TOSHIBA TCB-PCIN4E Output Control Board Installation Guide

Contents

TOSHIBA

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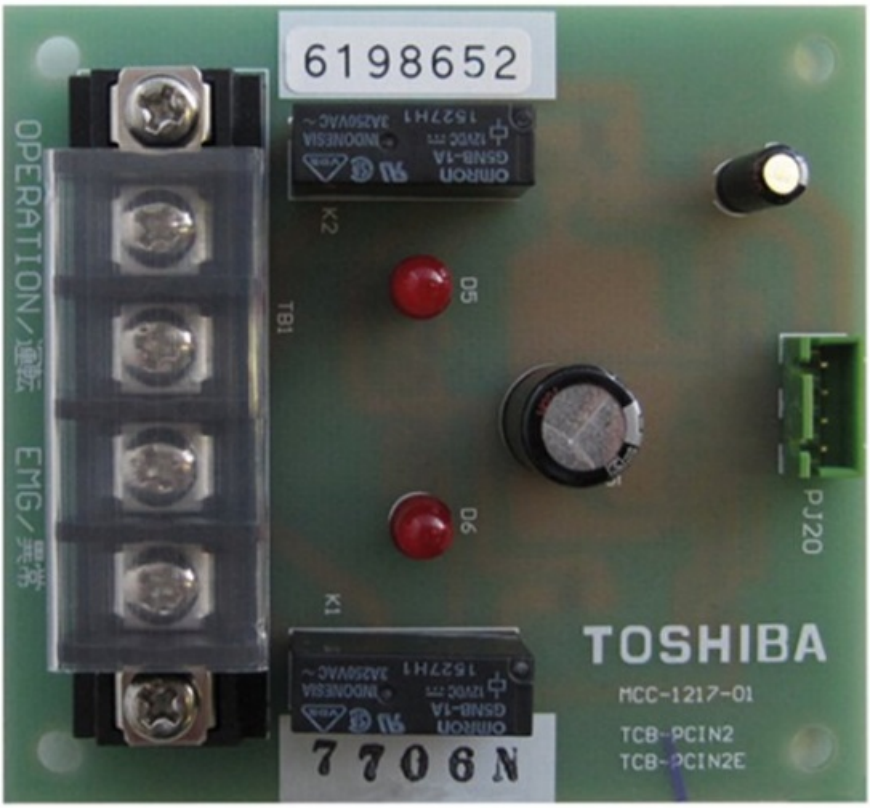


Product Information

The product is an Output Control Board with the model number TCB-PCIN4E. It is compatible with SMMS-u or SHRM-A systems. The board is used for controlling and monitoring the operation of the outdoor unit.

The installation manual provides important safety precautions, which should be read before proceeding with the installation.

External View

The board has a terminal block (M3) with 4-4 mm diameter mounting holes. It also includes various accessories such asconnection cables, wire clamps, binding bands, and clamp filters of different diameters.

Optional PCB

There are two types of optional PCBs available, type A and type B. The number of optional PCBs that can be installed depends on the model. The optional PCBs are connected to the main interface PCB using connector cables.

Wiring

The output wiring should be connected to the board using clamp filters and binding bands. If multiple optional PCBs are installed, all the connection cables should be banded together and attached with one clamp filter. The redundant connection cables should also be banded together using a binding band.

The connection cable and output wiring should be fixed using wire clips and cable straps.

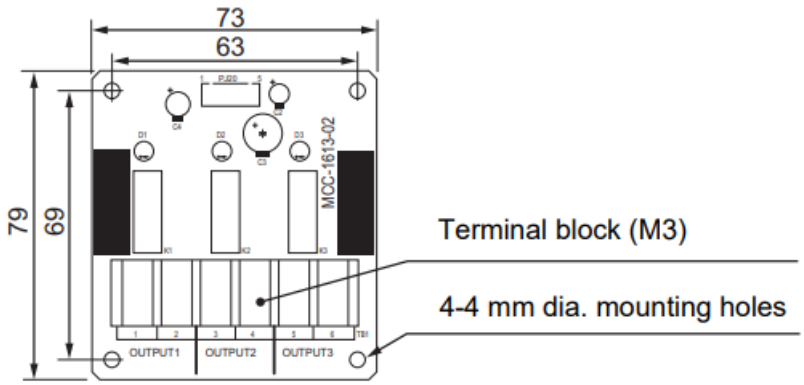
Product Usage Instructions

1. Before starting the installation, make sure to turn off the power supply.
2. Install the optional PCB at the specified position inside the electrical components box.
3. Use the fixing support to secure the optional PCB in place.
4. There are four mounting holes inside the electrical components box for attaching the fixing support.
5. Connect the connector (PJ20) on the optional PCB to the connector (CN511 or CN514) on the interface PCB using the provided connector cable.
6. Tie the cable using the binding band.

For detailed information on the operation and electrical wiring, refer to the product manual.

Precautions for Safety
As for the Precaution for Safety, please read the Installation Manual of outdoor unit.

External View



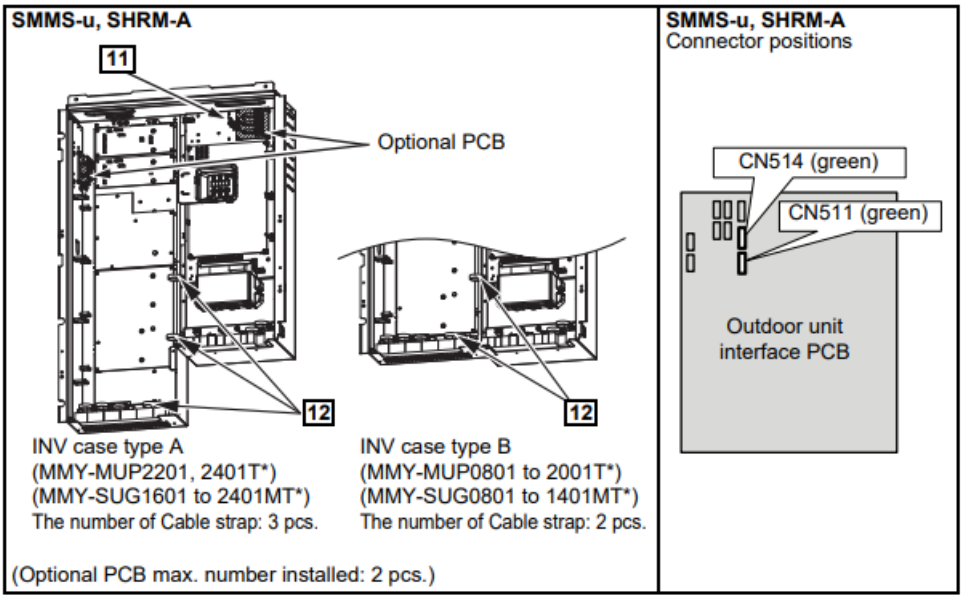
Accessories

No.	Part Name		Q'ty
1	Connection cable 1 (for CN511)	 (4 wires)	1
2	Connection cable 2 (for CN514)	 (5 wires)	1
3	Support to fix the board		4
4	Wire clamp		1
5	Wire clamp fixing screw		1
6	Earth screws		2
7	Binding band A		4
8	Clamp filter (DIA. 20)	(DIA. 20) 	2
9	Binding band B		4
10	Clamp filter (DIA. 30)	(DIA. 30) 	3
11	Wire clip		1
12	Cable strap		3

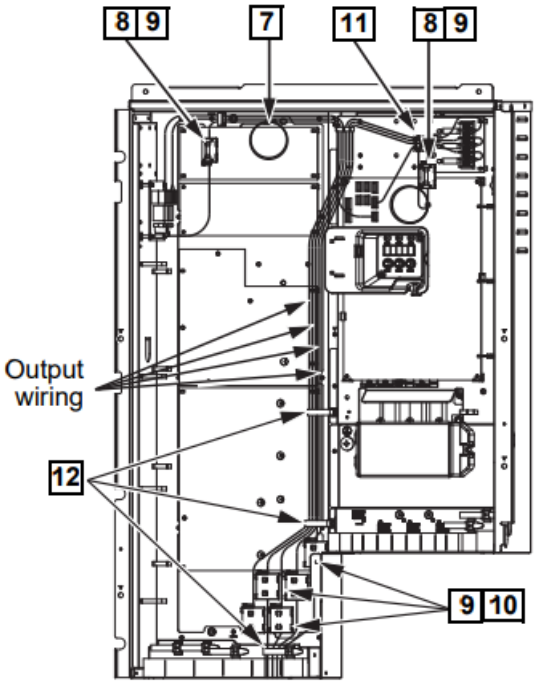
Installation

1. Before starting installation work, be sure to turn the power supply OFF.
2. Install the “Optional PCB” at the position on the electrical components box shown in the figure on the right.
3. Install the “Optional PCB” at the specified location inside the electrical components box using the fixing support.
4. There are four mounting holes for the fixing support at specified locations inside the electrical components box.
5. Connect the connector (PJ20 (green)) on the “Optional PCB” to the connector (CN511 (green) or CN514 (green)) on the “interface PCB” using the connector cable (provided). (See figure on right.)
6. The cable (provided) is long. Tie it using the binding band.

[PCB Installation Position] PCB: Printed Circuit Board



Wiring



1. Attach the clamp filter (8) to the connection cable (1 or 2) and attach the clamp filter (10) to the output wiring

as shown in the figure.

Use binding band B (9) to fix the clamp filter (8 or 10) to the wiring.

* When more than one optional PCBs are installed, band all the connection cables and attach one clamp filter.

2. Band the redundant connection cables ((1 or 2) as shown in the figure and tie them with binding band A (7).
3. Fix the connection cable (1 or 2) and the output wiring with wire clip and cable strap as shown in the figure.

Electrical Wiring Diagram

Details of Operation, Electrical Wiring Diagram

CAUTION

Output Relay (K1, K2) Contact Specifications

- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1 and K2, 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>
220-240 VAC, 10 mA or more, 1A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

Trouble / Operation output

Functions

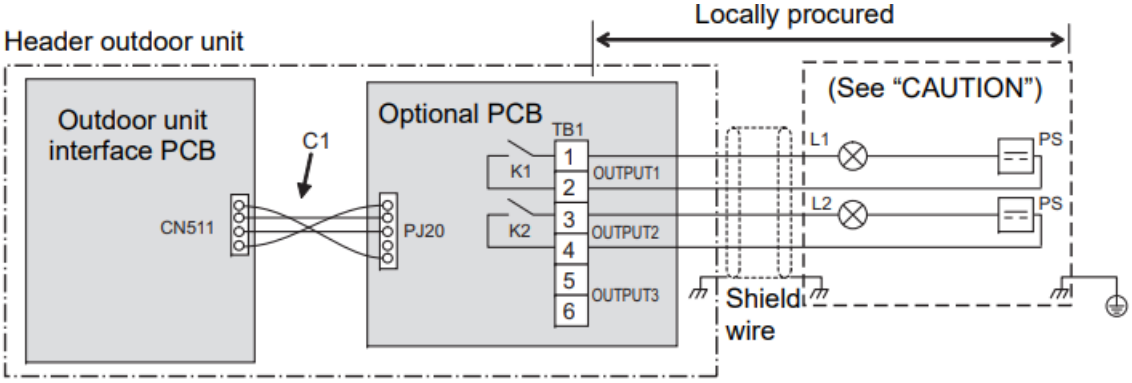
The operation trouble indication PCB can output operation and trouble states by connecting to the interface PCB of outdoor units.

Operation

- **Operation output:** The operation indication is output when even one of the indoor units in the system is operating.
- **Trouble output:** The trouble indication is output when a trouble has occurred on even one of the indoor units or outdoor units in the system.

Operation output and Trouble output are output simultaneously during outdoor unit automatic backup operation.

Wiring example



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

Connect optional PCBs to the header outdoor unit.

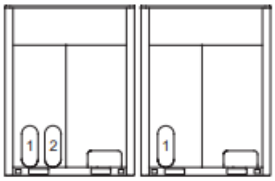
Compressor Operation Output

Functions

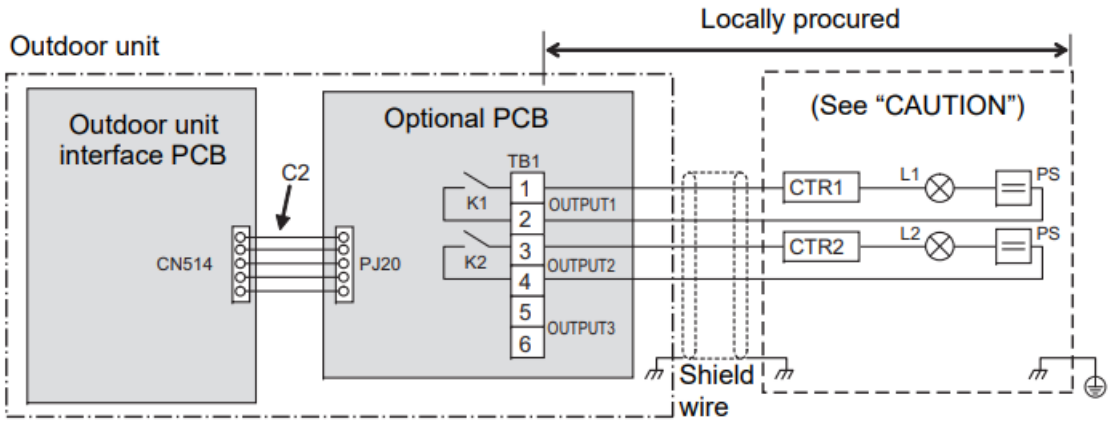
This function can be applied, for example, to the elapsed operation time count of each compressor mounted on an outdoor unit since the compressor in operation signal can be output externally.

Operation

During compressor operation, the relay of the output terminal corresponding to that compressor turns ON (closes) and turns OFF (opens) when compressor operation stops.
As shown in the figure, the output terminals are “OUTPUT1” and “OUTPUT2” from the left compressor facing the front of the outdoor unit.



Wiring example



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

Operating Rate Output

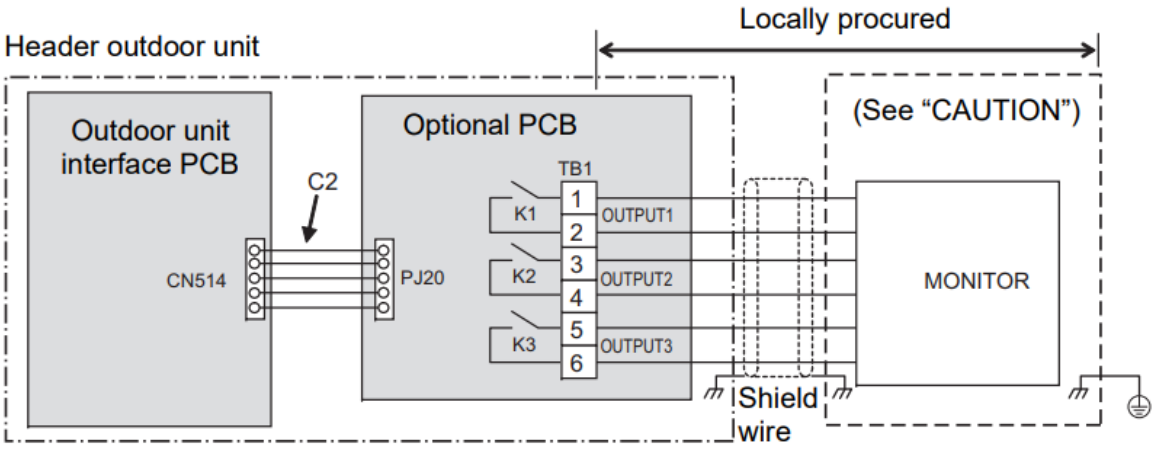
Functions
The operation state can be remotely checked since the system operating rate signal can be outputexternally.

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

Functions	Outdoor DN Code (O.DN)	OUTPUT 1	OUTPUT 2	OUTPUT 3	Operating rate FA
System operating rate output	O.DN [012] = 1	**OFF**	**OFF**	**OFF**	**FA = 0%**
		ON	**OFF**	**OFF**	**0% < FA < 20%**
		OFF	**ON**	**OFF**	**20% £ FA < 35%**
		ON	**ON**	**OFF**	**35% £ FA < 50%**
		OFF	**OFF**	**ON**	**50% £ FA < 65%**
		ON	**OFF**	**ON**	**65% £ FA < 80%**
		OFF	**ON**	**ON**	**80% £ FA < 95%**
		ON	**ON**	**ON**	**95% £ FA**

OFF=relay open ON=relay closed

Wiring example



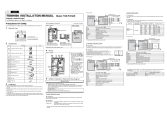
C2	**Connector cable 2** (	**2**	)
CN514	**Connector on interface side (green)**		
K1, K2	**Relays**		
MONITOR	**Monitoring device**		
OUTPUT1	**Output terminal for each function**		
OUTPUT2	**Output terminal for each function**		
OUTPUT3	**Output terminal for each function**		
PJ20	**Connector on optional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

* Connect optional PCBs to the header outdoor unit.

“Compressor Operation Output” and “Operation Rate Output” can be switched with the Outdoor DN Code (O.DN). To set Outdoor DN Code (O.DN), refer to the Installation Manual for the outdoor unit used.

Function	Outdoor DN Code (O.DN)
Compressor Operation Output	[012] = 0 (factory default)
Operation Rate Output	[012] = 1

Documents / Resources

	TOSHIBA TCB-PCIN4E Output Control Board [pdf] Installation Guide TCB-PCIN4E Output Control Board, TCB-PCIN4E, Output Control Board, Control Board, Board