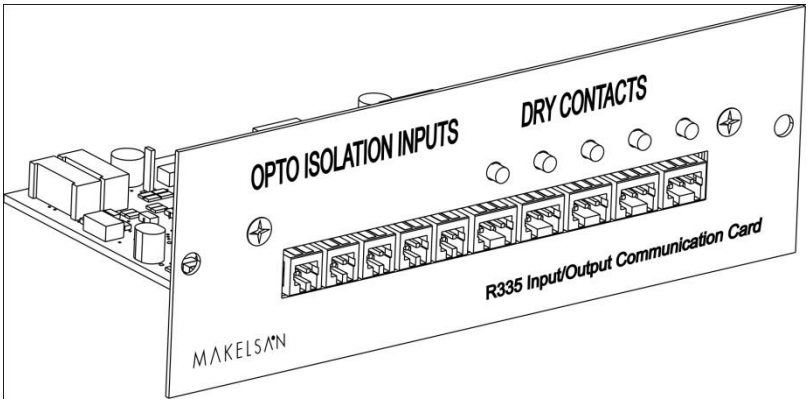
MAKELSAN®

Uninterruptible Power Supplies

# Installation

## Dry Contact Card




UDD-SD-09E Rev. No:0 Rev. Date: 18.03.2011 Publishment No:1 Pub. Date:18.03.2011

# Contents

# Overview

## Product Description

MAKELSAN R335 input/output communication card provides communication between the UPS and the control system.

## General Specifications

- 5 C type relays for retrieving UPS status info
- 4 optically isolated inputs for sending commands to the UPS
- 12V/150mA power output for use on opto-isolated outputs
- Easily connected socket system for use with different connection combinations

# Installation and Setup

## Precautions

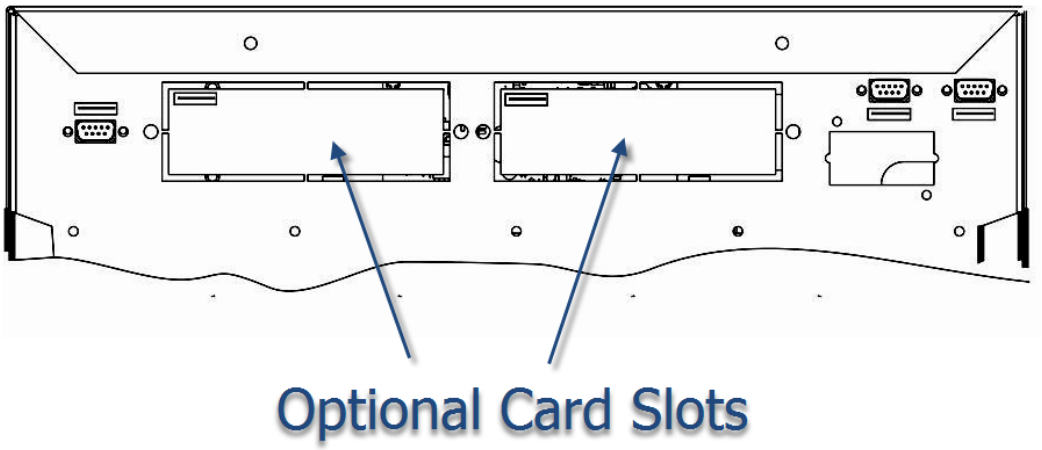
Stop the ups and wait for at least 5 minutes before installing the module.

Dangerous voltages may be present on relay outputs during use.

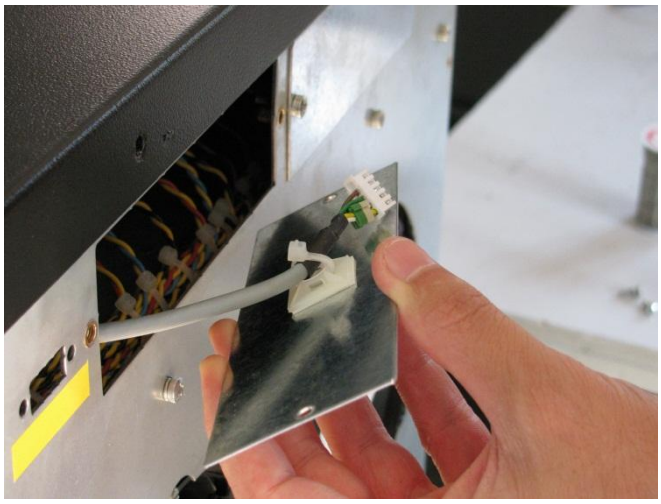
Avoid contact to the PCB surface before taking electrostatic precautions.

## Installation

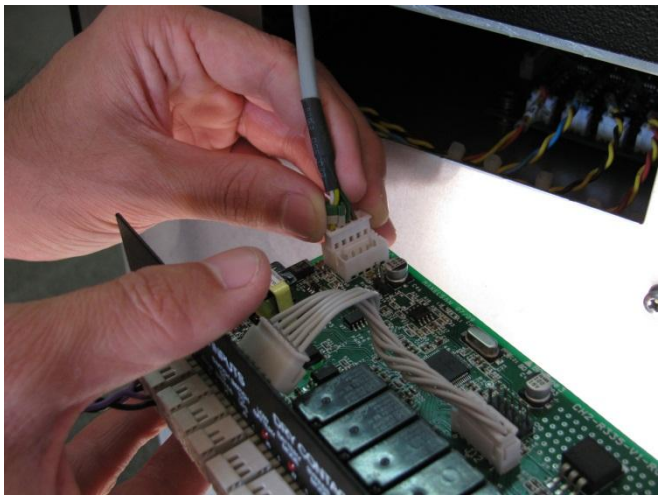
The module is installed on the left side slot on the rear side of the machine.



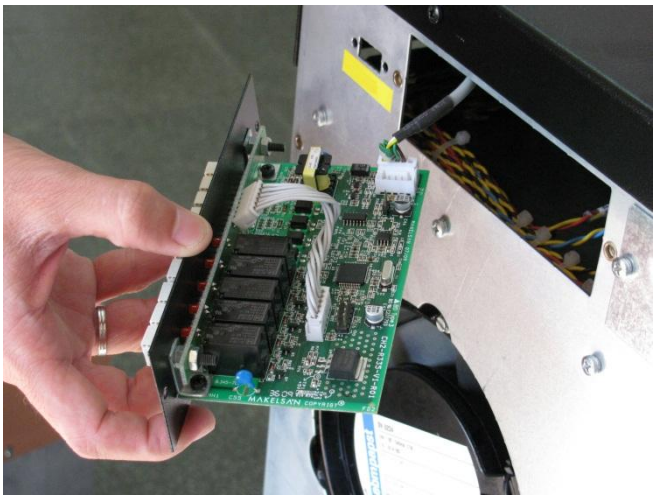

1. Unscrew and remove the left hand side slot cover, reach the female CAN socket. (attached to the slot cover)



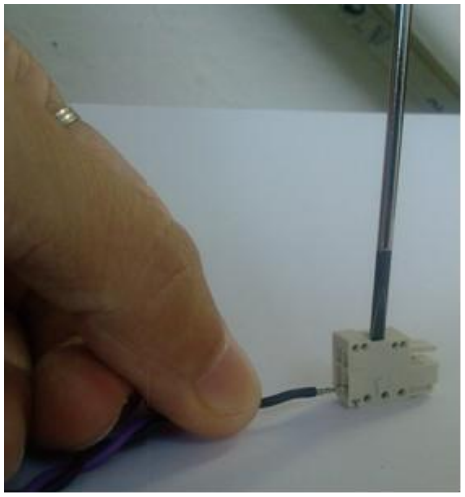
2. Detach the cable from the socket cover using a cutter, and insert the female socket into the *male J3* socket on the dry contact module.



3. Carefully insert the module into the slot, and screw to make sure that it is stable.



4. Insert the signal cables into the sockets while pressing on the connector with a screwdriver.



## Operation

- Relay outputs are isolated from the UPS and ground.
- If the contacts are going to be used for load switching, it should be made sure that the relays are capable of handling the load.
- Operating voltage for the isolated inputs is between 3.3 – 24 Volts and the input impedance is 3 kohms.
- Polarity must be checked before applying any voltage to the inputs.
- The 12V/150mA power supply on the module is also isolated from the UPS.

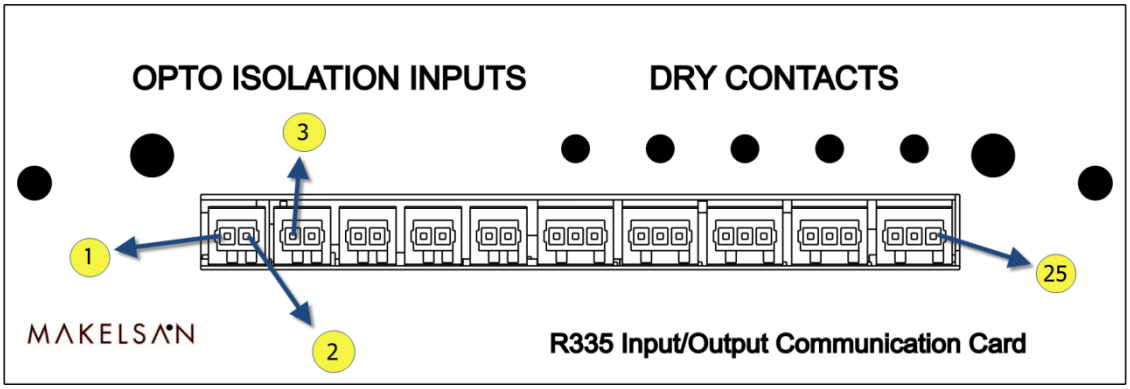
## Relay info

| | |
|---|---|
| Rated Switching NO | 5A 250VAC |
| Rated Switching NC | 2A 250VAC |
| Max. Switching Current NO | 10A |
| Max. Switching Current NC | 3A |
| Max. Switching Voltage NO | 250VAC - 110VDC |
| Max. Switching Voltage NC | 250VAC - 110VDC |
| Cable Cross-section | min. 0,25mm², max. 0,5mm² |

## Isolated input info

| | |
|---|---|
| Min. Input Voltage | 3.3 Vdc |
| Max. Input Voltage | 24 Vdc |
| Min. Drawn current | 1 mA |
| Max. Drawn current | 8 mA |
| Input Impedance | 3 KΩ |
| Cable Cross-section | min. 0,25mm², max.0,5mm² |

# Pin functionality




The module has 25 I/O pins as seen on figure above. Refer to the following table for pin functionality info.

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | 12 Vdc Out (+) | 14 | Output-2(battery mode) NO |
| 2 | 12 Vdc Out (-) | 15 | Output-2(battery mode) COM |
| 3 | Input-1(start) (+) | 16 | Output-2(battery mode) NC |
| 4 | Input-1(start) (-) | 17 | Output-3(bypass mode) NO |
| 5 | Input-2(stop) (+) | 18 | Output-3(bypass mode) COM |
| 6 | Input-2(stop) (-) | 19 | Output-3(bypass mode) NC |
| 7 | Input-3(bypass mod) (+) | 20 | Output-4(common fault) NO |
| 8 | Input-3(bypass mod) (-) | 21 | Output-4(common fault) COM |
| 9 | Input-4(ups mode) (+) | 22 | Output-4(common fault) NC |
| 10 | Input-4(ups mode) (-) | 23 | Output-5(battery fault) NO |
| 11 | Output-1(low battery) NO | 24 | Output-5(battery fault) COM |
| 12 | Output-1(low battery) COM | 25 | Output-5(battery fault) NC |
| 13 | Output-1(low battery) NC | | |

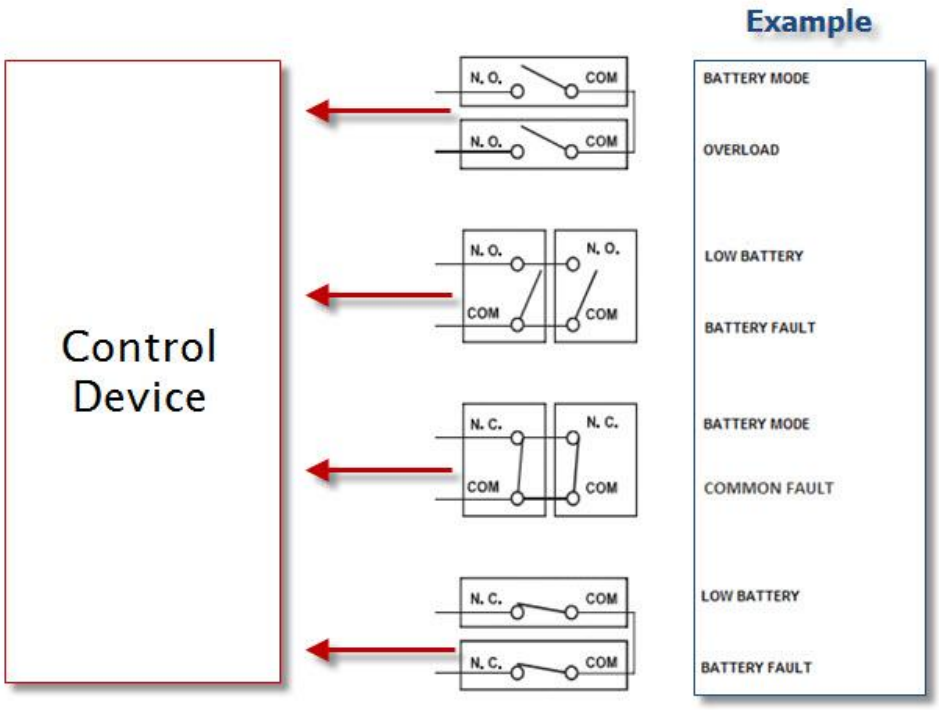
Pins 11-25 belong to output relays and their default function is shown on the table. Different functions can be assigned to these relays; please refer to Challenger installation manual (*UDD-SD-01 – UDD-SD-03*) for setup.

## Dry contact functions

| | |
|---|---|
| Over Temp. | Test in Progress |
| Over Load | Replace Batterys |
| Bypass Bad | Inverter Bad |
| UPS Shutdown | Battery Mode |
| Charger Fail | Parl. ID Collision |
| Fan Fail | No Parallel Comm. |
| Fuse Fail | Low Battery |
| Shutdown Pending | ECO Mode |
| No Battery | Tyristor Fault |
| M.Byp.Breaker On | Byp.Phs.Rot.Err. |
| S. Byp.Mode | Parl.Missing Dev. |

## Connection examples

Output relays can be connected in various ways to meet with control necessities.




"AND" and "OR" configurations can be set with the relays by connecting them in series or parallel as seen in the figure above.

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