

Control Capabilities?

The Toshiba Modbus Interface device is capable of the Following control and monitoring functions for the Connected Toshiba Air Conditioner systems.

Function	Setting	Monitor
On/Off	YES	YES
Mode	Auto, Heat, Fan, cool	YES
Set point	18 – 29°C	YES
Fan speed	Stop, auto, Ultra-low, Low, Medium, High	YES
Louver	Swing, Fixed – F1, F2, F3, F4, F5	YES
Filter display	Reset	YES
Fault code	Reset	Hexadecimal fault code
Permit/prohibit local control	On/Off, Mode, Temp. setting, Louver setting, Fan speed setting	YES

In addition to these control functions, the Toshiba Modbus Interface can also be used to provide control of other site equipment with the use of the Toshiba General Purpose relay interface – TCB-IFCG1TLE.

This device offers digital & Analogue Inputs & Outputs that can be used to connect electrical equipment to the Modbus Control system.

How many units can be connected?

Each Toshiba Modbus Interface can be connected to up to 64 Indoor Units on the TCC-Link Central Control Network. Up to 15 Modbus Relay Interfaces can be connected to each Modbus Master Gateway Device.

Which Indoor Units can be connected?

• Residential Systems

Residential systems cannot be connected to the Modbus Interface.

• Light Commercial Systems

All R410A Light Commercial systems, excluding the RAV-SM***XT-E Flexi and the RAV-SM***0KRT-E "0" series High wall models, can be connected to the Modbus Interface.

This connection requires the use of 1 TCB-PCNT30TLE Network adaptor per Indoor Unit/Group.

• VRF

All VRF systems can be connected to the Modbus Interface.

Specification

Power Supply	220 – 240 VAC, 50/60 Hz
Current	18 mA
Power Consumption	2.4 W
Operating Temp/Humidity	0° - 40°C, 10 to 90% RH (No Condensation)
Storage Temp.	-20°C to +60°C
Dimensions	66 (H) x 170 (W) x 200 (D) mm
Mass	1 kg

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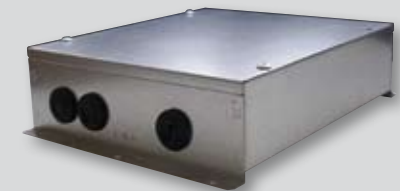
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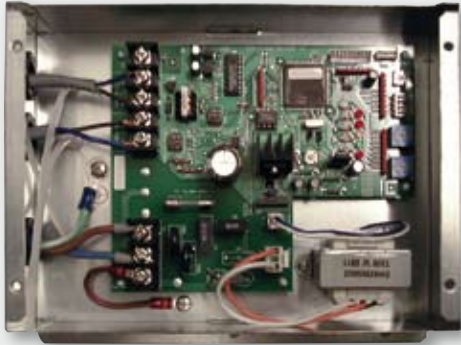
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Modbus Relay Interface
Building
Management Control
System



TCB-IFMB640TLE

Modbus Relay Interface Building Management Control System



What is a Building Management System?

A Building Management System (BMS) is a computer based control system that is installed in buildings to control and monitor mechanical and electrical equipment such as Ventilation, lighting, power systems, fire systems and security systems for that building.

The Core function of most BMS system is to manage the environment within the building and can be used to control heating and cooling equipment and manage the systems that distributes this treated air throughout the building (for example operation of fans or opening/closing dampers).

Another function that is becoming popular with BMS systems is the ability to manage the energy consumption of any electrical equipment in a building. This function is becoming more important in many regions throughout the world due to the increase in legislation regarding building energy consumption levels and the environment.

Accurate management of plant equipment energy consumption can reduce the total energy consumption of the building and reduce cost.

What is Modbus?

Modbus is a serial Communications protocol that was first published in 1979 for use with programmable logic controllers, and has now become the most commonly available means of connecting industrial electronic devices to a computer control system.

There are many different versions of Modbus currently used in building management systems including Modbus RTU, Modbus ASCII and Modbus TCP.

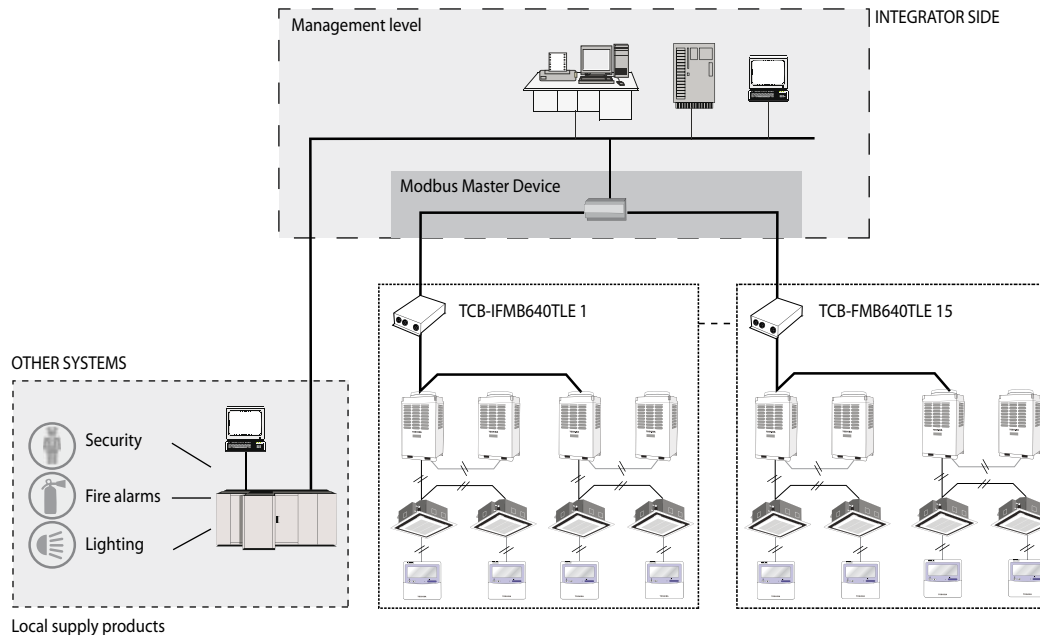
The Toshiba Modbus System

The Toshiba Modbus interface is designed to connect the Toshiba Air Conditioning system to a Modbus Building Management System.

The Toshiba Interface connects directly to the Toshiba TCC-Link Central Control Network on the Air Conditioner and can be wired on the Indoor or outdoor side depending on preference which allows increased flexibility and ease of installation. The Interface then uses the Modbus RTU protocol based on the RS-485 type serial communications protocol to connect to a suitable Modbus Master device.

Finally, the Modbus Master device is connected to the BMS control system and allows control of all connected Toshiba Air Conditioner equipment from that BMS control system.

Wiring Diagram



Multiple Toshiba Modbus Interfaces can be connected to a single TCC-Link Network and addressed using simple switches provided on the device. This is to enable ease of installation, especially in buildings with separate areas where 1 Interface may be used for each area/floor.