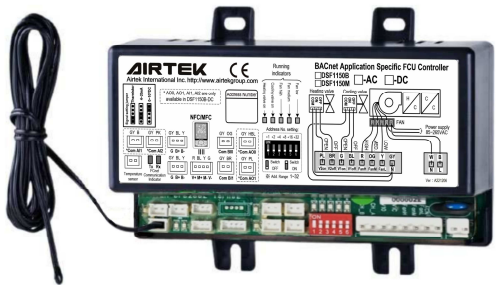
Monitoring equipment

BACnet /Modbus Networking FCU controller

DSF1150B(M)-xx

【Application Notes】

DSF1150B(M)-xx series fan coil controller is a multi-functional, high-performance, independent microcomputer controller, It can connect up to 32 turbine controllers with LCD group control panels or communication protocol converters into a local network via 2-wire BACnet MSTP /Modbus RTU communication, which can realize centralized management of distributed wind turbine equipment, Performs group and stand-alone control and status monitoring, with a variety of control applications, including: timed on/off, switching air conditioning operation mode, air speed, setting temperature, performing energy-saving actions, external contact status, performing hourly counts.... etc.



DSF1150B(M)-xx BACnet/Modbus Fan Controller

With 2 sets of AO/AI points and programmable functions for DC DC fan and proportional valves and other high-end control of energy-saving and customized applications, it is suitable for office buildings, five-star hotels, science and technology buildings, academic research institutes, or production plants that require centralized management of decentralized control of fan coil equipment.

【Product Features】

- Built-in high-efficiency microprocessor (MCU) with independent operation capability.
- Adopting return air temperature control, the temperature control function is not affected by the installation position of the operation panel.
- Follows the American Society of Heating, Refrigerating and Air Conditioning (ASHRAE) BACnet protocol and is BTL B-ASC certified.
- Built-in FCnet communication interface connects 32 controllers into a LAN for centralized management of distributed controllers.
- Built-in SCnet communication interface can be connected to stand-alone or group control panel, which is convenient for users to expand the human-machine interface at any time due to the need of secondary renovation.
- Two digital inputs (BI) can be connected to Personnel Presence Indicator (PIR), Water Leakage Indicator (WLI), Room Card Lockout (RCL), or Windmill Operational Status (WOS) signals.
- Two digital outputs (BO) for 2-pipe (manual), 4-pipe (automatic), 2-pipe + main unit interlock or 2-pipe float valve control.
- With two sets of analog inputs (AI), it can be connected to DC DC fan/proportional valve return signal or external water pipe sensor to adjust the air conditioning mode automatically according to the water temperature.
- DSF1150B(M)-DC has two sets of analog output points (AO), which can be connected to DC DC wind turbine/proportional valve 0-10Vdc control signal for high level energy saving control.
- DSF1150B(M)-AC is equipped with automatic three-stage variable speed control and manual three-stage speed regulation; DSF1150B(M)-DC is capable of PID stepless variable speed automatic control.
- With air-conditioning operation modes such as air-conditioning, heating, and air supply, and a patented energy-saving operation function, it maintains comfort while conserving energy needs.
- With time schedule on/off function, 0~12 hours fast timer shutdown function, billable forced shutdown or billable forced air supply function.
- Automatic Network Time Synchronization
- In addition to the preloaded standard FCU control program, it is also equipped with DDC programmable function, which allows users to modify the required customized applications with high flexibility.
- Online program editing, debugging, online program download and online firmware update.
- With enthalpy, dew point temperature, PID control and other common HVAC functions and advanced mathematical functions such as logarithm, trigonometric function, open root sign and so on.
- Abnormal status code display and WATCH DOG function.
- Plug-in design simplifies installation and maintenance.
- Memory function for operating parameters during power failure, memory data is stored in FRAM and can be stored for more than 10 years.

【Specification】

Model	Air Conditioning Mode	Wind speed switching	BI	AI	BO Windmill/Valve	AO	Temp. Sensor	Protocols	Plumbing
DSF1150B-AC	Auto/Cool/Heat/Fan	Auto/High/Med./Low	2	0	3 / 2	0	10K NTC	BACnet	2 / 4 piping
DSF1150B-DC	Auto/Cool/Heat/Fan	Variable speed	2	2	3 / 2	2	10K NTC	BACnet	2 / 4 piping
DSF1150M-AC	Auto/Cool/Heat/Fan	Auto/High/Med./Low	2	0	3 / 2	0	10K NTC	Modbus	2 / 4 piping
DSF1150M-DC	Auto/Cool/Heat/Fan	Variable speed	2	2	3 / 2	2	10K NTC	Modbus	2 / 4 piping

◆ Power Supply：

* 85～265VAC, 50/60Hz, 2VA。

◆ Microprocessors：

* High-speed computing microprocessor (MCU) with memory space.

◆ FCnet interface：

* BACnet MSTP/ MODBUS RTU RS-485 communication interface，communication rate 38400 /9,600 BPS.

◆ SCnet interface：

* MODBUS RTU communication interface、RS-485 communication interface and 5VDC power supply for connecting to the LCD operation panel.

◆ Temperature Sensor：

* The product comes with a set of 10KΩ@25℃ negative temperature coefficient (NTC) temperature sensor. range: 0℃～50℃, accuracy: ±0.25℃.

◆ Analog Input：

* 12-bit resolution, can accept 3K or 10KΩ NTC thermistor, 4~20mA or 0~10VDC signals. Can receive DC inverter windmill, proportional control valve feedback signal, or external water pipe temperature sensing.

◆ Environment：

* 0～50℃, 5～95%RH without condensation.

◆ Analog Output：

* 12-bit resolution, 0~10VDC output signal. It can be used to control DC inverter windmill, proportional control valve feedback and other equipment.

◆ Digital Input：

* 12VDC detection voltage, 5,000Vrms interference-resistant optical coupling isolation, accepts dry contact or open collector input signals. Can be used to receive signals from room cards, water pan overflow sensors, etc.

◆ Digital Output (Valve)：

* UL/CUL/TUV certified 7A.NO/5A.NC, 250VAC, SPDT relay, can control 2-wire/3-wire/floating control valve. SPDT relay to control 2-wire/3-wire/floating control valve.

◆ Digital Output (Windmill)：

* UL/CUL/TUV certified 10A,250VAC,SPST relay. Can control high, medium and low wind speed.

◆ Setting range and scale：

* Temperature setting range 15 to 30°C (Note: Adjustable). Setting scale is 0.1℃.

◆ Product Certification：

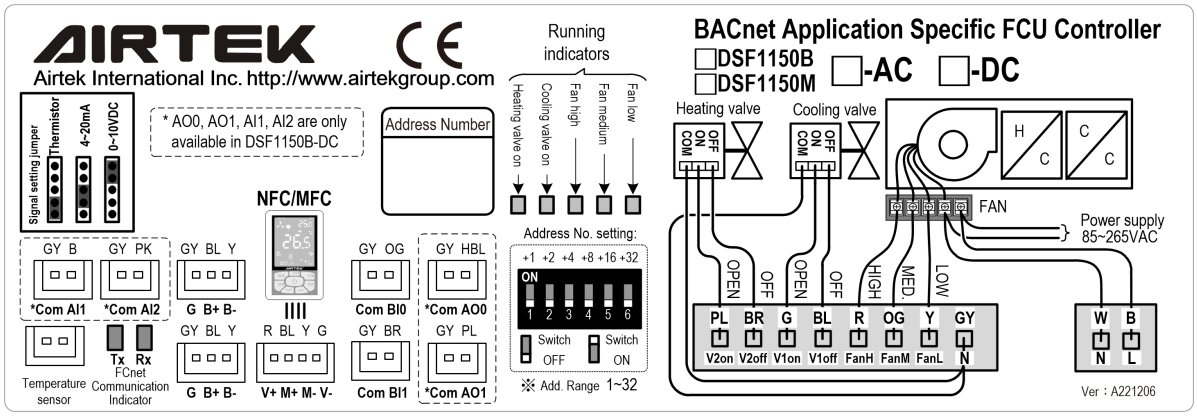
* CE certified and RoHS compliant.
* Approved BTL B-ASC certification (DSF1150B).

【Installation Instructions】

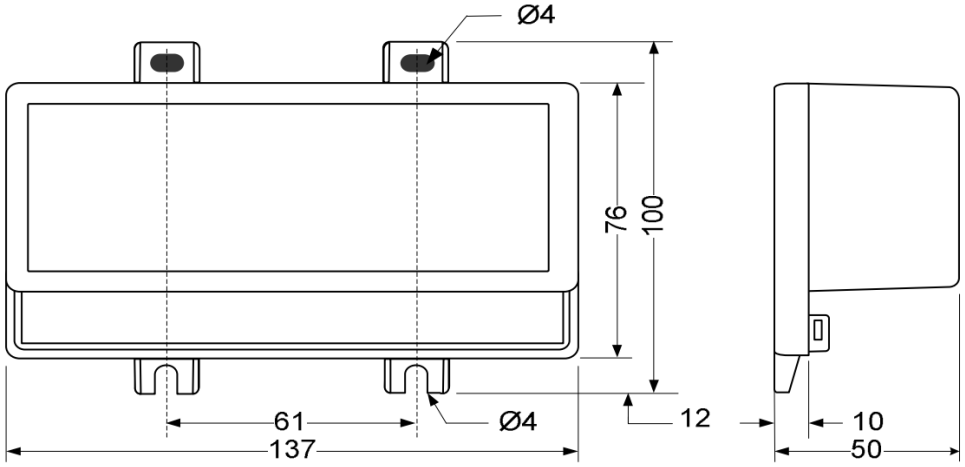
- Please read the catalog carefully before installation. Failure to follow the instructions in the catalog may result in danger or damage to the product or other unforeseen adverse results.
- Please install the controller in a serviceable location, do not install it in a location that is not easy to maintain, poor ventilation, direct heat, dusty and humid, or where vibration is strong, in order to avoid affecting the normal life of the product and maintenance services.
- The network communication cable between the controller and the control panel should be configured with AWG22#4C or higher aluminum foil isolated shielded cable.
- For the network communication cable between controller and controller, please use AWG18#3C or above aluminum foil isolation and shielding cable configuration, adopting one-in-one-out daisy-chain connection, without divergence or star and pay attention to maintain the same positive and negative polarity. It is recommended to install 120Ω terminal resistors at the front and rear ends of the network to effectively enhance the stability of communication quality.
- All network communication cables must be individually wrapped with EMT metal conduit and not co-located with power cables or power cables in order to obtain good communication quality.
- The common point between the motorized valve and the windmill should be connected to phase N. Incorrectly wired equipment will not operate properly.
- The fuse capacity of this controller is 5 amperes. If the controller is used in a control application with a capacity exceeding 5 amperes, be sure to add an auxiliary relay that meets the capacity, otherwise the controller may be burned out.

【Wiring Diagram】

DSF1150B(M)-xx Control Wiring Diagrams



【Dimensions】unit：mm



【Network Architecture】