Read through this instruction carefully before working on the switch, and keep this instruction for later reference.

The images provided in this instruction book are for illustration purposes only and may not match the actual product exactly.

This instruction is subject to change for product updates without prior notice.
9 Appendix

9.1 Wiring diagram

Figure 20 Wiring Diagram
8 Maintenance and troubleshooting

8.1 Maintenance

To ensure the operation reliability of switches, regular switching tests should be performed (once every 3 months) to confirm normal function.

8.2 Troubleshooting

<table>
<thead>
<tr>
<th>No.</th>
<th>Fault Description</th>
<th>Fault Analysis</th>
<th>Troubleshooting Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power supply functioning normally, but LED not ON</td>
<td>Control unit power supply terminal not connected with switch wiring terminal</td>
<td>Check and connect the switch wiring terminal.</td>
</tr>
<tr>
<td>2</td>
<td>Power supply LED functioning normally but Auto LED OFF, or no response with AUTO button pressed</td>
<td>Handle not pulled out or electrical padlock not removed</td>
<td>Pull out the handle or remove the padlock, and then press the AUTO button.</td>
</tr>
<tr>
<td>3</td>
<td>Transition failure in case of faulty power supply</td>
<td>1. Switch not operating in AUTO mode. 2. Both LN1 and LN2 malfunctioning</td>
<td>Make sure the switch is working in AUTO mode. Check and make sure both LN1 and LN2 are not malfunctioning simultaneously.</td>
</tr>
<tr>
<td>4</td>
<td>EMRG OFF function failure</td>
<td>1. Check if the EMRG OFF signal is 24V DC. 2. Too short duration of EMRG OFF signal</td>
<td>Correctly switch on the EMRG OFF signal, which should only be 24V DC with the duration ≥ 1 s.</td>
</tr>
<tr>
<td>5</td>
<td>Auto LED blinking with all other LEDs OFF No response from buttons</td>
<td>DIP switch for poles number of power supply set to “00”</td>
<td>Check if the DIP switch setup matches the phase number of switch power supply.</td>
</tr>
<tr>
<td>6</td>
<td>1 or II LED blinking</td>
<td>Operation failure during switching, thus expected result not achieved</td>
<td>Manually set the switch to Position O, and press the AUTO button to reset.</td>
</tr>
</tbody>
</table>

Table 5 Troubleshooting
1 Symbols & Terms

1.1 Use of symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>Hazardous voltage: warns about a situation where a hazardous voltage may cause physical injury to a person or damage to equipment.</td>
</tr>
<tr>
<td>!</td>
<td>General warning: warns about a situation where something other than electrical equipment may cause physical injury to a person or damage to equipment.</td>
</tr>
<tr>
<td>!</td>
<td>Caution: provides important information or warns about a situation that may have a detrimental effect on equipment.</td>
</tr>
<tr>
<td>i</td>
<td>Information: provides important information about the equipment.</td>
</tr>
</tbody>
</table>

1.2 Explanations of abbreviations and terms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTM_C20D</td>
<td>Automatic transfer switch, the type name</td>
</tr>
<tr>
<td>LN1</td>
<td>Power supply line, the primary line</td>
</tr>
<tr>
<td>LN2</td>
<td>Power supply line, the secondary line used in emergency cases</td>
</tr>
<tr>
<td>EMRG OFF</td>
<td>Used to drive the automatic transfer switch transfers to the O position when receiving EMRG OFF signal.</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic mode</td>
</tr>
<tr>
<td>TEST</td>
<td>The switch performs “switching cycle test” as the pre-set program</td>
</tr>
</tbody>
</table>

Table 1: Explanations of abbreviations and terms

Hazardous voltage! The operation, installation and servicing of this appliance must be carried out by a qualified electrician applying the relevant rules of the art, installation standards and safety regulations. Do not touch live parts. Danger!

7.2 Terminal shrouds

![Figure 18 Terminal shrouds]

7.3 Auxiliary contact blocks

![Figure 19 Auxiliary contact blocks]
2 Product overview

2.1 Product overview and packing

The OTM_C20D automatic transfer switches can be used as a source transfer switch in a three-phase or single-phase networks. Monitored conditions are, no-voltage and phase-loss. You can operate the switch, either manually with the handle or automatically by the AUTO mode. The automatic operation modes include Line 1 priority and no line priority.

7 Optional accessories

7.1 Bridging bars

The standard package includes:
1. automatic transfer switch, 2. handle, 3. handle storage clip 4. terminal plug, 5. mounting kit

Number of conductors ≤2
10 - 70 mm², 8 - 00 AWG

OTM32~125F2C20D OMZC03
OTM32~125F3C20D
OTM32~125F4C20D OMZC04

Figure 1 OTM_C20D automatic transfer switch

1. Handle for manual operation
2. Place for auxiliary contact blocks
3. Push button
4. Mimic panel
5. Voltage sensing connections
6. Locking clip for padlock
9. DIP switches
10. Connecting terminal

The standard package includes: 1. automatic transfer switch, 2. handle, 3. handle storage clip 4. terminal plug, 5. mounting kit

Figure 17 Bridging bars

Figure 17 Bridging bars

Number of conductors ≤2
10 - 70 mm², 8 - 00 AWG

6 Nm

OTM32~125F2C20D OMZC03
OTM32~125F3C20D
OTM32~125F4C20D OMZC04
2.2 OTM_C20D switching sequence

2.2.1 Line 1 Priority (default mode)
The switching sequence can be summarized in following steps:
- A fault occurs on LN1, while LN2 functions normally
- Transfer switch (Switch I) to the position 0
- Transfer switch (Switch II) to the position II

And the back switching sequence can be summarized in the following steps:
- The LN1 will start the normal functioning
- Transfer switch (Switch II) to the position 0
- Transfer switch (Switch I) to the position I

2.2.2 No line priority
The switching sequence can be summarized in following steps:
- A fault occurs on LN1, while LN2 functions normally
- Transfer switch (Switch I) to the position 0
- Transfer switch (Switch II) to the position II

And the back switching sequence can be summarized in the following steps:
- The LN1 will start the normal functioning
- Transfer switch stays in position II
- A fault occurs on the LN2
- Transfer switch (Switch II) to the position 0
- Transfer switch (Switch I) to the position I

6.2 Installation dimensions
3 Quick start

3.1 Operating the switch manually (local operation)

To operate the switch manually:
1. Attach the handle to the switch panel. You can attach the handle in any position.
2. When the handle is attached, the automatic transfer switch will automatically be in Manual mode and won't operate automatically in case of line failure. The Auto LED on the mimic panel is OFF.

Do not adjust wires when the transfer switch is being energized.

Before the power-on operation of the transfer switch, please operate the switch manually to confirm it is in normal function.

With the power supply function in normal without the handle inserted and EMRG OFF signals, the initially energized switch will enter AUTO mode and transfer to the main line. Keep the handle inserted if you do not want the switch to be in AUTO mode upon initial energization.

The DIN rail installation mode is as follows:
First pry out the latch with an appropriate tool.

After attaching the switch to the DIN rail, push the latch back to lock it.

When the handle is inserted into the switch, the switch will enter Manual mode with the automatic operation disabled.

Do not adjust wires when the transfer switch is being energized.

Before the power-on operation of the transfer switch, please operate the switch manually to confirm it is in normal function.

With the power supply function in normal without the handle inserted and EMRG OFF signals, the initially energized switch will enter AUTO mode and transfer to the main line. Keep the handle inserted if you do not want the switch to be in AUTO mode upon initial energization.
3.2 Automatic operation

OTM_C20D must be in AUTO mode and the Auto LED is ON in order that the switch can perform automatic transfer cycles according to the pre-set operating mode.

To operate the switch automatically:

1. If the handle inserted,
   1. Press handle locking clip and remove the handle from the switch.
   2. Press AUTO button and the Auto LED will be ON, indicating AUTO mode.

2. If handle is not inserted
   1. If Auto LED blinks or OFF, press AUTO button and the Auto LED will be ON, indicating AUTO mode.
   2. Automatic operation includes two operating modes: Line 1 priority (default setting) and No line priority.

5 Technical data

### Automatic transfer switch

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated operational voltage $U_e$</td>
<td>220<del>240VAC(2P) 380</del>415VAC(3P /4P)</td>
</tr>
<tr>
<td>Operating voltage range</td>
<td>0.8~1.2 $U_e$</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±5%</td>
</tr>
<tr>
<td>Operating angle</td>
<td>90° ( O-I, I-O, O-II, II-O), 180° ( I-O-II, II-O-I)</td>
</tr>
<tr>
<td>OFF time</td>
<td>610 ms ± 10%</td>
</tr>
<tr>
<td>Electromagnetic compatibility</td>
<td>Class B</td>
</tr>
<tr>
<td>Ingress Protection Rating</td>
<td>IP20, front panel</td>
</tr>
<tr>
<td>Rated impulse withstand voltage $U_{imp}$</td>
<td>8 kV (6 kV for control circuit, disconnect the power line of the control circuit before the dielectric voltage withstand test)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25~65°C</td>
</tr>
<tr>
<td>Transportation and storage temperature</td>
<td>-40~70°C</td>
</tr>
<tr>
<td>Altitude</td>
<td>Max. 2000 m</td>
</tr>
</tbody>
</table>

Table 4 Technical data

6 Installation

6.1 Installation method

The switch can be installed using screws or a DIN rail. The fixed installation mode on the base board is as follows:
3.3 Local test operation

In AUTO mode, Auto LED is ON and you can press the TEST button on the panel to lead it to TEST mode.

Operation sequence:
1. Ensure switch in AUTO mode
2. Press the TEST button and the Auto LED will blink, indicating the activation of TEST mode.
   Under TEST mode, the automatic transfer switch will transfer by one cycle and finally return to its original position.
   e.g., when the switch is in Position I:
   Press the TEST button; the switch transfers to Position O→Position II→Position O→Position I.
   During process, pressing the TEST button again will be invalid until it returns to its original position.
   During TEST process, press the AUTO button will cancel TEST mode and return to AUTO mode.
3. After test, press AUTO button to return the automatic operation.

4.3 DIP switch setting

The DIP switch is used to set the operation modes and poles of transfer switch.

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>Pole setting</td>
<td>01 10 11 00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 poles 3 poles 4 poles Invalid setting</td>
</tr>
<tr>
<td>3</td>
<td>Mode setting</td>
<td>0 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No line priority Line 1 priority</td>
</tr>
</tbody>
</table>

The 3-bit DIP switch is used to control the switch for circuit testing, and the mismatch with the load power supply will result in testing and transfer failure. Therefore, carefully read this guide and set correct parameters based on the actual situation before using this product.

4.4 Terminal

EMRG OFF: Input the 24VDC EMRG OFF signals (no distinction between the positive and negative) for at least 1s until the switch transfers to the O position and the EMRG OFF LED is on. At this time, the switch cannot enter the AUTO or TEST mode and only manual operation is allowed. After the signal is canceled, press "AUTO" to quit EMRG OFF mode.

In the test sequence, the main power supply circuit will be closed.

If the test sequence is interrupted due to power failure, the automatic transfer switch will enter AUTO mode after power recovery.
3.4 Locking

3.4.1 Locking the electrical operation
The switch can be padlocked in any position, causing that all operating modes and test operations are disabled and handle cannot be inserted. See below for operation:

![Figure 7 Locking the electrical operation](image)

3.4.2 Locking the manual operation
By default, the manual operation can only be locked in position O. The handle can be padlocked by pulling out the clip from the handle and placing the padlock on the handle. Maximum 3 padlocks.

![Figure 8 Locking the manual operation](image)

4 Interface and Settings

4.1 Buttons

**AUTO button**
It can lead to AUTO mode. When the switch is in Test mode or fault status, press the AUTO button until the Auto LED on.

**TEST button**
It can lead to TEST mode. First it must on AUTO mode, then press the TEST button while the Auto LED blinking. You must press the AUTO button after the test is complete.

4.2 LEDs

![Figure 10 LEDs of OTM_C20D](image)

<table>
<thead>
<tr>
<th>LED</th>
<th>Display</th>
<th>Status description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LN1/LN2</td>
<td>ON</td>
<td>Power normally</td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Phase loss</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>No voltage</td>
</tr>
<tr>
<td>I/II</td>
<td>ON</td>
<td>Switch I or II closed</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Switch I or II open</td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Switching failure.</td>
</tr>
<tr>
<td>Auto</td>
<td>ON</td>
<td>Transfer switch in AUTO mode</td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Transfer switch in TEST mode or invalid setting</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Transfer switch in manual mode</td>
</tr>
<tr>
<td>EMRG OFF</td>
<td>ON</td>
<td>Received emergency signals</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>No emergency signals input</td>
</tr>
</tbody>
</table>

Table 2: LEDs