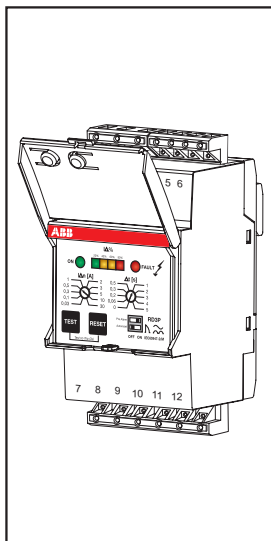


RD3P RD3P-48

- I** Relè differenziale elettronico
- GB** Electronic residual current relay
- D** Elektronisches Differentialschutzrelais
- F** Relais différentiel électronique
- E** Relé diferencial electrónico



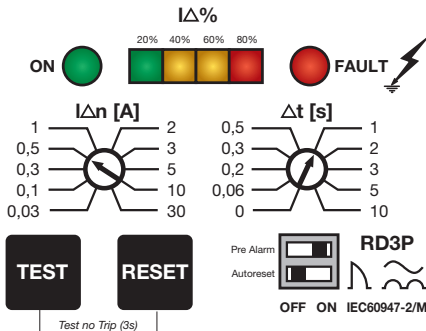
2CSF423007D1002



Descrizione

Il dispositivo RD3P della famiglia dei relè differenziali elettronici RD3 di ABB svolge la funzione di monitor e protezione differenziale in accordo alla CEI EN 60947-2 annex. M* e può essere impiegato in abbinamento a tutti i dispositivi automatici S200 e scatolati della gamma Tmax fino al T5, per impianti industriali.

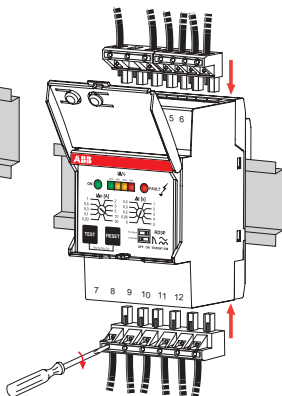
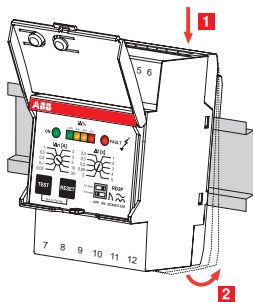
La gamma dei relè differenziali RD3P può svolgere la funzione di segnalazione attraverso la barra dei led e attraverso i due contatti d'uscita.



*Fino a 630A

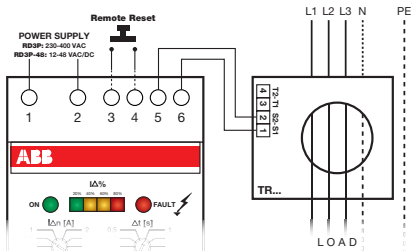
Installazione

1

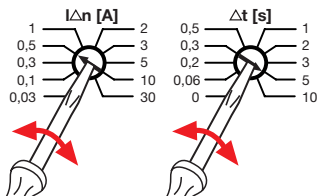


3

Collegamento Toroide-Relè



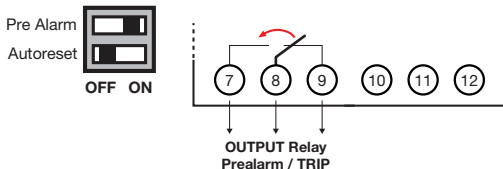
**Regolazione della corrente
d'intervento differenziale ($I_{\Delta n}$ [A])
e del tempo d'intervento (Δt [s]).**



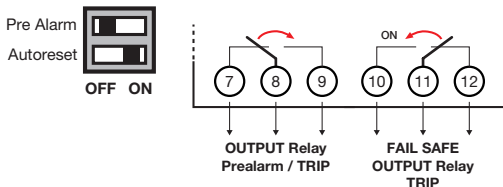
Funzioni



Pre-alarm → posizionando il dip-switch su ON si attiva la funzione di pre-alarm: il contatto di output contrassegnato dai morsetti 7 8 9 commuterà in caso di un guasto differenziale superiore al 60% I Δ .



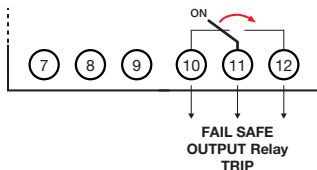
Autoreset → posizionando il dip-switch su ON si attiva la funzione di Reset automatico: i contatti di OUTPUT Relay ritorneranno in condizione di stand-by quando terminerà la situazione di guasto.



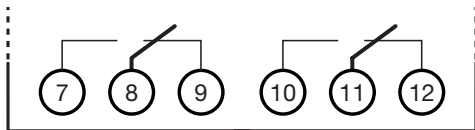
Funzioni



Fail-safe → integrata nel dispositivo (sicurezza positiva). In caso di mancanza dell'alimentazione del dispositivo RD3 i contatti di output numerati 10 11 12 commuteranno come da immagine allegata.



Contatti in condizione di dispositivo spento:

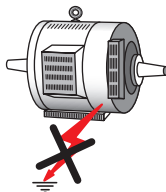


Segnalazioni stand by

①

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

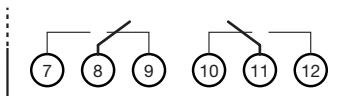
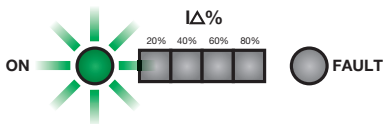
RD...



TR...

OK

RD...

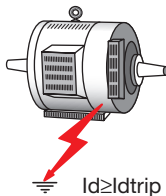


Segnalazioni guasto

①

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

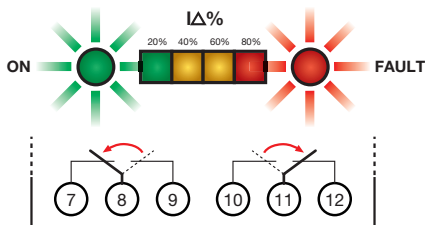
RD...



TR...

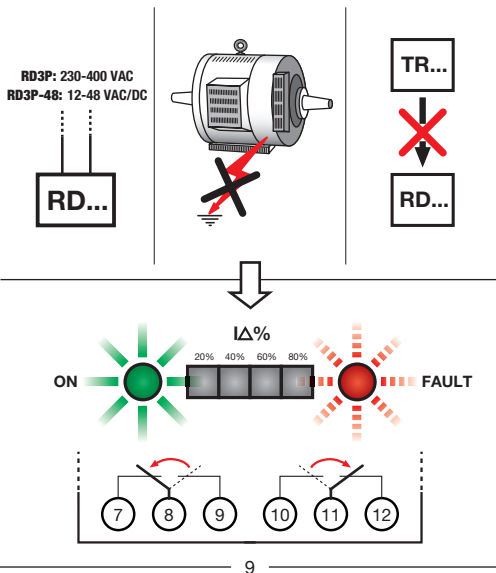
OK

RD...



Segnalazioni mancanza collegamento TR

①



Barra dei Led

La barra dei Led visualizza l'entità della dispersione nell'impianto.



$\Delta\%$

20%

40%

60%

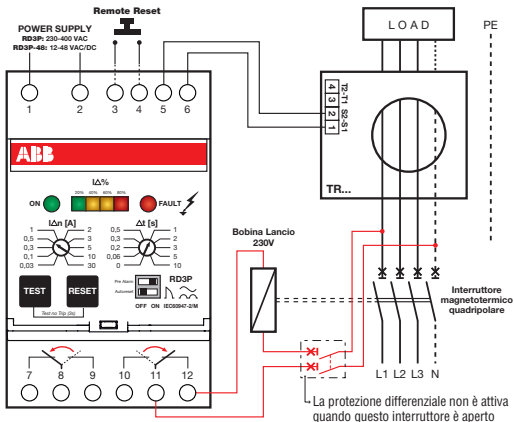
80%



Situazione di guasto

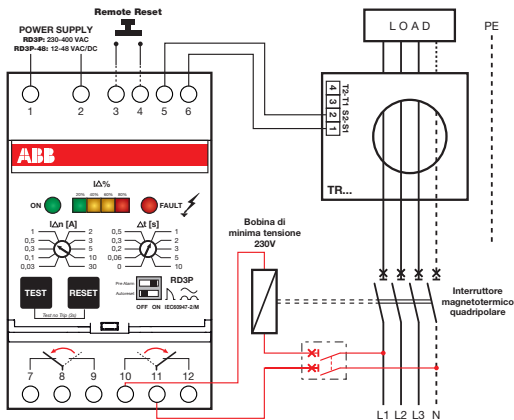
Quando il valore della corrente differenziale, rilevata dal trasformatore toroidale è superiore alla soglia $I_{\Delta n}$, il relé RD3 provoca l'apertura dell'interruttore automatico a cui è collegato attraverso una bobina di sgancio.

Collegamento con bobina a lancio di corrente:



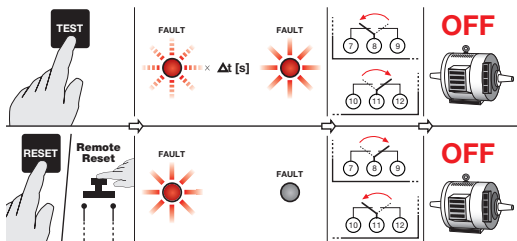
Situazione di guasto

Collegamento con bobina di minima tensione:

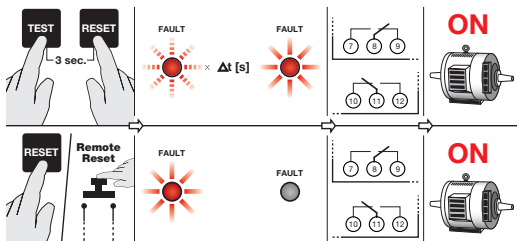


Test

I



Test NO TRIP



Caratteristiche tecniche



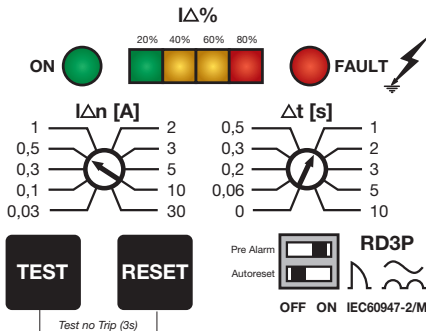
Tensione di alimentazione RD3P	230-400 Vac +10% / -15%
Tensione di alimentazione RD3P-48	12-48 Vac/Vdc +10% / -15%
Frequenza di alimentazione RD3P / RD3P-48	50-60 Hz
Filtraggio in frequenza	SI
Tipo	A (fino a $I_{\Delta n} = 5$ A)
Temperatura di funzionamento	-25 °C ... +70 °C
Potenza max assorbita RD3P	<3,6 W
Potenza max assorbita RD3P-48	<600 mW
Regolazione soglia d'intervento $I_{\Delta n}$	0,03-0,1-0,3-0,5-1-2-3-5-10-30
Regolazione soglia d'intervento Δt	0-0,06-0,2-0,3-0,5-1-2-3-5-10
Soglia di pre-alarm	60% $I_{\Delta n}$
Resistenza max collegamento toroide-relè	3 Ω
Lunghezza max collegamento pulsante remoto-reset	15 m
Portata dei contatti d'uscita	8 A 250 Vac
Max sezione cavi morsetti	2,5 mm ²
Moduli	3
Dimensioni	52,8 × 85 × 64,7 [mm]
Grado di protezione	IP 20
Norma di riferimento	IEC 60947-2 annex.M

Description

GB

The RD3P device is part of ABB's RD3 family of residual current relays and provides residual current monitoring and protection in compliance with annex M to the CEI EN 60947-2 standard* and can be used in combination with all MCBs S200 and moulded-case devices in the Tmax range up to T5 for industrial plants.

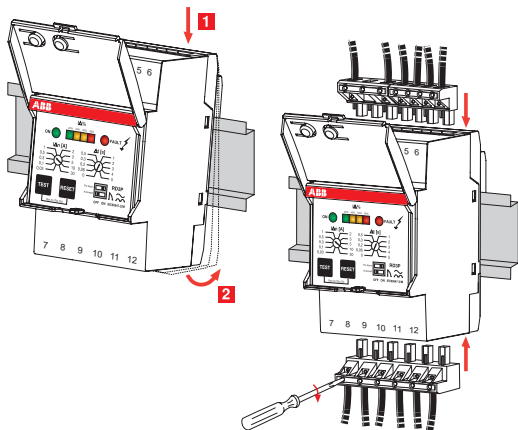
The LED bar and the two output contacts of the RD3P range of residual current relays can be used for signalling.



*Up to 630A

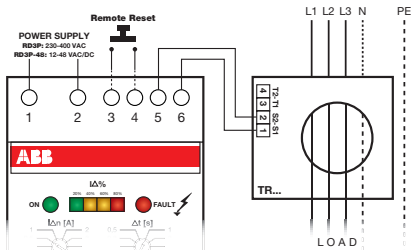
Installation

GB

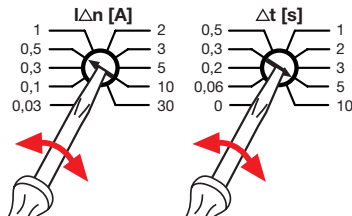


Toroid-Relay Connection

GB



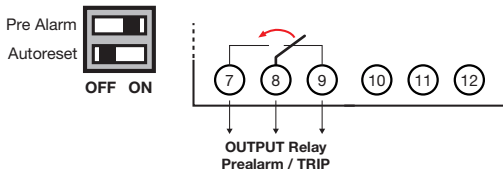
Regulation of operating current ($I_{\Delta n}$ [A]) and trip time (Δt [s]).



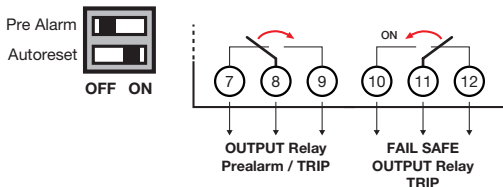
Functions

GB

Pre-alarm → by moving the dip-switch to ON the pre-alarm function is activated: the output contacts marked by terminals 7 8 9 will switch if a differential above 60% Δ occurs.



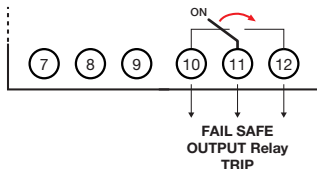
Autoreset → by moving the dip-switch to ON the automatic reset function is activated: the Relay OUTPUT contacts will revert to the stand-by status when the fault status ends.



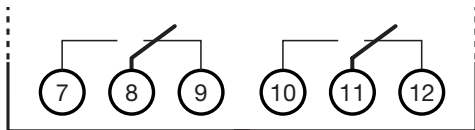
Functions

GB

Fail-safe → incorporated in the device (positive safety device) When no current is input to the RD3 device, the output contacts number 10 11 12 will switch as shown in the figure below.

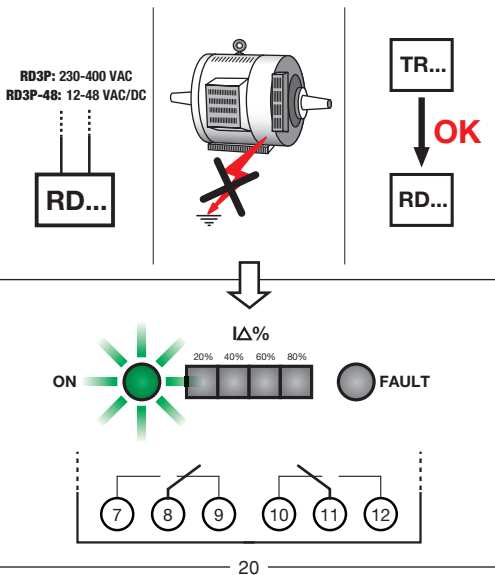


Contact status when the device is switched off:



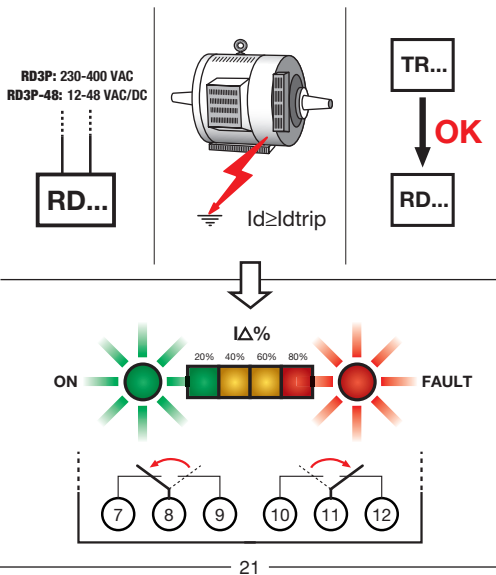
Stand-by signals

GB



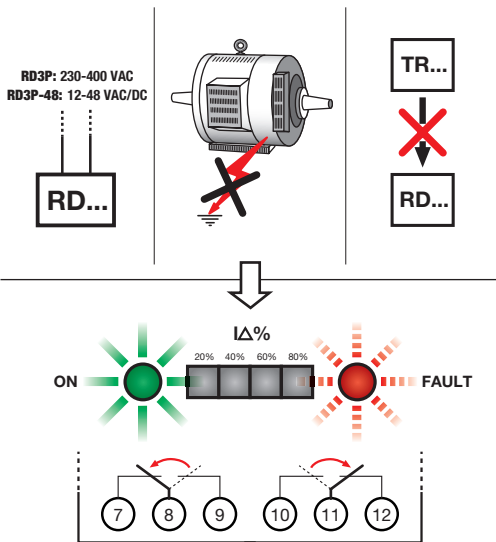
Fault signal

GB



No TR connection signals

GB



LED bar



The LED bar shows the amount of leakage in the plant.

$\Delta\%$

20%

40%

60%

80%

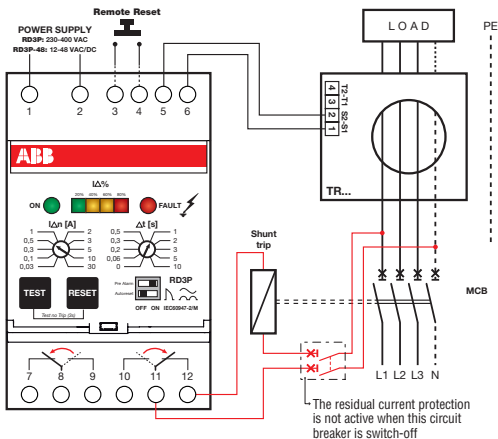


Fault status

GB

When the level of residual current, detected by the toroid, is higher than $I_{\Delta n}$ threshold, the RD3 relay causes the automatic opening of the circuit breaker to which it is connected by means of the shunt trip.

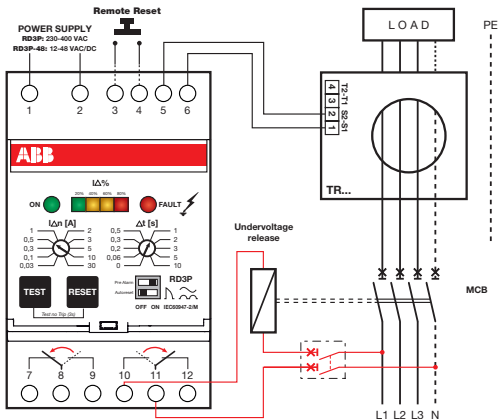
Connection with the shunt trip when the current is activated:



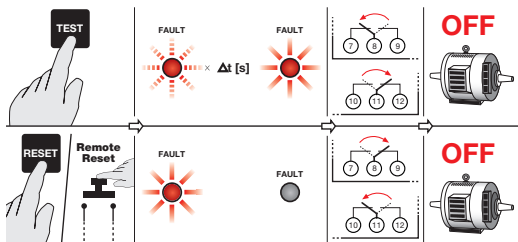
Fault status

GB

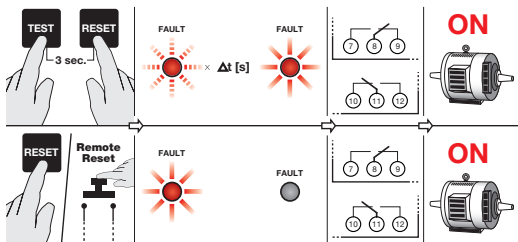
Connection to the undervoltage release



Test



NO TRIP test



Technical specifications

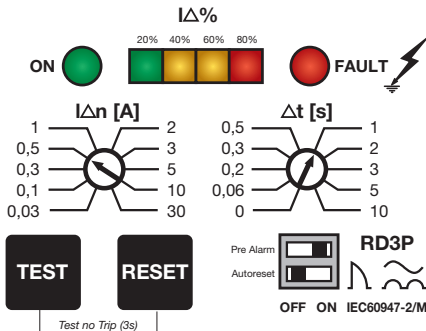
GB

RD3P power supply voltage	230-400 VAC +10% / -15%
RD3P-48 power supply voltage	12-48 VAC/VDC +10% / -15%
RD3P / RD3P-48 power supply frequency	50-60 Hz
Frequency filtering	YES
Type	A (up to $I_{\Delta n} = 5$ A)
Operating temperature	-25 °C ... +70 °C
RD3P max power consumption	<3,6 W
RD3P-48 max power consumption	<600 mW
Regulation of $I_{\Delta n}$ operating threshold	0.03-0.1-0.3-0.5-1-2-3-5-10-30
Regulation of operating threshold Δt	0-0.06-0.2-0.3-0.5-1-2-3-5-10
Pre-alarm threshold	60% $I_{\Delta n}$
Max toroid-relay connection resistance	3 Ω
Max remote button-reset connection distance	15 m
Output contact capacity	8 A 250 VAC
Max terminal wire section	2.5 mm ²
Modules	3
Dimensions	52.8 × 85 × 64.7 [mm]
Protection class	IP 20
Reference standard	IEC 60947-2 annex M

Beschreibung

D

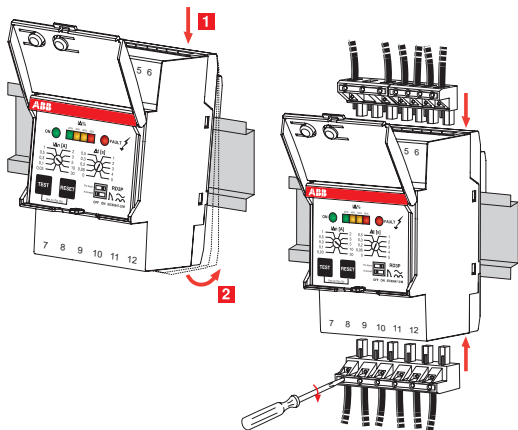
Das Modell RD3P gehört zur Produktfamilie der von ABB entwickelten elektronischen Differenzstromrelais RD3 zum Fehlerstromschutz gemäß DIN EN 60947-2, Anhang M*; es kann in Kombination mit allen Leitungs-Schutzschaltern S200 und gekapselten Leistungsschaltern der Baureihe Tmax bis T5 für Industrieanlagen eingesetzt werden. Die Meldungen des Differenzstromrelais RD3 erfolgen über eine LED-Leiste und zwei Ausgangskontakte.



*bis 630A

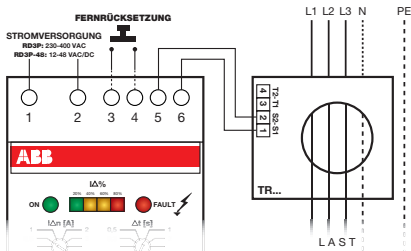
Installation

D

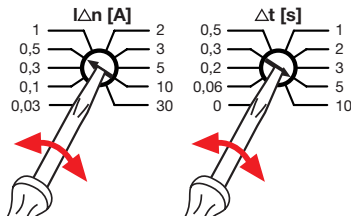


Anschluss Wandler - Relais

D



Einstellung Empfindlichkeit ($I_{\Delta n}$ [A]) und Auslösezeit (Δt [s]).

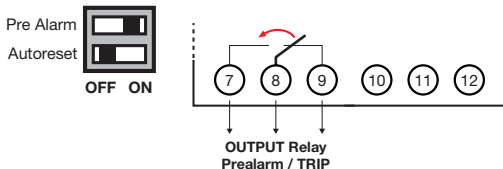


30

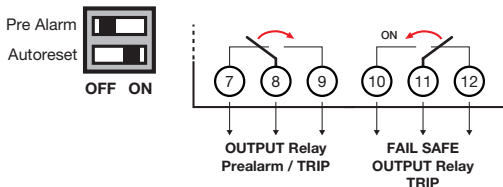
Funktionen

D

Voralarm → Wenn der DIP-Schalter auf ON steht, wird die Funktion Voralarm aktiviert: Der über die Klemmen 7, 8 und 9 gekennzeichnete Ausgangskontakt schaltet bei Präsenz von Fehlerströmen über 60% I_{Δ} .



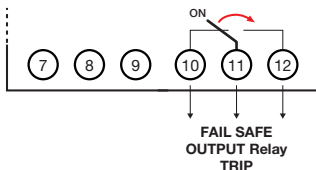
Autoreset → Wenn der DIP-Schalter auf ON gesetzt wird, wird die Funktion “automatische Rücksetzung” aktiviert: Sobald der Fehler nicht mehr vorliegt, werden die Ausgangskontakte des Relais in den Stand-by-Status zurückgesetzt.



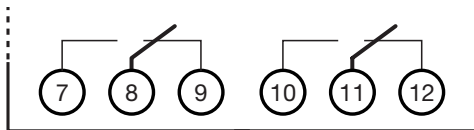
Funktionen

D

Fail-Safe-Funktion → in Einheit eingebaut (positive Sicherheitseinrichtung).
Bei Ausfall der Stromversorgung des RD3P schalten die Ausgangskontakte 10, 11 und 12 wie in der beiliegenden Abbildung gezeigt um.



Kontakte im ausgeschalteten Zustand des Geräts:

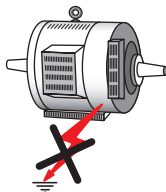


Meldungen Stand-by-Status

D

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

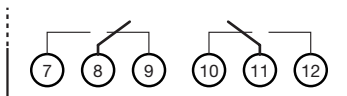
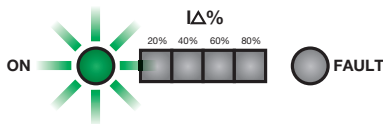
RD...



TR...

OK

RD...

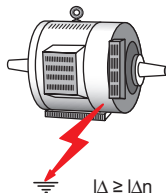


Fehlermeldungen

D

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

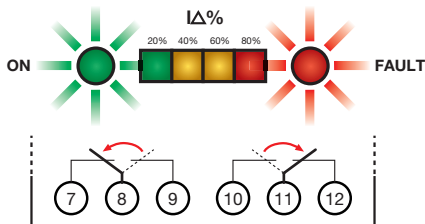
RD...



TR...

OK

RD...

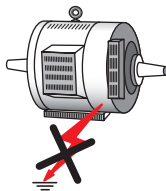


Meldungen kein TR-Anschluß

D

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

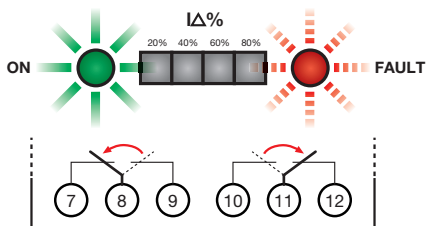
RD...



TR...



RD...



LED-Leiste

Die Led-Leiste zeigt den in der Anlage präsenten Ableitstrom in Prozent von $I_{\Delta n}$ an.

$I_{\Delta\%}$

20%

40%

60%

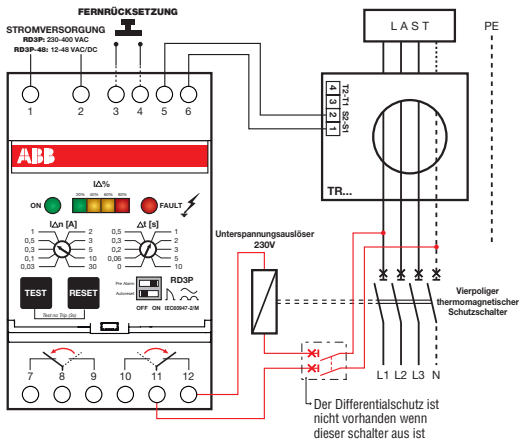
80%



Fehlersituation

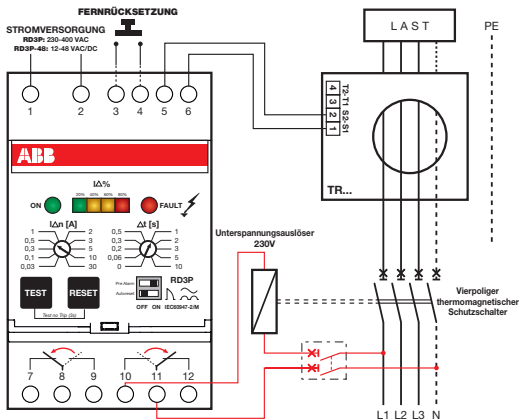
Liegt der vom Wandler ermittelte Fehlerstrom über dem Grenzwert $I_{\Delta n}$, so bringt das Relais RD3P den über einen Arbeitsstromauslöser angeschlossenen Leistungsschalter zum Abschalten.

Anschluss an Arbeitsstromauslöser:



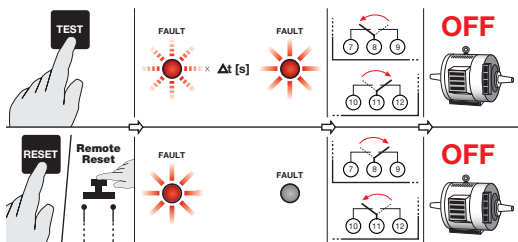
Fehlersituation

Anschluss an Unterspannungsauslöser::

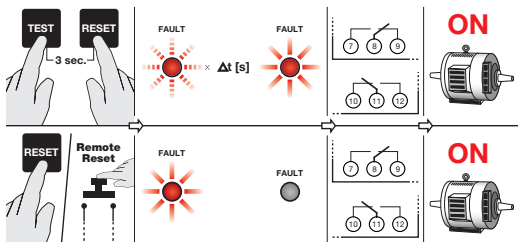


Test

D



Test NO TRIP



Technische Kenndaten

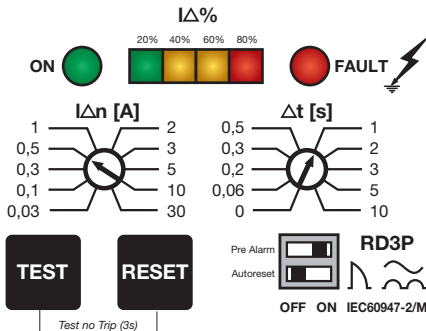


Versorgungsspannung RD3P	230-400 Vac +10% / -15%
Versorgungsspannung RD3P-48	12-48 Vac/Vdc +10% / -15%
Versorgungsfrequenz RD3P / RD3P-48	50-60 Hz
Filtration in Frequenz	JA
Typ	A (bis $I_{\Delta n} = 5 \text{ A}$)
Betriebstemperatur	-25 °C ... +70 °C
Max. Leistungsaufnahme RD3P	<3,6 W
Max. Leistungsaufnahme RD3P-48	<600 mW
Einstellung Grenzwert Empfindlichkeit $I_{\Delta n}$	0,03-0,1-0,3-0,5-1-2-3-5-10-30
Einstellung Grenzwert Auslösezeit Δt	0-0,06-0,2-0,3-0,5-1-2-3-5-10
Grenzwert Voralarm	60% $I_{\Delta n}$
Max. Widerstand der Verbindungsleitung Wandler- Relais	3 Ω
Max. Länge der Leitung zum Anschluß des Schalters zur Fernrücksetzung	15 m
Belastung Ausgangskontakte	8 A 250 Vac
Max. Querschnitt Klemmenleiter	2,5 mm ²
Module	3
Abmessungen	52,8 × 85 × 64,7 [mm]
Schutzart	IP 20
Bezugsnorm	IEC 60947-2, Anhang M

Description

F

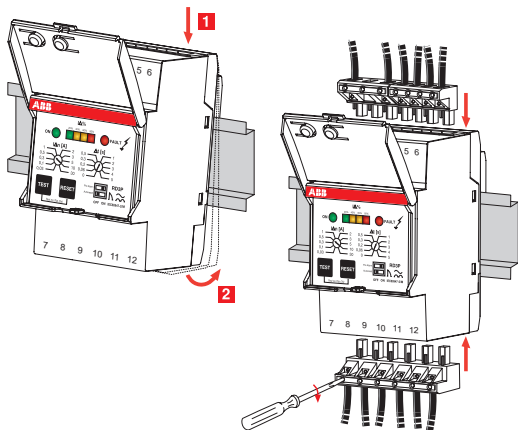
Le dispositif RD3P de la famille des disjoncteurs directionnels électroniques RD3 de ABB fonctionne en tant qu'appareil de surveillance et protection différentielle conformément à la directive CEI EN 60947-2 annexe M* et peut être utilisé en association avec tous les dispositifs automatiques S200 et boîtiers de la gamme Tmax jusqu'à T5, pour les installations industrielles. La gamme des disjoncteurs directionnels RD3P peut fonctionner en tant que signalisation par le biais de la barre des diodes et des deux contacts de sortie.



*Jusqu'à 630A

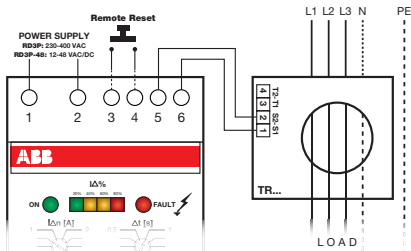
Installation

F

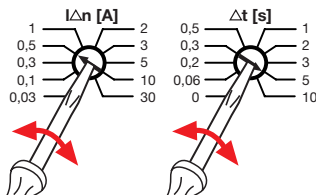


Branchement Toron-Disjoncteur

F



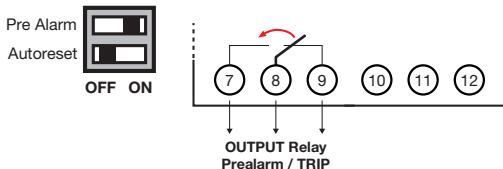
Réglage du courant d'intervention différentielle du disjoncteur ($I_{\Delta n} [A]$) et du délai d'intervention ($\Delta t [s]$).



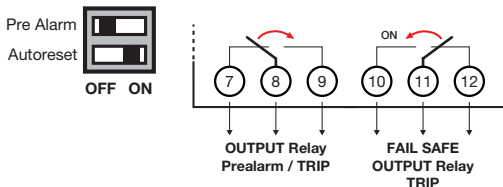
Fonctions

(F)

Préalarme → en positionnant le micro-interrupteur sur ON, la fonction de préalarme s'active: le contact de sortie (output) indiqué par les bornes 7 8 9 commutera en cas de panne du différentiel supérieure à 60% I_Δ.



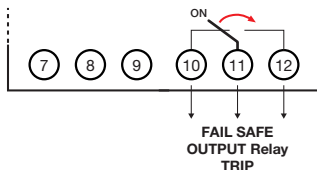
Autoreset → en positionnant le micro-interrupteur sur ON, la fonction de remise à zéro automatique s'active: les contacts de SORTIE DU Disjoncteur se rétablissent en état d'attente (ou stand-by) lorsque la situation de panne termine.



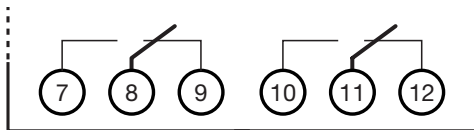
Fonctions

F

Sûreté → intégrée (ou Fail-safe) intégrée dans le dispositif (sûreté positive).
En cas de manque d'alimentation du dispositif RD3, les contacts de sortie numérotés 10 11 12 commuteront comme dans l'illustration ci-contre.



Contacts en situation de dispositif hors tension:

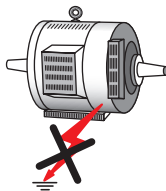


Signalisations stand by

F

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

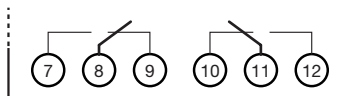
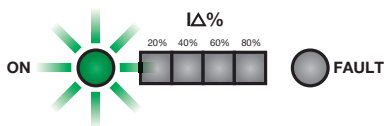
RD...



TR...

OK

RD...

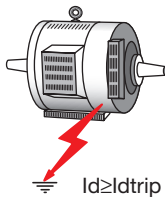


Signalisations panne

F

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

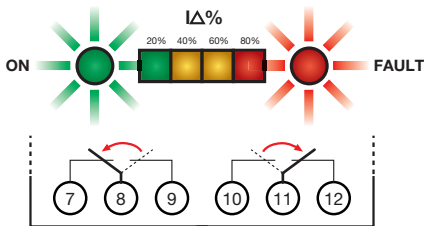
RD...



TR...

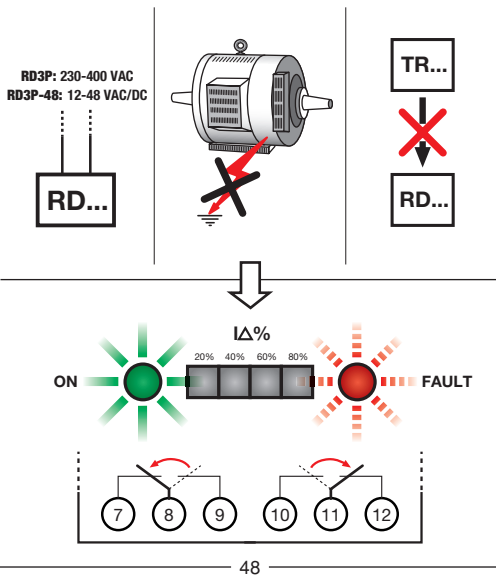
OK

RD...



Signalisations défaut branchement TR

F



Barre des Diodes

F

La barre des Diodes visualise l'entité de la dispersion dans l'installation.

$\Delta\%$

20%

40%

60%

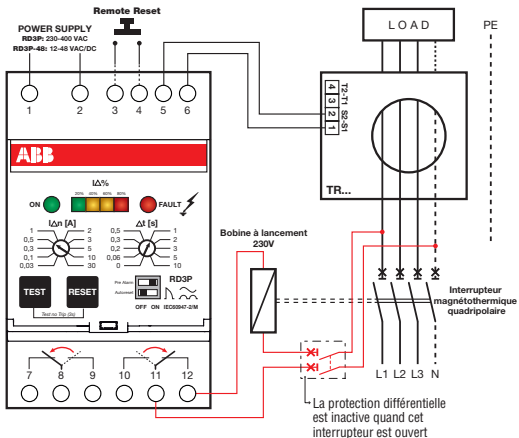
80%



Situation de panne

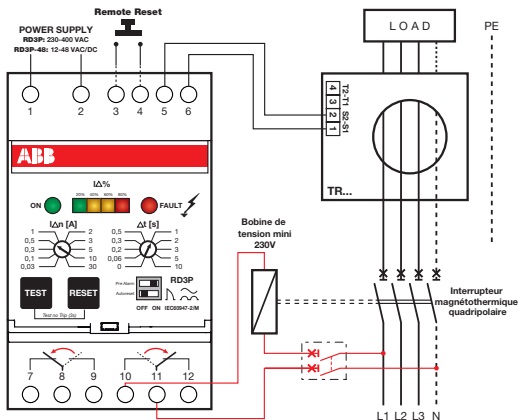
Lorsque la valeur du courant différentiel-résiduel, détectée par le réducteur toroïdal, est supérieure au seuil Δn , le disjoncteur RD3 provoque l'ouverture de l'interrupteur automatique auquel il est branché via une bobine de déclenchement.

Branchement avec bobine à lancement de courant:



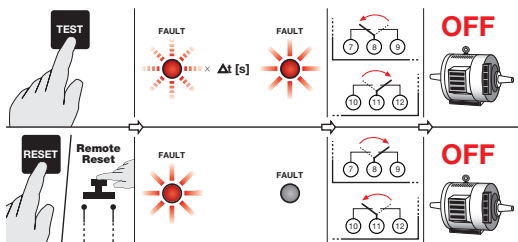
Situation de panne

Branchement avec bobine de tension mini:

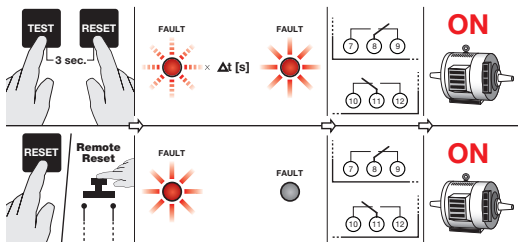


Test

F



Test NO TRIP



Caractéristiques techniques

F

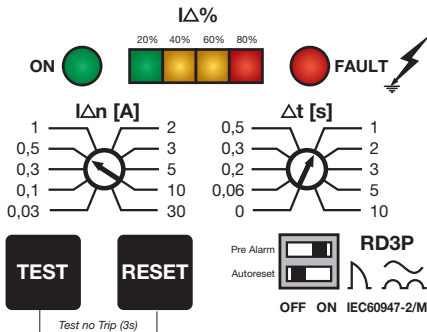
Tension d'alimentation RD3P	230-400 Vac +10% / -15%
Tension d'alimentation RD3P-48	12-48 Vac/Vdc +10% / -15%
Fréquence d'alimentation RD3P / RD3P-48	50-60 Hz
Filtrage en fréquence	OUI
Type	A (jusqu'à $I_{\Delta n} = 5$ A)
Température de fonctionnement	-25 °C ... +70 °C
Puissance max. absorbée RD3P	<3,6 W
Puissance max. absorbée RD3P-48	<600 mW
Réglage du seuil d'intervention $I_{\Delta n}$	0,03-0,1-0,3-0,5-1-2-3-5-10-30
Réglage du seuil d'intervention Δt	0-0,06-0,2-0,3-0,5-1-2-3-5-10
Seuil de préalarme	60% $I_{\Delta n}$
Résistance max. branchement toron-disjoncteur	3 Ω
Longueur max. branchement poussoir à distance-remise à zéro	15 m
Portée des contacts en sortie	8 A 250 Vac
Section max. des câbles bornes	2,5 mm ²
Modules	3
Dimensions	52,8 × 85 × 64,7 [mm]
Degré de protection	IP 20
Norme de référence	IEC 60947-2 annexe M

Descripción

E

El dispositivo RD3P de la familia de los relés diferenciales electrónicos RD3 de ABB realiza la función de monitor y protección diferencial según IEC EN 60947-2 anexo M* y puede utilizarse con todos los interruptores automáticos S200 y caja moldeada de la gama Tmax hasta el T5, para instalaciones industriales.

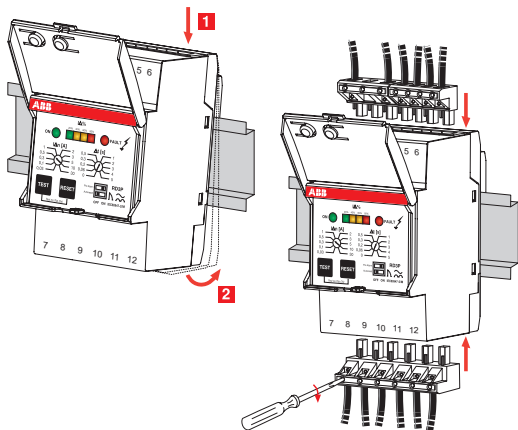
La gama de relés diferenciales RD3P puede realizar la función de señalización a través de la barra de leds y los dos contactos de salida.



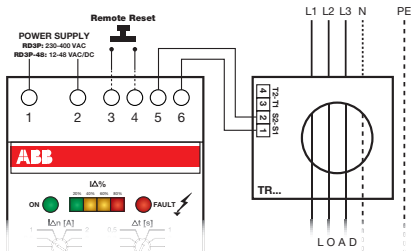
*Hasta 630 A

Instalación

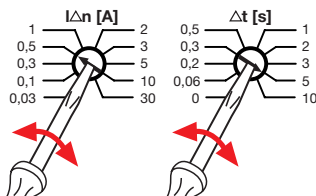
E



Conexión Toroide-Relé



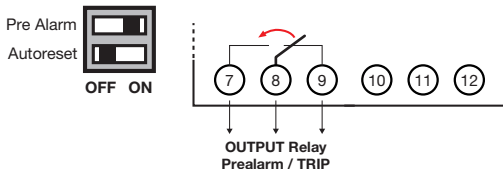
**Regulación de la corriente de
intervención diferencial ($I_{\Delta n}$ [A])
y del tiempo de intervención (Δt [s]).**



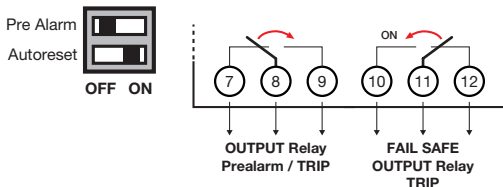
Funciones

E

Prealarma → poniendo el conmutador DIP en ON se activa la función de prealarma: el contacto de salida marcado por los bornes 7, 8 y 9 conmutará en caso de que se produzca una avería diferencial superior al 60% I_{Δ} .



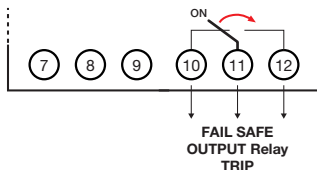
Autoreseteo → poniendo el conmutador DIP en ON se activa la función de Reseteo automático: los contactos de SALIDA Relé volverán al estado de stand-by cuando termine la situación de avería.



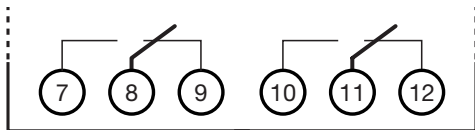
Funciones

E

Fail-safe → integrada en el dispositivo (seguridad positiva). En caso de ausencia de alimentación del dispositivo RD3 los contactos de salida 10, 11 y 12 conmutarán como en la imagen anexa.



Contactos con dispositivo apagado:

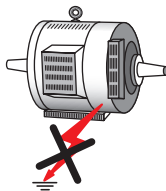


Señalizaciones stand-by

E

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

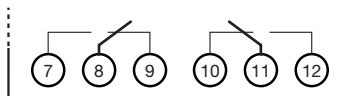
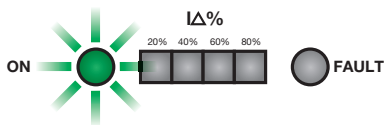
RD...



TR...

OK

RD...

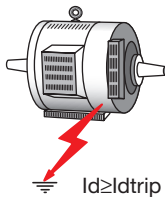


Señalizaciones avería

E

RD3P: 230-400 VAC
RD3P-48: 12-48 VAC/DC

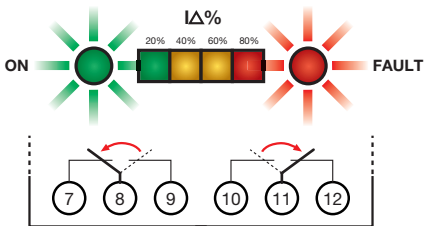
RD...



TR...

OK

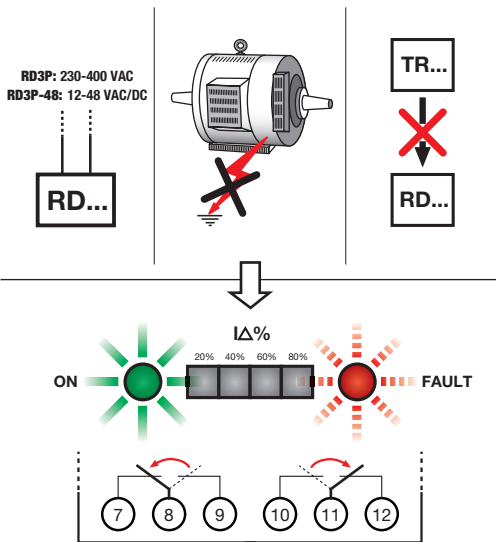
RD...



60

Señalizaciones ausencia conexión TR

E



Barra de Leds



La barra de Leds visualiza la magnitud de la dispersión en la instalación.

$\Delta\%$

20%

40%

60%

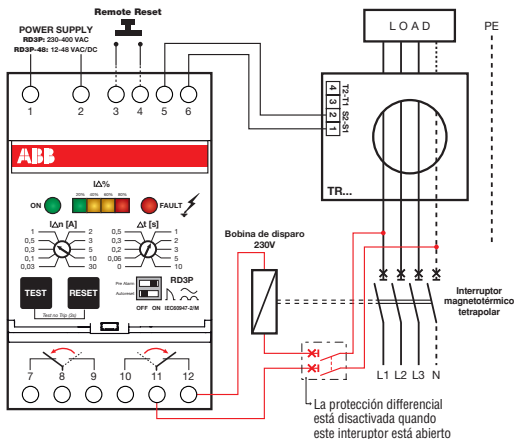
80%



Situación de avería

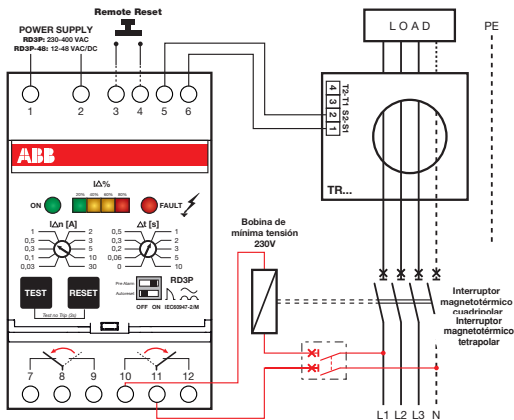
Cuando el valor de la corriente diferencial detectada por el transformador toroidal es superior al umbral $I_{\Delta n}$, el relé RD3 provoca la apertura del interruptor automático al que está conectado a través de emisión de corriente.

Conexión con bobina de emisión de corriente:



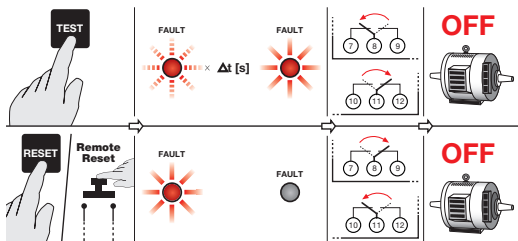
Situación de avería

Conexión con bobina de mínima tensión:

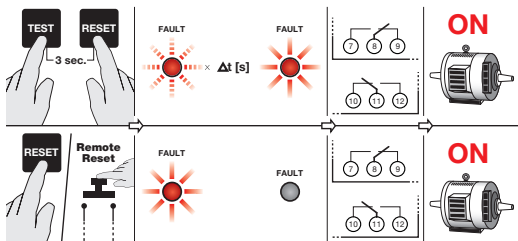


Test

E



Test NO TRIP

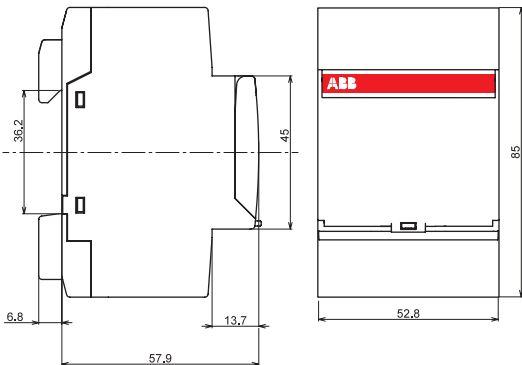


Características técnicas



Tensión de alimentación RD3P	230-400 Vac +10% / -15%
Tensión de alimentación RD3P-48	12-48 Vac/Vdc +10% / -15%
Frecuencia de alimentación RD3P / RD3P-48	50-60 Hz
Filtrado en frecuencia	SI
Tipo	A (hasta $I_{\Delta n} = 5$ A)
Temperatura de funcionamiento	-25°C ... +70°C
Potencia máx. absorbida RD3P	<3,6 W
Potencia máx. absorbida RD3P-48	<600 mW
Regulación umbral de intervención $I_{\Delta n}$	0,03-0,1-0,3-0,5-1-2-3-5-10-30
Regulación umbral de intervención Δt	0-0,06-0,2-0,3-0,5-1-2-3-5-10
Umbral de prealarma	60% $I_{\Delta n}$
Resistencia máx. conexión toroide-relé	3 Ω
Longitud máx. conexión botón remoto-reseteo	15 m
Carga de los contactos de salida	8 A 250 Vac
Máx. sección cables bornes	2,5 mm ²
Módulos	3
Dimensiones	52,8 × 85 × 64,7 [mm]
Grado de protección	IP 20
Norma de referencia	IEC 60947-2 anexo M

Dimensioni Ingombro - Overall dimensions
Einbauabmessungen - Dimensions d'encombrement
Dimensiones Totales



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