FRC100 Operating Guide

Smart reversing fan controller with fault detection

Care and Handling
Failure to follow care and handling instructions will void the warranty and could result in unsafe equipment operation. Remove unit from machine prior to welding on machine. Do not paint electrical connectors.

IMPORTANT!
Read this manual completely before operating system.

Keep this manual available for future reference.

Make sure the area is safe for operating equipment before turning power on or starting equipment.

If you encounter any problem or malfunction, discontinue use immediately, and contact your equipment dealer for service or replacement parts.

CAUTION
Improper operation of these controls could cause damage to equipment. Do not allow anyone to operate this equipment before completely reading all manuals.

NOTICE
Miratron, Inc. controls are not intended for life or safety applications. Miratron, Inc. shall not accept responsibility for installation, application, or safety of machine or systems which utilize Miratron, Inc. controls.

OPERATION
Controller monitors temperature sender and controls fan speed to maintain field-selectable oil temperature.

Fan controller ramps fan on momentarily in reverse to clear debris from cooler. Fan is then allowed to spin down, and ramped back on in forward direction.

Active fault detection monitors temperature sender and fan current. Led blinks fault codes for troubleshooting:

- Solid Normal Operation
- 1 blink (***) Fan open / No load
- 2 blink (****) Fan shorted / Over current
- 3 blink (** ***) Temp sensor open
- 4 blink (**** ****) Over temp alarm, above 185degF

Alarm output is energized in fault condition. (0.5-amp max.)

Output is operated continuously at 100% in temp sensor open condition. (broken temperature sensor wire)

If multiple faults are detected, fault codes are flashed sequentially.

Ground TS+ and MODE to manually run fan at 100%.

DIMENSIONS

![Dimensions Diagram]
**SPECIFICATIONS**

**General**
- **Power Requirement**: 12-24vdc, 100mA nominal + power to FAN

**Outputs**
- **Fan**: Solid-State proportional output. 25-Amps Max.
  - Output de-energized on overcurrent (>30 amps) fan condition. Reset power to retry.

**Operation**
- **Reverse time**: 10 seconds
- **Ramp on time**: 5 seconds

**Alarm**
- **Solid-State open collector, positive output. 0.5-Amp Max.**
  - Alarm output energized on fault or above high temperature limit.

**Control Range**
- **Operation**: Temperature above setpoint = ramp to 100% output
  - Setpoint adjustment range = 120 to 180degF
- **High Temperature Limit**: 185degF Alarm output energized.

**Inputs**
- **Temperature**: For use with Datcon 02024-00 (Miratron TS10)
- **Mode**: Connect to 12 or 24Vdc (battery) and ground TS+ to energize fan.

**Indicators**
- **Fault LED**: Solid = Normal operation
  - 1 blink = Open or disconnected fan motor
  - 2 blink = Shorted or overcurrent fan motor
  - 3 blink = Temp sensor open or out of range
  - 4 blink = Over temp alarm

**Dimensions**
- **Overall**: 4.0” L x 2.1” W x 1” H

**Environmental**
- **Sealing**: Potted electronic module
- **Storage**: -40ºC to 85ºC
- **Operating ambient temperature (FRC100 controller temperature only)**: -10ºC to 50ºC

**WIRING**

**TERMINAL BLOCK LABELS:**
- **TS +**: TEMP SENDER (+) OR THERMOSTAT
- **TS -**: TEMP SENDER (-) OR THERMOSTAT
- **ALM**: ALARM OUTPUT, 0.5 AMP MAX.
- **MODE**: MODE SELECT
- **V +**: 12/24V BATTERY POS (+)
- **GND**: CHASSIS GROUND / BATTERY NEG (-)
- **FAN +**: FAN OUTPUT, 25 AMPS MAX.
- **FAN -**: FAN OUTPUT, 25 AMP MAX.