

Part Number - NP4004-RLY

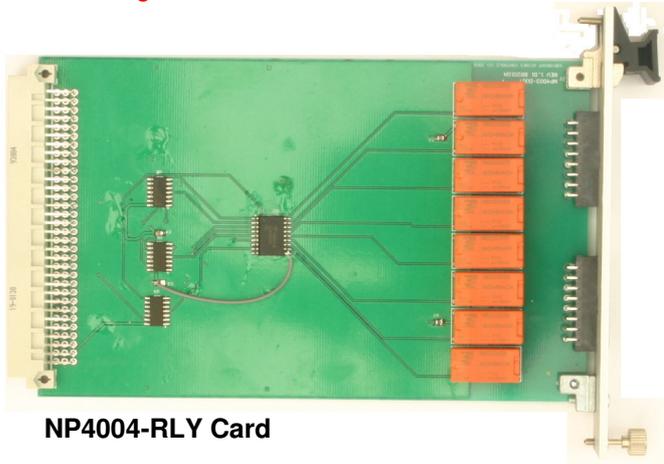
Updated: July 2010

Specification & Operation

Introduction

The NP4004-RLY is a high speed digital relay card for the NetPod 4004 series data acquisition instrument. The NP4004-RLY relay card supports up to eight independent digital output signals. Each output can be individually controlled from the driver software.

Important Note: When using this card make sure the mounting screws are correctly terminated to guarantee an electrical earth connection to the main instrument chassis. This is essential for safety when operating with high voltages. Do not use this card if the mounting screws are not fitted.



8 x Independent Output Channels

230V AC/DC - 3 Amp Switch Capability

Boot-time Pre-set Conditions

Maximum Isolation 2000V DC/Channel

Maximum Cable Size 1.5 mm²

Microsoft Windows / Linux / Unix driver support

Part Number ID

NP4004-RLY Card

Mounting Screw



Digital Output Panel

Mounting Screw

Signal Level Connection

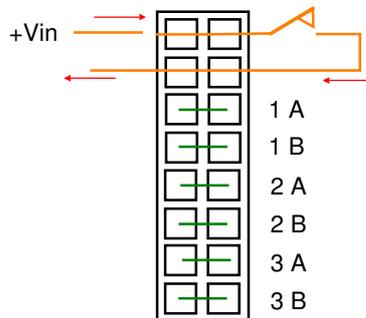
Adjacent pins on the digital output card are connected together. This is to ensure reliable operation and to guarantee the current switching capacity is maintained.

There is no limit on the to the signal levels that can be used among adjacent channels so long as the chosen signal to be used is within the defined range of the card.

The example below shows how to switch a signal using channel 0 relay. The input signal is shown connected to pins 0-A and the output taken from 0-B contacts.

The switching is undertaken by relay and so it does not technically matter which way round the signals and output are used. The output is only active when the relay closes.

3 B Image shows how contacts 3 -B connected together



The image opposite demonstrates how the relay output is used to switch an applied signal. The signal to be switched can be either an AC or DC level.

The signal to be switched is connected to pins 1 B as shown.

Power Off Status

A time delay of 1 second on initialisation of the NetPod 4004 ensures the digital output ports return to a preset condition before data acquisition operations recommence.

The relay switch positions can go open after a system power off. This is a standard feature of a relay switch system

Level Switching

The relay switching action is controlled under software. Setting the digital port output to a high level '1' will cause the relay to close. This action enables the input level on one side of the relay to pass through to other side.

Windows Driver Software

The following instructions demonstrate using the NP4004-RLY card from within the standard podmng Windows driver.

Instructions

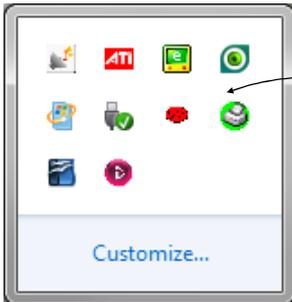
The following instructions are based on the **NP4004-RL Y** card already being installed into the Net{Pod 4004

1. Start the PodMng.exe software

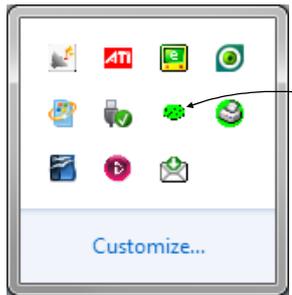
Make sure the network has been scanned and the instrument to be used has been recognised by the driver.

Refer to the User Guide for details of using the driver software.

The Podmng.exe task bar icon should look like:



Podmngn - task bar icon
Mode - Stopped



Podmngn - task bar icon
Mode - Run Mode Active
(gathering data)

2. Select the instrument for configuration
3. Activate the **Edit Pod** Window - see example Below.
4. Activate the 'Digital' button from the 'Edit Pod' Window. The Digital Interface Window will appear. (See image below)

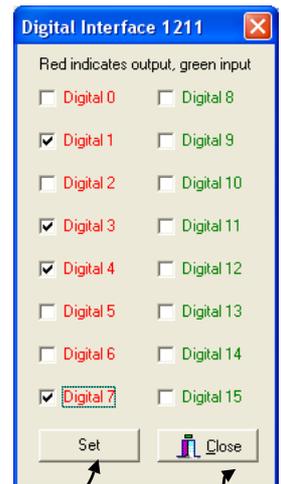
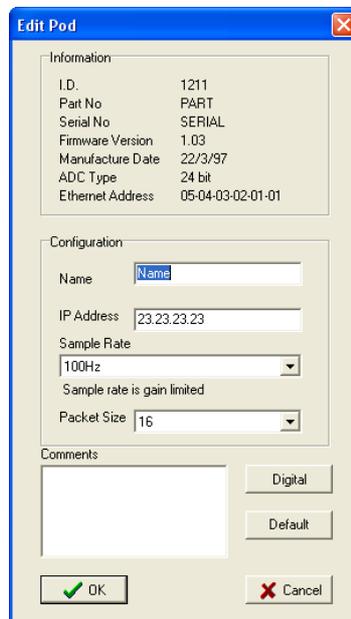
- 5) The relay positions can be switched from within the podmng driver when the NetPOD 4004 is actively acquiring data.

Here the Podmng.exe icon will be flashing green

Further Information

The **'Digital Interface'** Window opposite shows that the 'NP4004-RLY' card being used has relays closed for channels 1,3,4 and 7.

When the relay is closed the input signal is switched through to the output.



The **'Set'** button activates the changes to the state of the relay on the selected channel.

The **'Close'** button removes the 'Digital Interface Window' from the screen.

Fitting the NP4004-RIY into the Instrument

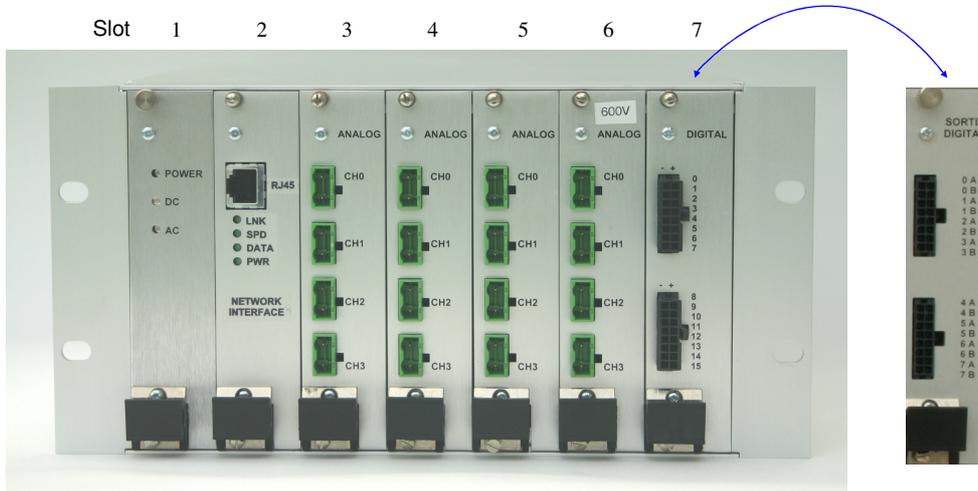
The NP4004-FLY card is fitted into slot 7 of the instrument only as shown below.

1. Fit the NP4004-RLY card into slot 7 of the instrument chassis.

Push the card firmly into place and secure to the chassis using the top and bottom mounting screws.

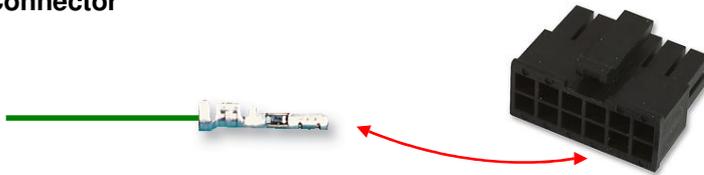
Important Note - Earth Connection

The top and bottom mounting screws fitted to the front panel of the NP4004-RLY card must be securely fastened to the instrument chassis to provide the earth connection for electrical safety. This is essential when operating the card with high 230V AC or similar amplitude output signals



Fully Populated Instrument

Digital Port Connector



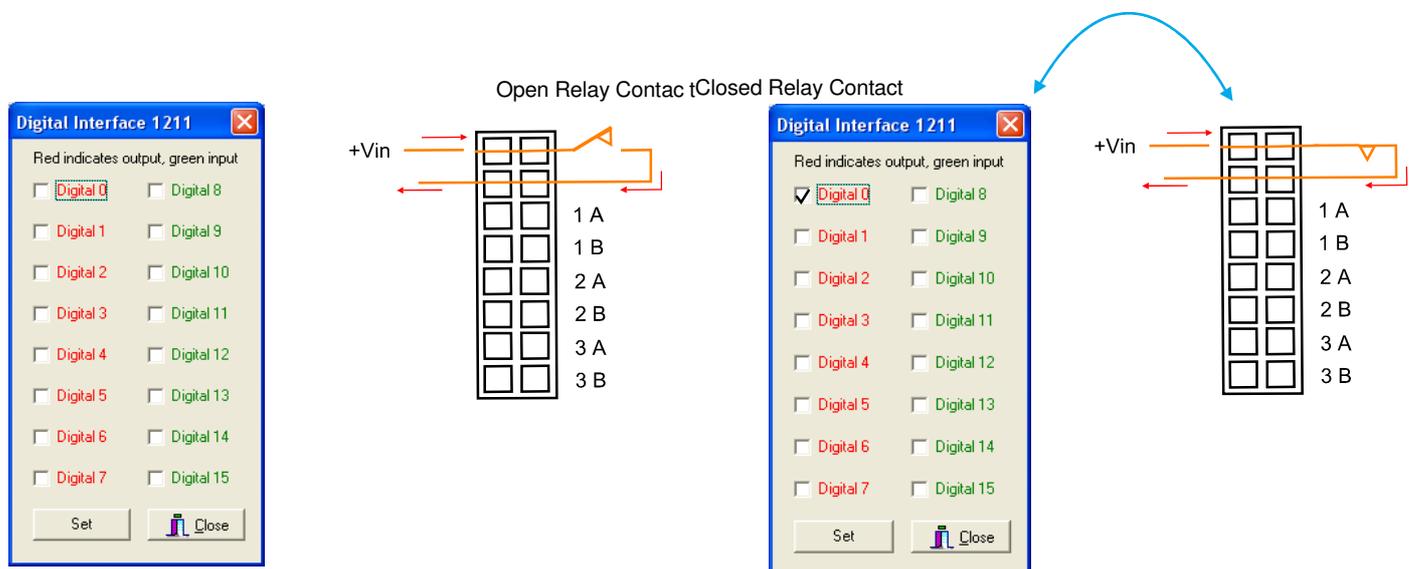
Max Cable Diameter:1.52mm
 Max Wire Area Size:0.12m²
 Max Wire Size AWG:30AWG
 Min Cable Diameter:1.52mm
 Min Wire Area Size:0.05m²
 Min Wire Size AWG:26AWG

Switching A Channel

Activate the 'Digital' button on the at the bottom of the

'Edit Pod' Window and the 'Digital Interface' Window will appear.

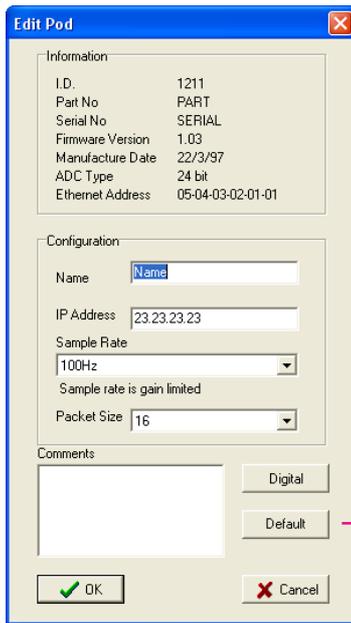
Select the 'Tick' box for the channel to switch and the relay will change state. The relay will change state regardless to the operating mode of the driver software. The relay will switch as soon as the 'Set' button is selected and new levels are written to the card.



The example above shows how to wire an input signal into Channel 0 and how that relay is switched to the output on demand.

Default Port Setting

The following instructions show how to set the NP4004-RLY output port initialisation default switch positions for the card at the time of powering on of the instrument.



Edit Pod Window

- 1) Using the 'Edit Pod' Window select the 'Default' button.

The 'Digital Default' Window showed below will appear.

Selecting Output Channel Relay Closures

- 2) Using the 'Digital Default' Window

Select the 'Tick Box' for the desired channel

When all the tick boxes are selected press the 'OK' button to confirm the the to the instrument.



The 'Digital Default' Window opposite shows that only Channel 0 relay is closed at the initialisation.

Digital output channels
Are shown in red.



Digital Interface Information

The 'Digital Interface' Window show which channels are defined for outputs and those set for input operations.

The NP4004-RLY card only uses channel 0 - 7 on this Window.

Any channel shown in 'red' is an output channel.

Example. See Window opposite

Digital 0 to Digital 7 shown in red are output channels.

Part Number Identification

Each NP4004-RLY card has in built card recognition via the driver software. All interfaces contain a built in EEPROM that stores the card type and can be accessed via the driver software. A scan of the driver software can ensure the correct card type is being used and output level options are set.