

INSTALLATION AND OPERATING INSTRUCTION

Automatic Transfer Switch

OTM_C_21D





Table of contents

1.	SYMBOLS & TERMS	3
2.	PRODUCT OVERVIEW	4
3.	QUICK START	78
4.	INTERFACE AND SETTINGS	17
5.	TECHNICAL DATA	22
6.	INSTALLATION	23
7.	OPTIONAL ACCESSORIES	26
8.	MAINTENANCE AND COMMON TROUBLESHOOTING	29
9.	APPENDIX	30

1. Symbols & Terms

1.1 Use of symbols

- 

Risk of Electric shock: warns about a situation where a hazardous voltage may cause physical injury to a person or damage to equipment.
- 

General warning: warns about a situation where something other than electrical equipment may cause physical injury to a person or damage to equipment.
- 

Caution: provides important information or warns about a situation that may have a detrimental effect on equipment.
- 

Information: provides important information about the equipment.

1.2 Explanations of abbreviations and terms

OTM_C21D	Automatic transfer switch, the type name
LN1-Switch I	Power supply line, e.g. the primary line
LN2-Switch II	Power supply line, e.g. the secondary line used in emergency cases
EMRG OFF	Used to drive the automatic transfer switch transfers to the “O” position when receiving EMRG OFF signal.
AUTO	Automatic mode
Remote test	A sequence to test the functionality of the automatic transfer switch
Ts	Transfer delay
TBs	Return delay
OV	Adjustable overvoltage threshold
UV	Adjustable undervoltage threshold

Table 1. Explanations of abbreviations and terms

2. Product overview

2.1 Product overview and packing

The OTM_C21D automatic transfer switch can be used as a source transfer switch in a three-phase or single-phase networks. Monitored conditions are, no-voltage, phase-loss, overvoltage and undervoltage detection, transfer delays, generator start and stop, and remote test function. Source transfer can be performed using a manually

operated handle, locally using push buttons or fully automatically. The automatic mode includes several operating methods: Line 1 priority, no line priority and manual back switching mode. OTM_C21D can achieve communication function by using the optional external Modbus RTU module.

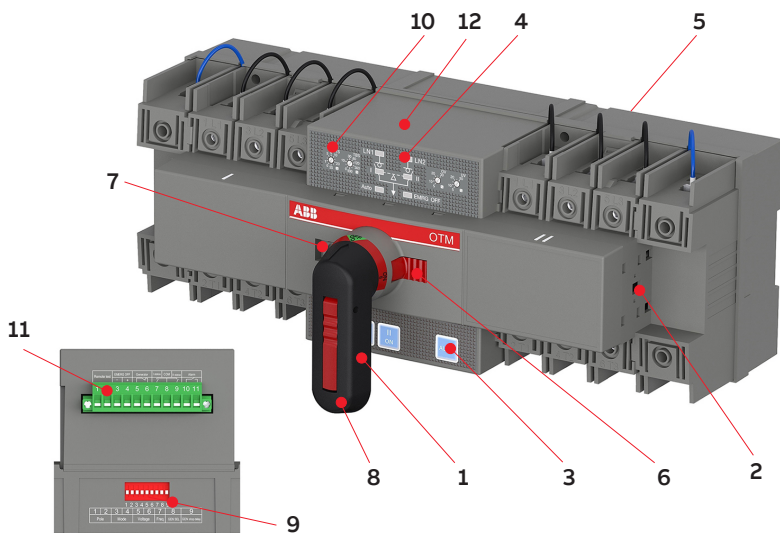


Figure 1. OTM_C_21D automatic transfer switch

- | | |
|---------------------------------------|--|
| 1. Handle for manual operation | 7. Locking latch for releasing the handle and locking electrical control |
| 2. Place for auxiliary contact blocks | 8. Locking clip for locking manual operation |
| 3. Push button | 9. Dip switches |
| 4. Mimic panel | 10. Rotary switches |
| 5. Voltage sensing connections | 11. Connecting terminal |
| 6. Locking clip for padlock | 12. Modbus RTU access |

The standard package includes:

1. automatic transfer switch, 2. handle, 3. handle storage clip 4. terminal plug, 5. mounting kit

2.2 OTM_C21D switching sequence

2.2.1 Line 1 Priority (default mode)

The transfer sequence of OTM_C21D can be summarized in following steps:

- An anomaly occurs on the Line 1 (LN1)
- Generator start, immediately start generator in case of black-out, phase-loss, overvoltage or undervoltage (If Generator mode is selected)
- The Line 2 start the normal functioning, transfer delay T_s
- Change-over switch (Switch I) to the position 0
- Change-over switch (Switch II) to the position II

And the return sequence can be summarized in the following steps:

- The Line 1 will start the normal functioning
- Return delay TBs
- Change-over switch (Switch II) to the position 0
- Change-over switch (Switch I) to the position I
- Generator stop delay G_s
- Generator stop

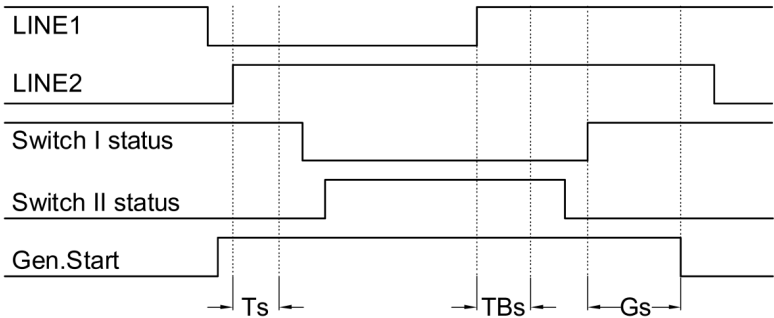


Figure 2. Automatic Switching Sequences in OTM_C_21D, Line 1 priority

2.2.2 No line priority

The transfer sequence of OTM_C21D can be summarized in following steps:

- An anomaly occurs on the Line 1 (LN1)
- Transfer delay T_s , in case of black-out, phase-loss, overvoltage and undervoltage conditions
- Change-over switch (Switch I) to the position 0
- Change-over switch (Switch II) to the position II

And the return sequence can be summarized in the following steps:

- The Line 1 will start the normal functioning
- Change-over switch stays in position II
- An anomaly occurs on the Line 2 (LN2)
- Return delay T_{Bs}
- Change-over switch (Switch II) to the position 0
- Change-over switch (Switch I) to the position I

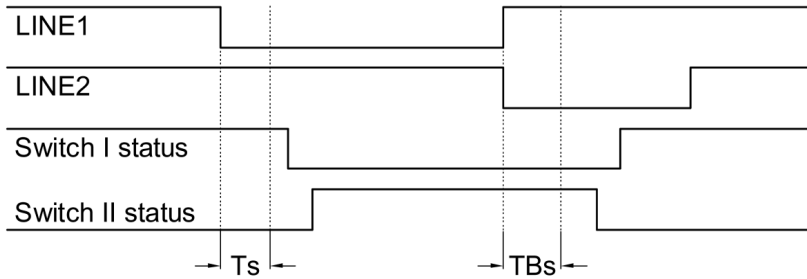


Figure 3. Automatic Switching Sequences in OTM_C_21D, No line priority



Generator can not be used in no line priority. Keep Dip switch “GEN SEL” setting “0” in this mode.

2.2.3 Manual return mode

The transfer sequence of OTM_C21D can be summarized in following steps:

- An anomaly occurs on the Line 1 (LN1)
- Generator start, immediately start generator in case of black-out, phase-loss, overvoltage or undervoltage (If Generator mode is selected)
- The Line 2 start the normal functioning, transfer delay T_s
- Change-over switch (Switch I) to the position 0
- Change-over switch (Switch II) to the position II

And the return sequence can be summarized in the following steps:

- The Line 1 will start the normal functioning
- Change-over switch stays in position II
- An anomaly occurs on the Line 2 (LN2)
- Change-over switch stays in position II
- Change-over switch can be transferred manually back to position I

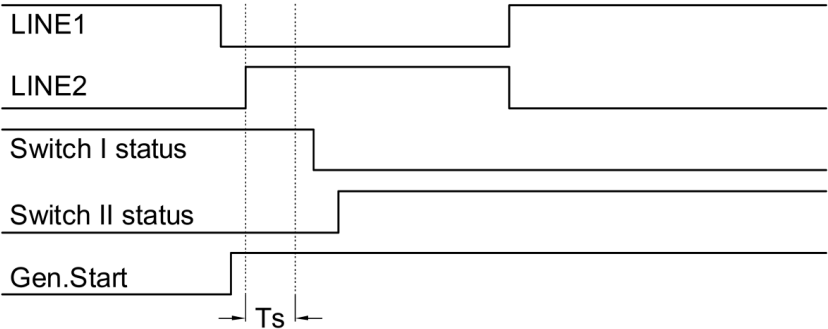


Figure 4. Automatic Switching Sequences in OTM_C_21D, Manual return mode

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.

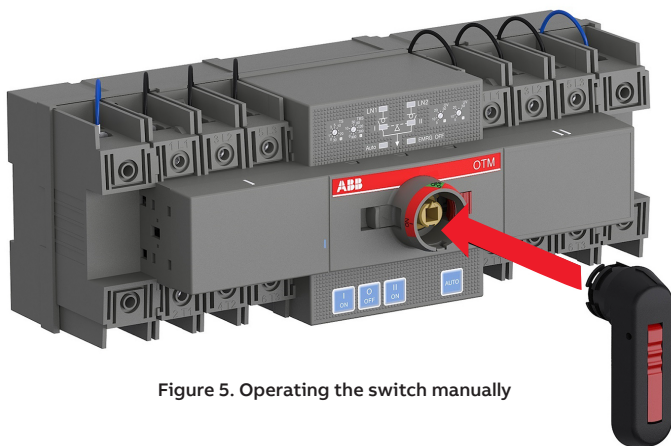


Figure 5. Operating the switch manually



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” and without the handle inserted and EMRG OFF signals, the initially energized switch will enter automatic mode and transfer to the main line. Keep the handle inserted if you do not want the switch to be in automatic mode upon initial energization.

3.2 Automatic operation

OTM_C21D must be in automatic 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 electrically:

• If the handle is 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 automatic mode.

• If handle is not inserted

1. If “AUTO” LED blinks, press “AUTO” button and the “AUTO” LED will be ON, indicating automatic mode.
2. Automatic operation includes three operating modes: Line 1 priority (factory default setting), No line priority, and manual return mode.

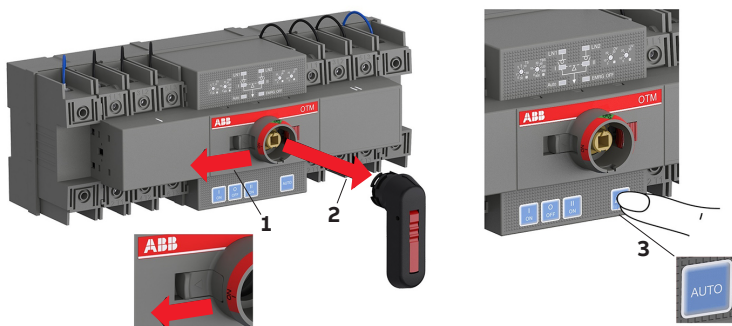


Figure 6. Selecting the automatic transfer OTM_C_21D, switch to Auto Mode

3.3 System testing

3.3.1 Local test

In automatic mode, "AUTO" LED is ON and you can transfer the switch using I, O, and II push buttons on the front panel of the switch.

Press "AUTO" button to return the automatic operation.

3.3.2 Remote test

The procedure of the remote test is as follows:

1. Connect to the remote test signal according to Figure 7.
2. Ensure that the OTM_C21D is in automatic mode ("AUTO" LED is on).
3. Short circuit the remote test signal for at least 100 ms until the "AUTO" LED blinks to enter the test mode. Under test mode, the automatic transfer switch will simulate switching cycle and finally return to its original position prior to the activation of the test mode.
e.g., when the switch is in Position I:
Enter test signals; the switch transfers to Position O → to Position II → to Position O → to Position I. Entering test signals is invalid before the automatic transfer switch returns to its original position.
Under test mode, press the "AUTO" button to cancel test mode and return to automatic mode. The "Auto" LED will be "ON" as normal.
4. After the remote test finishes, the OTM_C21D automatically returns to the automatic mode ("AUTO" LED is on).

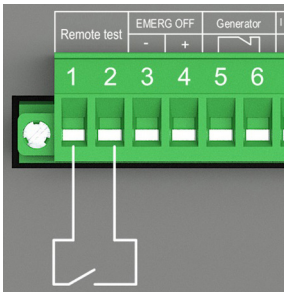


Figure 7. Remote test connection in OTM_C_21D



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 "automatic 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:

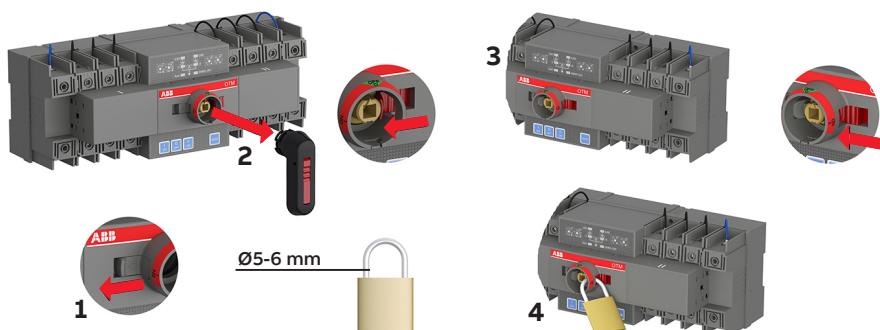


Figure 8. Locking the electrical operation

3.4.2. Locking the manual operation

By default, the manual operation can only be locked in position 0. The handle can be padlocked by pulling out the clip from the handle and place the padlock on the handle see Figure 9.

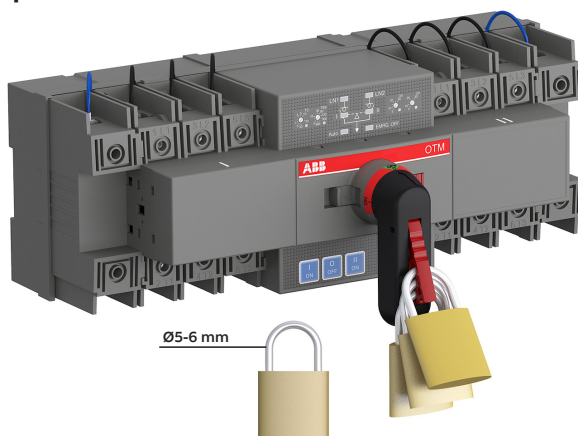


Figure 9. Locking the manual operation

3.5 Modbus communication function

OTM_C21D can achieve communication function by using the optional external Modbus RTU module.

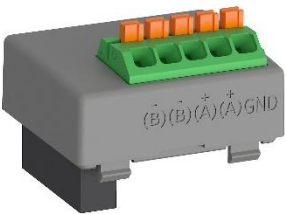


Figure 10. Modbus RTU communication module

3.5.1 Modbus parameters

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	None
	Odd
	Even (Default)
Local/Remote	Local monitoring mode (Default)
	Remote control mode

Table 2. Modbus parameters of OTM_C21D

3.5.2 Modbus functional code

Function code	Name
03(0x03)	Read Holding Registers
04(0x04)	Read Input Registers
06(0x06)	Write Single Register
16(0x10)	Write Multiple Registers
17(0x11)	Report Slave ID

Table 3. Modbus functional code

3.5.3 OTM_C21D registers information

Information of registers, values and access is available in following table

Register	Address (DEC)	Function code (DEC)	Values
SWITCH I_STATUS	1	04	0=Open 1=Closed
SWITCH II_STATUS	2	04	0=Open 1=Closed
LN1_U1 VOLTAGE	3	04	Phase voltage for 2P/4P Line Voltage for 3P Voltage at 1V accuracy (e.g. 230=230V)
LN1_U2 VOLTAGE	4	04	
LN1_U3 VOLTAGE	5	04	
LN2_U1 VOLTAGE	6	04	
LN2_U2 VOLTAGE	7	04	
LN2_U3 VOLTAGE	8	04	
LN1_LINE_STATUS	9	04	0= Voltage OK 1= No voltage 2= Undervoltage 3= Overvoltage 4= Phase missing
LN2_LINE_STATUS	10	04	0= Voltage OK 1= No voltage 2= Undervoltage 3= Overvoltage 4= Phase missing
RATED_VOLTAGE	11	04	0=220/380V 1=230/400V 2=240/415V
UNDERVOLTAGE_THRESHOLD	12	04	5,10,15,20,25,30 %
OVERVOLTAGE_THRESHOLD	13	04	5,10,15,20,25,30 %
TRANSFER_DELAY_TS	14	04	0,1,2,3,5,10,15,20,25,30 s
RETURN_DELAY_TBS	15	04	0,5,10,20,30,60,120,300,600,900 s

Continued on next page

Register (continued)	Address (DEC)	Function code (DEC)	Values
MODBUS ADDRESS	16	03/06/16	1...32
MODBUS BAUD_RATE	17	03/06/16	0=4800
			1=9600
			2=19200
			3= 38400
MODBUS PARITY_CHECK	18	03/06/16	0=No parity
			1=Odd parity
			2=Even parity
MODBUS STOP_BIT	19	03/06/16	0=1 Stop bit
			1=2 Stop bit
DEVICE_WORKING_MODE	20	04	0=Manual switching mode
			1=Emergency off mode
			2=Local test mode (see 3.3.1)
			3=Remote test mode (see 3.3.2)
			4=Auto mode
LINE_PRIORITY	21	04	0=Line 1 priority
			1=No line priority
			2=Manual back switching
EMERGENCY_OFF_STATUS	22	04	0=Emergency off not happen or eliminated
			1=Emergency off happens
OPERATION_COUNTER	23	04	Number of switch position transitions
PRESENT_ALARM	24	04	0=No alarms
			1= Switch I transfer fail
			2= Switch II transfer fail
			3=Both I and II are ON
			4= Switch I transfer fail in emergency off
			5= Switch II transfer fail in emergency off

Continued on next page

Register (continued)	Address (DEC)	Function code (DEC)	Values
LAST_ALARM	25	04	0=No alarms
			1= Switch I transfer fail
			2= Switch II transfer fail
			3=Both I and II are ON
			4= Switch I transfer fail in emergency off
			5= Switch II transfer fail in emergency off
SW_VERSION	26	04	Bit8-15= Major SW version (e.g. 0x1A=26)
			Bit0-7 =Minor SW version (e.g. 0xAA=170)
PHASES	27	04	0= 3 phases with Neutral line
			1= 3 phases without Neutral line
			2= 1 phase
RATED_FREQUENCY	28	04	0=50Hz
			1=60Hz
GENERATOR_STOP_DELAY	29	04	0=30s
			1=240s
GENERATOR_USAGE	30	04	0= No Generator
			1= Generator In Use
GENERATOR_START	31	06	1=Start generator
CONTROL	32	06	1= Remote control to I
			2= Remote control to O
			3= Remote control to II
			4= Enter remote test function (see 3.3.2)
OPERATING_MODE	33	03/06	0=Local monitoring mode
			1= Remote control mode

Table 4. OTM_C21D register information



Modbus parameters configuring and ATS control function is available only when OTM_C21D is working in remote control mode



Remote control can only be operated under automatic operation mode



After remote control, OTM_C21D must be reset to Local monitoring mode, then it can re- turn to automatic operation mode

3.5.4 Cyber security

Disclaimer	It is the sole responsibility of the customer to provide and continuously ensure a secure connection between the product and the customer network or any other network. The customer is required to establish and maintain any appropriate measures (including but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti- virus programs, etc.) to protect the product, the network, its system and the interface against any kind of security breach, unauthorized access, interference, intrusion, leakage and/ or theft of data or information. ABB and its affiliates are not liable for damage and/or losses related to such security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information.
Secure Deployment	The user of the product should be aware that the unsecure nature of the serial Modbus protocol exposes the communication between the product and the control system. Encryption, authentication or integrity of transmitted data are not provided by the protocol. To prevent equipment to operate in an unsafe or undesirable manner due to malicious activities the product must be positioned in a trusted network, strictly limited and in a hosted portion of a network or control system. The recommendation is also to restrict physical access to the product/ system to only allow authorized people to make changes to the system. Besides, the user can setup system to trigger alarm when communication is interrupted (device stops responding) and check if there are any unsafe condition.

4. Interface and Settings

4.1 Buttons

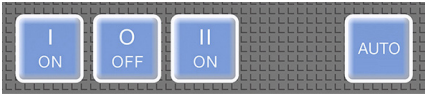


Figure 11. Buttons

Button	Function	Remarks
I ON	Transfer to LN1	Only available in automatic mode and remote test mode
O OFF	Transfer to 0 position	
II ON	Transfer to LN2	
Auto	Select automatic mode, fault clearance and reset	

Table 5. Buttons



Transfer using bypass transfer delay and return delay.

4.2 Leds

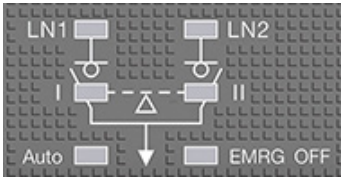


Figure 12. LEDs

LED	Display	Status description
LN1/LN2	Source available	Source available
	OV: 5cycles/s; UV:2cycles/s; Phase missing:0.25cycles/s	OV: 5cycles/s; UV:2cycles/s; Phase missing:0.25cycles/s
I/II	Source not available	Source not available
	Switch I or II closed	Switch I or II closed
	Switch I or II open	Switch I or II open
Auto	Switching failure.	Switching failure.
	Transfer switch in automatic mode	Transfer switch in automatic mode
	Transfer switch in test mode or invalid setting	Transfer switch in test mode or invalid setting
EMRG OFF	Transfer switch in manual mode	Transfer switch in manual mode
	Receiving emergency off signals	Receiving emergency off signals
	No emergency off signals input	No emergency off signals input

Table 6. LEDs

4.3 Rotary switch settings

Transfer delay Ts

The delay of transferring from the LN1 to the LN2 in automatic mode. The options are 0, 1, 2, 3, 5, 10, 15, 20, 25, and 30 seconds.

Return delay TBs

The delay of transferring from the LN2 to the LN1 in automatic mode. The options are 0, 5, 10, 20, 30, 60, 120, 300, 600, and 900 seconds.

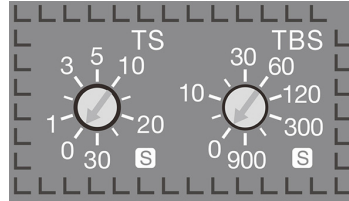


Figure 13. Rotary switch, Ts and TBs

Overvoltage threshold OV (%) and undervoltage threshold UV (%)

The benchmarks of the OV and UV are the rated voltage of the switch. When the voltage is higher than the pre-set OV value or lower than the pre-set UV value, the switch performs automatic transfer.

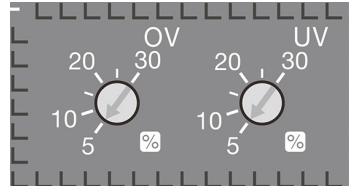


Figure 14. Rotary switch, OV and UV

The value of OV can be 5%, 10%, 15%, 20%, 25%, and 30%.

The value of UV can be 5%, 10%, 15%, 20%, 25%, and 30%.

4.4 Dip switch setting

The 9-bit dip switch is used to set the working modes of transfer switch.

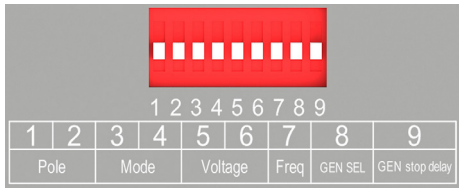


Figure 15. Dip switch

DIP No.	Function	Setting			
1, 2	Pole setting	01	10	11	00
		2 poles	3 poles	4 poles	Invalid setting
3, 4	Mode setting	01	10	11 (Default)	00
		No line priority	Manual back switching	Line priority LN1	Invalid setting
5, 6	Voltage setting	01	10	11	00
		240VAC/415VAC	230VAC/400VAC	220VAC/380VAC	Invalid setting
7	Frequency setting	0	1 (Default)		
		60Hz	50Hz		
8	Generator selection	0	1 (Default)		
		No	Yes		
9	Generator stop delay setting	0	1 (Default)		
		240s	30s		

Table 7. Dip switch



The 9-bit dip 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.



Generator can not be used in no line priority. Keep generator setting “0” in this mode.

4.5 Terminal outputs and inputs

The switch has 11 bits of signal terminals for users to input and output signals.

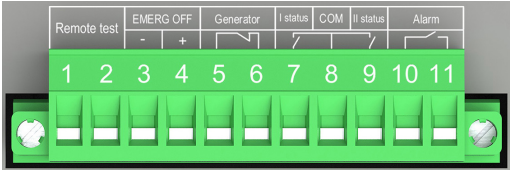


Figure 16. Terminals

Terminal No.	Function
1, 2	Remote test: connection for at least 100 ms for the switch to enter the remote test mode.
3, 4	EMRG OFF: Input the 24VDC EMRG OFF signals for at least 1s until the switch transfers to the EMRG OFF position and the EMRG OFF LED is on. At this time, the switch cannot enter the automatic or test mode and only handle operation is allowed. After the signal is canceled, press "AUTO" to quit EMRG OFF.
5, 6	Generator start: generator start signal output. When the backup power is a generator, it is used to start (close signal) and stop (open signal) the generator. After the switch transfers to the normal power, the generator stop signal is sent after the preset delay for generator stop (see the ninth bit in section 4.4 for the generator stop delay setting).
7,8,9	Switch status feedback signal output.
10, 11	Alarm: The switch outputs consecutive alarm signals in EMRG OFF mode or refuses to perform operations. The alarm signals are cleared after quitting the EMRG OFF mode, fault recovered, or handle inserted.
Output contacts	Output contact relays are dry contactz and therefore external voltage supply is required. 24VDC or up to 250VAC max. 3A AC1

Table 8. Terminals

5. Technical data

Automatic transfer switch	Parameters
Rated operational voltage Ue[V]	
Single-phase (2P)	220~240 V AC 50~60 Hz
Three-phase (3P/4P)	380/400/415
Frequency	50Hz/60 Hz
Operating voltage range	0.7~1.3 Ue
Measuring accuracy	±3%
Operating angle	90° (O-I, I-O, O-II, II-O) 180° (I-O-II, II-O-I)
OFF time	0,6 - 0,7 s
Total transfer time	2.5 s
Output relay utilization category	3A, AC1, 250V
Electromagnetic compatibility	Class B
Ingress Protection Rating	IP20, front panel
Rated impulse withstand voltage Uimp	8 kV (6 kV for control circuit, disconnect the power line of the control circuit before carrying out the dielectric voltage withstand test)
Operating temperature	-25~55°C
Transportation and storage temperature	-40~70°C
Altitude	Max. 2000 m

Table 9. 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:

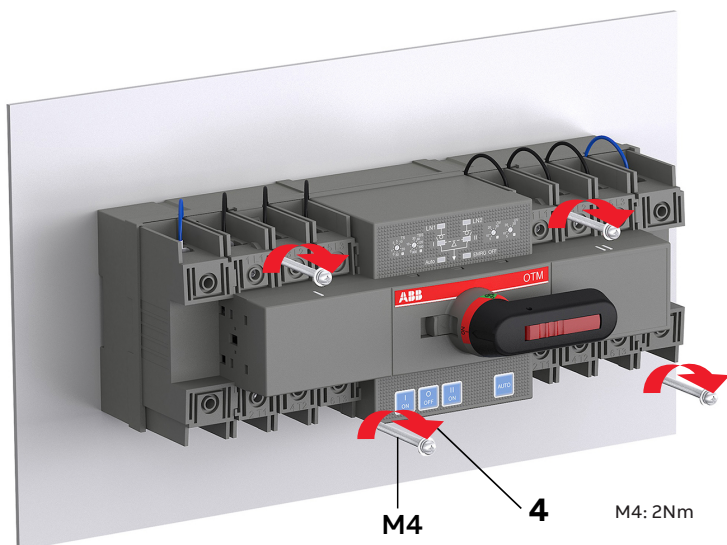


Figure 17. Installation of OTM_C21D screw

The DIN rail installation mode is as follows:
First pry out the latch with an appropriate tool, as shown in Fig. 13



Figure 18. Installation of DIN rail

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



Figure 19. Installation of DIN rail



After attaching the switch to the DIN-rail, make sure you push the latch back to the lock position, otherwise the switch may fall off.

6.2 Installation dimensions

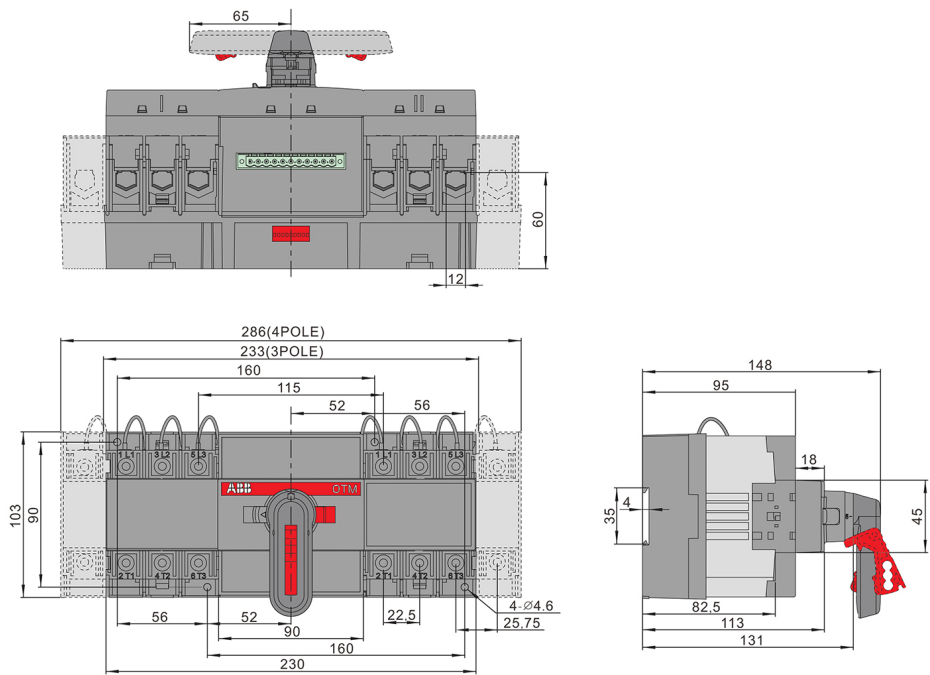
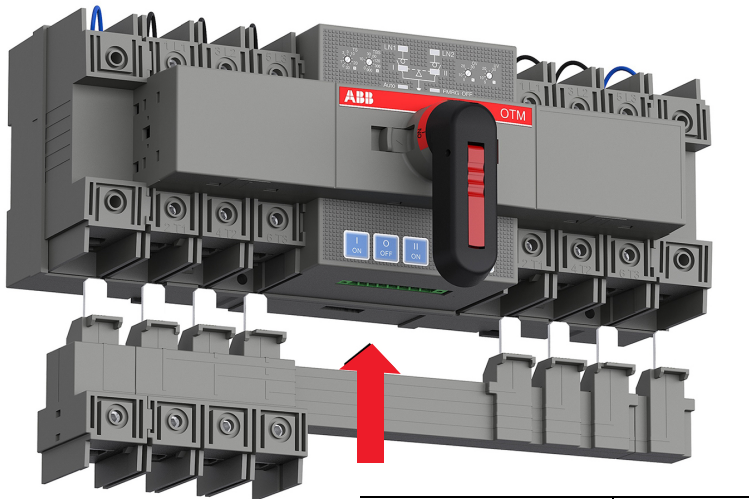


Figure 20. Dimensions

7. Optional accessories

7.1 Bridging bars



OTM32-125F2C21D	OMZC03
OTM32-125F3C21D	
OTM32-125F4C21D	
	OMZC04

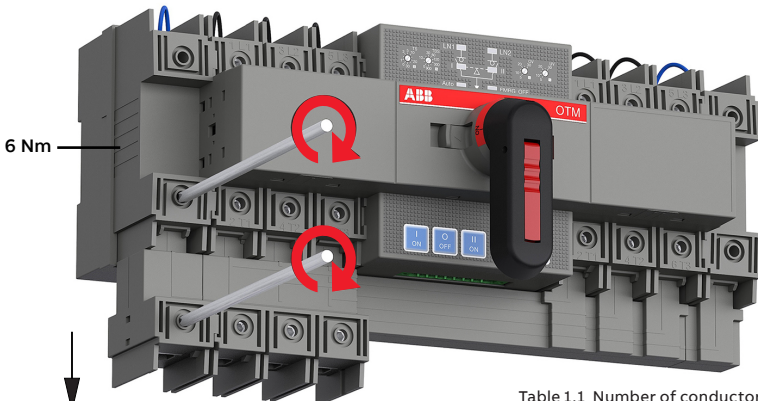


Table 1.1 Number of conductors ≤2
Table 1.2 10 - 70 mm² , 8 - 00 AWG

Figure 21. Bridging bars

7.2 Terminal shrouds

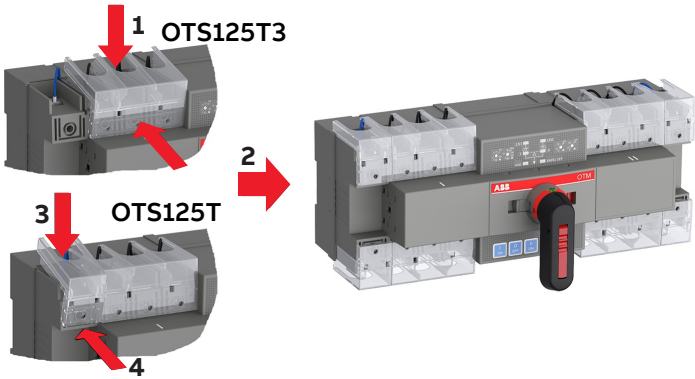


Figure 22. Terminal shrouds

7.3 Auxiliary contact blocks

OA710/OA1G01

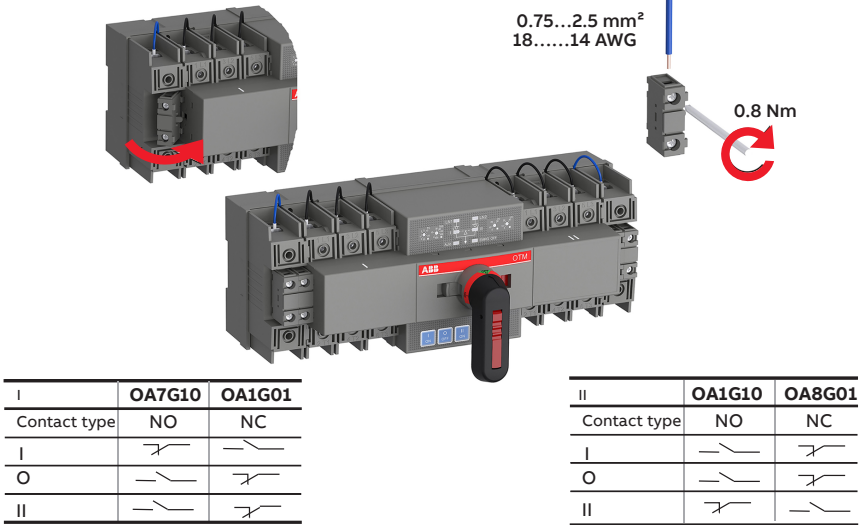


Figure 23. Auxiliary contact blocks

7.4 Modbus communication module

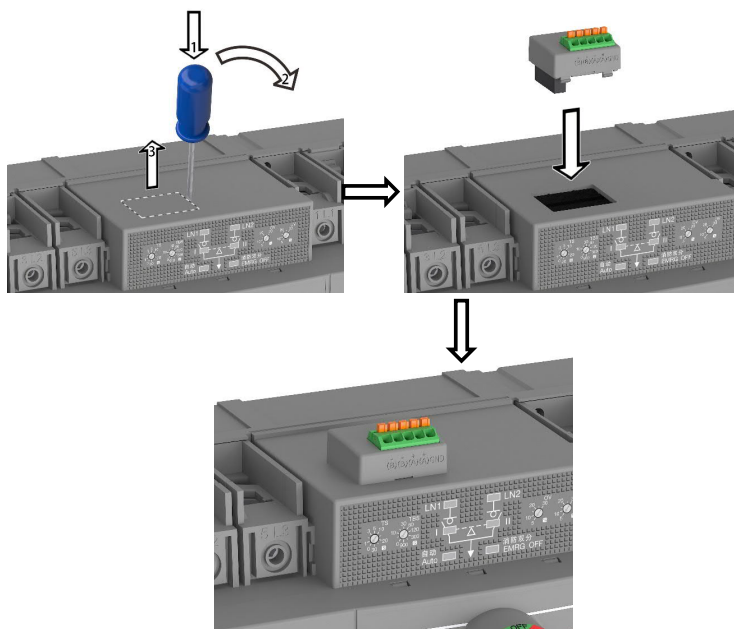


Figure 24. Modbus RTU communication module



Do not break the box if Modbus RTU module is not ready for assembling



When Modbus RTU is assembled to OTM_C21D, paste a cover to the hole to protect the switch from being polluted if the module needs to be removed

8. Maintenance and common 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 Common troubleshooting

No	Fault Description	Fault Analysis	Troubleshooting Method
1	Power supply functioning normally, but LED not on	Control unit power supply terminal not connected with switch wiring terminal	Check and connect the power line
2	Power supply LED functioning normally but "AUTO" LED off, or no response with "AUTO" button pressed	Handle not pulled out or electrical padlock not removed	Pull out the handle or remove the padlock, and then press the "AUTO" button
3	Switching failure in case of faulty power supply	1. Switch not operating in automatic mode 2. Both power supplies malfunctioning	Make sure the switch working in automatic mode; check and make sure both power supplies are not malfunctioning simultaneously
4	EMRG OFF function failure	1. Check if the EMRG OFF signal is 24V DC 2. Too short duration of EMRG OFF signal	Correctly switch on the EMRG OFF signal, which should only be 24V DC with the duration ≥ 1 s
5	"AUTO" LED blinking	1.DIP switch setting is invalid 2.Generator is ON in no priority mode.	Check if the DIP switch setup matches the power supply. Turn off generator in no priority mode.
6	"I" or "II" LED blinking	Execution rejected during switching operation, thus expected result not achieved	Manually set the switch to Position "O", and press the "AUTO" button to reset
7	Power supply functioning normally and LED blinks	Wrong connection of the N wire	Re-connect the wires.
8	OTM_C21D cannot be controlled to transfer by Modbus module	OTM_C21D is in Local monitoring mode, remote control is not available	Modify OTM_C21D to Remote control mode then remote transfer commands are available
9	OTM_C21D Modbus parameters cannot be modified	OTM_C21D is in Local monitoring mode, parameters modification is not available	Modify OTM_C21D to Remote control mode then parameters modification is available

Table 10. Troubleshooting

9. Appendix

9.1 Wiring diagram

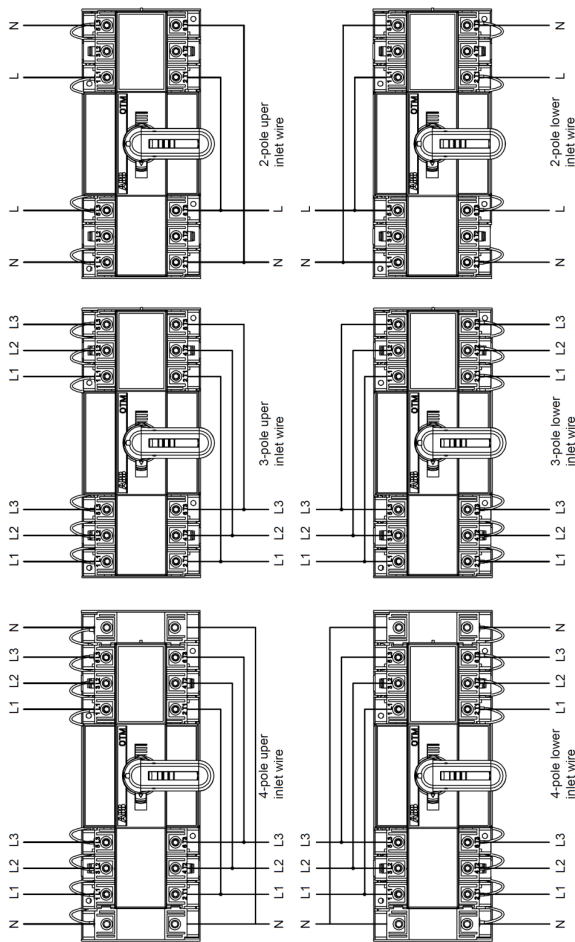


Figure 25. Wiring diagram

- Read through this instruction book carefully before working on the switch, and keep this instruction book safe for later reference
- The images provided in this instruction book are for illustration only and may not match the actual product exactly
- This instruction book is subject to change for product updates without prior notice



BG	Внимание! Опасно напряжение! Да се монтира само от лице с електротехническа квалификация.
CN	警告！电压危险！只能由专业电工进行安装。
CZ	Varování! Nebezpečné napětí! Montáž smí provádět výhradně elektrotechnik!
DA	Advarsel! Farlig elektrisk spænding! Installation må kun foretages af personer med elektroteknisk ekspertise.
DE	Warnung! Gefährliche Spannung! Installation nur durch elektrotechnische Fachkraft.
EL	Προειδοποίηση! Υψηλή τάση! Η εγκατάσταση πρέπει να γίνεται μόνο από εξειδικευμένους ηλεκτροτεχνικούς.
EN	Warning! Hazardous voltage! Installation by person with electrotechnical expertise only.
ES	¡Advertencia! ¡Tensión peligrosa! La instalación deberá ser realizada únicamente por electricistas especializados.
ET	Hoiatus! Ohtlik pinge. Paigaldada võib ainult elektrotehnika-alane ekspert.
FI	Varoitus! Vaarallinen jännite! Asennuksen voi tehdä vain sähköalan ammattihenkilö.
FR	Avertissement! Tension électrique dangereuse! Installation uniquement par des personnes qualifiées en électrotechnique.
HR	Upozorenje! Opasan napon! Postavljati smije samo elektrotehnički stručnjak.
HU	Figyelmeztetés! Veszélyes feszültség! Csak elektrotechnikai tapasztalattal rendelkező szakember helyezheti üzembe.
IE	Rabhadh! Voltas gaiseach! Ba chóir do dhuine ag a bhfuil saineolas leictreicniúil, agus an té sin amháin, é seo a shuiteáil.
IT	Avvertenza! Tensione pericolosa! Fare installare solo da un elettricista qualificato.
LT	Dėmesio! Pavojinga įtampa! Dirbti leidžiama tik elektrotechniko patirties turintiems asmenims.
NO	Advarsel! Farlig spenning! Monteringen skal kun utføres av kvalifiserte personer med elektrokompetanse.
PL	Ostrzeżenie! Niebezpieczne napięcie! Instalacji może dokonać wyłącznie osoba z fachową wiedzą w dziedzinie elektrotechniki.
PT	Aviso! Tensão perigosa! A instalação só deve ser realizada por um electricista especializado.
RO	Avertizare! Tensiune periculoasă! Instalarea trebuie efectuată numai de către o persoană cu experiență în electrotehnică.
RU	Осторожно! Опасное напряжение! Монтаж должен выполняться только специалистом-электриком.
SE	Varning! Farlig spänning! Installation får endast utföras av en elektriker.
SK	Varovanie! Nebezpečné napätie! Montáž môže vykonávať iba skúsený elektrotechnik.
SL	Opozorilo! Nevarna napetost! Vgradnjo lahko opravi le oseba z elektrotehničnim strokovnim znanjem.



Contact us

ABB Oy

P.O. Box 622
FI-65101 Vaasa
Finland

abb.com/lowvoltage