ATNSX Automatic Transfer Switch

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The brand-new ATNSX, following the excellent quality of ATS from Schneider Electric, ensures the power continuity and safety to the utmost capacity, as well as optimizes the electric energy management. ATNSX adopts Multi 9 small circuit breaker or Compact NSX Molded Case Circuit Breaker (MCCB), with current level of 1-630A. Its integrated design has increased its reliability greatly. In addition, a standard trip is installed, which provides effective protection when there is a failure. The multiple mechanical and electrical interlocks totally ensure the transfer reliability.

ATNSX provides multiple operation modes, such as automatic change and automatic recovery, automatic change and manual recovery, standby for each other, manual control, etc. The isolated power module of ATNSX can improve the voltage withstand level.

Two types of ATNSX controllers with powerful functions provide customers with more choices.
Type A Controller (built-in): supports the transfer between two commercial power sources, with adjustable transfer delay time.
Type B Controller (external): besides the functions of Type A Controller, supports the transfer between commercial power source and generator, with parameter settings and displays on controller panel and with communication function as an option.
ATNSX meets IEC and GB standards, and passes CCC certification and EMC (Electromagnetic compatibility) testing.

**Construction of ATNSX Automatic Transfer Switch**

Multiple operation modes and multiple interlocks of the brand-new ATNSX ensure the reliable transfer between power sources.

1 Electric operating mechanism
2 Terminal
3 Trip
4 Interlock switch for selection of manual/automatic operation mode
5 Isolated power module

External Intelligent Controller (Type B)
Standard and Selection

Applicable Standards
ATNSX Automatic Transfer Switch and its accessories meet the following standards and international codes:
- IEC60 947-1: General Rules
- IEC60 947-2: Circuit Breakers
- IEC60 947-3: Switches, disconnectors, switch-disconnectors and fuse-combination units
- IEC60 947-5: Control circuit devices and switching elements
- IEC60 947-6-1: Automatic transfer switch
- GB/T 14048.11: Automatic Transfer Switching Equipment

Environment-resistant Capacity
ATNSX Automatic Transfer Switch meets the environmental requirements in the following standards:
- IEC/CN 60068-2-30: Damp heat environment, equipment not in operation; relative humidity 95% at 55°C (humid and hot climate).
- IEC/CN 60068-2-52: Salt mist; KB testing severity level 2.
- IEC/CN 60068-2-56: Damp heat environment, equipment in operation; 48h, environment category C2.

Therefore, they can be used in every area all over the world.

Pollution Degree
ATNSX is certified to operate in an environment with pollution degree III. This pollution degree is defined in the industrial environment articles of IEC60947 standard.

Ambient Temperature
ATNSX Automatic Transfer Switch is applicable to the temperature range from -25°C to 55°C. When the temperature is 40°C above (65°C above for motor protection), derating shall be considered and storage temperature from -50°C to 85°C shall be used.

Protection Grade
IP20

Utilization Category
AC33B

Guideline for Selection

Order Information
1. ATNSX provides products with standard configuration.
2. For special needs on ATNSX, Schneider Electric can provide customized products, which include:
   - ATNSX with communication option or fire fighting linkage option.
   - High-end application of ATNSX, with Micrologic 5-6 A or E electronic trip unit and Micrologic MA1.3-M2-M6E-MG trip unit for customization.
   - ATNSX of other special types.
3. For customized types of ATNSX, please contact LV Power Distribution Marketing Department of Schneider Electric prior to placing an order.

* According to different current level, N/F/H represents different breaking capacity.

For details, please refer to the following technical parameter sheet.
### Product Characteristics

<table>
<thead>
<tr>
<th>Automatic Transfer Switch</th>
<th>ATNSX63</th>
<th>ATNSX100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuating circuit breaker</td>
<td>665</td>
<td>NSX100</td>
</tr>
<tr>
<td><strong>Electric characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current (A)</td>
<td>In</td>
<td>63</td>
</tr>
<tr>
<td>Rated insulation voltage (V)</td>
<td>U1</td>
<td>440</td>
</tr>
<tr>
<td>Rated operating voltage (V)</td>
<td>Ue</td>
<td>AC50/60Hz</td>
</tr>
<tr>
<td>Ultimate breaking capacity</td>
<td>lcu</td>
<td></td>
</tr>
<tr>
<td>(KA effective value)</td>
<td>220/240V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>380/415V</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>415V</td>
<td>-</td>
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<tr>
<td></td>
<td>500V</td>
<td>-</td>
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<tr>
<td></td>
<td>525V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>660/690V</td>
<td>-</td>
</tr>
<tr>
<td>Service breaking capacity</td>
<td>lcu</td>
<td></td>
</tr>
<tr>
<td>Category of application</td>
<td></td>
<td>AC33B</td>
</tr>
<tr>
<td>Open position indication</td>
<td></td>
<td>■</td>
</tr>
<tr>
<td>Isolating function</td>
<td></td>
<td>■</td>
</tr>
<tr>
<td>Number of poles (The number of poles for normal power source must be same to Yat for standby power sources.)</td>
<td>2.3.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Operating temperature</td>
<td></td>
<td>-25℃ to +55℃</td>
</tr>
<tr>
<td><strong>Life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical life</td>
<td></td>
<td>6600</td>
</tr>
<tr>
<td><strong>Control characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controller</td>
<td></td>
<td>Basic type (A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intelligent type (B)</td>
</tr>
<tr>
<td>Control voltage</td>
<td></td>
<td>AC220V</td>
</tr>
<tr>
<td>Shortest transfer time</td>
<td></td>
<td>2s</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload protection</td>
<td></td>
<td>Long delay</td>
</tr>
<tr>
<td>Short-circuit protection</td>
<td></td>
<td>Short delay</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transient</td>
</tr>
<tr>
<td><strong>Installation and connection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final board front connection</td>
<td></td>
<td>■</td>
</tr>
</tbody>
</table>

- : Optional function
- **: The maximum operating voltage can be up to 500V.
<table>
<thead>
<tr>
<th>ATNSX160</th>
<th>ATNSX250</th>
<th>ATNSX400</th>
<th>ATNSX630</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>N</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>85</td>
<td>90</td>
<td>100</td>
<td>85</td>
</tr>
<tr>
<td>36</td>
<td>50</td>
<td>70</td>
<td>36</td>
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<tr>
<td>35</td>
<td>50</td>
<td>65</td>
<td>35</td>
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<tr>
<td>30</td>
<td>36</td>
<td>50</td>
<td>36</td>
</tr>
<tr>
<td>22</td>
<td>35</td>
<td>50</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>20</td>
<td>8</td>
</tr>
</tbody>
</table>

-25℃ to +55℃

<table>
<thead>
<tr>
<th>6600</th>
<th>6600</th>
<th>4400</th>
<th>3300</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
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</table>

AC220V | AC220V | AC220V | AC220V |
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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>25</td>
<td>25</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

The electric characteristics are in accordance with IEC60947-6 and EN60947-6.
Controller

### Automatic operation
- Monitor normal power source and automatic transfer: (Detection for phase loss and voltage loss on three phases)
- Monitor standby power source and automatic transfer: No [-]
- Generator control: [-]
- Fire fighting signal (DC24V) switching "non-priority load": [-]
- Automatic change and automatic recovery: [-]
- Automatic change but no automatic recovery: [-]
- Standby for each other: [-]

### Test
- Via test button or control key on controller panel: [-]

### Display
- Operating state indication of circuit breaker: close and open: [-]
- Normal power source indication and standby power source indication: [-]
- Failure tripping indication: [-]
- Setting parameter indication: [-]

### Other functions
- Transfer delay: 0s, 5s, 15s, 30s, accuracy ±5%, continuously adjustable 0-255s
- Recovery delay: 0s, 5s, 15s, 30s, accuracy ±5%, continuously adjustable 0-255s
- Protection function against neutral line from connection to phase line (alarm): [-]
- Breaking function after transfer signal is sent for 5s: [-]
- Communication option: [-] Modbus
- Control voltage: AC220V 50/60Hz AC220V 50/60Hz

- Standard configuration
- Optional function
- Without this function
Type A Controller

Type A Controller is built in the automatic transfer switch, to monitor the two power sources and control the ATNSX transfer action.

**Control voltage**
AC220V 50/60 Hz

**Operation**
- Two-positions switch
- Automatic operation
- Manual operation
- Delay setting and functions of top DIP switch
  - Transfer delay t1: 0, 5, 15, 30s
  - Recovery delay t2: 0, 5, 15, 30s
- Operation mode setting

**t1:** The time delay prior to QN opening action, when the “operating” power voltage $U_N$ is disappeared.

**t2:** The time delay prior to QR opening action, when the “operating” power voltage $U_N$ is recovered.

---

### Indicator lights

- N Normal power source indicator light (yellow): On – The normal power source is normal. Flashing – The normal power source is in failure (wiring failure/loss of phase/over-voltage/under-voltage)

- R Standby power source indicator light (yellow): On – The standby power source is normal. Flashing – The standby power source is in failure (wiring failure/loss of phase/over-voltage/under-voltage)

- NF Normal power source ON indicator light (green): On – The normal power source is switched on.

- RF Standby power source ON indicator light (green): On – The standby power source is switched on.


**Type B Controller**

Type B Controller is an external type, capable of operating from outside of the cabinet.

- According to the status of the operating power source, it decides whether to transfer to another power source or not.
- Control of generator unit.
- Fire fighting linkage function.
- Manually forced transfer action by button.

**Control voltage**

AC220V 50/60Hz

**Operation**

- Two-positions switch
  - Automatic operation
  - Manual operation
- Delay setting
  - Transfer time: 0-255s continuously adjustable
  - Recovery time: 0-255s continuously adjustable

**Display**

- LED display
  - U(V) light on – automatically and circularly display the phase voltages of normal power source and standby power source.
  - Ua light on – LED displays the phase voltage of normal power source.
  - Ub light on – LED displays the phase voltage of standby power source.
  - t(s) light on – LED displays the countdown of delay time setting.
- N normal power source indicator light (yellow): On – The normal power source is normal.
  - Flashing – The normal power source is in failure (wiring failure/loss of phase/over-voltage/under-voltage)
- R Standby power source indicator light (yellow): On – The standby power source is normal.
  - Flashing – The standby power source is in failure (wiring failure/loss of phase/over-voltage/under-voltage)
- NF normal power source ON indicator light (green): On – The normal power source is switched on.
- RF standby power source ON indicator light (green): On – The standby power source is switched on.
- R tripping indicator light (red): On – Tripping alarm of standby power source.
- Fire fighting indicator light: On – A fire alarm signal is received.
  - Automatic indicator light: On – The controller is working in automatic mode.
  - Flashing – Both power sources in automatic mode are in failure.
- Control indicator light: On – The controller is working in manual remote control mode.
  - Flashing – Both power sources in remote control mode are in failure.
- Operation indicator light: On – The controller is in normal operation.
- System setting light: On – The controller is in parameter setting state.

**Operator keypad**

- Reset key
- Controller reset
- Enter key
- Operating state – transfer key for automatic mode (corresponding to automatic indicator light)/ remote control mode (corresponding to remote control indicator light)
- Setting mode – key for confirmation (save the setting data automatically, while turn to the next setting item)
  - “↑” key (Non)
  - In manual remote control mode – normal power source switched on
  - In setting mode – increasing key (data is increased progressively)
  - “↓” key (Ron)
  - In manual remote control mode – standby power source switched on
  - In setting mode – decreasing key (data is decreased progressively)
  - “OFF” key
  - In manual remote control mode – When there is no tripping alarm, it place the N/R switch in stop position; when there is tripping alarm, re-trip.
**Type B Controller**

**Parameter Setting**

<table>
<thead>
<tr>
<th>Enter setting mode</th>
<th>LED display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press “Reset” and “Enter” key at the same time, then, release “Reset” key at first, and release “Enter” key when “1000” is flashing on the controller, The “System setting” indicator light is on, and the system enters the first setting item.</td>
<td>1 000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N→R transfer delay time:</th>
<th>2 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the transfer delay is set to 0-255s.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save and turn to the next setting item automatically.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N→N recovery delay time:</th>
<th>3 255</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the transfer delay is set to 0-255s.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Over-voltage transfer threshold for normal power source:</th>
<th>4 180</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the lower limit voltage for over-voltage failure is set to 230-280V.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Under-voltage transfer threshold for normal power source:</th>
<th>5 255</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the upper limit voltage for under-voltage failure is set to 180-210V.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Over-voltage transfer threshold for standby power source:</th>
<th>6 180</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the lower limit voltage for over-voltage failure is set to 230-280V.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Under-voltage transfer threshold for standby power source:</th>
<th>7-AA</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the upper limit voltage for under-voltage failure is set to 180-210V.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation mode:</th>
<th>8-UU</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, AA (automatic change and automatic recovery) / NA (standby for each other) / NN (automatic change, but no automatic recovery) are set.</td>
<td>9 220</td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Two power sources mode:</th>
<th>A 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, UU (grid-grid) / UE (grid-generator) power source mode is set.</td>
<td>8 045</td>
</tr>
<tr>
<td>Press “Enter” key to save (press “Reset” key to normal operating state)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Displayed value calibration for normal power source:</th>
<th>C-OF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power on the controller, use a voltmeter with accuracy of 2% or higher to measure the UN phase of the normal power source, and with the up and down keys, adjust the displayed value of normal power source to be same with the measurement on the voltmeter.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Displayed value calibration for standby power source:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power on the controller, use a voltmeter with accuracy of 2% or higher to measure the UN phase of the standby power source, and with the up and down keys, adjust the displayed value of standby power source to be same with the measurement on the voltmeter.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delay for transfer to 0 (both-off) position:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the delay for transfer to 0 position is set to 0.8s*0.02s.</td>
<td></td>
</tr>
<tr>
<td>Press “Enter” key to save.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0 (both-off) position feedback signal:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With the up and down keys, the 0 position feedback signal is set to ON-OFF. Press “Enter” key to save. And the normal operating state is restored automatically.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The user can set 1-8 items according to demands. 9-11 items are for factory calibration, therefore, except by professional technical maintenance personnel, they are not allowed for modification.
Type B Controller
Communication Function

Introduction of Communication Function

ATNSX B Type can be equipped with Modbus communication module that can effectively transfer information and data with SCADA system, DCS system or monitoring system compatible with Modbus. With monitoring system, “Four Remote” operations are carried out to automatic transfer switch, i.e. remote signaling, remote measuring, remote control and remote regulating.

- Remote signaling: automatically transfer the operating position of the switch and the failure state of circuit breaker.
- Remote measuring: voltages of normal and standby power sources.
- Remote control: remote control for automatic transfer switch, changing between three operation positions, i.e. normal power source/standby power source/both-off.
- Remote regulating: remote display and regulation of parameters such as under-voltage range, over-voltage range, transfer delay, recovery delay parameters, operation modes, etc.
Type B Controller
Communication Function’s Parameter Setting

Enter setting mode
Press “Reset” and “Enter” key at the same time, then release “Reset” key at first, and release “Enter” key when “1000” is flashing on the controller. The “System setting” indicator light is on, and the system enters the first setting item.

1. N→R transfer delay time:
With the up and down keys, the transfer delay is set to 0-255s.
Press “Enter” key to set the setting and turn to the next setting item automatically.

2. N→N recovery delay time:
With the up and down keys, the recovery delay is set to 0-255s.
Press “Enter” key to set the setting and turn to the next setting item automatically.

3. Over-voltage/under-voltage threshold for normal power source:
With the up and down keys, the lower limit voltage for over-voltage failure is set to 250-270V.
Press “Enter” key to set the setting and turn to the next setting item automatically.

4. Under-voltage threshold for normal power source:
With the up and down keys, the upper limit voltage for under-voltage failure is set to 160-180V.
Press “Enter” key to set the setting and turn to the next setting item automatically.

5. Operation mode:
With the up and down keys, AA (automatic change and automatic recovery) / NA (standby for each other) / NN (automatic change, but no automatic recovery) operating modes are set.
Press “Enter” key to set the setting and turn to the next setting item automatically.

6. Two power sources mode:
With the up and down keys, UU (grid-grid) / UE (grid-generator) power source mode is set.
Press “Enter” key to set the setting and turn to the next setting item automatically.

7. Measured value calibration for normal power source:
Power on the controller, use a voltmeter with accuracy of 2% or higher to measure the UN phase of the normal power source, and with the up and down keys, adjust the displayed value of normal power source to be same with the measurement on the voltmeter.
Press “Enter” key to set the setting and turn to the next setting item automatically.

8. Measured value calibration for standby power source:
Power on the controller, use a voltmeter with accuracy of 2% or higher to measure the UN phase of the standby power source, and with the up and down keys, adjust the displayed value of standby power source to be same with the measurement on the voltmeter.
Press “Enter” key to set the setting and turn to the next setting item automatically.

9. Communication speed setting:
The first digit of this item is regulated and the communication transfer speed is set. 1 indicates 4800bps, 2 indicates 9600bps, and 3 indicates 19200bps.
Press “Enter” key to set the setting and turn to the next setting item automatically.

10. Communication check code setting:
The second digit of this item is regulated and the communication check code is set. N indicates no parity bit, O indicates odd parity, and E indicates even parity.
Press “Enter” key to set the setting and turn to the next setting item automatically.

11. Communication stop flag setting:
The third digit of this item is regulated and the stop digit for communication format is set. 1 indicates 1 stop digit, 2 indicates 2 stop digits.
Press “Enter” key to set the setting and turn to the next setting item automatically.

12. Communication addressing:
The communication address of this ATS can be set within a range of 1-247. Press “Enter” key to save. And the normal operating state is restored automatically.
Type A Controller

- Power failure or loss of phase of Un and its duration time >1 (0-30s), Ut existing.

Qn opening

\[ t_2 = 0.75S - 1.5S \]

Qn closing

\[ t_3 = 0.75S - 1.5S \]

- Un recovery and duration time >4 (0-30s) (automatic change and automatic recovery) or Ut disappeared (standby for each other) or reset (automatic change but no automatic recovery)

Qr opening

\[ t_5 = 0.75S - 1.5S \]

Qn closing

\[ t_6 = 0.75S - 1.5S \]
**Action Sequence**

**Type B Controller**

The switch is at normal power source position.

- t2=1S-1.5S

- Power failure or loss of phase of Un and its duration time >1 (0-255s), Ur existing (or activate contact to start generator, and the output voltage from generator is stable)

- t3=1S-1.5S

- For generator shutdown, Un recovery and duration time >1 (0-30s) (automatic change and automatic recovery) or Ur disappeared (standby for each other) or reset (automatic change but no automatic recovery)

Qn opening

Qr closing

Qn closing

The switch is at standby power source position.

- Fire fighting DC24V

The switch is set at automatic position.

- The switch is at both-off position.
Automatic Transfer Switch with Type A Controller

Symbols
FUSEN: Overcurrent protection fuse for normal power source
FUSER: Overcurrent protection fuse for standby power source
CJN: Isolation contactor for normal power source
CJR: Isolation contactor for standby power source
AI: Auxiliary interface unit
MC: Main control unit

Note: The drawing shows that the circuit is power-off. All elements are at “open” position.

Action Sequence

Input
U_N, V_N, W_N: Phase voltage of normal power source
UR: Phase voltage of standby power source

Output
Q_N: Circuit breaker for normal power source
Q_R: Circuit breaker for standby power source

Transfer time

t1: Delay time after the voltage of normal power source disappeared and prior to Q_N opening

t2: Opening process time of normal power source

T3: Closing process time of standby power source

T4: Delay time after the recovery of normal power source and prior to Q_R opening

T5: Opening process time of standby power source

T6: Closing process time of normal power source

Legend

• I position: Power source is normal or circuit is closed.
• O position: Power source is in failure or circuit is opened.
• : Ineffective I or O
• : Real-time state
**Electrical Diagram**
Type A Controller
Installation and Wiring

**Wiring Diagram of Level 2 with Type A Switch**

![Diagram of Level 2 Wiring]

Reset button is used in the mode of automatic change but no automatic recovery. The user can select its external lead according to needs.

**Wiring Diagram of Level 3 with Type A Controller Switch**

![Diagram of Level 3 Wiring]

Reset button is used in the mode of automatic change but no automatic recovery. The user can select its external lead according to needs.

**Wiring Diagram of Level 4 with Type A Controller Switch**

![Diagram of Level 4 Wiring]

Reset button is used in the mode of automatic change but no automatic recovery. The user can select its external lead according to needs.
**Automatic Transfer Switch with Type B Controller**

**Symbols**

FUSEN: Overcurrent protection fuse for normal power source
FUSER: Overcurrent protection fuse for standby power source
CJN: Isolation contactor for normal power source
CJR: Isolation contactor for standby power source
AI: Auxiliary interface unit
MC: Main control unit

Note: The drawing shows that the circuit is power-off. All elements are at “open” position.

**Action Sequence**

**Input**

$U_N, V_N, W_N$: Phase voltage of normal power source
$U_R$: Phase voltage of standby power source

**Output**

$Q_N$: Circuit breaker for normal power source
$Q_R$: Circuit breaker for standby power source

**Transfer time**

t1: Delay time after the voltage of normal power source disappeared and prior to $Q_N$ opening

t2: Opening process time of normal power source

t3: Closing process time of standby power source

t4: Delay time after the recovery of normal power source and prior to $Q_R$ opening

t5: Opening process time of standby power source

t6: Closing process time of normal power source

**Legend**

- I position: Power source is normal or circuit is closed.
- O position: Power source is in failure or circuit is opened.
- **Blue**: Ineffective I or O
- **Red**: Real-time state
Electrical Diagram
Type B Controller
Installation and Wiring

Wiring Diagram of Level 3 with Type B Controller Switch

Wiring Diagram of Level 4 with Type B Controller Switch
ATNSX Automatic Transfer Switch

Electrical Diagram
Type B Controller
Installation and Wiring

Dimension of Type B Controller

ATNSX63

<table>
<thead>
<tr>
<th>mm</th>
<th>D</th>
<th>G</th>
<th>G1</th>
<th>H</th>
<th>H1</th>
<th>K</th>
<th>K1</th>
<th>L</th>
<th>L1</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4MAX</th>
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<tbody>
<tr>
<td>ATNSX63N/H (with Type A to B controller)</td>
<td>162</td>
<td>160</td>
<td>440</td>
<td>70.5</td>
<td>220</td>
<td>55.5</td>
<td>190</td>
<td>170</td>
<td>460</td>
<td>17</td>
<td>130</td>
<td>161</td>
<td>-</td>
<td>65</td>
</tr>
</tbody>
</table>

- 2P, 3P and 4P products are in same size.
- The handle is not fixed.
**Electrical Diagram**

Type B Controller

Installation and Wiring

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**ATNSX100/160/250/400/630**

![Electrical Diagram](image)

<table>
<thead>
<tr>
<th><strong>mm</strong></th>
<th><strong>D</strong></th>
<th><strong>G</strong></th>
<th><strong>G1</strong></th>
<th><strong>H</strong></th>
<th><strong>H1</strong></th>
<th><strong>K</strong></th>
<th><strong>K1</strong></th>
<th><strong>L</strong></th>
<th><strong>L1</strong></th>
<th><strong>P1</strong></th>
<th><strong>P2</strong></th>
<th><strong>P3</strong></th>
<th><strong>P4MAX</strong></th>
<th><strong>T</strong></th>
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</thead>
<tbody>
<tr>
<td>ATNSX 100/160/250 F/N/H 3P</td>
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<td>177</td>
<td>460</td>
<td>78</td>
<td>220</td>
<td>63</td>
<td>190</td>
<td>187</td>
<td>480</td>
<td>20</td>
<td>145</td>
<td>176</td>
<td>131</td>
<td>6.5</td>
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<tr>
<td>ATNSX 100/160/250 F/N/H 4P</td>
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<td>212</td>
<td>530</td>
<td>78</td>
<td>220</td>
<td>63</td>
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<tr>
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<tr>
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<td>9</td>
</tr>
</tbody>
</table>

- The handle is not fixed.