Source changeover systems

Compact NSX100-630, Compact NS630b-1600, Compact INS/INV, Masterpact

Schneider Electric

WEB2 cat.2015
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With Green Premium eco-mark, Schneider Electric helps you:
• Calculate the carbon footprint of the solutions you offer
• Ensure full regulation compliance about substances and chemical components
• Deliver all appropriate information to certify eco-design of your solutions
• Easily manage products end of life, while ensuring optimized recycling.

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Check a product!

With Green Premium, Schneider Electric commits to be transparent disclosing extensive and reliable information on environmental impacts of its products:

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Schneider Electric applies RoHS requirements to all its products and worldwide, even for the numerous ones which are not in the scope of the regulation. Compliance certificates are available for all products involved.

REACH
Schneider Electric applies REACh regulation worldwide, and releases all information about presence of Substances of Very High-Concern (SVHC) in its products.

PEP: Product Environmental Profile
For all its products, Schneider Electric publishes the most complete set of environmental data, including carbon footprint and energy consumption for each of the life cycle phases, in compliance with ISO 14025 PEPEcopassport program.

EoLI: End of Life Instructions
Available at a click, these documents provide:
• Recyclability rates of the products
• Information to mitigate personnel hazards during dismantling and before recycling operations
• Parts identification either for re-use, or for selective treatment to mitigate environmental hazards, or incompatibility with usual recycling process.
A source-changeover system is indispensable for applications that need a continuous supply of electric power (hospitals, airports, banks, government facilities, etc.).

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

- Nominal voltage loss or dip (when there is high demand for electric power)
- Unpredictable power quality
- Frequent power cuts.

These factors, and many others, can damage the continuity of service of your electrical installation. For infrastructure managers, a source-changeover system gives direct economic benefits: it is possible to select your source based on power cost. In this case, the replacement source is used as an alternative, more economical source.
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, Schneider Electric source-changeover system comes as the natural continuation of the world leading low voltage distribution system developed by Schneider Electric.
Efficient energy management and continuity of service with source-changeover system

To ensure continuity of service for critical applications, LV electrical installations need to be connected to at least two independent power sources:

1. A normal source (N)
2. And a replacement source (R)*

used to supply energy to the installation when the normal source unavailable, or, for instance, when its quality and/or availability is no longer guaranteed.

The source-changeover system switches the load (partly or fully) between these two sources.

A few basics on source-changeover systems

> A source-changeover system can be automated to manage transfers according to external conditions.
> Switching from a main power source to a replacement source can be performed either manually or automatically.
> A source-changeover system comprises circuit breakers, switch-disconnectors or contactors.

* The replacement source (R) can be: a second power source (with possibly different characteristics from the normal source) or an electrical generator.
### Manual source-changeover system
(or MTSE: Manual Transfer Switching Equipment)

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

<table>
<thead>
<tr>
<th>System</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or 3 mechanically interlocked manually-operated circuit breakers or 2 switch-disconnectors.</td>
<td>Buildings and infrastructure where the need for continuity of service is significant but not a priority: offices, small and medium-sized businesses.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>System</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>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.).</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>System</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>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).</td>
<td>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.</td>
</tr>
</tbody>
</table>
Whatever the system, you benefit from our expertise!

> **MTSE range**

Compact INS
From 40 A to 630 A

> **RTSE range**

Compact NSX
From 100 A to 630 A

Masterpact NT / NW
From 630 A to 6300 A

> **ATSE range**

UA Controller
From 100 A to 630 A

Compact NSX
From 100 A to 630 A

Our expertise and support come together with the source-changeover system you choose for your LV electrical installation.

With Compact INS, Compact NSX and Masterpact NT and NW, we offer a complete range of solutions, designed around key values:

**Maximum continuity of service**
- Energy availability is ensured whatever the external requirements (e.g. high power demand).
- Maintenance and replacement of the sources (N or R) can be done with no interruption of service.
You can maintain a continuous level of service and customer satisfaction.

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

**Optimized energy management**
- Transfer the load to a replacement source according to external requirements.
- Manage power sources according to power quality and power costs.
- Perform system regulation.
- Switch to an emergency replacement source.
You are no longer dependent on your power supply (and supplier)!

**Simplicity and reliability**
- Simple installation on LV switchboard.
- Optimized size of the switchboard.
- System based on pre-tested components.
- Compliance with IEC 60947-6-1.
Ecodial software is dedicated to LV electrical installation calculation in accordance with the IEC60364 international standard or national standards.

This 4th generation, "Ecodial Advance Calculation 4", offers a new ergonomic and new features:
- operating mode that allows easy calculation in case of installation with different type of sources (parallel transformers, back-up generators...)
- discrimination analysis associating curves checking and discrimination tables
- direct access to protection settings including residual current protections
- easy selection of alternate solutions or manual selection of a product.
This international site allows you to access all the Schneider Electric Solution and Product information via:

- comprehensive descriptions
- range data sheets
- a download area
- product selectors
- ...

You can also access the information dedicated to your business and get in touch with your Schneider Electric country support.

schneider-electric.com
For maximum continuity of service...

**Incoming feeders and main LV switchboards**

Currents
From 630 to 6300 A.

**Power distribution**

Currents
From 250 to 3200 A.

**Loads**

Currents
From 40 to 400 A.
Incoming feeders and main LV switchboards

- 1 normal source
- 1 replacement source
- 2 sources with coupler on busbars

Currents From 630 to 6300 A.

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

Currents From 250 to 3200 A.

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

Currents From 40 to 400 A.

... in a wide range of applications
Ecodial software is dedicated to LV electrical installation calculation in accordance with the IEC60364 international standard or national standards.

This 4th generation, "Ecodial Advance Calculation 4", offers a new ergonomic and new features:

- operating mode that allows easy calculation in case of installation with different type of sources (parallel transformers, back-up generators...)
- discrimination analysis associating curves checking and discrimination tables
- direct access to protection settings including residual current protections
- easy selection of alternate solutions or manual selection of a product.
<table>
<thead>
<tr>
<th>Source-changeover systems</th>
<th>Compact NSX100-630, Compact NS630b-1600, Compact INS/INV, Masterpact</th>
</tr>
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### Functions and characteristics

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<tr>
<td>Class PC</td>
<td>A-4</td>
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<td>Class CB</td>
<td>A-6</td>
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<tr>
<td>Mechanical interlocking</td>
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<tr>
<td>Electrical interlocking</td>
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<td>IVE unit</td>
<td>A-14</td>
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<tr>
<td>Operating sequences</td>
<td></td>
</tr>
<tr>
<td>IVE unit</td>
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<td>Overview of source-changeover system</td>
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<td>Associated controllers</td>
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<td>Controller selection</td>
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<tr>
<td>Controller installation</td>
<td>A-18</td>
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<td>BA controller</td>
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<tr>
<td>BA controller, Operating sequences</td>
<td>A-20</td>
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<tr>
<td>UA controller</td>
<td>A-21</td>
</tr>
<tr>
<td>UA controller, Operating sequences, Forced operation mode</td>
<td>A-22</td>
</tr>
<tr>
<td>UA controller, Operating sequences, Special-tariff mode</td>
<td>A-23</td>
</tr>
<tr>
<td>UA controller, Operating sequences, Test mode and automatic operation</td>
<td>A-24</td>
</tr>
<tr>
<td>UA/BA controller</td>
<td>A-25</td>
</tr>
<tr>
<td>Dimensions</td>
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</tr>
<tr>
<td>Electrical diagrams</td>
<td>C-1</td>
</tr>
<tr>
<td>Catalogue numbers and order forms</td>
<td>D-1</td>
</tr>
</tbody>
</table>
Manual Transfer Switch Equipment

- Switching devices (2 or 3) + Mechanical Interlocking

Automatic Transfer Switch Equipment

- Mechanical Interlocking
- Base plate
- Downstream coupling accessory
- Switching devices
- Electrical Interlocking + controller
- Remote control unit
- UA/BA controller
- IVE unit
- Indication auxiliaries
Manual and Automatic Transfer Switch

Switching devices

<table>
<thead>
<tr>
<th>Device</th>
<th>Class PC</th>
<th>Class CB</th>
</tr>
</thead>
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<tr>
<td>Compact INS/INV</td>
<td>A-4</td>
<td>-</td>
</tr>
<tr>
<td>Compact NSX</td>
<td>A-5</td>
<td>A-6</td>
</tr>
<tr>
<td>Compact NS</td>
<td>A-5</td>
<td>A-7</td>
</tr>
<tr>
<td>Masterpact NT</td>
<td>A-5</td>
<td>A-7</td>
</tr>
<tr>
<td>Masterpact NW</td>
<td>A-5</td>
<td>A-7</td>
</tr>
</tbody>
</table>

Mechanical interlocking

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical interlocks</td>
<td>A-10</td>
</tr>
<tr>
<td>Keylocks with captive keys</td>
<td>A-12</td>
</tr>
<tr>
<td>Cables or connecting rods</td>
<td>A-13</td>
</tr>
</tbody>
</table>

Electrical interlocking and Automatic controller

<table>
<thead>
<tr>
<th>Electrical interlocking</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVE unit + base plate</td>
<td>A-14</td>
</tr>
<tr>
<td>IVE unit, Operating sequences</td>
<td>A-15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>With automatic controller</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller selection</td>
<td>A-17</td>
</tr>
<tr>
<td>Controller installation</td>
<td>A-18</td>
</tr>
<tr>
<td>BA controller</td>
<td>A-19</td>
</tr>
<tr>
<td>BA controller, Operating sequences</td>
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<td>UA controller</td>
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<tr>
<td>UA controller, Operating sequences, Test mode and automatic operation</td>
<td>A-24</td>
</tr>
<tr>
<td>UA/BA controller, Operating sequences</td>
<td>A-25</td>
</tr>
</tbody>
</table>

Informations

IEC60947-6-1 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 working, 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.
## Functions and characteristics
### Switching devices
#### Class PC

<table>
<thead>
<tr>
<th>Range</th>
<th>Compact INS</th>
<th>Compact INS/INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of devices</td>
<td>INS40 to INS80, INS100 to INS160</td>
<td>INS250 to INS630, INV100 to INV630</td>
</tr>
<tr>
<td>Mixing possibilities</td>
<td>All devices, not possible with a complete assembly source-changeover</td>
<td>All devices, not possible with a complete assembly source-changeover</td>
</tr>
</tbody>
</table>

**Electrical characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Compact INS</th>
<th>Compact INS/INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current rating</td>
<td>40 to 160 A</td>
<td>100 to 630 A</td>
</tr>
<tr>
<td>Insulating voltage $U_i$ (V AC)</td>
<td>750</td>
<td>800</td>
</tr>
<tr>
<td>Rated operational voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive break indication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of poles (N and R devices must have the same number of poles)</td>
<td>3, 4</td>
<td>3, 4</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25 °C and +70 °C</td>
<td>-25 °C and +70 °C</td>
</tr>
</tbody>
</table>

**Additional indication and control auxiliaries**

<table>
<thead>
<tr>
<th></th>
<th>Compact INS</th>
<th>Compact INS/INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication contacts</td>
<td>OF</td>
<td>OF</td>
</tr>
<tr>
<td>Voltage releases</td>
<td>MX shunt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MN undervoltage</td>
<td></td>
</tr>
<tr>
<td>Voltage presence indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammeter module</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation monitoring module</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Installation and connection**

<table>
<thead>
<tr>
<th></th>
<th>Compact INS</th>
<th>Compact INS/INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed front connected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed rear connected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withdrawable, plug-in or drawout</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Installation and connection accessories**

<table>
<thead>
<tr>
<th></th>
<th>Compact INS</th>
<th>Compact INS/INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downstream coupling accessory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bare-cable connectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal extensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal shields and inter-phase barriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front panel escutcheons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locking</td>
<td>by padlock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>by keylock</td>
<td></td>
</tr>
</tbody>
</table>
## Switching devices
### Class PC

<table>
<thead>
<tr>
<th>Range</th>
<th>Compact NSX</th>
<th>Compact NS</th>
<th>Masterpact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of devices</td>
<td>NSX100 to NSX250</td>
<td>NSX400 to NSX630</td>
<td>NS630b to NS1600</td>
</tr>
<tr>
<td>Mixing possibilities</td>
<td>all devices</td>
<td>all devices</td>
<td>all devices</td>
</tr>
<tr>
<td></td>
<td>NSX100NA to NSX250NA</td>
<td>NSX1600NA</td>
<td>all mixing possibilities</td>
</tr>
<tr>
<td></td>
<td>fixed/fixed or plug-in/plug-in</td>
<td>fixed/fixed or plug-in/plug-in</td>
<td>(fixed, drawout or fixed + drawout)</td>
</tr>
<tr>
<td></td>
<td>NA/HA/HA</td>
<td>NA/HA/HA</td>
<td>NA/HA/HA</td>
</tr>
<tr>
<td>Types</td>
<td>NSX100NA to NSX630NA</td>
<td>NSX100NA to NSX630NA</td>
<td>NS630bNA to NSX1600NA</td>
</tr>
<tr>
<td>Mixing possibilities</td>
<td>all devices</td>
<td>all devices</td>
<td>all devices</td>
</tr>
<tr>
<td></td>
<td>fixed/fixed or plug-in/plug-in</td>
<td>fixed/fixed or plug-in/plug-in</td>
<td>fixed/fixed or plug-in/plug-in</td>
</tr>
<tr>
<td></td>
<td>NA/HA/HA</td>
<td>NA/HA/HA</td>
<td>NA/HA/HA</td>
</tr>
</tbody>
</table>

### Electrical characteristics

<table>
<thead>
<tr>
<th>Current rating</th>
<th>15 to 250 A</th>
<th>15 to 630 A</th>
<th>250 to 1600 A</th>
<th>600 to 1600 A</th>
<th>800 to 6300 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulating voltage Ui (V AC)</td>
<td>750</td>
<td>750</td>
<td>750</td>
<td>1000</td>
<td>1000</td>
</tr>
</tbody>
</table>

### Positive break indication

| Number of poles (N and R devices must have the same number of poles) | 3, 4 | 3, 4 |

### Operating temperature

| 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 (50 °C for 440 V - 60 Hz) |

### Control characteristics

<table>
<thead>
<tr>
<th>Control characteristics</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control voltage</td>
<td>48 V - 50 Hz</td>
<td>24-250 V</td>
</tr>
<tr>
<td>110/130, 220/240, 380/440 V - 50/60 Hz</td>
<td>24-250 V</td>
<td></td>
</tr>
<tr>
<td>AC</td>
<td>500 VA</td>
<td>180 W</td>
</tr>
<tr>
<td>DC</td>
<td>500 W</td>
<td>180 W</td>
</tr>
<tr>
<td>Maximum consumption</td>
<td>500 VA</td>
<td>180 VA</td>
</tr>
</tbody>
</table>

### Minimum switching time

| Minimum switching time | 800 ms | 800 ms | 800 ms |

### Protection and measurement

<table>
<thead>
<tr>
<th>Protection and measurement</th>
<th>Earth-leakage protection</th>
<th>Current measurements</th>
<th>Voltage, frequency, power measurements, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>by Vigi module</td>
<td>by add-on Vigirex relay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>by control unit</td>
<td>by control unit</td>
<td></td>
</tr>
</tbody>
</table>

### Additional indication and control auxiliaries

<table>
<thead>
<tr>
<th>Additional indication and control auxiliaries</th>
<th>Indication contacts</th>
<th>Voltage releases</th>
<th>Voltage presence indicator</th>
<th>Voltage transformer</th>
<th>Ammeter module</th>
<th>Insulation monitoring module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator contacts</td>
<td>OF + SD (+ SDV)</td>
<td>MX shunt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 OF + SD (+ SDV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 OF + SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 OF + SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Installation and connection

<table>
<thead>
<tr>
<th>Installation and connection</th>
<th>Fixed front connected</th>
<th>Fixed rear connected</th>
<th>Withdrawable, plug-in or drawout</th>
<th>Installation and connection accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(long rear connections)</td>
<td>(long rear connections)</td>
<td>(plug-in on base)</td>
<td>Downstream coupling accessory</td>
</tr>
<tr>
<td></td>
<td>(vertical or horizontal)</td>
<td>(vertical or horizontal)</td>
<td>(drawout)</td>
<td>Bare-cable connectors</td>
</tr>
<tr>
<td></td>
<td>(vertical or horizontal)</td>
<td></td>
<td>(drawout)</td>
<td>Terminal extensions</td>
</tr>
<tr>
<td></td>
<td>(vertical or horizontal)</td>
<td></td>
<td>(drawout)</td>
<td>Terminal shields and inter-phase barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Front panel escutcheons</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Locking</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>by padlock</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>by keylock</td>
</tr>
</tbody>
</table>

### Electrical characteristics

| Electrical characteristics | Current rating | Insulating voltage Ui (V AC) | Rated operational voltage | Positive break indication | Number of poles (N and R devices must have the same number of poles) | Operating temperature | Control characteristics | Control voltage | Maximum consumption | Minimum switching time | Protection and measurement | Additional indication and control auxiliaries | Installation and connection | Installation and connection accessories |
## Functions and characteristics

### Switching devices

#### Class CB

<table>
<thead>
<tr>
<th>Range</th>
<th>Compact NSX</th>
<th>Compact NS Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of devices</td>
<td>NSX100 to NSX250</td>
<td>NSX400 to NSX630</td>
</tr>
<tr>
<td>Mixing possibilities</td>
<td>all devices</td>
<td>all devices</td>
</tr>
<tr>
<td></td>
<td>NSX100 to NSX250</td>
<td>NSX100 to NSX630</td>
</tr>
<tr>
<td></td>
<td>N/H/L</td>
<td>N/H/L</td>
</tr>
<tr>
<td></td>
<td>fixed/fixed or plug-in/plug-in</td>
<td>fixed/fixed or plug-in/plug-in</td>
</tr>
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### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>Compact NSX</th>
<th>Compact NS Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current rating</td>
<td>15 to 250 A</td>
<td>15 to 630 A</td>
</tr>
<tr>
<td>Insulating voltage Ue (V AC)</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>Rated operational voltage</td>
<td>3, 4</td>
<td>3, 4</td>
</tr>
<tr>
<td>Positive break indication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of poles</td>
<td>-25 °C to +70 °C (50 °C for 440 V - 60 Hz)</td>
<td></td>
</tr>
<tr>
<td>(N and R devices must have the same number of poles)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>48 V - 50 Hz</td>
<td>48 V - 50 Hz</td>
</tr>
<tr>
<td>Control voltage</td>
<td>24-250 V</td>
<td>24-250 V</td>
</tr>
<tr>
<td>DC</td>
<td>24-250 V</td>
<td>24-250 V</td>
</tr>
<tr>
<td>Maximum consumption</td>
<td>500 VA</td>
<td>500 VA</td>
</tr>
<tr>
<td>AC</td>
<td>500 VA</td>
<td>500 VA</td>
</tr>
<tr>
<td>DC</td>
<td>500 W</td>
<td>500 W</td>
</tr>
<tr>
<td>Minimum switching time</td>
<td>800 ms</td>
<td>800 ms</td>
</tr>
</tbody>
</table>

### Protection and measurement

<table>
<thead>
<tr>
<th></th>
<th>Compact NSX</th>
<th>Compact NS Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth-leakage protection</td>
<td>by Vigi module</td>
<td>by Vigi module</td>
</tr>
<tr>
<td>by control unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>by add-on Vigirex relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current measurements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage, frequency, power measurements, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Additional indication and control auxiliaries

<table>
<thead>
<tr>
<th></th>
<th>Compact NSX</th>
<th>Compact NS Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication contacts</td>
<td>OF + SD (+ SDV)</td>
<td>3 OF + SD (+ SDV)</td>
</tr>
<tr>
<td>Voltage releases</td>
<td>MX shunt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MN undervoltage</td>
<td></td>
</tr>
<tr>
<td>Voltage presence indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammeter module</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation monitoring module</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Installation and connection

<table>
<thead>
<tr>
<th></th>
<th>Compact NSX</th>
<th>Compact NS Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed front connected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed rear connected</td>
<td>(long rear connections)</td>
<td>(long rear connections)</td>
</tr>
<tr>
<td>Withdrawable, plug-in or drawout</td>
<td>(plug-in on base)</td>
<td>(plug-in on base)</td>
</tr>
</tbody>
</table>

### Installation and connection accessories

<table>
<thead>
<tr>
<th></th>
<th>Compact NSX</th>
<th>Compact NS Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downstream coupling accessory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bare-cable connectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal extensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal shields and inter-phase barriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front panel escutcheons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locking</td>
<td>by padlock</td>
<td>by padlock</td>
</tr>
<tr>
<td></td>
<td>by keylock</td>
<td>by keylock</td>
</tr>
</tbody>
</table>

### Compact NSX

<table>
<thead>
<tr>
<th></th>
<th>NSX100-250</th>
<th>NSX400 to NSX630</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current In (A)</td>
<td>100 to 250</td>
<td>400 to 630</td>
</tr>
<tr>
<td>Mechanical durability (Oₜ₋Cₜ₋Oₜ₋Cₜ cycles) (1)</td>
<td>20000 - 40000 - 50000</td>
<td>15000</td>
</tr>
<tr>
<td>Electrical durability at In (Oₜ₋Cₜ₋Oₜ₋Cₜ cycles) (1) for U ≤ 440 V and 480 V NEMA (2)</td>
<td>10000 - 20000 - 30000</td>
<td>4000 - 6000</td>
</tr>
<tr>
<td>Electrical durability at In (Oₜ₋Cₜ₋Oₜ₋Cₜ cycles) (1) for U = 500 V to 690 V (2)</td>
<td>5000 - 7500 - 10000</td>
<td>2000 - 3000</td>
</tr>
</tbody>
</table>

(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:**
- Oₜ: opening of N source
- Cₜ: closing of R source
- Oₜ: opening of R source
- Cₜ: closing of N source

---

<sup>1</sup> Mechanical and electrical durability not applicable to Masterpact H3 and L versions.
<sup>2</sup> Electrical durability tests carried out with a power factor of 0.8 as per IEC 947-2.
### Switching devices

**Class CB**

<table>
<thead>
<tr>
<th>Compact NS</th>
<th>Masterpact NT</th>
<th>Masterpact NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS630b to NS1600</td>
<td>NT06 to NT16</td>
<td>NW08 to NW63</td>
</tr>
<tr>
<td>all devices</td>
<td>all mixing possibilities</td>
<td>all mixing possibilities</td>
</tr>
<tr>
<td>NS630b to 1600</td>
<td>(fixed, drawout or fixed + drawout)</td>
<td>(fixed, drawout or fixed + drawout)</td>
</tr>
<tr>
<td>N/H/L</td>
<td>N1/H1/H2/H3/L1</td>
<td>N1/H1/H2/H3/L1</td>
</tr>
<tr>
<td>fixed/fixed or plug-in/plug-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 to 1600 A</td>
<td>600 to 1600 A</td>
<td>800 to 6300 A</td>
</tr>
<tr>
<td>750</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>3, 4</td>
<td>3, 4</td>
</tr>
<tr>
<td></td>
<td>-25 °C to +70 °C (50 °C for 440 V - 60 Hz)</td>
<td></td>
</tr>
<tr>
<td>24-250 V</td>
<td>24-250 V</td>
<td>24-250 V</td>
</tr>
<tr>
<td>180 VA</td>
<td>180 VA</td>
<td>180 VA</td>
</tr>
<tr>
<td>180 W</td>
<td>180 W</td>
<td>180 W</td>
</tr>
<tr>
<td>800 ms</td>
<td>800 ms</td>
<td>800 ms</td>
</tr>
<tr>
<td>2 OF + SD</td>
<td>2 OF + SD</td>
<td>2 OF + SD</td>
</tr>
<tr>
<td>(vertical or horizontal)</td>
<td>(vertical or horizontal)</td>
<td>(vertical or horizontal)</td>
</tr>
<tr>
<td>(drawout)</td>
<td>(drawout)</td>
<td>(drawout)</td>
</tr>
<tr>
<td>Compact NS</td>
<td>Masterpact NT/NW</td>
<td></td>
</tr>
<tr>
<td>NS630b to NS1600</td>
<td>NT06-NT10</td>
<td>NW08- NW16</td>
</tr>
<tr>
<td>630 to 1600</td>
<td>630 to 1600</td>
<td>800 to 1600</td>
</tr>
<tr>
<td>8000</td>
<td>8000</td>
<td>10000</td>
</tr>
<tr>
<td>2000</td>
<td>6000</td>
<td>8000</td>
</tr>
<tr>
<td>1500</td>
<td>3000</td>
<td>10000</td>
</tr>
</tbody>
</table>

**Electrical characteristics**

- **Current rating**: 15 to 250 A, 15 to 630 A, 250 to 1600 A, 600 to 1600 A, 800 to 6300 A
- **Insulating voltage Ui (V AC)**: 750, 1000
- **Rated operational voltage**:
  - Positive break indication
  - Number of poles (N and R devices must have the same number of poles): 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, 48 V - 50 Hz, 440 V - 60 Hz
  - 110/130, 220/240, 380/440 V - 50/60 Hz
  - DC: 24-250 V, 24-250 V, 24-250 V
- **Maximum consumption**:
  - AC: 500 VA, 500 VA, 180 VA
  - DC: 500 W, 500 W, 180 W
- **Minimum switching time**: 800 ms

**Protection and measurement**

- Earth-leakage protection by Vigi module
- by control unit
- by add-on Vigirex relay
- Current measurements:
  - Voltage, frequency, power measurements, etc.
- Additional indication and control auxiliaries:
  - Indication contacts OF + SD (+ 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)
  - (vertical or horizontal)
- Withdrawable, plug-in or drawout (plug-in on base)
  - (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

**Compact NS**

<table>
<thead>
<tr>
<th>Compact NS</th>
<th>Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS630b to NS1600</td>
<td>NT06-NT10</td>
</tr>
<tr>
<td>630 to 1600</td>
<td>630 to 1600</td>
</tr>
<tr>
<td>8000</td>
<td>8000</td>
</tr>
<tr>
<td>2000</td>
<td>6000</td>
</tr>
<tr>
<td>1500</td>
<td>3000</td>
</tr>
</tbody>
</table>

**Masterpact NT/NW**

<table>
<thead>
<tr>
<th>Masterpact NT/NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT06-NT10</td>
</tr>
<tr>
<td>NW20</td>
</tr>
<tr>
<td>800 to 1600</td>
</tr>
<tr>
<td>10000</td>
</tr>
<tr>
<td>8000</td>
</tr>
<tr>
<td>6000</td>
</tr>
</tbody>
</table>
# Switching devices

## Functions and characteristics

### Compact INS

<table>
<thead>
<tr>
<th>Number of poles</th>
<th>INS250-100</th>
<th>INS250-160</th>
<th>INS250-200</th>
<th>INS250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional thermal current (A)</td>
<td>100</td>
<td>160</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>Rated operational current (A)</td>
<td>100</td>
<td>100</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td>Electrical AC, 50/60 Hz</td>
<td>AC22A</td>
<td>AC23A</td>
<td>AC22A</td>
<td>AC23A</td>
</tr>
<tr>
<td>440-480 V</td>
<td>100</td>
<td>100</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td>660-690 V</td>
<td>100</td>
<td>100</td>
<td>160</td>
<td>200</td>
</tr>
</tbody>
</table>

### Compact INS

<table>
<thead>
<tr>
<th>Number of poles</th>
<th>INS320</th>
<th>INS400</th>
<th>INS500</th>
<th>INS630</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional thermal current (A)</td>
<td>320</td>
<td>400</td>
<td>500</td>
<td>630</td>
</tr>
<tr>
<td>Rated operational current (A)</td>
<td>320</td>
<td>320</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Electrical AC, 50/60 Hz</td>
<td>AC22A</td>
<td>AC23A</td>
<td>AC22A</td>
<td>AC23A</td>
</tr>
<tr>
<td>440-480 V</td>
<td>320</td>
<td>320</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>660-690 V</td>
<td>320</td>
<td>320</td>
<td>400</td>
<td>400</td>
</tr>
</tbody>
</table>

### Durability (category A) (ON-CR-OR-CN cycles)

| Mechanical | 15000 | 15000 | 15000 | 15000 |
| Electrical AC, 50/60 Hz | AC22A | AC23A | AC22A | AC23A |
| 440-480 V | 1500  | 1500  | 1500  | 1500  |
| 660-690 V | 1500  | 1500  | 1500  | 1500  |

### Durability (category A) (ON-CR-OR-CN cycles)

| Mechanical | 10000 | 10000 | 10000 | 10000 |
| Electrical AC, 50/60 Hz | AC22A | AC23A | AC22A | AC23A |
| 440-480 V | 1500  | 1500  | 1500  | 1500  |
| 660-690 V | 1500  | 1500  | 1500  | 1500  |

*Note:*

- **ON**: opening of N source
- **CR**: closing of R source
- **OR**: opening of R source
- **CN**: closing of N source
### Switching devices

#### Compact NSX and Compact NS class PC and CB

<table>
<thead>
<tr>
<th></th>
<th>NSX100 to 250</th>
<th>NSX400 to NSX630</th>
<th>NS630b to NS1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of poles</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
</tr>
<tr>
<td>Rated current In (A)</td>
<td>100 to 250</td>
<td>400 to 630</td>
<td>630 to 1600</td>
</tr>
<tr>
<td>Mechanical durability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((O\text{r}_n-C\text{r}_n-O\text{r}_n-C\text{r}_n) cycles)</td>
<td>20000 - 40000 - 50000</td>
<td>15000</td>
<td>8000</td>
</tr>
<tr>
<td>Electrical durability at In ((O\text{r}_n-C\text{r}_n-O\text{r}_n-C\text{r}_n) cycles) for (U \leq 440 V) and (480 V) NEMA ((2))</td>
<td>10000 - 20000 - 30000</td>
<td>4000 - 6000</td>
<td>2000</td>
</tr>
<tr>
<td>Electrical durability at In ((O\text{r}_n-C\text{r}_n-O\text{r}_n-C\text{r}_n) cycles) for (U = 500 V) to (690 V) ((2))</td>
<td>5000 - 7500 - 10000</td>
<td>2000 - 3000</td>
<td>1500</td>
</tr>
</tbody>
</table>

#### Masterpact class PC and CB

<table>
<thead>
<tr>
<th></th>
<th>NT06-NT10</th>
<th>NT12-NT16</th>
<th>NW08-NW16</th>
<th>NW20</th>
<th>NW25-NW40</th>
<th>NW50-NW63</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of poles</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
</tr>
<tr>
<td>Rated current In (A)</td>
<td>630 to 1600</td>
<td>1250 to 1600</td>
<td>800 to 1600</td>
<td>2000</td>
<td>2500 to 4000</td>
<td>5000 to 6300</td>
</tr>
<tr>
<td>Mechanical durability ((1)) ((O\text{r}_n-C\text{r}_n-O\text{r}_n-C\text{r}_n) cycles)</td>
<td>8000</td>
<td>8000</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
<td>5000</td>
</tr>
<tr>
<td>Electrical durability at In ((O\text{r}_n-C\text{r}_n-O\text{r}_n-C\text{r}_n) cycles) ((1)) for (U \leq 440 V) and (480 V) NEMA ((2))</td>
<td>6000</td>
<td>6000</td>
<td>NT16: 3000</td>
<td>10000</td>
<td>8000</td>
<td>5000</td>
</tr>
<tr>
<td>Electrical durability at In ((O\text{r}_n-C\text{r}_n-O\text{r}_n-C\text{r}_n) cycles) ((1)) for (U = 500 V) to (690 V) ((2))</td>
<td>3000</td>
<td>2000</td>
<td>NT16: 1000</td>
<td>10000</td>
<td>6000</td>
<td>2500</td>
</tr>
</tbody>
</table>

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
## Mechanical interlocking

### Functions and characteristics

<table>
<thead>
<tr>
<th>Range</th>
<th>Compact</th>
<th>Compact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Models</td>
<td>INS40 to INS80</td>
<td>INS250 to INS630</td>
</tr>
<tr>
<td></td>
<td>INS100 to INS160</td>
<td>INV250 to INV630</td>
</tr>
<tr>
<td>Current rating (A)</td>
<td>40 to 160</td>
<td>100 to 630</td>
</tr>
<tr>
<td>Type of device</td>
<td>PC type</td>
<td>PC type</td>
</tr>
</tbody>
</table>

### Interlocking by toggles

![Diagram](Db101545.png)

### Interlocking by rotary handles

![Diagram](Db101546.png)

### Interlocking by keylocks with captive keys

![Diagram](Db418047.png)

### Interlocking by a base plate

![Diagram](Db416726.png)

### Source-changeover

![Diagram](Dim.png)
### Mechanical Interlocking

#### Range
- **Compact**
  - Models: NS630b to NS1600
  - Current rating (A): 630b to 1600
  - Type of device: PC and CB type

- **Masterpact**
  - Models: NT06 to NT16
  - Current rating (A): 630 to 1600
  - Type of device: PC and CB type

- **Models**: NW08 to NW63
  - Current rating (A): 800 to 6300
  - Type of device: PC and CB type

#### Interlocking by Extended Rotary Handles

![Diagram](image1)

#### Interlocking via Device Keylocks by Captive Keys

![Diagram](image2)

#### Mechanical Interlocking Using Connecting Rods

![Diagram](image3)

#### Mechanical Interlocking by Cables

![Diagram](image4)

Note: for other cases, please consult us.
Mechanical interlocking

Interlocking of two or three toggle-controlled devices

Interlocking system
Two devices can be interlocked using this system. Two identical interlocking systems can be used to interlock three devices installed side by side.

Authorised positions:
- one device closed (ON), the others open (OFF)
- all devices open (OFF).

The system is locked using one or two padlocks (shackle diameter 5 to 8 mm).

This system can be expanded to more than three devices.

There are two interlocking-system models:
- one for Compact INS/INV
- one for Compact NSX100 to NSX250
- one for Compact NSX400 to NSX630.

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

Interlocking of two devices by rotary handles

Interlocking system
Interlocking involves padlocking the rotary handles on two devices which may be either circuit breakers or switch-disconnectors.

Authorised positions:
- one device closed (ON), the other open (OFF)
- both devices open (OFF).

The system is locked using up to three padlocks (shackle diameter 5 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.

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.

Source-changeover

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

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

Interlocking of two devices using connecting rods
The two devices must be mounted one above the other (either 2 fixed or 2 withdrawable/drawout devices).
Combinations are possible between Compact NS630b to NS1600 devices, between Masterpact NT and between Masterpact NW devices.
With connecting rods, it is also possible to associate two different types of breakers or switch-disconnectors:
- compact NS with masterpact NT
- compact NS with masterpact NW
- Masterpact NT with Masterpact NW.

Installation
This function requires:
- an adaptation fixture on the right side of each switch-disconnector
- a set of connecting rods with no-slip adjustments
- the use of a mechanical operation counter is mandatory.
The adaptation fixtures, connecting rods, circuit breakers and switch-disconnectors are supplied separately, ready for assembly by the customer.
The maximum vertical distance between the fixing planes is 900 mm.

Interlocking of two or three 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 may have different ratings and sizes.
The following associations are possible:
- 2 compact NS630b to NS1600
- 2 Masterpact NT
- 2 Masterpact NW
- 3 Masterpact NW
- combinations Compact NS with Masterpact NT or Masterpact NW
- combinations Masterpact NT with NW.

Interlocking between two Masterpact NT or NW
This function requires:
- an adaptation fixture on the right side of each device
- a set of cables without slip adjustments
- the use of a mechanical operation counter CDM is mandatory.
The maximum distance between the fixing planes (vertical or horizontal) is 2000 mm.

Interlocking between three Masterpact NW
This function requires:
- a specific adaptation fixture installed on the right side of each device
- two sets of cables without slip adjustments
- the use of a mechanical operation counter CDM is mandatory.
The maximum distance between the fixing planes (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 by the customer.

Installation conditions for cable interlocking systems:
- cable length: 2.5 m
- radius of curvature: 100 mm
- maximum number of curves: 3.
Only Masterpact NW may be used for three-device combinations.

Interlocking between two devices (Compact NS630b to 1600 or Masterpact NT, NW)
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 planes (vertical or horizontal) is 2000 mm.
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-4 of the chapter “Electric diagrams” of this catalogue. The integrated control circuits implement the time delays required for correct source transfer. For Compact NS630b to NS1600 and Masterpact, this function can be implemented in one of two ways:
- using the IVE unit
- by an electrician based on the diagrams in accordance with the pages C-8 to C-13 of the chapter “Electric diagrams” of this catalogue.

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.

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 NT and NW, 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
  - an available OF contact
  - one to three CE connected-position contacts (carriage switches) on drawout circuit breakers (depending on the installation).
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

Dimensions

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.
Overview of source-changeover system

Functions and characteristics

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 of the same size.

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

<table>
<thead>
<tr>
<th>Possible uses</th>
<th>Downstream coupling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual source-changeover systems</td>
<td></td>
</tr>
<tr>
<td>INS250 (100 to 250 A) with rotary handle</td>
<td>■ 35</td>
</tr>
<tr>
<td>NSX100 to NSX250 with rotary handle</td>
<td>■ 35</td>
</tr>
<tr>
<td>NSX100 to NSX250 on base plate with toggle control</td>
<td>■ 35</td>
</tr>
<tr>
<td>INS400 to INS630 (320 to 630 A) with rotary handle</td>
<td>■ 45</td>
</tr>
<tr>
<td>NSX400 to NSX630 with rotary handle</td>
<td>■ 45</td>
</tr>
<tr>
<td>NSX400 to NSX630 on base plate with toggle control</td>
<td>■ 45</td>
</tr>
<tr>
<td>Complete source-changeover assembly</td>
<td></td>
</tr>
<tr>
<td>INS250 (100 to 250 A)</td>
<td>■ 35</td>
</tr>
<tr>
<td>INS400 to INS630 (320 to 630 A)</td>
<td>■ 45</td>
</tr>
</tbody>
</table>
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 diagrams provided in the “electrical diagrams” section of this catalogue.

## Controller selection

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>BA</th>
<th>UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible circuit breakers</td>
<td>All Compact NS, Compact NSX and Masterpact circuit breakers</td>
<td></td>
</tr>
</tbody>
</table>

### 4-position switch

<table>
<thead>
<tr>
<th></th>
<th>BA</th>
<th>UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic operation</td>
<td></td>
<td></td>
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<tr>
<td>Forced operation on “Normal” source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forced operation on “Replacement” source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop (both “Normal” and “Replacement” sources off)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Automatic operation

<table>
<thead>
<tr>
<th></th>
<th>BA</th>
<th>UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring of the “Normal” source and automatic transfer</td>
<td></td>
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</tr>
<tr>
<td>Generator set startup control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed shutdown (adjustable) of generator set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load shedding and reconnection of non-priority circuits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to the “Replacement” source if one of the phases of the “Normal” phase is absent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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)

#### 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

### Options

#### Communication option

Control voltages

110 V
220 to 240 V 50/60 Hz
380 to 415 V 50/60 Hz
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
- IP30
- IP20
- IP07

#### Side

- IP30
- IP20

#### Connectors

- IP20

### Characteristics of output contacts (dry, volt-free contacts)

- Rated thermal current (A): 8
- Minimum load: 10 mA at 12 V

#### Generator set start order

<table>
<thead>
<tr>
<th>Utilisation category (IEC 947-5-1)</th>
<th>AC12</th>
<th>AC13</th>
<th>AC14</th>
<th>AC15</th>
<th>DC12</th>
<th>DC13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational current (A)</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>24 V</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>48 V</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>110 V</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>220/240 V</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>380/415 V</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>440 V</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>660/690 V</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) For example, 220 V single-phase or 220 V three-phase.
(2) 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.
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 ACP control plate, the controller and the circuit breaker operating mechanisms.

Installation
Connection between the 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 ACP control plate
- mounted on the front panel of the switchboard
If the length of the connection between the controller and the control plate (ACP) is less than or equal to 1 m, the connecting cable ref. 29368 can be ordered as an optional extra. Cables longer than 1 m, but not longer than 2 m will be the responsibility of the installer.
The BA controller is used to create simple source-changeover systems that switch from one source to another depending on the presence of voltage UN on the “Normal” source. It is generally used to manage two permanent sources and can control Compact NS, Compact NSX and Masterpact NT/NW circuit breakers and switch-disconnectors.

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

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

Circuit breaker commands and status indications
The status of the circuit breakers is indicated on the front of the controller.
- ON, OFF, fault.

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

Test
It is possible to test the operation of the BA controller by turning OFF (opening) the P25M circuit breaker for the “Normal” source and thus simulating a failure of voltage UN.
Switch set to Auto (automatic operation and special-tariff mode)

**AUTOMATIC MODE**

- **UN present**
  - Delay t2
  - End of t2
  - R opens
  - R OFF
  - 0.5 s
  - End of delay
  - N closes
  - N ON
  - Special tariff order

- **UN absent and UR present**
  - N opens
  - 0.5 s
  - End of delay
  - R closes
  - R ON

- **WAITING**
  - UN present
  - Special tariff order

**Main steps**

- **1**
  - Delay t1
  - UR present and end of t1
  - Special tariff order

**Key**

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

**Operating sequences**

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

- **BA energised**
  - **N**
    - R ON
    - N ON
    - R opens
    - R OFF
    - 0.5 s
    - End of delay
    - N closes
    - N ON
    - Special tariff order
    - t < 16 and UR present
    - N opens
    - N OFF
    - End of t3
    - R closes
    - R ON
  - WAITING

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

- **BA energised**
  - **R**
    - R ON
    - N ON
    - N opens
    - N OFF
    - 0.5 s
    - End of delay
    - R closes
    - R ON
  - WAITING

Switch set to the "Stop" position

- **BA energised**
  - **STOP**
    - N ON
    - R ON and UR absent
    - N opens
    - N OFF
    - R opens
    - R OFF
  - WAITING

**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).

**The number sends to the indicated step when the condition is true.**
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 NT/NW devices.

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

**WAITING**

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

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

**Key**

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

**Operating sequences**

**Forced operation mode**

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

Switch set to the “Stop” position

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

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

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

Key

UN: “Normal” source voltage
UR: “Replacement” source voltage
N: “Normal” source circuit breaker
R: “Replacement” source circuit breaker
B: Penalties accepted (N ON), i.e. B = 1

1 The number sends to the indicated step when the condition is true.
Switch set to the “Auto” position (automatic operation and test mode).

**AUTO MODE**

- **TEST**
  - **TEST mode (**)**
  - LEDs flashing
  - Genset startup
- **UN present**
  - Delay t2
  - End of t2
  - R opens
  - R OFF
  - 14 and load reconnection
  - End of 14
  - N closes
  - N ON
- **UN absent and UR present**
  - Delay t12
  - End of t12
  - N opens
  - N OFF
- **WAITING**
  - Order issued and UR present
  - 1 < t16 and UR present
  - End of t16
  - N opens
  - N OFF
- **Genset shutdown**
  - UR failure and 180 seconds elapsed
- **WAITING**
  - Order issued and UR absent

**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

(**) The test lasts 180 seconds.

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

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

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

### UA controller

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

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

**Key**
- O: OFF (circuit open)
- I: ON (circuit closed)
- : either ON or OFF.
This international site allows you to access all the Schneider Electric Solution and Product information via:
- comprehensive descriptions
- range data sheets
- a download area
- product selectors
- ...
You can also access the information dedicated to your business and get in touch with your Schneider Electric country support.

[Image of Schneider Electric website]

schneider-electric.com
## Presentation
- Compact INS/INV source-changeover systems
- Compact NSX source-changeover systems
- Downstream coupling accessory for Compact INS/INV, Compact NSX source-changeover systems
- Compact NS source-changeover systems
- Masterpact NT/NW source-changeover systems
- Compact NSX source-changeover systems
- Compact NS and Masterpact NT source-changeover systems
- Masterpact NW source-changeover systems
- Compact NS and Masterpact NT/NW source-changeover systems
- Masterpact NT/NW source-changeover systems
- Masterpact NT source-changeover systems

### Functions and characteristics

<table>
<thead>
<tr>
<th>System Type</th>
<th>Interlocking Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact INS/INV source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Compact NSX source-changeover systems</td>
<td>Interlocking on a base plate</td>
</tr>
<tr>
<td>Downstream coupling accessory for Compact INS/INV, Compact NSX source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Compact NS source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Masterpact NT/NW source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Compact NSX source-changeover systems</td>
<td>Interlocking on a base plate</td>
</tr>
<tr>
<td>Compact NS and Masterpact NT source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Masterpact NW source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Compact NS and Masterpact NT/NW source-changeover systems</td>
<td>Interlocking using connecting rods</td>
</tr>
<tr>
<td>Masterpact NT/NW source-changeover systems</td>
<td>Interlocking using cables</td>
</tr>
<tr>
<td>Masterpact NT source-changeover systems</td>
<td>Interlocking using cables</td>
</tr>
<tr>
<td>Masterpact NW source-changeover systems</td>
<td>Interlocking using cables</td>
</tr>
</tbody>
</table>

Electrical diagrams
- IVE unit, UA/BA automatic controllers

Catalogue numbers and order forms
## Compact INS/INV source-changeover systems

### Interlocking of direct rotary handles

**Compact INS/INV250 - 100 to 250 A / Compact INS/INV320/400/500/630**

**Dimensions**

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

*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**

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G min</th>
<th>G max</th>
<th>H</th>
<th>P</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>INS40/63/80</td>
<td>325</td>
<td>90</td>
<td>87.5</td>
<td>175</td>
<td>156</td>
<td>155</td>
<td>396</td>
<td>0</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td>INS100/125/160</td>
<td>325</td>
<td>90</td>
<td>87.5</td>
<td>175</td>
<td>156</td>
<td>200</td>
<td>441</td>
<td>0</td>
<td>25.5</td>
<td>25.5</td>
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<td>325</td>
<td>90</td>
<td>87.5</td>
<td>175</td>
<td>156</td>
<td>185</td>
<td>600</td>
<td>17.5</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td>416</td>
<td>115</td>
<td>100</td>
<td>200</td>
<td>210</td>
<td>204</td>
<td>600</td>
<td>22.5</td>
<td>30.8</td>
<td>30.8</td>
</tr>
</tbody>
</table>

---

**Class PC**
Compact INS/INV source-changeover systems

Class PC

**Complete source-changeover assembly**

Assembly for INS250 - 100 to 250 A / Assembly for INS320/400/500/630

---

**Dimensions (mm)**

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>INS250 - 100 to 250 A</td>
<td>60.4</td>
<td>130.4</td>
<td>296</td>
<td>68</td>
<td>136</td>
<td>131</td>
<td>61.8</td>
<td>279.3</td>
<td>42</td>
<td>84</td>
<td>156</td>
<td>186.5</td>
<td>5.5</td>
<td>50</td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td>82.5</td>
<td>175</td>
<td>395</td>
<td>102.5</td>
<td>205</td>
<td>155</td>
<td>87</td>
<td>383.7</td>
<td>64</td>
<td>128</td>
<td>210</td>
<td>213</td>
<td>8</td>
<td>50</td>
</tr>
</tbody>
</table>

---

**Front-panel cutout**

---

**Dimensions of the complete source-changeover assembly with an extended handle**

---

**Dimensions (mm)**

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>INS250 - 100 to 250 A</td>
<td>60.4</td>
<td>130.4</td>
<td>295</td>
<td>136</td>
<td>156</td>
<td>138.5</td>
<td>631</td>
<td>50</td>
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<tr>
<td>INS320/400/500/630</td>
<td>82.5</td>
<td>175</td>
<td>395</td>
<td>205</td>
<td>210</td>
<td>162.5</td>
<td>658</td>
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**Dimensions (mm)**

<table>
<thead>
<tr>
<th>Type</th>
<th>P</th>
<th>Mmax</th>
<th>Mmin</th>
<th>Q</th>
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</thead>
<tbody>
<tr>
<td>INS250 - 100 to 250 A</td>
<td>100</td>
<td>567.5</td>
<td>195</td>
<td>64</td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td>150</td>
<td>593</td>
<td>220.5</td>
<td>64</td>
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</table>

**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.
### Compact NSX
source-changeover systems

**Class PC**

#### Interlocking of direct rotary handles
**Compact NSX100 NA to NSX630 NA**

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NSX100/160/250 NA</strong></td>
<td>325</td>
<td>90</td>
<td>87.5</td>
<td>175</td>
<td>156</td>
<td>133</td>
<td>9.25</td>
<td>9</td>
<td>295</td>
<td>75.5</td>
<td>150</td>
<td>75</td>
<td>155</td>
</tr>
<tr>
<td><strong>NSX400/630 NA</strong></td>
<td>416</td>
<td>115</td>
<td>100</td>
<td>200</td>
<td>210</td>
<td>157</td>
<td>5</td>
<td>24.6</td>
<td>386</td>
<td>100</td>
<td>175</td>
<td>74.5</td>
<td>179</td>
</tr>
</tbody>
</table>

#### Interlocking of extended rotary handles
**Compact NSX100 NA to NSX630 NA**

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G min</th>
<th>G max</th>
<th>H</th>
<th>J</th>
<th>P</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NSX100/160/250 NA</strong></td>
<td>325</td>
<td>90</td>
<td>87.5</td>
<td>175</td>
<td>156</td>
<td>171</td>
<td>600</td>
<td>9.25</td>
<td>9</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td><strong>NSX400/630 NA</strong></td>
<td>416</td>
<td>115</td>
<td>100</td>
<td>200</td>
<td>210</td>
<td>195</td>
<td>600</td>
<td>5</td>
<td>24.6</td>
<td>30.8</td>
<td>30.8</td>
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</table>
Compact NSX source-changeover systems

Class PC

Interlocking of toggles
Compact NSX100 NA to NSX630 NA

Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>C2</th>
<th>C3</th>
<th>L</th>
<th>L16</th>
<th>L17</th>
<th>L18</th>
<th>R2</th>
<th>R18</th>
<th>R19</th>
<th>P5</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSX100/160/250 NA</td>
<td>54</td>
<td>108</td>
<td>52.5</td>
<td>140</td>
<td>245</td>
<td>280</td>
<td>54</td>
<td>89</td>
<td>140</td>
<td>83</td>
<td>120</td>
</tr>
<tr>
<td>NSX400/630 NA</td>
<td>92.5</td>
<td>182</td>
<td>70</td>
<td>185</td>
<td>325</td>
<td>370</td>
<td>71.5</td>
<td>116.5</td>
<td>185</td>
<td>107</td>
<td>150</td>
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</tbody>
</table>
### Dimensions

**Downstream coupling accessory**

*Compact NSX100 NA to NSX630 NA (only for Compact NSX fixed devices)*

**Dimensions for Compact NSX**

<table>
<thead>
<tr>
<th>Type</th>
<th>G2</th>
<th>G3</th>
<th>G28</th>
<th>G29</th>
<th>G30</th>
<th>G52</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
<th>K8</th>
<th>K9</th>
<th>K16</th>
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</thead>
<tbody>
<tr>
<td>NSX100/160/250 NA</td>
<td>118</td>
<td>181.5</td>
<td>244.5</td>
<td>96</td>
<td>152.5</td>
<td>178</td>
<td>35</td>
<td>35</td>
<td>51</td>
<td>156</td>
<td>70</td>
<td>170</td>
<td>8</td>
</tr>
<tr>
<td>NSX400/630 NA</td>
<td>165.9</td>
<td>264.7</td>
<td>337.5</td>
<td>143.5</td>
<td>220.5</td>
<td>264.7</td>
<td>45</td>
<td>45</td>
<td>75</td>
<td>210</td>
<td>113.5</td>
<td>250.7</td>
<td>15</td>
</tr>
<tr>
<td>INS250 - 100 to 250 A</td>
<td>105.5</td>
<td>169</td>
<td>232</td>
<td>83.5</td>
<td>140</td>
<td>165.5</td>
<td>35</td>
<td>35</td>
<td>51</td>
<td>156</td>
<td>57.5</td>
<td>157.5</td>
<td>25.5</td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td>141</td>
<td>240.7</td>
<td>313</td>
<td>119</td>
<td>195.8</td>
<td>240</td>
<td>45</td>
<td>45</td>
<td>75</td>
<td>210</td>
<td>88.5</td>
<td>225.7</td>
<td>37.5</td>
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**Dimensions (mm)**

<table>
<thead>
<tr>
<th>Type</th>
<th>L28</th>
<th>L29</th>
<th>L30</th>
<th>L31</th>
<th>L32</th>
<th>L33</th>
<th>L34</th>
<th>L35</th>
<th>L36</th>
<th>L37</th>
<th>L39</th>
<th>L40</th>
<th>ØT</th>
</tr>
</thead>
<tbody>
<tr>
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<td>320</td>
<td>99.5</td>
<td>300</td>
<td>89.5</td>
<td>4.73</td>
<td>130.5</td>
<td>139.5</td>
<td>74.5</td>
<td>19.5</td>
<td>87.5</td>
<td>9.5</td>
<td>140</td>
<td>6</td>
</tr>
<tr>
<td>NSX400/630 NA</td>
<td>425</td>
<td>130</td>
<td>400</td>
<td>117.5</td>
<td>5.15</td>
<td>175.3</td>
<td>184.7</td>
<td>98.5</td>
<td>26</td>
<td>115</td>
<td>9.85</td>
<td>184.7</td>
<td>6</td>
</tr>
<tr>
<td>INS250 - 100 to 250 A</td>
<td>320</td>
<td>83</td>
<td>300</td>
<td>72</td>
<td>12.8</td>
<td>130.5</td>
<td>139.5</td>
<td>74.5</td>
<td>21.5</td>
<td>70</td>
<td>6.5</td>
<td>140</td>
<td>6</td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td>425</td>
<td>107.5</td>
<td>400</td>
<td>95</td>
<td>17.35</td>
<td>175.3</td>
<td>164.7</td>
<td>98.5</td>
<td>26</td>
<td>92.5</td>
<td>12.65</td>
<td>184.7</td>
<td>6</td>
</tr>
</tbody>
</table>

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

Class PC

Interlocking of extended rotary handles
Compact NS630b NA to NS1600 NA

Dimensions

Front-panel cutout

Dimensions (mm)

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G min</th>
<th>G max</th>
<th>H</th>
<th>J</th>
<th>P</th>
<th>Q</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS630b/800/1000/1200/1600 NA</td>
<td>411</td>
<td>63.5</td>
<td>98</td>
<td>175</td>
<td>280</td>
<td>218</td>
<td>605</td>
<td>25</td>
<td>24</td>
<td>25.5</td>
<td>25.5</td>
<td>64</td>
</tr>
</tbody>
</table>
Masterpact NT/NW source-changeover systems
Interlocking using connecting rods

Class PC

Interlocking using connecting rods
Two Masterpact NT devices one above the other (NA/HA/HF)

Fixed devices

Withdrawable devices

Two Masterpact NW devices one above the other (NA/HA/HF)

Fixed devices

Withdrawable devices
Compact NSX
target-changeover systems
Interlocking on a base plate

Class PC and CB

Compact NSX100 to NSX250 and Compact NSX100 NA to NSX250 NA

Dimensions, 3 or 4 poles

### Fixed device

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Type</th>
<th>G50</th>
<th>G51</th>
<th>H20</th>
<th>H21</th>
<th>H22</th>
<th>H23</th>
<th>H42</th>
<th>H43</th>
<th>H44</th>
<th>H45</th>
<th>H46</th>
<th>K25</th>
<th>K35</th>
<th>K36</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSX100/160/250</td>
<td>137.5</td>
<td>285</td>
<td>62.5</td>
<td>97</td>
<td>45.5</td>
<td>73</td>
<td>60</td>
<td>120</td>
<td>144.5</td>
<td>300</td>
<td>37</td>
<td>156</td>
<td>210.5</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>NSX400/630</td>
<td>180</td>
<td>360</td>
<td>100</td>
<td>152</td>
<td>83</td>
<td>123</td>
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<td>378</td>
<td>77</td>
<td>210</td>
<td>282.5</td>
<td>400</td>
<td></td>
</tr>
</tbody>
</table>

### Withdrawable device

### Vertical mounting

### Horizontal mounting

Note: coupling accessory: only for changeover systems using fixed versions of Compact NSX circuit breakers.
Compact NSX Source-changeover systems
Interlocking on a base plate

Dimensions

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.

Withdrawable device

(*) Short terminal shields are mandatory.

Dimensions

Vertical mounting

Horizontal mounting

Note: dimensions see page B-9.
Compact NSX
source-changeover systems
Interlocking on a base plate

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

Dimensions

Front-panel cutout

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

Dimensions

Front-panel cutout

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

NSX400 to NSX630

210

NSX100 to NSX250

217

63.5

127

42
Compact NS and Masterpact NT
source-changeover systems
Interlocking using connecting rods

Class CB

Two Compact NS630b to NS1600 devices one above the other

Fixed devices

Withdrawable devices

Two Masterpact NT devices one above the other

Fixed devices

Withdrawable devices
Masterpact NW source-changeover systems
Interlocking using connecting rods

Two Masterpact NW devices one above the other

Fixed devices

Withdrawable devices

Dimensions
Compact NS and Masterpact NT/NW source-changeover systems
Interlocking using cables

Class CB

Two Compact NS630b to NS1600 devices side-by-side

Fixed devices

Withdrawable devices

Two Masterpact NT devices side-by-side

Fixed devices

Drawout devices

Combination of two Masterpact NT and NW devices side-by-side

Fixed devices

Drawout devices

R100 min. 2000 max.

R100 min. 2000 max.

R100 min. 2000 max.
Compact NS and Masterpact NT source-changeover systems
Interlocking using cables

Class CB

Two Compact NS630b to NS1600 devices one above the other

Fixed devices

Withdrawable devices

Two Masterpact NT devices one above the other

Fixed devices

Drawout devices
Masterpact NT/NW
source-changeover systems
Interlocking using cables

Two Masterpact NW devices one above the other
Fixed devices

Drawout devices

Two Masterpact NT and NW devices one above the other
Fixed devices

Drawout devices

Class CB
Masterpact NW source-changeover systems
Interlocking using cables

Dimensions

Class CB

Two Masterpact NW devices side-by-side
Fixed devices

Drawout devices

Three Masterpact NW devices side-by-side
Fixed devices

Drawout devices
Masterpact NW
source-changeover systems
Interlocking using cables

Class CB

Three Masterpact NW devices one above the other

Fixed devices

Drawout devices

Interlocking using cables
Dimensions

Source-changeover systems
IVE unit, UA/BA automatic controllers

IVE unit

Dimensions

UA/BA automatic controllers

ACP control plate and UA/BA controllers

Door cutout for UA/BA controllers

(1) Cutout according DIN 43700 standard.
Source-changeover systems
Compact NSX100-630,
Compact NS630b-1600,
Compact INS/INV, Masterpact

Presentation 2
Functions and characteristics A-1
Dimensions B-1

Standard configurations C-2

Remote-operated source-changeover systems
2 Compact NSX100/630, NS630b/1600 or Masterpact NT/NW devices C-4
2 Compact NSX100/630 devices C-5
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2 Masterpact NT or NW devices C-11

Source-changeover systems with automatic controllers UA
2 Compact NSX100/630, NS630b/1600 or Masterpact NT/NW devices C-16
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Source-changeover systems with automatic controllers BA
2 Compact NSX100/630, NS630b/1600 or Masterpact NT/NW devices C-18

Remote-operated source-changeover systems
3 Masterpact NW devices C-19

Catalogue numbers and order forms D-1
## Compact NS, Masterpact NT and NW

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<th>Types of mechanical interlocking</th>
<th>Possible combinations</th>
<th>Typical electrical diagrams</th>
<th>Diagram no.</th>
<th>Page</th>
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<tbody>
<tr>
<td>2 devices</td>
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<td>C-7</td>
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</table>

### Compact NSX100 to 630:
- Electrical interlocking without emergency power off (EPO) auxiliaries:
- with EPO by MN: 51201178 C-6
- with EPO by MX: 51201179 C-7

### Compact NS630b to 1600:
- Electrical interlocking with lockout after fault:
- Permanent replacement source (with IVE):
  - 51201183 C-8
  - 51201184 C-9
  - 51201185 C-10

### Masterpact NT and NW:
- Electrical interlocking with lockout after fault:
  - Permanent replacement source (with IVE):
    - 51201142 C-11
    - 51201143 C-12
    - 51201144 C-13
  - Automatic control with lockout after fault:
    - Permanent replacement source (with IVE):
      - 51156904 C-14
    - Engine generator set (with IVE):
      - 51156905 C-15

---

**Standard configurations**
### Masterpact NW only

#### Types of mechanical interlocking

<table>
<thead>
<tr>
<th>Possible combinations</th>
<th>Typical electrical diagrams</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 devices: 2 “Normal” sources and 1 “Replacement” source</td>
<td></td>
</tr>
</tbody>
</table>

#### 3 devices: 2 “Normal” sources and 1 “Replacement” source

<table>
<thead>
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<th>QR</th>
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</tbody>
</table>

- **electrical interlocking:**
  - without lockout after fault
  - with lockout after fault

#### 3 devices: 2 “Normal” sources and 1 “Replacement” source with source selection

<table>
<thead>
<tr>
<th>QN1</th>
<th>QN2</th>
<th>QR</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

- **automatic control with engine generator set:**
  - without lockout after fault (with MN)
  - with lockout after fault (with MN)

#### 3 devices: 3 sources, only one device

<table>
<thead>
<tr>
<th>QS1</th>
<th>QS2</th>
<th>QS3</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

- **electrical interlocking:**
  - without lockout after fault
  - with lockout after fault

#### 3 devices: 2 sources + 1 coupling

<table>
<thead>
<tr>
<th>QS1</th>
<th>QC</th>
<th>QS2</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

- **electrical interlocking:**
  - without lockout after fault
  - with lockout after fault
  - automatic control with lockout after fault

---

*“Lockout after fault” option. This option makes it necessary to manually reset the device following fault tripping.*
Electrical interlocking by the IVE unit

Independent order to Normal/Replacement source

Simultaneous order to Normal/Replacement source

Controlling each circuit breaker independently.

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

(1) See section “IMPORTANT” hereafter.

(2) Operating diagram: the SDE “fault-trip” signals are transmitted to the IVE unit. The SDE auxiliary contacts are mounted in the circuit breakers.

IMPORTANT

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

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

Legends

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

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.
Remote-operated source-changeover systems
2 Compact NSX100/630 devices
Diagram no. 51201177

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

Local reset

Voluntary remote reset

Automatic reset

(1) Prefabricated wiring: cannot be modified.

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

States permitted by mechanical interlocking system

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Replacement</th>
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</thead>
<tbody>
<tr>
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</table>

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.
Source-changeover system without automatic-control system

With emergency off by MN release and automatic reset

Legend:
QN   *Normal* source Compact NSX equipped with motor mechanism
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
KAS  auxiliary relay
F1   auxiliary power supply circuit breaker

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

Notes:
1. Prefabricated wiring supplied.
2. Independent auxiliary source.

States permitted by mechanical interlocking system

<table>
<thead>
<tr>
<th>Normal</th>
<th>Replacement</th>
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<tbody>
<tr>
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</table>

Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
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

States permitted by mechanical interlocking system

<table>
<thead>
<tr>
<th>Normal</th>
<th>Replacement</th>
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<tbody>
<tr>
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Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuits de-energised, circuit breakers open and relays in normal position.
Remote-operated source-changeover systems
2 Compact NS630b/1600 devices
Diagram no. 51201183

Electrical interlocking by IVE unit

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

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
OF... breaker ON/OFF indication contact (carrige switch)
P1 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)
GR “Replacement” source closing order (0.25 second delay)
MT Motor Mechanism

Wiring colour codes
<table>
<thead>
<tr>
<th>RD</th>
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States permitted by mechanical interlocking system

<table>
<thead>
<tr>
<th>Normal</th>
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Note: after a fault trip, the breaker must be reset manually by pressing its reset button.
Diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...)
= supply voltage of electrical auxiliaries (electrical operation, MT...).
Remote-operated source-changeover systems
2 Compact NS630b/1600 devices
Diagram no. 51201184

Electrical interlocking by IVE unit with emergency off by shunt release

ATTENTION
The diagram shows the electrical wiring for circuit breakers. When wiring the SDE with switch-disconnectors, connect wire BK to terminal S2.

(1) Not to be wired on fixed version.
(2) Prefabricated wiring supplied.

Wiring colour codes

<table>
<thead>
<tr>
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States permitted by mechanical interlocking system

<table>
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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..., KAS...).
= supply voltage of electrical auxiliaries (electrical operation, MX, MT...).

Legends
QN  “Normal” source Compact NS630b to 1600
QR  “Replacement” source Compact NS630b to 1600
OF  breaker ON/OFF indication contact
SDE “fault-trip” indication contact
CE1 “connected-position” indication contact (carriage switch)
F1  auxiliary power supply circuit breaker
IVE electrical interlocking and terminal block unit
MX  shunt release
BP  emergency off button with latching
KAS auxiliary relay
QN  “Normal” source opening order
QR  “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
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
- **KAS**: 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**

<table>
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**States permitted by mechanical interlocking system**

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**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 NT or NW devices
Diagram no. 51201142

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 NT or NW
QR “Replacement” source Masterpact NT or NW
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
<table>
<thead>
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<th>RD</th>
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<th>BK</th>
<th>VT</th>
<th>YE</th>
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States permitted by mechanical interlocking system

<table>
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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...).
Electrical diagrams

Remote-operated source-changeover systems
2 Masterpact NT or NW devices
Diagram no. 51201143

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 NT or NW
QR "Replacement" source Masterpact NT or NW
MCH spring-charging motor
MX standard opening voltage release
XF standard closing voltage release
GF 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
<table>
<thead>
<tr>
<th>RD</th>
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<th>BK</th>
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States permitted by mechanical interlocking system

<table>
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</table>

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close. Auxiliary power supply = supply voltage of auxiliary relays (KA...).
Remote-operated source-changeover systems
2 Masterpact NT or NW devices
Diagram no. 51201144

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.

States permitted by mechanical interlocking system

<table>
<thead>
<tr>
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<th>Replacement</th>
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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...).

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

Legends
QN  “Normal” source Masterpact NT or NW
QR  “Replacement” source Masterpact NT or NW
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
KAS  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)
Remote-operated source-changeover systems
2 Masterpact NT or NW devices
Diagram no. 51156904

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.

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.

States permitted by mechanical interlocking system

<table>
<thead>
<tr>
<th>Normal</th>
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<tbody>
<tr>
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</table>

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...).

Legends
QN "Normal" source Masterpact NT or NW
QR “Replacement” source Masterpact NT or NW
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
<table>
<thead>
<tr>
<th>RD</th>
<th>GN</th>
<th>BK</th>
<th>VT</th>
<th>YE</th>
<th>GY</th>
<th>WH</th>
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</table>
Remote-operated source-changeover systems
2 Masterpact NT or NW devices
Diagram no. 51156905

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

ATTENTION
(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.

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

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 NT or NW
QR “Replacement” source Masterpact NT or NW
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
auxiliary relay
KA3 auxiliary relay

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

States permitted by mechanical interlocking system

<table>
<thead>
<tr>
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<th>Replacement</th>
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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 automatic controllers UA
2 Compact NSX100/630, NS630b/1600 or Masterpact NT/NW 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

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

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

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.
Source-changeover systems with automatic controllers
Controller settings

Tests on “Normal” source voltage
A = 0  single-phase test,
A = 1  three-phase test.

Voluntary transfert (e.g. for energy management)
- action in the event of genset failure
  B = 0  circuit breaker N opens,
  B = 1  circuit breaker N remains closed.
- maximum permissible genset startup time (T6)
  C = 0  T = 120 s,
  C = 1  T = 180 s.

After this time has elapsed, the genset is considered to have failed.

The address of the UA 150 controller is set using the two BBus dials.
Source-changeover systems with automatic controllers BA
2 Compact NSX100/630, NS630b/1600 or Masterpact NT/NW devices

Source-changeover system with BA controller

Coupling

Transfer conditions

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

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

---

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

---

Note: diagram shown with circuits de-energised, circuit breakers open and relays in normal position.
Remote-operated source-changeover systems
3 Masterpact NW devices
Diagram no. 51156906

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

States permitted by mechanical interlocking system

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<tr>
<th>Normal 1</th>
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<th>Replacement</th>
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</table>

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...).
**Electrical diagrams**

Remote-operated source-changeover systems
3 Masterpact NW devices
Diagram no. 51156907

---

**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 NW
QR “Replacement” source Masterpact NW
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
\( t_1 \) order for transfer from “R” to “N1 + N2”
(QN1 and QN2 closing time delay = 0.25 sec. minimum)
\( t_2 \) order for transfer from “N1 + N2” to “R”
(QR closing time delay = 0.25 sec. minimum)

---

**States permitted by mechanical interlocking system**

<table>
<thead>
<tr>
<th>Normal 1</th>
<th>Normal 2</th>
<th>Replacement</th>
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<tbody>
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</table>

*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 NW devices
Diagram no. 51156908

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 NW
QR... “Replacement” source Masterpact NW
MCH spring-charging motor
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

<table>
<thead>
<tr>
<th>Normal 1</th>
<th>Normal 2</th>
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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 NW devices
Diagram no. 51156909

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 NW
QR... "Replacement" source Masterpact NW
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

<table>
<thead>
<tr>
<th></th>
<th>Normal 1</th>
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<th>Replacement</th>
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</table>

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 NW devices
Diagram no. 51156910

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

Legend:
- QS: "Source" Masterpact NW
- 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:

<table>
<thead>
<tr>
<th>Source 1</th>
<th>Source 2</th>
<th>Source 3</th>
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</thead>
<tbody>
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</tbody>
</table>

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close. Auxiliary power supply = supply voltage of auxiliary relays (KA...).
3 sources with only 1 device closed: electrical interlocking with lockout after a fault

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

Legends
QS... "Source" Masterpact NW
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

<table>
<thead>
<tr>
<th>States permitted by mechanical interlocking system</th>
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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 NW devices
Diagram no. 51156912

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

<table>
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<th>Source 1</th>
<th>Source 2</th>
<th>Coupling</th>
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</table>

Note: diagram shown with circuit breakers in connected position, open, charged, and ready to close.
Auxiliary power supply = supply voltage of auxiliary relays (KA...)
Electrical operation, MCH, MX, XF...
Remote-operated source-changeover systems
3 Masterpact NW devices
Diagram no. 51156913

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 NW
QC “Coupling” Masterpact NW
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

<table>
<thead>
<tr>
<th>Source 1</th>
<th>Source 2</th>
<th>Coupling</th>
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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 NW devices
Diagram no. 51156914

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 NW
QC “Coupling” Masterpact NW
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

<table>
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<tr>
<th>Source 1</th>
<th>Source 2</th>
<th>Coupling</th>
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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...).
Ecodial

Ecodial software is dedicated to LV electrical installation calculation in accordance with the IEC60364 international standard or national standards.

This 4th generation, "Ecodial Advance Calculation 4", offers a new ergonomic and new features:
- operating mode that allows easy calculation in case of installation with different type of sources (parallel transformers, back-up generators...)
- discrimination analysis associating curves checking and discrimination tables
- direct access to protection settings including residual current protections
- easy selection of alternate solutions or manual selection of a product.
## Source-changeover systems
Compact NSX100-630, Compact NS630b-1600, Compact INS/INV, Masterpact

### Catalogue numbers and order forms

| Presentation | 2 |
| Functions and characteristics | A-1 |
| Dimensions | B-1 |
| Electrical diagrams | C-1 |

#### Catalogue numbers

**Source-changeover systems for 2 devices**
- Compact INS40 to INS2500 and INV100 to INV2500  
  - D-2
- Compact NSX100 to NSX630  
  - D-3
- Compact NS630b to NS1600 circuit breakers and switch-disconnectors  
  - D-5
- Masterpact NT circuit breakers and switch-disconnectors  
  - D-7

**Source-changeover systems for 2 or 3 devices**
- Masterpact NW circuit breakers and switch-disconnectors  
  - D-8

#### Order forms

**Source-changeover systems for 2 devices**
- Compact INS40 to INS630 switch-disconnectors  
  - D-10
- Compact NSX100 to NSX630 / Circuit breakers and switch-disconnectors  
  - D-12
- Compact NS630b to NS1600 / Circuit breakers and switch-disconnectors  
  - D-14
- Masterpact NT or NW / Circuit breakers and switch-disconnectors  
  - D-16

**Source-changeover systems for 3 devices**
- Masterpact NW / Circuit breakers and switch-disconnectors  
  - D-18
## Manual source-changeover systems Compact INS40 to INS630 and INV100 to INV630

### Interlocking for rotary handle

<table>
<thead>
<tr>
<th>Mechanical device</th>
<th>3/4P</th>
<th>4P</th>
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<tbody>
<tr>
<td>for INS40 to INS160 equipped with an extended rotary handle</td>
<td>28953</td>
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<tr>
<td>for INS250-100 to INS250/INV100 to INV250 equipped with a direct or extended rotary handle</td>
<td>31073</td>
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<tr>
<td>for INS320 to INS/INV320 equipped with a direct or extended rotary handle</td>
<td>31074</td>
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## Complete assembly source-changeover systems Compact INS250 to INS630

### With Compact INS250-100A

- 3P: 31140
- 4P: 31141

### With Compact INS250-160A

- 3P: 31144
- 4P: 31145

### With Compact INS250-200A

- 3P: 31142
- 4P: 31143

### With Compact INS250

- 3P: 31146
- 4P: 31147

### With Compact INS320

- 3P: 31148
- 4P: 31149

### With Compact INS500

- 3P: 31152
- 4P: 31153

### Locking for INS complete source changeover assembly

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

### Rotary handle

- Extended front control for complete source changeover assembly 31055

## Manual source-changeover systems Compact INS250 to INS2500 and INV250 to INV2500 by keylock

### Interlocking

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

## 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 to INS630: LV432594
  - Long terminal shield, 45 mm (1 piece): LV432596
  - Long terminal shield for spreaders, 52.5 mm (1 piece): LV432491

### Terminal extensions

- Spreaders 52.5 mm 4P: LV432491
Source-changeover systems for 2 devices
Compact NSX100 to NSX630

**Manual source changeover**

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

**Key lock interlocking**
- For rotary handled or remote controlled circuit breakers
  - 2 locks, 1 key
  - Ronis 1351B.500
  - Profalux KS5 B24 D4Z
  - 41950
  - 42878

**Remote controlled source changeover**

**Plate + IVE unit**

<table>
<thead>
<tr>
<th>Source “normal”/source “replacement” (identical voltages)</th>
<th>24 to 250 V DC</th>
<th>48 to 415 V AC 50/60 Hz</th>
<th>440 V 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSX100...250/NSX100...250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plate + IVE unit [1]</td>
<td>29351</td>
<td>29350</td>
<td></td>
</tr>
<tr>
<td>Plate</td>
<td>29349</td>
<td>29349</td>
<td></td>
</tr>
<tr>
<td>IVE unit</td>
<td>29356</td>
<td>29352</td>
<td></td>
</tr>
<tr>
<td>Auxiliary switches 2 OF + 2 SDE</td>
<td>4 x</td>
<td>4 x</td>
<td></td>
</tr>
<tr>
<td>Spare wiring system (device/IVE unit)</td>
<td>29365</td>
<td>29365</td>
<td></td>
</tr>
<tr>
<td>Back sockets option add:</td>
<td>Only long RC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plug in base option add:</td>
<td>Plug in kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSX400...630/NSX100...630</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plate + IVE unit [1]</td>
<td>32611</td>
<td>32610</td>
<td></td>
</tr>
<tr>
<td>Plate</td>
<td>32609</td>
<td>32609</td>
<td></td>
</tr>
<tr>
<td>IVE unit</td>
<td>29356</td>
<td>29352</td>
<td></td>
</tr>
<tr>
<td>Auxiliary switches 2 OF + 2 SDE</td>
<td>4 x</td>
<td>4 x</td>
<td></td>
</tr>
<tr>
<td>Spare wiring system (device/IVE unit)</td>
<td>29365</td>
<td>29365</td>
<td></td>
</tr>
<tr>
<td>Back sockets option add:</td>
<td>Only long RC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plug in base option add:</td>
<td>Plug in kit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Control unit option**

<table>
<thead>
<tr>
<th>110/127 V AC 50/60 Hz</th>
<th>220/240 V AC 50/60 Hz</th>
<th>380/415 V AC 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP + controller BA [1]</td>
<td>29470</td>
<td>29471</td>
</tr>
<tr>
<td>Plate ACP</td>
<td>29363</td>
<td>29364</td>
</tr>
<tr>
<td>Controller BA</td>
<td>29376</td>
<td>29377</td>
</tr>
<tr>
<td>ACP + controller UA [1]</td>
<td>29448</td>
<td>29447</td>
</tr>
<tr>
<td>Plate ACP</td>
<td>29363</td>
<td>29364</td>
</tr>
<tr>
<td>Controller UA</td>
<td>29378</td>
<td>29380</td>
</tr>
<tr>
<td>ACP + controller UA150 [1] (communication option)</td>
<td>29446</td>
<td>29447</td>
</tr>
<tr>
<td>Plate ACP</td>
<td>29363</td>
<td>29364</td>
</tr>
<tr>
<td>Controller UA150</td>
<td>29379</td>
<td>29381</td>
</tr>
</tbody>
</table>

**Wiring cable between UA/BA and ACP/IVE**

| Wiring cable (1.5 meter)                               | 29368                 | 29368                |

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

Source-changeover systems
for 2 devices
Compact NSX100 to NSX630 (cont.)

Connection accessories

<table>
<thead>
<tr>
<th>Short terminal shields (1 pair) + &quot;normal&quot; source/&quot;replacement&quot; source</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSX100...250/NSX100...250 / 250 A</td>
</tr>
<tr>
<td>NSX400...630/NSX400...630 / 630 A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long terminal shields (1 piece)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSX100...250 long terminal shield</td>
</tr>
<tr>
<td>NSX400...630</td>
</tr>
<tr>
<td>Long terminal shield, 45 mm (1 piece)</td>
</tr>
<tr>
<td>Long terminal shield for spreaders, 52.5 mm (1 piece)</td>
</tr>
</tbody>
</table>

Terminal extensions

| Spreaders | 52.5 mm | 4P | LV432491 |

Typical composition of remote controlled source changeover

Remote controlled source changeover

1 normal device N (1)
+ 1 replacement device R (2)
+ 2 remote controls (3)
+ 1 plate with interlocking (4) with IVE (5) and its wiring (8)
+ 2 plug-in kits (if plug-in version)
+ 1 adaptor kit for NSX100...250 plug-in (if NSX400...630 with NSX100...250)
+ auxiliary switches (6)
2 x (1 OF + 1 SDE) for Compact NSX100...630
+ 1 downstream coupling accessory (7) for Compact NSX100...630 (option)
+ long RC (if back connection)

IVE voltages and remote controls are identical.

Associated control unit

1 source changeover without associated control unit
+ 1 ACP (9) with BA control unit (10)
Or + 1 ACP (9) with UA control unit (11)
Or + 1 ACP (9) with UA150 control unit (11)
+ extension (12) for remote UA/BA connection on front of switchboard

IVE voltages + remote control + ACP + BA or UA are identical.
**Source-changeover systems for 2 devices**
Compact NS630b to NS1600 circuit breakers and switch-disconnectors

### Interlocking for source-changeover systems

<table>
<thead>
<tr>
<th>Mechanical interlocking</th>
<th>Description</th>
<th>Catalogue number</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 2 devices with extended rotary handles</td>
<td></td>
<td>33890</td>
</tr>
</tbody>
</table>

### Interlocking using connecting rods for Compact electrically-operated devices

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalogue number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete assembly with 2 adaptation fixtures + rods</td>
<td>33910</td>
</tr>
<tr>
<td>2 Compact fixed devices</td>
<td>33910</td>
</tr>
<tr>
<td>2 Compact withdrawable devices</td>
<td>33913</td>
</tr>
</tbody>
</table>

### Interlocking using cables for Compact electrically-operated devices

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalogue number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete assembly with 2 adaptation fixtures + cables</td>
<td>33911</td>
</tr>
<tr>
<td>2 Compact fixed devices</td>
<td>33911</td>
</tr>
<tr>
<td>2 Compact withdrawable devices</td>
<td>33914</td>
</tr>
<tr>
<td>1 Compact fixed + 1 Compact withdrawable device</td>
<td>33915</td>
</tr>
</tbody>
</table>
## 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.

### IVE electrical-interlocking unit

<table>
<thead>
<tr>
<th></th>
<th>24 to 250 V DC</th>
<th>48/415 V AC 50/60 Hz</th>
<th>440 V 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 2 devices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring kit for connection of 2 fixed/withdrawable devices to the IVE unit</td>
<td>29356</td>
<td>29352</td>
<td>54655</td>
</tr>
</tbody>
</table>

### Control unit option

<table>
<thead>
<tr>
<th></th>
<th>110/127 V AC 50/60 Hz</th>
<th>220/240 V AC 50/60 Hz</th>
<th>380/415 V AC 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP + controller BA (1)</td>
<td>29470</td>
<td>29471</td>
<td></td>
</tr>
<tr>
<td>Plate ACP</td>
<td>29363</td>
<td>29364</td>
<td></td>
</tr>
<tr>
<td>Controller BA</td>
<td>29376</td>
<td>29377</td>
<td></td>
</tr>
<tr>
<td>ACP + controller UA (1)</td>
<td>29448</td>
<td>29472</td>
<td>29473</td>
</tr>
<tr>
<td>Plate ACP</td>
<td>29447</td>
<td>29363</td>
<td>29364</td>
</tr>
<tr>
<td>Controller UA</td>
<td>29446</td>
<td>29378</td>
<td>29380</td>
</tr>
<tr>
<td>ACP + controller UA150 (1) (communication option)</td>
<td>29474</td>
<td>29475</td>
<td>29381</td>
</tr>
<tr>
<td>Plate ACP</td>
<td>29363</td>
<td>29364</td>
<td></td>
</tr>
<tr>
<td>Controller UA150</td>
<td>29379</td>
<td>29381</td>
<td></td>
</tr>
</tbody>
</table>

(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.
## Interlocking for source-changeover systems

### Interlocking using connecting rods

<table>
<thead>
<tr>
<th>Complete assembly with 2 adaptation fixtures + rods</th>
<th>2 Masterpact NT fixed devices</th>
<th>2 Masterpact NT drawout devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 2 Masterpact NT fixed devices</td>
<td>33912</td>
<td></td>
</tr>
<tr>
<td>- 2 Masterpact NT drawout devices</td>
<td>33913</td>
<td></td>
</tr>
</tbody>
</table>

### Interlocking using cables (*)

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

<table>
<thead>
<tr>
<th>1 adaptation fixture for Masterpact NT fixed devices</th>
<th>33200</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 adaptation fixture for Masterpact NT drawout devices</td>
<td>33201</td>
</tr>
<tr>
<td>1 set of 2 cables</td>
<td>33209</td>
</tr>
</tbody>
</table>

(*) Can be used with any combination of NT or NW, fixed or drawout devices.

### 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.

#### IVE electrical-interlocking unit

<table>
<thead>
<tr>
<th>24 to 250 V DC</th>
<th>48/415 V AC 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 2 devices</td>
<td>29356</td>
</tr>
<tr>
<td>Wiring kit</td>
<td>54655</td>
</tr>
</tbody>
</table>

#### Control unit option

<table>
<thead>
<tr>
<th>110/127 V AC 50/60 Hz</th>
<th>220/240 V AC 50/60 Hz</th>
<th>380/415 V AC 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP + controller BA (1)</td>
<td>ACP + controller UA (1)</td>
<td>ACP + controller UA150 (1)</td>
</tr>
<tr>
<td>Plate ACP</td>
<td>Plate ACP</td>
<td>Plate ACP</td>
</tr>
<tr>
<td>Controller BA</td>
<td>Controller UA</td>
<td>Controller UA150</td>
</tr>
<tr>
<td>29470</td>
<td>29448</td>
<td>29474</td>
</tr>
<tr>
<td>29363</td>
<td>29447</td>
<td>29363</td>
</tr>
<tr>
<td>29364</td>
<td>29376</td>
<td>29364</td>
</tr>
<tr>
<td>29377</td>
<td>29446</td>
<td>29380</td>
</tr>
<tr>
<td>29381</td>
<td>29447</td>
<td>29475</td>
</tr>
<tr>
<td>29379</td>
<td>29378</td>
<td>29379</td>
</tr>
</tbody>
</table>

(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.
### Catalogue numbers and order forms

#### Source-changeover systems for 2 or 3 devices
**Masterpact NW** circuit breakers and switch-disconnectors

---

**Interlocking for source-changeover systems for 2 devices**

<table>
<thead>
<tr>
<th>Interlocking of 2 devices using connecting rods</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete assembly with 2 adaptation fixtures + rods</td>
<td></td>
</tr>
<tr>
<td>2 Masterpact NW fixed devices</td>
<td>48612</td>
</tr>
<tr>
<td>2 Masterpact NW drawout devices</td>
<td>48612</td>
</tr>
<tr>
<td><em>Can be used with 1 NW fixed + 1 NW drawout.</em></td>
<td></td>
</tr>
</tbody>
</table>

---

**Interlocking of 2 devices using cables**

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

| 1 adapter for Masterpact NW fixed devices | 47926 |
| 1 adapter for Masterpact NW drawout devices | 47926 |
| 1 set of 2 cables | 33209 |

(*) *Can be used with any combination of NT or NW, fixed or drawout devices.*

---

**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.

<table>
<thead>
<tr>
<th>IVE electrical-interlocking unit</th>
<th>24 to 250 V DC</th>
<th>48/415 V AC 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 2 devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring kit for connection of 2 fixed/drawout devices to the IVE unit</td>
<td>29356</td>
<td>29352</td>
</tr>
</tbody>
</table>

**Control unit option**

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) | 29446 | 29447 |
| Plate ACP | 29363 | 29364 |
| Controller UA | 29378 | 29380 |
| ACP + controller UA150 (1) (communication option) | 29474 | 29475 |
| Plate ACP | 29363 | 29364 |
| Controller UA150 | 29379 | 29381 |

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

---

*Source: Schneider Electric*
## Source-changeover systems for 2 or 3 devices
Masterpact NW circuit breakers and switch-disconnectors

### Interlocking for source-changeover systems for 3 devices

<table>
<thead>
<tr>
<th>Interlocking of 3 devices using cables</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose 3 adaptation fixtures (1 complete set with 3 adaptation fixtures + cables)</td>
<td>48610</td>
</tr>
<tr>
<td>3 sources, only 1 device closed, fixed or drawout devices</td>
<td>48610</td>
</tr>
<tr>
<td>2 sources, 1 coupling, fixed or drawout devices</td>
<td>48609</td>
</tr>
<tr>
<td>2 normal, 1 replacement source, fixed or drawout devices</td>
<td>48608</td>
</tr>
</tbody>
</table>
Source-changeover systems
for 2 devices
Compact INS40 to INS630
Switch-disconnectors

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

### Mechanical interlocking of two INS40 to INS630 devices

#### Devices with front rotary handles, mounted side by side

<table>
<thead>
<tr>
<th>Two devices with direct rotary handles</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INS250</td>
<td></td>
</tr>
<tr>
<td>INS40/63/80</td>
<td></td>
</tr>
<tr>
<td>INS250</td>
<td></td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Two devices with extended rotary handles</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INS40/63/80</td>
<td></td>
</tr>
<tr>
<td>INS100/125/160</td>
<td></td>
</tr>
<tr>
<td>INS250</td>
<td></td>
</tr>
<tr>
<td>INS320/400/500/630</td>
<td></td>
</tr>
</tbody>
</table>

#### Downstream coupling accessory

| INS250                                |  |
| INS320/400/500/630                    |  |

#### Long terminal shields

| INS250                                 |  |
| INS320/400/500/630                     |  |

### Complete source-changeover assembly

| INS250-100 A                           |  |
| INS250-160 A                           |  |
| INS250-200 A                           |  |
| INS250-250 A                           |  |
| INS320                                 |  |
| INS400                                 |  |
| INS500                                 |  |
| INS630                                 |  |
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\(^2\) rigid/10\(^2\) flexible

INS100/160 connectors
- Snap-on on 6 95\(^\circ\)
- Distribution 4x25\(^2\) rigid/16\(^2\) flexible

INS250 connectors
- Snap-on on 1.5\(^\circ\) to 95\(^\circ\) (< 160 A)
- Snap-on 10\(^\circ\) to 185\(^\circ\) (< 250 A)
- Voltage tap connector for 185\(^\circ\)
- Clips for connectors Set of 10
- Distribution 6x1.5\(^2\) to 35\(^2\) rigid with interphase barriers

INS320/630 connectors
- 1 cable 35\(^2\) to 300\(^2\)
- 2 cables 35\(^2\) to 240\(^2\)
- Voltage tap connector for 185\(^\circ\)

Distribution blocks
- Linergy DX
  - 4P 125 A 160 A
  - 1P
- Linergy BS (multi stage) 160 A 250 A
- Linergy DP 250 A

Rt-angle extension
Set of 3 or 4 250 A 630 A

Straight extension
INS250

Edgewise ext.
INS630

Spreader
INS250 (45 mm)
- Front alignment base
  - INS320/630 52.5 mm 70 mm
  - One-piece INS250 INS630

Cu cable lugs supplied with 2 or 3 inter-phase barriers
- INS100/160 For 95\(^\circ\) cable
- INS250 For 120\(^\circ\) cable
- INS320/630 For 150\(^\circ\) cable
- For 185\(^\circ\) cable
- For 240\(^\circ\) cable
- For 300\(^\circ\) cable

Al cable lugs supplied with 2 or 3 inter-phase barriers
- INS250 For 150\(^\circ\) cable
- INS320/630 For 185\(^\circ\) cable
- For 240\(^\circ\) cable
- For 300\(^\circ\) cable

Terminal shrouds
INS40/63/80 INS100/125/160

Terminal shields
INS40/63/80 INS100/125/160
- INS250 Long
- INS320/630 Long

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 K5 S B24 D4Z

Installation accessories
Front-panel escutcheon
For switch-disconnectors
- For ammeter module, IP40

Distribution blocks
- Linergy DX
  - 4P 125 A 160 A
  - 1P
- Linergy BS (multi stage) 160 A 250 A
- Linergy DP 250 A

Rt-angle extension
Set of 3 or 4 250 A 630 A

Straight extension
INS250

Edgewise ext.
INS630
## 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

- **Without automatic control, without emergency off auxiliaries:**
  - (no. 51201177)
  - (no. 51201178)
  - (no. 51201179)

### Mechanical and electrical interlocking of two NSX100 to NSX630 devices

- **Manually operated devices, mounted side by side:**
  - Two devices with toggles
  - Two devices with rotary handles

- **Electrically operated devices, mounted side by side:**
  - Select 1 base plate + IVE unit, the 4 auxiliary contacts and the options / accessories

### Mechanical and electrical interlocking of two NSX100 to NSX630 devices

<table>
<thead>
<tr>
<th>Base plate + IVE unit</th>
<th>Identical voltages:</th>
<th>24 to 250 V DC</th>
<th>440/480 V AC 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Normal&quot; NSX100/250</td>
<td>&quot;Replacement&quot; NSX100/250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Normal&quot; NSX400/630</td>
<td>&quot;Replacement&quot; NSX400/630</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Normal&quot; NSX400/630</td>
<td>&quot;Replacement&quot; NSX100/250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adapter kit for NSX400/630 with NSX100/250 (plug-in)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auxiliary contacts</th>
<th>2 OF + 2 SDE (mandatory)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td>Long rear connections</td>
<td>4</td>
</tr>
<tr>
<td>Downstream coupling accessory</td>
<td>3P</td>
<td>NSX100/250</td>
</tr>
<tr>
<td></td>
<td>4P</td>
<td>NSX400/630</td>
</tr>
<tr>
<td>Prefabricated wiring</td>
<td>Between device and IVE</td>
<td>Quantity</td>
</tr>
</tbody>
</table>

### 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
## Source-changeover systems for 2 devices

### Compact NSX100 to NSX630 / Circuit breakers and switch-disconnectors

<table>
<thead>
<tr>
<th>Circuit breaker or switch disconnector</th>
<th>Compact type</th>
<th>Rating</th>
<th>No. of poles</th>
<th>Switch-dis.</th>
<th>No. of poles</th>
<th>Rating</th>
<th>Switch-dis.</th>
<th>No. of poles</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSX100/160/250</td>
<td>NSX400/630</td>
<td>A</td>
<td>2, 3 or 4</td>
<td>NA</td>
<td>2d, 3d or 4d</td>
<td>B, F, N, H, S, L</td>
<td>NA</td>
<td>2, 3 or 4</td>
<td>B, F, N, H, S, L</td>
</tr>
</tbody>
</table>

### Electrical operation

- Motor mechanism: AC or DC
- Voltage releases: Instantaneous (MX) or TMD

### Remote operation

- Rotary handles: Direct, Extended, Telescopic handle for withdrawable device

### Indication and measurement

<table>
<thead>
<tr>
<th>Ammeter module</th>
<th>Standard (3P)</th>
<th>4P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current-transformer module</td>
<td>3P</td>
<td>4P</td>
</tr>
<tr>
<td>Current-transformer module + TCU</td>
<td>3P</td>
<td>4P</td>
</tr>
<tr>
<td>Insulation-monitoring module</td>
<td>3P</td>
<td>4P</td>
</tr>
</tbody>
</table>

### Voltage-presence indicator

- Auxiliary contact: OFF, SD, SDE, SDV, Standard (SDV, Low level)

### Voltage releases

- Instantaneous (MX)
- TMD

### Interlocking

- Mechanical: Toggle operated, Rotary Handle

### Installation accessories

<table>
<thead>
<tr>
<th>IP30 escutcheon</th>
<th>for all types (toggle/rotary handle/motor mechanism)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP30 escutcheon (with access to toggle + trip unit)</td>
<td></td>
</tr>
<tr>
<td>IP40 escutcheon for Vigi module</td>
<td></td>
</tr>
<tr>
<td>IP40 escutcheon for Vigi or ammeter module</td>
<td></td>
</tr>
</tbody>
</table>

### Plug-in / withdrawable configuration accessories

- Auxiliary connections: 1 automatic connector fixed part with 9 wires (for base)
- Chassis accessories: Escutcheon collar, Toggle, Vigi
- Parts or plug-in: Plugs-in base FC/RC, 2P, 3P, 4P
- Withdrawable kits: Set of two power connections, Safety trip for advanced opening

### Adapter for plug-in base (for terminal shield or interphase barriers)

- Communication: NSX Cord L = 0.35 m, NSX Cord L = 1.3 m
- BSCM (NSX400/630)
- Communicating motor module 220-240 V AC
- Switchboard front display module FDM121
- FDM mounting accessory

### Test tool

- Pocket battery for Micrologic
- Maintenance case
- USB maintenance interface
- Power supply 110-240 V AC
- Spare Micrologic cord
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
## Catalogue numbers and order forms

Source-changeover systems for 2 devices

Compact NS630b to NS1600 / Circuit breakers and switch-disconnectors

(One sheet per device, make copies if necessary)

### Indication contacts

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] 6 A-240 V AC</th>
<th>[ ] Low level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD trip indication (maximum 1)</td>
<td>6 A-240 V AC</td>
<td>Low level</td>
</tr>
<tr>
<td>SDE fault-trip indication (maximum 1) (SDE integrated in electrically operated devices)</td>
<td>6 A-240 V AC</td>
<td>Low level</td>
</tr>
<tr>
<td>OF ON/OFF indication contacts (maximum 3)</td>
<td>6 A-240 V AC</td>
<td>qty</td>
</tr>
</tbody>
</table>

### Remote operation

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] AC</th>
<th>[ ] DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical operation</td>
<td>Standard</td>
<td>Communicating</td>
</tr>
<tr>
<td>Power supply</td>
<td>AC</td>
<td>DC</td>
</tr>
<tr>
<td>Voltage releases</td>
<td>MX</td>
<td>DC</td>
</tr>
<tr>
<td>MN</td>
<td>DC</td>
<td>V</td>
</tr>
<tr>
<td>MN delay unit</td>
<td>Adjustable</td>
<td>Non-adjustable</td>
</tr>
</tbody>
</table>

### Rotary handles for fixed and withdrawable device

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] Black</th>
<th>[ ] Red on yellow front</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>CNOMO conversion access</td>
<td></td>
</tr>
<tr>
<td>Extended</td>
<td>Telescopic handle for withdrawable device</td>
<td></td>
</tr>
</tbody>
</table>

### Locking

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] Black</th>
<th>[ ] Red on yellow front</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toggle (1 to 3 padlocks)</td>
<td>Removable system</td>
<td>Fixed system</td>
</tr>
<tr>
<td>Rotary handle using a keylock</td>
<td>OFF position</td>
<td>ON and OFF positions</td>
</tr>
<tr>
<td>Ronis 1351B.500</td>
<td>Profalux K5S B24 D4Z</td>
<td></td>
</tr>
<tr>
<td>Keylock kit (without keylock)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Connections

<table>
<thead>
<tr>
<th>Description</th>
<th>Top</th>
<th>Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal rear connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical rear connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front connections</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] Profalux</th>
<th>[ ] Ronis</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPEC - door interlock</td>
<td></td>
<td>On right-hand side of chassis</td>
</tr>
<tr>
<td>VPDC - racking interlock</td>
<td></td>
<td>On left-hand side of chassis</td>
</tr>
<tr>
<td>VDC - mismatch protection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Micrologic control unit

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] 2.0</th>
<th>[ ] 5.0</th>
<th>[ ] 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic protection</td>
<td>A</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>A - ammeter</td>
<td>2.0</td>
<td>5.0</td>
<td>6.0</td>
</tr>
<tr>
<td>E - energy meter</td>
<td>2.0</td>
<td>5.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

### Micrologic control unit

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] V</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD - external power-supply module</td>
<td></td>
</tr>
<tr>
<td>TCE - external sensor (CT) for neutral protection</td>
<td></td>
</tr>
<tr>
<td>Rectangular sensor</td>
<td>290 x 115 mm</td>
</tr>
<tr>
<td>TCW - external sensor for SGR protection</td>
<td></td>
</tr>
</tbody>
</table>

### Micrologic control unit

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] V</th>
</tr>
</thead>
<tbody>
<tr>
<td>LR - long-time rating plug</td>
<td>0.4 to 1.0</td>
</tr>
<tr>
<td>Standard</td>
<td>0.4 to 1.0</td>
</tr>
<tr>
<td>Low setting</td>
<td>0.4 to 0.8</td>
</tr>
<tr>
<td>High setting</td>
<td>0.4 to 1.0</td>
</tr>
</tbody>
</table>

### Communication

<table>
<thead>
<tr>
<th>Description</th>
<th>Device</th>
<th>Chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco COM module Modbus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Display Module (FDM121)</td>
<td>Mounting accessory</td>
<td></td>
</tr>
<tr>
<td>Breaker ULP cord</td>
<td>L = 0.35 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L = 1.3 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L = 3 m</td>
<td></td>
</tr>
</tbody>
</table>

### Connections

<table>
<thead>
<tr>
<th>Description</th>
<th>Top</th>
<th>Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal rear connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical rear connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front connections</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] Profalux</th>
<th>[ ] Ronis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arc chute screen</td>
<td></td>
<td>NS - FC fixed</td>
</tr>
<tr>
<td>Interphase barriers</td>
<td>NS - FC fixed, withdr.</td>
<td></td>
</tr>
<tr>
<td>Spreaders</td>
<td>NS - FC fixed, withdr.</td>
<td></td>
</tr>
<tr>
<td>VO - safety shutters on chassis</td>
<td>NS - FC fixed</td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>[ ] Profalux</th>
<th>[ ] Ronis</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDM - mechanical operation counter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDP - escutcheon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP - transparent cover for escutcheon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP - blanking plate for escutcheon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Connections

<table>
<thead>
<tr>
<th>Description</th>
<th>NS - FC fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4x240° bare cable connectors</td>
<td></td>
</tr>
<tr>
<td>+ shields</td>
<td></td>
</tr>
<tr>
<td>Long connection shields</td>
<td></td>
</tr>
<tr>
<td>Vertical-connection adapters</td>
<td>NS - FC fixed, withdr.</td>
</tr>
<tr>
<td>Cable-lug adapters</td>
<td>NS - FC fixed, withdr.</td>
</tr>
<tr>
<td>Arc chute screen</td>
<td>NS - FC fixed</td>
</tr>
<tr>
<td>Interphase barriers</td>
<td>NS - FC fixed, withdr.</td>
</tr>
<tr>
<td>Spreaders</td>
<td>NS - FC fixed, withdr.</td>
</tr>
<tr>
<td>VO - safety shutters on chassis</td>
<td>NS - FC fixed</td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Mini test kit</th>
<th>Portable test kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test kits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Source-changeover systems for 2 devices**

Masterpact NT or NW / 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 NT/NW devices

#### Electrical interlocking with lockout after fault:
- Permanent replacement source (with IVE unit) (no. 51201142)
- With emergency off by MX (with IVE unit) (no. 51201143)
- With emergency off by MN (with IVE unit) (no. 51201144)

#### Automatic control with lockout after fault:
- Permanent replacement source (with IVE unit) (no. 51156904)
- Engine generator set (with IVE unit) (no. 51156905)

### Interlocking using connecting rods (NT/NW devices one above the other)

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

<table>
<thead>
<tr>
<th>Complete set for:</th>
<th>2 drawout NT devices</th>
<th>2 fixed NT devices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 drawout NW devices</td>
<td>2 fixed NW devices</td>
</tr>
<tr>
<td></td>
<td>1 fixed NT device + 1 fixed NW device</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 drawout NT device + 1 drawout NW device</td>
<td></td>
</tr>
</tbody>
</table>

### Interlocking using cables (NT/NW devices one above the other or side-by-side)

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

<table>
<thead>
<tr>
<th>Adaptation fixture for:</th>
<th>1 fixed NT device qty</th>
<th>1 drawout NT device qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>(NT/NW fixed and drawout devices may be mixed)</td>
<td>1 fixed NW device qty</td>
<td>1 drawout NW device qty</td>
</tr>
<tr>
<td></td>
<td>1 set of 2 cables (for two devices)</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical interlocking 2 Masterpact NT/NW 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
Source-changeover systems for 2 devices
Masterpact NT or NW / Circuit breakers and switch-disconnectors

Catalogue numbers and order forms

(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

Device identification:

Q 1 - NORMAL SOURCE
Q 2 - REPLACEMENT SOURCE

Circuit breaker or switch-disconnector

Masterpact type
NT
NW

Rating
A

Sensor rating
A

Circuit breaker
N1, H1, H2, H3, L1

Switch-disconnector
NA, HA, HF, ES, HA10 (NW)

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
A - ammeter
2.0
5.0
6.0
7.0

E - energy meter
2.0
5.0
6.0

P - power meter
5.0
6.0
7.0

H - harmonic meter
5.0
6.0
7.0

AD - external power-supply module

TCE - external sensor (CT) for neutral protection
Rectangular sensor for earth-leakage protection
NW (470 x 160 mm)

LR - long-time rating plug
Standard 0.4 to 1 lr
Low setting 0.4 to 0.8 lr
High setting 0.8 to 1 lr
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

Connections
Horizontal
Top
Bottom

Vertical
Top

Front
Top

Vertical-connection adapters
NT - FC fixed, draw.

Cable-lug adapters
NT - FC fixed, draw.
Arc chute screen
NT - FC fixed
Interphase barriers
NT - NW fixed, draw.

Spreaders
NT fixed, drawout

Disconnectable front connection adapter
NW fixed

Lugs for 240- or 300-v cables
NW fixed, drawout

VO - safety shutters on chassis
NT, NW

VIVC - shutter position
NW

Indication contacts

OF - ON/OFF indication contacts
Standard
4 OF 6 A-240 V AC (10 A-240 V AC and low-level for NW)

Additional
1 block of 4 OF for NW

EF - combined “connected/closed” contacts
1 EF 6 A-240 V AC for NW
max. 8 qty
1 EF low-level for NW
max. 8 qty

SDE - “fault-trip” indication contact
Standard
1 SDE 6 A-240 V AC

Additional
1 SDE 6 A-240 V AC

Programmable contacts
2 M2C contacts
6 M6C contacts

Carrage switches
6 A-240 V AC
Low level

CE - “connected” position
max. 3 for NW / NT

CD - “disconnected” position
max. 3 for NW, 2 for NT

CT - “test” position
max. 3 for NW, 1 for NT

AC - NW actuator for 6 CE - 3 CD - 0 CT additional carriage switches

cqy

Remote operation

Remote ON/OFF
MCH - gear motor

VF - closing voltage release
MX - opening voltage release

PF - "ready to close” contact

BPFE - electrical closing pushbutton

Res - electrical reset option

RAR - automatic reset option

Remote tripping
MN - undervoltage release
R - delay unit (non-adjustable)

R0 - adjustable delay unit
2"MX - shunt release

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
Kirk
Castell

1 keylock

2 identical keylocks, 1 key

2 keylocks, different keys (NW)

Chassis locking in “disconnected” position:

VSPD - by keylocks Keylock kit (w/o keylock) Profalux
Kirk
Castell

1 keylock

2 identical keylocks, 1 key

2 keylocks, different keys

Optional connected/disconnected/test position locking

VPEC - door interlock

On right-hand side of chassis

VPOC - racking interlock
On left-hand side of chassis

IPA - cable-type door interlock

IBPO - racking interlock between crank and OFF pushbutton for NW

DAE - automatic spring discharge before breaker removal for NW

VDC - mismatch protection device - chassis

Accessories

CDM - mechanical operation counter

CB - auxiliary terminal shield for chassis

CPD - escutcheon

CP - transparent cover for escutcheon

OP - blanking plate for escutcheon

Brackets for mounting NW fixed
On backplates

Test kits
Mini test kit
Portable test kit

D-17
Source-changeover systems for 3 devices
Masterpact NW / Circuit breakers and switch-disconnectors

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

<table>
<thead>
<tr>
<th>Diagram for 3 Masterpact NW devices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2 “Normal” sources + 1 “Replacement” source:</strong></td>
</tr>
<tr>
<td>Electrical interlocking without lockout after fault (no. 51156906)</td>
</tr>
<tr>
<td>Electrical interlocking with lockout after fault (no. 51156907)</td>
</tr>
<tr>
<td><strong>2 “Normal” sources + 1 “Replacement” source with source selection:</strong></td>
</tr>
<tr>
<td>Automatic control w/ engine generator set w/o lockout after fault (no. 51156908)</td>
</tr>
<tr>
<td>Automatic control w/ engine generator set w/ lockout after fault (no. 51156909)</td>
</tr>
<tr>
<td><strong>3 sources, only 1 device ON:</strong></td>
</tr>
<tr>
<td>Electrical interlocking without lockout after fault (no. 51156910)</td>
</tr>
<tr>
<td>Electrical interlocking with lockout after fault (no. 51156911)</td>
</tr>
<tr>
<td><strong>2 “Normal” sources + 1 coupling:</strong></td>
</tr>
<tr>
<td>Electrical interlocking without lockout after fault (no. 51156912)</td>
</tr>
<tr>
<td>Electrical interlocking with lockout after fault (no. 51156913)</td>
</tr>
<tr>
<td>Automatic control with lockout after fault (no. 51156914)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interlocking using cables (NW devices one above the other or side-by-side)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a complete set including three adaptation fixtures and the cables</td>
</tr>
<tr>
<td>1 complete set for:</td>
</tr>
<tr>
<td>3 sources / 1 device ON, fixed or drawout</td>
</tr>
<tr>
<td>2 sources + 1 coupling, fixed or drawout</td>
</tr>
<tr>
<td>2 sources + 1 replacement source, fixed or drawout</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Circuit breaker or switch-disconnector</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Masterpact type</td>
<td>NW</td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Sensor rating</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Circuit breaker</td>
<td>N1, H1, H2, H3, L1</td>
<td></td>
</tr>
<tr>
<td>Switch-disconnector</td>
<td>NA, HA, HF</td>
<td></td>
</tr>
<tr>
<td>Number of poles</td>
<td>3 or 4</td>
<td></td>
</tr>
<tr>
<td>Option: neutral on right side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device</td>
<td>Fixed</td>
<td></td>
</tr>
<tr>
<td>Drawout with chassis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drawout without chassis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(moving part only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chassis alone without connections**

**Micrologic control unit**

| A - ammeter | 2.0 | 5.0 | 6.0 | 7.0 | |
| E - energy meter | 2.0 | 5.0 | 6.0 | |
| P - power meter | 5.0 | 6.0 | 7.0 | |
| H - harmonic meter | 5.0 | 6.0 | 7.0 | |
| AD - external power-supply module | V | |
| TCE - external sensor (CT) for neutral protection | | |
| Rectangular sensor | 470 x 160 mm | |
| TCW - external sensor for SGR protection | | |
| LR - long-time rating plug | Standard 0.4 to 1 hr | |
| Low setting 0.4 to 0.8 hr | | |
| High setting 0.8 to 1 hr | | |
| 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 | | |

**Connections**

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

**Indication contacts**

| OF - ON/OFF indication contacts | | |
| Standard | 4 OF 6 A-240 V AC (10 A-240 V AC and low-level) | |
| Additional | 1 block of 4 OF | max. 2 | qty | |
| EF - combined “connected/closed” contacts | | |
| 1 EF 6 A-240 V AC | max. 8 | qty | |
| 1 EF low-level | max. 8 | qty | |

**SDE - “fault-trip” indication contact**

| Standard | 1 SDE 6 A-240 V AC | |
| Additional | 1 SDE 6 A-240 V AC | 1 SDE Low level | |

**Programmable contacts**

| 2 M2C contacts | 6 M6C 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 - NW actuator for +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 | |
| 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:**

| VCP0 - by padlocks | | |
| VSP0 - by keylocks | Keylock kit (w/o keylock) | Profalux | Ronis | |
| | Keylock | Kirk | Castell | |
| Keylock 1 | Profalux | Ronis | | |
| 2 identical keylocks, 1 key | Profalux | Ronis | |
| 2 keylocks, different keys (NW) | Profalux | Ronis | |
| 2 keylocks, different keys | Profalux | Ronis | |

**Chassis locking in “disconnected” position:**

| VSPD - by keylocks | Keylock kit (w/o keylock) | Profalux | Ronis | |
| | Keylock | Kirk | Castell | |
| Keylock 1 | Profalux | Ronis | |
| 2 identical keylocks, 1 key | Profalux | Ronis | |
| 2 keylocks, different keys | Profalux | Ronis | |
| Optional connected/disconnected/test position locking | | |

**Accessories**

| CDM - mechanical operation counter | | |
| CB - auxiliary terminal shield for chassis | | |
| CDP - escutcheon | | |
| CP - transparent cover for escutcheon | | |
| OP - blanking plate for escutcheon | | |

**Sources-changeover systems for 3 devices**

**Masterpact NW / Circuit breakers and switch-disconnectors**