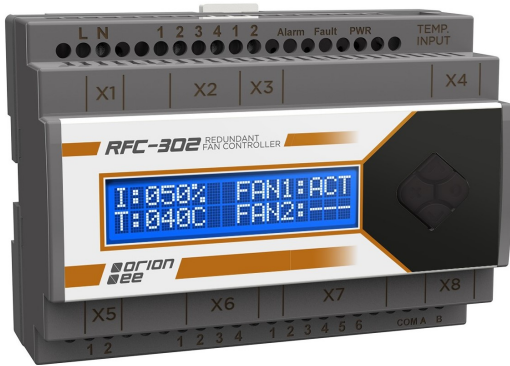


RFC-302

Redundant Fan Controller



RFC-302 fan controller is used to control the fans according to the current or temperature limits set by the user thanks to its current and temperature sensor.

Features

- Current sensor - Real-time percentage current monitoring
- Universal power supply input
- LCD screen
- LED indicator for power supply
- 4 buttons for configuration
- Fan operation time recording
- Primary sensor selection
- 2 contact outputs for fan control
- 1 contact output for fan failure status
- 1 contact output for alarm status
- 1 contact output for device active status
- External reset function
- MODBUS communication protocol
- Fan selection
- Temperature sensor – Real-time temperature monitoring (optional)

Technical Parameters

Rated Frequency Range 50-60 Hz	Feedback Control Time 0.5 – 10 s	Contact Ratings 5A-250V _{AC} resistive load
Current Sensor Input 1A, 5A	Cycle Time 0 – 12 months	Auxiliary Power Supply 100-240V AC/DC
Current Setting %5 to %90 I _{rated}	Current Hysteresis %5 – %20 (Percentage of the threshold value)	Power Consumption Less than 3W
Temperature Setting 20 °C to 100 °C	Temperature Hysteresis 5°C – 20°C	Weight 300 g
Operating Temperature -25°C to +55°C	Temperature Measure Range -20°C to +120°C	Dimensions 126.25 x 90.60 x 58.25 mm
Storage Temperature -40°C to +70°C	External Reset 100-240V AC/DC	Connection Screw Screw, 15 to 12 AWG wire
Protection Class IP2X	Communication Protocol RS485 / MODBUS RTU	Installation 35mm DIN rail (EN50022)

Operating Principle:

The fan control device determines the operating status of the fans by comparing the data obtained from the current and temperature sensors with the set current and temperature values.

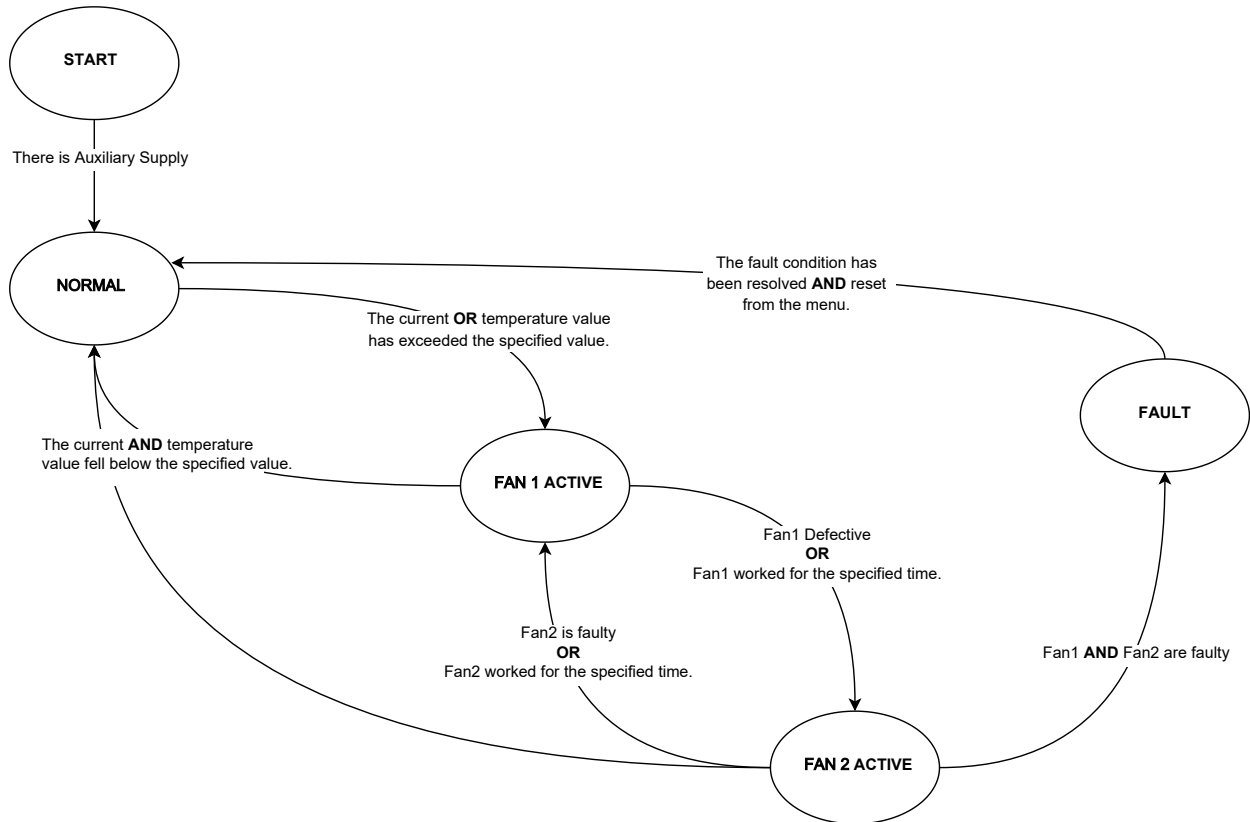
Operation for Set Current Value:

- If the current value is above the set value: Fan 1 is activated. Fan 1 continues to operate until the current value drops below the set value, a specified time elapses, or a fault signal is received from the feedback circuit. Fan 1 is stopped if the current value drops below the set value.
- If a fault signal is received from the feedback circuit and the current value is high: Fan 2 and alarm LED are activated. Fan 2 continues to operate until the current value drops below the set value, a specified time elapses, or a fault signal is received from the feedback circuit. Fan 2 is stopped if the current value drops below the set value.
- If a fault signal is received from the feedback circuit and the current value is high: The fan fault LED and the fan fault contact are activated. The device remains in this state until the fault is rectified.

Operation for Set Temperature Value:

- If the temperature value is above the set value: Fan 1 is activated. Fan 1 continues to operate until the temperature value drops below the set value, a specified time elapses, or a fault signal is received from the feedback circuit. Fan 1 is stopped if the temperature value drops below the set value.
- If a fault signal is received from the feedback circuit and the temperature value is high: Fan 2 and the alarm LED are activated. Fan 2 continues to operate until the temperature value drops below the set value, a specified time elapses, or a fault signal is received from the feedback circuit. Fan 2 is stopped if the temperature value drops below the set value.
- If a fault signal is received from the feedback circuit and the temperature value is high: The fan fault LED and the fan fault contact are activated. The device remains in this state until the fault is rectified.

Operating Algorithm



START
(No energy state)
Fan Output Relays are in NC position.
Device Active Relay and Fault Relays are in NO position.

NORMAL
(Initial energetic state)
Power LED lights up.
Device Active Relay switches to closed (NC) position.
Fan Output Relays switch to on (NO) position.
Fault Relays maintain their open (NO) position. Measurements are made continuously.

FAN 1 ACTIVE
(Situation where current or temperature exceeds the specified value)
Fan 1 Output relay switches to closed (NC) position.
Fan Failure Relay (NO), Alarm Relay (NO), Fan 2 Output Relay (NO) and Device Active Relay (NC) maintain their positions. Measurements are made continuously.

FAN 2 ACTIVE
(The situation where the current or temperature exceeds the specified value and FAN 1 is defective)
Fan 2 Output relay switches to the closed (NC) position.
Fan 1 Output relay switches to open (NO) position.
The alarm LED turns on. Alarm Relay switches to closed (NC) position.
Fan Failure Relay (NO) and Device Active Relay (NC) maintain their positions. Measurements are made continuously.

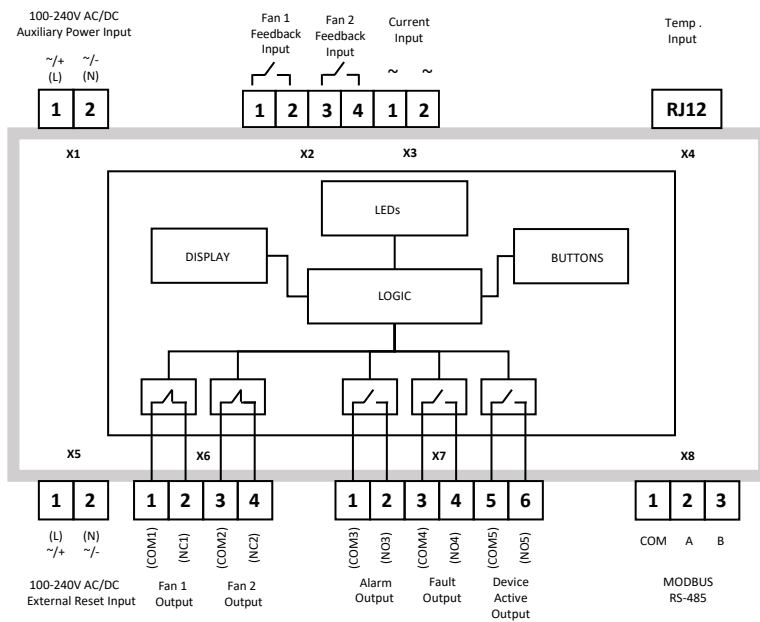
FAULT
(The situation where the current or temperature exceeds the specified value and FAN 1 and FAN 2 are defective)
Fan 2 Output relay switches to the open (NO) position.
FAN Failure Relay switches to closed (NC) position.
Fault LED lights up. The alarm LED goes off. Alarm Relay switches to open (NO) position.
Device Active Relay (NC) maintains its position. Measurements are made continuously.

* The operating algorithm is explained according to the redundant fan mode.

Operation of Relays

	Power Supply	Fan 1 Output	Fan 2 Output	Fan1 Feedback Input	Fan2 Feedback Input	Alarm Output	Fault Output	Device Active Output
NO FAN MALFUNCTION	OFF	— — — —	— — — —	x	x	— / —	— / —	— / —
	ON	— / —	— / —	Passive	Passive	— / —	— / —	— — — —
	ON	— / —	— — — —	Passive	Active	— / —	— / —	— — — —
	ON	— — — —	— / —	Active	Passive	— / —	— / —	— — — —
	ON	— — — —	— — — —	Active	Active	— / —	— / —	— — — —
FAN MALFUNCTION	ON	— / —	— — — —	Passive	Passive	— — — —	— / —	— — — —
	ON	— — — —	— / —	Passive	Passive	— — — —	— / —	— — — —
	ON	— — — —	— — — —	Passive	Passive	— — — —	— — — —	— — — —

Connection Diagram



Technical Drawing

