PacT Series

Com**PacT** NS Circuit Breakers and Switch-Disconnectors from 630 to 3200 A

User Guide

PacT Series offers world-class breakers and switches.

DOCA0221EN-02
09/2026



www.se.com

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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Document

Document Scope

The aim of this guide is to provide users, installers, and maintenance personnel with the technical information needed to operate ComPacT NS circuit breakers and switch-disconnectors in compliance with the IEC/EN standards.

Validity Note

This guide applies to ComPacT NS circuit breakers and switch-disconnectors.

Online Information

The information contained in this guide is likely to be updated at any time. Schneider Electric strongly recommends that you have the most recent and up-to-date version available on www.se.com/ww/en/download.

The technical characteristics of the devices described in this guide also appear online. To access the information online, go to the Schneider Electric home page at www.se.com.

General Cybersecurity Information

In recent years, the growing number of networked machines and production plants has seen a corresponding increase in the potential for cyber threats, such as unauthorized access, data breaches, and operational disruptions. You must, therefore, consider all possible cybersecurity measures to help protect assets and systems against such threats.

To help keep your Schneider Electric products secure and protected, it is in your best interest to implement the cybersecurity best practices as described in the Cybersecurity Best Practices document.

Schneider Electric provides additional information and assistance:

- Subscribe to the Schneider Electric security newsletter.
- Visit the Cybersecurity Support Portal web page to:
  - Find Security Notifications.
  - Report vulnerabilities and incidents.
- Visit the Schneider Electric Cybersecurity and Data Protection Posture web page to:
  - Access the cybersecurity posture.
  - Learn more about cybersecurity in the cybersecurity academy.
  - Explore the cybersecurity services from Schneider Electric.

Environmental Data

For product compliance and environmental information, refer to the Schneider Electric Environmental Data Program.

Convention

In this guide, the term *ComPacT NS device* covers circuit breakers and switch-disconnectors.

Available Languages of the Document

The document is available in these languages:

- English (DOCA0221EN) original language
- French (DOCA0221FR)
- Spanish (DOCA0221ES)
- Chinese (DOCA0221ZH)

Related Documents

Title of documentation	Reference number
ComPacT NS Circuit breakers and switch-disconnectors from 630b to 3200 A - Catalogue	LVPED211021EN
ComPacT NS - MicroLogic Trip Units - User Guide	DOCA0217EN DOCA0217ES DOCA0217FR DOCA0217ZH
ComPacT NS - MicroLogic A/E Trip Units - User Guide	DOCA0218EN DOCA0218ES DOCA0218FR DOCA0218ZH
ComPacT NS - MicroLogic P Trip Units - User Guide	DOCA0219EN DOCA0219ES DOCA0219FR DOCA0219ZH
ComPacT NS - Modbus Communication Guide	DOCA0220EN DOCA0220ES DOCA0220FR DOCA0220ZH
ULP (Universal Logic Plug) System - User Guide	DOCA0093EN DOCA0093ES DOCA0093FR DOCA0093ZH
ComPacT NS630b-1600 - Fixed Circuit Breaker or Switch-Disconnector - Instruction Sheet	JYT6180003
ComPacT NS630b-1600 - Withdrawable Circuit Breaker or Switch-Disconnector - Instruction Sheet	JYT6180103
ComPacT NS1600b-3200 - Fixed Circuit Breaker or Switch-Disconnector - Instruction Sheet	JYT6180203

You can download these technical publications and other technical information from our website at www.se.com/ww/en/download/.

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

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QR Code is a registered trademark of DENSO WAVE INCORPORATED in Japan and other countries.

PacT Series Master Range

Future-proof your installation with Schneider Electric's low-voltage and medium-voltage PacT Series. Built on legendary Schneider Electric innovation, the PacT Series comprises world-class circuit breakers, switches, residual current devices and fuses, for all standard and specific applications. Experience robust performance with PacT Series within the EcoStruxure-ready switchgear, from 16 to 6300 A in low-voltage and up to 40.5 kV in medium-voltage.

ComPacT NS630b-1600 Devices

What's in This Part

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Introduction to ComPacT NS630b-1600 Devices

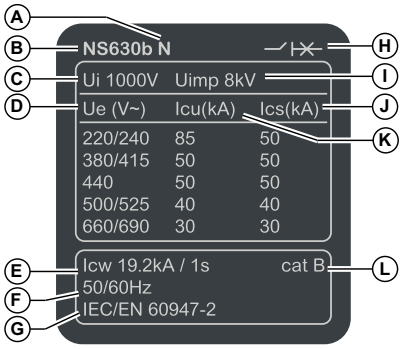
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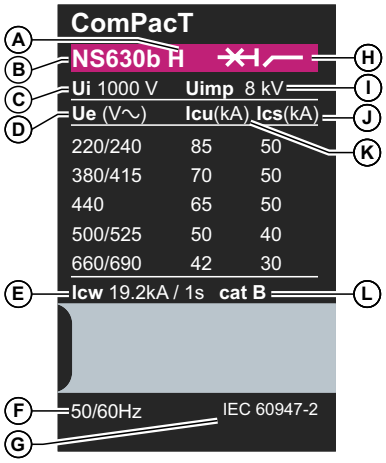
Device Identification

Rating Plate

Rating plate for device with toggle handle



Rating plate for device with rotary handle



A. Performance level
B. ComPacT NS type and rated current
C. Ui: rated insulation voltage
D. Ue: rated operational voltage
E. Icw: rated short-time withstand current
F. Frequency
G. Standard
H. Type of device: circuit breaker or switch-disconnector
I. Uimp: rated impulse withstand voltage
J. Ics: rated service short-circuit breaking capacity
K. Icu: rated ultimate short-circuit breaking capacity
L. Selectivity category as per IEC 60947-2

QR Code

When the QR code on the front face of a MicroLogic trip unit is scanned with a smartphone running a QR code reader and connected to the Internet, the Go2SE landing page is displayed. The landing page displays some information about the device and a list of menus (see detailed topic, page 13).

Go2SE Landing Page

Presentation

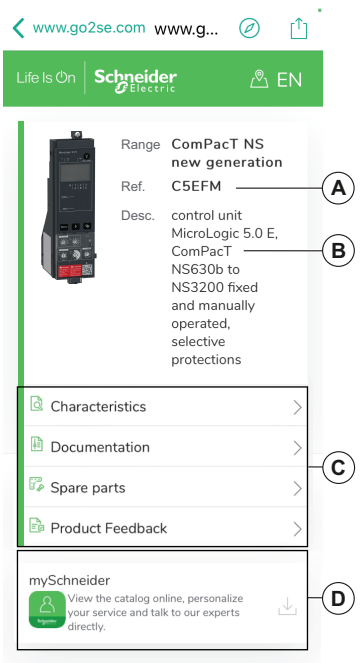
When the QR code on the front face of a ComPacT NS device is scanned with a smartphone running a QR code reader and connected to the Internet, the Go2SE landing page is displayed.

The landing page displays information about the device and a list of menus.

Landing Page Description

The landing page is accessible from Android and iOS smartphones. It displays the same list of menus with slight differences in presentation.

The following example shows the landing page displayed on an Android smartphone:



A. Commercial reference of MicroLogic trip unit
B. Type of MicroLogic trip unit
C. Landing page menus. See the following menu descriptions for details.
D. Downloadable applications

Characteristics

Selecting this menu gives access to a product datasheet with detailed information about the MicroLogic trip unit

Documentation

Selecting this menu gives access to the ComPacT NS technical publications, including

- Certificates
- Declaration of conformity
- Instruction sheets
- User guides

Spare Parts

Selecting this menu gives access to the list of spare parts, with links to see details of each, and to purchase them.

Product Feedback

Selecting this menu gives access to a customer feedback survey.

mySchneider App

Selecting this application gives access to the Schneider Electric customer care mobile application **mySchneider** app that can be downloaded on Android and iOS smartphones. For smartphone compatibility, check on your application store. The customer care application offers self-service instructions and easy access to expert support and information.

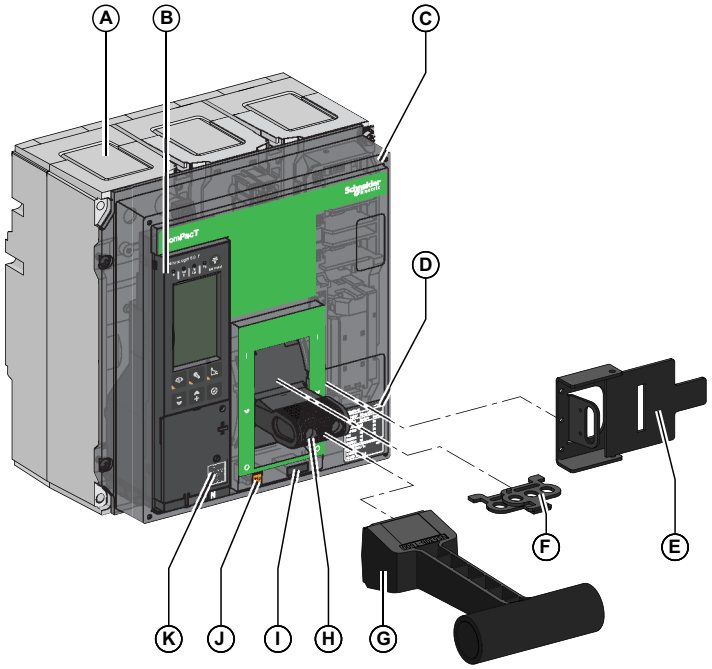
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Fixed ComPacT NS630b-1600 with Toggle Handle

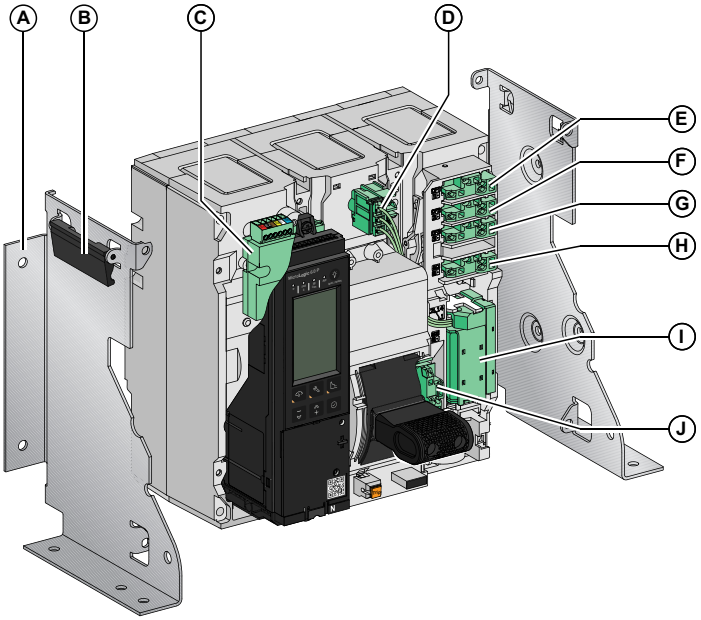
Fixed Device with Toggle Handle



A. Arc chute
B. MicroLogic trip unit
C. Front cover
D. Rating plate
E. Fixed padlocking device for toggle handle locking in ON or OFF positions (optional)
F. Removable padlocking device for toggle handle locking in OFF position (optional)
G. Toggle extension (optional)
H. Toggle handle
I. Device rating
J. Push-to-trip button
K. QR code on MicroLogic trip unit

For detailed information about mounting a fixed ComPacT NS630b-1600 with toggle handle, see JYT6180003 *ComPacT NS630b-1600 - Fixed Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

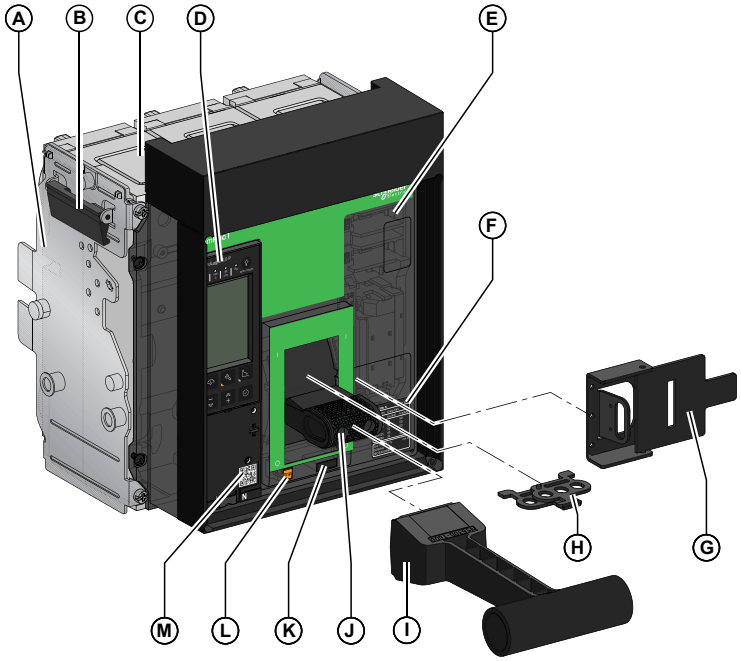
Accessories for Fixed Device with Toggle Handle



A. Brackets for horizontal mounting
B. Carrying grip
C. BCM ULP communication module
D. Control auxiliary terminals
E. OF1 ON/OFF indication auxiliary (wired or wireless)
F. OF2 ON/OFF indication auxiliary (wired or wireless)
G. OF3 ON/OFF indication auxiliary (wired or wireless)
H. SD trip-indication auxiliary (wired or wireless)
I. MX opening voltage release or MN undervoltage release
J. SDE fault-trip indication auxiliary (wired or wireless)

Withdrawable ComPacT NS630b-1600 with Toggle Handle

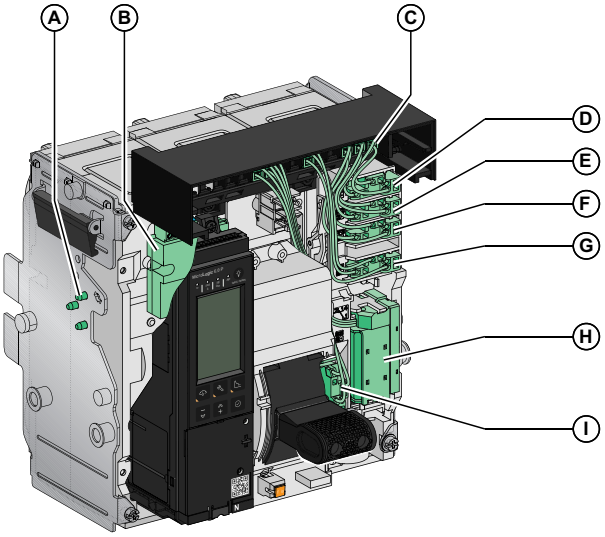
Withdrawable Device Moving Part with Toggle Handle



A. Mounting side plates
B. Carrying grip
C. Arc chute
D. MicroLogic trip unit
E. Front cover
F. Rating plate
G. Fixed padlocking device for toggle handle locking in ON or OFF positions (optional)
H. Removable padlocking device for toggle handle locking in OFF position (optional)
I. Toggle extension (optional)
J. Toggle handle
K. Device rating
L. Push-to-trip button
M. QR code on MicroLogic trip unit

For detailed information about mounting a withdrawable ComPacT NS630b-1600 with toggle handle, see JYT6180103 *ComPacT NS630b-1600 - Withdrawable Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

Accessories for Withdrawable Device with Toggle Handle



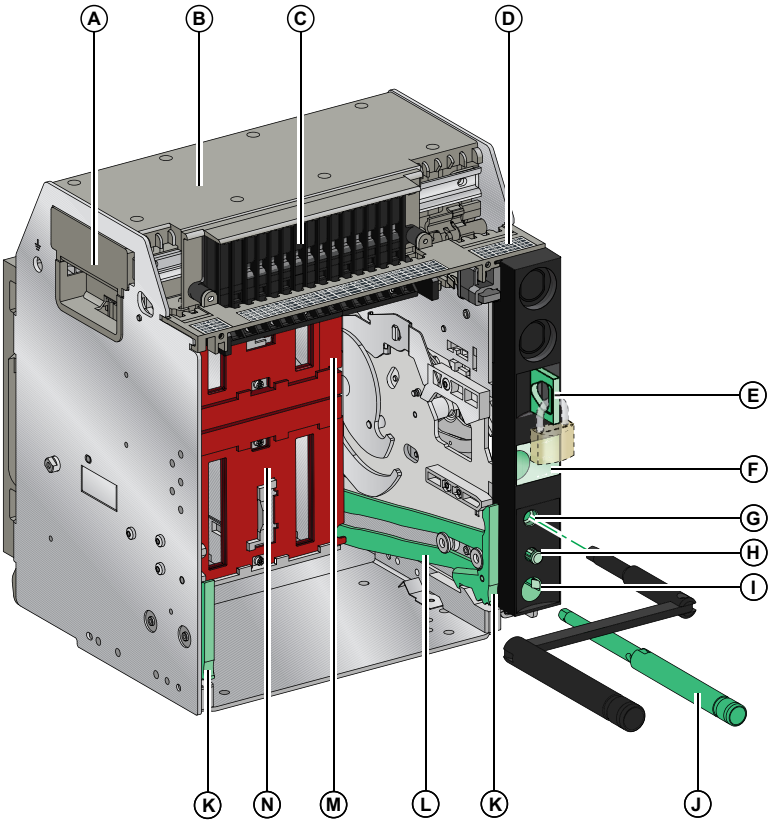
A. Mismatch protection
B. BCM ULP communication module
C. Disconnectable contact block
D. OF1 ON/OFF indication auxiliary (wired or wireless)
E. OF2 ON/OFF indication auxiliary (wired or wireless)
F. OF3 ON/OFF indication auxiliary (wired or wireless)
G. SD trip-indication auxiliary (wired or wireless)
H. MX opening voltage release or MN undervoltage release
I. SDE fault-trip indication auxiliary (wired or wireless)

Chassis for Withdrawable ComPacT NS630b-1600 Device

The chassis is identical for withdrawable ComPacT NS630b-1600 devices with:

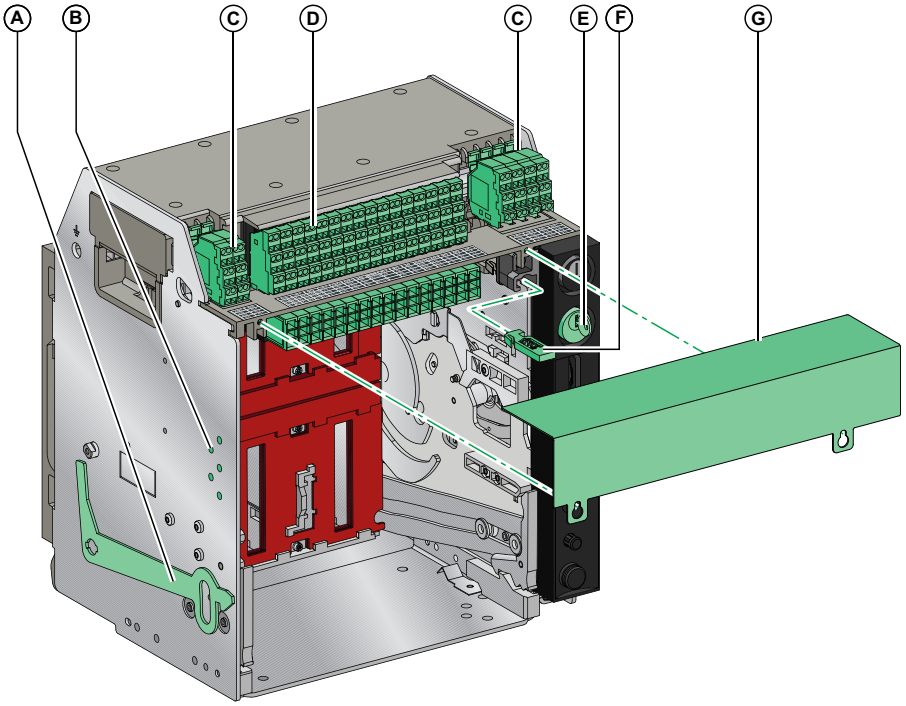
- Toggle handle
- Direct rotary handle, page 31
- Extended rotary handle, page 43

Chassis



A. Carrying grip
B. Arc chute cover
C. Terminal blocks for accessories
D. Terminal block identification plate
E. Chassis locking by padlocks
F. Moving part position indicator (connected, test, or disconnected)
G. Racking handle socket
H. Position release button
I. Racking handle storage
J. Racking handle
K. Withdraw grip
L. Extension rail
M. Top safety shutters
N. Bottom safety shutters

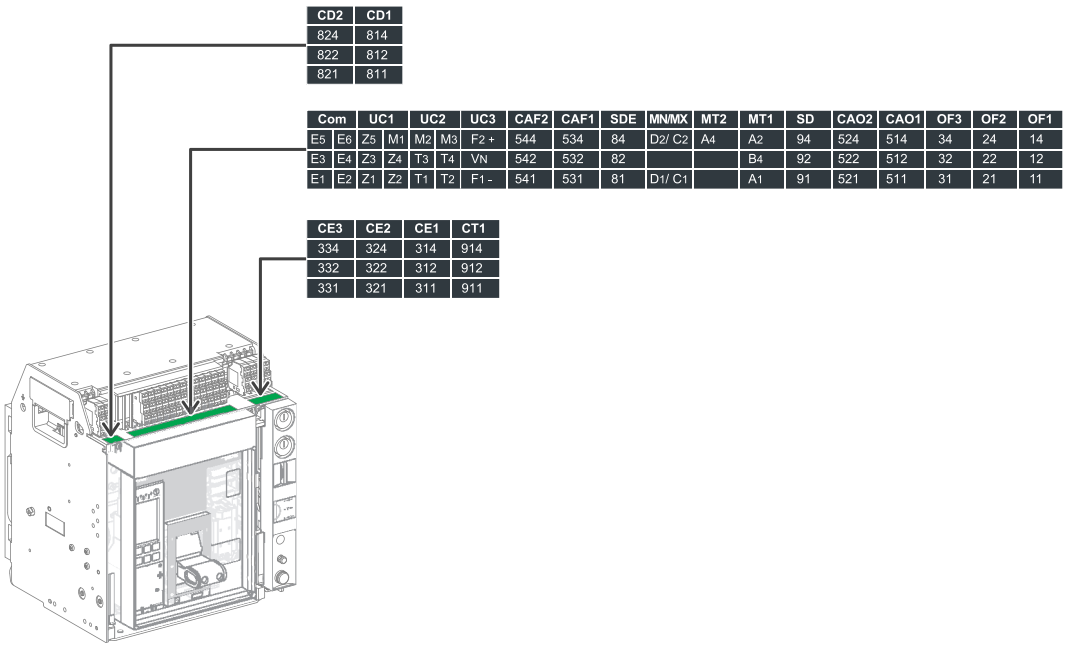
Chassis Accessories



A. Door interlock
B. Mismatch protection
C. Withdrawable device position contacts
D. Terminal blocks for optional accessories
E. Chassis locking by keylocks
F. Open-door racking interlock
G. Auxiliary terminal shield

Chassis Terminal Block

The following example shows a withdrawable device with toggle handle. The terminal blocks are identical for devices with direct rotary handle and extended rotary handle.



CD2	CD1
824	814
822	812
821	811

Com		UC1		UC2		UC3	CAF2	CAF1	SDE	MN/MX	MT2	MT1	SD	CAO2	CAO1	OF3	OF2	OF1
E5	E6	Z5	M1	M2	M3	F2 +	544	534	84	D2/ C2	A4	A2	94	524	514	34	24	14
E3	E4	Z3	Z4	T3	T4	VN	542	532	82			B4	92	522	512	32	22	12
E1	E2	Z1	Z2	T1	T2	F1 -	541	531	81	D1/ C1		A1	91	521	511	31	21	11

CE3	CE2	CE1	CT1
334	324	314	914
332	322	312	912
331	321	311	911

Assignment of Chassis Terminal Blocks

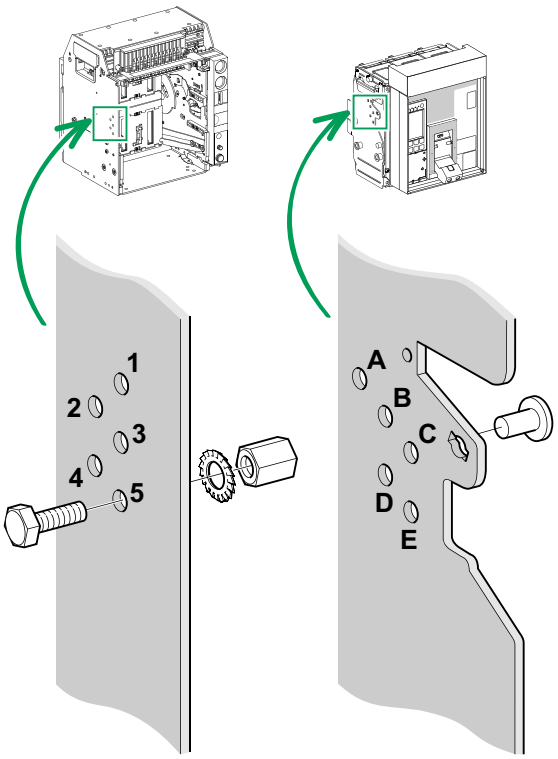
The following table describes the assignment of the terminal blocks for withdrawable circuit breakers and switch-disconnectors:

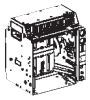
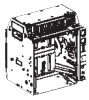
- Optional terminal blocks are delivered on the chassis only if the associated optional accessories are installed in the device.
- N/A indicates that the terminal blocks and the associated optional accessories are not compatible with the device.

Block	Marking	Description	Circuit breaker	Switch-disconnector
A	CD1-CD2	2 CD disconnected position contacts	Optional	Optional
B	Com	Terminal block for the BCM ULP communication module	Optional	N/A
	UC1	Zone selective interlocking (ZSI), rectangular sensor for earth-leakage protection, or MDGF module input	• Standard with MicroLogic A/E/P trip units • N/A with MicroLogic trip units without measurements	N/A
	UC2	Neutral external sensor, rectangular sensor for earth-leakage protection, or MDGF module input		N/A
	UC3	External 24 Vdc power supply and external voltage		N/A
	CAF1-CAF2	Early-make contact (rotary handle)	Optional	Optional
	SDE	SDE fault-trip indication contact	Optional	N/A
	MN/MX	MN undervoltage release or MX opening voltage release	Optional	Optional
	MT1	Electrical closing order	N/A	N/A
	MT2	Electrical opening order	N/A	N/A
	SD	Trip indication contact	Optional	Optional
	CAO1–CAO2	Early-break contact (rotary handle)	Optional	Optional
	OF1-OF3	3 OF indication contacts	Optional	Optional
C	CE1–CE3	3 CE connected position contacts	Optional	Optional
	CT1	1 CT test position contact	Optional	Optional

Matching a Device With its Chassis

The optional mismatch protection helps to ensure that the moving part of the device is installed only in a chassis with compatible characteristics. The possible combinations are listed below.



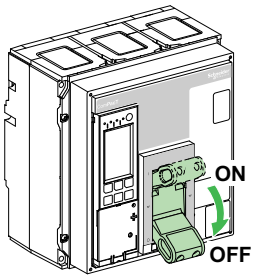
			
A B C	4 5	B C D	1 5
A B D	3 5	B C E	1 4
A B E	3 4	B C	1 4 5
A B	3 4 5	B D E	1 3
A C D	2 5	B D	1 3 5
A C E	2 4	B E	1 3 4
A C	2 4 5	C D E	1 2
A D E	2 3	C D	1 2 5
A D	2 3 5	C E	1 2 4
A E	2 3 4	D E	1 2 3

To set up a mismatch prevention combination for the device and the chassis, consult the instruction sheet on the Schneider Electric website: 51201012AA.

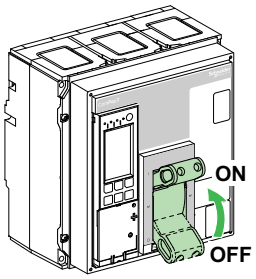
Opening, Closing, and Resetting a Device with a Toggle Handle

Local Opening and Closing

OFF: Device open.

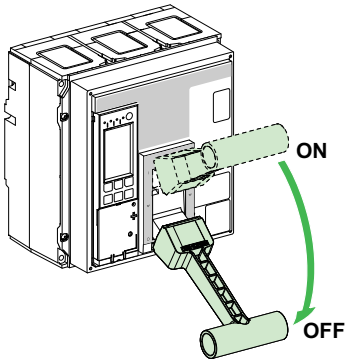


ON: Device closed.

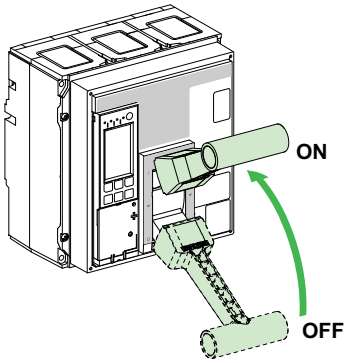


Local Opening and Closing with Additional Toggle Extension

OFF: Device open.



ON: Device closed.



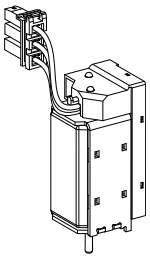
Remote Opening

Use either:

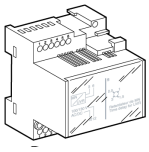
- An MX opening voltage release.
- An MN undervoltage release.
- A delayed MN undervoltage release.

When connected to the control panel, these releases may be used to remotely open the device.

MX, MN

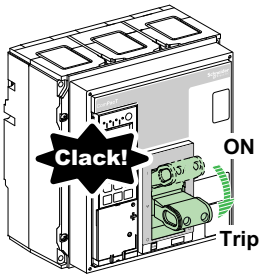
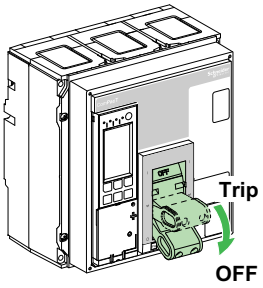
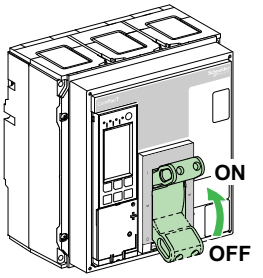


MN delay unit

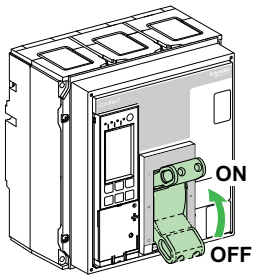
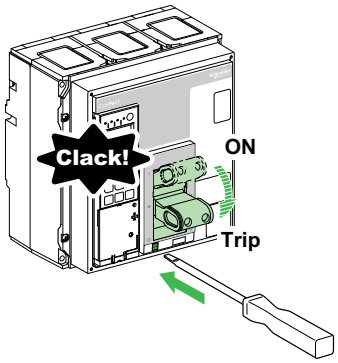
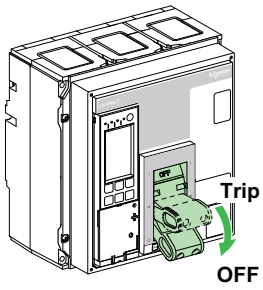
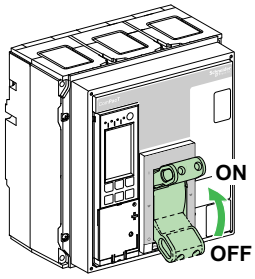


Resetting a Device with a Toggle Handle

After a trip, reset the device by following this procedure:

Step	Action	
1	The device trips.	
2	Follow the recommendations for what to do when the circuit breaker trips, page 121.	—
3	Reset the device.	
4	Close the device again.	

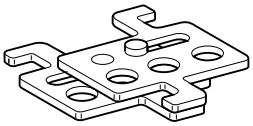
Testing a Device with a Toggle Handle

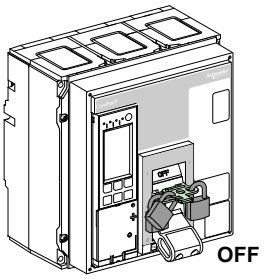
Step	Action	
1	Close the device.	
2	Press the push-to-trip button.	
3	Push the toggle handle down to reset the device.	
4	Then push the toggle handle back up to close the device again.	

Locking the Toggle Handle

Locking the Toggle Handle in the OFF Position

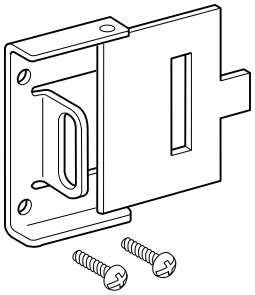
You can use one to three padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) to lock the toggle handle in the OFF position.

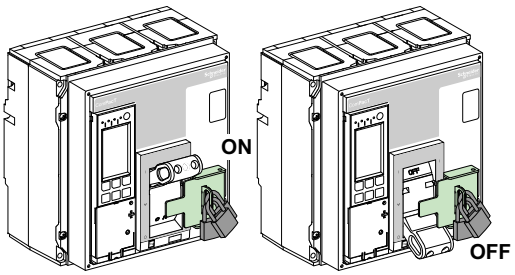




Locking the Toggle in the ON or OFF Position

You can use one to three padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) to lock the toggle handle in the ON or OFF position.





NOTE: When the toggle handle is locked in the ON position:

- The protection functions are active and trip the circuit breaker in case of an electrical fault
- You can trip the circuit breaker with the push-to-trip button.

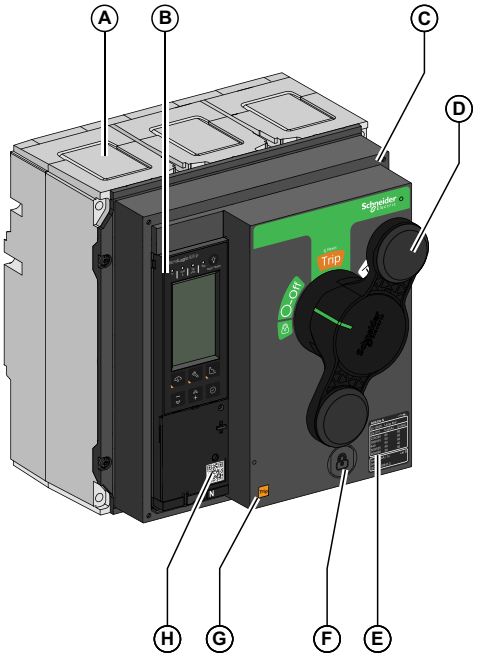
ComPacT NS630b-1600 Devices with Direct Rotary Handle

What's in This Chapter

Fixed ComPacT NS630b-1600 with Direct Rotary Handle 29
Withdrawable ComPacT NS630b-1600 with Direct Rotary Handle 31
Opening, Closing, and Resetting a Device with a Direct Rotary Handle 33
Testing a Device with a Direct Rotary Handle 35
Locking the Direct Rotary Handle 36

Fixed ComPacT NS630b-1600 with Direct Rotary Handle

Fixed Device with Direct Rotary Handle

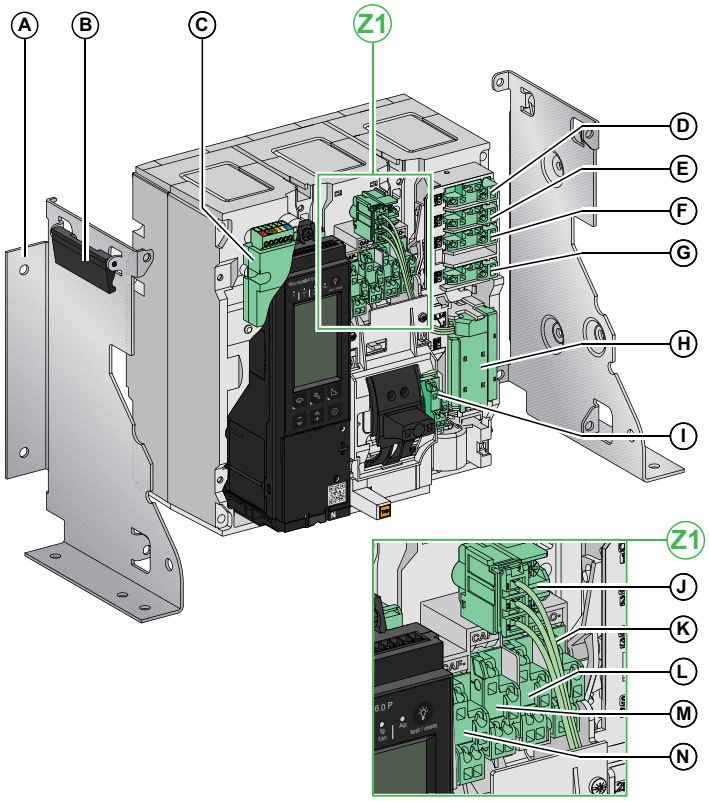


A. Arc chute
B. MicroLogic trip unit
C. Front cover
D. Direct rotary handle
E. Rating plate
F. Slot for optional keylock
G. Push-to-trip button
H. QR code on MicroLogic trip unit

For detailed information about mounting a fixed ComPacT NS630b-1600 with direct rotary handle, see JYT6180003 *ComPacT NS630b-1600 - Fixed Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

For detailed information about mounting a direct rotary handle on a fixed ComPacT NS630b-1600, see BQT1167502 *ComPacT NS630b-1600 - Direct Mounted Rotary Handle - Instruction Sheet*.

Accessories for Fixed Device with Direct Rotary Handle



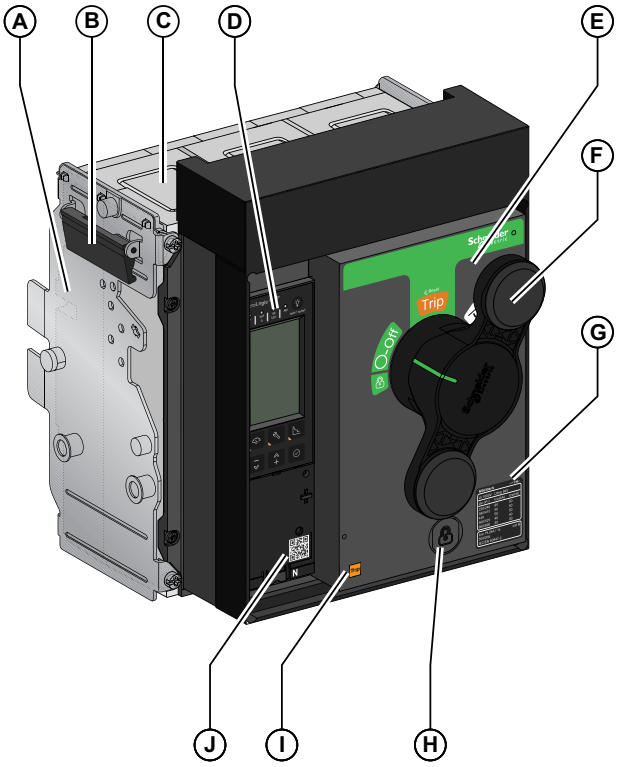
A. Brackets for horizontal mounting
B. Carrying grip
C. BCM ULP communication module
D. OF1 ON/OFF indication auxiliary (wired or wireless)
E. OF2 ON/OFF indication auxiliary (wired or wireless)
F. OF3 ON/OFF indication auxiliary (wired or wireless)
G. SD trip-indication auxiliary (wired or wireless)
H. MX opening voltage release or MN undervoltage release
I. SDE fault-trip indication auxiliary (wired or wireless)

Zoom Z1

J. Control auxiliary terminals
K. CAO1 early-break contact
L. CAO2 early-break contact
M. CAF1 early-make contact
N. CAF2 early-make contact

Withdrawable ComPacT NS630b-1600 with Direct Rotary Handle

Withdrawable Device Moving Part with Direct Rotary Handle

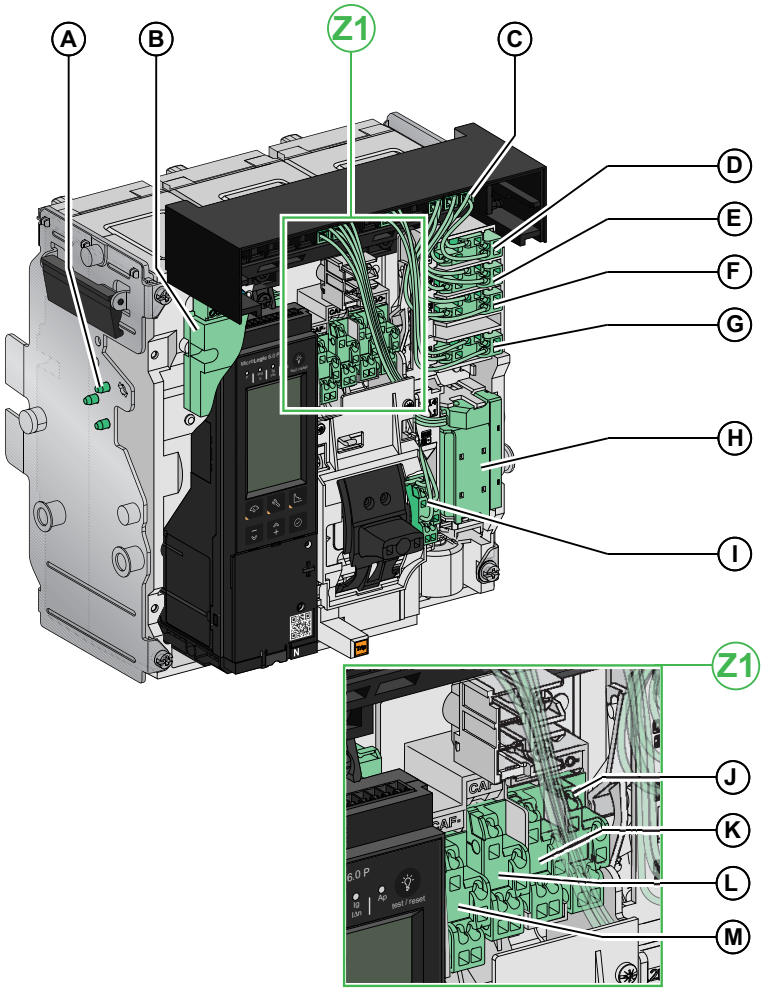


A. Mounting side plates
B. Carrying grip
C. Arc chute
D. MicroLogic trip unit
E. Front cover
F. Direct rotary handle
G. Rating plate
H. Slot for optional keylock
I. Push-to-trip button
J. QR code on MicroLogic trip unit

For detailed information about mounting a withdrawable ComPacT NS630b-1600 with direct rotary handle, see JYT6180103 *ComPacT NS630b-1600 - Withdrawable Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

For detailed information about mounting a direct rotary handle on a withdrawable ComPacT NS630b-1600, see BQT1167502 *ComPacT NS630b-1600 - Direct Mounted Rotary Handle - Instruction Sheet*.

Accessories for Withdrawable Device with Direct Rotary Handle



A. Mismatch protection
B. BCM ULP communication module
C. Disconnectable contact block
D. OF1 ON/OFF indication auxiliary (wired or wireless)
E. OF2 ON/OFF indication auxiliary (wired or wireless)
F. OF3 ON/OFF indication auxiliary (wired or wireless)
G. SD trip-indication auxiliary (wired or wireless)
H. MX opening voltage release or MN undervoltage release
I. SDE fault-trip indication auxiliary (wired or wireless)

Zoom Z1

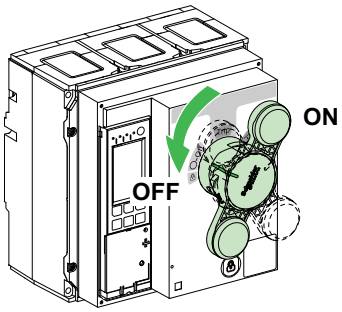
J. CAO1 early-break contact
K. CAO2 early-break contact
L. CAF1 early-make contact
M. CAF2 early-make contact

The chassis is identical for all withdrawable ComPacT NS630b-1600 devices. For more information about the chassis and its mismatch protection, see *Chassis*, page 20.

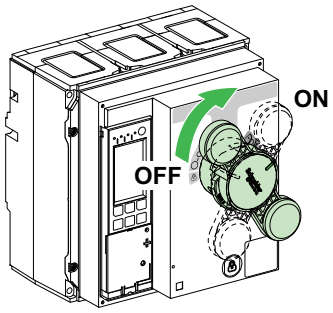
Opening, Closing, and Resetting a Device with a Direct Rotary Handle

Local Opening and Closing with Direct Rotary Handle

OFF: Device open.



ON: Device closed.



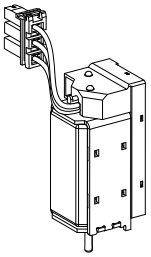
Remote Opening

Use either:

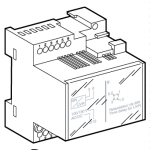
- An MX opening voltage release.
- An MN undervoltage release.
- A delayed MN undervoltage release.

When connected to the control panel, these releases may be used to remotely open the device.

MX, MN

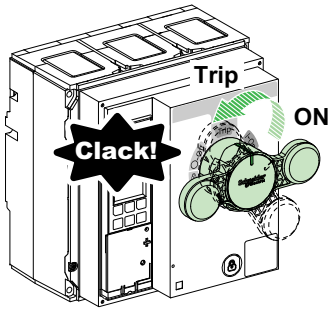
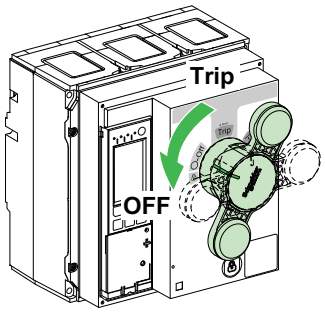
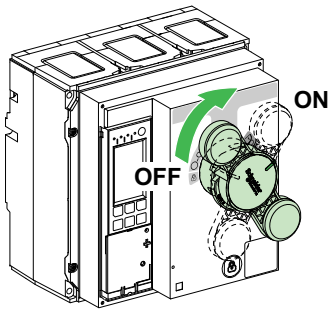


MN delay unit

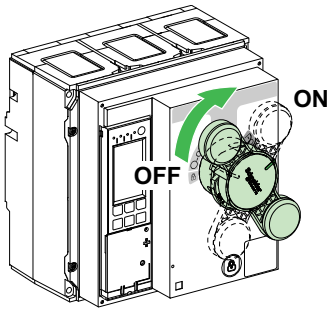
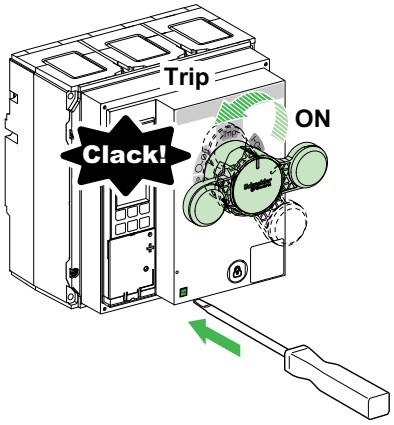
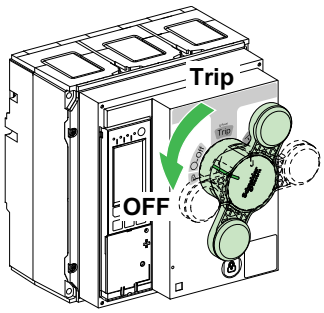
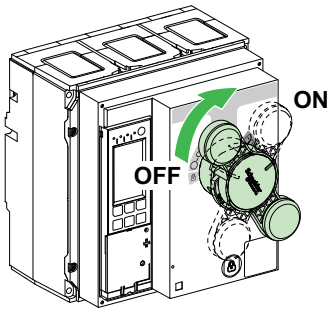


Resetting a Device with a Direct Rotary Handle

After a trip, reset the device by following this procedure:

Step	Action	
1	The device trips.	
2	Follow the recommendations for what to do when the circuit breaker trips, page 121.	—
3	Reset the device.	
4	Close the device again.	

Testing a Device with a Direct Rotary Handle

Step	Action	
1	Close the device.	
2	Press the push-to-trip button.	
3	Turn the direct rotary handle counterclockwise to reset the device.	
4	Turn the direct rotary handle clockwise to close the device again.	

Locking the Direct Rotary Handle

Padlocking the Direct Rotary Handle in the OFF Position

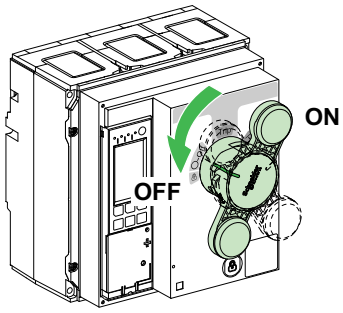
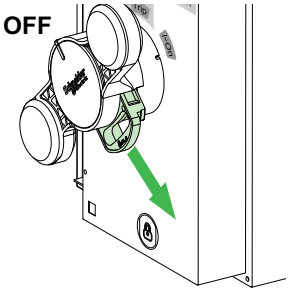
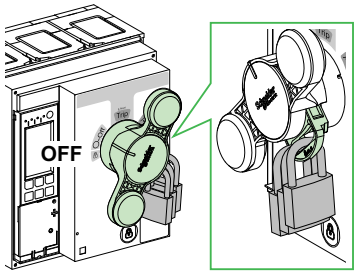
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

When the handle is in the O-Off position, always use a properly rated voltage sensing device to confirm power is off before working on the equipment.

Failure to follow these instructions will result in death or serious injury.

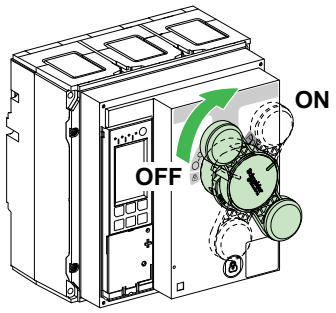
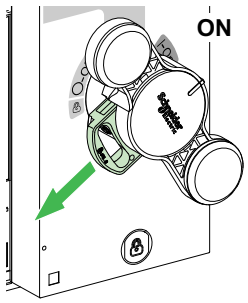
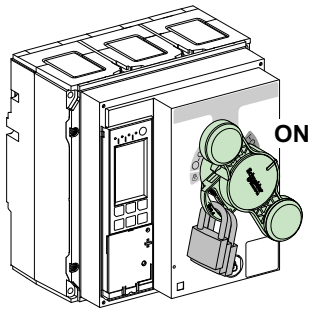
You can use one to three padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) to lock the direct rotary handle in the OFF position.

Step	Action	
1	Put the device in the OFF position.	
2	Pull out the tab.	
3	Insert the shackle (diameter 5 to 8 mm (0.2 to 0.3 in)) of the padlock (s). **NOTE:** Padlocks are not supplied.	

NOTE: For details of padlocking the red handle for machine tool control (VDE type), refer to BQT1167502 *ComPacT NS630b-1600 - Direct Mounted Rotary Handle - Instruction Sheet*

Padlocking the Direct Rotary Handle in the ON Position

To activate padlocking in the ON position, refer to BQT1167502 *ComPacT NS630b-1600 - Direct Mounted Rotary Handle - Instruction Sheet*.

Step	Action	
1	Put the device in the ON position.	
2	Pull out the tab.	
3	Insert the shackle (diameter 5 to 8 mm (0.2 to 0.3 in)) of the padlock (s). **NOTE:** Padlocks are not supplied.	

When the rotary handle is locked in the ON position:

- The protection functions are active and trip the circuit breaker in case of an electrical fault
- You can trip the circuit breaker with the push-to-trip button.

NOTE: For details of padlocking the red handle for machine tool control (VDE type), refer to BQT1167502 *ComPacT NS630b-1600 - Direct Mounted Rotary Handle - Instruction Sheet*

Keylocking the Direct Rotary Handle in ON or OFF Position

The keylock is an optional accessory.

⚠⚠DANGER

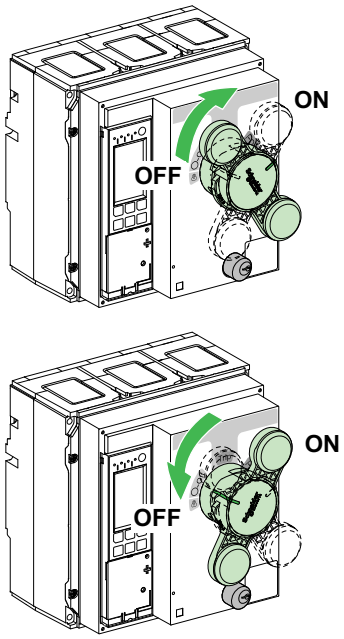
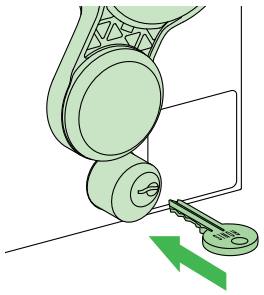
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

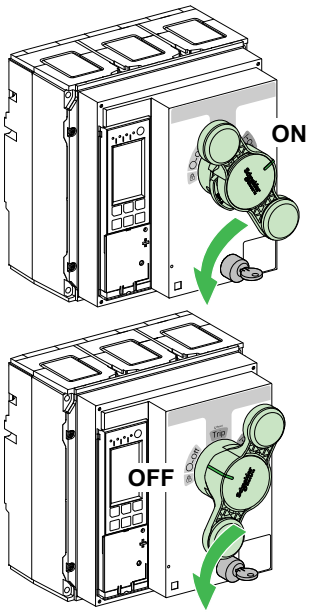
When the handle is in the O-Off position, always use a properly rated voltage sensing device to confirm power is off before working on the equipment.

Failure to follow these instructions will result in death or serious injury.

Follow this procedure to lock the direct rotary handle in the ON or the OFF position by using a keylock.

NOTE: The procedure illustrates locking in the OFF position. The steps of the procedure for locking in the ON position are identical.

Step	Action	
1	Put the device in the ON or the OFF position.	
2	Insert the key in the lock.	

Step	Action	
3	Turn the key counterclockwise.	
4	Remove the key	–

When the rotary handle is locked in the ON position:

- The protection functions are active and trip the circuit breaker in case of an electrical fault
- You can trip the circuit breaker with the push-to-trip button.

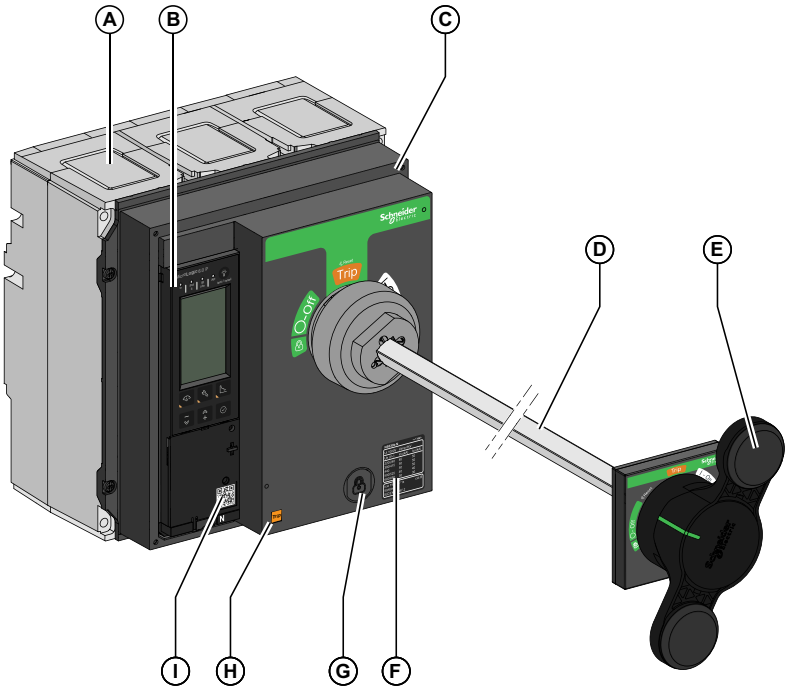
ComPacT NS630b-1600 Devices with Extended Rotary Handle

What's in This Chapter

Fixed ComPacT NS630b-1600 with Extended Rotary Handle 41
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Testing a Device with an Extended Rotary Handle 47
Locking the Extended Rotary Handle 48

Fixed ComPacT NS630b-1600 with Extended Rotary Handle

Fixed Device with Extended Rotary Handle

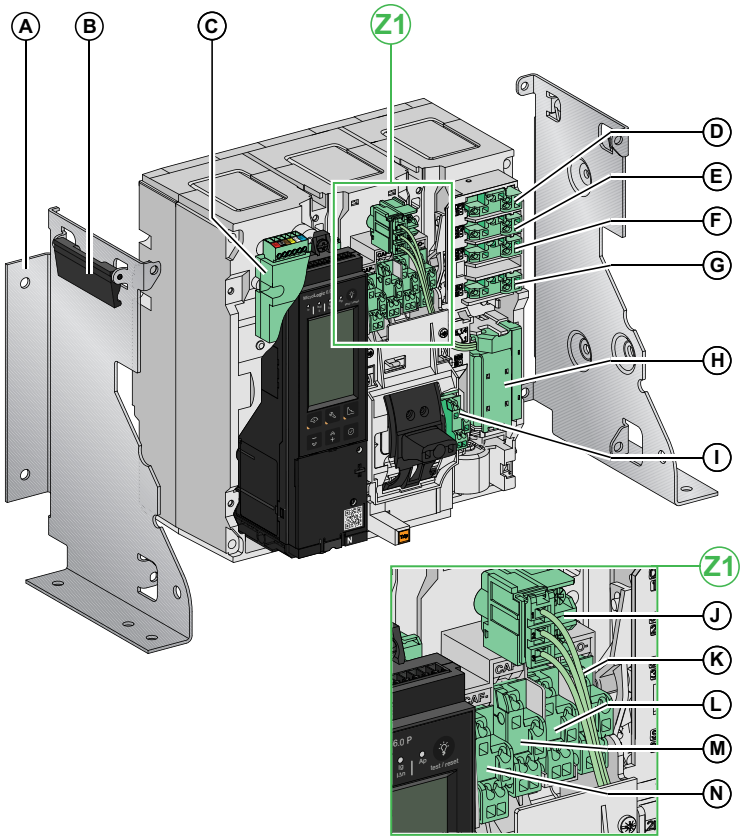


A. Arc chute
B. MicroLogic trip unit
C. Front cover
D. Fixed shaft
E. Extended rotary handle
F. Rating plate
G. Slot for optional keylock
H. Push-to-trip button
I. QR code on MicroLogic trip unit

For detailed information about mounting a fixed ComPacT NS630b-1600 with extended rotary handle, see JYT6180003 *ComPacT NS630b-1600 - Fixed Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

For detailed information about mounting an extended rotary handle on a fixed ComPacT NS630b-1600, see BQT1167602 *ComPacT NS630b-1600 - Extended Rotary Handle - Instruction Sheet*.

Accessories for Fixed Device with Extended Rotary Handle



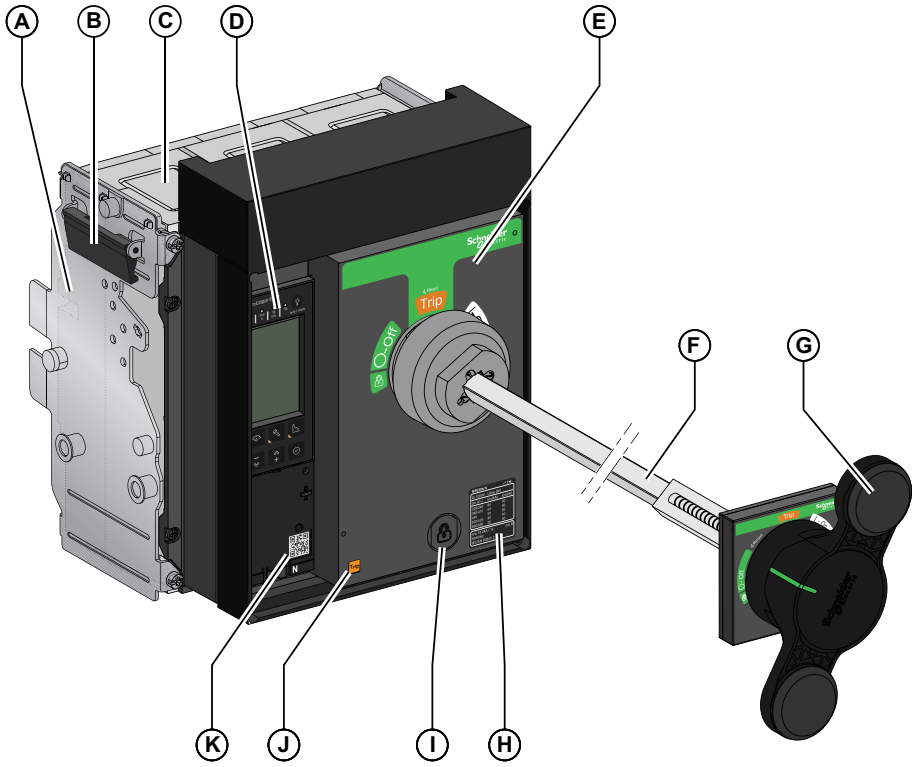
A. Brackets for horizontal mounting
B. Carrying grip
C. BCM ULP communication module
D. OF1 ON/OFF indication auxiliary (wired or wireless)
E. OF2 ON/OFF indication auxiliary (wired or wireless)
F. OF3 ON/OFF indication auxiliary (wired or wireless)
G. SD trip-indication auxiliary (wired or wireless)
H. MX opening voltage release or MN undervoltage release
I. SDE fault-trip indication auxiliary (wired or wireless)

Zoom Z1

J. Control auxiliary terminals
K. CAO1 early-break contact
L. CAO2 early-break contact
M. CAF1 early-make contact
N. CAF2 early-make contact

Withdrawable ComPacT NS630b-1600 with Extended Rotary Handle

Withdrawable Device Moving Part with Extended Rotary Handle

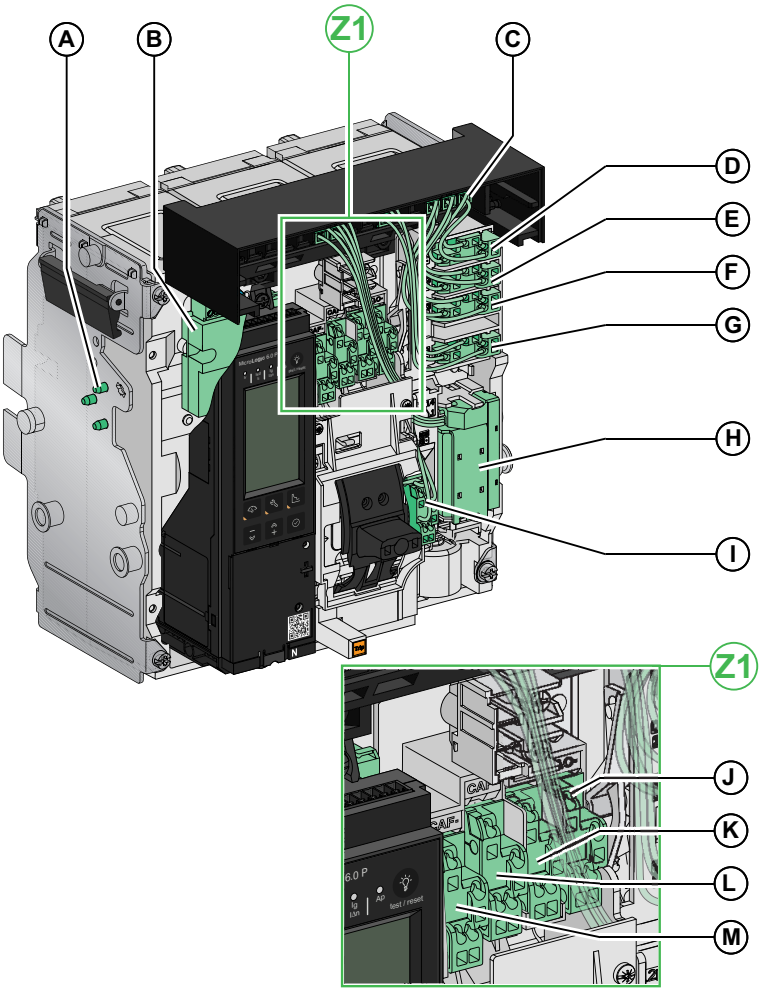


A. Mounting side plates
B. Carrying grip
C. Arc chute
D. MicroLogic trip unit
E. Front cover
F. Telescopic shaft
G. Extended rotary handle
H. Rating plate
I. Slot for optional keylock
J. Push-to-trip button
K. QR code on MicroLogic trip unit

For detailed information about mounting a withdrawable ComPacT NS630b-1600 with extended rotary handle, see JYT6180103 *ComPacT NS630b-1600 - Withdrawable Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

For detailed information about mounting an extended rotary handle on a withdrawable ComPacT NS630b-1600, see BQT1167602 *ComPacT NS630b-1600 - Extended Rotary Handle - Instruction Sheet*.

Accessories for Withdrawable Device with Extended Rotary Handle



A. Mismatch protection
B. BCM ULP communication module
C. Disconnectable contact block
D. OF1 ON/OFF indication auxiliary (wired or wireless)
E. OF2 ON/OFF indication auxiliary (wired or wireless)
F. OF3 ON/OFF indication auxiliary (wired or wireless)
G. SD trip-indication auxiliary (wired or wireless)
H. MX opening voltage release or MN undervoltage release
I. SDE fault-trip indication auxiliary (wired or wireless)

Zoom Z1

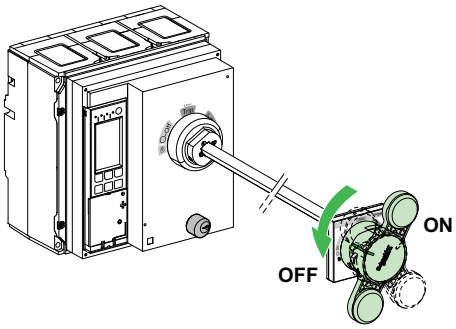
J. CAO1 early-break contact
K. CAO2 early-break contact
L. CAF1 early-make contact
M. CAF2 early-make contact

The chassis is identical for all withdrawable ComPacT NS630b-1600 devices. For more information about the chassis and its mismatch protection, see *Chassis*, page 20.

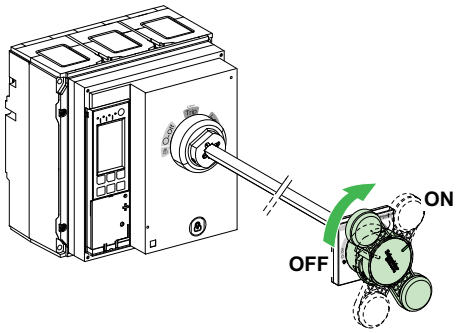
Opening, Closing, and Resetting a Device with an Extended Rotary Handle

Local Opening and Closing with Extended Rotary Handle

OFF: Device open.



ON: Device closed.



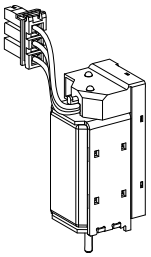
Remote Opening

Use either:

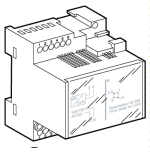
- An MX opening voltage release.
- An MN undervoltage release.
- A delayed MN undervoltage release.

When connected to the control panel, these releases may be used to remotely open the device.

MX, MN

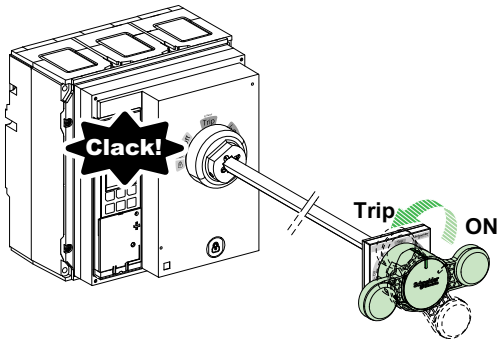
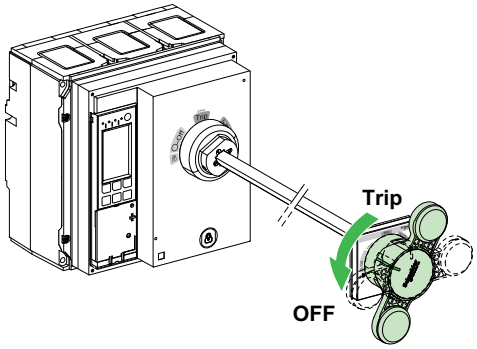
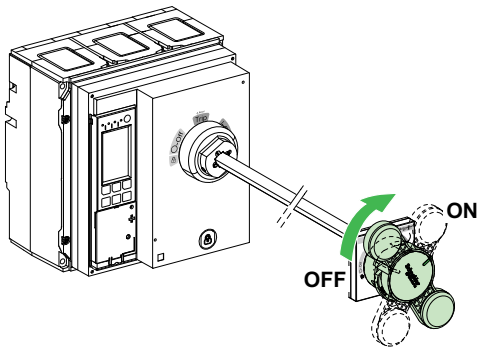


MN delay unit

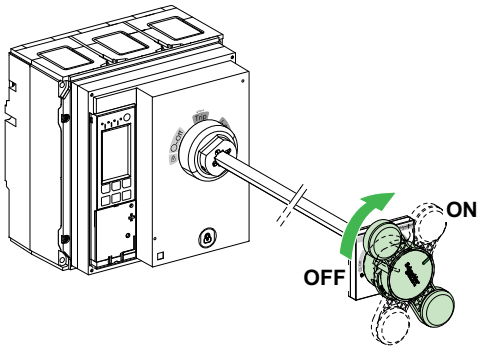
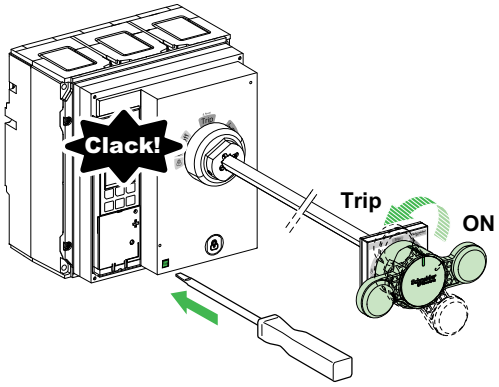
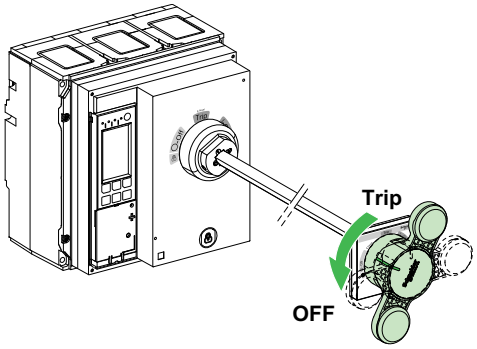
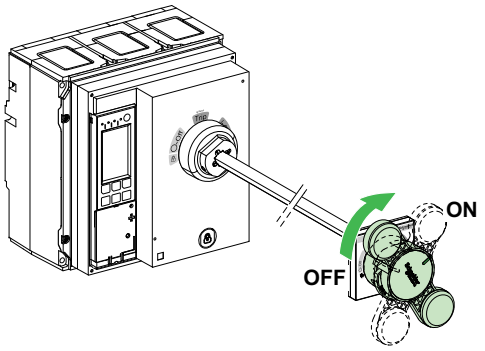


Resetting a Device with an Extended Rotary Handle

After a trip, reset the device by following this procedure:

Step	Action	
1	The device trips.	
2	Follow the recommendations for what to do when the circuit breaker trips, page 121.	—
3	Reset the device.	
4	Close the device again.	

Testing a Device with an Extended Rotary Handle

Step	Action	
1	Close the device.	
2	Press the push-to-trip button.	
3	Turn the extended rotary handle counterclockwise to reset the device.	
4	Turn the extended rotary handle clockwise to close the device again.	

Locking the Extended Rotary Handle

Padlocking the Extended Rotary Handle in the OFF Position

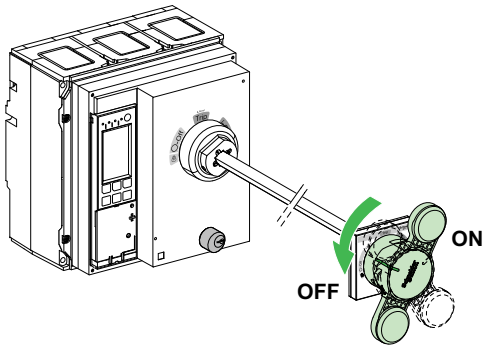
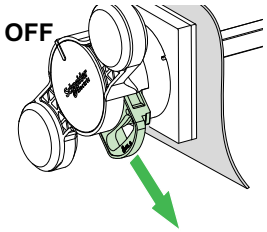
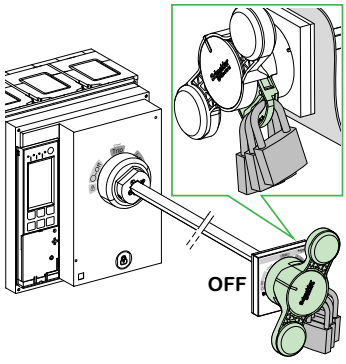
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

When the handle is in the O-Off position, always use a properly rated voltage sensing device to confirm power is off before working on the equipment.

Failure to follow these instructions will result in death or serious injury.

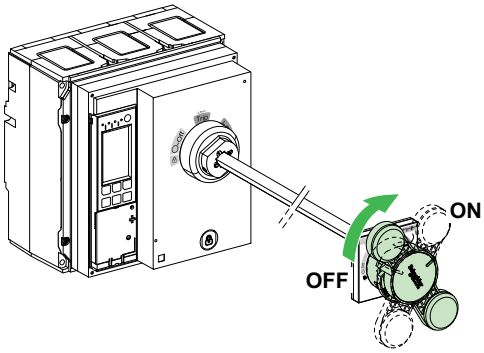
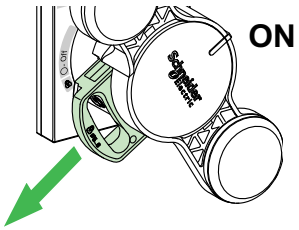
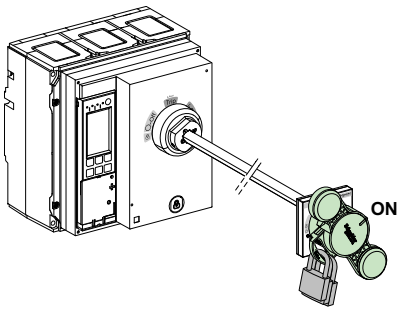
You can use one to three padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) to lock the extended rotary handle in the OFF position.

Step	Action	
1	Put the device in the OFF position.	
2	Pull out the tab.	
3	Insert the shackle (diameter 5 to 8 mm (0.2 to 0.3 in)) of the padlock(s). **NOTE:** Padlocks are not supplied.	

NOTE: For details of padlocking the red handle for machine tool control (VDE type), refer to BQT1167602 *ComPacT NS630b-1600 - Extended Rotary Handle - Instruction Sheet*

Padlocking the Extended Rotary Handle in the ON Position

To activate padlocking in the ON position, refer to BQT1167602 *ComPacT NS630b-1600 - Extended Rotary Handle - Instruction Sheet*.

Step	Action	
1	Put the device in the ON position.	
2	Pull out the tab.	
3	Insert the shackle (diameter 5 to 8 mm (0.2 to 0.3 in)) of the padlock(s). **NOTE:** Padlocks are not supplied.	

NOTE: For details of padlocking the red handle for machine tool control (VDE type), refer to BQT1167602 *ComPacT NS630b-1600 - Extended Rotary Handle - Instruction Sheet*

Keylocking the Extended Rotary Handle in the OFF Position

The keylock is an optional accessory.

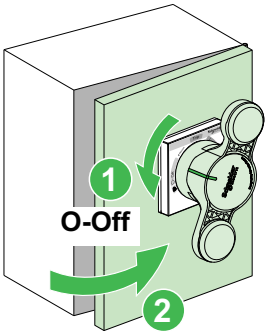
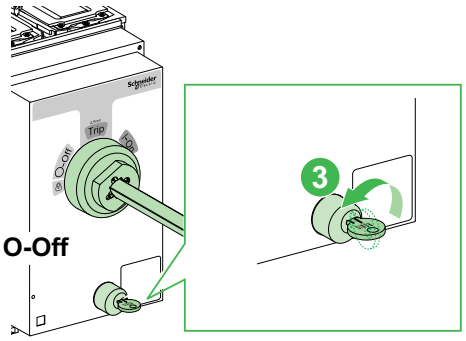
⚠⚠DANGER

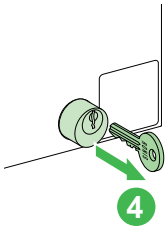
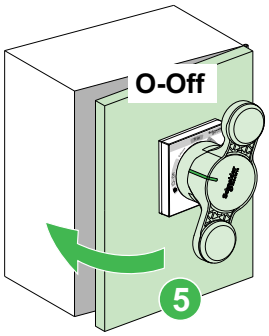
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- When the handle is in the O-Off position, always use a properly rated voltage sensing device to confirm power is off before working on the equipment.
- The handle is delivered with the door lock activated.
- When the door lock is activated, only qualified persons are authorized to disable the door lock.

Failure to follow these instructions will result in death or serious injury.

Follow this procedure to lock the extended rotary handle in the OFF position by using a keylock.

Step	Action	
1	Put the device in the OFF position.	
2	Open the door.	
3	Insert the key and turn it counterclockwise.	

Step	Action	
4	Remove the key.	
5	Close the door.	

Keylocking the Extended Rotary Handle in ON Position

⚠⚠DANGER

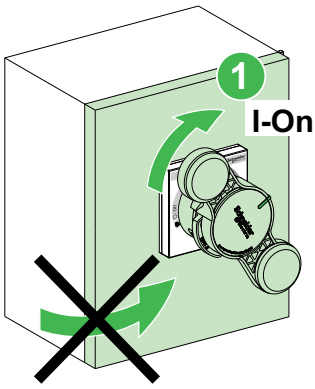
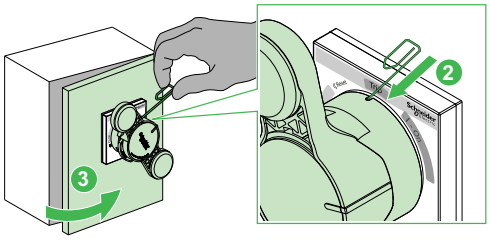
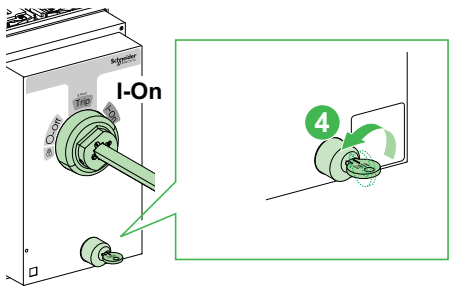
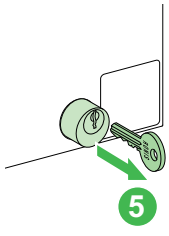
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

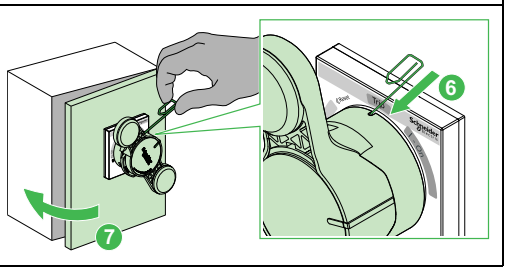
- The handle is delivered with the door lock activated.
- When the door lock is activated, only qualified persons are authorized to disable the door lock.

Failure to follow these instructions will result in death or serious injury.

When the extended rotary handle is in the ON position, the door is locked with the door interlock. The door interlock can be deactivated by following the procedure in BQT1167602 *ComPacT NS630b-1600 - Extended Rotary Handle - Instruction Sheet*.

Follow this procedure to lock the extended rotary handle in the ON position by using a keylock.

Step	Action	
1	Put the device in the ON position.	
2	Disable the door lock by inserting a paper clip in the rotary handle, as shown.	
3	Open the door and remove the paper clip.	
4	Insert the key and turn it counterclockwise.	
5	Remove the key.	

Step	Action	
6	Disable the door lock by inserting a paper clip in the rotary handle, as shown.	
7	Close the door and remove the paper clip.	

When the rotary handle is locked in the ON position:

- The protection functions are active and trip the circuit breaker in case of an electrical fault
- You can trip the circuit breaker with the push-to-trip button.

Withdrawable Device Racking Actions

What's in This Chapter

Withdrawable Device Status 55
Connecting the Withdrawable Device 57
Disconnecting the Withdrawable Device 59
Removing the Withdrawable Device 61
Installing the Withdrawable Device in the Chassis..... 63

Withdrawable Device Status

Withdrawable Device Handling Conditions

Connection or disconnection of the withdrawable device requires insertion of the racking handle. When interlocks, padlocks, or an open door lock are in place, the racking handle cannot be inserted.

⚠⚠DANGER

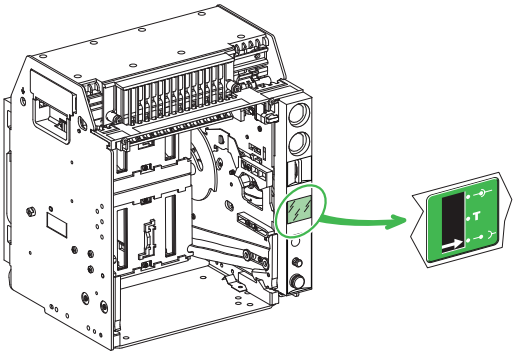
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

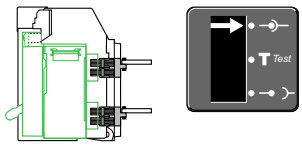
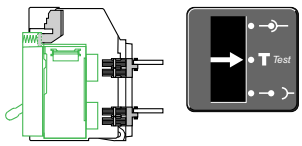
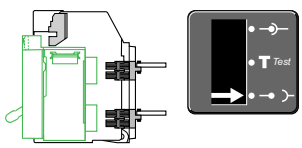
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462 or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.

Failure to follow these instructions will result in death or serious injury.

Withdrawable Device Positions

The indicator located on the front of the chassis locally signals the position of the device in the chassis.



Device position	Connector position and position indicator	Device status
Connected position		• Can be operated • Ready for service
Test position		• Can be operated • Can have operation and control systems tested
Disconnected position		• Can be operated • Can be removed from chassis

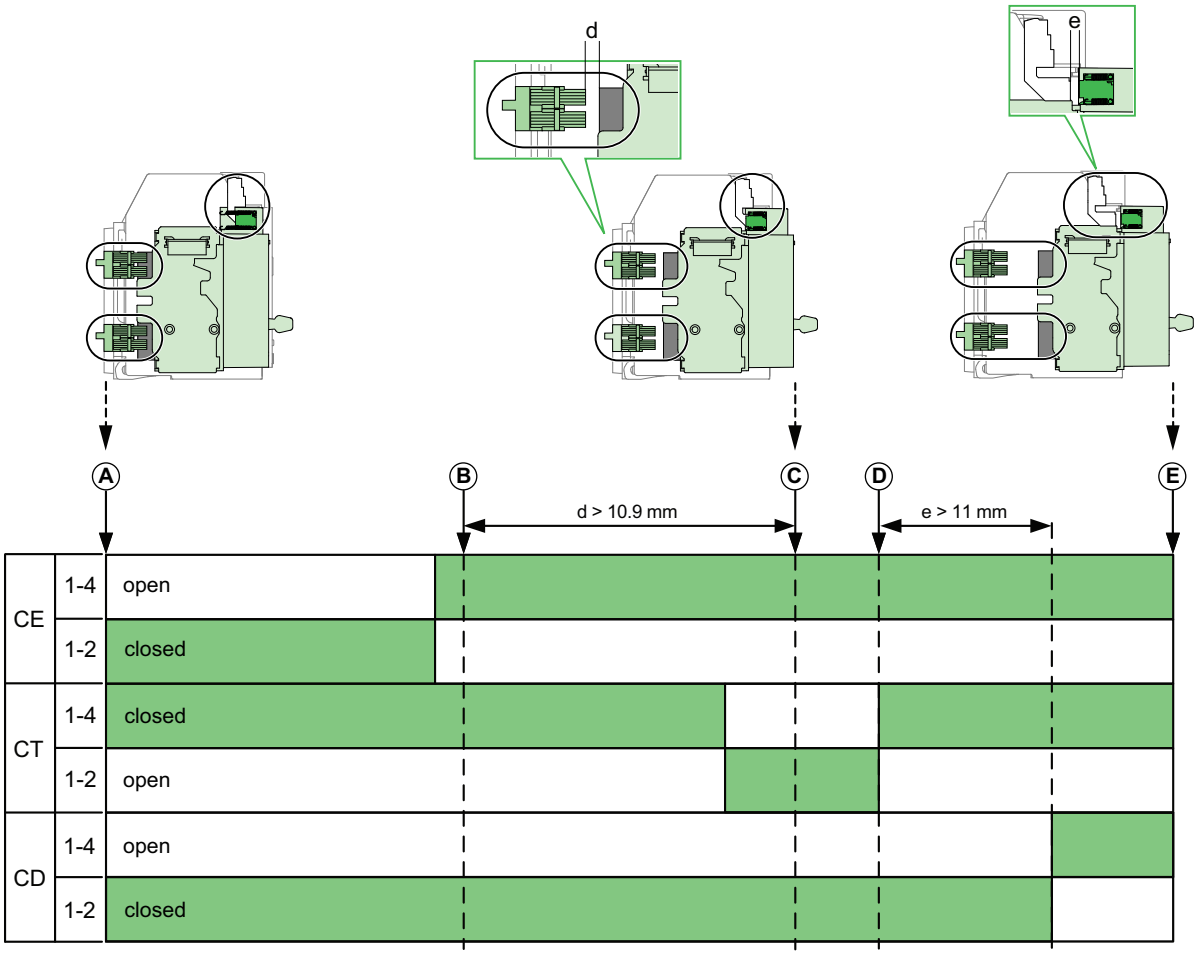
Withdrawable Device Position Contacts

The position of the device in the chassis is indicated remotely by the position of the following position contacts:

- CE: connected position
- CT: test position
- CD: disconnected position. The device is in the disconnected position when the minimum isolation distance between the main contacts and the auxiliary contacts is reached.

For information on the accessory installation, consult the instruction sheet on the Schneider Electric website: 51201010AA.

The state of the position contacts changes according to the device position during racking-in and racking-out operations, as shown in the following diagram.



A. Device in connected position
B. Separation of the main contacts
C. Device in test position
D. Separation of the auxiliary contacts
E. Device in disconnected position

Position contact is open.

Position contact is closed.

Connecting the Withdrawable Device

Withdrawable Device Handling Conditions

Connection or disconnection of the withdrawable device requires insertion of the racking handle. When interlocks, padlocks, or an open door lock are in place, the racking handle cannot be inserted.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462 or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.

Failure to follow these instructions will result in death or serious injury.

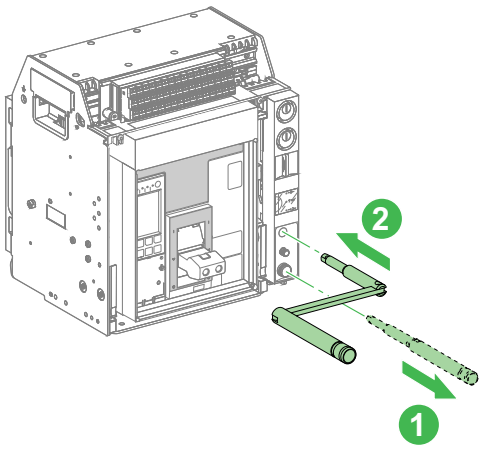
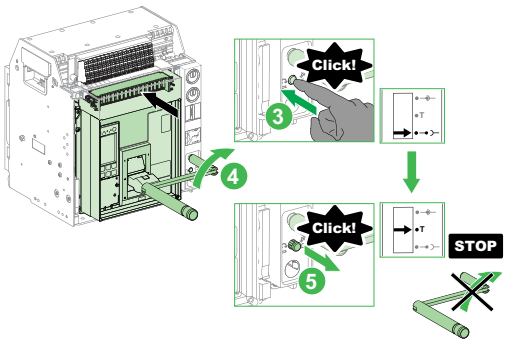
NOTICE

HAZARD OF EQUIPMENT DAMAGE

- Use the provided racking handle to rack the device into or out of chassis.
- Do not use power tools for racking.
- Do not turn the handle after position release button has popped out.

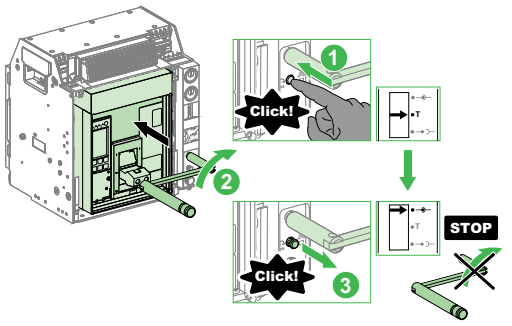
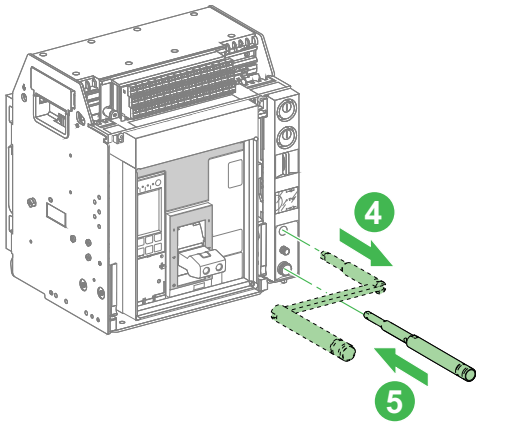
Failure to follow these instructions can result in equipment damage.

Racking-in the Device From Disconnected to Test Position

Step	Action	
1	The device is in disconnected position. Remove the racking handle from its storage space.	
2	Insert the racking handle into the racking handle slot.	
3	Push in the position release button.	
4	Turn the racking handle clockwise. **Result**: The device moves back in the chassis.	

Step	Action	
5	When the test position is reached, the position release button pops out and the mechanism blocks the racking handle. **Result**: The device is in the test position. Remove the racking handle.	

Racking-in the Device From the Test to Connected Position

Step	Action	
1	The device is in test position. Push in the position release button.	
2	Turn the racking handle clockwise. **Result**: The device moves back in the chassis.	
3	When the connected position is reached, the position release button pops out and the mechanism blocks the racking handle. **Result**: The device is in the connected position.	
4	Remove the racking handle from the racking slot.	
5	Put the racking handle back into its storage space.	

Disconnecting the Withdrawable Device

Withdrawable Device Handling Conditions

Connection or disconnection of the withdrawable device requires insertion of the racking handle. When interlocks, padlocks, or an open door lock are in place, the racking handle cannot be inserted.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462 or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.

Failure to follow these instructions will result in death or serious injury.

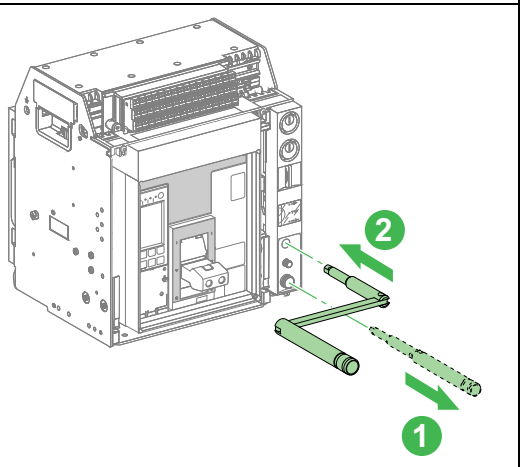
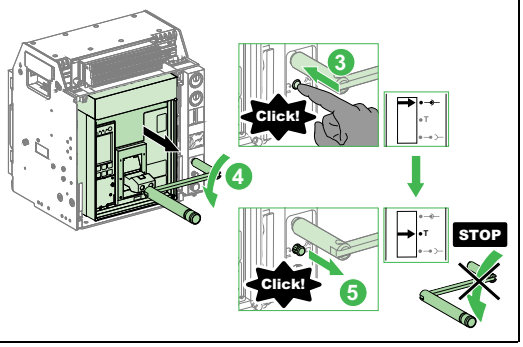
NOTICE

HAZARD OF EQUIPMENT DAMAGE

- Use the provided racking handle to rack the device into or out of chassis.
- Do not use power tools for racking.
- Do not turn the handle after position release button has popped out.

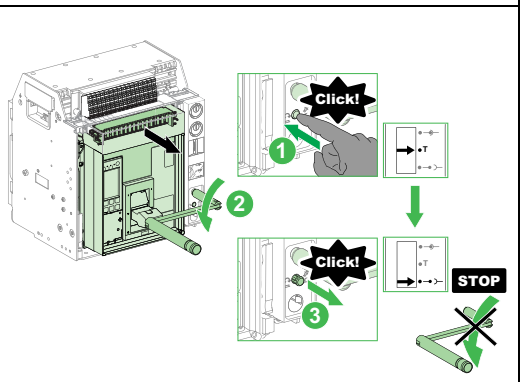
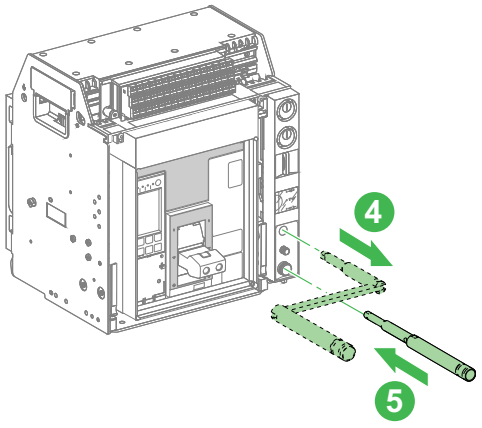
Failure to follow these instructions can result in equipment damage.

Racking-out the Device From Connected to Test Position

Step	Action	
1	Remove the racking handle from its storage space.	
2	Insert the racking handle into the racking handle slot.	
3	Push in the position release button.	
4	Turn the racking handle counterclockwise. **Result**: The device moves forward in the chassis.	

Step	Action	
5	When the test position is reached, the position release button pops out and the mechanism blocks the racking handle. **Result**: The device is in the test position. Remove the racking handle or continue to disconnected position.	

Racking-out the Device From Test to Disconnected Position

Step	Action	
1	Push in the position release button.	
2	Turn the racking handle counterclockwise. **Result**: The device moves forward in the chassis.	
3	When the disconnected position is reached, the position release button pops out and the mechanism blocks the racking handle. **Result**: The device is in the disconnected position.	
4	Remove the racking handle from the racking slot.	
5	Put the racking handle back into its storage space.	

Removing the Withdrawable Device

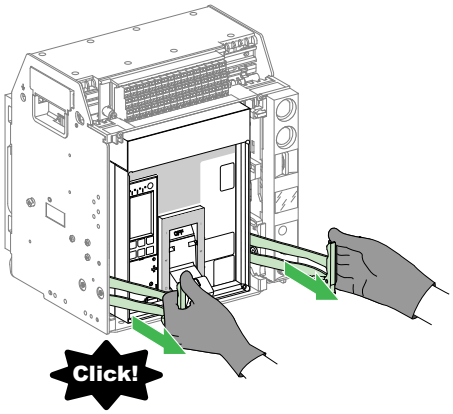
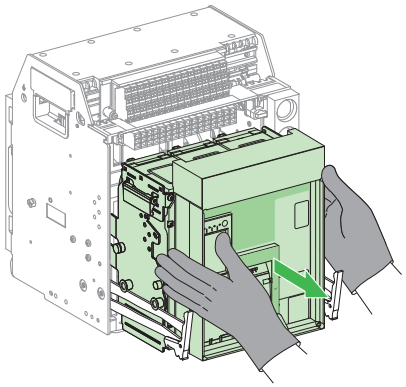
Device Removal

NOTICE

HAZARD OF EQUIPMENT DAMAGE

The chassis must be securely fastened when installing or removing the device.

Failure to follow these instructions can result in equipment damage.

Step	Action	
1	Put the device in the open position.	
2	Pull out the rails in the chassis until they are fully extended.	
3	Pull out the device to the maximum in the chassis by rolling it along the rails. **Result:** The device is supported on the rails, clear of the chassis and ready to be lifted.	

Lifting the Device

Both the device and chassis have a carrying grip for lifting. To lift the device, use an overhead lifting device attached to the carrying grip, following the directions given in this section.

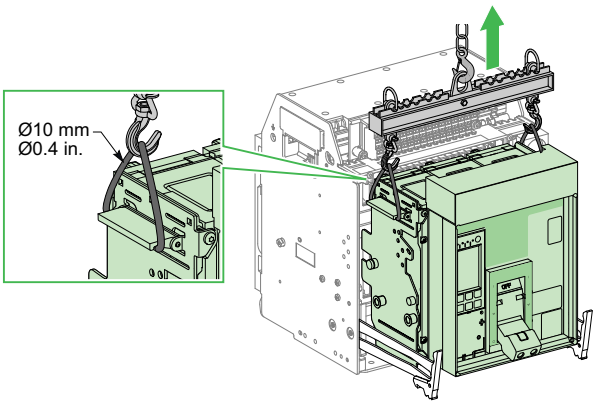
⚠ DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer's instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Lift the device from the chassis rails by using the carrying grip located on the sides of the device.



Device Weights

Number of poles	Device	Weight (kg)
3P	Moving part (Withdrawable)	14
	Chassis	16
	Fixed device	14
4P	Moving part (Withdrawable)	18
	Chassis	21
	Fixed device	18

Installing the Withdrawable Device in the Chassis

Withdrawable Device Handling Conditions

Connection or disconnection of the withdrawable device requires insertion of the racking handle. When chassis locking by keylocks, padlocks, or an open door lock is in place, the racking handle cannot be inserted.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462 or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.

Failure to follow these instructions will result in death or serious injury.

NOTICE

HAZARD OF EQUIPMENT DAMAGE

- Use the provided racking handle to rack the device into or out of chassis.
- Do not use power tools for racking.
- Do not turn the handle after position release button has popped out.

Failure to follow these instructions can result in equipment damage.

Mismatch Protection

Before racking in the withdrawable device, check that it matches the chassis in terms of rated current and performance level.

Optional mismatch protection, page 23, allows the installation of a withdrawable device only in a chassis with compatible characteristics.

Installing the Device

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

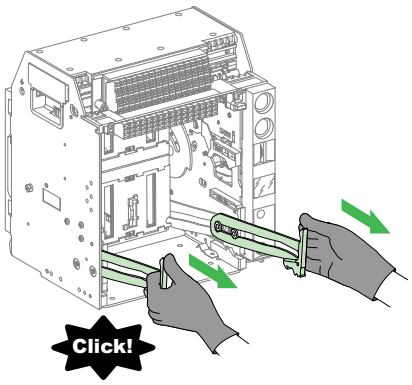
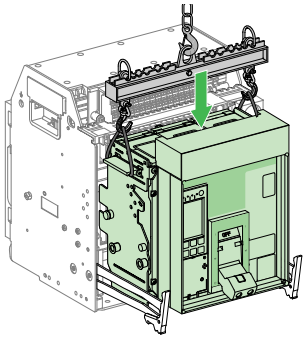
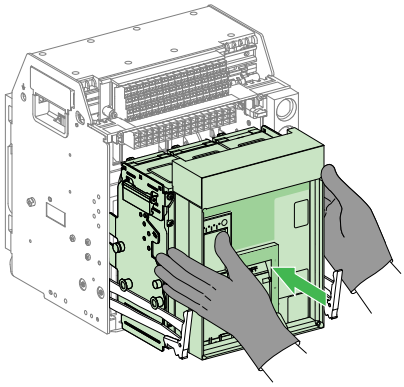
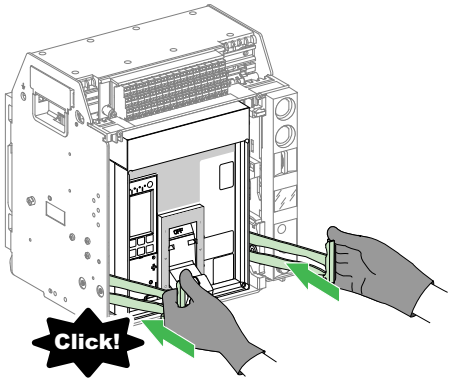
Failure to follow these instructions will result in death or serious injury.

NOTICE

HAZARD OF EQUIPMENT DAMAGE

- Chassis must be securely fastened when installing or removing the device.
- Before mounting the device, make sure that it matches the chassis.

Failure to follow these instructions can result in equipment damage.

Step	Action	
1	Put the device in the open position.	
2	If the chassis is not yet installed in a switchboard, securely fasten the chassis on a pallet.	
3	Remove the racking handle from its storage space.	
4	Check that the chassis indicator is in the disconnected position. If the chassis indicator is not in the disconnected position, follow the steps on disconnecting the withdrawable device.	
5	Pull the out the rails in the chassis until they are fully extended.	
6	Install the device on the rails by using appropriate lifting equipment. Check that the four wheels on the sides of the device are resting on the rails.	
7	Detach the lifting equipment.	
8	Using both hands, push in the device to the maximum in the chassis. Take care not to push the trip unit. The rails stay extended.	
9	When the device is fully inserted into the chassis, push in the rails to the maximum.	

Withdrawable Device Locking Actions

What's in This Chapter

Locking in the Disconnected Position....66
Locking the Switchboard Door....70
Locking the Device When the Switchboard Door is Open 72
Locking the Safety Shutters 73

Locking in the Disconnected Position

Combination of Locking Systems

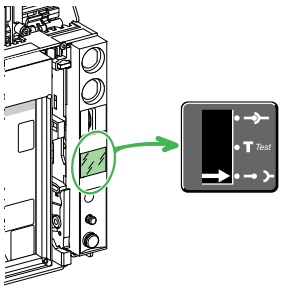
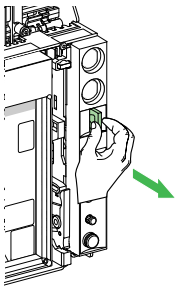
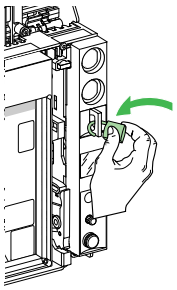
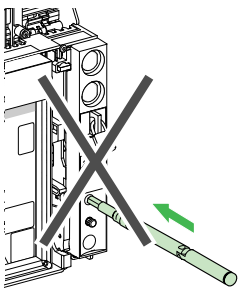
It is possible to lock the device on the chassis in the disconnected position using:

- One to three padlocks (standard feature)
- One or two keylocks (optional feature)
- A combination of both.

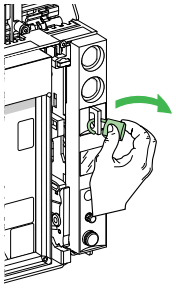
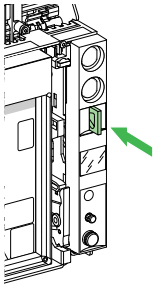
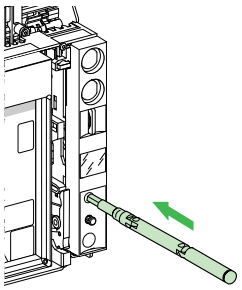
NOTE: If specified when ordering the chassis, this locking function may be adapted to operate in all positions (connected, test, and disconnected), instead of in disconnected position alone.

Locking Using One to Three Padlocks

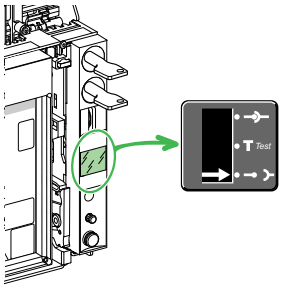
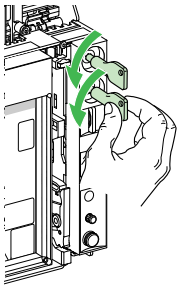
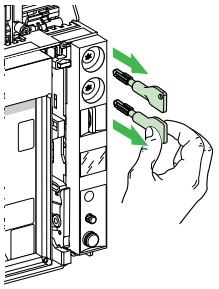
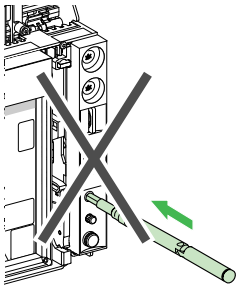
Use padlocks with a shackle diameter of 5 to 8 mm (0.2 to 0.3 in).

Step	Action	
1	Device in disconnected position.	
2	Pull out the tab.	
3	Insert the shackle (diameter 5 to 8 mm (0.2 to 0.3 in)) of the padlock(s). **NOTE:** Padlocks are not supplied.	
4	The racking handle cannot be inserted.	

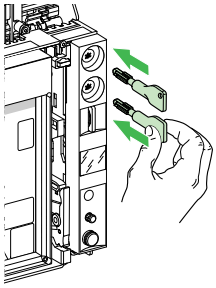
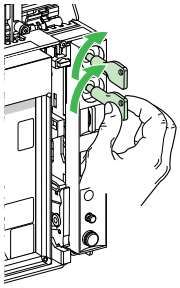
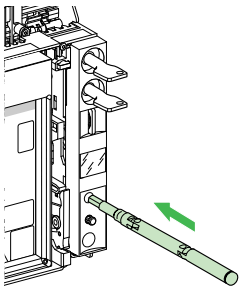
Unlocking

Step	Action	
1	Remove the padlock(s).	
2	Release the tab.	
3	The racking handle can be inserted.	

Locking Using One or Two Keylocks

Step	Action	
1	Device in disconnected position.	
2	Turn the key(s).	
3	Remove the key(s).	
4	The racking handle cannot be inserted.	

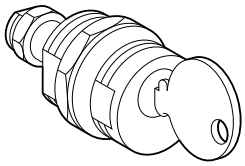
Unlocking

Step	Action	
1	Insert the key(s).	
2	Turn the key(s).	
3	The racking handle can be inserted.	

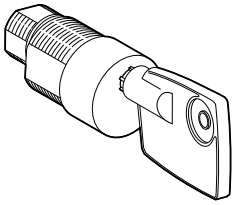
Keylocks

Three types of keylocks can be installed.

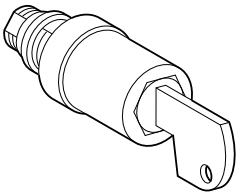
Ronis



Profalux



Castell



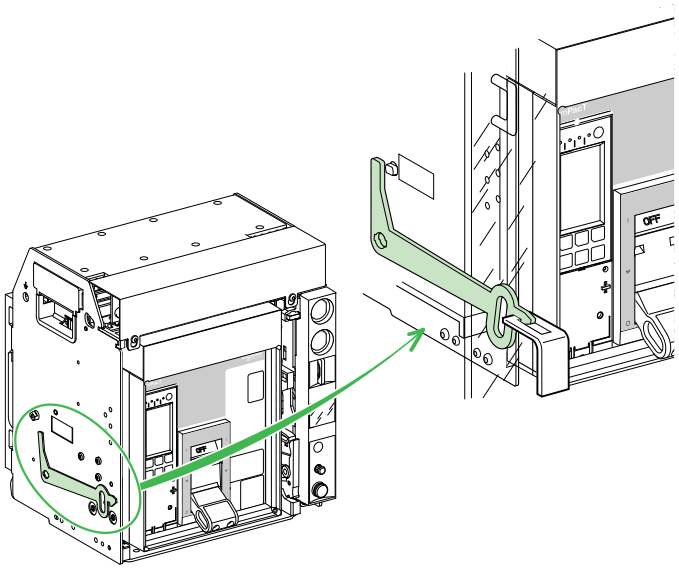
For information on the keylock installation, consult the instruction sheet on the Schneider Electric website: 51201013AA.

Locking the Switchboard Door

Description

The locking option is installed on the left or right-hand side of the chassis:

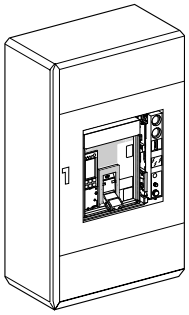
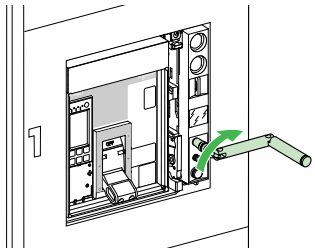
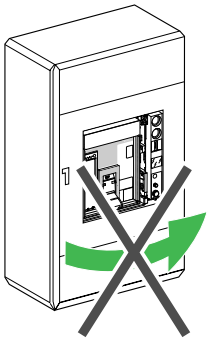
- When the device is in connected or test position, the latch is lowered and the door is locked.
- When the device is in disconnected position, the latch is raised and the door is unlocked.



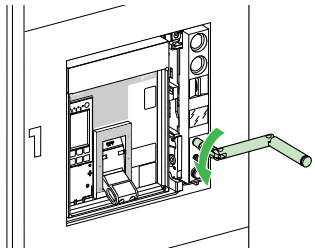
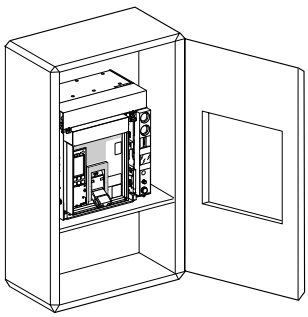
For information on the accessory installation, consult the instruction sheet on the Schneider Electric website: 51201014AA.

Locking the Door

Before starting the procedure, check that the device is in the disconnected position.

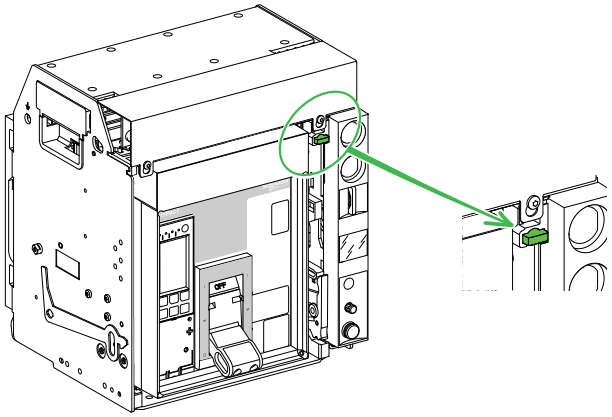
Step	Action	
1	Close the door.	
2	Turn the racking handle until the device is in test or connected position.	
3	The door is locked.	

Unlocking the Door

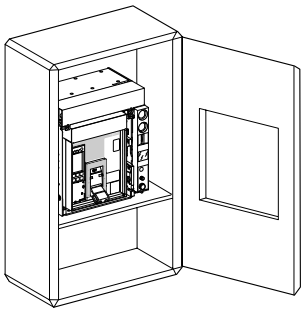
Step	**Action**	
1	Turn the racking handle until the device is in disconnected position.	
2	Check that the door is unlocked.	

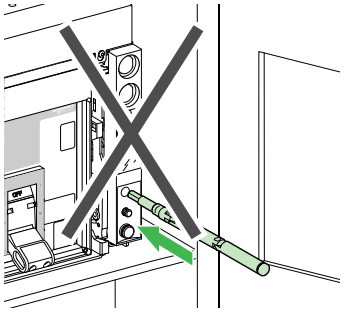
Locking the Device When the Switchboard Door is Open

With the racking interlock option installed, a withdrawable ComPacT NS device cannot be racked in or out when the door is open because the racking handle cannot be inserted.

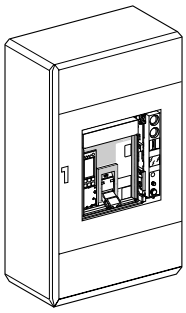


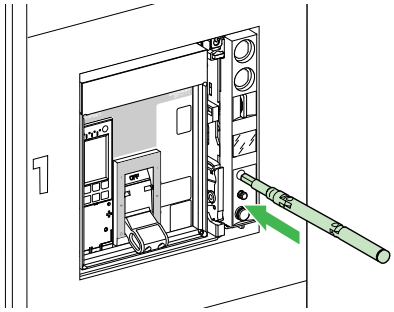
When the door is open, the racking handle cannot be inserted.





When the door is closed, the racking handle can be inserted.



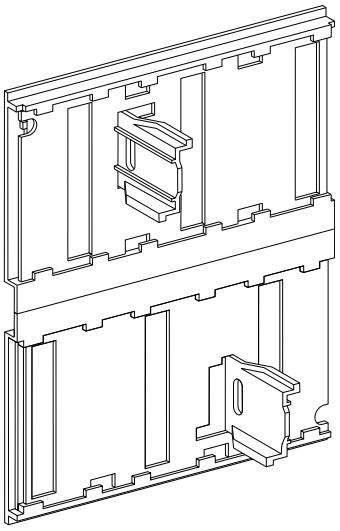


For information on the accessory installation, consult the instruction sheet on the Schneider Electric website: 51201015AA.

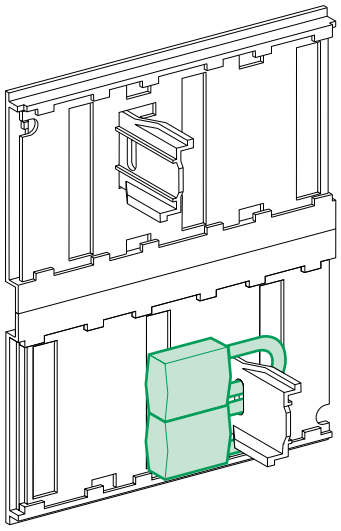
Locking the Safety Shutters

The following illustrations show the four locking possibilities inside the chassis using one or two padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) for each shutter.

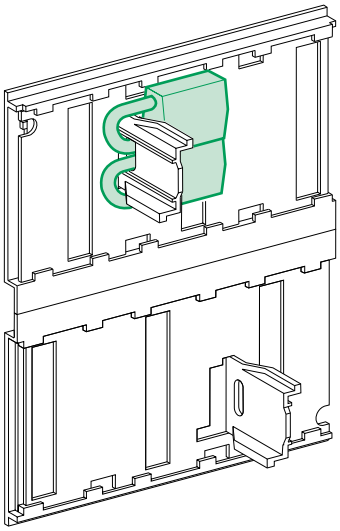
Top and bottom shutters not locked.



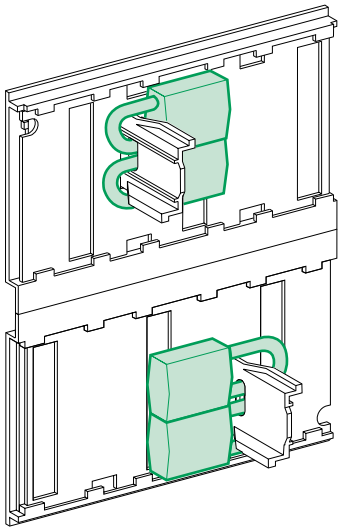
Top shutter not locked.
Bottom shutter locked.



Top shutter locked.
Bottom shutter not locked.



Top and bottom shutters locked.



For information on the accessory installation, consult the instruction sheet on the Schneider Electric website: 51201011AA.

ComPacT NS1600b-3200 Devices

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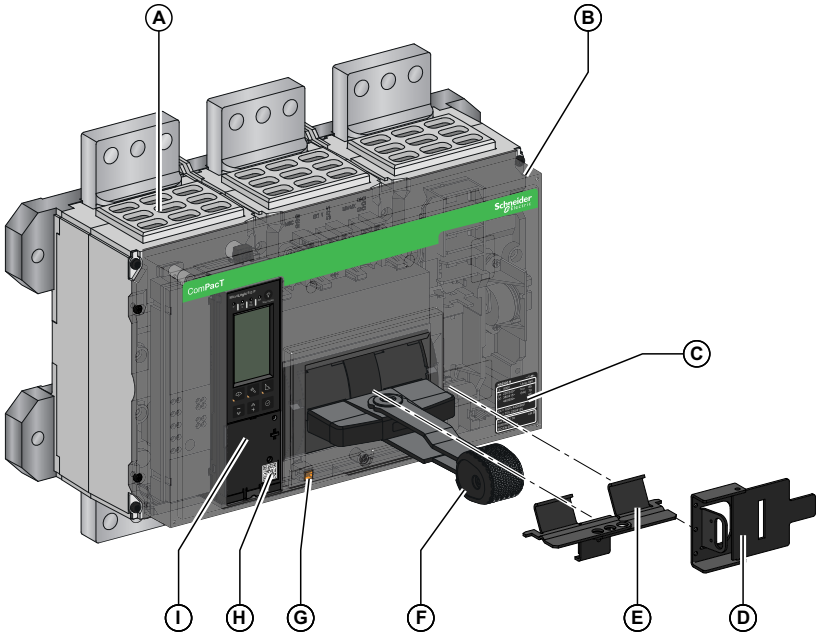
Description

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Fixed ComPacT NS1600b-3200 Description

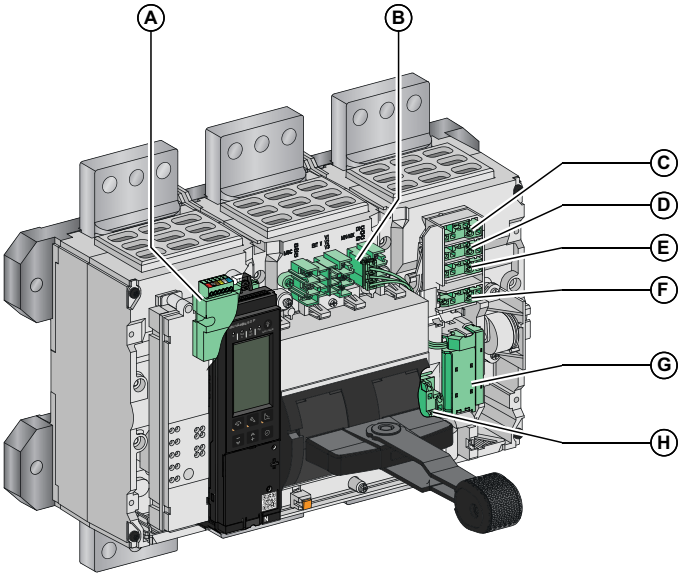
Device Description



A. Arc chute
B. Front cover
C. Rating plate
D. Fixed padlocking device for toggle handle locking in ON and OFF positions (optional)
E. Removable padlocking device for toggle handle locking in OFF position (optional)
F. Toggle handle
G. Push-to-trip button
H. QR code on MicroLogic trip unit
I. MicroLogic trip unit

For detailed information about mounting a fixed ComPacT NS1600b-3200, see JYT6180203 *ComPacT NS1600b-3200 - Fixed Circuit Breaker or Switch-Disconnector - Instruction Sheet*.

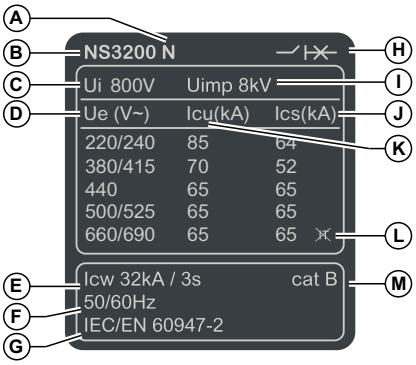
Device Accessories



A. BCM ULP communication module
B. Control auxiliary terminals
C. OF1 ON/OFF indication auxiliary (wired or wireless)
D. OF2 ON/OFF indication auxiliary (wired or wireless)
E. OF3 ON/OFF indication auxiliary (wired or wireless)
F. SD trip-indication auxiliary (wired or wireless)
G. MX opening voltage release or MN undervoltage release
H. SDE fault-trip indication auxiliary (wired or wireless)

Device Identification

Rating Plate



A. Performance level
B. ComPacT NS type and rated current
C. Ui: rated insulation voltage
D. Ue: rated operational voltage
E. Icw: rated short-time withstand current
F. Frequency
G. Standard
H. Type of device: circuit breaker or switch-disconnector
I. Uimp: rated impulse withstand voltage
J. Ics: rated service short-circuit breaking capacity
K. Icu: rated ultimate short-circuit breaking capacity
L. Not applicable for IT networks
M. Selectivity category as per IEC 60947-2

QR Code

When the QR code on the front face of a MicroLogic trip unit is scanned with a smartphone running a QR code reader and connected to the Internet, the Go2SE landing page is displayed. The landing page displays some information about the device and a list of menus (see detailed topic, page 13).

Device Operating Actions

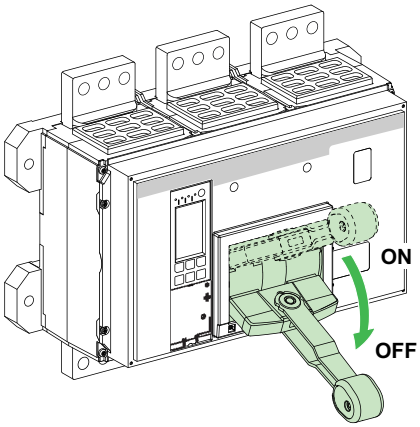
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Opening, Closing, and Reset 80
Testing the Device 82

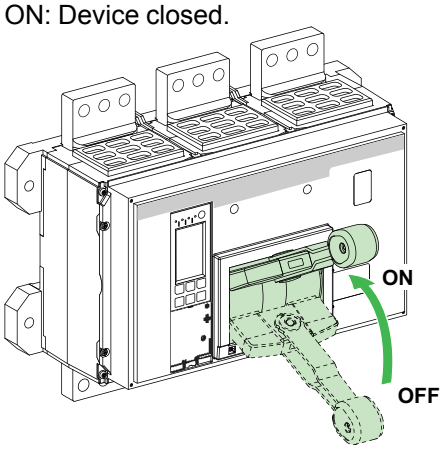
Opening, Closing, and Reset

Local Opening and Closing

OFF: Device open.



ON: Device closed.



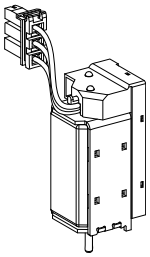
Remote Opening

Use either:

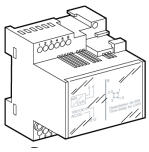
- An MX opening voltage release.
- An MN undervoltage release.
- A delayed MN undervoltage release.

When connected to the control panel, these releases may be used to remotely open the device.

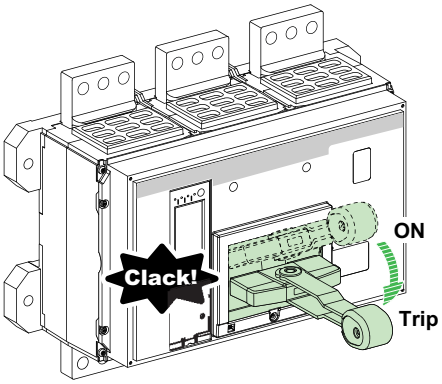
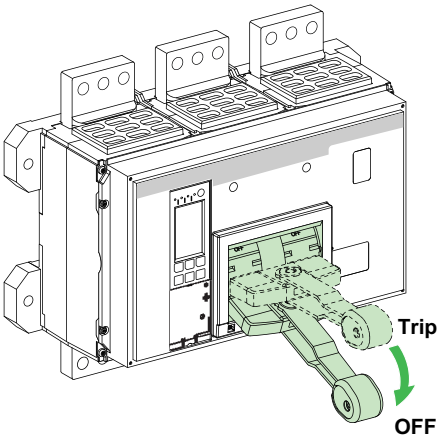
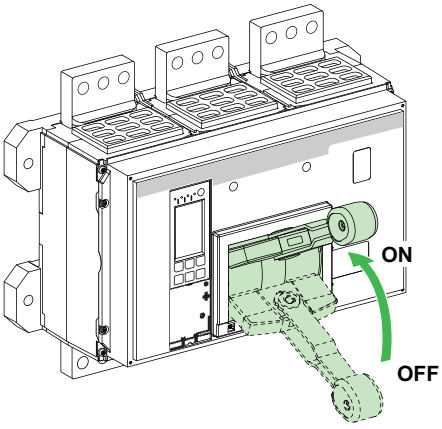
MX, MN



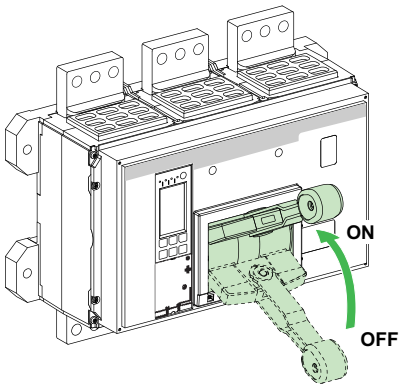
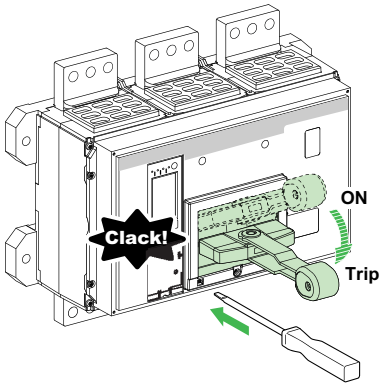
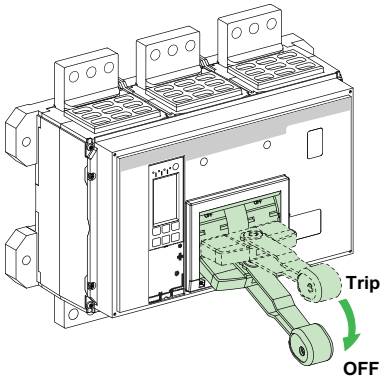
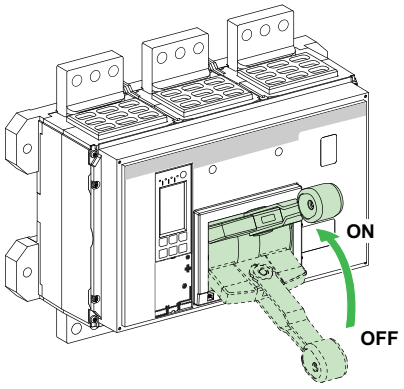
MN delay unit



Resetting the Device Following a Trip

Step	Action	
1	The device trips.	
2	Follow the recommendations for What to do when the circuit breaker trips, page 121.	–
3	Reset the device.	
4	Close the device again.	

Testing the Device

Step	Action	
1	Close the device.	
2	Press the push-to-trip button.	
3	Push the toggle handle down to reset the device.	
4	Then push the toggle handle back up to close the device again.	

Device Locking Actions

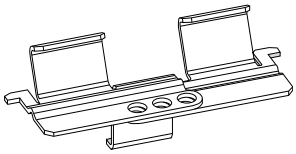
What's in This Chapter

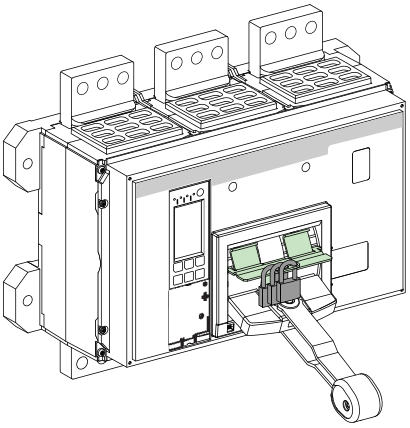
Locking the Toggle Handle 84

Locking the Toggle Handle

Locking the Toggle Handle in the OFF Position

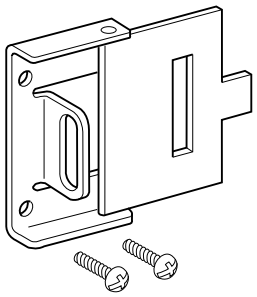
You can use one to three padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) to lock the toggle handle in the OFF position.

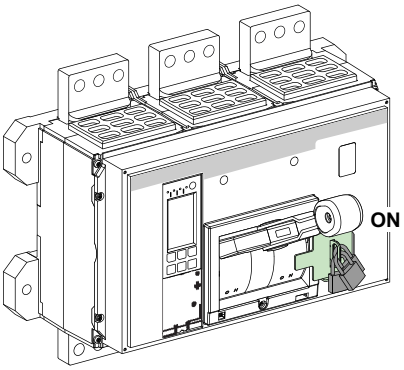


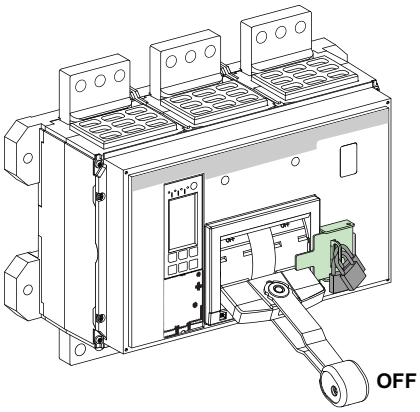


Locking the Toggle Handle in the ON or OFF Position

You can use one to three padlocks (shackle diameter 5 to 8 mm (0.2 to 0.3 in)) to lock the toggle handle in the ON or OFF position.







NOTE: The circuit breaker trips even when locked in the ON position.

ComPacT NS Electrical Auxiliaries

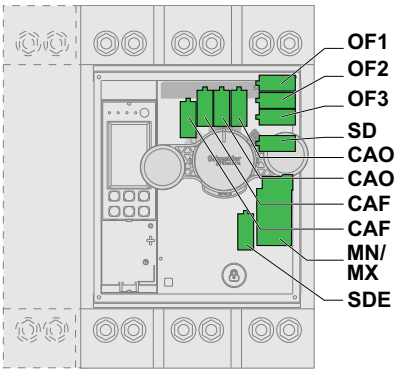
What’s in This Part

Electrical Auxiliaries Summary 86
Indication Contacts 88
Wireless Indication Auxiliary 91
Voltage Trip Releases 95
PowerTag Energy Rope 96

Electrical Auxiliaries Summary

Slots for Electrical Auxiliaries on ComPacT NS630b-1600 3P/4P Circuit Breakers

The following graphic shows the possible slots for the electrical auxiliaries mounted in the case. For more information, refer to LVPED221008EN *ComPacT NS 630b-3200 A - Circuit Breakers and Switch-Disconnectors - Catalogue*.



Electrical auxiliaries include:

- OF changeover indication contact
- SD trip indication contact
- SDE electrical fault indication contact
- CAO early-break contact for ComPacT NS630b-1600 circuit breakers with direct rotary or extended rotary handles.
- CAF early-make contact for ComPacT NS630b-1600 circuit breakers with direct rotary or extended rotary handles.

The electrical auxiliaries OF, SD, and SDE can be:

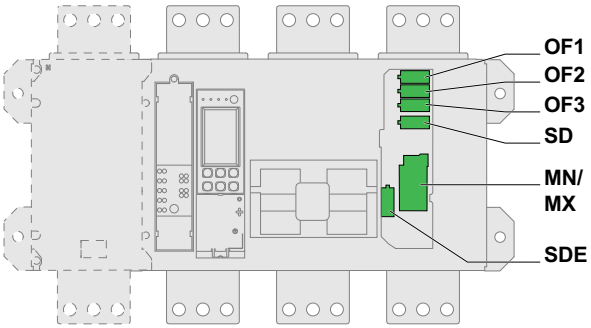
- wired indication contacts, page 88
- or wireless indication auxiliaries, page 91.

The electrical auxiliaries CAO and CAF are wired indication contacts only, page 88.

The MN and MX voltage trip releases are described in the detailed topic, page 95.

Slots for Electrical Auxiliaries on ComPacT NS1600b-3200 3P/4P Circuit Breakers

The following graphic shows the possible slots for the electrical auxiliaries mounted in the case. For more information, refer to LVPED221008EN *ComPacT NS 630b-3200 A - Circuit Breakers and Switch-Disconnectors - Catalogue*.



The electrical auxiliaries OF1, OF2, OF3, SD, and SDE can be:

- wired indication contacts, page 88
- or wireless indication auxiliaries, page 91.

The MN and MX voltage trip releases are described in the detailed topic, page 95.

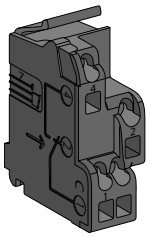
Indication Contacts

Introduction

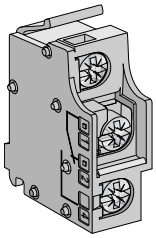
One indication contact model provides OF, SD, SDE, CAO and CAF indication functions. The position of the contact inside the case determines the function.

Indication contacts are under the front face of the circuit breaker. Installation is in a compartment isolated from the power circuits. There are two types:

- Standard contact with spring terminals



- Low-level contact with screw terminals



For more information about installation, consult the instruction sheet on the Schneider Electric website: NNZ4314501.

Standard and Low-Level Contacts

Standard and low-level contacts are the common point changeover type.



NC Normally Closed contact

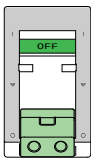
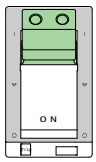
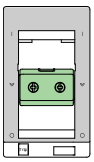
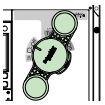
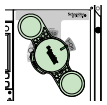
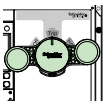
NO Normally Open contact

The following table describes the operation of standard and low-level volt-free contacts:

Name	Definition
OF indication contact	**Changeover**: The NO contact is normally open when the circuit breaker is in the **O (OFF)** position.
SD indication contact	**Trip indication**: The SD contact indicates that the circuit breaker has tripped due to: • Instantaneous protection • Long-time protection • Short-time protection • Ground-fault protection • Earth-leakage protection • Operation of the MX or MN voltage releases • Operation of the push-to-trip button • Connecting/Disconnecting the withdrawable circuit breaker
SDE indication contact	**Electrical fault indication**: The SDE contact indicates that the circuit breaker has tripped on an electrical fault due to: • Instantaneous protection • Long-time protection • Short-time protection • Ground-fault protection • Earth-leakage protection
CAO early-break contact	**Rotary handle position indication**: The CAO early-break contact indicates that the rotary handle started to turn to the open position.
CAF early-make contact	**Rotary handle position indication**: The CAF early-make contact indicates that the rotary handle started to turn to the closed position.

Operation of the Indication Contacts

The following figures show the position of the indication contacts for each position of the operation handle and main contacts.

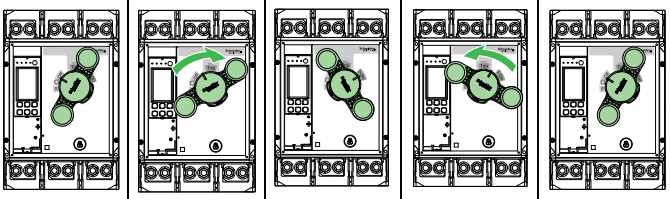
Name	Contact number	Position of the operation handle and contacts				
Toggle handle position	–					
Rotary handle position	–					
Device status	–	OFF	ON	Tripped (by MicroLogic trip unit)	Tripped by MN/MX or push-to-trip	Tripped by protection
Main contact position	–	Open	Closed	Open	Open	Open
OF indication contact position	1–2	Closed	Open	Closed	Closed	Closed
	1–4	Open	Closed	Open	Open	Open
SD indication contact position	1–2	Closed	Closed	Open	Open	Open

Name	Contact number	Position of the operation handle and contacts				
	1–4	Open	Open	Closed	Closed	Closed
SDE indication contact position	1–2	Closed	Closed	Open	Closed	Open
	1–4	Open	Open	Closed	Open	Closed

Operation of Early-Break and Early-Make Contacts

A change in position of the direct and extended rotary handles is indicated by the following early-break and early-make contacts:

- CAO: early-break contact indicates that the rotary handle started to turn to the open position. It can be used to open the contactor control circuit before the circuit breaker opens.
- CAF: early-make contact indicates that the rotary handle started to turn to the closed position. It can be used to supply an MN undervoltage release before the circuit breaker closes.

Name	Contact number	Position of the operation handle and contacts				
Rotary handle position	–					
Main contact position	–	Open	Open	Closed	Closed	Open
CAO early-break contact	1–2	Open	Closed	Closed	Open	Open
	1–4	Closed	Open	Open	Closed	Closed
CAF early-make contact	1–2	Closed	Open	Open	Closed	Closed
	1–4	Open	Closed	Closed	Open	Open

Wireless Indication Auxiliary

Introduction

The wireless indication auxiliary provides remote and local information about the device status.

The position of the wireless indication auxiliary inside the case, and the setting of the gateway or Panel Server, determine its function. The wireless indication auxiliary provides the following information remotely:

Position of wireless indication auxiliary	Information provided
OF slot	Open/close device status
SD slot	Trip indication
SDE slot	Electrical fault indication

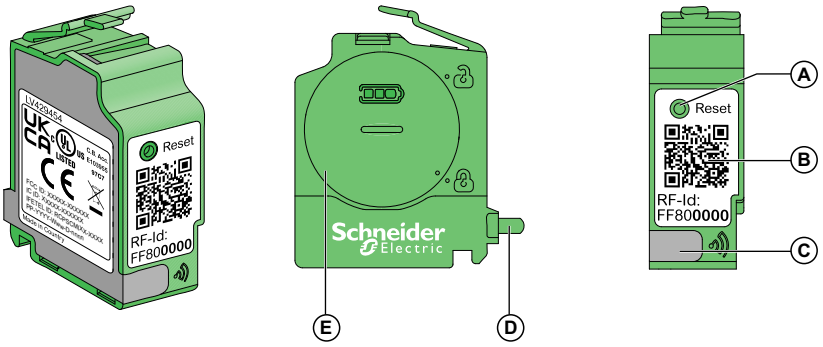
When in the SD slot, the wireless indication auxiliary can be configured to indicate a circuit breaker trip locally. The status LED blinks orange for eight hours.

The wireless indication auxiliary must be paired with a gateway or Panel Server.

The wireless indication auxiliary is powered by an internal battery. It sends a notification to indicate that the battery needs to be replaced.

For more information about installation, consult the instruction sheet on the Schneider Electric website: NNZ8882801.

Description



A. Reset button
B. QR code to access device information, including RF-Id address
C. Status LED
D. Actuator
E. Battery cover

Reset Button

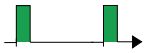
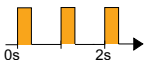
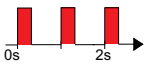
The reset button allows you to :

- access setting mode to set the status LED indication mode.
- pair or unpair the wireless indication auxiliary.

Status LED

A status LED on the wireless indication auxiliary provides the following information:

- Help with commissioning and maintenance steps
- Status of communication between wireless indication auxiliary and gateway or Panel Server
- Status of the wireless indication auxiliary
- Indication of circuit breaker trip (available when LED indication mode is ON).

Status LED	Description	Action
	Wireless indication auxiliary switched off or not in communication with gateway or Panel Server.	None
	Wireless indication auxiliary in pairing mode, searching for a gateway or Panel Server.	Wait until the gateway or Panel Server is identified.
	Wireless indication auxiliary in identification mode.	Wait until wireless indication auxiliary is discovered in network.
	Wireless indication auxiliary in communication. One green flash at each frame sent.	None
	Occasional loss of communication with the gateway or Panel Server.	Check communication setting with the gateway or Panel Server.
	Wireless indication auxiliary in setting mode, with LED indication mode set to OFF.	Set LED indication mode to ON by pressing the Reset button.
	Wireless indication auxiliary in setting mode, with LED indication mode set to ON.	Set LED indication mode to OFF by pressing the Reset button.
	Trip indication when wireless indication auxiliary is in SD slot and configured in LED indication mode ON.	None
 Flashes only when actuator is activated	Battery out of power.	Change the battery.

Commissioning

Commission the wireless indication auxiliary by using EcoStruxure Power Commission software or the webpages of the gateway or Panel Server.

NOTE: Check the firmware of the gateway before performing the commissioning of the wireless indication auxiliary. It is recommended to upgrade to the latest version available.

Step	Action
1	Put the wireless indication auxiliary in pairing mode in one of the following ways: • If the wireless indication auxiliary is not installed in the circuit breaker, press the reset button or the actuator. • If the wireless indication auxiliary is installed in the OF slot, open and close the circuit breaker. • If the wireless indication auxiliary is installed in the SD slot, open, close and action the push-to-trip button on the circuit breaker. • If the wireless indication auxiliary is installed in the SDE slot, open, close and trip the circuit breaker electrically. **Result:** The status LED blinks orange. The wireless indication auxiliary stays in pairing mode for three minutes.
2	Pair the gateway or Panel Server with the wireless indication auxiliary by using EcoStruxure Power Commission software or the webpages of the gateway or Panel Server. **Result:** The status LED blinks green to indicate that the wireless indication auxiliary is paired.
3	Configure the wireless indication auxiliary by using EcoStruxure Power Commission software or the webpages of the gateway or Panel Server.

Setting LED Indication Mode

Set the LED indication mode of the wireless indication auxiliary to ON to indicate a trip locally when the wireless indication auxiliary is installed in the SD slot. The LED indication mode is factory-set to OFF.

Follow this procedure to change the LED indication mode.

Step	Action
1	Press the reset button. **Result:** The wireless indication auxiliary wakes up.
2	Press the reset button three times in less than two seconds. **Result:** The wireless indication auxiliary is in setting mode. The Status LED flashes three times every two seconds if LED indication mode is OFF, or six times every two seconds if LED indication mode is ON.
3	Press the reset button once to change the LED indication mode from OFF to ON, or from ON to OFF.
4	To exit setting mode, press the reset button for three seconds. **NOTE:** If the reset button is not pressed, the wireless indication auxiliary exits setting mode after two minutes.

Replacing the Internal Battery

The wireless indication auxiliary sends a notification six months before the battery needs to be changed.

For more information about the spare battery, refer to LVPED221008EN *ComPacT NS 630b-3200 A - Circuit Breakers and Switch-Disconnectors - Catalogue*.

Follow this procedure to replace the internal battery.

Step	Action
1	Remove the wireless indication auxiliary from its slot. Refer to NNZ8882801 *Wireless Indication Auxiliary for MCCB 100-3200 A - Instruction Sheet*.
2	Remove the battery cover by turning it clockwise.

Step	Action
3	Remove the battery and recycle it.
4	Insert the new battery, following the guidelines marked in the battery compartment.
5	Put back the battery cover and lock it by turning it counterclockwise.
6	Reinstall the wireless indication auxiliary in its slot.
7	Put back the front cover of the circuit breaker.

Replacing the Wireless Indication Auxiliary

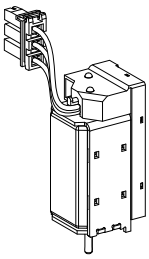
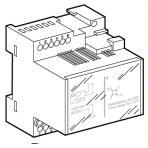
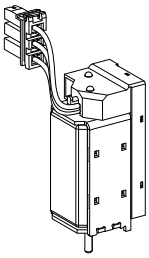
Follow this procedure to unpair the wireless indication auxiliary and delete it in EcoStruxure Power Commission software or the webpages of the gateway or Panel Server before replacing the wireless indication auxiliary.

Step	Action
1	Remove the wireless indication auxiliary from its slot. Refer to NNZ8882801 *Wireless Indication Auxiliary for MCCB 100-3200 A - Instruction Sheet*.
2	Unpair the wireless indication auxiliary by pressing the reset button for at least three seconds and releasing, or by using EcoStruxure Power Commission software or the webpages of the gateway or Panel Server.
3	Install the new wireless indication auxiliary in its slot.
4	Pair the wireless indication auxiliary by following the procedure in Commissioning, page 92.
5	Put back the front cover of the circuit breaker.

Voltage Trip Releases

Use voltage trip releases to trip circuit breakers deliberately using an electrical signal. Install these auxiliaries in the case under the front face.

The characteristics of these auxiliaries comply with the recommendations of the standard IEC/EN 60947-2.

MN 	**MN undervoltage trip release** This release: • Trips the circuit breaker when the voltage is less than 0.35 times the rated voltage Un. If the voltage is between 0.35 and 0.7 times the rated voltage Un, tripping is possible but not guaranteed. Above 0.7 times the rated voltage Un, tripping is impossible. • Allows to close the circuit breaker again once the voltage reaches 0.85 times the rated voltage. Use this type of trip release for fail-safe emergency stops.
Time-delay unit 	**Time-delay unit for MN undervoltage trip release** The time-delay unit eliminates nuisance tripping of an undervoltage trip release due to transient voltage dips lasting < 200 ms. There are two types of time-delay units: adjustable or fixed.
MX 	**MX shunt trip release** This release trips the circuit breaker when the voltage exceeds 0.7 times the rated voltage Un.

PowerTag Energy Rope

Introduction

PowerTag Energy Rope is a class 1 energy meter, as per IEC 61557-12, that incorporates features required to perform accurate real-time measurements (U, V, I, P, PF) and get energy values up to 2000 A.

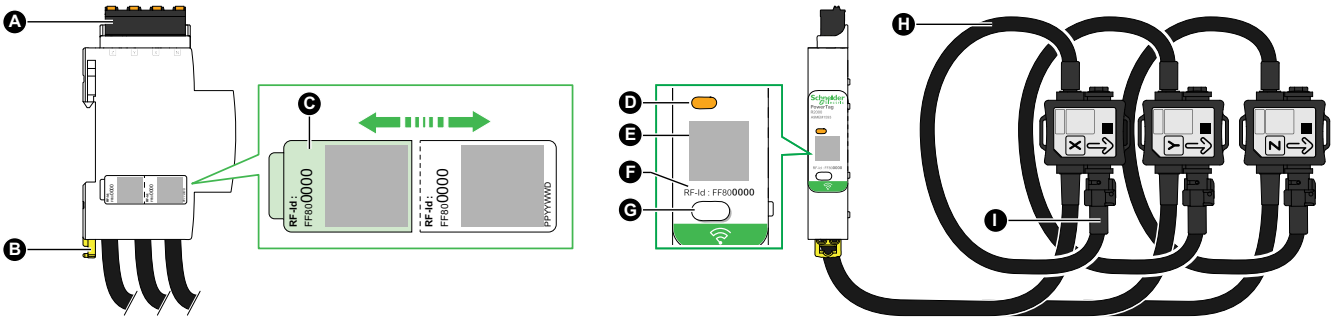
Used together with a gateway or a Panel Server to collect and process the data, the PowerTag Energy Rope provides circuit monitoring and diagnosis down to load level.

PowerTag Energy Rope 200 A, 600 A, 1000 A, and 2000 A are designed for molded case circuit breakers and switch-disconnectors for 3P and 3P+N electrical networks.

With its flexible and openable current sensors, the PowerTag Energy Rope can be installed easily around conductors, cables, or busbars. The removable spring connector for voltage picking facilitates the PowerTag Energy Rope installation. The PowerTag Energy module can be mounted on a DIN rail or maintained with brackets where needed in a switchboard.

For more information about installation, consult the instruction sheet on the Schneider Electric website: GDE25175.

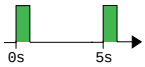
Description



A. Withdrawable connector for voltage take-offs connection
B. Clip for DIN rail mounting
C. Label with a detachable adhesive part carrying a QR code and a RF-Id identifier, used during commissioning on certain concentrators or gateways
D. Status LED
E. QR code to access device information
F. RF-Id identifier
G. In the case of loss of communication, press the button for 10 s to unpair the product.
H. Flexible current sensor
I. Current sensor locking clasp

Status LED

Use the LED indication to confirm that the PowerTag is working during commissioning or maintenance operations.

Status LED	Description	Action
	PowerTag switched off.	None or check power supply depending on operation type.
	PowerTag searching a concentrator or gateway.	Wait until the concentrator or gateway is identified.
	PowerTag in identification mode.	Wait until PowerTag is in network.
	PowerTag in network. Normal communication with the concentrator or gateway or gateway.	None
	Occasional loss of communication.	Check communication setting with the concentrator or gateway.
	Loss of communication with the concentrator or gateway.	Check communication setting with the concentrator or gateway.
	Internal error detected.	Replace the PowerTag.

Data Available

To get the list of data available, refer to the relevant gateway or Panel Server user guide. Data available depends on the gateway.

Commissioning

To commission the PowerTag Energy, refer to the user guide of the gateway or Panel Server to which the PowerTag Energy is to be paired to. Commissioning is different from a gateway to another.

ComPacT NS Commissioning and Maintenance

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Maintenance 105
Maintaining the ComPacT NS During Operation 113
What to Do When the Circuit Breaker Trips 121
Troubleshooting 123

Commissioning

List of Checks and Inspections

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462 or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Put back all devices, doors, and covers before turning on power to this equipment.
- Repair the installation immediately if an insulation fault occurs during operation.

Failure to follow these instructions will result in death or serious injury.

When starting up new equipment, or following lengthy downtime, a general check takes a few minutes. Such a check helps to remove the risk of a malfunction due to error or oversight.

Many malfunctions result from non-observance of the commissioning instructions or lack of knowledge concerning the equipment and/or switchgear procedures. Schneider Electric instruction sheets, available online, contain clear instructions for operators or maintenance personnel on how to correct malfunctions. The PDF files may be downloaded from the Schneider Electric website.

NOTE: A check must be carried out with the entire switchboard de-energized. In switchboards with compartments, only those compartments that may be accessed by the operators must be de-energized.

The following table indicates the checks and inspections to be performed according to the event:

	A	B	C	D	E	F	G	H	I	J
Before commissioning	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Periodically during operation	✓	–	–	✓	✓	✓	✓	✓	✓	✓
After carrying out work on the switchboard	–	✓	✓	✓	✓	✓	✓	✓	✓	✓
Periodically during lengthy downtime	–	✓	–	✓	✓	–	✓	–	✓	✓
Following lengthy downtime	–	✓	–	✓	✓	✓	✓	✓	✓	✓
Following lengthy downtime and modification to the switchboard	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

A Insulation and dielectric strength tests
B Inspect switchboard
C Check compliance with the diagram
D Inspect mechanical equipment
E Check connections
F Check mechanical operation
G Check electronic trip units
H Check pairing of the wireless devices with gateway or panel server
I Check communication
J Clean equipment

A: Insulation and Dielectric Strength Tests

⚠CAUTION

HAZARD OF EQUIPMENT DAMAGE

Insulation and dielectric strength tests must only be carried out by qualified electrical personnel.

Failure to follow these instructions can result in injury or equipment damage.

Insulation and dielectric strength tests are carried out before the switchboard is delivered. These tests are subject to the currently applicable standards.

Prior to running the tests, it is absolutely necessary to:

- Disconnect all the electrical auxiliaries of the device (MX, MN).
- Remove the long-time rating plug on the MicroLogic trip units.

Removal of the rating plug disconnects the voltage measurement input.

B: Inspection of the Switchboard

Check that the devices are installed:

- In a clean environment, where no waste has been left behind from assembling the equipment (for example, wiring, tools, shavings, metallic particles).
- In a properly ventilated switchboard (unobstructed ventilation grilles).

C: Compliance With the Installation Diagram

Check that the devices conform with the installation diagram:

- Identification of the feeds on the front of each device.
- Rating and breaking capacities (indicated on the rating plate).
- Identification of the trip unit (type, rating).
- Presence of additional functions (external current sensor, control or indication auxiliaries, locking, sealing).
- Protection settings.
- MicroLogic trip unit: visually check the position of the dials or the main settings.
- Identification of the protected circuit marked on the front of each device.

D: Inspection of Mechanical Equipment

- Check the following body parts (see detailed topic , page 106 for more information):
  - Case
  - Are chute filters
  - Main contacts
- Check the mounting and mechanical strength of devices in the switchboard and of power connections.

- Check the mounting and mechanical strength of the following auxiliaries and accessories on the devices:
  - Installation accessories (for example, terminal shields, escutcheons)
  - Auxiliary circuit connections (see detailed topic, page 111 for more information)
  - Chassis and its sliding connections (see detailed topic, page 107 for more information)
  - Terminal blocks
  - Electrical auxiliaries
- Check the tightening of power connectors and tighten any loose connections (see detailed topic, page 107 for more information).
- Check the arc chute filters (see detailed topic, page 106 for more information).

E: Check Connections

Check the tightening torque of the power connections and auxiliary circuit connections, as described in the instruction sheets.

F: Mechanical Operation

- Check the following mechanical operations:
  - Mechanical opening and closing
  - Electrical opening
  - Tripping with the push-to-trip button
  - Resetting
  - Complete closing of device poles
- Check the locking and unlocking of locking accessories (for example, padlocks and keylocks).
- Check the auxiliary wiring and insulation of all auxiliaries (see detailed topic, page 111 for more information).
- Check the correct operation of the wired and wireless indication auxiliaries (see detailed topic, page 111 for more information).
- Check the service life of all auxiliaries.

G: Operation of Trip Units and Communication System

- Check the correct operation of the trip unit of each device, by using the respective user guide.
- Check the communication module and accessories (optional) (see detailed topic, page 112 for more information).
- Test device control and uploading of contact status.
- Test the uploading of the chassis position contacts and address synchronization between BCM ULP and IO module.
- Test data writing to the MicroLogic trip unit via the communication network.

H: Check Pairing of Wireless Devices with Gateway or Panel Server

Check that wireless communication with gateway or panel server is working correctly:

- For PowerTag Energy, LED is blinking green each time data is sent (every 5 seconds by default).
- For wireless indication auxiliaries, LED is blinking green each time data is sent (every 8 hours, or when status changes).

I: Check Communication

Check that the communication through the communication network works correctly. Refer to DOCA0093••*ULP (Universal Logic Plug) System - User Guide*, page 7.

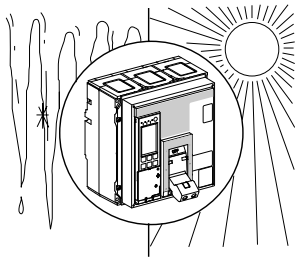
J: Clean Equipment

To avoid dust deposits that could affect the circuit breaker mechanical operation, clean the circuit breakers when performing maintenance:

- For non-metallic parts: always use a dry cloth. Do not use cleaning products.
- For metallic parts: preferably use a dry cloth. If a cleaning product must be used, do not apply or splash the product onto non-metallic parts.

Environmental Conditions

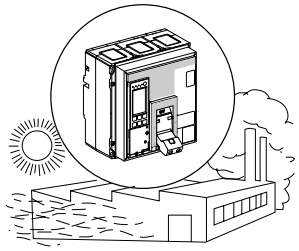
Ambient Temperature



The ambient temperature refers to the temperature of the air immediately surrounding the device.

- Operation temperature
  - -5 °C to +70 °C (23 °F to 158 °F): normal operating temperature
  - Down to -35 °C (-31 °F): device closing
- Storage temperature
  - -40 °C to +85 °C (-40 °F to 185 °F): ComPacT NS630-3200 circuit breakers without MicroLogic trip unit and ComPacT NS630–1600b switch-disconnectors
  - -25 °C to +85 °C (-13 °F to 185 °F): ComPacT NS circuit breakers with MicroLogic trip unit and ComPacT NS1600b-3200 switch-disconnectors

Extreme Atmospheric Conditions



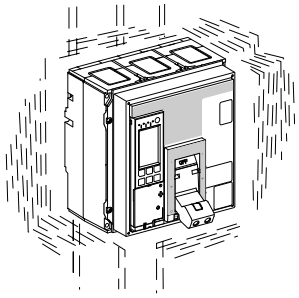
ComPacT NS devices have successfully passed the tests defined by the following standards for extreme atmospheric conditions:

- IEC 60068-2-1: dry cold at -55 °C (-67 °F)
- IEC 60068-2-2: dry heat at +85 °C (185 °F)
- IEC 60068-2-30: damp heat (temperature +55 °C (-67 °F), relative humidity 95%)
- IEC 60068-2-52 level 2: salt mist

ComPacT NS devices can operate in the industrial environments defined by standard IEC 60947-1 (pollution degree up to 3).

It is nonetheless advised to check that the devices are installed in suitably cooled switchboards without excessive dust.

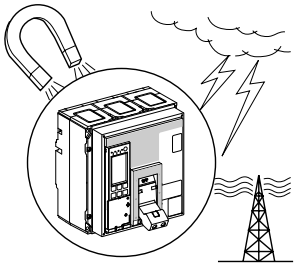
Vibrations



ComPacT NS devices have successfully passed testing in compliance with standard IEC 60068-2-6 for the levels required by merchant-marine inspection organizations (such as Veritas and Lloyd's):

- 2 to 13.2 Hz: amplitude ±1 mm (±0.04 in)
- 13.2 to 100 Hz: constant acceleration 0.7 g (0.25 oz)

Electromagnetic Disturbances



ComPacT NS devices are protected against:

- Overvoltages caused by devices that generate electromagnetic disturbances.
- Overvoltages caused by an atmospheric disturbance or by a distribution system outage (for example, interruption of a lighting system).
- Devices emitting radio waves (for example, radios, walkie-talkies, radar).
- Electrostatic discharges produced by users.

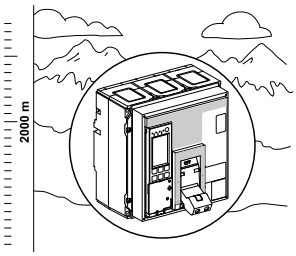
ComPacT NS devices have successfully passed the electromagnetic compatibility tests (EMC) defined by the following international standards:

- IEC 60947-2, annex F
- IEC 60947-2, annex B (trip units with earth-leakage function)

The above tests help to guarantee that:

- No nuisance tripping occurs.
- Tripping times are respected.

Altitude Derating



Altitude does not significantly affect device characteristics up to 2,000 m (6,600 ft). Above this altitude, it is necessary to take into account the decrease in the dielectric strength and cooling capacity of air. The following table gives the corrections to be applied for altitudes above 2,000 m (6,600 ft). The breaking capacities remain unchanged.

Altitude	**2000 m (6,600 ft)**	**3000 m (9,800 ft)**	**4000 m (13,000 ft)**	**5000 m (16,500 ft)**
Impulse withstand voltage Uimp (kV)	8	7.1	6.4	5.6
Rated insulation voltage (Ui)	1000	900	780	700
Maximum rated operational voltage 50/60 Hz Ue (V)	690	690	635	560
Rated current 40 °C (104 °F)	1 x In	0.99 x In	0.96 x In	0.94 x In

Intermediate values may be obtained by interpolation

Maintenance

What's in This Chapter

What to Maintain and Why 105
Maintaining Body Parts 106
Maintaining Connections 107
Maintaining Mechanisms For Device and Chassis 109
Maintaining Auxiliary Circuits 111
Maintaining the Communication System 112

What to Maintain and Why

Overview



This chapter describes the maintenance that needs to be done on the fixed parts and mechanisms of the ComPacT NS device and MicroLogic trip unit, and on accessories, as well as why they need to be maintained.

The following topics are described:

- Maintaining Body Parts, page 106
- Maintaining Connections, page 107
- Maintaining Mechanisms For Device and Chassis, page 109
- Maintaining Auxiliary Circuits, page 111
- Maintaining the Communication System, page 112

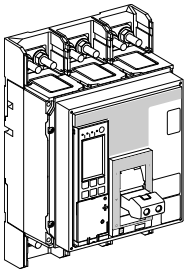
Maintaining Body Parts

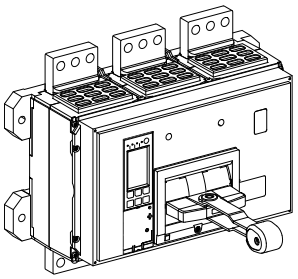
Overview

The main body parts to be maintained are:

- Case
- Arc chute and filters
- Main contacts

Maintaining the Case





The case of the device provides the following functions:

- Functional insulation between adjacent phases and between the phases and the exposed conductive.
- An insulation barrier to prevent users from touching live parts.
- Protection against the effects of electrical arcs and overpressure caused by short-circuits.

The case also fulfills an operational function by supporting the entire pole operating mechanism as well as the mechanical and electrical accessories of the switch disconnector.

On the case, there should be:

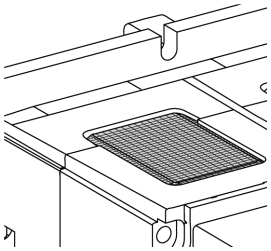
- no traces of grime (grease), no excessive dust, and no condensation which all reduce insulation.
- no signs of burns or cracks which would reduce the mechanical solidity of the case and thus its capacity to withstand short-circuits.

The case must be replaced if there are signs of burns or cracks. Preventive maintenance for the case consists of:

- A visual inspection of its general condition.
- Cleaning with a dry cloth or a vacuum cleaner.
- Measuring the case insulation resistance and the resistance of the breaking unit input/output contact. It is advised to measure the insulation every five years and following trips due to a short-circuit.

All cleaning products with solvents are strictly forbidden.

Inspecting the Arc Chute Filters



During a short-circuit, the arc chute extinguishes the arc and absorbs the high level of energy along the entire path of the short-circuit. Arc chutes also help to extinguish arcs under rated current conditions.

Each time an arc is interrupted by an arc chute, the separator plates of the arc chute are eroded. As the condition of the arc chute deteriorates, it is less effective at clearing short-circuits completely. The device can be damaged or destroyed as a result.

Preventive maintenance for the arc chutes consists in regular inspection of the filters, because blocked filters can cause overpressure. The filters can be slightly blackened (due to the gases produced at In).

It is recommended to use a vacuum cleaner instead of a cloth to remove dust from the outside of the arc chutes.

Maintaining Connections

Overview

This section describes how to maintain the connections of ComPacT NS devices:

- Power connections
- Sliding connections between the chassis and the device
- Fixed connections to the equipment

Power Connections

⚠WARNING

HAZARD OF EQUIPMENT DAMAGE AND THERMAL RUNAWAY

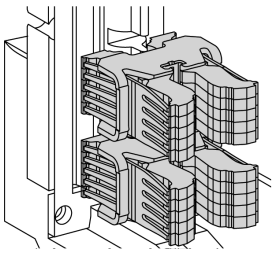
Do not use a combination of different materials for connections (for example, copper and aluminium).

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Power connections between the various distribution systems in a switchboard (busbars, cables) and the switchgear are a major source of heat loss.

Incorrect tightening can cause thermal runaway, which in turn can damage the device or cable insulation and can cause a short-circuit and even a fire. Damage can be due to disregard for installation requirements during switchboard assembly.

Sliding Connections Between Chassis and Device (For Withdrawable Devices)



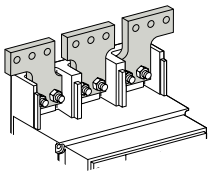
The sliding connections between the chassis and device are made up of two parts: clusters and disconnecting contacts. Grease between the clusters and the disconnecting contacts facilitates the connection and avoids damaging the silver-coated surface by reducing the racking-in friction.

The grease breaks down over time and it is therefore necessary to replace it regularly.

Preventive maintenance for the sliding connections consists in periodically removing grease and applying new grease in compliance with grease types recommended by Schneider Electric.

In sulphurous (corrosive) atmospheres (H_2S/SO_2), it is necessary to implement the cleaning procedure using Thiourea solution, with mandatory regreasing using the specified fluorinated grease. This type of grease protects the silver and copper-coated contacts against sulphuration, which can cause a build-up of silver or copper sulphide on the contacts. The insulating properties of silver or copper sulphide can increase the resistance of the contact and lead to greater temperature rise.

Fixed Connections



When connections using lugs or bars are made in compliance with Schneider Electric instructions (tightening torque, class 8.8 steel hardware and contact washer), no particular maintenance is required.

Otherwise, regularly check the temperature-rise points (change in color of copper or tinning), disassemble the connections, clean, and scrape the contact surfaces. Then reassemble the connections using new hardware.

Check the terminals.

Maintaining Mechanisms For Device and Chassis

Overview

This section describes how to maintain the connection system:

- Control auxiliaries
- Auxiliary wiring
- Indication contacts

Dusting

It is recommended to use a vacuum cleaner to remove dust.

Cleaning

Cleaning must be done using a clean and dry cloth or brush. Do not use solvents. Avoid greased parts of the mechanisms, except for grease on electrical contacts.

Recommendations for cleaning:

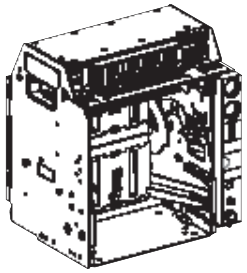
- Non-metallic parts:
  - Never use solvent, soap or any other cleaning product. Clean with a dry cloth only.
  -
- Metal parts:
  - Clean with a dry cloth whenever possible. If soap or any other cleaning product must be used, make sure that it does not come into contact with non-metallic parts.

General recommendations: Never use pressurized cleaning products or products containing solvents (trichloroethane or trichloroethylene) such as WD40.

Pressurized cleaning products can cause the following problems:

- Removal of grease from inaccessible lubrication points. These areas are greased for the life of the product and cannot be regreased.
- Corrosion of points that are not regreased.
- Damage caused by the pressure applied by the cleaning product.
- Temperature rise due to the presence of an insulating solvent in the contact zones.
- Elimination of special protection.
- Deterioration of plastic materials.

Greasing



Do not use too much grease. When excess grease mixes with dust it can affect the mechanism operation.

Greasing must be done after cleaning of some mechanical parts as described in the maintenance procedures. Use only grease recommended by Schneider Electric.

The main contacts must not be greased.

Under normal operating conditions, the pole-operating mechanism does not need to be regreased (greased for the life of the product).

Opening and Closing Cycles

The need to ensure continuity of service in an installation generally means that power devices are rarely operated. An excessive number of operating cycles accelerates aging and a lack of operation over a long period can result in mechanical malfunctions. Regular operation is required to maintain the normal performance level of all parts involved in the opening and closing cycles.

Maintaining Auxiliary Circuits

Overview

This section describes how to maintain the connection system:

- Control auxiliaries
- Auxiliary wiring
- Indication contacts wireless indication contacts

Auxiliary Wiring

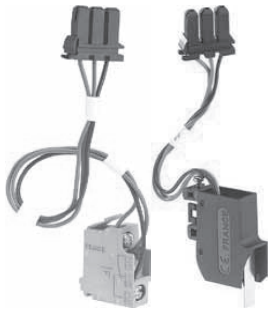


Auxiliary wiring is used to transmit the following information:

- Orders to the control devices
- Status condition information

Incorrect connections or damaged insulation can cause unexpected opening or non-operation of the device. The auxiliary wiring must be regularly inspected and replaced as required, particularly in environments with vibrations, high ambient temperatures, or corrosive atmosphere.

Indication Auxilaries



- Indication contacts

  The ON/OFF contacts indicate the position of the main contacts (OF).

  This information enables a remote operator to respond as necessary. Incorrect indications can result in erroneous device operation.
- Wireless indication auxiliary

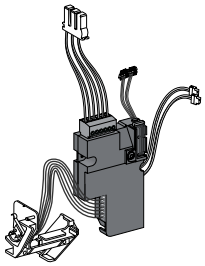
  The wireless indication auxiliary provides remote and local information about the circuit breaker status.

  The position of the wireless indication auxiliary inside the case, and the setting of the gateway or panel server, determine its function.

Improper contact performance can be caused by vibrations, corrosion, or abnormal temperature rises.

Preventive maintenance consists in regularly checking that contacts conduct or isolate correctly, depending on their position.

Maintaining the Communication System



Via the communication network, the communication module transmits data to a remote site for use by various departments (for example, maintenance, management, production). A break in the transmission of data can result in:

- Production losses due to unawareness of the status of the device
- Financial losses due to incorrect system management
- Diagnostic errors

Periodic checks on the orders (read, write, commands) transmitted by the communication network are required to maintain a high degree of reliability and confidence in the communication system.

Maintaining the ComPacT NS During Operation

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Favorable Conditions For Device Installed Inside a Switchboard 115
Harsh Conditions and Device Not Installed Inside a Switchboard 115
Device Check-up 116
Check After Prolonged Storage 117
Routine End-User Preventive Maintenance Program (Yearly) 118
Intermediate End-User Preventive Maintenance Program (Every 2 Years) 119
Manufacturer Preventive Maintenance Program (Every 5 Years) 120

Overview

The electrical switchboard and all its equipment continue to age whether they operate or not. This aging process is due mainly to environmental influences and operating conditions.

To ensure that your ComPacT NS device retains the operating characteristics specified in the catalogue for the whole of its service life, it is recommended that:

- the device is installed in optimum environmental and operating conditions.
- routine inspections and regular maintenance are carried out by qualified personnel.

Normal Conditions

The maintenance programme that must be carried out every one, two, or five years on ComPacT NS subassemblies and the level of competence required on the part of service agents are described in the tables of preventive maintenance programs:

- Routine end-user maintenance, page 118
- Intermediate end-user maintenance, page 119
- Manufacturer maintenance, page 120

At the end of each five year period, the maintenance programme must be systematically repeated.

These maintenance operations apply for normal operating and environment conditions as defined below.

Normal operating and environmental conditions	
Temperature	Average annual temperature <25 °C (77 °F) outside the switchboard (Ti(1))
Percent load	< 80% of In 24/24 hours
Harmonics	Harmonic current per phase < 30% of In
Relative humidity	< 70%
Corrosive atmosphere	Device installed in environment category 3C1 or 3C2 (IEC 60721-3-3)
Salt environment	No salt mist
Dust	Low level Device installed in a switchboard equipped with filters or a ventilated IP54 enclosure
Vibration	Permanent vibration < 0.2 g (0,007 oz)

Beyond the above limits, the device can suffer accelerated aging that may rapidly result in malfunctions. For this reason, periodic checks must be carried out at shorter time intervals. On the other hand, when special efforts are made to improve the operating and environment conditions, preventive maintenance operations can be carried out less often.

(1) Ti: temperature around the circuit breaker and its connections.

Favorable Conditions For Device Installed Inside a Switchboard



The time interval between two preventive maintenance visits can be doubled if all the conditions presented below are met.

The only exception is the check-up program recommended for the fifth year.

Favorable operating and environmental conditions for device installed inside a switchboard	
Temperature	Average annual temperature <25 °C (77 °F) outside the switchboard (Ti(2)). The device is installed in an air-conditioned room or in a ventilated enclosure.
Percent load	< 50% of In 8/24 hours or 24/24 hours
Relative humidity	< 50%
Corrosive atmosphere	Device installed in environment category 3C1 or in a closed room that creates favorable conditions (air is conditioned and purified)
Salt environment	None
Dust	Negligible Device installed in a switchboard equipped with filters or a ventilated IP54 enclosure
Vibration	None

Example depending on the conditions:

- Normal: check on charging time = 2 years
- Favorable: check on charging time = 2 x 2 = 4 years

Harsh Conditions and Device Not Installed Inside a Switchboard



The time interval between two preventive maintenance visits must be reduced by half if any of the conditions presented below are present.

Harsh operating and environmental conditions	
Temperature (annual average)	Average annual temperature around the switchboard: 35 °C to 45°C (95 °F to 113°F) (Ti(2))
Percent load	> 80% of In 8/24 hours or 24/24 hours
Relative humidity	> 80%
Corrosive atmosphere	Device installed in environment category 3C3 or 3C4 without any particular protection
Salt environment	Installation < 10 kilometers from seaside and device without any particular protection
Dust	High level Device not installed inside an enclosure equipped with filters or a ventilated IP54 enclosure
Vibration	Continuous vibrations between 0.2 g (0,007 oz) and 0.5 g (0,018 oz)

Example depending on the conditions:

- Normal: check on charging time = every 2 years
- Harsh: check on charging time = 0.5 x 2 = 1 (every year)

(2) Ti: temperature around the circuit breaker and its connections.

Device Check-up

During the fifth year of operation, it is advised to run a complete check-up on the device to determine its status condition.

This diagnostic check must be carried out by Schneider Electric Services or by maintenance personnel who are accredited for Manufacturer maintenance. Accreditation requires attending Manufacturer maintenance training at the Schneider Electric training center.

The complete diagnostic check must be systematically carried out following:

- Tripping due to a short-time or instantaneous short-circuit.
- Five trips due to overloads.

See the Manufacturer Preventive Maintenance Program, page 120.

Check After Prolonged Storage

Storage Conditions

Devices must be stored in a dry, ventilated room, protected from rain, water and chemical agents.

They must be well protected against dust, rubble, paint, for example.

If storage is for an extended period, the relative humidity in the room must be maintained below 70%.

Storage conditions:

- Devices without their trip unit: -40 °C to +85 °C (-40 °F to 185°F)
- Devices with their trip unit: -25 °C to +85 °C (-13 °F to 185°F)

Devices must be stored in the open (OFF) position with the charging springs discharged.

Check and Maintenance

After extended storage and if the conditions above are respected, the checks below must be carried out to ensure correction device operation.

Storage ≤ 2 years

Run the second year and Intermediate End-User preventive maintenance programs on the following subassemblies:

- Mechanism
- Device and chassis locking
- Chassis (optional)

Storage > 2 years

Run the fifth year diagnostic Intermediate End-User and Manufacturer preventive maintenance programs on the following subassemblies:

- Mechanism
- Control auxiliaries
- Device and chassis locking
- Chassis (optional)

If the devices are stored under harsh conditions (high temperature, corrosive atmosphere), it is necessary to:

- Check the surface condition of the metal parts (zinc) and the copper parts (silver coatings (Ag) or tinning (Sn)).
- Check the greasing for the device and chassis.

Routine End-User Preventive Maintenance Program (Yearly)

Minor preventive maintenance operations such as greasing and operating checks, as well as repairs by standard exchange of certain assemblies, carried out by a certified customer employee according to the manufacturer maintenance instructions.

Part	Procedure title	Year					Tool
		1	2	3	4	5 (3)	
Device	Check the general condition of the device (escutcheon, case, chassis, connections, terminal shields).	✓	✓	✓	✓	✓	None
Mechanism	Open/close device manually.	✓	✓	✓	✓	✓	None
	Check complete closing of device poles.	✓	✓	✓	✓	✓	None
	Check number of device operating cycles.	✓	✓	✓	✓	✓	Operation counter
Breaking unit	Check the cleanliness of the filters.	✓	✓	✓	✓	✓	None
Control auxiliaries (electrical operated device)	Check auxiliary wiring and insulation.	✓	✓	✓	✓	✓	None
Device locking	Open and close keylocks installed on device.	✓	✓	✓	✓	✓	None
	Open and close padlocking system installed on device.	✓	✓	✓	✓	✓	None
Chassis (optional)	Remove device from chassis and put it back.	✓	✓	✓	✓	✓	None
	Check operation of position contacts (CE, CT, CD).	✓	✓	✓	✓	✓	None
	Check operation of safety shutters.	✓	✓	✓	✓	✓	None
Chassis locking (optional)	Open and close keylocks installed on chassis.	✓	✓	✓	✓	✓	None
	Operate padlocking system.	✓	✓	✓	✓	✓	None

(3) These checks are carried out by Schneider Electric Services during the diagnostic check every fifth year, page 120.

Intermediate End-User Preventive Maintenance Program (Every 2 Years)

General preventive maintenance operations such as general adjustments, troubleshooting and diagnosis of breakdowns, repairs by exchange of components or functional parts, minor mechanical repairs, carried out by a qualified customer technician using the tools and measurement/setting devices specified in the manufacturer maintenance instructions.

Part	Procedure title	Year					Tool
		1	2	3	4	5 (4)	
Mechanism	Check general condition of mechanism.	–	✓	–	✓	✓	Screwdriver
Control auxiliaries (electrical operated device)	Check closing operation of control auxiliary XF at 0.85 Un.	–	✓	–	✓	✓	External power supply
	Check opening operation of control auxiliary MX at 0.70 Un.	–	✓	–	✓	✓	External power supply
	Check operation of control auxiliary MN/MNR between 0.35 and 0.70 Un	–	✓	–	✓	✓	External power supply
	Check delay of MNR devices at 0.35 and 0.70 Un.	–	✓	–	✓	✓	External power supply
	Check MX tripping time.	–	✓	–	✓	✓	Tester
Chassis (optional)	Dust and regrease chassis.	–	✓	–	✓	✓	Mobilith SHC100
	Regrease disconnecting-contact clusters (specific case of corrosive atmospheres).	–	✓	–	✓	✓	Mobilith SHC100
Power connections	Check and tighten loose connections.	Only after a visual inspection showing overheating marks					Dynamometric crank

(4) These checks will be carried out by Schneider Electric Services during the diagnostic check every fifth year, page 120.

Manufacturer Preventive Maintenance Program (Every 5 Years)

All major preventive and corrective maintenance work carried out by the Schneider Electric after-sales support department.

Part	Procedure title	Year					Tool
		5	10	15	20	25	
Case	Measure insulation resistance.	✓	✓	✓	✓	✓	Ohmmeter
Breaking unit	Measure the voltage drop across main contacts for each pole.	✓	✓	✓	✓	✓	Ohmmeter + Injection unit
Control auxiliaries	Preventive replacement of control auxiliaries.(5)	–	–	✓	–	–	None
MicroLogic trip unit	MicroLogic replacement.(6)	–	–	✓	–	–	None
	Check DIN/DINF tripping using performer test tool.	✓	✓	✓	✓	✓	Performer test kit
Chassis (optional)	Check connection/disconnection torque.	✓	✓	✓	✓	✓	Dynamometric crank
Communication module and accessories	Test the device control, the uploading of contact status (OF, SD, SDE) operation of optical link, by using the communication network.	✓	✓	✓	✓	✓	Service Interface+ EcoStruxure Power Commission software
	Test by using the communication network: • Uploading of chassis position contacts. • Synchronisation of the address between BCM ULP and IO module. • Forced replication of the BCM address.	✓	✓	✓	✓	✓	Service Interface+ EcoStruxure Power Commission software
	Test the writing of data into MicroLogic by using the communication network.	✓	✓	✓	✓	✓	Service Interface+ EcoStruxure Power Commission software

(5) For critical power applications it is recommended to replace the MicroLogic trip unit and the control auxiliaries after 10 years. In case of harsh environmental conditions, it may be required to reduce this time: see Harsh Conditions and Device Not Installed Inside a Switchboard, page 115. Schneider Electric will help you to define the most appropriate and adequate maintenance plan specific to you application.

(6) For critical power applications it is recommended to replace the MicroLogic trip unit and the control auxiliaries after 10 years. In case of harsh environmental conditions, it may be required to reduce this time: see Harsh Conditions and Device Not Installed Inside a Switchboard, page 115. Schneider Electric will help you to define the most appropriate and adequate maintenance plan specific to you application.

What to Do When the Circuit Breaker Trips

Overview

Local and remote indication provides information on the probable cause of a trip. In particular, the indications specific to the MicroLogic trip unit provide a high level of certainty about the cause of the trip (see *MicroLogic trip unit user guides*).

There are several types of trip cause:

- Electrical faults on the installation
- Device malfunction
- Intentional tripping

Note the Trip

Trips are signalled locally and remotely by the indicators and auxiliary contacts installed on devices (depending on each configuration). See ComPacT NS Electrical Auxiliaries, page 85 and the user guide of the trip unit for information on the trip indications available with your device.

Identify the Cause of Tripping

Identify the cause of tripping. A circuit breaker must never be reclosed (locally or remotely) before the cause of the trip has been identified and cleared.

Depending on the type of trip and the criticality of the loads, a number of precautionary measures must be taken, in particular the insulation and dielectric tests on a part of or the entire installation. These checks and test must be directed and carried out by qualified personnel.

Inspect the Circuit Breaker Following a Short-Circuit

- Check the tightness of connections (see the device installation manual).
- Check the disconnecting contact clusters.

Reset the Device

The device can be reset locally. See detailed topic for information about how the device can be reset:

- For ComPacT NS630b-1600 with toggle handle, page 25
- For ComPacT NS630b-1600 with direct rotary handle, page 33
- For ComPacT NS630b-1600 with extended rotary handle, page 46
- For ComPacT NS1600b-3200, page 81

Maintenance of the Equipment Following Trip on Electrical Fault

The fact that the protection has tripped does not remedy the cause of the electrical fault on the downstream equipment.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must be installed and serviced by qualified electrical personnel.
- Disconnect all power sources before performing maintenance inspections.
- Assume that all circuits are live until they are completely de-energized, tested, grounded and tagged.
- Consider all sources of power, including the possibility of backfeeding and control power.
- Always use a properly rated voltage sensing device to confirm power is off.
- Put back all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

⚠CAUTION

HAZARD OF CLOSING ON ELECTRICAL FAULT

Do not close the circuit breaker again without first inspecting and, if necessary, repairing the downstream electrical equipment.

Failure to follow these instructions can result in injury or equipment damage.

Depending on the type of electrical fault, maintenance inspections must be carried out on all or part of the equipment where the electrical fault occurred (see Commissioning, page 99):

- Minor faults:
  - Tripped by long time protection
  - Tripped by earth-leakage protection

  Following repairs, checks D, E, and F must be carried out.
- Serious or destructive faults:
  - Tripped due to unknown electrical fault
  - Tripped by short time protection
  - Tripped by ground fault protection

Following repairs, checks A, B, D, E, and F must be carried out. The device that tripped must be specifically checked (see Maintaining the ComPacT NS During Operation, page 113) before being returned to service.

NOTE: Checks, tests, and inspections must be carried out by qualified personnel. If restarting is a high priority (for example, a critical installation), the defective part of the installation must be isolated and locked in OFF position in order to carry out this maintenance.

Troubleshooting

Fixed and Withdrawable Devices

Problem	Probable cause	Solutions
Device cannot be closed locally or remotely.	Device padlocked or keylocked in the open position.	Disable the locking function.
	Device not completely connected.	Terminate racking in (connection) of the device.
	MX opening release permanently supplied with power.	There is an opening order. Determine the origin of the order. The order must be cancelled before the device can be closed.
	MN undervoltage release not supplied with power.	There is an opening order. Determine the origin of the order.
		Check the voltage and the supply circuit (U > 0.85 Un). If the problem persists, replace the release.
	Permanent trip order in the presence of a MicroLogic P trip unit with minimum voltage and minimum frequency protection in Trip mode and the trip unit powered.	Disable these protection functions on the MicroLogic P trip unit.
Unexpected tripping.	MN undervoltage release supply voltage too low.	Check the voltage and the supply circuit (U > 0.85 Un).
	Load-shedding order sent to the MX opening release by another device.	Check the overall load on the distribution system.
		If necessary, modify the settings of devices in the installation.
	Unnecessary opening order from the MX opening release.	Determine the origin of the order.
Device cannot be opened remotely, but can be opened locally.	Opening order not executed by the MN undervoltage release.	Drop in voltage insufficient or residual voltage (> 0.35 Un) across the terminals of the undervoltage release. If the problem persists, replace the MN release.
Device cannot be opened locally.	Operating mechanism malfunction or welded contacts.	Contact a Schneider Electric service centre.

Withdrawable Devices

Problem	Probable cause	Solutions
Impossible to insert the racking handle in connected, test, or disconnected position.	A padlock or keylock is present on the chassis or a door interlock is present.	Disable the locking function.
Impossible to turn the racking handle.	The reset button has not been pressed.	Press the reset button.
Device cannot be removed from chassis (optional).	Device not in disconnected position.	Turn the racking handle until the device is in disconnected position and the reset button is out.
	The rails are not completely out.	Pull the rails all the way out.
Device cannot be connected (racked in) (optional).	Chassis/device mismatch protection.	Check that the chassis corresponds with the device.
	The safety shutters are locked.	Remove the lock(s).
	The disconnecting-contact clusters are incorrectly positioned.	Reposition the clusters.
	Chassis locked in disconnected position.	Disable the chassis locking function.
	The device has not been sufficiently inserted in the chassis.	Insert the device completely so that it is engaged in the racking mechanism.

Problem	Probable cause	Solutions
Device cannot be locked in disconnected position (optional).	The device is not in the right position.	Check the device position by making sure the reset button is out.
	The racking handle is still in the chassis.	Remove the racking handle and store it.
Device cannot be locked in connected, test, or disconnected position.	Check that locking in any position is enabled.	Contact a Schneider Electric service centre.
	The device is not in the right position.	Check the device position by making sure the reset button is out.
	The racking handle is still in the chassis.	Remove the racking handle and store it.

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