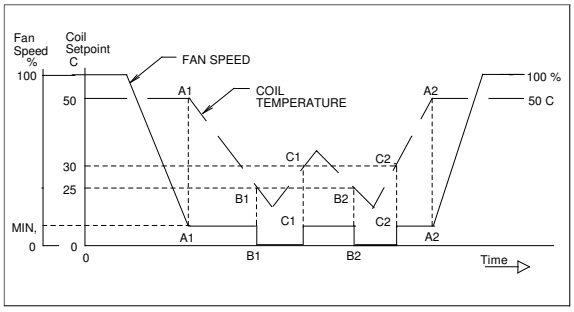
SCI(UK)

Systems Controls & Instruments (UK) Ltd.

Series FSC 3 / 6... Condensor Fan Speed Controller

Incorporating a Microprocessor it gives improved Controllability & Stability of Outdoor Fan Running, together with Enhanced Energy Efficiency.
Suitable for use on Air-Conditioners or Heat-Pumps

Control Strategy



Cool Mode

Assuming design outdoor coil temp = 50 ℃:
This 50 ℃ setpoint is maintained with full fan speed as long as external conditions allow.
Then the fan speed falls to a minimum selected value whilst still maintaining the 50 ℃ setting (A1).
If at minimum speed, the 50 ℃ temperature cannot be maintained and it falls below 25 ℃ the fan is switched-off (B1) and remains off until the temperature rises above 30℃ (C1) at which point the fan starts to run at minimum speed (after 3 secs. hard start). This On- Off switching at these lower temperatures effectively increases the range of controllability at lower temperatures.
This On-Off action will apply until the coil temperature rises above 30 ℃ (C2) and continues up to 50 ℃.
During this period the fan runs at minimum speed.
When coil temperatures, in excess of 50 ℃ (A2) are again encountered, the fan speed is increased until the design condition of 50℃ is reached with the fan running at full speed.

Heat-Pump Mode

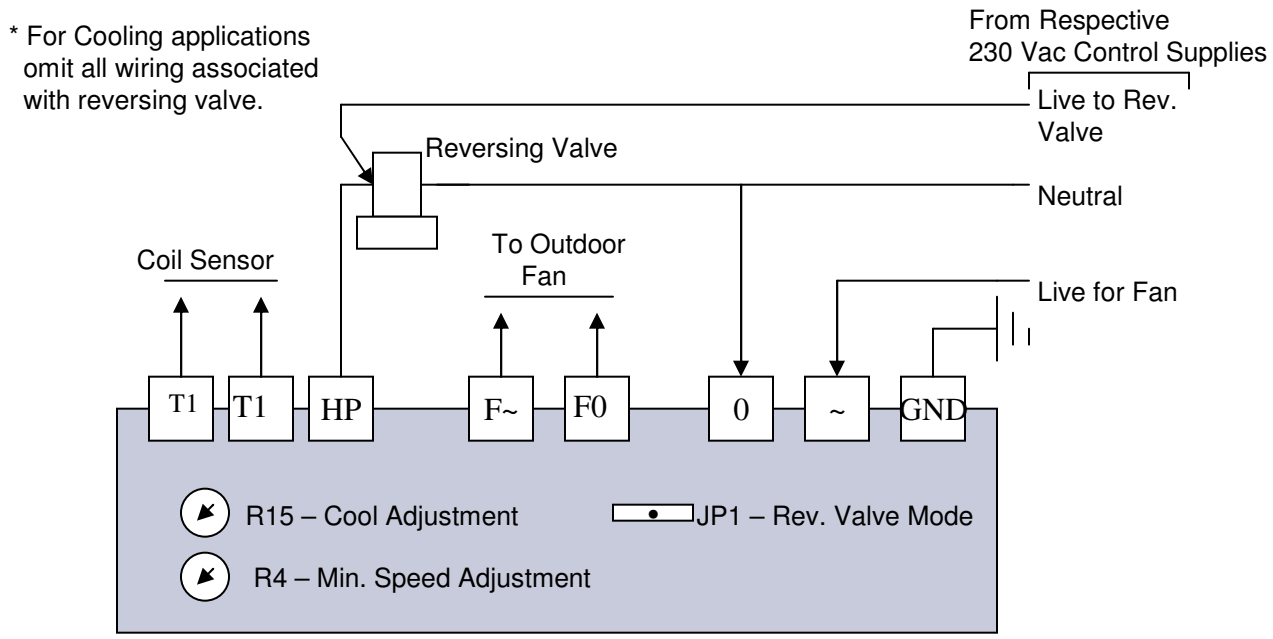
Outdoor fan runs constantly at full speed.

Features

- Single Phase 230 Vac
  Two models available:
  FSC-3 3 Amp.
  FSC-6 6 Amp.
- On signal from Reversing Valve it automatically selects:
  Modulating of Outdoor Fan in Cooling.
  - or -
  Runs Outdoor Fan at full speed in Heat-Pump
- Reversing Valve Action:- Energised Cool or Heat is jumper selectable.
- Modulating action replaced by On-Off action in order to extend range of operation & thereby improve controllability & energy efficiency, in Cool Mode between 25 & 30 ℃.
- Maintains head pressure for as long as conditions allow, unlike other controllers which operate on a single proportional band only basis.
- Suitable for use on R407, R410A.
- Hard Start – 3 Seconds
- Minimum speed adjustment.
- Potentiometer adjustments for various outdoor coil design setpoint temperature settings: 35 to 55 ℃
- CE Conforming
- EMC Suppressed
- IP 20
- Dimensions: 145 x 95 x 70 mm.

Tel. / Fax: +44 (0)1 93287 5227 & 5225 | Email: info@sciuk.co.uk Web: www.sciuk.co.uk

Electrical Connections



Warning

Mains Voltage is present on the p.c.b. & black heat sink and care must be taken when making adjustments
It is the responsibility of the user to ensure compliance with the latest Health & Safety at Work Act and applicable codes of practise.

Sensor Mounting

- Locate on return bend approx. 2/3'rds. from the bottom of an individual coil circuit to correspond with the manufacturers design discharge saturation point/ temperature – usually set in the range 40 ° to 50 ℃ for cooling mode.
- Fit sensor to pipe using thermal compound.
- Use tie-wraps provided to hold the sensor securely in position.
- Insulate the area of the sensor with the insulation strip provided.

Adjustments

Adjustments on Control;

- Jumper JP1- Rev. Valve Mode selection:
  Remove Shorting Pin if valve is energised in cool mode.
  Fit shorting Pin if valve is energised in heat mode.
- Potentiometer R4- Sets Min. Fan Speed.
- Potentiometer R15 – Sets: Outdoor Coil Temp. Setting. Cool Mode 35 to 55 ℃.
  (factory set 50 ℃)

Adjustment of Minimum Fan Speed

Make all adjustments in Cool Mode.

- Ensure fan is running normally before making any adjustments
- Short-out JP1 using pin or momentarily with a screwdriver etc.

The fan will run at factory set min. speed = 95 Vac

- Use R4 to reset :

Clockwise – Increase speed
Anti-Clockwise –Decrease speed

- When required minimum speed is achieved – switch-off the electrical power supply to the fan.
- Switch electrical power back onto fan and it will run normally.
- Check that the shorting pin used on the jumper JP1 is either fitted or not to ensure the correct reversing valve operation when used for heat pump applications.