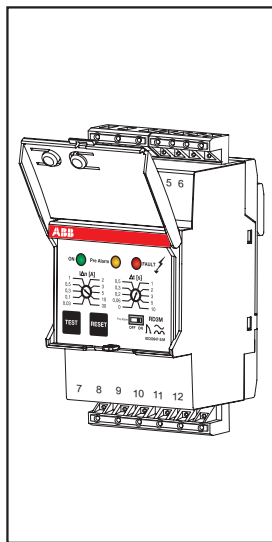


RD3M RD3M-48

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



2CSF423006D1002

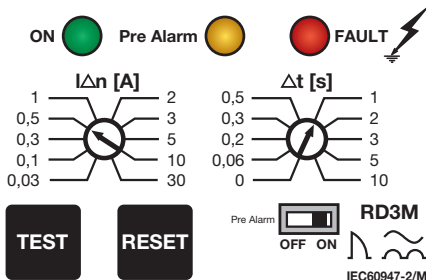


Descrizione



Il dispositivo RD3M 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.

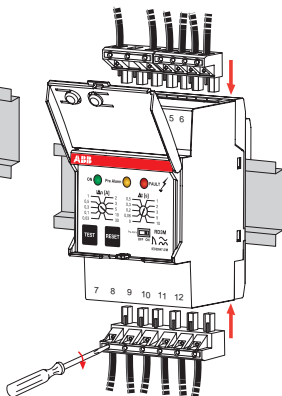
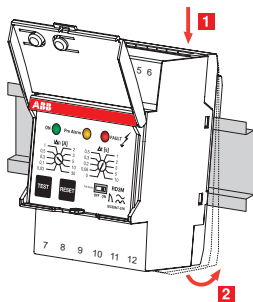
La gamma dei relè differenziali RD3M può svolgere la funzione di segnalazione attraverso il led e attraverso i due contatti d'uscita.



*Fino a 630A

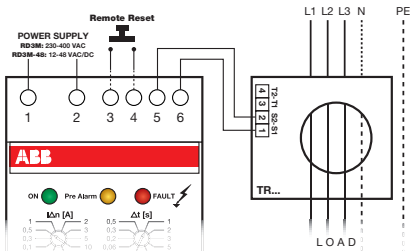
Installazione

1

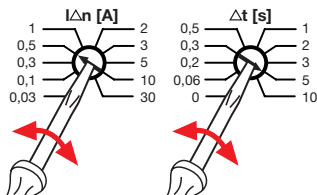


3

Collegamento Toroide-Relè



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



Funzioni

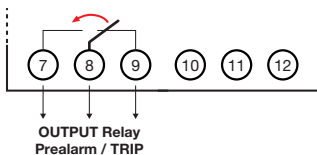


Pre-alarm → posizionando il dip-switch su ON si attiva la funzione di pre-alarm: il contatto di output contrassegnato dai morsetti 7 8 9 commuterà in caso di un guasto differenziale superiore al 60% I_{Δ} .

Pre Alarm



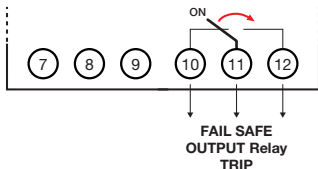
OFF ON



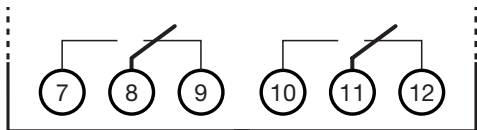
Funzioni



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:

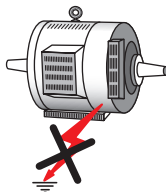


Segnalazioni stand by

①

RD3M: 230-400 VAC
RD3M-48: 12-48 VAC/DC

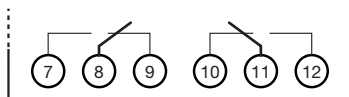
RD...



TR...

OK

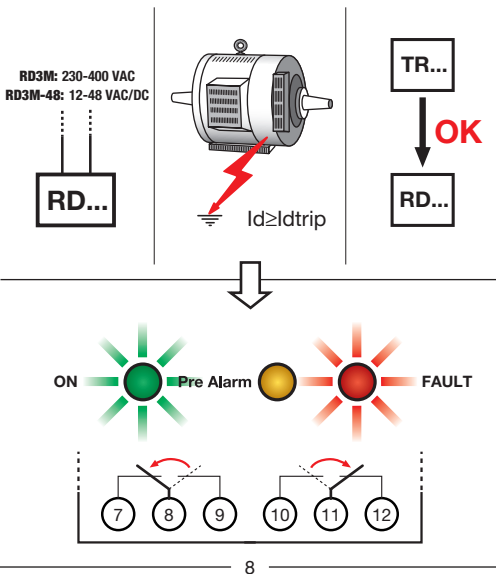
RD...



7

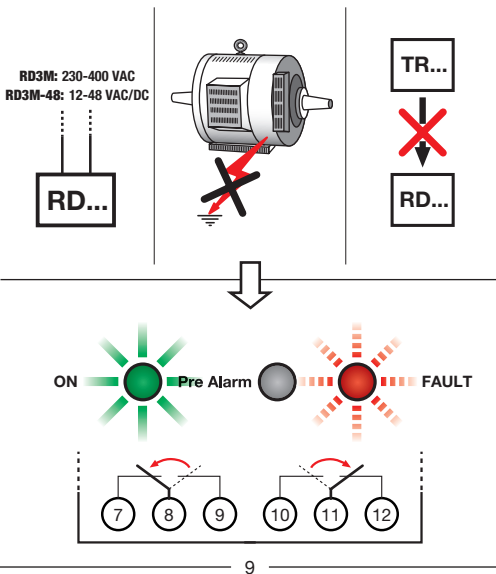
Segnalazioni guasto

①



Segnalazioni mancanza collegamento TR

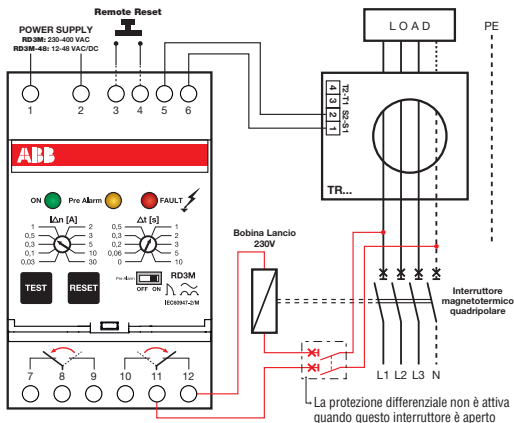
①



Situazione di guasto

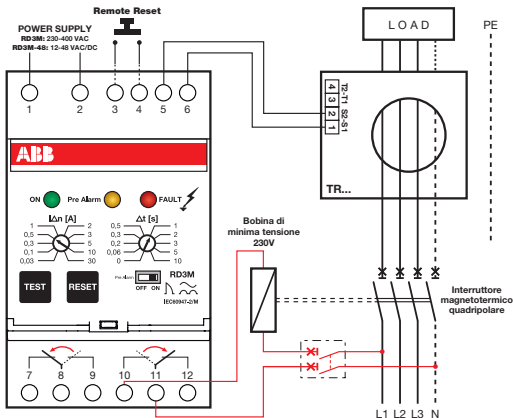
Quando il valore della corrente differenziale, rilevata dal trasformatore toroidale è superiore alla soglia $I_{\Delta n}$, il relé RD3 provoca l'apertura dell'interruttore automatico a cui è collegato attraverso una bobina di sgancio.

Collegamento con bobina a lancio di corrente:



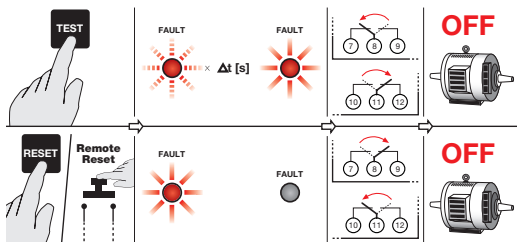
Situazione di guasto

Collegamento con bobina di minima tensione:



Test

I



Caratteristiche tecniche



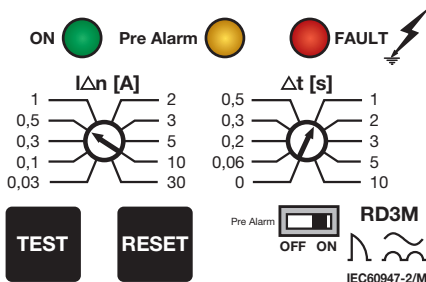
Tensione di alimentazione RD3M	230-400 Vac +10% / -15%
Tensione di alimentazione RD3M-48	12-48 Vac/Vdc +10% / -15%
Frequenza di alimentazione RD3M / RD3M-48	50-60 Hz
Filtraggio in frequenza	SI
Tipo	A (fino a $I_{\Delta n} = 5$ A)
Temperatura di funzionamento	-25 °C ... +70 °C
Potenza max assorbita RD3M	<3,6 W
Potenza max assorbita RD3M-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 RD3M 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.

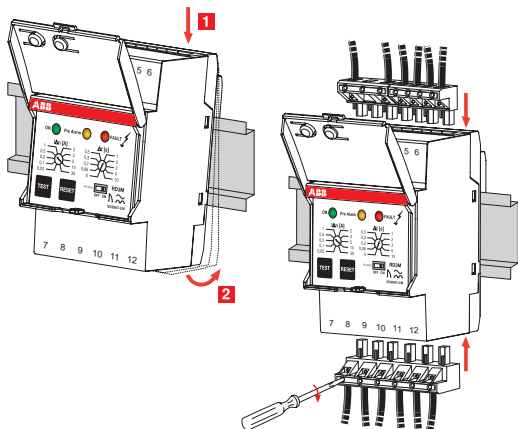
The LED and the two output contacts of the RD3M range of residual current relays can be used for signalling.



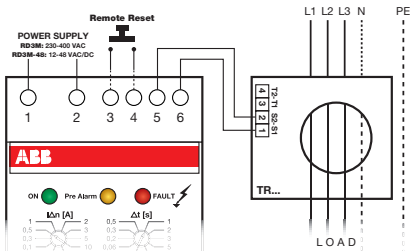
*Up to 630A

Installation

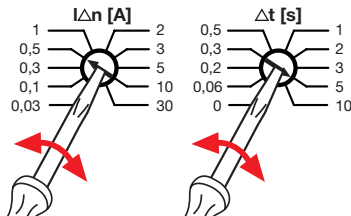
GB



Toroid-Relay Connection



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



Functions

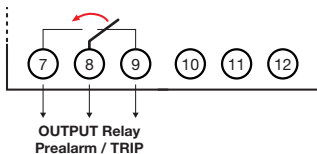
GB

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 fault above 60% ΔI occurs.

Pre Alarm



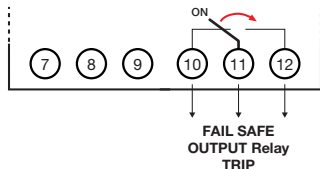
OFF ON



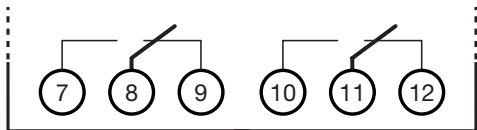
Functions

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.

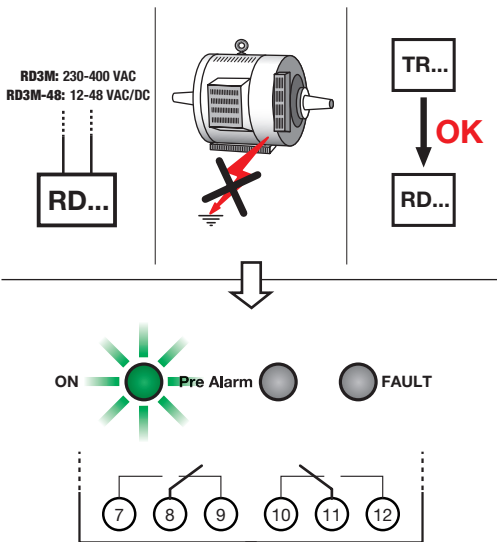


Contact status when the device is switched off:



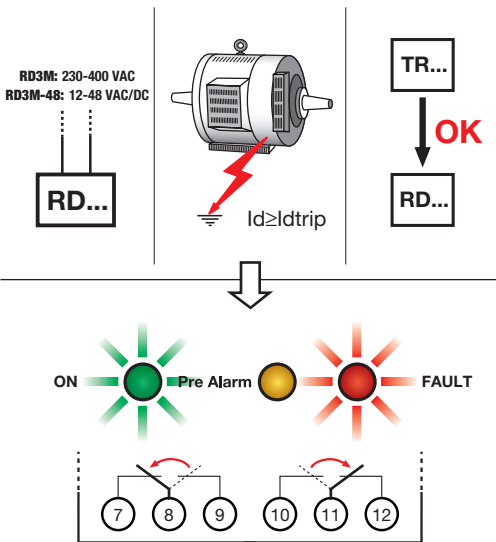
Stand-by signals

GB



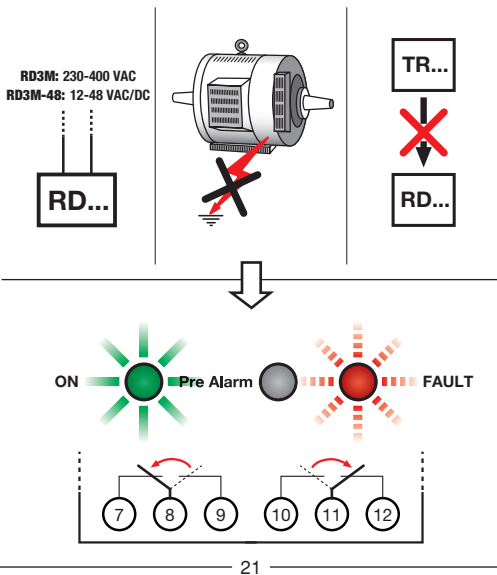
Fault signal

GB



No TR connection signals

GB

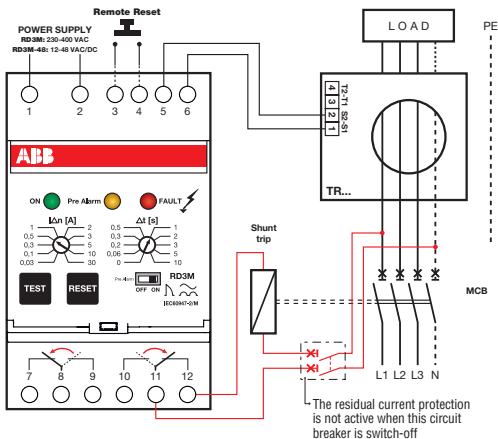


Fault status

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.

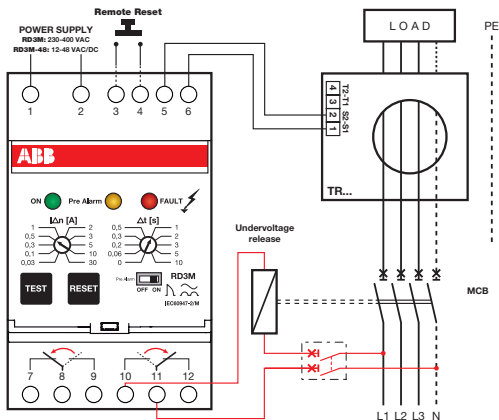
Connection with the shunt trip when the current is activated:



Fault status

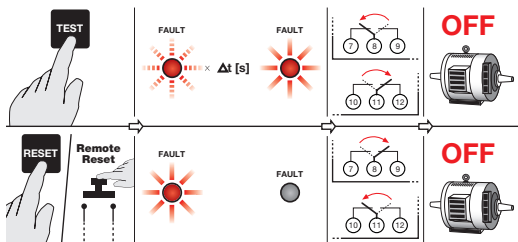
GB

Connection to the undervoltage release



Test

GB



Technical specifications

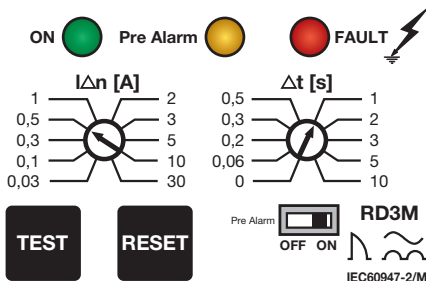
GB

RD3M power supply voltage	230-400 VAC +10% / -15%
RD3M-48 power supply voltage	12-48 VAC/VDC +10% / -15%
RD3M / RD3M-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
RD3M max power consumption	<3,6 W
RD3M-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 RD3M 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 LED und zwei Ausgangskontakte.



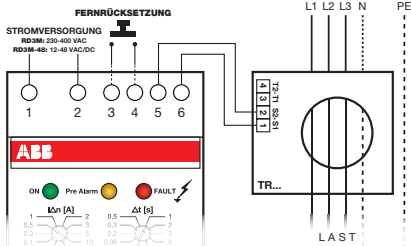
*bis 630A

D

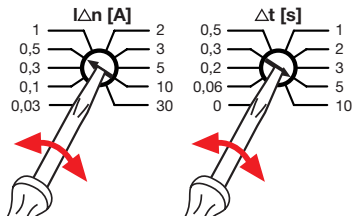


Anschluss Wandler - Relais

D



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



Funktionen

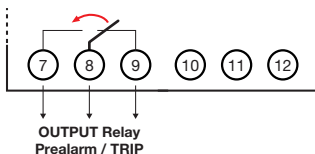
D

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% $I_{\Delta n}$.

Pre Alarm



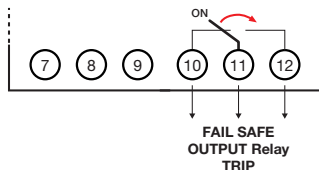
OFF ON



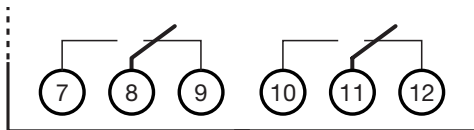
Funktionen

Ⓓ

Fail-Safe-Funktion → in Einheit eingebaut (positive Sicherheitseinrichtung).
Bei Ausfall der Stromversorgung des RD3M schalten die Ausgangskontakte 10, 11 und 12 wie in der beiliegenden Abbildung gezeigt um.



Kontakte im ausgeschalteten Zustand des Geräts:

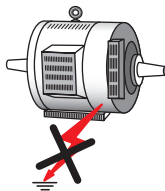


Meldungen Stand-by-Status

D

RD3M: 230-400 VAC
RD3M-48: 12-48 VAC/DC

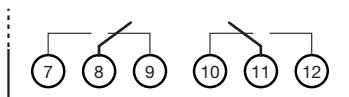
RD...



TR...

OK

RD...

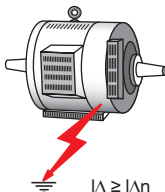


Fehlermeldungen

D

RD3M: 230-400 VAC
RD3M-48: 12-48 VAC/DC

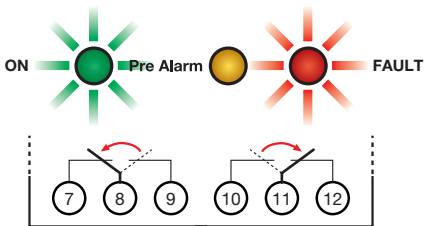
RD...



TR...

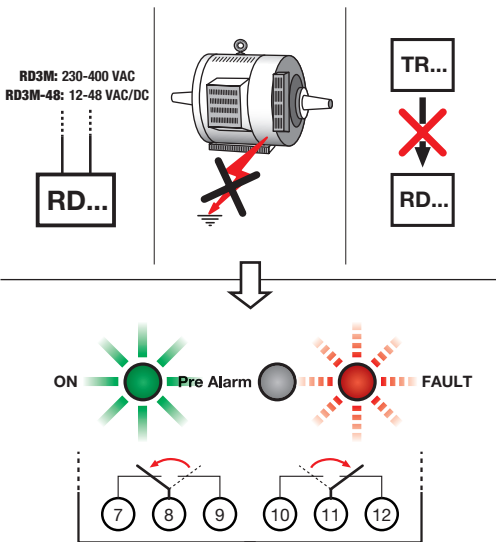
OK

RD...



Meldungen kein TR-Anschluss

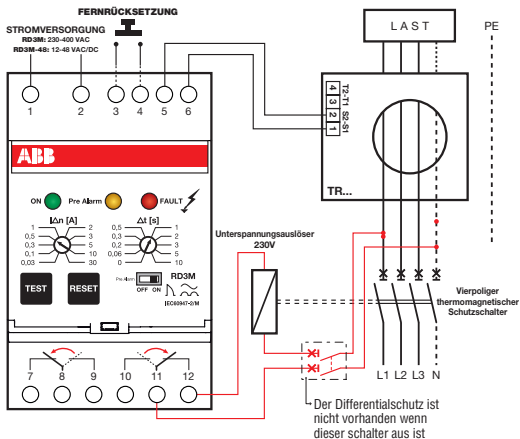
D



Fehlersituation

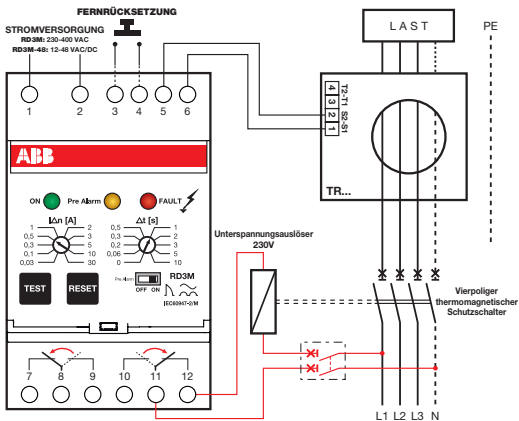
Liegt der vom Wandler ermittelte Fehlerstrom über dem Grenzwert $I_{\Delta n}$, so bringt das Relais RD3M den über einen Arbeitsstromauslöser angeschlossenen Leistungsschalter zum Abschalten.

Anschluss an Arbeitsstromauslöser:



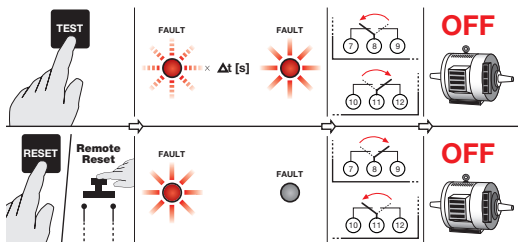
Fehlersituation

Anschluss an Unterspannungsauslöser:



Test

D



Technische Kenndaten



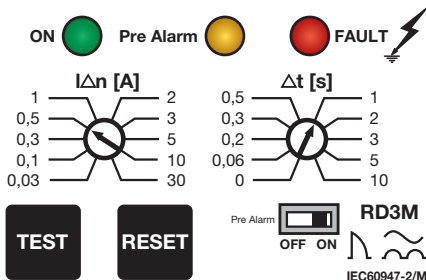
Versorgungsspannung RD3M	230-400 V AC +10% / -15%
Versorgungsspannung RD3M-48	12-48 V AC/DC +10% / -15%
Versorgungsfrequenz RD3M / RD3M-48	50-60 Hz
Frequenzfilter	JA
Typ	A (bis $I_{\Delta n} = 5 \text{ A}$)
Betriebstemperatur	-25 °C ... +70 °C
Max. Leistungsaufnahme RD3M	<3,6 W
Max. Leistungsaufnahme RD3M-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	max. 8 A 250 V AC
Max. Anschlussquerschnitt	2,5 mm ²
Module	3
Abmessungen	52,8 × 85 × 64,7 [mm]
Schutzart	IP 20
Bezugsnorm	DIN EN 60947-2, Anhang M

Description

F

Le dispositif RD3M 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.

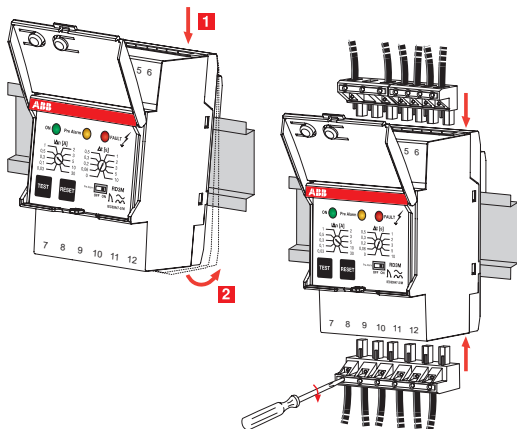
La gamme des disjoncteurs directionnels RD3M peut fonctionner en tant que signalisation par le diode et des deux contacts de sortie.



*Jusqu'à 630A

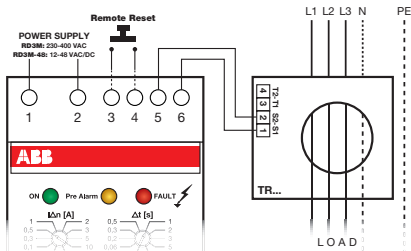
Installation

F

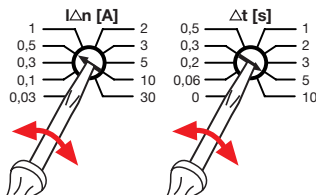


Branchement Toron-Disjoncteur

F



Réglage du courant d'intervention différentielle du disjoncteur ($I_{\Delta n}$ [A]) et du délai d'intervention (Δt [s]).



Fonctions

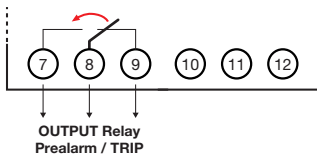
(F)

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.

Pre Alarm



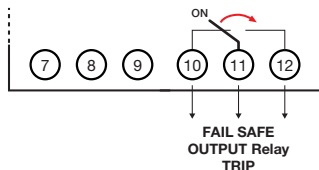
OFF ON



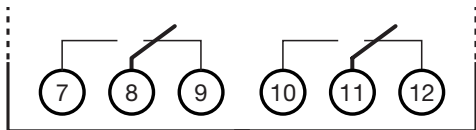
Fonctions

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:

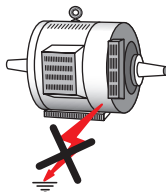


Signalisations stand by

F

RD3M: 230-400 VAC
RD3M-48: 12-48 VAC/DC

RD...



TR...

OK

RD...



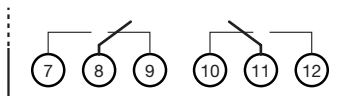
ON



Pre Alarm



FAULT

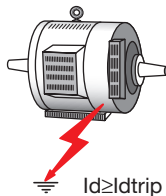


Signalisations panne

F

RD3M: 230-400 VAC
RD3M-48: 12-48 VAC/DC

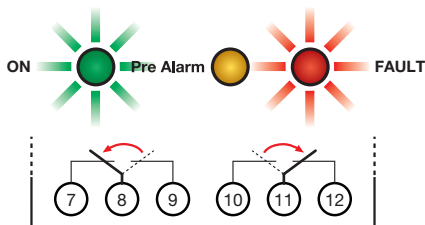
RD...



TR...

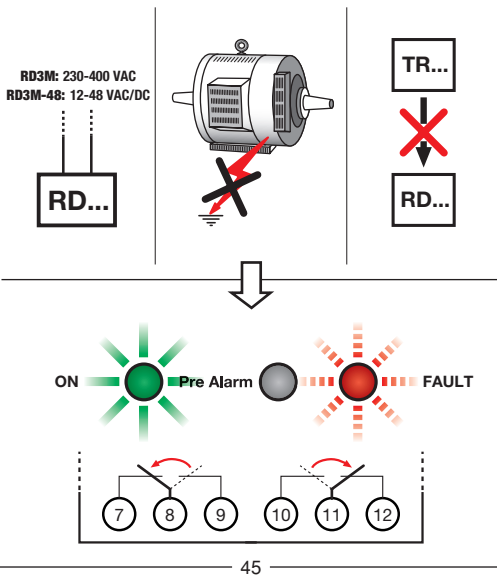
OK

RD...



Signalisations défaut branchement TR

F

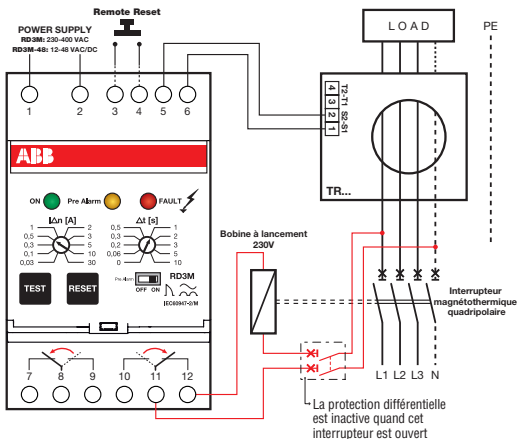


Situation de panne

(F)

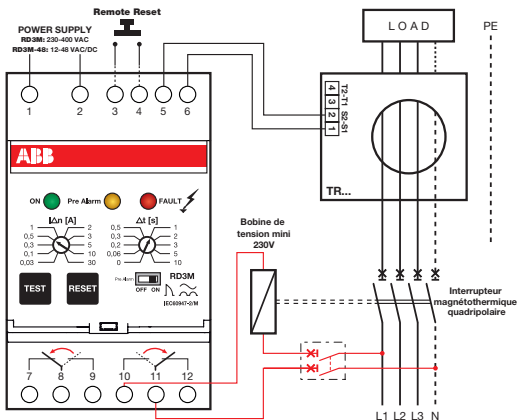
Lorsque la valeur du courant différentiel-résiduel, détectée par le réducteur toroidal, est supérieure au seuil $I_{\Delta n}$, le disjoncteur RD3 provoque l'ouverture de l'interrupteur automatique auquel il est branché via une bobine de déclenchement.

Branchement avec bobine à lancement de courant:



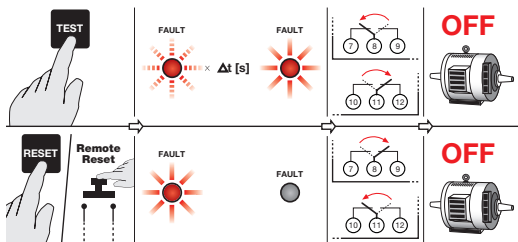
Situation de panne

Branchement avec bobine de tension mini:



Test

F



Caractéristiques techniques

F

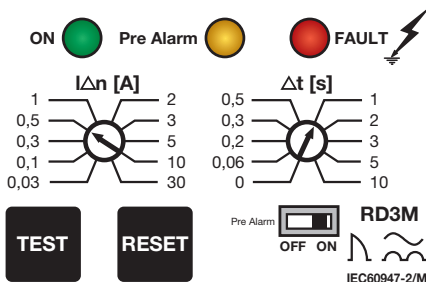
Tension d'alimentation RD3M	230-400 Vac +10% / -15%
Tension d'alimentation RD3M-48	12-48 Vac/Vdc +10% / -15%
Fréquence d'alimentation RD3M / RD3M-48	50-60 Hz
Filtrage en fréquence	OUI
Type	A (jusqu'à $I_{\Delta n} = 5 \text{ A}$)
Température de fonctionnement	-25 °C ... +70 °C
Puissance max. absorbée RD3M	<3,6 W
Puissance max. absorbée RD3M-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 RD3M 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.

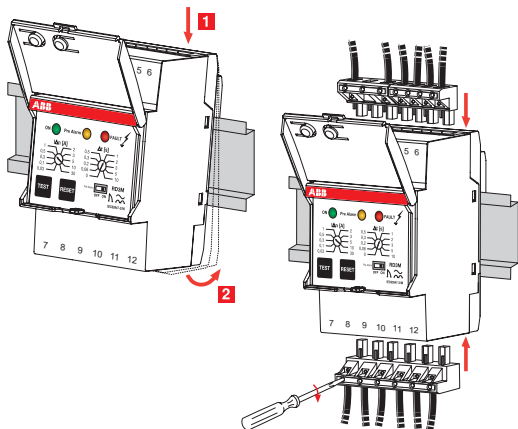
La gama de relés diferenciales RD3M puede realizar la función de señalización a través el led y los dos contactos de salida.



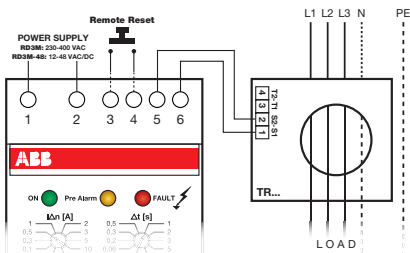
*Hasta 630 A

Instalación

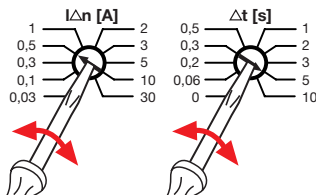
E



Conexión Toroide-Relé



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



Funciones

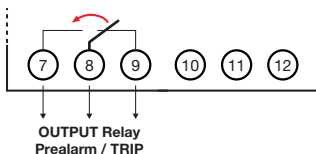
E

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} .

Pre Alarm



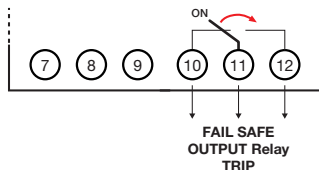
OFF ON



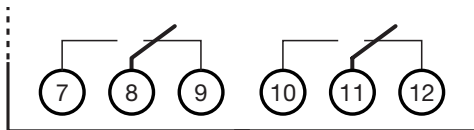
Funciones

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:

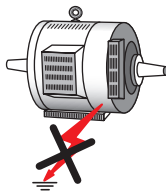


Señalizaciones stand-by

E

RD3M: 230-400 VAC
RD3M-48: 12-48 VAC/DC

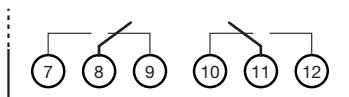
RD...



TR...

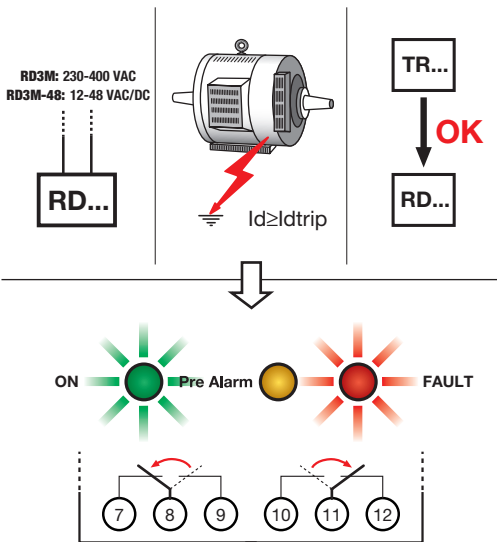
OK

RD...



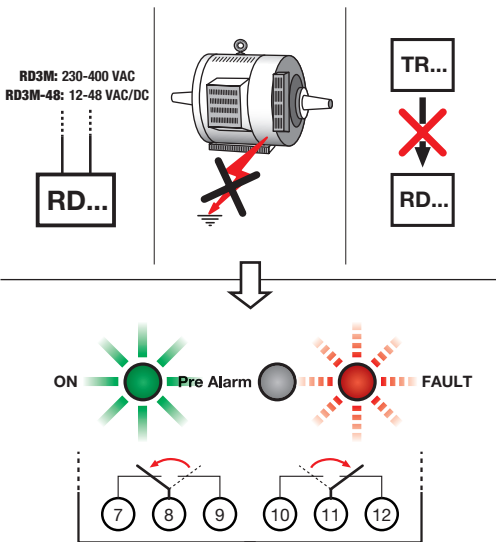
Señalizaciones avería

E



Señalizaciones ausencia conexión TR

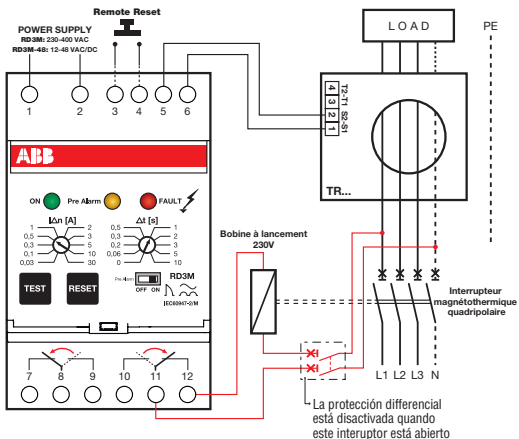
E



Situación de avería

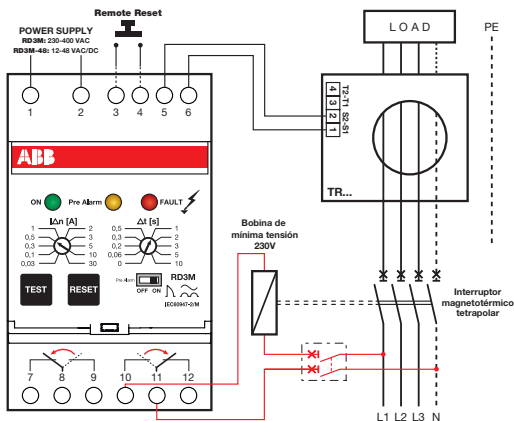
Cuando el valor de la corriente diferencial detectada por el transformador toroidal es superior al umbral $I_{\Delta n}$, el relé RD3 provoca la apertura del interruptor automático al que está conectado a través de emisión de corriente.

Conexión con bobina de emisión de corriente:



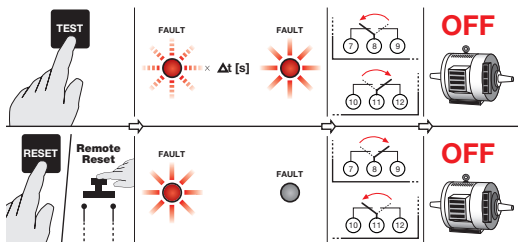
Situación de avería

Conexión con bobina de mínima tensión:



Test

E



Características técnicas



Tensión de alimentación RD3M	230-400 Vac +10% / -15%
Tensión de alimentación RD3M-48	12-48 Vac/Vdc +10% / -15%
Frecuencia de alimentación RD3M / RD3M-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 RD3M	<3,6 W
Potencia máx. absorbida RD3M-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

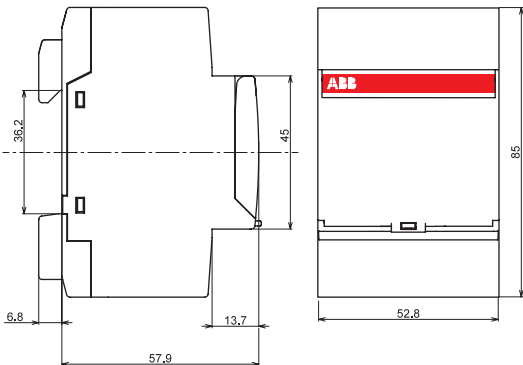




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