

INSTALLATION AND OPERATION GUIDE

Automatic Transfer Switch OTM_C20D_N, OTM_C21D_N



Installation and Operation Guide

1. Symbols and Terminology	5
1.1 Symbol Definitions	5
1.2 Abbreviations and Terms	5
2. Overview	6
2.1 Product Overview and Packaging	6
2.2 Auto Transfer Mode	7
2.2.1 Single source priority	7
2.2.2 No line priority	8
2.2.3 Manual back switching	9
3. Operation Guide	10
3.1 Manual Operation	10
3.1.1 Manual Operation with Switch Handle	10
3.1.2 Manual Operation with Controller Buttons (Applicable to OTM_C21D_N)	11
3.2 Automatic Operation	11
3.3 Testing	12
3.3.1 On-site Testing	12
3.3.2 Remote Testing (Applicable only to OTM_C21D_N)	12
3.4 Remote Switching to II (Applicable only to OTM_C21D_N)	13
3.5 Locking	14
3.5.1 Electrical Locking	14
3.5.2 Mechanical Locking	15

3.6	MODBUS Communication Function (Applicable only to OTM_C21D_N)	16
3.6.1	Modbus Parameter Settings	16
3.6.2	Modbus Function Codes	16
3.6.3	Register Information	17
3.6.4	Network Security	20
4.	Interface and Settings	21
4.1	Buttons	21
4.2	Buzzer	21
4.3	Indicator	21
4.4	Knob Settings	22
4.5	DIP Switch Settings	22
4.6	Signal Ports	23
5.	Technical Parameters	24
6.	Installation	25
6.1	Integrated Installation	25
6.2	Split Installation	26
6.2.1	Controller Installation	26
6.2.2	Switch Installation	27
7.	Optional Accessories	29
7.1	Bridging Bars	29
7.2	Terminal Covers	30
7.3	Auxiliary Contacts	32
7.4	Terminal Clamps	33
7.5	Partition Plates	34
7.6	Handle and Spare Fuse Clamp	35
7.7	MODBUS Communication Module	36
8.	Maintenance and Common Troubleshooting	37
8.1	Maintenance	37
8.2	Common Troubleshooting	37
9.	Appendix	38
9.1	Product Wiring Diagram	38

1. Symbols and Terminology

This manual outlines the installation and basic operation of ABB's automatic transfer switches. For installation instructions and available accessories, please refer to Chapter 7.

1.1 Symbol Definitions



Electric Shock Warning:

Warns about hazardous voltages that could result in personal injury or equipment damage.



General Warning:

Warns about hazards that could cause personal injury or equipment damage, not limited to electrical equipment.



Caution:

Provides critical information or warnings regarding potential damage to equipment.



Tip:

Provides critical information related to the equipment.

1.2 Abbreviations and Terms

OTM_C20D_N

Automatic Transfer Switch 20D

OTM_C21D_N

Automatic Transfer Switch 21D

LN1

Power supply LN1, the primary power source

LN2

Power supply LN2, the backup power source

Automatic (Auto)

Indicates that the switch operates to transfer automatically based on the preset operating mode and fault detection parameters.

Ts

Transfer Delay - The delay time for switching from the primary to the backup power source in automatic mode

TBs

Return Delay - The delay time for switching from the backup to the primary power source in automatic mode

OV

The set permissible overvoltage threshold for transfer (overvoltage percentage relative to the rated voltage)

UV

The set permissible undervoltage threshold for transfer (undervoltage percentage relative to the rated voltage)



Warning! Voltage Hazard! The installation, operation, and maintenance of this product must be performed by qualified electricians following relevant systems, regulations, installation standards, and safety procedures. Do not touch live components, danger!

2. Overview

2.1 Product Overview and Packaging

The OTM_C20D_N and OTM_C21D_N automatic transfer switches are designed for switching between two power sources, suitable for both single-phase and three-phase power supplies. These products feature functionalities such as voltage loss, phase loss, overvoltage and undervoltage detection, transfer delay settings, generator start/stop control, on-site and remote testing, remote switching to position II, and emergency off. Users can perform manual switching using a handle, use buttons for switching, or select automatic switching. The automatic switching modes include: single source priority, no line priority and manual back switching. The automatic switching modes include: single source priority, no line priority and manual back switching.

The OTM_C21D_N model also supports remote communication via an external module.

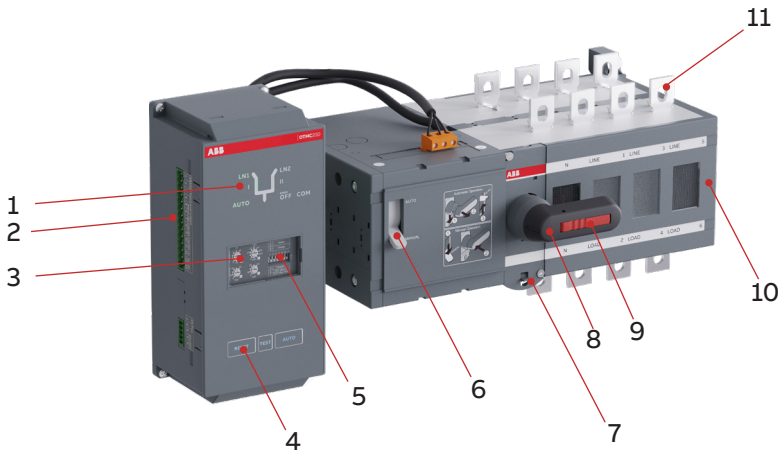


Figure 2.1 OTM_C20D_N, OTM_C21D_N Automatic transfer switch

- | | |
|--------------------------------|---|
| 1. Display Panel | 7. Electrical Locking Pin |
| 2. Controller Signal Terminals | 8. Manual Operation Handle |
| 3. Knob | 9. Handle Packlock Clip |
| 4. Buttons | 10. Auxiliary Contact Mounting Position |
| 5. DIP Switches | 11. Main Circuit Wiring Terminals |
| 6. Selector Handle | |

Standard Package Includes: Automatic transfer switch unit, handle, handle storage clip, terminal accessory pack, installation standard parts

2.2 Auto Transfer

The following example illustrates the operation with line 1 priority.

2.2.1 Single source priority

The factory default mode is a single source priority with line 1 as the priority source. The transfer steps for OTM_C20D_N, OTM_C21D_N are:

- Line 1 experiences an anomaly
- Generator starts (in generator mode)
- Line 2 stabilizes, delay on transfer T_s
- Transfer switch (Switch I) moves to the O position
- Transfer switch (Switch II) moves to the II position

Return Steps:

- Line 1 returns to normal
- Delay T_B s
- Transfer switch (Switch II) moves to the O position
- Transfer switch (Switch I) moves to the I position
- Delay G_s for generator stop
- Generator stops

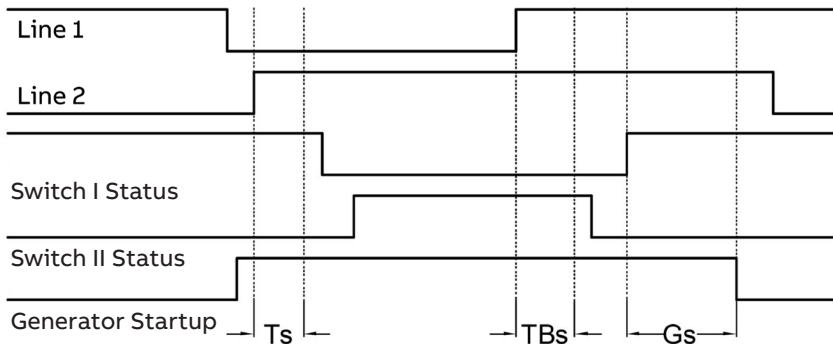


Figure 2.2 OTM_C20D_N, OTM_C21D_N Single source priority mode



The source priority selection function requires special ordering.

2.2.2 No line priority

The transfer steps for OTM_C20D_N, OTM_C21D_N are:

- Line 1 experiences an anomaly
- Delay T_s
- Transfer switch (Switch I) moves to the O position
- Transfer switch (Switch II) moves to the II position

Return Steps:

- Line 1 returns to normal
- Transfer switch remains in the II position
- Line 2 experiences an anomaly
- Delay T_{Bs}
- Transfer switch (Switch II) moves to the O position
- Transfer switch (Switch I) moves to the I position

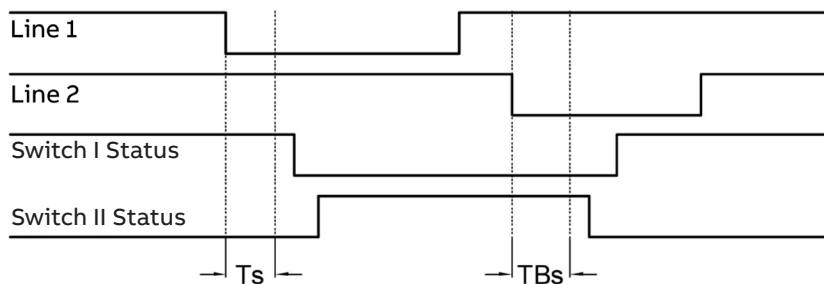


Figure 2.3 OTM_C20D_N, OTM_C21D_N No line priority mode



When using the dual standby mode, the generator cannot be used. Ensure the generator selection DIP switch is set to position 0.

2.2.3 Manual Back Switching Mode

The transfer steps for OTM_C20D_N, OTM_C21D_N are:

- Line 1 experiences an anomaly
- Generator starts
- After Line 2 stabilizes, delay T_s
- Transfer switch (Switch I) moves to the O position
- Transfer switch (Switch II) moves to the II position

Return Steps:

- Line 1 returns to normal
- Transfer switch remains in the II position
- Line 2 experiences an anomaly
- Transfer switch remains in the II position
- The transfer switch can be moved to the I position using either the buttons or the manual handle

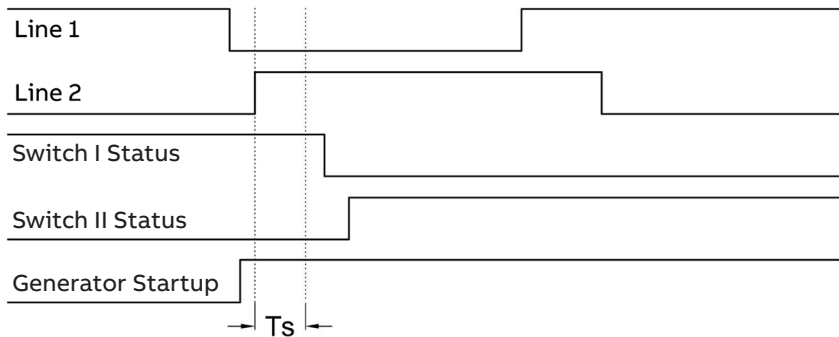


Figure 2.4 OTM_C20D_N, OTM_C21D_N Manual Back Switching Mode

3. Operation Guide

3.1 Manual Operation

Manual operation includes two types: using the handle on the switch and using buttons on the controller after removing the handle.

3.1.1 Manual Operation with Switch Handle

Users can manually operate the switch using the handle provided in the standard package. The steps are:

1. Toggle the selector switch to the manual (MANUAL) position to enter manual operation mode, as shown in Figure 3.1.
2. Insert and press down the operating handle. (The handle can be inserted in any position: I, O, or II, as shown in Figure 3.2.)
3. Turn the handle to move the switch to the desired position (I, O, II)

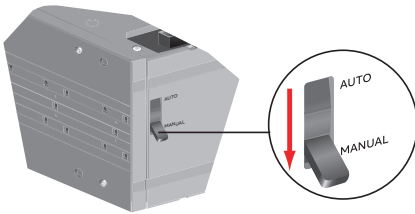


Figure 3.1 Toggle to manual (MANUAL) position

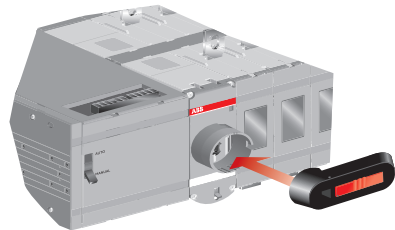


Figure 3.2 Insert the handle



When the handle is inserted into the switch, the switch enters manual mode, and automatic operation is disabled.



Do not adjust cables while the transfer switch is powered on.



When the power is normal, if the handle is not inserted and there is no EMRG OFF signal, the switch will enter automatic mode and switch to the main power source upon initial power-up. If you do not want the switch to operate automatically upon initial power-up, keep the handle inserted.



Before powering on the transfer switch, manually operate it to ensure the switch functions properly. Ensure the selector switch is in manual mode before manual operation.

3.1.2 Manual Operation with Controller Buttons (Applicable only to OTM_C21D_N)

Users can use the buttons on the controller for switching operations:

- 1. If the handle is inserted, remove the handle from the switch, as shown in Figure 3.3.
- 2. Toggle the selector switch to the automatic (AUTO) position, as shown in Figure 3.4.
- 3. Use the buttons on the controller: first press the RESET button to reset, then press the corresponding button to switch to the desired position, as shown in Figure 3.5.

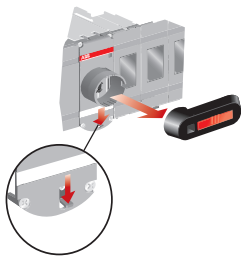


Figure 3.3 Remove the handle

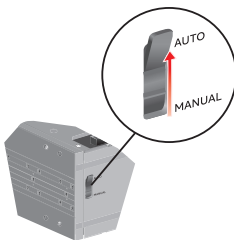


Figure 3.4 Toggle to AUTO position

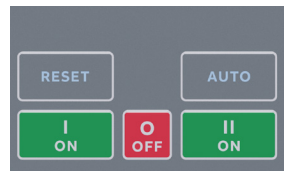


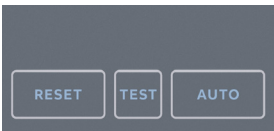
Figure 3.5 Operation buttons

3.2 Automatic Operation

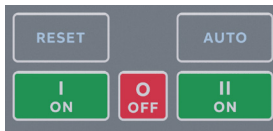
When the OTM_C20D_N or OTM_C21D_N is in automatic mode, the Auto indicator light is continuously on, and the switch will perform automatic transitions according to the set operating mode.

Steps:

- 1. If the handle is inserted, remove it from the switch, as shown in Figure 3.3.
- 2. Toggle the selector switch to the automatic (AUTO) position, as shown in Figure 3.4.
- 3. Press the RESET button on the controller to reset.
- 4. Press the AUTO button on the controller to enter automatic mode; the Auto indicator light will be continuously on, as shown in Figure 3.6.



OTM_C20D_N



OTM_C21D_N

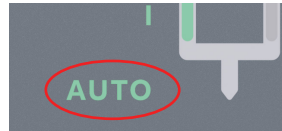


Figure 3.6 AUTO button and indicator light

3.3 Testing Operation

3.3.1 On-site Testing

When the OTM_C20D_N is in automatic operation mode, users can enter test mode using the TEST button on the panel:

1. Set the OTM_C20D_N to automatic mode, as described in section 3.2.
2. Press the "TEST" button; the Auto light will flash, indicating that the switch has entered test mode. (*In test mode, the transfer switch will perform a switch cycle and return to its position before the test mode.

For example: If the switch is in position I and you press the TEST button, the switch will cycle through O ➡ II ➡ O ➡ I. Pressing the TEST button again before the switch returns to the initial position will have no effect.)

For the OTM_C21D_N in automatic mode, the Auto light will stay on. Users can use the I, O, and II buttons on the panel to test the switch's state. After the test is completed, press the AUTO button to return to automatic mode.

3.3.2 Remote Testing (Applicable to only OTM_C21D_N)

Steps for remote testing:

1. Connect the remote test signal between X3: 2 and 3 as shown in Figure 3.7.
2. Ensure the OTM_C21D_N is in automatic mode with the Auto light continuously on.
3. Initiate the remote testing signal for more than 100ms; the Auto light will flash, indicating that the switch has entered test mode.

Once in test mode, the transfer switch will perform a switch cycle and automatically return to the position before entering test mode.

For example, if the switch is in position I:

Input the test signal, the switch will cycle through O ➡ II ➡ O ➡ I.

After the remote test, the OTM_C21D_N will automatically return to AUTO mode.

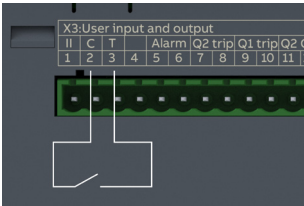


Figure 3.7 OTM_C21D_N Remote Testing Connection



If the power is interrupted during testing, the switch will enter automatic mode once power is restored.



During testing, the main power circuit will be connected.

3.4 Remote Switching to II (Applicable to OTM_C21D_N)

Steps for remote switching to II:

- 1. Connect the remote testing signal between X2: 1 and 2 as shown in the diagram.
- 2. Ensure the OTM_C21D_N is in automatic mode with the Auto light continuously on.
- 3. Initiate the remote switching signal for more than 100ms; the Auto light will flash, indicating that the switch has entered remote control mode.
- 4. When the switch is in position I: on initiating the switching signal; the switch will transition from position I → 0 → II

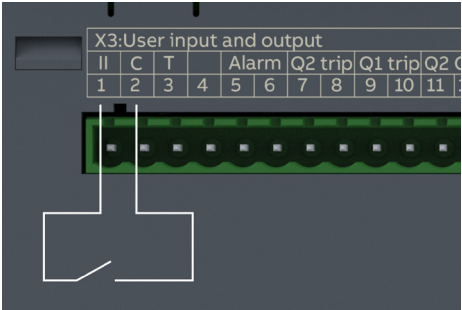


Figure 3.8 Setting remote switching to II for OTM_C21D_N

3.5 Locking

The automatic transfer switch can be locked in specific positions. Once locked, the switch cannot be operated.

3.5.1 Electrical Locking

The electrical lock can be applied in any position (I, O, II).

Steps for electrical locking operation:

1. Lift the handle locking pin.
2. Place the padlock as shown in Figure 3.9.

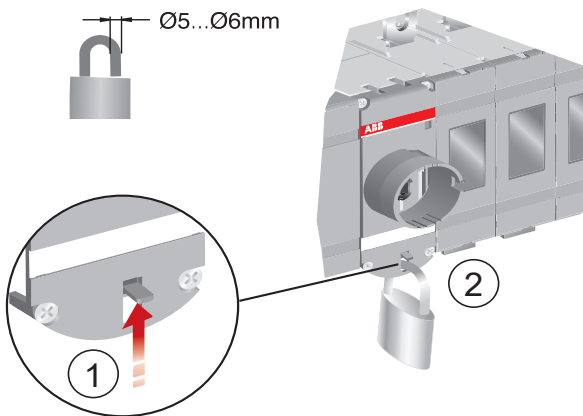


Figure 3.9 Electrical Locking



After applying the electrical locking, the handle cannot be inserted.

3.5.2 Mechanical Locking

The mechanical locking is applicable when the switch is in manual mode, handle is inserted and in the O position.

Steps for mechanical locking operation:

1. Pull the red locking lever in the middle of the operating handle.
2. Attach the padlock (padlock not included; up to 3 padlocks can be used).

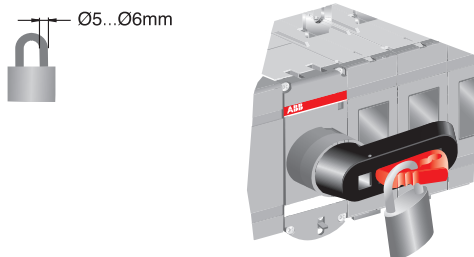


Figure 3.10 Mechanical Locking



After applying the lock in the O position, the handle cannot be removed.

3.6 MODBUS Communication Function

(Applicable to OTM_C21D_N Only)

* The communication module must be ordered separately (order number: 2TFC800547R1001). The communication module allows users to set Modbus parameters (Modbus address, baud rate, stop bits, parity bits) and select between local or remote modes. In local mode, the controller can only monitor parameters and cannot control the switch or modify settings via Modbus. In remote mode, both parameter monitoring and switch control are available via Modbus.

3.6.1 Modbus Parameter Settings

Modbus Parameter	Value
Modbus Address	1…32 (Default: 1)
Modbus Baud Rate	4800bps
	9600bps (Default)
	19200bps
	38400bps
Modbus Stop Bits	1 Stop Bit (Default)
	2 Stop Bits
Modbus Parity	No Parity
	Odd Parity
	Even Parity (Default)
Local/Remote	Local Monitoring Mode (Default)
	Remote Control Mode

Note: Pressing the "RESET" button for more than 5 seconds will restore the Modbus parameters to their factory settings.

Table 3.1 Modbus parameter settings

3.6.2 Modbus Function Codes

Function Code	Name
03(0x03)	Read Holding Registers
04(0x04)	Read Input Registers
06(0x06)	Write Single Register
16(0x10)	Write Multiple Registers

Table 3.2 Modbus function code definitions

3.6.3 Register Information

Register Information	Address (HEX)	Function Code (HEX)	Value
Switch I Status	0x3007	03/04	0=Open 1=Closed
Switch II Status	0x3008	03/04	0=Open 1=Closed
EMRG OFF Alarm	0x3009	03/04	0=No Alarm or Resolved 1=Alarm
Handle Status	0x300A	03/04	0=Handle Not Inserted 1=Handle Inserted
Remote Testing	0x300B	03/04	0=Off 1=On
Remote Switch to II	0x300C	03/04	0=Off 1=On
Auto Transfer Delay TS	0x300D	03/04	0=0s 1=1s 2=2s 3=3s 4=5s 5=10s 6=15s 7=20s 8=25s 9=30s
Auto Back Switching Delay	0x300E	03/04	0=0s 1=5s 2=10s 3=20s 4=30s 5=60s 6=120s 7=300s 8=600s 9=900s
Undervoltage Threshold	0x300F	03/04	0=5% 1=10% 2=15% 3=20% 4=25% 5=30% 6=Invalid Setting

Table 3.3 Modbus function code definitions

Register Information	Address (HEX)	Function Code (HEX)	Value
Overvoltage Threshold	0x3010	03/04	0=5% 1=10% 2=15% 3=20% 4=25% 5=30% 6=Invalid Setting
Rated Voltage	0x3011	03/04	1=240/415V 2=230/400V 3=220/380V
Rated Frequency	0x3012	03/04	0=60Hz 1=50Hz
Auto Transfer Mode	0x3013	03/04	1 = Single soource priority 2 = No line priority 3 = Manual back switching
Generator Selection	0x3014	03/04	0=No Generator 1=With Generator
Generator Stop Delay	0x3015	03/04	0=30s 1=240s
Number of Power Phases	0x3017	03/04	0=2-pole, Single Phase 1=3-pole, Three-Phase without N 2=4-pole, Three-Phase with N
LN1 Power U1 Voltage	0x301B	03/04	2P/4P: Phase Voltage 3P: Line Voltage Step: 0.1V (e.g., 2300=230V)
LN1 Power U2 Voltage	0x301C	03/04	
LN1 Power U3 Voltage	0x301D	03/04	
LN2 Power U1 Voltage	0x301E	03/04	
LN2 Power U2 Voltage	0x301F	03/04	
LN2 Power U3 Voltage	0x3020	03/04	
Current Alarm Status	0x3021	03/04	0=No Fault 16=Switch I Transfer Failure 32=Switch II Transfer Failure
Last Alarm Status	0x3022	03/04	0=No Fault 16=Switch I Transfer Failure 32=Switch II Transfer Failure
Line 1 Power Status	0x3023	03/04	0=Voltage Loss 1=Undervoltage 2=Normal 3=Overvoltage 4=Phase Loss

Continued on Next Page

Register Information	Address (HEX)	Function Code (HEX)	Value
Line 2 Power Status	0x3024	03/04	0=Voltage Loss 1=Undervoltage 2=Normal 3=Overvoltage 4=Phase Loss
Operational mode	0x3027	03/04	0=Handle Mode 1=Emergency OFF Mode 2=On-Site Testing Mode 3=Remote Switch to II 4=Remote Testing Mode 5=Modbus Remote Control Mode 6=Auto Mode
Current Operation	0x3028	03/04	0=Operation Completed 1=Switch I Closed 2=Switch I Opened 3=Switch II Closed 4=Switch II Opened
Remote/Local Mode	0x3100	03/04/06/10	0=Local Mode (Monitoring only) 1=Remote Mode (Monitoring & control)
Modbus Data Frame	0x3101	03/04/06/10	0=8-Bit Data, 1 Stop Bit, Odd Parity 1=8-Bit Data, 1 Stop Bit, Even Parity 2=8-bit Data, 2 Stop Bits, No Parity 3=8-Bit Data, 1 Stop Bit, No Parity
Modbus Baud Rate	0x3102	03/04/06/10	0=4800 1=9600 2=19200 3=38400
Modbus Address	0x3103	03/04/06/10	1...32
Source Priority	0x3105	03/04/06	0=Line 1 Priority (Factory Default) 1=Line 2 Priority (Special ordering)
Modbus Remote Control	0x3200	06/10	1=Switch to I Position 2=Switch to O Position 3=Switch to II Position 5=Start Generator
Firmware Primary Version	0x4001	03/04	
Firmware Secondary Version	0x4002	03/04	
Firmware Revision Number	0x4003	03/04	



To modify Modbus parameters or control the switch, ensure that the system is set to remote control mode.



Remote control of the switch must be performed in Automatic Mode.



The source priority selection function requires special ordering.

3.6.4 Network Security

Disclaimer	The customer assumes full responsibility for ensuring the secure connection between this product and the customer’s network or any other networks. The customer must establish and maintain appropriate measures (including but not limited to installing firewalls, implementing authentication, data encryption, and installing anti-virus procedures) to protect the product, network, systems, and interfaces from any type of security vulnerabilities, unauthorized access, interference, intrusion, leakage, and/or data theft. ABB and its affiliates are not responsible for any loss or damage resulting from such security vulnerabilities, unauthorized access, interference, intrusion, leakage, and/or data theft, nor do they assume any legal liability.
Security Deployment	Users must be aware of the insecure nature of the serial Modbus protocol, which can expose communication between the product and the control system. This protocol lacks encryption, authentication, or integrity checks for data transmission. To prevent the device from being compromised or operating in unintended ways due to malicious actions, the product should be connected to a trusted network. Such network or control system must be strictly controlled and restricted. It is recommended to enforce stringent access controls to the product/ system, allowing only authorized personnel to make changes. Furthermore, in the event of communication failures between the system and the device, the user’s system should be capable of triggering alarms to prompt the user to investigate potential anomalies.

4. Interface and Settings

4.1 Buttons

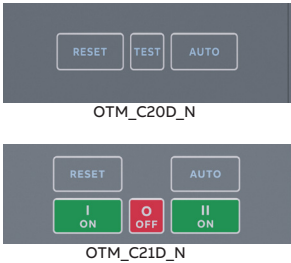


Figure 4.1 Buttons

4.3 Indicator

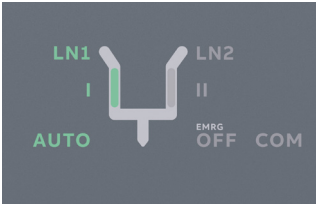


Figure 4.2 Indicator

Buttons	Function	Remarks
I ON	Switch to Line 1	Exits automatic mode when pressed
O OFF	Switch to off position	
II ON	Switch to Line 2	
Automatic (Auto)	Switch to automatic mode	
RESET	Clear faults, reset	
TEST	Switch to test mode	

Table 4.1 Button Settings

4.2 Buzzer

The buzzer alarms in the event of a switching failure or Emergency OFF. Press the RESET button to clear the alarm once the fault is resolved.

Indicator	Display	Status Description
Line 1/Line 2	Steady	Power is normal
	Flashing	Overvoltage: 5 times/second; Undervoltage: 2 times/second; Phase loss: 0.25 times/second
	Off	Power voltage loss
I/II	Steady	Switch I/II is closed
	Off	Switch I/II is open
	Flashing	Switch fault, fails to transfer
Automatic (Auto)	Steady	Switch is in automatic mode
	Flashing	Switch is in test mode or invalid DIP setting
	Off	Switch is in manual mode
Emergency OFF EMRG OFF	Steady	Emergency OFF signal received
	Off	No signal received

Table 4.2 Indicator



Switching operations performed using buttons (on-site testing) will ignore the delay settings.

4.4 Knob Settings

Switching Delay Ts:

In automatic mode, this is the delay for switching from the main power source to the backup power source. Available options are 0, 1, 2, 3, 5, 10, 15, 20, 25, 30 seconds.

Return Delay TBs:

In automatic mode, this is the delay for switching from the backup power source to the main power source. Available options are 0, 5, 10, 20, 30, 60, 120, 300, 600, 900 seconds.

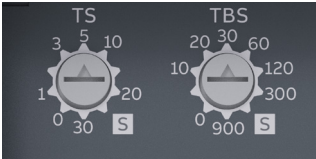


Figure 4.3 Knobs, Ts and Tbs

Overvoltage Threshold OV (%) and Undervoltage Threshold UV (%):

OV and UV are based on the rated voltage of the switch. The switch will automatically transfer when the voltage exceeds the preset OV value or falls below the preset UV value.
Overvoltage threshold OV: 5%, 10%, 15%, 20%, 25%, 30%.
Undervoltage threshold UV: 5%, 10%, 15%, 20%, 25%, 30%.

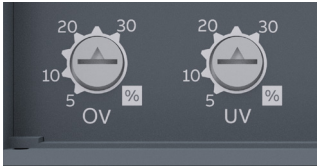


Figure 4.4 Knobs, OV and UV

4.5 Dip Switch Settings

The seven-position dip switch is used to set the operating mode of the switch.

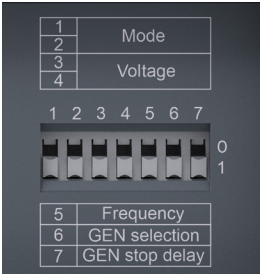


Figure 4.5 Dip Switch

Position	Function	Setting			
1, 2	Mode Setting	01	10	11 (default)	00
		No line priority	Manual back switching mode	Single source priority	Invalid Setting
3, 4	Voltage Setting	01	10	11 (default)	00
		240VAC/ 415VAC	230VAC/ 400VAC	220VAC/ 380VAC	Invalid Setting
5	Frequency Setting	0	1 (default)		
		60Hz	50Hz		
6	Generator Selection	0	1 (default)		
		No	Yes		
7	Generator Shutdown Delay Setting	0	1 (default)		
		240S	30S		

Table 4.3 Dip Switch Settings



The 7-position DIP switch is used for configuration of the controller. If the configuration does not match the power supply voltage, the transfer switch will not work properly. Please read this guide carefully before using this product and set the correct parameters based on actual conditions.



In no line priority, the generator cannot be used. Keep the generator selection setting at 0.

4.6 Signal Ports

14-Pin Signal Port

Allows users to input signals to control the switch and output switch status signals.

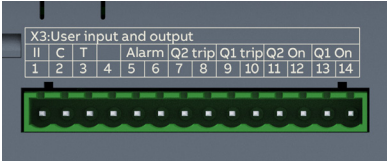


Figure 4.6 14-Pin Signal Port

No.	Function
1, 2	Remote Switch to II Signal Input: When shorted for more than 100ms, the switch can switch from Switch I to Switch II (only applicable to 21D)
2, 3	Remote Testing Signal Input: When shorted for more than 100ms, the switch enters remote test mode (only applicable to 21D)
4	Invalid
5, 6	Alarm Signal Input: Outputs a continuous alarm signal when the switch is in emergency OFF or fails to operate. The alarm signal is canceled when exiting fire double-throw, clearing the fault, or inserting the handle.
7, 8	Invalid
9, 10	Invalid
11, 12	Switch II status signal output
13, 14	Switch I status signal output

Table 4.4 Signal Ports

3-Pin Signal Port

Generator Startup: Used to control the generator startup and stop when the backup power source is a generator. When the switch transfers to the main power source, the generator stop signal is sent after the preset generator shutdown delay (generator shutdown delay setting can be found at position 7 in Figure 4.5).

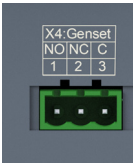


Figure 4.7 3-Pin Signal Port

No.	Contact type	Function
1	Normally open	Open: Start the generator
2	Normally closed	Close: Start the generator
3	Common terminal	

Table 4.5 3-Pin Signal Port

5-Pin Signal Port

Emergency OFF: When a 24VDC EMRG OFF signal is input for more than 1 second, the switch transfers to OFF position. The EMRG OFF indicator lights up, and the buzzer sounds an alarm. At this time, the switch cannot enter automatic or test modes and can only be operated with the handle. To cancel the Emergency OFF signal, press the RESET button to clear the alarm.



Figure 4.8 5-Pin Signal Port

No.	Function
1	Invalid
2	Invalid
3	Invalid
4	EMRG OFF 24V-
5	EMRG OFF 24V+

Table 4.6 5-Pin Signal Port

5. Technical Parameters

Automatic Transfer Switch	Parameters
Rated Operating Voltage Ue (Phase Voltage/Line Voltage)	220/380VAC, 230/400VAC, 240/415VAC
Frequency	50Hz/60Hz
Operating Voltage Range	0.7~1.3Ue
Measuring Error Range	±3%
Operating Angle	90°(O-I,I-O,O-II,II-O)
	180°(I-O-II,II-O-I)
Power Interruption Time	0.4 -1s
Relay Usage Category	3A, AC1, 250V
Electromagnetic Compatibility	Environment B
Protection Rating	IP20, front panel
Rated Impulse Withstand Voltage Uimp	6kV (without disconnecting control circuit power leads); 12kV (with disconnecting control circuit power leads)
Operating Temperature	-25~55°C
Transport and Storage Temperature	-40~70°C
Altitude	Up to 2000 meters

Table 5.1 Technical Parameters

6. Installation

6.1 Installation

6.1.1 Controller Installation

There are two installation methods for the controller: base mounting with screws and panel mounting.

For panel door mounting, first install upper and lower flange accessories on the controller.

Refer to Figure 6.1 for installation steps and Figure 6.2 for installation dimensions.

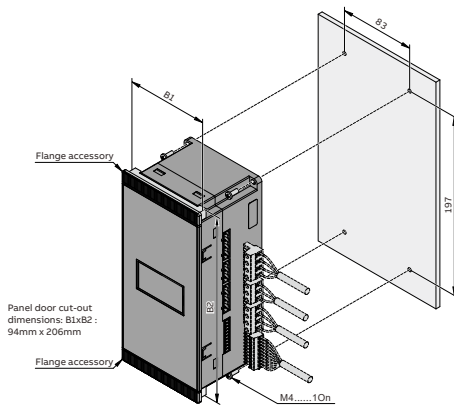


Figure 6.1 Controller Installation

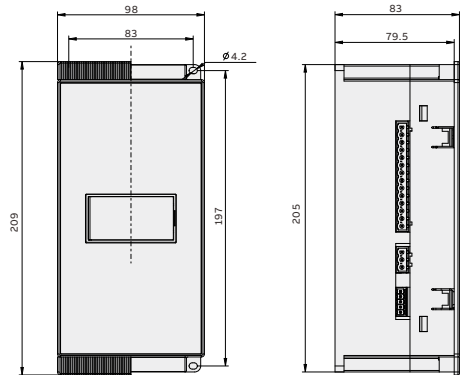


Figure 6.2 Controller Installation Dimensions

6.1.2 Switch Installation

The switch is installed by base mounting with screws. Refer to Figure 6.3 for installation steps and Figures 6.4, 6.5, and 6.6 for referenced switch dimensions.

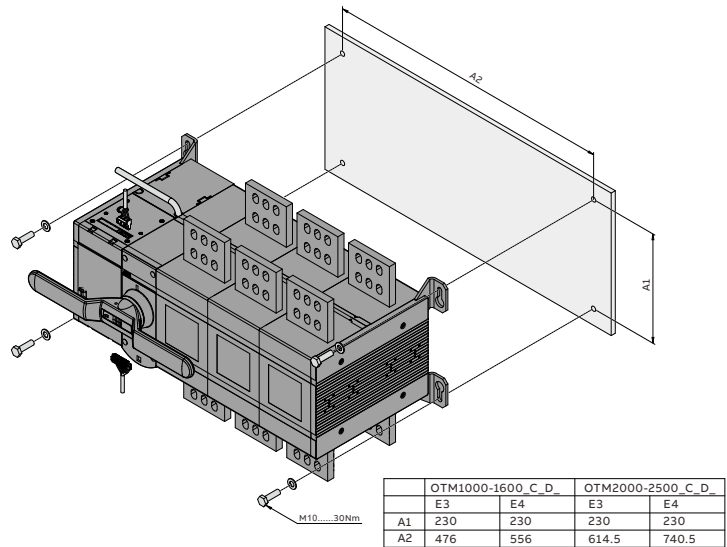


Figure 6.3 Switch Installation

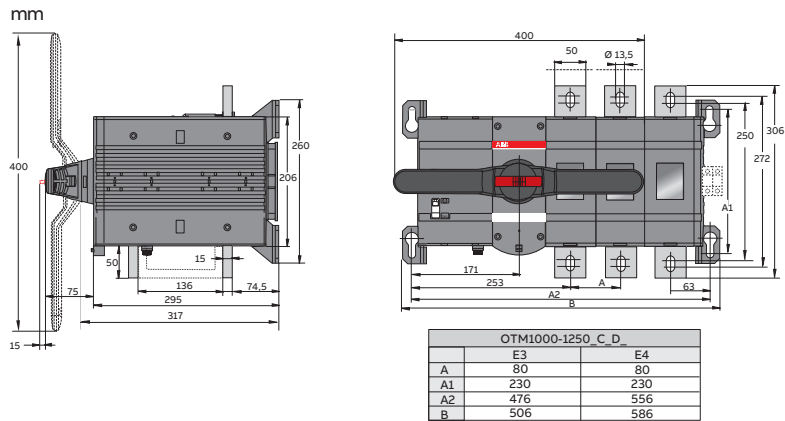


Figure 6.4 OTM1000-1250E Dimensions Diagram

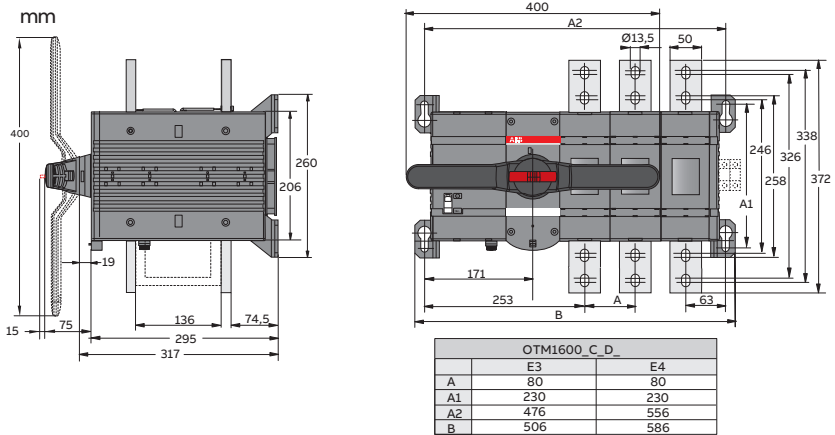


Figure 6.5 OTM1600_C Dimensions Diagram

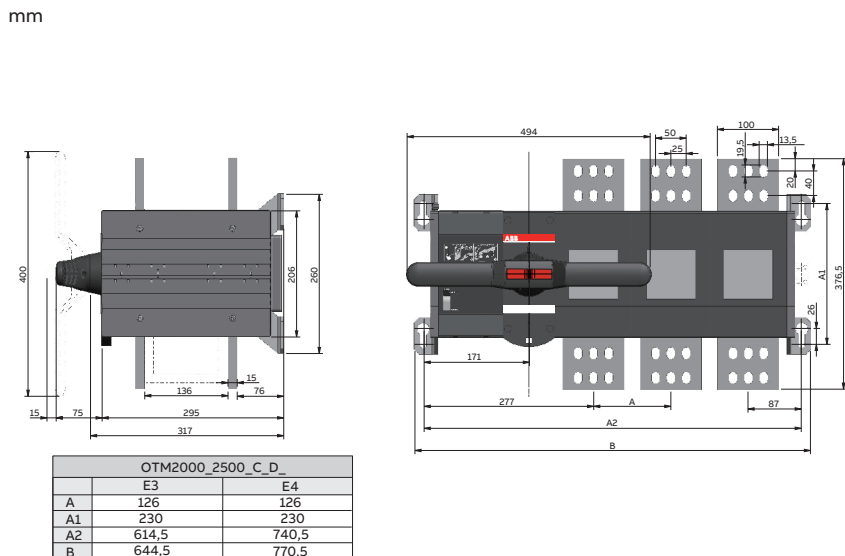


Figure 6.6 OTM2000-2500_C Dimensions Diagram

7. Optional Accessories

7.1 Bridging Bars

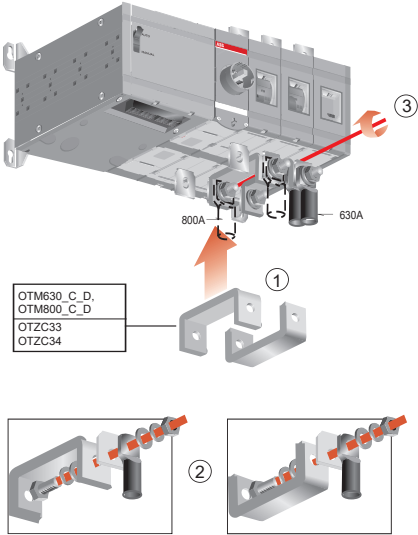


Figure 7.2 OTM_C_D 630...800 Bridging Bars

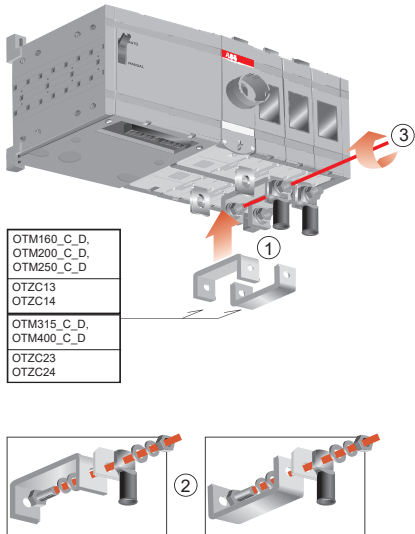


Figure 7.1 OTM_C_D 160...400 Bridging Bars

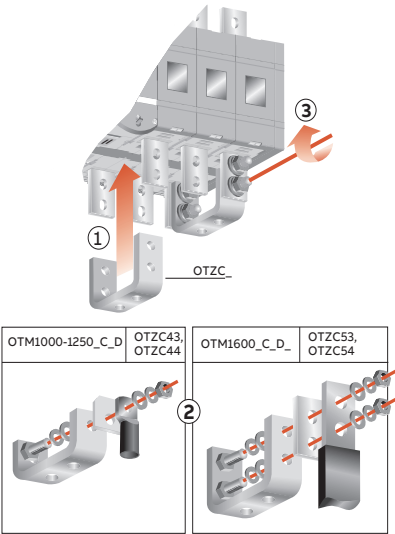


Figure 7.3 OTM_C_D 1000...1600 Bridging Bars

7.2 Terminal Covers

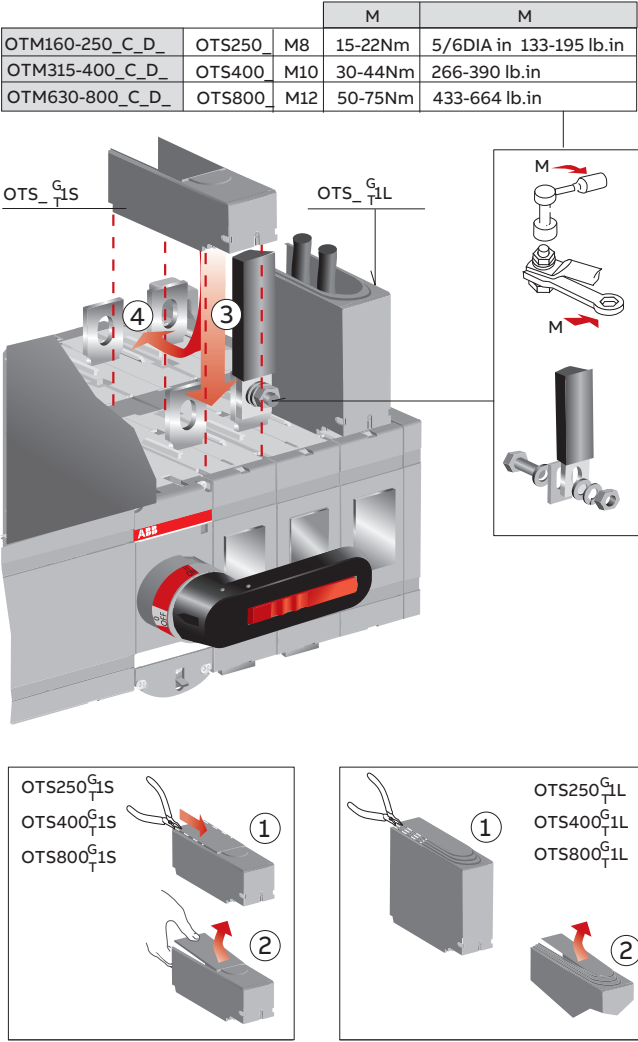


Figure 7.4 OTM_C_D 160....800 Terminal Covers

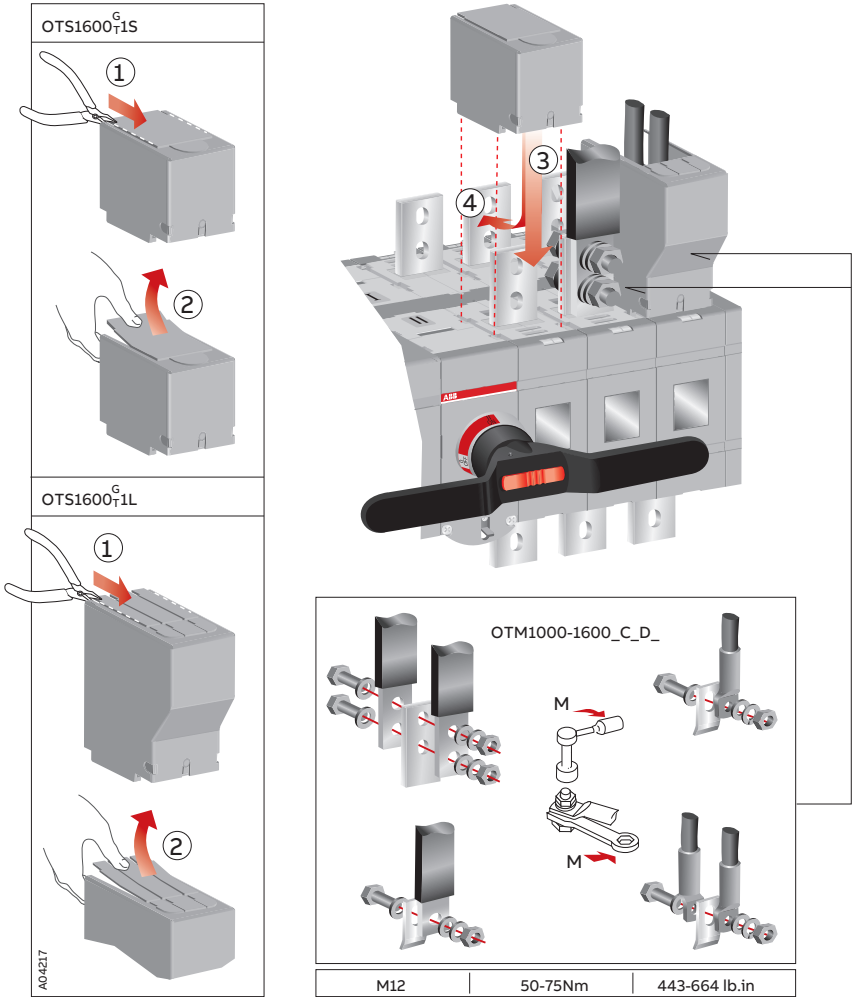


Figure 7.5 OTM_C_D 1000.....1600 terminal covers

7.3 Auxiliary Contacts

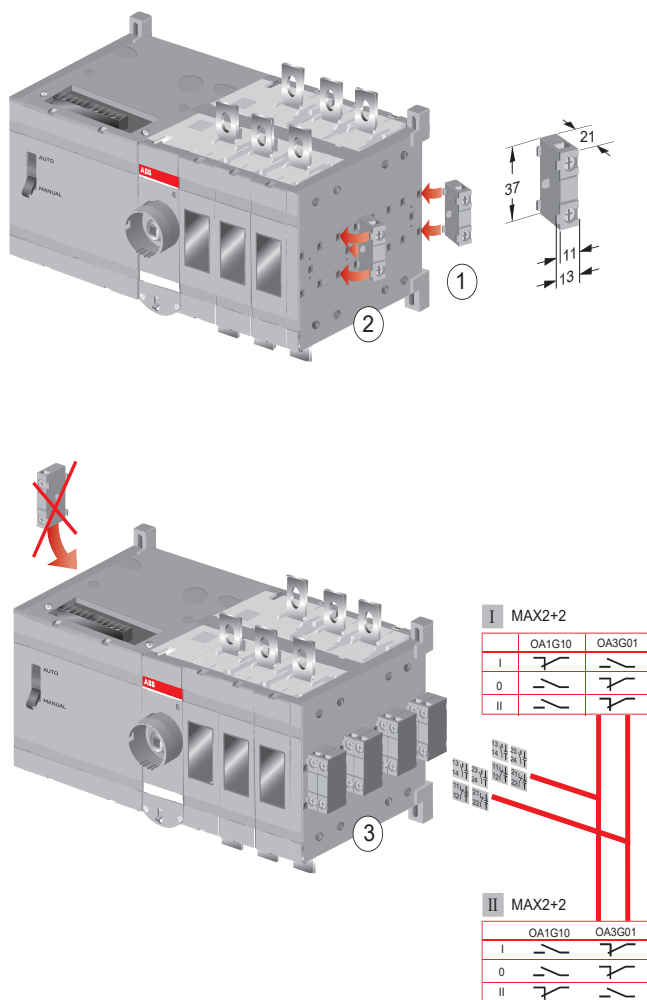


Figure 7.6 Auxiliary Contacts

7.4 Terminal Clamps

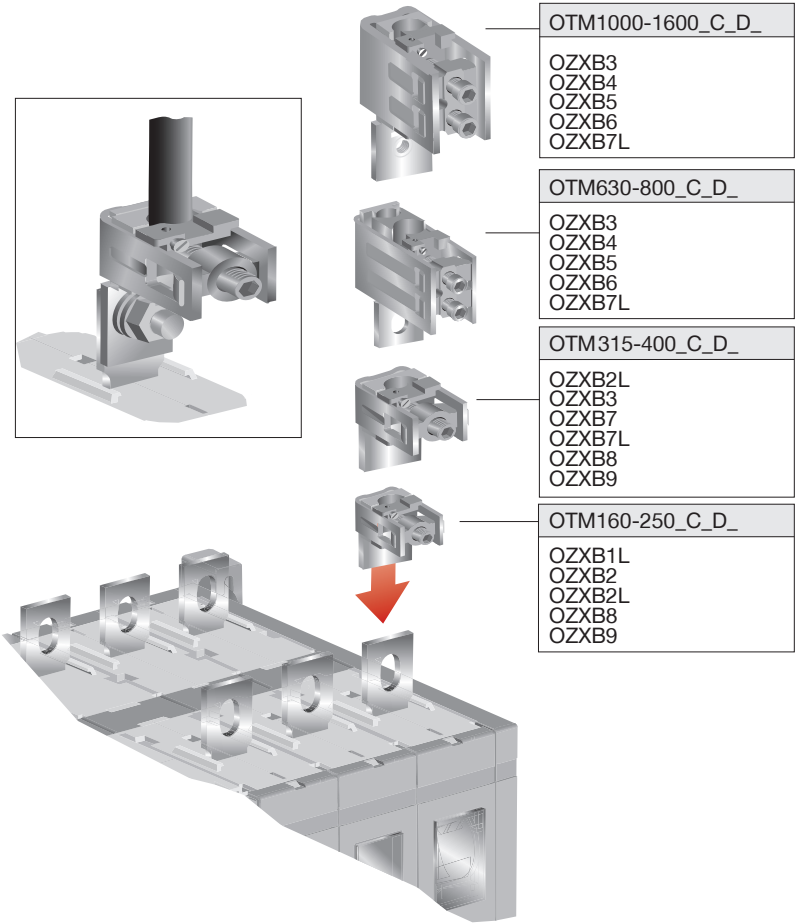


Figure 7.7 OTM_C_D 160.....1600 Terminal Clamps

7.5 Phase barriers

The phase plates for ABB SACE Tmax T4-T5 MCCB are also applicable to the OTM_C_D automatic transfer switch, with the corresponding selection relationship shown in Figure 7.10.

Note: The cutting retention length for the partition plates differs from that of the Tmax T4-T5 MCCB.

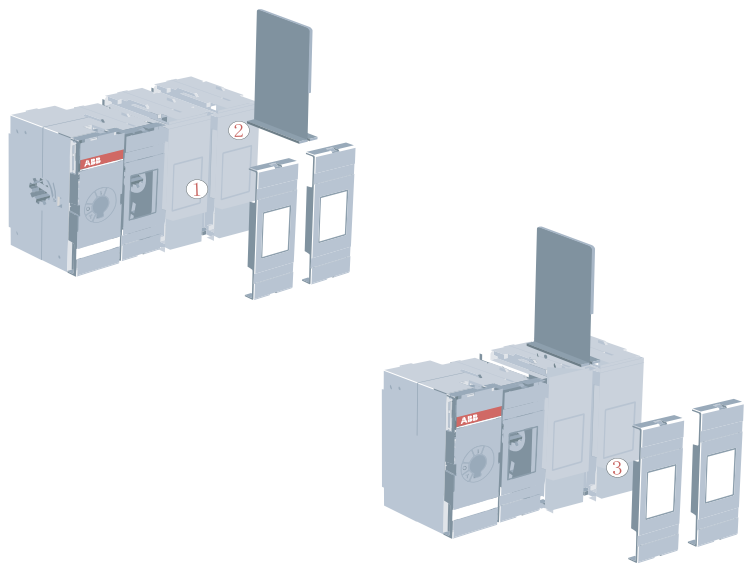


ABB SACE Tmax T4-T5 Partition Plates for OTM C D Automatic Transfer Switch				
Switch Model	Number of Poles	Quantity of Partition Plates	Partition Plate Model	Cutting Retention Length (mm)
OTM_C_D160...250	3	4	PB100 or PB200	55
	4	6		55
OTM_C_D315...400	3	4	PB100 or PB200	67
	4	6		67
OTM_C_D630...800	3	4	PB100 or PB200	90
	4	6		90
OTM_C_D1000...1600	3	4	OTB1600	NA
	4	6		

Figure 7.8 Partition Plates

7.6 Handle and Spare Fuse storage clip

OTVS1	OTM160-250_C_D_
OTVS2	OTM315-800_C_D_

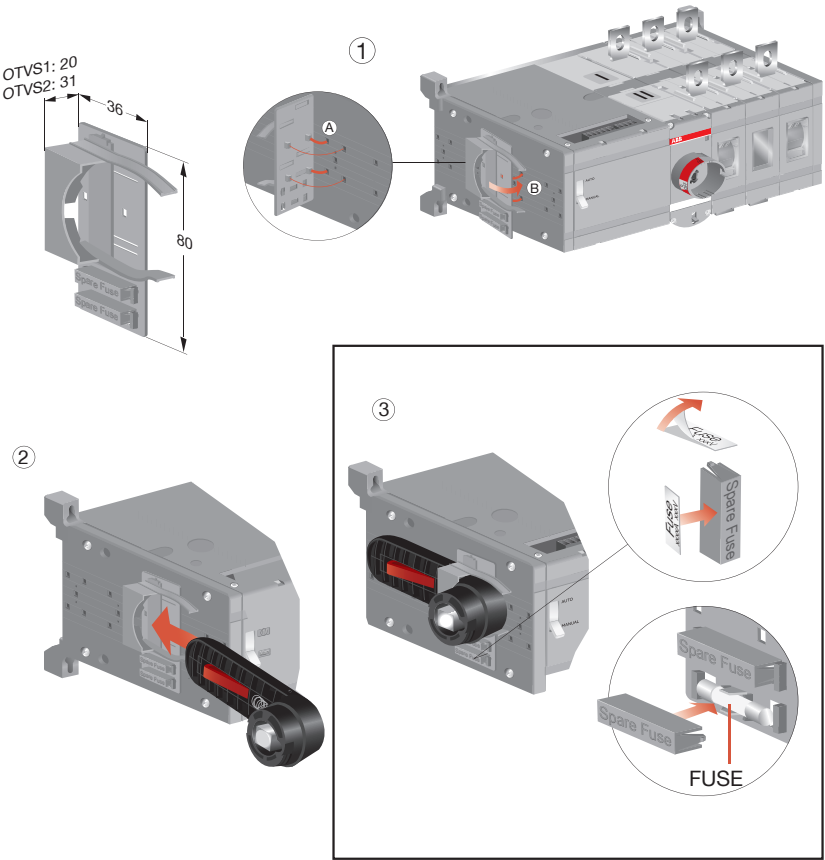


Figure 7.9 Handle and Spare Fuse Clamp Installation

7.7 MODBUS Communication Module

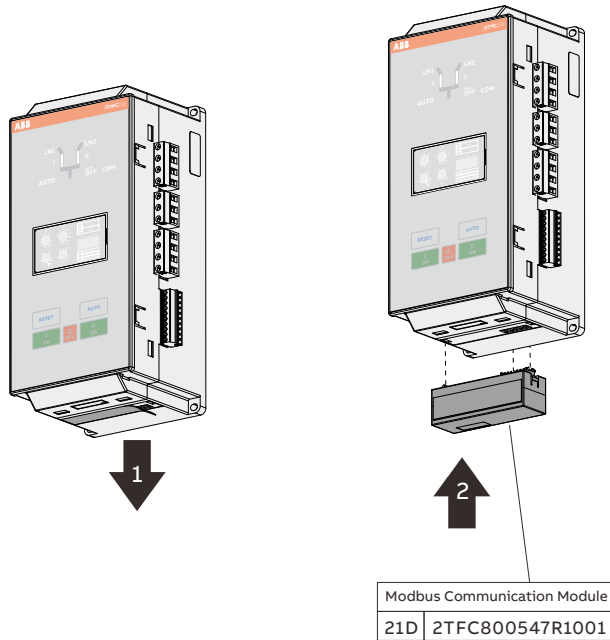


Figure 7.10 Modbus Communication Module



The Modbus RTU Module is available only for the OTM_C21D_N product.



Do not remove the label if the Modbus RTU communication module is not installed.



If the communication module needs to be temporarily removed, it is recommended to cover the installation hole to prevent debris from entering the switch.

8. Maintenance and Common Troubleshooting

8.1 Maintenance

To ensure the reliable operation of the switch, it is recommended to conduct a switching test periodically (every three months) to verify proper functionality.

8.2 Common Troubleshooting

No.	Fault Phenomenon	Fault Analysis	Troubleshooting Method
1	Power is normal, but indicator light is not on.	The power terminal of the controller is not connected to the switch terminal.	Check and connect the power leads.
2	Power indicator light is normal, but Auto light does not illuminate, and there is no response when pressing the Auto button.	Handle is not pulled out or electrical interlock is engaged.	Pull out the handle or release the interlock, press Reset first, then press Auto button.
3	Power failure occurs but no switching happens.	1. Switch is not in automatic mode; 2. Both power sources are faulty.	Ensure the switch is in automatic mode; Ensure both power sources are not faulty simultaneously; Check if DIP switch settings are correct.
4	Failure of Emergency OFF function.	1. Check if the fire EMRG OFF signal is 24V DC; 2. The duration of the EMRG OFF signal is too short.	Correctly connect the EMRG OFF signal, which should be 24V DC and have a duration of $\geq 1s$.
5	Auto light continues to flash, other indicator lights are off, and buttons do not respond.	1. The voltage dip switch settings are 00; 2. The mode dip switch settings are 00; 3. The generator is selected for the dual standby mode.	Verify if the dip switch settings are correct. Refer to section 4.5 Dip Switch Settings
6	I or II light flashes.	Switch failed to operate on I or II.	Attempt manual operation to the double-throw position, then press the Reset button to reset.
7	Power is normal, but indicator lights are flashing.	N-line is connected incorrectly.	Reconnect the N-line correctly.
8	Unable to control switch on-off using communication module.	Operating in local monitoring mode prevents switch control.	Set the communication module to remote control mode, ensure the controller is in automatic mode, then control the switch on-off
9	Unable to modify Modbus parameters using communication module	Operating in local monitoring mode prevents modification of Modbus parameters	Set the communication module to remote control mode, then modify the Modbus parameters

Table 8.1 Common Troubleshooting

9. Appendix

9.1 Product Wiring Diagram

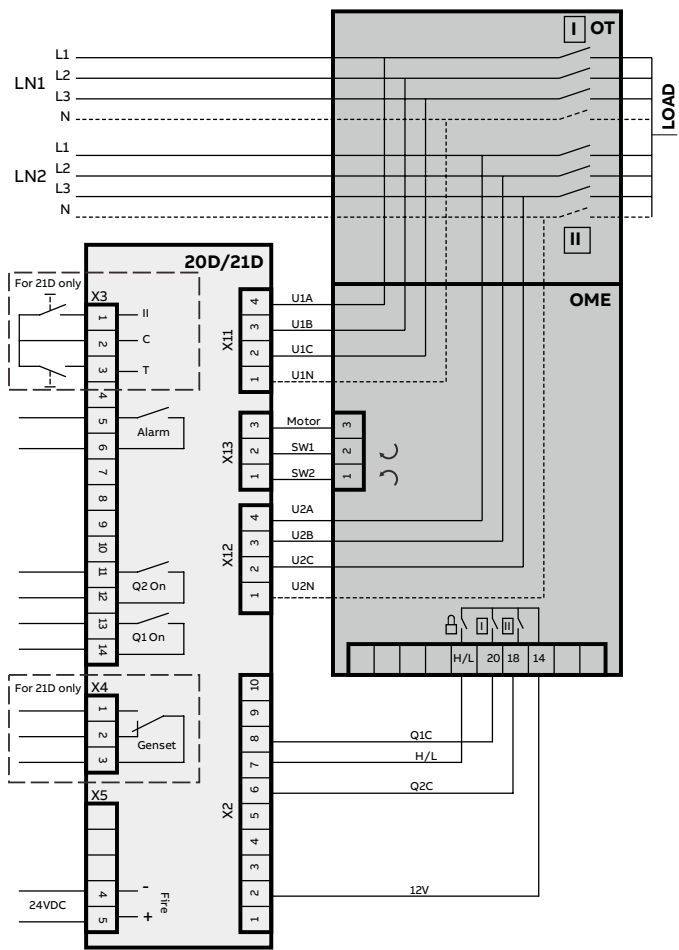


Figure 9.1 OTM_C20D_N, OTM_C21D_N Wiring Diagram



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