

ATS22D75S6U

soft starter-ATS22-control110V-power
208V(20hp)/230V(25hp)/460V(50hp)/575V(60hp)



Main

Range of product	Altistart 22
Product or component type	Soft starter
Product destination	Asynchronous motors
Product specific application	Severe and standard applications
Component name	ATS22
Network number of phases	3 phases
[Us] rated supply voltage	208...600 V - 15...10 %
Motor power hp	20 hp 208 V 25 hp 230 V 50 hp 460 V 60 hp 575 V
Factory setting current	65 A
Power dissipation in W	63 W for standard applications
Utilisation category	AC-53A
Type of start	Start with torque control (current limited to 3.5 In)
ICL starter rating	75 A connection in the motor supply line for standard applications
IP degree of protection	IP20

Complementary

Assembly style	With heat sink
Function available	Internal bypass
Supply voltage limits	177...660 V
Supply frequency	50...60 Hz - 10...10 %
Network frequency	45...66 Hz
Device connection	In the motor supply line
Control circuit voltage	110 V -15...10 % 50/60 Hz
Control circuit consumption	20 W
Discrete output number	2

Discrete output type	Relay outputs R1 230 V running, alarm, trip, stopped, not stopped, starting, ready C/O Relay outputs R2 230 V running, alarm, trip, stopped, not stopped, starting, ready C/O
Minimum switching current	100 mA 12 V DC relay outputs
Maximum switching current	5 A 250 V AC resistive 1 relay outputs 5 A 30 V DC resistive 1 relay outputs 2 A 250 V AC inductive 0.4 20 ms relay outputs 2 A 30 V DC inductive 7 ms relay outputs
Discrete input number	3
Discrete input type	Logic LI1, LI2, LI3 5 mA 20 kOhm
Discrete input voltage	110 V <= 121 V
Discrete input logic	Positive logic LI1, LI2, LI3 < 20 V < 15 mA > 79 V > 2 mA
Output current	0.4...1 Icl adjustable
PTC probe input	750 Ohm
Communication port protocol	Modbus
Connector type	1 RJ45
Communication data link	Serial
Physical interface	RS485 multidrop
Transmission rate	4800, 9600 or 19200 bps
Installed device	31
Protection type	Phase failure line Thermal protection starter Thermal protection motor
Marking	CE
Type of cooling	Forced convection
Operating position	Vertical +/- 10 degree
Height	295 mm
Width	145 mm
Depth	207 mm
Product weight	12 kg

Environment

Electromagnetic compatibility	Conducted and radiated emissions level A IEC 60947-4-2 Damped oscillating waves level 3 IEC 61000-4-12 Electrostatic discharge level 3 IEC 61000-4-2 Immunity to electrical transients level 4 IEC 61000-4-4 Immunity to radiated radio-electrical interference level 3 IEC 61000-4-3 Voltage/Current impulse level 3 IEC 61000-4-5
Standards	EN/IEC 60947-4-2
Product certifications	GOST C-Tick CCC CSA UL
Vibration resistance	1.5 mm 2...13 Hz EN/IEC 60068-2-6 1 gn 13...200 Hz EN/IEC 60068-2-6
Shock resistance	15 gn 11 ms EN/IEC 60068-2-27
Noise level	45 dB
Pollution degree	Level 2 IEC 60664-1
Relative humidity	<= 95 % without condensation or dripping water EN/IEC 60068-2-3
Ambient air temperature for operation	-10...40 °C without derating > 40...< 60 °C with current derating 2.2 % per °C
Ambient air temperature for storage	-25...70 °C
Operating altitude	<= 1000 m without derating > 1000...< 2000 m with current derating of 2.2 % per additional 100 m

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0939 - Schneider Electric declaration of conformity

 [Schneider Electric declaration of conformity](#)

REACH	Reference contains SVHC above the threshold - Go to CaP for more details  Go to CaP for more details
Product environmental profile	Available  Product environmental
Product end of life instructions	Available  End of life manual

Contractual warranty

Warranty period	18 months
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Presentation

The Altistart 22 soft start - soft stop unit supports the controlled starting and stopping, via voltage and torque, of three-phase squirrel cage asynchronous motors for power ratings between 4 and 400 kW.

It comes ready to use for standard applications with class 10 motor protection.

Current limiting

Current limiting is used to define the maximum current that can be applied to the motor on startup.

The current value depends on the starting capacity of the Altistart 22 used and the maximum current permitted by the motor.

Adjustment range:

- 200% to 700% of the nominal motor current set
- Limited to 350% of the maximum continuous current defined for the starter rating.

Start-Stop control (SSC)

This function allows the user to choose the type of control applied to the motor during the acceleration or deceleration phase:

- When SSC is set to ON, the acceleration and deceleration profiles use torque control.
Torque control is primarily used in pump applications.
- When SSC is set to OFF, the acceleration and deceleration profiles use voltage control.
This option provides a choice of different profiles using the SPCU parameter so as to apply the most suitable ramp for the application.

Acceleration ramp time (ACC)

This function is used to set the time (starting at 0) for the ramp to reach the nominal torque (if SSC is set to ON) or the nominal voltage (if SSC is set to OFF).

Deceleration ramp time (dEC)

Description

The dEC function is used to define the deceleration time as follows:

- With SSC set to ON: The deceleration ramp changes from the nominal torque value to 0.
- With SSC set to OFF: The deceleration ramp changes from the nominal voltage value to 0.

A freewheel stop can be selected by setting the dEC function to 0.

Example

This type of stop can be used to decelerate a centrifugal pump gradually on a ramp in order to avoid a sudden stop. It can be used to dampen the hydraulic transient in order to significantly reduce pressure surges.

End of deceleration (EdC)

Description

During deceleration, it is possible to change to a freewheel stop by setting the end of deceleration threshold (EdC). On reaching this threshold the torque value changes to 0.

Parameter

As a percentage of the torque value.

Example

During deceleration, the pump flow rate decreases and becomes negligible at a certain speed. To continue to decelerate would serve no purpose. This threshold therefore avoids the unnecessary heating of the motor and the pump.

Integrated bypass function

This function provides integrated and automated control of the bypass contactor at the end of the starting period while maintaining electronic protection.

Second set of motor parameters

To access the adjustment functions for the second motor, a logic input must be assigned to the "second set of motor parameters" function. The adjustment functions and ranges are identical for both sets of motor parameters.

Motor thermal protection using "tHp" software

Description

The starter continuously calculates the temperature rise of the motor based on the nominal current set and the actual current absorbed. In order to adapt the start

- Class 30
- Class 20
- Class 10 for standard application (factory setting)

The tripping curves are based on the relationship between the starting current I_{cL} and the (adjustable) nominal motor current I_n .

Use

The thermal protection function prevents the motor from restarting if the temperature rise is too high.

It can be disabled.

Protection Classes

Different protection classes are defined for the starting capacities of the motor:

- Cold start without thermal fault (corresponding to a stabilized motor thermal state, motor power off)
- Warm start without thermal fault (corresponding to a stabilized motor thermal state at nominal power)

Important

If special motors are used which do not have thermal protection via curves, provide external thermal protection via probes or thermal overload relays.

Motor thermal protection with PTC probe and electrical isolation

Title of fact block

The Altistart 22 starter integrates the processing of PTC probes, thus avoiding the use of an external device. The "PTC probe thermal overshoot" fault or alarm can be indicated using a configurable logic output or displayed via the serial link. The function can be disabled.

The "motor thermal protection with PTC probe" and "motor thermal protection using tHp software" functions are independent and can be active simultaneously.

Thermal protection of the Altistart 22 soft start/soft stop unit (ItH)

This function is used to protect the starter whatever the operating conditions.
It switches to alarm mode when the thermal state of the starter exceeds the threshold set.

Configurable current overload protection

The Altistart 22 soft start/soft stop unit detects a current overload if the motor current exceeds a preset overcurrent threshold for a specific (adjustable) period of time.

This function is only active in steady state. It can trigger an alarm or a fault. This type of detection can also be disabled.

The "current overload detected" alarm can be indicated by a configurable logic output and/or displayed via the serial link.

Configurable current underload protection

This function triggers an alarm when the current applied to the starter falls below a set threshold.

Configurable voltage overload protection

This function triggers an alarm when the voltage applied to the starter falls below a set threshold.

Configurable voltage underload protection

This switches to alarm mode when the voltage applied to the starter falls below the set threshold.

Starting time

Description

This function defines the start duration.

Use

It is used to avoid excessive starting times, which may damage the motor.

Number of starts per hour (Snb)

Description

This parameter defines the number of starts per hour.

Use

It is used to limit the number of starts in order to protect the motor and the application.

Voltage boost level

Description

When a run command is sent, the starter applies a fixed voltage to the motor for a limited period of time before starting.
The function can be disabled.

Use

This function can be used to avoid any "starting" torque (phenomenon caused by friction on stopping or by mechanical play).

Forced ventilation

Automatic, manual or event-triggered operation of the integrated or additional fan:

- "Auto": The Altistart 22 soft start/soft stop unit manages fan operation automatically.
- "On": The fan is continuously on.
- "Off": The fan is permanently off.
- "Hand": Fan operation is controlled manually by the state of the logic input assigned to this function.

Adaptation to the line frequency

Automatic adaptation to the line frequency.

Phase-to-ground fault detection

This function is used to adjust the sensitivity of the protection function in order to detect a loss of phase current to ground.
Automatically set to OFF on the ATS22[™]Q range.

Phase loss detection (PHL)

This function is used to adjust the sensitivity of the protection function in order to detect a loss of current or a low current in one of the three motor phases.

Phase balance detection

This function is used to adjust the sensitivity of the function for detecting current unbalance in one of the three motor phases.

Alarm and error log

The nine most recent alarms or faults are stored in the alarm or error log.

Micro-processor memory test

The Altistart 22 soft start/soft stop unit features integrated self-test functions.

Return to factory settings

This function can be used to reset each setting to its initial value.

Displaying the firmware version

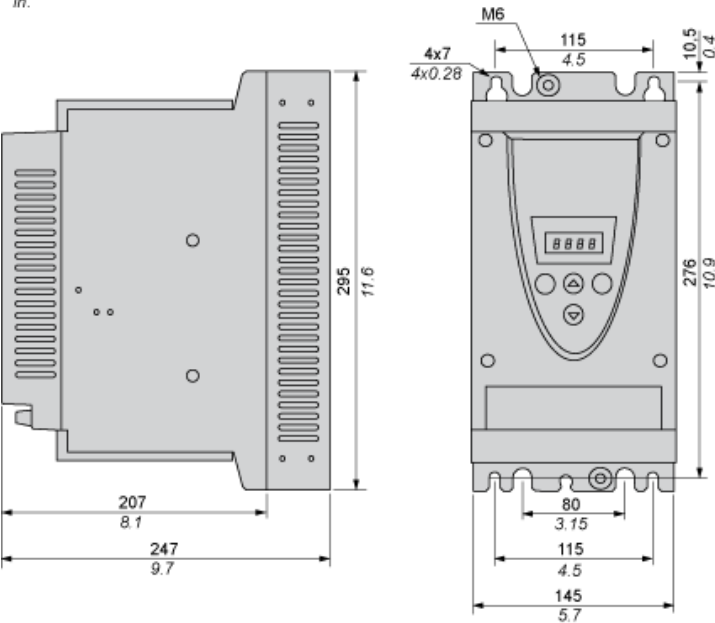
This function displays the firmware versions for the purpose of managing the installed equipment base.

Dimensions and Weights

Dimensions

Frame Size B

mm
in.



Weights

Starter	kg	lb
Without fan	8.5	18.9
With fan (1)	9.9	22
Gross weight	12	26.7

Precautions

Standards

The Altistart 22 soft starter is compliant with pollution Degree 2 as defined in NEMA ICS1-1 or IEC 60664-1.

For environment pollution degree 3, install the Altistart 22 soft starter inside a cabinet type 12 or IP54.

DANGER

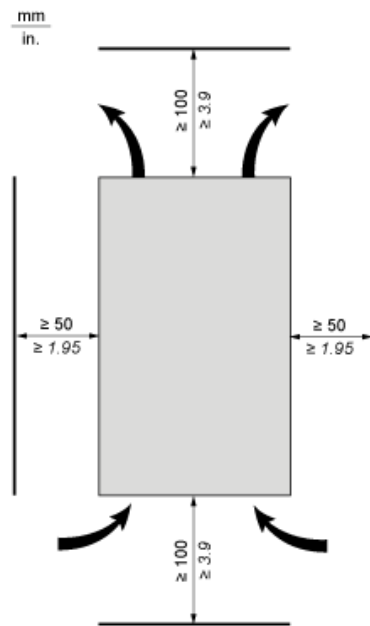
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

ATS22 soft starters are open devices and must be mounted in a suitable enclosure.

Failure to follow these instructions will result in death or serious injury.

Air Circulation

Leave sufficient free space to help the air required for cooling purposes to circulate from the bottom to the top of the unit.



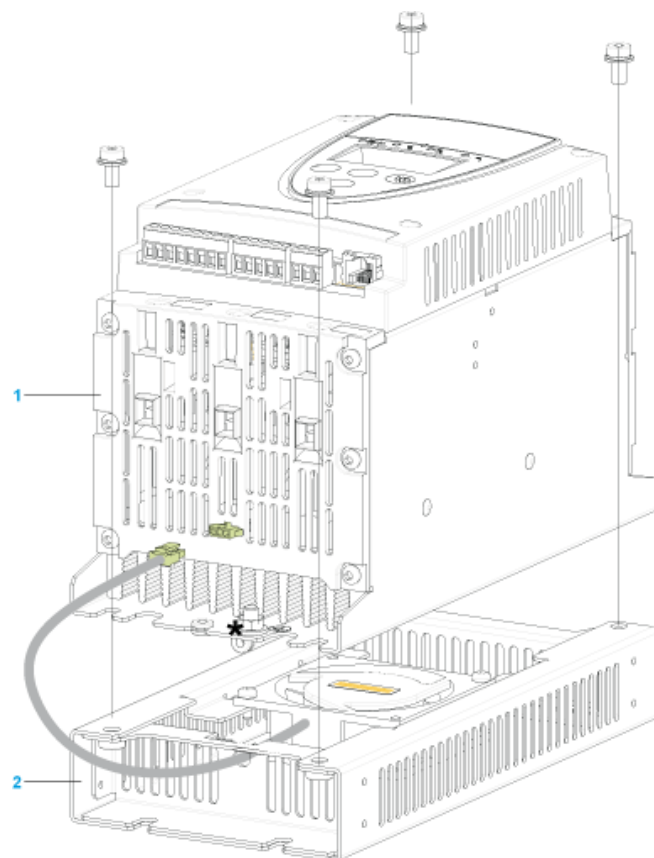
Overheating

To avoid the soft starter to overheat, respect the following recommendations:

- Mount the Altistart 22 Soft Starter within $\pm 10^\circ$ of vertical.
- Do not locate the Altistart 22 Soft Starter near heat radiating elements.
- Electrical current through the Altistart 22 Soft Starter will result in heat losses that must be dissipated into the ambient air immediately surrounding the soft starter.
- If several soft starters are installed in a control panel, arrange them in a row. Do not stack soft starters. Heat generated from the bottom soft starter can adversely affect the ones above it.

Mounting

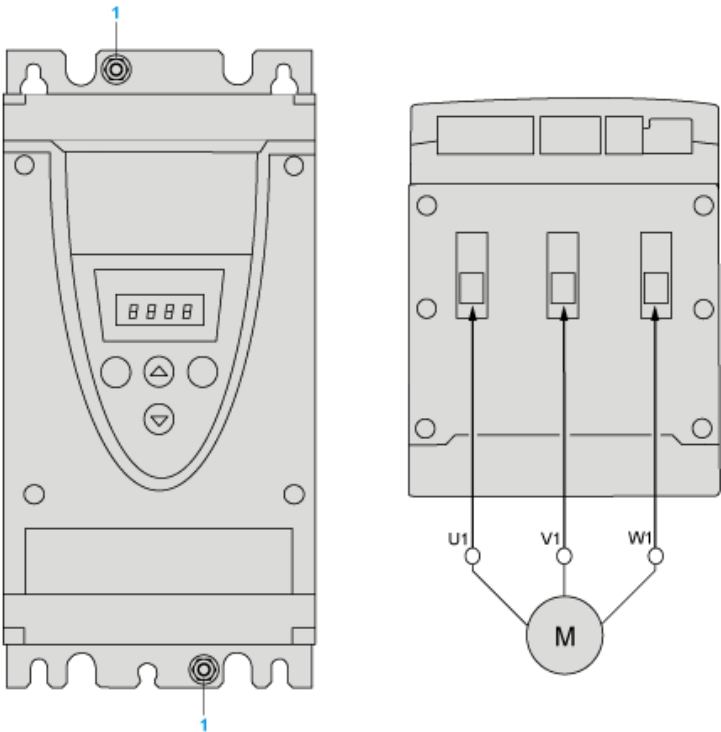
Connection Between the Fan and the Altistart 22 Soft Starter



- 1 Altistart 22 Soft Starter
- 2 Fan

Power Terminal

Cage Style



1 Ground connection

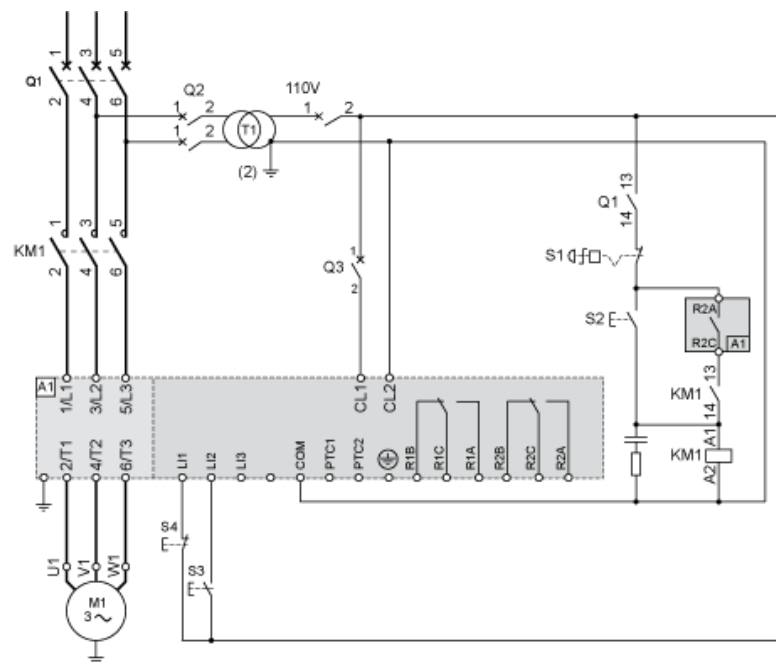
Power connections, minimum and maximum wiring capabilities, tightening torque

			IEC cable	UL cable
Power supply and output to motor	Size/gauge	min	4 mm (a)	10 AWG (a)
max	50 mm	1/0 AWG		
Tightening torque	min	8 N.m	70 lb.in	
max	8 N.m	70 lb.in		
Strip length		15 mm	0.6 in.	

Power connections, minimum required wiring section

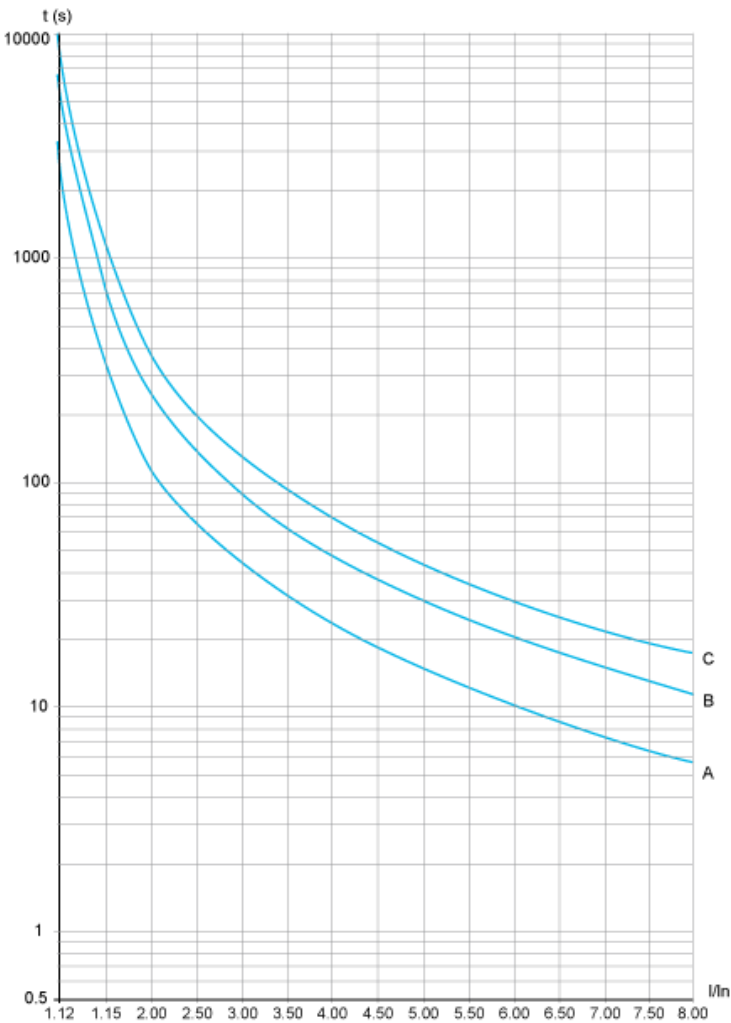
IEC cable mm² (Cu 70°C/158°F) (1)	UL cable AWG (Cu 75°C/167°F) (1)
25	3

110 Vac control, Logic Inputs (LI) 110 Vac, 3-wire control



Motor Thermal Protection - Cold Curves

Curves



- A Class 10
- B Class 20
- C Class 30

Trip time for a Standard Application (Class 10)

3.5 In
32 s

Trip time for a Severe Application (Class 20)

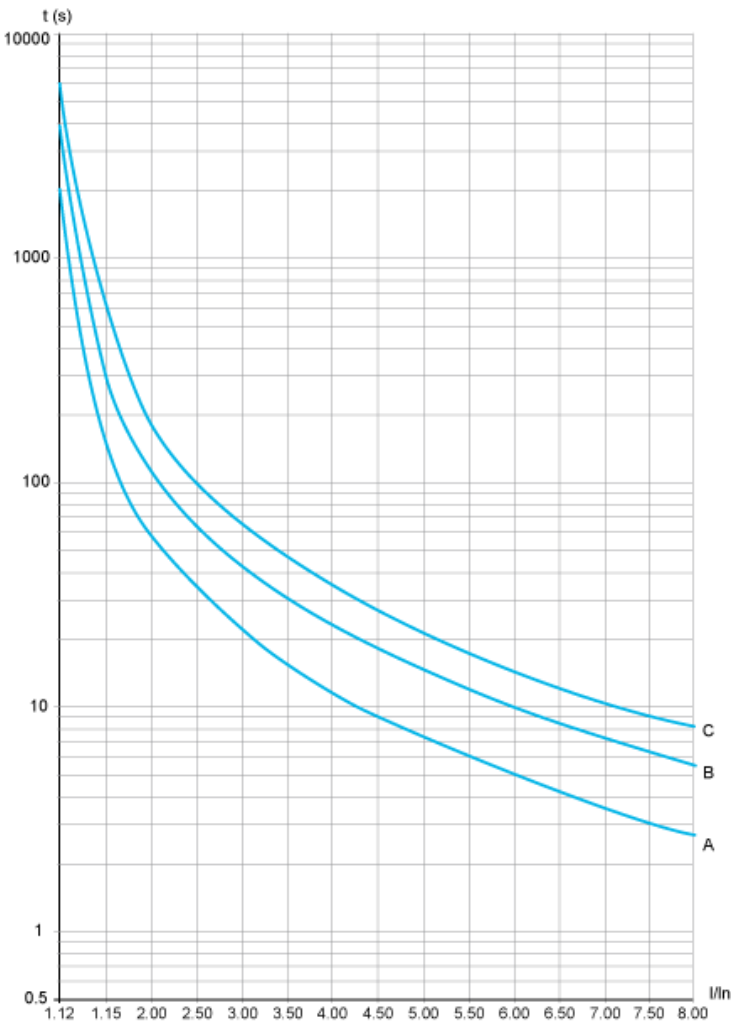
3.5 In
63 s

Trip time for a Severe Application (Class 30)

3.5 In
95 s

Motor Thermal Protection - Warm Curves

Curves



- A Class 10
- B Class 20
- C Class 30

Trip time for a Standard Application (Class 10)

3.5 In
16 s

Trip time for a Severe Application (Class 20)

3.5 In
32 s

Trip time for a Severe Application (Class 30)

3.5 In
48 s