FCU (Fan-Coil Unit) Control System Solutions
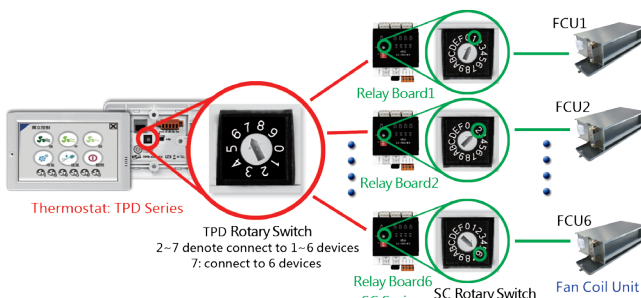
By Cony Yu

Introduction

FCU(Fan Coil Unit) is widely used in commercial building for air conditioning system, with relay board and thermostat, it allows easy control for maintenance of comfortable indoor temperature. To maintain user-defined indoor temperature, the relay board is used for controlling the air flow of FCU, and the flow rate of the two-way valve or three-way valve for the chilled-water and hot-water in FCU. And the thermostat provides users interface for easy set-up of the temperature and air flow.

Features

One-to- many Architecture to Quickly Build a System

A TPD supports up to six SC series control modules, to set up how many SC series control modules to be connected to one loop, just adjust the rotary switch (2 to 7) on the back of the TPD (2 to 7 indicates connecting to 1 to 6 relay boards), and then set up the loop address (1, 2, 3, 4, 5, 6) on the front of each SC series control module to complete the settings.

Thermostat: TPD Series

TPD Rotary Switch
2~7 denote connect to 1~6 devices
7: connect to 6 devices

Relay Board1 — FCU1
Relay Board2 — FCU2
Relay Board6 SC Series — FCU6
SC Rotary Switch — Fan Coil Unit

### No programming required & intuitive interface

The TPD preloads 15 operation pages with full-range features. With the intuitive interfaces, no programming is required for users to set up operations such adjusting temperature or start/stop the FCU. In addition, the preloaded interfaces also make it easy for operations in schedule setting, temperature compensation and remote control, etc.

Seamless Integration with Buildings Management System (BMS)

Unlike the commercially available thermostat that requires installation of network concentrator when integrating with the Building Management System; the TPD series can be integrated with the Building Management System directly via Modbus TCP protocol by Ethernet; therefore lower the complexity of system implementation and reduce the future maintenance/operation costs.

Ethernet
Fan Coil Unit (FCU)
RS-485
RS-485
SC Series
InduSoft
Ethernet
TPD Series
Building Management System (BMS)
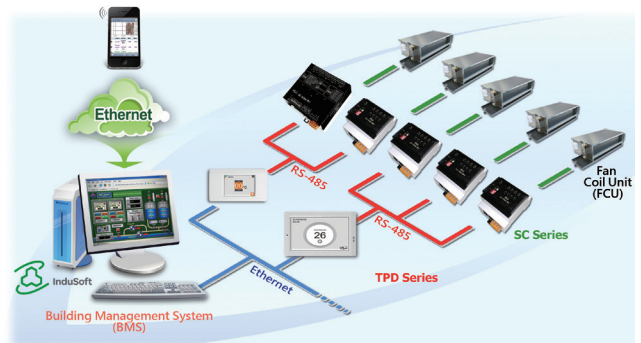
Product Information

TPD Series

The TPD series is equipped with high-resolution touch screen, RTC, and a variety of communication

interfaces, including RS-232/RS-485, Ethernet and USB. The TPD series provides HMIWorks development tool that can be used to design ladder diagrams for softPLC logic for TouchPAD. A single TouchPAD becomes a touch HMI device which runs ladder logics.

TPD-433	4.3" Color Touch Screen, Suitable for the Outlet Box in United States, Support PoE, RTC (RoHS)
TPD-433-EU	4.3" Color Touch Screen, Suitable for the European 86 x 86 mm Outlet Box, Support PoE, RTC (RoHS)
TPD-283U	2.8" Color Touch Screen, Support PoE, RTC (RoHS)

Relay Board

The ICP DAS SC series control module in FCU works not only as a relay board, it also provides functions such as: assigning network address, switches testing, delay of power output. And with the TPD series color TouchPAD (works as thermostat, preloaded with intelligent control procedures), in addition to temperature setting function, it can also perform various functions such as: schedule setting, temperature compensation, remote control, and remote schedule setting, etc. The users can experience a more visual upgrade interface with intelligent features that mechanical or monochrome LED HMI cannot achieve.

SC-4104-W1	4-channel Relay board, support 3 speed Fan Coil Unit, power 100W or less, and 1 cold water (or hot water) valve (RoHS)
SC-6104-W	4-channel Relay board, support 3 speed Fan Coil Unit, power 500W or less, and 1 cold water (or hot water) valve (RoHS)
SC-6105-W5	5-channel Relay board, support 3 speed Fan Coil Unit, power 500W or less, and 1 cold water vale & 1 hot water valve (RoHS)

SC-4104-W1-AC	4-channel Relay board, support 3 speed Fan Coil Unit, power 100W or less, and 1 cold water (or hot water) valve , AC power supply (RoHS)
SC-6104-W5-AC	4-channel Relay board, support 3 speed Fan Coil Unit, power 500W or less, and 1 cold water (or hot water) valve , AC power supply (RoHS)
SC-6105-W5-AC	5-channel Relay board, support 3 speed Fan Coil Unit, power 500W or less, and 1 cold water vale & 1 hot water valve , AC power supply (RoHS)

BMS (Building Management System)

InduSoft Web Studio SCADA software has been widely used in Building Automation applications and has been proved that it is powerful, and with integrated collection of automation tools including all building blocks needed to implement building automation projects. It can design, monitor and control the building automation systems in all kinds, such as: schools, communities, hospitals, drug store, warehouse and residential buildings. By using InduSoft Web Studio, the system can be designed to connect and communicate to devices from most manufactures. It supports more than 240 device drivers (including BACnet and Modbus) and it also supports integrating to OPC DA, OPC UA and OPC .NET 3.0 software as well.

Development Package for Windows	Development Package for Building Management System based on Windows, Windows Embedded or Windows Embedded CE systems.
Runtime Package for Windows	Runtime Package for Building Management System based on Windows or Windows Embedded systems.
Runtime Package for WinCE	Runtime Package for Building Management System based on Windows Embedded CE system.