Transferpact

Projet Catalogue 2018

Source-changeover systems

schneider-electric.com

Life Is On Schneider Electric

Green Premium™

Endorsing eco-friendly products in the industry

Green Premium™
Product

Green Premium is the only label that allows you to effectively develop and promote an environmental policy whilst preserving your business efficiency. This ecolabel guarantees compliance with up-to-date environmental regulations, but it does more than this.

Over 75% of Schneider Electric manufactured products have been awarded the Green Premium ecolabel

Discover what we mean by green …

Check your products!

Schneider Electric's Green Premium ecolabel is committed to offering transparency, by disclosing extensive and reliable information related to the environmental impact of its products:

RoHS

Schneider Electric products are subject to RoHS requirements at a worldwide level, even for the many products that are not required to comply with the terms of the regulation. Compliance certificates are available for products that fulfil the criteria of this European initiative, which aims to eliminate hazardous substances.

REACh

Schneider Electric applies the strict REACh regulation on its products at a worldwide level, and discloses extensive information concerning the presence of SVHC (Substances of Very High Concern) in all of its products.

PEP: Product Environmental Profile

Schneider Electric publishes complete set of environmental data, including carbon footprint and energy consumption data for each of the lifecycle phases on all of its products, in compliance with the ISO 14025 PEP ecopassport program. PEP is especially useful for monitoring, controlling, saving energy, and/or reducing carbon emissions.

EoLI: End of Life Instructions

Available at the click of a button, these instructions provide:

- Recyclability rates for Schneider Electric products.
- Guidance to mitigate personnel hazards during the dismantling of products and before recycling operations.
- Parts identification for recycling or for selective treatment, to mitigate environmental hazards/ incompatibility with standard recycling processes.

A source-changeover system is indispensable:

For critical applications
in particular

For all others
in general

A source-changeover system is indispensable for applications that need a continuous supply of electric power (hospitals, airports, banks, government facilities, etc.).

But a source-changeover system is also suitable for all LV electrical installations exposed to:

> Nominal voltage loss or dip (when there is high demand for electric power)

> Unpredictable power quality

> Frequent power cuts.

These factors, and many others, can damage the continuity of service of your electrical installation.

For infrastructure managers, a source-changeover system gives direct economic benefits: it is possible to select your source based on power cost.
In this case, the replacement source is used as an alternative, more economical source.

> Managing energy efficiently

> Power Cost

> Safety

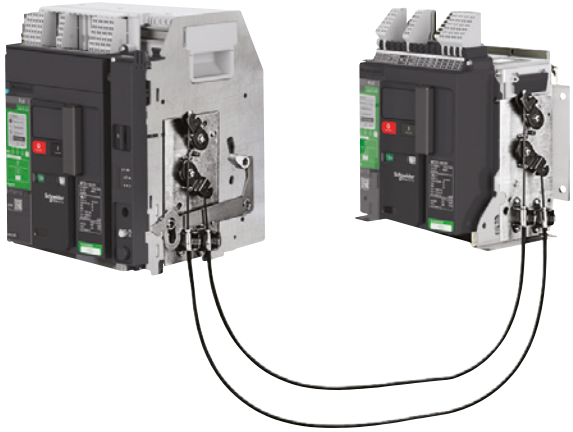
Where backup supply must be reliable: now that is everywhere.

Electricity is the fuel that feeds economic activity. Very few operations can withstand the financial impact of an electrical stoppage.

For occupant comfort, business continuity, and worker/visitor safety, dependability levels which used to apply to hospitals or airports are now becoming required in shopping malls and offices.

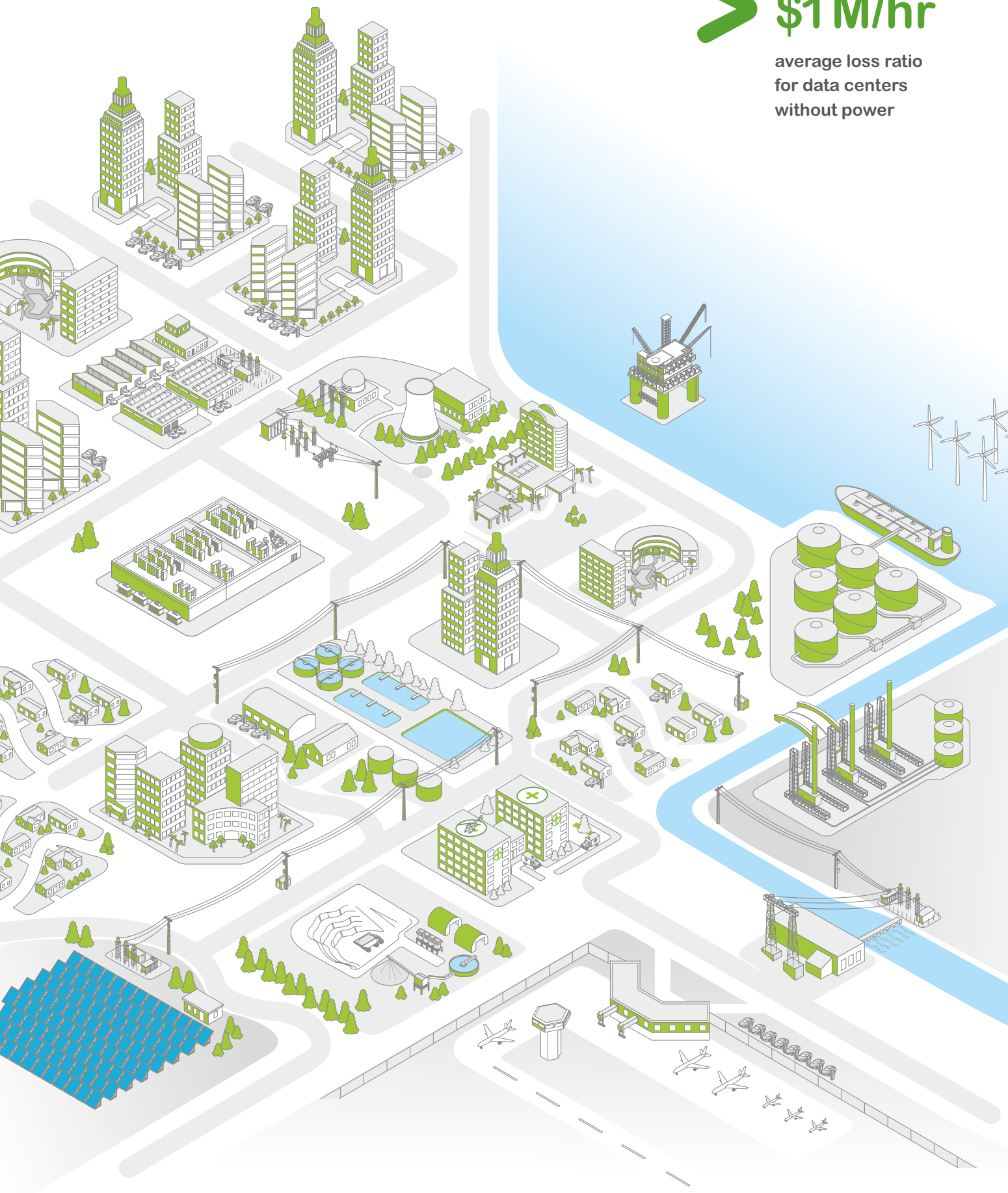
Additionally, utility companies make their contracts more sophisticated to deal with energy concerns: for example, by including time restrictions to total accessible power.

For these reasons, backup power sources expand across all types of buildings, and require high performance connection and management.
Enabling you to meet these challenges, Transferpact comes as the natural continuation of the world leading low voltage distribution system developed by Schneider Electric.



> $1 M/hr

average loss ratio
for data centers
without power



3 ways to switch the load to meet your needs

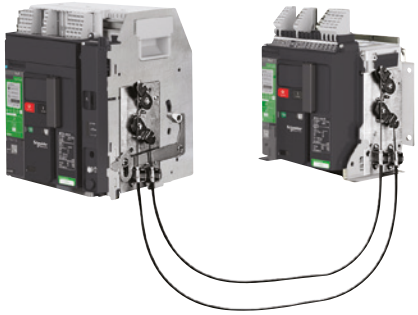
1 Manual source-changeover system

(or MTSE: Manual Transfer Switching Equipment)

The simplest way to switch the load. It is controlled manually by an operator. The time required to switch from the 'N' source to 'R' source can vary.

System

2 or 3 mechanically interlocked manually-operated circuit breakers or 2 switch-disconnectors.



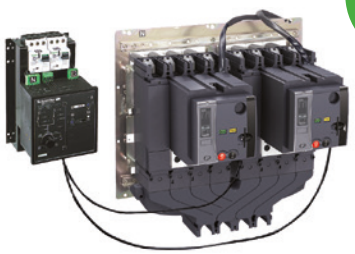
2 Remote-operated source-changeover system

(or RTSE: Remote Transfer Switching Equipment)

The most commonly used system for devices with high ratings. No direct human intervention is required. Source-changeover is controlled electrically.

System

2 or 3 circuit breakers that may have different configurations, linked by an electrical interlocking system.
In addition, a mechanical interlocking system protects against electrical malfunctions or incorrect manual operations.



3 Automatic source-changeover system

(or ATSE: Automatic Transfer Switching Equipment)

An automatic controller may be added to a remote-operated source-changeover system. It is possible to automatically control source transfer according to programmed (dedicated controllers) or programmable (PLC) operating modes. **These solutions ensure optimum energy management.**

System

2 or 3 circuit breakers that may have different configurations, linked by an electrical interlocking system. A mechanical interlocking system protects against electrical malfunctions or incorrect manual operations, with an automatic control system (dedicated controllers or PLC).

Applications

Buildings and infrastructure where the need for continuity of service is significant but not a priority: offices, small and medium-sized businesses.

Applications

Industry (assembly lines, engine rooms on ships, critical auxiliaries in thermal powerstations, etc.);
Infrastructure (port and railway installations, runway lighting systems, control systems on military sites, etc.).

Applications

Commercial and service sector (operating rooms in hospitals, safety systems for buildings, computer rooms for banks and insurance companies, lighting and emergency lighting systems in malls, etc.), **industry and infrastructure.**

Whatever the system, you benefit from our expertise!

For many years Schneider Electric's source changeover system have proved their reliability everywhere around the world, in most power dependable buildings. Switching is performed by Compact or Masterpact circuit breakers, the ultimate references in industrial switchgear.

Maximum continuity of service

> Energy availability is ensured whatever the external requirements (e.g. high power demand).
> Maintenance and replacement of the sources (N or R) can be done with no interruption of service.

You can maintain a continuous level of service and customer satisfaction.

Maximum safety

For LV electrical installations where safety and continuity of service are critical for people and/or equipment such as hospitals, airports, banks, malls, etc.

Optimized energy management

> Transfer the load to a replacement source according to external requirements.
> Manage power sources according to power quality and power costs.
> Perform system regulation.
> Switch to an emergency replacement source.

You are no longer dependent on your power supply (and supplier)!

Simplicity and reliability

> **Simple installation** on LV switchboard.
> **Optimized size** of the switchboard.
> System **based on pre-tested components.**
> Compliance with **IEC 60947-6-1.**

Transferpact

(Source-changeover systems)

General contents

A

B

C

D

For maximum continuity of service...

Incoming feeders and main LV switchboards

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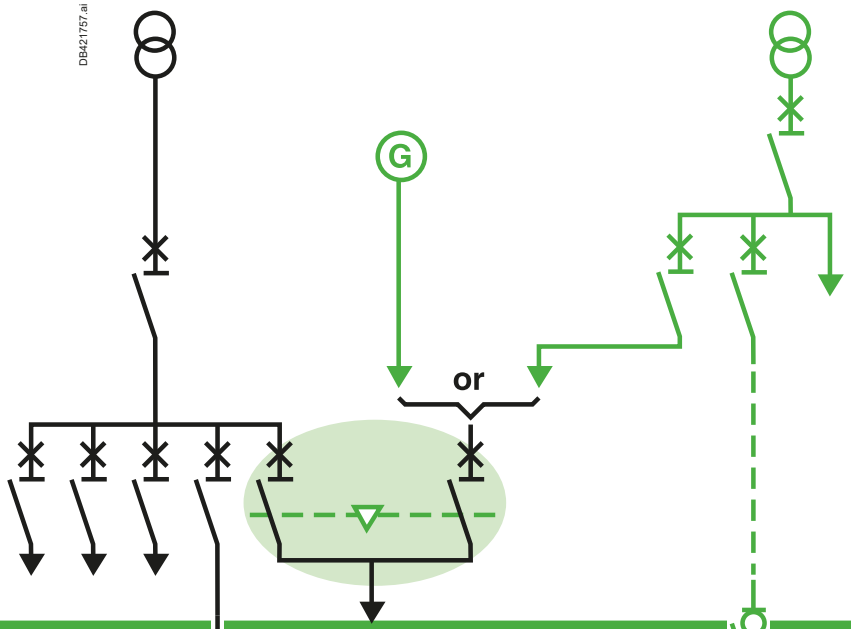
Currents
From 630 to 6300 A.

DB421757.ai



Power distribution

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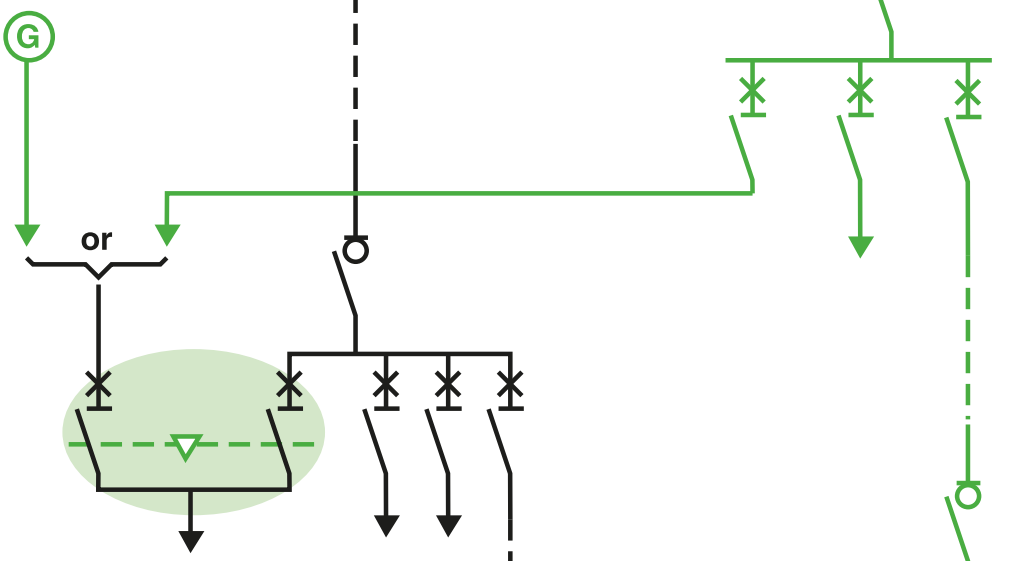
Currents
From 250 to 3200 A.



Loads

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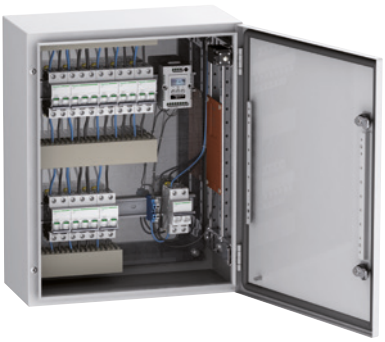
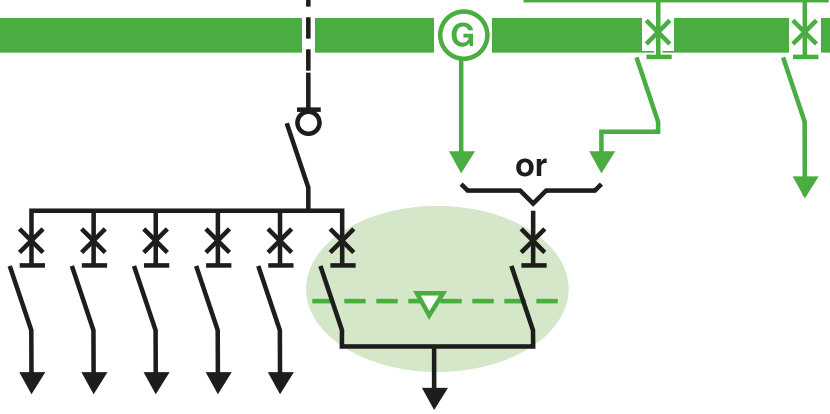
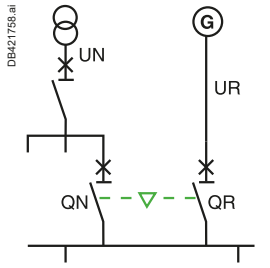


Currents
From 40 to 400 A.



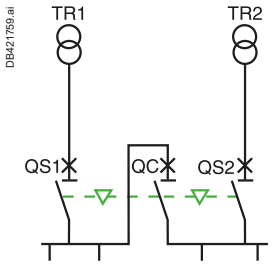
... in a wide range of applications

1 normal source
1 replacement source



QN	QR
0	0
1	0
0	1

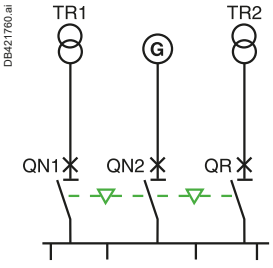
2 sources with coupler on busbars



QS1	QC	QS2
0	0	0
1	0	1
1	1	0
0	1	1
1	0	0 (1)
0	0	1 (1)

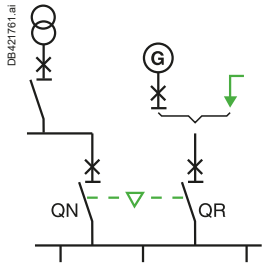
(1) possible by forcing operation.

2 normal sources
1 replacement source



QN1	QN2	QR
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

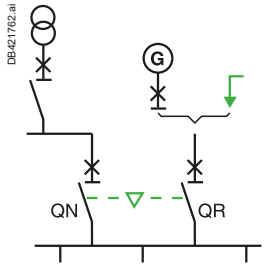
Generator or permanent source



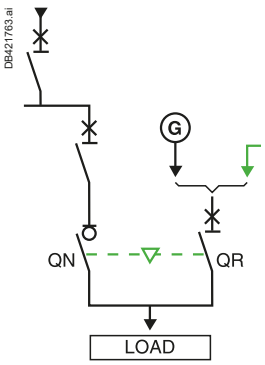
QN	QR
0	0
1	0
0	1

Typical applications:
- continuous production processes
- operating rooms
- computer rooms...

Generator or permanent source



Generator or permanent source



QN	QR
0	0
1	0
0	1

Typical applications:
- large electrical installations (e.g. airports)
- refrigeration units
- special electricity tariffs
- pumping stations...

Other informations

Compact NSXm - NSX

> LVPED217032EN

Compact INS/INV

> LVPED213024EN

Compact NS

> LVPED211021EN

Masterpact MTZ

> LVPED216026EN

Functions and characteristics

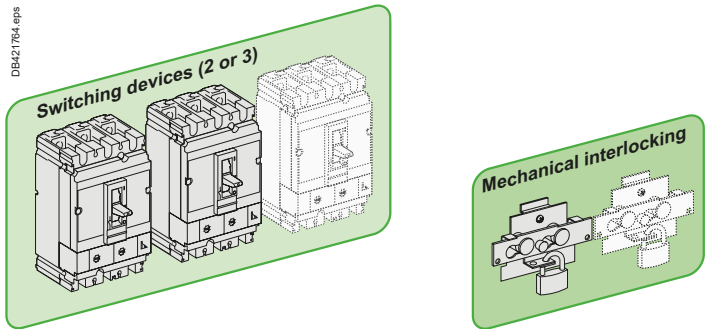
Other chapters
Presentation 2
Dimensions B-1
Electrical diagrams C-1
Catalogue numbers and order forms D-1

Manual, Remote and Automatic Transfer Switch

Schneider Electric offers source change-over systems based on Compact and Masterpact devices.
They are made of up to 3 circuit breakers or switch-disconnetors linked by an electrical interlocking system that may have different configurations. Moreover, a mechanical interlocking system must be added to protect against electrical malfunctions or incorrect manual operations. In addition, a controller can be used for automatically control the source transfer.
The following pages present the different solutions for mechanical and electrical interlocking and associated controllers.

Manual source-changeover system

(or MTSE: Manual Transfer Switching Equipment)

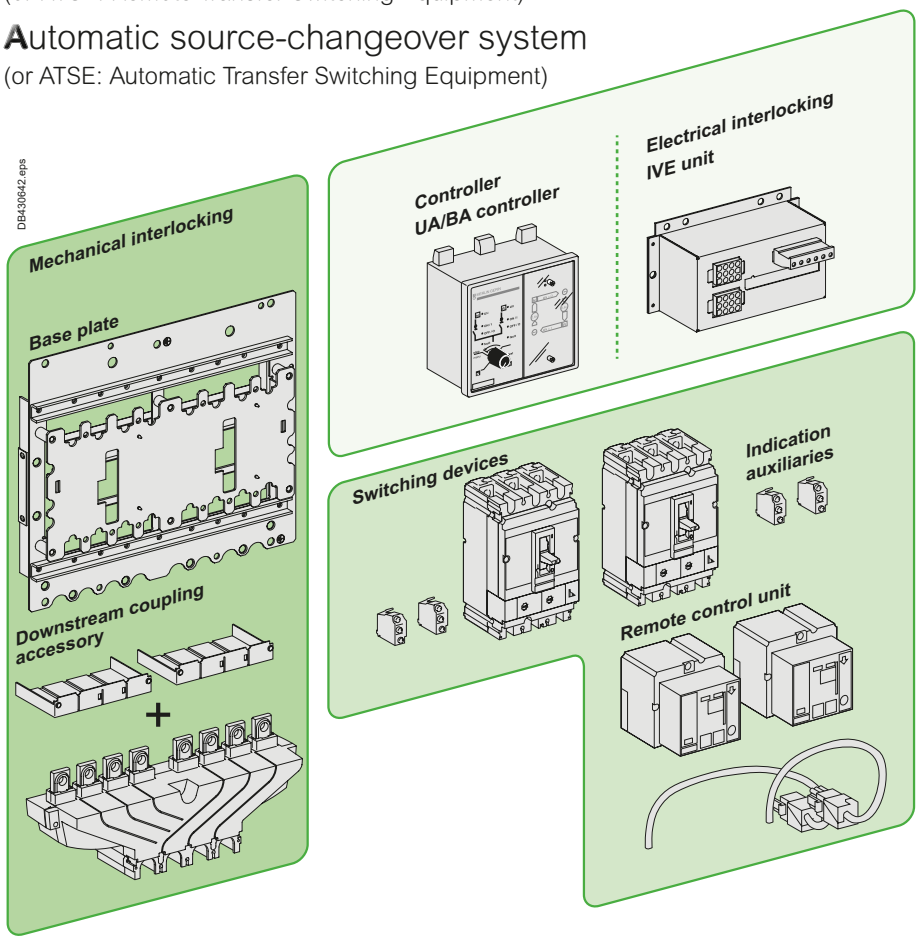


Remote-operated source-changeover system

(or RTSE: Remote Transfer Switching Equipment)

Automatic source-changeover system

(or ATSE: Automatic Transfer Switching Equipment)



A

Switching devices

Mechanical interlocking

Transferpact Electrical interlocking

Transferpact controller

Informations

IEC 60947-6-1 applies to transfer switching equipment (TSE) to be used in power systems for transferring a load supply between a normal and an alternate source (other power supply or generator).

TSE is classified according to
- ■ the method of controlling the transfer
  - □ manually transfer switching equipment (MTSE)
  - □ automatic transfer switching equipment (ATSE)
- ■ their short circuit capability
  - □ Class PC: TSE that is capable of making and withstanding, but not intended for breaking short-circuit currents. Switch and switch-disconnectors are the most useful products used.
  - □ Class CB: TSE that is capable of making, withstanding, it's intended for breaking short-circuit currents and is provided with over-current releases. Circuit breakers (air circuit breaker or moulded-case circuit breaker) are the most useful products used.

Switching devices
Class PC

Range		Compact INS	Compact INS/INV
Types of devices		INS40 to INS80 INS100 to INS160	INS250 to INS630 INV100 to INV630
Mixing possibilities		All devices, not possible with a complete assembly source-changeover	All devices, not possible with a complete assembly source-changeover
Electrical characteristics			
Current rating		40 to 160 A	100 to 630 A
Insulating voltage Ui (V AC)		750	800
Rated operational voltage			
Positive break indication		■	■
Number of poles (N and R devices must have the same number of poles)		3, 4	3, 4
Operating temperature		-25 °C and +70 °C	-25 °C and +70 °C
Additional indication and control auxiliaries			
Indication contacts		OF	OF
Voltage releases	MX shunt		
	MN undervoltage		
Voltage presence indicator		■	■
Voltage transformer			
Ammeter module		■	■
Insulation monitoring module			
Installation and connection			
Fixed front connected		■	■
Fixed rear connected		■	■
Withdrawable, plug-in or drawout			
Installation and connection accessories			
Downstream coupling accessory			■
Bare-cable connectors		■	■
Terminal extensions		■	■
Terminal shields and inter-phase barriers		■	■
Front panel escutcheons			■
Locking	by padlock	■	■
	by keylock	■	■

Range		Compact NSX		Compact NS	Masterpact	
Types of devices		NSX100 to NSX250	NSX400 to NSX630	NS630b to NS1600	MTZ1 06 to 16	MTZ2 08 to 40 MTZ3 40 to 63
Mixing possibilities		all devices	all devices	all devices	all mixing possibilities	all mixing possibilities
		NSX100NA to NSX250NA	NSX100NA to NSX630NA	NS630bNA to NSX1600NA	(fixed, drawout or fixed + drawout) HA	(fixed, drawout or fixed + drawout) NA/HA/HA10
		fixed/fixed or plug-in/plug-in	fixed/fixed or plug-in/plug-in	fixed/fixed or plug-in/plug-in		
Electrical characteristics						
Current rating		15 to 250 A	15 to 630 A	250 to 1600 A	600 to 1600 A	800 to 6300 A
Insulating voltage Ui (V AC)		750	750	750	1000	1000
Rated operational voltage						
Positive break indication		■	■		■	■
Number of poles (N and R devices must have the same number of poles)		3, 4	3, 4	3, 4	3, 4	3, 4
Operating temperature		-25 °C to +70 °C (50 °C for 440 V - 60 Hz)		-25 °C to +70 °C (50 °C for 440 V - 60 Hz)	-25 °C to +70 °C	
Control characteristics						
Control voltage	AC	48 V - 50 Hz 110/130, 220/240, 380/440 V - 50/60 Hz	48 V - 50 Hz 110/130, 220/240, 380/440 V - 50/60 Hz		48 to 415 V - 50/60 Hz 440 V - 60 Hz	
	DC	24-250 V	24-250 V	24-250 V	24-250 V	24-250 V
Maximum consumption	AC	500 VA	500 VA	180 VA	180 VA	180 VA
	DC	500 W	500 W	180 W	180 W	180 W
Minimum switching time		800 ms	800 ms	800 ms	800 ms	800 ms
Protection and measurement						
Earth-leakage protection	by Vigi module	■	■			
	by control unit			■	■	■
	by add-on Vigirex relay	■	■	■	■	■
Current measurements				■	■	■
Voltage, frequency, power measurements, etc.					■	■
Additional indication and control auxiliaries						
Indication contacts		OF + SDE (+ SDV)	3 OF + SDE (+ SDV)	2 OF + SDE	2 OF + SDE	2 OF + SDE
Voltage releases	MX shunt	■	■	■	■	■
	MN undervoltage	■	■	■	■	■
Voltage presence indicator		■	■			
Voltage transformer		■	■			
Ammeter module		■	■			
Insulation monitoring module		■	■			
Installation and connection						
Fixed front connected					■	■
Fixed rear connected		■ (long rear connections)	■ (long rear connections)	■ (vertical or horizontal)	■ (vertical or horizontal)	■ (vertical or horizontal)
Withdrawable, plug-in or drawout		■ (plug-in on base)	■ (plug-in on base)	■ (drawout)	■ (drawout)	■ (drawout)
Installation and connection accessories						
Downstream coupling accessory		■	■			
Bare-cable connectors		■	■	■		
Terminal extensions		■	■			
Terminal shields and inter-phase barriers			■	■		
Front panel escutcheons		■	■	■	■	■
Locking	by padlock	■	■	■	■	■
	by keylock	■	■	■	■	■

A

Complete source changeover assembly

	Transferpact FXM100 to 250			Transferpact FXM320 to 630		
	Normal ON	OFF	Replacement ON	Normal ON	OFF	Replacement ON
Locking by padlocks	○	◉	○	○	◉	○
Locking by keylock	-	◉	-	-	◉	-
Door locking [1]	◉	-	◉	◉	-	◉
Door lock defeat [1]	◉ [2]	-	◉ [2]	◉ [2]	-	◉ [2]
Door locking device padlocked [1]	-	◉	-	-	◉	-
Lead-sealable handle	○	◉	○	○	◉	○

◉ Standard. ○ By simple modification of the standard rotary handle.
[1] With extended rotary control. [2] Using a special tool.

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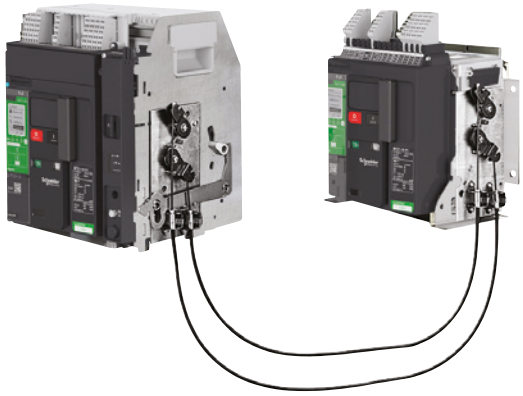

Compact NSX and Compact NS class PC and CB	NSX100 to 250	NSX400 to NSX630	NS630b to NS1600
Number of poles	3, 4	3, 4	3, 4
Rated current In (A)	100 to 250	400 to 630	630 to 1600
Mechanical durability (O_N-C_R-O_R-C_N cycles)	20000 - 40000 - 50000	15000	8000
Electrical durability at In (O_N-C_R-O_R-C_N cycles) for ≤ 440 V and 480 V NEMA [2]	10000 - 20000 - 30000	4000 - 6000	2000
Electrical durability at In (O_N-C_R-O_R-C_N cycles) for U = 500 V to 690 V [2]	5000 - 7500 - 10000	2000 - 3000	1500

Masterpact class PC and CB	MTZ1 06 to 10	MTZ1 12 to 16	MTZ2 08 to 16	MTZ2 20	MTZ2 25 to 40	MTZ3 40 to 63
Number of poles	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4
Rated current In (A)	630 to 1600	1250 to 1600	800 to 1600	2000	2500 to 4000	4000 to 6300
Mechanical durability [1] (O_N-C_R-O_R-C_N cycles)	8000	8000	10000	10000	10000	5000
Electrical durability at In (O_N-C_R-O_R-C_N cycles) [1] for ≤ 440 V and 480 V NEMA [2]	6000	6000 MTZ1 16: 3000	10000	8000	5000	1500
Electrical durability at In (O_N-C_R-O_R-C_N cycles) [1] for U = 500 V to 690 V [2]	3000	2000 MTZ1 16: 1000	10000	6000	2500	1500

[1] Mechanical and electrical durability not applicable to Masterpact H3 and L versions.
[2] Electrical durability tests carried out with a power factor of 0.8 as per IEC 947-2.

Note:
ON: opening of N source
CR: closing of R source
OR: opening of R source
CN: closing of N source

Transferpact FXM100 to 630 (complete source-changeover assembly)

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Complete source-changeover assembly.

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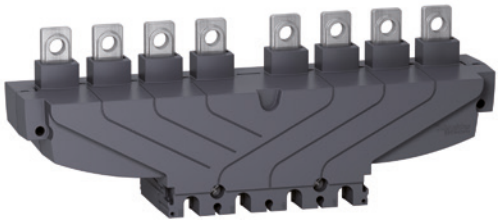


Coupling accessory.

FXM			
Number of poles			
Electrical characteristics as defined by IEC 60947-1 / 60947-6-1 and EN 60947-1 / 60947-6-1			
Conventional thermal current (A)	**Ith**	at 60 °C	
Conventional thermal current in enclosure	**Ithe**	at 60 °C	
Rated insulation level (V)	**Ui**	AC 50/60 Hz	
Impulse-withstand voltage (kV)	**Uimp**		
Rated operational voltage (V)	**Ue**	AC 50/60 Hz	
		DC	
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz	
Rated operational current (A)	**Ie**	**Electrical AC**	**50/60 Hz**
			220-240 V
			380-415 V
			440-480 V
			500-525 V
			660-690 V
		Electrical DC	
			125 V (2P in series)
			250 V (4P in series)
Rated duties		Uninterrupted duty	
		Intermittent duty	
Short-circuit making capacity (kA peak)	**Icm**	Min. (switch-disconnector alone)	
		Max. (with upstream protection circuit breaker)	
Short-time withstand current (A rms)	**Icw**	1 s	
		3 s	
		20 s	
		30 s	
Suitability for isolation			
Durability (category A) (O - C-O cycles)		Mechanical	
		Electrical AC	**50/60 Hz**
			440 V
			500 V
			690 V
		Electrical DC	
			250 V
Positive contact indication			
Visible break			
Emergency-off switch-disconnector			
Degree of pollution			
Upstream protection			
See the “Complementary technical information”.			

Transferpact FXM100 to 630 (complete source-changeover assembly)

FXM100		FXM160		FXM200		FXM250		FXM320		FXM400		FXM500		FXM630		
3-4		3-4		3-4		3-4		3-4		3-4		3-4		3-4		
100		160		200		250		320		400		500		630		
100		160		200		250		320		400		500		630		
750		750		750		750		750		750		750		750		
8		8		8		8		8		8		8		8		
690		690		690		690		690		690		690		690		
250		250		250		250		250		250		250		250		
750		750		750		750		750		750		750		750		
AC22A	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
DC22A	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC23B**
100	100	160	160	200	200	250	250	320	320	400	400	500	500	550	550	630
100	100	160	160	200	200	250	250	320	320	400	400	500	500	550	550	630
◉		◉		◉		◉		◉		◉		◉		◉		
Class 120 - 60 %		Class 120 - 60 %		Class 120 - 60 %		Class 120 - 60 %		Class 120 - 60 %		Class 120 - 60 %		Class 120 - 60 %		Class 120 - 60 %		
30		30		30		30		50		50		50		50		
330		330		330		330		330		330		330		330		
8500		8500		8500		8500		20000		20000		20000		20000		
4900		4900		4900		4900		11500		11500		11500		11500		
2200		2200		2200		2200		4900		4900		4900		4900		
1800		1800		1800		1800		4000		4000		4000		4000		
◉		◉		◉		◉		◉		◉		◉		◉		
15000		15000		15000		15000		10000		10000		10000		10000		
AC22A	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	**AC22A**	**AC23A**	
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
DC22A	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC22A**	**DC23A**	**DC23A**	**DC23B**	**DC23A**	**DC23B**	**DC23A**	**DC23B**	**DC23A**	**DC23B**	
1500	1500	1500	1500	1500	1500	1500	1500	1000	-	1000	-	1000	-	1000	200	
◉		◉		◉		◉		◉		◉		◉		◉		
-		-		-		-		-		-		-		-		
-		-		-		-		-		-		-		-		
3		3		3		3		3		3		3		3		
-		-		-		-		-		-		-		-		

Transferpact FXM100 to 630 (complete source-changeover assembly)

A

FXM		
Installation		
Fixed, front connection		
Fixed, rear connection		
On symmetrical rails		
On a backplate		
Connection		
By cables	To bare cable connectors	
By cables with lugs	Directly to terminals	
	To spreaders	
	To vertical-connection adapters via cable-lug adapters	
Flat-facing bars	Directly to terminals	
	To spreaders	
Edgewise bars	To vertical-connection adapters	
Indication and measurement auxiliaries		
Auxiliary contacts		
Voltage-presence indicator		
Current-transformer module		
Ammeter module		
Control, locking and interlocking		
Control	Direct front rotary handle	
	Extended front rotary handle	
	Direct lateral rotary handle	
	Extended lateral rotary handle	
Interlocking	By keylock	
	Mechanical	
Complete source-changeover assembly		
Operating torque (Nm) (typical value for 3-4 poles with front handle)		
Installation and connection accessories		
Bare cable connectors		
Rear connectors		
Terminal extensions		
Spreaders		
One-piece spreader		
Terminal shrouds		
Terminal shields		
Interphase-barrier		
Front panel escutcheons		
Coupling accessories		
Tightening torque for electrical connections (Nm)		
Dimensions and weights		
Overall dimensions H x W x D (mm)	3 poles	
	4 poles	
Approximate weight (kg)	3 poles	
	4 poles	

Transferpact FXM100 to 630 (complete source-changeover assembly)

	FXM100	FXM160	FXM200	FXM250	FXM320	FXM400	FXM500	FXM630
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	-	-	-	-	-	-	-	-
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	-	-	-	-	-	-	-	-
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	-	-	-	-	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	5 < Nm < 6.2	5 < Nm < 6.2	5 < Nm < 6.2	5 < Nm < 6.2	13.5 < Nm < 16.5	13.5 < Nm < 16.5	13.5 < Nm < 16.5	13.5 < Nm < 16.5
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	◉	◉	◉	◉	◉	◉	◉	◉
	◉	◉	◉	◉	◉	◉	◉	◉
	-	-	-	-	-	-	-	-
	◉	◉	◉	◉	◉	◉	◉	◉
	15	15	15	15	50	50	50	50
	136 x 295 x 131	136 x 295 x 131	136 x 295 x 131	136 x 295 x 131	205 x 395 x 155	205 x 395 x 155	205 x 395 x 155	205 x 395 x 155
	136 x 295 x 131	136 x 295 x 131	136 x 295 x 131	136 x 295 x 131	205 x 395 x 155	205 x 395 x 155	205 x 395 x 155	205 x 395 x 155
	6.4	6.4	6.4	6.4	13.5	13.5	13.5	13.5
	6.4	6.4	6.4	6.4	13.5	13.5	13.5	13.5

Switching devices
Class CB

Range		Compact NSX	
Types of devices		NSX100 to NSX250	NSX400 to NSX630
Mixing possibilities		all devices NSX100 to NSX250 N/H/L fixed/fixed or plug-in/plug-in	all devices NSX100 to NSX630 N/H/L fixed/fixed or plug-in/plug-in
Electrical characteristics			
Current rating		15 to 250 A	15 to 630 A
Insulating voltage Ui (V AC)		750	750
Rated operational voltage			
Positive break indication		■	■
Number of poles (N and R devices must have the same number of poles)		3, 4	3, 4
Operating temperature		-25 °C to +70 °C (50 °C for 440 V - 60 Hz)	
Motor mechanism			
Control voltage	AC	48 V - 50 Hz 110/130, 220/240, 380/440 V - 50/60 Hz	48 V - 50 Hz 110/130, 220/240, 380/440 V - 50/60 Hz
	DC	24-250 V	24-250 V
Maximum consumption	AC	500 VA	500 VA
	DC	500 W	500 W
Minimum switching time		800 ms	800 ms
Protection and measurement			
Earth-leakage protection	by Vigi module	■	■
	by control unit		
	by add-on Vigirex relay	■	■
Current measurements			
Voltage, frequency, power measurements, etc.			
Additional indication and control auxiliaries			
Indication contacts		OF + SDE (+ SDV)	3 OF + SDE (+ SDV)
Voltage releases	MX shunt	■	■
	MN undervoltage	■	■
Voltage presence indicator		■	■
Voltage transformer		■	■
Ammeter module		■	■
Insulation monitoring module		■	■
Installation and connection			
Fixed front connected			
Fixed rear connected		■ (long rear connections)	■ (long rear connections)
Withdrawable, plug-in or drawout		■ (plug-in on base)	■ (plug-in on base)
Installation and connection accessories			
Downstream coupling accessory		■	■
Bare-cable connectors		■	■
Terminal extensions		■	■
Terminal shields and inter-phase barriers			■
Front panel escutcheons		■	■
Locking	by padlock	■	■
	by keylock	■	■

Compact NSX	NSX100-250	NSX400 to NSX630
Rated current In (A)	100 to 250	400 to 630
Mechanical durability (O_N-C_R-O_R-C_N cycles) [1]	20000 - 40000 - 50000	15000
Electrical durability at In (O_N-C_R-O_R-C_N cycles) [1] for ≤ 440 V and 480 V NEMA [2]	10000 - 20000 - 30000	4000 - 6000
Electrical durability at In (O_N-C_R-O_R-C_N cycles) [1] for U = 500 V to 690 V [2]	5000 - 7500 - 10000	2000 - 3000

[1] Mechanical and electrical durability not applicable to Masterpact H3 and L1 versions, please refer to the Masterpact NT/NW catalogue.
[2] Electrical durability tests carried out with a power factor of 0.8 as per IEC 947-2.

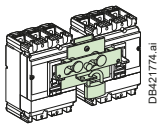
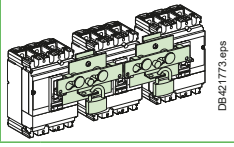
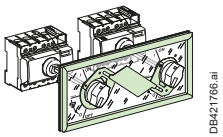
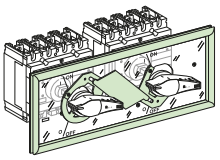
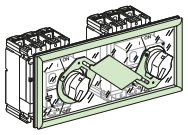
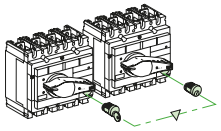
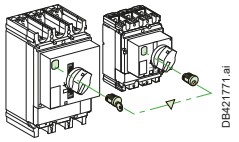
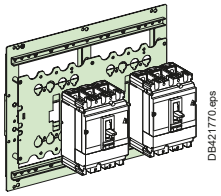
Note:
ON: opening of N source
CR: closing of R source
OR: opening of R source
CN: closing of N source

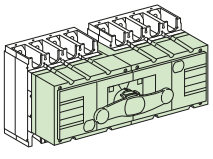
A

	Compact NS	Masterpact MTZ1	Masterpact MTZ2/MTZ3
	NS630b to NS1600	MTZ1 06 to 16	MTZ2 08 to 40 and MTZ3 40 to 63
	all devices	all mixing possibilities	all mixing possibilities
	NS630b to 1600	(fixed, drawout or fixed + drawout)	(fixed, drawout or fixed + drawout)
	N/H/L	H1/H2/H3/L1	N1/H1/H2/H3/L1/H10 for MTZ2
	fixed/fixed or plug-in/plug-in		H1/H2 for MTZ3
	250 to 1600 A	600 to 1600 A	800 to 6300 A
	750	1000	1000
		■	■
	3, 4	3, 4	3, 4
		-25 °C to +70 °C	
		48 to 415 V - 50/60 Hz 440 V - 60 Hz	48 to 415 V - 50/60 Hz 440 V - 60 Hz
	24-250 V	24-250 V	24-250 V
	180 VA	180 VA	180 VA
	180 W	180 W	180 W
	800 ms	800 ms	800 ms
	■	■	■
	■	■	■
	■	■	■
		■	■
	2 OF + SDE	2 OF + SDE	2 OF + SDE
	■	■	■
	■	■	■
		■	■
	■ (vertical or horizontal)	■ (vertical or horizontal)	■ (vertical or horizontal)
	■ (drawout)	■ (drawout)	■ (drawout)
	■		
	■		
	■	■	■
	■	■	■
	■	■	■

	Compact NS	Masterpact MTZ1/MTZ2/MTZ3					
	NS630b to NS1600	**MTZ1 06 to 10**	**MTZ1 12 to 16**	**MTZ2 08 to 16**	**MTZ2 20**	**MTZ2 25 to 40**	**MTZ3 40 to 63**
	630 to 1600	630 to 1600	1250 to 1600	800 to 1600	2000	2500 to 4000	4000 to 6300
	8000	8000	8000	10000	10000	10000	5000
	2000	6000	6000	10000	8000	5000	1500
	1500	3000	3000	10000	6000	2500	1500

Transferpact
Mechanical interlocking

Range	Compact		Compact
Models	INS40 to INS80 INS100 to INS160	INS250 to INS630 INV250 to INV630	NSX100 to NSX250 NSX400 to NSX630
Current rating (A)	40 to 160	100 to 630	100 to 630
Type of device	Class PC	Class PC	Class PC and Class CB
Interlocking by toggles			
M			 DB421774.ai  DB421773.eps
Interlocking by rotary handles			
M	 DB421766.ai	 DB421769.ai	 DB421772.ai
Interlocking by keylocks with captive keys			
M		 DB421768.eps	 DB421771.ai
Interlocking by a base plate			
A			 DB421770.eps

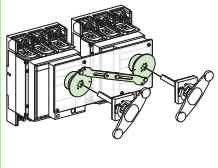
Range	Transferpact FXM complete source - changeover assembly
M	 DB421767.ai

A

Range	Compact	Masterpact	
Models	NS630b to NS1600	MTZ1 06 to 16	MTZ2 08 to 40 and MTZ3 40 to 63
Current rating (A)	630b to 1600	630 to 1600	800 to 6300
Type of device	Class PC and Class CB	Class PC and Class CB	Class PC and Class CB

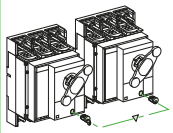
Interlocking by extended rotary handles

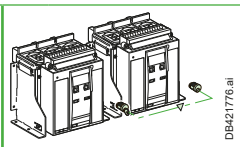
M

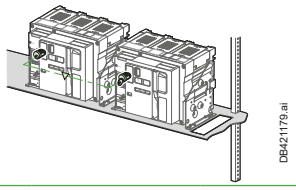


Interlocking via device keylocks by captive keys

M

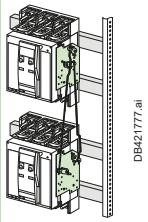




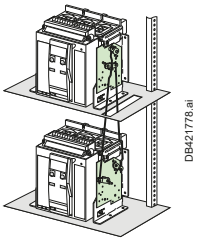


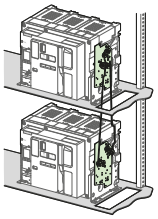
Mechanical interlocking using connecting rods

MA



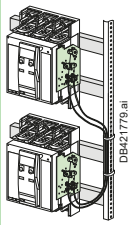
[1]



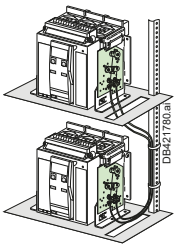


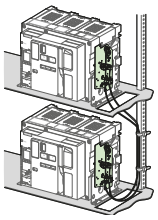
Mechanical interlocking by cables

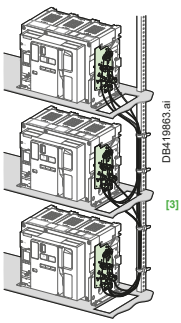
MA



[1]
[2]



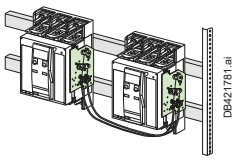


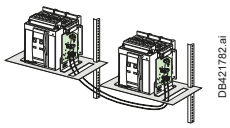


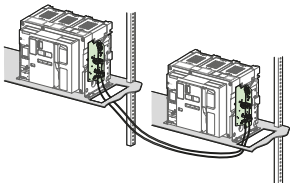
[3]

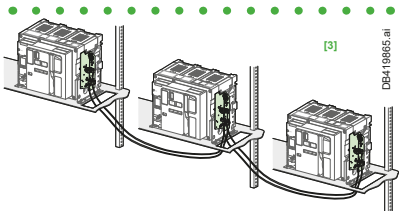
Mechanical interlocking by cables

MA





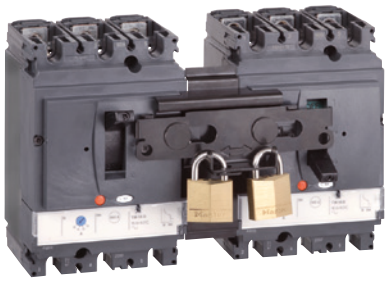




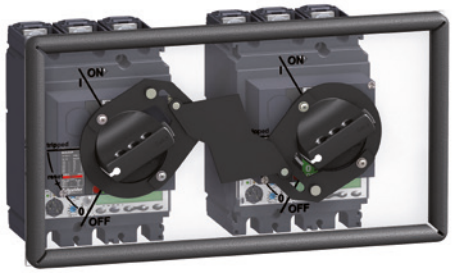
[1] Implemented with NS630b to NS1600 electrically-operated devices only.
[2] For source-changeover systems using cables, always respect the installation conditions specified on.
[3] Not compatible with automatic controller.

Note: for other cases, please consult us.

A

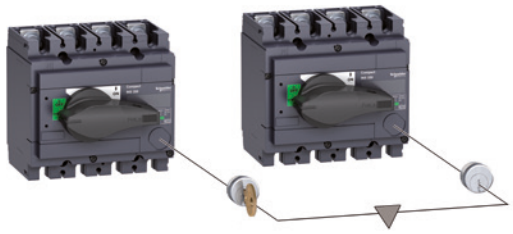

PB115435.eps

Interlocking of two or three toggle-controlled devices.



PB113418.eps

Interlocking of two devices by rotary handles.


PB113829.eps

Interlocking with keylocks.


31141_Image.eps

Source-changeover.

Interlocking of two or three toggle-controlled devices

Interlocking system

Two devices can be interlocked using this system. Two identical interlocking systems can be used to interlock three devices installed side by side.
Authorised positions:
- one device closed (ON), the others open (OFF)
- all devices open (OFF).

The system is locked using one or two padlocks (Ø5 to 8 mm).
This system can be expanded to more than three devices.
There are two interlocking-system models:
- one for Compact INS/INV
- one for Compact NSX100 to NSX250
- one for Compact NSX400 to NSX630.

Combinations of Normal and Replacement devices

All toggle-controlled fixed or plug-in Compact NSX100 to NSX630 circuit breakers and switch-disconnectors of the same frame size can be interlocked. The devices must be either all fixed or all plug-in versions.

Interlocking of two devices by rotary handles

Interlocking system

Interlocking involves padlocking the rotary handles on two devices which may be either circuit breakers or switch-disconnectors.
Authorised positions:
- one device closed (ON), the other open (OFF)
- both devices open (OFF).

The system is locked using up to three padlocks (Ø5 to 8 mm).
There are two interlocking-system models:
- one for Compact INS/INV
- one for Compact NSX100 to NSX250
- one for Compact NSX400 to NSX630.

Combinations of Normal and Replacement devices

All rotary-handle fixed or plug-in Compact NSX100 to NSX630 circuit breakers and switch-disconnectors of the same frame size can be interlocked. The devices must be either all fixed or all plug-in versions.

Interlocking of devices by keylocks (captive keys)

Interlocking using keylocks is very simple and makes it possible to interlock two or more devices that are physically distant or that have very different characteristics, for example medium-voltage and low-voltage devices or a Compact NSX100 to NSX630 switch-disconnector and circuit breaker.

Interlocking system

Each device is equipped with an identical keylock and the key is captive on the closed (ON) device. A single key is available for all devices. It is necessary to first open (OFF position) the device with the key before the key can be withdrawwn and used to close another device.
A system of wall-mounted captive key boxes makes a large number of combinations possible between many devices.

Combinations of Normal and Replacement devices

All rotary-handle Compact NSX100 to NSX630 circuit breakers and switch-disconnectors can be interlocked between each other or with any other device equipped with the same type of keylock.

Transferpact FXM (complete manual source-changeover assembly)

These assemblies provide an easy way to implement source changeover functions with:
- a single 3-position rotary handle that controls the two switch-disconnectors (Normal source ON, OFF, Replacement source ON)
- a smaller size, taking up less room in the switchboard.

A complete source changeover assembly can be ordered with a single catalogue number.

A

Interlocking of two devices by base plate

Interlocking system
A base plate designed for two Compact NSX devices can be installed horizontally or vertically on a mounting rail. Interlocking is carried out on the base plate by a mechanism located behind the devices. In this way, access to the device controls and trip units is not blocked.

Combinations of Normal and Replacement devices
All rotary-handle and toggle-controlled Compact NSX100 to NSX630 circuit breakers and switch-disconnectors can be interlocked. Devices must be either all fixed or all plug-in versions, with or without earth-leakage protection or measurement modules. An adaptation kit is required to interlock:
- two plug-in devices
- a Compact NSX100 to NSX250 with an NSX400 to NSX630.

Connection to the downstream installation can be made easier using a coupling accessory.

Downstream coupling accessory
This accessory simplifies connection to bars and cables with lugs.
It may be used to couple two switch-disconnectors and circuit breakers of the same size, Compact INS/INV100 to 630 and Compact NSX100 to 630.
Pitch between outgoing terminals:
- Compact INS250 and INV100 to 250: 35 mm
- Compact INS/INV320 to INS/INV630: 45 mm
- Compact NSX100 to NSX250: 35 mm
- Compact NSX400 to NSX630: 45 mm.

For Compact NSX circuit breakers, the downstream coupling accessory can be used only with **fixed versions**.

Connection and insulation accessories

The coupling accessory can be fitted with the same connection and insulation accessories as the circuit breakers and switch-disconnectors.

Possible uses	Downstream coupling	
	Possible mounting	Outgoing pitch (mm)
Manual source-changeover systems		
INS250 (100 to 250 A) with rotary handle	■	35
NSX100 to NSX250 with rotary handle	■	35
NSX100 to NSX250 on base plate with toggle control	■	35
INS400 to INS630 (320 to 630 A) with rotary handle	■	45
NSX400 to NSX630 with rotary handle	■	45
NSX400 to NSX630 on base plate with toggle control	■	45
Transferpact FXM (complete source-changeover assembly)		
FXM100 to 250	■	35
FXM320 to 630	■	45

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Interlocking on a base plate.

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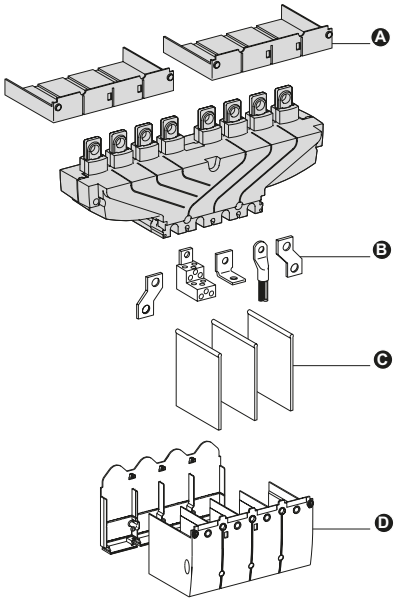

A Short terminal shields
B Terminals
C Interphase barriers
D Long terminal shields

Transferpact
Mechanical interlocking

For implementing the mechanical interlocking, two differents possibilities are offered :
- interlocking with rods
- interlocking with cables.

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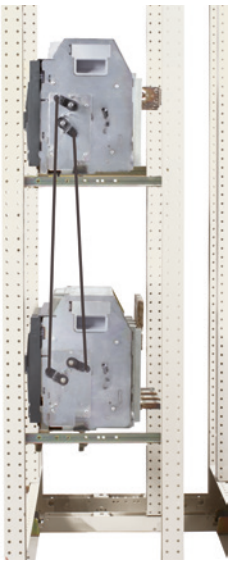

Interlocking of two Masterpact MTZ1, MTZ2/MTZ3 circuit breakers using connecting rods.

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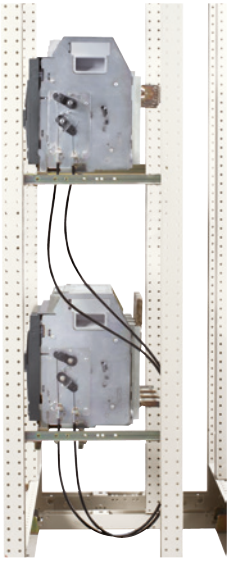


Interlocking of two Masterpact circuit breakers using cables.

Interlocking of two devices using correcting rods the two devices must be installed one above the other.

Compact NS
Associations between similar type devices are possible (fixed or drawout).
Associations with Masterpact MTZ1/MTZ2/MTZ3 are possible.

Masterpact MTZ2
Only associations between similar types devices are allowed. It's not possible to associate a fixed type device with a drawout type.
Associations between Masterpact MTZ1 and MTZ2 or MTZ3 aren't possible.

Masterpact MT2 and MTZ3
All mixed associations between fixed type and drawout type devices are possible.
Interlocking of two or three devices using cables the two devices may be mounted one above the other or side by side.

Compact NS
All mixed associations between fixed and drawout type devices are possible indepently from ratings and sizes.
Assocations with Masterpact MTZ1/MTZ2 are possible.

Masterpact MTZ1/MTZ2/MTZ3

All mixed associations between MTZ1, MTZ2 and MTZ3 fixed type and drawout type devices are possible.
Mechanical interlocking for three devices is applicable only to MTZ2.

Interlocking between two devices

This function requires:
- an adaptation fixture on the right side of each device,
- a set of cables or rods,
- the use of a mechanical operation counter (CDn) which is mandatory,
- maximum distance between the fixing planes (vertical or horizontal) of 2000 mm.

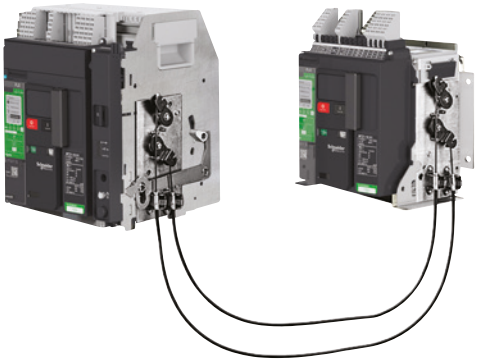
Interlocking between three Masterpact MTZ2

This function requires:
- an adaptation fixture on the right side of each device,
- two sets of cables,
- the use of a mechanical operation counter (CDn) which is mandatory,
- maximum distance between the fixing planes (vertical or horizontal) of 1000 mm.

Installation

The adaptation fixtures, sets of cables and circuit breakers or switch-disconnectors are supplied separately, ready for assembly by the customer.
Installation conditions for cable interlocking systems:
- cable length: 2.5 m
- for cable length than 2.5 m please consult us before ordering the circuit breakers for a customised solution.
- radius of curvature: 100 mm
- maximum number of curves: 3.

Only Masterpact MTZ2 may be used for three-device combinations.



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Recommendation for specific applications

In the applications where the continuity of service is critical [1] (Data Centers, airports, hospitals, marine, oil&gas, process industry, …) the mechanical interlocking by rods and the drawout version devices are strongly recommended.

Mechanical interlocking by rods is preferred as less energy is consumed by friction, so it has less effect on the circuit breaker closing energy.
In terms of breaker mounting type, the drawout version is preferred as :
- it provides mechanical isolation of the circuit breaker from possible external stress on the terminals by having a flexible connection at the clusters level
- it allows simple and total access for periodic maintenance
- it allows quick replacement of the device if necessary.

When not possible, cable interlocking or fixed versions can be used, but the installation rules detailed in the 2 sections below must be strictly respected and mainly:
- the busbars or the cables used for the power connections must apply no stress on the circuit breakers terminals. Their weight must be supported by the switchboard frame.

Please refer to the “Switchboard integration - Installation rules – Power connection” section in this catalogue as well as to the Data Bulletin “Installation of Fixed Masterpact NW Circuit Breakers in Electrical Equipment – Class 0613” available on www.schneider-electric.com for more details.

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[1] For more details please contact your local support.

Transferpact
Electrical interlocking - IVE unit

Electrical interlocking is used with a mechanical interlocking system. Morover, the relays controlling the closing order to the “N” and “R” circuit breakers must be mechanically and/or electrically interlocked to prevent them from giving simultaneous closing commands.

A

Electrical interlocking is carried out by an electrical control device.
For Compact NSX up to 630 A, electrical interlocking is implemented by the IVE unit integrating control circuits and an external terminal block in accordance with the page C-4 of the chapter “Electric diagrams” of this catalogue.
The integrated control circuits implement the time delays required for correct source transfer.
For Compact NS630b to NS1600 and Masterpact, this function can be implemented in one of two ways:
- using the IVE unit
- by an electrician based on the diagrams in accordance with the pages C-8 to C-13 of the chapter “Electric diagrams” of this catalogue.

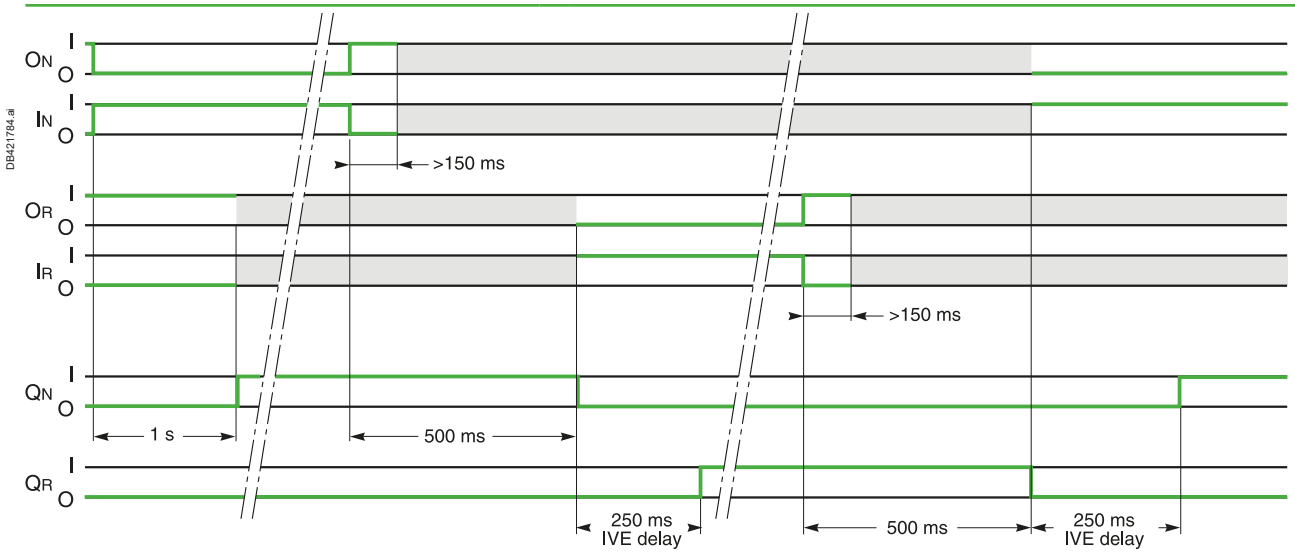
IVE unit.

Characteristics of the IVE unit

- External connection terminal block:
  - inputs: circuit breaker control signals
  - outputs: status of the SDE contacts on the “N” and “R” source circuit breakers.
- 2 connectors for the two “N” and “R” source circuit breakers:
  - inputs:
    - status of the OF contacts on each circuit breaker (ON or OFF)
    - status of the SDE contacts on the “N” and “R” source circuit breakers
  - outputs: power supply for operating mechanisms.
- Control voltage:
  - 24 to 250 V DC
  - 48 to 415 V 50/60 Hz - 440 V 60 Hz.

The IVE unit control voltage must be same as that of the circuit breaker operating mechanisms.

IVE unit



Symbols

QN : “Normal” Compact circuit breaker equipped for remote operation (motor mechanism)
QR : “Replacement” Compact circuit breaker equipped for remote operation (motor mechanism)
ON : Circuit breaker QN opening order
OR : Circuit breaker QR opening order
IN : Circuit breaker QN closing order
IR : Circuit breaker QR closing order
L1 : Faulty “Normal” indication LED
L2 : Faulty “Replacement” indication LED

Key
O: OFF (circuit open)
I: ON (circuit closed)
: either ON or OFF.

Note: following all trips (overload, short-circuit, earth-leakage fault, voluntary trip), a manual reset on the front of the motor mechanism is required.

Necessary equipment

For Compact NSX100 to NSX630, each circuit breaker must be equipped with:
- a motor mechanism
- an OF contact
- an SDE contact.

The components are supplied ready for assembly and the circuit breakers prewired. The prewiring must not be modified.

For Compact NS630b to NS1600, each circuit breaker must be equipped with:
- a motor mechanism
- an available OF contact
- a CE connected-position contact (carriage switch) on withdrawable circuit breakers
- an SDE contact.

For Masterpact MTZ, each circuit breaker must be equipped with:
- a remote-operation system made up of:
  - MCH gear motor
  - MX or MN opening release
  - XF closing release
  - PF “ready to close” contact
- CDM mechanical operation counter (mandatory)
- an available OF contact
- one to three CE connected-position contacts (carriage switches) on drawout circuit breakers (depending on the installation).

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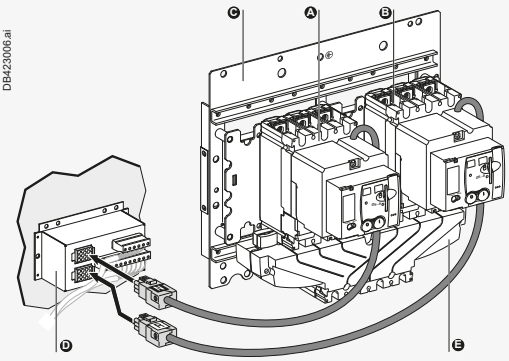

Compact NSX

- **A** Circuit breaker QS1 equipped with a motor mechanism and auxiliary contacts, connected to the N source
- **B** Circuit breaker QS2 equipped with a motor mechanism and auxiliary contacts, connected to the R source
- **C** Base plate with mechanical interlocking
- **D** Electrical interlocking unit IVE
- **E** Coupling accessory (downstream connection)

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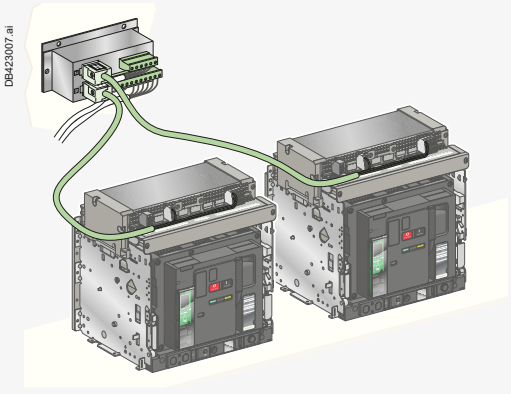

Masterpact MTZ

Transferpact controllers
Controller selection

By combining a remote-operated source-changeover system with an integrated BA or UA automatic controller, it is possible to automatically control source transfer according to user-selected sequences.
These controllers can be used on source-changeover systems comprising 2 circuit breakers.
For source-changeover systems comprising 3 circuit breakers, the automatic control diagram must be prepared by the installer as a complement to to diagrams provided in the “electrical diagrams” section of this catalogue.

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BA controller.

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UA controller.

Controller		BA	UA
Compatible circuit breakers		All Compact NS, Compact NSX and Masterpact circuit breakers	
4-position switch			
Automatic operation		◉	◉
Forced operation on “Normal” source		◉	◉
Forced operation on “Replacement” source		◉	◉
Stop (both “Normal” and “Replacement” sources off)		◉	◉
Automatic operation			
Monitoring of the “Normal” source and automatic transfer		◉	◉
Generator set startup control			◉
Delayed shutdown (adjustable) of generator set			◉
Load shedding and reconnection of non-priority circuits			◉
Transfer to the “Replacement” source if one of the phases of the “Normal” phase is absent			◉
Test			
By opening the P25M circuit breaker supplying the controller		◉	
By pressing the test button on the front of the controller			◉
Indications			
Circuit breaker status indication on the front of the controller: on, off, fault trip		◉	◉
Automatic mode indicating contact		◉	◉
Other functions			
Selection of type of “Normal” source: single-phase or three-phase (for example, 220 V single-phase or 220 V three-phase)			◉
Voluntary transfer to “Replacement” source (e.g. energy management commands)		◉	◉
During peak-tariff periods (energy management commands) forced operation on “Normal” source if “Replacement” source not operational			◉
Additional contact (not part of controller). Transfer to “Replacement” source only if contact is closed (e.g. used to test the frequency of UR).		◉	◉
Setting of maximum startup time for the replacement source			◉
Power supply			
Control voltages [1]	110 V	◉	◉
	220 to 240 V 50/60 Hz	◉	◉
	380 to 415 V 50/60 Hz and 440 V 60 Hz	◉	◉
Operating thresholds			
Undervoltage	0.35 Un ⩽ voltage ⩽ 0.7 Un	◉	◉
Phase failure	0.5 Un ⩽ voltage ⩽ 0.7 Un		◉
Voltage presence	voltage ⩾ 0.85 Un	◉	◉
IP degree of protection (EN 60529) and IK degree of protection against external mechanical impacts (EN 50102)			
Front	IP40	◉	◉
Side	IP30	◉	◉
Connectors	IP20	◉	◉
Front	IK07	◉	◉
Characteristics of output contacts (dry, volt-free contacts)			
Rated thermal current (A)	8		
Minimum load	10 mA at 12 V		
Output contacts:	Position of the Auto/Stop switch	◉	◉
	Load shedding and reconnection order		◉
	Generator set start order.		◉

		AC				DC	
Utilisation category (IEC 947-5-1)		AC12	AC13	AC14	AC15	DC12	DC13
Operational current (A)	24 V	8	7	5	5	8	2
	48 V	8	7	5	5	2	-
	110 V	8	6	4	4	0.6	-
	220/240 V	8	6	4	3	-	-
	250 V	-	-	-	-	0.4	-
	380/415 V	5	-	-	-	-	-
	440 V	4	-	-	-	-	-
	660/690 V	-	-	-	-	-	-

[1] The controller is powered by the ACP control plate. The same voltage must be used for the ACP plate, the IVE unit and the circuit breaker operating mechanisms.
If this voltage is the same as the source voltage, then the “Normal” and “Replacement” sources can be used directly for the power supply.
If not, an isolation transformer must be used.

A

Transferpact ACP control plate

The control plate provides in a single unit:
- protection for the BA or UA controller with two highly limiting P25M circuit breakers (infinite breaking capacity) for power drawn from the AC source
- control of circuit breaker ON and OFF functions via two relay contactors
- connection of the circuit breakers to the BA or UA controller via a built-in terminal block.

Control voltages
- 110 V 50/60 Hz.
- 220 to 240 V 50/60 Hz.
- 380 to 415 V 50/60 Hz and 440 V 60 Hz.

The same voltage must be used for the Transferpact ACP control plate, the controller and the circuit breaker operating mechanisms.

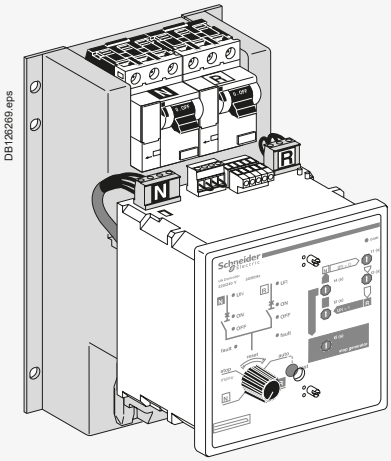
Installation

Connection between the Transferpact ACP control plate and the IVE unit may use:
- wiring done by the installer
- prefabricated wiring (optional).

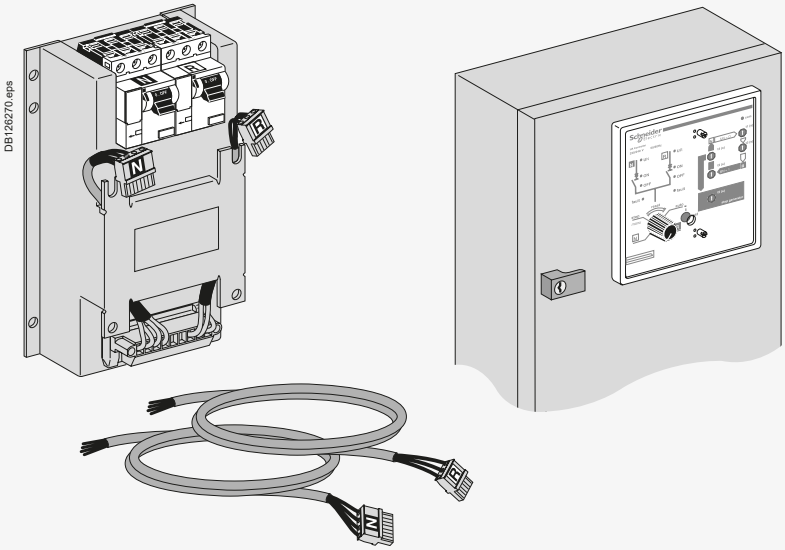
Installation of the BA and UA controllers

The BA and UA controllers may be installed in one of two manners:
- directly mounted on the Transferpact ACP control plate
- mounted on the front panel of the switchboard
- if the length of the connection between the controller and the control plate (ACP) is less than or equal to 1 m, the connecting cable **ref. 29368** can be ordered as an optional extra. Cables longer than 1 m, but not longer than 2 m will be the responsibility of the installer.

Transferpact ACP control plate.



Mounting on the Transferpact ACP control plate.



Mounting on the front panel of the switchboard.

Transferpact controllers
BA controller

The BA controller is used to create simple source-changeover systems that switch from one source to another depending on the presence of voltage UN on the “Normal” source.
It is generally used to manage two permanent sources and can control Compact NS, Compact NSX and Masterpact MTZ circuit breakers and switch-disconnectors.

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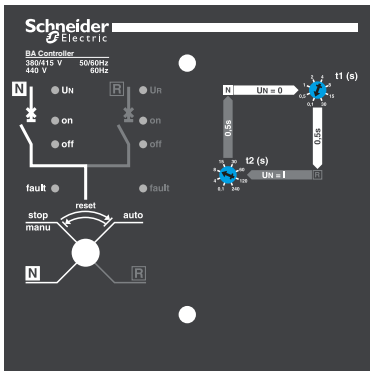


Front of the BA controller.

Operating modes

A four-position switch may be used to select:
- automatic operation
- forced operation on the “Normal” source
- forced operation on the “Replacement” source
- stop (both “Normal” and “Replacement” sources off).

Setting the time delays

Time delays are set on the front of the controller.
t1. delay between detection that the “Normal” source has failed and the transmission of the order to open the “Normal” source circuit breaker (adjustable from 0.1 to 30 seconds).
t2. delay between detection that the “Normal” source has returned and the transmission of the order to open the “Replacement” source circuit breaker (adjustable from 0.1 to 240 seconds).

Circuit breaker commands and status indications

The status of the circuit breakers is indicated on the front of the controller.
- ON, OFF, fault.

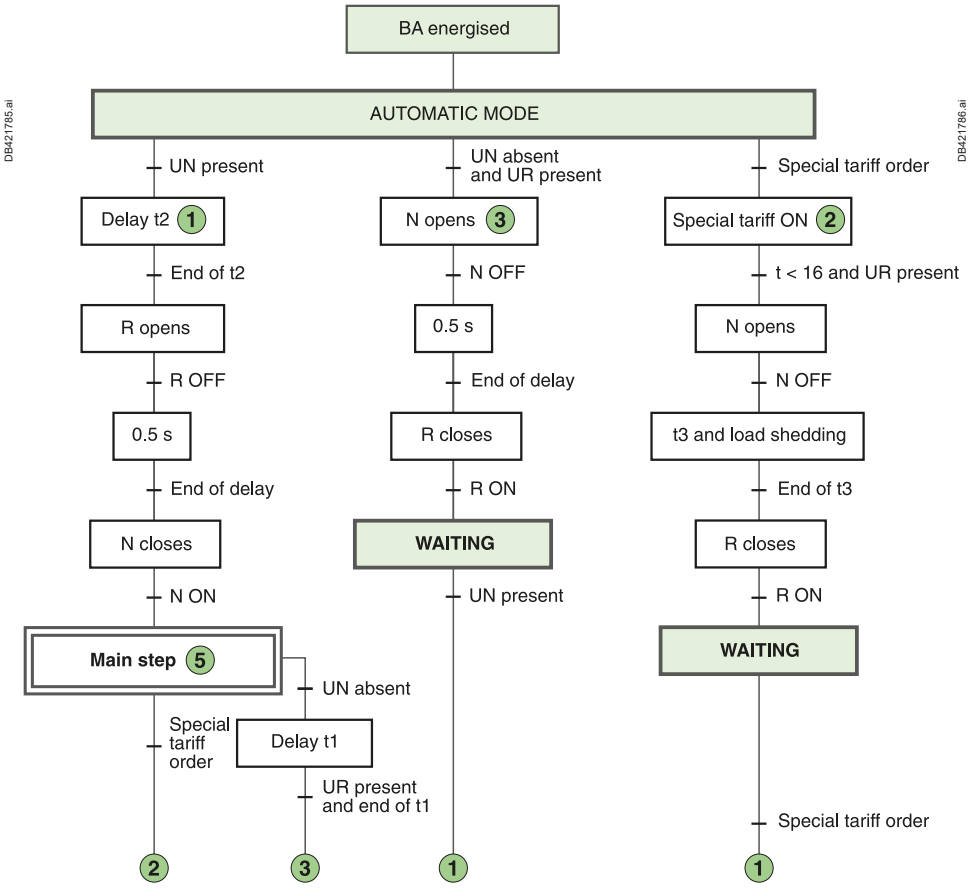
A built-in terminal block may be used to connect the following input/output signals:
- inputs:
  - voluntary order to transfer to source R (e.g. for special tariffs, etc.)
  - additional control contact (not part of the controller). Transfer to the “Replacement” source takes place only if the contact is closed (e.g. used to test the frequency of UR, etc.)
- outputs:
  - indication of operation in automatic or stop mode via changeover contacts.

Test

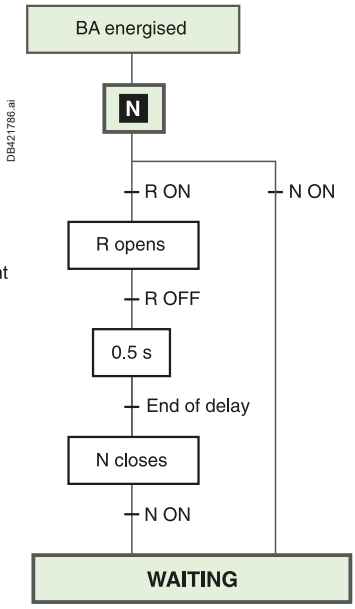
It is possible to test the operation of the BA controller by turning OFF (opening) the P25M circuit breaker for the “Normal” source and thus simulating a failure of voltage UN.

A

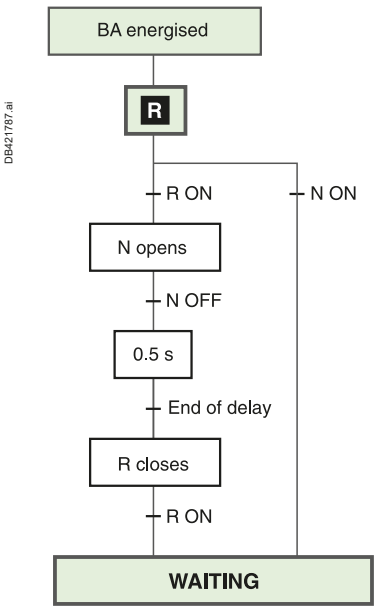
Switch set to Auto (automatic operation and special-tariff mode)



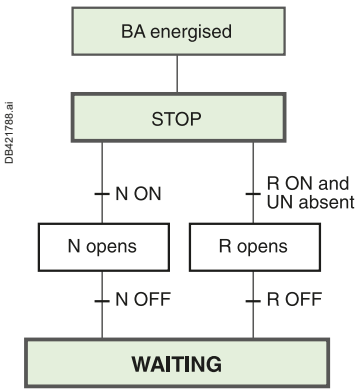
Switch set to the "N" position (forced operation on the "Normal" source)



Switch set to the "R" position (forced operation on the "Replacement" source)



Switch set to the "Stop" position



Key
UN : "Normal" source voltage
UR : "Replacement" source voltage
N : "Normal" source circuit breaker
R : "Replacement" source circuit breaker

(1) The number sends to the indicated step when the condition is true.

WAITING The system exits this mode when the operating mode is modified or when an external event occurs (e.g. failure or return of UN).

Transferpact controllers
UA controller

The UA controller is used to create a source-changeover system integrating the following automatic functions:
- transfer from one source to another depending on the presence of voltage UN on the “Normal” source
- startup of an engine generator set
- shedding and reconnection of non-priority circuits
- transfer to the “Replacement” source if one of the phases on the “Normal” source fails.

The UA controller can control Compact NS,
Compact NSX and Masterpact MTZ devices.

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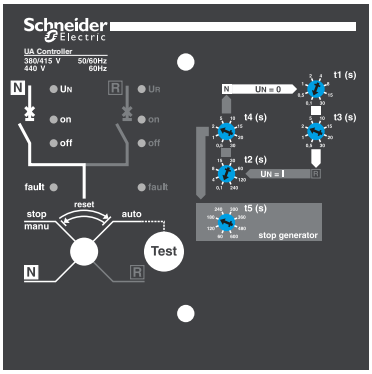


Front of the UA controller.

Operating modes
A four-position switch may be used to select:
- automatic operation
- forced operation on the “Normal” source
- forced operation on the “Replacement” source
- stop (both “Normal” and “Replacement” sources off, then manual operation).

Setting the time delays
Time delays are set on the front of the controller.
t1. delay between detection that the “Normal” source has failed and the transmission of the order to open the “Normal” source circuit breaker (adjustable from 0.1 to 30 seconds).
t2. delay between detection that the “Normal” source has returned and the transmission of the order to open the “Replacement” source circuit breaker (adjustable from 0.1 to 240 seconds).
t3. delay following opening of QN with load shedding and before closing of QR (adjustable from 0.5 to 30 seconds).
t4. delay following opening of QR with load reconnection and before closing of QN (adjustable from 0.5 to 30 seconds).
t5. delay for confirmation that UN is present before shutting down the engine generator set (adjustable from 60 to 600 seconds).
t6. delay before startup of the engine generator set (120 or 180 seconds).

Commands and indications
Circuit breaker status indications on the front of the controller:
- ON, OFF, fault.

A built-in terminal block may be used to connect the following input/output signals:
- inputs:
  - voluntary order to transfer to source R (e.g. for special tariffs, etc.)
  - additional control contact (not part of the controller). Transfer to the “Replacement” source takes place only if the contact is closed (e.g. used to test the frequency of UR, etc.)
- outputs:
  - control of an engine generator set (ON / OFF)
  - shedding of non-priority circuits
  - indication of operation in automatic mode via changeover contacts.

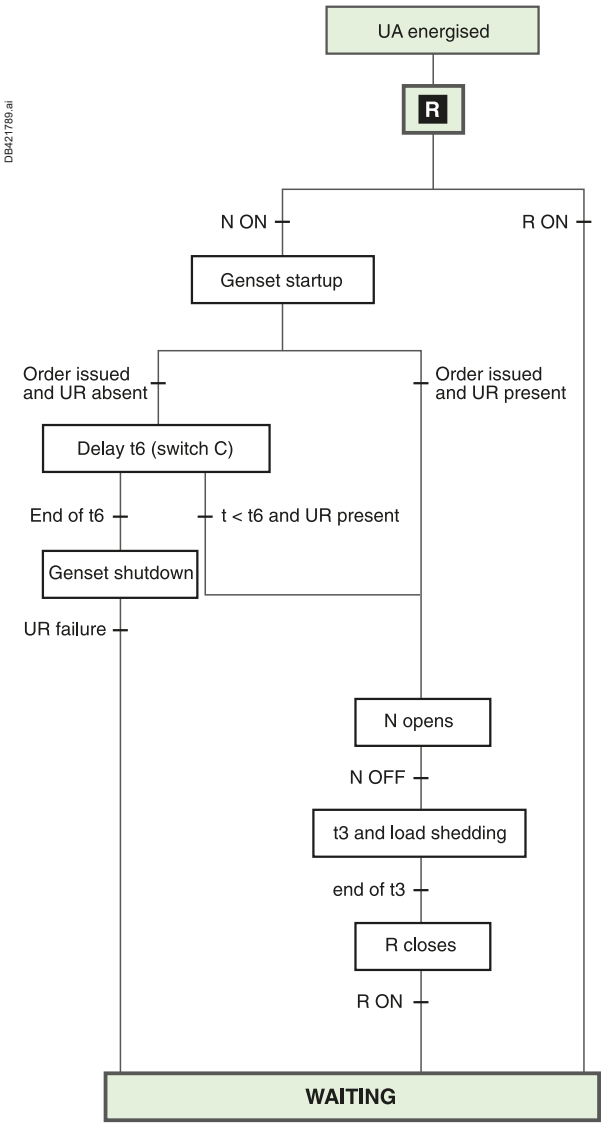
Distribution-system settings
Three switches are used to:
- select the type of “Normal” source, whether single-phase or three-phase (e.g. 240 V single-phase or 240 V three-phase)
- select whether to remain (or not) on the “Normal” source if the “Replacement” source is not operational during operation on special tariffs
- select the maximum permissible startup time for the engine generator set during operation on special tariffs (120 or 180 seconds).

Test
A pushbutton on the front of the controller may be used to test transfer from the “Normal” source to the “Replacement” source, then the return to the “Normal” source. The test lasts approximately three minutes.

COM communications option
Using the internal bus protocol, this option may be used to remote the following information:
- circuit breaker status (ON, OFF, fault trip)
- presence of the “Normal” and “Replacement” voltages
- presence of an order for forced operation (e.g. special tariffs)
- settings and configuration information
- status of non-priority circuits (loads shed or not)
- position of the switch (stop, auto, forced operation on the “Normal” source, forced operation on the “Replacement” source).

Operating sequences, forced operation mode

Switch set to the “R” position (forced operation on the “Replacement” source)

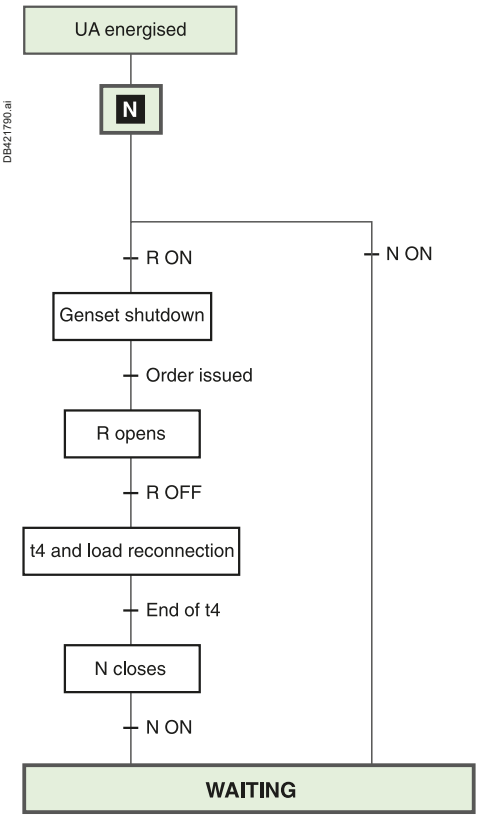


WAITING The system exits this mode when the operating mode is modified or when an external event occurs (e.g. failure or return of UN).

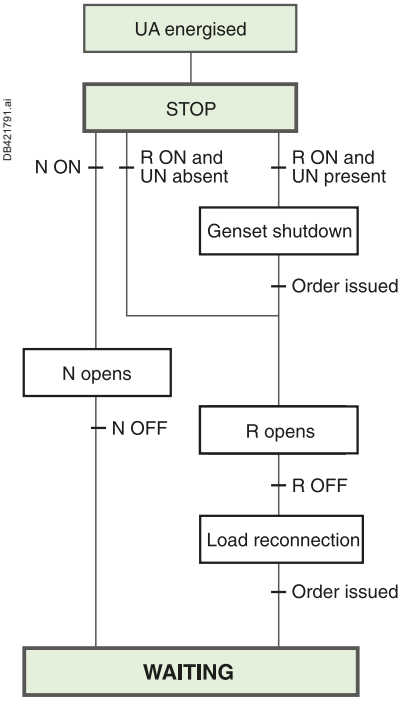
When the UA controller is not energised, the output for generator set startup is activated).

Key
UN : “Normal” source voltage
UR : “Replacement” source voltage
N : “Normal” source circuit breaker
R : “Replacement” source circuit breaker

Switch set to the “N” position (forced operation on the “Normal” source)



Switch set to the “Stop” position

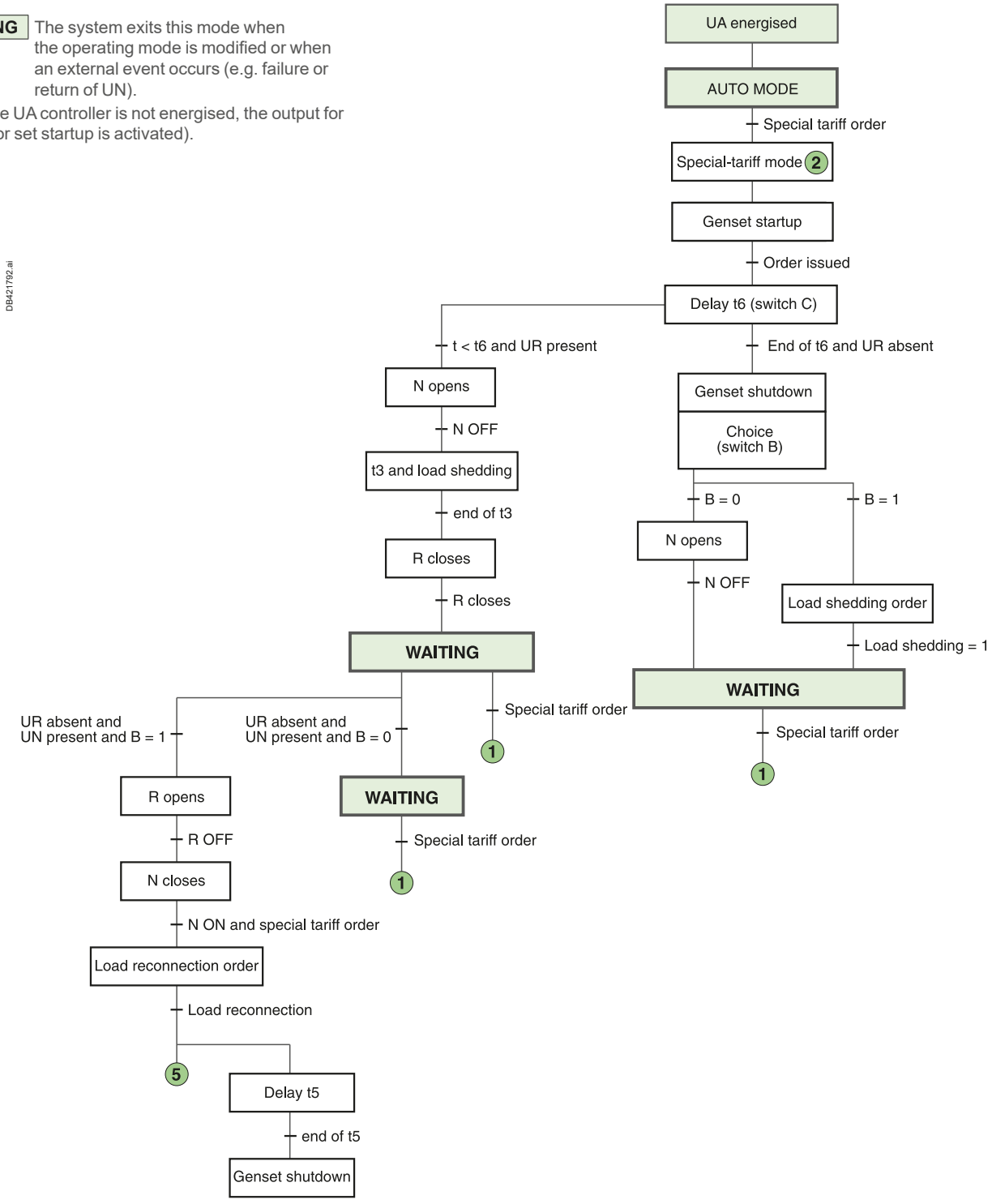


Transferpact controllers
UA controller
Operating sequences, special-tariff mode

Switch set to the “Auto” position (special-tariff mode)

WAITING The system exits this mode when the operating mode is modified or when an external event occurs (e.g. failure or return of UN).

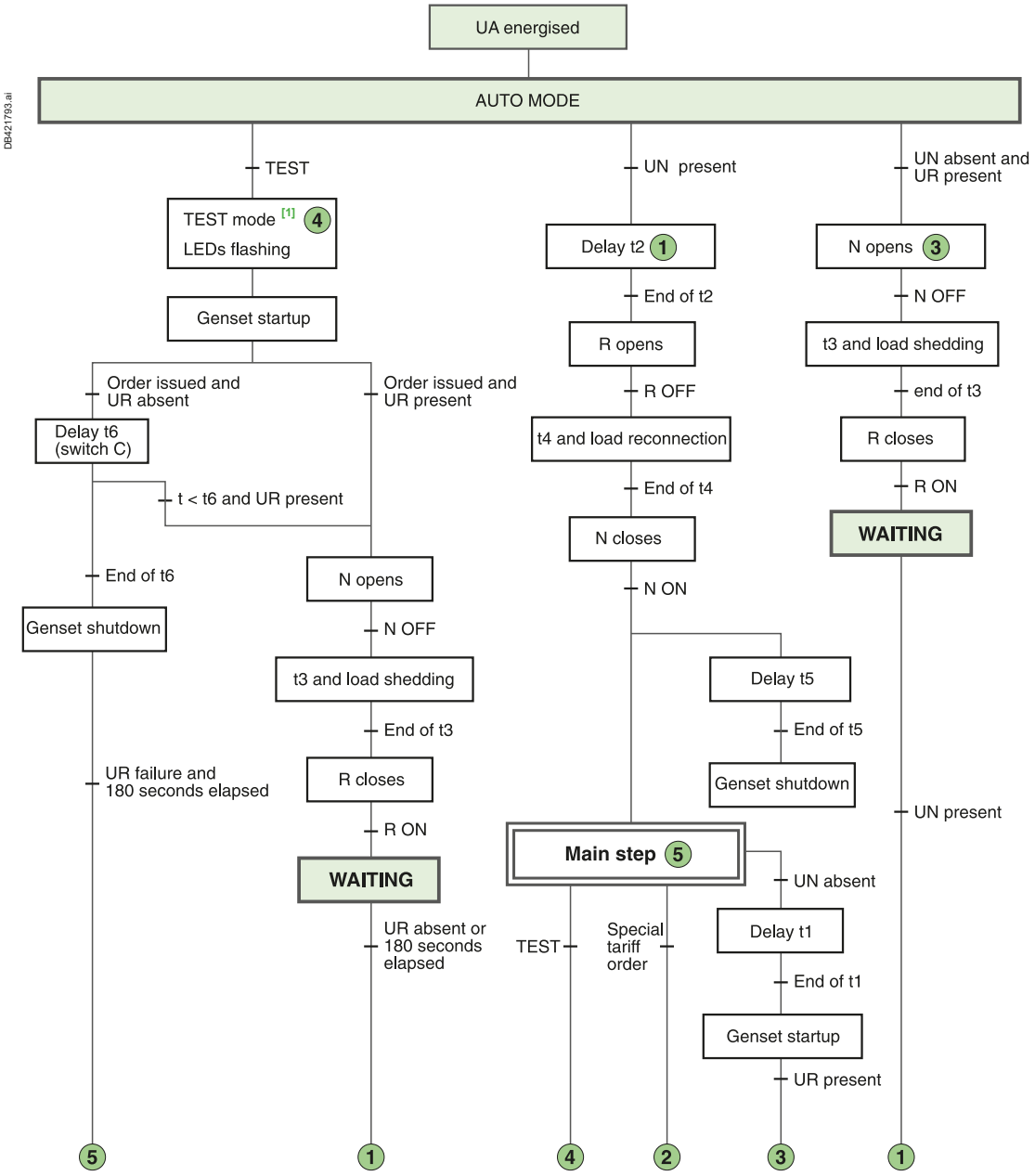
When the UA controller is not energised, the output for generator set startup is activated).



Key
UN : “Normal” source voltage
UR : “Replacement” source voltage
N : “Normal” source circuit breaker
R : “Replacement” source circuit breaker
B : Penalties accepted (N ON), i.e. B = 1
(1) The number sends to the indicated step when the condition is true.

Operating sequences, test mode and automatic operation

Switch set to the “Auto” position (automatic operation and test mode).



WAITING The system exits this mode when the operating mode is modified or when an external event occurs (e.g. failure or return of UN).

When the UA controller is not energised, the output for generator set startup is activated).

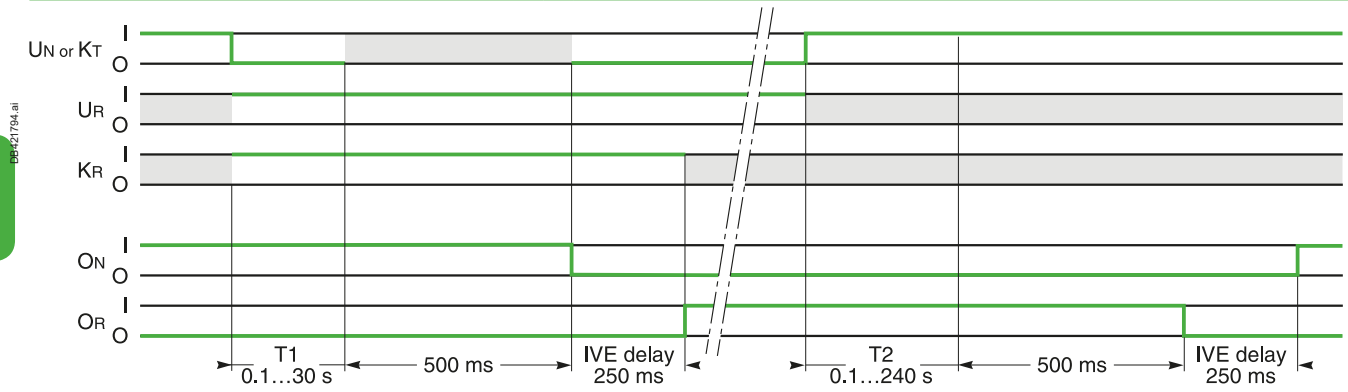
Key

UN : “Normal” source voltage
UR : “Replacement” source voltage
N : “Normal” source circuit breaker
R : “Replacement” source circuit breaker
B : Penalties accepted (N ON), i.e. B = 1
[1] The test lasts 180 seconds.

(1) The number sends to the indicated step when the condition is true.

Transferpact controllers
UA/BA controller

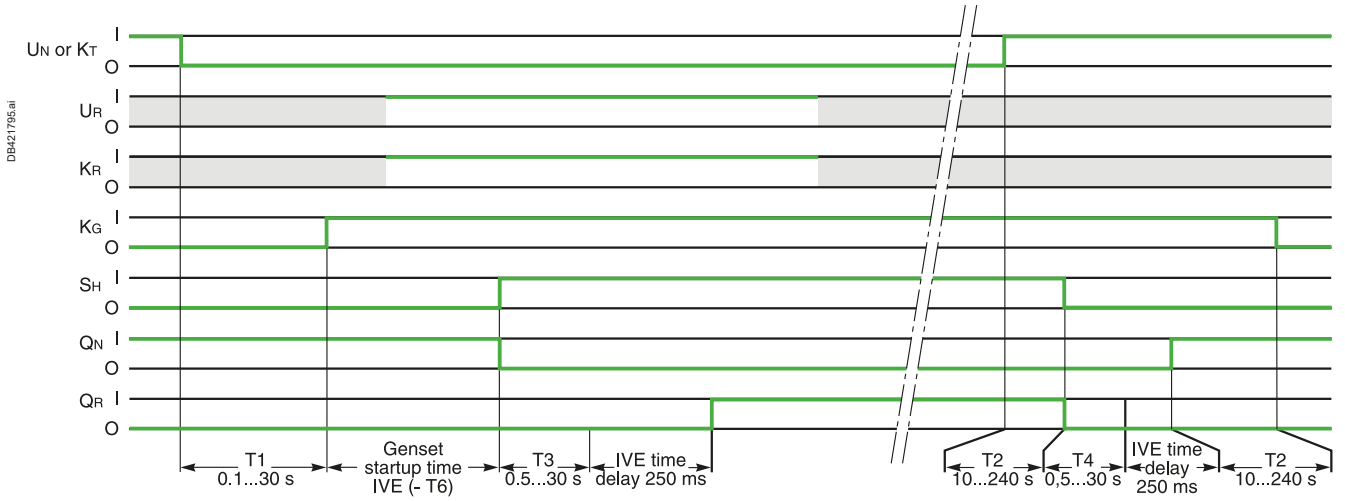
BA controller



Inputs
UN : “Normal” source voltage
UR : “Replacement” source voltage
KT : order for forced-operation on R
KR : additional check before transfer

Outputs
QN : “Normal” source circuit breaker
QR : “Replacement” source circuit breaker

UA controller



Inputs
UN : “Normal” source voltage
UR : “Replacement” source voltage
KT : order for forced-operation on R
KR : additional check before transfer

Outputs
KG : order to the genset
SH : load-shedding order
QN : “Normal” source circuit breaker
QR : “Replacement” source circuit breaker

Key
O: OFF (circuit open)
I: ON (circuit closed
: either ON or OFF.

Important
If UR is not ON when the transfer order is issued (KT or UN), the sequence is not carried out. If KR status is not ON when the transfer order is issued (KT or UN), the transfer sequence is carried out later when KR status becomes I.

Dimensions
of the Transferpact Switch Equipment

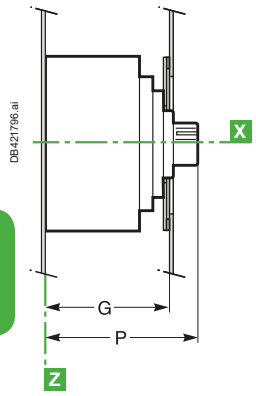
B

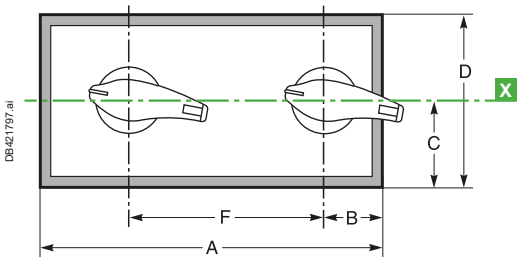
Manual source-changeover systems
Compact INS/INV

Class PC

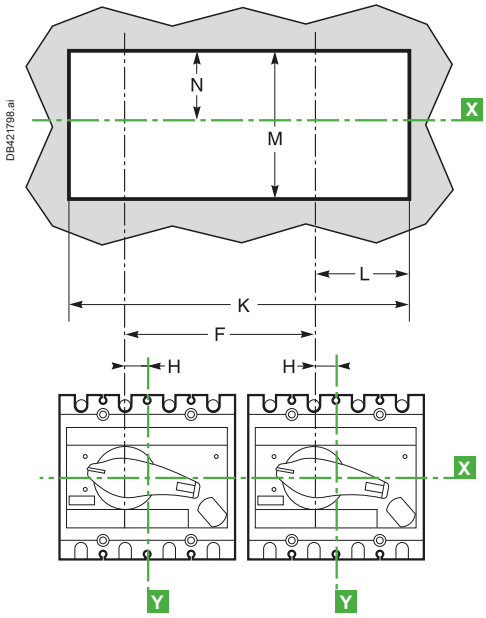
Interlocking of direct rotary handles
(Compact INS/INV250 - 100 to 250 A / Compact INS/INV320/400/500/630)

Dimensions





Front-panel cutout



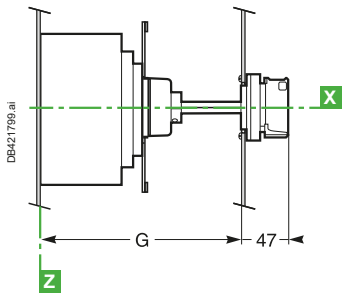
Dimensions (mm)

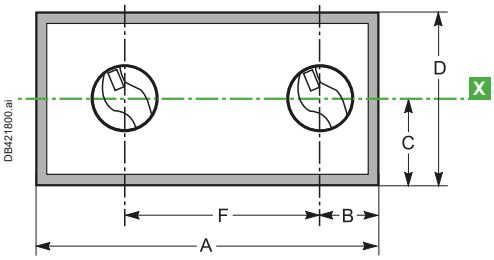
Type	A	B	C	D	F	G	H	K	L	M	N	P
INS/INV250 - 100 to 250 A	325	90	87.5	175	156	106	17.5	295	75.5	150	75	131
INS/INV320/400/500/630	416	115	100	200	210	130	22.5	386	100	175	74.5	160.4

Note: X and Y are the symmetry planes for a 3-pole device.

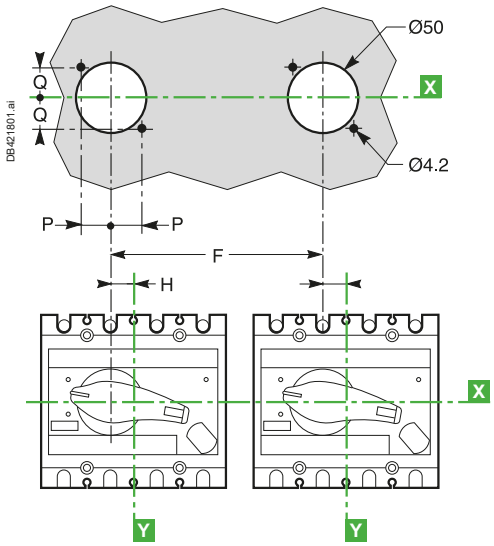
Interlocking of extended rotary handles
(Compact INS40/63/80/100/125/160 / Compact INS/INV250 - 100 to 250 A / Compact INS/INV320/400/500/630)

Dimensions





Front-panel cutout



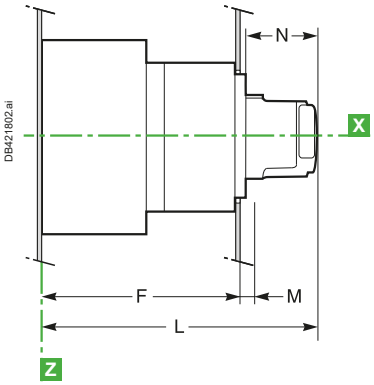
Dimensions (mm)

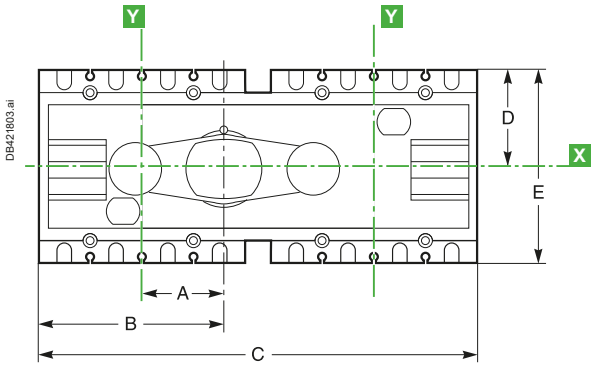
Type	A	B	C	D	F	G min	G max	H	P	Q
INS40/63/80	325	90	87.5	175	156	155	396	0	25.5	25.5
INS100/125/160	325	90	87.5	175	156	200	441	0	25.5	25.5
INS/INV250 - 100 to 250 A	325	90	87.5	175	156	185	600	17.5	25.5	25.5
INS320/400/500/630	416	115	100	200	210	204	600	22.5	30.8	30.8

Class PC

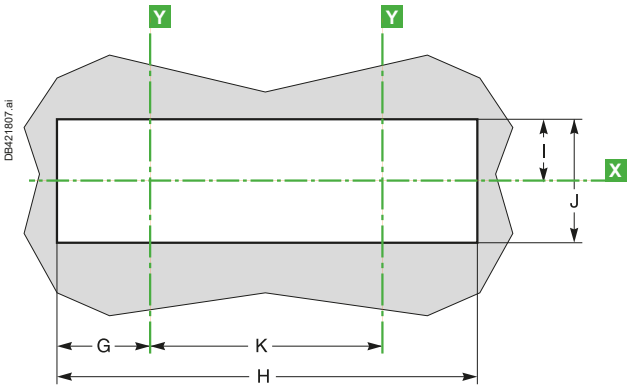
Complete manual source-changeover assembly

Transferpact FXM with direct rotary handle





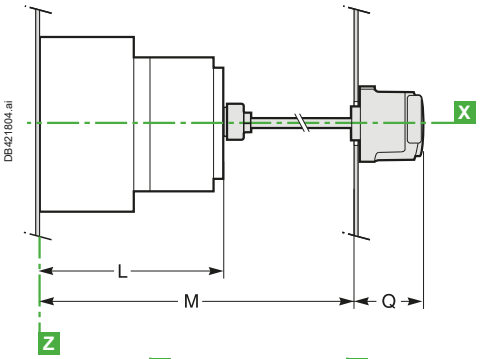
Front-panel cutout

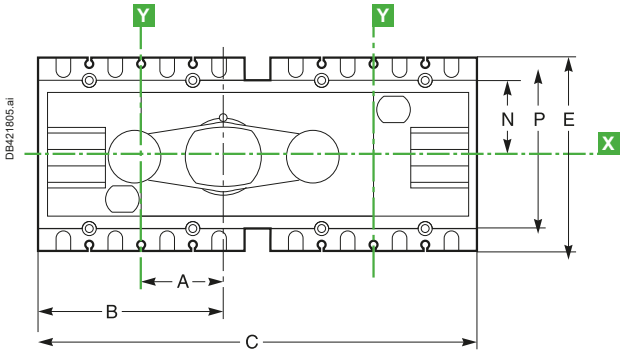


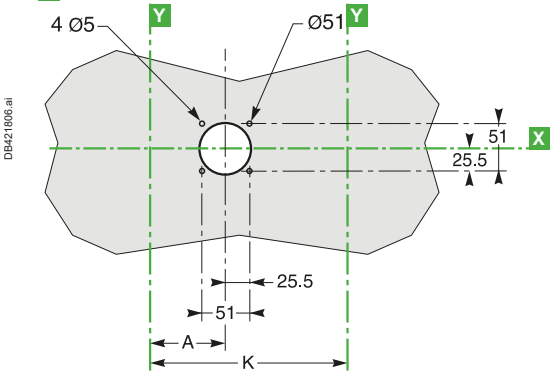
Dimensions (mm)

Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N
FXM 100 to 250 A	60.4	130.4	296	68	136	131	61.8	279.3	42	84	156	186.5	5.5	50
FXM 320 to 630 A	82.5	175	395	102.5	205	155	87	383.7	64	128	210	213	8	50

Transferpact FXM with extended handle







Dimensions (mm)

Type	A	B	C	E	K	L	M	N
FXM 100 to 250 A	60.4	130.4	295	136	156	138.5	631	50
FXM 320 to 630 A	82.5	175	395	205	210	162.5	658	75

Dimensions (mm)

Type	P	Mmax	Mmin	Q
FXM 100 to 250 A	100	567.5	195	64
FXM 320 to 630 A	150	593	220.5	64

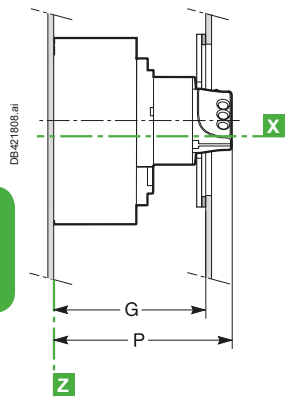
Note: lines **X** and **Y** indicate the axes of symmetry of the switch-disconnector.
Reference plane **Z** corresponds to the back of the switch-disconnector.

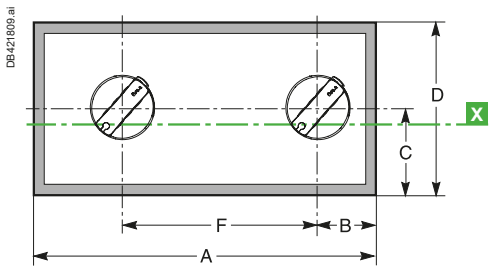
Manual source-changeover systems
Compact NSX

Class PC and CB

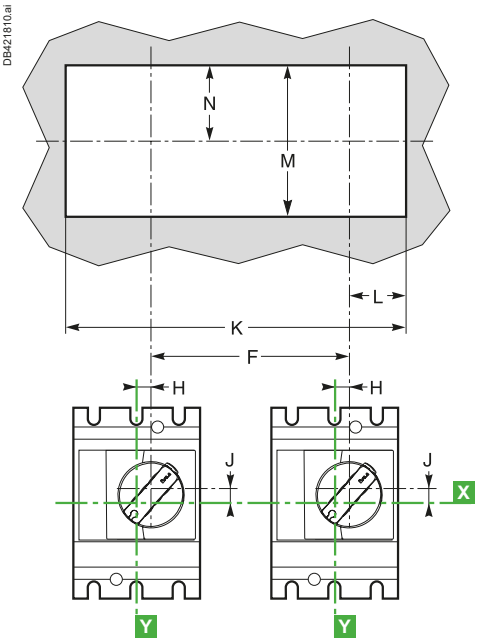
Interlocking of direct rotary handles
(Compact NSX100 to NSX630 and Compact NSX100 NA to NSX630 NA)

Dimensions





Front-panel cutout

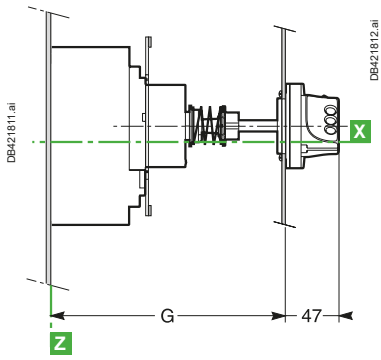


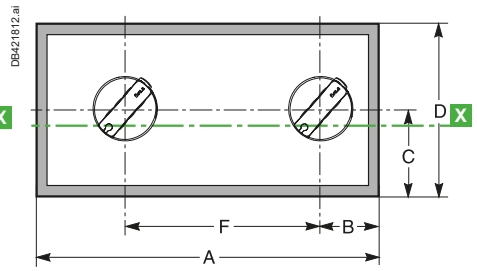
Dimensions (mm)

	A	B	C	D	F	G	H	J	K	L	M	N	P
NSX100/160/250 and NA	325	90	87.5	175	156	133	9.25	9	295	75.5	150	75	155
NSX400/630 and NA	416	115	100	200	210	157	5	24.6	386	100	175	74.5	179

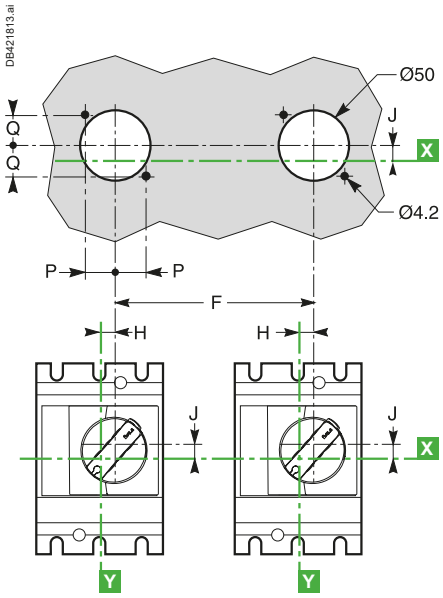
Interlocking of extended rotary handles
(Compact NSX100 to NSX630 and Compact NSX100 NA to NSX630 NA)

Dimensions





Front-panel cutout



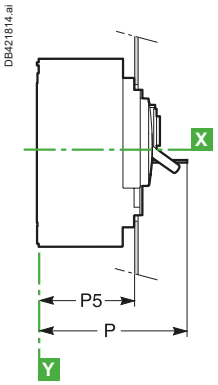
Dimensions (mm)

Type	A	B	C	D	F	G min	G max	H	J	P	Q
NSX100/160/250 and NA	325	90	87.5	175	156	171	600	9.25	9	25.5	25.5
NSX400/630 and NA	416	115	100	200	210	195	600	5	24.6	30.8	30.8

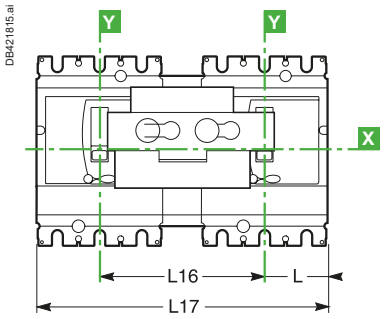
Class PC and CB

Interlocking of toggles
(Compact NSX100 to NSX630 and Compact NSX100 NA to NSX630 NA)

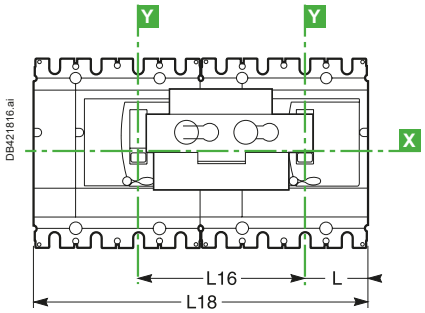
Dimensions



3 poles

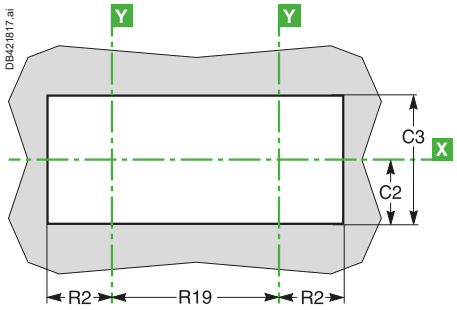


4 poles

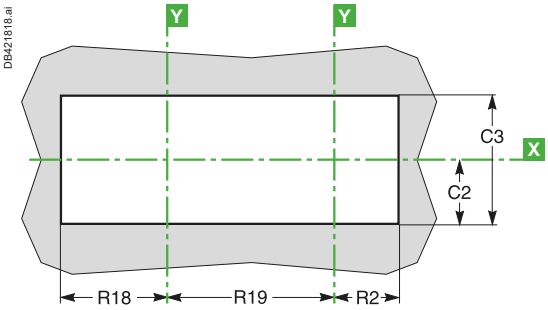


Front-panel cutout

3 poles on left



4 poles on left



Dimensions (mm)

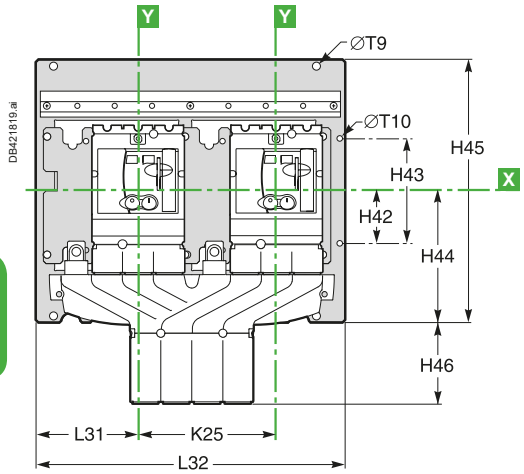
Type	C2	C3	L	L16	L17	L18	R2	R18	R19	P5	P
NSX100/160/250 and NA	54	108	52.5	140	245	280	54	89	140	83	120
NSX400/630 and NA	92.5	182	70	185	325	370	71.5	116.5	185	107	150

Manual source-changeover systems
Compact NSX - Interlocking on a base plate

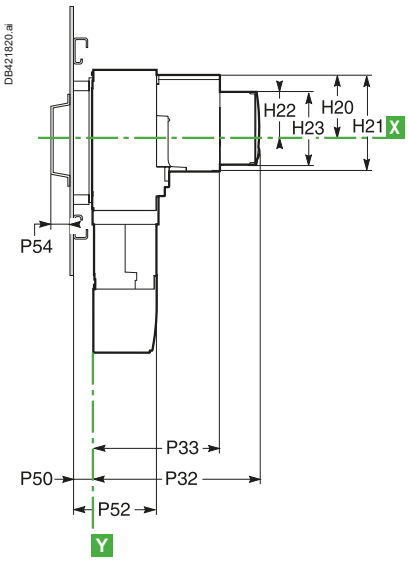
Class PC and CB

Compact NSX100 to NSX250 and Compact NSX100 NA to NSX250 NA

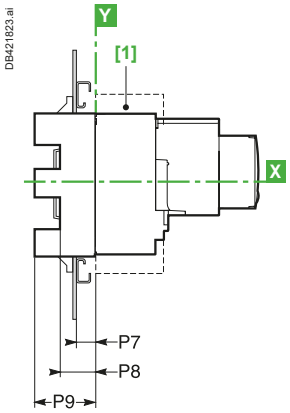
Dimensions, 3 or 4 poles



Fixed device

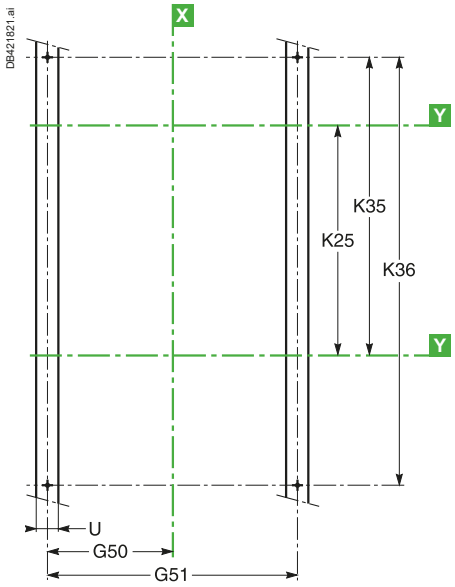


Withdrawable device

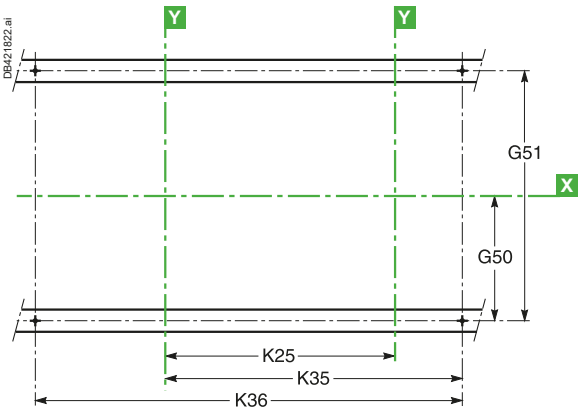


[1] Short terminal shields are mandatory.

Vertical mounting



Horizontal mounting



Dimensions (mm)

Type	G50	G51	H20	H21	H22	H23	H42	H43	H44	H45	H46	K25	K35	K36
NSX100/160/250 and NA	137.5	285	62.5	97	45.5	73	60	120	144.5	300	37	156	210.5	300
NSX400/630 and NA	180	360	100	152	83	123	60	120	189	378	77	210	282.5	400

Dimensions (mm)

Type	L31	L32	P7	P8	P9	P32	P33	P50	P52	P54	ØT9	ØT10	U
NSX100/160/250 and NA	110.5	354	25	45	75	182	143	25	99.5	21	9	6	⩽ 32
NSX400/630 and NA	150.5	466	25	45	100	256	215	25	123	21	9	6	⩽ 32

Note: coupling accessory: only for changeover systems using fixed versions of Compact NSX circuit breakers.

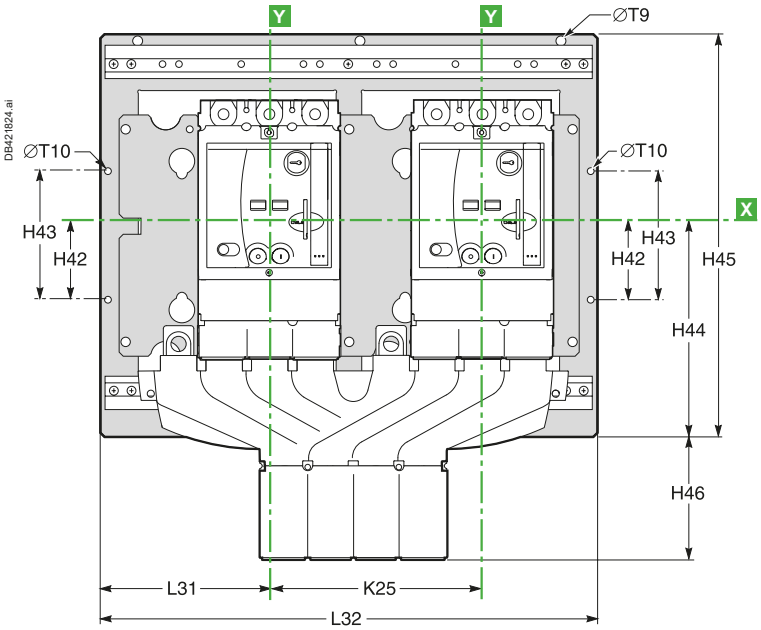
Manual source-changeover systems

Compact NSX - Interlocking on a base plate

Class PC and CB

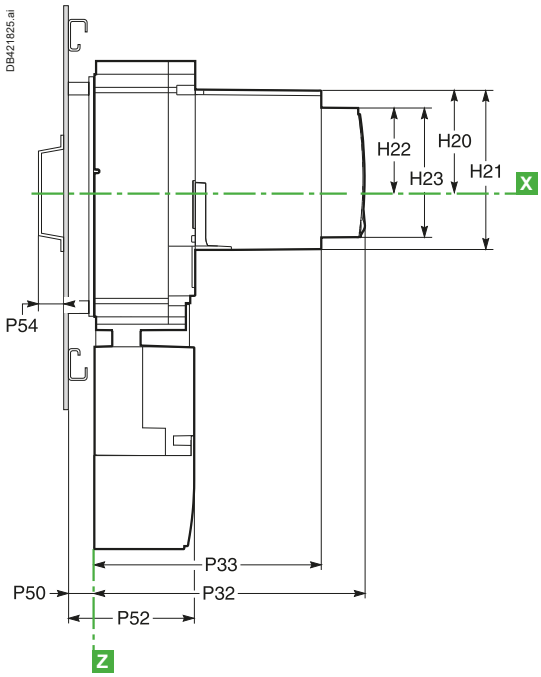
Compact NSX400 to NSX630 and Compact NSX400 NA to NSX630 NA

Dimensions, 3 or 4 poles

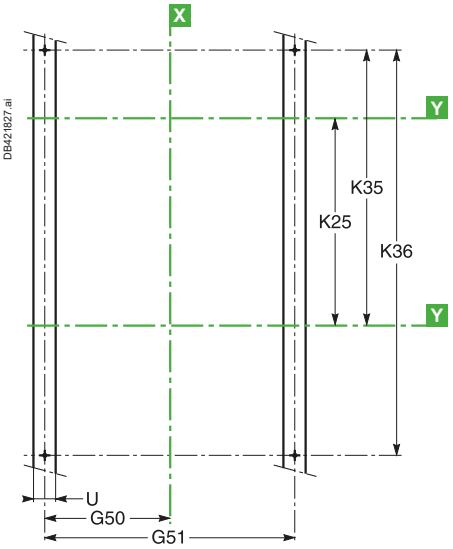


Note: coupling accessory: only for changeover systems using fixed versions of Compact NSX circuit breakers.

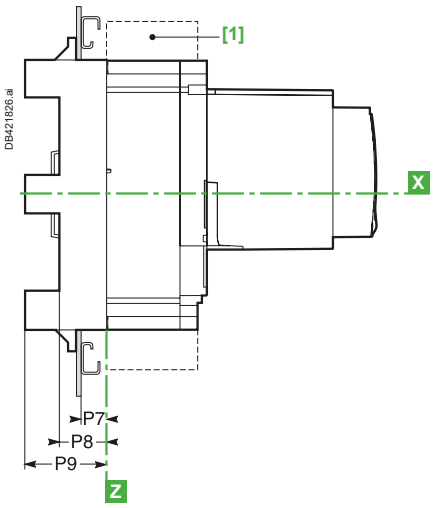
Fixed device



Vertical mounting

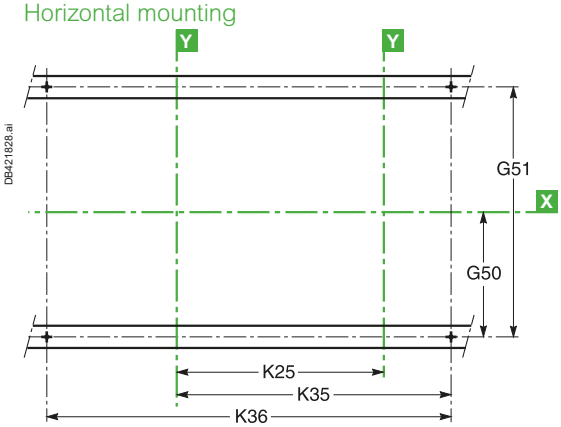


Withdrawable device



[1] Short terminal shields are mandatory.

Horizontal mounting



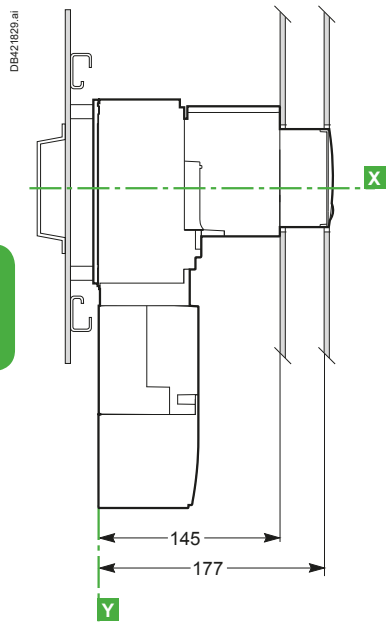
Note: for dimensions see page B-6.

Manual source-changeover systems
Compact NSX - Interlocking on a base plate

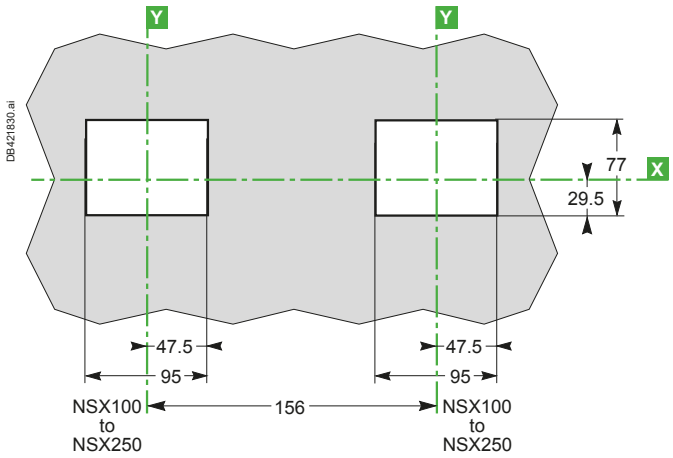
Class PC and CB

“Normal” and “Replacement” source devices: NSX100 to NSX250

Dimensions

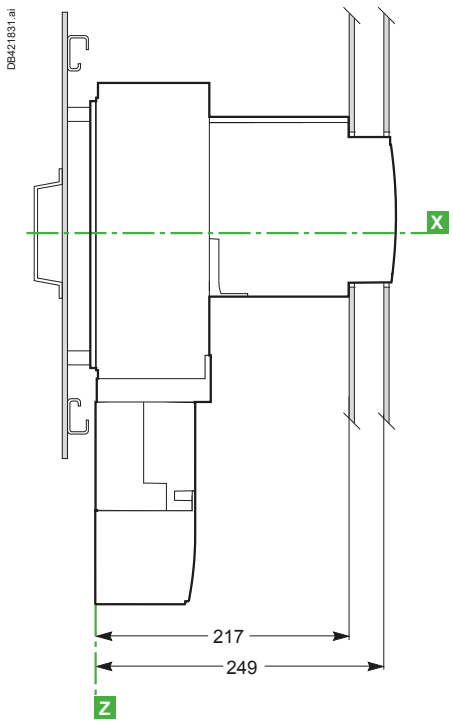


Front-panel cutout

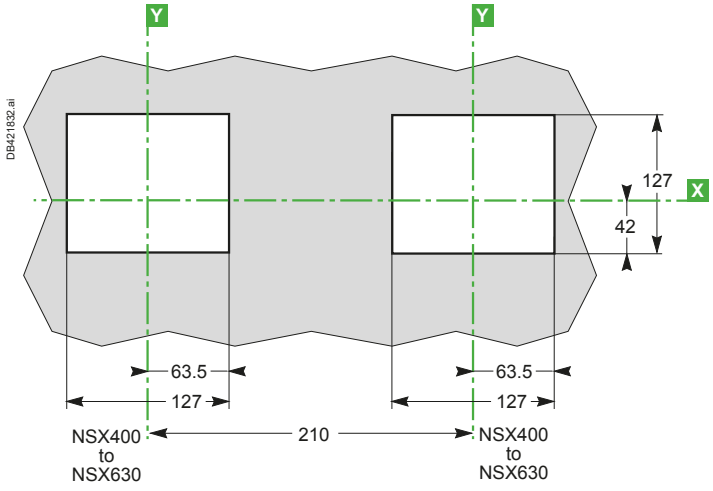


“Normal” and “Replacement” source devices: NSX400 to NSX630

Dimensions



Front-panel cutout



Note for Compact NSX: For dimensions with the accessories (IP40 escutcheons and Vigi escutcheon protection collars), see Catalogue Compact.

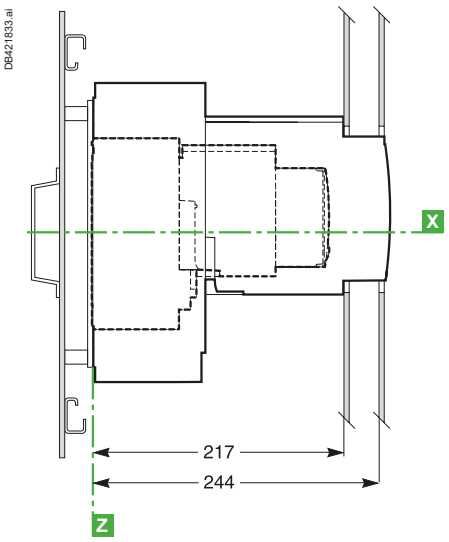
Manual source-changeover systems

Compact NSX - Interlocking on a base plate

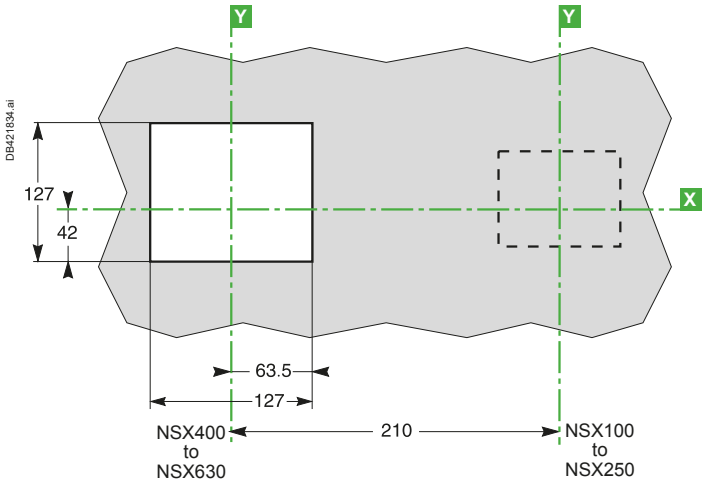
Class PC and CB

NSX400 to NSX630 as the “Normal” device, NSX100 to NSX250 as the “Replacement” device

Dimensions



Front-panel cutout



B

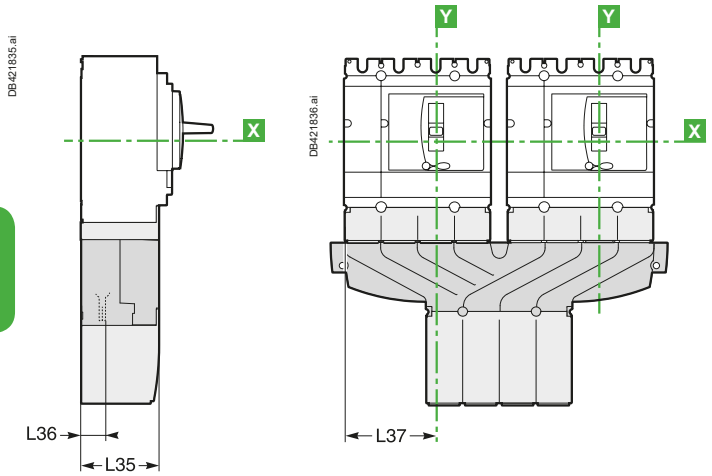
Downstream coupling accessory

Class PC and CB

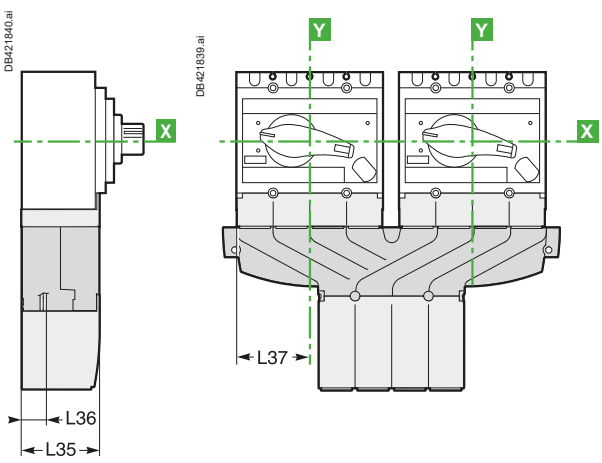
Downstream coupling accessory

Compact NSX100 to NSX630, Compact NSX100 NA to NSX630 NA and Compact INS/INV [1]

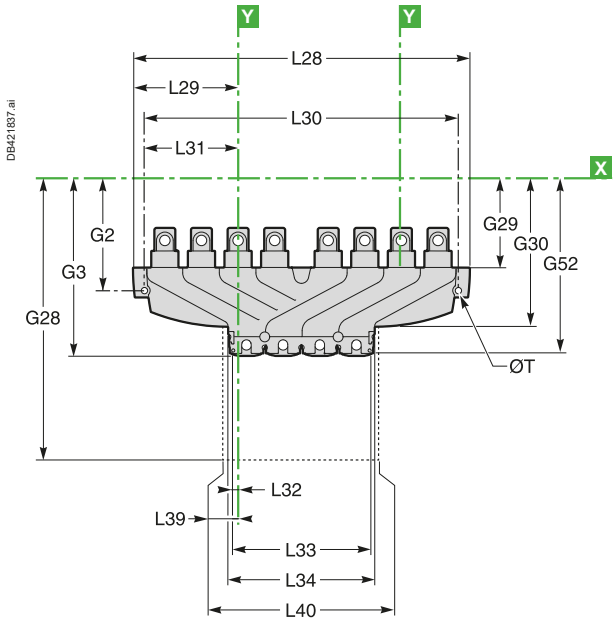
Dimensions for Compact NSX



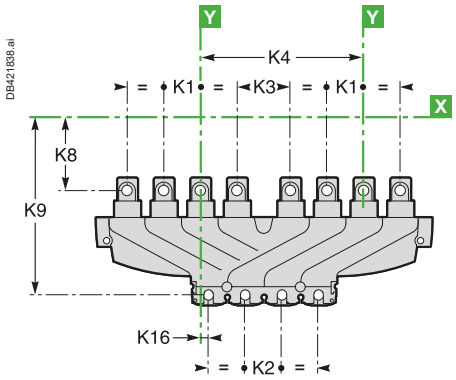
Dimensions for Compact INS/INV



Dimensions



Connection



Dimensions (mm)

Type	G2	G3	G28	G29	G30	G52	K1	K2	K3	K4	K8	K9	K16
NSX100/160/250 and NA	118	181.5	244.5	96	152.5	178	35	35	51	156	70	170	8
NSX400/630 and NA	165.9	264.7	337.5	143.5	220.5	264.7	45	45	75	210	113.5	250.7	15
INS250 - 100 to 250 A	105.5	169	232	83.5	140	165.5	35	35	51	156	57.5	157.5	25.5
INS320/400/500/630	141	240.7	313	119	195.6	240	45	45	75	210	88.5	225.7	37.5

Dimensions (mm)

Type	L28	L29	L30	L31	L32	L33	L34	L35	L36	L37	L39	L40	ØT
NSX100/160/250 and NA	320	99.5	300	89.5	4.73	130.5	139.5	74.5	19.5	87.5	9.5	140	6
NSX400/630 and NA	425	130	400	117.5	5.15	175.3	184.7	98.5	26	115	9.85	184.7	6
INS250 - 100 to 250 A	320	83	300	72	12.8	130.5	139.5	74.5	21.5	70	8.5	140	6
INS320/400/500/630	425	107.5	400	95	17.35	175.3	184.7	98.5	26	92.5	12.65	184.7	6

[1] coupling accessory: only for changeover systems using fixed versions of Compact NSX circuit breakers.

Manual source-changeover systems

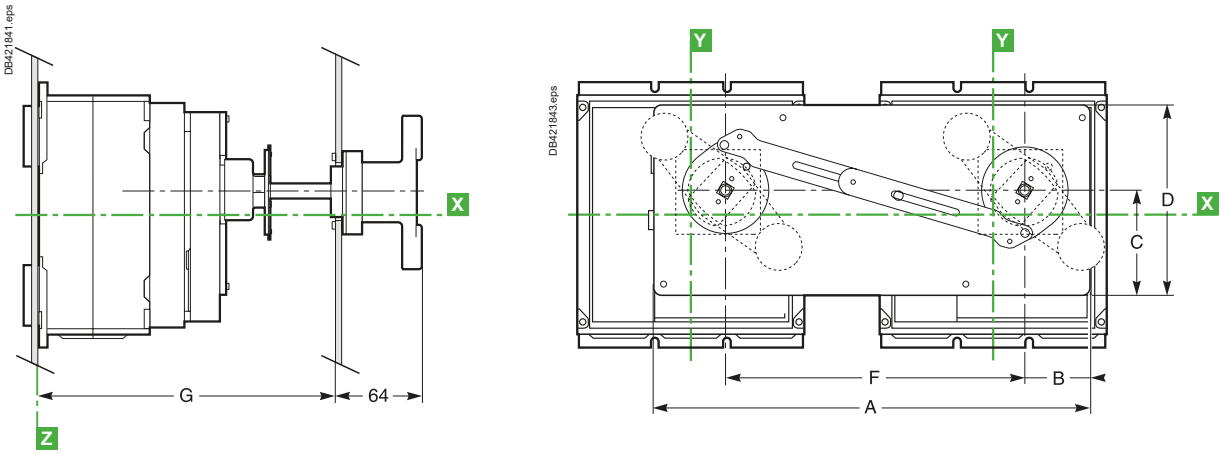
Compact NS - Interlocking on a base plate

Class PC and CB

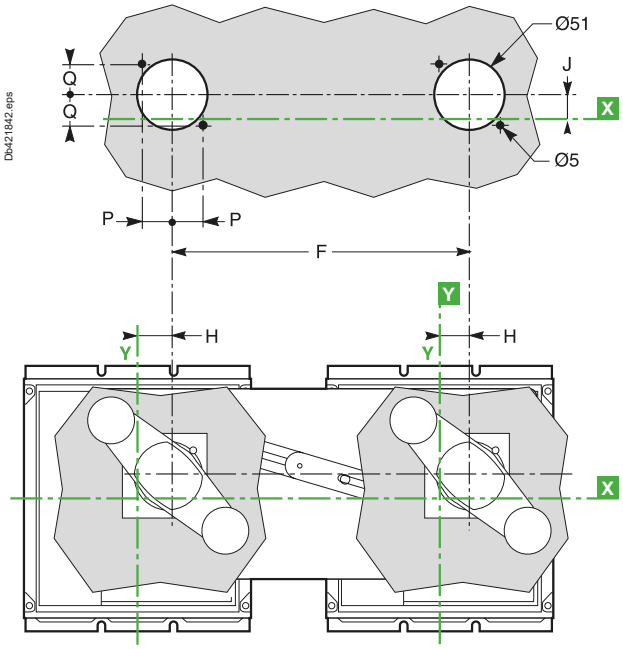
Interlocking of extended rotary handles

Compact NS630b to 1600 and Compact NS630b NA to NS1600 NA

Dimensions



Front-panel cutout



Dimensions (mm)

Type	A	B	C	D	F	G min	G max	H	J	P	Q	R
NS630b/800/1000/1200/1600	411	63.5	98	175	280	218	605	25	24	25.5	25.5	64

Source-changeover systems

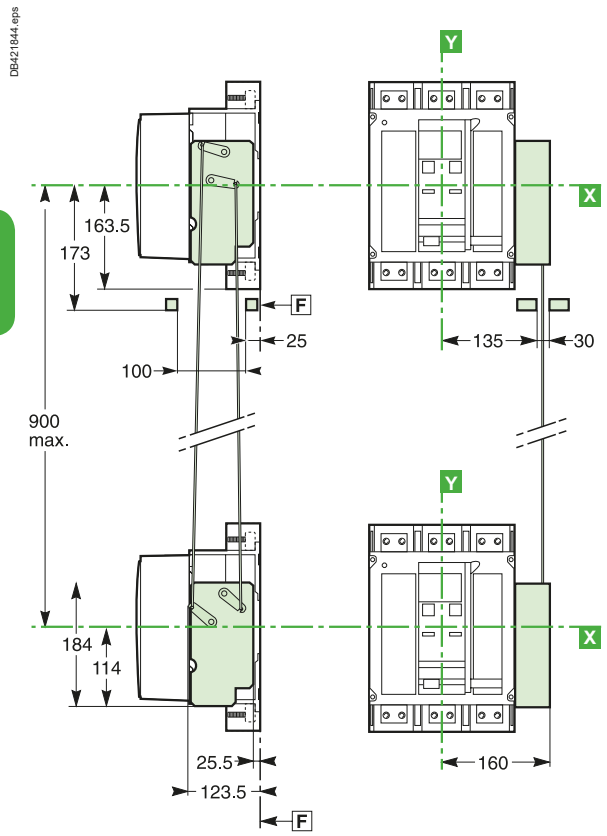
Mechanical interlocking using connecting rods

Compact NS and Masterpact MTZ1

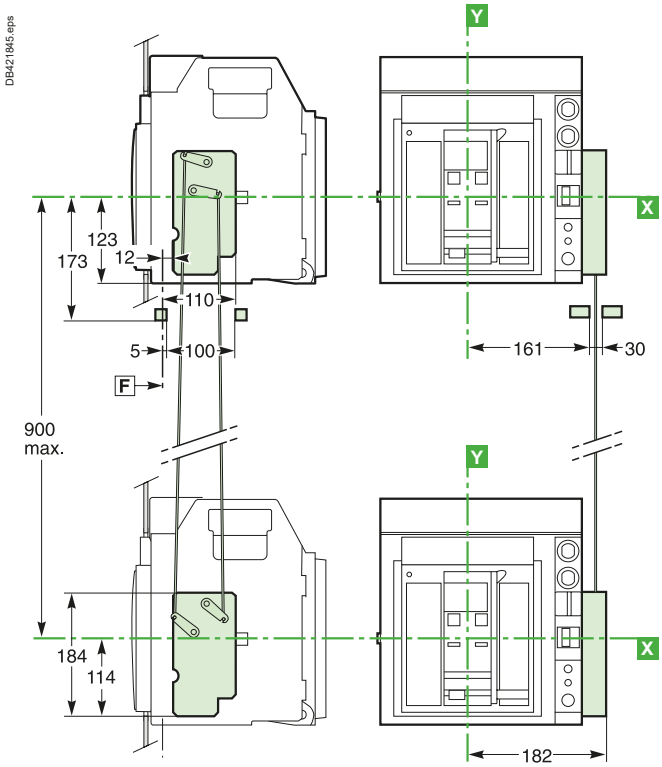
Class PC and CB

Compact NS630b to NS1600 and Compact NS630b NA to NSX1600 NA devices one above the other

Fixed devices

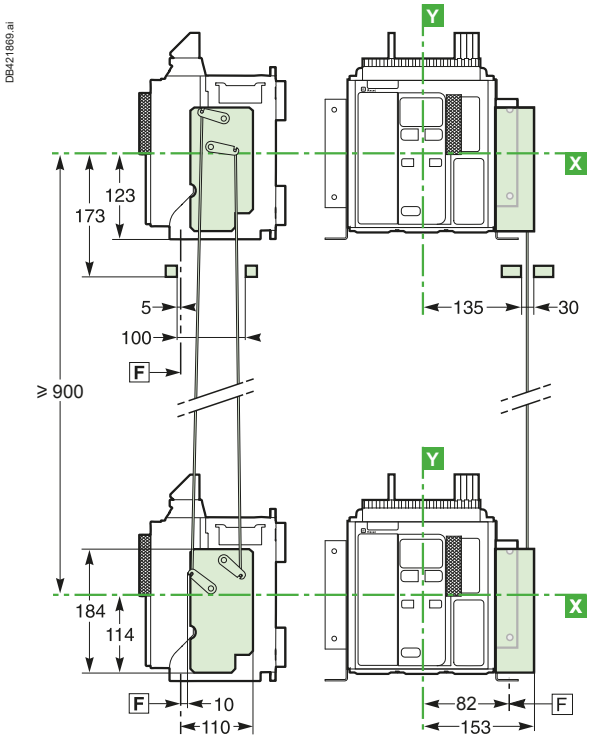


Withdrawable devices

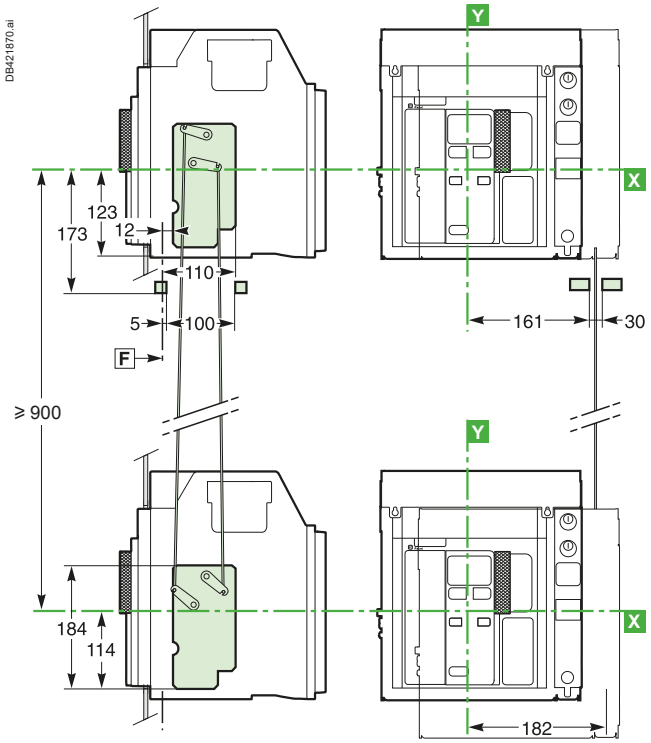


Two Masterpact MTZ1 devices (switch-disconnectors or circuit breakers) one above the other

Fixed devices



Withdrawable devices



Source-changeover systems

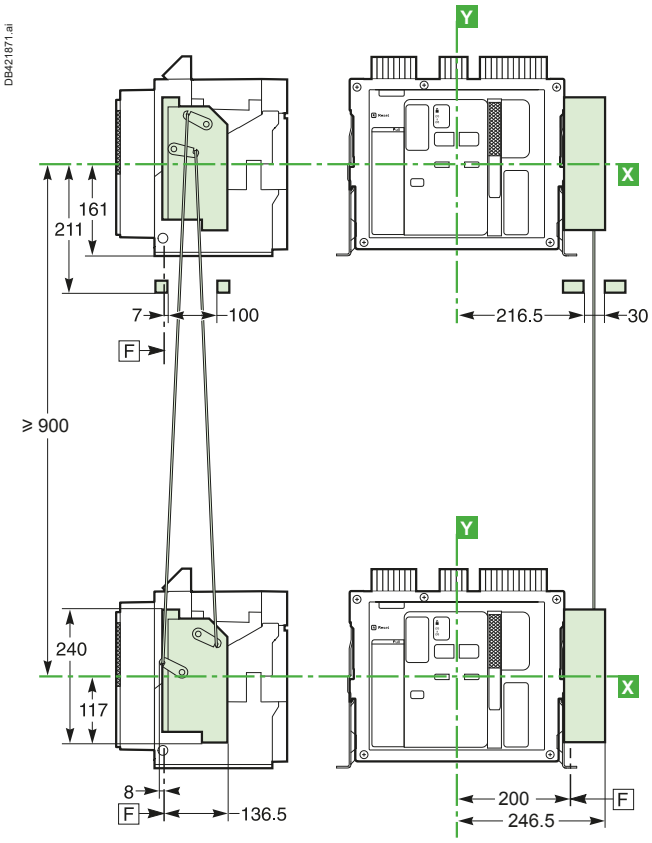
Mechanical interlocking using connecting rods

Class PC and CB

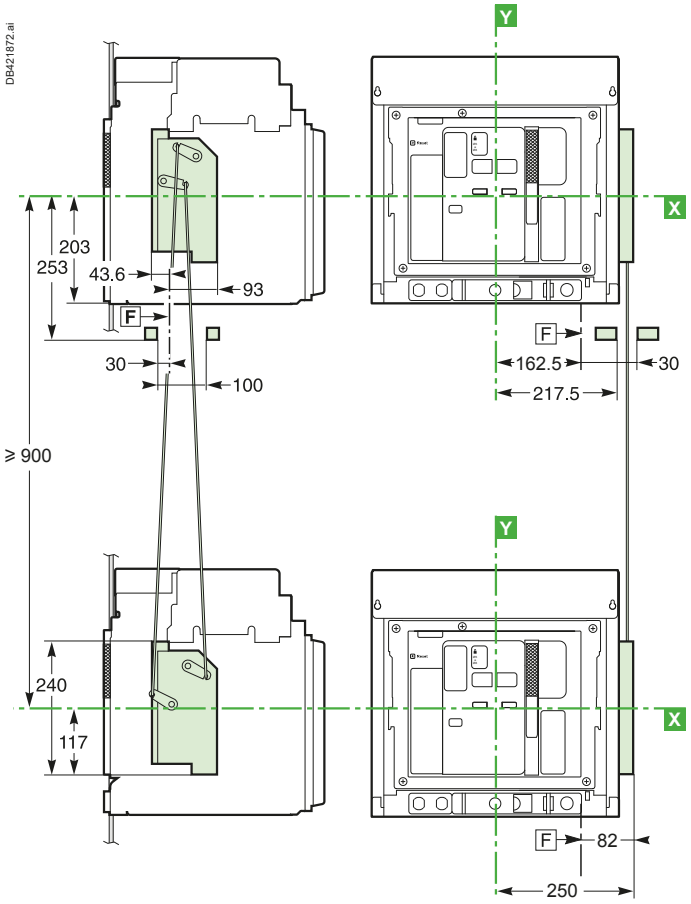
Masterpact MTZ2

Two Masterpact MTZ2 devices (switch-disconnectors or circuit breakers) one above the other

Fixed devices



Withdrawable devices



Source-changeover systems

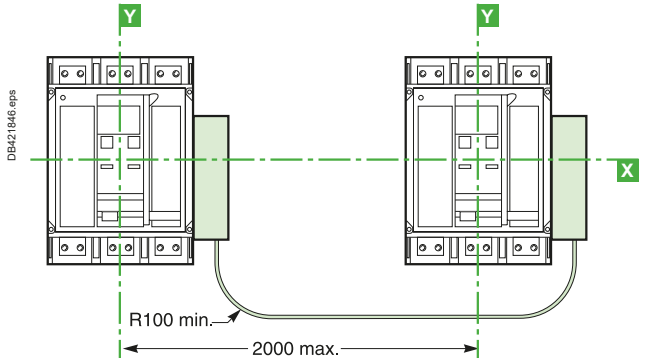
Mechanical interlocking using connecting cables

Compact NS and Masterpact MTZ1/MTZ2

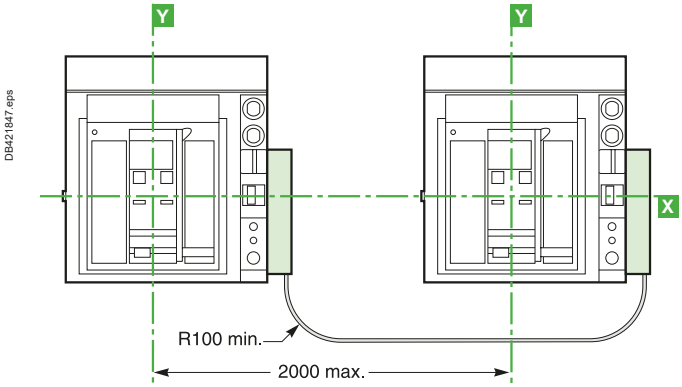
Class PC and CB

Compact NS630b to NS1600 and Compact NS630b NA to NS1600 NA devices side-by-side

Fixed devices

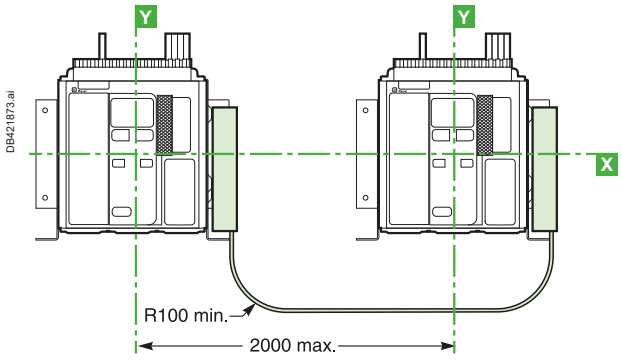


Withdrawable devices

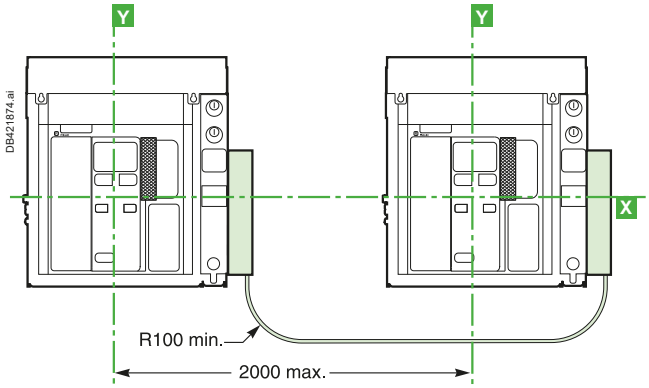


Two Masterpact MTZ1 devices (switch-disconnectors or circuit breakers) side-by-side

Fixed devices

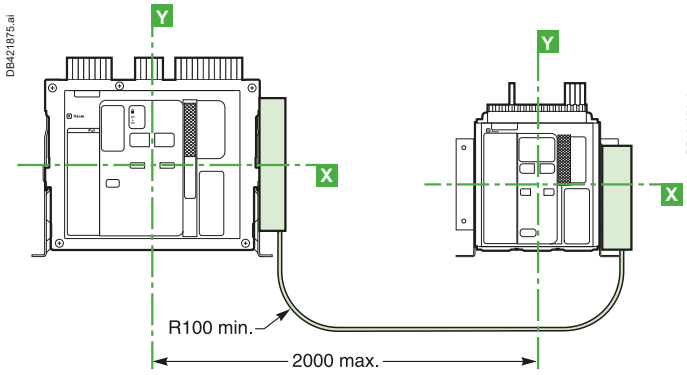


Drawout devices

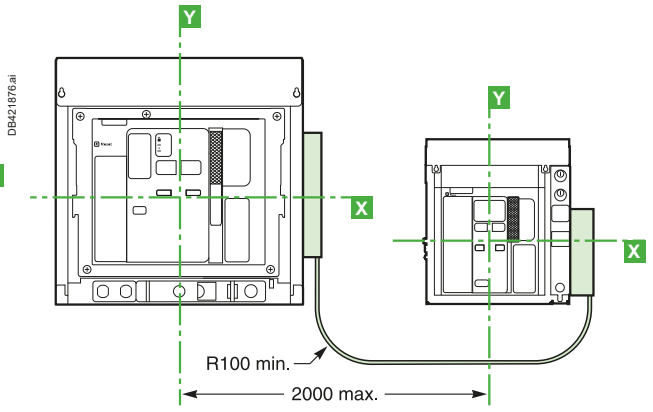


Combination of two Masterpact MTZ1 and MTZ2 devices (switch-disconnectors or circuit breakers) side-by-side

Fixed devices



Drawout devices



Source-changeover systems

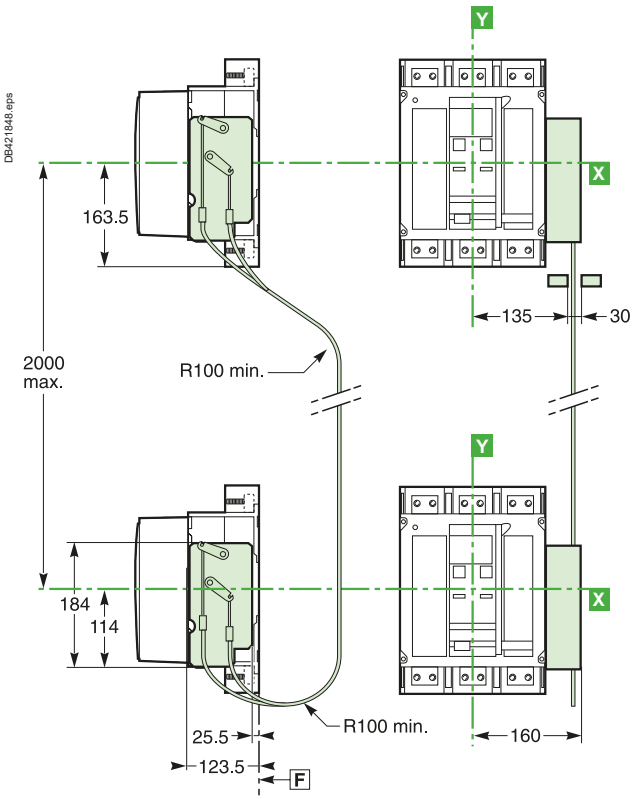
Mechanical interlocking using connecting cables

Class PC and CB

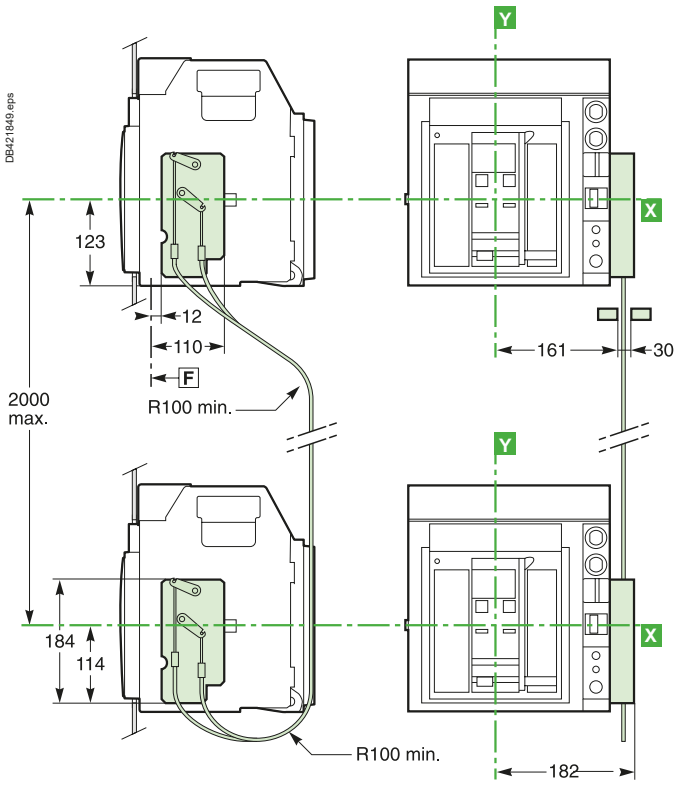
Compact NS and Masterpact MTZ1

Two Compact NS630b to NS1600 and Compact NS630b NA to NS1600 NA devices one above the other

Fixed devices

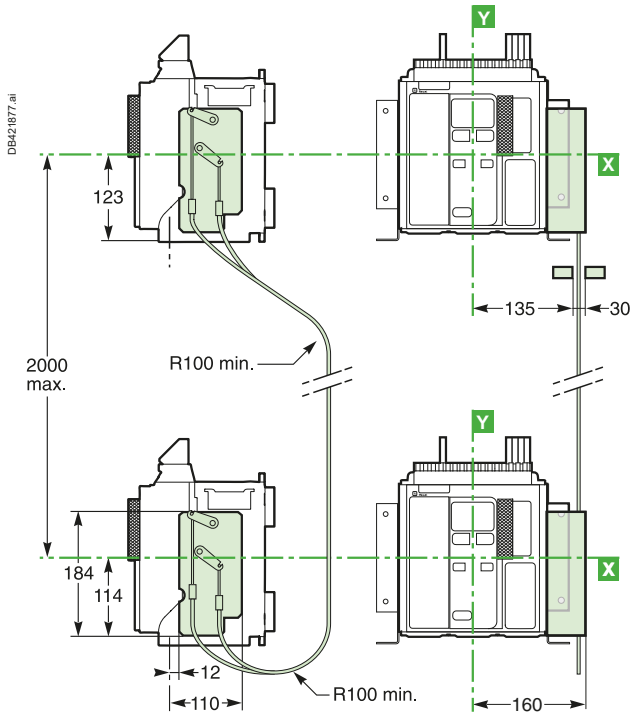


Withdrawable devices

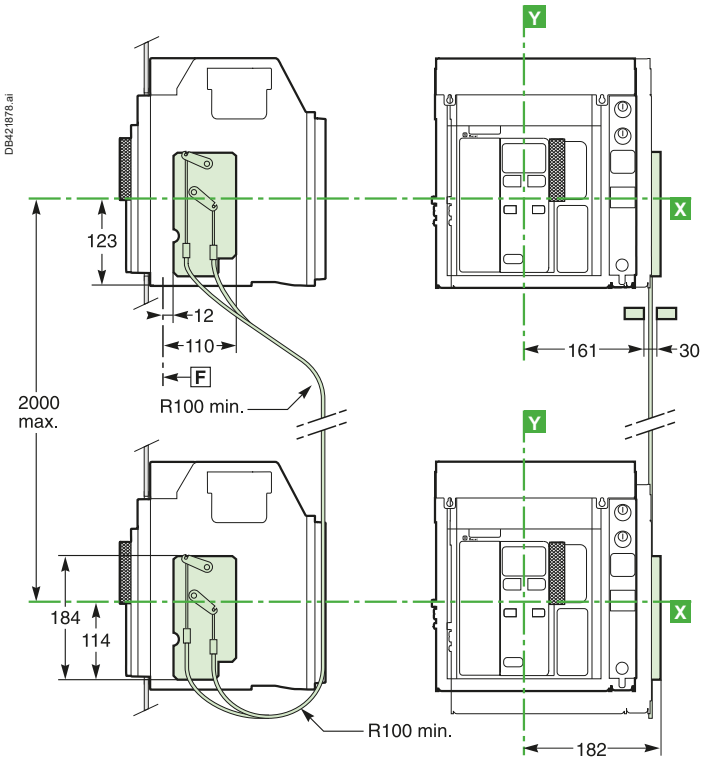


Two Masterpact MTZ1 devices (switch-disconnectors or circuit breakers) one above the other

Fixed devices



Drawout devices



Source-changeover systems

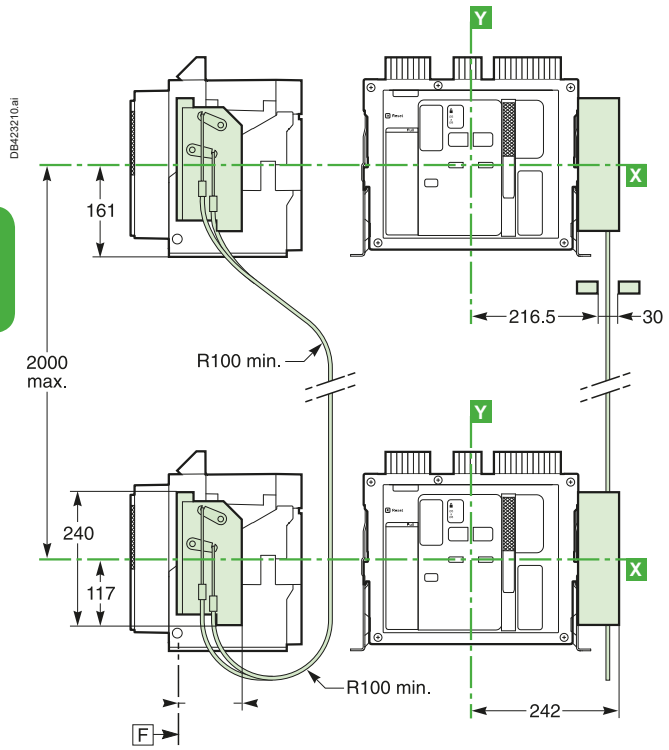
Mechanical interlocking using connecting cables

Masterpact MTZ

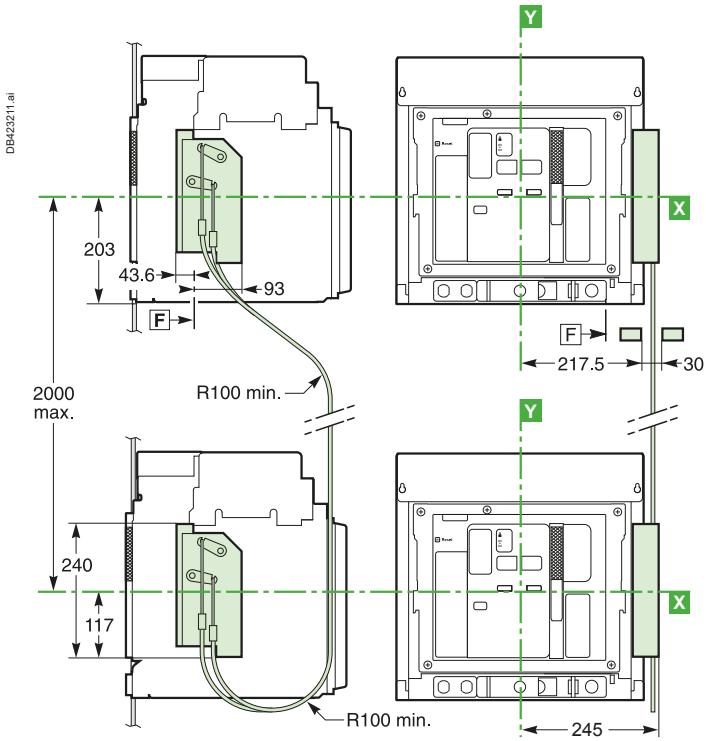
Class PC and CB

Two Masterpact MTZ2 devices (switch-disconnectors or circuit breakers) one above the other

Fixed devices

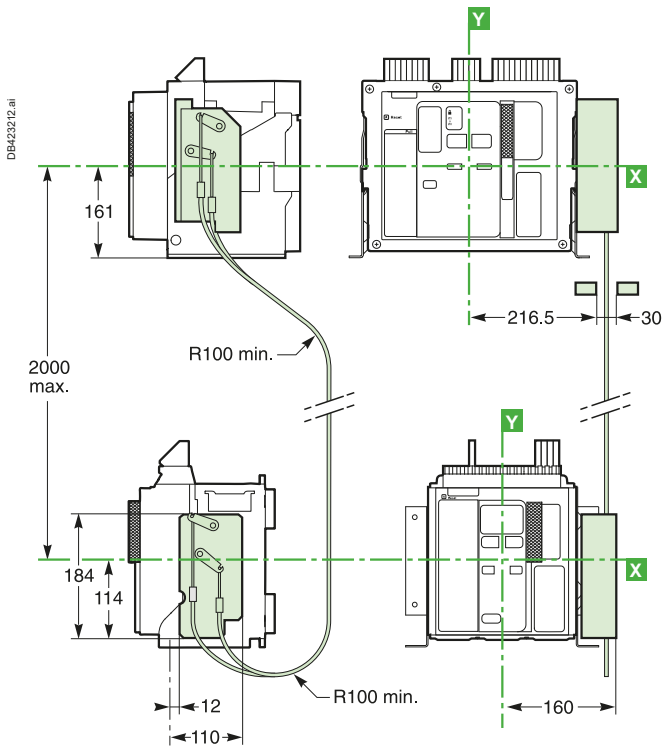


Drawout devices

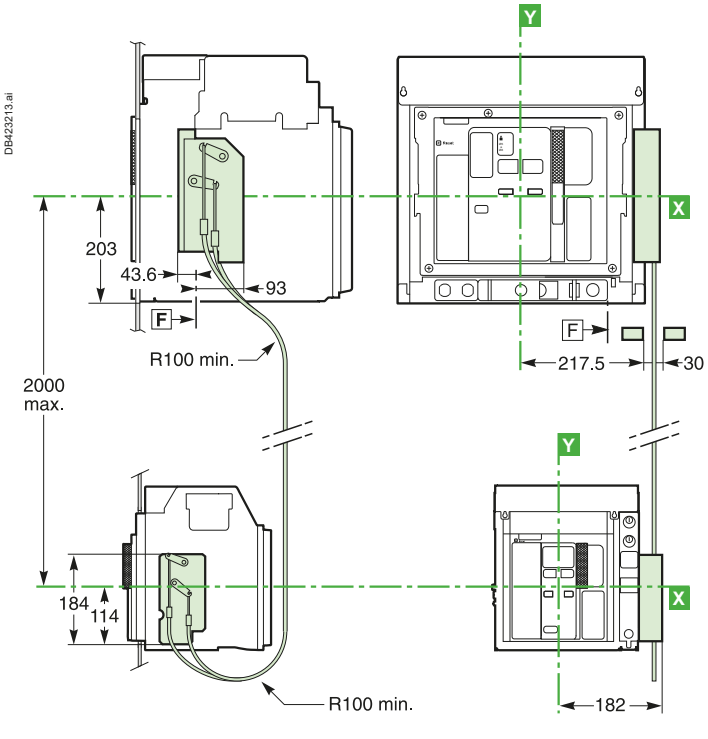


Two Masterpact MTZ1 and MTZ2 devices (switch-disconnectors or circuit breakers) one above the other

Fixed devices



Drawout devices



Source-changeover systems

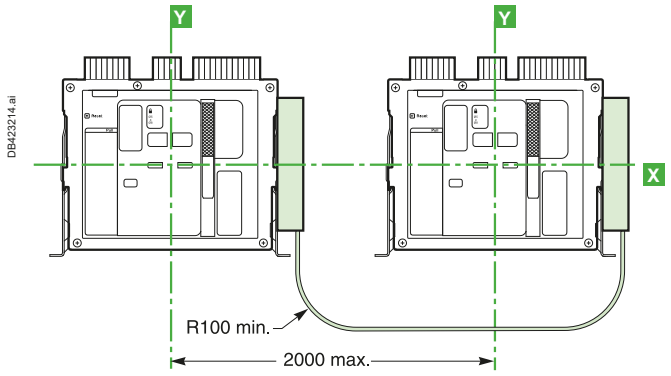
Mechanical interlocking using connecting cables

Class PC and CB

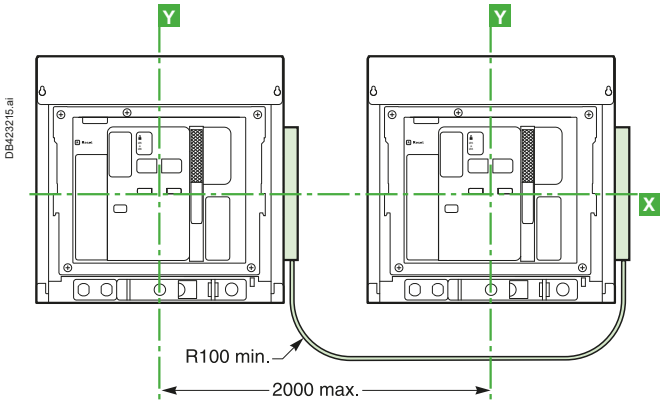
Masterpact MTZ2

Two Masterpact MTZ2 devices side-by-side

Fixed devices

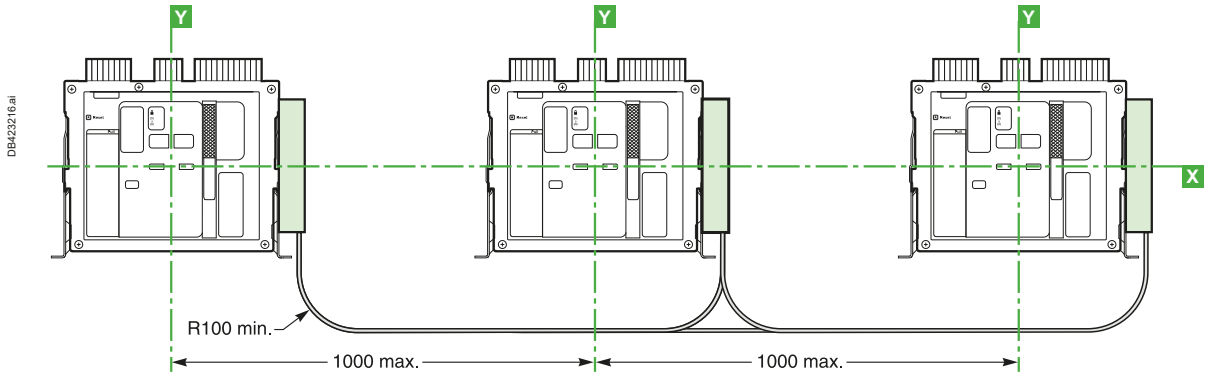


Drawout devices

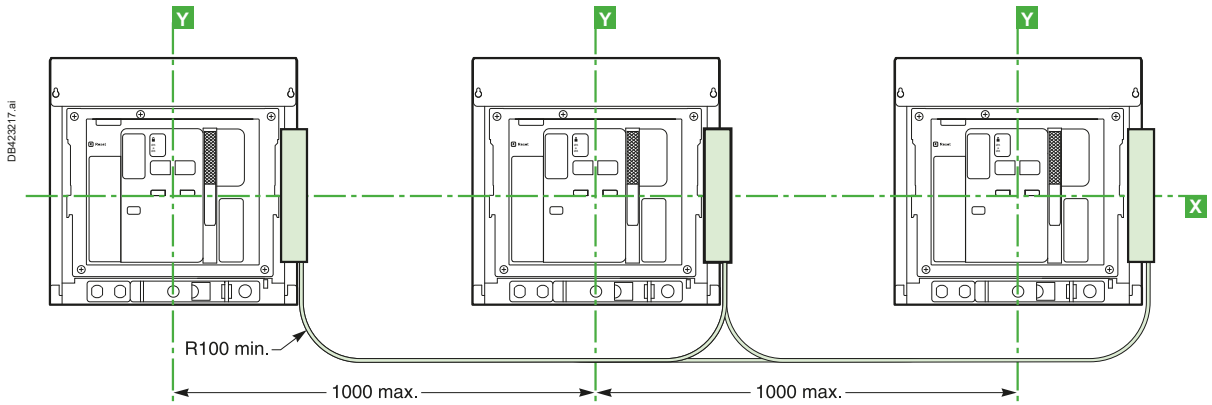


Three Masterpact MTZ2 devices (switch-disconnectors or circuit breakers) side-by-side

Fixed devices



Drawout devices



Source-changeover systems

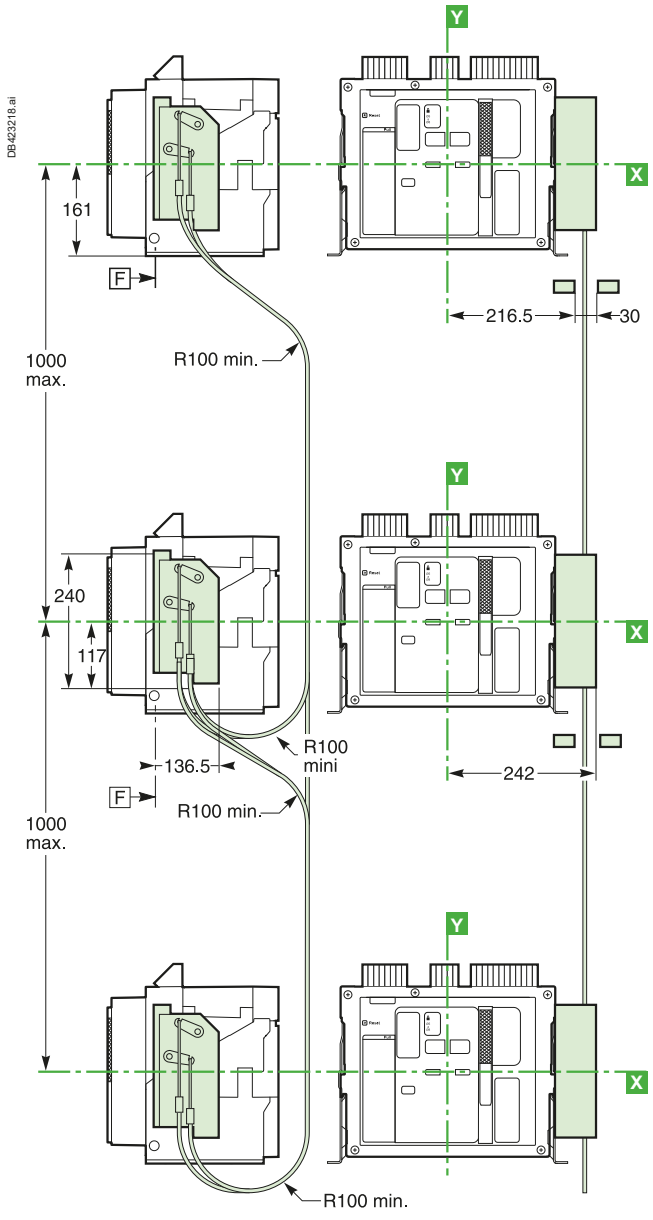
Mechanical interlocking using connecting cables

Masterpact MTZ2

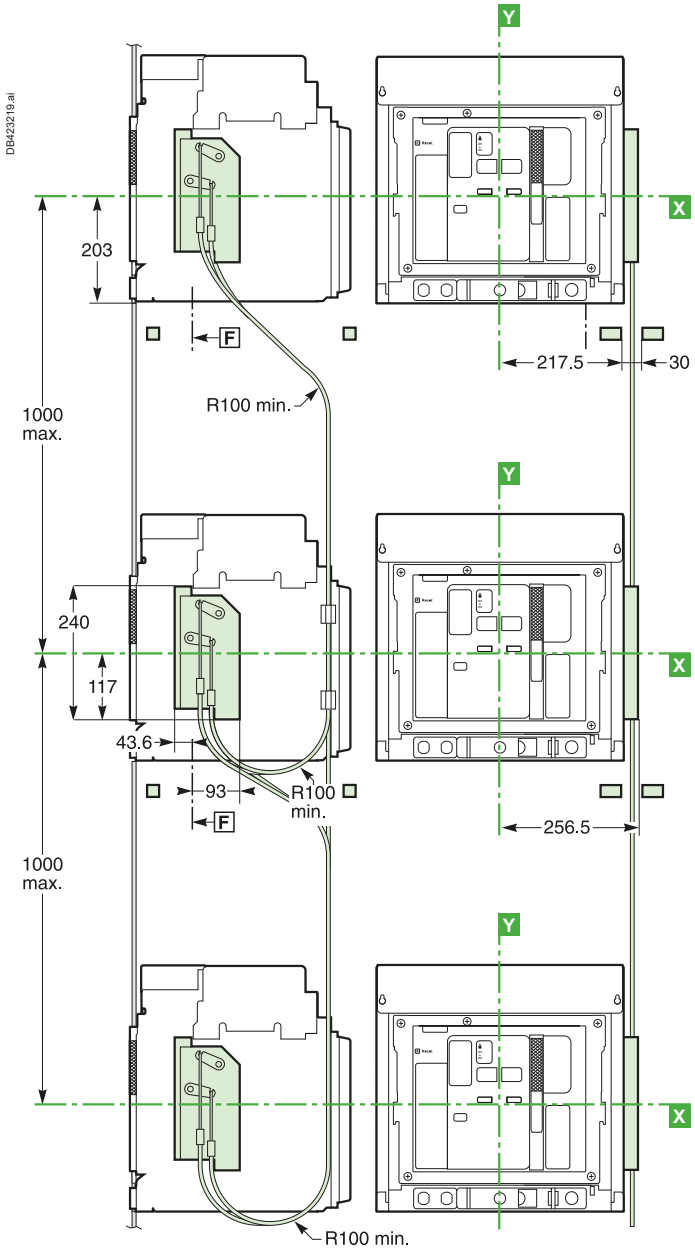
Class PC and CB

Three Masterpact MTZ2 devices (switch-disconnectors or circuit breakers) one above the other

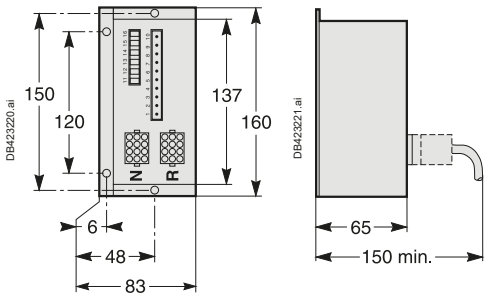
Fixed devices



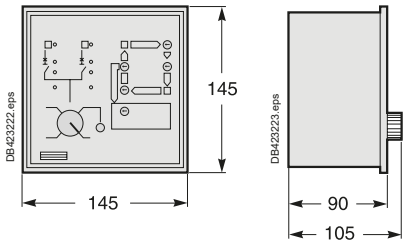
Drawout devices



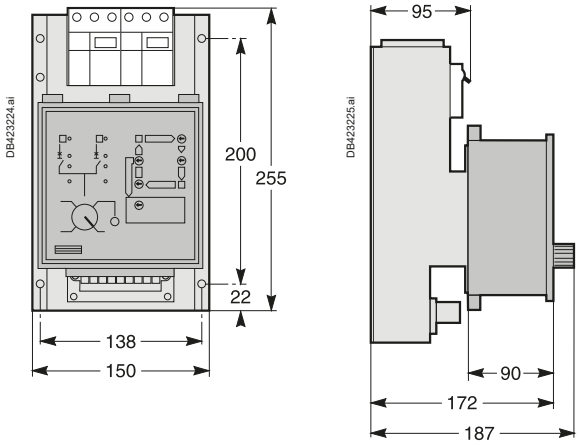
IVE unit



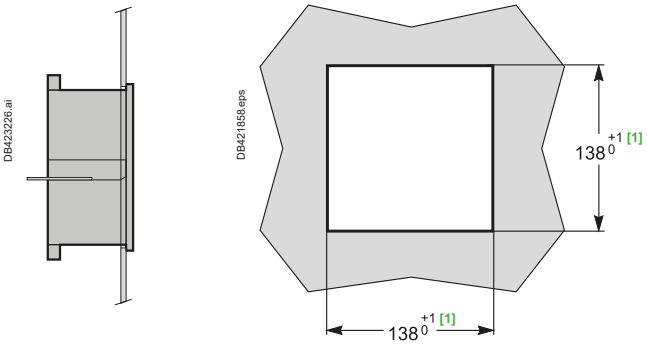
UA/BA controllers



ACP control plate and UA/BA controllers



Door cutout for UA/BA controllers



[1] Cutout according DIN 43700 standard.

B

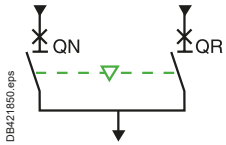
B

Electrical diagrams

C

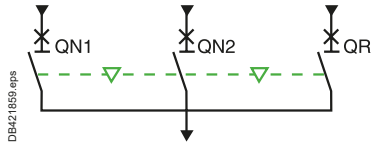
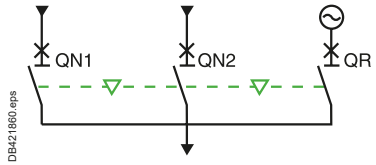
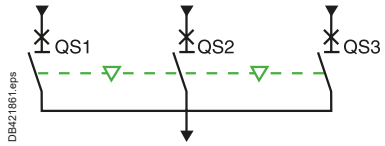
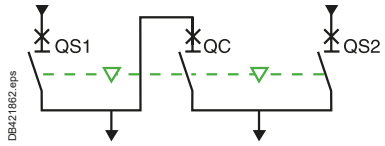
Standard configurations

Compact NS, Masterpact MTZ1 and MTZ2

Types of mechanical interlocking	Possible combinations	Typical electrical diagrams	Diagram no.	Page
2 devices				
 DB421850.eps	**QN** **QR** 0 0 1 0 0 1	**Compact NSX100 to 630:**		
		■ electrical interlocking without emergency power off (EPO) auxiliaries:	**51201177**	C-5
		□ with EPO by MN	**51201178**	C-6
		□ with EPO by MX	**51201179**	C-7
		Compact NS630b to 1600:		
		■ electrical interlocking with lockout after fault:		
		□ permanent replacement source (with IVE)	**51201183**	C-8
		□ with emergency off by shunt release MX (with IVE)	**51201184**	C-9
		□ with emergency off by undervoltage release MN (with IVE)	**51201185**	C-10
		Masterpact MTZ1 and MTZ2/3:		
		■ electrical interlocking with lockout after fault:		
		□ permanent replacement source (with IVE)		C-11
		□ with EPO by MX (with IVE)		C-12
		□ with EPO by MN (with IVE)		C-13
		■ automatic control with lockout after fault:		
		□ permanent replacement source (with IVE)		C-14
		□ engine generator set (with IVE)		C-15

C

Masterpact MTZ2/MTZ3 only

Types of mechanical interlocking	Possible combinations	Typical electrical diagrams	Page
3 devices: 2 "Normal" sources and 1 "Replacement" source			
 DB421859.eps	**QN1 QN2 QR** 0 0 0 1 1 0 0 0 1	■ electrical interlocking: □ without lockout after fault □ with lockout after fault	 C-19 C-20
3 devices: 2 "Normal" sources and 1 "Replacement" source with source selection			
 DB421860.eps	**QN1 QN2 QR** 0 0 0 1 0 0 0 0 1 1 1 0 0 1 0	■ automatic control with engine generator set: □ without lockout after fault (with MN) □ with lockout after fault (with MN)	 C-21 C-22
3 devices: 3 sources, only one device			
 DB421861.eps	**QS1 QS2 QS3** 0 0 0 1 0 0 0 1 0 0 0 1	■ electrical interlocking: □ without lockout after fault □ with lockout after fault	 C-23 C-24
3 devices: 2 sources + 1 coupling			
 DB421862.eps	**QS1 QC QS2** 0 0 0 1 0 1 1 1 0 0 1 1 1 0 0 [1] 0 0 1 [1] [1] possible by forcing operation	■ electrical interlocking: □ without lockout after fault □ with lockout after fault ■ automatic control with lockout after fault	 C-25 C-26 C-27

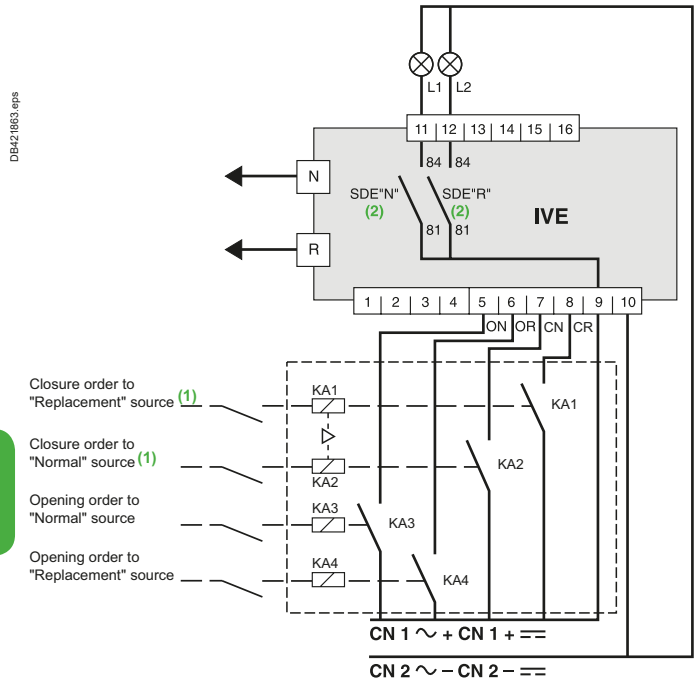
"Lockout after fault" option. This option makes it necessary to manually reset the device following fault tripping.

C

Remote-operated source-changeover systems
2 Compact NSX100/630, NS630b/1600 or Masterpact MTZ1/MTZ2 devices

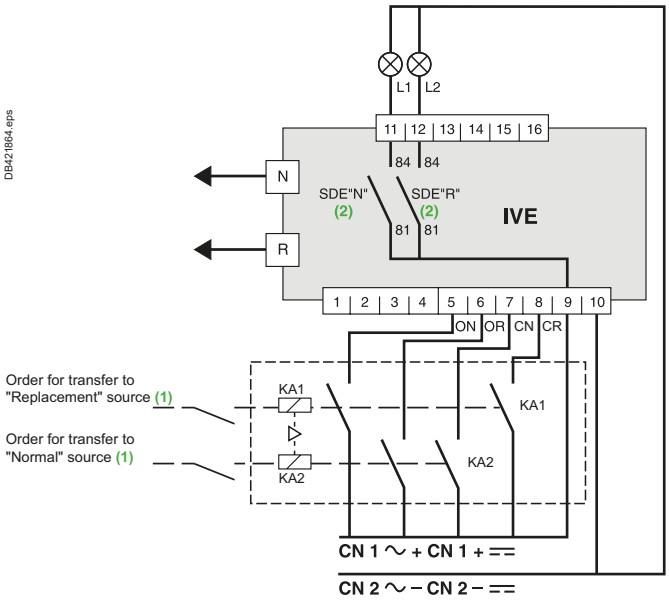
Electrical interlocking by the IVE unit

Independent order to Normal/Replacement source



Controlling each circuit breaker independently.

Simultaneous order to Normal/Replacement source



Control of two circuit breakers by “common” transfer order.

[1] See section “IMPORTANT” here after.
[2] Operating diagram: the SDE “fault-trip” signals are transmitted to the IVE unit. The SDE auxiliary contacts are mounted in the circuit breakers.

IMPORTANT
The relays controlling the closing order to the “Normal” and “Replacement” circuit breakers must be mechanically and/or electrically interlocked to prevent them from giving simultaneous closing commands.

It is recommended to use Tesys K relays from Schneider Electric reference LC2-K06010●●. These relays are mechanically and electrically interlocked.

Legends
ON “Normal” source opening order
OR “Replacement” source opening order
CN “Normal” source closing order
CR “Replacement” source closing order
KA1 auxiliary relay
KA2 auxiliary relay
KA3 auxiliary relay
KA4 auxiliary relay
L1 “Normal” source “fault-trip” signal
L2 “Replacement” source “fault-trip” signal
N “Normal” source auxiliary wiring connector
R “Replacement” source auxiliary wiring connector

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.

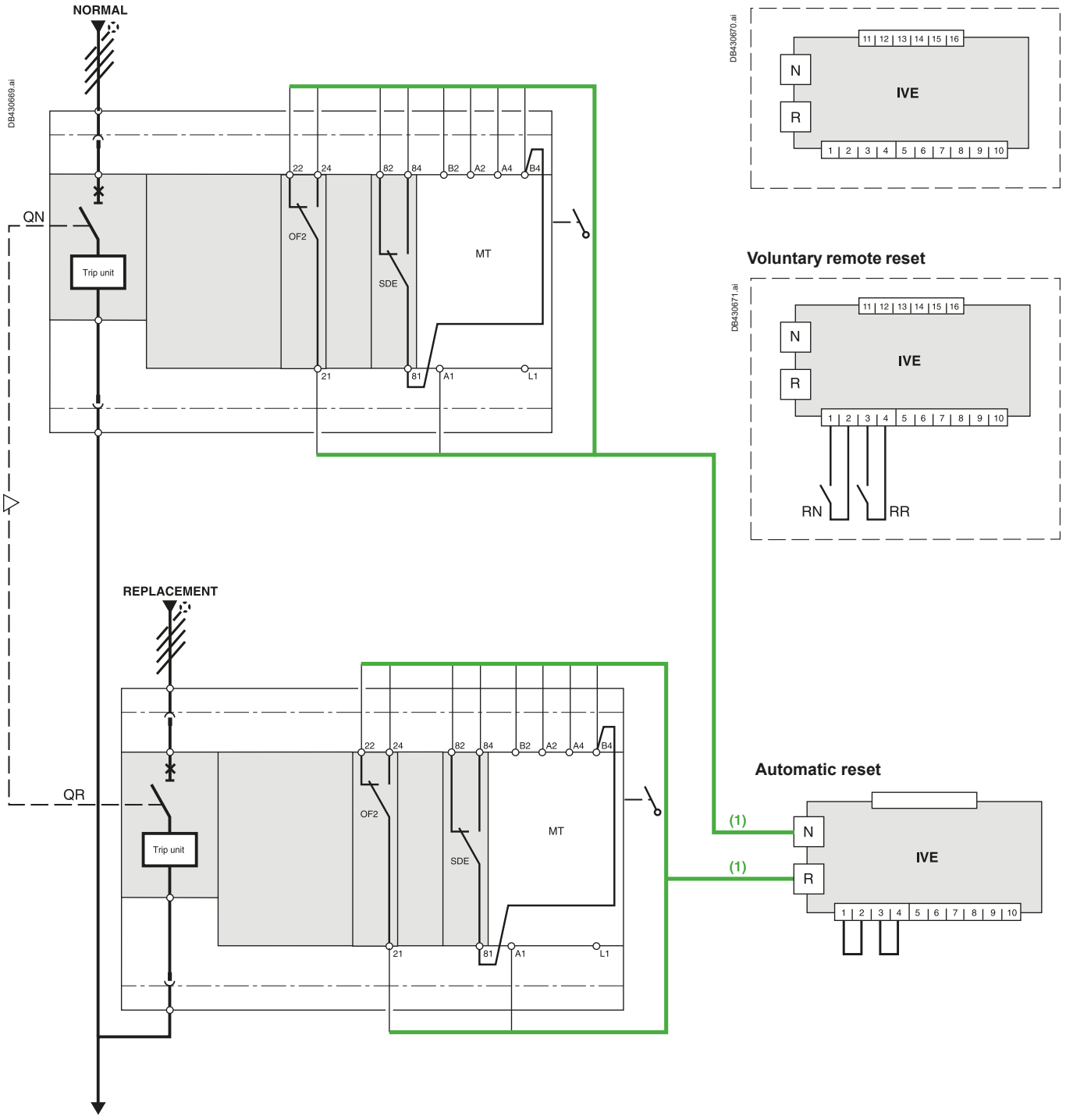
Remote-operated source-changeover systems

2 Compact NSX100/630 devices

Diagram no. 51201177

Source-changeover system without automatic-control system

Without auxiliaries for emergency off



[1] Prefabricated wiring: cannot be modified.

Legends

QN	"Normal" source Compact NSX equipped with motor mechanism
QR	"Replacement" source Compact NSX equipped with motor mechanism
SDE	"fault-trip" indication contact
IVE	electrical interlocking and terminal block unit
MT	motor mechanism
OF2	breaker ON/OFF indication contact
RN	reset order for breaker QN
RR	reset order for breaker QR

States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.

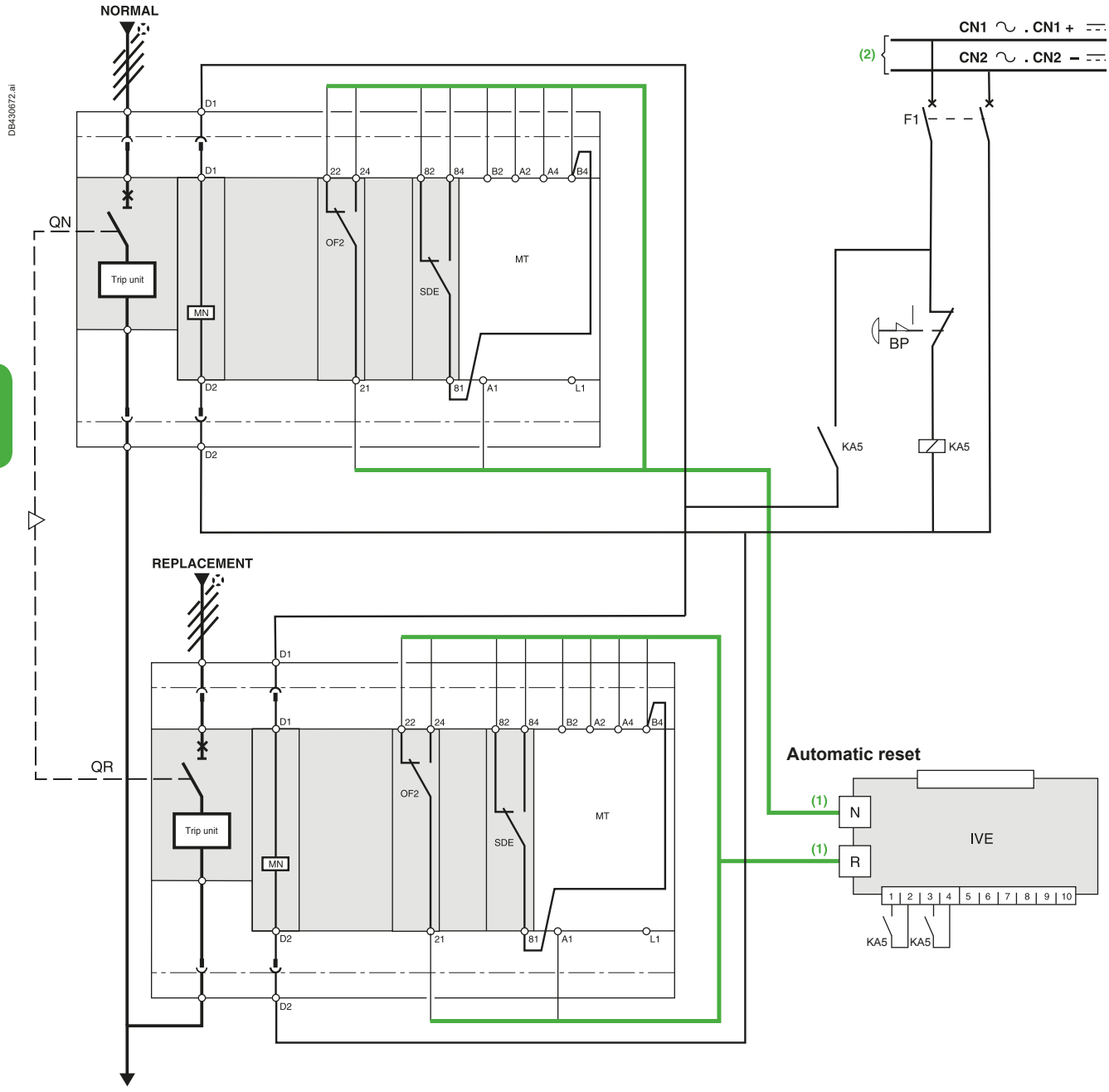
Remote-operated source-changeover systems

2 Compact NSX100/630 devices

Diagram no. 51201178

Source-changeover system without automatic-control system

With emergency off by MN release and automatic reset



[1] Prefabricated wiring supplied.
[2] Independent auxiliary source.

Legends

QN	"Normal" source Compact NSX equipped with motormechanism
QR	"Replacement" source Compact NSX equipped with motor mechanism
MN	undervoltage release
OF2	breaker ON/OFF indication contact
SDE	"fault-trip" indication contact
MT	motor mechanism
IVE	electrical interlocking and terminal block unit
BP	emergency off button with latching
KA5	auxiliary relay
F1	auxiliary power supply circuit breaker

States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuits de-energised, circuit breakers open and relays in normal position.

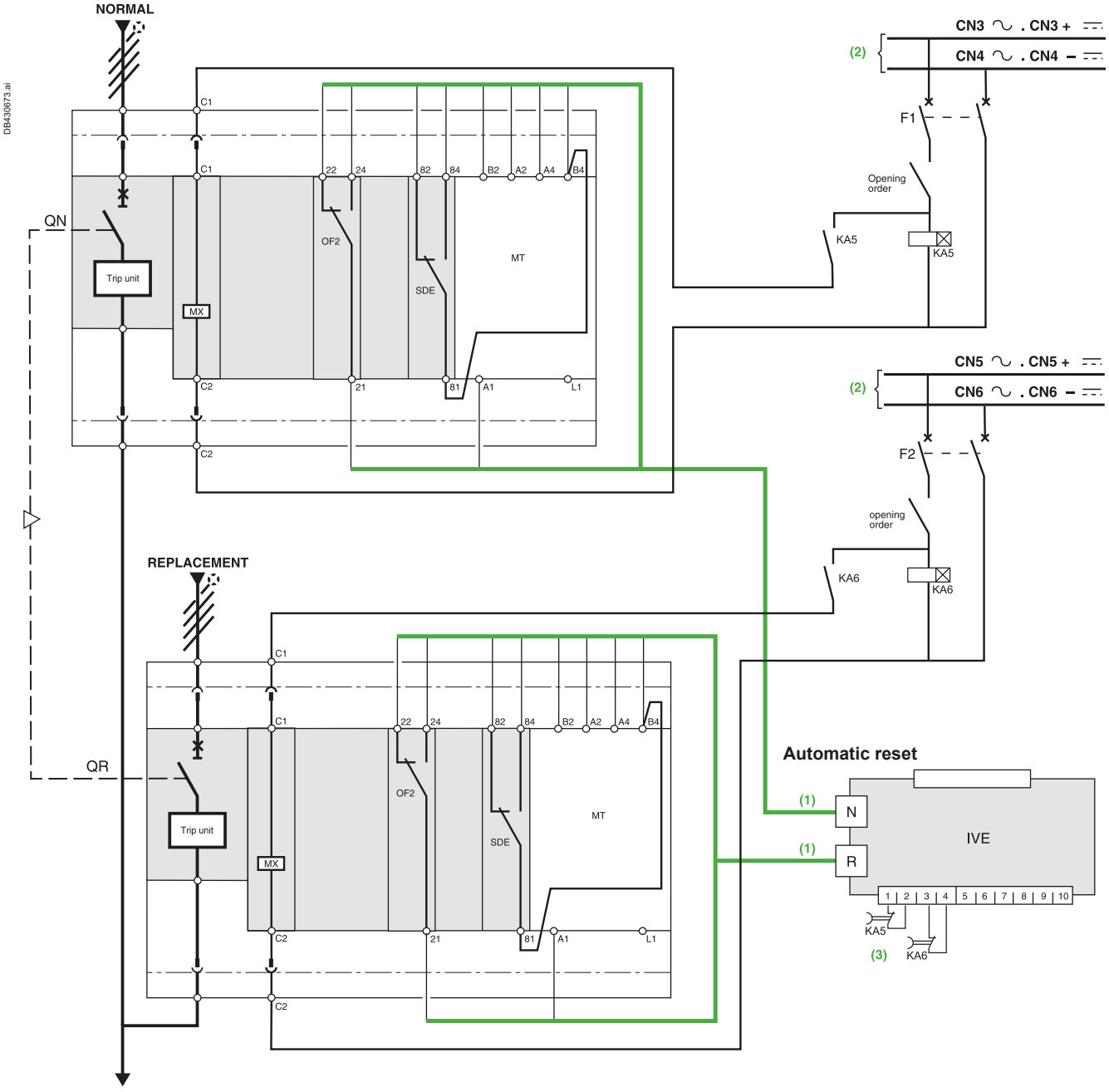
Remote-operated source-changeover systems

2 Compact NSX100/630 devices

Diagram no. 51201179

Source-changeover system without automatic-control system

With emergency off by MX release and automatic reset



Legends

QN	"Normal" source Compact NSX equipped with motor mechanism
QR	"Replacement" source Compact NSX equipped with motor mechanism
SDE	"fault-trip" indication contact
OF2	breaker ON/OFF indication contact
MX	shunt release
MT	motor mechanism
IVE	electrical interlocking and terminal block unit
KA5	time-delayed auxiliary relays
KA6	time-delayed auxiliary relays
F1	auxiliary power supply circuit breaker
F2	auxiliary power supply circuit breaker

[1] Prefabricated wiring supplied
[2] This source can be:
- the source present in the case of voltage monitoring
- an independent source.

In this case, the MX release must be protected.
[3] The reset orders must be delayed by 0.3 seconds.

States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

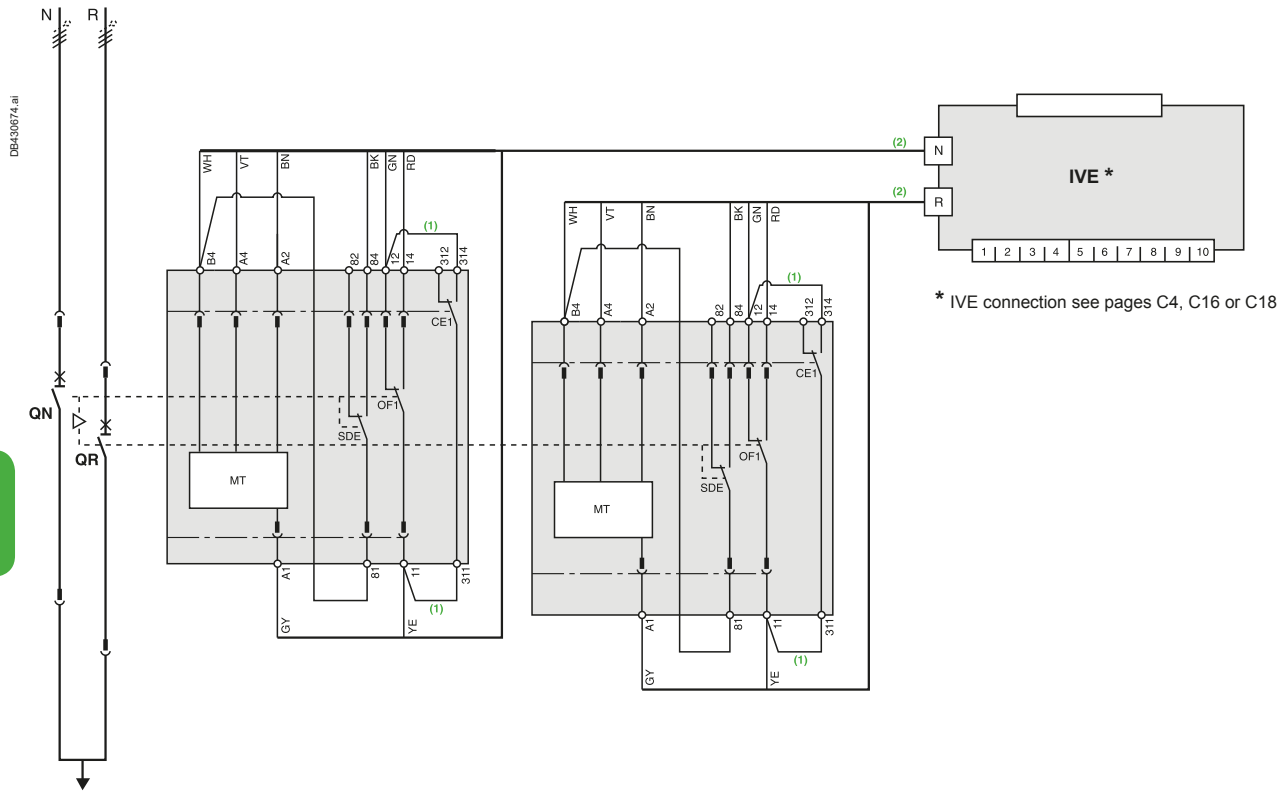
Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuits de-energised, circuit breakers open and relays in normal position.

Remote-operated source-changeover systems

2 Compact NS630b/1600 devices

Diagram no. 51201183

Electrical interlocking by IVE unit



* IVE connection see pages C4, C16 or C18

ATTENTION

The diagram shows the electrical wiring for circuit breakers.
When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired on fixed version.
[2] Prefabricated wiring supplied.

Legends

QN	"Normal" source Compact NS630b to 1600
QR	"Replacement" source Compact NS630b to 1600
OF...	breaker ON/OFF indication contact
SDE	"fault-trip" indication contact
CE1	"connected-position" indication contact (carriage switch)
F1	auxiliary power supply circuit breaker
IVE	electrical interlocking and terminal block unit
ON	"Normal" source opening order
OR	"Replacement" source opening order
CN	"Normal" source closing order (0.25 second delay)
CR	"Replacement" source closing order (0.25 second delay)
MT	Motor Mechanism

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

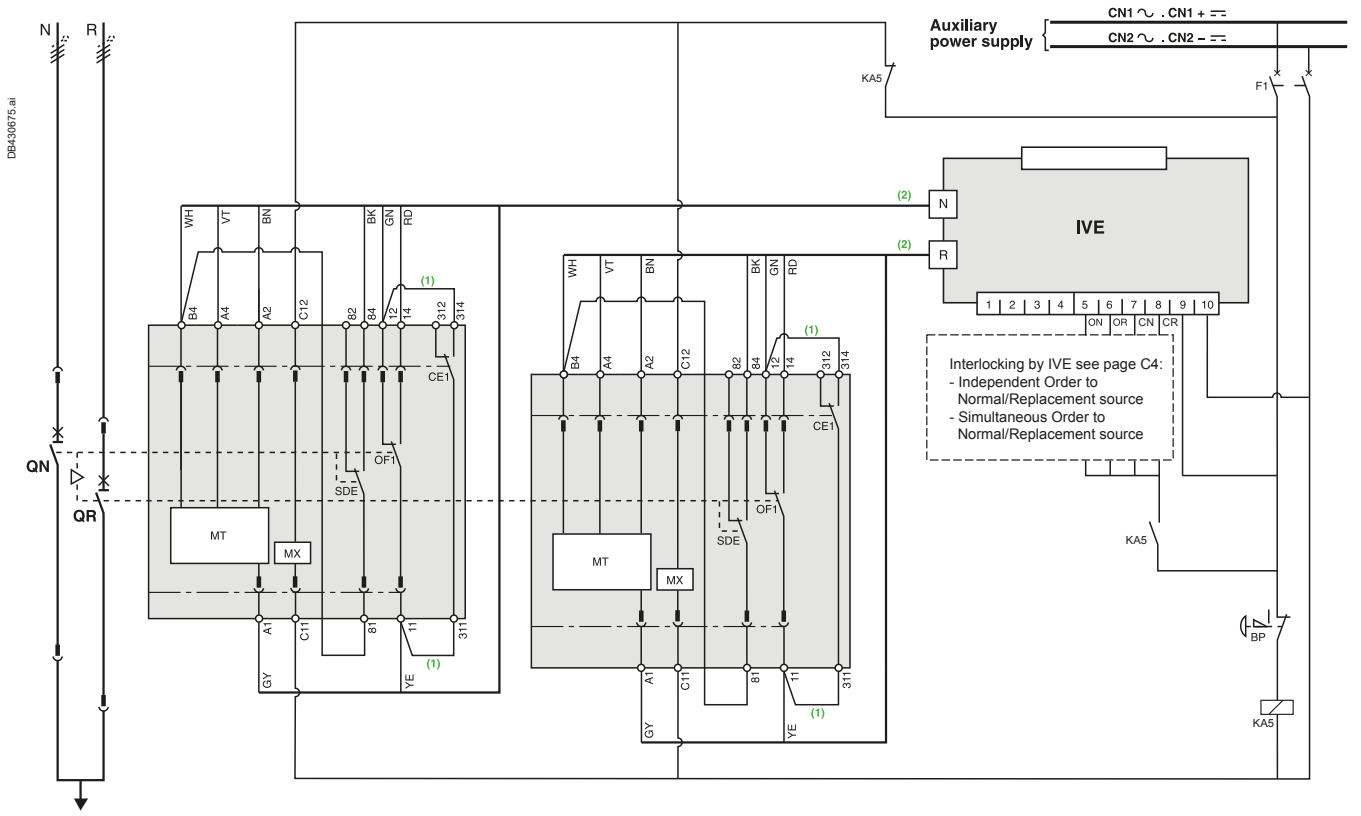
Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MT...).

Remote-operated source-changeover systems

2 Compact NS630b/1600 devices

Diagram no. 51201184

Electrical interlocking by IVE unit with emergency off by shunt release



ATTENTION

The diagram shows the electrical wiring for circuit breakers.
When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired on fixed version.
[2] Prefabricated wiring supplied.

Legends

QN	"Normal" source Compact NS630b to 1600
QR	"Replacement" source Compact NS630b to 1600
OF...	breaker ON/OFF indication contact
SDE	"fault-trip" indication contact
CE1	"connected-position" indication contact (carriage switch)
F1	auxiliary power supply circuit breaker
IVE	electrical interlocking and terminal block unit
MX	shunt release
BP	emergency off button with latching
KA5	auxiliary relay
ON	"Normal" source opening order
OR	"Replacement" source opening order
CN	"Normal" source closing order (0.25 second delay)
CR	"Replacement" source closing order (0.25 second delay)
MT	Motor Mechanism

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

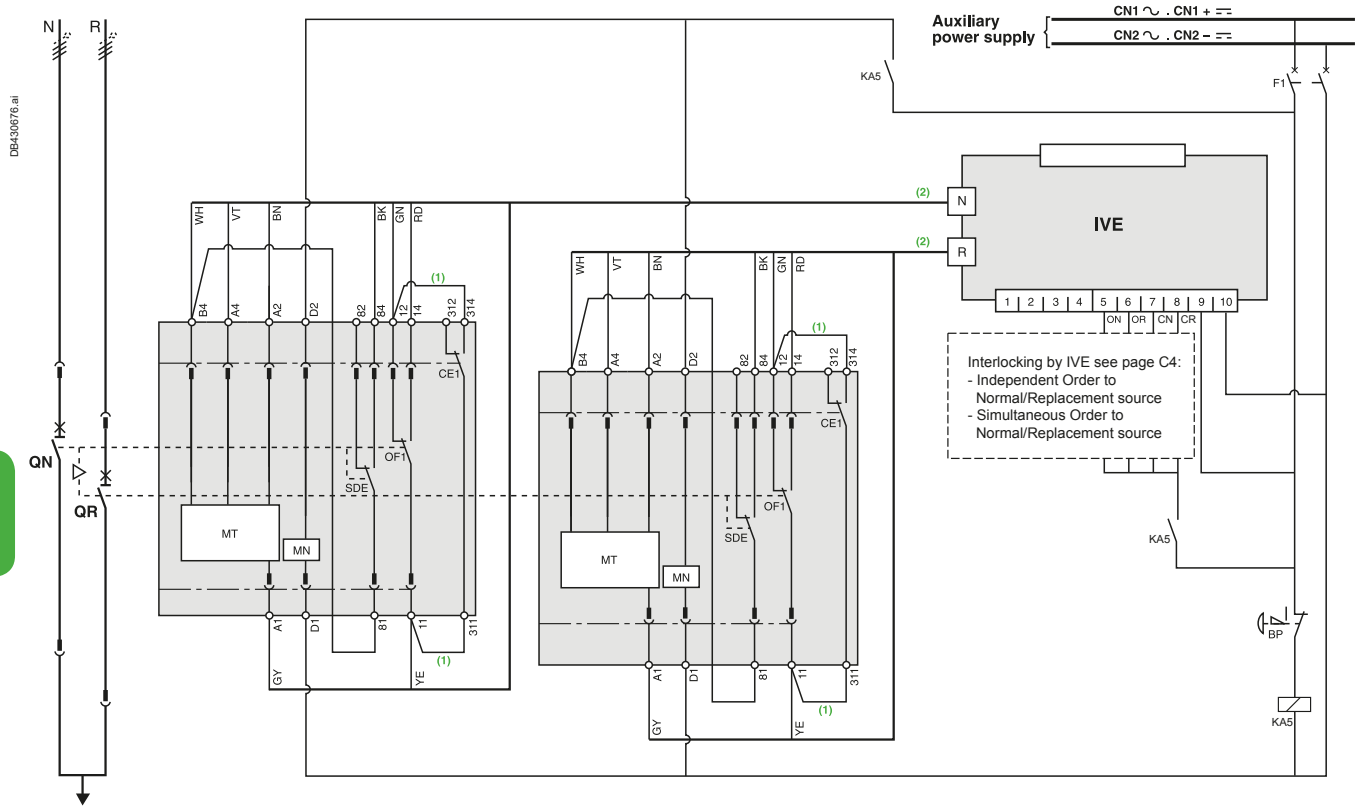
Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MX, MT...).

Remote-operated source-changeover systems

2 Compact NS630b/1600 devices

Diagram no. 51201185

Electrical interlocking by IVE unit with emergency off by undervoltage release



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired on fixed version.
[2] Prefabricated wiring supplied.

Legends

QN	"Normal" source Compact NS630b to 1600
QR	"Replacement" source Compact NS630b to 1600
OF...	breaker ON/OFF indication contact
SDE	"fault-trip" indication contact
CE1	"connected-position" indication contact (carriage switch)
F1	auxiliary power supply circuit breaker
IVE	electrical interlocking and terminal block unit
MN	undervoltage release
BP	emergency off button with latching
KA5	auxiliary relay
ON	"Normal" source opening order
OR	"Replacement" source opening order
CN	"Normal" source closing order (0.25 second delay)
CR	"Replacement" source closing order (0.25 second delay)
MT	Motor Mechanism

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

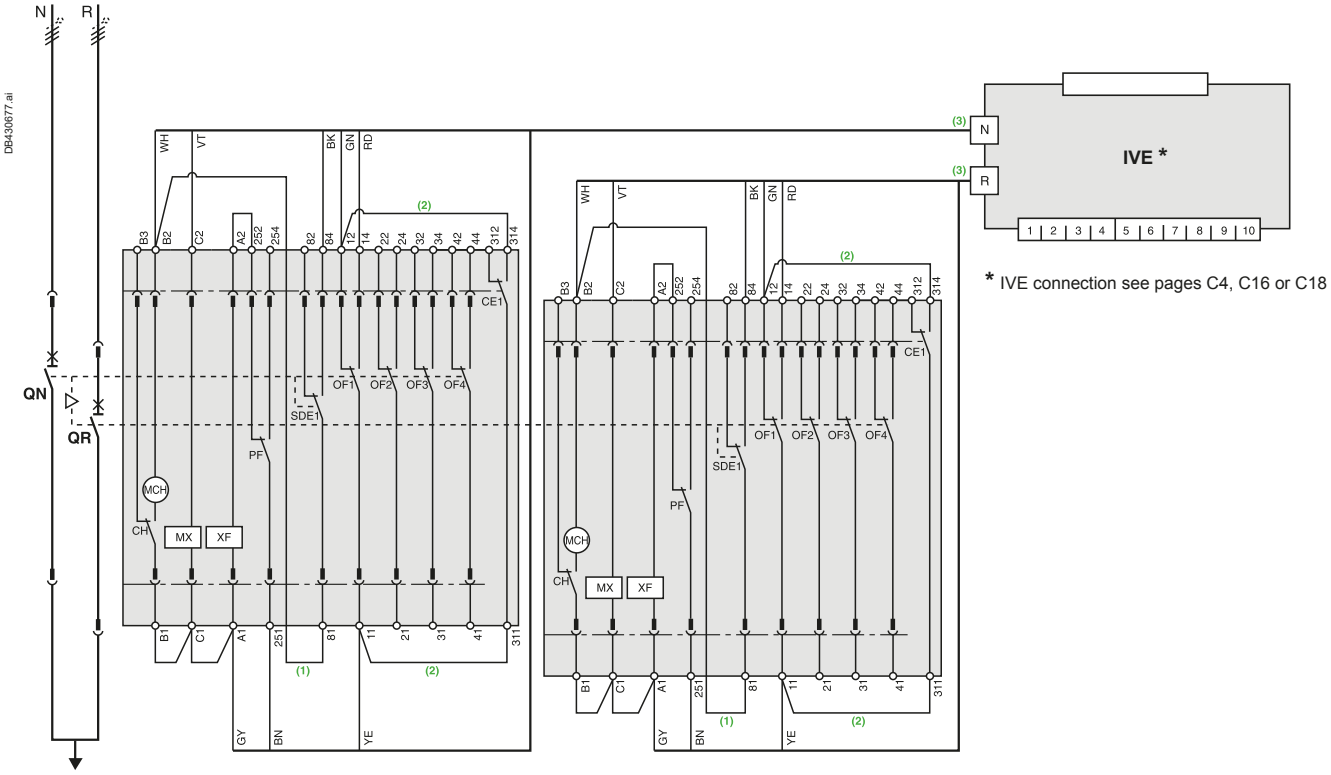
States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MN, MT...).

Remote-operated source-changeover systems
2 Masterpact MTZ1 or MTZ2 devices

Electrical interlocking by IVE unit with lockout after a fault



* IVE connection see pages C4, C16 or C18

ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired for the “without lockout after a fault” solution.
[2] Not to be wired on fixed version.
[3] Prefabricated wiring supplied.

Legends

QN	“Normal” source Masterpact MTZ1 or MTZ2
QR	“Replacement” source Masterpact MTZ1 or MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE1	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
IVE	electrical interlocking and terminal block unit
F1	auxiliary power supply circuit breaker
ON	“Normal” source opening order
OR	“Replacement” source opening order
CN	“Normal” source closing order (0.25 second delay)
CR	“Replacement” source closing order (0.25 second delay)

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

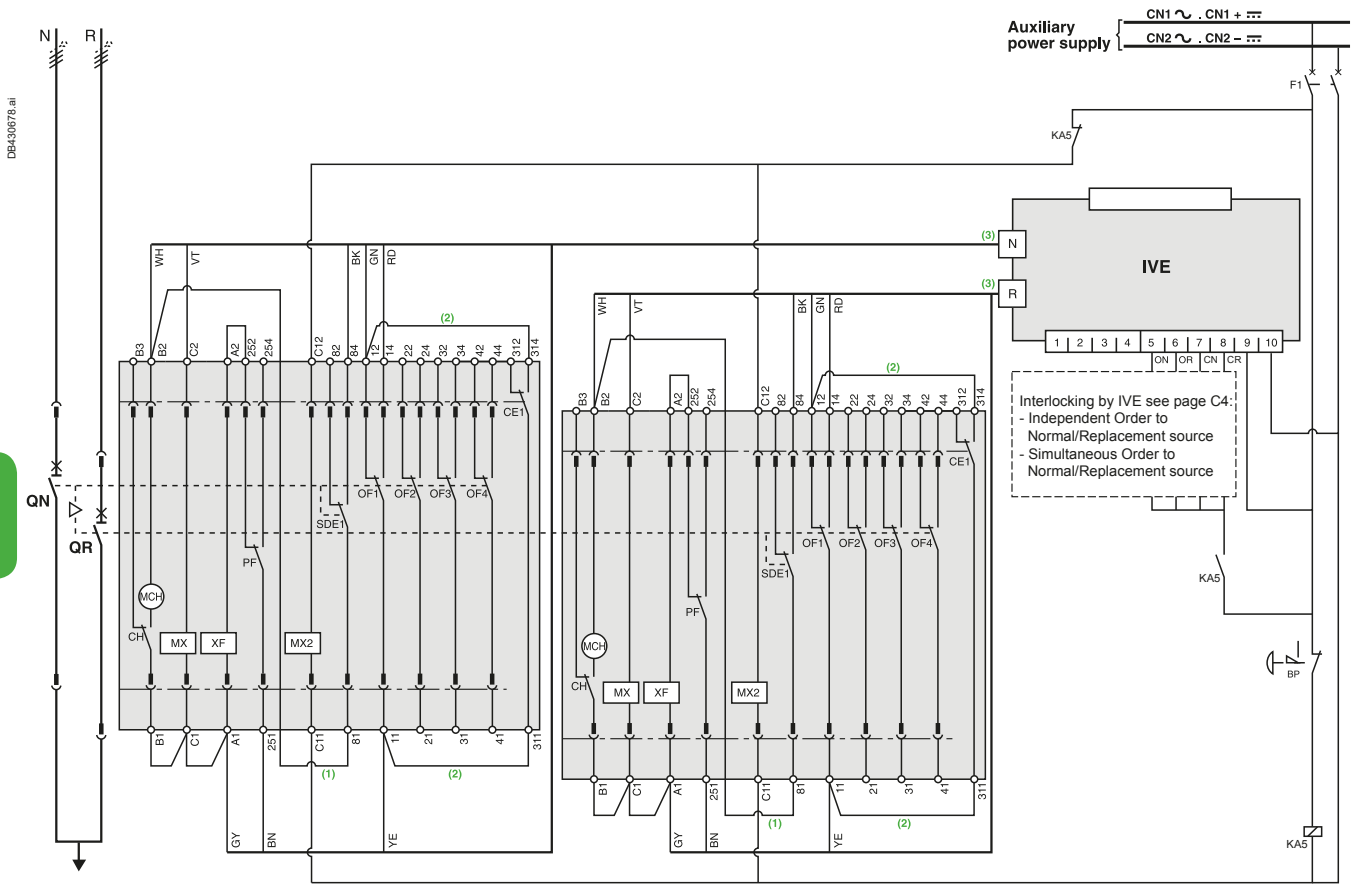
States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
2 Masterpact MTZ1 or MTZ2 devices

Electrical interlocking by IVE unit with lockout after a fault and emergency off by shunt release



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired for the “without lockout after a fault” solution.
[2] Not to be wired on fixed version.
[3] Prefabricated wiring supplied.

Legends

QN	“Normal” source Masterpact MTZ1 or MTZ2
QR	“Replacement” source Masterpact MTZ1 or MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE1	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
IVE	electrical interlocking and terminal block unit
KA5	auxiliary relay
F1	auxiliary power supply circuit breaker
BP	emergency off button with latching
ON	“Normal” source opening order
OR	“Replacement” source opening order
CN	“Normal” source closing order (0.25 second delay)
CR	“Replacement” source closing order (0.25 second delay)

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

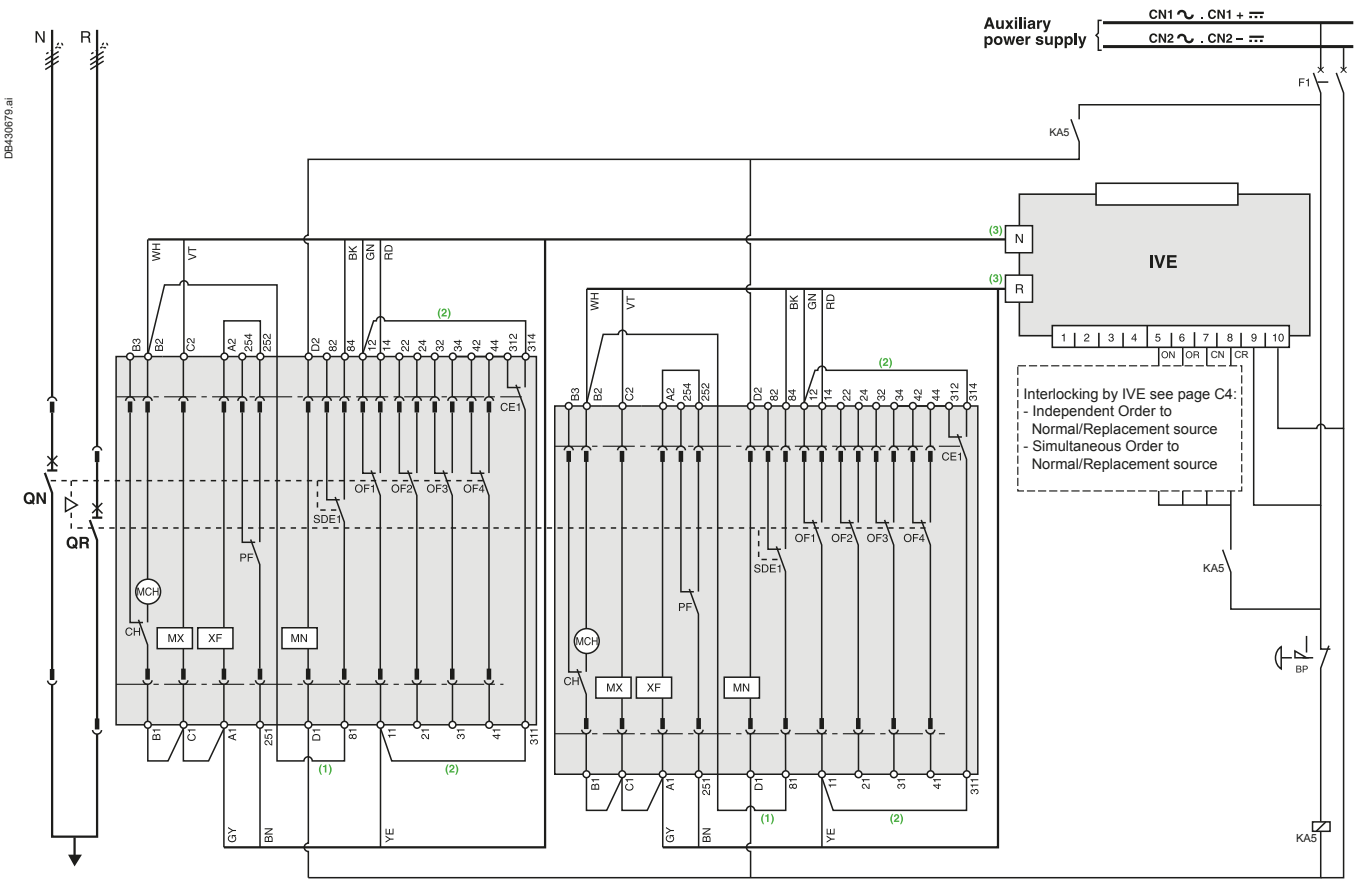
States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
2 Masterpact MTZ1 or MTZ2 devices

Electrical interlocking by IVE unit with lockout after a fault and emergency off by undervoltage release



ATTENTION
The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired for the “without lockout after a fault” solution.
[2] Not to be wired on fixed version.
[3] Prefabricated wiring supplied.

Legends

QN	“Normal” source Masterpact MTZ1 or MTZ2
QR	“Replacement” source Masterpact MTZ1 or MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
MN	undervoltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE1	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
IVE	electrical interlocking and terminal block unit
KA5	auxiliary relay
F1	auxiliary power supply circuit breaker
BP	emergency off button with latching
ON	“Normal” source opening order
OR	“Replacement” source opening order
CN	“Normal” source closing order (0.25 second delay)
CR	“Replacement” source closing order (0.25 second delay)

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

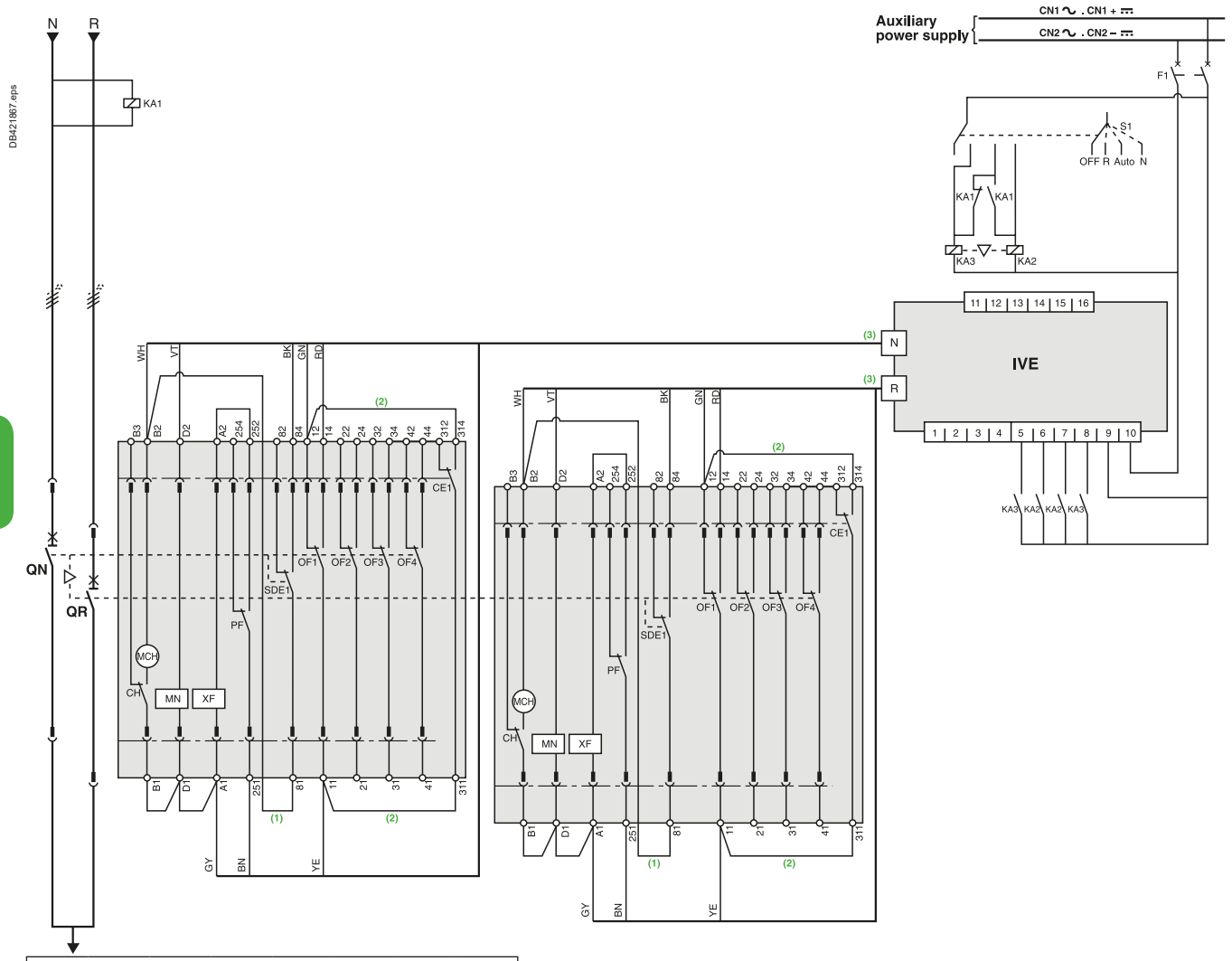
States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, MN, XF...).

Remote-operated source-changeover systems
2 Masterpact MTZ1 or MTZ2 devices

Automatic-control system for permanent replacement source with lockout after a fault (with MN)



ATTENTION
The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired for the “without lockout after a fault” solution.
[2] Not to be wired on fixed version.
[3] Prefabricated wiring supplied.

IMPORTANT

The relays controlling the closing order to the “Normal” and “Replacement” circuit breakers must be mechanically and/or electrically interlocked to prevent them from giving simultaneous closing commands.

It is recommended to use Tesys K relays from Schneider Electric reference LC2-K06010●●. These relays are mechanically and electrically interlocked.

Legends

QN	“Normal” source Masterpact MTZ1 or MTZ2
QR	“Replacement” source Masterpact MTZ1 or MTZ2
MCH	spring-charging motor
XF	standard closing voltage release
MN	undervoltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE1	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
IVE	electrical interlocking and terminal block unit
F1	auxiliary power supply circuit breaker
F2	circuit breaker (high breaking capacity)
S1	control switches
KA1	auxiliary relays
KA2	auxiliary relays
KA3	auxiliary relays

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

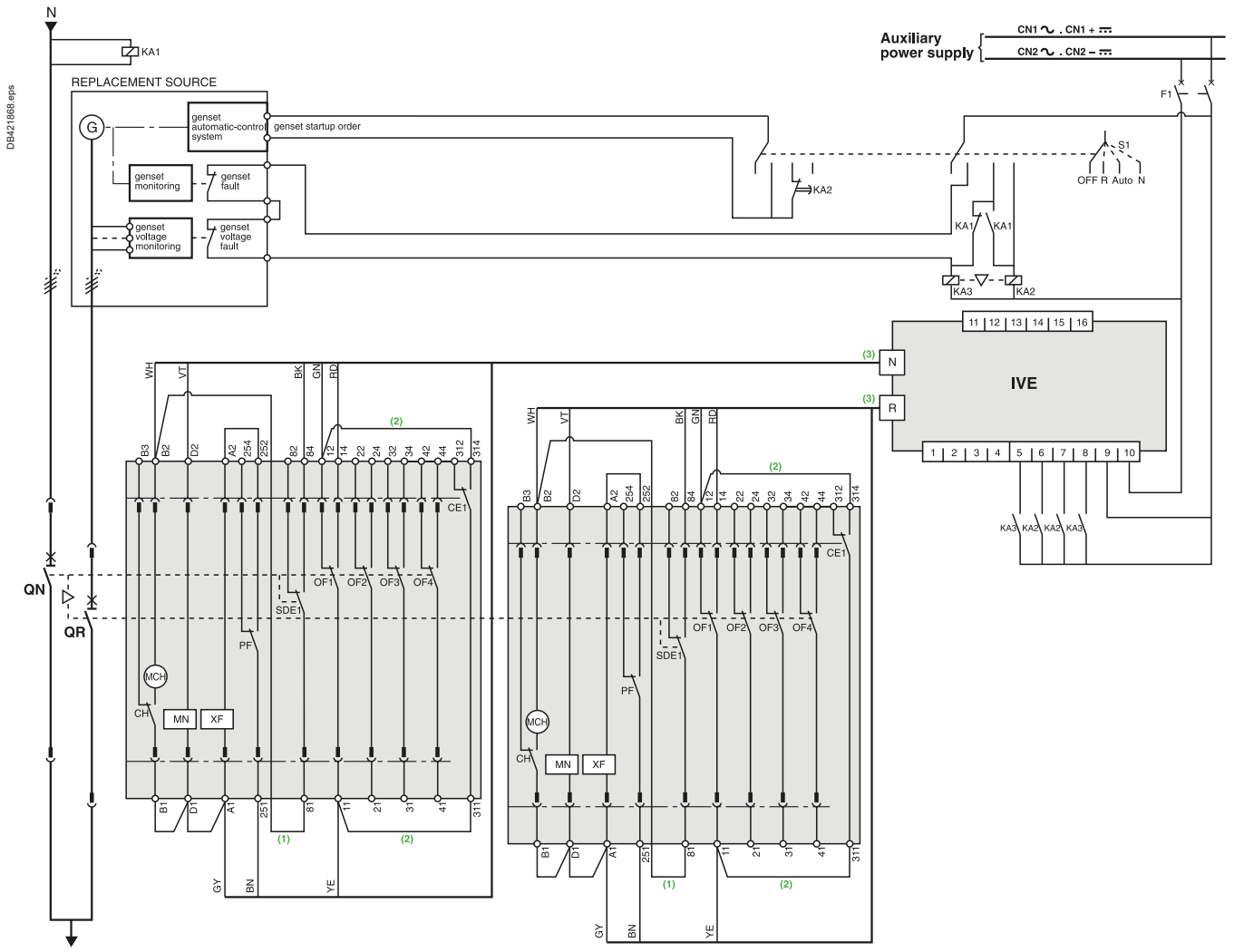
States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MN, XF...).

Remote-operated source-changeover systems
2 Masterpact MTZ1 or MTZ2 devices

Automatic-control system for replacement source generator set with lockout after a fault (with MN)



ATTENTION
The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect wire BK to terminal 82.**

[1] Not to be wired for the “without lockout after a fault” solution.
[2] Not to be wired on fixed version.
[3] Prefabricated wiring supplied.

IMPORTANT

The relays controlling the closing order to the “Normal” and “Replacement” circuit breakers must be mechanically and/or electrically interlocked to prevent them from giving simultaneous closing commands.

It is recommended to use Tesys K relays from Schneider Electric reference LC2-K06010●●. These relays are mechanically and electrically interlocked.

Legends

QN	“Normal” source Masterpact MTZ1 or MTZ2
QR	“Replacement” source Masterpact MTZ1 or MTZ2
MCH	spring-charging motor
XF	standard closing voltage release
MN	undervoltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE1	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
IVE	electrical interlocking and terminal block unit
F1	auxiliary power supply circuit breaker
F2	circuit breaker (high breaking capacity)
S1	control switches
KA1	auxiliary relay
KA2	time delay for genset startup order to avoid starting the genset for transient UN disturbances
KA3	auxiliary relay

Wiring colour codes

RD	GN	BK	VT	YE	GY	WH	BN
red	green	black	violet	yellow	grey	white	brown

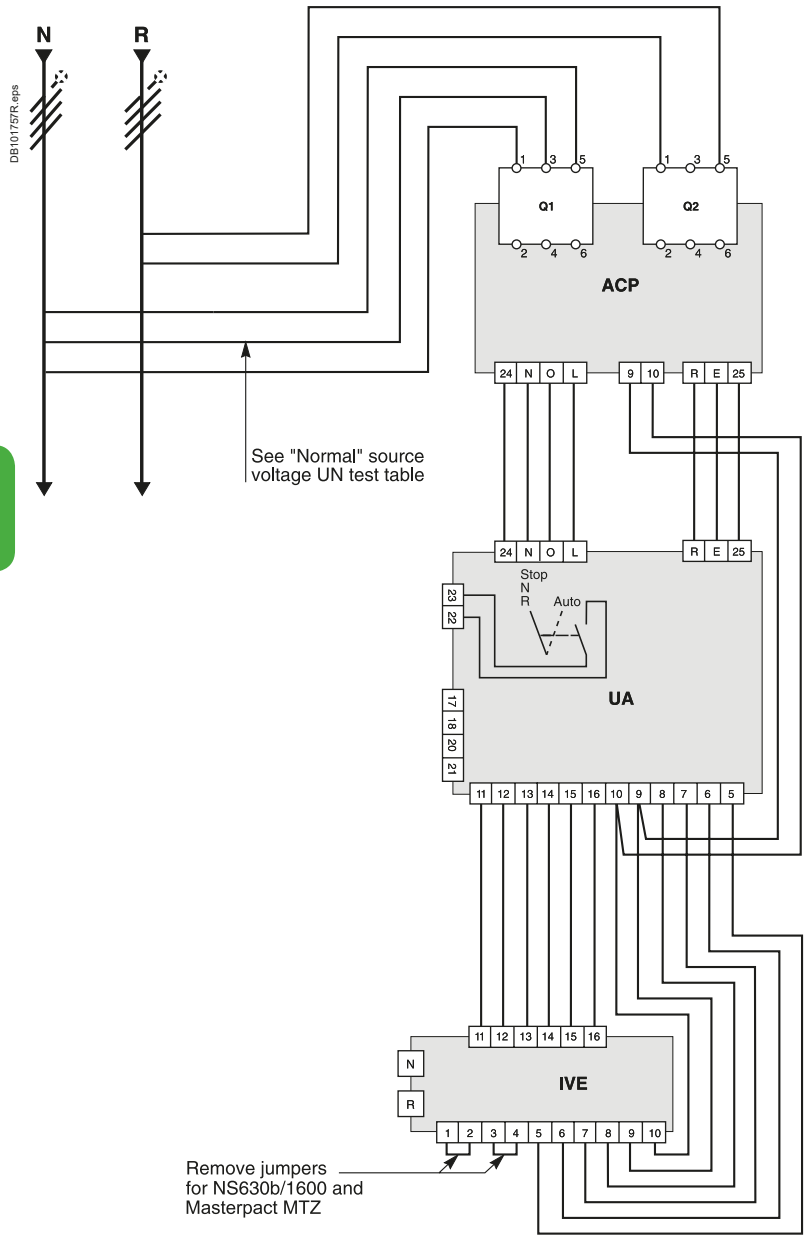
States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

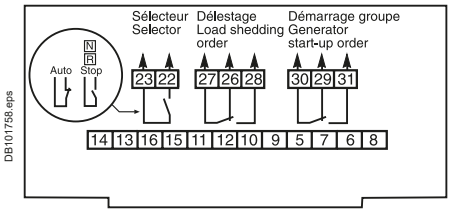
Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MN, XF...).

Source-changeover systems with UA controllers
2 Compact NSX100/630, NS630b/1600 or Masterpact MTZ1/MTZ2 devices

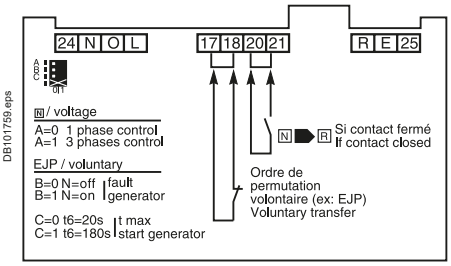
Source-changeover system with UA controller



Load shedding and genset management



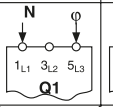
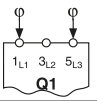
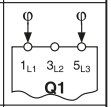
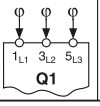
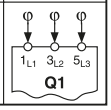
Transfer conditions



Terminals 20 and 21:
additional control contact (not part of controller).

Tests on "Normal" and "Replacement" source voltages
"Normal" source voltage UN test

DB101761.eps

Ref. UA UA150	29472 29474	29472 29474	29473 29475
Supply voltage / Switch position	N / φ 220/240VAC 50/60Hz	φ / φ 220/240VAC 50/60Hz	φ / φ 380/415VAC 50/60Hz 440V - 60Hz
A = 0			
A = 1			

"Replacement" source voltage UR test
The single-phase check for UR is implemented across terminals 1 and 5 of circuit breaker Q2.

Legends
- Q1 circuit breaker supplying and protecting the automatic-control circuits for the "Normal" source
- Q2 circuit breaker supplying and protecting the automatic-control circuits for the "Replacement" source
- ACP control plate
- UA automatic controller
- IVE electrical interlocking and terminal block unit

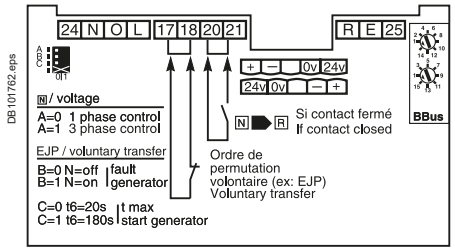
Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.

Source-changeover systems with UA controllers

Controller settings

Source changeover system with UA controller

Controller settings



Tests on "Normal" source voltage

A = 0 single-phase test,
A = 1 three-phase test.

Voluntary transfert (e.g. for energy management)

- action in the event of genset failure

B = 0 circuit breaker N opens,
B = 1 circuit breaker N remains closed.

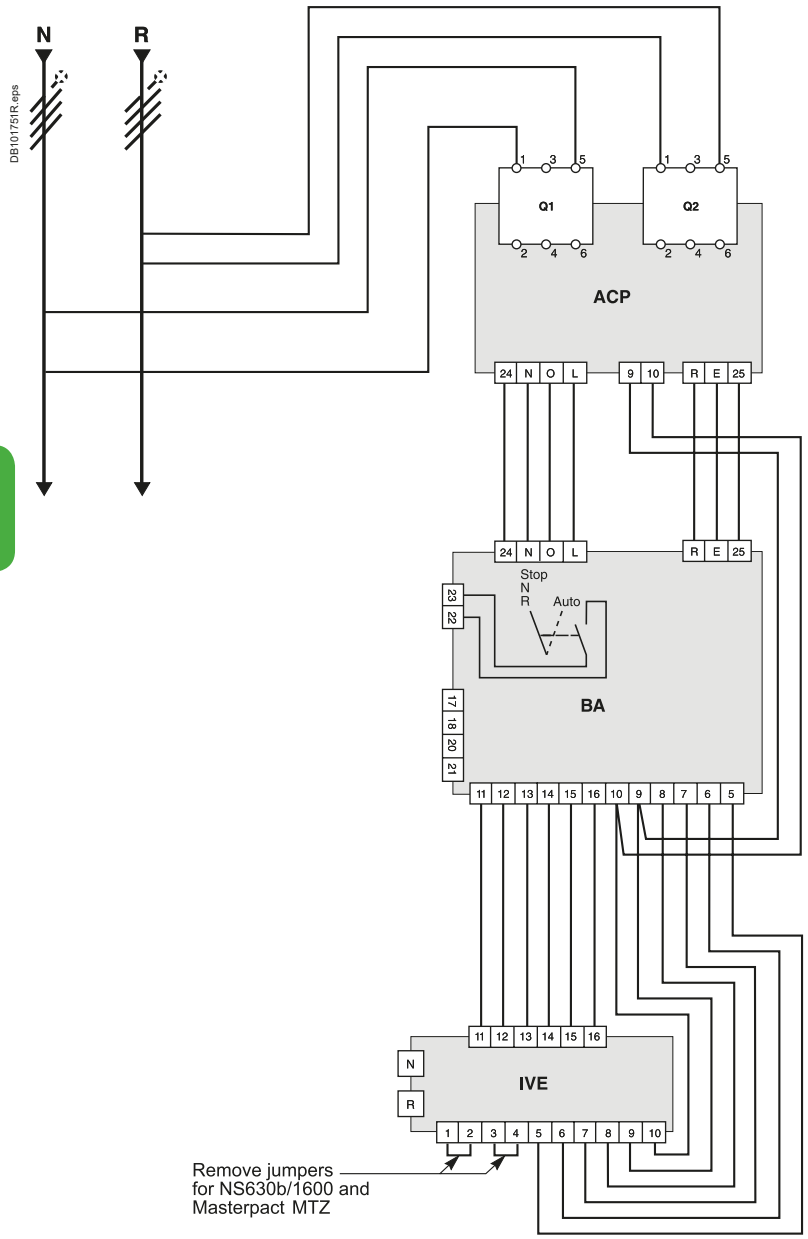
- maximum permissible genset startup time (T6)

C = 0 T = 120 s,
C = 1 T = 180 s.
After this time has elapsed, the genset is considered to have failed.

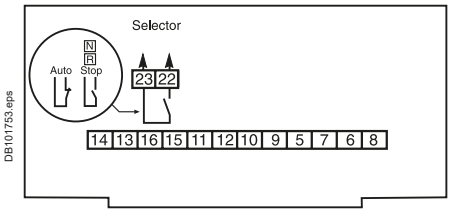
C

Source-changeover systems with BA controllers
2 Compact NSX100/630, NS630b/1600 or Masterpact MTZ1/MTZ2 devices

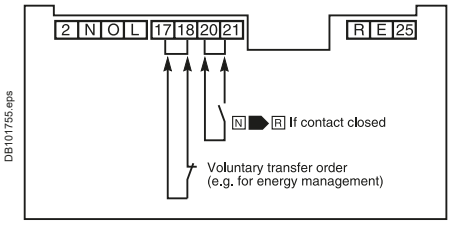
Source-changeover system with BA controller



Coupling



Transfer conditions



Terminals 20 and 21:
additional control contact (not part of controller).

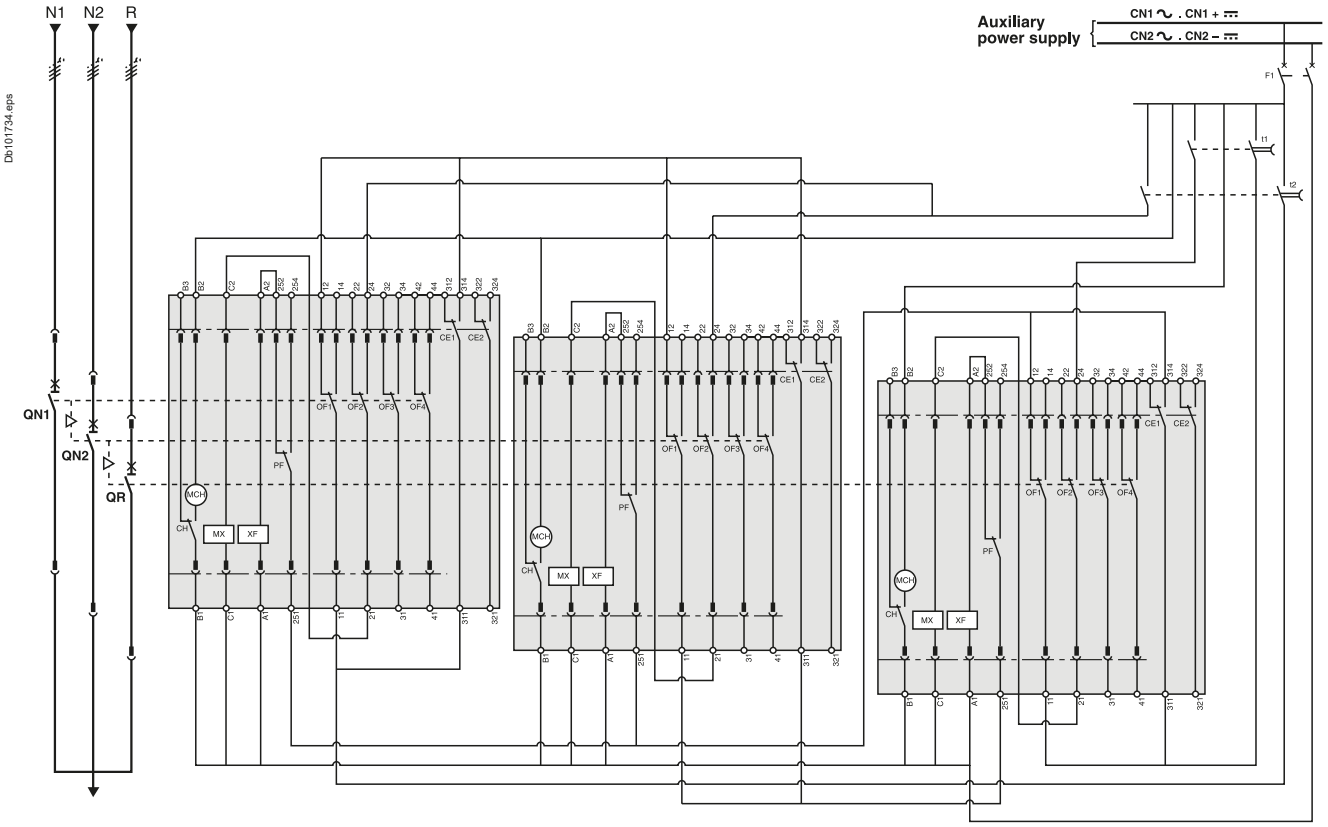
Tests on “Normal” and “Replacement” source voltages
The single-phase check for UN and UR is implemented across terminals 1 and 5 of circuit breakers Q1 and Q2.

Legends
- Q1 circuit breaker supplying and protecting the automatic-control circuits for the “Normal” source
- Q2 circuit breaker supplying and protecting the automatic-control circuits for the “Replacement” source
- ACP control plate
- BA automatic controller
- IVE electrical interlocking and terminal block unit

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 normal sources and 1 replacement source: electrical interlocking without lockout after a fault



Legends

QN...	“Normal” source Masterpact MTZ2
QR	“Replacement” source Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
PF	“ready-to-close” contact
CE	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
F1	auxiliary power supply circuit breaker
t1	order for transfer from “R” to “N1 + N2” (QN1 and QN2 closing time delay = 0.25 sec. minimum)
t2	order for transfer from “N1 + N2” to “R” (QR closing time delay = 0.25 sec. minimum)

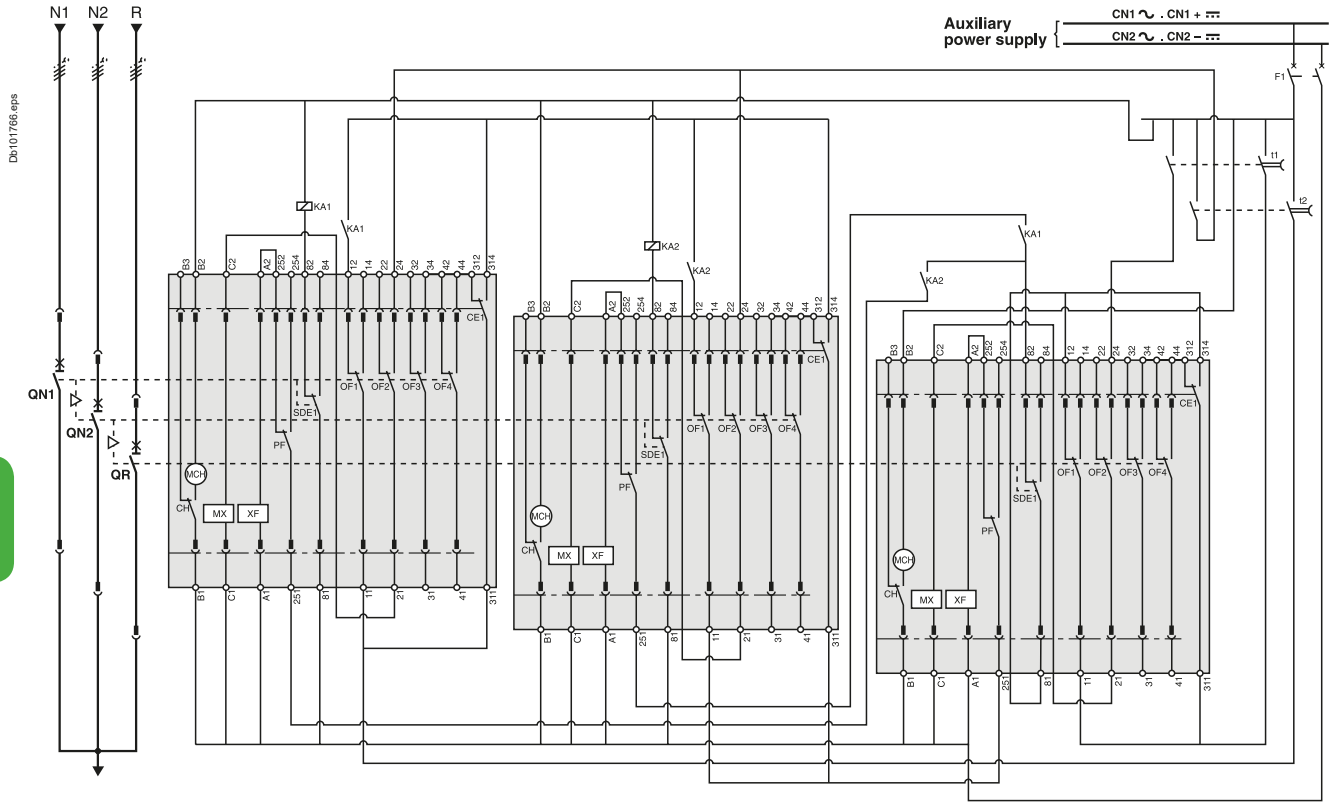
States permitted by mechanical interlocking system

Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 normal sources and 1 replacement source: electrical interlocking with lockout after a fault



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect the SDE to terminals 81 and 84.**

Legends

QN...	“Normal” source Masterpact MTZ2
QR	“Replacement” source Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE1	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
F1	auxiliary power supply circuit breaker
S1	control switches
S2	source selection switches
KA1	auxiliary relay
KA2	auxiliary relays with 10 to 180 sec. time delay
t1	order for transfer from “R” to “N1 + N2” (QN1 and QN2 closing time delay = 0.25 sec. minimum)
t2	order for transfer from “N1 + N2” to “R” (QR closing time delay = 0.25 sec. minimumm)

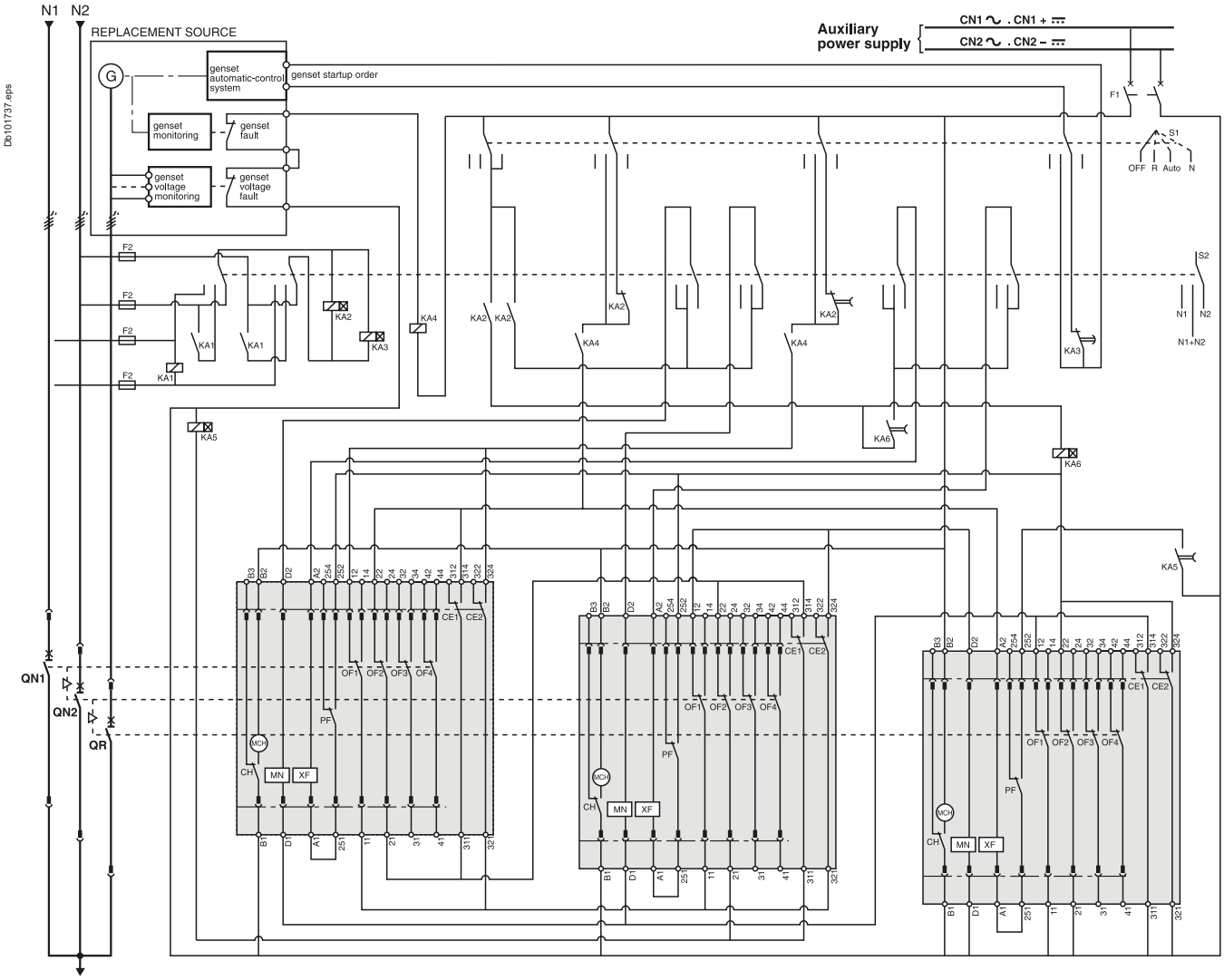
States permitted by mechanical interlocking system

Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 normal sources and 1 replacement source: automatic-control system for generator set without lockout after a fault (with MN)



Legends

QN...	“Normal” source Masterpact MTZ2
QR	“Replacement” source Masterpact MTZ2
MCH	spring-charging motor
XF	standard closing voltage release
MN	undervoltage release
OF...	breaker ON/OFF indication contact
PF	“ready-to-close” contact
CE...	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
F1	auxiliary power supply circuit breaker
F2/F3	circuit breaker (high breaking capacity)
S1	control switches
S2	source selection switches
KA1	auxiliary relay
KA2	auxiliary relays with 10 to 180 sec. time delay
KA3	auxiliary relays with 0.1 to 30 sec. time delay
KA4	auxiliary relay
KA5	auxiliary relays with 0.25 sec. time delay
KA6	auxiliary relays with 0.25 sec. time delay

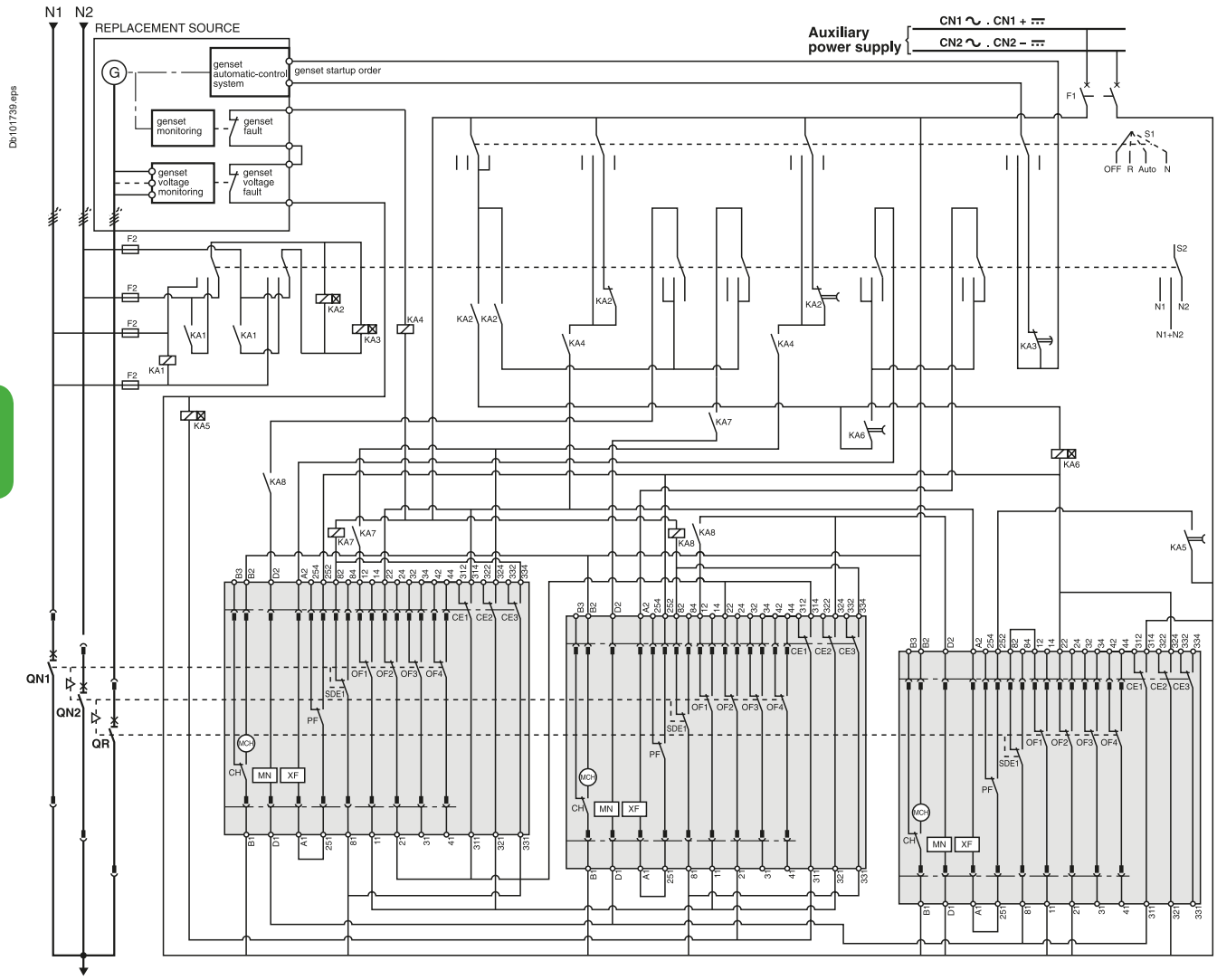
States permitted by mechanical interlocking system and with associated automatism

Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MN, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 normal sources and 1 replacement source: automatic-control system for generator set with lockout after a fault (with MN)



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect the SDE to terminals 81 and 84.**

Legends

QN...	“Normal” source Masterpact MTZ2
QR	“Replacement” source Masterpact MTZ2
MCH	spring-charging motor
XF	standard closing voltage release
MN	undervoltage release
OF...	breaker ON/OFF indication contact
SDE1	“fault-trip” indication contact
PF	“ready-to-close” contact
CE...	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
F1	auxiliary power supply circuit breaker
F2/F3	circuit breaker (high breaking capacity)
S1	control switches
S2	source selection switches
KA1	auxiliary relay
KA2	auxiliary relays with 10 to 180 sec. time delay
KA3	auxiliary relays with 0.1 to 30 sec. time delay
KA4	auxiliary relay
KA5	auxiliary relays with 0.25 sec. time delay
KA6	auxiliary relays with 0.25 sec. time delay
KA7	auxiliary relay
KA8	auxiliary relay

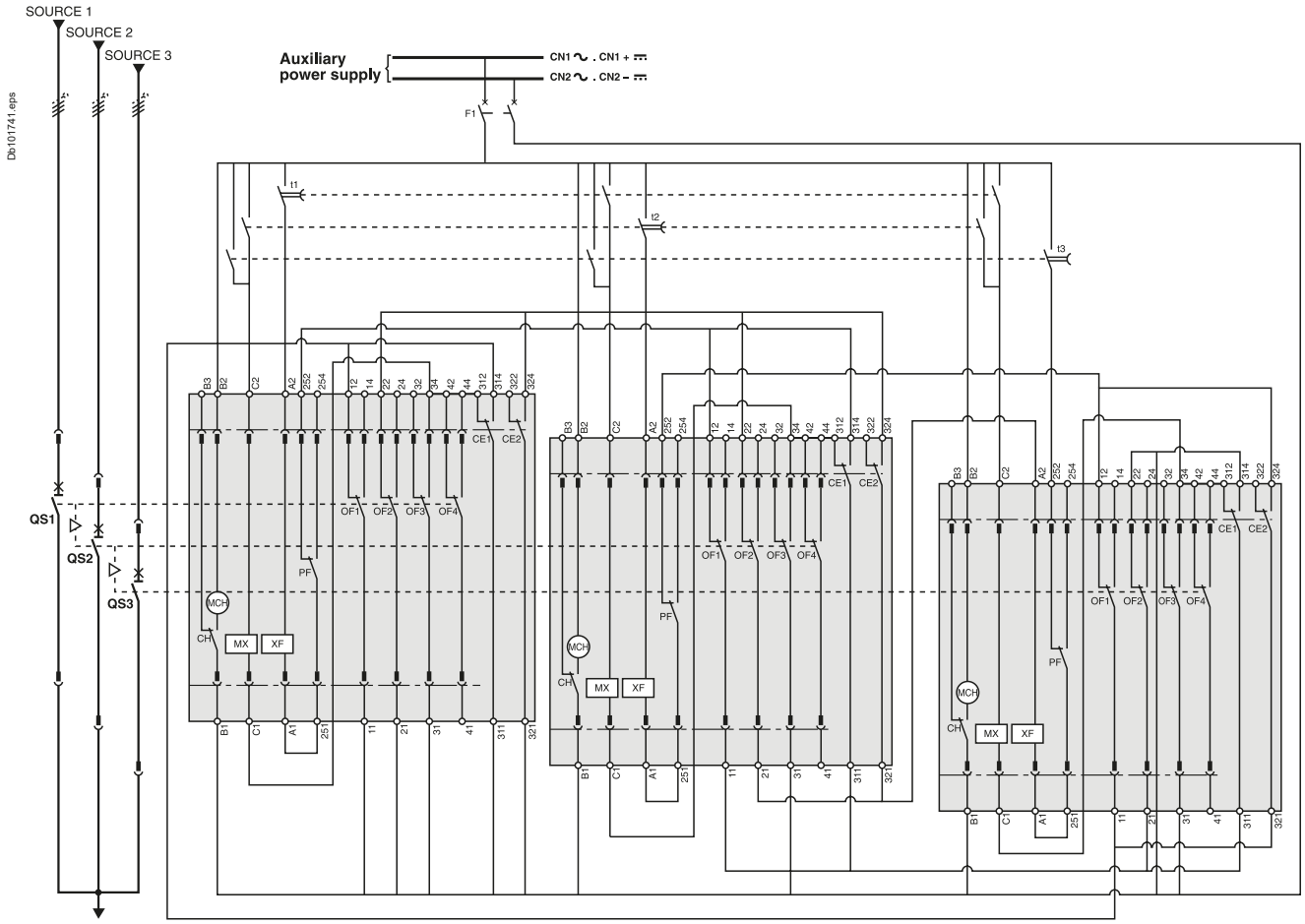
States permitted by mechanical interlocking system and with associated automatism

Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MN, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

3 sources with only 1 device closed: electrical interlocking without lockout after a fault



Legends

QS...	“Source” Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
PF	“ready-to-close” contact
CE...	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
F1	auxiliary power supply circuit breaker
t1	order for transfer to “Source 1” (QS1 closing time delay = 0.25 sec. minimum)
t2	order for transfer to “Source 2” (QS2 closing time delay = 0.25 sec. minimum)
t3	order for transfer to “Source 3” (QS3 closing time delay = 0.25 sec. minimum)

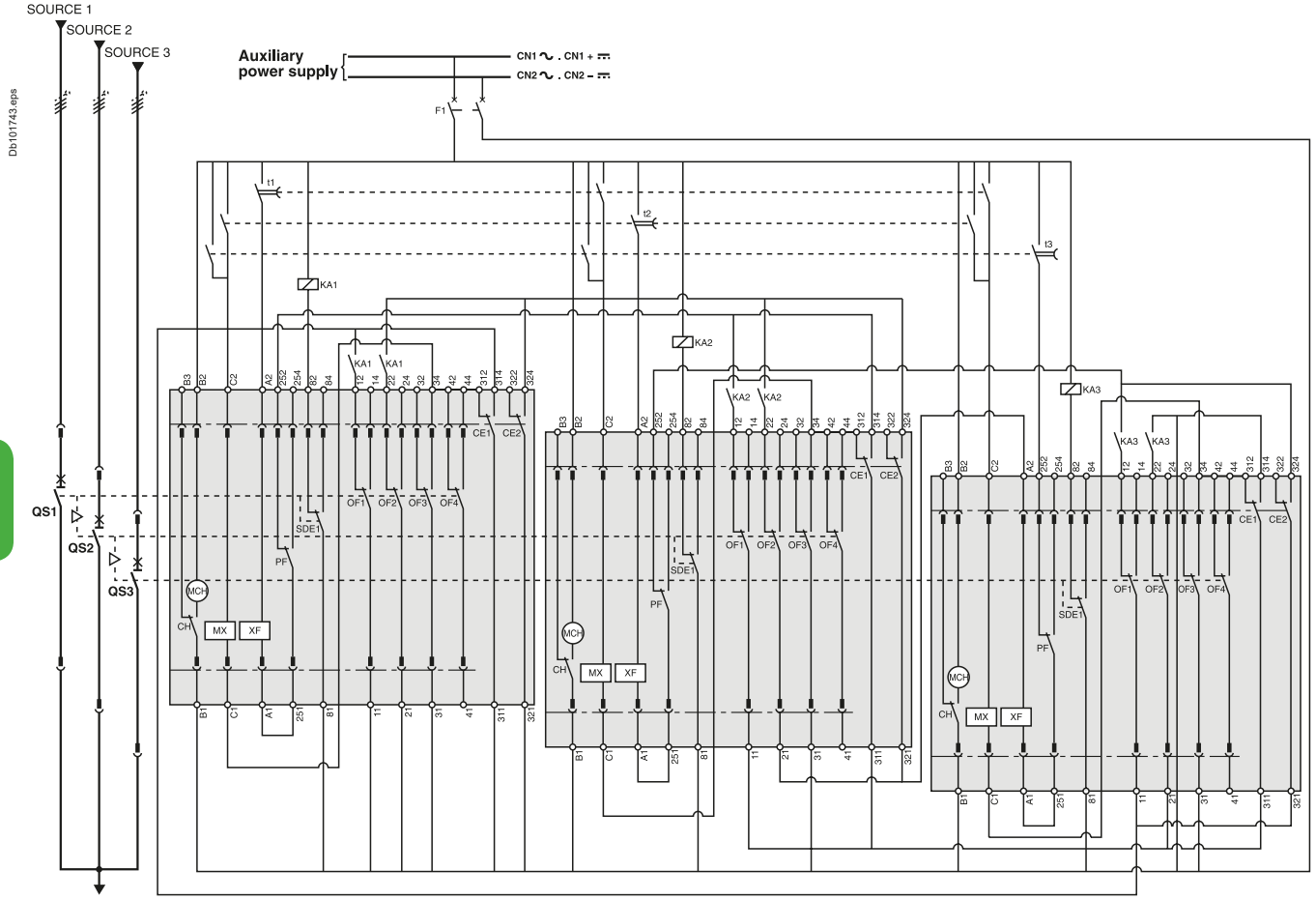
States permitted by mechanical interlocking system

Source 1	Source 2	Source 3
0	0	0
1	0	0
0	1	0
0	0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

3 sources with only 1 device closed: electrical interlocking with lockout after a fault



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect the SDE to terminals 81 and 84.**

Legends

QS...	"Source" Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
SDE1	"fault-trip" indication contact
PF	"ready-to-close" contact
CE...	"connected-position" indication contact (carriage switch)
CH	"springs charged" indication contact
F1	auxiliary power supply circuit breaker
t1	order for transfer to "Source 1" (QS1 closing time delay = 0.25 sec. minimum)
t2	order for transfer to "Source 2" (QS2 closing time delay = 0.25 sec. minimum)
t3	order for transfer to "Source 3" (QS3 closing time delay = 0.25 sec. minimum)
KA1	auxiliary relays
KA2	auxiliary relays
KA3	auxiliary relays

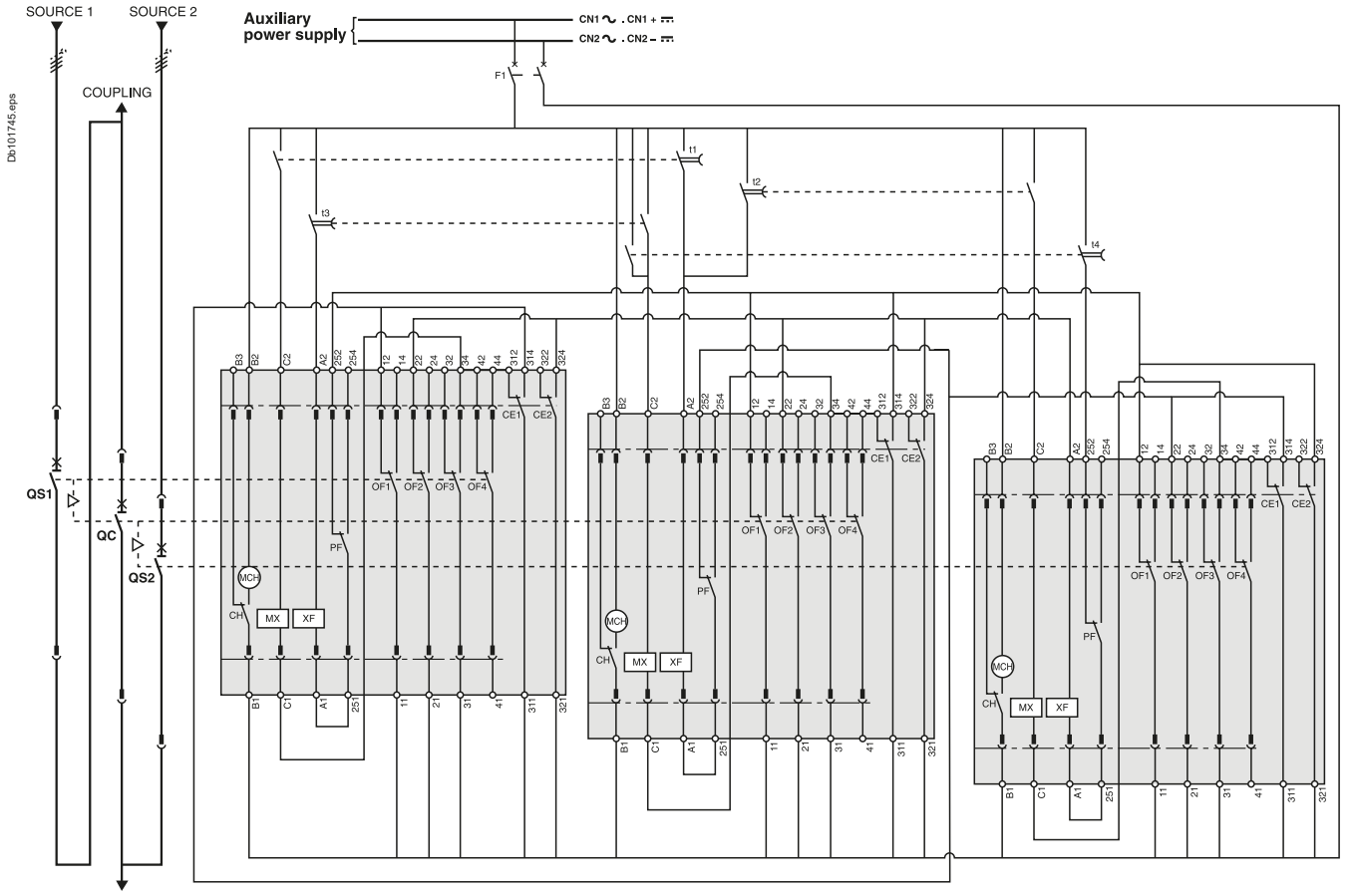
States permitted by mechanical interlocking system

Source 1	Source 2	Source 3
0	0	0
1	0	0
0	1	0
0	0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 sources and 1 coupling: electrical interlocking without lockout after a fault



Legends

QS...	“Source” Masterpact MTZ2
QC	“Coupling” Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
PF	“ready-to-close” contact
CE...	“connected-position” indication contact (carriage switch)
CH	“springs charged” indication contact
F1	auxiliary power supply circuit breaker
t1	coupling order for “Source 1 failure” (QC closing time delay = 0.25 sec. minimum)
t2	coupling order for “Source 2 failure” (QC closing time delay = 0.25 sec. minimum)
t3	coupling order for “Source 1 restored” (QS1 closing time delay = 0.25 sec. minimum)
t4	coupling order for “Source 2 restored “ (QS2 closing time delay = 0.25 sec. minimum)

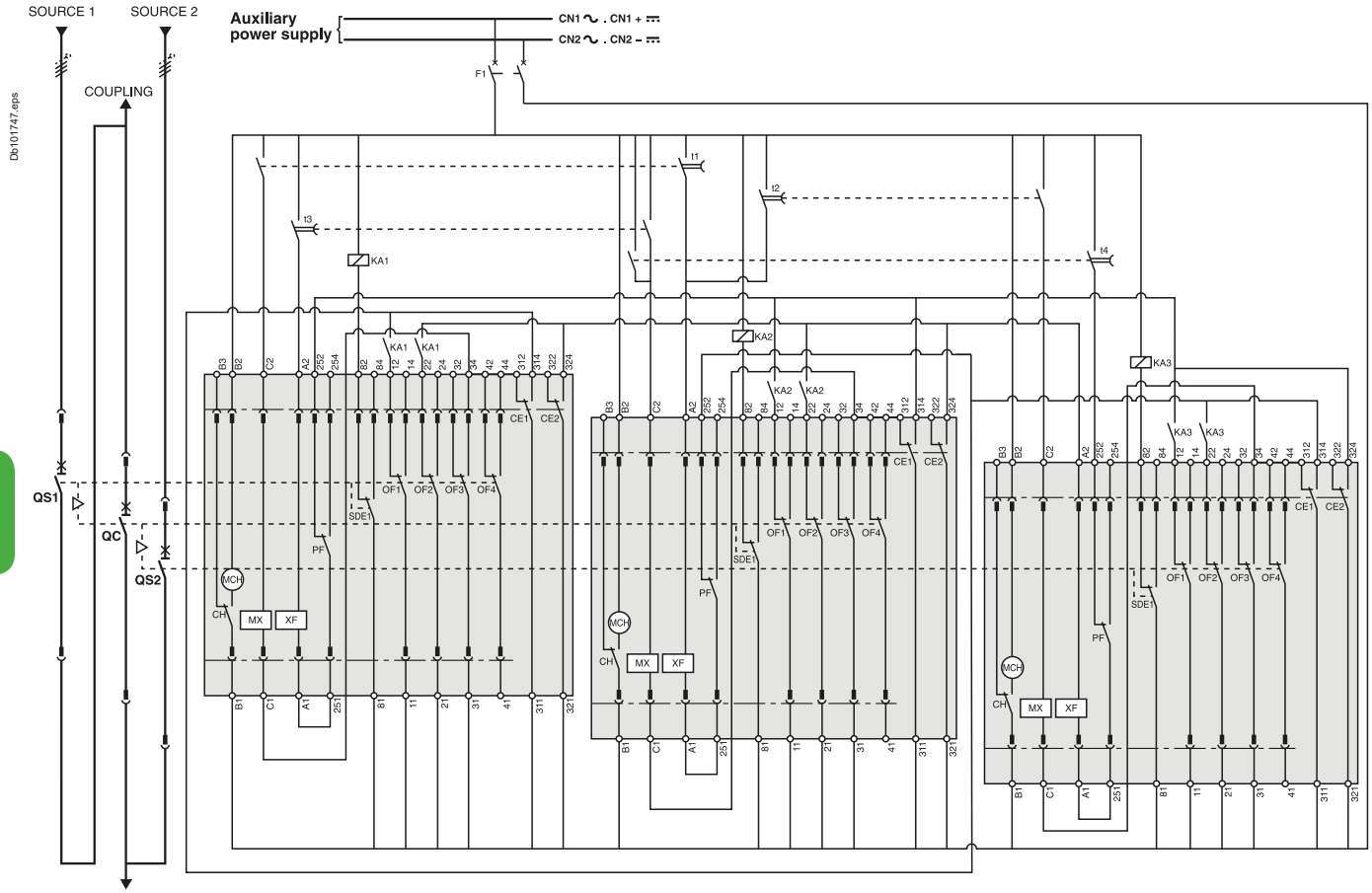
States permitted by mechanical interlocking system

Source 1	Source 2	Coupling
0	0	0
1	1	0
1	0	1
0	1	1
1	0	0
0	1	0
0	0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 sources and 1 coupling: electrical interlocking with lockout after a fault



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect the SDE to terminals 81 and 84.**

Legends

QS...	"Source" Masterpact MTZ2
QC	"Coupling" Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
SDE1	"fault-trip" indication contact
PF	"ready-to-close" contact
CE...	"connected-position" indication contact (carriage switch)
CH	"springs charged" indication contact
F1	auxiliary power supply circuit breaker
t1	coupling order for "Source 1 failure" (QC closing time delay = 0.25 sec. minimum)
t2	coupling order for "Source 2 failure" (QC closing time delay = 0.25 sec. minimum)
t3	coupling order for "Source 1 restored" (QS1 closing time delay = 0.25 sec. minimum)
t4	coupling order for "Source 2 restored " (QS2 closing time delay = 0.25 sec. minimum)
KA1	auxiliary relays
KA2	auxiliary relays
KA3	auxiliary relays

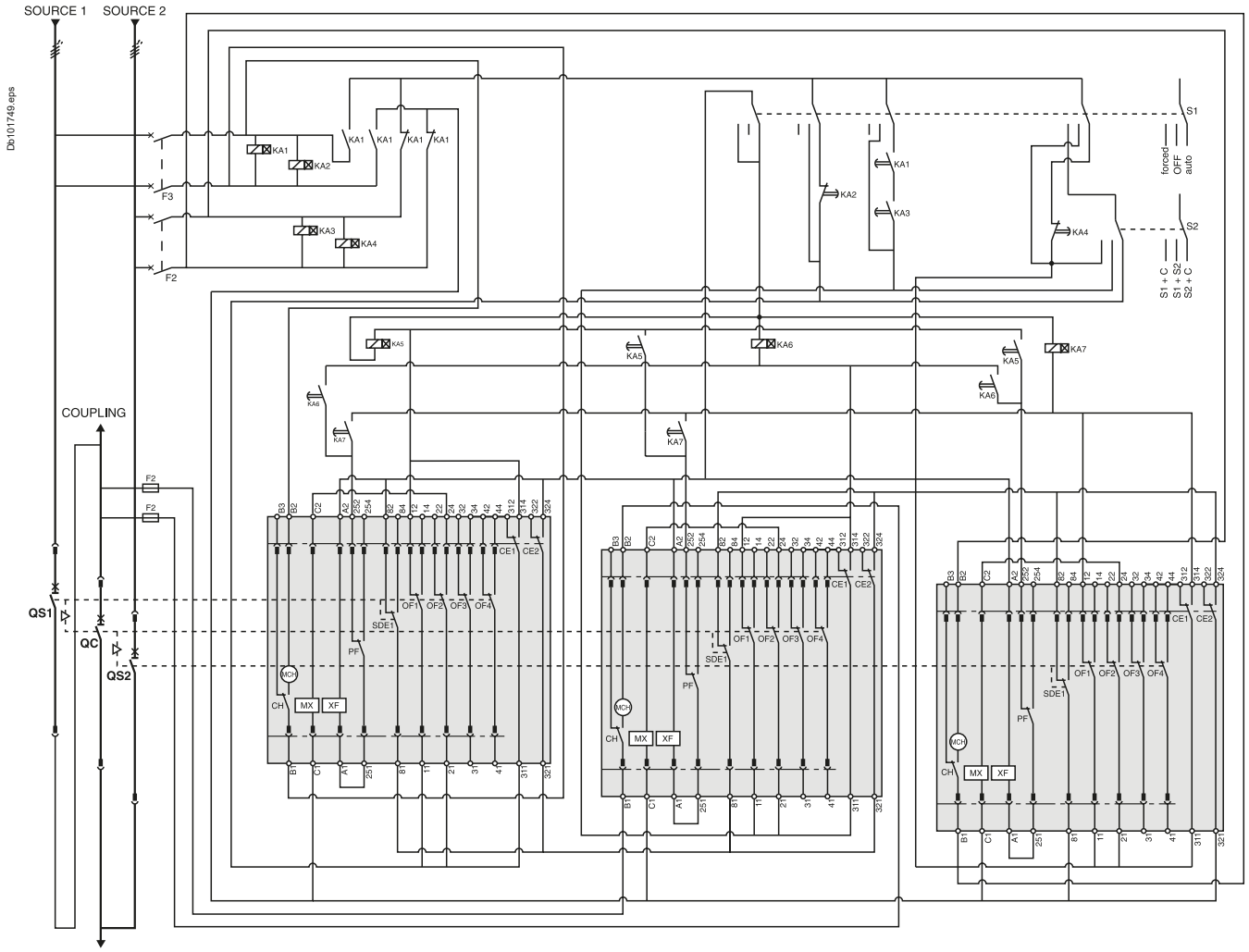
States permitted by mechanical interlocking system

Source 1	Source 2	Coupling
0	0	0
1	1	0
1	0	1
0	1	1
1	0	0
0	1	0
0	0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

Remote-operated source-changeover systems
3 Masterpact MTZ2 devices

2 sources and 1 coupling: automatic-control system with lockout after a fault



ATTENTION

The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with **switch-disconnectors, connect the SDE to terminals 81 and 84.**

Legends

QS...	"Source" Masterpact MTZ2
QC	"Coupling" Masterpact MTZ2
MCH	spring-charging motor
MX	standard opening voltage release
XF	standard closing voltage release
OF...	breaker ON/OFF indication contact
SDE1	"fault trip" indication contact
PF	"ready-to-close" contact
CE...	"connected-position" indication contact (carriage switch)
CH	"springs charged" indication contact
F1	auxiliary power supply circuit breaker
F2/F3	circuit breaker (high breaking capacity)
S1	control switches
S2	source selection switches
KA1	auxiliary relays with 10 to 180 sec. time delay
KA2	auxiliary relays with 0.1 to 30 sec. time delay
KA3	auxiliary relays with 10 to 180 sec. time delay
KA4	auxiliary relays with 0.1 to 30 sec. time delay
KA5	auxiliary relays with 0.25 sec. time delay
KA6	auxiliary relays with 0.25 sec. time delay
KA7	auxiliary relays with 0.25 sec. time delay

States permitted by mechanical interlocking system and with associated automatism

Source 1	Source 2	Coupling
0	0	0
1	1	0
1	0	1
0	1	1
1	0	0
0	1	0
0	0	1

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

C

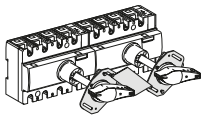
Catalogue numbers and order form

D

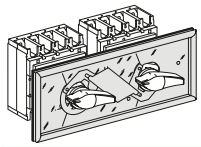
Source-changeover systems for 2 devices
Compact INS40 to INS2500, INV100 to INV2500, and Transferpact FXM

Manual source-changeover systems

Interlocking for rotary handle

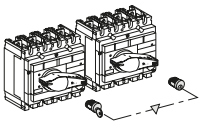

DB107710.eps

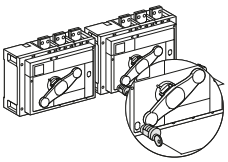
	3/4P
Mechanical device for INS40 to INS160 equipped with an extended rotary handle	**28953**


DB404077.eps

Mechanical device for INS250-100 to INS250/INV100 to INV250 equipped with a direct or extended rotary handle	**31073**
Mechanical device for INS/INV320 to INS/INV630 equipped with a direct or extended rotary handle	**31074**

Interlocking

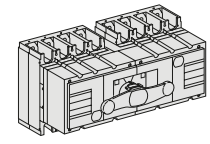

Db101549.eps


DB404080.eps

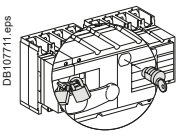
		3/4P
Locking device for Ronis/Profalux keylocks on INS250-100 to INS250/INV100 to INV250	2x	**31087**
Locking device for Ronis/Profalux keylocks on INS/INV320 to INS/INV630	2x	**31088**
Locking device for Ronis/Profalux keylocks on INS/INV630b to INS/INV2500	2x	**31291**
+ Ronis 1351B.500 keylock (2 keylocks / 1 key)		**41950**
or + Profalux KS5 B24 D4Z keylock (2 keylocks / 1 key)		**42878**

D

Transferpact FXM (complete source-changeover assembly)

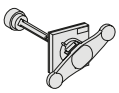

DB404170.eps

	3P	4P
FXM100	**31140**	**31141**
FXM160	**31144**	**31145**
FXM200	**31142**	**31143**
FXM250	**31146**	**31147**
FXM320	**31148**	**31149**
FXM400	**31150**	**31151**
FXM500	**31152**	**31153**
FXM630	**31154**	**31155**


DB107711.eps

Locking for Transferpact FXM

Handle locking by 1 to 3 padlocks (in OFF position)		**Built in**
By keylock	Keylocking device	**31097**
	+ Ronis 1351B.500 keylock	**41940**
	or + Profalux KS5 B24 D4Z keylock	**42888**


DB404079.eps

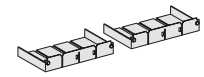
Rotary handle

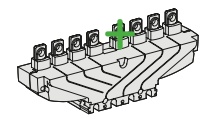
Extended front control for complete source changeover assembly	**31055**

Connection accessories

Downstream coupling accessories

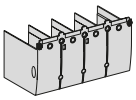
Short terminal shields (1 pair) + “Normal” source/“Replacement” source


DB101062.eps


DB413292.eps

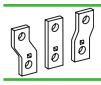
	3/4P
INS250/INS250	**LV429359**
INS320 to INS630/INS320 to INS630	**LV432620**

Long terminal shields (1 piece)


Db403921.eps

INS250	Long terminal shield	**LV429518**
INS320 to INS630	Long terminal shield, 45 mm (1 piece)	**LV432594**
	Long terminal shield for spreaders, 52.5 mm (1 piece)	**LV432596**

Terminal extensions


DB115652.eps

Spreaders	52.5 mm	4P	**LV432491**

Source-changeover systems for 2 devices
Compact NSX100 to NSX630

Manual source changeover

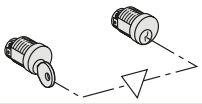
Mechanical interlocking


DB404083.eps


DB404084.eps

For toggle controlled circuit breakers	NSX100...250	**LV429354**
	NSX400...630	**LV432614**
For rotary handled circuit breakers	NSX100...250	**LV429369**
	NSX400...630	**LV432621**

Key lock interlocking

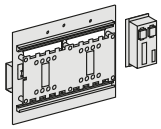

DB404085.eps

For rotary handled or remote controlled circuit breakers

2 locks, 1 key	Ronis 1351B.500	**41950**
	Profalux KS5 B24 D4Z	**42878**

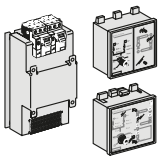
Remote controlled source changeover

Plate + IVE unit


DB404086.eps

Source “Normal”/source “Replacement” (identical voltages)		24 to 250 V DC	48 to 415 V AC 50/60 Hz 440 V 60 Hz
NSX100...250/NSX100...250			
Plate + IVE unit [1]		**29351**	**29350**
Plate		**29349**	**29349**
IVE unit		**29356**	**29352**
Auxiliary switches 2 OF + 2 SDE	4 x	**29450**	4 x **29450**
Spare wiring system (device/IVE unit)		**29365**	**29365**
Back sockets option add:	Only long RC	[2]	[2]
Plug in base option add:	Plug in kit	[2]	[2]
NSX400...630/NSX100...630			
Plate + IVE unit [1]		**32611**	**32610**
Plate		**32609**	**32609**
IVE unit		**29356**	**29352**
Auxiliary switches 2 OF + 2 SDE	4 x	**29450**	4 x **29450**
Spare wiring system (device/IVE unit)		**29365**	**29365**
Back sockets option add:	Only long RC	[2]	[2]
Plug in base option add:	Plug in kit	[2]	[2]
	Adaptator kit for NSX100...250 1 x	**32618**	1 x **32618**

Control unit option


DB404087.eps

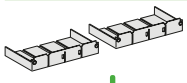
	110/127 V AC 50/60 Hz	220/240 V AC 50/60 Hz	380/415 V AC 50/60 Hz 440 V 60 Hz
ACP + controller BA [1]		**29470**	**29471**
Plate ACP		**29363**	**29364**
Controller BA		**29376**	**29377**
ACP + controller UA [1]	**29448**	**29472**	**29473**
Plate ACP	**29447**	**29363**	**29364**
Controller UA	**29446**	**29378**	**29380**

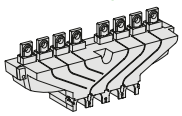
Wiring cable between UA/BA and ACP/IVE

Wiring cable (1.5 meter)	**29368**	**29368**

Connection accessories

Downstream coupling accessories

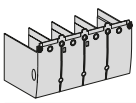

DB101062.eps


DB413273.eps

Short terminal shields (1 pair) + “Normal” source/“Replacement” source

	3P	4P
NSX100...250/NSX100...250 / 250 A	**LV429358**	**LV429359**
NSX400...630/NSX400...630 / 630 A	**LV432619**	**LV432620**

Long terminal shields (1 piece)


Db403921.eps

		3/4P
NSX100...250	Long terminal shield	**LV429518**
NSX400...630	Long terminal shield, 45 mm (1 piece)	**LV432594**
	Long terminal shield for spreaders, 52.5 mm (1 piece)	**LV432596**

Terminal extensions


DB115652.eps

Spreaders	52.5 mm	4P	**LV432491**

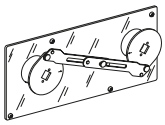
[1] The supply voltages UA/BA controller, ACP plate, IVE unit and the remote control must be identical whatever the source changeover type.
[2] See products pages.

D

Source-changeover systems for 2 devices
Compact NS630b to NS1600
Circuit breakers and switch-disconnectors

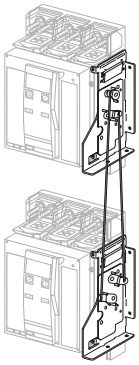
Mechanical interlocking for source-changeover systems

Interlocking


DB404090.eps

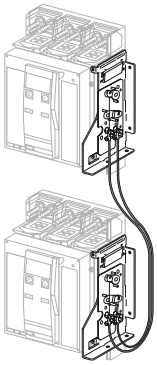
For 2 devices with extended rotary handles	**33890**

Interlocking using connecting rods


DB404091.eps

Complete assembly with 2 adaptation fixtures + rods	
2 Compact fixed devices	**33910**
2 Compact withdrawable devices	**33913**

Interlocking using cables


DB404092.eps

Complete assembly with 2 adaptation fixtures + cables	
2 Compact fixed devices	**33911**
2 Compact withdrawable devices	**33914**
1 Compact fixed + 1 Compact withdrawable device	**33915**

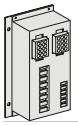
D

Associated controller

The automatic-control option includes:
- an IVE electrical-interlocking unit
- an ACP control plate
- a BA or UA controller, depending on the required functions
- a UA/BA adapter kit.

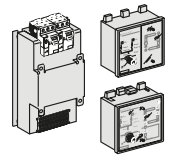
Note: the circuit breaker auxiliaries (MCH, MX, XF) and the automatic-control components (IVE, ACP, UA or BA) must have the same voltages.

Transferpact Electrical Interlocking


DB404093.eps

IVE unit	24 to 250 V DC	48/415 V AC 50/60 Hz 440 V 60 Hz
For 2 devices	**29356**	**29352**
Wiring kit for connection of 2 fixed/withdrawable devices to the IVE unit		**54655**

Transferpact Controllers


DB404087.eps

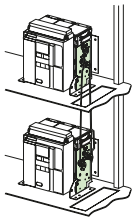
Control unit	110/127 V AC 50/60 Hz	220/240 V AC 50/60 Hz	380/415 V AC 50/60 Hz 440 V 60 Hz
ACP + controller BA [1]		**29470**	**29471**
Plate ACP		**29363**	**29364**
Controller BA		**29376**	**29377**
ACP + controller UA [1]	**29448**	**29472**	**29473**
Plate ACP	**29447**	**29363**	**29364**
Controller UA	**29446**	**29378**	**29380**

[1] The supply voltages of the UA/BA controller, ACP plate, IVE unit and circuit breaker operating mechanism must be identical whatever the type of source-changeover system.

Source-changeover systems for 2 devices
Masterpact MTZ1
Circuit breakers and switch-disconnectors

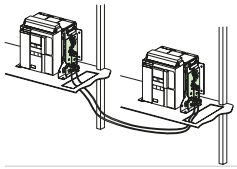
Mechanical interlocking for source-changeover systems

Interlocking using connecting rods


DB421418.eps

Complete assembly with 2 adaptation fixtures + rods	
2 Masterpact MTZ1 fixed devices	**33912**
2 Masterpact MTZ1 drawout devices	**33913**

Interlocking using cables [1]


DB421419.eps

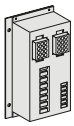
Choose 2 adaptation fixtures (1 for each breaker + 1 set of cables)	
1 adaptation fixture for Masterpact MTZ1 fixed devices	**33200**
1 adaptation fixture for Masterpact MTZ1 drawout devices	**33201**
1 set of 2 cables	**33209**

Associated controller

The automatic-control option includes:
- an IVE electrical-interlocking unit
- an ACP control plate
- a BA or UA controller, depending on the required functions
- a UA/BA adapter kit.

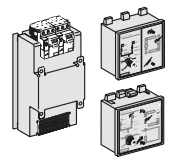
Note: the circuit breaker auxiliaries (MCH, MX, XF) and the automatic-control components (IVE, ACP, UA or BA) must have the same voltages.

Transferpact Electrical Interlocking


DB404093.eps

IVE unit	24 to 250 V DC	48/415 V AC 50/60 Hz 440 V 60 Hz
For 2 devices	**29356**	**29352**
Wiring kit for connection of 2 fixed/drawout devices to the IVE unit		**54655**

Transferpact Controllers


DB404087.eps

Control unit		110/127 V AC 50/60 Hz	220/240 V AC 50/60 Hz	380/415 V AC 50/60 Hz 440 V 60 Hz
ACP + controller BA [2]			**29470**	**29471**
	Plate ACP		**29363**	**29364**
	Controller BA		**29376**	**29377**
ACP + controller UA [2]		**29448**	**29472**	**29473**
	Plate ACP	**29447**	**29363**	**29364**
	Controller UA	**29446**	**29378**	**29380**

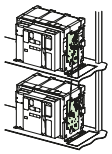
[1] Can be used with any combination of MTZ1 or MTZ2, fixed or drawout devices.
[2] The supply voltages of the UA/BA controller, ACP plate, IVE unit and circuit breaker operating mechanism must be identical whatever the type of source-changeover system.

D

Source-changeover systems for 2 devices
Masterpact MTZ2
Circuit breakers and switch-disconnectors

Mechanical interlocking for source-changeover systems for 2 devices

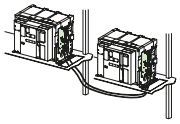
Interlocking of 2 devices using connecting rods


DB421405.eps

Complete assembly with 2 adaptation fixtures + rods	
2 Masterpact MTZ2 fixed devices	**48612**
2 Masterpact MTZ2 drawout devices	**48612**

Note: Can be used with 1 MTZ2 fixed + 1 MTZ2 drawout.

Interlocking of 2 devices using cables [1]


DB421406.eps

Choose 2 adaptation fixtures (1 for each breaker + 1 set of cables)	
1 adaptation fixture for Masterpact MTZ2 fixed devices	**47926**
1 adaptation fixture for Masterpact MTZ2 drawout devices	**47926**
1 set of 2 cables	**33209**

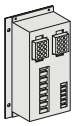
Associated controller for 2 devices

The automatic-control option includes:
- an IVE electrical-interlocking unit
- an ACP control plate
- a BA or UA controller, depending on the required functions
- a UA/BA adapter kit.

Note: the circuit breaker auxiliaries (MCH, MX, XF) and the automatic-control components (IVE, ACP, UA or BA) must have the same voltages.

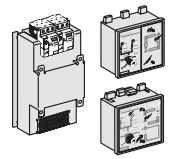
D

Transferpact Electrical Interlocking


DB404093.eps

IVE unit	24 to 250 V DC	48/415 V AC 50/60 Hz 440 V 60 Hz
For 2 devices	**29356**	**29352**
Wiring kit for connection of 2 fixed/drawout devices to the IVE unit		**54655**

Transferpact Controllers


DB404087.eps

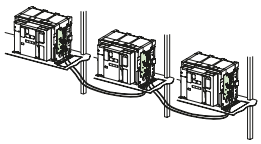
Control unit	110/127 V AC 50/60 Hz	220/240 V AC 50/60 Hz	380/415 V AC 50/60 Hz 440 V 60 Hz
ACP + controller BA [2]		**29470**	**29471**
Plate ACP		**29363**	**29364**
Controller BA		**29376**	**29377**
ACP + controller UA [2]	**29448**	**29472**	**29473**
Plate ACP	**29447**	**29363**	**29364**
Controller UA	**29446**	**29378**	**29380**

[1] Can be used with any combination of MTZ1 or MTZ2, fixed or drawout devices.
[2] The supply voltages of the UA/BA controller, ACP plate, IVE unit and circuit breaker operating mechanism must be identical whatever the type of source-changeover system.

Source-changeover systems for 3 devices
Masterpact MTZ2
Circuit breakers and switch-disconnectors

Mechanical interlocking for source-changeover systems for 3 devices

Interlocking of 3 devices using cables



DB421407.eps

Choose 3 adaptation fixtures (1 complete set with 3 adaptation fixtures + cables)	
3 sources, only 1 device closed, fixed or drawout devices	**48610**
2 sources, 1 coupling, fixed or drawout devices	**48609**
2 normal, 1 replacement source, fixed or drawout devices	**48608**

Source-changeover systems for 2 devices
Compact INS40 to INS630
Switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ☐.

Mechanical interlocking of two INS40 to INS630 devices
Devices with front rotary handles, mounted side by side

	Two devices with direct rotary handles			
	INS250	☐	INS320/400/500/630	☐
	Two devices with extended rotary handles			
	INS40/63/80	☐	INS100/125/160	☐
	INS250	☐	INS320/400/500/630	☐
Downstream coupling accessory	INS250	☐	INS320/400/500/630	☐
Long terminal shields	INS250	☐	INS320/400/500/630	☐

Complete source-changeover assembly

	INS250-100 A	☐	INS250-160 A	☐
	INS250-200 A	☐	INS250-250 A	☐
	INS320	☐	INS400	☐
	INS500	☐	INS630	☐

D

Source-changeover systems for 2 devices
Compact INS40 to INS630
Switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ▭.
(one sheet per device, make copies if necessary)

Device identification:

Q 1 - NORMAL SOURCE ☐

Q 2 - REPLACEMENT SOURCE ☐

Switch-disconnector

Compact type	**INS40/63/80**	☐
	INS100/125/160	☐
	INS250	☐
	INS320/400/500/630	☐
Rating	**A**	☐
Number of poles	**3 or 4**	☐

Connections

Front connection	Standard	
Rear connection	2 short ☐ 2 long	☐
INS40/80 connectors	Distribution 3x16² rigid/10² flexible	☐
INS100/160 connectors	Snap-on ≤ 95²	☐
	Distribution 4x25² rigid/16² flexible	☐
INS250 connectors	Snap-on 1.5² to 95² (< 160 A)	☐
	Snap-on 10² to 185² (< 250 A)	☐
	Volt. tap connector for 185² connector	☐
	Clips for connectors Set of 10	☐
	Distribution 6x1.5² to 35² rigid with interphase barriers	☐
INS320/630 connectors	1 cable 35² to 300²	☐
	2 cables 35² to 240²	☐
	Voltage tap connector for 185² connector	☐
Distribution blocks	Linergy DX	
	4P 125 A ☐ 160 A ☐	
	1P 160 A ☐	
	Linergy BS (multi stage) 160 A ☐ 250 A	☐
	Linergy DP 250 A	☐
Rt-angle extension	Set of 3 or 4 250 A ☐ 630 A	☐
Straight extension	INS250	☐
Edgewise ext.	INS630	☐
Spreader	INS250 (45 mm)	☐
	Front alignment base	☐
	INS320/630 52.5 mm ☐ 70 mm	☐
	One-piece INS250 ☐ INS630	☐
Cu cable lugs supplied with 2 or 3 inter-phase barriers	INS100/160 For 95² cable	☐
	INS250 For 120² cable	☐
	For 150² cable	☐
	For 185² cable	☐
	INS320/630 For 240² cable	☐
	For 300² cable	☐
Al cable lugs supplied with 2 or 3 inter-phase barriers	INS250 For 150² cable	☐
	For 185² cable	☐
	INS320/630 For 240² cable	☐
	For 300² cable	☐
Terminal shrouds	INS40/63/80 ☐ INS100/125/160	☐
Terminal shields	INS40/63/80 ☐ INS100/125/160	☐
	INS250 Long	☐
	INS320/630 Long	☐
	Long for 52.5 mm spreaders	☐
Interphase barriers	INS100/160 Set of 6	☐
	INS250 Set of 6	☐
	INS320/630 Set of 6	☐

Indication and measurements

4P ammeter module	For INS250	Rating	100 A	☐
			150 A	☐
			250 A	☐
	Adaptation kit required for direct handles			☐
	For INS320/630	Rating	400 A	☐
			600 A	☐
4P current-transformer module	For INS250	Rating	100 A	☐
			150 A	☐
			250 A	☐
	For INS320/630	Rating	400 A	☐
			600 A	☐
Auxiliary contact	For INS40/160	1OF/CAF/CAO	Standard	☐
			Low level	☐
	For INS250/630	1 OF/CAM	Standard	☐
			Low level	☐

Rotary handles

Extended front handles	INS40 to INS160	Black ☐	Red on yellow front	☐
	INS250	Black ☐	Red on yellow front	☐
	INS320 to INS630	Black ☐	Red on yellow front	☐
	For complete changeover assembly		INS250	☐
			INS320/630	☐

Locking of rotary handles

Padlocking	1 to 3 padlocks (in OFF position)	☐
Keylocking	Keylock adapter (keylock not included)	☐
	Keylocks Ronis 1351B.500 ☐ Profalux KS5 B24 D4Z	☐

Installation accessories

Front-panel escutcheon	For switch-disconnectors	☐
	For ammeter module, IP40	☐

D

Source-changeover systems for 2 devices
Compact NSX100 to NSX630
Circuit breakers and switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ▭.

Diagram for two Compact NSX devices

Without automatic control, without emergency off auxiliaries	(no. 51201177)	☐
Without automatic control, with emergency off by MN	(no. 51201178)	☐
Without automatic control, with emergency off by MX	(no. 51201179)	☐

Mechanical interlocking of two NSX100 to NSX630 devices

(fixed, plug-in or withdrawable)

Manually operated devices, mounted side by side:

Two devices with toggles	☐
Two devices with rotary handles	☐

Mechanical and electrical interlocking of two NSX100 to NSX630 devices

(fixed or plug-in)

Electrically operated devices, mounted side by side:

Select 1 base plate + IVE unit, the 4 auxiliary contacts and the options / accessories

Base plate + IVE unit	Identical voltages:		48 to 415 V AC 50/60 Hz		
	24 to 250 V DC	☐	440/480 V AC 60 Hz		☐
	“Normal” NSX100/250	☐	“Replacement” NSX100/250		☐
	“Normal” NSX400/630	☐	“Replacement” NSX400/630		☐
	“Normal” NSX400/630	☐	“Replacement” NSX100/250		☐
	Adapter kit for NSX400/630 with NSX100/250 (plug-in)				☐
Auxiliary contacts	2 OF + 2 SDE (mandatory)			Quantity	**4**
Options	Long rear connections	☐	Plug-in base		☐
Downstream coupling accessory	3P	☐	NSX100/250		☐
	4P	☐	NSX400/630		☐
Prefabricated wiring	Between device and IVE			Quantity	▭

Automatic-control option

Power supply 220/240 V - 50/60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐
Power supply 380/415 V - 50/60 Hz and 440 V - 60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐

Catalogue numbers and order form

Source-changeover systems for 2 devices
Compact NSX100 to NSX630
Circuit breakers and switch-disconnectors

(One sheet per device, make copies if necessary)

Name of customer: _____

Address for delivery: _____

_____

Requested delivery date: _____

Customer order no.: _____

To indicate your choices, check the applicable square boxes and enter the appropriate information in the rectangles ☐

Q 1 - NORMAL SOURCE ☐
Q 2 - REPLACEMENT SOURCE ☐

Circuit breaker or switch disconnector

Compact type	**NSX100/160/250**	☐	**NSX400/630**	☐
Rating	**A**			☐
Circuit breaker	**B, F, N, H, S, L**			☐
Switch-discon.	**NA**			☐
No. of poles	**2, 3 or 4**			☐
No. of poles protected	**2d, 3d or 4d**			☐
Fixed device		Front connections		☐
Plug-in/withdr.	Plug-in ☐	Withdrawable		☐
Earth-leakage protection	**ME, MH, MB**			☐
Vigi module	Voltage	**V**		☐
	4P option on 3P NSX			☐

Trip unit

Thermal-mag.	**TMD** rating (16 … 250 A)			☐
	TMG rating (16 … 63 A)			☐
	MA rating (2.5 … 220 A)			☐
Electronic	**Micrologic 2.2** ☐		**Micrologic 2.3** ☐	
	Micrologic 2.2 G ☐		**Micrologic 2.3 AB** ☐	
	Micrologic 2.2 AB ☐		**Micrologic 5.3 A** ☐	
	Micrologic 5.2 A ☐		**Micrologic 5.3 E** ☐	
	Micrologic 5.2 E ☐		**Micrologic 5.3 A-Z** ☐	
	Micrologic 5.2 A-Z ☐		**Micrologic 6.3 A** ☐	
	Micrologic 6.2 A ☐		**Micrologic 6.3 E** ☐	
	Micrologic 6.2 E ☐		**Micrologic 1.3 M** ☐	
	Micrologic 2.2 M ☐		**Micrologic 2.3 M** ☐	
	Micrologic 6.2 E-M ☐		**Micrologic 6.3 E-M** ☐	
	SDTAM module ☐			
External neutral CT				☐
24 V DC power supply connector				☐
ZSI wiring accessory for NS630b MTZ1/MTZ2/MTZ3				☐
External power supply module 24 V DC	24-30 V DC ☐		48-60 V DC	☐
	100-125 V AC ☐		110-130 V AC	☐
	200-240 V AC ☐		380-415 V AC	☐
Battery module				☐

Connection

Rear-connection kit	Short ☐		Long	☐
	Mixed ☐			
NSX100/250 connectors	Snap-on 1.5² to 95² (< 160 A)			☐
	Snap-on 25² to 95² (< 250 A)			☐
	Snap-on 120² to 185² (< 250 A)			☐
	Distribution 6 x 1.5² to 35²			☐
	Aluminium 2 cables 50² to 120²			☐
NSX400/630 connectors	1 cable 35² to 300²			☐
	2 cables 35² to 240²			☐
Right-angle terminal extensions				☐
Straight extensions	NSX100/250			☐
Edgewise extensions	☐ 45° term. ext.	☐	Dbl.-L term. ext.	☐
Spreader	NSX100/250 (one piece)	☐	(45 mm)	☐
	NSX400/630 (52.5 mm)	☐	(70 mm)	☐
Cu cable lugs	NSX100/250 120² ☐		150² ☐	185² ☐
	NSX400/630		240² ☐	300² ☐
Al cable lugs	NSX100/250		150² ☐	185² ☐
	NSX400/630		240² ☐	300² ☐
V mesrt Input for connector	For lugs NSX100/250 ≤ 185²			☐
	For lugs NSX400/630			☐
Terminal shields	NSX100/250		Long	☐
	NSX400/630		Long	☐
	Long for 52.5 mm spreaders			☐
Interphase barriers			Set of 6	☐
2 insulating scrn.	NSX100/250 ☐	NSX400/630	70 pitch	☐

Test tool

Pocket battery for Micrologic	☐
Maintenance case	☐
USB maintenance interface	☐
Power supply 110-240 V AC	☐
Spare Micrologic cord	☐

Indication and measurement

Ammeter module	Standard	3P ☐		4P ☐
	I max	3P ☐		
Current-transformer module		3P ☐		4P ☐
Current-transformer module + TCU		3P ☐		4P ☐
Insulation-monitoring module		3P ☐		4P ☐
Voltage-presence indicator				
Auxiliary contact	OF ☐ SD ☐ SDE ☐		SDV ☐	Standard ☐
	OF ☐ SD ☐ SDE ☐		SDV ☐	Low level ☐
SDE adapter (TM, MA or Micrologic 2 trip units)				☐
SDX module				☐

Remote operation

Electrical operation	Motor mechanism	AC ☐	DC ☐	**V**	☐
Voltage releases	Instantaneous MX	AC ☐	DC ☐	**V**	☐
	Instantaneous MN	AC ☐	DC ☐	**V**	☐
	Fixed time delay MN	AC ☐	DC ☐	**V**	☐
	Adjust. time delay MN	AC ☐	DC ☐	**V**	☐

Rotary handles

Direct	Black	☐	Red and yellow front	☐
	MCC conversion access.	☐	CNOMO conversion access.	☐
Extended	Black	☐	Red and yellow front	☐
	Telescopic handle for withdrawable device			☐
Indication auxiliary	1 early-break switch	☐	2 early-make switches	☐

Locking

Toggle (1 to 3 padlocks)	Removable	☐	Fixed	☐
Rotary handle	Keylock adapter (keylock not included)			☐
	Keylocks Ronis 1351B.500	☐	Profalux KS5 B24 D4Z	☐
Motor mechanism	Keylock adapter + keylock Ronis (special)		NSX100/250	☐
	Keylock adapter (keylock not included)		NSX400/630	☐
	Keylocks Ronis 1351B.500		Profalux KS5 B24 D4Z	☐

Interlocking

Mechanical	Toggle operated	☐	Rotary Handle	☐
By key (2 keylocks, 1 key) for rotary handle	Locking kit without locks			
	Keylocks Ronis 1351B.500	☐	Profalux KS5 B24 D4Z	☐

Installation accessories

IP30 escutcheon for all types (toggle/rotary handle/motor mechanism)	☐
IP30 escutcheon (with access to toggle + trip unit)	☐
IP30 escutcheon for Vigi module	☐
IP40 escutcheon for all types (toggle/rotary handle/motor mechanism)	☐
IP40 escutcheon for Vigi module	☐
IP40 escutcheon for Vigi or ammeter module	☐
Toggle cover	☐
Sealing accessories	☐
DIN rail adapter	☐
3P 60 mm busbar adapter	☐

Plug-in / withdrawable configuration accessories

Auxiliary connections	1 automatic connector fixed part with 9 wires (for base)				☐
	1 automatic connector moving part with 9 wires (for circuit breaker)				☐
	1 sup. for 3 auto. conn. moving parts ☐			1 sup. for 2 auto. conn.	☐
	9-wire manual auxiliary connector (fixed + moving)				☐
Plug-in base accessories	Long insulated terminals			Set of 2	☐
	2 IP4 shutters for base				☐
Chassis accessories	Escutcheon collar		Toggle ☐	Vigi	☐
	Locking kit (keylock not included)				☐
	2 carriage switches (conn./disconnected position indication)				☐
Parts or plug-in Withdrawable kits	Plug-in base FC/RC	2P ☐	3P ☐	4P	☐
	Set of two power connections		Standard ☐	Vigi	☐
	Safety trip for advanced opening				☐
	For 3P/4P chassis			Moving part	☐
				Fixed part	☐
Adaptater for plug-in base (for terminal shield or interphase barriers)					☐

Communication

	NSX Cord L = 0.35 m	☐	NSX Cord L = 1.3 m	☐
	NSX Cord U > 480 V AC L = 0.35 m	☐	NSX Cord L = 3 m	☐
BSCM (NSX400/630)				☐
Communicating motor mechanism 220-240 V				☐
Switchboard front display module FDM121				☐
FDM mounting accessory				☐
Modbus interface				☐
Stacking accessory				☐
ULP line termination				☐
RJ45 connectors female/female	Wire length RJ45 L = 0.3 m	☐	Wire length RJ45 L = 0.6 m	☐
	Wire length RJ45 L = 1 m	☐	Wire length RJ45 L = 2 m	☐
	Wire length RJ45 L = 3 m	☐	Wire length RJ45 L = 5 m	☐

D

Source-changeover systems for 2 devices
Compact NS630b to NS1600
Circuit breakers and switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ▭.

Diagram for two Compact NS devices

Electrical interlocking with lockout after fault:

Permanent replacement source (with IVE unit)	(no. 51201183)	☐
With emergency off by MX (with IVE unit)	(no. 51201184)	☐
With emergency off by MN (with IVE unit)	(no. 51201185)	☐

Interlocking using connecting rods between two NS630b to NS1600 devices

Manually operated devices installed side-by-side:

	For two fixed NS devices with extended rotary handles	☐

Electrically operated devices installed one above the other:

Select a complete set including two adaptation fixtures and the connecting rods

Complete set for:	2 fixed NS devices	☐
	2 withdrawable NS devices	☐

Interlocking using cables between two NS630b to NS1600 devices

Electrically operated devices installed one above the other or side-by-side:

Select a complete set including two adaptation fixtures and the cables

Complete set for:	2 fixed NS devices	☐
	2 withdrawable NS devices	☐
	1 fixed NS device + 1 withdrawable NS device	☐

Electrical interlocking between two NS630b to NS1600 devices

1 IVE unit 48/415 V - 50/60 Hz and 440 V - 60 Hz	☐
1 wiring kit for connection between 2 fixed / withdrawable devices to the IVE unit	☐

Automatic-control option

Power supply 110 V - 50/60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐
Power supply 220/240 V - 50/60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐
Power supply 380/415 V - 50/60 Hz and 440 V - 60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐

D

Source-changeover systems for 2 devices
Compact NS630b to NS1600
Circuit breakers and switch-disconnectors

(One sheet per device, make copies if necessary)

Name of customer: _____

Address for delivery: _____

_____

Requested delivery date: _____

Customer order no.: _____

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ☐☐

Device identification:

Q 1 - NORMAL SOURCE ☐

Q 2 - REPLACEMENT SOURCE ☐

Circuit breaker or switch disconnector

Compact type	**NS630b to NS1600**	☐☐
Rating	**A**	☐☐☐☐
Circuit breaker	**N, H, L**	☐
Switch-disconnector	**NA**	☐
Number of poles	**3 or 4**	☐
Device	Fixed	☐
	Withdr. with chassis	☐
	Withdr. without chassis	☐
	(moving part only)	
Chassis alone without connections		☐

Micrologic control unit

Basic protection	**2.0**	☐	**5.0**	☐	**6.0**	☐		
A - ammeter	**2.0**	☐	**5.0**	☐	**6.0**	☐	**7.0**	☐
E - energy meter	**2.0**	☐	**5.0**	☐	**6.0**	☐		
P - power meter			**5.0**	☐	**6.0**	☐	**7.0**	☐

AD - external power-supply module V ☐☐☐

TCE - external sensor (CT) for neutral protection ☐

Rectangular sensor 280 x 115 mm ☐

TCW - external sensor for SGR protection ☐

LR - long-time rating plug

Standard 0.4 to 1 Ir	☐
Low setting 0.4 to 0.8 Ir	☐
High setting 0.8 to 1 Ir	☐
LT OFF	☐

Communication

Eco COM module Modbus	Device	☐	Chassis	☐
Front Display Module (FDM121)	☐	Mounting accessory		☐

Breaker ULP cord

L = 0.35 m	☐
L = 1.3 m	☐
L = 3 m	☐

Connections

Horizontal rear connections	Top	☐	Bottom	☐
Vertical rear connections	Top	☐	Bottom	☐
Front connections	Top	☐	Bottom	☐

4x240□ bare cable connectors + shields	NS - FC fixed	☐
Long connection shields	NS - FC fixed	☐
Vertical-connection adapters	NS - FC fixed, withdr.	☐
Cable-lug adapters	NS - FC fixed, withdr.	☐
Arc chute screen	NS - FC fixed	☐
Interphase barriers	NS - FC fixed, withdr.	☐
Spreaders	NS - FC fixed, withdr.	☐
VO - safety shutters on chassis	NS - FC fixed	☐

Indication contacts

SD trip indication (maximum 1)

6 A-240 V AC ☐ Low level ☐

SDE fault-trip indication (maximum 1) (SDE integrated in electrically operated devices)

6 A-240 V AC ☐ Low level ☐

OF ON/OFF indication contacts (maximum 3)

6 A-240 V AC qty ☐ Low level qty ☐

Carriage switches (possible combinations: 3 CE, 2 CD, 1 CT) ☐

CE - "connected" position	6 A-240 V AC qty ☐	Low level qty ☐		
CD - "disconnected" position	6 A-240 V AC qty ☐	Low level qty ☐		
CT - "test" position	6 A-240 V AC qty ☐	Low level qty ☐		

Auxiliary terminals for chassis alone — Jumpers (set of 10) ☐

3-wire terminal (30 parts) ☐ 6-wire terminal (10 parts) ☐

Remote operation

Electrical operation	Standard	☐			Communicating	☐
	Power supply	AC ☐	DC ☐	**V**	☐	
Voltage releases	MX	AC ☐	DC ☐	**V**	☐	
	MN	AC ☐	DC ☐	**V**	☐	
	MN delay unit		Adjustable ☐	Non-adjustable	☐	

Rotary handles for fixed and withdrawable device

Direct	Black ☐	Red on yellow front	☐
		CNOMO conversion access.	☐
Extended	Black ☐	Red on yellow front	☐
	Telescopic handle for withdrawable device		☐
Indication auxiliary	6 A-240 V AC	2 early-make switches	☐
		2 early-break switches	☐

Locking

Toggle (1 to 3 padlocks)	Removable system ☐	Fixed system	☐
Rotary handle using a keylock	OFF position ☐	ON and OFF positions	☐
	Ronis 1351B.500 ☐	Profalux KS5 B24 D4Z	☐
	Keylock kit (without keylock)		☐
For electrically operated devices	**VBP** - ON/OFF pushbutton locking		☐
	OFF position locking:		
	VCPO - by padlocks		☐
	VSPO - by keylocks		
	Keylock kit (w/o keylock)	Profalux ☐	Ronis ☐
	1 keylock	Profalux ☐	Ronis ☐
	2 identical keylocks, 1 key	Profalux ☐	Ronis ☐
Chassis locking in "disconnected" position:			
VSPD - by keylocks	Keylock kit (w/o keylock)	Profalux ☐	Ronis ☐
		Kirk ☐	Castell ☐
	1 keylock	Profalux ☐	Ronis ☐
	2 identical keylocks, 1 key	Profalux ☐	Ronis ☐
	2 keylocks, different keys	Profalux ☐	Ronis ☐
	Optional connected/disconnected/test position locking		☐
VPEC - door interlock		On right-hand side of chassis	☐
		On left-hand side of chassis	☐
VPOC - racking interlock			☐
VDC - mismatch protection			☐

Accessories

CDM - mechanical operation counter		☐
CDP - escutcheon		☐
CP - transparent cover for escutcheon		☐
OP - blanking plate for escutcheon		☐
Mounting brackets for fixed NS	For mounting on horizontal plane	☐
Test kits	Mini ☐	Portable test kit ☐

D

Source-changeover systems for 2 devices
Masterpact MTZ1/MTZ2/MTZ3
Circuit breakers and switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ☐.

Diagram for 2 Masterpact MTZ1/MTZ2 devices

Electrical interlocking with lockout after fault:

- Permanent replacement source (with IVE unit) ☐
- With emergency off by MX (with IVE unit) ☐
- With emergency off by MN (with IVE unit) ☐

Automatic control with lockout after fault:

- Permanent replacement source (with IVE unit) ☐
- Engine generator set (with IVE unit) ☐

Interlocking using connecting rods (MTZ1/MTZ2 devices one above the other)

Select a complete set including two adaptation fixtures and the connecting rods

Complete set for:

2 drawout MTZ1	☐	2 fixed MTZ1	☐
2 drawout MTZ2/3	☐	2 fixed MTZ2/3	☐
1 fixed MTZ1 device + 1 fixed MTZ2/3 device			☐
1 drawout MTZ1 device + 1 drawout MTZ2/3 device			☐

Interlocking using cables (MTZ1/MTZ2 devices one above the other or side-by-side)

Select two adaptation fixtures (one for each device) and a set of two cables

Adaptation fixture for: (MTZ1/MTZ2/3 fixed and drawout devices may be mixed)

1 fixed MTZ1 device	qty	☐
1 drawout MTZ1 device	qty	☐
1 fixed MTZ2/3 device	qty	☐
1 drawout MTZ2/3 device	qty	☐
1 set of 2 cables (for two devices)		☐

Electrical interlocking 2 Masterpact MTZ1/MTZ2 devices

- 1 IVE unit 48/415 V - 50/60 Hz and 440 V - 60 Hz ☐
- 1 wiring kit for connection between 2 fixed / withdrawable devices to the IVE unit ☐

Automatic-control option

Power supply 220/240 V - 50/60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐
Power supply 380/415 V - 50/60 Hz and 440 V - 60 Hz:	ACP + BA controller	☐
	ACP + UA controller	☐
	ACP + UA150 controller	☐

D

Source-changeover systems for 2 devices
Masterpact MTZ1/MTZ2/MTZ3
Circuit breakers and switch-disconnectors

(One sheet per device, make copies if necessary)

Name of customer: _____

Address for delivery: _____

_____

Requested delivery date: _____

Customer order no.: _____

To indicate your choices, check the applicable square boxes and enter the appropriate information in the rectangles

Device identification:

Q 1 - NORMAL SOURCE

Q 2 - REPLACEMENT SOURCE

Circuit breaker or switch disconnector

Masterpact type		**MTZ1** ☐	**MTZ2/MTZ3** ☐
Rating	**A**		
Sensor rating	**A**		
Circuit breaker	**N1, H1, H2, H3, L1**		
Switch-disconnector	**NA, HA, HF, ES, HA10 (MTZ2/3)**		
Number of poles	**3 or 4**		
Option: neutral on right side			
Device	Fixed		
	Withdr. with chassis		
	Withdr. without chassis (moving part only)		
Chassis alone without connections			

Micrologic control unit

LI	**2.X**
LSI	**5.X**
LSIG	**6.X**
LSIV	**7.X**
AD - external power-supply module	**V**
TCE - external sensor (CT) for neutral protection	
Rectangular sensor for earth-leakage protection: MTZ1 (280 x 115 mm)	
Rectangular sensor for earth-leakage protection: MTZ2/3 (470 x 160 mm)	
LR - long-time rating plug: Standard 0.4 to 1 Ir	
LR - long-time rating plug: Low setting 0.4 to 0.8 Ir	
LR - long-time rating plug: High setting 0.8 to 1 Ir	
LR - long-time rating plug: LT OFF	
PTE - external voltage measurement input (required for reverse supply)	
BAT - battery module	

Communication

Eco COM module Modbus	Device ☐	Chassis	
Front Display Module (FDM121) ☐	Mounting accessory		
Breaker ULP cord	L = 0.35 m ☐		
	L = 1.3 m ☐		
	L = 3 m ☐		
ULP port ☐	IFM		
ULP cord ☐	EIFE		
I/O module ☐	FDM128		
IFE ☐			

Connections

Horizontal	Top ☐	Bottom	
Vertical	Top ☐	Bottom	
Front	Top ☐	Bottom	
Vertical-connection adapters	MTZ1 - FC fixed, draw.		
Cable-lug adapters	MTZ1 - FC fixed, draw.		
Arc chute screen	MTZ1 - FC fixed		
Interphase barriers	MTZ1 - MTZ2/3 fixed, draw.		
Spreaders	MTZ1 fixed, drawout		
Disconnectable front connection adapter	MTZ2/3 fixed		
Lugs for 240□ or 300□ cables	MTZ2/3 fixed, drawout		
VO - safety shutters on chassis	MTZ1, MTZ2/3	X	
VIVC - shutter position indication and locking	MTZ2/3		

Indication contacts

OF - ON/OFF indication contacts			
Standard	4 OF 6 A-240 V AC (10 A-240 V AC and low-level for MTZ2/3)		
Additional	1 block of 4 OF for MTZ2/3	max. 2	qty
EF - combined "connected/closed" contacts			
	1 EF 6 A-240 V AC for MTZ2/3	max. 8	qty
	1 EF low-level for MTZ2/3	max. 8	qty
SDE - "fault-trip" indication contact			
Standard	1 SDE 6 A-240 V AC		
Additional	1 SDE 6 A-240 V AC ☐	1 SDE Low level	☐
Programmable contacts		2 M2C contacts	☐
Carriage switches	6 A-240 V AC ☐	Low level	☐
CE - "connected" position	max. 3 for MTZ2/3 / MTZ1		qty
CD - "disconnected" position	max. 3 for MTZ2/3, 2 for MTZ1		qty
CT - "test" position	max. 3 for MTZ2/3, 1 for MTZ1		qty
AC - MTZ2/3 actuator for 6 CE - 3 CD - 0 CT additional carriage switches			qty

Remote operation

Remote ON/OFF	**MCH** - gear motor		**V**
	XF - closing voltage release		**V**
	MX - opening voltage release		**V**
	PF - "ready to close" contact	Low level	
		6 A-240 V AC	
	BPFE - electrical closing pushbutton		
	Res - electrical reset option		**V**
	RAR - automatic reset option		
Remote tripping	**MN** - undervoltage release		**V**
	R - delay unit (non-adjustable)		
	Rr - adjustable delay unit		
	2nd MX - shunt release		**V**

Locking

VBP - ON/OFF pushbutton locking (by transparent cover + padlocks)				
OFF position locking:				
VCPO - by padlocks				
VSPO - by keylocks	Keylock kit (w/o keylock)	Profalux ☐	Ronis	
		Kirk ☐	Castell	
	1 keylock	Profalux ☐	Ronis	
	2 identical keylocks, 1 key	Profalux ☐	Ronis	
	2 keylocks, different keys (MTZ2/3)	Profalux ☐	Ronis	
Chassis locking in "disconnected" position:				
VSPD - by keylocks	Keylock kit (w/o keylock)	Profalux ☐	Ronis	
		Kirk ☐	Castell	
	1 keylock	Profalux ☐	Ronis	
	2 identical keylocks, 1 key	Profalux ☐	Ronis	
	2 keylocks, different keys	Profalux ☐	Ronis	
	Optional connected/disconnected/test position locking			
VPEC - door interlock		On right-hand side of chassis		
		On left-hand side of chassis		
VPOC - racking interlock				
IPA - cable-type door interlock				
IBPO - racking interlock between crank and OFF pushbutton for MTZ2/3				
DAE - automatic spring discharge before breaker removal for MTZ2/3				
VDC - mismatch protection device - chassis				

Accessories

CDM - mechanical operation counter	
CB - auxiliary terminal shield for chassis	
CDP - escutcheon	
CP - transparent cover for escutcheon	
OP - blanking plate for escutcheon	
Brackets for mounting MTZ2/3 fixed	On backplates

D

Source-changeover systems for 3 devices
Masterpact MTZ2/MTZ3
Circuit breakers and switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ▭.

Diagram for 3 Masterpact MTZ2 devices

2 “Normal” sources + 1 “Replacement” source:

- Electrical interlocking without lockout after fault ☐
- Electrical interlocking with lockout after fault ☐

2 “Normal” sources + 1 “Replacement” source with source selection:

- Automatic control w/ engine generator set w/o lockout after fault ☐
- Automatic control w/ engine generator set w/ lockout after fault ☐

3 sources, only 1 device ON:

- Electrical interlocking without lockout after fault ☐
- Electrical interlocking with lockout after fault ☐

2 “Normal” sources + 1 coupling:

- Electrical interlocking without lockout after fault ☐
- Electrical interlocking with lockout after fault ☐
- Automatic control with lockout after fault: ☐

Interlocking using cables (MTZ2 devices one above the other or side-by-side)

Select a complete set including three adaptation fixtures and the cables

1 complete set for:

- 3 sources / 1 device ON, fixed or drawout ☐
- 2 sources + 1 coupling, fixed or drawout ☐
- 2 sources + 1 replacement source, fixed or drawout ☐

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Source-changeover systems for 3 devices
Masterpact MTZ2
Circuit breakers and switch-disconnectors

To indicate your choices, check the applicable square boxes ☐ and enter the appropriate information in the rectangles ▭.
(one sheet per device, make copies if necessary)

Device identification:

Q 1 - NORMAL SOURCE ☐

Q 2 - REPLACEMENT SOURCE ☐

Circuit breaker or switch-disconnector

Masterpact type		**MTZ2** ☐
Rating	**A**	▭
Sensor rating	**A**	▭
Circuit breaker	**N1, H1, H2, H3, L1**	▭
Switch-disconnector	**NA, HA, HF**	▭
Number of poles	**3 or 4**	▭
Option: neutral on right side		☐
Device	Fixed	☐
	Drawout with chassis	☐
	Drawout without chassis (moving part only)	☐
Chassis alone without connections		☐

Micrologic control unit

LI	**2.X** ☐
LSI	**5.X** ☐
LSIG	**6.X** ☐
LSIV	**7.X** ☐
AD - external power-supply module	**V** ▭
TCE - external sensor (CT) for neutral protection	☐
Rectangular sensor for earth-leakage protection — 470 x 160 mm	☐
TCW - external sensor for SGR protection	☐
LR - long-time rating plug — Standard 0.4 to 1 Ir	☐
Low setting 0.4 to 0.8 Ir	☐
High setting 0.8 to 1 Ir	☐
LT OFF	☐
PTE - external voltage measurement input (required for reverse supply)	☐
BAT - battery module	☐

Communication

Eco COM module Modbus	Device	☐	Chassis	☐
Front Display Module (FDM121)	☐	Mounting accessory		☐
Breaker ULP cord	L = 0.35 m	☐		
	L = 1.3 m	☐		
	L = 3 m	☐		
ULP port	☐	IFM		☐
ULP cord	☐	EIFE		☐
I/O module	☐	FDM128		☐
IFE	☐			

Connections

Horizontal	Top	☐	Bottom	☐
Vertical	Top	☐	Bottom	☐
Front	Top	☐	Bottom	☐
Interphase barriers	Fixed, drawout			☐
Disconnectable front connection adapter	Fixed			☐
VO - safety shutters on chassis				X
VIVC - shutter position indication and locking				☐

Indication contacts

OF - ON/OFF indication contacts			
Standard	4 OF 6 A-240 V AC (10 A-240 V AC and low-level)		
Additional	1 block of 4 OF	max. 2	qty ▭
EF - combined "connected/closed" contacts			
	1 EF 6 A-240 V AC	max. 8	qty ▭
	1 EF low-level	max. 8	qty ▭
SDE - "fault-trip" indication contact			
Standard	1 SDE 6 A-240 V AC		
Additional	1 SDE 6 A-240 V AC ☐	1 SDE Low level	☐
Programmable contacts		2 M2C contacts	☐
Carriage switches	6 A-240 V AC ☐	Low level	☐
CE - "connected" position	Max. 3		qty ▭
CD - "disconnected" position	Max. 3		qty ▭
CT - "test" position	Max. 3		qty ▭
AC - MTZ2/3 actuator for 6 CE - 3 CD - 0 CT additional carriage switches			qty ▭

Remote operation

Remote ON/OFF	**MCH -** gear motor		**V** ▭
	XF - closing voltage release		**V** ▭
	MX - opening voltage release		**V** ▭
	PF - "ready to close" contact	Low level	☐
		6 A-240 V AC	☐
	BPFE - electrical closing pushbutton		☐
	Res - electrical reset option		**V** ▭
	RAR - automatic reset option		☐
Remote tripping	**MN** - undervoltage release		**V** ▭
	R - delay unit (non-adjustable)		☐
	Rr - adjustable delay unit		☐
	2ème MX - shunt release		**V** ▭

Locking

VBP - ON/OFF pushbutton locking (by transparent cover + padlocks)				☐
OFF position locking:				
VCPO - by padlocks				☐
VSPO - by keylocks	Keylock kit (w/o keylock)	Profalux ☐	Ronis	☐
		Kirk ☐	Castell	☐
	1 keylock	Profalux ☐	Ronis	☐
	2 identical keylocks, 1 key	Profalux ☐	Ronis	☐
	2 keylocks (MTZ2/3)	Profalux ☐	Ronis	☐
Chassis locking in "disconnected" position:				
VSPD - by keylocks	Keylock kit (w/o keylock)	Profalux ☐	Ronis	☐
		Kirk ☐	Castell	☐
	1 keylock	Profalux ☐	Ronis	☐
	2 identical keylocks, 1 key	Profalux ☐	Ronis	☐
	2 keylocks, different keys	Profalux ☐	Ronis	☐
	Optional connected/disconnected/test position locking			☐
VPEC - door interlock		On right-hand side of chassis		☐
		On left-hand side of chassis		☐
VPOC - racking interlock				☐
IPA - cable-type door interlock				☐
IBPO - racking interlock between crank and OFF pushbutton for MTZ2/3				☐
DAE - automatic spring discharge before breaker removal for MTZ2/3				☐
VDC - mismatch protection				☐

Accessories

CDM - mechanical operation counter	☐
CB - auxiliary terminal shield for chassis	☐
CDP - escutcheon	☐
CP - transparent cover for escutcheon	☐
OP - blanking plate for escutcheon	☐
Brackets for mounting MTZ2/3 fixed — On backplates	☐

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Notes

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