FAN SPEED CONTROLS

MOTOR SELECTION GUIDE FOR FAN SPEED CONTROLS

When selecting a control to operate the speed of fan or pump motors, it is essential to consider a number of important factors. The data herein is only a brief overview. It is not intended to provide the full technical details on the selection of fans or motors. To avoid doubt the fan or motor manufacturer should be consulted for guidance.

FAN SPEED CONTROLS

MTY..	Potentiometer	1 Phase Fans	Manual Control
STL..	Potentiometer	1 Phase Fans	Manual Control
EVS..	0-10VDC Input	1 Phase Fans	Automatic Control
STR..	Transformer	1 Phase Fans	5 Step Manual Control
STR4..	Transformer	3 Phase Fans	5 Step Manual Control

Fan Speed Controls are also available for use with:
- Motors with TK thermal cut-out.
- Differential Pressure Transmitters.
- Temperature Operated.

FAN SUITABILITY

Propeller, Centrifugal and Axial.

FAN MOTOR SELECTION

Motors must be capable of running at reduced speeds and voltages.
Suitable types are split capacitor, shaded pole and 6 or 8 pole motors.
4 pole motors are most suitable as they operate over a wider control range.
2 pole motors are difficult to control <600 rpm and have poor starting performance at reduced voltages.
(This may not be problem when the 5 step fan speed controller is used)
High resistance rotors are ideal and give more stable linear characteristics.
These fan speed controls are generally not suitable for pump motor control.

TEMPERATURE

Use Class F rated rotor windings which can withstand temperatures up to 155°C.
Running at low speeds can increase the motor temperature. Motors should be air cooled.
A larger frame size may be necessary to dissipate the extra heat generated when running at low speeds.
Motor thermal protection is recommended.
The fan speed controls are rated at 30°C ambient. The nominal current should be de-rated by 2% per 1°C increase up to a max of 40°C.

LOAD PERFORMANCE

The motor size should be matched to the impeller load.
Optimum speed control is achieved when the motor load absorbs at least 75% of the rated nominal motor power when running at full speed.
The fan speed control nominal current should be greater than the nominal motor running current.
Several motors can be wired to one fan speed control but the current limits must not be exceeded.
Note that the running current on most motors can increase by approx 20% when the speed is reduced

T: +44 (0) 1480 407074 \ F: +44 (0) 1480 407076

FAN SPEED CONTROLS 230VAC 1 PHASE MANUAL OPERATION

MTY.. STL..

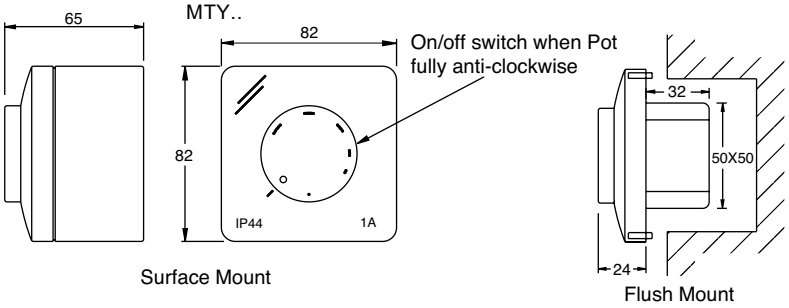
These electronic controls are used to manually adjust the speed of motors via a max - min adjusting knob on the front which reduces/increases the supply voltage to the motor. Before selecting a control its compatibility must be ensured. Please read the Motor Selection Guide on a separate data sheet.

When the unit is switched on and also when power is re-applied (with the speed control switch already in the on position), it will run up to the speed that is set by the potentiometer position.

Type	Nominal Current	Supply 50-60Hz	Fast Blow Fuse Type "F" Fitted	Start Sequence	Manual Speed Adjustment	Mounting	Enclosure
MTY-0-05-AT	0.5A	230Vac	630mA	Pot Position	Internal pot	Surface and flush	IP44
MTY-0-10-AT	1A	230Vac	1.25A	Pot Position	Internal pot	Surface and flush	IP44
MTY-0-20-AT	2A	230Vac	2.5A	Pot Position	Internal pot	Surface and flush	IP44
MTY-0-40-AT	4A	230Vac	5A	Pot Position	Internal pot	Surface	IP54
STL-0-15-AT	1.5A	230Vac	3A	Pot Position	Internal pot	Surface	IP54
STL-0-30-AT	3A	230Vac	5A	Pot Position	Internal pot	Surface	IP54
STL-0-50-AT	5A	230Vac	8A	Pot Position	Internal pot	Surface	IP54
STL-0-60-AT	6A	230Vac	8A	Pot Position	Internal pot	Surface	IP54
STL-0-100-AT	10A	230Vac	14A	Pot Position	Internal pot	Surface	IP54

Minimum Speed can be set via the internal trim potentiometer. The maximum current is based on max ambient of 30 C. Enclosure : Plastic.
Several motors can be connected at once as long as the speed control's maximum current is not exceeded. Suitable for 2 or 3 wire motors.
The Speed Control's maximum current must be just larger than the nominal motor running current. Start current can be 3 x nominal current.

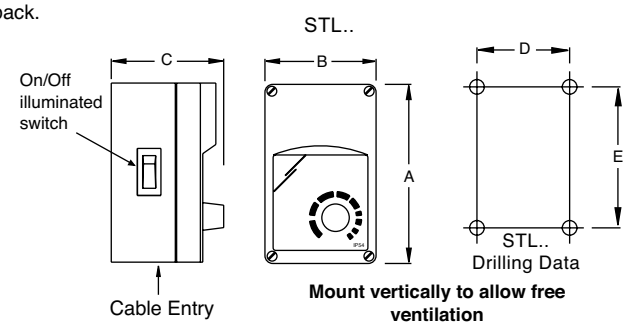
DIMENSIONS



THE POT ON STL.. CAN BE REMOVED FOR FRONT PANEL MOUNTING

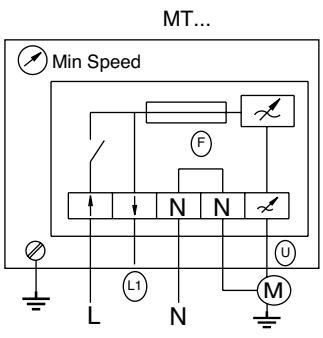
Electrical entry is possible from the bottom or from the back.

	STL-0-15-AT	STL-0-30-AT	STL-0-50-AT	STL-0-60-AT	STL-0-100-AT
kg	0.325	0.350	0.440	0.650	0.710
A	160			195	
B	83			115	
C	88			95	
D	71			98	
E	108			140	



Mount vertically to allow free ventilation

WIRING:



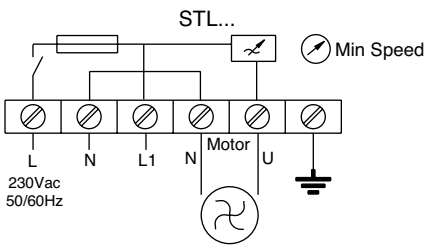
L - Live supply via On/Off switch: 230Vac

F- Fuse-box with spare fuse (Ceramic, Type "F")

L- Controlled live output to motor

L1- Non controlled live output 230Vac for 3 wire motors, or it can be used as a live supply to the controller, bypassing the On/Off switch which is incorporated in the turning knob/potentiometer.

All cables, isolators & external fuses must be fitted according to local regulations, safety & motor manufacturers requirements.



L1 : Live supply bypassing the Fuse & On/Off switch (which is on the side) or it can be used as a supply for 3 wire motors.

FAN SPEED CONTROLS

FAN SPEED CONTROLS 230VAC 1 PHASE 0-10VDC INPUT

EVS..

These units accept 0-10vdc input signal and control the voltage output to a fan motor. As the 0-10vdc signal increases or decreases the motor speed operates respectively. Before selecting a control its compatibility must be ensured. Please read the Motor Selection Guide on a separate data sheet.

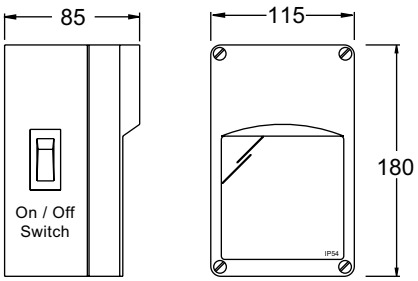
Suitable for 2 or 3 wire motors
Minimum Speed can be set via the internal trim potentiometer
Enclosure : Plastic
Unit can be switched on/off via the illuminated switch on the side
Start current can be 3 x nominal current.
Several motors can be connected at once as long as the speed control's maximum current is not exceeded. The maximum current is based on a maximum ambient temperature of 30 C.

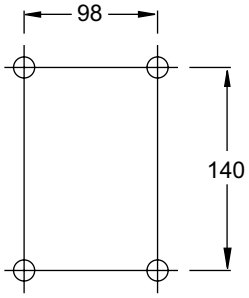
Type	Nominal Current	Supply 50-60Hz	Fast Blow Fuse Type "F" Fitted	Input Signal	Start Sequence Adjustment	Min Speed Adjustment	Mounting	Enclosure
EVS-0-15-DT	1.5A	230Vac	3A	0-10VDC	As input signal	Via internal pot	Wall	IP54
EVS-0-30-DT	3A	230Vac	3A	0-10VDC	As input signal	Via internal pot	Wall	IP54
EVS-0-60-DT	6A	230Vac	6A	0-10VDC	As input signal	Via internal pot	Wall	IP54
EVS-0100-DT	10A	230Vac	14A	0-10VDC	As input signal	Via internal pot	Wall	IP54

The selected Speed Control's maximum current must be just larger than the nominal motor running current.
When the input signal is cut, the unit reverts to the minimum speed set via the trim pot. Factory set at 100VAC.
If the trim pot is set to 0, the fan speed will be zero.

DIMENSIONS

EVS..



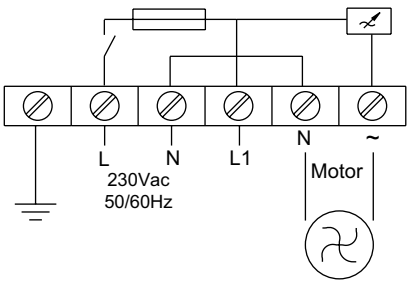


Drilling Data

Mount vertically to allow free ventilation around the unit

MODEL	EVS-0-15-DT	EVS-0-30-DT	EVS-0-60-DT	EVS-0100-DT
WEIGHT(kg)	0.69	0.740	0.900	0.900

WIRING:



L - Live supply via On/ Off switch & fuse
L1 - Live supply bypassing the On/Off switch & fuse or it can be used as a supply for 3 wire motors.

SETTINGS:

Dip switches

16	Input voltage	down	0-10VDC
		up	10-0VDC
17	Off level	down	disable off level
		up	enable off level
18	Kick start	down	disable kick start
		up	enable kick start
19	Current/Voltage Selection	down	4-20mA
		up	0-10VDC

Potentiometers

20	Level adjustment	0-4V or 10-6V depending on Switch 16 selection
21	Min speed adjust	60-160V
22	Max speed adjust	165-230V

All cables, isolators & external fuses etc must be fitted according to local regulations, safety & motor manufacturers requirements.

Min Sensor / control signal cable size 7/0.2mm Max length 100m. The screen should be earthed at control end only.
Keep sensor / control signal wires away from power cables/units which may cause interference. Screened cable is recommended.

T: +44 (0) 1480 407074 \ F: +44 (0) 1480 407076

FAN SPEED CONTROLS 230VAC 1 PHASE 5 SPEED MANUAL OPERATION

STR..

These transformer controls vary the speed of fan motors via a 1-5 step manual selector knob on the front which decreases or increases the supply voltage to the motor. Before selecting a control its compatibility must be ensured. Please read the Motor Selection Guide on a separate data sheet.

Suitable for 2 or 3 wire motors

Power-On Lamp

Internal fast blow fuse “F” type

Start current can be 3 x nominal current.

When the unit is switched on and also when power is re-applied (with the speed control switch already in the on position), it will run up to the speed that is set by the knob position. The maximum current is based on max ambient of 30oC.

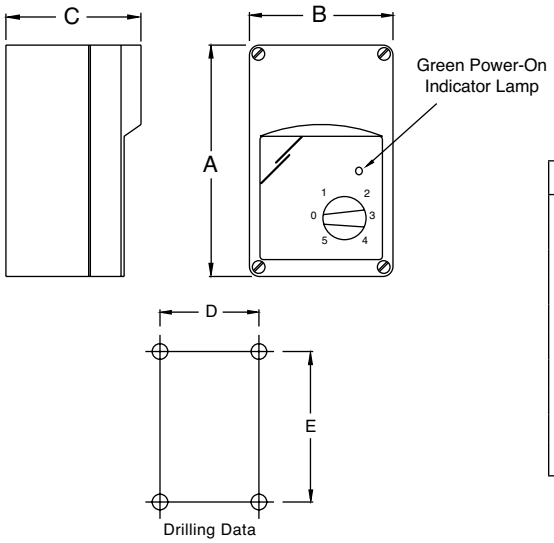
The selected Speed Control’s maximum current must be just larger than the nominal motor running current.

Several motors can be connected at once - do not exceed the speed control’s current rating.

Type	Nominal Current	Supply 50-60Hz	Fast Blow Fuse “F” 5x20	Fast Blow Fuse “F” 6x32mm	Start Sequence	Manual Speed Adjustment	Mounting	Case	Enclosure
STR-1-08L22	0.8A	230Vac	1,5A	-	Knob Position	5 Step	Wall	Plastic	IP54
STR-1-15L22	1.5A	230Vac	2A	-	Knob Position	5 Step	Wall	Plastic	IP54
STR-1-22L22	2.2A	230Vac	2.5A	-	Knob Position	5 Step	Wall	Plastic	IP54
STR-1-35L22	3.5A	230Vac	5A	-	Knob Position	5 Step	Wall	Plastic	IP54
STR-1-50L22	5A	230Vac	8A	-	Knob Position	5 Step	Wall	Plastic	IP54
STR-1-75L22	7.5A	230Vac	10A	-	Knob Position	5 Step	Wall	Plastic	IP54
STR-1100L22	10A	230Vac	-	14A	Knob Position	5 Step	Wall	Plastic	IP54
STR-1130L22	13A	230Vac	-	18A	Knob Position	5 Step	Wall	Plastic	IP54
STR-1160L22	16A	230Vac	-	25A	Knob Position	5 Step	Wall	Metal	IP54
STR-1200L22	20A	230Vac	-	30A	Knob Position	5 Step	Wall	Metal	IP54

DIMENSIONS

STR..

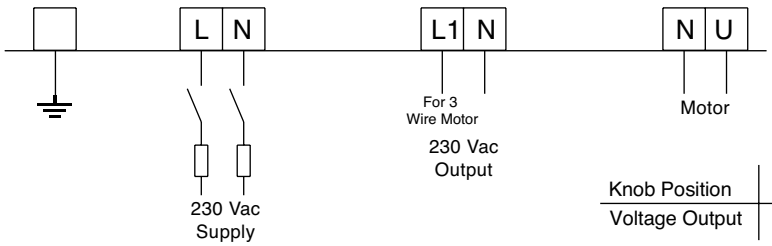


Mount vertically to allow free ventilation around the unit

	A	B	C	D	E	Weight(kg)
STR-1-08L22	180	115	85	98	140	1.4
STR-1-15L22	180	115	85	98	140	1.7
STR-1-22L22	180	115	85	98	140	2.5
STR-1-35L22	280	200	140	155	193	4.5
STR-1-50L22	280	200	140	155	193	4.9
STR-1-75L22	280	200	140	185	243	6.0
STR-1100L22	300	300	170	250	250	9.5
STR-1130L22	300	300	170	250	250	13
STR-1160L22	430	300	230	125	350	15
STR-1200L22	430	300	230	135	350	18

WIRING:

STR..



Knob Position	1	2	3	4	5
Voltage Output	80	110	140	170	230

All cables & external fuses must be fitted according to local regulations, safety and motor manufacturers requirements.

CAUTION: These products may be connected to 230VAC supply. The device should be checked by a qualified technician before applying any voltage.
Isolate device from electrical supply before removing cover. Observe all relevant safety precautions, wiring/earthing regulations & electrical ratings.
Observe design limits of temperatures and electrical ratings. Ensure all entry holes are completely sealed for all IP65/weatherproof models.
Always ensure the device operates at the correct electrical rating. If failure of the device can cause damage a safety backup control should be fitted.
All data is for guidance purposes only, subject to change without prior notice and not guaranteed to be absolutely correct unless confirmed by us in writing.

FAN SPEED CONTROLS

FAN SPEED CONTROLS 400VAC 3 PHASE 5 SPEED MANUAL OPERATION

STR-4-..

These transformer controls vary the speed of fan motors via a 1-5 step manual selector knob on the front which decreases or increases the supply voltage to the motor. Before selecting a controller its compatibility must be ensured. Please read the Motor Selection Guide on a separate data sheet.

STR-4-..

Suitable for 2 or 3 wire motors.

Start current can be 3 x nominal current.

Several motors can be connected at once as long as the speed controller's maximum current is not exceeded. The maximum current is based on a maximum ambient temperature of 30 C.

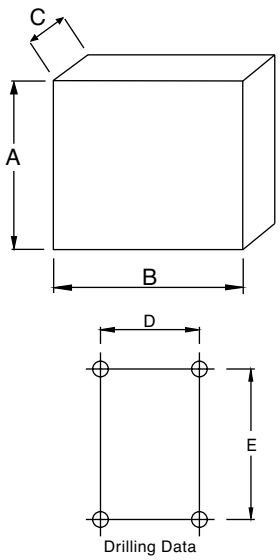
The selected Speed Controller's maximum current must be just larger than the nominal motor running current.

When the unit is switched on and also when power is re-applied (with the speed control switch already in the on position), it will run up to the speed that is set by the knob position.

Type	Nominal Current	Supply 50-60Hz	Start Sequence	Manual Speed Adjustment	Mounting	Case	Enclosure
STR-4-15L40	1.5A	400Vac	Knob Position	5 Step	Wall	Metal	IP54
STR-4-25L40	2.5A	400Vac	Knob Position	5 Step	Wall	Metal	IP54
STR-4-40L40	4A	400Vac	Knob Position	5 Step	Wall	Metal	IP54
STR-4-60L40	6A	400Vac	Knob Position	5 Step	Wall	Metal	IP54
STR-4-80L40	8A	400Vac	Knob Position	5 Step	Wall	Metal	IP54
STR-4-110L40	11A	400Vac	Knob Position	5 Step	Wall	Metal	IP54

DIMENSIONS

STR..



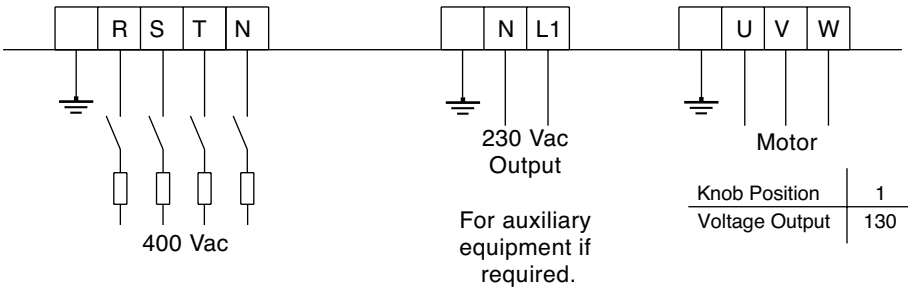
Drilling Data

Mount vertically to allow free ventilation around the unit

	A	B	C	D	E	Weight(kg)
STR-4-15L40	300	300	170	260	260	7
STR-4-25L40	300	300	170	260	260	9
STR-4-40L40	300	250	220	210	260	14
STR-4-60L40	400	300	220	260	360	20.5
STR-4-80L40	400	300	220	260	360	27.7
STR-4-110L40	430	400	270	360	360	31.7

WIRING:

STR..



For auxiliary equipment if required.

Knob Position	1	2	3	4	5
Voltage Output	130	180	230	300	400

All cables & external fuses must be fitted according to local regulations, safety and motor manufacturers requirements.

CAUTION: These products may be connected to 400VAC supply. The device should be checked by a qualified technician before applying any voltage.
Isolate device from electrical supply before cover. Observe all relevant safety precautions, wiring/earthing regulations & electrical ratings.
Observe design limits of temperatures and electrical ratings. Ensure all entry holes are completely sealed for all IP65/weatherproof models.
Always ensure the device operates at the correct electrical rating. If failure of the device can cause damage a safety backup control should be fitted.
All data is for guidance purposes only, subject to change without prior notice and not guaranteed to be absolutely correct unless confirmed by us in writing.

T: +44 (0) 1480 407074 \ F: +44 (0) 1480 407076