

## MSB Kits for Connecting Multiple Water Heaters

The MSB kits can electronically connect up to 25 water heaters.

For proper operation, it is not recommended that different models be connected together. Combining different models may result in lower performance.

### Models

For use with Rinnai Tankless Water Heaters\* (except for models V53e, V53i, and R63LSe which must use pressure activation valves, PVA).

### System Operation

When multiple water heaters are operating, they will attempt to supply equal amounts of hot water.

The order in which each water heater operates is occasionally rotated to ensure equal usage among the entire system.

On initial water flow demand, 1 to 3 units are in standby which means that their servos valves are open until flow demand is determined. Only the necessary number of water heaters will begin to fire to meet demand. Water heaters not firing will close their valves.

The number of units that are in standby can be determined by a dip switch setting of the master MSB board. It is recommended that the dip switch settings on MSB boards other than the master MSB board be set for 1 unit in standby.

The number of units in standby will affect the activation flow rate. With 3 units in standby, the activation flow rate is 3 times the rate for a single water heater. If the activation flow rate for a single water heater is 0.4 gal/min then for a system with 3 water heaters in standby, the activation flow rate will be 1.2 gal/min.

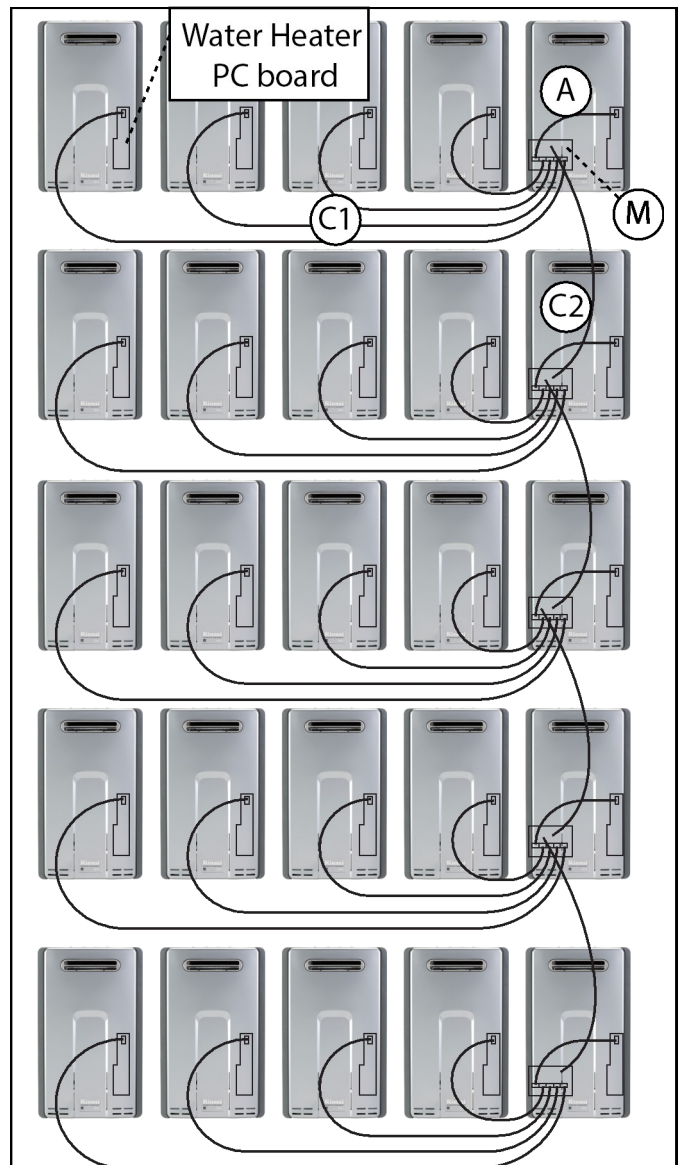
### Temperature

The temperature setting for all of the connected water heaters is controlled by the temperature controller connected to the water heater with the master MSB Board. Temperature controllers connected to the other units will provide maintenance codes for their respective units.

If water heaters do not use a temperature controller, the temperature will be that temperature setting of the water heater with the master MSB board (120°F or 140°F).

On applicable models\* a single MCC-91-2 can be connected to the master MSB Board to provide temperatures greater than 140°F for all the water heaters in the MSB system.

\* C199 models do not require the use of an MCC-91-2 controller for temperatures greater than 140°F.



In the diagram above, 25 water heaters are electronically connected. Each bank of 5 is controlled by an MSB-M control board. These boards are connected to each other with MSB-C2 cables. One MSB-M is the controlling or master MSB-M for the entire system.

- (M) MSB-M control board
- (A) Connector cable A (part of MSB-M kit; replace with MSB-C3 cables for V Series)
- (C1) MSB-C1 cable for connecting water heaters within a banked system (up to 5), (use MSB-C3 cables for V Series)
- (C2) MSB-C2 cable for connecting MSB-M control boards (up to 5)

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## MSB Kits - Parts Needed

Use the table to determine the type and number of kits necessary for your system.

Up to 5 water heaters can be connected together using the MSB-M and MSB-C1 kits. When over 5 water heaters are connected together, MSB-M control boards are connected using MSB-C2 kits.

If multiple MSB-M control boards are used, then at least three water heaters should be connected to each MSB-M. Example: With 7 water heaters, one MSB-M should control 4 water heaters and the other MSB-M should control 3 water heaters.

Detailed installation instructions are provided with each of the kits.

\* VA, VB, VC, KA, and KB (Condensing) models use the MSB-M, MSB-C1, and MSB-C2 cables

V Series models use the MSB-M, MSB-C2, and MSB-C3 cables. V Series models must use the MSB-C3 cables instead of the MSB-C1 cables and the Cable A in the MSB-M.

\*\* The Rinnai EZConnect™ is less expensive and is specifically designed for connecting 2 water heaters. Applicable models are VA, VB, VC, KA, KB, and V3237.

No. of water heaters	No. of water heaters for each bank	Number of Kits Required			
		MSB-M	MSB-C1 See note *	MSB-C2	MSB-C3 See note *
2**	2	1	NA	NA	1
3	3	1	1	NA	2
4	4	1	2	NA	3
5	5	1	3	NA	4
6	3/3	2	2	1	4
7	4/3	2	3	1	5
8	4/4	2	4	1	6
9	5/4	2	5	1	7
10	5/5	2	6	1	8
11	4/4/3	3	5	2	8
12	4/4/4	3	6	2	9
13	5/4/4	3	7	2	10
14	5/5/4	3	8	2	11
15	5/5/5	3	9	2	12
16	4/4/4/4	4	8	3	12
17	5/4/4/4	4	9	3	13
18	5/5/4/4	4	10	3	14
19	5/5/5/4	4	11	3	15
20	5/5/5/5	4	12	3	16
21	5/4/4/4/4	5	11	4	16
22	5/5/4/4/4	5	12	4	17
23	5/5/5/4/4	5	13	4	18
24	5/5/5/5/4	5	14	4	19
25	5/5/5/5/5	5	15	4	20

### MSB-M kit includes

- Control board
- Cable A (23 in, 585 mm)
- Cable B (9.8 ft, 3 m)
- Brackets, ties, and screws
- Instructions

### MSB-C1 kit includes

- Cable B (9.8 ft, 3 m)
- Brackets, ties, and screws
- Instructions

### MSB-C2 kit includes

- MSB Cable (13.1 ft, 4 m)
- Terminal connectors
- Instructions

### MSB-C3 kit includes

- C3 Cable (9.8 ft, 3 m)
- Instructions