

TOSHIBA Carrier

Installation Manual

Output control board

Model:TCB-PCIN4UL

Precautions for safety

- Read these “Precautions for Safety” carefully before installation work.
- The precautions described below include important items regarding safety. Observe them without fail. Understand the following details (indications and symbols) before reading the body text, and follow the instructions.

The meanings of indications

WARNING

Text set off in this manner indicates that failure to adhere to the directions in the warning could result in serious bodily harm or loss of life if the product is handled improperly.

CAUTION

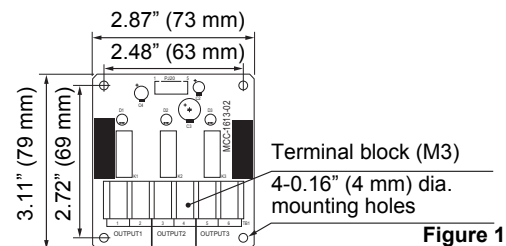
Text set off in this manner indicates that failure to adhere to the directions in the caution could result in serious bodily injury or damage to property if the product is handled improperly.

- After completion of installation, perform test run to check for any problems. Explain method of use and maintenance to the customer by following the descriptions in the manual. Ask customer to keep both Instruction and Installation Manuals at accessible place for future reference.

WARNING

- Only a qualified installer or qualified service person is allowed to do installation work. If installation is carried out by an unqualified individual, fire or electric shock may result.
- Perform installation work reliably according to this installation manual. Incomplete installation may cause electric shock, fire or abnormal operation.
- Electrical work must be performed by a qualified installer or qualified service person in accordance with this installation manual. The work must satisfy all local, national and international regulations. Inappropriate work may result in electric shock or fire.
- Connect the specified wires firmly and clamp them securely so that external force applied to the wires does not affect the connector pins. Improper wire connection or clamping may result in fire or malfunction.
- Do not disassemble, modify, repair or move the product yourself. Doing so may cause fire, electric shock, injury or water leaks.
- Ask a qualified installer or qualified service person to do any repairs or to move the product.

1 External view



2 Accessories

Table 1

No.	Part Name	Qty
1	Connection cable 1 (for CN511)	1
2	Connection cable 2 (for CN514)	1
3	Support to fix the board	4
4	Earth screws	2
5	Binding band A	4

3 Installation procedures

- Before proceed an installation work, please make sure the power supply is OFF.
- Insert four fixing supports (3) into the holes on the “Optional PCB”. (See Figure 1)
- Attach the “Optional PCB” on the designated location in the electrical component box of the header outdoor unit. (See Figure 2)
- Use the attached connection cables to connect the connector (PJ20 (Green)) on the “Optional PCB” to the connector (CN511 (Green)) or (CN514 (Green)) on the “Interface PCB”. (See Figure 3)
- Use the binding band (7) to tie and adjust a cable length.

[PCB Installation Position]

SMMS-i, SMMS-e

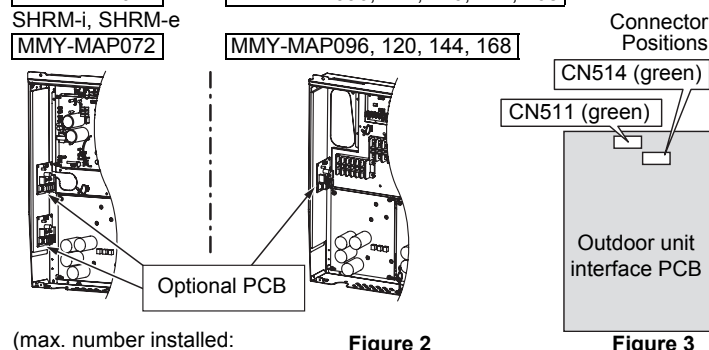
MMY-MAP072

SHRM-i, SHRM-e

MMY-MAP072

MMY-MAP096, 114, 120, 144, 168

MMY-MAP096, 120, 144, 168



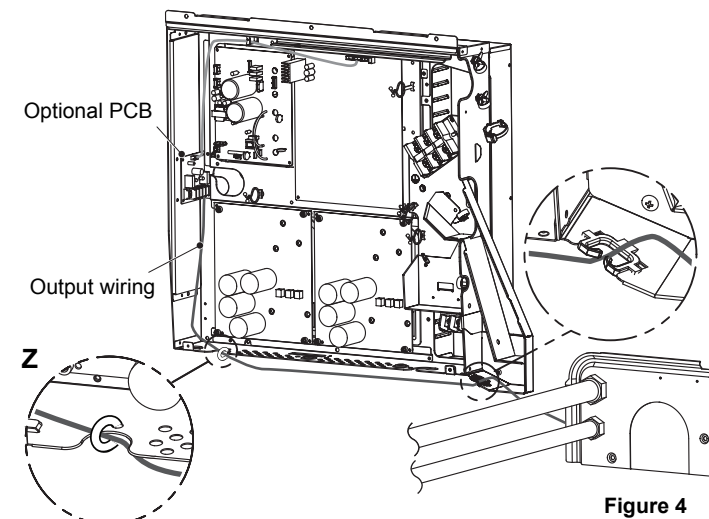
(max. number installed:
072: 2 pcs
096, 114, 120, 144, 168: 1 pcs)

4 Wiring

NOTE

Use copper supply wires.

SMMS-i, SHRM-i, SMMS-e, SHRM-e



[PCB Installation Position]

NOTE

Distance out wiring from high voltage parts.

- Tie an output wiring with the binding band A (5) at the position Z shown in the Figure 4.
- Route the connection cable as shown in the Figure 4. Also, use lower conduit hole for wiring.

5 Details of operation, electrical wiring diagram

CAUTION

Output Relay (K1, K2, K3) Contact Specifications

- Output terminals (OUTPUT1, 2, 3) must satisfy the following electrical rating.
- When connect a conductive load (e.g. relay coil) to loads K1, K2 and K3, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>

24 V or less (AC/DC), 10 mA or more, 1 A or less (non-conductive load)

Error / Operation output

▼ Function

The operation error output PCB can indicate operation and error states by connecting to the interface PCB of outdoor units.

▼ Operation

Operation output: The operation indicator is on while any indoor unit in the system is operating.

Error output: The error indicator is on when an error is occurred on even one of the indoor or outdoor units in the system.

Wiring example

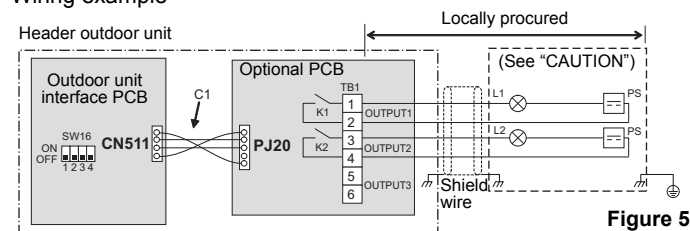


Table 2

C1	Connector cable 1 (1)
CN511	Connector on interface side (green)
K1, K2	Relays
L1	Error indication Lamp
L2	Operation indication Lamp
OUTPUT1	Error output
OUTPUT2	Operation output
PJ20	Connector on optional PCB side
PS	Power supply unit
TB1	Terminal block

* [OUTPUT3] is displayed when power is turned on.

Compressor operation output

▼ Function

While each compressor in the outdoor unit is running, the compressor operation signal is displayed. This function can also be used to measure the elapsed time for the compressor operation.

▼ Operation

While a compressor is in operation, the relay of the output terminal corresponding to the compressor turns on (closed). When the operation of a compressor is off, the relay turns off (opened).

As shown in the Figure 4, the output terminals are “OUTPUT1”, “OUTPUT2” and “OUTPUT3” from left to right of the compressors facing to the front of the outdoor unit.

Wiring example

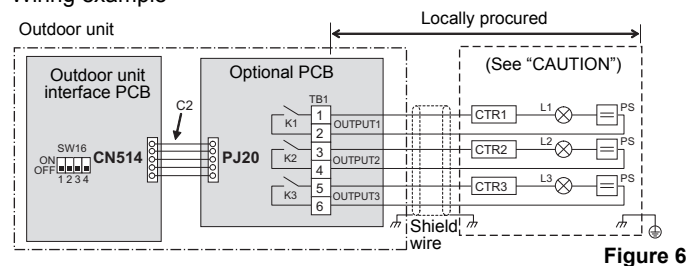


Table 3

C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
CTR1	Elapsed operation counter 1
CTR2	Elapsed operation counter 2
CTR3	Elapsed operation counter 3
K1, K2, K3	Relays
L1, L2, L3	Operation indication LEDs
OUTPUT1	Compressor 1 operation output terminal
OUTPUT2	Compressor 2 operation output terminal
OUTPUT3	Compressor 3 operation output terminal
PJ20	Connector on optional PCB side
PS	Power supply unit
TB1	Terminal block

Operating rate output

▼ Function

The state of operation is available to check remotely as the signal of system operation rate enable to output.

▼ Operation

As shown in the table, each of the output terminals turns ON (relay closes) and OFF (relay opens) depending on the system operating rate.

Table 4

Functions	SW16	OUTPUT1	OUTPUT2	OUTPUT3	Operating rate FA
System operating rate output	ON	OFF	OFF	OFF	FA=0 %
	OFF	ON	OFF	OFF	0 %<FA<20 %
	ON	OFF	ON	OFF	20 %≤FA<35 %
	OFF	ON	ON	OFF	35 %≤FA<50 %
	ON	OFF	OFF	ON	50 %≤FA<65 %
	OFF	ON	OFF	ON	65 %≤FA<80 %
	ON	OFF	ON	ON	80 %≤FA<95 %
	OFF	ON	ON	ON	95 %≤FA

OFF=relay open ON=relay closed

Wiring example

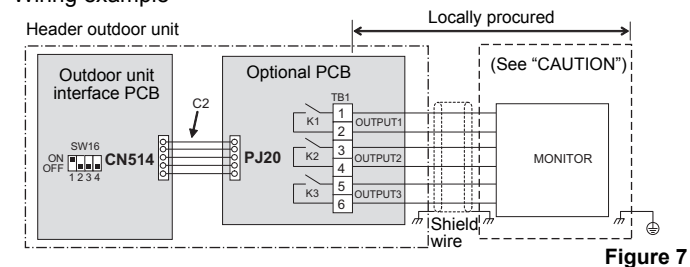


Table 5

C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
K1, K2, K3	Relays
MONITOR	Monitoring device
OUTPUT1	Output terminal for each function
OUTPUT2	Output terminal for each function
OUTPUT3	Output terminal for each function
PJ20	Connector on optional PCB side
TB1	Terminal block