

PRODUCT BULLETIN

NEW RBC-DXC031 0~10V AHU DX INTERFACE BMS CAPACITY CONTROL

- RAV Digital Inverter and Super Digital Inverter
- VRF SMMSi

**** Available with immediate effect ****

TOSHIBA are pleased to announce the release of the light commercial and VRF 0-10V interface which is designed for BMS capacity control.

1. Introduction

The existing LC & VRF DX Interfaces use a TA sensor and set-point (via Remote Controller) to maintain Room Air or Return Air temperature. In response to Customer requests we have developed a new DX interface which can directly control capacity, operation and mode from a BMS system.

The new LC / VRF 0-10V AHU DX Interface enables BMS capacity control of Toshiba outdoor units connected to a DX Coil in an Air Handling Unit. It is compatible with either a Toshiba LC system DI /SDI / DI-Big or a Toshiba VRF system SMMSi (only).

The interface includes a common DX Interface (RBC-DXC031) for both LC & VRF systems. Default setting is configured to operate in LC model mode. Configuration for use with a VRF system is made by change to DIP-Switch setting.

The VRF 0-10V DX Interface will only be compatible with SMMSi 8HP & 10HP outdoor units. Additionally these systems require an appropriately sized VRF DX PMV kit that must be brazed to the DX Coil used in conjunction with the DX Interface. The VRF DX PMV kit is supplied separately at additional cost.

For LC systems the DX Interface is connected directly to the outdoor unit and no additional DX PMV kit is required. The Toshiba system must be connected 1:1 with a DX-Coil up to 10HP.

DX Coil's larger than 10HP need to be split into separate sections each with dedicated circuits (Distributors and Headers).

2. Product Line Up



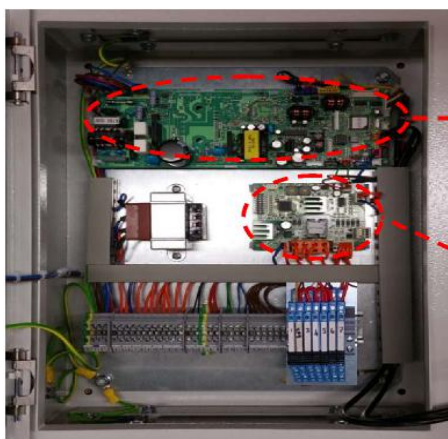
3. Features

CN60	
CN60 Pin Connection	Output Function
CN60 1+2	Defrost
CN60 1+3	Cooling/Heating start up control (VRF only)
CN60 1+4	Pre-defrost signal (VRF only)
CN60 1+5	Cooling (NO) / Heating (NC)
CN60 1+6	Fan Operation

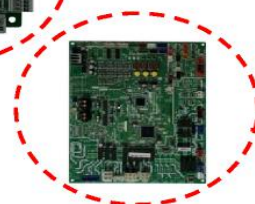
CN61	
CN61 Pin Connection	Input/Output Function
CN61 1+2	ON/OFF Control (unwired option)
CN61 2+3	Remote controller ON/OFF prohibit (unwired option)
CN61 4+5	Operation output (unwired option)
CN61 5+6	Alarm output
CN73 1+2	Thermostat input (unwired option)

0-10v Interface PCB	
Input/Output	Function
AI. 1	Demand input (0~10V)
DI. 1	ON / OFF control
DI. 2	Operating mode change (cool / heat)
DO.1	Output function set by rotary switches SW.1 & SW.2: SW. Position: 0 = Lower than capacity command 1 = Higher than capacity command 2 = Cooling oil recovery / heating refrigerant recovery (VRF only) 3 = Heating output 4 = Cooling output 5 = Thermo ON 6 ~ F = No function (for future development)

Software and Hardware modified MCC-1570 PCB dedicated for the DX Interface (0-10V)



New 0-10v PCB developed by Toshiba for the DX Interface (0-10V)



Note: updated software is required for SMMSi outdoor unit(s) PCB and this may involve the on-site replacement of the PCB fitted to currently stocked products. Later edition products will not require this modification (managed by the EMEA engineering department).

4. DX-Coil / AHU Sizing

For LC DX Interface use the following table to size AHU and DX Coil:-

Total Size	HP	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0
RBC-DXC031	-	1	1	1	1	1	1	1	1	1
Nominal Cooling Capacity (kW)	DI	2.5	3.6	5.0	6.7	10.0	12.1	14.0	20.0	23.0
Nominal Cooling Capacity (kW)	SDI	2.5	3.6	5.0	7.1	10.0	12.5	14.0	20.0	23.0
Nominal Heating Capacity (kW)	DI	3.4	4.0	5.3	7.7	11.2	12.8	16.0	22.4	27.0
Nominal Heating Capacity (kW)	SDI	3.4	4.0	5.6	8.0	11.2	14.0	16.0	22.4	27.0
Minimum Air volume flow rate (m ³ /hr)		480	522	720	1060	1280	1680	2080	2880	3360
Standard Air volume flow rate (m ³ /hr)		600	650	900	1320	1600	2100	2600	3600	4200
Maximum Air volume flow rate (m ³ /hr)		660	690	1080	1580	1920	2520	3360	4320	5040
Minimum DX Coil internal volume (dm ³)		0.5	0.5	0.8	1	1.5	1.7	1.7	3	3
Maximum DX Coil internal volume (dm ³)		0.7	0.7	1.1	1.4	2.1	2.7	3.2	4.2	5.4

For VRF DX Interface use the following table to determine AHU and DX Coil sizes:-

Total Size	HP	1.0	1.5	2.0	3.0	4.0	5.0 *	6.0 **	8.0	10.0
RBC-DXC031	-	-	-	-	-	-	1	1	1	1
MM-DXV141	5.0	-	-	-	-	-	1	-	-	-
	6.0	-	-	-	-	-	-	1	-	-
MM-DXV281	8.0	-	-	-	-	-	-	-	1	-
	10.0	-	-	-	-	-	-	-	-	1
Nominal Cooling Capacity (kW)		-	-	-	-	-	14.0	16.0	22.4	28.0
Nominal Heating Capacity (kW)		-	-	-	-	-	16.0	18.0	25.0	31.5
Minimum Air volume flow rate (m ³ /hr)		-	-	-	-	-	1750	2310	3010	3500
Standard Air volume flow rate (m ³ /hr)		-	-	-	-	-	2500	3300	4300	5000
Maximum Air volume flow rate (m ³ /hr)		-	-	-	-	-	3000	3960	5160	6000
Minimum DX Coil internal volume (dm ³)		-	-	-	-	-	1.7	1.7	3	3
Maximum DX Coil internal volume (dm ³)		-	-	-	-	-	2.7	3.2	4.2	5.4

* Using 8HP SMMSi Outdoor 1:1 with Diversity (62.5%) / ** Using 10HP SMMSi Outdoor unit 1:1 with Diversity (60.0%)

Notes:

Heating & Cooling Capacity are guide-line figures, the design of each customer's AHU and DX Coil will have an impact on the actual system performance.

Heating Capacity Conditions (coil in 20 °C DB) at Standard Air Flow rate.

Cooling Capacity Conditions (coil in 27 °C DB / 19 °C WB) at Standard Air Flow rate.

Toshiba Carrier (UK) Ltd does not take any responsibility on the local design of the DX coil.

- ◆ VRF Diversity ratio: 60% - 100%
- ◆ Heating mode DX Coil Air ON operating range: Min: 12 °C DB * / Max: 28 °C DB (* pull down = 7°C)
- ◆ Cooling mode DX Coil Air ON operating range: Min: 15 °C WB / Max: 24°C WB (18°C DB ~ 32°C DB)

For further information please contact our customer support team on 0870 843 0333, your local representative, your supplier of **TOSHIBA** products or email any enquiries to: - general.enquiries@toshiba-ac.com