

**Speed controller only for fans  
with standard 1 phase  
AC induction motors**

# **FRECON TREG**

**up to 3 500 VA**

**INSTALLATION AND USER MANUAL**



***Dear user,***

***This manual has been designed to provide you with all the information you need to install and use your FRECON SPEED CONTROLLER. Feel free to contact us for any further information you may require concerning special applications beyond the scope of this manual.  
Please keep this manual in a safe place for future reference.***

**FRECON**

## **TESTED**

Committed to quality, FRECON individually test each FRECON SPEED CONTROLLER to ensure reliable performance for the user. All units have passed FRECON'S quality control standards and conform within tolerance to the enclosed specifications.

# SPEED CONTROLLER: FRECON TREG

## 1. General characteristic

Speed controller only for fans with standard 1 phase AC induction motors.

Triac voltage controller - the triac switching angle and consequently the RMS output voltage value is controlled in dependence on the input analogue (voltage) signal level.

<b>INPUT</b>	: supply voltage	1 x 230V ± 10%
	frequency	50Hz ± 1%
<b>OUTPUT</b>	: voltage	0 ÷ 230V <sub>ef</sub>
	frequency	50Hz
	rated current	15A (IP00) / 10A (IP20)
	apparent power	max. 3500VA

### ENVIRONMENTAL CONDITIONS:

ambient temperature	0 ÷ 40°C
ambient humidity	max. 90% (non condensing)

### RECOMMENDED PROTECTION INSTALLED UPSTREAM

OF THE CONTROLLER: according to the connected load; max. 16 A (curve D)

<b>ENCLOSURE</b>	: IP00 or IP20
<b>DIMENSIONS</b>	: 123 x 113 x 73 mm (h x w x d) – IP00 140 x 113 x 95 mm (h x w x d) – IP20
<b>WEIGHT</b>	: 0,5 kg

## 2. Mechanical installation

### 2.1. Location

The installation must be located in a place free from dust, corrosive vapours; gases and all liquids.

Care must also be taken to avoid condensation of vaporised liquids, including atmospheric moisture.

### 2.2. Mounting

The unit must be mounted vertically and sufficient clearance must be allowed around the unit to allow adequate flow of cooling air over the fins of the heatsink. A minimum of 50 mm is required above and below the unit, and some clear space should also be allowed at the sides and front.

## 3. Electrical installation

### **SAFETY PRECAUTIONS**

***DANGER : The voltages present in the power supply cable; the output cable, terminals, and in certain internal parts of the unit are capable of causing severe electric shock and may be lethal !***

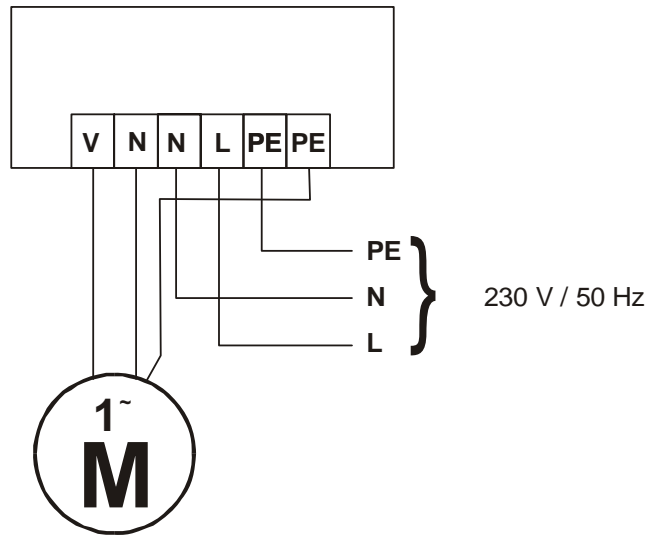
***WARNING: Whenever the unit has been energised; it must be isolated before work may continue.***

***Persons supervising and performing electrical installation must be suitably qualified and competent in these duties, and should be given the opportunity to study this manual before work is started.***

### 3.1. Power connection

CHECK THAT

- the unit is disconnected from the input power before making connections to the terminals - AC input power circuit breaker, installed upstream on the low voltage switchboard, is in "OFF" position



## 4. Control

### 4.1. Control inputs and outputs specification

#### Analogue input

Number of inputs: 1  
 Galvanic insulation input ↔ mains: yes  
 Range: 0 ÷ 10V  
 Input resistance: 20kΩ

#### Current input

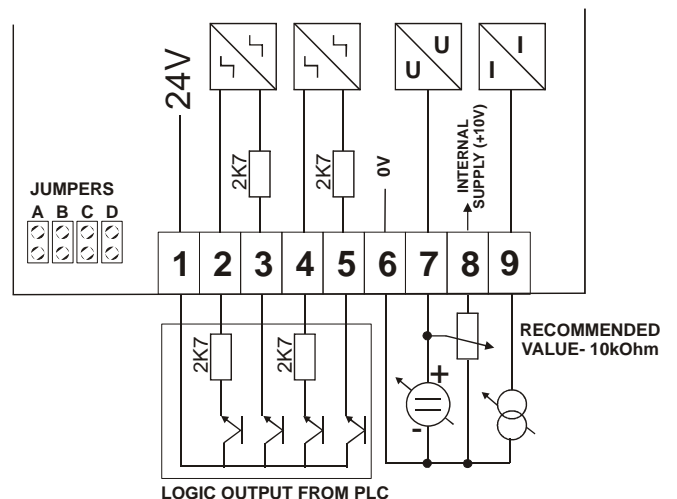
Galvanic insulation input ↔ mains: yes  
 Range: 0÷20mA  
 Input resistance: 100Ω

#### Logic input

Number of inputs: 2  
 Galvanic insulation input ↔ mains: yes  
 input ↔ input: no  
 Level H: min. 15V  
 Level L: max. 6V  
 Input current for  $U_I = 24V$ : 5mA

### 4.2. Control cables

- for control connections use cable of 0,5 mm<sup>2</sup> screened
- connect screen to the earth at the controller only
- NOTE: always segregate control and power cabling



### 4.3. Inputs









#### Logic input „START“ (Terminals 4 or 5)

Connect voltage level **H** (min. 15V) directly to the terminal **5** or through 2k7 resistor to the terminal **4**: controller output voltage is related to the input control signal value (0÷10V).

Controller output voltage is zero, if voltage connecting to the terminal 4 or 5 is 6V (level **L**) or less.

#### Logic input „EMERGENCY“ (Terminals 2 or 3)

Connect voltage level **H** (min. 15V) directly to the terminal **2** or through 2k7 resistor to the terminal **3**: Fan speed will be constant, (if command „START“ is sent) depending on the input control signal value. Fan speed is possible to set by jumpers **A**, **B** - see below:

JUMPERS POSITIONS		SPEED (% MAX. SPEED)
A	B	
		25
		50
		75
		100

#### Analogue input „SPEED“ (Terminals 6, 7, 8)









Voltage signal: connect control DC voltage (0÷10V) supply to the terminals **6 (-)** and **7 (+)** for speed reference.

Potentiometer: connect the potentiometer to the terminals 6, 7, 8 for speed reference.

Relationship between potentiometer setting and motor speed is linear.

Relationship between set input signal and motor speed is linear.

Minimum speed (when input signal is zero) is set by jumpers **C**, **D** - see below:

JUMPERS POSITIONS		MIN. SPEED (% MAX. SPEED)
C	D	
		0
		8
		12
		17

#### Input „CURRENT“ (Terminals 6, 9)

Terminals **6 (-)** and **9 (+)** – current 0÷20mA