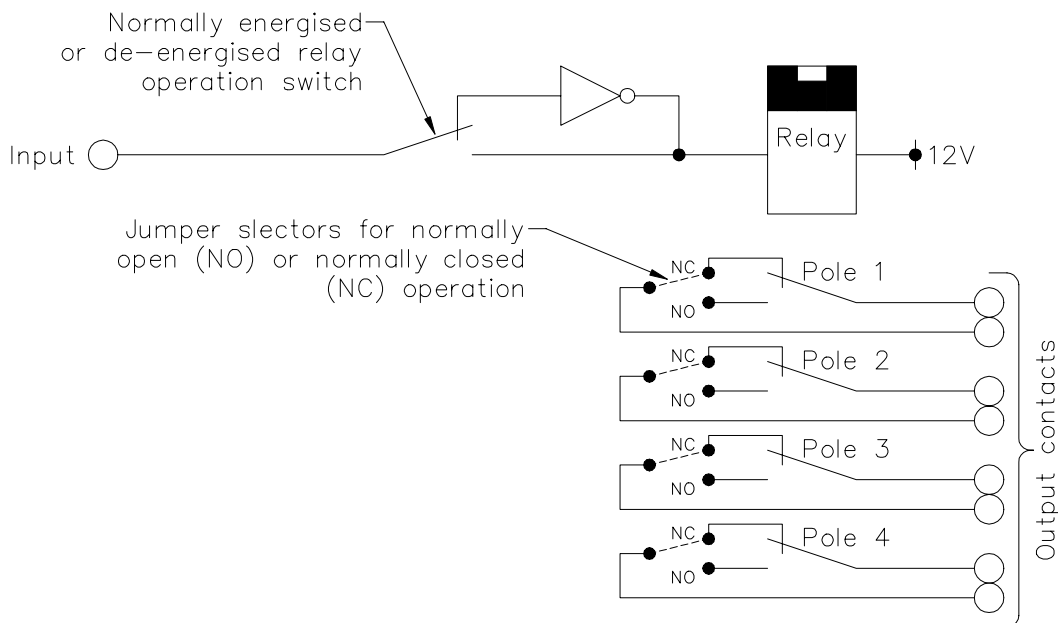


## 2.1 POWER SUPPLIES

There are two power inputs to this card permitting dual supplies to be used. If one fails the other will keep the card functioning but a fault condition will be flagged, causing the pilot LED to become extinguished. The supply inputs are separately protected with 1 amp onboard fuses to prevent system damage.

## 2.2 PRIMARY INPUTS

There are six inputs, one for each of six 4 pole change over relays which can be selected to be normally energised or de-energised. The selection is achieved by means of PCB switches which either connect each input directly to its corresponding relay, in the normally de-energised mode, or via an inverter in the normally energised mode.



Switch shown in inverter position i.e. relay normally energised.

| Relay | Switch Number | Relay Contact Input Pin |
|-------|---------------|-------------------------|
| C     | SW2-C         | 10B                     |
| D     | SW1-D         | 5A                      |
| E     | SW1-E         | 5B                      |
| F     | SW2-F         | 19B                     |
| G     | SW3-G         | 23A                     |
| H     | SW3-H         | 26B                     |

### SWITCH POSITIONS

Switch to right - normally de-energised mode

Switch to left - normally energised mode

**NOTE: Letter identification of the relay controlled by a particular switch is marked on the PCB adjacent to the switch.**

## 2.3 SECONDARY INPUTS

The card is equipped with an inhibit facility. Under normal operation the inhibit pin (25A) is not in use and so the output follows the input. When the inhibit is applied all six of the output relays will energise, or remain in their energised state.

## 2.4 PRIMARY OUTPUTS

### *Change Over Relay Contacts*

There are four change over contacts to each relay. The card outputs can be programmed as normally closed or normally open contacts, depending on the position of the PCB links. In this case "normally" refers to when the relay is de-energised. Care should be taken when setting the relay for normally energised operation (see above).

## 2.5 SECONDARY OUTPUTS

### *Fault Relay Contact*

This single dry contact output, available between pins 32A and 32B, is normally closed when the card is operating normally, i.e. with the fault relay energised. The contact opens when a fault is detected. In general the fault relay output is used internally to the system fault detection and would flag a common system fault.

## 2.6 FRONT PANEL INDICATORS

The front panel has the following LEDs:



### *Pilot*

This green LED reflects the state of the fault relay. Normally the LED is on to indicate that the power is applied and the fault relay is energised. If a fault condition should occur, the indicator extinguishes and remains extinguished until the fault has been corrected. The condition of this indicator is non-latching.

### *Relay Status LEDs*

There are a total of six amber LEDs which reflect the status of the six relays. Each LED illuminates when its corresponding relay is energised.

A lamp test switch is provided on the front panel.

## 3. OPERATION

The card inputs expect either a 0 V signal (active) or a high impedance signal when the card internally pulls the inputs up to 12 V dc.

When an input is activated then the associated relay will either energise or de-energise depending on its switch setting. If the inhibit is in operation then this has the effect of energising, or keeping energised, all the channel relays on the card.

It should be noted that on occasion the poles of a relay may be fully wired out from the rack to allow connection of user wires and voltages. It is not recommended that voltages higher than the maximum supply voltage (35 V dc) are switched on these contacts. It should also be noted that switching current loads near or at the contact rated maximum of 2 Amps may cause excessive sparking if the loads are fairly inductive. As a rule of thumb, inductive loads (those without snubber networks attached) reduce the current rating of the contacts by a factor of 10, i.e. the contacts will then only be able to switch 200 mA maximum.

## 4. CARD SPECIFICATIONS

### ***Mechanical***

|        |               |
|--------|---------------|
| Width  | 25.4 m (5 HP) |
| Height | 128 mm        |
| Depth  | 247 mm        |

### ***Connections***

DIN41612 64 way A/B male connector.

### ***Electrical***

|               |                                                                                                                                |
|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| Output Relays | 4 pole normally open/closed (selectable)<br>2 amp, 30 V dc non-inductive<br>normally energised/de-energised (selectable)       |
| Fault Relay   | 1 pole normally open (closed under healthy conditions)<br>normally energised, de-energising on fault<br>0.5 amp, non-inductive |
| Power         | 18-35 V dc dual supply option<br>50 mA (all output relays de-energised)<br>302 mA (all output relays energised)                |