

PacT Series TransferPacT

Catalog 2022
Transfer Switching Equipment
Source-changeover systems





Green Premium™

An industry leading portfolio of offers delivering sustainable value



More than 75% of our product sales offer superior transparency on the material content, regulatory information and environmental impact of our products:

- RoHS compliance
- REACH substance information
- Industry leading # of PEP's*
- Circularity instructions

The Green Premium program stands for our commitment to deliver customer valued sustainable performance. It has been upgraded with recognized environmental claims and extended to cover all offers including Products, Services and Solutions.

CO₂ and P&L impact through... Resource Performance

Green Premium brings improved resource efficiency throughout an asset's lifecycle. This includes efficient use of energy and natural resources, along with the minimization of CO₂ emissions.

Cost of ownership optimization through... Circular Performance

We're helping our customers optimize the total cost of ownership of their assets. To do this, we provide IoT-enabled solutions, as well as upgrade, repair, retrofit, and remanufacture services.

Peace of mind through... Well-being Performance

Green Premium products are RoHS and REACH compliant. We're going beyond regulatory compliance with step-by-step substitution of certain materials and substances from our products.

Improved sales through... Differentiation

Green Premium delivers strong value propositions through third-party labels and services. By collaborating with third-party organizations we can support our customers in meeting their sustainability goals such as green building certifications.



Discover what we
mean by green
Check your products!

*PEP: Product Environmental Profile (i.e. Environmental Product Declaration)



A transfer switching equipment
is indispensable:

For critical applications
in particular
For all others
in general



A transfer switching equipment is indispensable for applications that need a continuous supply of electric power (hospitals, airports, banks, government facilities, etc.).

But A transfer switching equipment 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**

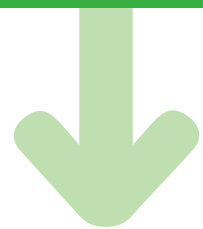


> **Frequent power cuts.**

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.

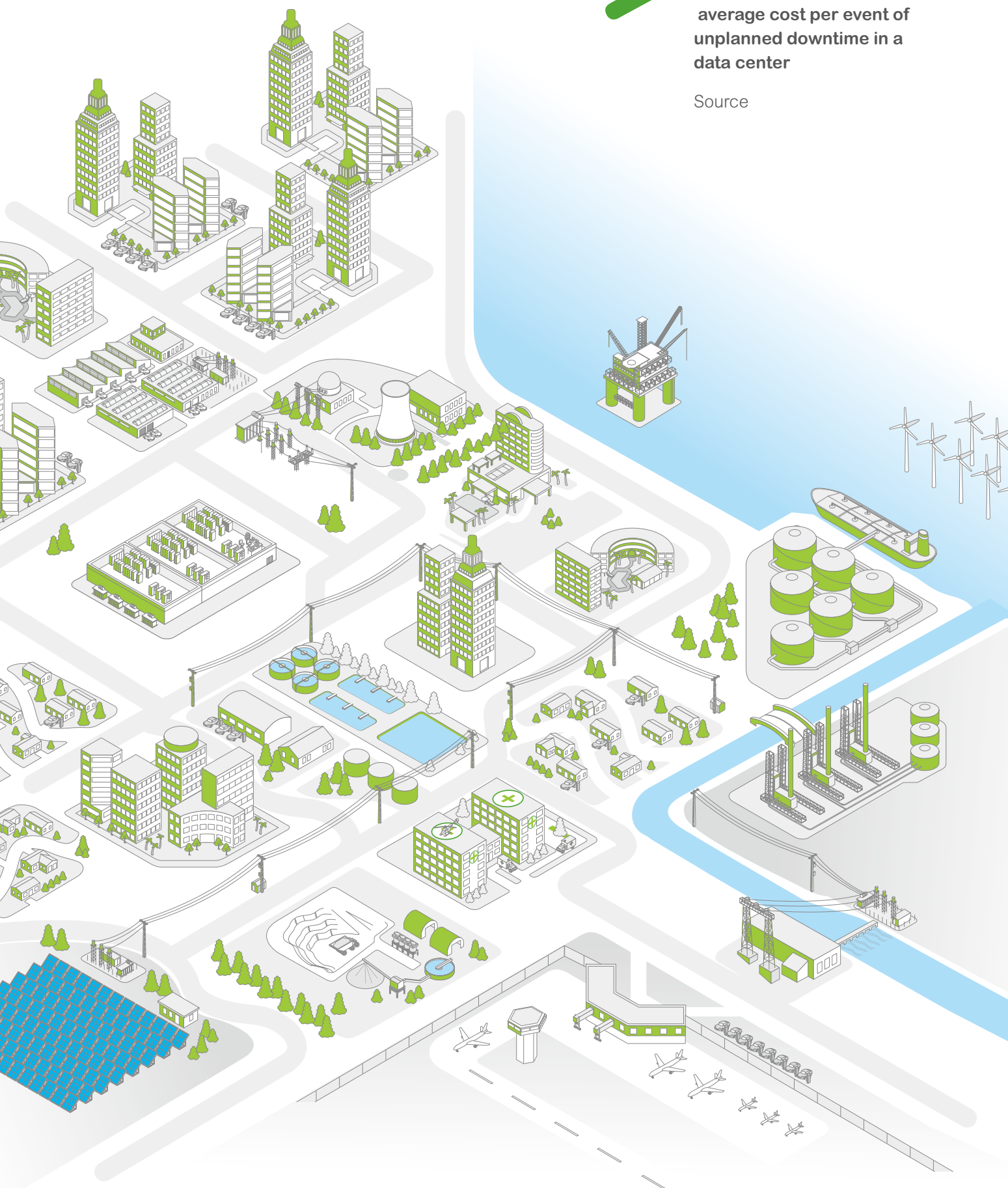




\$740 000

average cost per event of
unplanned downtime in a
data center

Source



3 ways to switch the load to meet your needs



①

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

Derived ATSE: 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).

Non-derived ATSE: A specific designed ATSE with a specific controller for it. A mechanical interlocking system is standard for product which protects against electrical malfunctions or incorrect manual operations.



②

Manual source-changeover system

(or MTSE: Manual Transfer Switching Equipment)

A very simple 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.



③

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.



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.



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.).



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.

Maximized 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.

Maximized 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**.

Other information

TransferPacT Automatic



> LVPED216028EN

ComPacT NSXm - NSX



> LVPED217032EN

ComPacT INS/INV



> LVPED213024EN

ComPacT NS



> LVPED211021EN

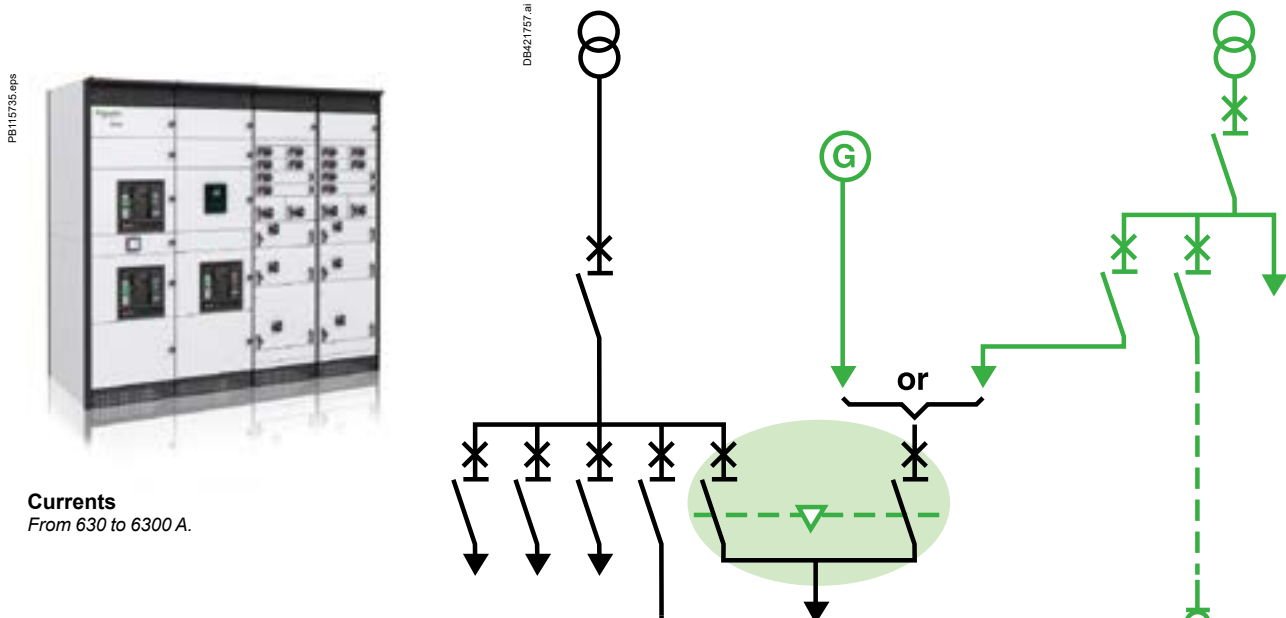
MasterPacT MTZ



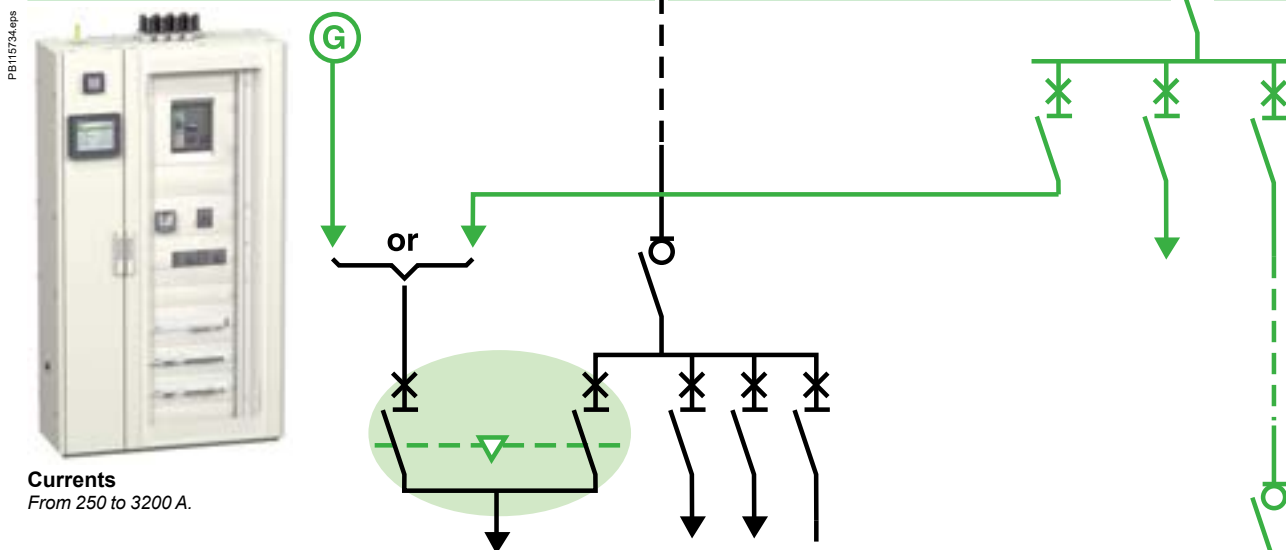
> LVPED216026EN

For maximum continuity of service...

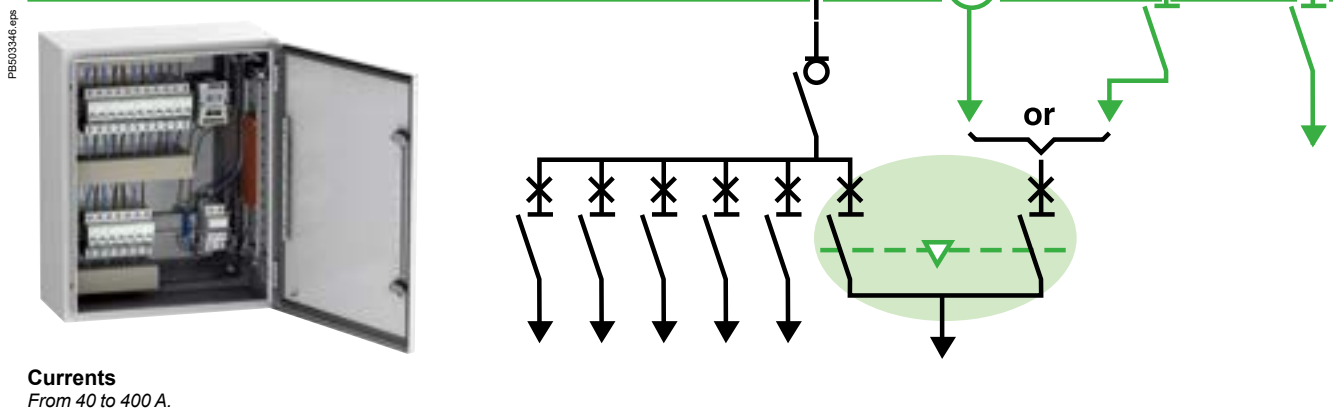
Incoming feeders and main LV switchboards



Power distribution

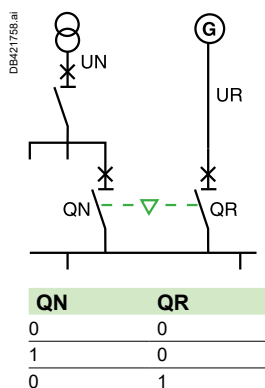


Loads

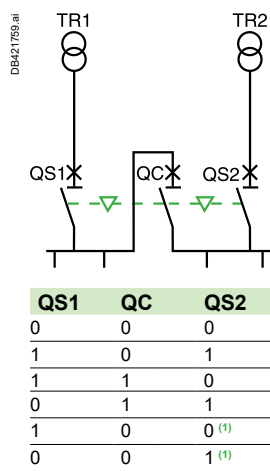


... in a wide range of applications

1 normal source
1 replacement source

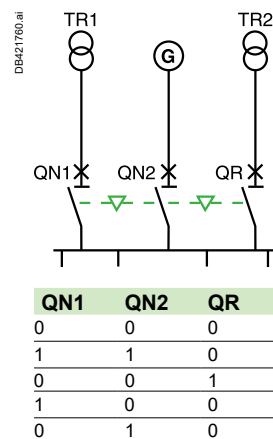


2 sources with coupler on busbars

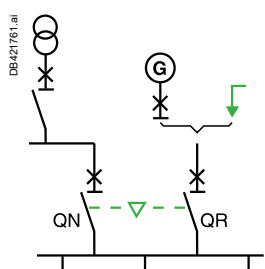


(1) possible by forcing operation.

2 normal sources
1 replacement source



Generator or permanent source

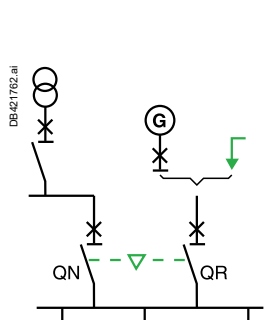


QN	QR
0	0
1	0
0	1

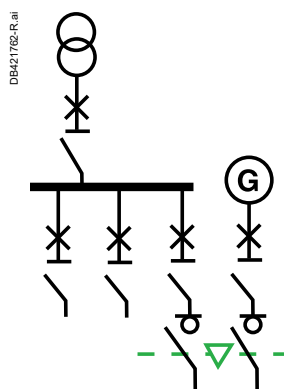
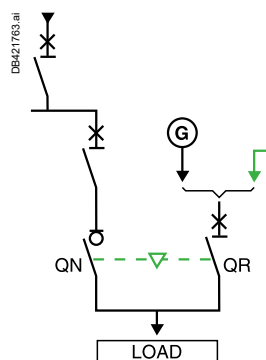
Typical applications:

- Continuous production processes
- Most distribution panels in hospitals, including 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
- Safety system such as fire alarm, fire pump, safety lifting stations

General Contents

General Contents

Transfer**PacT**

Transfer**PacT** Automatic and Active Automatic

(Automatic Transfer Switching Equipment)

A

Transfer**PacT** FXM

(MTSE/complete source changeover assembly)

B

Transfer**PacT**: Com**PacT** and Master**PacT** based

(Manual, Remote and Automatic TSE/source changeover systems)

C

TransferPacT Automatic and Active Automatic

TransferPacT Class PC	A-2
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A

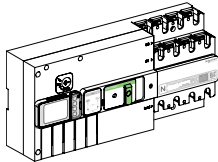
TransferPacT Class PC

A

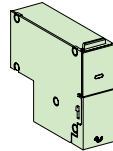
ATSE: Automatic Transfer Switching Equipment

(Non-derived ATSE, PC Type)

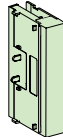
ATSE



Function Modules



Indication Auxiliaires



External HMI



Cable



Definition of Class PC

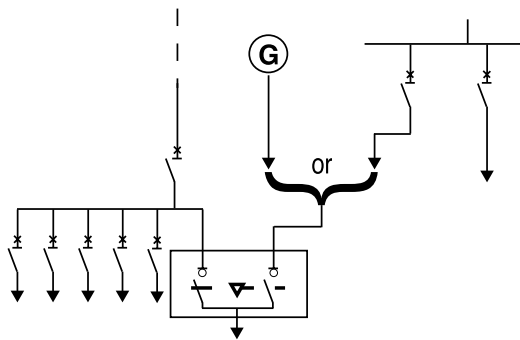
Transfer switch equipment based on mechanical switching devices, that do not need electrical power to hold the main contacts open or closed and capable of making, carrying, and breaking currents under normal circuit conditions including operating overload conditions, and making and withstanding short-circuit currents.

Definition of ATSE(Automatic Transfer Switching Equipment)

Self-acting transfer switching equipment, including all necessary sensing inputs, monitoring, and control logic for transferring operations

TransferPacT automatic transfer switching equipment is a Class PC ATSE specially designed in accordance with IEC 60947-6-1 requirements for power transfer. It has great withstand capabilities to short circuits and reliable making, carrying and breaking capabilities. Thus keeping reliable connectivity of circuits.

It is an all in one, Non-derived ATSE.



TransferPacT Class PC

TransferPacT is a high speed, comPacT, modular design intelligent automatic transfer switch that provide maximum scalability and robust performance. It is a PC class ATSE designed according to IEC 60947-6-1, available through 32A to 160A, 2,3,4 pole with rated operating voltage through 220V to 440V.

A



Power availability

Maximized uptime:

Innovative technology ensuring transfer in less than 500 ms.

Vast application:

Utilization category AC-33B without derating, fits the most complicated load types.

Reliable under extreme condition:

Short circuit capabilities including short time withstand current for your power continuity.

Robust design – Extreme Environment Proof:

- Best-in-class electromagnetic protection, Exceeding industry standards on class B.
- Designed to perform in harsh environments with operating temperature -25...70 °C
- Successfully passed testing in compliance with IEC 60068-2-6 and IEC 60068-2-27.



Efficiency

Easy installation:

- Built-in DPS and sensing wire, 30% commissioning time saving.
- Multiple installation adapted. E.g. DIN rail.

Enhanced scalability:

- 10 function modules plug and play, non-disruption upgrading.



Connectivity

Natively connected – Integrated in EcoStruxure™ Power

- 24/7 Precise power monitoring on voltage, frequency, voltage unbalance, phase rotation.
- Predictive maintenance with hands-on approach and cloud-based monitoring software that synthesizes and analyzes performance and alert data into proactive recommendations. TransferPacT enables wherever-you-go visibility.



Cyber security

Designed according to cyber security standard IEC 62443 at the level of SL1.

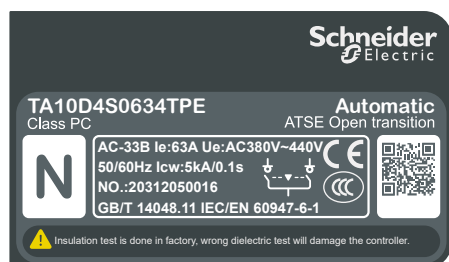
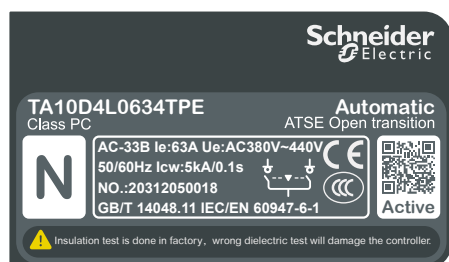


Sustainability

Green premium ecolabel.

- Green Package for full product range.
- Saving trees - Scan QR code for full version for technical documents.

General features



Codes and standard

- IEC 60947-1 General rules
- IEC 60947-6-1 Transfer switching equipment
- GB 14048.1 General rules
- GB/T 14048.11 Transfer switching equipment

Certifications and declarations

- CB certification
- CE certification
- CCC certification
- UKCA declaration
- EAC declaration

Environmental conditions

- TransferPacT ATSE can operate in an ambient temperature of $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- The altitude of the installation site shall not exceed 2000 m
- When the highest temperature is $+55^{\circ}\text{C}$, the relative humidity in air shall not exceed 95%
- Storage temperature: $-35^{\circ}\text{C} \sim +85^{\circ}\text{C}$

Vibration and Shock

- Tests are carried out in compliance with IEC 60068-2-6 and IEC 60068-2-27

Electromagnetic compatibility (EMC)

- EMC Class A
- EMI Class B
- Electrostatic discharge Level 4
- Radio-frequency electromagnetic field Level 3
- Fast transient bursts Level 4
- Surges Level 4
- Harmonic wave Level 3
- Voltage dips and short-time interruptions Level 3

Degree of Pollution

- Pollution degree 3 as defined by IEC standard 60947

General features

A

General features



TransferPacT Active Automatic



TransferPacT Automatic

TransferPacT Automatic /TransferPacT Active Automatic

Frame

Conventional Thermal Current	I _{th}	at 60 °C
Rated operating current (A)	I _e	AC-33B AC-32B

Number of poles

Operating positions

Control types

Electrical characteristics as defined by IEC 60947-1 / 60947-6-1 and EN 60947-1 / 60947-6-1

Rated insulation voltage (V)	U _i	
Rated impulse withstand voltage (kV)	U _{imp}	
Rated operating voltage (V)	U _e	AC50/60 Hz
Rated operating frequency (Hz)	F	
Rated short-time withstand current (kA/60 ms)	I _{cw}	
Rated short-circuit making capacity (400 V, 50 Hz)	I _{cm}	switch alone with upstream circuit breaker
Rated duties		Uninterrupted duty
Contact Transfer Time* (I -> II or II -> I)		
I -> II or II -> I transfer time*, after power loss		

Mechanical durability

Suitability for Isolation

Installation and connection- Fixed, front connection

Installation

Wiring

Switch Accessories

Position feedback(Auxiliary contact)

Terminal cover

Rail buckle

Terminal Shield

Load extension bars

Interphase barrier

Tightening torque for electrical connections (Nm)

Degree of pollution

Upstream protection	Refer to Complementary technical information
---------------------	--

Dimensions and weights

	2pole
Overall dimensions	
H x W x D (mm)	3pole 4pole 2pole
Approximate weight (kg)	3pole 4pole

Note:

■ Standard □ Optional

(1) default 230 V/400 V

* : Transfer times are at rated voltage, excluding time delays when applicable

** : suitable for normal and upside down installation

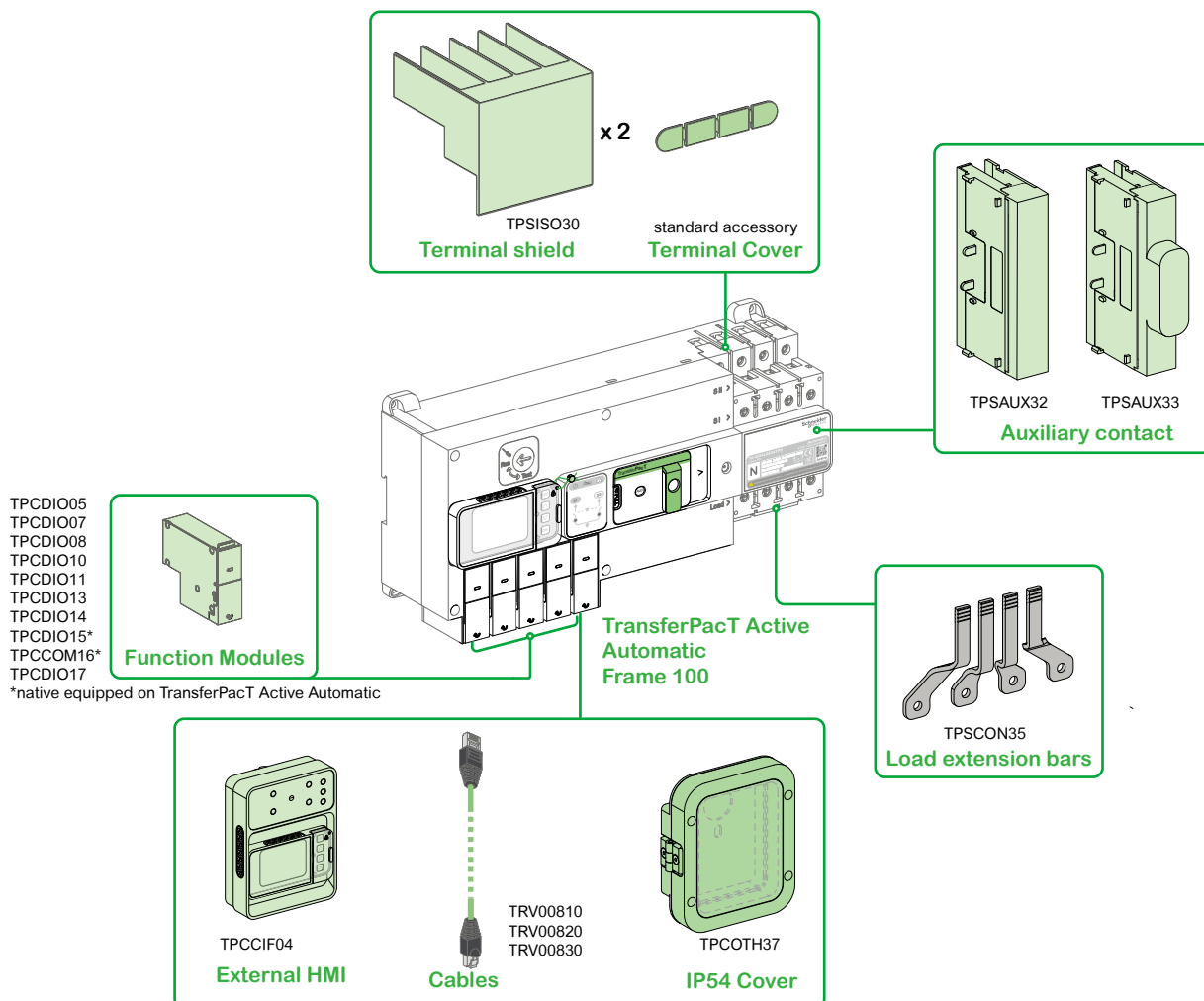
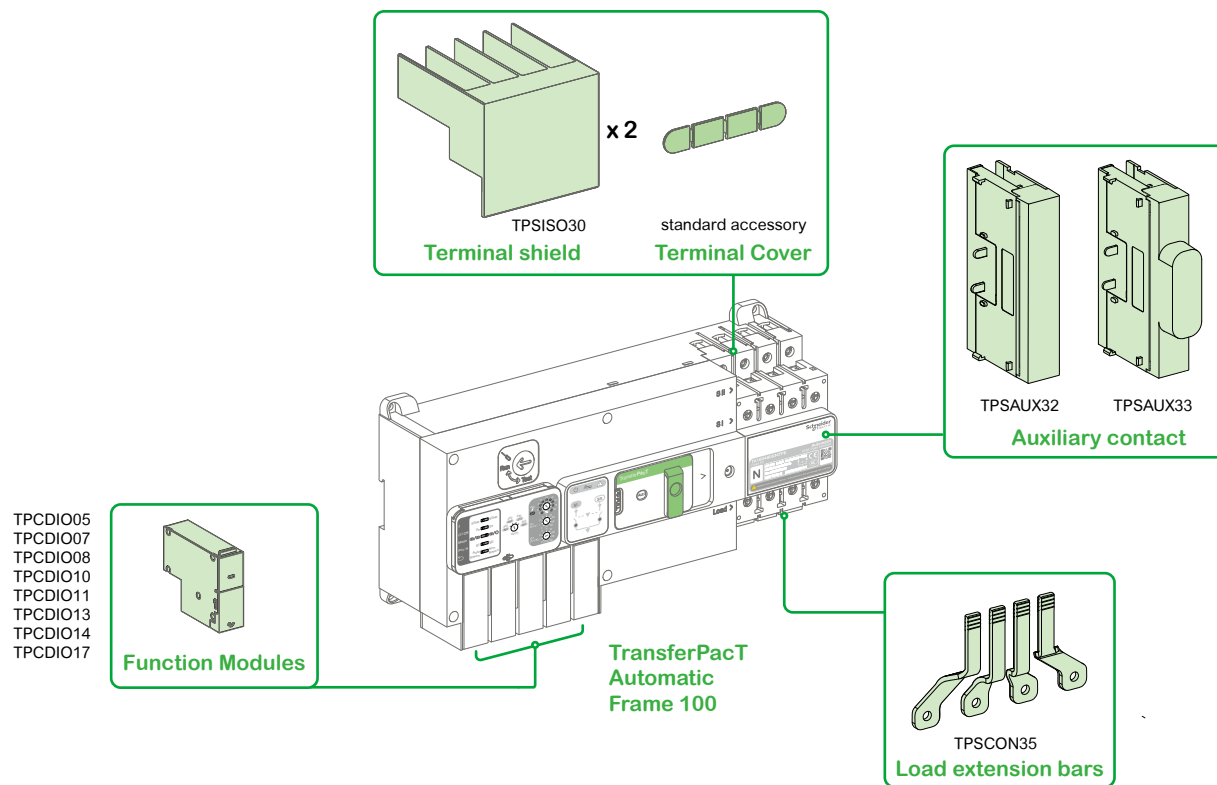
For the upstream protection coordination with transfer switching equipment, refer to coordination tables in page A55-A59 or complementary technical guide

General features

A

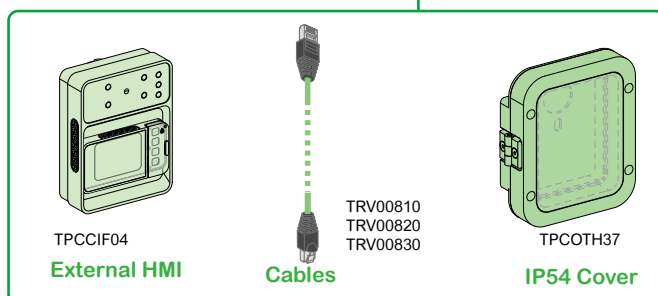
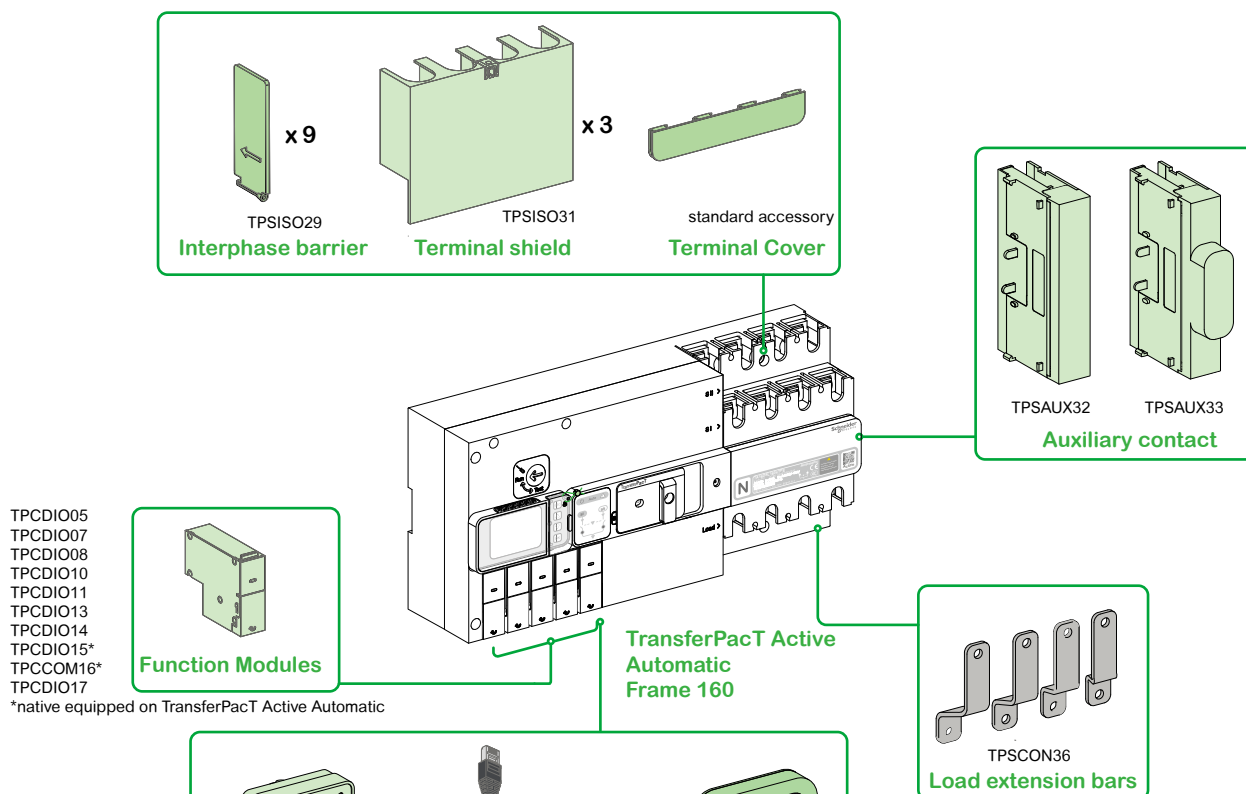
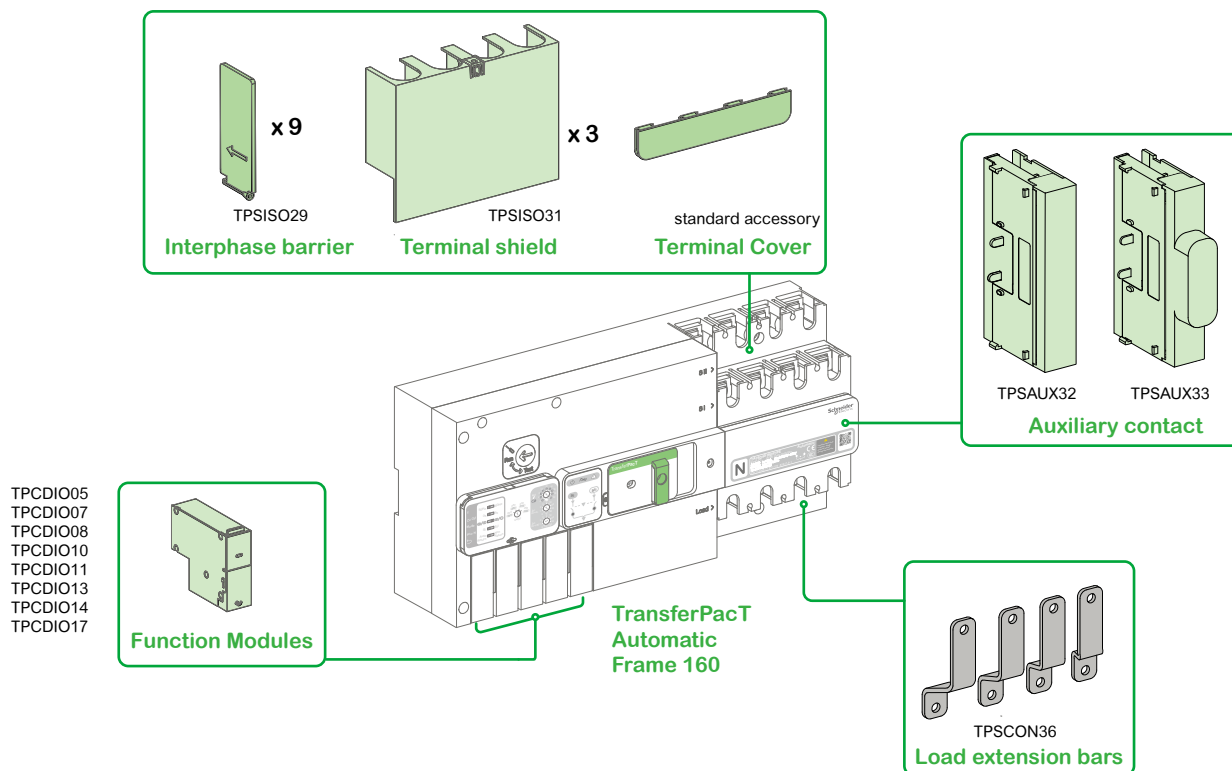
		TA10D	TA16D
		100	160
		100	160
		32,40,50,63	80,100,125,160
		80,100	
		2/3/4	3/4
		3	3
		Active Automatic HMI/ Automatic HMI	Active Automatic HMI/ Automatic HMI
		TA10D	TA16D
		800	800
		6	8
		2P:220/230/240/250 V ⁽¹⁾ 3P,4P:380/400/415/440 V ⁽¹⁾	3P,4P:380/400/415/440 V ⁽¹⁾
		50/60 Hz	50/60 Hz
		5kA/0.1 s	10kA/0.1 s
		15 kA	20 kA
		75 kA	154 kA
		■	■
		≤ 200 ms	≤ 200 ms
		≤ 500 ms	≤ 500 ms
		8,000	10,000
		■	■
		TA10D	TA16D
		Rail/base plate**	Rail/base plate**
		busbar /Cable	Busbar/crimp lug
		TA10D	TA16D
		□	□
		■	■
		■	■
		□	□
		□	□
		-	□
		3.5±0.3 N•m 30.97±2.65 lb-in	8±0.8 N•m 70.8±7.08 lb-in
		3	3
		155 x 310 x 94	
		155 x 310 x 94	164 x 351 x 95
		155 x 310 x 94	164 x 351 x 95
		3.4	-
		3.4	5.6
		3.4	5.6

Electrical and mechanical accessories



Electrical and mechanical accessories

A



Electrical and mechanical accessories



Auxiliary contact module

- TPSAUX32: Provide the open and closed status indication for both source I and source II.
- TPSAUX33: Provide the open and closed status indication for OFF position.

Terminal Shield

Optional accessory, Provide terminal protection on the cable incoming and output.

- TPSISO30: Terminal Shield for frame 100 (32-100 A) (set of 2)
- TPSISO31: Terminal Shield for frame 160 (80-160 A) (set of 3)

Interphase barrier

Optional accessory, Provide protection for the cable incoming and output, effectively avoiding short circuits between phases.

- TPSISO29: Interphase barrier for frame 160 (80-160 A) (set of 9)

Load extension bars

Optional accessory, Provide simple connection for the load side terminals.

- TPSCON35: extension for frame 100 (32-100 A) (set of 4)
- TPSCON36: extension for frame 160 (80-160 A) (set of 4)

External HMI

- Door mounted HMI provide exact same function as TransferPacT active automatic HMI Including status display, settings, event log, control transfer switch. It consists of an install base and LCD display. TPCCIF04

IP54 Cover

- Optional accessory, Protective cover for external HMI for outdoor installations. TPCOTH37.

HMI Cable

Used to connect the TSE and external HMI. 2*RJ45 port.

- TRV00810: cable length is 1m
- TRV00820: cable length is 2m
- TRV00830: cable length is 3m

Electrical and mechanical accessories

A

Load shedding and availability warning

Function:

Load shedding

- The emergency power (Genset) sometimes may not afford all loads. A signal from controller will shed some non-critical loads
- Load shedding will send the signal after enabling this function

Availability warning output

- When transfer switch is not in auto or power lost on two sources, a dry contact will output the signal
- After back to Auto status or power recovery, the signal will be stopped

Compatibility: Active Automatic and Automatic

Rating: 250 VAC, 5 A or 30 VDC, 5 A

Digital output



Transfer inhibit and Remote testing

Function:

Transfer inhibit

- Transfer Inhibit when there is power interruption because of short circuit
- This function can be used to lock the controller by customized signals
- This function can be used for cooperation with different ATSE
- Remove transfer inhibit signal to Exit this mode

Remote testing

- Remote testing is an input signal to start test procedure.
- The remote test can only be started at Auto mode
- For Active Automatic HMI, on load, off load test and time duration can be selected.
- For Automatic HMI, on load test is unlimited.

Compatibility: Active Automatic and Automatic

Dry Contact

Digital input



Voluntary Remote control

Function:

Voluntary transfer to N or A

- Voluntary transfer is an active input. It can transfer the ATSE to Normal or Alternate source according to requirements (such as energy saving)
- Voluntary transfer will still keep the power continuity as much as possible. The function will be bypassed if target source loses the power. For example, after voluntary to A while A source failed, ATSE will transfer back to N if N is available
- Exit voluntary mode after signal disappeared

Force to Off

- An emergency stop order to transfer ATSE to off position. All the other transfer mode will be canceled except handle control
- Exit Force after signal disappeared

Compatibility: Active Automatic and Automatic

Dry Contact

Digital input



Electrical and mechanical accessories



Fire protection

Function:

The fire protection signal can transfer ATSE to off position when there is fire emergency and protect power continuity for critical loads.

- Fire protection with input of DC24V pulse signal. Input Voltage: 24 VDC (-20% ~ +20%), Maximum Input Current: 10 mA
- Fire protection with input of DC24 V Constant signal. Input Voltage: 24 VDC (-20% ~ +20%), Maximum Input Current: 10mA
- Fire protection with input of AC230 V Constant. Input Voltage: 230 VAC (-20% ~ +20%), 50 Hz/60 Hz Maximum Input Current: 10 mA
- Fire protection with 1 input, dry contact

Compatibility: Active Automatic and Automatic
Digital input

BUS Extension and 24 VDC Auxiliary Supply

Function:

BUS extension

- Can be used to connect external HMI

DC 24V Auxiliary Supply

- External power for controller when both source failure
- External power to keep power for Modbus communication when both source failure

Compatibility: Active Automatic
Rating: Input Voltage: 24 VDC (-20% ~ +20%), Maximum Input Current: 1 A

Modbus RTU (Serial Port)

Function:

Modbus

- Can be used to connect with other system
- Require External 24 V or at least one main source to keep communication
- With Protocol Modbus RTU communication

Compatibility: Active Automatic

Genset Start and Alarm

Function:

Genset start output

- When utility source is lost, a dry contact will start Genset. No matter with or without external 24 V, a time delay (T7) before genset start can be set
- When Utility source has recovered, and ATSE has transferred back to Utility, Genset signal will remain until end of Genset cooldown timer

Alarm

- When there is critical alarm, a dry contact will output the signal
- Restart controller (open and close dielectric door) to shut down the Alarm

Compatibility: Active Automatic and Automatic
Rating: 250 VAC, 5 A or 30 VDC, 5 A
Digital output

Controller general features

TransferPacT provide advanced microprocessor controller with two options: Active automatic HMI (LCD display and keypad) and automatic HMI (Rotary and DIP switch). It is a robust and reliable controller which offers all of the voltage, frequency, control, timing and diagnostic functions required for wide range of power applications. Automatic HMI is easy to install and use, while active automatic HMI contains every function needed with 8 control modes.

There are two key breakthroughs for TransferPacT controller:

- Active automatic HMI and automatic HMI can be swapped, that means an easy way to upgrade your controller, or replace it for maintenance or renewal.
- 10 types of function modules can be installed on TransferPacT controller, at any time, which provide maximum scalability and a reduced Total Cost of Ownership, since you can add a function as demand grows.

Controller type		Active Automatic with LCD display	Automatic with setting by rotary switch
Installation		Embedded controller	Embedded controller
Controller Functional Characteristics			
2P		230 V: can be set at 220 V/240 V/250 V	230 V: can be set at 220 V/240 V/250 V
3P/4P		400 V: Can be set at 380 V/415 V/440 V	400 V: Can be set at 380 V/415 V/440 V
Rated operating frequency (Hz)		50/60	50/60
Rated insulation voltage (V)		500	500
Impulse withstand voltage (KV)		6 kV	6 kV
Operating temperature		-25 °C to +70 °C	-25 °C to +70 °C
Operating altitude		≤2000 m	≤2000 m
Protection degree		IP20	IP20
Pollution degree		3	3
Accuracy (for power deviation)	Voltage	1%	1%
	Frequency	0.1%	0.1%
Electrostatic discharge		Level 4	Level 4*
Radio-frequency electromagnetic field		Level 3	Level 3
Fast transient bursts		Level 4	Level 4
Surges		Level 4	Level 4
Harmonic wave		Class 3	Class 3
Voltage dips and short-time interruptions		Level 3	Level 3
Vibration		IEC 60068-2-6	IEC 60068-2-6
Shock		IEC 60068-2-27	IEC 60068-2-27
Display of Controller			
Display mode		LCD + LED + Indicator	Rotary switch + DIP switch + LED + Indicator
Single line diagram		■	■
Language		English/Chinese/French/Russian/Spanish/Italian/German/Portuguese	Not Applicable
Power status		■	■
Position for contact (electrical indication)		■	■
Set value		Button	Rotary switch + DIP switch
Controll Mode			
Auto	Auto return	■	■
	Non return	■	■
Non-Auto	Handle	■	■
	Force	□	□
	Fire	□	□
	Inhibit	□	□
	Local	■	-
	Voluntary	□	□
	Test	■	□

Note: ■ Standard □ Optional
* plastic cover need to close

Electrical and mechanical accessories

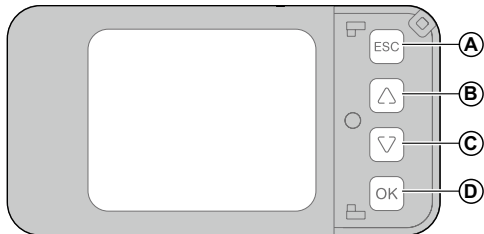
Controller type		Active Automatic with LCD display	Automatic with setting by rotary switch
Auto Control			
Sampling		Three Phase for both Normal and Alternate	Three Phase for both Normal and Alternate
Voltage loss		< 36 V	< 36 V
Phase loss		L1, L2, L3	L1, L2, L3
Under voltage	Set value	70% to 95%	4%, 6%, 8%, 10%, 12%, 14%, 16%, 18%, 20%
Over voltage	Set value	105% to 135%	4%, 6%, 8%, 10%, 12%, 14%, 16%, 18%, 20%
Under frequency	Set value	80% to 98%	2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%
Over frequency	Set value	101% to 120%	2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%
Unbalance of three phase voltage		2% to 30%	-
Phase rotation		Yes	-
Time Delay			
Transfer delay		0-30 minutes	U-U:0, 1, 2, 3, 5, 10, 20, 30, 60 s. U-G:5 s
Retransfer delay		0-60 minutes	0, 1, 2, 3, 5, 10, 20, 30, 60 min
Center off delay		0-30 s	0 or 5 s
Genset start delay		0-120 s	0, 1, 2, 3, 5, 10, 20, 30, 60 s
Genset cooldown delay		0-60 minutes	-
Loadshedding delay		0-15 s	-
Genset ready alarm delay		15-300 s	300 s
Test delay:on load		1-1800 s	
Test delay:off load		1-1800 s	
Other Functions			
Calendar time		■	-
Position feedback (mechanical)		□	□
Event log		■	-
Source priority		■	■
Communication		Modbus RTU	-
Transfer Inhibit		□	□
Password protection		■	-
Gen start-stop		□	□
Test		■	□
Load shedding		□	□
Fire protection		□	□
Failure lock		■	■
Alarm Indication		■	■
External power supply port (auxiliary supply)		■	-
Wrong connection of neutral alarm		■	-

Note: ■ Standard □ Optional

Controller general features

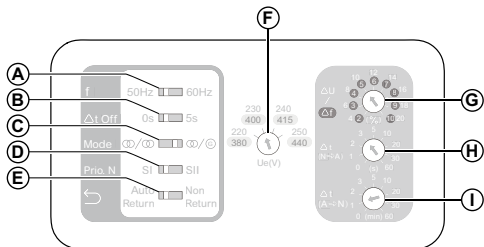
Active Automatic HMI (With LCD Display) Description

A



Label	Description
A	Navigation button to return to previous page
B	Navigation button of rolling up
C	Navigation button of rolling down
D	OK button to confirm any status

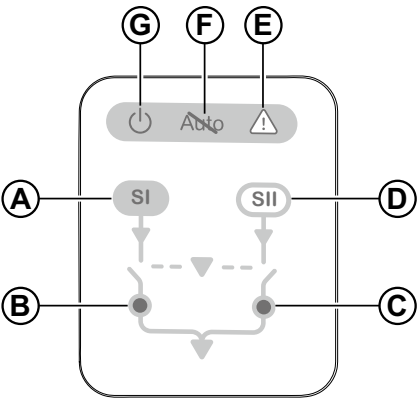
Automatic HMI (With Rotary Switch) Description



Label	Description
A	Rated frequency
B	Time delay for off position
C	"Type of source = Utility/Utility = Utility/Genset"
D	Source priority
E	Transition mode for return to normal position
F	Nominal voltage
G	Voltage and frequency thresholds setting
H	Transfer time delay in seconds from normal source to alternate source
I	Transfer time delay in minutes from alternate source to normal source

Controller general features

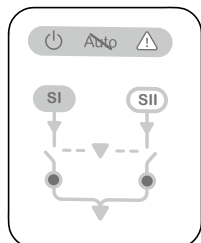
Single Line Diagram Description



Label	Description
A	Source I power status indicator
B	Contact position of source I
C	Contact position of source II
D	Source II power status indicator
E	Alarm indicator
F	"Not in Auto" status indicator
G	Power ON indicator

Controller general features

Single Line Diagram LEDs



LED indication	Status	Description
	-----	No energy, ATSE power off
		ATSE updating in process or in Test mode in progress
		ATSE is running in normal operation, ready to transfer
	-----	The ATSE is running in Auto mode
		ATSE is "Not in Automatic" mode, and will not automatically transfer in case of source failure.
	-----	No alarm
		Alarm is active
SI	-----	No Source I
		Source I out of range
		Source I present and in the range
SII	-----	No Source II
		Source II out of range
		Source II present and in the range
	-----	Source I is opened (Not connected)
		Time delay is running for transferring
		Source II is opened (Not connected)
	-----	Source II is opened (Not connected)
		Time delay is running for transferring
		Source II is closed (Connected)

NOTE: The LED indicator on the equipment and the external HMI is for reference. In the event of a contradiction between the LED and the mechanical indication, the latter prevail.

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Control Mode

Over view

The control mode is used to operate TSE in different applications. The TransferPacT Active automatic contains every function needed with eight control modes:

- Auto mode
- Test mode
- Voluntary transfer mode
- Local control mode
- Transfer inhibit mode
- Fire protection mode
- Force to off mode
- Handle transfer mode

The TransferPacT Automatic contains below control modes:

- Auto mode
- Test mode
- Voluntary transfer mode
- Transfer inhibit mode
- Fire protection mode
- Force to off mode
- Handle transfer mode

Priority of Control Mode

Type of mode	Handle	Force	Fire	Inhibit	Local	Voluntary	Test	Auto
Handle Transfer mode	-	I	I	I	I	I	I	I
Force to OFF mode	x	-	I	I	I	I	I	I
Fire Protection mode	x	x	-	I	I	I	I	I
Transfer Inhibit mode	x	x	x	-	I	I	I	I
Local Control mode	x	x	x	x	-	I	I	I
Voluntary Transfer mode	x	x	x	x	x	-	I	I
Test mode	x	x	x	x	x	x	-	I
Auto mode	x	x	x	x	x	x	x	-

"-" = No caution

"I" = Interrupt

X = Ignore

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Auto Mode

A

ATSE works on auto control mode normally. The controller monitors the real time values of both the sources. When there is source contingency, the transfer action will be energized to keep the power continuity for critical source.

Auto mode supports U-G or U-U applications.

NOTE: Auto transfer will not be active, if transfer action damages driving system (for example, both are out of range, TSE refuses to transfer).

There are two types of auto control mode:

- Auto-return
- Non-return

Naming	Condition for stay on A situation return	
power source definition	N available	N available
	A available	A unavailable
Auto-return	Switch to N	Switch to N
Non-return	Stay at A	Switch to N

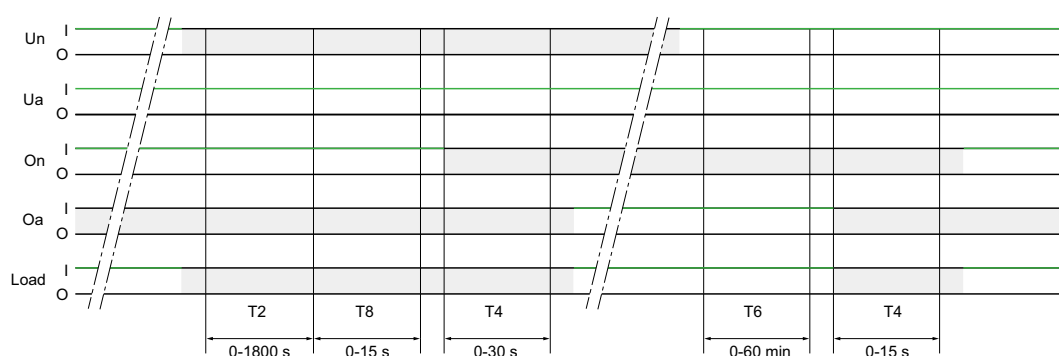
Auto return

The Auto return has two modes as below:

- When the voltage on the N source exceeds the threshold (overvoltage, undervoltage, over frequency, under frequency) or does not exist, the ATSE will be transferred to the A source.
- When the voltage on the N source is within the threshold range, the ATSE will be transferred to N source.

The process of transfer can be controlled by time delay.

Transfer Process for Auto return U-U Application



Symbols	Description
Un	Source I
Ua	Source II
On	Contact close at N source
Oa	Contact close at A source
Load	status
T2	Transfer delay
T8	Loadshed Delay
T4	Center-off Delay

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Symbols	Description
T6	Re-Transfer Delay

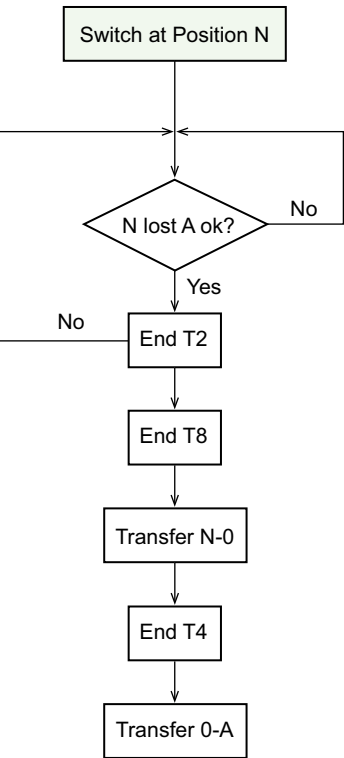
Key

O: OFF (circuit open)

I: ON (circuit closed)

 : no Power

Transfer Logic for Auto return U-U Application

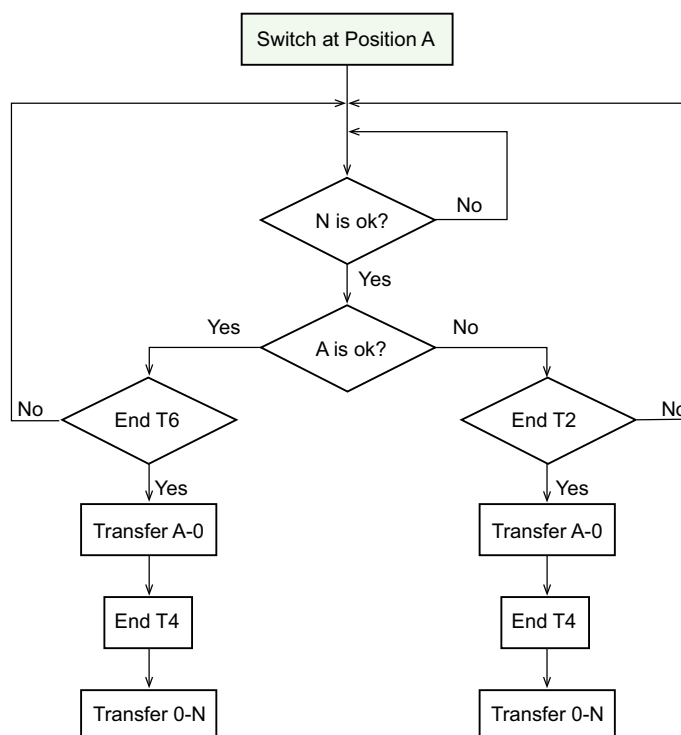


Transfer Logic

* T2 will reset if N becomes unavailable or A becomes unavailable

Control Mode and Transfer Logic

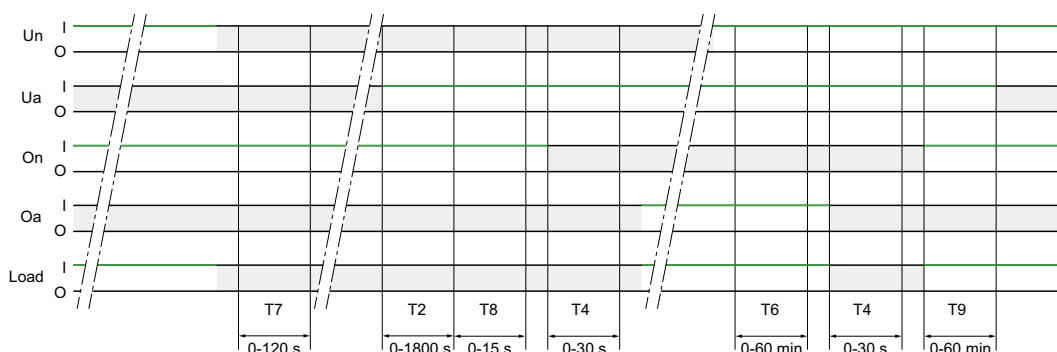
Transfer Switching Equipment 32–160 A



Retransfer Logic

- T2 will reset if N becomes unavailable
- T6 will reset if N becomes unavailable
- During T6, if A is not available it will keep to count T6 if the rest time of T6 is shorter than T2. Otherwise it goes to T2

Retransfer principles: when source A ok, retransfer goes to T6, when source A not ok and source A is utility, retransfer goes to T2. If source A is Genset and not ok, retransfer delay is 0.



Symbols	Description
Un	Source I
Ua	Source II
On	Contact close at N source
Oa	Contact close at A source
Load	status
T7	Genset Start Delay
T2	Transfer delay
T8	Loadshed Delay
T4	Center-off Delay
T6	Re-Transfer Delay

Control Mode and Transfer Logic

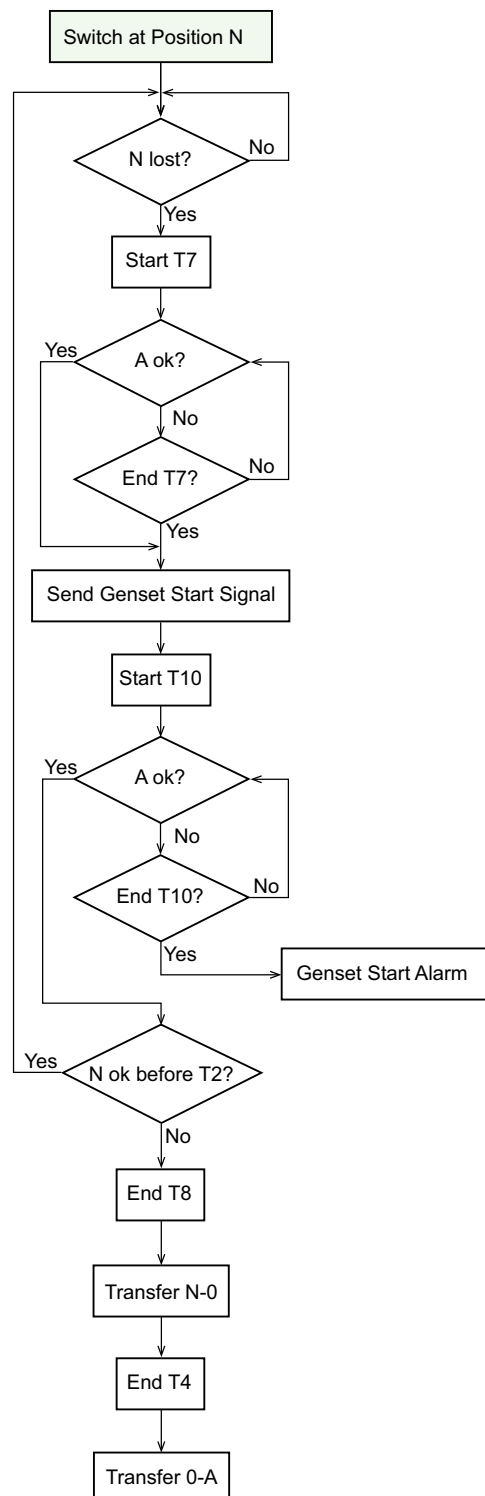
Transfer Switching Equipment 32–160 A

Symbols	Description
T9	Genset Cool Delay
Key	
O: OFF (circuit open)	
I: ON (circuit closed)	
 : No Power	

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Transfer Logic for U-G Application



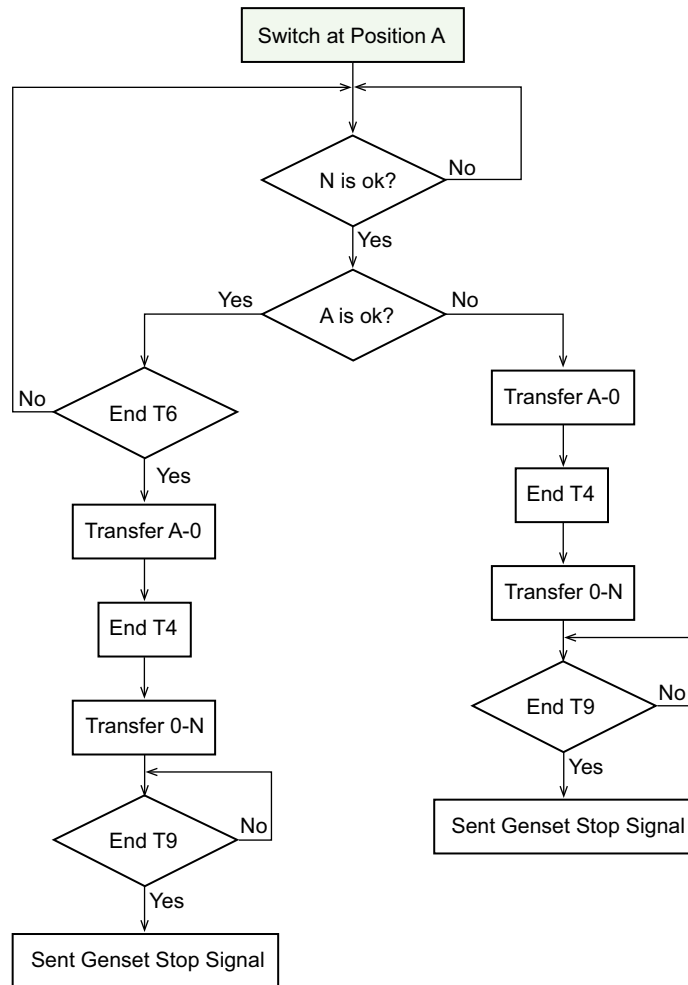
Transfer Logic

- T2 will reset if N becomes unavailable
- If disable Genset Start Fail Warning, T10 will not be counted
- The whole transfer will be canceled if N becomes available during T7

A

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A



Retransfer Logic

- T2 will reset if N becomes unavailable
- T6 will reset if N becomes unavailable
- During T6, if A is not available it will keep to count T6 if the rest time of T6 is shorter than T2. Other wise it goes to T2

Control Mode and Transfer Logic

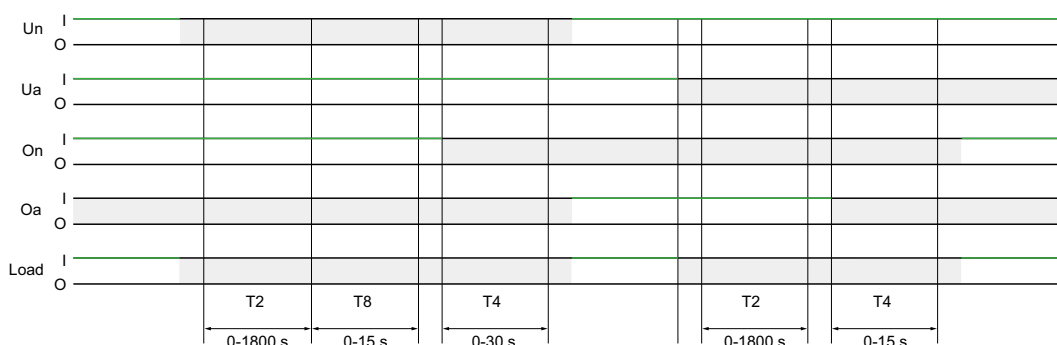
Transfer Switching Equipment 32–160 A

Non-return

In the non-return mode, after auto transfer to replacement, the ATSE will be connected to the alternate source until:

- An external order is given to transfer back to N source.
- The alternate source is out of range. In such case, the ATSE controller will transfer back to the N source to maintain power availability.

There will be only one time power off, when there is normal power outage.

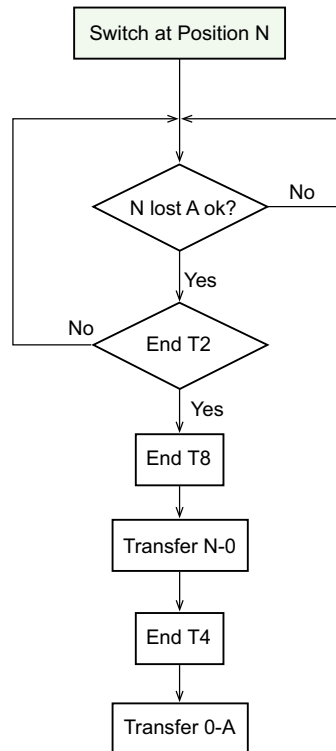


Symbols	Description
Un	Source I
Ua	Source II
On	contact close at N source
Oa	contact close at A source
Load	status
T2	Transfer delay
T8	Loadshed Delay
T4	Center-off Delay
Key	
O: OFF (circuit open)	
I: ON (circuit closed)	
■ : No Power	

Control Mode and Transfer Logic

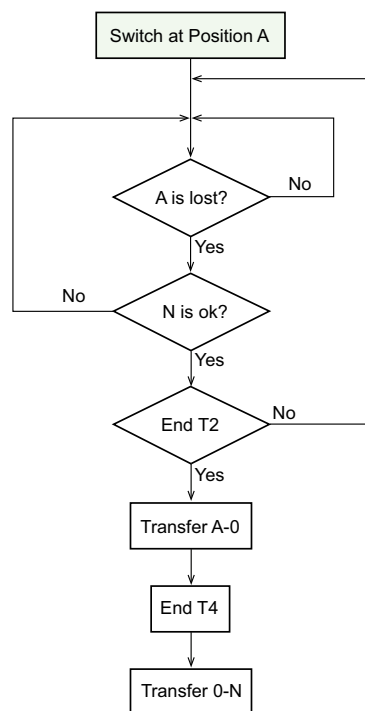
Transfer Switching Equipment 32–160 A

Logic of Non-return for U-U Application



Transfer Logic

* T2 will reset if N becomes unavailable or A becomes unavailable



Retransfer Logic

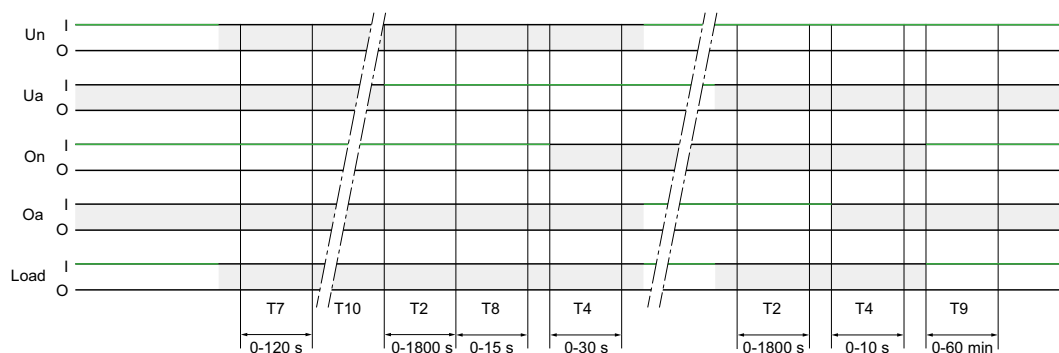
* T2 will reset if N becomes unavailable

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Transfer Process of Non-return for U-G Application

A

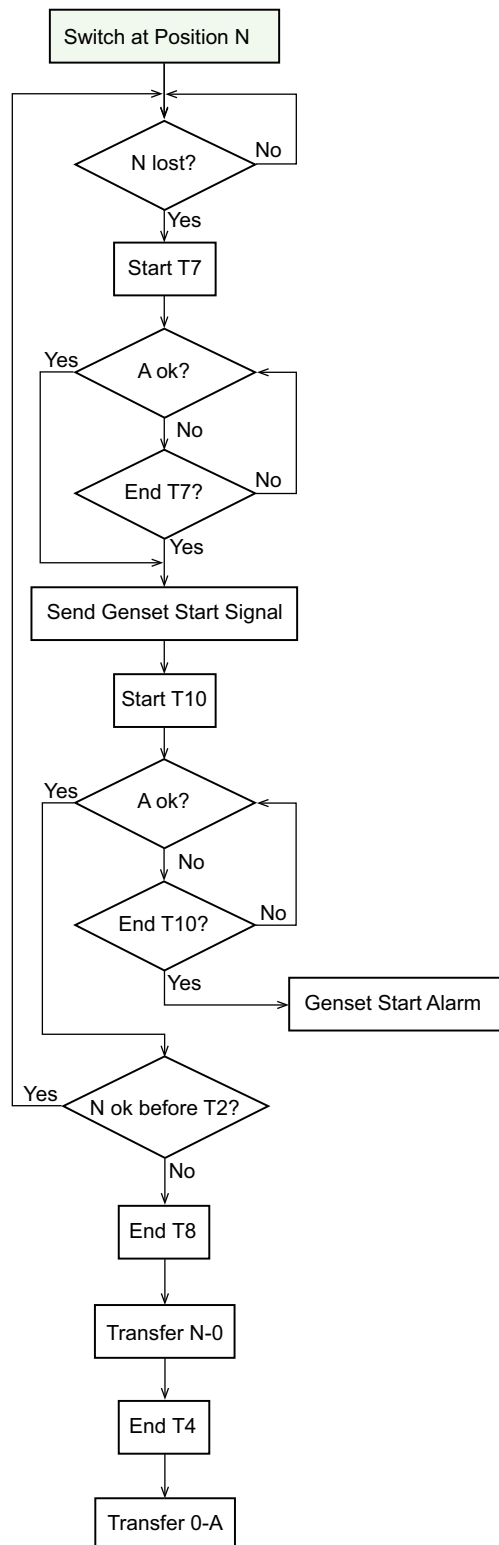


Symbols	Description
Un	Source I
Ua	Source II
On	Contact close at N source
Oa	Contact close at A source
Load	status
T7	Genset Start Delay
T2	Transfer delay
T8	Loadshed Delay
T4	Center-off Delay
T9	Genset Cool Delay
Key	
O: OFF (circuit open)	
I: ON (circuit closed)	
: No Power	

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Logic of Non-return for U-G Application

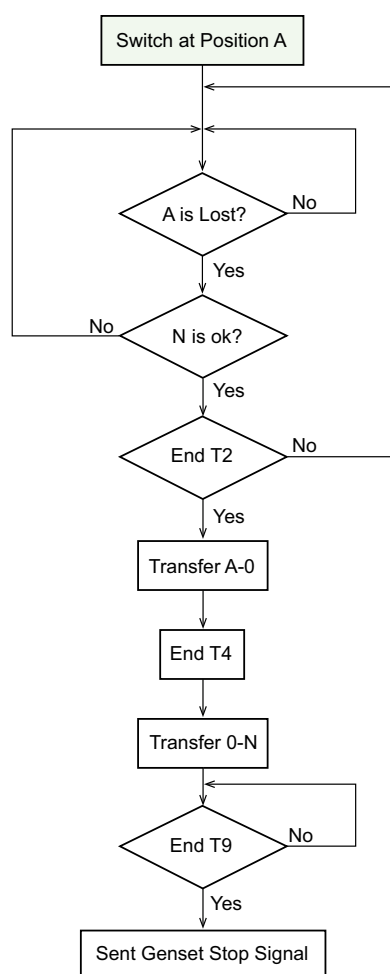


Transfer Logic

- T2 will reset if N becomes unavailable or A becomes unavailable
- If disable Genset Start Fail Warning, T10 will not be counted

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A



Retransfer Logic

* T2 will reset if N becomes unavailable

Voluntary Transfer Mode

The voluntary transfer mode is equivalent to auto-priority mode on one source, with forced priority to the SI or SII source. It is activated when associated input is closed (The commercial reference number for the voluntary control module is TPCDIO08). It takes over 200 ms to active the voluntary mode. The signal for voluntary transfer should be constant.

Voluntary transfer is normally used for special tariffs. Once the mode is set from voluntary to N or A, ATSE is still remains in auto mode. When there is power contingency on target source, transfer switch can re-transfer to available source automatically.

NOTE: Auto transfer will not be active, if transfer action damages driving system (for example, both source are out of range, TSE refuses to transfer).

The following are the voluntary transfer mode use cases:

Use Case 1: Typhon Mode

During typhoon or earthquake, the Genset will be more stable than utility. The user for this case has installed a typhoon mode switch on his control panel. The user will activate the typhoon mode switch. It is connected to the input voluntary transfer mode which will transfer to alternate source (need accessory to have function of voluntary transfer using TPCDIO08 accessories). The ATSE will now activate the Genset output and will transfer to Genset once ready.

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Now during the typhoon, the Genset is flooded. The ATSE will still be in auto mode. It detects alternate source failure. If the normal source is fine, it will try to transfer to normal source (voluntary is still an auto mode, and we have auto-return). If the normal source is not available then ATSE will not do any transfer. Still during typhoon, the Genset can restart (it was a fuel level problem). As the typhoon mode switch is still enabled, the ATSE will transfer back to the Genset. The Genset output keeps activate.

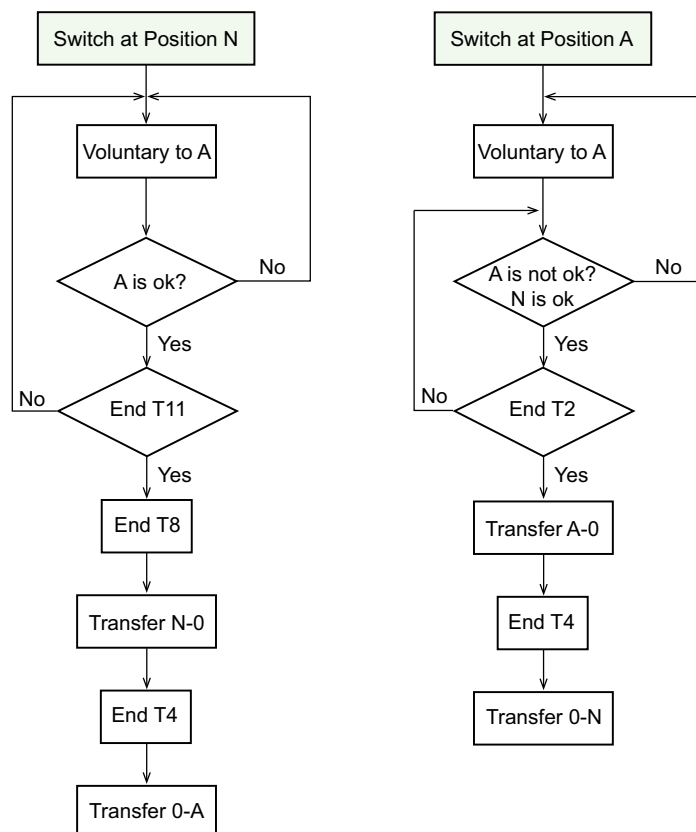
So, whatever the source is connected, the typhoon is gone. The utility is back to normal. The user will deactivate the typhoon mode switch. The ATSE will be transfer back to normal source at auto mode with auto-return, U-G.

The configuration needed is a ATSE along with voluntary transfer module. With this configuration, the user don't need to play with any ATSE settings (return mode, priority source, what is the normal source).

Use Case 2: Peak Tariff (Align with Controller UA/BA)

Initially this feature was created in UA BA in France for Special Tariff Fare (STF) capability. Special Tariff Fare (STF) in France is a special electricity pricing that allows to have discount price on low consumption hours, with the drawback of having a very expensive kWh price on peak hours. With this option, EDF (French utility) provides an output on the energy meter to warn the end user about the price increase. This output is wired on the voluntary transfer input of the controller, which automatically transfers the load to a cheaper alternate source. This allows to help shedding the peaks on the network

Transfer Logic of Voluntary to A (U-U Application)

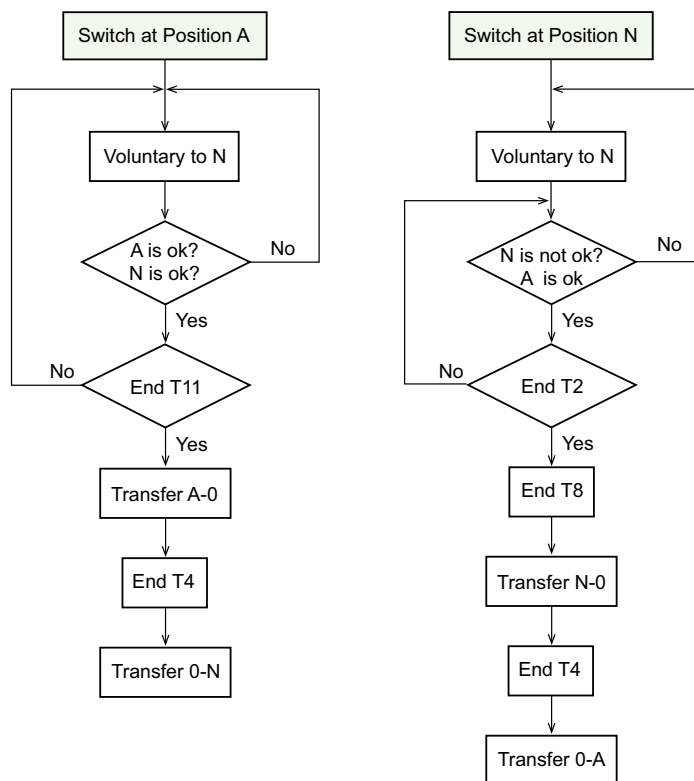


* T11 is internal fixed time delay

Control Mode and Transfer Logic

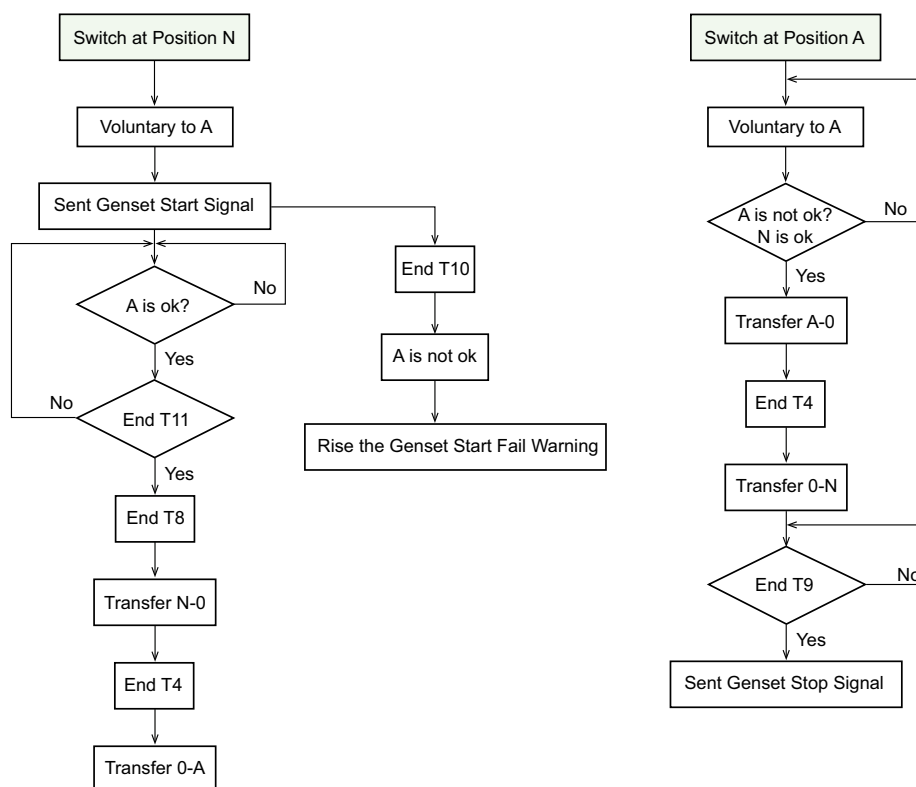
Transfer Switching Equipment 32–160 A

Transfer Logic of Voluntary to N (U-U Application)



* T11 is internal fixed time delay

Transfer Logic of Voluntary to A (U-G Application)

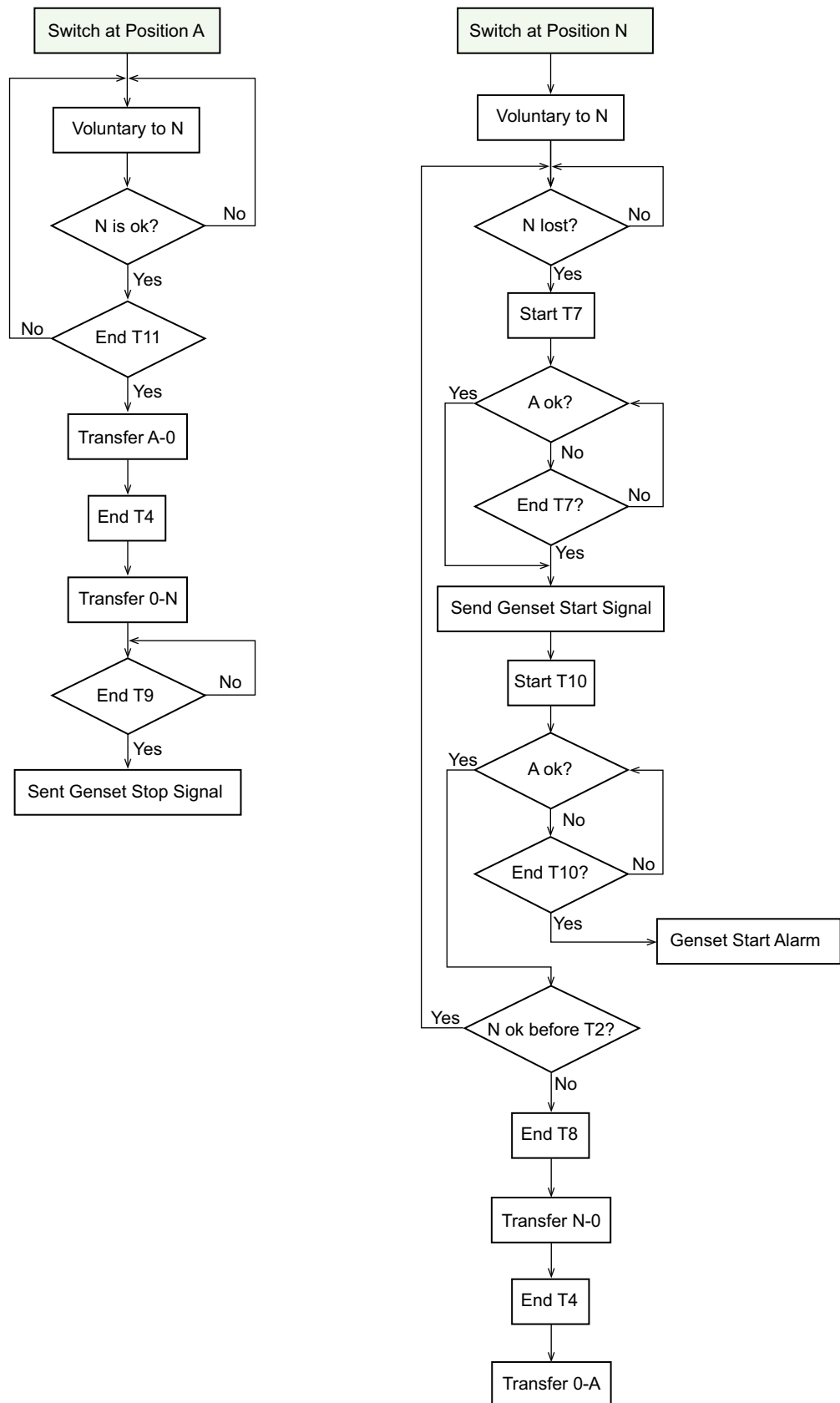


* T11 is internal fixed time delay

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Transfer Logic of Voluntary to N (U-G Application)



* T11 is internal fixed time delay

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Test Mode

The test mode is a procedure to simulate the transfer process with following purpose:

- Test normal transfer actions for ATSE-On load test.
- Test Genset-Off load test
- Test Genset-Transfer functions-On load test

Ways Test

There are two ways to conduct the test:

- Through Active Automatic HMI.
- Through DI using TPCDIO07 accessories.

No priority difference between HMI command or DI command. ATSE will act upon receiving the command given.

Default Time for Test

- Default as unlimited test (No time duration, has to stop the test manually).
- If select limited test, the default time duration is 30s.

Time Range for Test

- 10 s–1800 s with steps of 1 s.
- Time delay can be bypassed by pressing ESC key in Active Automatic HMI.

Pre-Condition to Start Test Mode

The following conditions are mandatory for the test:

- ATSE is in auto mode.
- ATSE is in normal position while in U to U Application.
- ATSE is in alternate position while in U to U Application.
- ATSE is in normal position while in U to G Application.
- For U-U application, R source shall be available before test. Otherwise, there will be an alarm.

NOTE: On load test will not be active, if transfer action damage driving system (for example, both source are out of range, TSE refuses to transfer).

A

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

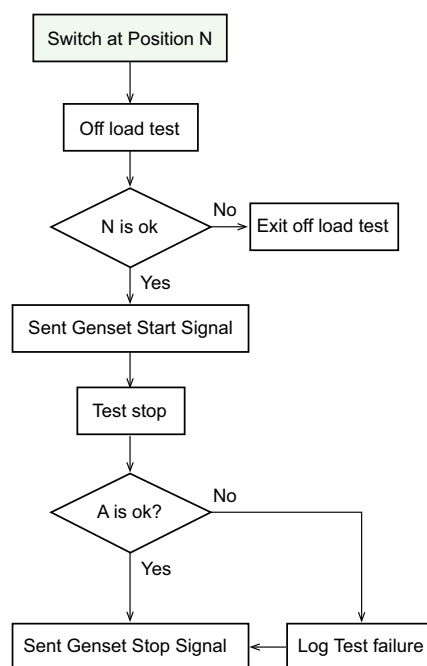
Off Load Test

- The purpose of this function is to check the Genset can start, without power interruption.

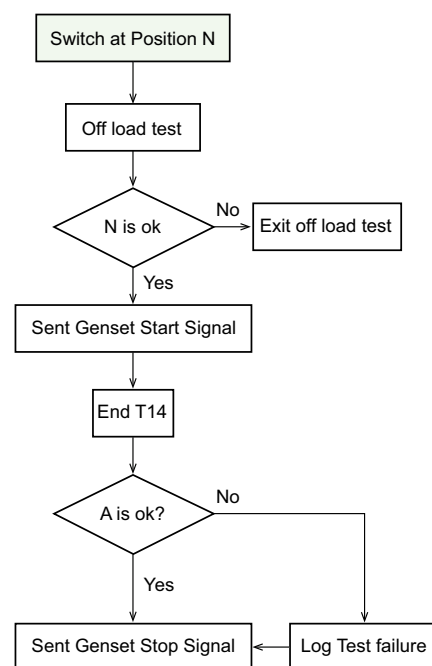
NOTE:

- This test does not check if the switch is able to make the transfer.
- The test is only available with U-G configuration.
- The offload test should not be proposed, when the ATSE doesn't have Genset output feature.
- This function will only be accessible for product with HMI, as the Test mode default value is On load.
- The orders from higher priority will interrupt the test procedure.

Logic of Off Load Test U-U



T14 is Unlimited



T14 is Limited

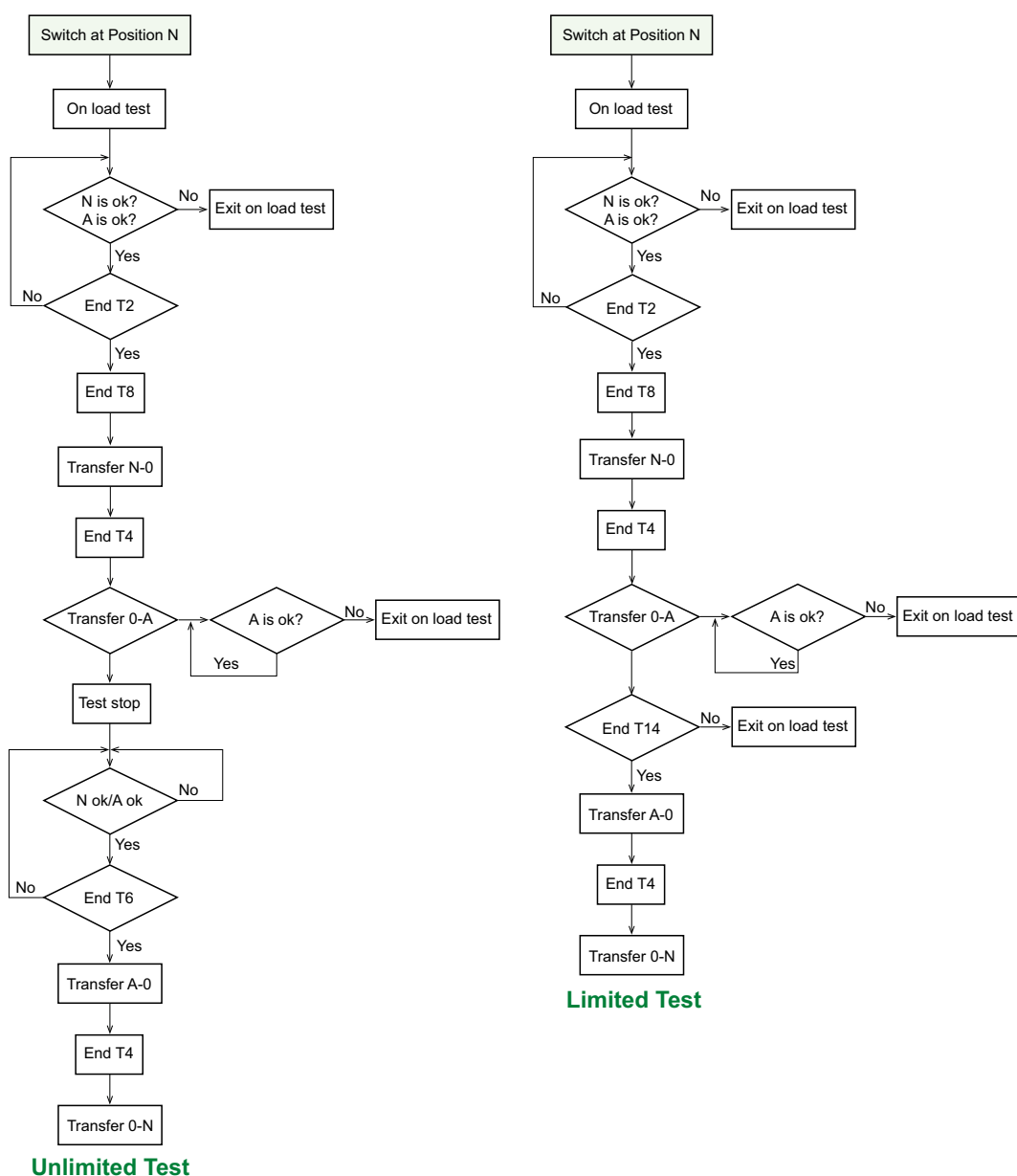
Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

On Load Test

- The purpose of this function is to execute ATSE transfer (when the source is still valid) to make sure the system is still able to execute the transfer. The UU and U-G configuration are both available.
- When the ATSE receive the testing start request:
 - The ATSE shall initiate the transfer to the Alternate source if the Alternate source is in range, and according to the transfer delays (T7, T2...).
 - The ATSE shall log a test event.
- Two conditions to return to N source:
 - When the ATSE receive the stop request from user.
 - When the Test timer is activated, and the test timer is completed.

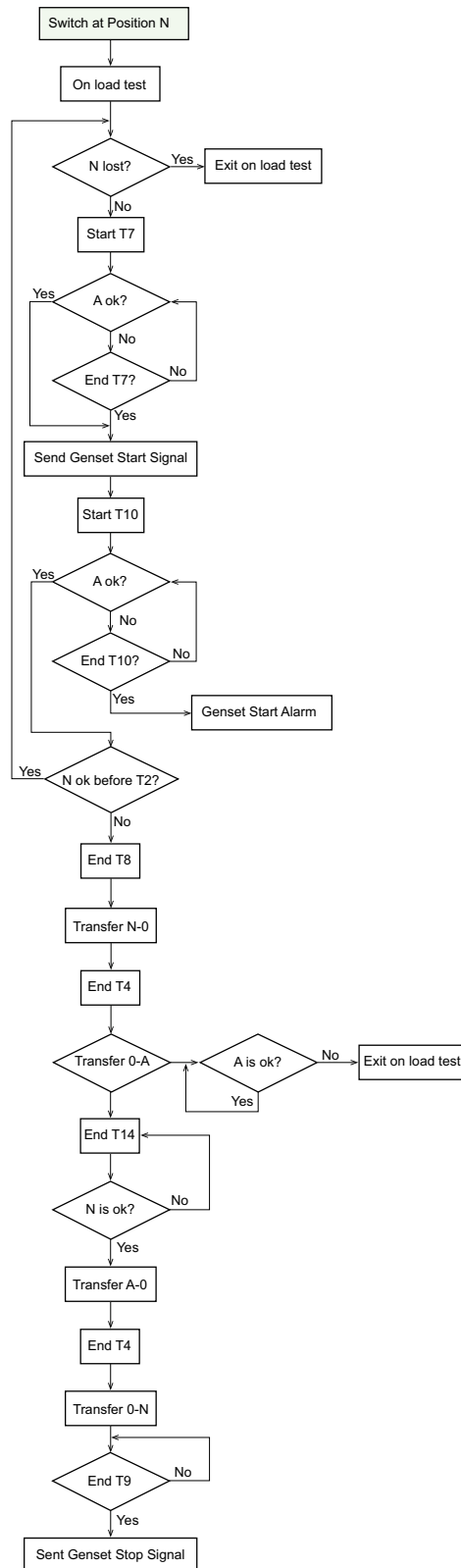
Logic of On Load Test U-U



Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Logic of On Load Test U-G

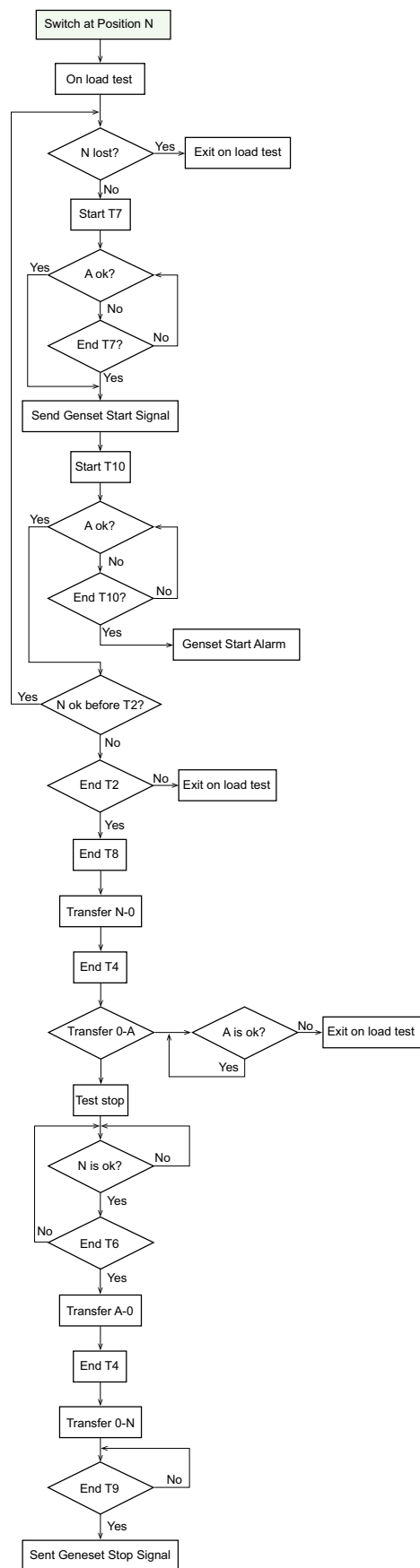


Limited Test

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

A



Unlimited Test

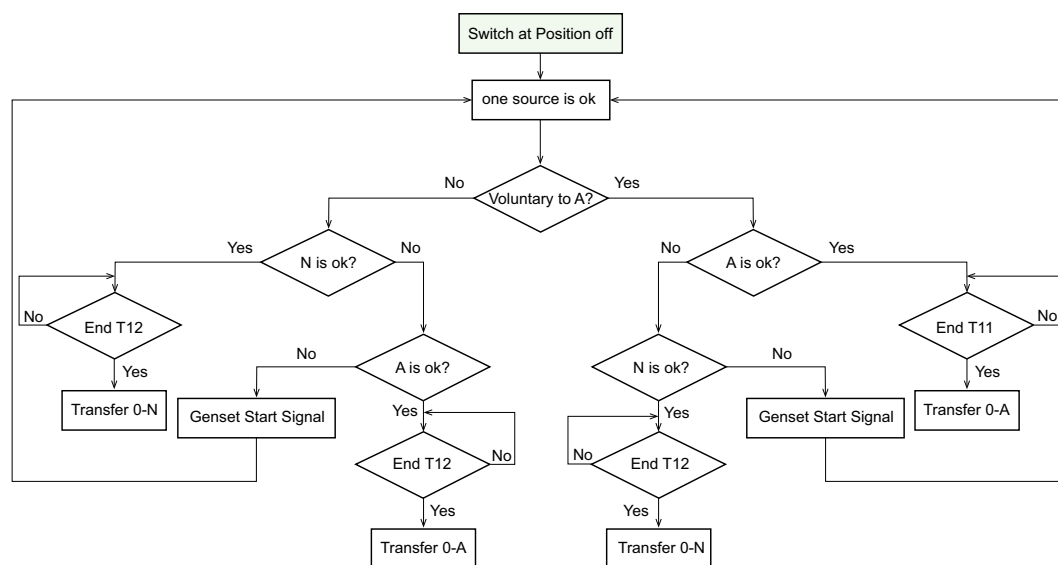
Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Return or Start from Auto Mode at Off Position

When switch is at OFF position, this state is interim, and it happens under two conditions:

- Enter the auto mode from other modes or from power on.
 - End of off delay (T4), ATSE is unable to switch to N or A, due to both power source loss (with 24 V).
- The load shedding will be activated from OFF to A source in both U-U and U-G configuration.



Local Control Mode

⚠ CAUTION

HAZARD OF EQUIPMENT DAMAGE

Enable the local control through Active Automatic HMI to exit the auto mode.

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

NOTICE

POTENTIAL POWER OUTAGE OF EQUIPMENT

To re-enter Auto mode, disable local control through Active Automatic HMI or External HMI.

Failure to follow these instructions can result in equipment damage.

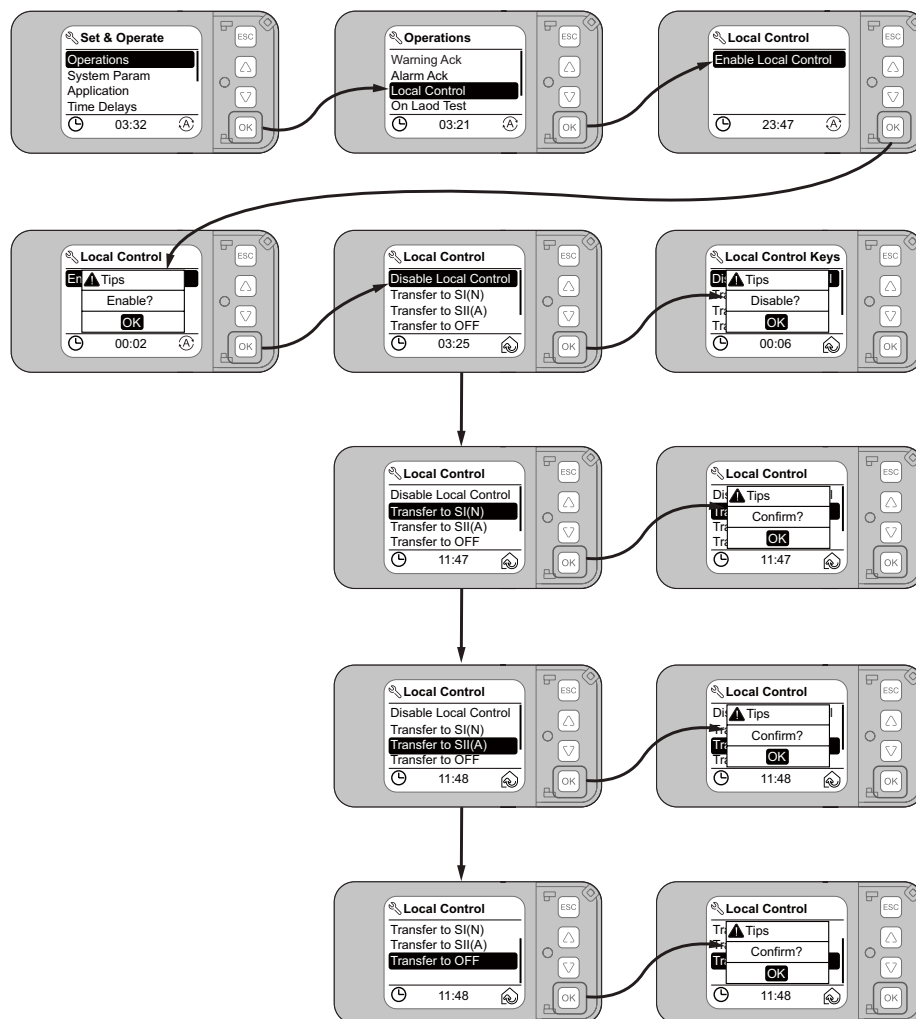
The local mode is activated through the HMI (only available for Active Automatic, RS version change to Automatic). It allows locally to change the logical position of the TSE. The switch will refuse to active if the action will damage the driving system. It cannot transfer to unavailable source.

NOTE: Local transfer will not be active, if transfer action damage driving system (for example, both overvoltage are out of range, TSE refuses to transfer) or both sources are out of operating voltage of solenoid.

Auto Genset start signal and load shedding signal is not available for this mode. In this case, the target source conformity is verified before transfer and time delays are not considered.

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A



Local Control to N

The command is sent through HMI. There is no time delay except OFF delay.

The switch will transfer to normal after receiving the order to it when normal power is in tolerance.

Local Control to A

The command is sent through HMI. There is no time delay except OFF delay.

The switch will transfer to alternate after receiving the order to it when alternate power is in tolerance.

Local Control to O

The command is sent through HMI. There shall be no time delay. The switch will transfer to OFF after receiving the order to it.

Control Mode and Transfer Logic

Transfer Switching Equipment 32–160 A

Transfer Inhibit Mode

When the transfer inhibition input is active, the controller can not send any order to TSE. Front face selection buttons are locked and the HMI only display transfer inhibit.

Fire, Force to OFF and Handle mode still works as before. When exit Fire, Force to OFF and Handle mode, transferring blocked by transfer inhibit.

Use this mode only when inhibit signal (from DI) is active and no higher operation mode is running. When ATS transfer is ongoing, wait until transfer completed.

Exit this mode after inhibit signal is inactive.

Accessories are required using TPCDIO07 to extend this function of the TSE.

Application

- Transfer inhibit occurs when there is power interruption because of short circuit.
- This function can be used to lock the controller by customized signals.
- This function can be used for cooperation with different ATSE.

Fire Protection Mode

- An emergency stop order to transfer ATSE to off position. All the other transfer mode will be canceled except force to OFF and handle control. There shall be no time delay.
- Exit fire protection after signal disappeared.
- Require accessories TPCDIO10 or TPCDIO11 or TPCDIO13 or TPCDIO14 to extend this function.
- Fire protection will not be activated if transfer action damages driving system.

Application

- The fire protection signal can transfer ATSE to off position when there is fire emergency and protect power continuity for critical loads.

Force to OFF Mode

- Transfer ATSE to OFF position with an emergency stop order. All the other transfer mode will be canceled except handle control. There should be no time delay.
- Exit Force after signal disappeared.
- Accessories are required using TPCDIO07 to extend this function of TSE.

Handle Transfer Mode

- The handle or manual transfer mode is activated from the TSE directly. It deactivates the controller control function except position status (outputs and LEDs), source status LEDs and alarm LED.
- No operation for load shedding and generator, keep the status as before.
- No alarm relay output.

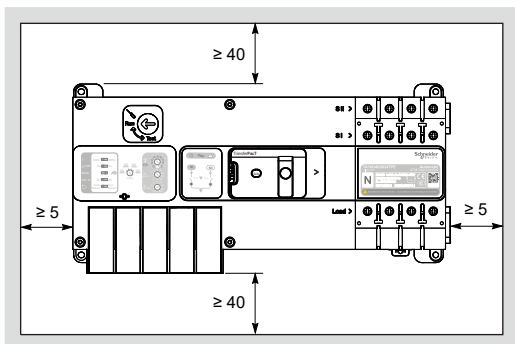
Automatic Transfer Switching Equipment

Class PC

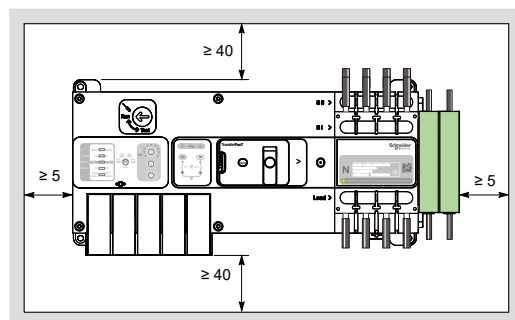
TransferPacT Active Automatic and Automatic
Frame 100/2P, 3P, 4P

Minimum electrical Clearance

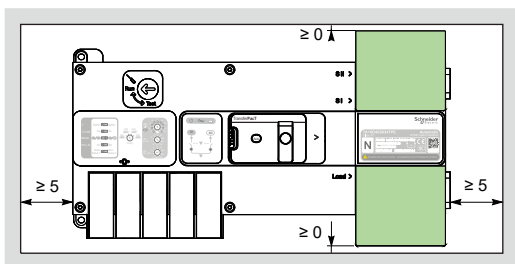
A



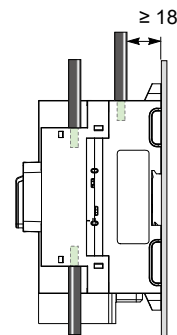
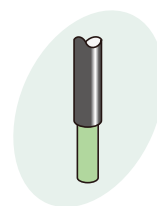
Bare product



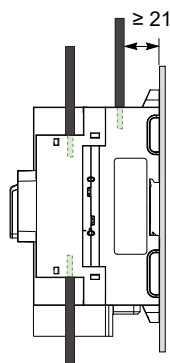
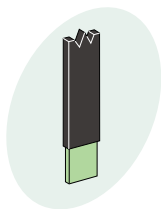
With Auxiliary Contact



With Terminal Shield



Cable to base plate



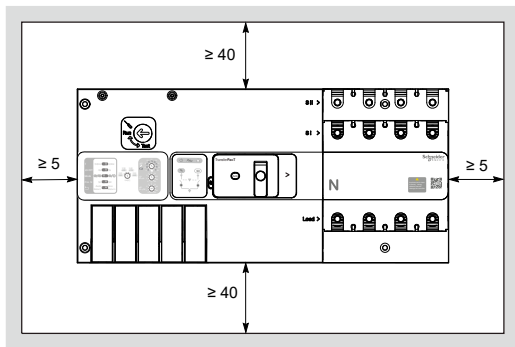
Busbar to base plate

Automatic Transfer Switching Equipment

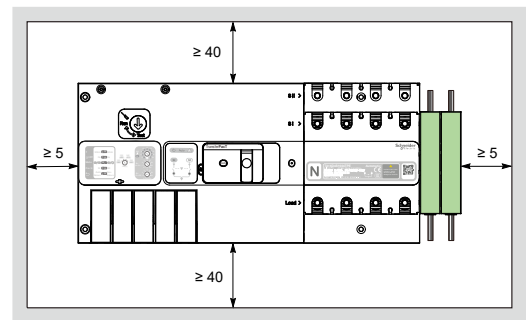
Class PC

TransferPacT Active Automatic and Automatic
Frame 160/3P, 4P

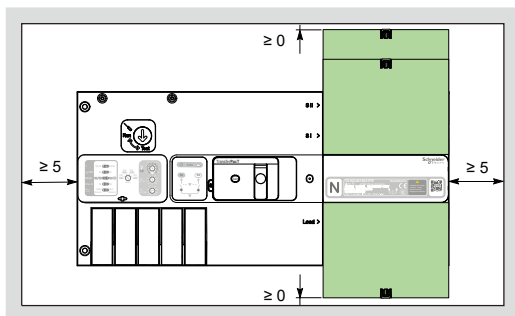
Minimum electrical Clearance



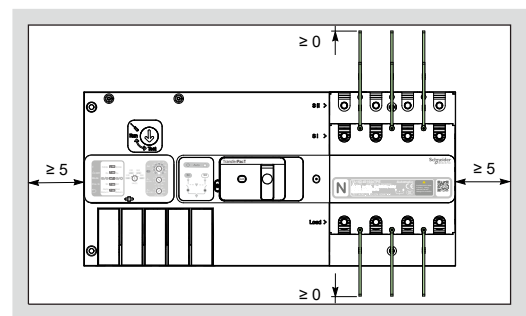
Bare product



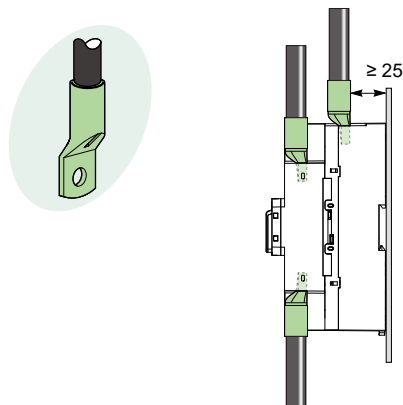
With Auxiliary Contact



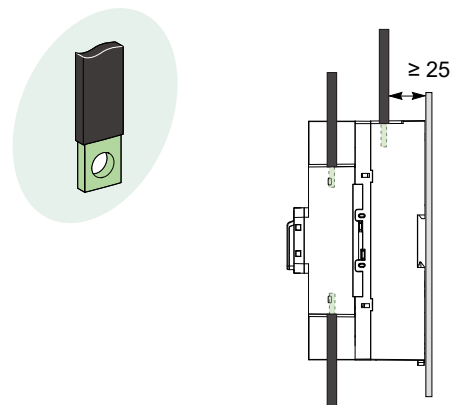
With Terminal Shield



With Interphase barriers



Crimp lug to base plate



Busbar to base plate

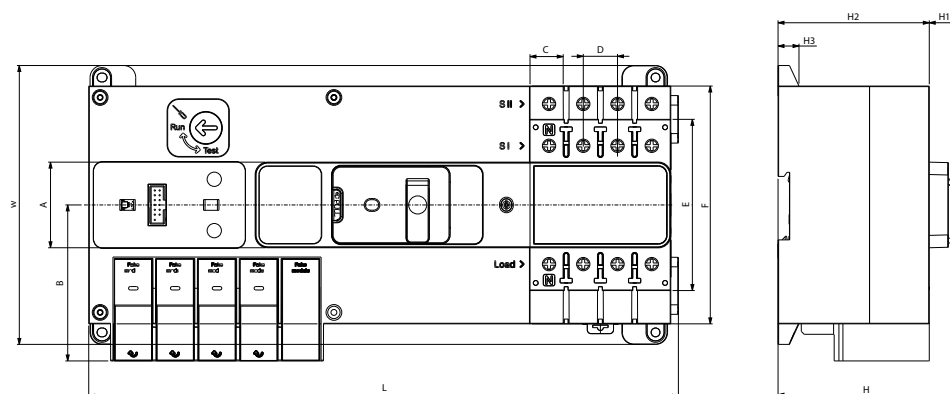
Automatic Transfer Switching Equipment

Class PC

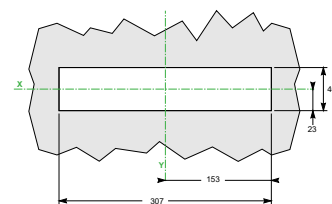
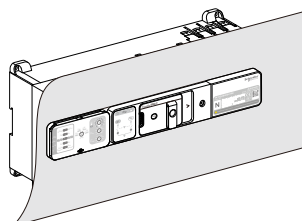
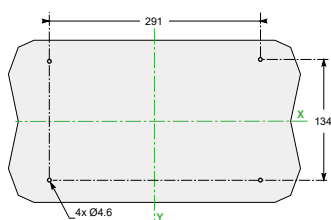
TransferPacT Active Automatic and Automatic
Frame 100/2P, 3P, 4P

Dimensions

A



Panel and Front panel cut



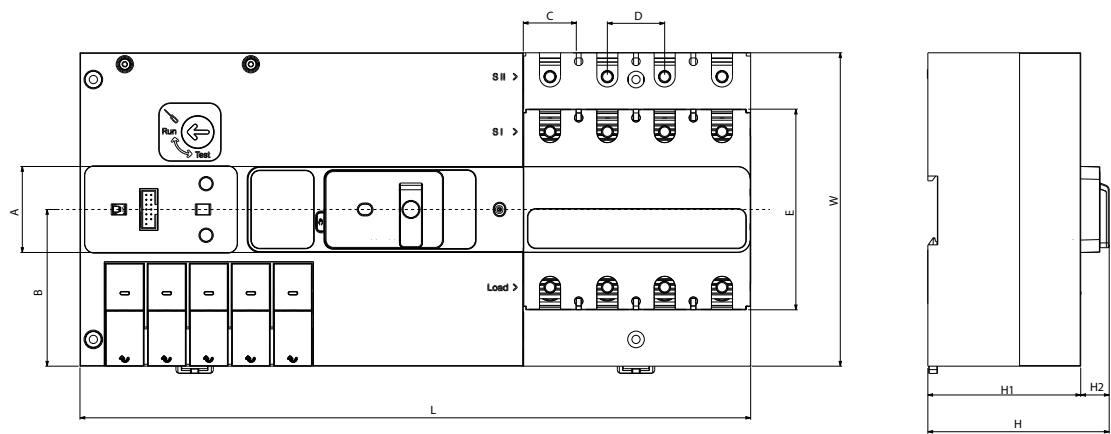
Frame	L	W	H	A	B	C	D	E	F	H1	H2	H3
100	310	147	94	45	82	17.5	18	90	125	79.5	15	11

Automatic Transfer Switching Equipment

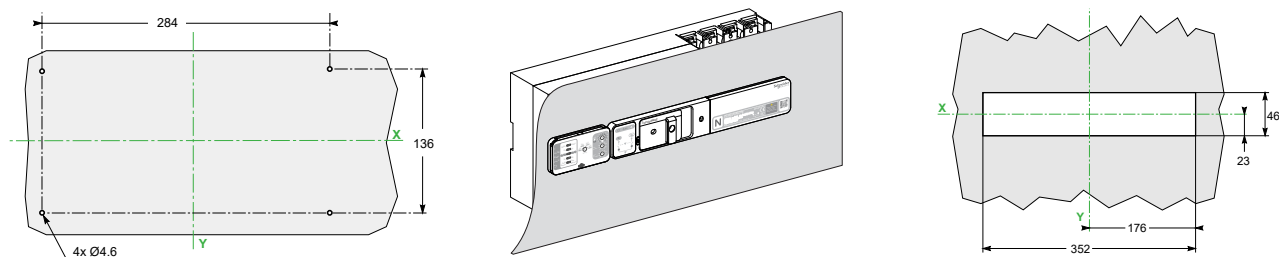
Class PC

TransferPacT Active Automatic&Automatic
Frame 160 / 3P, 4P

Dimensions



Panel and Front panel cut



Frame	L	W	H	A	B	C	D	E	F	H1	H2	H3
160	351	164	95	45	82	28	30	105		80	15	

Automatic Transfer Switching Equipment

TransfePacT Active Automatic

Class PC

External HMI

Overview

The external HMI is used to display the HMI on the panel. The HMI consists of external HMI base and a LCD screen.

The external HMI must be connected with the function module with commercial reference as TPCDIO15. The connection of the external HMI is done using a cable and an external HMI base and LCD display.

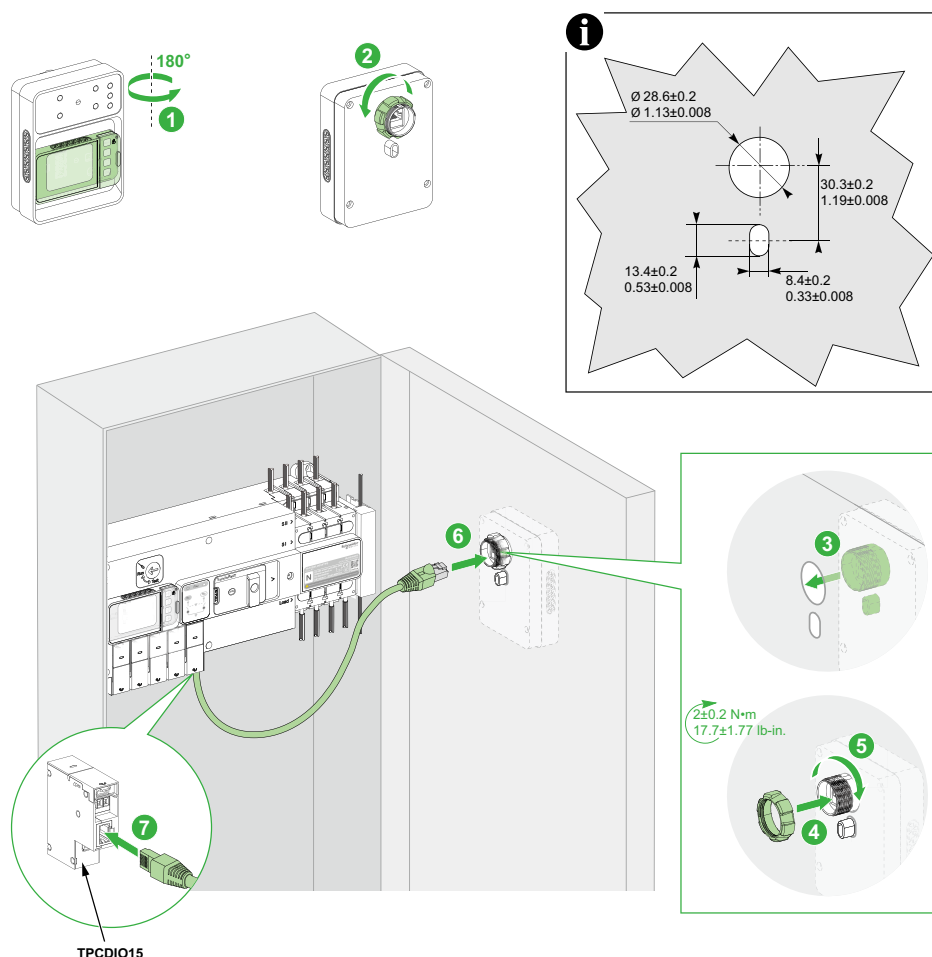
Position of External HMI and Switch

Perform the following procedure to connect the external HMI on the panel door:

1. Rotate the external HMI to the back side.
2. Remove the nut of external HMI.
3. Insert the external HMI on the front door.

NOTE: Please make the cutout on the front door as per the dimension given.

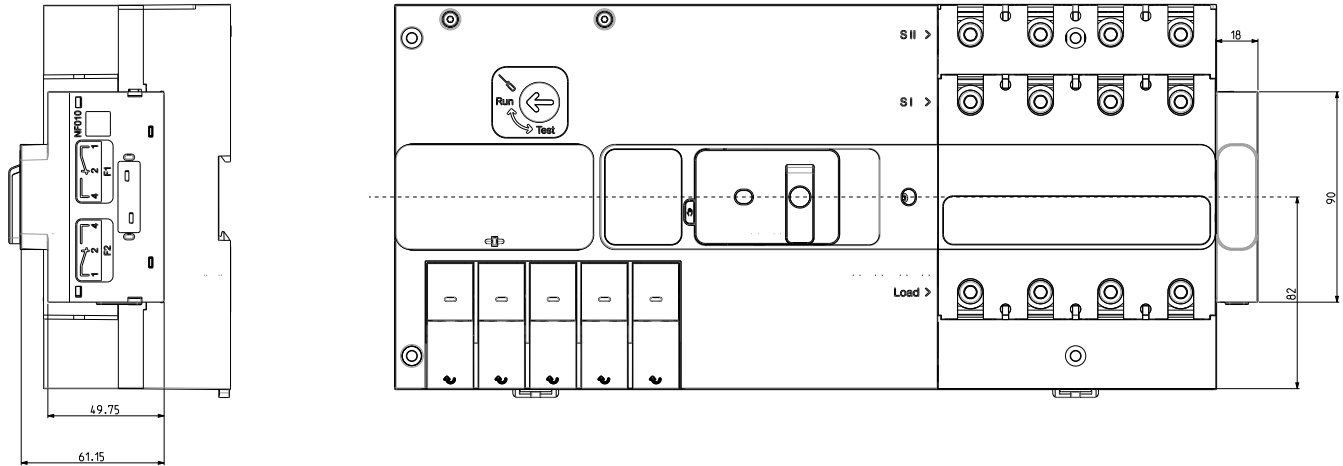
4. Insert the nut.
5. Lock the nut.
6. Insert the cable into the external HMI.
7. Insert the other end of the cable into the function module (TPCDIO15).



Automatic Transfer Switching Equipment

TransferPacT Active Automatic and Automatic

Auxiliary Contact

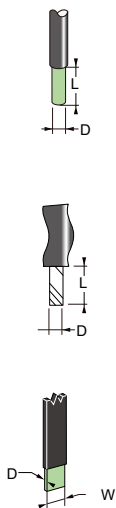


Automatic Transfer Switching Equipment

Class PC

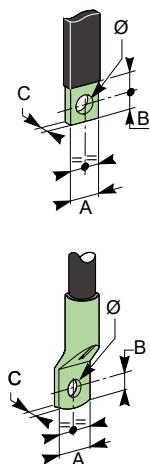
TransferPacT Active Automatic TreansferPacT , Frame 100, Wiring capacity

A



Dimensions for Frame 100

Pole partition	(mm)	18
Cable-Rigid	L (mm)	≤ 13
	D (mm)	≤ 1.5-35
Cable-Flexible	L (mm)	≤ 13
	D (mm)	≤ 1-35
Bar	W (mm)	≤ 10
	D (mm)	≤ 5
Torque		(Nm) 3.5±0.3



Dimensions for Frame 160

Pole partition	(mm)	30
Bars	A (mm)	≤ 20
	B (mm)	≤ 10
	C (mm)	≤ 6
	Ø (mm)	≥ 8
Cable with Crimp Lug	A (mm)	≤ 20
	B (mm)	≤ 10
	C (mm)	≤ 6
	Ø (mm)	≥ 8
Torque		(Nm) 8±0.8

Installation recommendation

Use at high temperatures

Power dissipated and resistance per pole

TransferPacT	40	63	80	100	125	160
Rating (A)	40	63	80	100	125	160
Resistance per pole (mΩ)	0.3	0.3	0.3	0.2	0.2	0.2
Power dissipated per pole (W)	0.5	1.2	1.9	2	3.1	5.1

Temperature derating

TransferPacT	40	63	80	100	125	160
--------------	----	----	----	-----	-----	-----

Front connection with bare-cable connectors or lugs

Thermal current I _{th} at	60 °C	40	63	80	100	125	160
	65 °C	40	63	80	100	125	160
	70 °C	40	63	80	100	125	150

TransferPacT	100	160
--------------	-----	-----

Front connection

Thermal current I _{th} at	60 °C	100	160
	65 °C	100	160
	70 °C	100	160

Front connection with right-angle terminal extension + bare-cable connectors

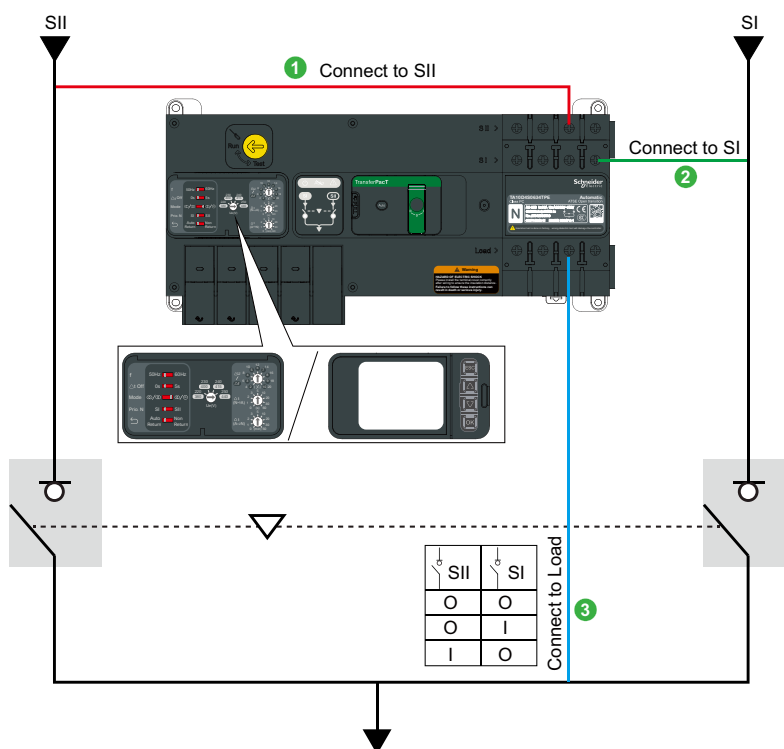
Thermal current I _{th} at	55 °C	100	160
	60 °C	100	160
	65 °C	100	160
	70 °C	100	160

Automatic Transfer Switching Equipment

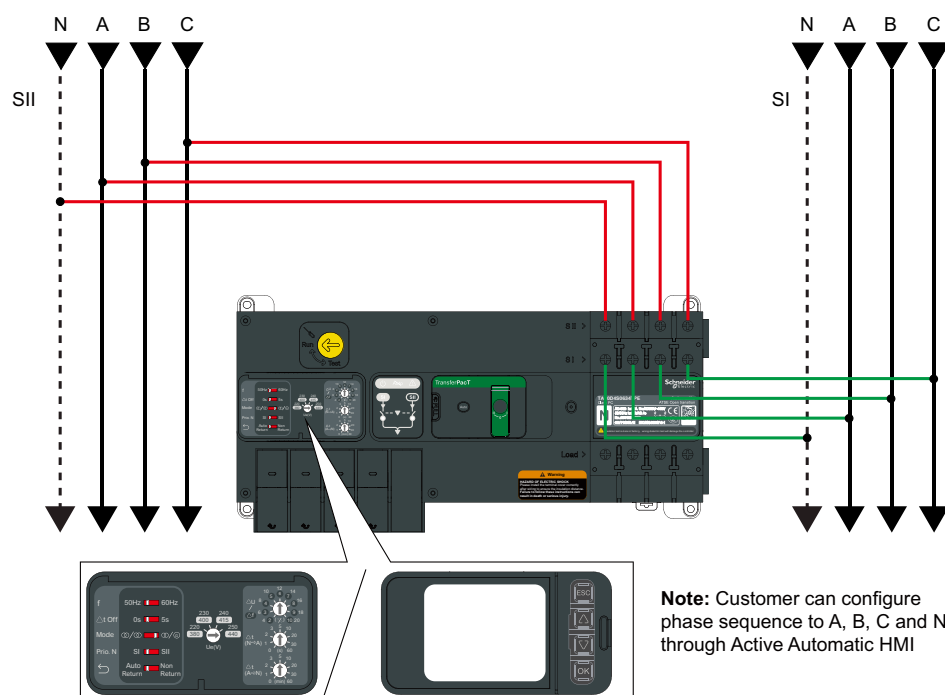
TransferPacT Active Automatic and Automatic

Wiring Diagrams for frame 100: 32-100 A

A

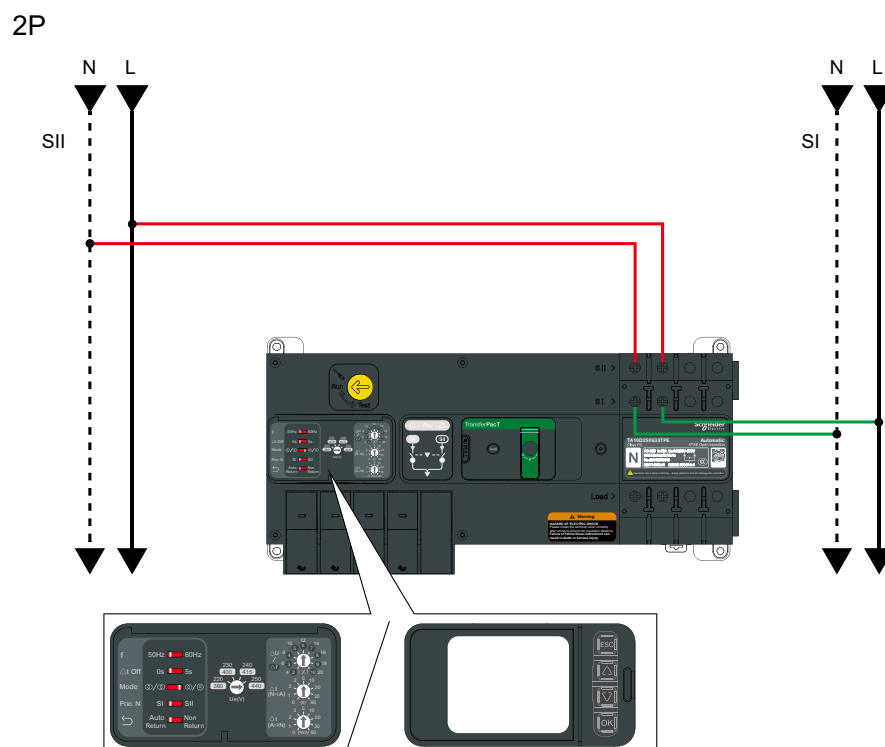


3P/4P



Automatic Transfer Switching Equipment

Transfer**PacT** Active Automatic and Automatic

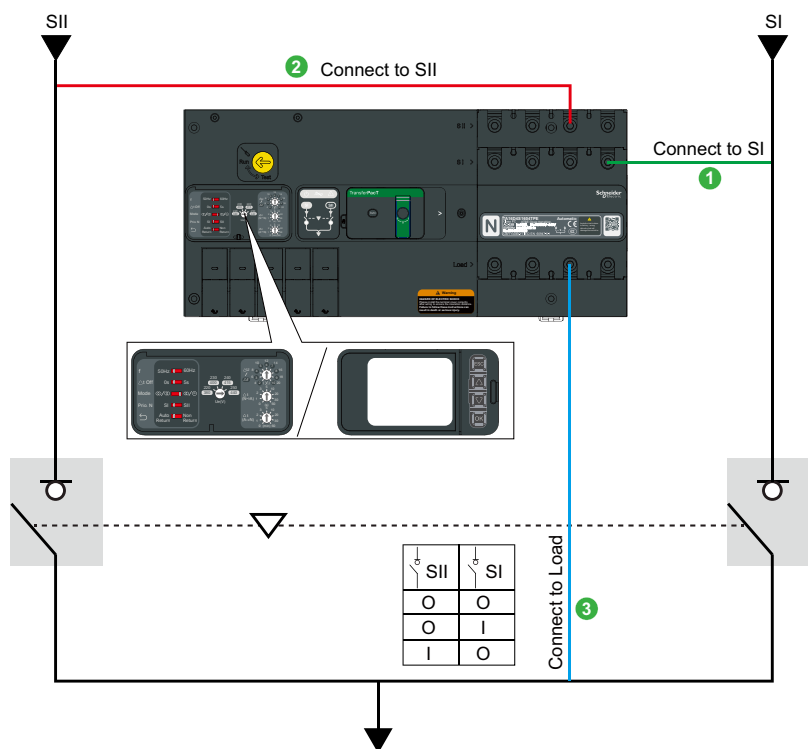


Automatic Transfer Switching Equipment

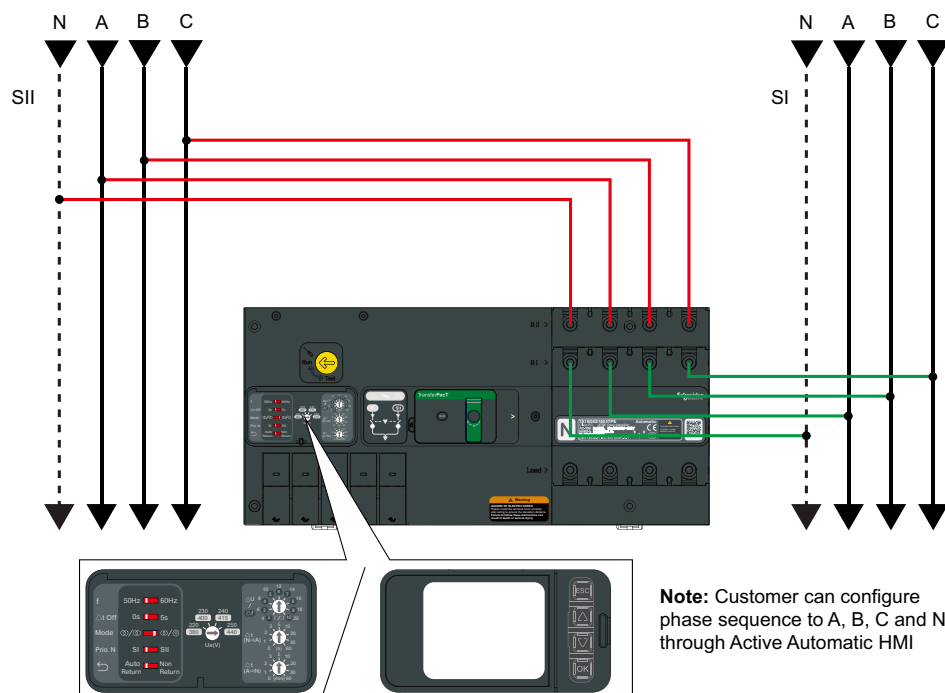
TransferPacT Active Automatic and Automatic

Wiring Diagrams for frame 160: 80-160 A

A

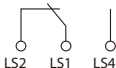
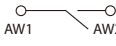
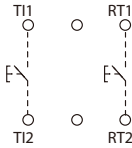
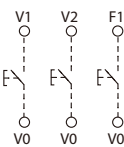
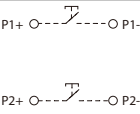
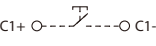
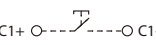
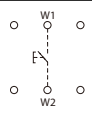
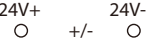
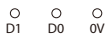
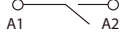


3P/4P



Automatic Transfer Switching Equipment

Function Module

	Maximum Qty per product	Terminal code	terminal definition
 LS2 LS1 LS4	1	LS1,LS2,LS4	loadshedding signal output
 AW1 AW2 TPCDIO05		AW1,AW2	Availability warning output
 TI1 RT1 TI2 RT2 TPCDIO07	1	TI1,TI2	Transfer Inhibit signal input, short to work
		RT1,RT2	Remote testing input,short to work
 V1 V2 F1 V0 V0 V0 TPCDIO08	1	V0,V1	short to Transfer to Normal
		V0,V2	short to Transfer to Alternate
		V0,F1	short to Transfer to OFF
 P1+ P1- P2+ P2- TPCDIO10	1	P1+,P1-	DC24 V pluse signal,enable fire protetion
		P2+,P2-	DC24 V pluse signal,diable fire protection
 C1+ C1- TPCDIO11	1	C1+,C1-	DC24 V constant signal,enable fire protetion
 C1+ C1- TPCDIO13	1	C1+,C1-	AC230 V constant signal,enable fire protetion
 W1 W2 TPCDIO14	1	W1,W2	Short to enable fire protetion
 24V+ 24V- +/- TPCDIO15	1	24V+,24V-	DC 24 V external power port (auxiliary supply)
		RJ45	Bus extension
 D1 D0 0V TPCCOM16	2	D1,D0,0V	modbus communication port
 G2 G1 G4 TPCDIO17	1	G1,G2,G4	Genset start signal output
 A1 A2		A1,A2	Alarming output

Automatic Transfer Switching Equipment

Auxiliary Contact

TPSAUX32



- (A) SI open
- (B) SI closed
- (C) SII open
- (D) SII closed

Transfer switching equipment is closed at SI:

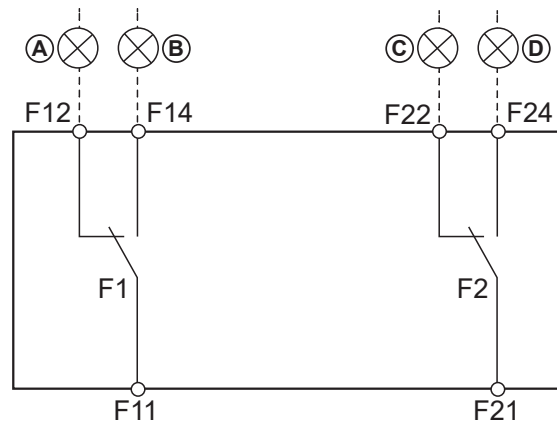
- F11-F14 is closed
- F11-F12 is opened

Transfer switching equipment is closed at SII:

- F21-F24 is closed
- F21-F22 is opened

Transfer switching equipment is at OFF position:

- F11-F12 and F21-F22 are closed
- F11-F14 and F21-F24 are opened

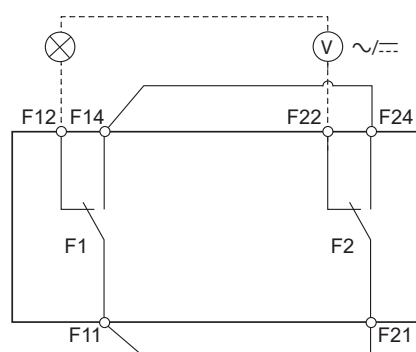


TPSAUX33



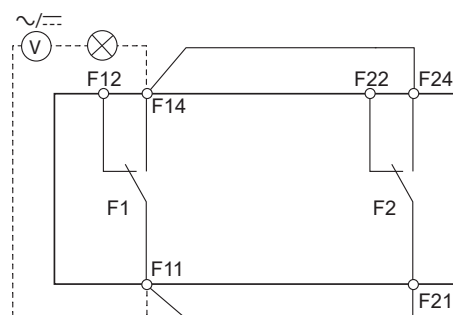
Transfer switching equipment is at OFF position:

F12-F22 is closed



Transfer switching equipment is not at OFF position:

F11-F14 and F21-F24 are closed

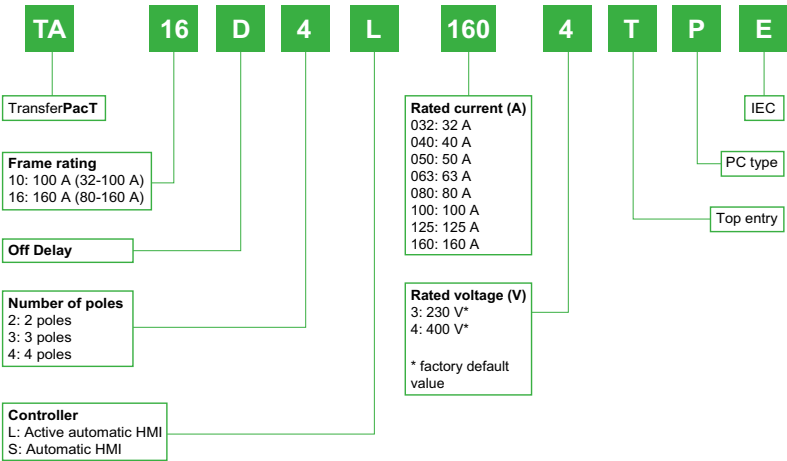


NOTE: terminal capacity for auxiliary contact is AC250 V 2 A.

Coding Principle



The commercial reference of TranferPacT Automatic Transfer Switching Equipment is coded with significant features to explain the type of frame rating, transition, controller type, rated voltage, rated current and number of poles



References of TransferPacT Active Automatic and Automatic 32-160 A

TransferPacT Active Automatic

TA10D4L0324TPE-ISO.png



	2P	3P	4P
32A	TA10D2L0323TPE	TA10D3L0324TPE	TA10D4L0324TPE
40A	TA10D2L0403TPE	TA10D3L0404TPE	TA10D4L0404TPE
50A	TA10D2L0503TPE	TA10D3L0504TPE	TA10D4L0504TPE
63A	TA10D2L0633TPE	TA10D3L0634TPE	TA10D4L0634TPE
80A	TA10D2L0803TPE	TA10D3L0804TPE	TA10D4L0804TPE
100A	TA10D2L1003TPE	TA10D3L1004TPE	TA10D4L1004TPE
80A		TA16D3L0804TPE	TA16D4L0804TPE
100A		TA16D3L1004TPE	TA16D4L1004TPE
125A		TA16D3L1254TPE	TA16D4L1254TPE
160A		TA16D3L1604TPE	TA16D4L1604TPE

TA16D4L1004TPE-ISO.png



TransferPacT Automatic

TA10D3S0324TPE-ISO.png



	2P	3P	4P
32A	TA10D2S0323TPE	TA10D3S0324TPE	TA10D4S0324TPE
40A	TA10D2S0403TPE	TA10D3S0404TPE	TA10D4S0404TPE
50A	TA10D2S0503TPE	TA10D3S0504TPE	TA10D4S0504TPE
63A	TA10D2S0633TPE	TA10D3S0634TPE	TA10D4S0634TPE
80A	TA10D2S0803TPE	TA10D3S0804TPE	TA10D4S0804TPE
100A	TA10D2S1003TPE	TA10D3S1004TPE	TA10D4S1004TPE
80A		TA16D3S0804TPE	TA16D4S0804TPE
100A		TA16D3S1004TPE	TA16D4S1004TPE
125A		TA16D3S1254TPE	TA16D4S1254TPE
160A		TA16D3S1604TPE	TA16D4S1604TPE

TA16D3S1004TPE-ISO.png



TransferPacT Automatic Function modules

For Active Automatic and Automatic HMI

Load shedding and Availability warning	TPCDIO05
Transfer inhibit and Remote testing	TPCDIO07
Voluntary Remote control	TPCDIO08
Fire Protection 24 Vdc pulse	TPCDIO10
Fire Protection 24 Vdc constant	TPCDIO11
Fire Protection 230 Vac constant	TPCDIO13
Fire Protection Dry contact	TPCDIO14
Genset start and Alarm	TPCDIO17

For Active Automatic HMI only (* Native equipped for TransferPacT active automatic. no need to order except for renewal or replace)

BUS Extension and 24 VDC auxiliary supply	TPCDIO15
Modbus RTU (Serial Port)	TPCCOM16

TPCDIO05-ISO.png



TransferPacT Automatic spare part

TPCCIF01-ISO.png



Active Automatic HMI	TPCCIF01
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TPCCIF02-ISO.png



Automatic HMI	TPCCIF02
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References of TransferPacT Active Automatic and Automatic 32-160 A

TPCCIF04_ISO.png



TPCOTH18_ISO.eps



TPCOTH37_ISO.png



1x	External HMI	TPCCIF04
1x	HMI Cable 1 m	TRV00810
	HMI Cable 2 m	TRV00820
	HMI Cable 3 m	TRV00830
1x	IP54 cover (for outdoor installation)	TPCOTH37

Connection accessory

TPSISO29_ISO.png



TPSISO30_ISO.png



TPSCON36_ISO.png



Interphase barrier frame 160 (set of 9)		TPSISO29
Terminal shield for frame 100 (set of 2)		TPSISO30
Terminal shield for frame 160 (set of 3)		TPSISO31
Load extension Bars for frame 100 (set of 4)		TPSCON35
Load extension Bars for frame 160 (set of 4)		TPSCON36

Auxiliary contacts

TPSAUX32_ISO.png



OF for Source position	TPSAUX32
OF for Off position	TPSAUX33

Circuit breaker/Transfer Switching Equipment coordination

Upstream: Acti9 iC60, C120, NG125

Downstream: TransferPacT Automatic TA10D, TA16D

Ue: ≤415 V AC

Load side	TSE		TA10D						TA16D			
	Rating (A)		32	40	50	63	80	100	80	100	125	160
	Ith (A) 60°C		32	40	50	63	80	100	80	100	125	160
	Icw (kA)		3	3	3	3	3	3	5.5	5.5	5.5	5.5
	Icm (kAp)		15	15	15	15	15	15	20	20	20	20
Supply side	Icu											
Circuit breaker:	Rating 415 V		TSE conditional short-circuit current and related making capacity:									
iC60N	≤ 32	10	T	T	T	T	T	T	T	T	T	T
B-C-D Curves	40	10		T	T	T	T	T	T	T	T	T
	50	10			T	T	T	T	T	T	T	T
	63	10				T	T	T	T	T	T	T
iC60H	≤ 32	15	T	T	T	T	T	T	T	T	T	T
B-C-D Curves	40	15		T	T	T	T	T	T	T	T	T
	50	15			T	T	T	T	T	T	T	T
	63	15				T	T	T	T	T	T	T
iC60L	≤ 25	25	T	T	T	T	T	T	T	T	T	T
B-C-D-K-Z Curves	32	20	T	T	T	T	T	T	T	T	T	T
	40	20		T	T	T	T	T	T	T	T	T
	50	15			T	T	T	T	T	T	T	T
	63	15				T	T	T	T	T	T	T
C120N	63	10				T	T	T	T	T	T	T
B-C-D Curves	80	10					T	T	T	T	T	T
1P 240V	100	10								T	T	T
2,3,4P 415V	125	10									T	T
C120H	63	15				T	T	T	T	T	T	T
B-C-D Curves	80	15					T	T	T	T	T	T
1P 240V	100	15								T	T	T
2,3,4P 415V	125	15									T	T
NG125N	≤ 32	25	T	T	T	T	T	T	T	T	T	T
B-C-D Curves	40	25		T	T	T	T	T	T	T	T	T
	50	25			T	T	T	T	T	T	T	T
	63	25				T	T	T	T	T	T	T
	80	25					T	T	T	T	T	T
	100	25								T	T	T
	125	25									T	T
NG125H	≤ 32	36	T	T	T	T	T	T	T	T	T	T
C- Curve	40	36		T	T	T	T	T	T	T	T	T
	50	36			T	T	T	T	T	T	T	T
	63	36				T	T	T	T	T	T	T
	80	36					T	T	T	T	T	T
NG125L	≤ 32	50	T	T	T	T	T	T	T	T	T	T
C- Curve	40	50		T	T	T	T	T	T	T	T	T
	50	50			T	T	T	T	T	T	T	T
	63	50				T	T	T	T	T	T	T
	80	50					T	T	T	T	T	T

T : Protection of the Transfer Switching Equipment is ensured but combination not very relevant

T : Transfer Switching Equipment is totally coordinated up to the Icu of the circuit breaker installed on supply side

36/75 : Transfer Switching Equipment is protected up to 36 kA rms / 75 kA peak

: Protection of the Transfer Switching Equipment is not ensured.

Circuit-breaker/Transfer Switching Equipment coordination

Upstream: ComPacT NSXm

Downstream: TransferPacT Automatic TA10D, TA16D

Ue: ≤440 V AC

Load side			TSE	TA10D						TA16D			
			Rating (A)	32	40	50	63	80	100	80	100	125	160
			Ith (A) 60 °C	32	40	50	63	80	100	80	100	125	160
			Icw (kA)	3	3	3	3	3	3	5.5	5.5	5.5	5.5
			Icm (kAp)	15	15	15	15	15	15	20	20	20	20
Supply side			Icu (kA)										
Circuit breaker:			415 V	440 V	TSE conditionnal short-circuit current and related making capacity:								
				Ir (A)									
NSXm E TMD Micrologic 4.1	16	10	Ir ≤ 32	T	T	T	T	T	T	T	T	T	T
			Ir ≤ 40		T	T	T	T	T	T	T	T	T
			Ir ≤ 50			T	T	T	T	T	T	T	T
			Ir ≤ 63			T	T	T	T	T	T	T	T
			Ir ≤ 80					T	T	T	T	T	T
			Ir ≤ 100						T		T	T	T
			Ir ≤ 125									T	T
NSXm B TMD Micrologic 4.1	25	20	Ir ≤ 32	T	T	T	T	T	T	T	T	T	T
			Ir ≤ 40		T	T	T	T	T	T	T	T	T
			Ir ≤ 50			T	T	T	T	T	T	T	T
			Ir ≤ 63			T	T	T	T	T	T	T	T
			Ir ≤ 80					T	T	T	T	T	T
			Ir ≤ 100						T		T	T	T
			Ir ≤ 125									T	T
NSXm F TMD Micrologic 4.1	36	35	Ir ≤ 32	T	T	T	T	T	T	T	T	T	T
			Ir ≤ 40		T	T	T	T	T	T	T	T	T
			Ir ≤ 50			T	T	T	T	T	T	T	T
			Ir ≤ 63			T	T	T	T	T	T	T	T
			Ir ≤ 80					T	T	T	T	T	T
			Ir ≤ 100						T		T	T	T
			Ir ≤ 125									T	T
NSXm N TMD Micrologic 4.1	50	50	Ir ≤ 32	36/75	36/75	36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 40		36/75	36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 50			36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 63				36/75	36/75	36/75	T	T	T	T
			Ir ≤ 80					36/75	36/75	T	T	T	T
			Ir ≤ 100						36/75		T	T	T
			Ir ≤ 125									T	T
NSXm N TMD Micrologic 4.1	70	65	Ir ≤ 32	36/75	36/75	36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 40		36/75	36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 50			36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 63				36/75	36/75	36/75	T	T	T	T
			Ir ≤ 80					36/75	36/75	T	T	T	T
			Ir ≤ 100						36/75		T	T	T
			Ir ≤ 125									T	T
NSXm N TMD Micrologic 4.1	70	65	Ir ≤ 160										T

T : Protection of the Transfer Switching Equipment is ensured but combination not very relevant

T : Transfer Switching Equipment is totally coordinated up to the Icu of the circuit breaker installed on supply side

36/75 : Transfer Switching Equipment is protected up to 36 kA rms / 75 kA peak

: Protection of the Transfer Switching Equipment is not ensured.

Circuit-breaker/Transfer Switching Equipment coordination

Upstream: ComPacT NSX100-250

Downstream: TransferPacT Automatic TA10D, TA16D

Ue: ≤440 V AC

A

Load side		TSE		TA10D						TA16D			
		Rating (A)		32	40	50	63	80	100	80	100	125	160
		Ith (A) 60°C		32	40	50	63	80	100	80	100	125	160
		Icw (kA)		3	3	3	3	3	3	5.5	5.5	5.5	5.5
		Icm(kAp)		15	15	15	15	15	15	20	20	20	20
Supply side		Icu (kA)											
Circuit breaker		415 V	440 V	TSE conditional short-circuit current and related making capacity:									
NSX100B NSX160B TMD/TMG/ Micrologic	25	20	Ir ≤ 32	T	T	T	T	T	T	T	T	T	T
			Ir ≤ 40		T	T	T	T	T	T	T	T	T
			Ir ≤ 50			T	T	T	T	T	T	T	T
			Ir ≤ 63				T	T	T	T	T	T	T
			Ir ≤ 80						T		T	T	T
			Ir ≤ 100						T		T	T	T
			Ir ≤ 125									T	T
NSX250B TMD/TMG/ Micrologic	25	20	Ir ≤ 32	T	T	T	T	T	T	T	T	T	T
			Ir ≤ 40		T	T	T	T	T	T	T	T	T
			Ir ≤ 50			T	T	T	T	T	T	T	T
			Ir ≤ 63				T	T	T	T	T	T	T
			Ir ≤ 80						T		T	T	T
			Ir ≤ 100						T		T	T	T
			Ir ≤ 125									T	T
NSX100F NSX160F TMD/TMG/ Micrologic	36	35	Ir ≤ 32	T	T	T	T	T	T	T	T	T	T
			Ir ≤ 40		T	T	T	T	T	T	T	T	T
			Ir ≤ 50			T	T	T	T	T	T	T	T
			Ir ≤ 63				T	T	T	T	T	T	T
			Ir ≤ 80						T		T	T	T
			Ir ≤ 100						T		T	T	T
			Ir ≤ 125									T	T
NSX250F TMD/TMG/ Micrologic	36	35	Ir ≤ 32	25/52	25/52	25/52	25/52	25/52	25/52	T	T	T	T
			Ir ≤ 40		25/52	25/52	25/52	25/52	25/52	T	T	T	T
			Ir ≤ 50			25/52	25/52	25/52	25/52	T	T	T	T
			Ir ≤ 63				25/52	25/52	25/52	T	T	T	T
			Ir ≤ 80					25/52	25/52		T	T	T
			Ir ≤ 100						25/52		T	T	T
			Ir ≤ 125									T	T
NSX100N/H NSX160N/H TMD/TMG/ Micrologic	50/ 70	50/ 65	Ir ≤ 32	36/75	36/75	36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 40		36/75	36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 50			36/75	36/75	36/75	36/75	T	T	T	T
			Ir ≤ 63				36/75	36/75	36/75	T	T	T	T
			Ir ≤ 80					36/75	36/75		T	T	T
			Ir ≤ 100						36/75		T	T	T
			Ir ≤ 125									T	T
NSX250N/H TMD/TMG/ Micrologic	50/ 70	50/ 65	Ir ≤ 32	25/52	25/52	25/52				T	T	T	T
			Ir ≤ 40		25/52	25/52	25/52	25/52	25/52	T	T	T	T
			Ir ≤ 50			25/52	25/52	25/52	25/52	T	T	T	T
			Ir ≤ 63				25/52	25/52	25/52	T	T	T	T
			Ir ≤ 80					25/52	25/52		T	T	T
			Ir ≤ 100						25/52		T	T	T
			Ir ≤ 125									T	T

Circuit-breaker/Transfer Switching Equipment coordination

Upstream: ComPacT NSX100-250

Downstream: TransferPacT Automatic TA10D, TA16D

Ue: ≤440 V AC

Load side			TSE	TA10D						TA16D			
			Rating (A)	32	40	50	63	80	100	80	100	125	160
			Ith (A) 60°C	32	40	50	63	80	100	80	100	125	160
			Icw (kA)	3	3	3	3	3	3	5.5	5.5	5.5	5.5
			Icm(kAp)	15	15	15	15	15	15	20	20	20	20
Supply side			Icu (kA)										
Circuit breaker			415V	440V	TSE conditional short-circuit current and related making capacity:								
NSX100S/L/R NSX160S/L/R TMD/TMG/ Micrologic	100/ 150/ 200	90/ 150/ 200	I _r ≤ 32	36/75	36/75	36/75	36/75	36/75	36/75	65/143	65/143	65/143	65/143
			I _r ≤ 40		36/75	36/75	36/75	36/75	36/75	65/143	65/143	65/143	65/143
			I _r ≤ 50			36/75	36/75	36/75	36/75	65/143	65/143	65/143	65/143
			I _r ≤ 63				36/75	36/75	36/75	65/143	65/143	65/143	65/143
			I _r ≤ 80					36/75	36/75	65/143	65/143	65/143	65/143
			I _r ≤ 100						36/75		65/143	65/143	65/143
			I _r ≤ 125									65/143	65/143
			I _r ≤ 160										65/143
NSX250S/L/R TMD/TMG/ Micrologic	100/ 150/ 200	90/ 150/ 200	I _r ≤ 32	25/52	25/52	25/52	25/52	25/52	25/52	65/143	65/143	65/143	65/143
			I _r ≤ 40		25/52	25/52	25/52	25/52	25/52	65/143	65/143	65/143	65/143
			I _r ≤ 50			25/52	25/52	25/52	25/52	65/143	65/143	65/143	65/143
			I _r ≤ 63				25/52	25/52	25/52	65/143	65/143	65/143	65/143
			I _r ≤ 80					25/52	25/52	65/143	65/143	65/143	65/143
			I _r ≤ 100						25/52		65/143	65/143	65/143
			I _r ≤ 125									65/143	65/143
			I _r ≤ 160										65/143

T : Protection of the Transfer Switching Equipment is ensured but combination not very relevant

T : Transfer Switching Equipment is totally coordinated up to the Icu of the circuit breaker installed on supply side

36/75 : Transfer Switching Equipment is protected up to 36 kA rms / 75 kA peak

: Protection of the Transfer Switching Equipment / circuit breaker is not ensured.

Fuses/Transfer Switching Equipment coordination

Upstream: gG Fuse

Downstream: TransferPacT Automatic TA10D, TA16D

Ue: ≤440 V AC

A

Load side	TSE	TA10D						TA16D			
Supply side	Rating (A)	32	40	50	63	80	100	80	100	125	160
	Ith (A) 60° C	32	40	50	63	80	100	80	100	125	160
	Fuse type	3	3	3	3	3	3	5.5	5.5	5.5	5.5
	Rating (A)	15	15	15	15	15	15	20	20	20	20
gG fuse link without overload relay	25	T	T	T	T	T	T	T	T	T	T
	32		T	T	T	T	T	T	T	T	T
	40			T	T	T	T	T	T	T	T
	50				T	T	T	T	T	T	T
	63						T		T	T	T
	80						T		T	T	T
	100									T	T
	125										T
gG fuse link with overload relay	160										
	≤ 50	T	T	T	T	T	T	T	T	T	T
	63	T	T	T	T	T	T	T	T	T	T
	80		T	T	T	T	T	T	T	T	T
	100			T	T	T	T	T	T	T	T
	125			80/176	80/176	80/176	80/176	T	T	T	T
	160				36/75	36/75	36/75	50/105	50/105	50/105	50/105
	200							36/75	36/75	36/75	36/75

T : Protection of the Transfer Switching Equipment is ensured but combination not very relevant

T : Transfer Switching Equipment is totally coordinated up to the Icu of the circuit breaker installed on supply side

36/75 : Transfer Switching Equipment is protected up to 36 kA rms / 75 kA peak

: Protection of the Transfer Switching Equipment is not ensured.

Important Notice : Current limitation characteristics can be significantly different from one manufacturer to another This table can not dispense to check selected fuse characteristics

Transfer**PacT** FXM

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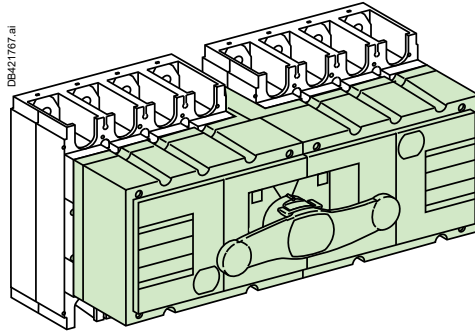
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Switching devices



Complete Source-changeover Assembly

(or MTSE: Manual Transfer Switching Equipment)



Definition of Class PC

Transfer switch equipment based on mechanical switching devices, that do not need electrical power to hold the main contacts open or closed and capable of making, carrying, and breaking currents under normal circuit conditions including operating overload conditions, and making and withstanding short-circuit currents.

Definition of Derived TSE

TSE based on switching devices that have certain tests required for compliance with IEC 60947-6-1 as defined in Table 9, covered by IEC 60947-3 for Class PC, IEC 60947-2 or IEC 60947-6-2 for Class CB, or IEC 60947-4-1 for Class CC

Definition of MTSE (Manual Transfer Switching Equipment)

manually operated transfer switching equipment, transfer switching equipment operated manually and non-electrically.

TransferPacT FXM is a class PC, derived MTSE (complete 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 catalog number.

Switching devices

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.

B

TransferPacT FXM100 to 630

(complete source-changeover assembly)

31141_image_2.eps



Complete source-changeover assembly.

PB110866_60.eps



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)	I_{th}	at 60 °C
Conventional thermal current in enclosure	I_{the}	at 60 °C
Rated insulation level (V)	U_i	AC 50/60 Hz
Impulse-withstand voltage (kV)	U_{imp}	
Rated operational voltage (V)	U_e	AC 50/60 Hz DC

Rated operational voltage AC20 and DC20 (V) AC 50/60 Hz

Rated operational current (A)	I_e	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)	I_{cm}	Min. (switch-disconnector alone) Max. (with upstream protection circuit breaker)
---	-----------------------	---

Short-time withstand current (A rms)	I_{cw}	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".

B

Life is On | Schneider Electric B-5

TransferPacT FXM100 to 630

(complete source-changeover assembly)

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(downstream, outgoing pitch for FXM100-250 is 35mm, FXM 320-630 is 45mm)

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

B

Life is On | Schneider Electric B-7

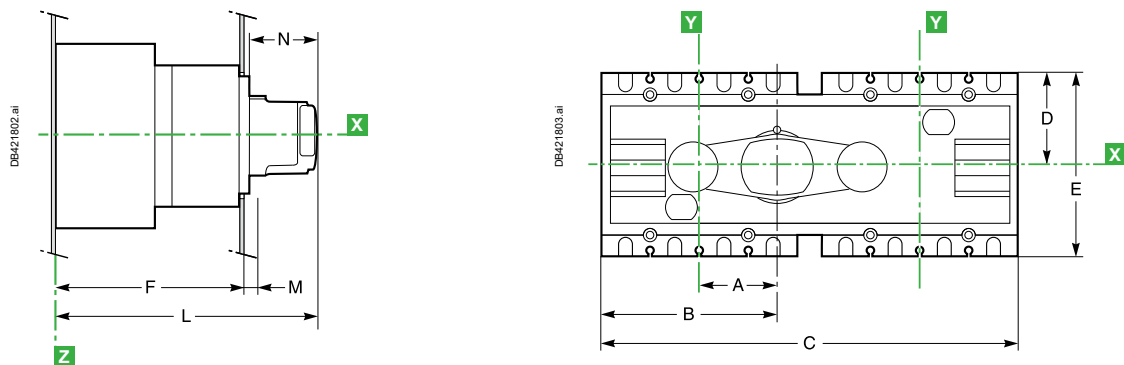
MTSE/Manual source-changeover systems

TransferPacT FXM

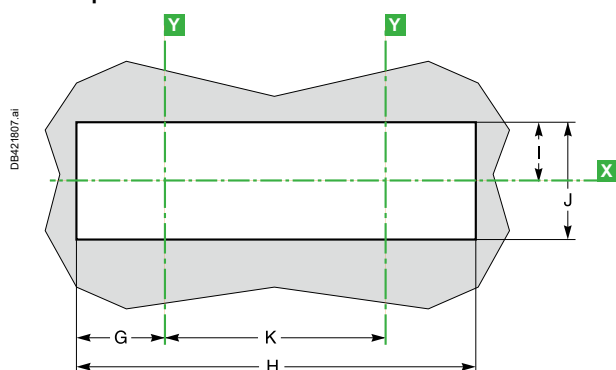
Class PC

Complete manual source-changeover assembly

TransferPacT FXM with direct rotary handle



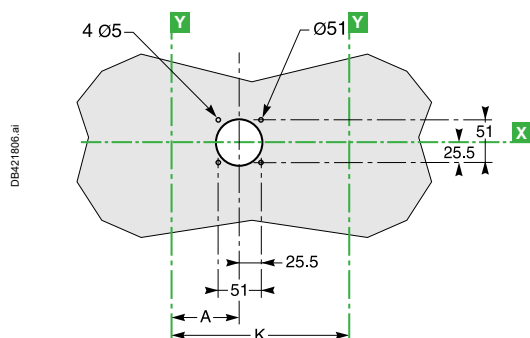
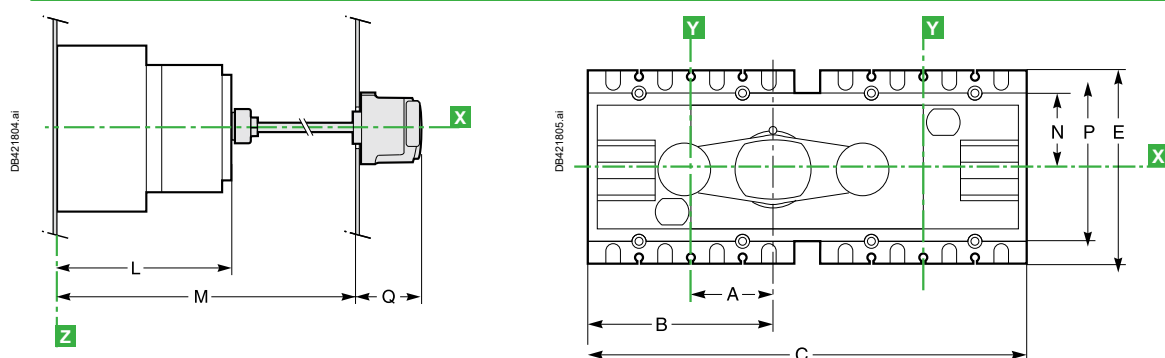
Front-panel cutout



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

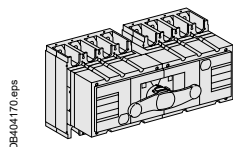
Dimensions (mm)

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

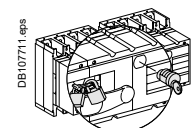
Note: lines X and Y indicate the axes of symmetry of the switch-disconnector.
Reference plane Z corresponds to the back of the switch-disconnector.

References of TransferPacT FXM

TransferPacT FXM (complete source-changeover assembly)

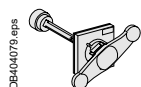


	3P	4P
FXM100	31140	31141
FXM160	31144	31145
FXM200	31142	31143
FXM250	31146	31147
FXM320	31148	31149
FXM400	31150	31151
FXM500	31152	31153
FXM630	31154	31155



Locking for TransferPacT FXM

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



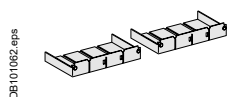
Rotary handle

Extended front control for complete source changeover assembly	31055
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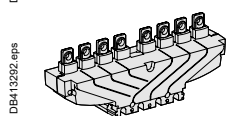
Connection accessories

Downstream coupling accessories

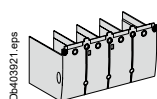
Short terminal shields (1 pair) + "Normal" source/"Replacement" source



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



Long terminal shields (1 piece)



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

Order form for manual source-changeover systems

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

Complete source-changeover assembly			
INS250-100 A	☐	INS250-160 A	☐
INS250-200 A	☐	INS250-250 A	☐
INS320	☐	INS400	☐
INS500	☐	INS630	☐

ATS, RTS and MTS based on Com**PacT** and Master**PacT** range

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C

Manual, Remote and Automatic Transfer Switch

Schneider Electric offers source change-over systems based on ComPacT and MasterPacT devices.

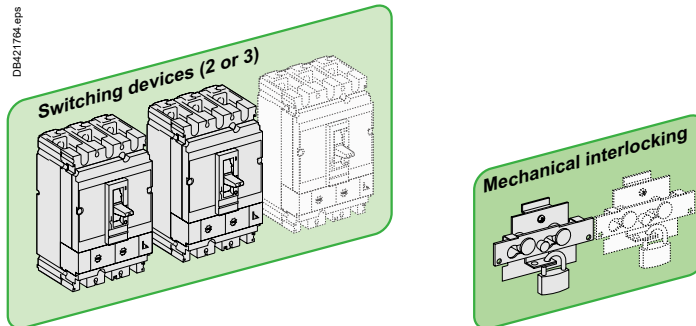
They are made of up to 3 circuit breakers or switch-disconnectors linked by an electrical interlocking system that may have different configurations. Moreover, a mechanical interlocking system must be added to protect against electrical malfunctions or incorrect manual operations. In addition, a controller can be used for automatically control the source transfer.

The following pages present the different solutions for mechanical and electrical interlocking and associated controllers.

M

Manual source-changeover system

(or MTSE: Manual Transfer Switching Equipment)



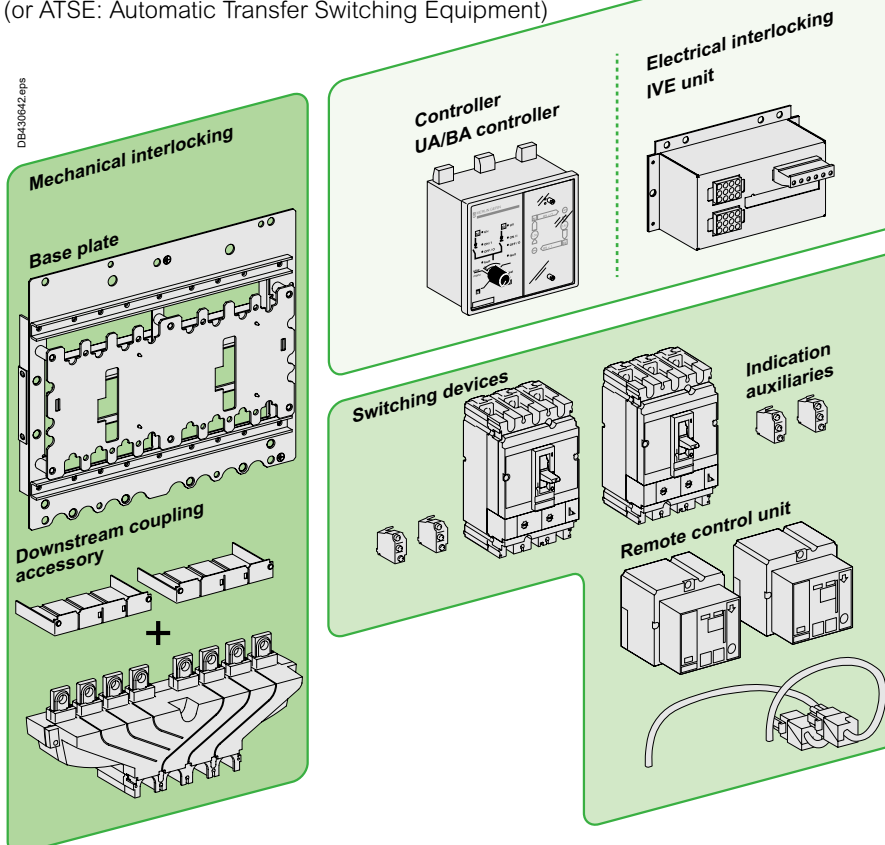
R/A

Remote-operated source-changeover system

(or RTSE: Remote Transfer Switching Equipment)

Automatic source-changeover system

(or ATSE: Automatic Transfer Switching Equipment)



Manual, Remote and Automatic Transfer Switch

Switching devices

	Class PC	Class CB
ComPacT INS/INV	C-4	-
ComPacT NSX	C-5	C-8
ComPacT NS	C-5	C-9
MasterPacT MTZ1	C-5	C-9
MasterPacT MTZ2/MTZ3	C-5	C-9

Mechanical interlocking

Mechanical interlocks	C-10
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TransferPacT

Electrical interlocking

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IVE unit, Operating sequences	C-17

TransferPacT controller

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Information

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 U_i (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	■	■

Switching devices

Class PC

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 U_i (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 VigiPact 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	■	■	■	■	■

Switching devices



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

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 U_i (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
	AC	500 VA	500 VA
	DC	500 W	500 W
Maximum consumption			
Minimum switching time		800 ms	800 ms
Protection and measurement			
Earth-leakage protection	by Vigi module	■	■
	by control unit		
	by add-on VigiPact 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 I_n (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 I_n ($O_N-C_R-O_R-C_N$ cycles) ^[1] for ≤ 440 V and 480 V NEMA ^[2]		10000 - 20000 - 30000	4000 - 6000
Electrical durability at I_n ($O_N-C_R-O_R-C_N$ 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 catalog.

[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

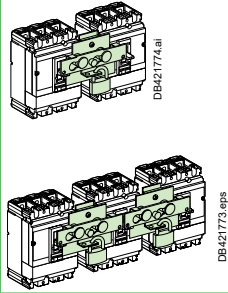
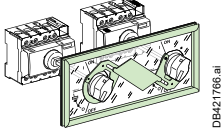
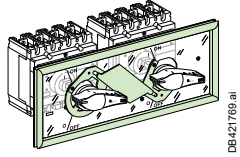
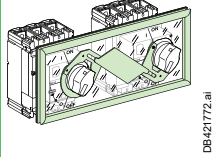
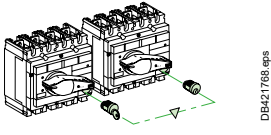
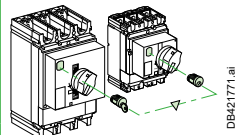
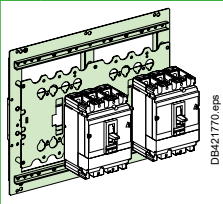
Switching devices

Class CB

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		48 to 415 V - 50/60 Hz			
		440 V - 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			
Interlocking by rotary handles			
M			
Interlocking by keylocks with captive keys			
M			
Interlocking by a base plate			
A			

TransferPacT

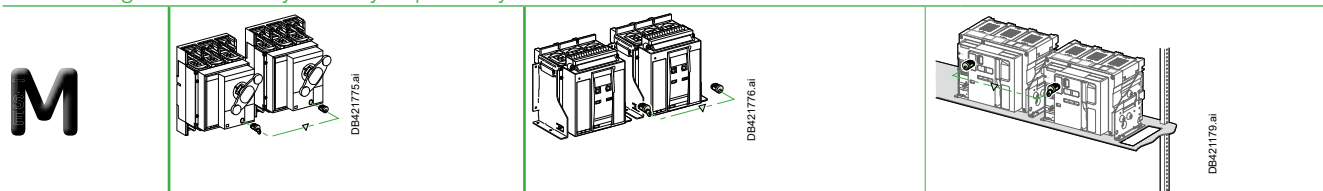
Mechanical interlocking

Range	ComPacT	MasterPacT
Models	NS630b to NS1600	MTZ1 06 to 16
Current rating (A)	630b to 1600	630 to 1600
Type of device	Class PC and Class CB	Class PC and Class CB

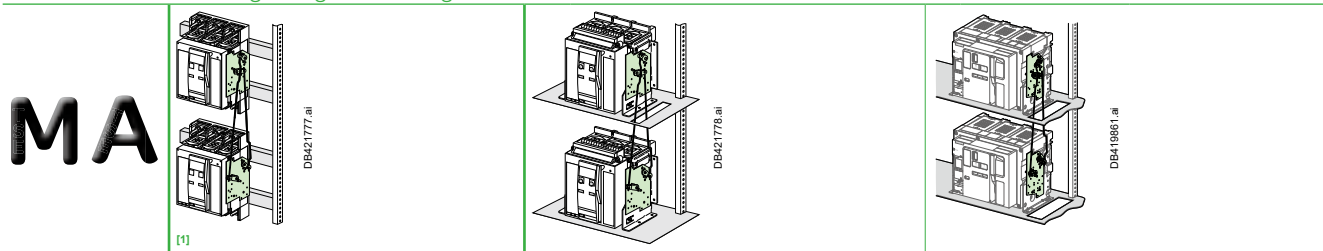
Interlocking by extended rotary handles



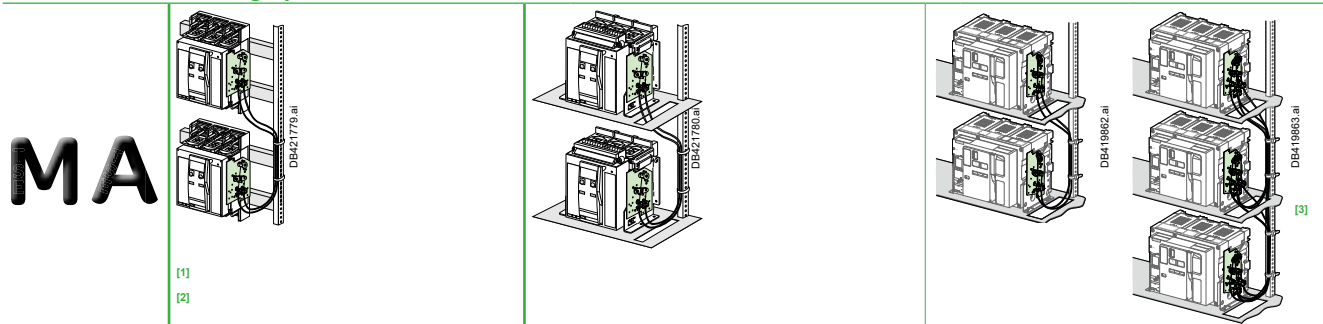
Interlocking via device keylocks by captive keys



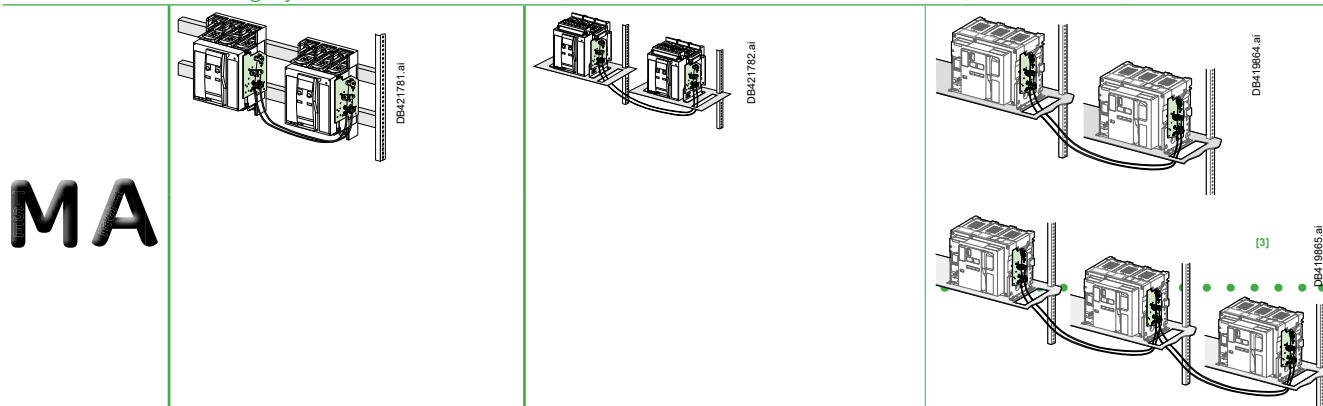
Mechanical interlocking using connecting rods



Mechanical interlocking by cables



Mechanical interlocking by cables



[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.

TransferPacT

Mechanical interlocking



PB113435.eps

Interlocking of two or three toggle-controlled devices.



PB113419.eps

Interlocking of two devices by rotary handles.



PB113829.eps

Interlocking with keylocks.

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.

Authorized 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.

Authorized 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 withdrawn 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

Mechanical interlocking

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.

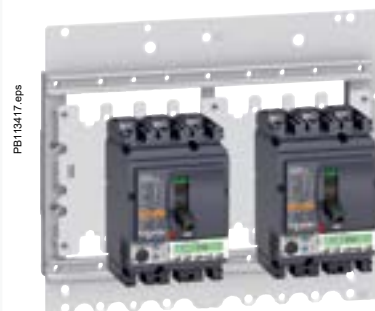
For ComPacT NSX circuit breakers, the downstream coupling accessory can be used only with **fixed versions**.

Connection and insulation accessories

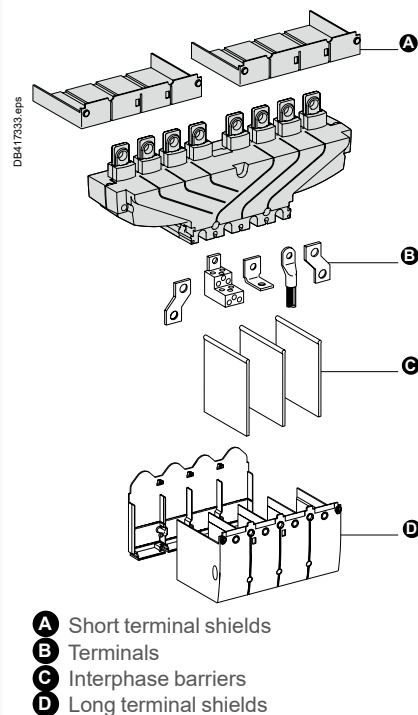
The coupling accessory can be fitted with the same connection and insulation accessories as the circuit breakers and switch-disconnectors.

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

Note: for usage of PowerTag NSX on NSX mounted on interlocking plate, please consult us.



Interlocking on a base plate.



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

TransferPacT

Mechanical interlocking

For implementing the mechanical interlocking, two different possibilities are offered:

- interlocking with rods
- interlocking with cables.

Note: for mechanical interlocking application with connecting rods and cables, pushbutton cover is mandatory to prevent wrong mechanical close order.

Commercial references for pushbutton cover:

- MasterPacT MTZ1 : LV833897
- MasterPacT MTZ2 and MTZ3 : LV848536
- ComPacT NS630b to 1600: 33897

Interlocking with rods

Interlocking of two ComPacT NS630b to 1600 devices using connecting rods

Both devices must be installed one above the other.

For ComPacT NS, only associations between similar type devices are allowed (2 fixed or 2 drawout devices).

Installation

This function requires:

- an adaptation fixture on the right side of each circuit breaker or switch-disconnector
- a set of connecting rods with no-slip adjustments.

The adaptation fixtures, connecting rods and circuit breakers or switch-disconnectors are supplied separately, ready for assembly.

The maximum vertical distance between the fixing plates is 900 mm.

Possible combinations of "S1" and "S2" source circuit breakers

Combinations are possible between ComPacT NS devices and between ComPacT NS devices with MasterPacT MTZ1 devices (either 2 fixed or 2 withdrawable/drawout devices).

Interlocking of two MasterPacT MTZ using connecting rods

Both devices must be installed one above the other.

For MasterPacT MTZ1 only associations between similar type devices are allowed (2 fixed or 2 drawout devices).

For MasterPacT MTZ2 and MTZ3, all mixed associations between fixed type and drawout type devices are possible.

		Source 2							
		Fixed				Drawout			
		NS630b to NS1600	MTZ1	MTZ2	MTZ3	NS630b to NS1600	MTZ1	MTZ2	MTZ3
Source 1									
Fixed									
NS630b to NS1600		●	●						
MTZ1		●	●						
MTZ2				●	●			●	●
MTZ3				●	●			●	●
Drawout									
NS630b to NS1600						●	●		
MTZ1						●	●		
MTZ2				●	●			●	●
MTZ3				●	●			●	●

Installation

This function requires:

- an adaptation fixture on the right side of each circuit breaker or switch-disconnector
- a set of connecting rods with no-slip adjustments
- a mechanical operation counter CDM (mandatory).

The adaptation fixtures, connecting rods, circuit breakers and switch-disconnectors are supplied separately, ready for assembly.

The maximum vertical distance between the fixing plates is 900 mm.

PB110491_R_34_aps



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

TransferPacT

Mechanical interlocking

Interlocking with cables

Interlocking of two ComPacT NS630b to 1600 devices using cables

For cable interlocking, the circuit breakers may be mounted one above the other or side-by-side.

The interlocked devices may be fixed or drawout, three-pole or four-pole, and have different ratings and sizes.

Installation

This function requires:

- an adaptation fixture on the right side of each device
- a set of cables with no-slip adjustments.

The maximum distance between the fixing plates (vertical or horizontal) is 2000 mm.

Possible combinations of “S1” and “S2” source circuit breakers

All mixed associations between ComPacT NS 630b to 1600 and MasterPacT MTZ1 or MTZ2 or MTZ3 fixed type and drawout type devices are possible.

Interlocking of two or three MasterPacT MTZ using cables

For cable interlocking, the circuit breakers can be installed either one above the other or side-by-side. All mixed associations between MasterPacT MTZ1, MTZ2, MTZ3 fixed type and drawout type devices are possible.

Note: mechanical interlocking for 3 devices is only possible with MTZ2 and MTZ3.

Interlocking between two MasterPacT MTZ1, MTZ2, MTZ3 devices

This function requires:

- an adaptation fixture on the right side of each device
- a set of cables without slip adjustments
- a mechanical operation counter CDM (mandatory).

The maximum distance between the fixing plates (vertical or horizontal) is 2000 mm.

Interlocking between three MasterPacT MTZ2, MTZ3 devices

This function requires:

- a specific adaptation fixture installed on the right side of each device
- two sets of cables without slip adjustments
- a mechanical operation counter CDM (mandatory).

The maximum distance between the fixing plates (vertical or horizontal) is 1000 mm.

Installation

The adaptation fixtures, sets of cables and circuit breakers or switch-disconnectors are supplied separately, ready for assembly.

Installation conditions for cable interlocking systems:

- cable length: 2.5 m
- cable bending radius: greater than 100 mm
- maximum number of curves: 3.

Note: for cable length higher than 2.5 m please consult us before ordering the circuit breakers for a customized solution.

Choice criteria

In applications where the continuity of service is critical^[1] (data centers, airports, hospitals, marine, oil&gas, process industry, etc.), mechanical interlocking by rods and drawout 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.

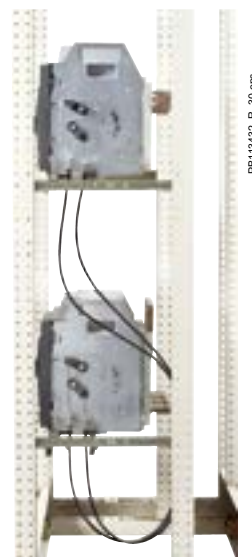
In terms of breaker mounting type, the drawout version is preferred as :

- it provides mechanical isolation of the circuit breaker from possible external stress on the terminals by having a flexible connection at cluster level
- it allows simple and total access for periodic maintenance
- it allows quick replacement of the device if necessary.

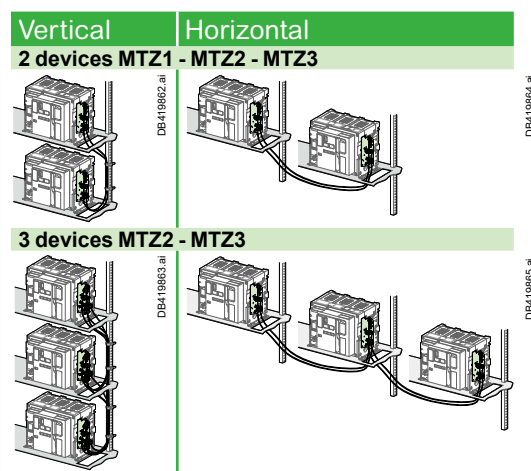
When not possible, cable interlocking or fixed versions can be used, but the installation rules detailed in the 2 sections below must be strictly respected and mainly:

- the busbars or the cables used for power connection must apply no stress on the circuit breaker terminals.

Their weight must be supported by the switchboard frame.



Interlocking of two MasterPacT circuit breakers using cables.



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

Note: for more details on installation rules, please also refer to “MasterPacT MTZ User Guide”.

TransferPacT

Electrical interlocking - IVE unit

Electrical interlocking is used with a mechanical interlocking system. Moreover, 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.

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-38 of the chapter "Electric diagrams" of this catalog.

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-42 to C-47 of the chapter "Electric diagrams" of this catalog.

Characteristics of the IVE unit

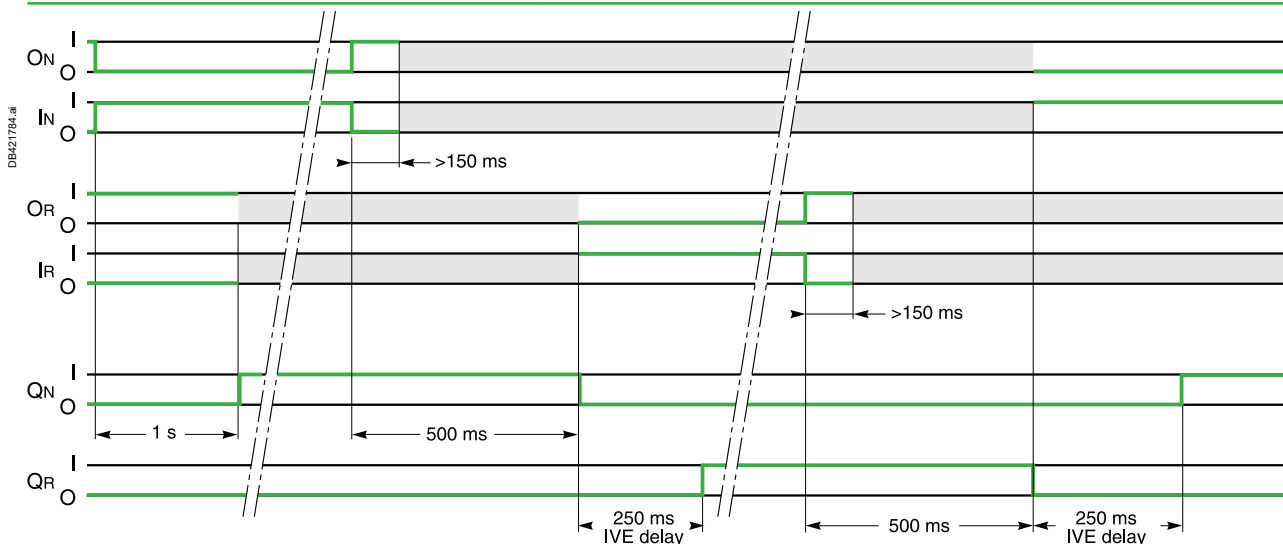
- External connection terminal block:
 - Inputs: circuit breaker control signals
 - Outputs: status of the SDE contacts on the "N" and "R" source circuit breakers.
- 2 connectors for the two "N" and "R" source circuit breakers:
 - Inputs:
 - Status of the OF contacts on each circuit breaker (ON or OFF)
 - 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.

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.

TransferPacT

Electrical interlocking - IVE unit

Necessary equipment

For ComPacT NSX100 to NSX630, each circuit breaker must be equipped with:

- A motor mechanism
- An OF contact
- An SDE contact

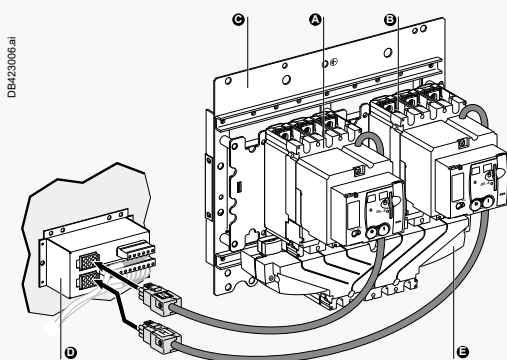
The components are supplied ready for assembly and the circuit breakers prewired. The prewiring must not be modified.

For ComPacT NS630b to NS1600, each circuit breaker must be equipped with:

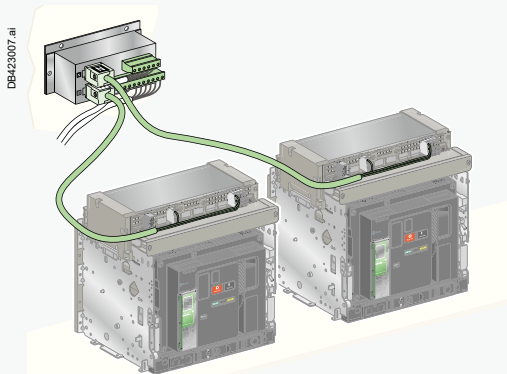
- A motor mechanism
- An available OF contact
- A CE connected-position contact (carriage switch) on withdrawable circuit breakers
- An SDE contact

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).



ComPacT NSX



MasterPacT MTZ

- 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)

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 the diagrams provided in the “electrical diagrams” section of this catalog.



BA controller.



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.		☒
Utilisation category (IEC 947-5-1)		AC	DC
		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.

TransferPacT controllers

Controller installation

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

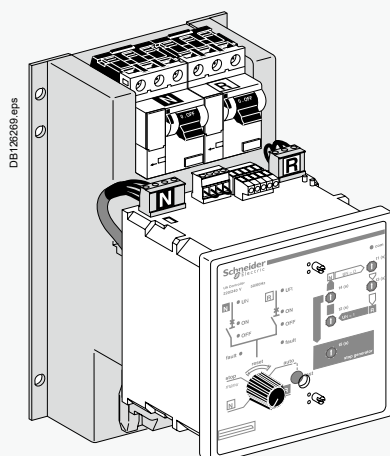
Connection between the TransferPacT ACP control plate and the IVE unit may use:

- wiring done by the installer
- prefabricated wiring (optional).

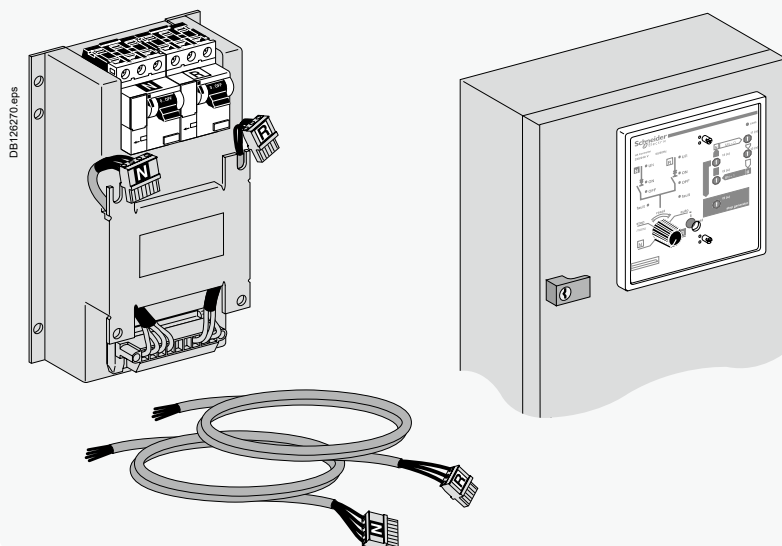
Installation of the BA and UA controllers

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 equivalent 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.



Mounting on the TransferPacT ACP control plate.



Mounting on the front panel of the switchboard.



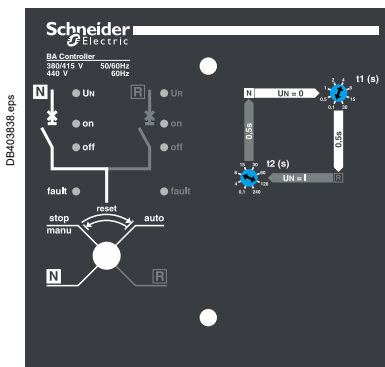
TransferPacT ACP control plate.

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 U_N 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.



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 U_N .

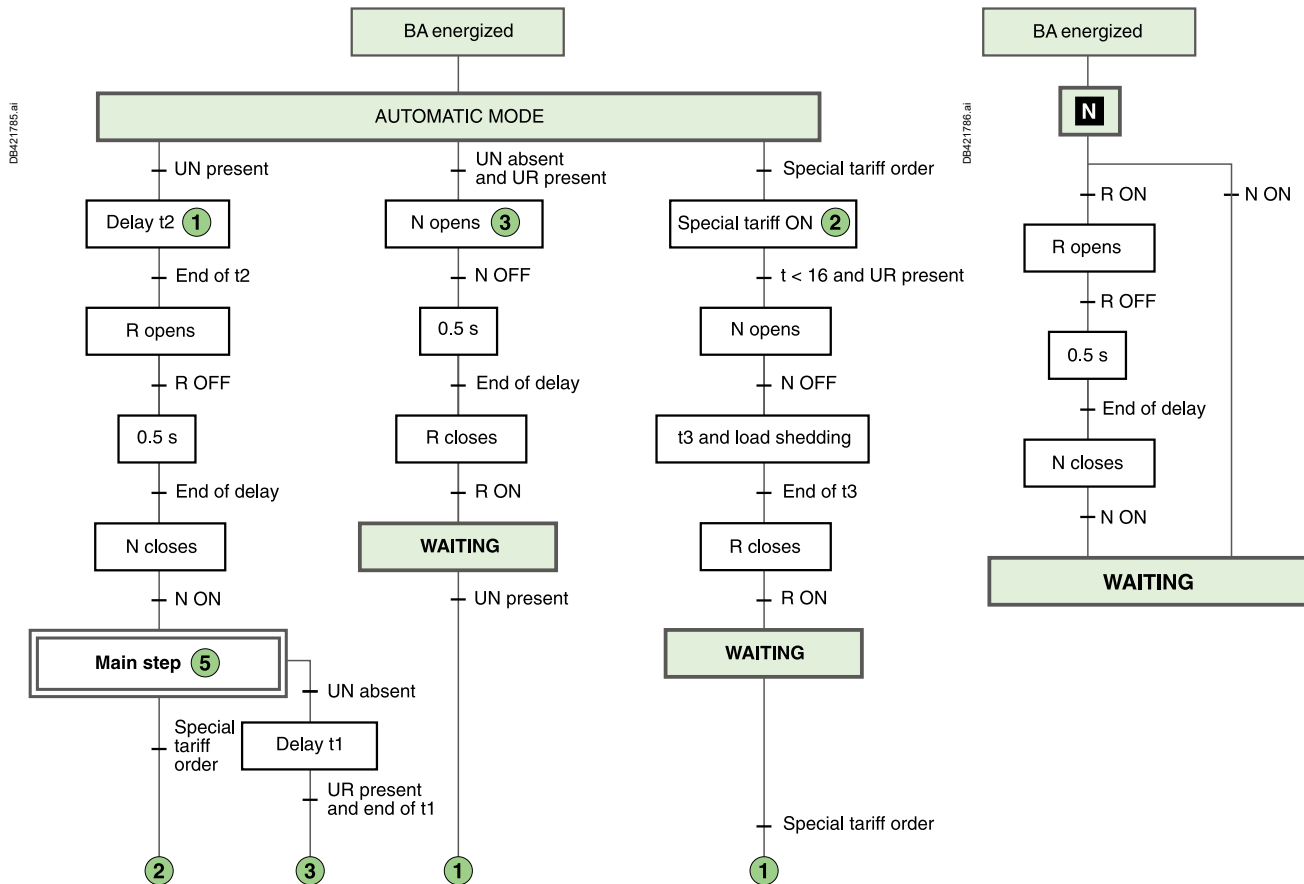
TransferPacT controllers

BA controller

Operating sequences

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).

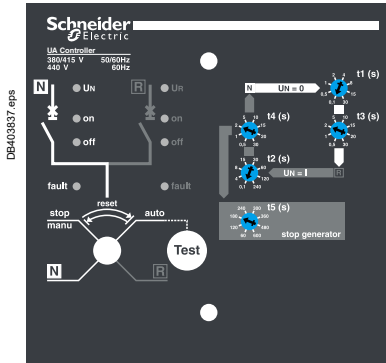
TransferPacT controllers

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.



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).

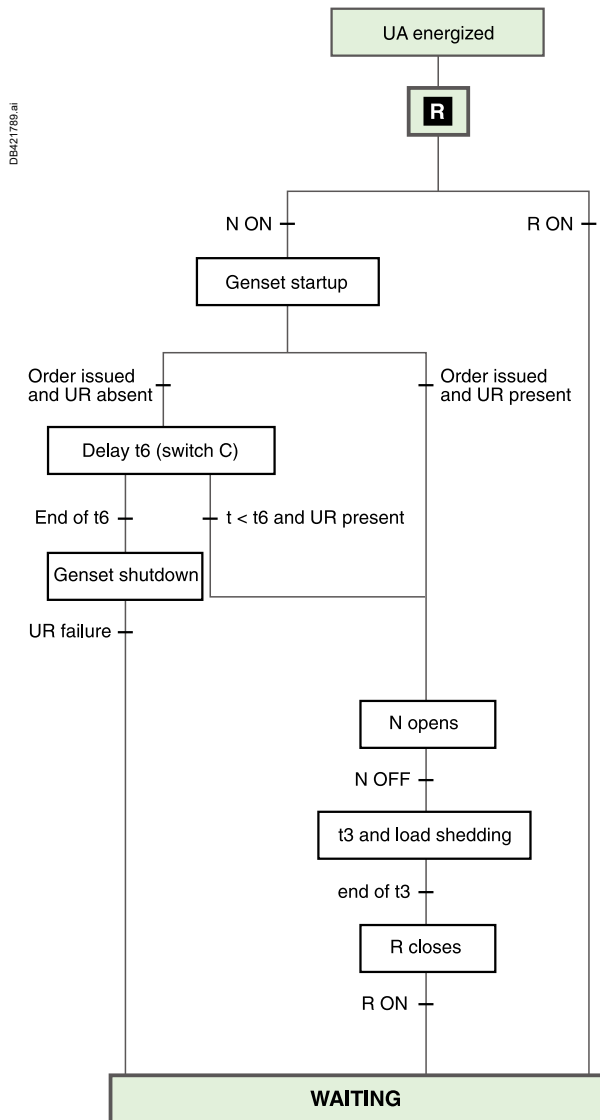
TransferPacT controllers

UA controller

Operating sequences, forced operation mode

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

Switch set to the "N" position
(forced operation on the "Normal" 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 energized, the output for generator set startup is activated).

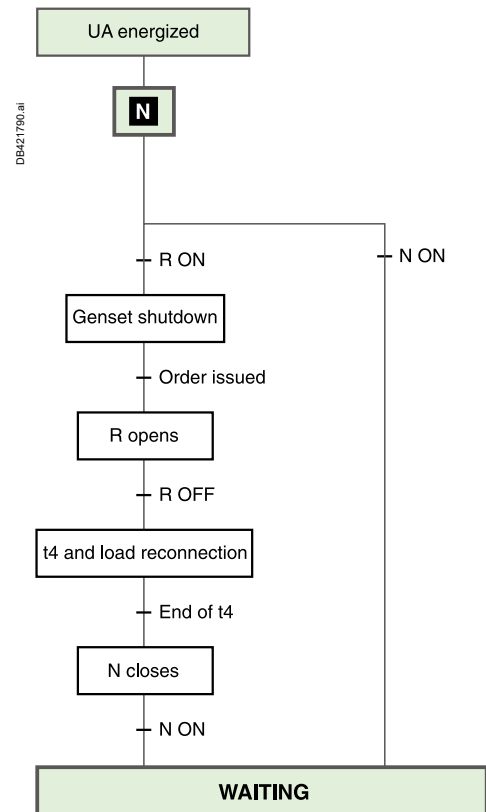
Key

UN: "Normal" source voltage

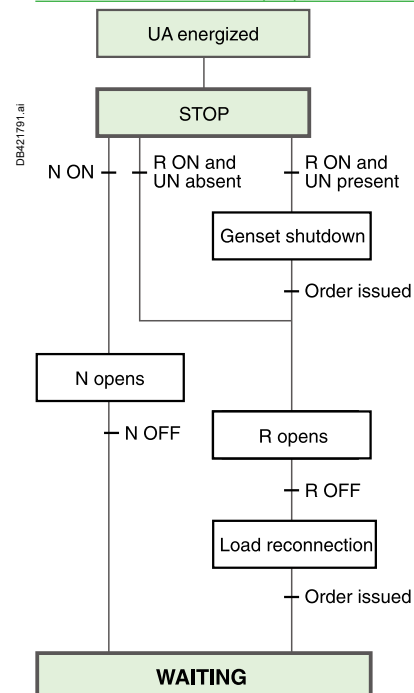
UR: "Replacement" source voltage

N : "Normal" source circuit breaker

R: "Replacement" source circuit breaker



Switch set to the "Stop" position



TransferPacT controllers

UA controller

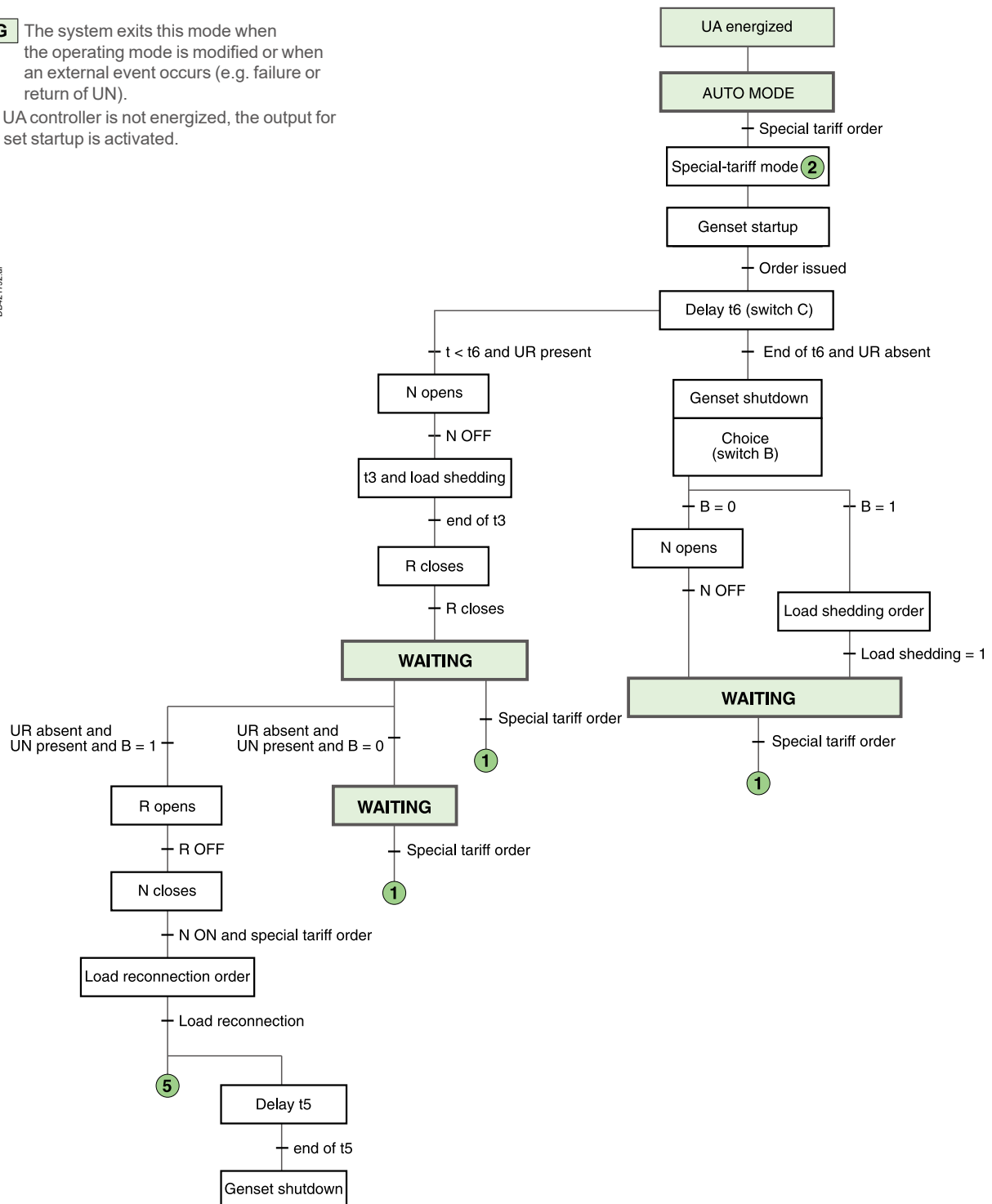
Operating sequences, special-tariff mode

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 energized, the output for generator set startup is activated.

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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

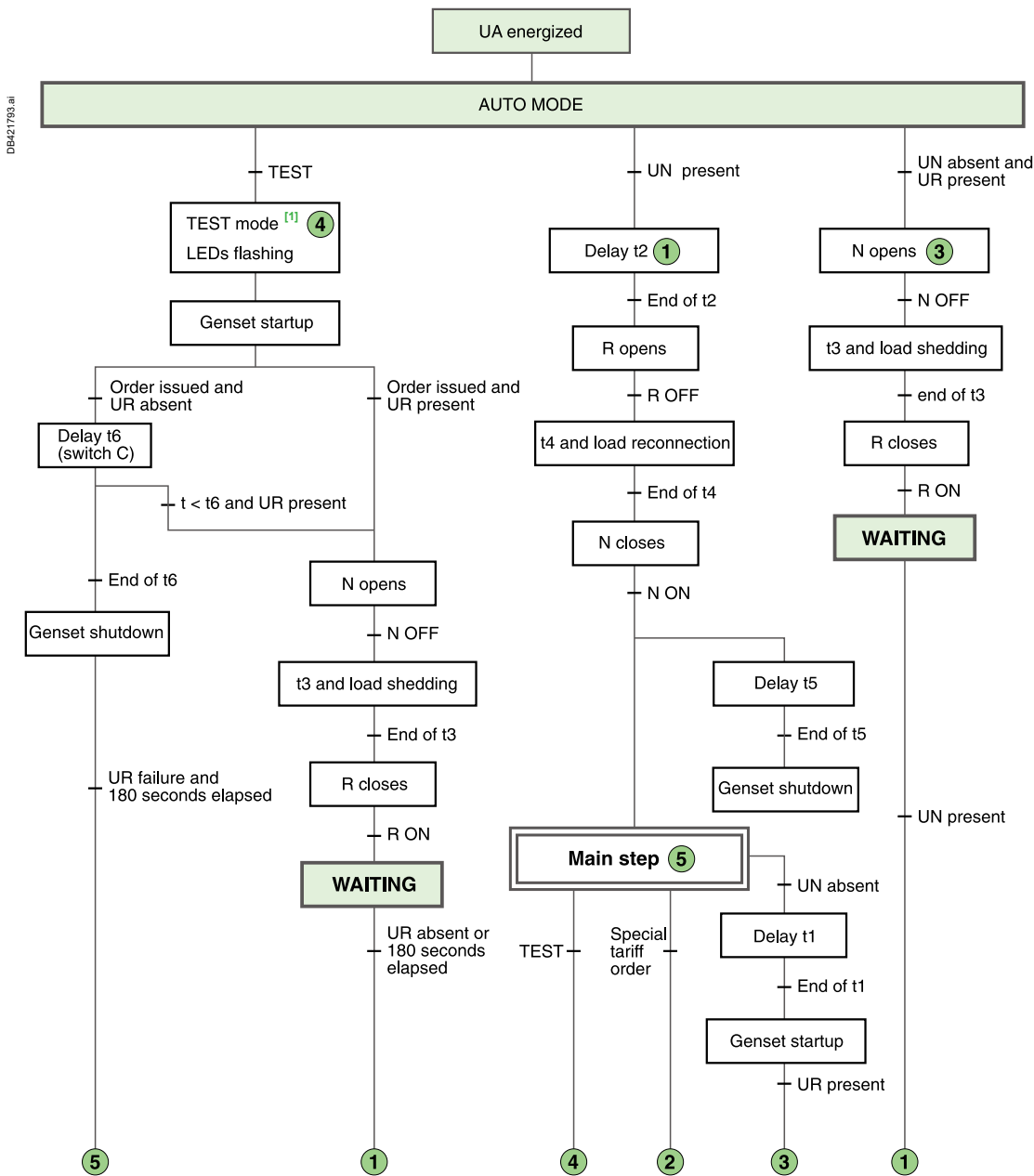
① The number sends to the indicated step when the condition is true.

TransferPacT controllers

UA controller

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 energized, 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

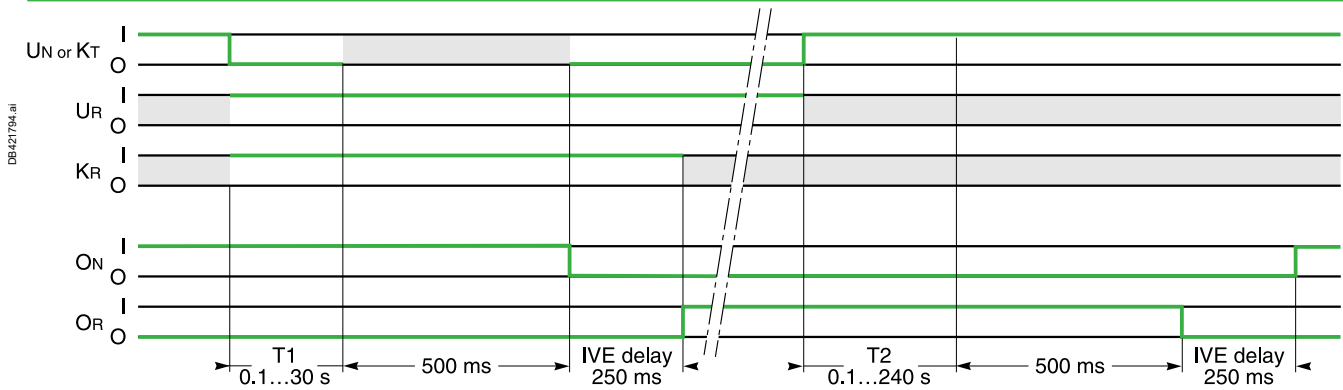
[1] The test lasts 180 seconds.

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

TransferPacT controllers

UA/BA controller

BA controller



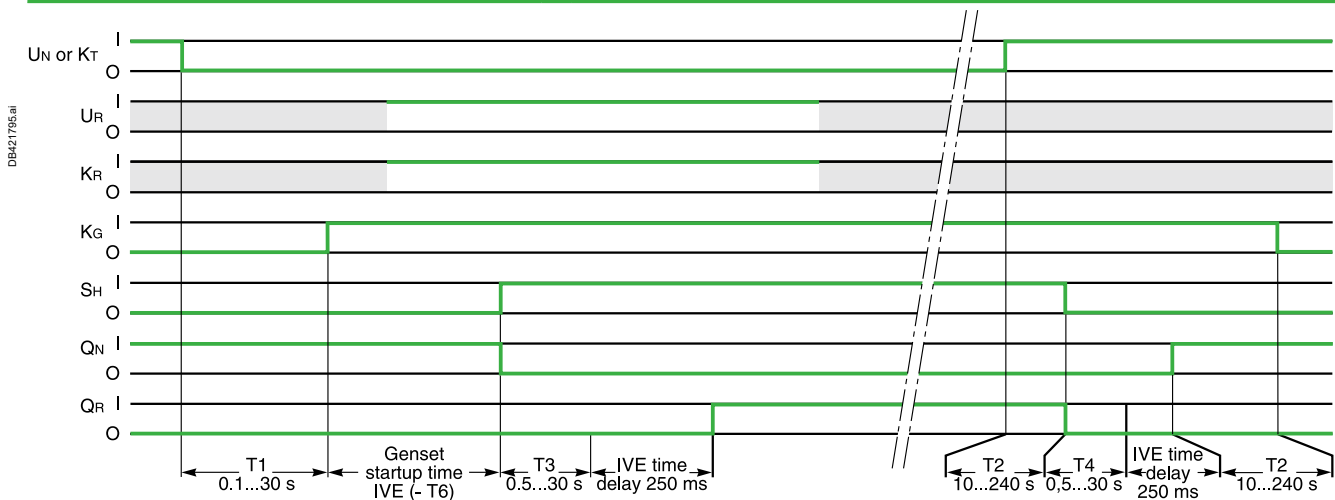
Inputs

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

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.

Manual source-changeover systems

ComPacT INS/INV

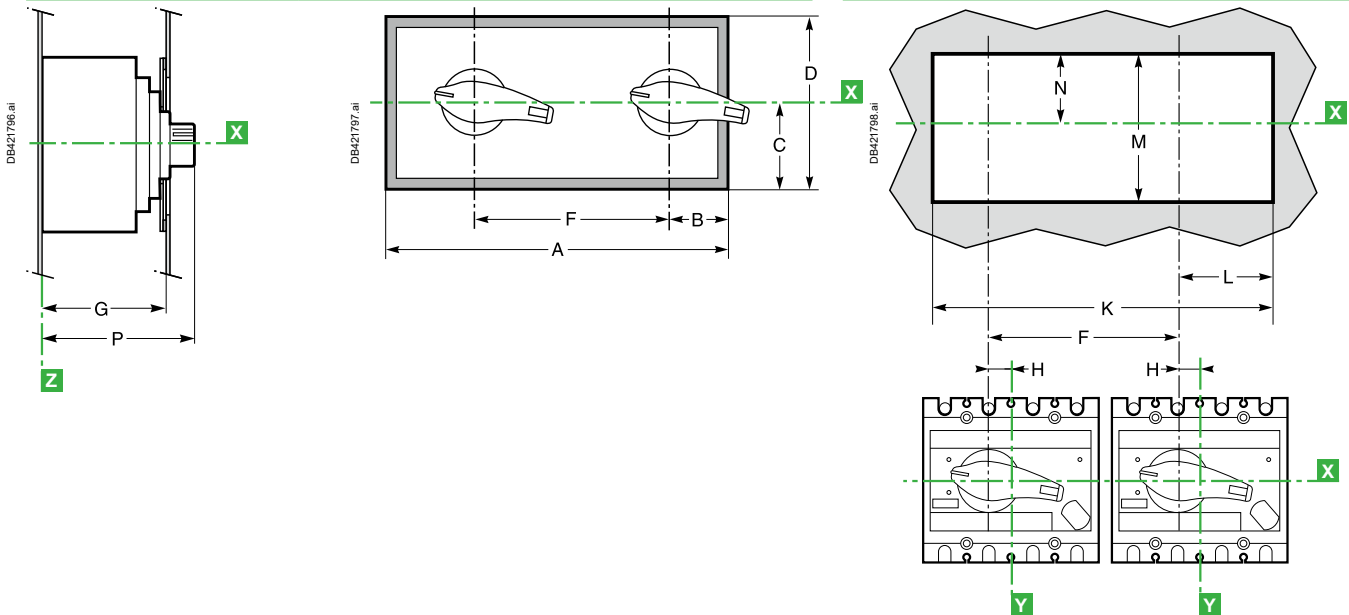
Class PC

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

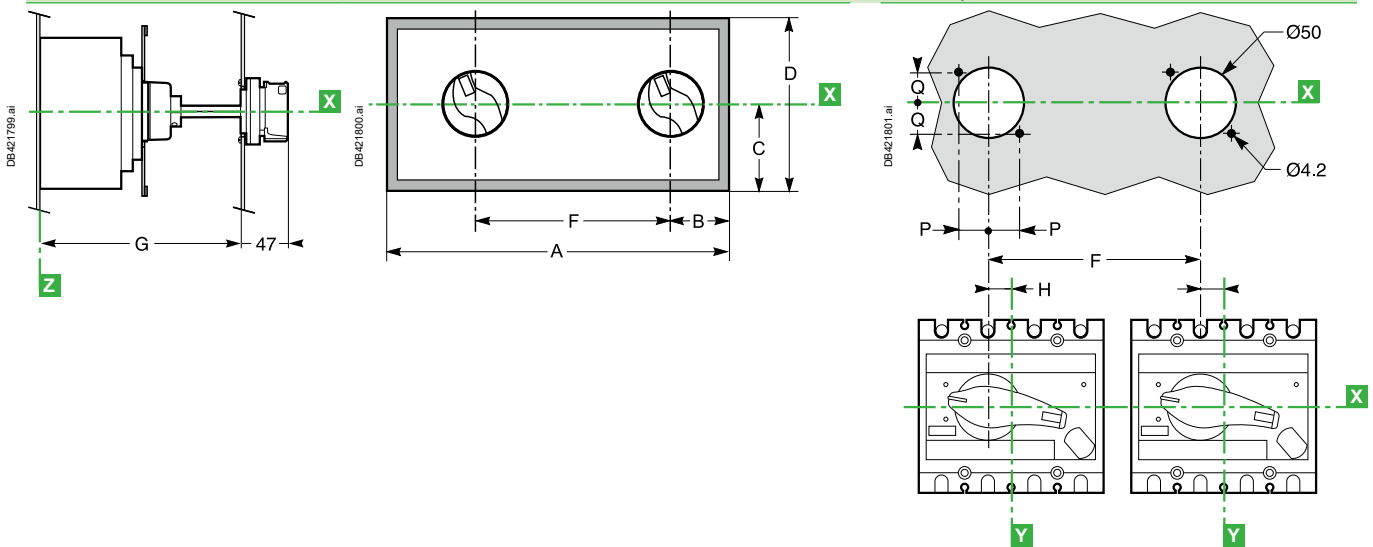
Note: X and Y are the symmetry planes for a 3-pole device.

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

Manual source-changeover systems

ComPacT NSX

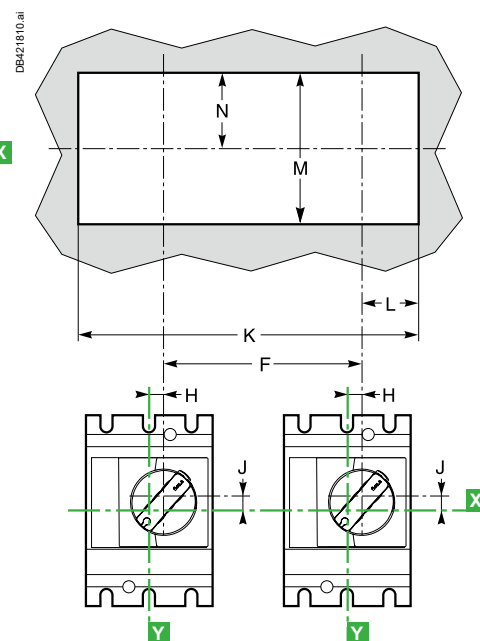
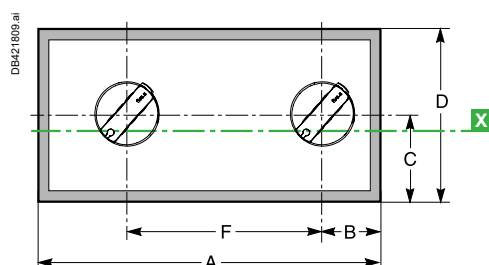
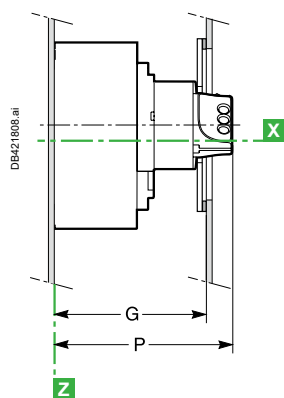
Class PC and CB

Interlocking of direct rotary handles

(ComPacT NSX100 to NSX630 and ComPacT NSX100 NA to NSX630 NA)

Dimensions

Front-panel cutout



Dimensions (mm)

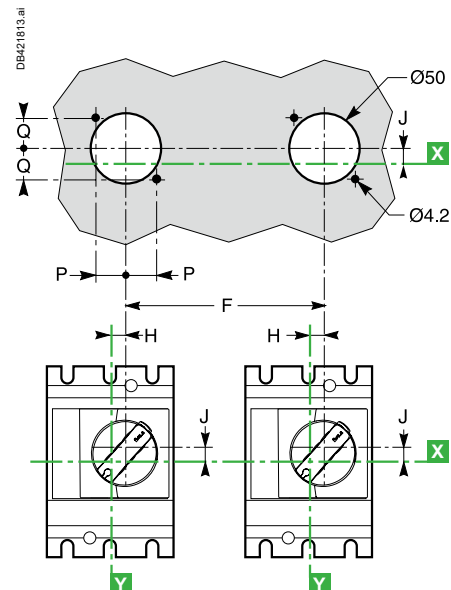
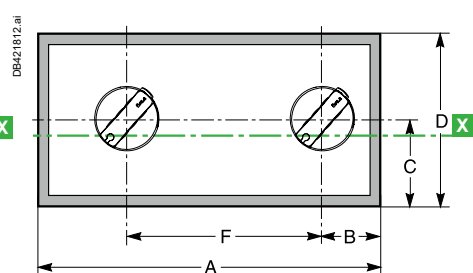
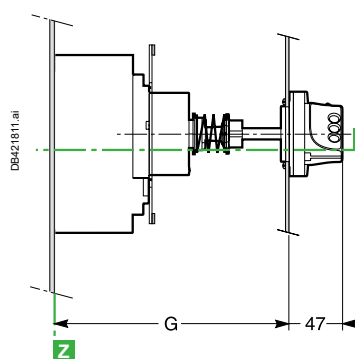
	A	B	C	D	F	G	H	J	K	L	M	N	P
NSX100/160/250 and NA	325	90	87.5	175	156	133	9.25	9	295	75.5	150	75	155
NSX400/630 and NA	416	115	100	200	210	157	5	24.6	386	100	175	74.5	179

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

Manual source-changeover systems

ComPacT NSX

Class PC and CB

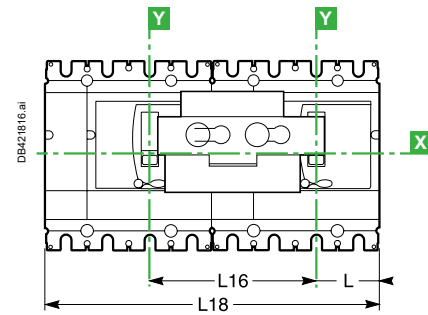
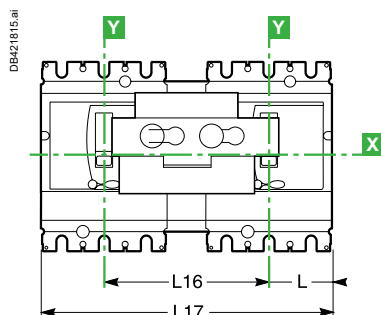
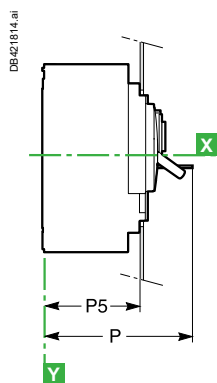
Interlocking of toggles

(ComPacT NSX100 to NSX630 and ComPacT NSX100 NA to NSX630 NA)

Dimensions

3 poles

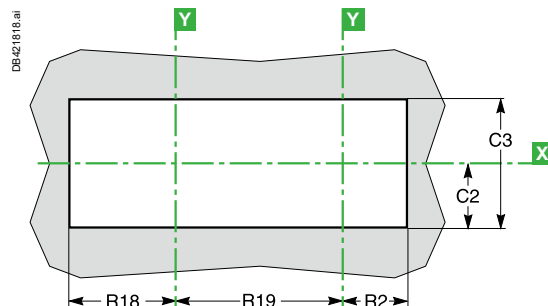
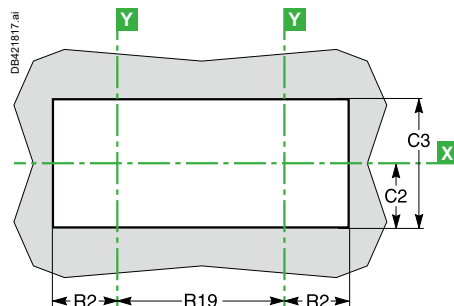
4 poles



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

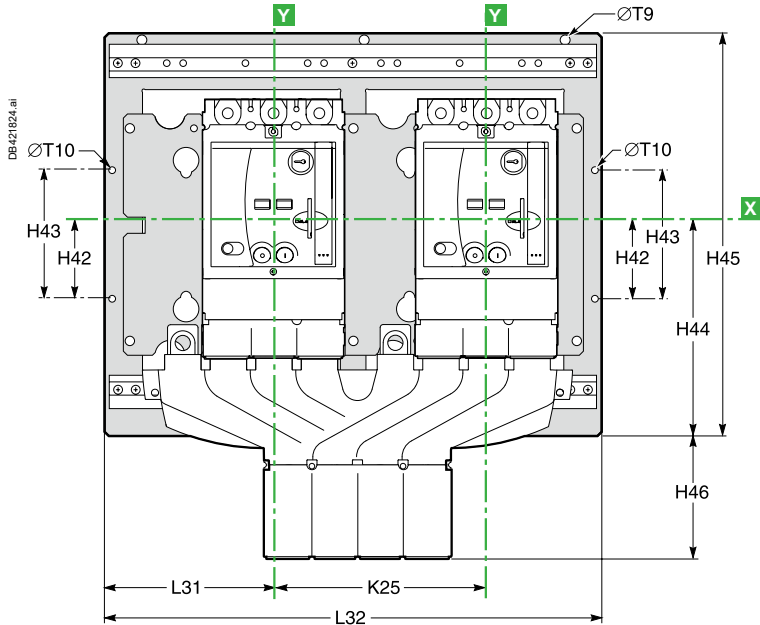
ComPacT NSX - Interlocking on a base plate

Class PC and CB

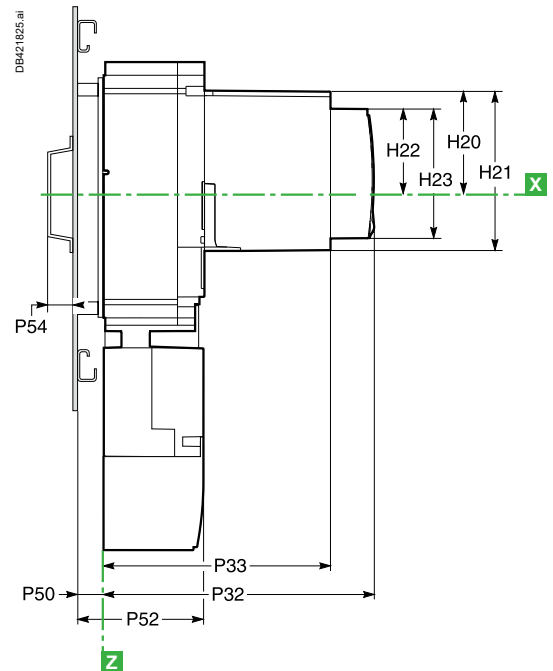
ComPacT NSX400 to NSX630 and ComPacT NSX400 NA to NSX630 NA

Dimensions, 3 or 4 poles

Fixed device

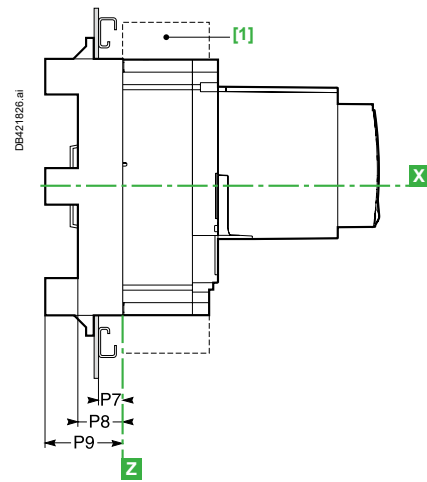
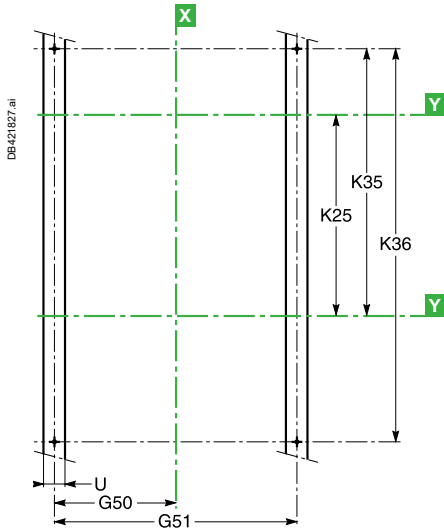


Note: coupling accessory: only for changeover systems using fixed versions of ComPacT NSX circuit breakers.



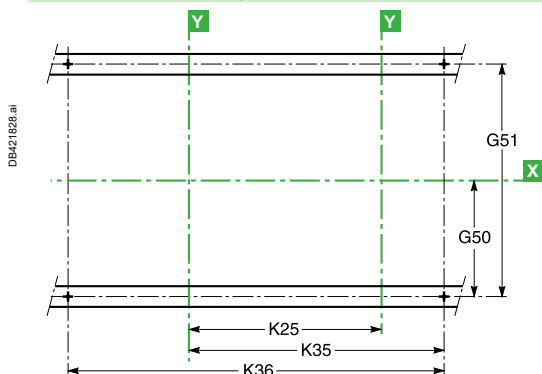
Vertical mounting

Withdrawable device



[1] Short terminal shields are mandatory.

Horizontal mounting



Note: for dimensions see page C-22.

Manual source-changeover systems

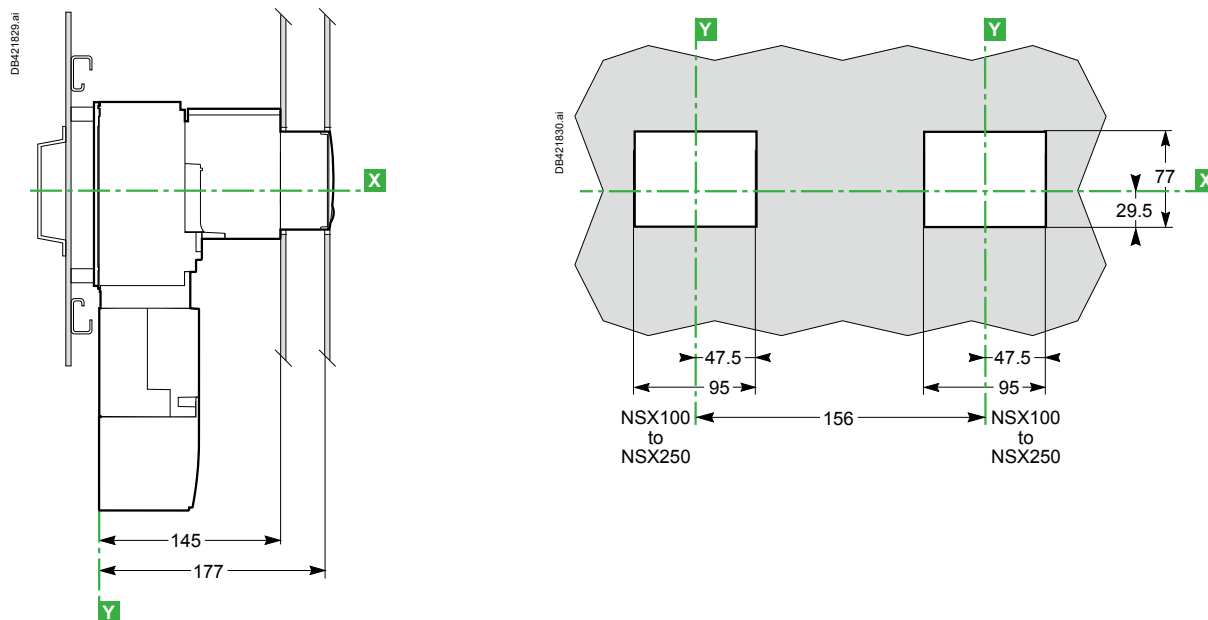
ComPacT NSX - Interlocking on a base plate

Class PC and CB

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

Dimensions

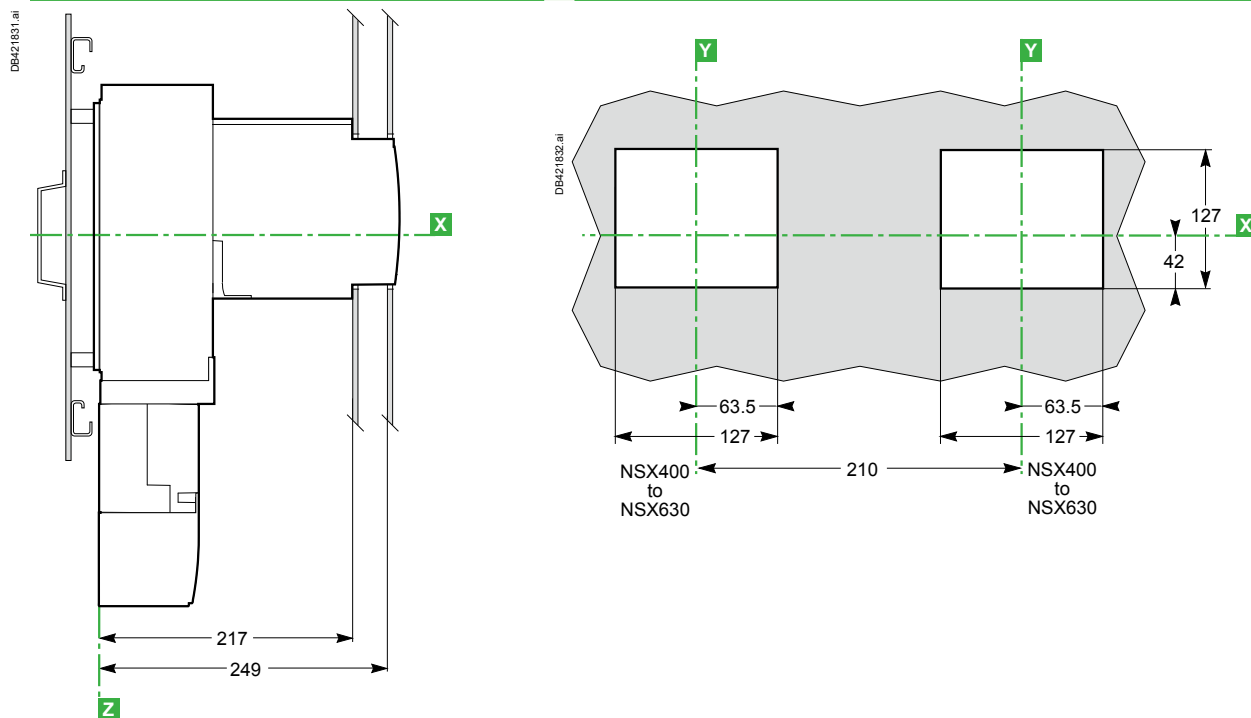
Front-panel cutout



“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 Catalog ComPacT.

Manual source-changeover systems

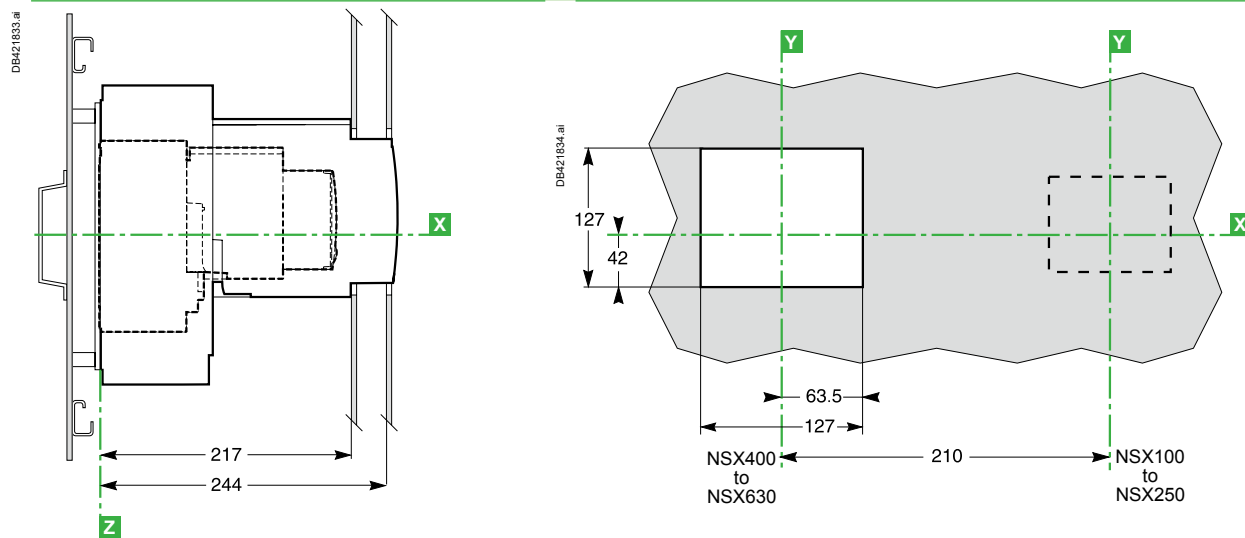
ComPacT NSX - Interlocking on a base plate

Class PC and CB

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

Dimensions

Front-panel cutout



Manual source-changeover systems

Downstream coupling accessory

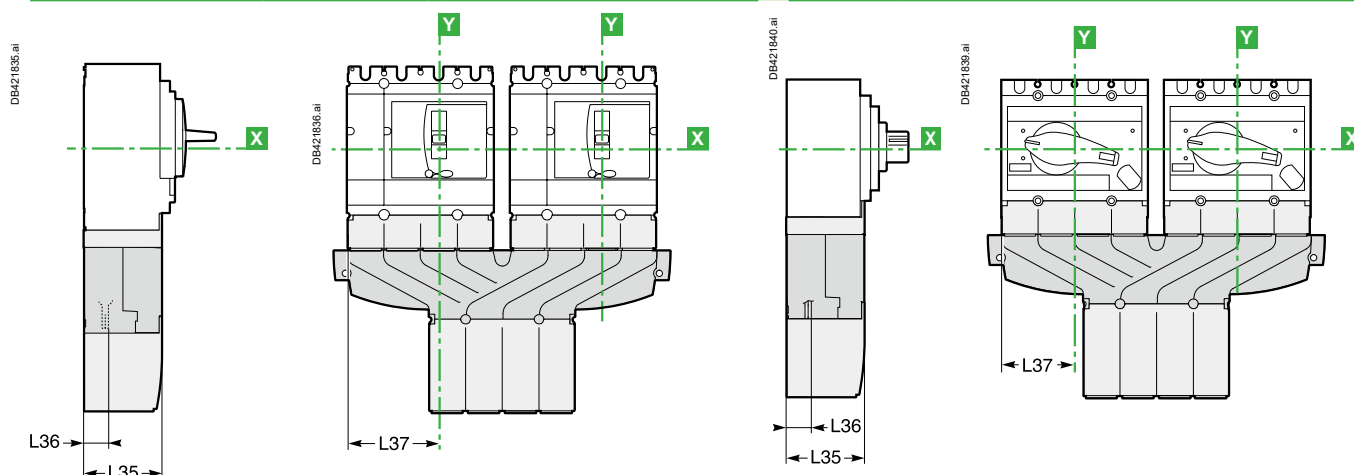
Class PC and CB

Downstream coupling accessory

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

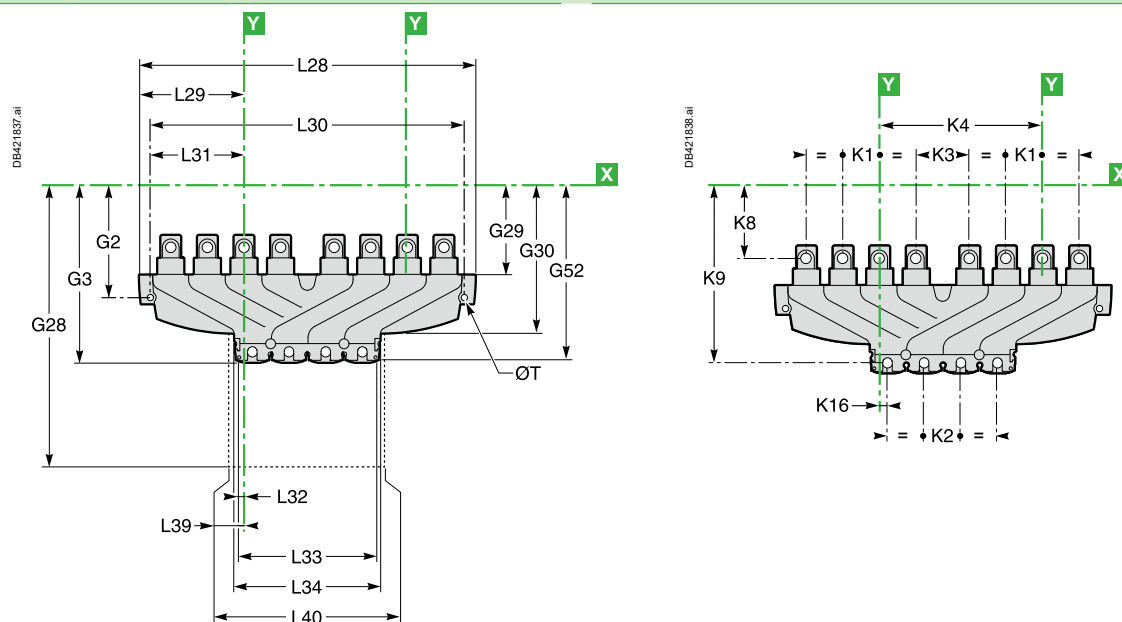
Dimensions for ComPacT NSX

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

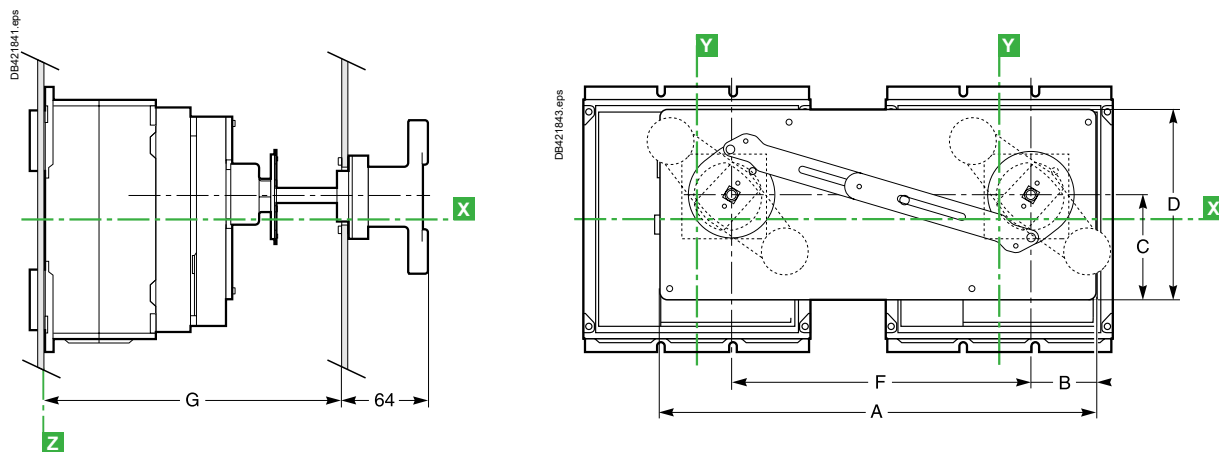
ComPacT NS - Interlocking on a base plate

Class PC and CB

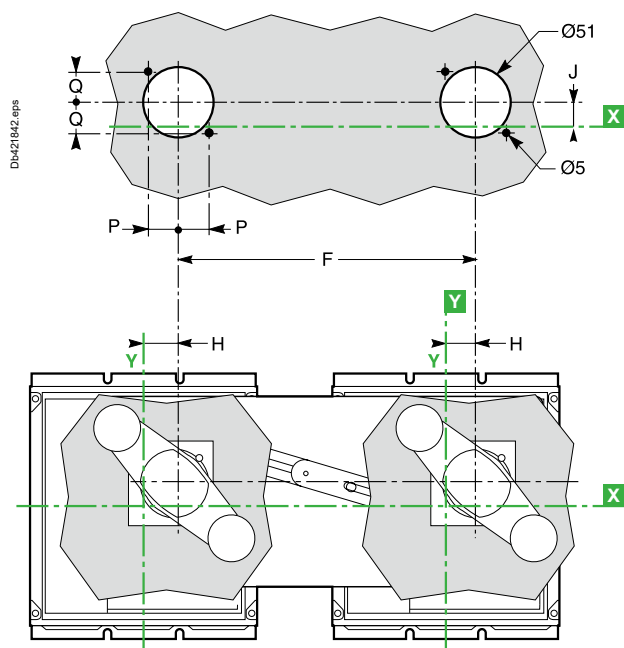
Interlocking of extended rotary handles

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

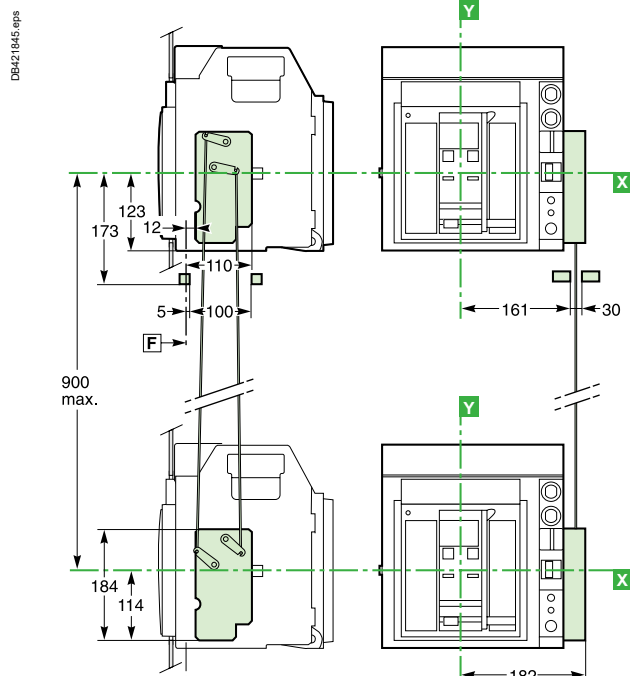
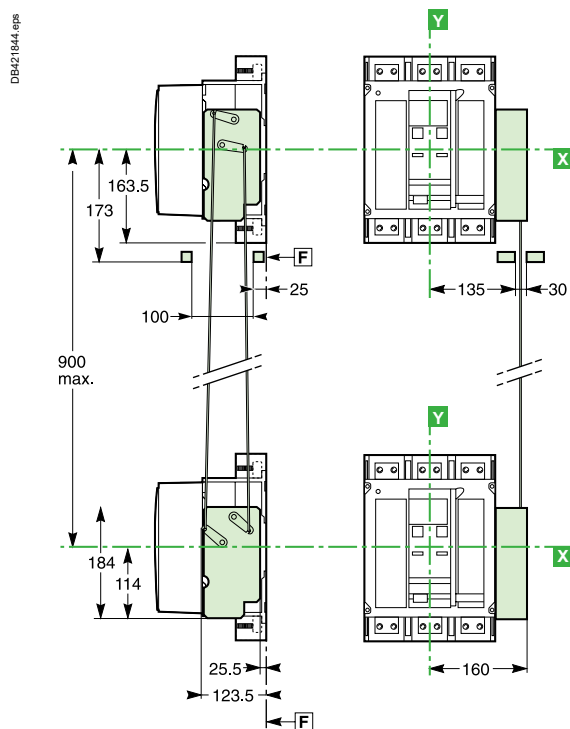
ComPacT NS and MasterPacT MTZ1

Class PC and CB

ComPacT NS630b to NS1600 and ComPacT NS630b NA to NS1600 NA
devices one above the other

Fixed devices

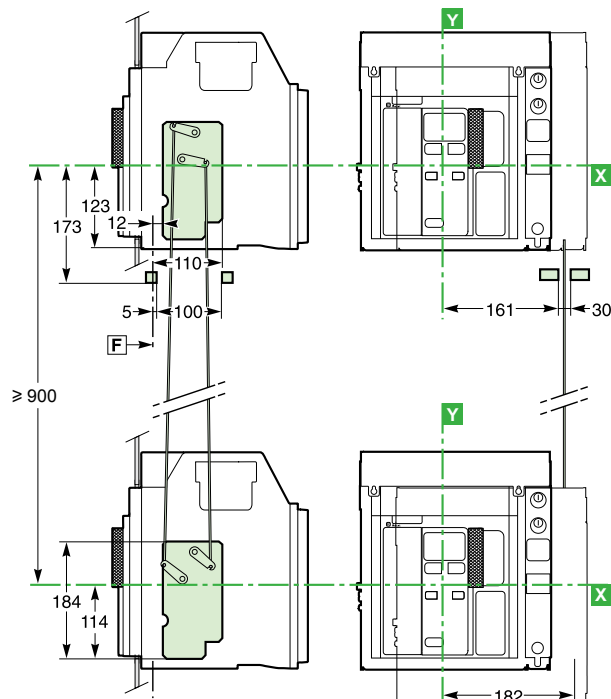
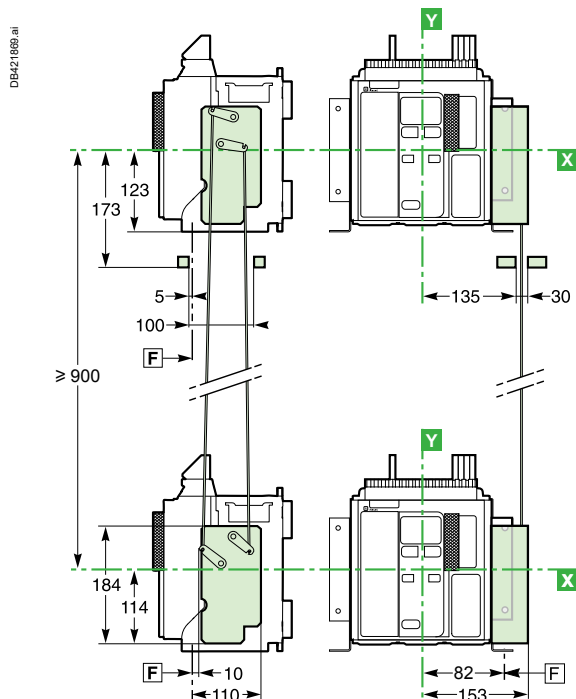
Withdrawable devices



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

Fixed devices

Withdrawable devices



Source-changeover systems

Mechanical interlocking using connecting rods

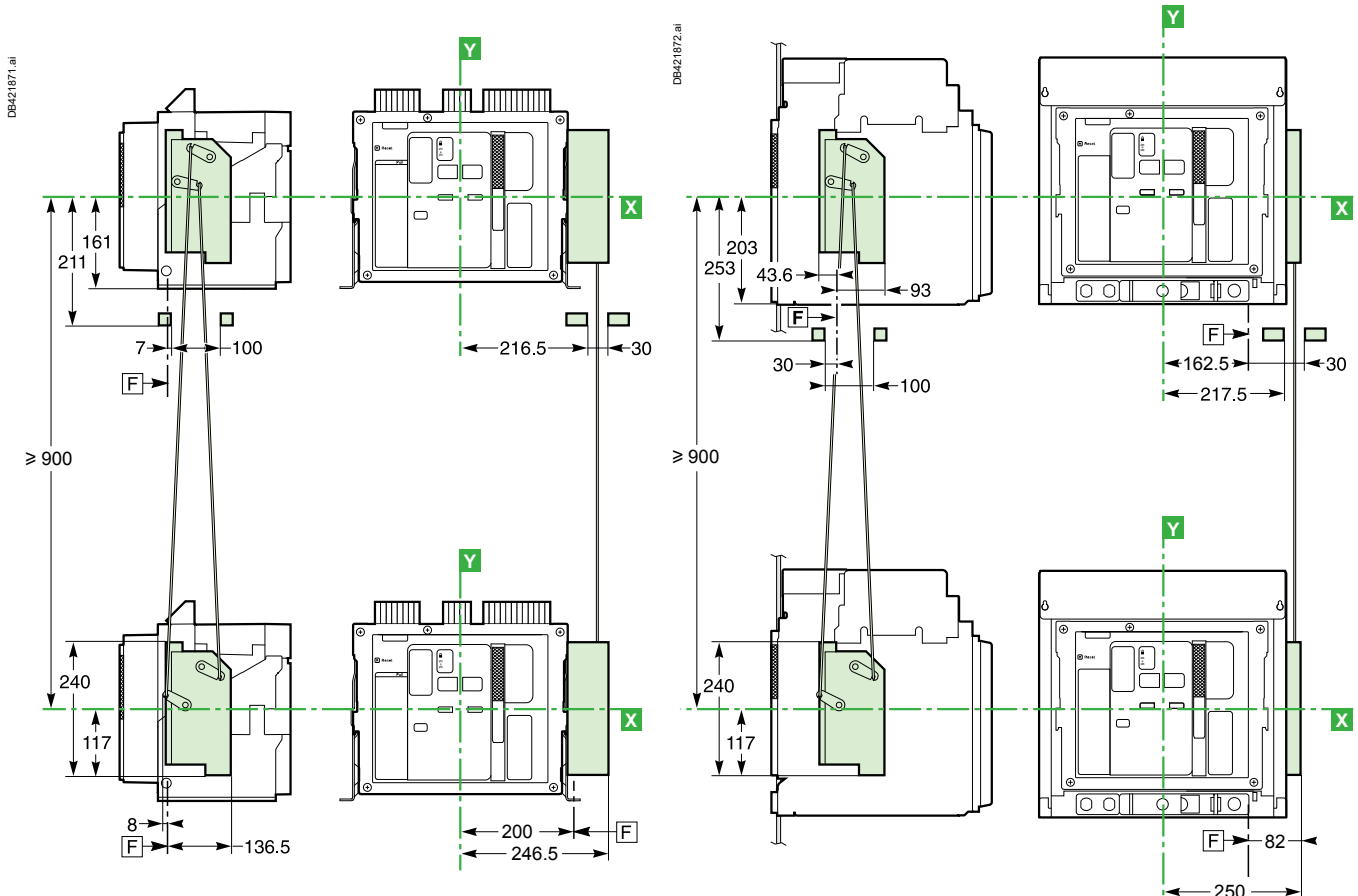
MasterPacT MTZ2/MTZ3

Class PC and CB

Two MasterPacT MTZ2/MTZ3 devices (switch-disconnectors or circuit breakers)
one above the other

Fixed devices

Withdrawable devices



Source-changeover systems

Mechanical interlocking using connecting cables

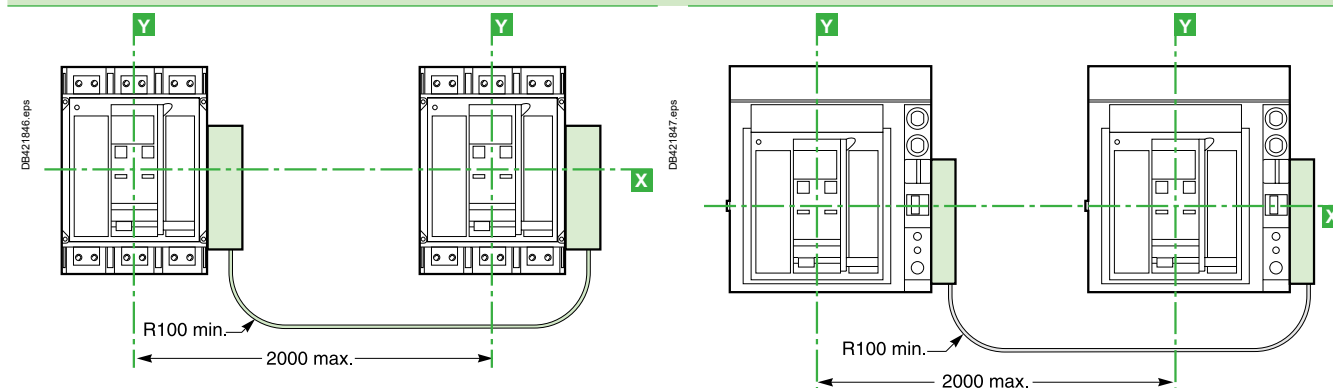
ComPacT NS and MasterPacT MTZ1/MTZ2/MTZ3

Class PC and CB

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

Fixed devices

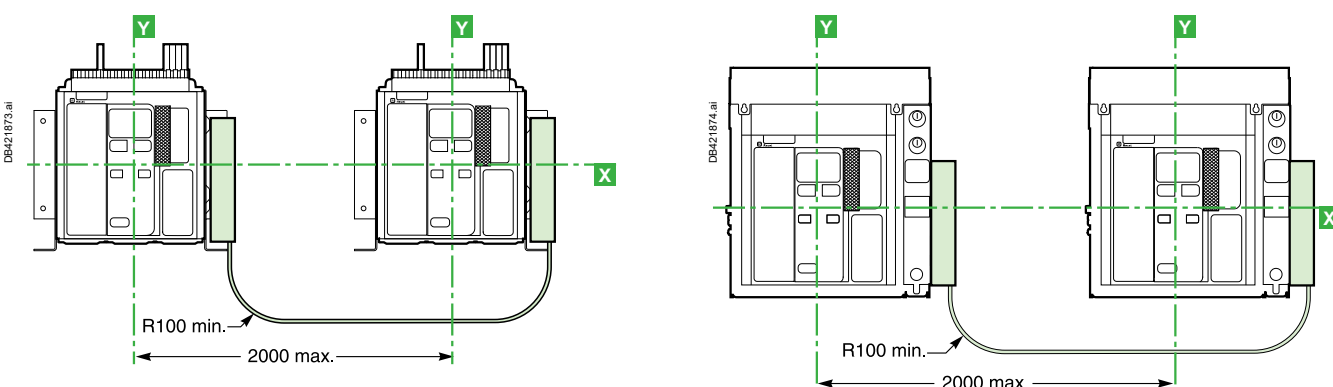
Withdrawable devices



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

Fixed devices

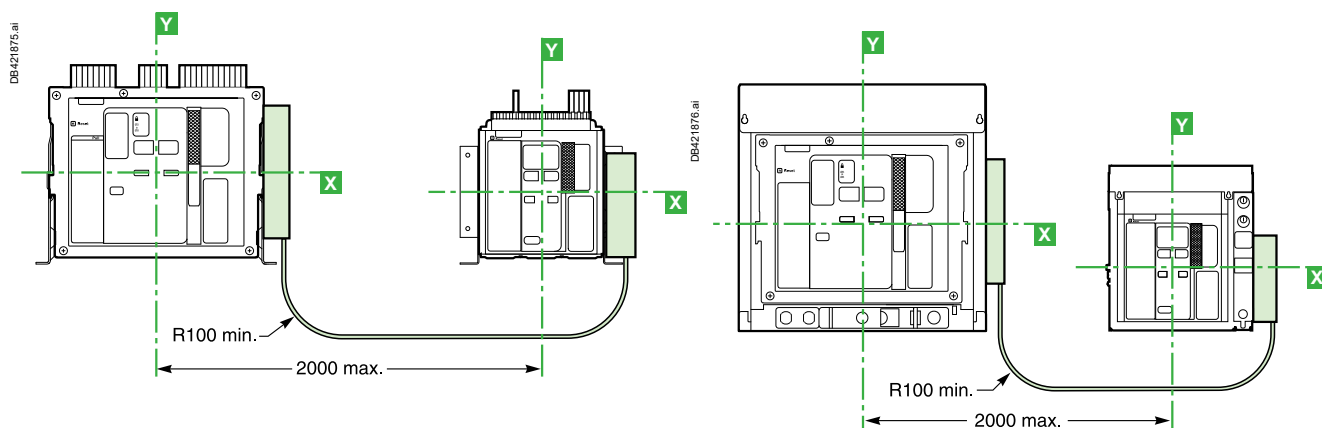
Drawout devices



Combination of two MasterPacT MTZ1 and MTZ2/MTZ3 devices (switch-disconnectors or circuit breakers) side-by-side

Fixed devices

Drawout devices



Source-changeover systems

Mechanical interlocking using connecting cables

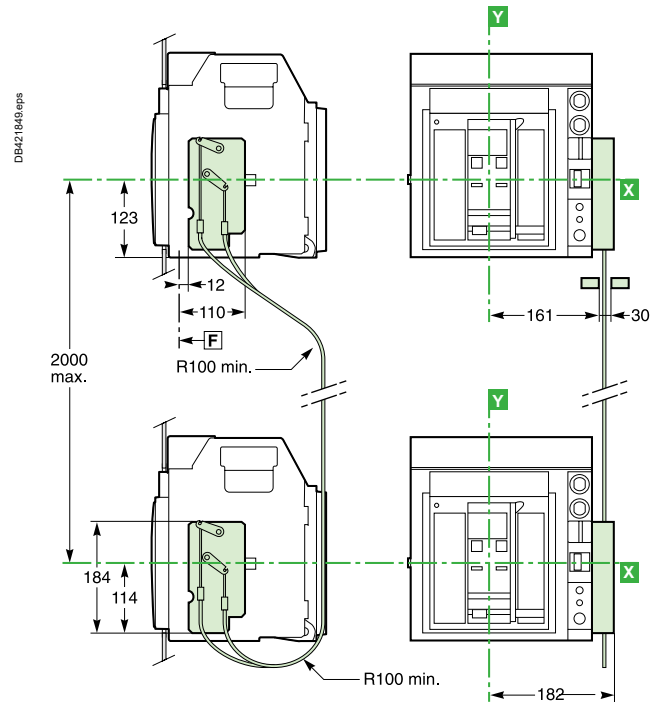
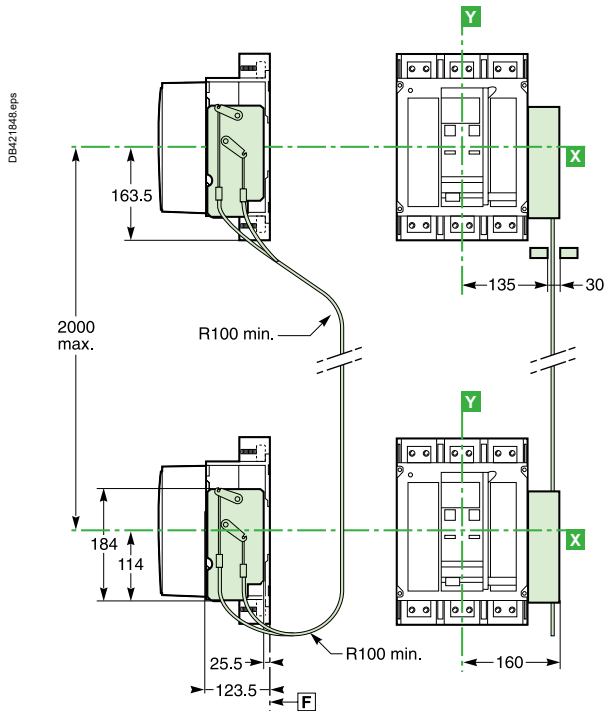
ComPacT NS and MasterPacT MTZ1

Class PC and CB

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

Fixed devices

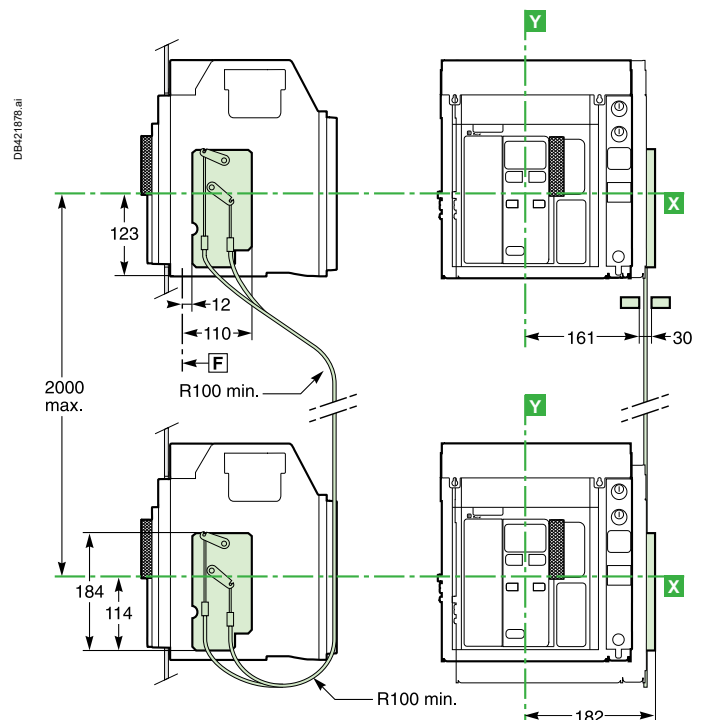
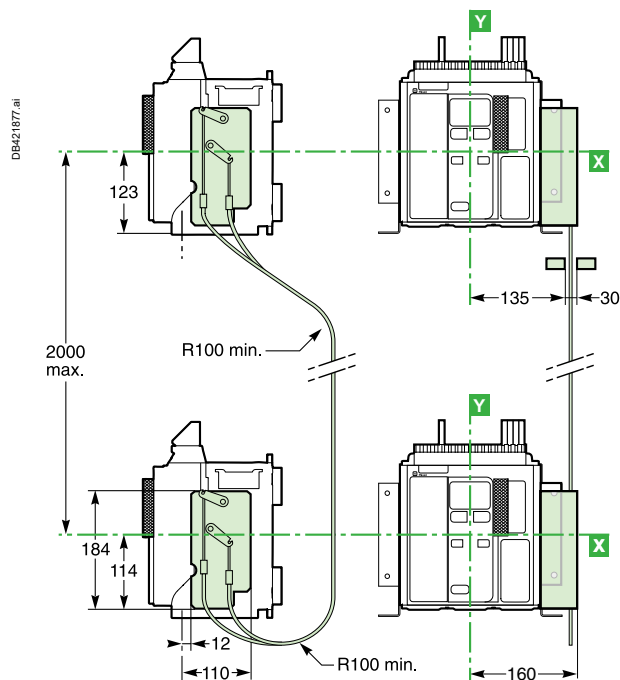
Withdrawable devices



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

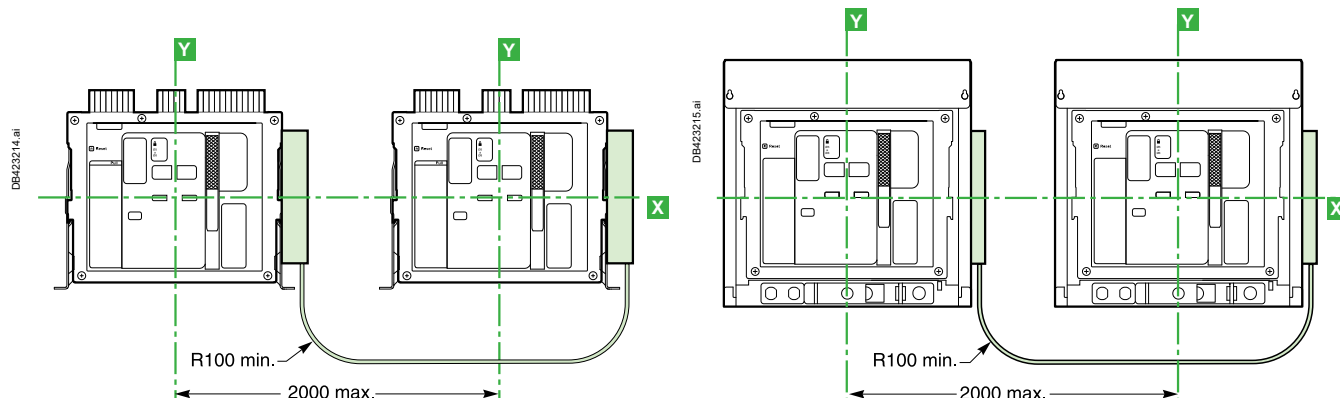
MasterPacT MTZ2/MTZ3

Class PC and CB

Two MasterPacT MTZ2/MTZ3 devices side-by-side

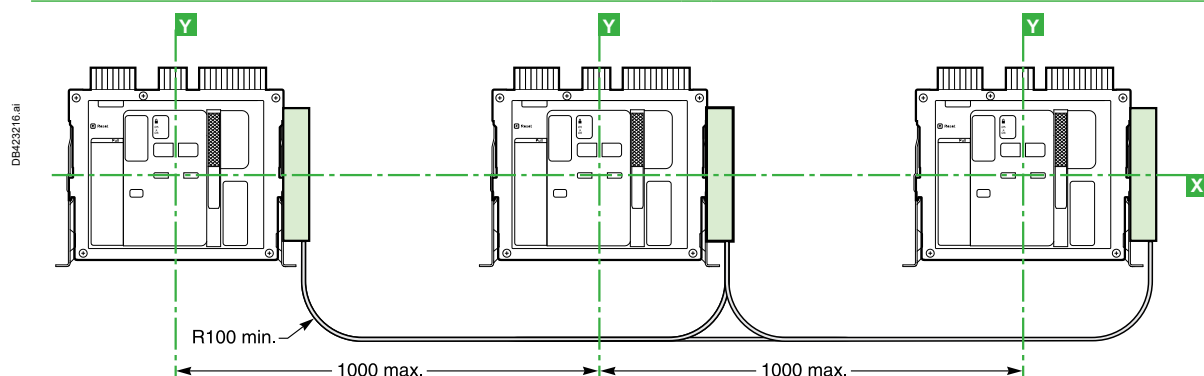
Fixed devices

Drawout devices

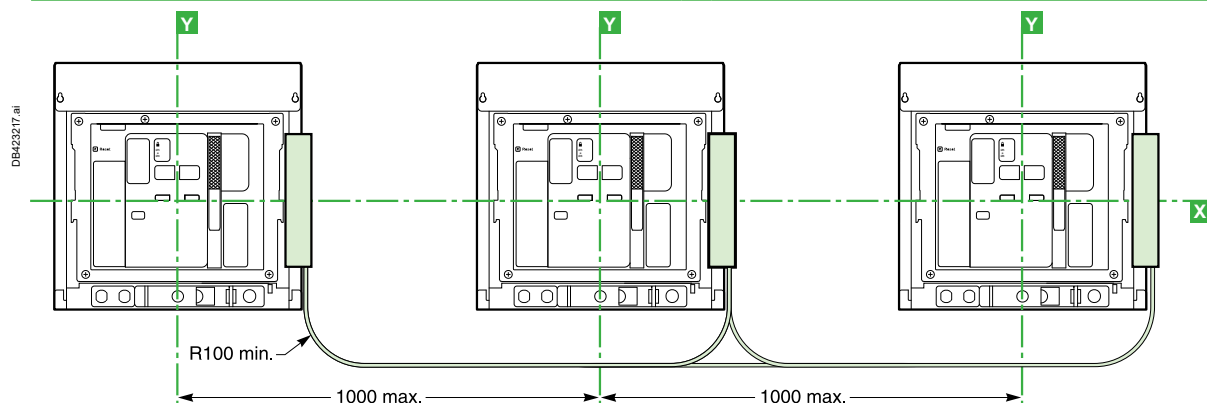


Three MasterPacT MTZ2/MTZ3 devices (switch-disconnectors or circuit breakers) side-by-side

Fixed devices



Drawout devices



Source-changeover systems

Mechanical interlocking using connecting cables

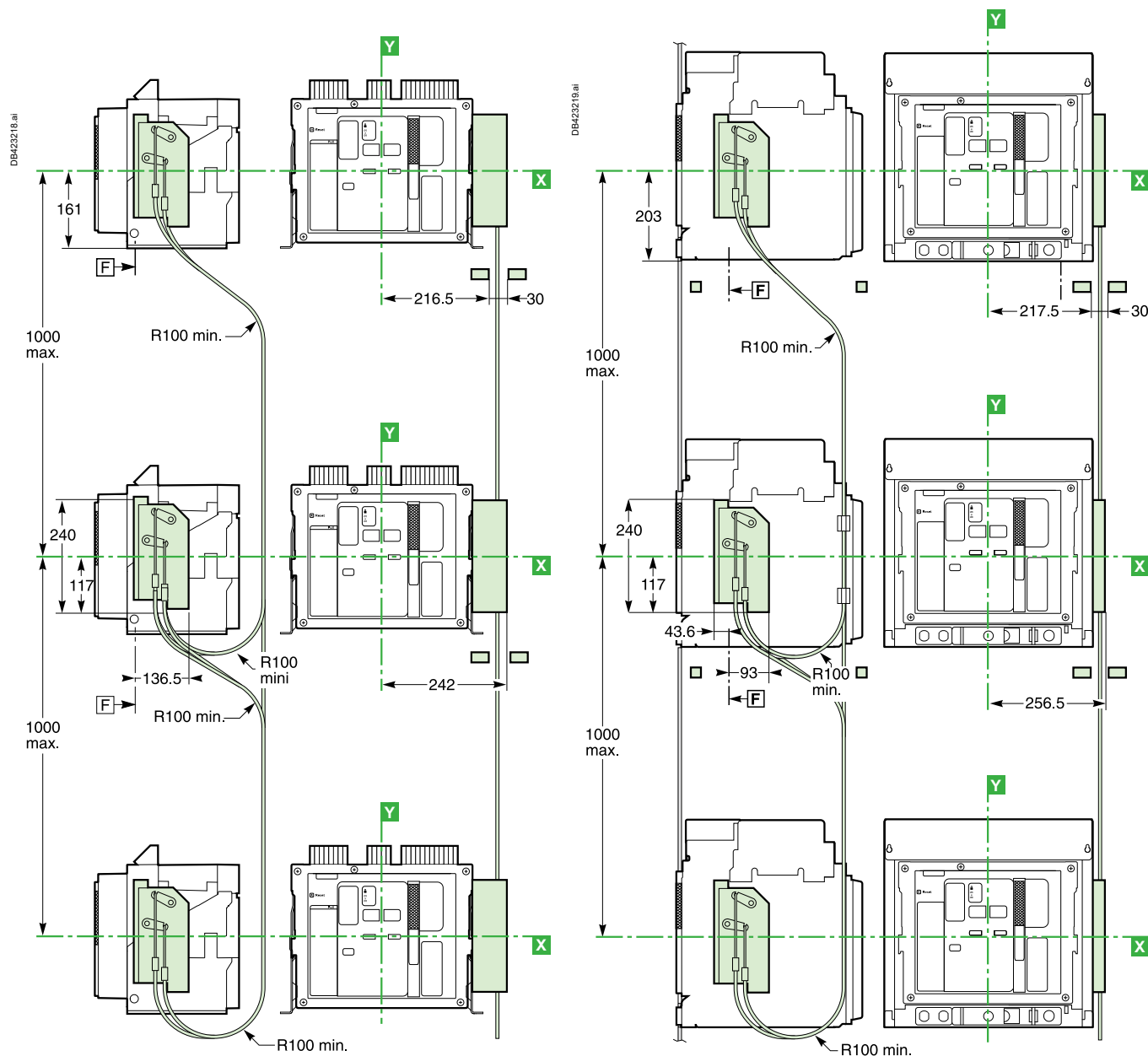
MasterPacT MTZ2/MTZ3

Class PC and CB

Three MasterPacT MTZ2/MTZ3 devices (switch-disconnectors or circuit breakers) one above the other

Fixed devices

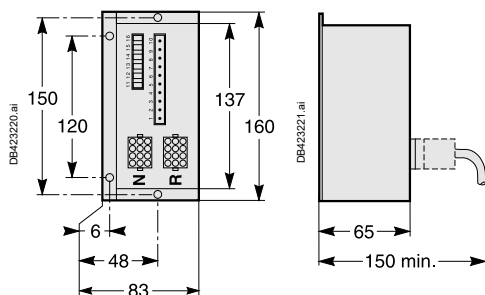
Drawout devices



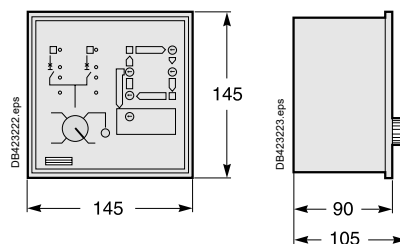
TransferPacT

IVE unit, UA/BA controllers

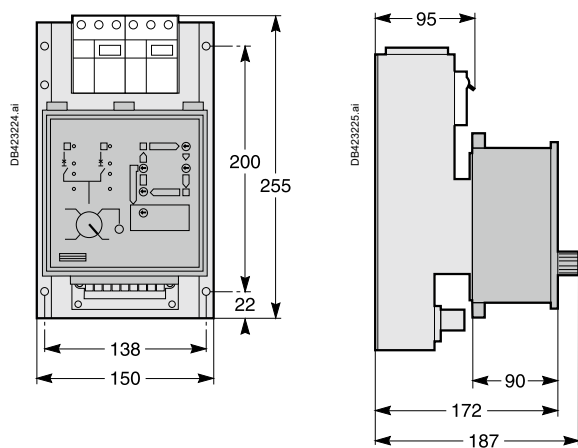
IVE unit



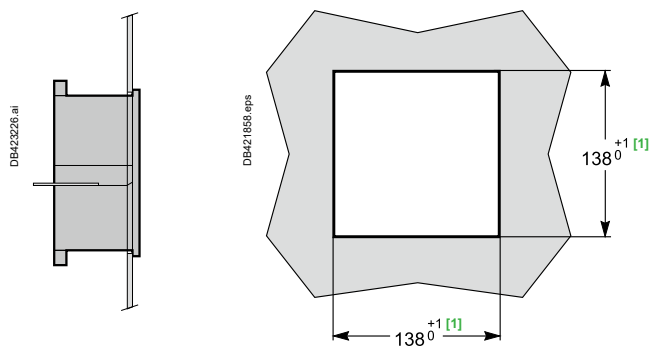
UA/BA controllers



ACP control plate and UA/BA controllers

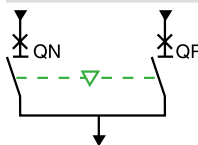


Door cutout for UA/BA controllers

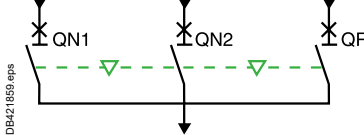
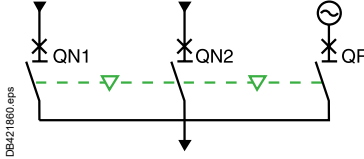
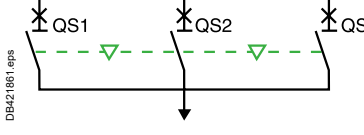
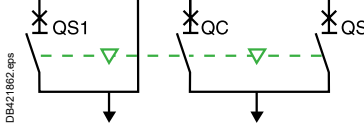


[1] Cutout according to DIN 43700 standard.

Standard configurations

ComPacT NS, MasterPacT MTZ1 and MTZ2/MTZ3												
Types of mechanical interlocking	Possible combinations	Typical electrical diagrams	Diagram no.	Page								
2 devices												
	<table><thead><tr><th>QN</th><th>QR</th></tr></thead><tbody><tr><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td></tr></tbody></table>	QN	QR	0	0	1	0	0	1	ComPacT NSX100 to 630: ■ Electrical interlocking without emergency power off (EPO) auxiliaries: 51201177 C-39 □ With EPO by MN 51201178 C-40 □ With EPO by MX 51201179 C-41 ComPacT NS630b to 1600: ■ Electrical interlocking with lockout after fault: 51201183 C-42 □ Permanent replacement source (with IVE) 51201184 C-43 □ With emergency off by shunt release MX (with IVE) 51201185 C-44 □ With emergency off by undervoltage release MN (with IVE) MasterPacT MTZ1 and MTZ2/3: ■ Electrical interlocking with lockout after fault: C-11 □ Permanent replacement source (with IVE) C-12 □ With EPO by MX (with IVE) C-13 □ With EPO by MN (with IVE) ■ Automatic control with lockout after fault: C-14 □ permanent replacement source (with IVE) C-15 □ engine generator set (with IVE)		
QN	QR											
0	0											
1	0											
0	1											

Standard configurations

MasterPacT MTZ2/MTZ3 only																								
Types of mechanical interlocking	Possible combinations	Typical electrical diagrams	Page																					
3 devices: 2 "Normal" sources and 1 "Replacement" source																								
	<table><tr><th>QN1</th><th>QN2</th><th>QR</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr></table>	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									
QN1	QN2	QR																						
0	0	0																						
1	1	0																						
0	0	1																						
3 devices: 2 "Normal" sources and 1 "Replacement" source with source selection																								
	<table><tr><th>QN1</th><th>QN2</th><th>QR</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr></table>	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			
QN1	QN2	QR																						
0	0	0																						
1	0	0																						
0	0	1																						
1	1	0																						
0	1	0																						
3 devices: 3 sources, only one device																								
	<table><tr><th>QS1</th><th>QS2</th><th>QS3</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr></table>	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						
QS1	QS2	QS3																						
0	0	0																						
1	0	0																						
0	1	0																						
0	0	1																						
3 devices: 2 sources + 1 coupling																								
	<table><tr><th>QS1</th><th>QC</th><th>QS2</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td></tr></table> [1] possible by forcing operation	QS1	QC	QS2	0	0	0	1	0	1	1	1	0	0	1	1	1	0	0	0	0	1	■ Electrical interlocking: ☐ Without lockout after fault ☐ With lockout after fault ■ Automatic control with lockout after fault	C-25 C-26 C-27
QS1	QC	QS2																						
0	0	0																						
1	0	1																						
1	1	0																						
0	1	1																						
1	0	0																						
0	0	1																						

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

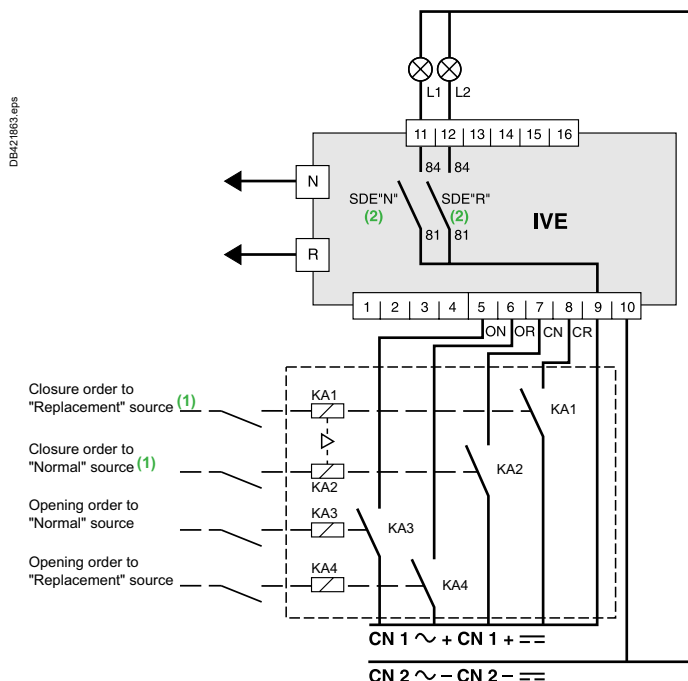
Remote-operated source-changeover systems

2 ComPacT NSX100/630, NS630b/1600

or MasterPacT MTZ1/MTZ2/MTZ3 devices

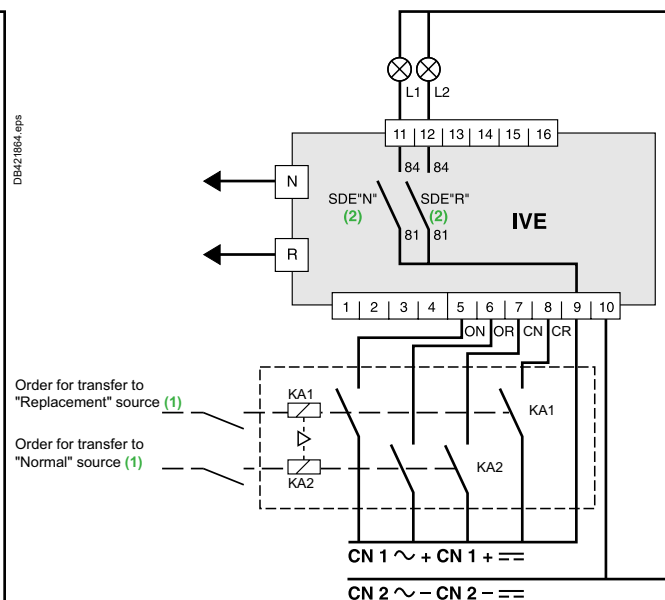
Electrical interlocking by the IVE unit

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

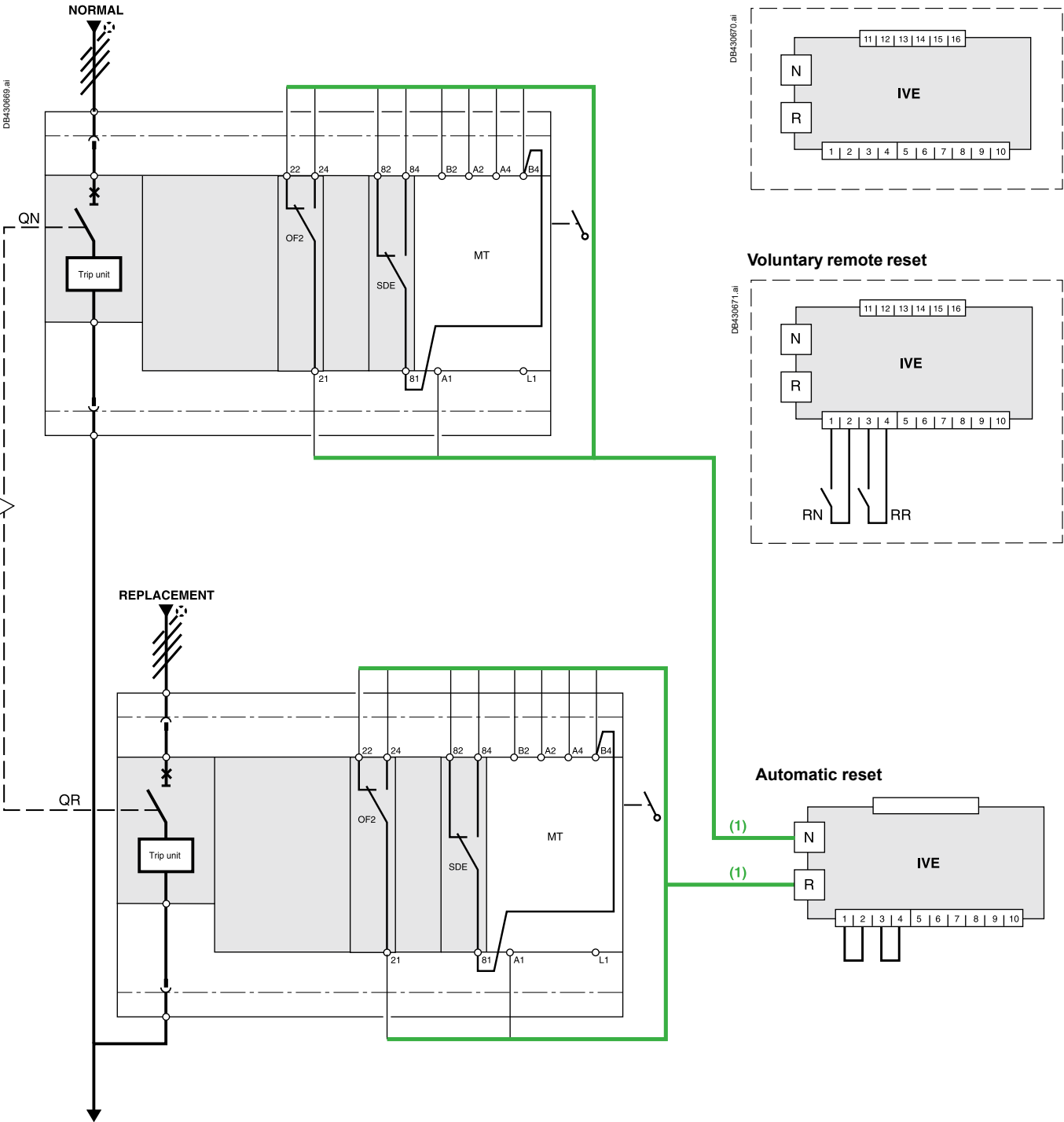
Note: diagram shown with circuits de-energized, circuit breakers open and relays in normal position.

Remote-operated source-changeover systems

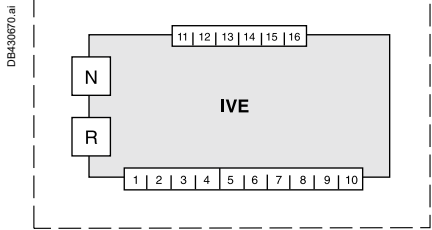
2 ComPacT NSX100/630 devices

Diagram no. 51201177

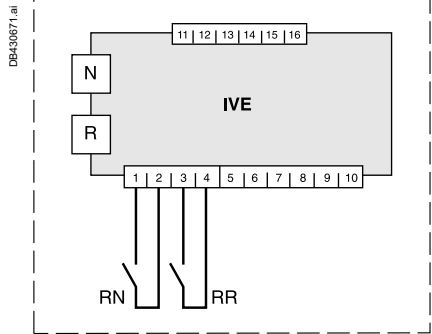
Source-changeover system without automatic-control system
Without auxiliaries for emergency off



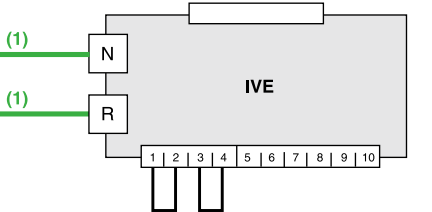
Local reset



Voluntary remote reset



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
 - 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

[1] Prefabricated wiring: cannot be modified.

States permitted by mechanical interlocking system

Normal	Replacement
0	0
1	0
0	1

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

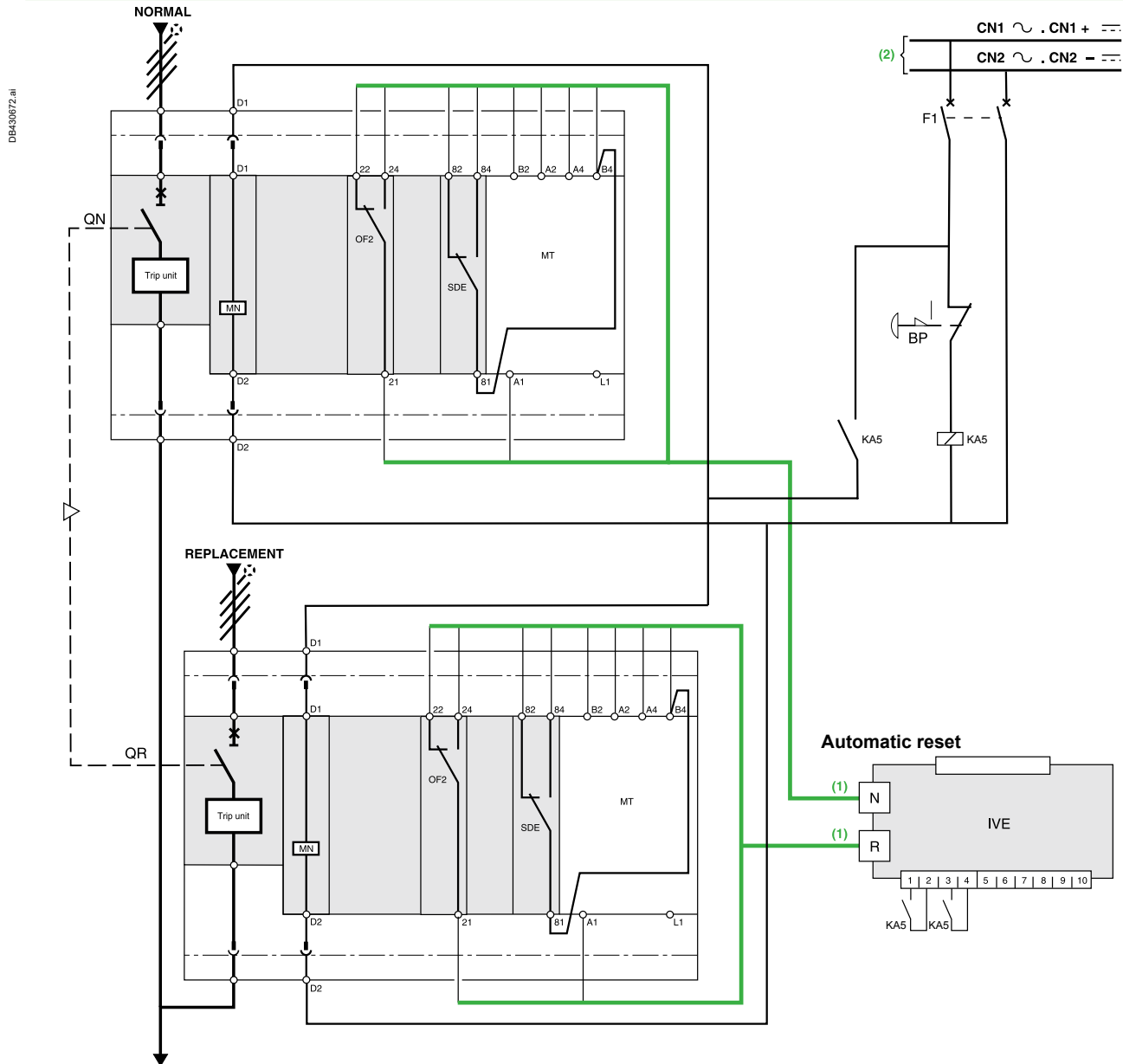
Remote-operated source-changeover systems

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-energized, circuit breakers open and relays in normal position.

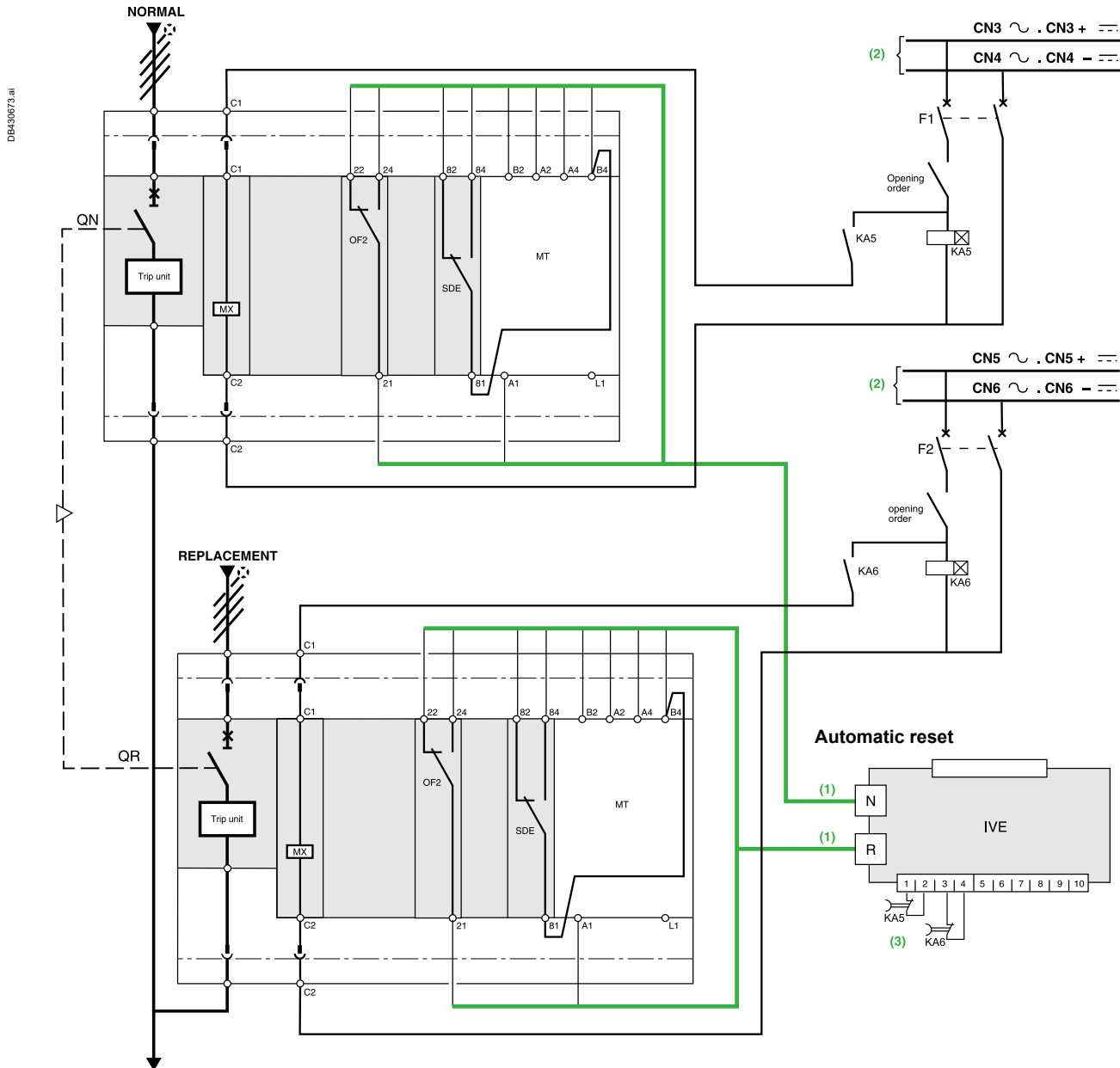
Remote-operated source-changeover systems

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-energized, circuit breakers open and relays in normal position.

Diagram no. 51201183

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

[2] Prefabricated wiring supplied.

Q	“Normal” source ComPacT NS630b to 1600
Q	“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

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

Normal	Replacement
0	0
1	0
0	1

Auxiliary power supply = supply voltage of auxiliary relays (KA...)
= supply voltage of electrical auxiliaries (electrical operation, MT...).

Diagram no. 51201184

[illegible]

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

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

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

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.

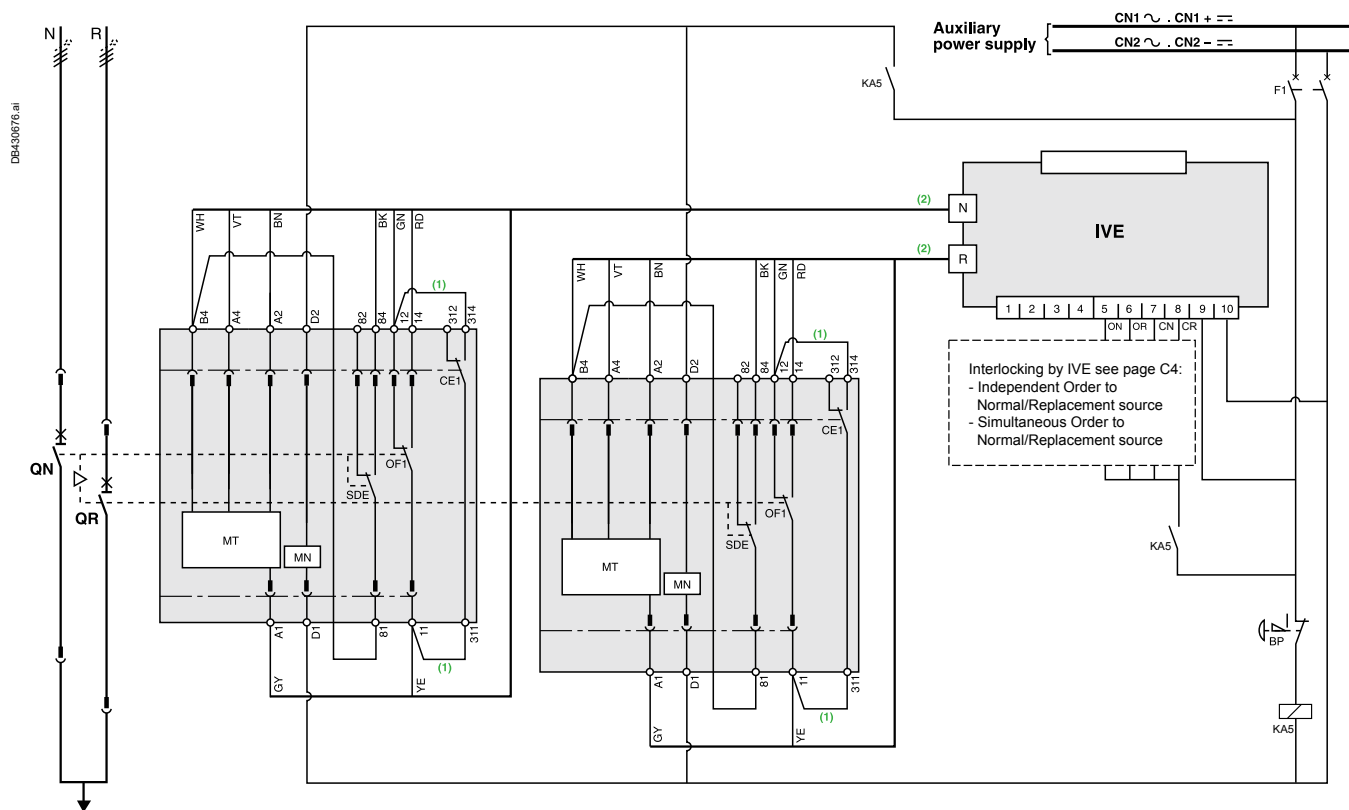
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MX, MT...).

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.

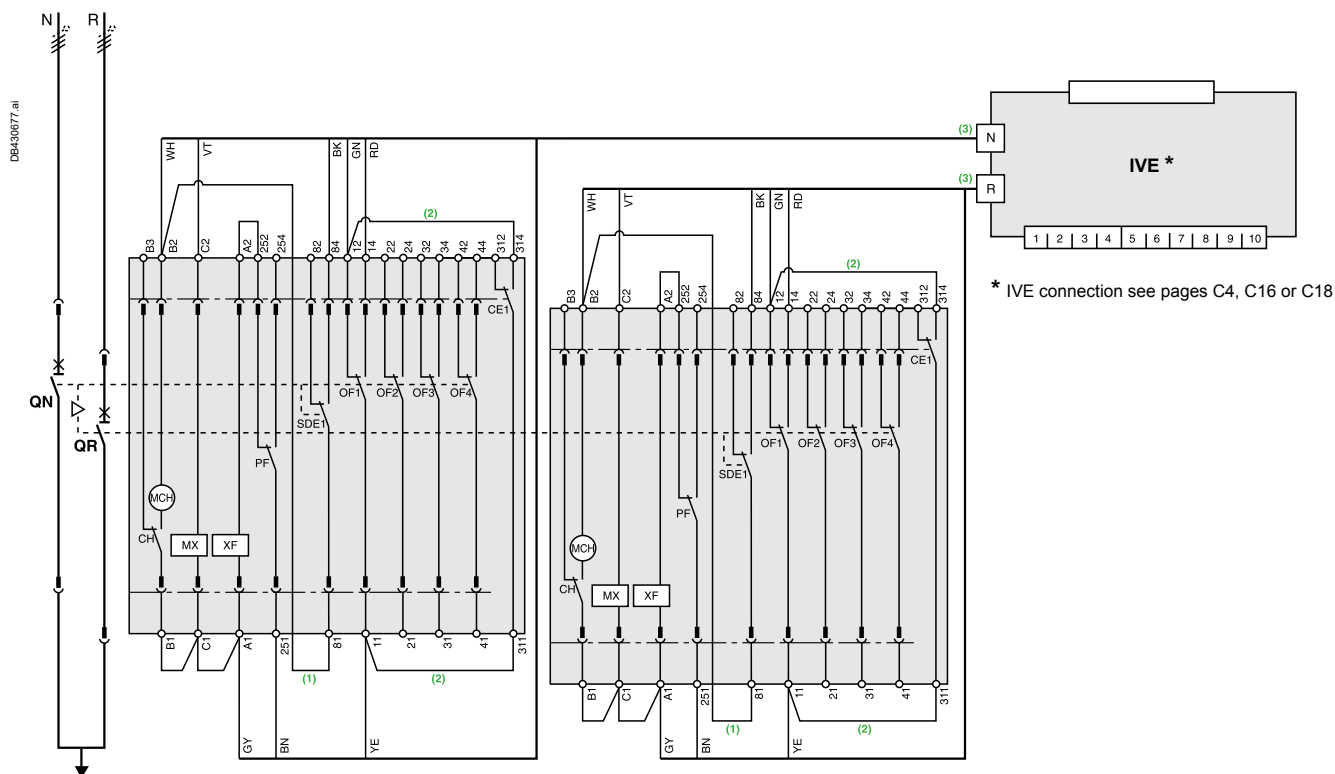
Diagram shown with circuit breakers in connected position, open, charged, and ready to close.

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/MTZ3 devices

Electrical interlocking by IVE unit with lockout after a fault



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 or MTZ3
 QR "Replacement" source MasterPacT MTZ1 or MTZ2 or MTZ3
 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

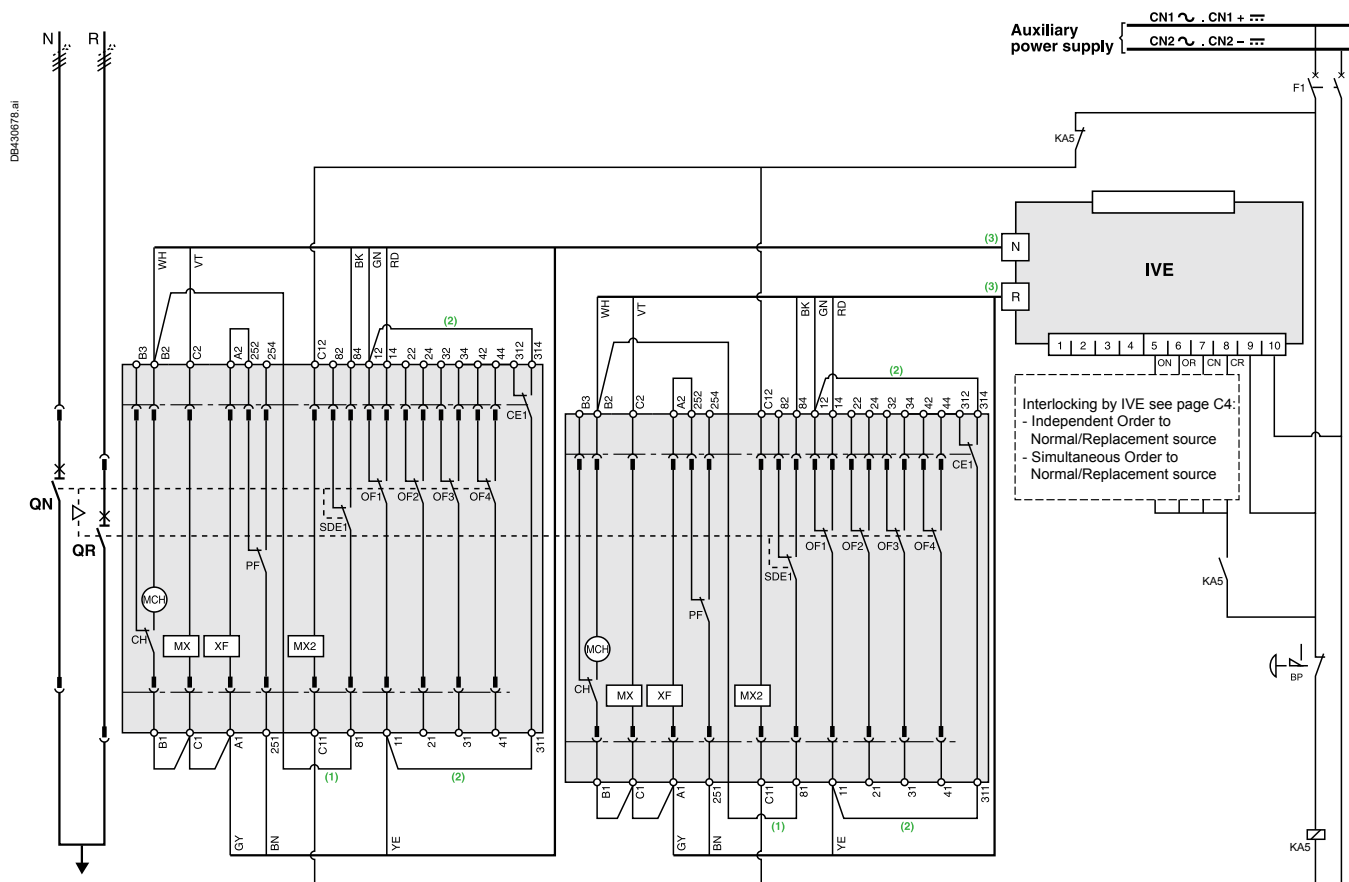
Normal	Replacement
0	0
1	0
0	1

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 or MTZ3 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 or MTZ3
 QR "Replacement" source MasterPacT MTZ1 or MTZ2 or MTZ3
 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

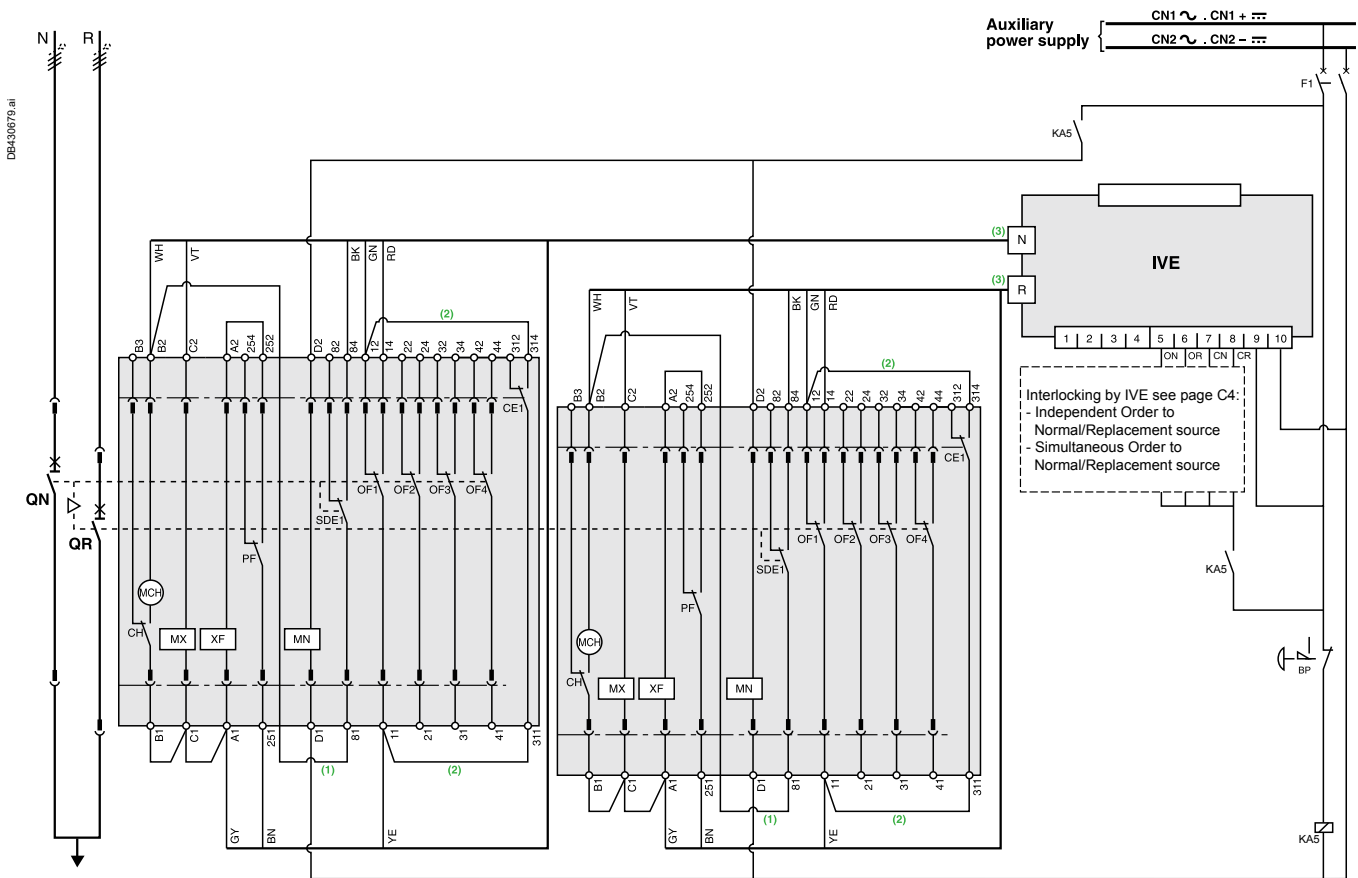
Normal	Replacement
0	0
1	0
0	1

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 or MTZ3 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 or MTZ3
- QR "Replacement" source MasterPacT MTZ1 or MTZ2 or MTZ3
- 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

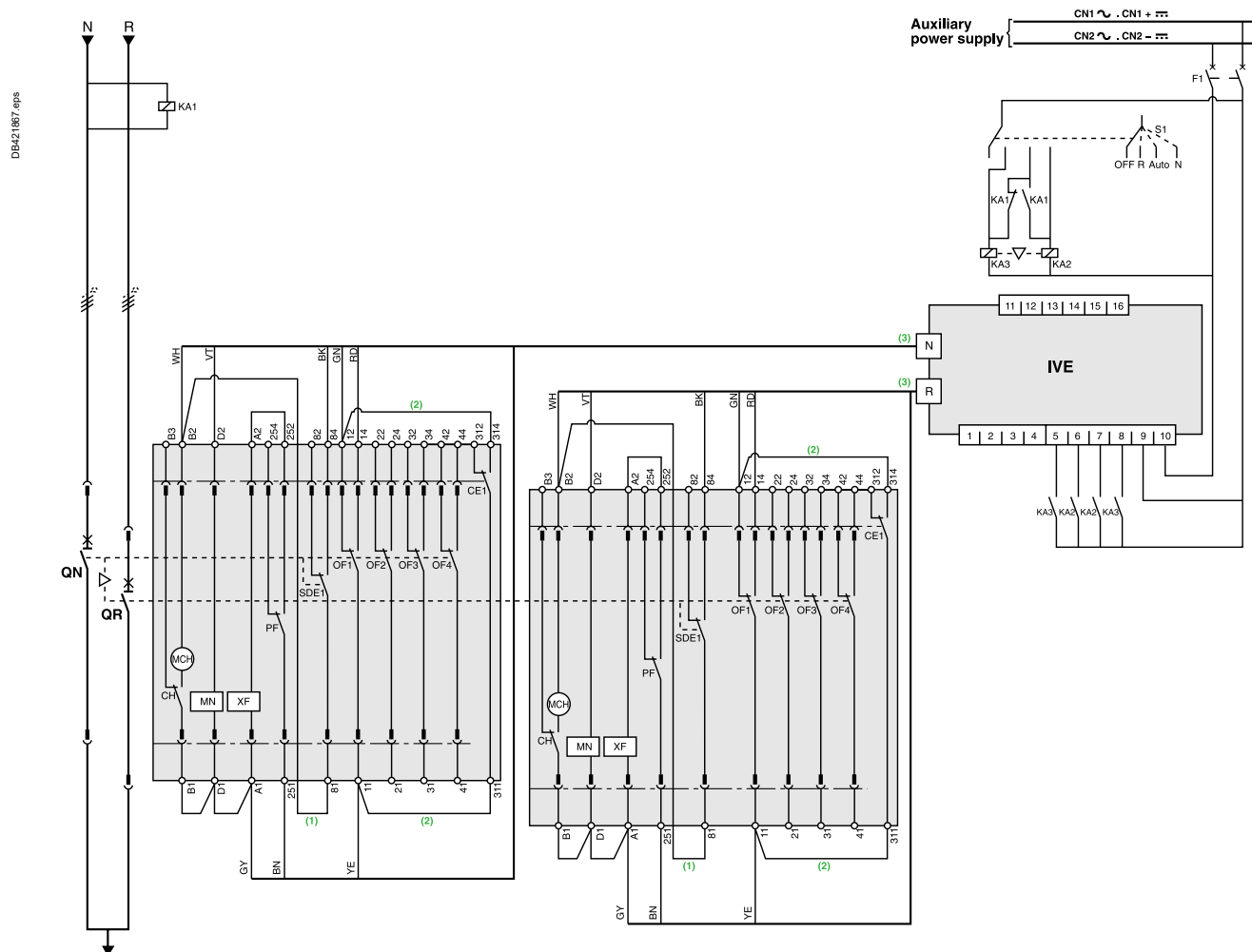
Normal	Replacement
0	0
1	0
0	1

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 or MTZ3 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 or MTZ3
 QR "Replacement" source MasterPacT MTZ1 or MTZ2 or MTZ3
 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

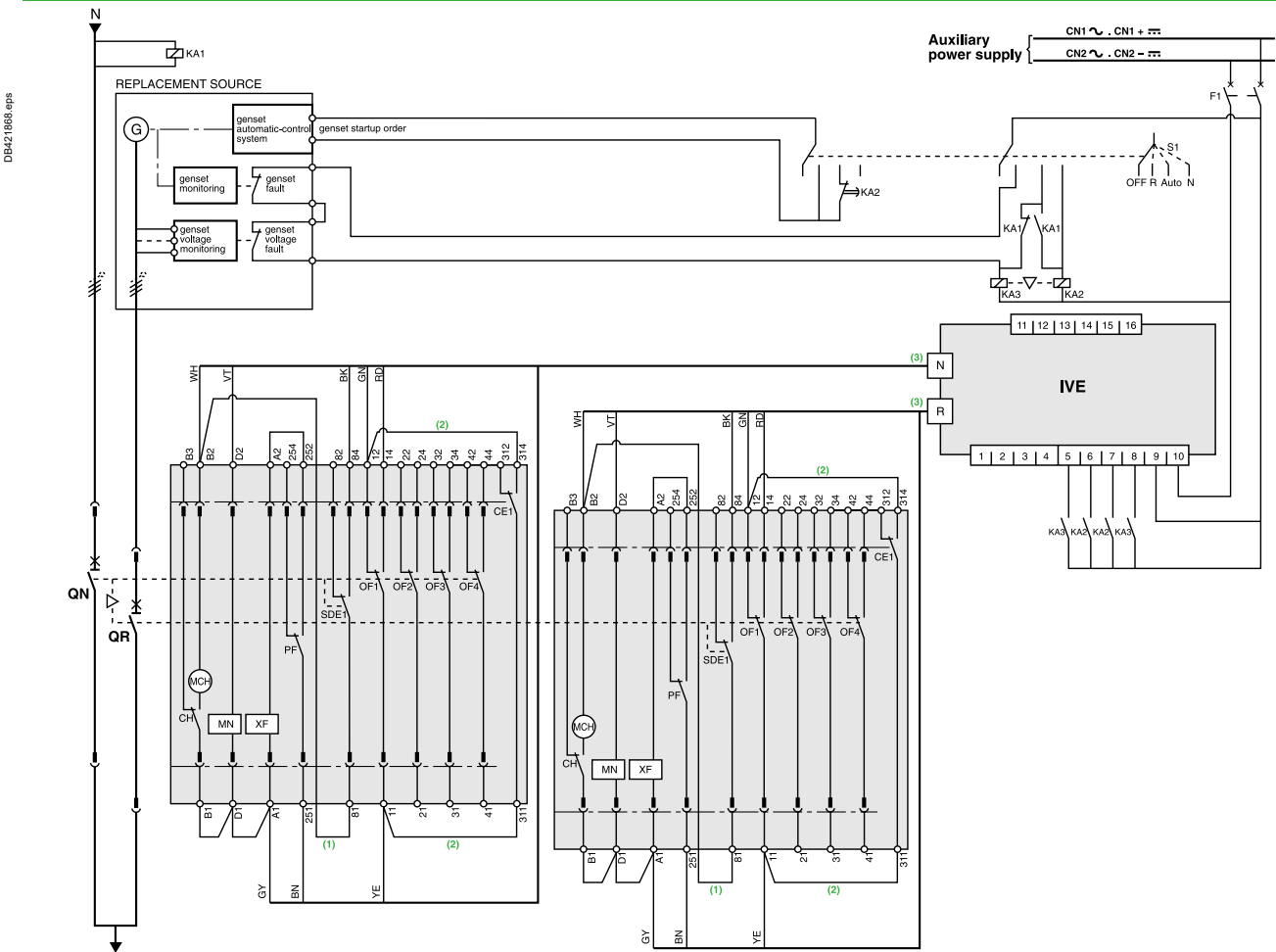
Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.

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 or MTZ3 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 or MTZ3
 - QR "Replacement" source MasterPacT MTZ1 or MTZ2 or MTZ3
 - 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

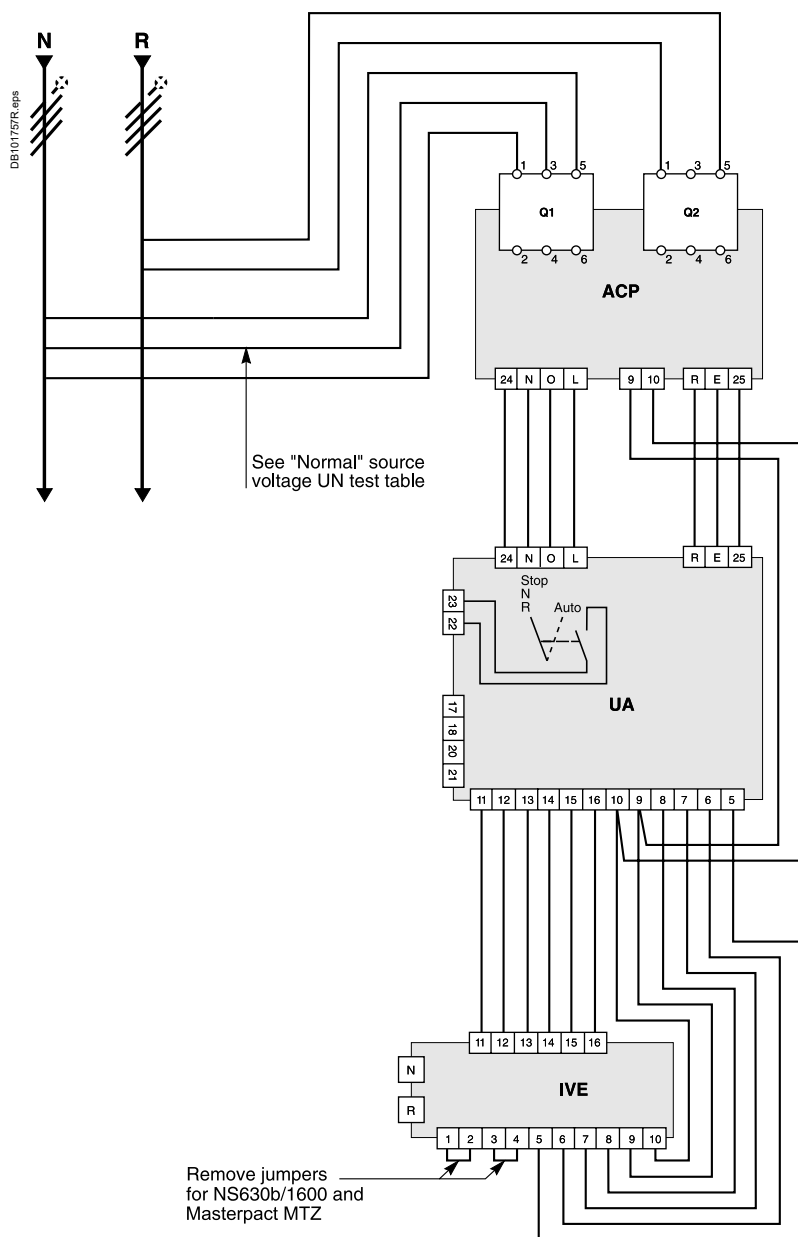
Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.

Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MN, XF...).

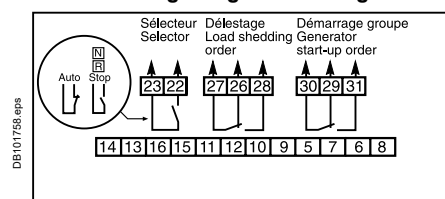
Source-changeover systems with UA controllers

2 ComPacT NSX100/630, NS630b/1600
or MasterPacT MTZ1/MTZ2/MTZ3 devices

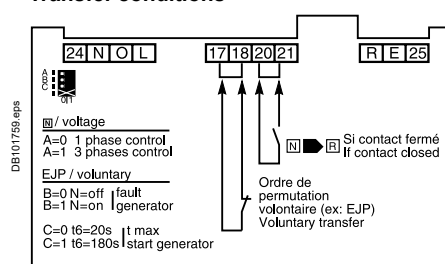
Source-changeover system with UA controller



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

Ref. UA	29472 29474	29472 29474	29473 29475
Supply voltage	N / φ 220/240VAC 50/60Hz	φ / φ 220/240VAC 50/60Hz	φ / φ 380/415VAC 50/60Hz 440V - 60Hz
Switch position	N	φ	φ
A = 0	1 _{L1} 3 _{L2} 5 _{L3} Q1	1 _{L1} 3 _{L2} 5 _{L3} Q1	1 _{L1} 3 _{L2} 5 _{L3} Q1
A = 1		1 _{L1} 3 _{L2} 5 _{L3} Q1	1 _{L1} 3 _{L2} 5 _{L3} Q1

"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-energized, circuit breakers open and relays in normal position.

Source changeover system with UA controller

[illegible]

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

- 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.

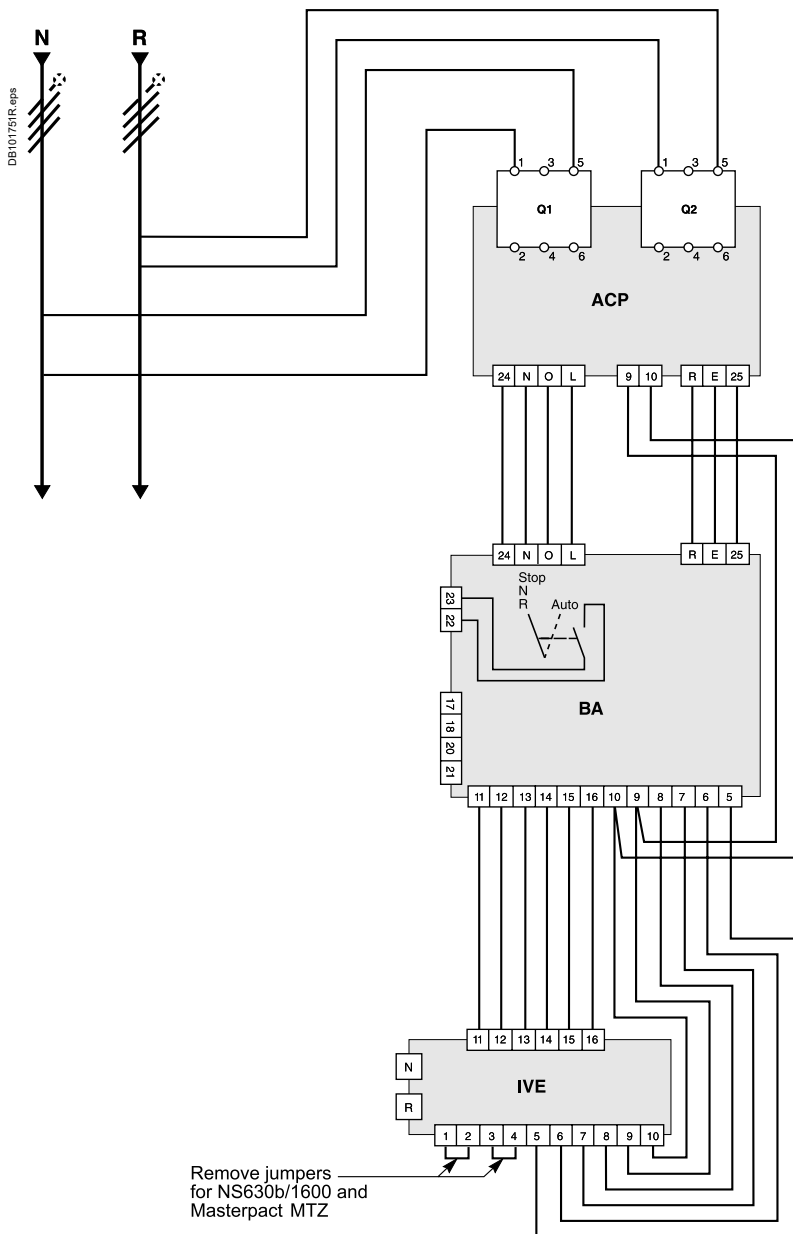
C-60 se.com

Source-changeover systems with BA controllers

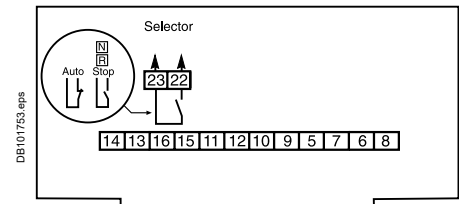
2 ComPacT NSX100/630, NS630b/1600

or MasterPacT MTZ1/MTZ2/MTZ3 devices

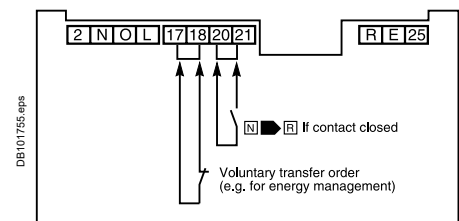
Source-changeover system with BA controller



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

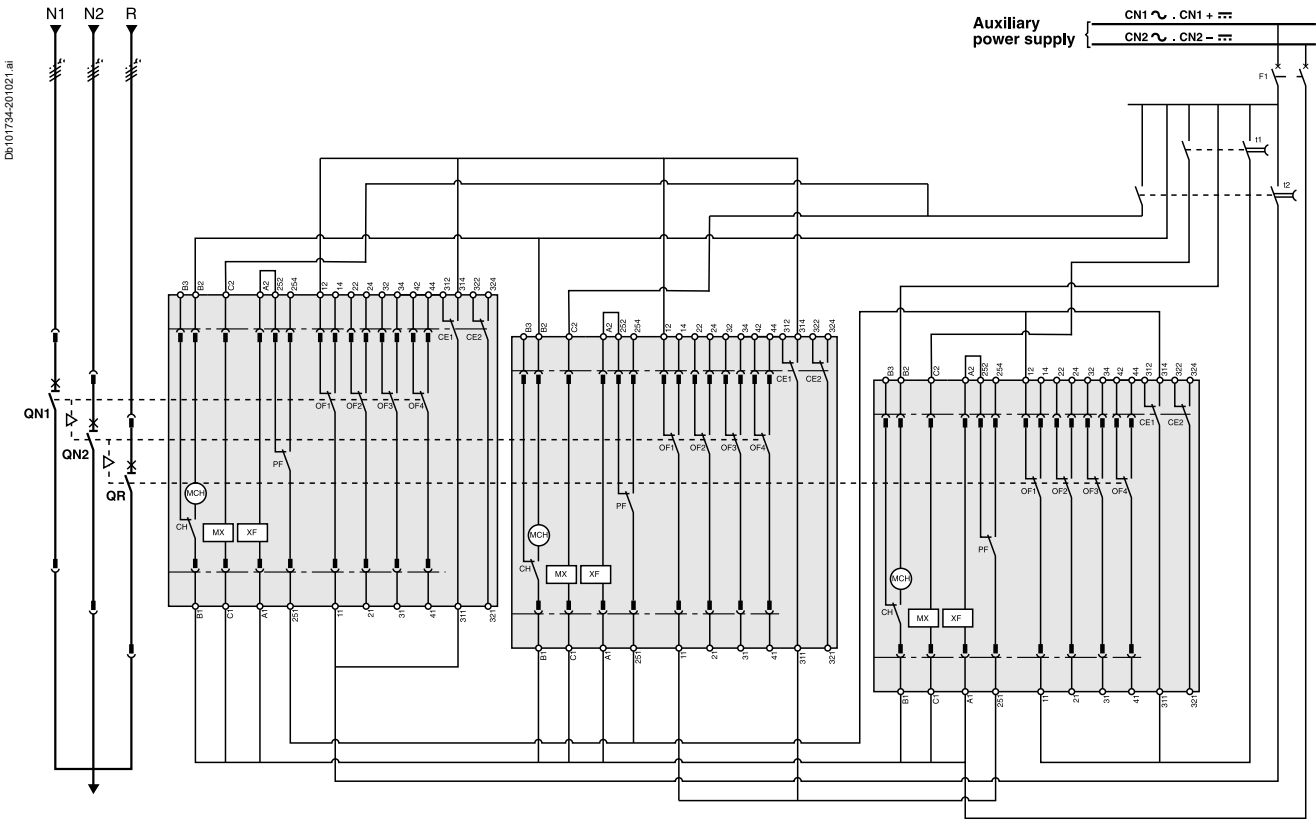
- Q1 circuit breaker supplying and protecting the automatic-control circuits for the "Normal" source
- Q2 circuit breaker supplying and protecting the automatic-control circuits for the "Replacement" source
- ACP control plate
- BA automatic controller
- IVE electrical interlocking and terminal block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

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

Remote-operated source-changeover systems

3 MasterPacT MTZ2/MTZ3 devices

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



Legends

- QN... "Normal" source MasterPacT MTZ2 or MTZ3
- QR "Replacement" source MasterPacT MTZ2 or MTZ3
- 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

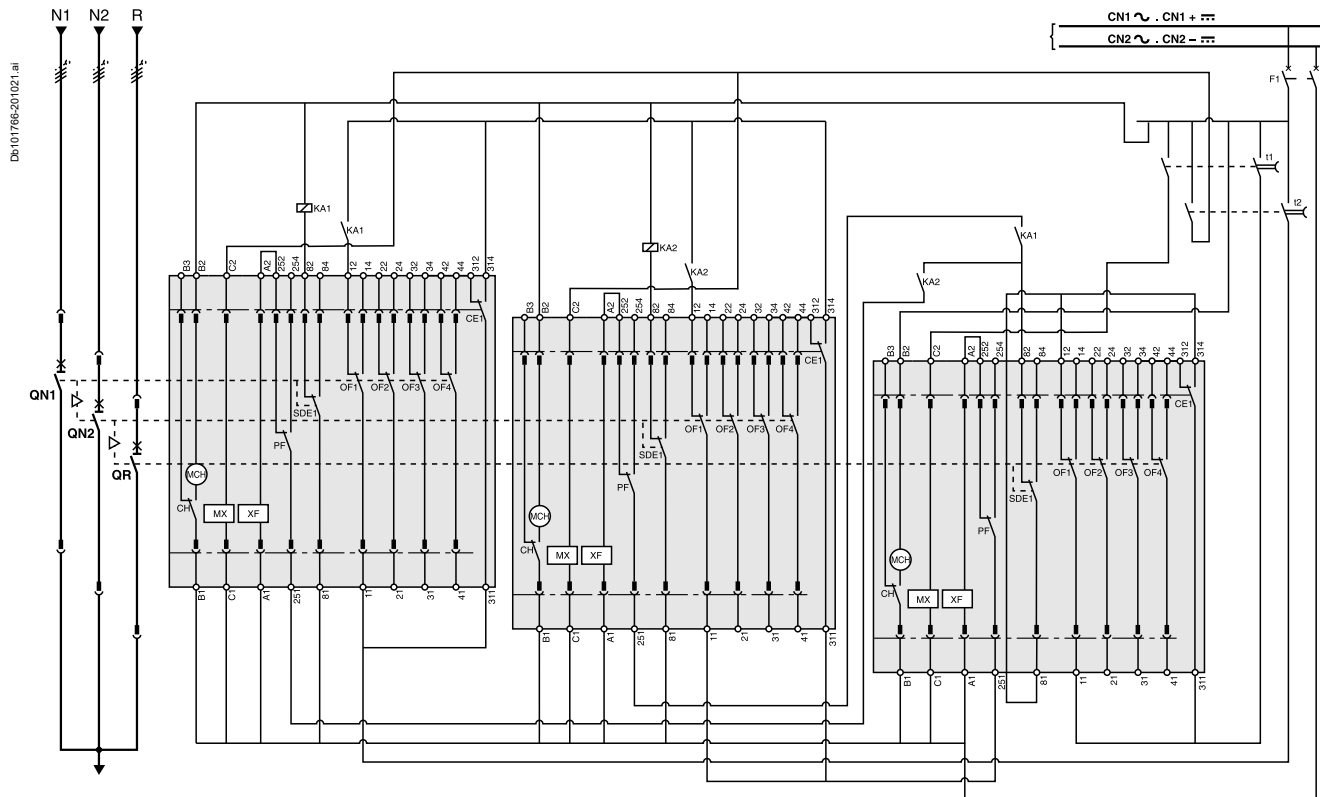
Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

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/MTZ3 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 or MTZ3
- QR "Replacement" source MasterPacT MTZ2 or MTZ3
- 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. minimum)

States permitted by mechanical interlocking system

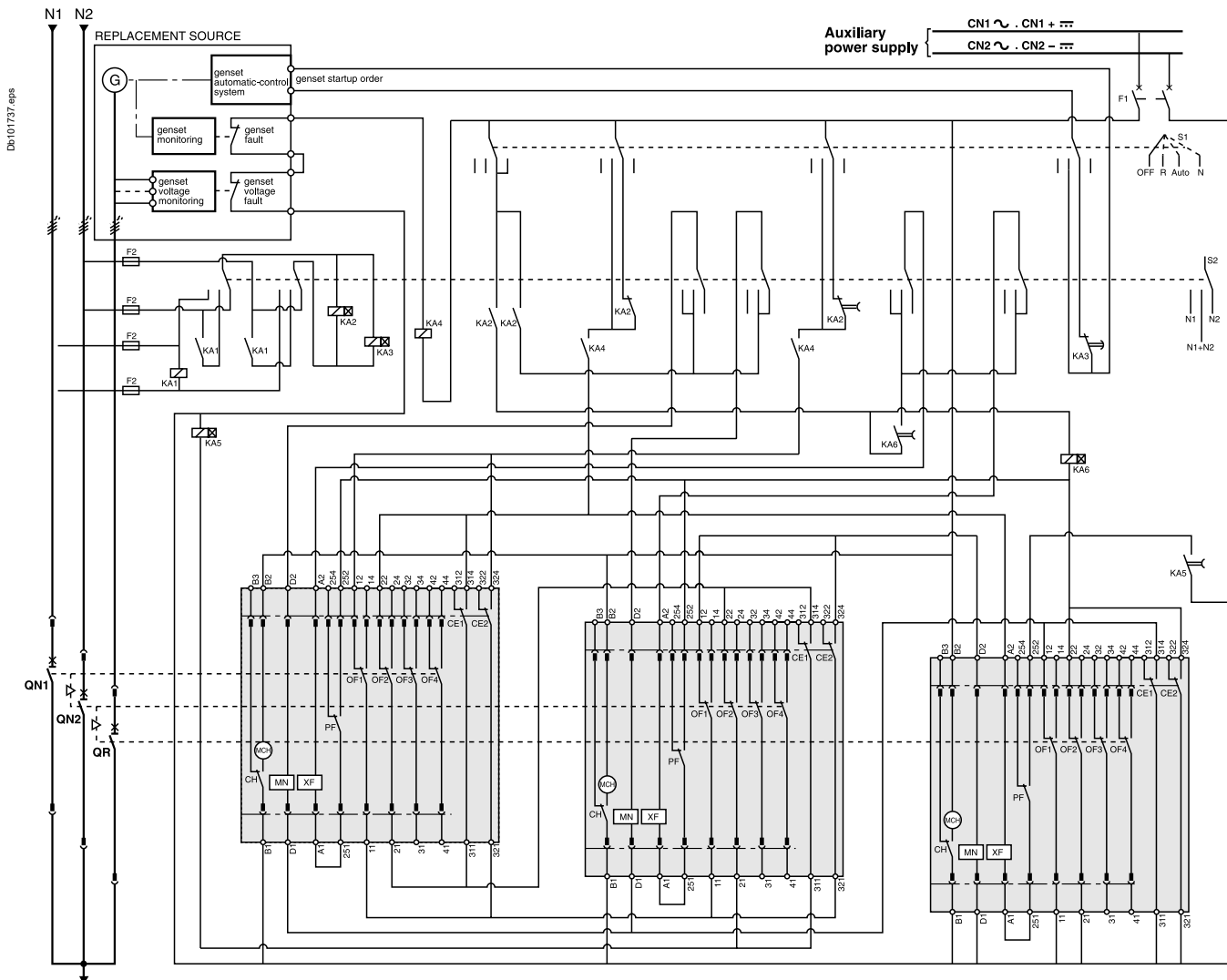
Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

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/MTZ3 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 or MTZ3
- QR "Replacement" source MasterPacT MTZ2 or MTZ3
- 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

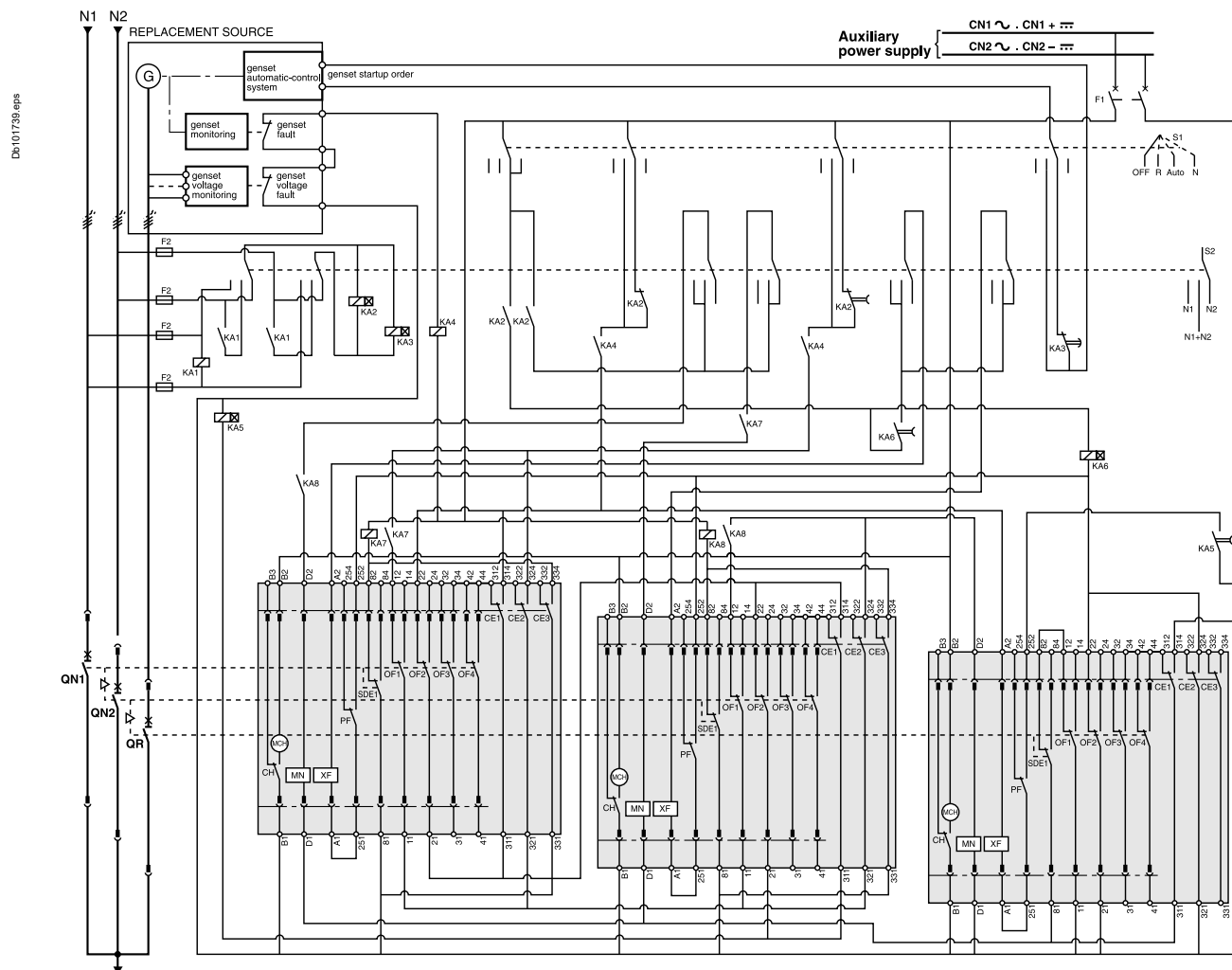
Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.

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/MTZ3 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 or MTZ3
- QR "Replacement" source MasterPacT MTZ2 or MTZ3
- 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

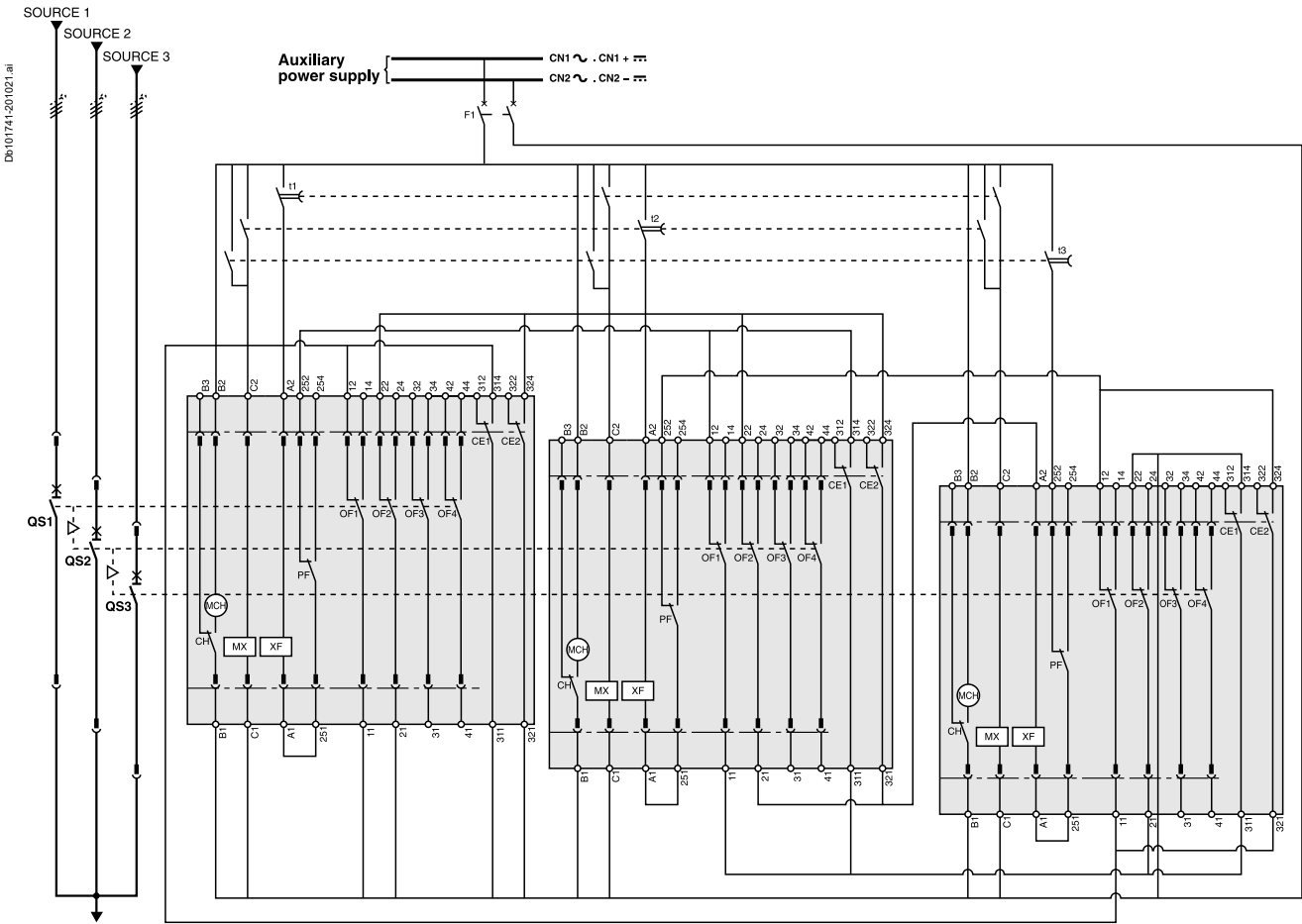
Normal 1	Normal 2	Replacement
0	0	0
1	1	0
0	0	1
1	0	0
0	1	0

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/MTZ3 devices

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



- Legends
- QS... "Source" MasterPacT MTZ2 or MTZ3
 - 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

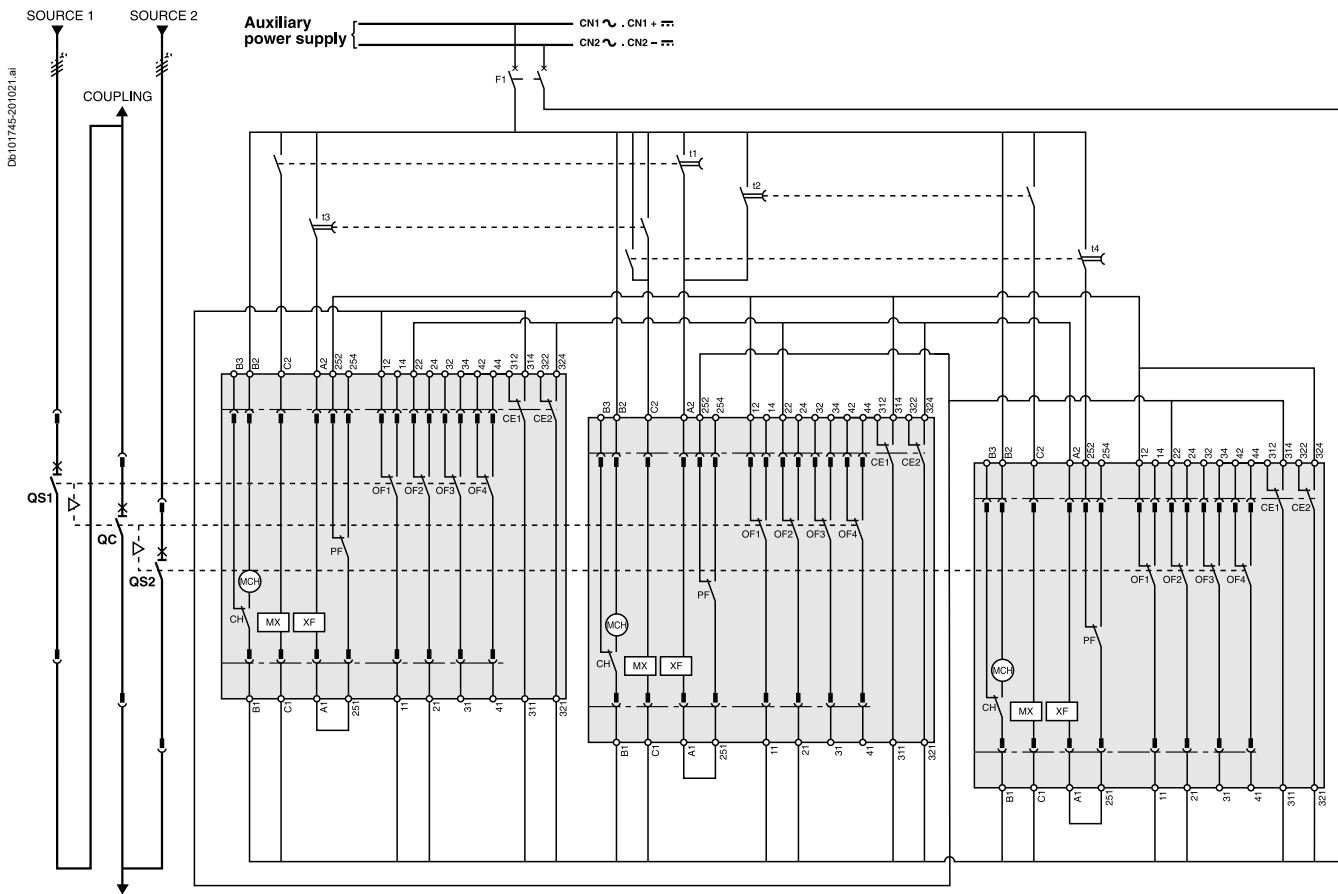
Source 1	Source 2	Source 3
0	0	0
1	0	0
0	1	0
0	0	1

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/MTZ3 devices

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



Legends

- QS... "Source" MasterPacT MTZ2 or MTZ3
 QC "Coupling" MasterPacT MTZ2 or MTZ3
 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

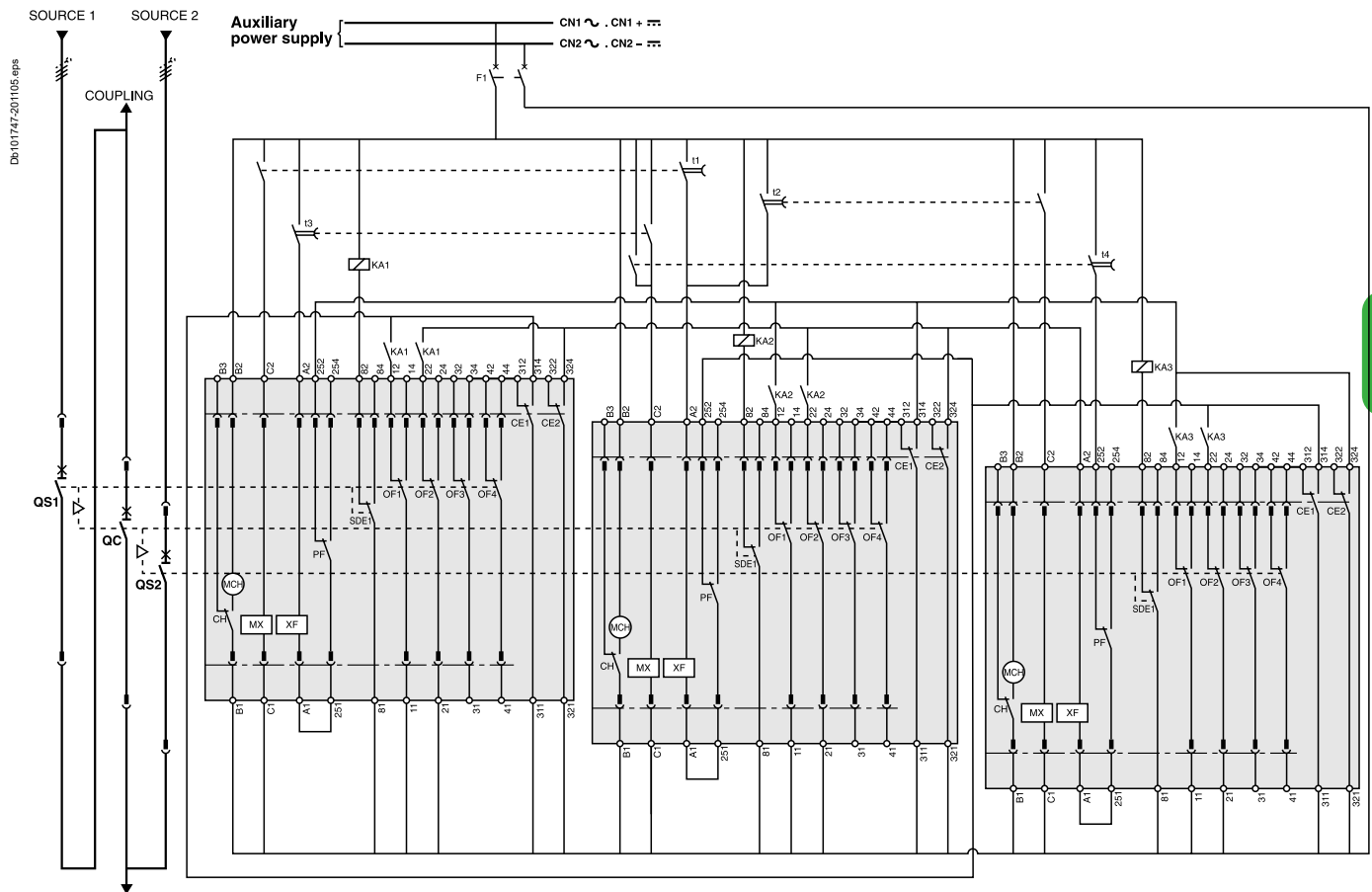
Source 1	Source 2	Coupling
0	0	0
1	1	0
1	0	1
0	1	1
1	0	0
0	1	0
0	0	1

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/MTZ3 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 or MTZ3
- QC "Coupling" MasterPacT MTZ2 or MTZ3
- 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

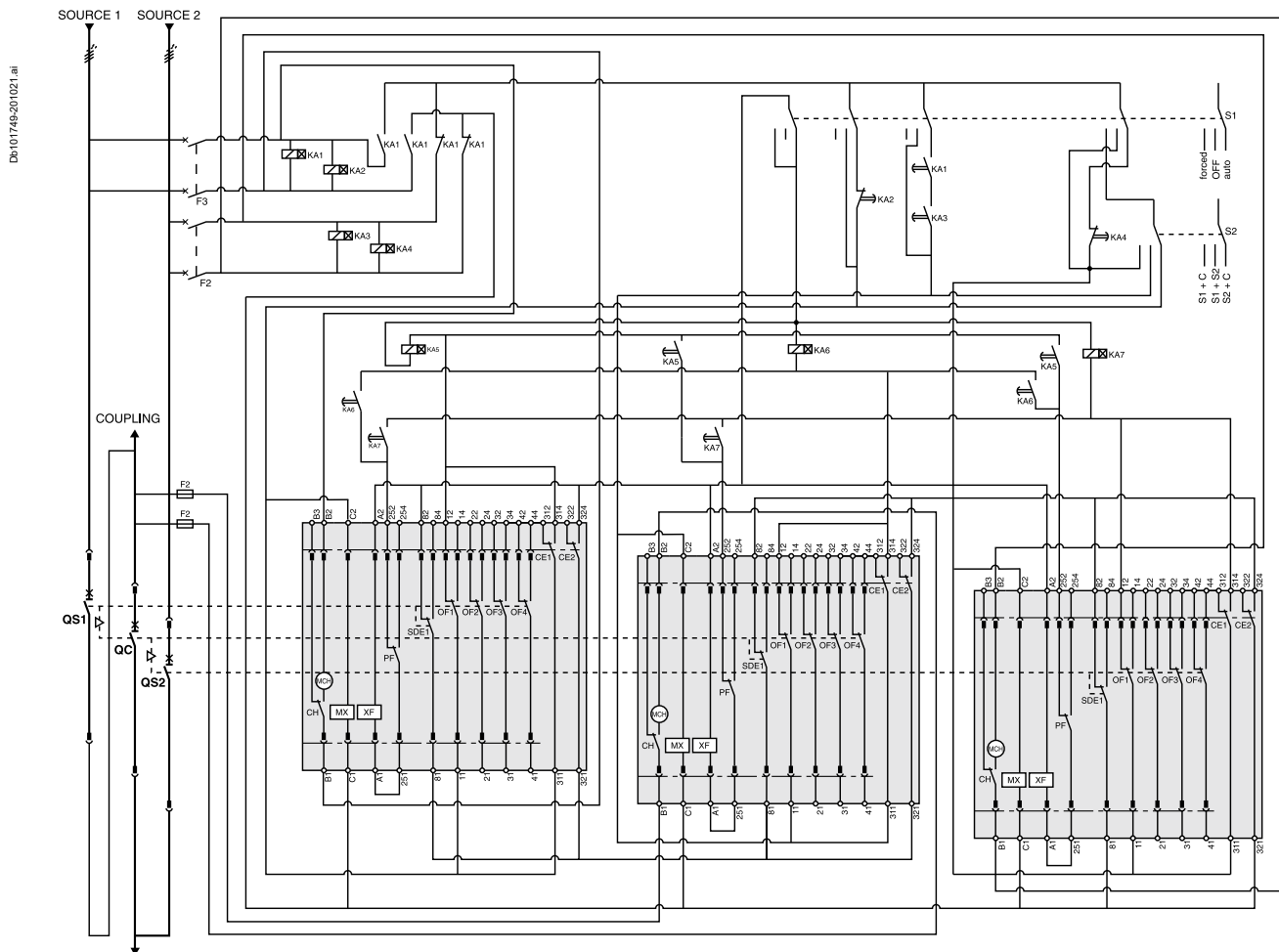
Source 1	Source 2	Coupling
0	0	0
1	1	0
1	0	1
0	1	1
1	0	0
0	1	0
0	0	1

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/MTZ3 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 or MTZ3
- QC "Coupling" MasterPacT MTZ2 or MTZ3
- 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.

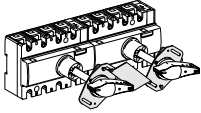
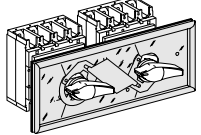
Auxiliary power supply = supply voltage of auxiliary relays (KA...) = supply voltage of electrical auxiliaries (electrical operation, MCH, MX, XF...).

References of source-changeover systems for 2 devices

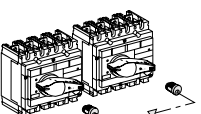
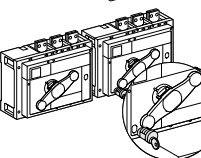
ComPacT INS40 to INS2500, INV100 to INV2500

Manual source-changeover systems

Interlocking for rotary handle

DB107710.eps		Mechanical device for INS40 to INS160 equipped with an extended rotary handle	3/4P
			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

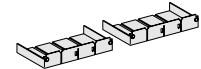
Interlocking

DB101549.eps		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
DB404080.eps		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

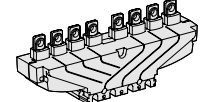
Connection accessories

Downstream coupling accessories

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

DB101062.eps		INS250/INS250	3/4P
		INS320 to INS630/INS320 to INS630	LV429359
			LV432620

Long terminal shields (1 piece)

DB413202.eps		INS250	Long terminal shield	LV429518
		INS320	Long terminal shield, 45 mm (1 piece)	LV432594
		to INS630	Long terminal shield for spreaders, 52.5 mm (1 piece)	LV432596

Terminal extensions

DB119652.eps		Spreaders	52.5 mm	4P	LV432491
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C

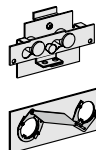
References of source-changeover systems for 2 devices

ComPacT NSX100 to NSX630

Manual source changeover

Mechanical interlocking

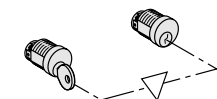
DB404084 eps DB404083 eps



For toggle controlled circuit breakers	NSX100...250		LV429354T
	NSX400...630		LV432614T
For rotary handled circuit breakers	With direct rotary handle	NSX100...250	LV429369T
		NSX400...630	LV432621T
	With extended rotary handle	NSX100...250	LV429369T
		NSX400...630	LV432621T

Key lock interlocking

DB404085 eps

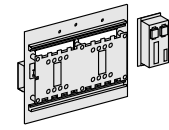


Keylock kit (keylock not included)		LV429344
1 set of 2 keylocks	Ronis 1351B.500	41950
(1 key only, keylock not included)	Profalux KS5 B24 D4Z	42878

Remote controlled source changeover

Plate + IVE unit

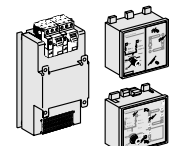
DB404086 eps



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]		
Plate	29351	29350
IVE unit	29349	29349
IVE unit	29356	29352
Auxiliary switches 2 OF + 2 SDE	4 x 29450	4 x 29450
Safety trip interlock (for fixed version only)	2 x LV429270	2 x LV429270
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]		
Plate	32611	32610
IVE unit	32609	32609
IVE unit	29356	29352
Auxiliary switches 2 OF + 2 SDE	4 x 29450	4 x 29450
Safety trip interlock (for fixed version only)	2 x LV432520	2 x LV432520
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

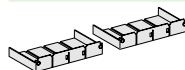
Wiring cable between UA/BA and ACP/IVE

Wiring cable (1.5 meter)	29368	29368
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Connection accessories

Downstream coupling accessories

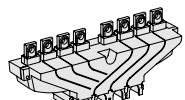
DB101062 eps



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

DB413273 eps



Long terminal shields (1 piece)

		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
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^[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.

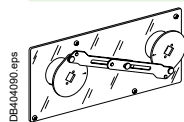
References of source-changeover systems for 2 devices

ComPacT NS630b to NS1600

Circuit breakers and switch-disconnectors

Mechanical interlocking for source-changeover systems

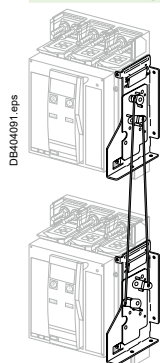
Interlocking



For 2 devices with extended rotary handles

33890

Interlocking using connecting rods



Complete assembly with 2 adaptation fixtures + rods

33910

2 ComPacT fixed devices

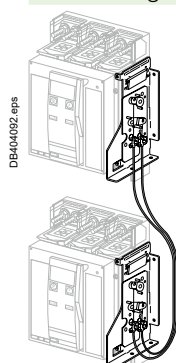
33913

2 ComPacT withdrawable devices

Push button cover (mandatory)

2x 33897

Interlocking using cables



Complete assembly with 2 adaptation fixtures + cables

33911

2 ComPacT fixed devices

33914

2 ComPacT withdrawable devices

1 ComPacT fixed + 1 ComPacT withdrawable device

33915

Push button cover (mandatory)

2x 33897

Associated controller

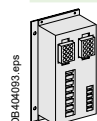
The automatic-control option includes:

- 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.

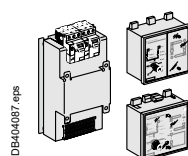
TransferPacT Electrical Interlocking

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

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.

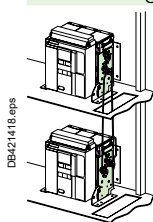
References of source-changeover systems for 2 devices

MasterPacT MTZ1

Circuit breakers and switch-disconnectors

Mechanical interlocking for source-changeover systems

Interlocking using connecting rods



Complete assembly with 2 adaptation fixtures + rods

2 MasterPacT MTZ1 fixed devices

2 MasterPacT MTZ1 drawout devices

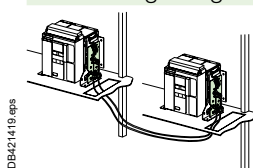
Push button cover (mandatory)

33912

33913

2x LV833897

Interlocking using cables ^[1]



Choose 2 adaptation fixtures (1 for each breaker + 1 set of cables)

1 adaptation fixture for MasterPacT MTZ1 fixed devices

1 adaptation fixture for MasterPacT MTZ1 drawout devices

1 set of 2 cables

Push button cover (mandatory)

33200

33201

33209

2x LV833897

Associated controller

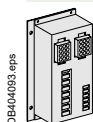
The automatic-control option includes:

- 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

IVE unit



For 2 devices

Wiring kit for connection of 2 fixed/drawout devices to the IVE unit

24 to 250 V DC

48/415 V AC 50/60 Hz

440 V 60 Hz

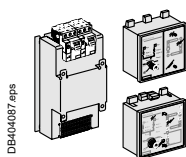
29356

29352

54655

TransferPacT Controllers

Control unit



ACP + controller BA ^[2]

Plate ACP

Controller BA

ACP + controller UA ^[2]

Plate ACP

Controller UA

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

29470

29471

29363

29364

29376

29377

29448

29472

29473

29447

29363

29364

29446

29378

29380

^[1] Can be used with any combination of MTZ1 or MTZ2/MTZ3, 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.

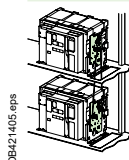
References of source-changeover systems for 2 devices

MasterPacT MTZ2/MTZ3

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/MTZ3 fixed devices

48612

2 MasterPacT MTZ2/MTZ3 drawout devices

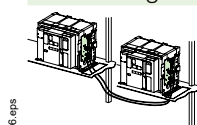
48612

Push button cover (mandatory)

2x LV848536

Note: Can be used with 1 MTZ2/MTZ3 fixed + 1 MTZ2/MTZ3 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/MTZ3 fixed devices

47926

1 adaptation fixture for MasterPacT MTZ2/MTZ3 drawout devices

47926

1 set of 2 cables

33209

Push button cover (mandatory)

2x LV848536

Associated controller for 2 devices

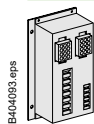
The automatic-control option includes:

- 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.

TransferPacT Electrical Interlocking

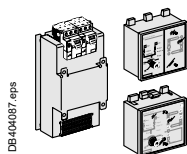
IVE unit	24 to 250 V DC	48/415 V AC 50/60 Hz 440 V 60 Hz
For 2 devices	29356	29352
Wiring kit for connection of 2 fixed/drawout devices to the IVE unit		54655



DB404053.eps

TransferPacT Controllers

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



DB404087.eps

[1] Can be used with any combination of MTZ1 or MTZ2/MTZ3, 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.

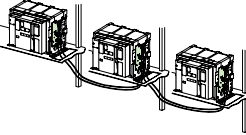
References of source-changeover systems for 3 devices

Master**PacT** MTZ2/MTZ3

Circuit breakers and switch-disconnectors

Mechanical interlocking for source-changeover systems for 3 devices

Interlocking of 3 devices using cables



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
Push button cover (mandatory)	3x LV848536

Order form for source-changeover systems for 2 devices

Com**PacT** 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 ☐

C

Order form for 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 3x16° rigid/10° flexible	☐
INS100/160 connectors	Snap-on ≤ 95° Distribution 4x25° rigid/16° flexible	☐
INS250 connectors	Snap-on 1.5° to 95° (< 160 A) Snap-on 10° to 185° (< 250 A) Volt. tap connector for 185° connector Clips for connectors Set of 10 Distribution 6x1.5° to 35° rigid with interphase barriers	☐
INS320/630 connectors	1 cable 35° to 300° 2 cables 35° to 240° Voltage tap connector for 185° connector	☐
Distribution blocks	Linergy DX 4P 125 A ☐ 160 A ☐ 1P 160 A ☐ Linergy BS 160 A ☐ 250 A ☐ (multi stage) Linergy DP 250 A ☐ 630 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 95° cable INS250 For 120° cable For 150° cable For 185° cable INS320/630 For 240° cable For 300° cable	☐
Al cable lugs supplied with 2 or 3 inter-phase barriers	INS250 For 150° cable For 185° cable INS320/630 For 240° cable For 300° 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 ☐	☐

Order form for 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	☐

C

Order form for 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	24-30 V DC 48-60 V DC
24 V DC	100-125 V AC 110-130 V AC
Battery module	200-240 V AC 380-415 V AC

Connection

Rear-connection kit	Short	Long
	Mixed	
NSX100/250 connectors	Snap-on 1.5° to 95° (< 160 A)	
	Snap-on 25° to 95° (< 250 A)	
	Snap-on 120° to 185° (< 250 A)	
	Distribution 6 x 1.5° to 35°	
	Aluminium 2 cables 50° to 120°	
NSX400/630 connectors	1 cable 35° to 300°	
	2 cables 35° to 240°	
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	NSX100/250 120° 150° 185°	
	NSX400/630 240° 300°	
Al cable lugs	NSX100/250 150° 185°	
	NSX400/630 240° 300°	
V mesrt Input for connector	For lugs NSX100/250 ≤ 185°	
	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 scm.	NSX100/250 70 pitch	NSX400/630

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
	OF	SD	SDE
SDE adapter (TM, MA or MicroLogic 2 trip units)		SDV	Standard
SDX module		SDV	Low level

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
	Locking kit (keylock not included)	Vigi
	2 carriage switches (conn./disconnected position indication)	
Parts or plug-in	Plug-in base FC/RC	2P 3P 4P
Withdrawable kits	Set of two power connections	Standard
	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

Order form for 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	☐

Order form for 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	7.0
A - ammeter	2.0	5.0	6.0	7.0
E - energy meter	2.0	5.0	6.0	7.0
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	NS - FC fixed			
+ shields				
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			
	VSP0 - 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

Order form for 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/MTZ3 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/MTZ3 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/MTZ3 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: 1 fixed MTZ1 device qty (MTZ1/MTZ2/3 fixed and 1 drawout MTZ1 device qty drawout devices may be 1 fixed MTZ2/3 device qty mixed) 1 drawout MTZ2/3 device qty 1 set of 2 cables (for two devices)

Electrical interlocking 2 MasterPacT MTZ1/MTZ2/MTZ3 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 ☐

Order form for 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)
	MTZ2/3 (470 x 160 mm)
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

	Top	Bottom
Horizontal		
Vertical		
Front		
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

Carriage switches	6 A-240 V AC	2 M2C contacts
		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	
VSPD - by keylocks	Keylock kit (w/o keylock)
	Profalux
	Kirk
	Profalux
	1 keylock
	Profalux
	2 identical keylocks, 1 key
	Profalux
	2 keylocks, different keys (MTZ2/3)
	Profalux
Chassis locking in "disconnected" position:	
VSPD - by keylocks	Keylock kit (w/o keylock)
	Profalux
	Kirk
	Profalux
	1 keylock
	Profalux
	2 identical keylocks, 1 key
	Profalux
	2 keylocks, different keys
	Profalux
	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

Order form for 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/MTZ3 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/MTZ3 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

☐
☐

C

Order form for source-changeover systems for 3 devices
Master**PacT** MTZ2/MTZ3
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/MTZ3	
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	470 x 160 mm	
for earth-leakage protection		
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				☒
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

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	
Remote tripping	RAR - automatic reset option		
	MN - undervoltage release	V	
	R - delay unit (non-adjustable)		
	Rr - adjustable delay unit		
	2 ^{me} 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 (MT22/3)	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	
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IBPO - racking interlock between crank and OFF pushbutton for MTZ2/3	
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DAE - automatic spring discharge before breaker removal for MTZ2/3

VPC - 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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