EXP7010T-*n*

Universal Input Power box module

Product Overview

EXP7010T is a universal input relay module, which can efficiently switch a load by both AC and DC input voltages. This module is compatible with large range of BMS and Standalone Thermostats that require compact power box containing relays, transformer, fuse and connectors inside a single PVC/metal box. It significantly reduces panel assembly time and allows easier installation in the project site. This module, when assembled inside a PVC enclosure along with a 24VAC transformer, can be widely used for 3-Speed Fan Coil Units in conjunction with a thermostat or a BMS controller.

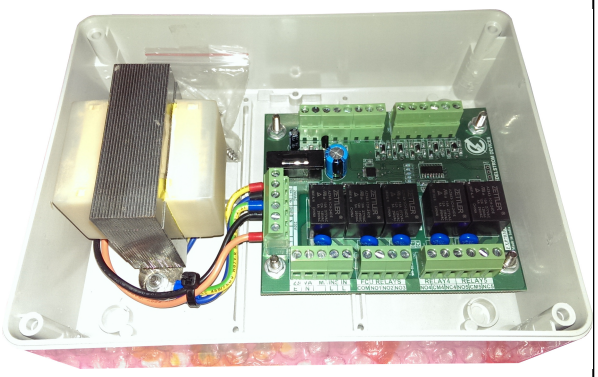

Figure 1: EXP7010T-5 Universal Input Power box module with 5 Relays

EXP7010T is available in 3 different types as follows:

- *EXP7010T-3*: FCU Power Box module with 3 relays.
- *EXP7010T-4*: FCU Power Box module with 4 relays.
- *EXP7010T-5*: FCU Power Box module with 5 relays.

In a typical FCU application, relays 1,2 and 3 are used for fan speed control. These relays have an interlock arrangement preventing simultaneous switch-on of any two speeds of the fan. Other relays (only on EXP7010T-4 and EXP7010T-5) can be used for ON/OFF or floating operation of valve actuator.

Features

- 3, 4 or 5 relays.
- Relay 1, 2 and 3 are dedicated for FCU operation.
- Independent control signal for each relay.
- Simultaneous switch-on of two FCU speeds is prevented by the on-board interlock mechanism.
- Accepts Binary inputs from DDC (24VAC=ON; 0VAC=OFF).
- Accepts 0~10VDC input from DDC (IN>5VDC = ON; IN<3VDC=OFF, 3~4.95VDC: Invalid range).
- Universal inputs for all relays. (IN>5VAC or IN>5VDC=ON; IN<3V=OFF, , 3~4.95V: Invalid range).
- Low power consumption from DDC controller (<0.5VA).
- SPDT Contact Arrangement for relays 4 & 5.
- 7A current rating at 230VAC resistive load for each relay.
- Half-wave rectifier allows the same power source to be used for other devices.
- On-Board LED indication for each relay.
- On-Board fuse protection for 24VAC.
- Fused 24VAC can be directly supplied to DDC controller.
- On-Board MOV (Metal Oxide Varistor) protection for surge suppression.

- On-Board terminals for 230VAC Mains input.
- On-Board terminals for transformer connection.

Product Specifications

Max. Module Power Consumption:	*6 VA (When all relays are ON).*
Max. Coil driving current:	*5 mA per each DDC input.*
Coil driving input voltage:	*5V~30VDC or 5V~30VAC (Universal inputs)*
Ambient Temp:	*0~70°C*
Contact material:	*AgSnO2*
Enclosure Dimensions:	*190 x 140 x 70 mm^3 PVC box (Recommended, but can be customized as per the project requirement)*
PCB size:	*110 x 92 mm*
Relay's Contact Arrangement:	*1 form C (CO) for each relay*
Terminal arrangement:	*3 NO with single COMMON for outputs 1,2 and 3.* *1 Form C (CO) for outputs 4 and 5.*
Rated Voltage of each relay output:	*250VAC*
Rated Current:	*7A (Resistive load)*
Module Power Supply:	*230VAC, 50 Hz/60Hz*
Terminals:	*Screw type for 0.5~2.5mm^2 Cable*

Installation

The EXP7010T should be installed by a suitably qualified technician in conjunction with any guidelines for the equipment, which it is to be connected to. Field wiring should be installed to satisfy the requirements set out by the manufacturer of the equipment that the module is being connected to. Use screened cable wherever necessary. The relays in this module can be switched by both AC and DC input voltages.

EXP7010T is powered by 230VAC mains power supply; this is passed to the primary winding of transformer that provides 24VAC output across its secondary protected by a 2A fuse. Three, four or five relays are part of this module, based on the part number: EXP7010T-3 has three relays, EXP7010T-4 has four and EXP7010T-5 has five relays on it. In a typical FCU application, three of them are used for fan speed control and other two are used for floating/On-Off operation of the valve actuator. A signal input with 5 ~ 30 VAC or 5~ 30 VDC applied to BO0 ~ BO4 will energize relays 1 ~ 5 respectively. An input range of 3V~4.95V AC/DC is not recommended during operation and care should be taken to avoid this input range since it can produce undefined output state.

The EXP7010T would typically be located below false ceiling. The module is normally provided with an IP65 rated PVC enclosure.

CAUTION

EXP7010T module is used to switch loads with 230VAC line voltages and therefore it is dangerous to work on the module when it is energized. Make sure that the power is isolated from the module before starting to work on it.

Connection

The image below shows the terminal designations of a universal input power box module, EXP7010T-5. Topside of the board has provisions for relay drive inputs, supply voltage and actuator connections. Bottom side of image is for the 230VAC supply inputs and for output connections to the fan coil unit & the valve actuator.

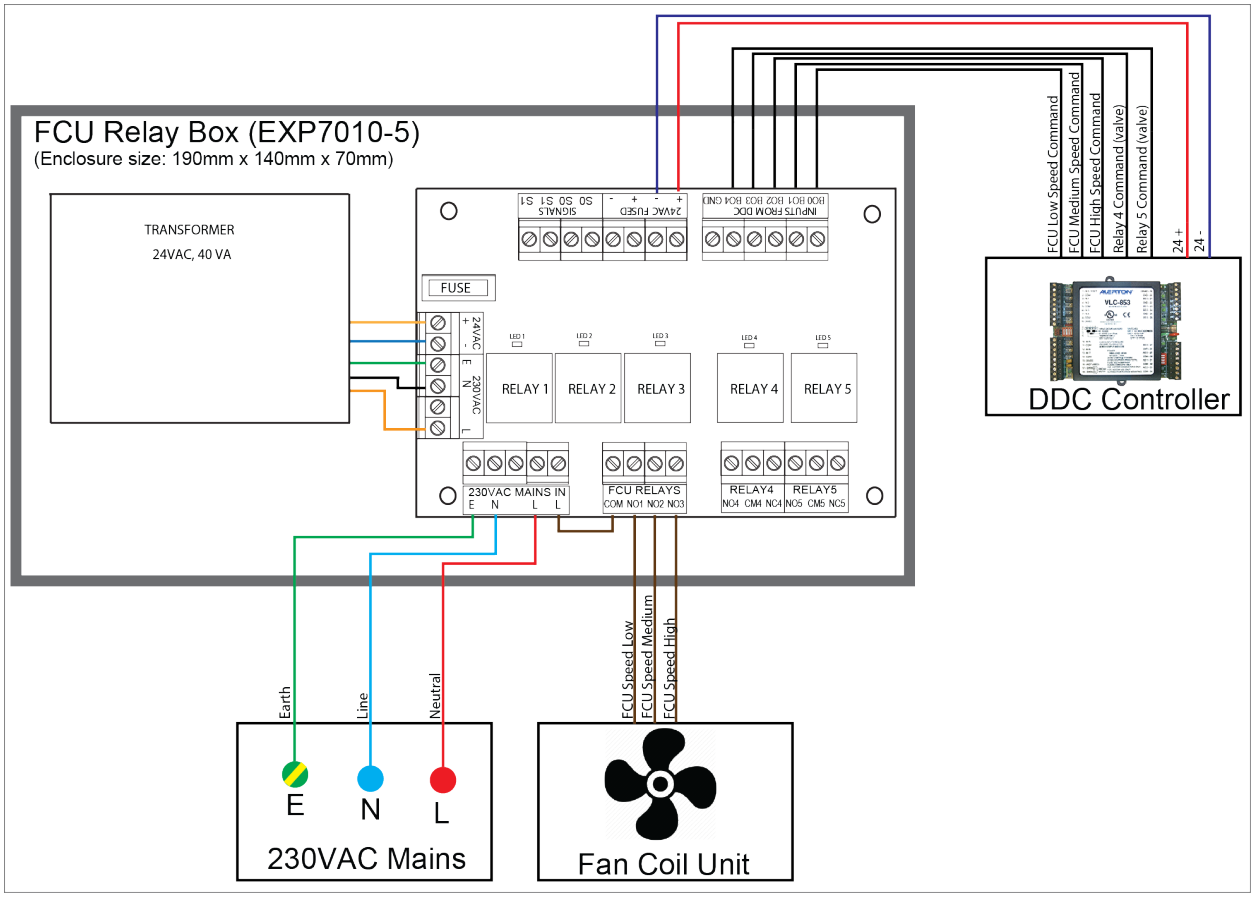

Figure 2: Example Connection Diagram of EXP7010T-5

ORDERING INFORMATION

EXP7010T-*n*	Universal input (UI) power box module with "n" relays & 24VAC/40VA transformer assembled inside PVC enclosure
EXP7010T-*n*B	UI relay product with "n" relays without transformer or enclosure
EXP7010T- *n*X	UI relay product with "n" relays with transformer but without enclosure

Example:

EXP7010T-3	Universal Input Power box module with 3 Relays, transformer & enclosure (Transformer and relay module are assembled inside the enclosure).
EXP7010T-4B	Universal Input Power box module with 4 Relays. No transformer or enclosure is included.
EXP7010T-4X	Universal Input Power box module with 4 Relays & transformer. Neither enclosure nor assembly is included.

EdelStrom Electronic Devices & Designing L.L.C
sales@edelstromdevices.com