

Internal Logical Connection

If Pin3 short-circuit with Pin 2 (A.O) via the jumper, the status of dry contact signal will be ACTIVE OPEN, refer to Fig 3. When the signal is active, the signal pin on the DB9 connector will disconnect with the common pin (pin 5) via the relay.

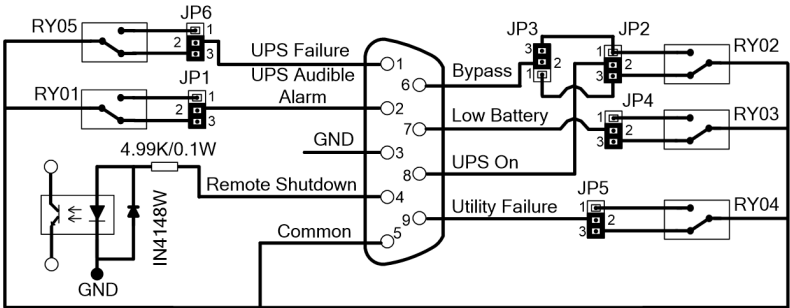


Fig. 3 - Connection for ACTIVE OPEN

Jumper Set-up



Fig.4 - Relays card

The 3-pin connectors can be easily found just near to the relay. Refer to Fig. 4.

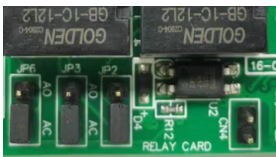


Fig. 5 - AO and AC silk printings indicates each 3-pin connector status

There are AC and AO white silk printings of the connector as shown in Fig. 5 to indicate pin 1 & 2 in A.C and pin 2 & 3 in A.O.

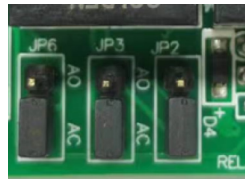


Fig. 6 - Jumper setting for ACTIVE CLOSE

To achieve ACTIVE CLOSE dry-contact signal, the jumper should connect the 2 pins (pin1 & 2) as shown in Fig. 6.

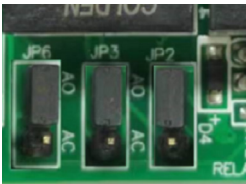


Fig. 7 - Jumper setting for ACTIVE OPEN

To achieve ACTIVE OPEN dry-contact signal, the jumper should connect the middle pin and the pin3 as shown in Fig. 7.

Jumper function description

JP	Description	JP	Description
1	UPS alarm (DB9.P2)	4	Low battery (DB9.P7)
2	UPS on (DB9.P8)	5	Utility failure (DB9.P9)
3	Bypass (DB9.P6)	6	UPS failure (DB9.P1)

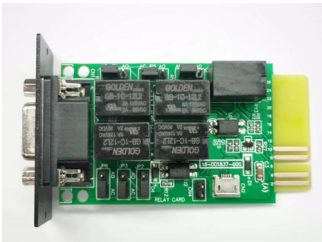


552062C

RELAYS CARD

Product Outlook

DB-9 port



Top View



Side View

Product Introduction

The relays communication card provides contact closures for remote monitoring your UPS.

To meet different application requirement, the relays card is capable of selection the status of the dry-contact signal (active close or active open) by setting jumper.

The suitable applications are listed below:

- IBM Server, Personal PC & Workstations equipments
- Auto-controlled industrial equipment & communication applications

Installation



Step 1: Remove the cover of the Intelligent Slot on the rear panel of the UPS.



Step 2: Insert the relays card into the Intelligent Slot.



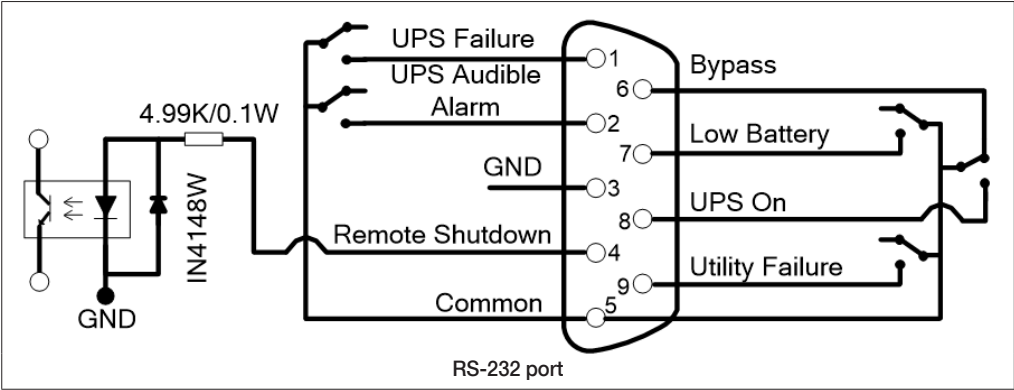
Step 3: The cover of relays card should attach close to the rear panel. Using screwdriver, secure the relays card to the UPS chassis with 2 screws.



Step 4: Use the 9-pin communication cable to connect UPS and equipment to implement the remote monitoring and control.

Specifications

Internal circuit of DB-9 port



Electric Parameter of DB-9 port

Parameter		Symbol	Max.	Min.	Unit
Resistor*	DC Current	I _R	3.5	1	mA
	Reverse Voltage	V _R	6	-	V
Diode	Forward Current	I _F	50	-	mA
	Peak Forward Current	I _F (Peak)	1	-	A
Relay	DC Voltage	V _{DC}	24	-	V
	DC Current	I _{DC}	1.0	-	A

Note: It's required to retain the DC current lower than 3.5 mA. Otherwise, it's necessary to add one resistor within DC current limitation in the serial loop of Remote Shutdown. (e.g. 2K resistor with at least 0.1 W rating power). Refer to diagrams in **Application**.

Pin Assignment

Pin Assignment	Function	I/O
Pin 1	UPS Failure	O/P
Pin 2	UPS Audible Alarm	O/P
Pin 3	GND (Common for Pin 4)	Power Ground
Pin 4	Remote Shutdown	I/P
Pin 5	Common for Relays	Power Supply
Pin 6	Bypass Active	O/P
Pin 7	Low Battery	O/P
Pin 8	UPS On	O/P
Pin 9	Utility Failure	O/P

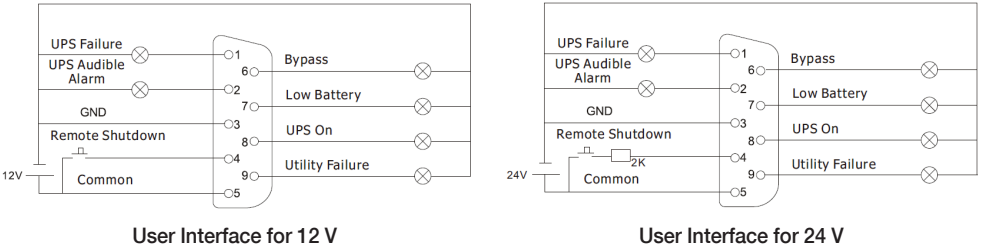
Note: The shutdown pin (pin 4 & pin 3) only accepts 3-10s high level signal to perform the UPS shutdown.

Function Description

AC Status	AO Status	Reason
Pin 1 & Pin 5 connected	Pin 1 & Pin 5 disconnected	UPS failure
Pin 2 & Pin 5 connected	Pin 2 & Pin 5 disconnected	UPS failure, utility failure, low battery, bypass active
Pin 6 & Pin 5 connected	Pin 6 & Pin 5 disconnected	Bypass active
Pin 7 & Pin 5 connected	Pin 7 & Pin 5 disconnected	Battery voltage is low
Pin 8 & Pin 5 connected	Pin 8 & Pin 5 disconnected	UPS is in inverter mode
Pin 9 & Pin 5 connected	Pin 9 & Pin 5 disconnected	Utility failure

Application

Below shows the circuit of basic application to implement monitoring and control.



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IC controller of the card controls actions of 5 relays depending on the UPS status. Active-Close (A.C) terminal and Active-Open (A.O) terminal of each relay connect to pin 3 and pin 1 of a 3-pin connector respectively. The pin 2 of the 3-pin connector connects to the signal pin of the DB9 interface connector. The 2-pin jumper can be plugged to the 3-pin connector to either short-circuit Pin 1 & Pin 2 (A.C) or short-circuit Pin 3 & Pin 2 (A.O).

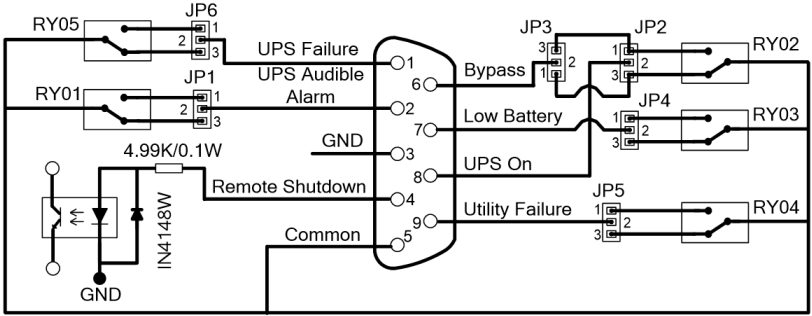


Fig 1 - Pin definition and internal logical connection

Accordingly, if pin1 short-circuits with pin 2 via the jumper, the status of dry contact signal will be ACTIVE CLOSE, refer to Fig 2. When the signal is active, the signal pin on the DB9 connector will connect with the common pin (pin 5) via the relay.

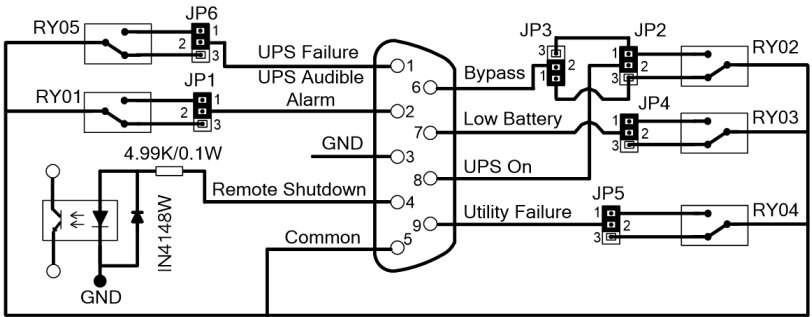


Fig 2 - Connection for ACTIVE CLOSE