



Smart Heating Controller

Features

- Wide voltage operating range: AC85–265V, 50/60Hz, suitable for power grids in different countries and regions.
- Multiple input/output interfaces: temperature/humidity/dew point sensor inputs, door frame temperature sensor input, and thyristor outputs for load driving, enabling flexible adaptation to various refrigerated cabinet control requirements.
- Intelligent defrosting and temperature control algorithm: By detecting door frame temperature and dew point temperature, the controller intelligently controls the power of the door frame heating wire and glass door heating film to prevent condensation on refrigerated cabinet doors in humid environments.
- High reliability: The product has passed a series of rigorous reliability tests, ensuring long-term stable operation under various harsh working conditions.
- MODBUS communication: Supports the MODBUS protocol for easy connection to a PC host computer for system debugging and centralized monitoring.

Description

The Smart Heating Controller is an intelligent heating control module developed specifically for commercial refrigeration equipment. By providing real-time monitoring and closed-loop control of temperature and humidity in the door frame and glass door areas of refrigerated cabinets, it proactively eliminates condensation risks, ensuring display performance and operational safety. It is suitable for commercial applications such as supermarkets, convenience stores, and restaurant chains.

This controller is a highly reliable, highly integrated, and fully validated control solution for commercial refrigerated cabinets. More than just a switch, it is a professional control platform with intelligent algorithms, strong communication capabilities, and excellent adaptability to harsh environments. Its design and testing processes demonstrate a commitment to long-term stable operation, energy efficiency, and global market compliance.



Interface Description



Power and Load Interface

No.	Definition	Description
1	LINE	Live wire input, connected to the AC mains live wire to power the controller's internal supply.
2	LOAD	Controlled live wire output, internally controlled by software, used for load connection.
3	NEUT	Common neutral for input power/load power
4	PE	Safety ground, connected to the enclosure and earth to prevent electric shock.

Temperature/Humidity Condensation Sensor Input Interface

No.	Definition	Description
5	GND	Dew point sensor GND
6	DATA	Dew point sensor signal
7	PWR	Dew point sensor V+



RS-485 Communication Interface

No.	Definition	Description
8	FG	Host computer communication GND
9	RS485-	RS-485 bus receiver inverting input / transmitter inverting output; input voltage range: -15V to 15V.
10	RS485+	RS-485 bus receiver non-inverting input / transmitter non-inverting output; input voltage range: -15V to 15V.

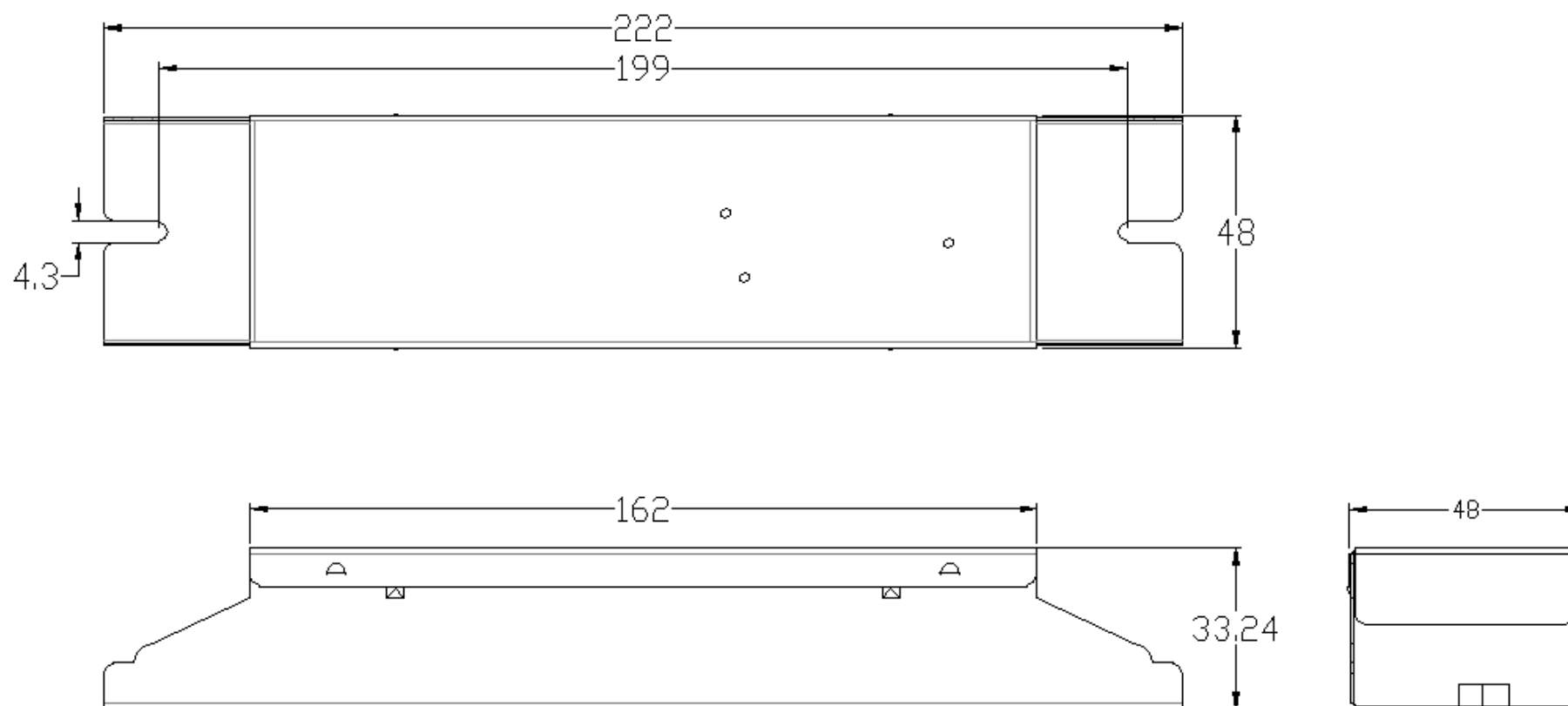
Door Frame Temperature Sensor Input Interface

No.	Definition	Description
11	TEMP	Connects to the glass door frame temperature sensor
12	TEMP	Connects to the glass door frame temperature sensor



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Product Dimensions



Unit: mm