



**RAS-M Interface  
for  
Toshiba TCC-Link**

Installation and User Guide



# Contents

<b>1. Important Information</b> .....	<b>2</b>
<b>2. Product Overview</b> .....	<b>2</b>
<b>3. Supplied Parts</b> .....	<b>2</b>
<b>4. Connection Details</b> .....	<b>3</b>
<b>5. Installation</b> .....	<b>3</b>
<b>6. Configuration</b> .....	<b>4</b>
6.1 S1 Bitswitch Function .....	4
<b>Appendix A : Document Revision History</b> .....	<b>5</b>

# 1. Important Information

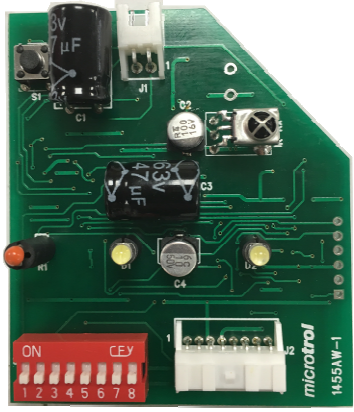

- All electrical work should be carried out by a competent person and wiring must be in accordance with the national electrical installation regulations.
- Ensure that installation work is done correctly using the information contained in this manual.
- Make all connections securely so that any outside forces acting on the cables are not applied to the terminals.
- Never modify or repair the Black Pear interface by yourself.  
Any attempt to do so will void the warranty.
- To dispose of this product, consult your dealer.

# 2. Product Overview

The Black Pear RAS-M interface provides a TCC-Link connection for new style Toshiba MIRAI air-conditioner units eg. RAS-07BKVG-E.

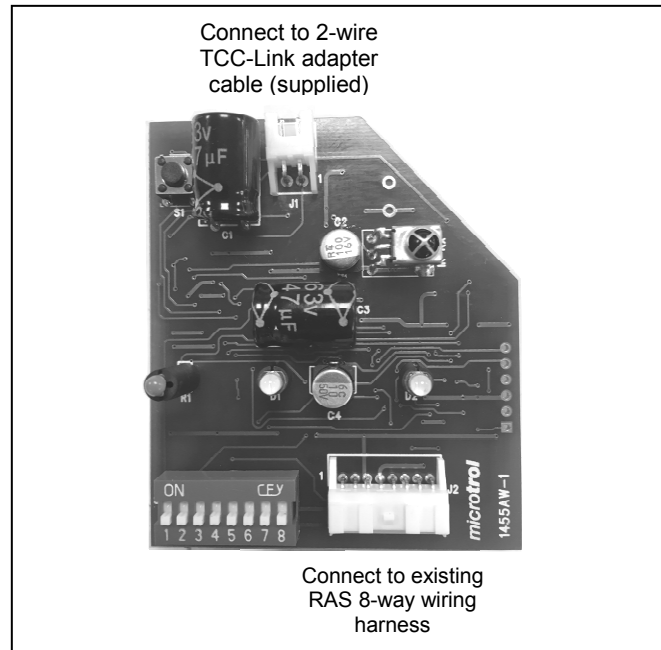
It replaces the existing air-conditioner infra-red PCB but still allows manual control using the I/R remote controller.

# 3. Supplied Parts

 A green printed circuit board (PCB) for the RAS-M interface. It features various electronic components including capacitors (C1, C2, C3, C4), resistors (R1), and a microcontroller labeled 'microcontrol 1455W-1'. There is a red terminal block with 8 pins labeled 'ON' and 'CEY' (1-8), and a white connector labeled 'J2'.	RAS-M interface pcb
 A long, thin, yellow and black striped cable with a white plastic connector at one end.	2-wire TCC-Link adapter cable

## 4. Connection Details

**All electrical work should be carried out by a competent person and wiring must be in accordance with the national electrical installation regulations.**



## 5. Installation

The RAS-M interface replaces the existing IR receiver pcb in the RAS unit.

**ISOLATE THE RAS UNIT BEFORE REMOVING THE COVER.**

- 1) Carefully remove the existing board in its plastic housing.
- 2) Separate the housing and remove the board, unplugging the 8-way white connector CN10.
- 3) Take the RAS interface and plug in both the 8-way connector (J2) and the supplied 2 pin TCC-Link connector (J1).
- 4) Fit the RAS interface into the plastic housing and re-assemble the housing ensuring that both leads exit through the provided side holes.
- 5) Fit the 2 way TCC-Link terminal block into the space adjacent to the main supply connector, securing it with the screw provided.

## 6. Configuration

### 6.1 S1 Bitswitch Function

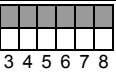
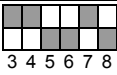
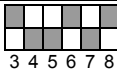
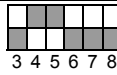
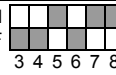
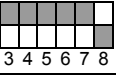
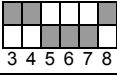
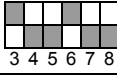
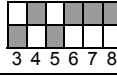
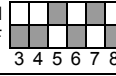
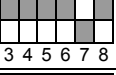
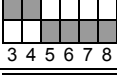


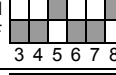
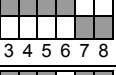

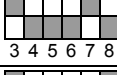
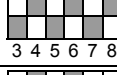

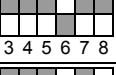
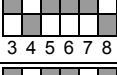
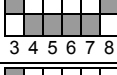
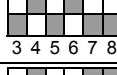
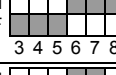
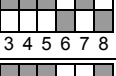

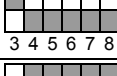
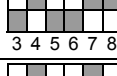
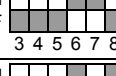
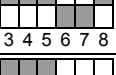
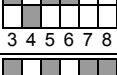
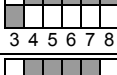
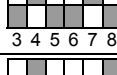
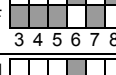
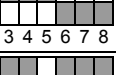


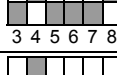
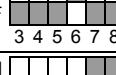



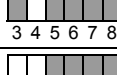
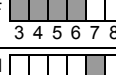
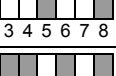
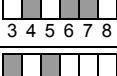
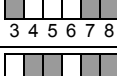
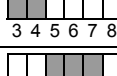
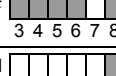


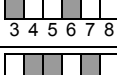
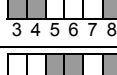
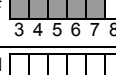

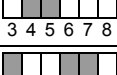
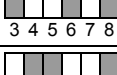

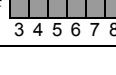
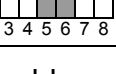
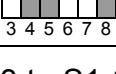
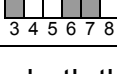
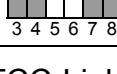
**S1-1** On = 100 ohm terminator connected across the TCC-Link lines  
 Off = No terminating resistor.

**Note:- Only one terminating resistor should be enabled per network**

**S1-2** On = Auto Restart  
 Off = Start in the OFF condition

**Note:- S1-2 overrides the normal auto restart feature**

**S1-3 to S1-8** Set the address of the unit; S1-3 = MSB : S1-8 = LSB  
 The address is the binary value of S1-3 to S1-8 plus 1.  
 (all switches off = 1, all switches on = 64)

1	ON OFF 	14	ON OFF 	27	ON OFF 	40	ON OFF 	53	ON OFF 
2	ON OFF 	15	ON OFF 	28	ON OFF 	41	ON OFF 	54	ON OFF 
3	ON OFF 	16	ON OFF 	29	ON OFF 	42	ON OFF 	55	ON OFF 
4	ON OFF 	17	ON OFF 	30	ON OFF 	43	ON OFF 	56	ON OFF 
5	ON OFF 	18	ON OFF 	31	ON OFF 	44	ON OFF 	57	ON OFF 
6	ON OFF 	19	ON OFF 	32	ON OFF 	45	ON OFF 	58	ON OFF 
7	ON OFF 	20	ON OFF 	33	ON OFF 	46	ON OFF 	59	ON OFF 
8	ON OFF 	21	ON OFF 	34	ON OFF 	47	ON OFF 	60	ON OFF 
9	ON OFF 	22	ON OFF 	35	ON OFF 	48	ON OFF 	61	ON OFF 
10	ON OFF 	23	ON OFF 	36	ON OFF 	49	ON OFF 	62	ON OFF 
11	ON OFF 	24	ON OFF 	37	ON OFF 	50	ON OFF 	63	ON OFF 
12	ON OFF 	25	ON OFF 	38	ON OFF 	51	ON OFF 	64	ON OFF 
13	ON OFF 	26	ON OFF 	39	ON OFF 	52	ON OFF 		

The address set by S1-3 to S1-8 is used for both the central TCC-Link address and also for the Unit address in the Line/Unit addressing mode.

The Line address for the RAS-M interface is always 30.

## Appendix A : Document Revision History

<b>Date</b>	<b>Document Ver</b>	<b>Firmware Ver</b>	<b>By</b>	<b>Comments</b>
19/01/2018	v1.00	v1.13	mcb	First version converted from preliminary instructions to booklet.

Microtrol Ltd  
16 Elgar Business Centre  
Moseley Road  
Hallow  
Worcester  
WR2 6NJ  
UK

Tel: +44 (0)1905 641910

Email: [sales@microtrol.co.uk](mailto:sales@microtrol.co.uk)