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Owner's Manual

Programmable Relay I/O Card

Model: RELAYIOCARD

RoHS COMPLIANT

Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.

TRIPP·LITE

Tripp Lite World Headquarters
1111 W. 35th Street, Chicago, IL 60609 USA
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1. Introduction

1.1 Product Features

The RELAYIOCARD is a programmable UPS management device featuring:

- 6 programmable relay output contacts
- Configurable normal open or normal close for each relay contact
- Configurable UPS shutdown delay time
- Configurable input signal to shutdown UPS or test battery

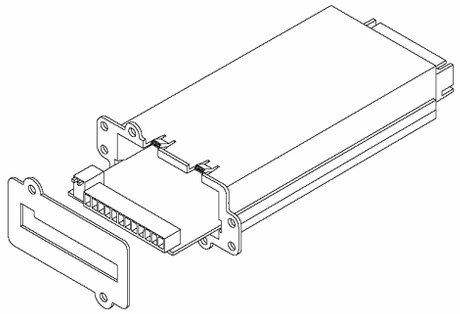
The RELAYIOCARD allows you to:

- Monitor UPS status and events
- Perform remote system shutdowns and battery tests

1.2 Package Contents

This Package Contains:

- RELAYIOCARD
- Configuration Cable
- Faceplates
- Owner's Manual



2. Installation and Setup

2.1 System Requirements

The RELAYIOCARD supports all Tripp Lite SmartOnline™ UPS Systems and select SmartPro™ UPS Systems, including SMART1050SLT, SMART1500SLT, SMART2200RMXL2U, SMX1050SLT, SMX1500SLT, SMART3000SLT, SMART2200SLT, SM2200RMNAFTA, SMART2600RM2U, SMART3000RM2U, SMART1500CRMXL, SMART1500SLTXL, SMART750XLa, SMX3000XLRT2U and SMX2200XLRT2U. Supported systems must run a UPS protocol of 3008 or above.

To determine your UPS protocol:

1. Open Tripp Lite PowerAlert software.
2. Click on the "Misc" button on the main screen of the PowerAlert console.
3. View the protocol variable.

2.2 Communications Setup

1. Connect Tx to pin2, Rx to pin 3 and GND-C to pin5 of RS-232 DBP port.
2. In the Windows environment, launch the Hyper Terminal program, then open the specified COM port.
3. Set the following properties – Baud rate: 2400, Data Bits: 8, Parity: None, Stop Bit: 1, Flow Control: None.

2. Installation and Setup *(continued)*

2.3 Configuration

1. **Press Enter** to open the main menu of the RELAYIOCARD.
   Press 1 to configure the alarm event for R1~R6.

```
+--------------------------+
|      UPS Relay Card      |
+--------------------------+
Firmware Version: Relay Card V1.4
[1].Customize Output Relay
[2].Configure Input Signal
[3] Customize Normal Open or Normal Close
[0].Quit

Please Enter Your Choice =>
```

2. Note: Contacts R1~R6 can be configured for different power events.

```
+----------------------------+
|   Customize Output Relay   |
+----------------------------+
    Relay   Selected Event
[1].Relay1: Summary Alarm
[2].Relay2: Power Fail
[3].Relay3: Battery Low
[4].Relay4: On Bypass
[5].Relay5: Overload
[6] Relay6: Over Temperature
[0].Back To Previous Menu

Please Enter Your Choice =>
```

3. **Press 2** to configure the input signal.

```
+--------------------------+
|   Configure Input Signal |
+--------------------------+
[1].Act as Shutdown or Test: Shutdown
[2].Input Signal Confirm: 3 Seconds
[3].Delay Before Shutdown: 30 Seconds
[0].Back To Previous Menu

Please Enter Your Choice =>
```

   In this menu, the input signal can be redefined as a shutdown UPS signal or battery test signal. The UPS shutdown delay time can be adjusted to a maximum of 9999 seconds.

4. **Press 3** to configure the normal open or normal close for each relay.

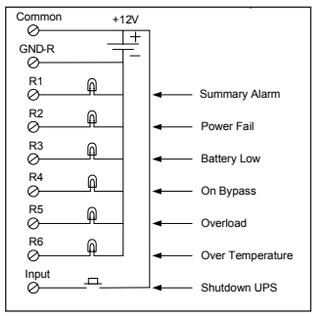
```
+----------------------------+
|   Customize Output Relay   |
+----------------------------+
    Relay   Selected Event
[1].Relay1: Normal Close
[2].Relay2: Normal Open
[3].Relay3: Normal Close
[4].Relay4: Normal Open
[5].Relay5: Normal Close
[6].Relay6: Normal Open
[0].Back To Previous Menu

Please Enter Your Choice =>
```

   Once the configuration is complete, SW2 must be switched ON to apply the new settings. To automatically reset to default settings, switch SW2 to the OFF position.

5. **Press 0** to quit the configuration session. When the system prompts you to save your settings, press **Y** to save or **N** to ignore.

Application Example

Using the default settings, set SW1 and SW2 to OFF. Apply 12V DC to Common contact and connect the lamps to R1~R6 terminals. Install a push button from the Common contact to the input terminal. Press the button for at least 3 seconds to shut down the UPS remotely.



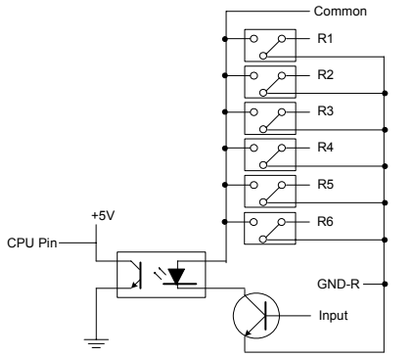
3. Specifications

Technical Specifications	
Size	130 x 60 mm
Weight	200g
Operating Temperature	0 ~ 40° C
Operating Humidity	10 ~ 80%
Power Input	8~20V DC
Power Consumption	1.2 Watts

Output Contact Rating		
	Maximum	
	DC Voltage	DC Current
Input	24V	1A

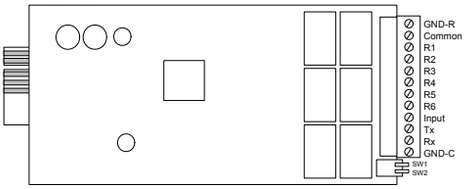
Input Rating		
	Maximum	
	DC Voltage	DC Current
Input	24V	10mA

Internal Circuit



Outline

OUTLINE



I/O Pinout		
GND-R: Ground for relays		
Common: 12~24V DC		
Default Alarm Event		
R1	Summary Alarm	
R2	Power Fail	
R3	Battery Low	
R4	On Bypass	
R5	Overload	
R6	Over Temperature	
Input: Remote shutdown or battery test		
Tx: Transmit to PC, connect to DB9-pin2		
Rx: Receive from PC, connect to DB9-pin3		
GND-C: Ground for configuration Tx and Rx pins		
	OFF (default)	**ON**
SW1	Normal open for default settings	Normal close for default settings
SW2	Default settings	Customized settings

5. Warranty & Warranty Registration

LIMITED WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in materials and workmanship for a period of 2 years (except internal UPS system batteries outside USA and Canada, 1 year) from the date of initial purchase. If the product should prove defective in material or workmanship within that period, Seller will repair or replace the product, in its sole discretion. Service under this Warranty can only be obtained by your delivering or shipping the product (with all shipping or delivery charges prepaid) to: Tripp Lite, 1111 W. 35th Street, Chicago, IL 60609, USA. Seller will pay return shipping charges. Call Tripp Lite Customer Service at (773) 869-1234 before sending any equipment back for repair.

THIS WARRANTY DOES NOT APPLY TO NORMAL WEAR OR TO DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE OR NEGLECT. SELLER MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSLY SET FORTH HEREIN. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE LIMITED IN DURATION TO THE WARRANTY PERIOD SET FORTH ABOVE; AND THIS WARRANTY EXPRESSLY EXCLUDES ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES. (Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may have other rights which vary from jurisdiction to jurisdiction.)

WARNING: The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer makes not representation or warranty as to the suitability or fitness of these devices for any specific application.

Not compatible with PoE (Power over Ethernet) applications.

WARRANTY REGISTRATION

Visit www.tripplite.com/warranty today to register the warranty for your new Tripp Lite product. You'll be automatically entered into a drawing for a chance to win a FREE Tripp Lite product!*

* No purchase necessary. Void where prohibited. Some restrictions apply. See website for details.

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, your Tripp Lite product has been assigned a unique series number. The series number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to the series number. The series number should not be confused with the marking name or model number of the product.

Made in China.

Tripp Lite has a policy of continuous improvement. Product specifications are subject to change without notice.

Manual del Propietario

Tarjeta de E/S de Relé Programable

Modelo: RELAYIOCARD

No se recomienda el uso de este equipo en aplicaciones de auxilio vital donde puede esperarse razonablemente que la falla de este equipo provoque una falla del equipo de soporte vital o afecte significativamente su seguridad o eficacia. No utilice este equipo en presencia de una mezcla anestésica inflamable con aire, oxígeno, u óxido nitroso.

Casa Matriz de Tripp Lite
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1. Introducción

1.1 Características del Producto

RELAYIOCARD es un dispositivo de administración de UPS programable que cuenta con:

- 6 contactos de salida de relé programable
- Abertura normal o cierre normal configurables para cada cierre de relé
- Tiempo de retardo de apagado configurable del UPS
- Señal de entrada configurable para apagar el UPS o probar la batería

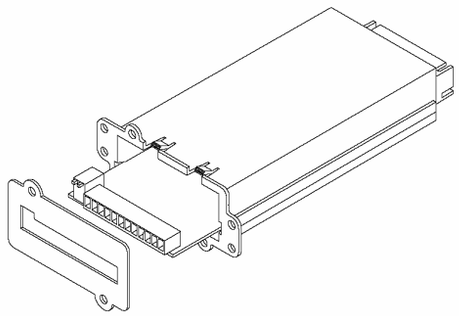
La RELAYIOCARD le permite:

- Monitorear el estado y los eventos del UPS
- Realizar apagados del sistema y pruebas de la batería de manera remota

1.2 Contenidos del Embalaje

Este Embalaje Contiene:

- RELAYIOCARD
- Cable de configuración
- Placas frontales
- Manual del propietario



2. Instalación y Configuración

2.1 Requisitos del Sistema

La RELAYIOCARD admite todos los sistemas UPS SmartOnline™ y sistemas UPS SmartPro™ selectos de Tripp Lite, que incluyen SMART1050SLT, SMART1500SLT, SMART2200RMXL2U, SMX1050SLT, SMX1500SLT, SMART3000SLT, SMART2200SLT, SM2200RMNAFTA, SMART2600RM2U, SMART3000RM2U, SMART1500CRMXL, SMART1500SLTXL, SMART750XLa, SMX3000XLRT2U y SMX2200XLRT2U. Los sistemas admitidos ejecutarán un protocolo de UPS de 3008 o superior.

Para determinar su protocolo UPS:

1. Abra el software PowerAlert de Tripp Lite.
2. Haga clic en el botón “Misc” (Misceláneo) en la pantalla principal de la consola de PowerAlert.
3. Vea la variable del protocolo.

2.2 Configuración de Comunicaciones

1. Conecte Tx a pin2, Rx a pin 3 y GND-C a pin5 del puerto de RS-232 DBP.
2. En el entorno de Windows, abra el programa Hyper Terminal, luego abra el puerto COM especificado.
3. Ajuste las siguiente propiedades– velocidad en baudios: 2400, Bits de datos: 8, Paridad: Ninguna, Bit de parada: 1, Control de flujo: Ninguno.

2. Instalación y Configuración *(continuación)*

2.3 Configuración

1. **Presione Enter(Intro)** para abrir el menú principal de la RELAYIOCARD. **Presione 1** para configurar el evento de alarmas para R1~R6.

```
+--------------------------+
|      UPS Relay Card      |
+--------------------------+
Firmware Version: Relay Card V1.4
[1].Customize Output Relay
[2].Configure Input Signal
[3] Customize Normal Open or Normal Close
[0].Quit

Please Enter Your Choice =>
```

2. Nota: Los contactos R1~R6 pueden configurarse para distintos eventos de energía.

```
+----------------------------+
|   Customize Output Relay   |
+----------------------------+
    Relay   Selected Event
[1].Relay1: Summary Alarm
[2].Relay2: Power Fail
[3].Relay3: Battery Low
[4].Relay4: On Bypass
[5].Relay5: Overload
[6] Relay6: Over Temperature
[0].Back To Previous Menu

Please Enter Your Choice =>
```

3. **Presione 2** para configurar la señal de entrada.

```
+--------------------------+
|   Configure Input Signal |
+--------------------------+
[1].Act as Shutdown or Test: Shutdown
[2].Input Signal Confirm: 3 Seconds
[3].Delay Before Shutdown: 30 Seconds
[0].Back To Previous Menu

Please Enter Your Choice =>
```

En este menú, la señal de entrada puede redefinirse como señal de apagado del UPS o señal de prueba de la batería. El tiempo de retardo de apagado del UPS puede ajustarse a un máximo de 9999 segundos.

4. **Presione 3** para configurar la abertura normal o el cierre normal para cada relé.

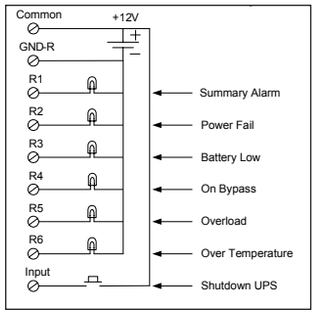
```
+----------------------------+
|   Customize Output Relay   |
+----------------------------+
    Relay   Selected Event
[1].Relay1: Normal Close
[2].Relay2: Normal Open
[3].Relay3: Normal Close
[4].Relay4: Normal Open
[5].Relay5: Normal Close
[6].Relay6: Normal Open
[0].Back To Previous Menu

Please Enter Your Choice =>
```

Una vez que la configuración está lista, debe ENCENDERSE SW2 para aplicar las nuevas configuraciones. Para restablecer automáticamente los ajustes predeterminados, coloque SW2 en la posición OFF (Apagado).

5. **Presione 0** para omitir la sesión de configuración. Cuando el sistema le pida guardar sus configuraciones, presione **Y** (Sí) para guardarlas o **N** (No) para ignorarlas.

Ejemplo de Aplicaciones

Usando las configuraciones predeterminadas, ajuste SW1 y SW2 en OFF. Aplique 12V CC para contacto común y conecte las lámparas a los terminales R1~R6. Instale un botón interruptor desde el contacto común hasta el terminal de entrada. Presione el botón durante al menos 3 segundos para apagar el UPS vía remota.



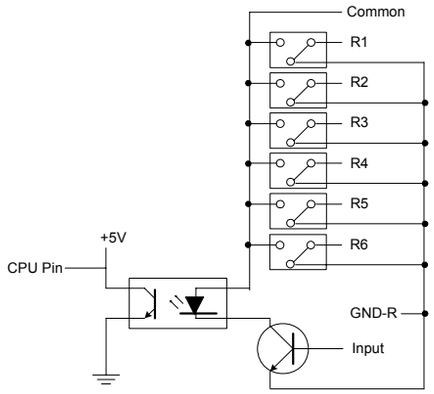
3. Especificaciones

Especificaciones Técnicas	
Tamaño	130 x 60 mm
Peso	200g
Temperatura de Operación	0 ~ 40° C
Humedad de Operación	10 ~ 80%
Entrada de Energía	8~20V CC
Consumo de Energía	1.2 Watts

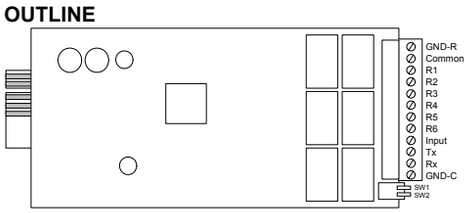
Valor Nominal del Contacto de Salida		
	Máximo	
	Voltaje de CC	Corriente de CC
Entrada	24V	1A

Valor Nominal de Entrada		
	Máximo	
	Voltaje de CC	Corriente de CC
Entrada	24V	10mA

Circuito Interno



Esquema



Configuración de Clavijas de E/S		
GND-R: Tierra para relés		
Común: 12~24V CC		
Evento de Alarma Predeterminado		
R1	Alarma de Resumen	
R2	Falla del Suministro Eléctrico	
R3	Batería Baja	
R4	En Rodeo (Bypass)	
R5	Sobrecarga	
R6	Sobretemperatura	
Entrada: Apagado o prueba de la batería remotos		
Tx: Transmisión a PC, conexión a DB9-pin2		
Rx: Recepción de PC, conexión a DB9-pin3		
GND-C: Tierra para configuración de clavijas Tx y Rx		
	OFF (APAGADO) (predeterminado)	**ON (ENCENDIDO)**
SW1	Abertura normal para configuraciones predeterminadas	Cierre normal para configuraciones predeterminadas
SW2	Configuraciones predeterminadas	Configuraciones personalizadas

Manuel du propriétaire

Carte de relais I/O programmable

Modèles: RELAYIOCARD

L'utilisation de cet appareil dans des applications de maintien des fonctions vitales, où son dysfonctionnement pourrait causer l'arrêt d'équipements de réanimation ou affecter de manière importante leur utilisation sûre ou leur efficacité, n'est pas recommandée. N'utilisez pas cet appareil en présence de gaz anesthétiques inflammables mélangés à de l'air, de l'oxygène ou de l'oxyde de diazote.

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1. Introduction

1.1 Définition produit

Le dispositif RELAYIOCARD est un système de gestion UPS programmable comportant:

- 6 contacts de relais de sortie programmables
- Ouverture normale et fermeture normale configurables pour chaque contact de relais
- Temporisation d'arrêt UPS configurable
- Signal d'entrée configurable pour l'arrêt UPS ou le test de batterie

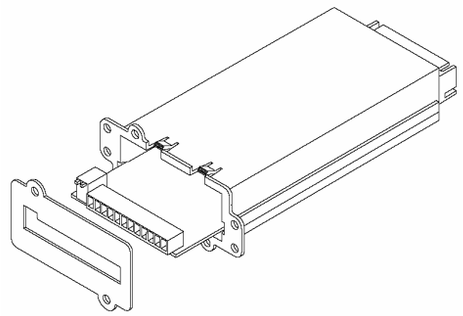
Le dispositif RELAYIOCARD vous permet de:

- Surveiller le statut et les événements UPS
- Effectuer des arrêts de système et des tests de batterie à distance

1.2 Contenu de l'emballage

Cet emballage contient:

- RELAYIOCARD
- Câble de configuration
- Plaques frontales
- Manuel du propriétaire



2. Installation et configuration

2.1 Configuration requise

Le dispositif RELAYIOCARD est homologué pour tous les systèmes UPS Tripp Lite SmartOnline™ et quelques systèmes UPS SmartPro™ tels que SMART1050SLT, SMART1500SLT, SMART2200RMXL2U, SMX1050SLT, SMX1500SLT, SMART3000SLT, SMART2200SLT, SM2200RMNAFTA, SMART2600RM2U, SMART3000RM2U, SMART1500CRMXL, SMART1500SLTXL, SMART750XLa, SMX3000XLRT2U et SMX2200XLRT2U. Les systèmes compatibles doivent avoir un protocole UPS 3008 ou plus.

Pour déterminer votre protocole UPS:

1. Ouvrez le logiciel PowerAlert de Tripp Lite.
2. Cliquez sur le bouton « Misc » dans le menu principal de la console PowerAlert.
3. Visualisez la variable du protocole.

2.2 Configuration des communications

1. Connectez Tx à pin 2, Rx à pin 3 et GND-C à pin 5 du port RS232 de votre PC.
2. Dans l'environnement Windows, lancez le programme Hyper Terminal, puis ouvrez le port COM spécifié..
3. Réglez les propriétés suivantes – Baud rate (vitesse de transmission): 2400, Bit de données: 8, Parité: Aucun, Bit d'arrêt: 1, Flow Control: Aucun.

2. Installation et configuration *(continued)*

2.3 Configuration

1. **Appuyez sur Enter** pour ouvrir le menu principal de RELAYIOCARD. **Appuyez sur 1** pour configurer l'événement alarme pour R1~R6.

```
+--------------------------+
|      UPS Relay Card      |
+--------------------------+
Firmware Version: Relay Card V1.4
[1].Customize Output Relay
[2].Configure Input Signal
[3] Customize Normal Open or Normal Close
[0].Quit

Please Enter Your Choice =>
```

2. Remarque Les contacts R1~R6 peuvent être configurés pour des événements de puissance variés.

```
+----------------------------+
|   Customize Output Relay   |
+----------------------------+
    Relay   Selected Event
[1].Relay1: Summary Alarm
[2].Relay2: Power Fail
[3].Relay3: Battery Low
[4].Relay4: On Bypass
[5].Relay5: Overload
[6] Relay6: Over Temperature
[0].Back To Previous Menu

Please Enter Your Choice =>
```

3. **Appuyez sur 2** pour configurer le signal d'entrée.

```
+--------------------------+
|  Configure Input Signal  |
+--------------------------+
[1].Act as Shutdown or Test: Shutdown
[2].Input Signal Confirm: 3 Seconds
[3].Delay Before Shutdown: 30 Seconds
[0].Back To Previous Menu

Please Enter Your Choice =>
```

Dans ce menu, le signal d'entrée peut être redéfini en tant que signal d'arrêt UPS ou un signal de test de batterie. La temporisation de l'arrêt UPS peut être réglée pour un maximum de 9999 secondes.

4. **Appuyez sur 3** pour configurer l'ouverture normale ou la fermeture normale pour chaque relais.

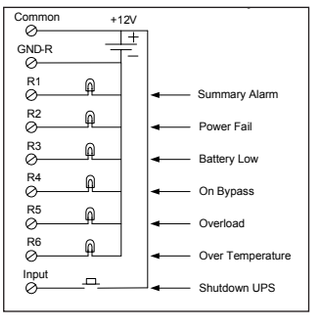
```
+----------------------------+
|   Customize Output Relay   |
+----------------------------+
    Relay   Selected Event
[1].Relay1: Normal Close
[2].Relay2: Normal Open
[3].Relay3: Normal Close
[4].Relay4: Normal Open
[5].Relay5: Normal Close
[6].Relay6: Normal Open
[0].Back To Previous Menu

Please Enter Your Choice =>
```

Once the configuration is complete, SW2 doit être mis dans la position ON (allumé) pour appliquer les nouveaux paramètres. Pour retourner aux paramètres par défaut automatiquement, mettez SW2 dans la position OFF (éteint).

5. **Appuyez sur 0** pour quitter la session de configuration. Lorsque le système vous demande de sauvegarder vos paramètres, appuyez surtings, **Y** pour sauvegarder ou sur **N** pour ignorer.

Exemple d'application

En utilisant les paramètres par défaut, mettez SW1 et SW2 dans la position OFF. Appliquez 12 VCC au contact commun et connectez les voyants lumineux aux terminaux R1~R6. Installez un bouton poussoir du contact commun sur le terminal d'entrée. Appuyez sur le bouton pour au moins 3 secondes pour arrêter le UPS à distance.



3. Spécifications

Spécifications techniques	
Taille	130 x 60 mm
Poids	200g
Température de fonctionnement	0 ~ 40° C
Humidité de fonctionnement	10 ~ 80%
Puissance d'alimentation	8~20VCC
Puissance absorbée	1,2 Watts

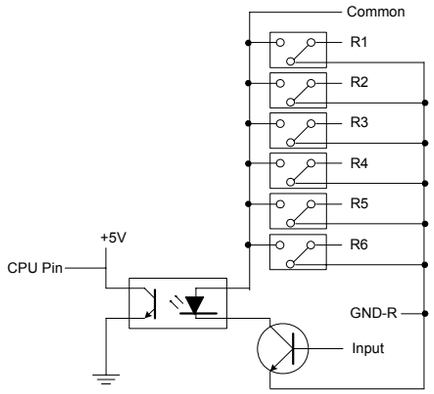
Intensité nominale de sortie

	Maximum	
	Tension continue	Courant continue
Entrée	24V	1A

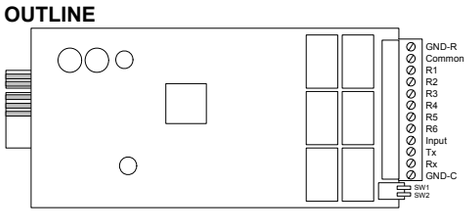
Intensité nominale d'entrée

	Maximum	
	Tension continue	Courant continue
Entrée	24V	10mA

Circuit interne



Schéma



Pinout I/O	
GND-R: Mise à la terre pour relais	
Commun: 12~24VCC	
Evénement alarme par défaut	
R1	Alarme de synthèse
R2	Coupure de courant
R3	Batterie faible
R4	Sur dérivation
R5	Surcharge
R6	Surtempérature
Entrée: Arrêt ou test de batterie à distance	
Tx: Transmission vers PC, connexion au DB9-pin2	
Rx: Réception à partir de PC, connexion au DB9-pin3	
GND-C: Mise à la terre pour configuration des pins Tx et Rx	

	OFF (défaut)	**ON**
SW1	Ouverture normale pour paramètres par défaut	Fermeture normale pour paramètres par défaut
SW2	Paramètres par défaut	Paramètres personnalisés

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