

140G-N\_, 140G-NS\_, 140G-R\_

LSIG Getting started for 140G-N, 140G-NS, 140G-R

LSIG Getting started

LSIG Erste Schritte

LSIG Guide de démarrage

LSIG Getting started

**Installation - Installazione - Instalación****Instalação - 取付け方法 - 安装**

**WARNING:** To prevent electrical shock, disconnect from power source before installing or servicing. Install in suitable enclosure. Keep free from contaminants. (Follow NFPA70E requirements).

**AVVERTENZA:** Per prevenire infortuni, togliere tensione prima dell'installazione o manutenzione. Installare in custodia idonea. Tenere lontano da contaminanti. (Seguire i requisiti NFPA70E).

**WARNUNG:** Vor Installations- oder Servicearbeiten Stromversorgung zur Vermeidung von elektrischen Unfällen trennen. Die Geräte müssen in einem passenden Gehäuse eingebaut und gegen Verschmutzung geschützt werden. (Befolgen Sie die Anforderungen nach NFPA70E).

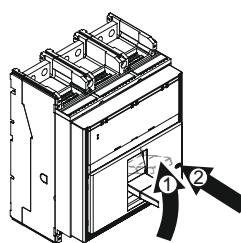
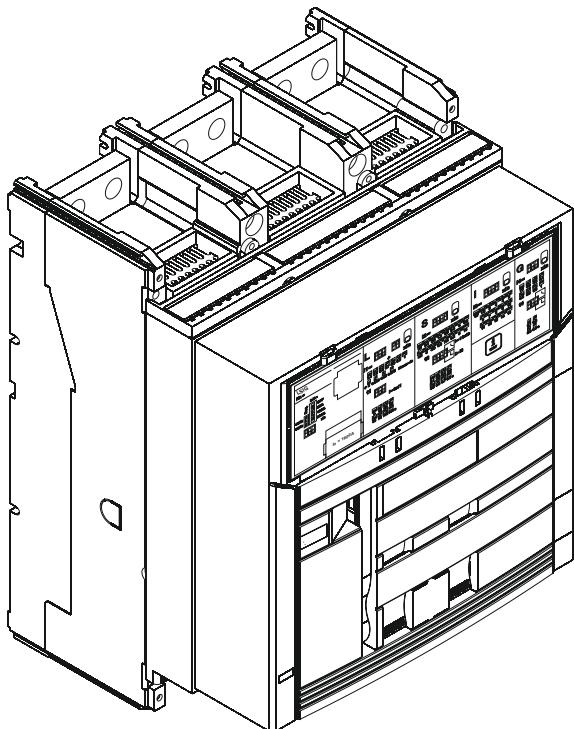
**AVERTISSEMENT:** Avant le montage et la mise en service, couper l'alimentation secteur pour éviter toute décharge. Prévoir une mise en coffret ou armoire appropriée. Protéger le produit contre les environnements agressifs. (Vous devez respecter la norme NFPA70E).

**ADVERTENCIA:** Desconéctese de la corriente eléctrica, antes de la instalación o del servicio, a fin de impedir sacudidas eléctricas. Instálelo en una caja apropiada. Manténgalo libre de contaminantes. (Cumpla con los requisitos NFPA70E).

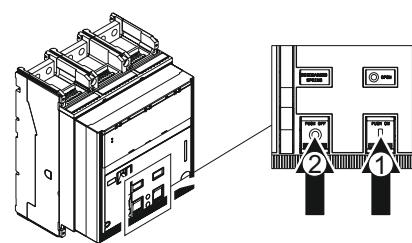
**ATENÇÃO:** Para evitar choques, desconectar da corrente elétrica antes de fazer a instalação ou a manutenção. Instalar em caixa adequada. Manter livre de contaminantes. (Cumpra as exigências da norma NFPA70E).

警告: 感電事故防止のため、取付けまたは修理の際は電源から取り外してください。適切なケース内に取付けてください。  
また、汚染物質がないことを確認してください。(NFPA70Eの要件に従ってください)

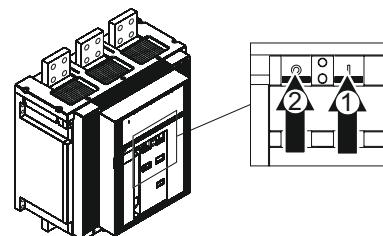
警告: 为了防止触电，在安装或维修之前必须先切断电源。安装在合适的设备箱内。防止接触污染物。(符合NFPA70E要求)



140G-N



140G-NS



140G-R

**1****Warning-Attenzione-Achtung-Attention-Atención**

Prior to each action on the CB, carefully read the documentation, correctly set as required and check that the relay does not display any irregular signal. For any additional note or information, see document 1000587R0002.

Prima di ogni operazione sull'interruttore leggere attenta mente il presente documento, operare i settaggi del caso correttamente e verificare che il relè non visualizzi alcuna segnalazione anomala. Per qualsiasi nota o informazione aggiuntiva consultare il doc. 1000587R0002.

Vor Eingriffen jeder Art am Leistungsschalter die Dokumentation aufmerksam lesen, die erforderlichen Einstellungen richtig ausführen und sicherstellen, dass das Relais keine Anomalien signalisiert. Für alle weiteren Informationen das Dok. 1000587R0002 konsultieren.

Avant toute opération sur le disjoncteur, lire attentivement la documentation, effectuer correctement les réglages nécessaires et vérifier que le relais ne signale rien d'anormal. Pour toute remarque ou information supplémentaire, consulter le document 1000587R0002.

Antes de realizar cualquier operación sobre el interruptor, leer atentamente la documentación, realizar correctamente las configuraciones que hicieran falta y controlar que el relé no visualice señalización anómala alguna. Para cualquier nota o información adicional, consultar el doc. 1000587R0002.

## 2 Alimentazione-Power supply-Stromversorgung-Alimentation Alimentación

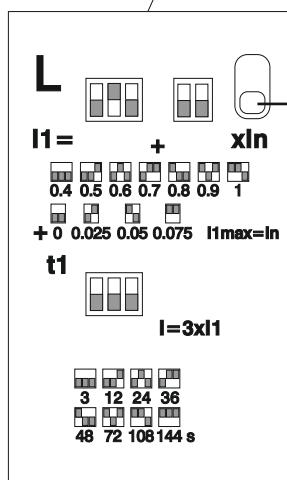
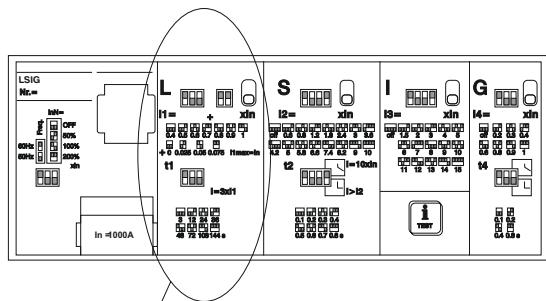
- The LSIG electronic release is running at a three-phase current of at least 80A or auxiliary voltage (24VDC + 20% insulated)
- Lo sganciatore elettronico LSIG funziona con una corrente trifase di almeno 80A e/o con tensione ausiliaria (24Vdc + 20% isolata).
- Der elektronische Auslöser LSIG funktioniert mit einer Dreiphasenspannung von mindestens 80 A oder mit einer Hilfsspannung (24VDC + 20% isoliert).
- Le déclencheur électrique LSIG fonctionne avec un courant triphasé d'au moins 80 A ou avec une tension auxiliaire (24 V CC + 20% isolée).
- El relé electrónico LSIG funciona con una corriente trifásica de por lo menos 80A o tensión auxiliar (24Vcc + 20% aislada).

## 3 Notes-Note-Anmerkungen-Nota-Notas

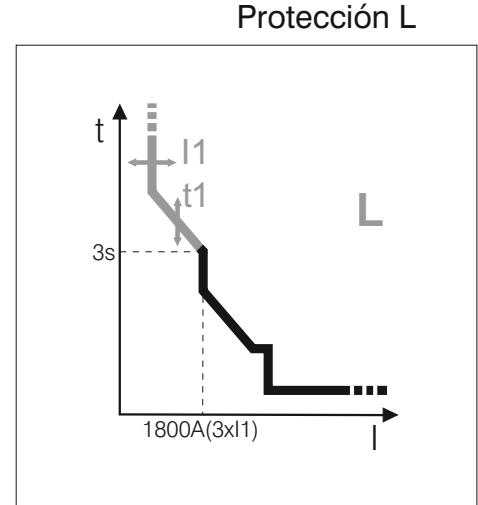
A)  $I_f = I_{fault}$

- B) Settings of protection functions to be obtained according to the following formula  $I_3 > I_2 > I_1$   
 I settaggi delle funzioni di protezione devono essere effettuati secondo la seguente formula  $I_3 > I_2 > I_1$   
 Die Einstellungen der Schutzfunktionen anhand der folgenden Formel ausführen:  $I_3 > I_2 > I_1$   
 Les réglages des fonctions de protection doivent être effectués selon la formule suivante  $I_3 > I_2 > I_1$   
 Las configuraciones de las funciones de protección deben realizarse de acuerdo a la siguiente fórmula  $I_3 > I_2 > I_1$

## 4



Notes-Note-Anmerkungen-Nota-Notas  
 $If > 0.9I_1 \rightarrow$  pre-Alarm  
 $If > 1.05 \div 1.2 \times I_1 =$  Alarm



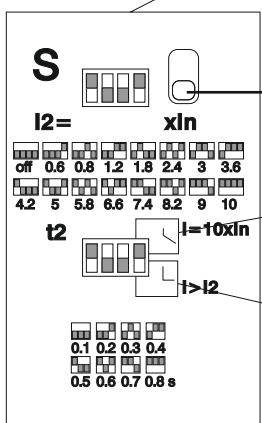
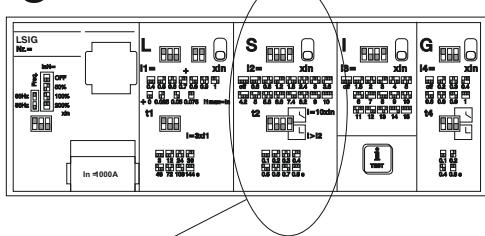
Example-Esempio-Beispiel-Exemple-Ejemplo

$$I_n = 1000A$$

$$I_1 = 1000 \times 0.6 = 600A$$

$$t_1 = 3s @ 1800A (3xI_1)$$

## 5



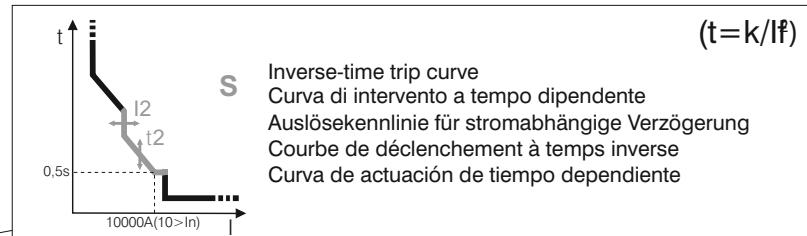
Example-Esempio-Beispiel-Exemple-Ejemplo

$$I_n = 1000A$$

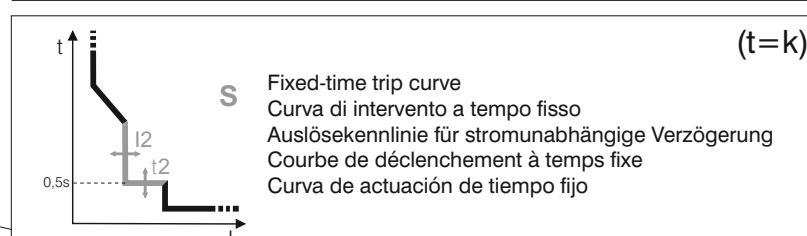
$$I_2 = 1000 \times 5 = 5000A$$

$$t_2 = 0.5s @ 10000A (10xI_n)$$

Protection S  
Protezione S  
Schutzfunktion S  
Protection S  
Protección S

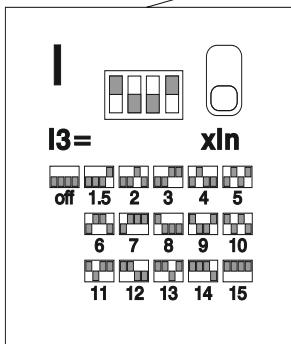
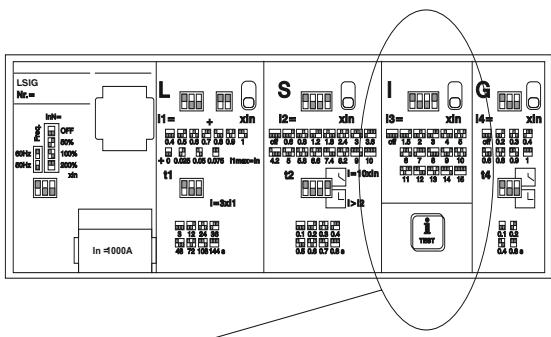


Inverse-time trip curve  
Curva di intervento a tempo dipendente  
Auslösekennlinie für stromabhängige Verzögerung  
Courbe de déclenchement à temps inverse  
Curva de actuación de tiempo dependiente



Fixed-time trip curve  
Curva di intervento a tempo fisso  
Auslösekennlinie für stromunabhängige Verzögerung  
Courbe de déclenchement à temps fixe  
Curva de actuación de tiempo fijo

6

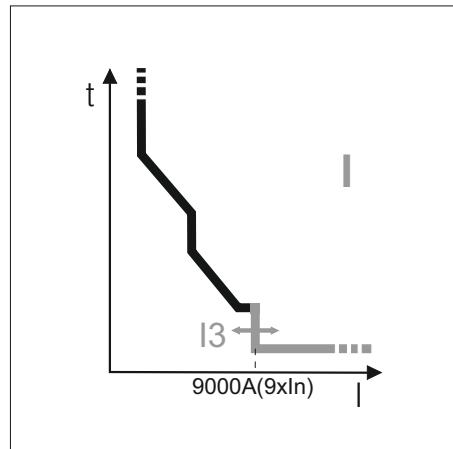


Protection I  
Protezione I  
Schutzfunktion I  
Protection I  
Protección I

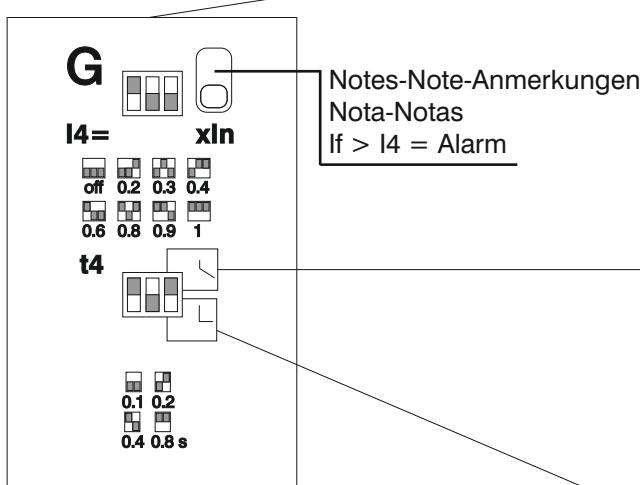
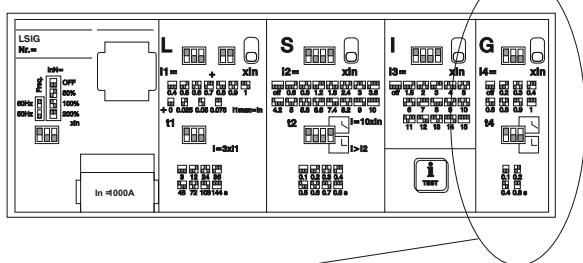
Example-Esempio-Beispiel-Exemple-Ejemplo

$$I_{in} = 1000A$$

$$I_3 = 1000 \times 9 = 9000A$$



7



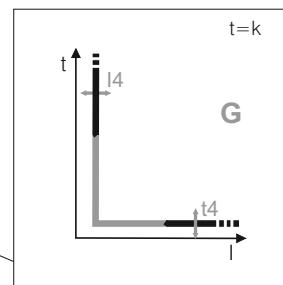
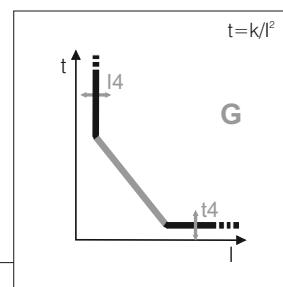
Protection G  
Protezione G  
Schutzfunktion G  
Protection G  
Protección G

Example-Esempio-Beispiel-Exemple-Ejemplo

$$I_{in} = 1000A$$

$$I_4 = 1000 \times 0.6 = 600A$$

$$t_4 = 0.4s @ 1344A (2.24 \times I_4)$$



$$t_4 = 0.1s @ 4.47 I_4$$

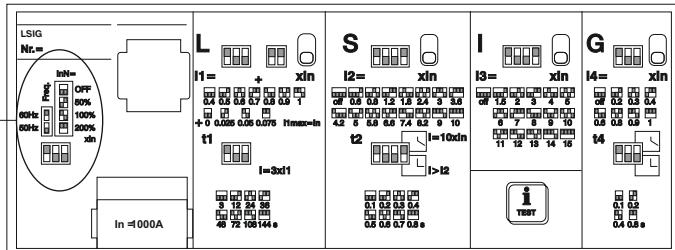
$$t_4 = 0.2s @ 3.16 I_4$$

$$t_4 = 0.4s @ 2.24 I_4$$

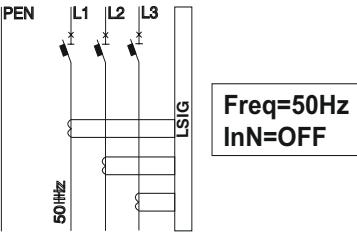
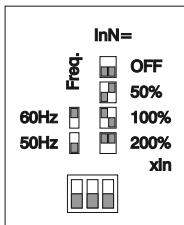
$$t_4 = 0.8s @ 1.58 I_4$$

$$t_4 = \begin{cases} 0.1s \\ 0.2s \\ 0.4s \\ 0.8s \end{cases} @ I_f > I_4$$

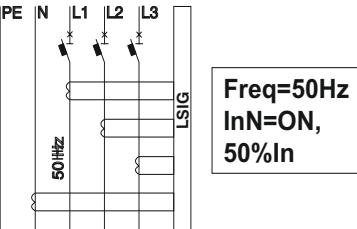
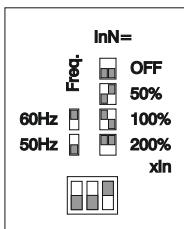
Setting Frequencies and Neutral  
 Settaggio Frequenza e Neutro  
 Einstellung Frequenzen und Neutralleiter  
 Réglages Fréquences et Neutre  
 Configuraciones Frecuencias y Neutro



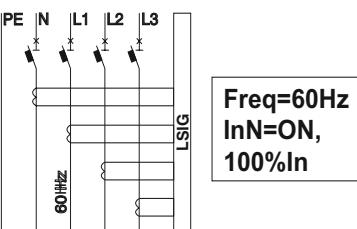
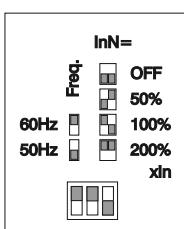
Example-Esempio-Beispiel-Exemple-Ejemplo



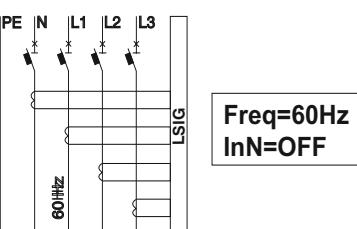
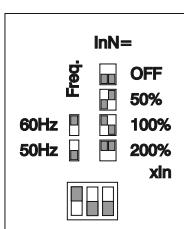
Three-pole circuit breakers  
 Interruttori tripolari  
 Dreipolige Leistungsschalter  
 Disjoncteurs tripolaires  
 Interruptores automáticos tripolares



Three-pole circuit breakers with external neutral  
 Interruttori tripolari con neutro esterno  
 Dreipolige Leistungsschalter mit externem Neutralleiter  
 Disjoncteurs tripolaires avec neutre extérieur  
 Interruptores tripolares con neutro externo



Four-pole circuit breakers  
 Interruttori tetrapolari  
 Vierpolige Leistungsschalter  
 Disjoncteurs tétrapolaires  
 Interruptores automáticos tetrapolares



Four-pole circuit breakers with no reading of neutral  
 Interruttori tetrapolari senza lettura neutro  
 Vierpolige Leistungsschalter ohne Abtastung des Neutralleiters  
 Disjoncteurs tétrapolaires sans lecture neutre  
 Interruptores tetrapolares sin lectura neutron

#### Notes-Note-Anmerkungen-Nota-Notas

Settings of neutral value (InN) to be obtained according to the following formula :  $I_1 \times InN < I_u$

La regolazione del valore di neutro (InN) deve rispettare la seguente formula:  $I_1 \times InN < I_u$

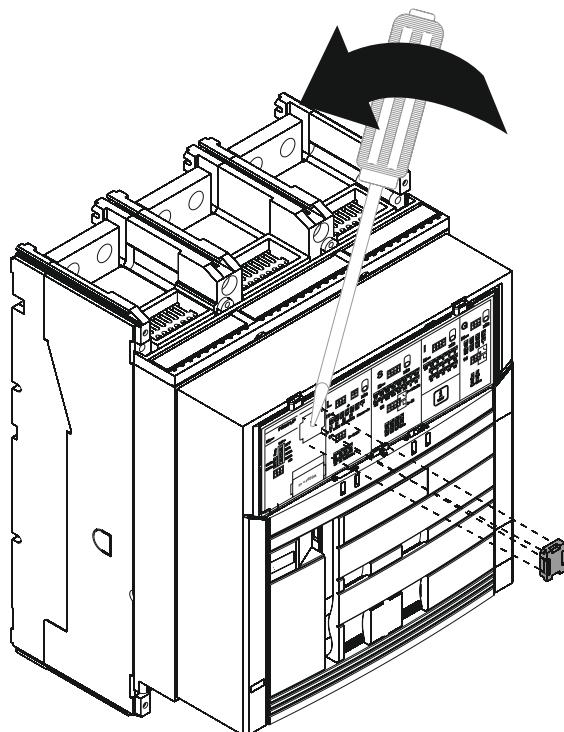
Die Einstellung des Werts des Neutralleiters (InN) anhand der folgenden Formel ausführen:  $I_1 \times InN < I_u$

Le réglage de la valeur de neutre (InN) doit respecter la formule suivante :  $I_1 \times InN < I_u$

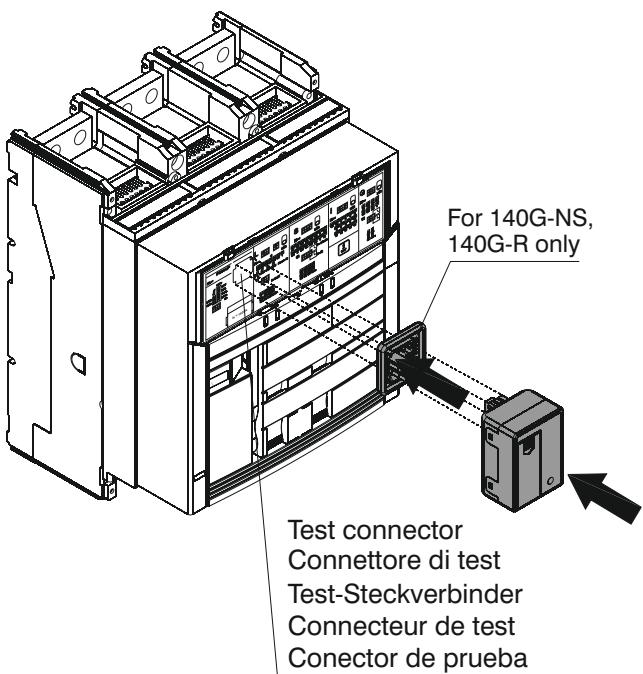
El ajuste del valor del neutro (InN) debe cumplir con la siguiente formula:  $I_1 \times InN < I_u$

**9**

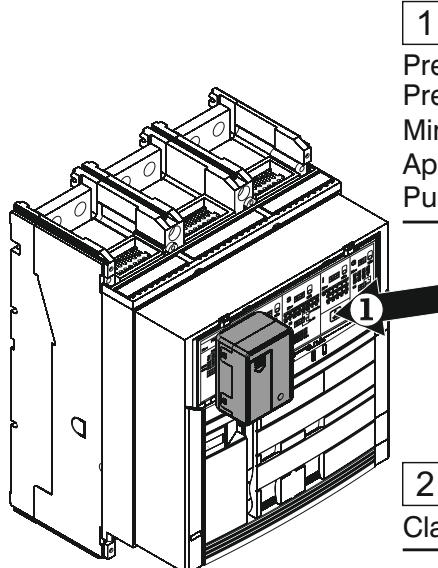
**Trip test**  
**Trip test**  
**Auslöseprüfung**  
**Test de déclenchement**  
**Test de disparo**



**10**



**11**



## 12

Prior to putting CB into service alive, check as follows:

1. It connects the «BATTERY» unit to the test connector;
2. Check that the orange LED flashes every 3 sec. (Led Alive);
3. Should the relay show other indications, refer to user manual 1000587R0002.

**Final check**

**Verifica finale**

**Abschlussprüfung**

**Vérification finale**

**Control final**

Prima della messa in servizio con corrente dell'interruttore, effettuare le seguenti verifiche:

1. Connettere l'unità «BATTERY» al connettore di test;
2. Verificare che il Led arancione lampeggi ogni 3 secondi (Led Alive);
3. Nel caso il relè presenti altre segnalazioni fare riferimento al manuale d'uso 1000587R0002.

Vor der Inbetriebnahme der Leistungsschalters mit Strom, die folgenden Kontrollen durchführen:

1. Die Stromversorgungseinheit «BATTERY» an den Test-Steckverbinder anschließen;
2. Kontrollieren, ob die orangefarbene LED alle 3 Sekunden blinkt (Betriebs-LED);
3. Wenn das Relais andere Meldungen ausgibt, siehe die Bedienungsanleitung 1000587R0002.

Avant la mise en service du disjoncteur avec du courant, effectuer les vérifications suivantes:

1. Raccorder l'unité «BATTERY» au connecteur de test;
2. Vérifier que la LED orange clignote toutes les 3 secondes (LED Alive);
3. Dans le cas où le relais présenterait d'autres signalisations, se référer au manuel d'utilisation 1000587R0002.

Antes de la puesta en servicio con corriente del interruptor, realizar los siguientes controles:

1. Conectar la unidad «BATTERY» con el conector de prueba;
2. Controlar que el LED anaranjado se ilumine de forma intermitente cada 3 segundos (LED Alive);
3. Si el relé presentara otras señalizaciones, hacer referencia al manual de uso 1000587R0002.

Allen-Bradley, Rockwell Software, and Rockwell Automation are trademarks of Rockwell Automation, Inc.  
Trademarks not belonging to Rockwell Automation are property of their respective companies.

[www.rockwellautomation.com](http://www.rockwellautomation.com)

**Power, Control and Information Solutions Headquarters**

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

DIR 1000592R0001 (L3554)

Publication 140G-IN068A-MU-P - April 2013

Copyright © 2013 Rockwell Automation, Inc. All Rights Reserved.