Sontay®
Four Elms Road · Edenbridge
Kent · TN8 6AB · UK

FC-ITR

Fan Speed Controller via Manual Potentiometer

Issue Number: 7.0
Date of Issue: 24/04/2019

Features & Benefits

- Volume or velocity reduction
- Suitable for supply & extract systems
- Minimum and maximum speed adjustment
- 2 or 3-wire fan speed connections
- Wide power supply range, 110 to 240Vac 50/60Hz
  Automatic supply voltage detection
- Quite operation
- Flow rate reduction on centrifugal pumps

Technical Overview

The FC-ITR range of electronic speed controllers provide an economic means of speed regulation for voltage controllable single-phase AC motors.

Centrifugal fans, axial fans, propeller fans, and centrifugal pumps are prime candidates for electronic speed control.

Product Codes

FC-ITR-3D	Manual speed controller 3A
FC-ITR-5D	Manual speed controller 5A
FC-ITR-10D	Manual speed controller 10A

Specification

Nominal Supply	110 to 240Vac/1Ph/50-60Hz Automatic supply voltage detection
Control type	
Jumper selectable:	
Kick start	
Soft start (as potentiometer)	
On/Off switch	Separate to potentiometer
Starting seq.	Full speed for 8/10 secs
Minimum speed	Adjustable via trim pot (Default 100V)
Current ratings:	
FC-ITR-3D	0.1- 3.0A
FC-ITR-5D	0.2 - 5.0A
FC-ITR-10D	0.5 - 10.0A
Fuse ratings (Fast blow 'F' type):	
FC-ITR-3D	F 5.0 AH 250Vac (5 x 20mm)
FC-ITR-5D	F 8.0 AH 250Vac (5 x 20mm)
FC-ITR-10D	F 16.0 AH 250Vac (6.3 x 32mm)
Dimensions	See page 4
Ambient :	
Temperature	20 to +35°C
Humidity	5 to 95% RH non-condensing
Protection category	IP54
Country of origin	Belgium

WEEE Directive:
At the end of the products useful life please dispose as per the local regulations.
Do not dispose of with normal household waste.
Do not burn.

CE

The products referred to in this data sheet meet the requirements of EU 2004/108/EC and 2006/95/EC

Tel: +44 (0)1732 861200 - E-mail: sales@sontay.com - Web: www.sontay.com

Motor Compatibility

Electronic speed controllers can only be connected to motors having appropriate characteristics. Motors must be voltage controllable, asynchronous, squirrel caged and Class 'F' wound. They should be direct driven (not belt driven), with standard or external, high resistance rotors. The motor should be air cooled and should have a frame size sufficient to dissipate the additional heat that is generated when running at low speed or low airflow. It is recommended that motors have internal thermal protection. Two or three wire motors can be used.
The speed controllers operate most efficiently with conventional split capacitor or shaded pole motors. Six or eight pole motors are suitable but four pole motors are preferred as they have a greater control range. Two pole motors can be used but they are difficult to control at low speeds (below 600 rpm) and can cause start-up problems at low voltages. **If there is any doubt regarding a motor's compatibility with electronic speed controllers, contact the fan or motor manufacturer for guidance.**

Selection Criteria & Nominal Current Range

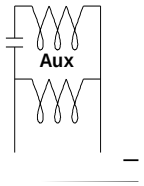
A motor must be well loaded for optimum speed control, so choose one that is just big enough for the application. The load on the motor must be at least 75% of the nominal power of the motor at maximum speed. Choose a speed controller with a maximum current that is just larger than the nominal motor running current. For example, if the motor has a rating of 2.95 amps then select a speed controller with a maximum current of 3 amps. Several motors can be connected to a single speed controller, so long as the speed controller's maximum current is not exceeded.

The speed controller Nominal Current Range stated in the selection tables, refers to the nominal current rating of the motor. The Nominal Current Range is based on a maximum ambient temperature of 30°C. All electronic speed controllers will accept a motor starting current that is up to 3 x greater than the maximum nominal current of the speed controller.

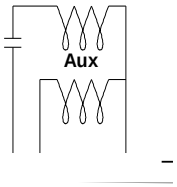
2 & 3-Wire Motors

The FC-MTY speed controllers are suitable for use on two or three wire motors. An additional terminal is provided for this purpose. If a two wire motor is used, the auxiliary terminal can be used to bypass the main switch. Alternatively, it can provide a 230Vac switched output to ancillary equipment.

2-Wire



3-Wire



Minimum Speed Adjustment & Start-up

The minimum speed is factory set to 100V which should be suitable for all applications. However, the minimum speed can be adjusted via the trim potentiometer on the PCB.

Kick Start (default),
With the jumper fitted onto JP1, the motor will always start (or restart) at maximum speed for 8-10 seconds, after that the motor speed automatically follows the position of the potentiometer.

Soft Start,
With the jumper removed from JP1, the motor will start according to the position of the potentiometer.

Fused Isolator & Maintenance

It is recommended that a fused mains isolator is installed upstream of the speed controller. The fuses should be of the slow blow type with a current rating that is the same as the speed controller's internal fast blow fuse.

In normal use, the speed controllers are maintenance free. If the fuse blows, it should only be replaced with a new fuse of the correct size and rating.

To remove light dirt and grime, wipe surfaces with a dry or slightly damp cloth. To remove heavy dirt and grime, use a proprietary non-aggressive cleaning agent. In all cases, ensure that the unit is completely dry prior to reconnecting the power supply.

Installation

1. The FC-ITL should only be installed by a competent, suitably trained technician, experienced in installation with hazardous voltages. (>50Vac & <1000Vac or >75Vdc & 1500Vdc)
2. Ensure that all power is disconnected before carrying out any work on the FC-ITL.
3. Maximum cable is 2.5mm², care must be taken not to over tighten terminals.
4. Undo the four retaining screws that secure the housing lid. Remove the lid which can then be put aside. Take care not to lose the fixing screws.
5. Fix the housing to a suitable flat surface, using the four fixing screws and raw plugs provided.
6. Feed the cable through the waterproof gland and terminate the cores at the terminal blocks. Leaving some slack inside the unit, tighten the cable gland onto the cable to ensure watertightness.
7. Select the "start" up type JP1.
8. Replace lid, tighten the four lid fixing screws. Switch the power on to the controller and check correct operation.

Wiring

L	Power supply, 110-240Vac / 50-60Hz
N	Neutral
L1	Unregulated output, Imax. 2A (3-wire motors)
PE	Earth
U2	Regulated output to motor - line
U1	Regulated output to motor - neutral

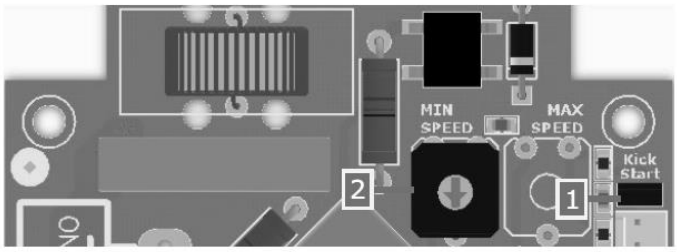
Connections

Cross cable section 2.5mm² max.
Cable gland clamping range 5-10mm

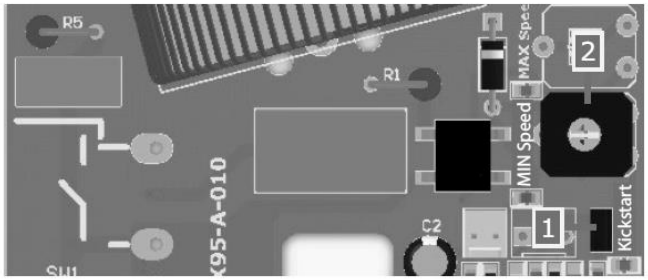
Settings

Potentiometer and kit start jumper location:

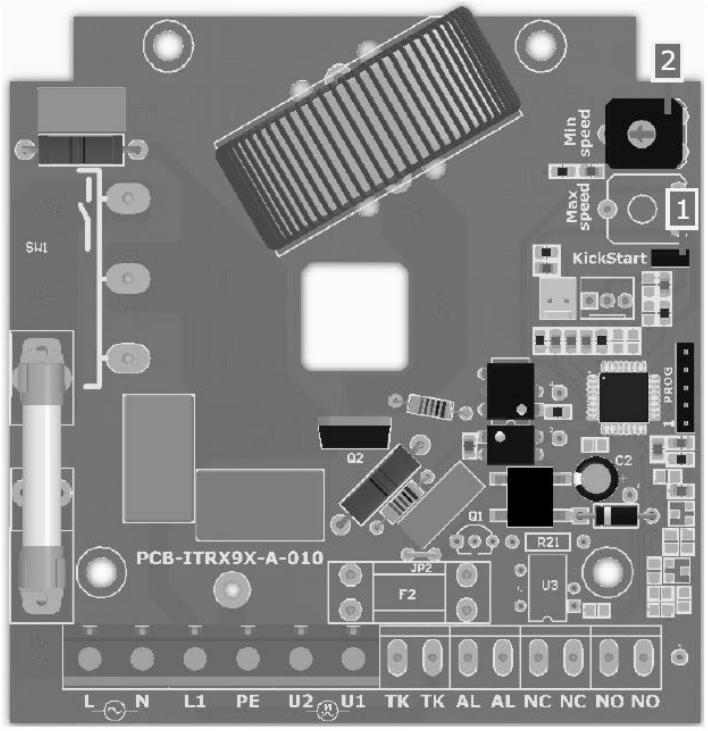
FC-ITL-3:



FC-ITL-5:

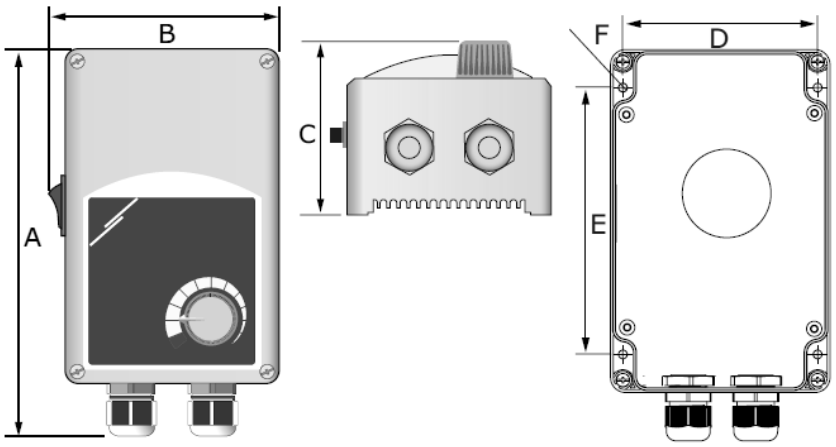


FC-ITL-10:



Kick start selection jumper		Kick start is enabled
		Soft start is enabled
Minimum speed trimmer		Adjust the min. speed (factory pre-set 45% Us)

Fixings & Dimensions



	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F
FC-ITL-3	162	96	75	71	108.8	Ø 4.2
FC-ITL-5	162	96	93	71	108.8	Ø 4.2
FC-OTL-10	205	124	97	102	140	Ø 4.6