USER'S MANUAL
Rev.11/2018

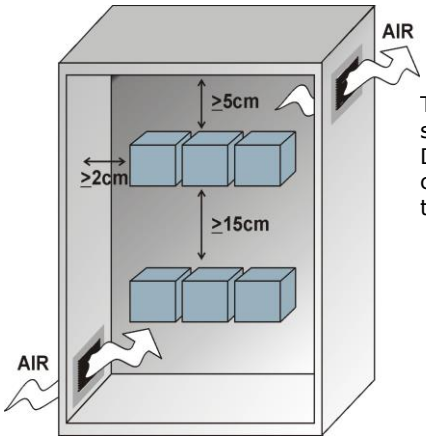
000002

STB

SOFT STARTER

140-170-200A

1 Mounting



Caution: *Check that no liquids,dust or conductive objects can fall into the unit.*

The STB Soft Starter must be mounted vertically, allow sufficient space above and below the starter for suitable airflow.
Do not mount the soft starter near other heat sources. Surrounding air temperature in the cabinet should not exceed 40°C, the starter is rated to operate over a temperature range of 0°C to +40°C.

1.1 Environment

Ambient temperature	0°C to +40°C
Storage temperature	-25°C to +70°C
Installation place	Don't install at direct sun light, where there are conductive dust, corrosive gas, vibration or water and also in salty environmental.
Altitude	Up to 1000 meter over sea level. For higher altitude reduce the nominal current of 2% for each 100m over 1000m
Humidity	From 5 to 95% without condense and ice

	1	2	3	4	5	6		7	8	9	10	11	12	13	14	15	16
ORDERING CODE	**S**	**T**	**B**	_	_	_	**-**	_	_	_	_	_	_	_	_	_	_

CURRENT	4	5	6	
description	code			note
140 Amp FLC	1	4	0	
170 Amp FLC	1	7	0	
200 Amp FLC	2	0	0	

MAIN SUPPLY VOLTAGE	7	
description	code	note
3x200V + 10:-15%	2	
3x440V + 10:-15%	4	

VOLTAGE SUPPLY AUX.	8	
description	code	note
No auxiliary voltage supply unit≤32A	0	
Auxiliary voltage 110-240V (+10: -15%) ac (just for >32A)	1	

INPUT	9	
description	code	note
Start with power up	1	
Start/Stop optoisolated + 24V	2	

OVERLOAD RELAY	10	
description	code	note
No overload relay	0	

CONTROL MODE	11	
description	code	note
Voltage control mode	V	

OPTION & FUSE	12	
description	code	note
No Fuses	0	
External fuse & fuse holder	F	

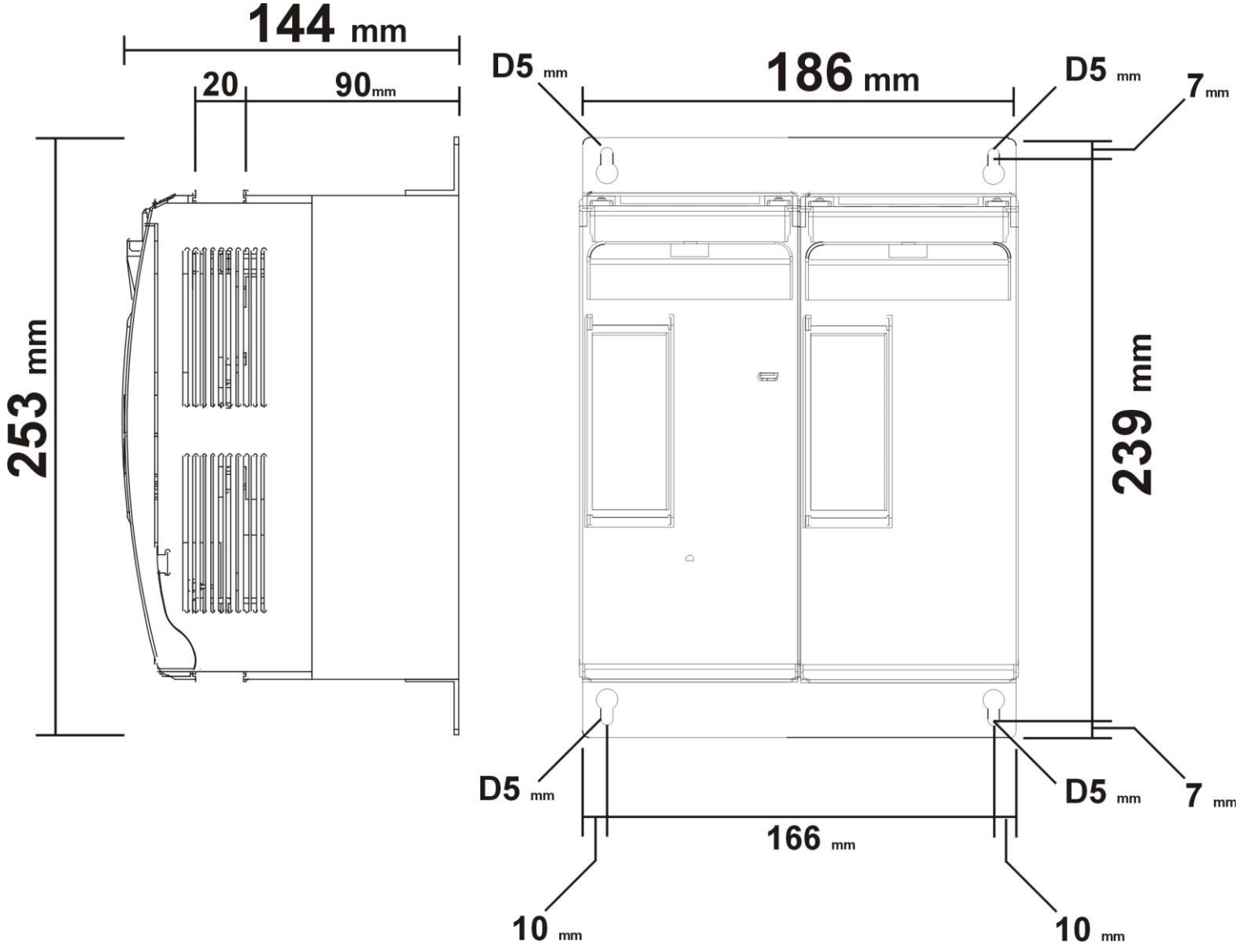
FAN VOLTAGE	13	
description	code	note
No Fan	0	

APPROVALS	14	
description	code	note
CE EMC	0	

MANUAL	15	
description	code	note
None	0	
Italian	1	
English	2	
German	3	
French	4	
Spanish	5	

VERSION	16	
description	code	note
Standard version	1	

2.1 Dimensions and Fixing holes



3 Technical Data

Technical Data

Ramp Time	Kick Start(ms) at 70%	Initial Torque
2-20 Sec	0-100-200-300	30-70%

Model Code	**STB0140**	**STB170**	**STB200**
Operational Max Current	140A AC3	170A AC3	200A AC3
Leakage Current	300 mA	300 mA	300 mA
Minimum working current	1000mA	1000mA	1000mA
Start/Hour	6	6	6
Motor ratings 230V	57,8 HP /43,1Kw	69,5 HP / 51,8Kw	84,9 HP / 63,3Kw
Motor ratings 400V	100,6 HP /75 Kw	120,7 HP / 90Kw	147,5 HP/ 110Kw

Digital Input Voltage Range	4-24VDC max	
Relay Output	5A 250VAC max	3A 30VDC max
Control Current	20mA	
Response time max	200 mSec max	

SERVICE		LIGHT	MEDIUM	HEAVY	SEVERE
Start Current (Multiple of FLC*)		3	3,5	4	4,5
		AC53b 3,0 -6:590<1000m	AC53b 3,5 -15:585<1000m	AC53b 4,0 -20:580<1000m	AC53b 4,5 -30:570<1000m
STB - STO	140	140A	123A	107A	90A
STB - STO	170	170A	145A	122A	97A
STB - STO	200	200A	190A	160A	135A

*FLC Full load current

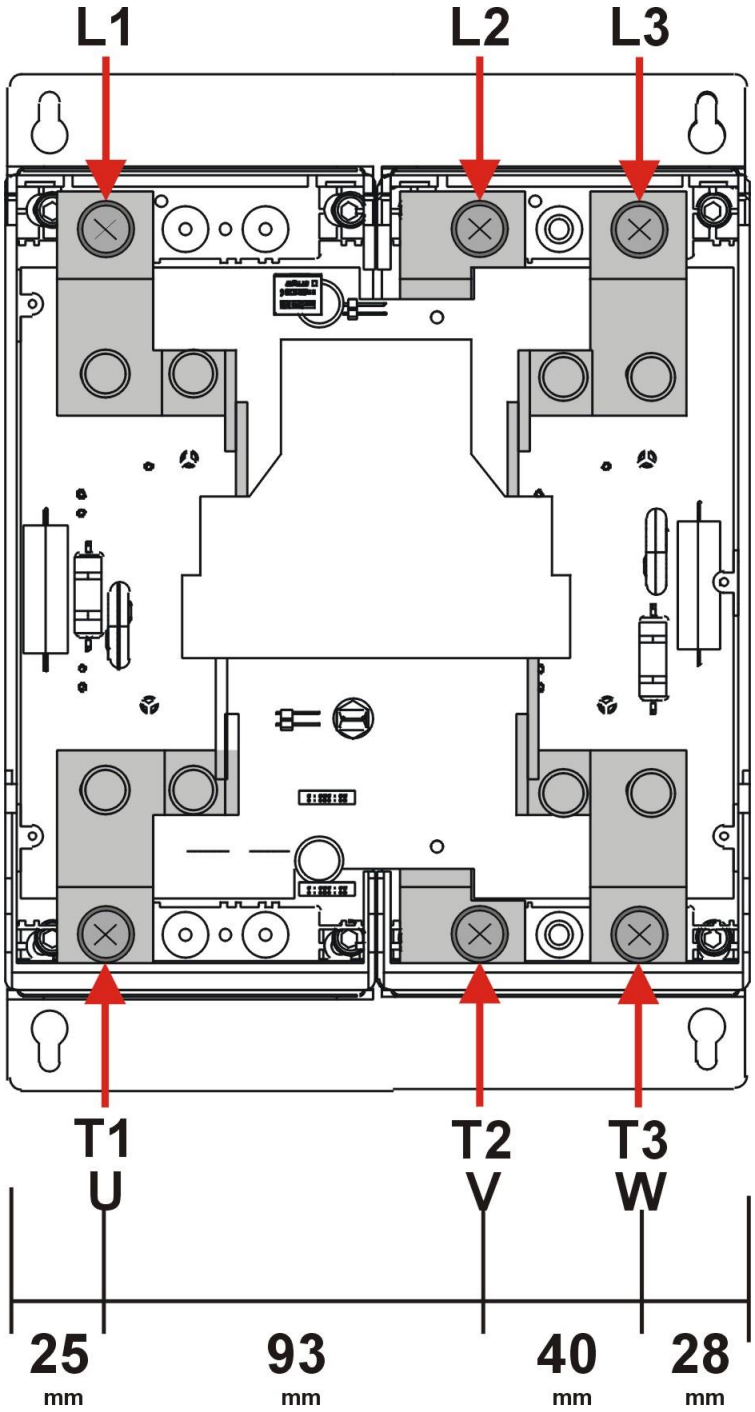
4 Connections

Warning: *Before connecting or disconnecting the unit check that power and control cables are isolated from voltage sources.*

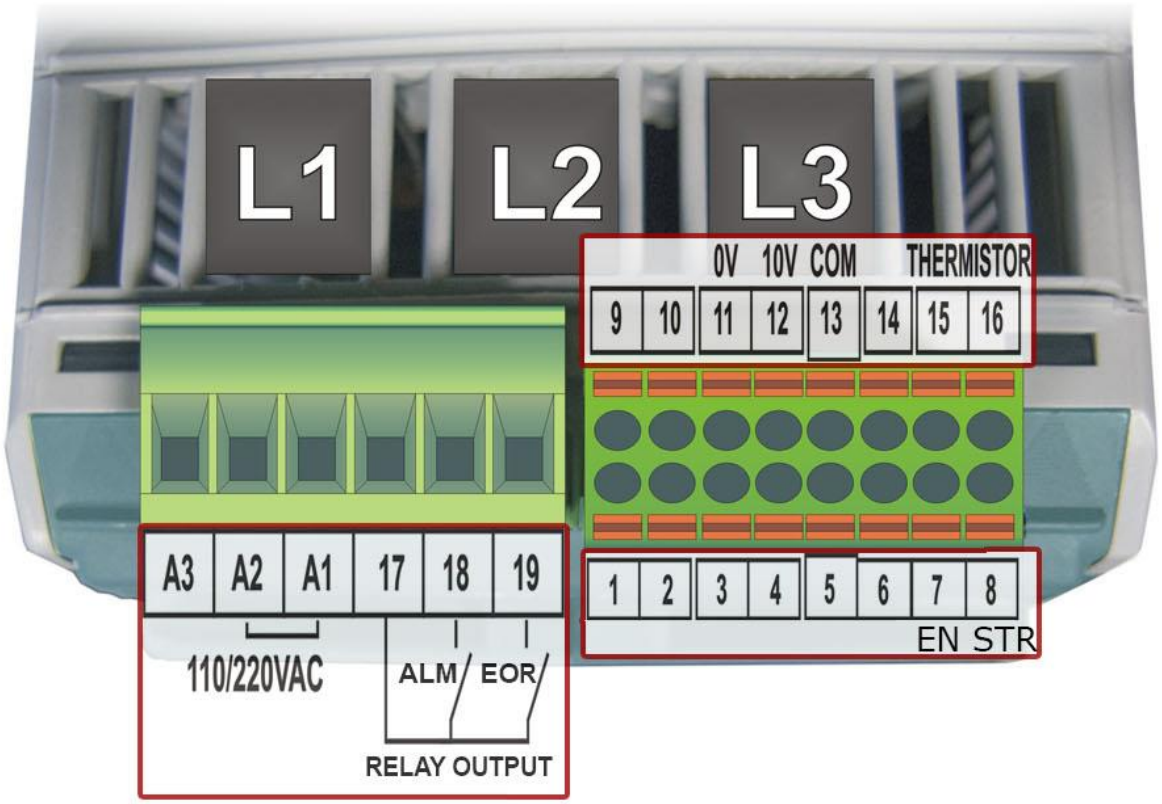
Tightening torque, min 0.5 Nm - max 0.6 Nm
Conductor section max. 6 mm² - AWG 10

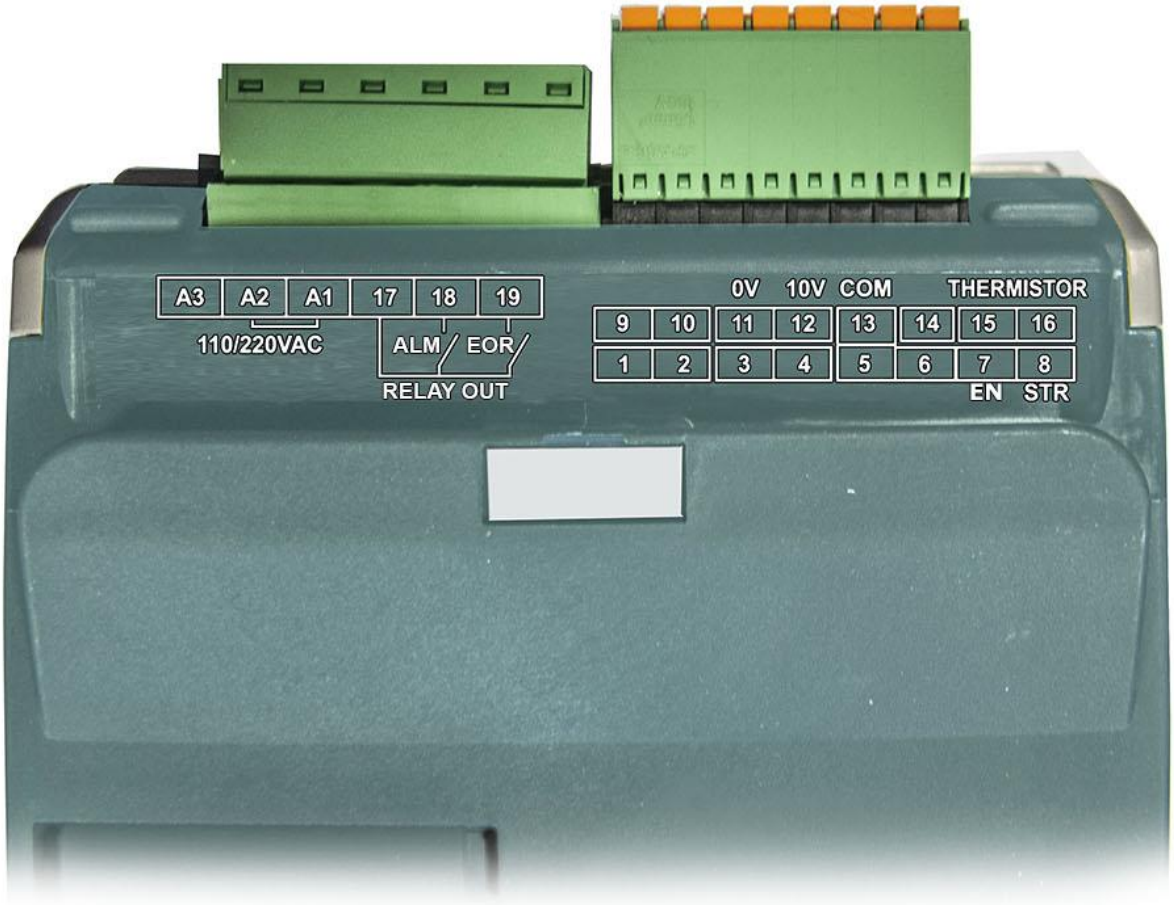
Terminal	Description
L1	Line Input Phase 1
L2	Line Input Phase 2
L3	Line Input Phase 3

U/T1	Motor Output Phase U
V/T2	Motor Output Phase V
W/T3	Motor Output Phase W



4.1 Terminal Block



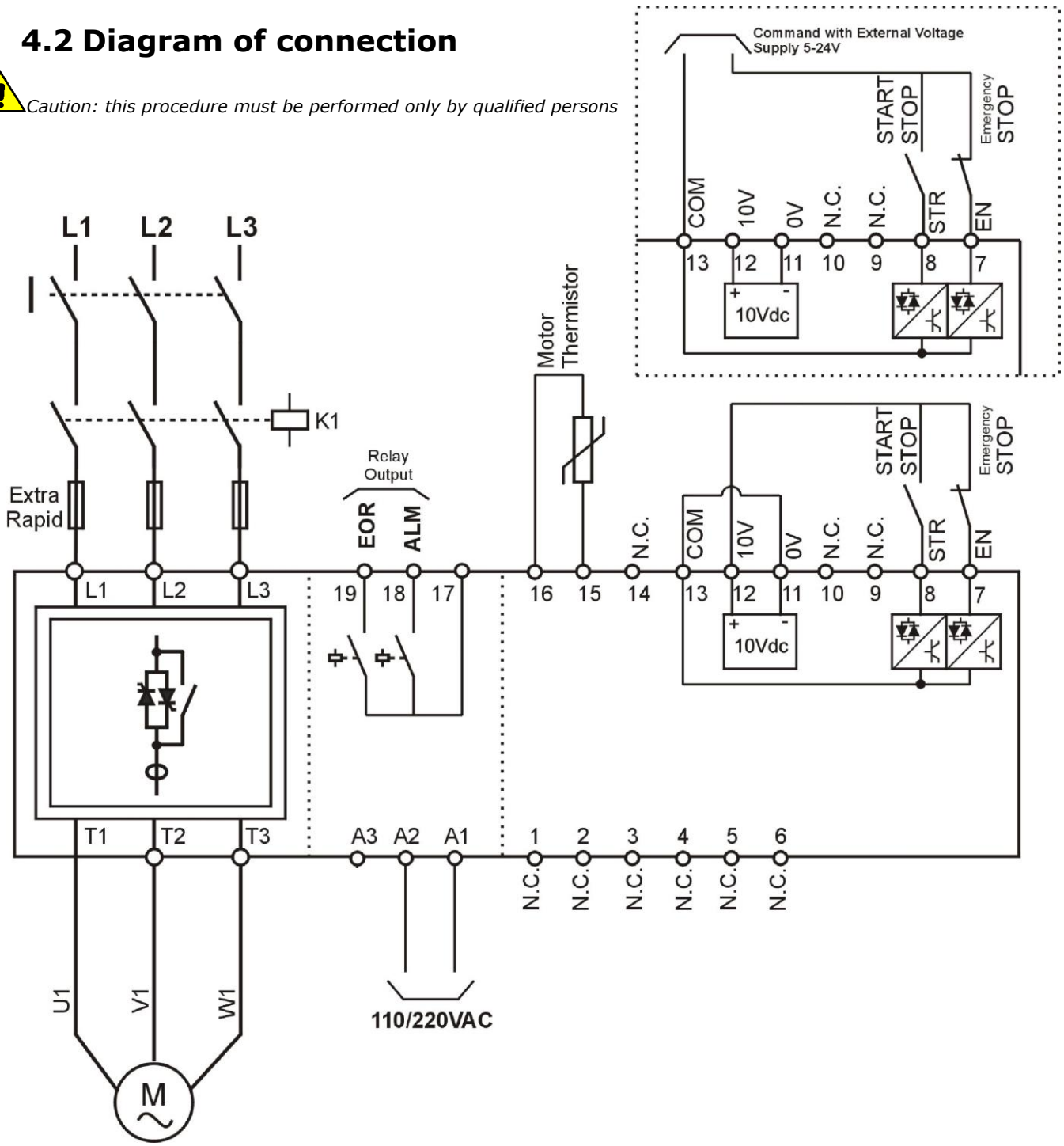


4.1.1 Terminal description

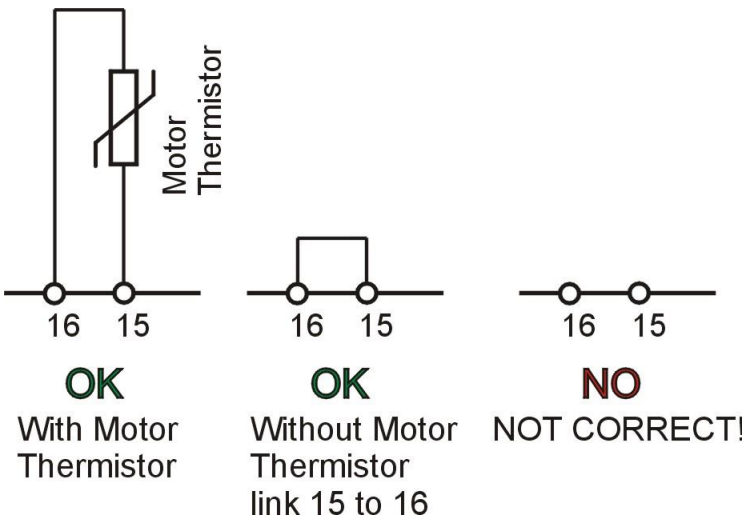
Terminal	Description
1	Not connected
2	Not connected
3	Not connected
4	Not connected
5	Not connected
6	Not connected
7	EN – Emergency STOP, shut down the soft starter immediately without control when opened.
8	STR - START and STOP are controlled by the logic input: a START is obtained with 5-24Vdc, and a stop is obtained when you remove the 5-24Vdc on the terminals, without the START command the output of the STB Soft Starter will return at zero following the down ramp set.
9	Not connected
10	Not connected
11	0V
12	10V Internal Voltage
13	COM Input Common
14	Not connected
15	Motor Thermistor
16	Motor Thermistor
17	COM Relay common contact
18	ALM relay output - Fault Output ALARM
19	EOR relay output - End Of Ramp output
A1	Common Aux – Voltage Supply for 110/220VAC
A2	Auxiliary – Voltage Supply 110/220VAC
A3	n.c. not connected

4.2 Diagram of connection

Caution: this procedure must be performed only by qualified persons

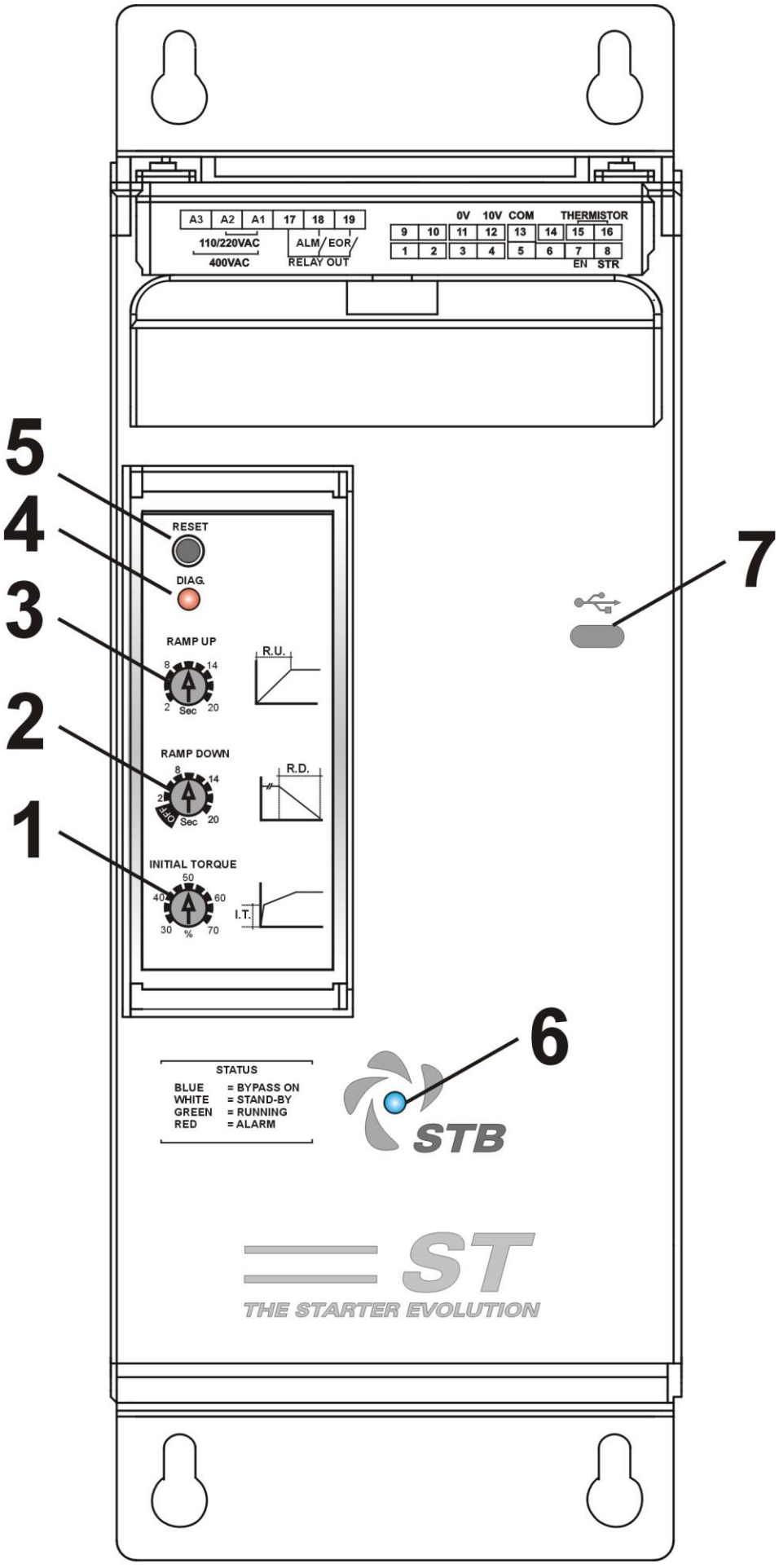


4.2.1 Motor Thermistor connection



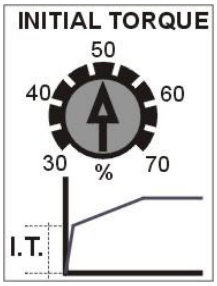
5 Functions and Settings

1	INITIAL TORQUE
2	RAMP DOWN
3	RAMP UP
4	DIAGNOSTIC LED
5	RESET SWITCH
6	STATUS LED
7	USB

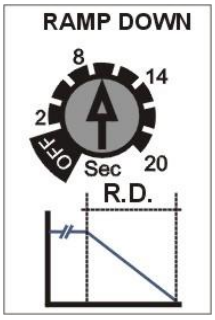


5.1 Trimmer Settings

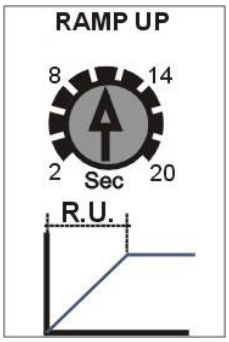
5.1.1 Inital torque

1 	The **INITIAL TORQUE [30-70%]** trimmer adjusts the initial voltage applied to the motor, and so the starting torque (not linearly). It has to be tuned so that the motor starts running immediately, but pay attention because a too high setting avoids the SOFT effect.

5.1.2 Ramp DOWN

2 	The **RAMP DOWN [0-20 sec]** trimmer adjusts the inclination of the deceleration ramp by working on the time used to pass from the full voltage output to the initial voltage (rotating the trimmer in clockwise sense, the deceleration time increases). By rotating it completely in anticlockwise sense the deceleration can be excluded

5.1.3 Ramp UP

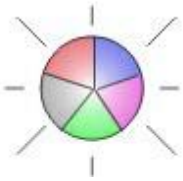
3 	The **RAMP UP [2-20 sec.]** trimmer adjusts the inclination of the acceleration ramp by working on the time used to pass from initial voltage to the full voltage output (rotating the trimmer in clockwise sense, the acceleration time increases).

5.2 Led and Alarm

5.2.1 Diagnostic LED

4 	Green ON SlowBlinking - Ready to Start Green ON Fast Blinking - Ramp Active Green ON - At Speed (full Voltage)
	RED ON 1 time blinking - Wrong connection RED ON 4 times blinking – Thermistor Alarm RED ON 6 times blinking – Frequency out of range

5.2.2 Status Led

6 	RED ON – Fault Alarm!. BLUE ON – Bypass ON (End of Ramp). Green ON – Running (Ramp UP, Ramp Down). White ON – Stand By.

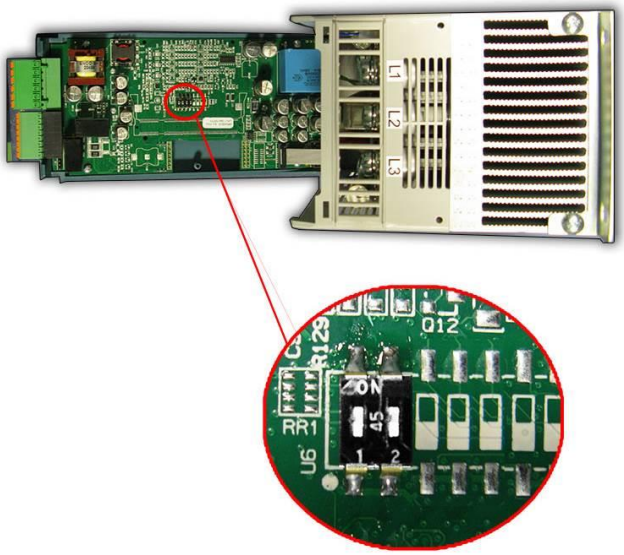
5.3 Reset Switch

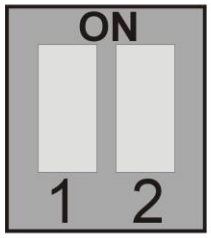
5 	If an alarm occurs, you can start over with the reset button. Obviously the cause of the alarm will go previously resolved otherwise it will return to the alarm mode.

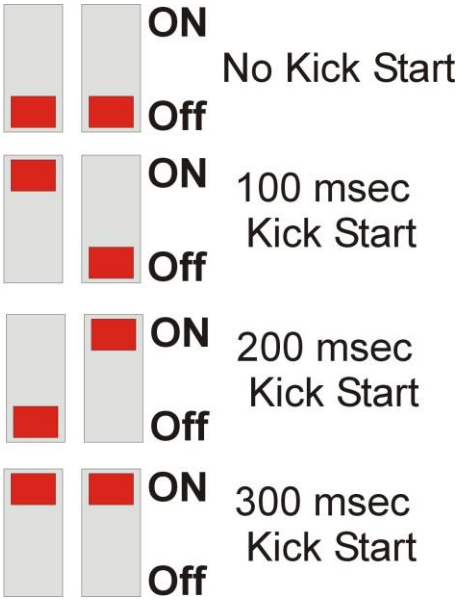
5.4 USB

7 	USB only for firmware updgrade

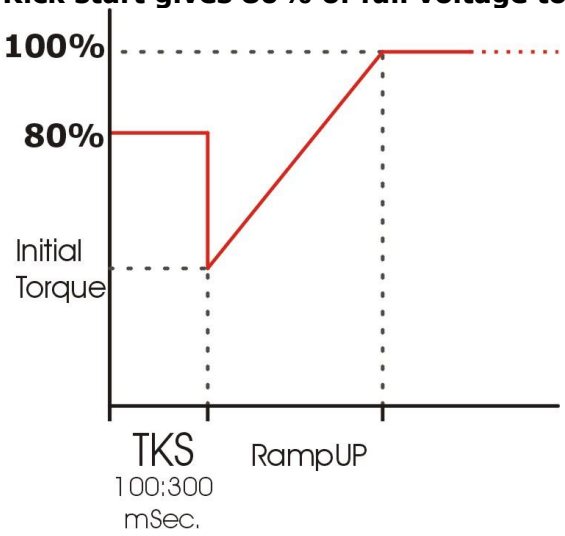
5.5 Kick start settings







Kick start gives 80% of full voltage to the motor for 100,200 or 300 msec (Tks)



STO 140-200 FULFILS THE REQUIREMENTS OF THE STANDARD:

Electrical safety Standard	EN60947-1 :2008
	EN60947-4-3:2001
Generic Emission standard	EN60947-4-3:2000
Generic Immunity standard	EN60947-4-3:2000

Producers declares that The products above mentioned they am conforming to the directive **EMC 2004/108/CEE** e alla direttiva Bassa Tensione (low Voltage) **2006/95/CEE**