

**Speed controller only for fans
(with standard 1 phase AC induction
motors) and resistive loads**

FRECON FREG

up to 1 800 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 FREG

1. General characteristic

Speed controller only for fans (with standard 1 phase AC induction motors) and resistive loads.
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.

INPUT : supply voltage 1 x 230V ± 10%
frequency 50Hz ± 1%

OUTPUT : voltage 0 ÷ 230V_{ef}
frequency 50Hz
rated current 10A
apparent power max. 1800VA

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 C)

ENCLOSURE : IP20

DIMENSIONS : 140 x 113 x 115 mm (h x w x d)

WEIGHT : 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 !

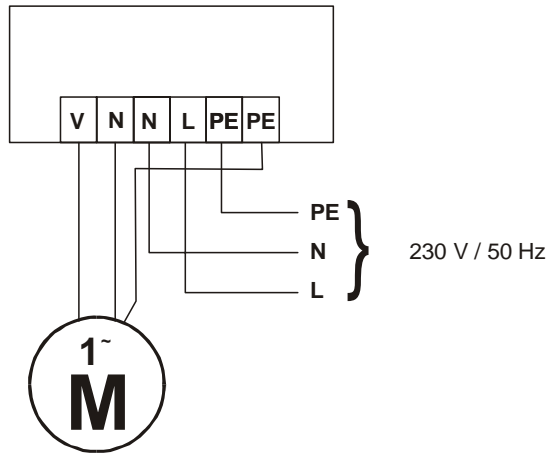
WARNING: Whenever the unit has been energised; it must be isolated before work may continue.

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



CAUTION !!!

Never perform short circuit test of the controller output!

The controller will be damaged and invalidate the guarantee.

Never connect the AC main circuit power supply to the output terminals V, N.

The controller will be damaged and invalidate the guarantee.

4. Control

4.1. Local control

4.1.1. START/STOP: change - over switch on the front cover of the controller.

4.1.2. Fan speed is set by using potentiometer on the front cover of the controller.

4.2. Control inputs and outputs specification

Analogue input

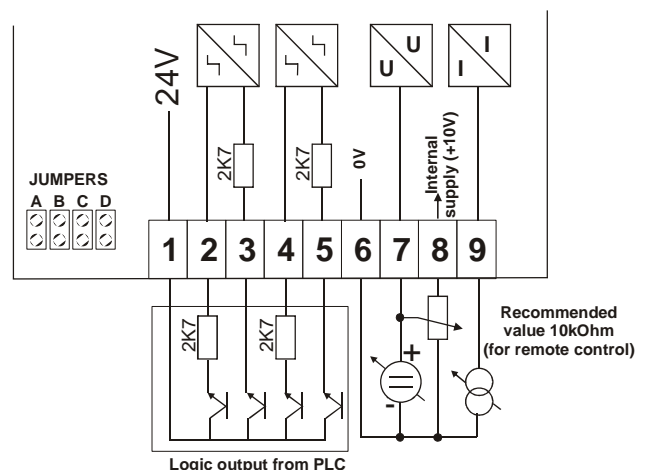
Number of inputs:	1
Galvanic insulation input ↔ mains:	yes
Range:	0 ÷ 10V
Input resistance:	20kΩ

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

4.3. Control cables

- for control connections use cable of 0,5 mm² screened
- connect screen to the earth at the controller only
- NOTE: always segregate control and power cabling



4.4. 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) independent 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 remote potentiometer to the terminals 6, 7, 8 for speed reference. (Potentiometer on the front panel must be disconnected).

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 (-)** a **9 (+)** – current 0÷20mA