Cool Designs Ltd

Air Conditioning Design & Distribution

Pocket Quick Reference Guide

On TOSHIBA / RealTime

FDP3-Full AHU Control Interface

Cool Designs Ltd
Raising the Standards in Air Conditioning Distribution
www.cdlweb.info

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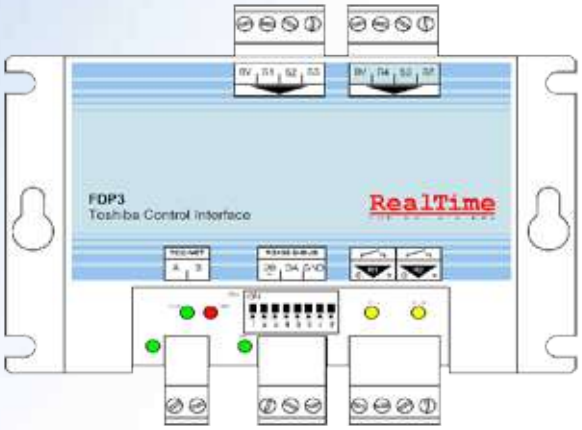
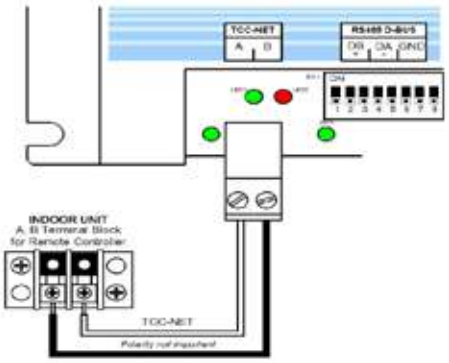
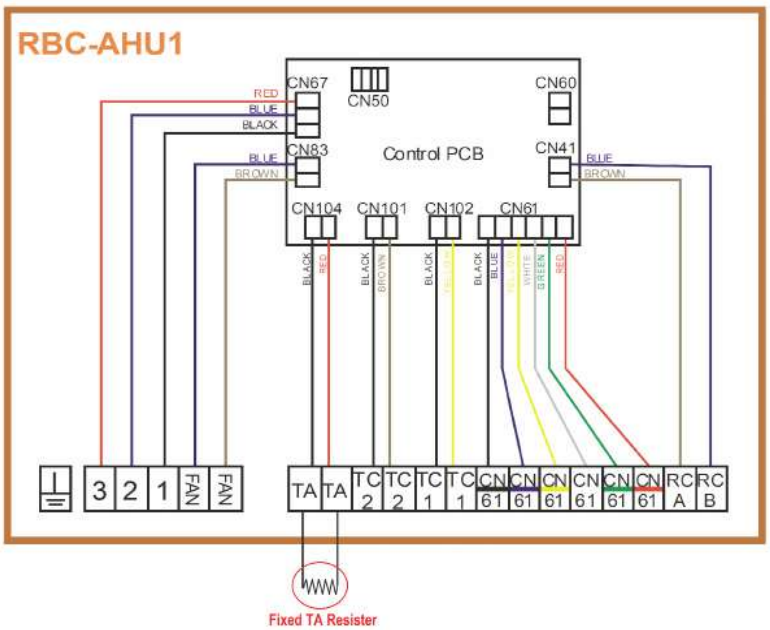
FDP3 ModBus AHU Control interface.



The FDP3 Full Version contains modified software to act as a controller to the TOSHIBA RBC-AHU1 air handling unit interface.

It is connected to the AB connection on the RBC-AHU1.





The Fixed resistance in the TA sensor connection on the AHU1 must be left in place.

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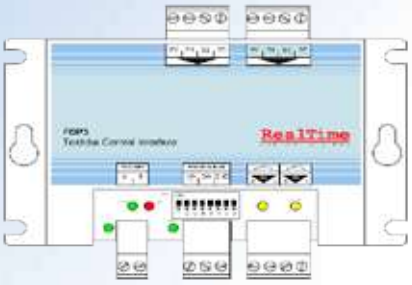
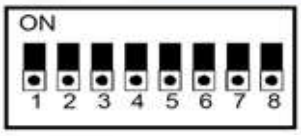


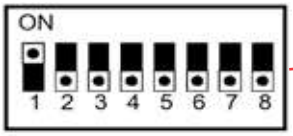
Dip Switch Setting

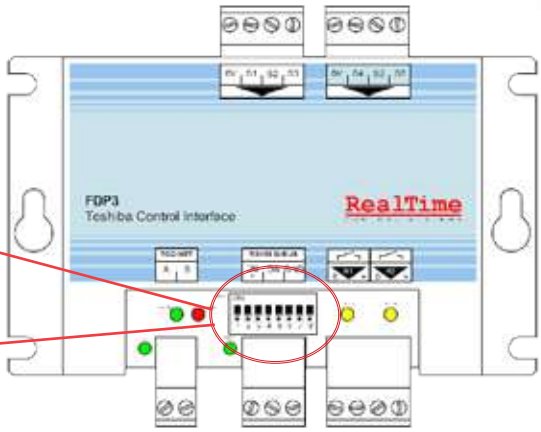
Depending upon the position of SW1 on the FDP3, the FDP3-AHU controller will operate in different modes. The outdoor unit will run at full demand or at a demand dependant upon the supplied voltage.

SW1 OFF Full demand depending on Dls



SW1 ON Demand Depending upon a 0-10 Volt Input.





Unit DN Code Settings

The Configuration settings below need to be made by accessing the (Set,Spanner and Clear on the Remote Controller (Toshiba RBC-AMT32E/AMS41E, for instructions how to undertake configuration settings with the Toshiba RBC-AMS51-ES please refer to our web site for the "Pocket Guide" for this controller) and changing the DN codes as below).

Note: Configuration setting is not possible with the Toshiba RBC-AS41E remote controller.

Enter Configuration Menu
Press and hold
Test(Spanner), Set & CL

DN code = 10 (Right Hand Display)
Set Left Hand Display to 0006
(Via TImer up and Down Buttons)
Press Set

DN code = 6 (Via Temp up & Down Buttons)
Set Left Hand Display to 0000
(Via Timer up and Down Buttons)
Press Set then Test (Spanner)

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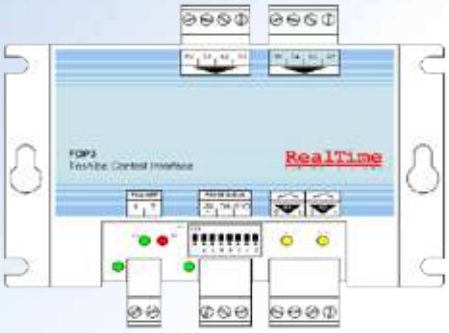
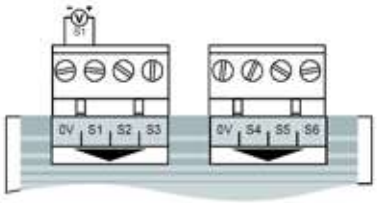
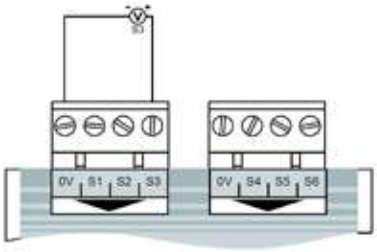


DIS Connections

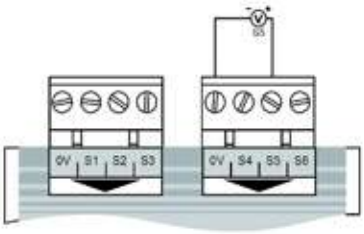
Terminals 0V & S1
0 to 10 volt input ONLY used in demand control



Terminals 0V & S3
Heat Command (Contact Closed)
Cool Command (Contact Open)



Terminals 0V & S5
Off Command (Contact Open)
On Command (Contact Closed)



Full Demand Control

In this mode an instruction is given to the outdoor unit to run in maximum cooling or heating mode.
A no volt contact applied across terminals 0V & S3 will select the mode (Open) Cool/ (Closed) Heat
A second no volt contact applied across terminals 0V & S5 will select the operation
(Open) Stop/ (Closed) Start.

0 - 10 Volt Control

In this mode a voltage is applied across terminals 0V & S1 this will then instruct the outdoor unit to operate at a speed proportinal to the voltage applied.
A no volt contact applied across terminals 0V & S3 will select the mode (Open) Cool/ (Closed) Heat
A second no volt contact applied across terminals 0V & S5 will select the operation
(Open) Stop/ (Closed) Start.

OV = 0, 1V=10%,2V=20%, 3V=30%, 4V=40%, 5V=50%, 6V=60%, 7V=70%, 8V=80%, 9V=90%, 10V=100%

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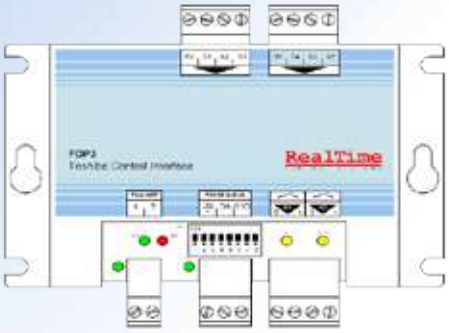

ModBus Registers

Operation Procedure

Virtual S5
ModBus Register 13005
This register tells the unit to start and stop, a signal of 0 = Off and 100 = Run

Virtual S3
ModBus Register 13003
This register tells the unit which mode to operate in, 0= Cool and 100 = Heating

Virtual S1 (If using demand level control)
ModBus Register 13001
This register tells the compressor what speed to operate at for capacity control.
0=minimum and 1500 is the maximum

The ModBus based BMS should be sending the following commands to the FDP3 for cooling and heating operation:-

Cooling Operation

S5 (Register 13005)	**100 (On)**
S3 (Register 13003)	**0 (Cool)**
S1 (Register 13001)	**A figure between 0 and 1500 depending on capacity required**

Heating Operation

S5 (Register 13005)	**100 (On)**
S3 (Register 13003)	**100 (Heat)**
S1 (Register 13001)	**A figure between 0 and 1500 depending on capacity required**

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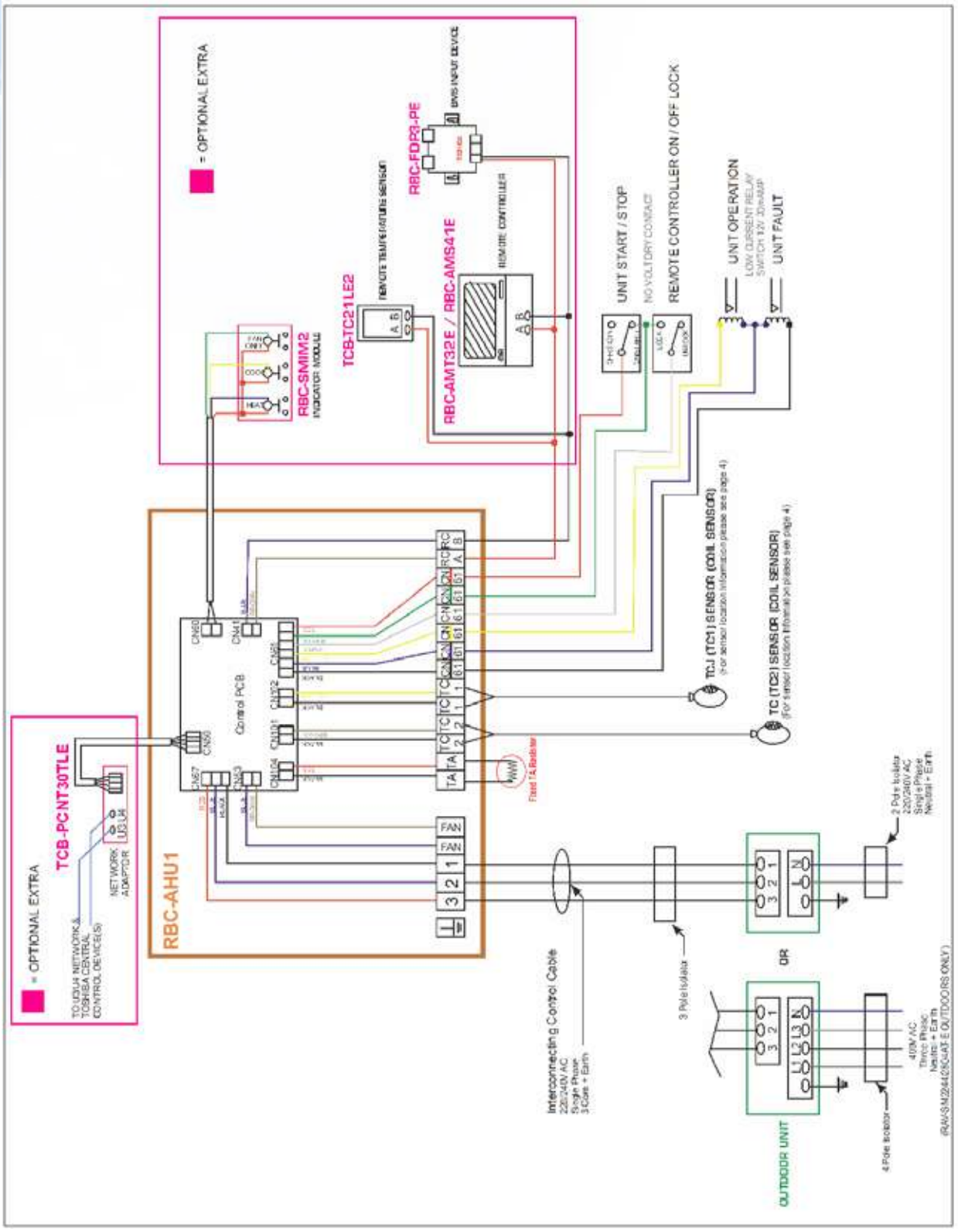
Wiring Diagram



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Check out our new “How to do” videos on YouTube

https://www.youtube.com/user/CoolDesignsLtd

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