

# ACCESSORIES



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## FINGER GUARDS (SR35-FG-1 AND SR35-FG-2)

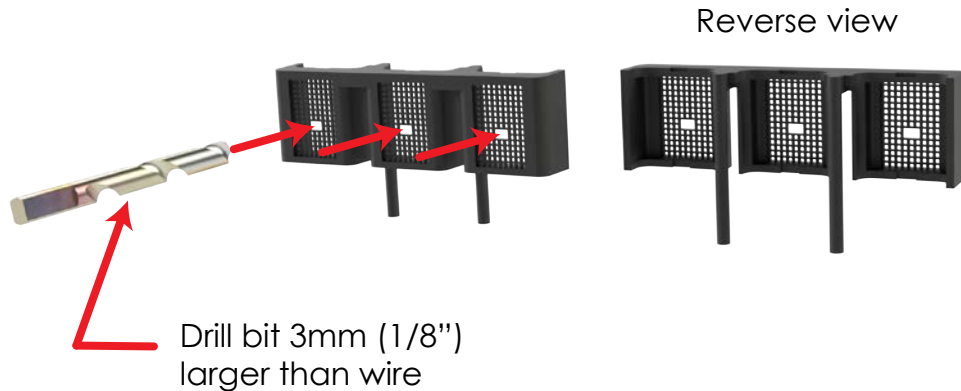
IP20 / NEMA 1 Finger Guard Kit	Soft Starter Model
<b>SR35-FG-1</b>	SR35-017 SR35-022 SR35-027 SR35-034 SR35-041 SR35-052 SR35-065
<b>SR35-FG-2</b>	SR35-077 SR35-100 SR35-125 SR35-156 SR35-192

### TOOLS REQUIRED

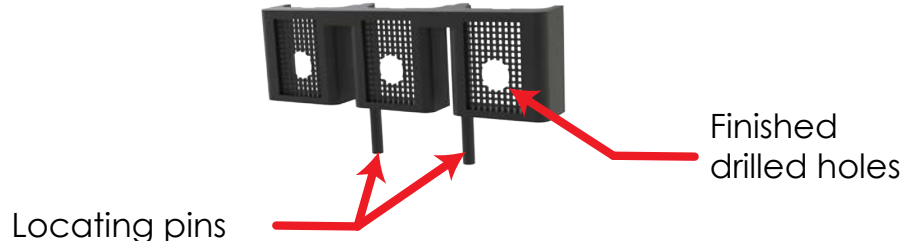
- Drill bit 1/8 in or 3mm larger than the outside diameter of the cables fitted.
- A suitable electric or hand drill.
- Safety goggles.

### STEPS FOR INSTALLATION

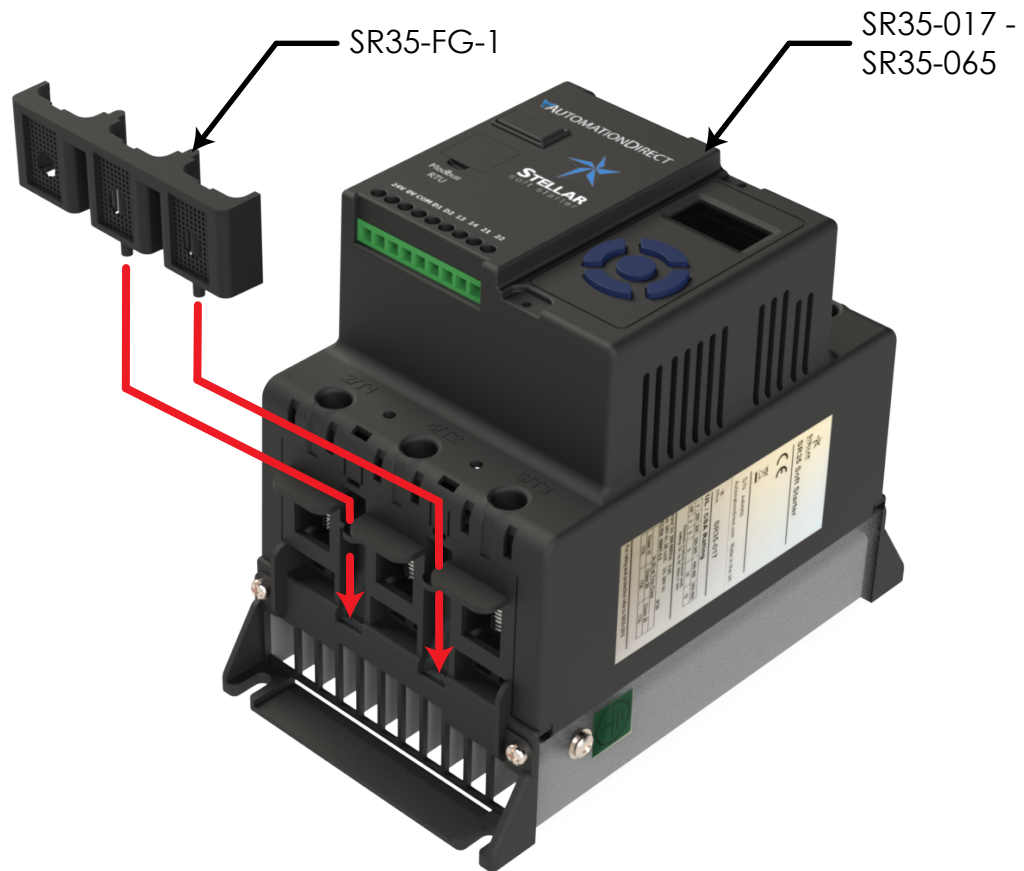
- 1) Ensure the 3-phase power supply is isolated
- 2) 3-phase cables for the supply and load should not be connected to the SR35 soft starter.
- 3) Before installing the finger guards on the SR35 soft starter
- 4) Using a drill bit 1/8 in or 3mm larger than the outside diameter of the cable, drill the finger guards in the area shown below. This is indicated on the guard by a larger rectangle or square. Repeat for all phases, supply and load (see image below).



- 5) When completed, the guard should resemble the image shown below



- 6) When drilling is complete, install the finger guards to the supply and load sides of the SR35 soft starter.

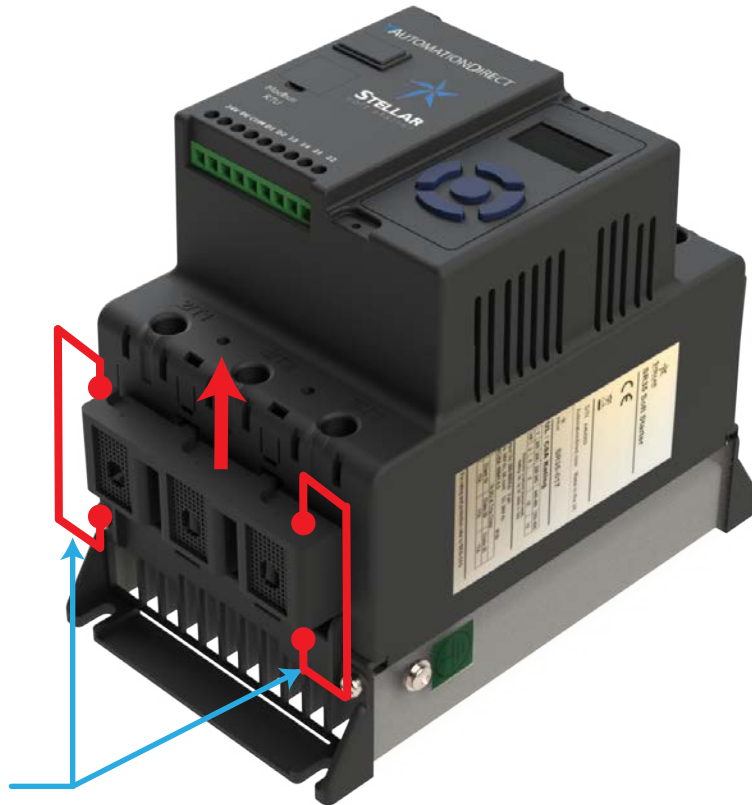


- 7) The 3-phase supply and load can now be installed by passing the cables through the holes in the finger guards.

**REMOVAL**

When removing the finger guards, care should be taken to avoid breaking the two locating pins on the rear of the guard.

To aid removal, grasp the finger guard between thumb and finger on both sides of the guard. Gently rotate the top of the guard towards you and lift the guard vertically (see below).



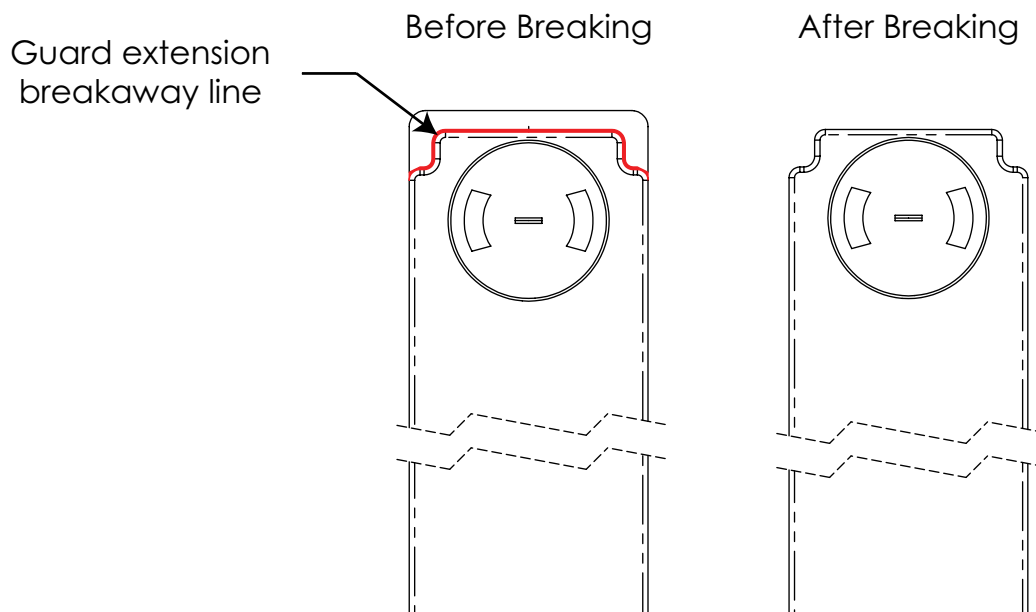
Index finger and thumb in these locations to remove guard. Carefully rotate forward and lift vertically.

## TERMINAL COVERS (SR35-TC-3)

- 8) Install terminal covers per the picture below.



- 9) If the fit of the terminal cover is tight, breakaway the end of the cover as shown below.

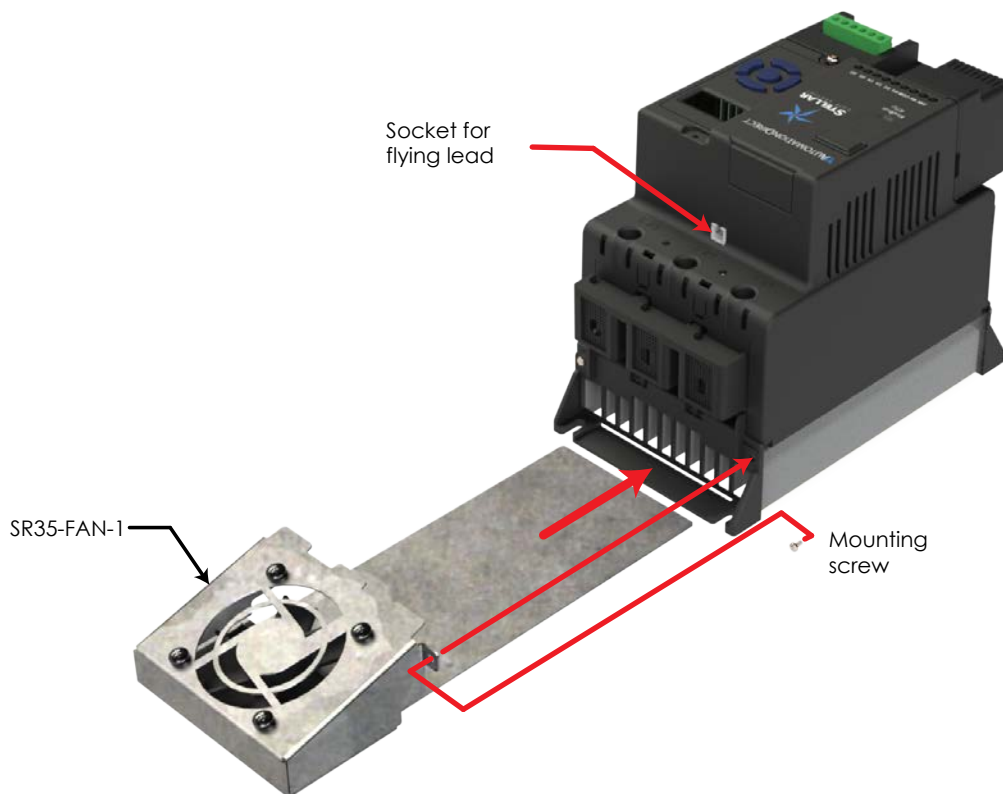


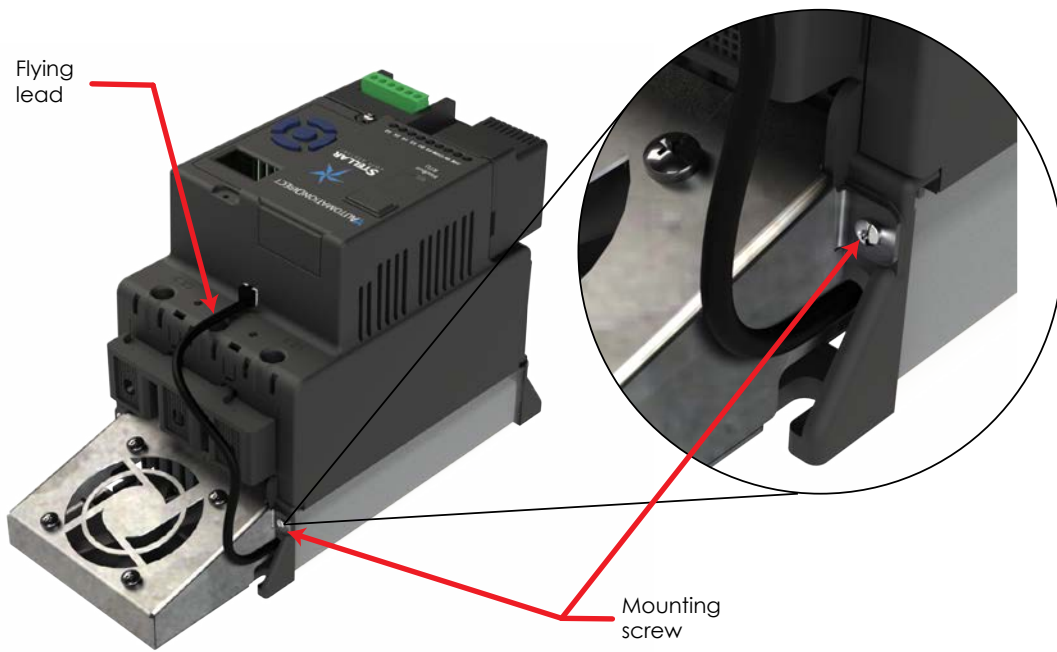
## FAN (SR35-FAN 1)

Increases the number of starts to 40/hour. The fan operates automatically during a soft start or soft stop and will continue to run if the heatsink temperature is > 45°C. The fan stops when the heatsink temperature has fallen below 40°C.

Fan Model	Soft Starter Model
<b>SR35-FAN-1</b>	SR35-017
	SR35-022
	SR35-027
	SR35-034
	SR35-041
	SR35-052
	SR35-065

### INSTALLATION





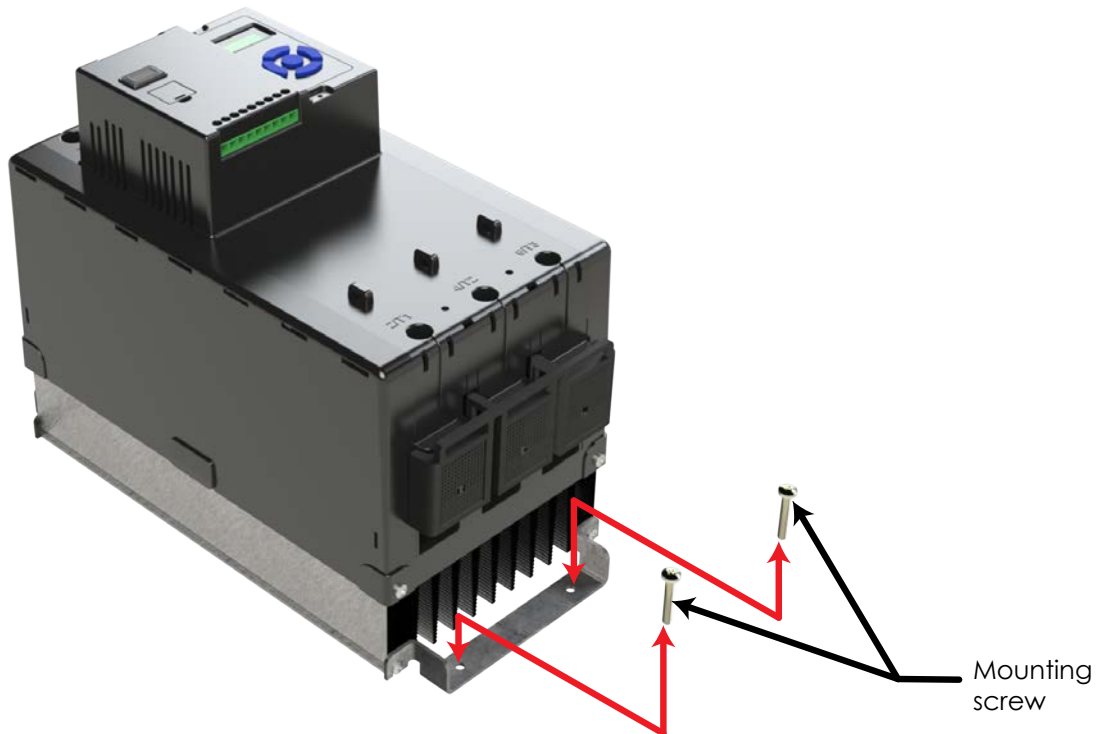
## FAN (SR35-FAN-2)

This fan is designed for models SR35-077 to SR35-192 and increases the number of start/stop cycles per hour (see table below). The fan operates automatically during a soft start or soft stop and will continue to run if the heatsink temperature is  $> 45^{\circ}\text{C}$ . The fan stops when the heatsink temperature has fallen below  $40^{\circ}\text{C}$ .

SR35 model	Maximum duty cycle F-S with optional fan installed
SR35-077 / SR35-100	90-40 (40 cycles per hour)
SR35-125	90-30 (30 cycles per hour)
SR35-156	90-20 (20 cycles per hour)
SR35-192	90-10 (10 cycles per hour)

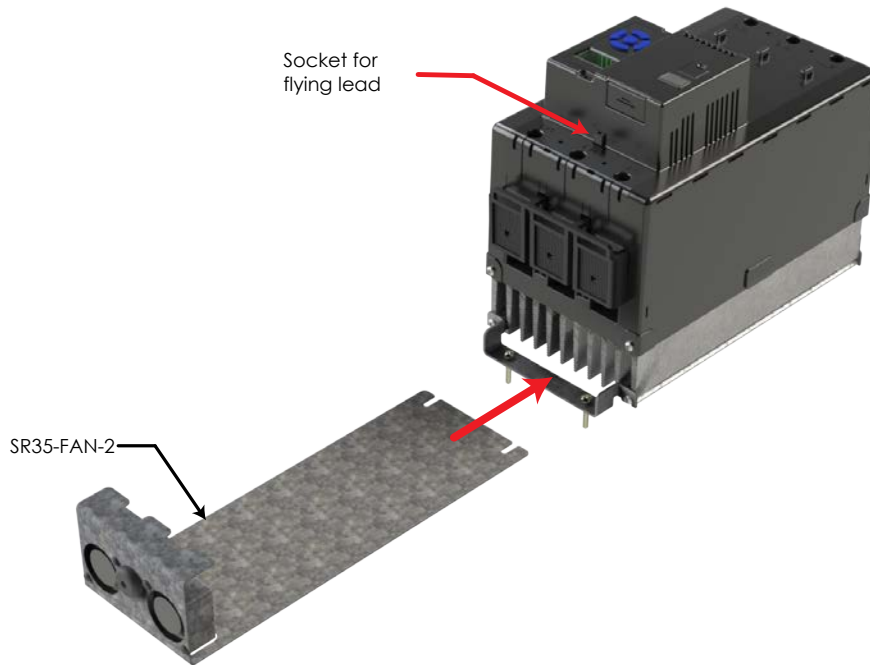
### INSTALLATION

- 10) Loosen the two lower mounting screws.

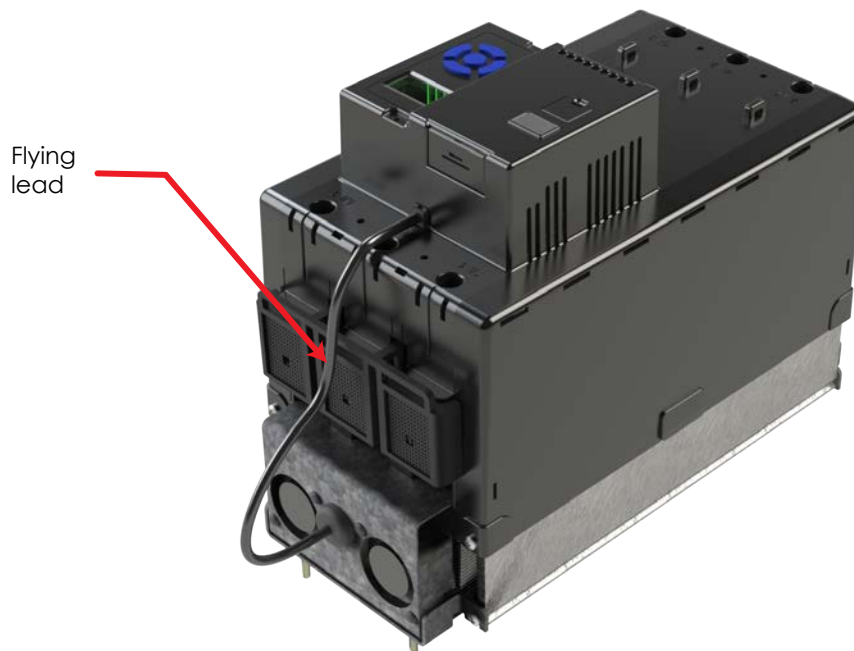




- 11) Position the assembly at the top on the SR35 soft starter and slide the fan assembly downward between the mounting bracket and the heatsink fins.



- 12) With the fan assembly in position and the lower plate of the assembly fully engaged with the lower mounting screws, tighten the mounting screws (shown in Step 1).
- 13) Remove the blanking plug and insert the flying lead from the fan assembly into the socket as indicated below.



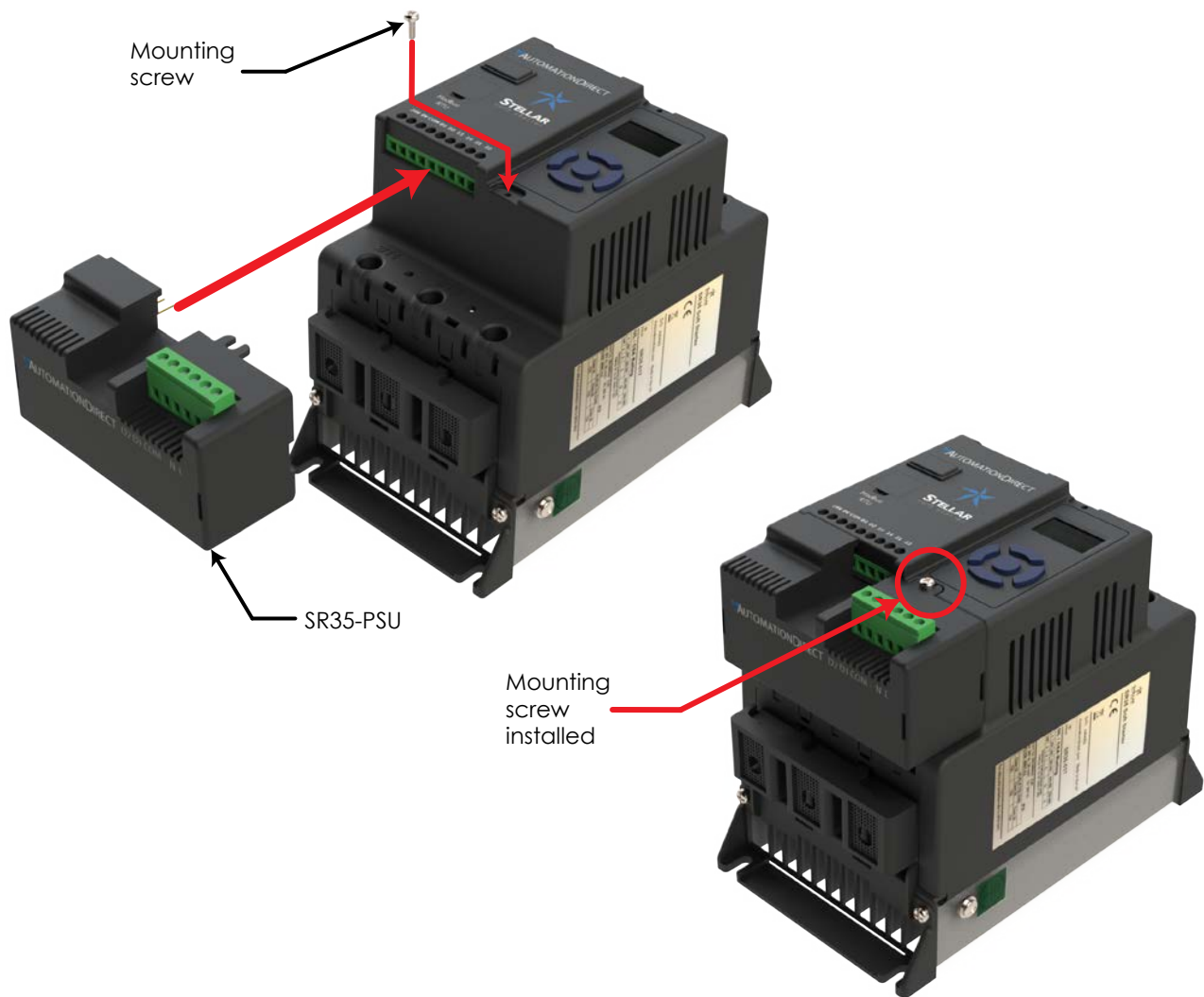
## POWER SUPPLY (SR35-PSU)

SR35-PSU is a dedicated power supply for the SR35 soft starter. Use of the SR35-PSU allows line voltage operation of the SR35 digital controls (D1/D2).

In addition to this insert, please refer to the SR35 Quick Start Guide for use with appropriate SR35 models.

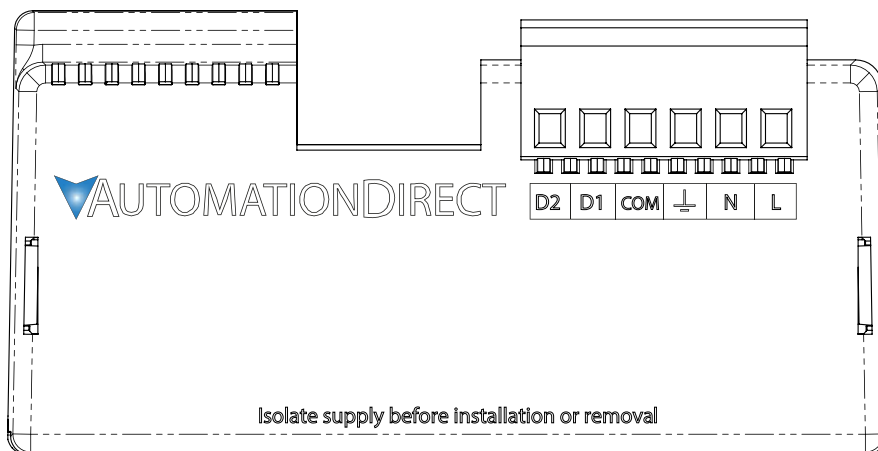
### INSTALLATION

Ensure terminals 24V, 0V, COM, D1 and D2 are fully open before installing the SR35-PSU power supply as shown below.



**NOTE:** When installation of the SR35-PSU is complete, control supply D1 and D2 are provided on the power supply rather than the SR35 main unit.

**CONNECTIONS**



**CONTROL TERMINAL FUNCTIONS**

Terminal	Description	Default	Function Selectable	Note
L	Control Supply Live (+Us)	-	No	#1
N	Control Supply Neutral -(Us)	-	No	
	Mains supply Earth	-	No	
COM	Digital Inputs Common	-	No	
D1	Digital Input 1	-	Yes	#2
D2	Digital Input 2	-	Yes	#2
13/14	Main Contactor Control (Run Relay)	-	Yes	#3
21/22	Fault Relay	-	Yes	#3

#1 110VAC or 230VAC, 47 – 63 Hz  
 #2 The voltage applied to the digital inputs D1 and D2 must be the same as the supply voltage  
 #3 250VAC, 2A, Cosφ =0.5

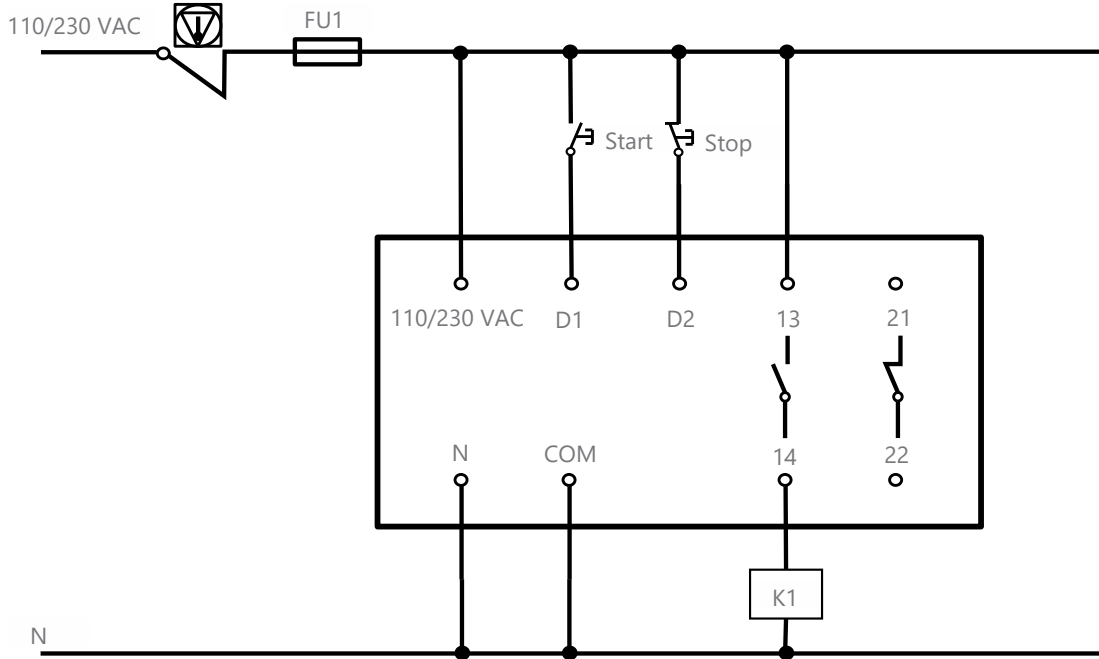
**WIRING SPECIFICATIONS**

Terminal	Wire Size		Torque	
	Metric	Imperial	Nm	lb·in
Control Terminals Cu STR 75oC only	0.2–1.5mm <sup>2</sup>	24-16AWG	0.7	6.2

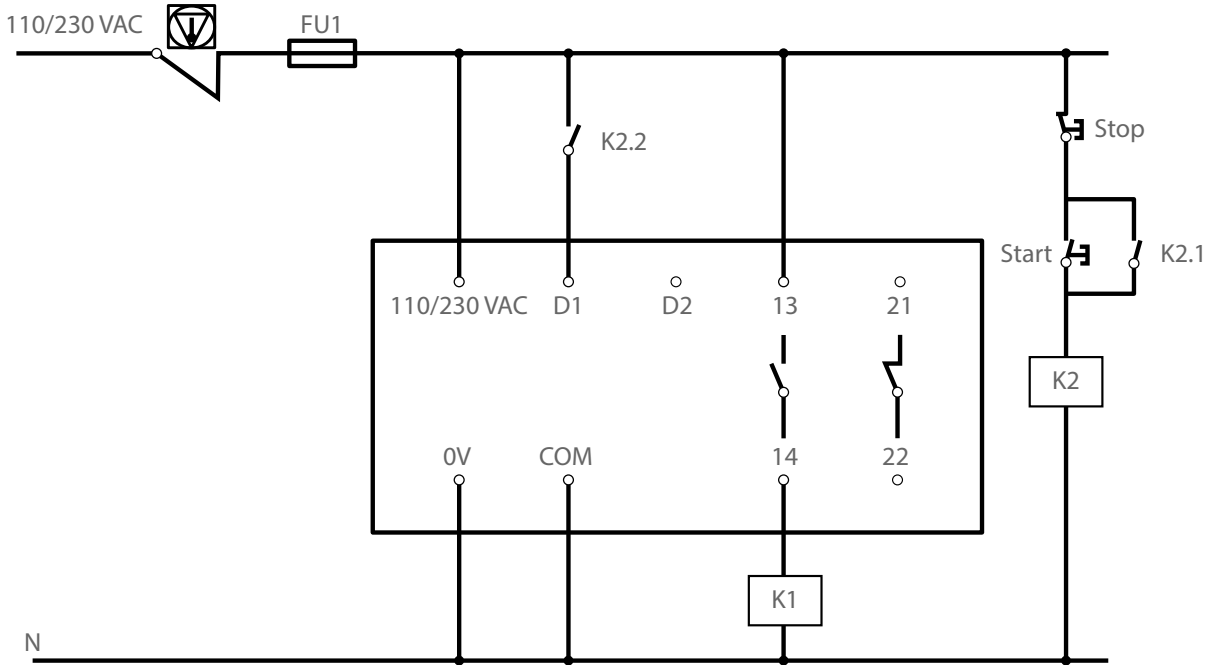
**AMBIENT OPERATING TEMPERATURE**

-20°C (-4°F) to 60°C (140°F)

**3-WIRE CONTROL USING THE SR35-PSU**



**2-WIRE CONTROL USING THE SR35-PSU**



## EXPANSION MODULE (SR35-AUX-IO)

### INTRODUCTION

The SR35-AUX-IO expansion module can be used to provide additional I/O to the SR35 family of soft starters. The module is self-powered, so there is no need for an additional supply to power it.

The expansion module provides the following additional I/O:

- 2 x Digital Inputs.
- 2 x Digital Outputs.
- 1 x PTC Thermistor Input.

### INSTALLATION

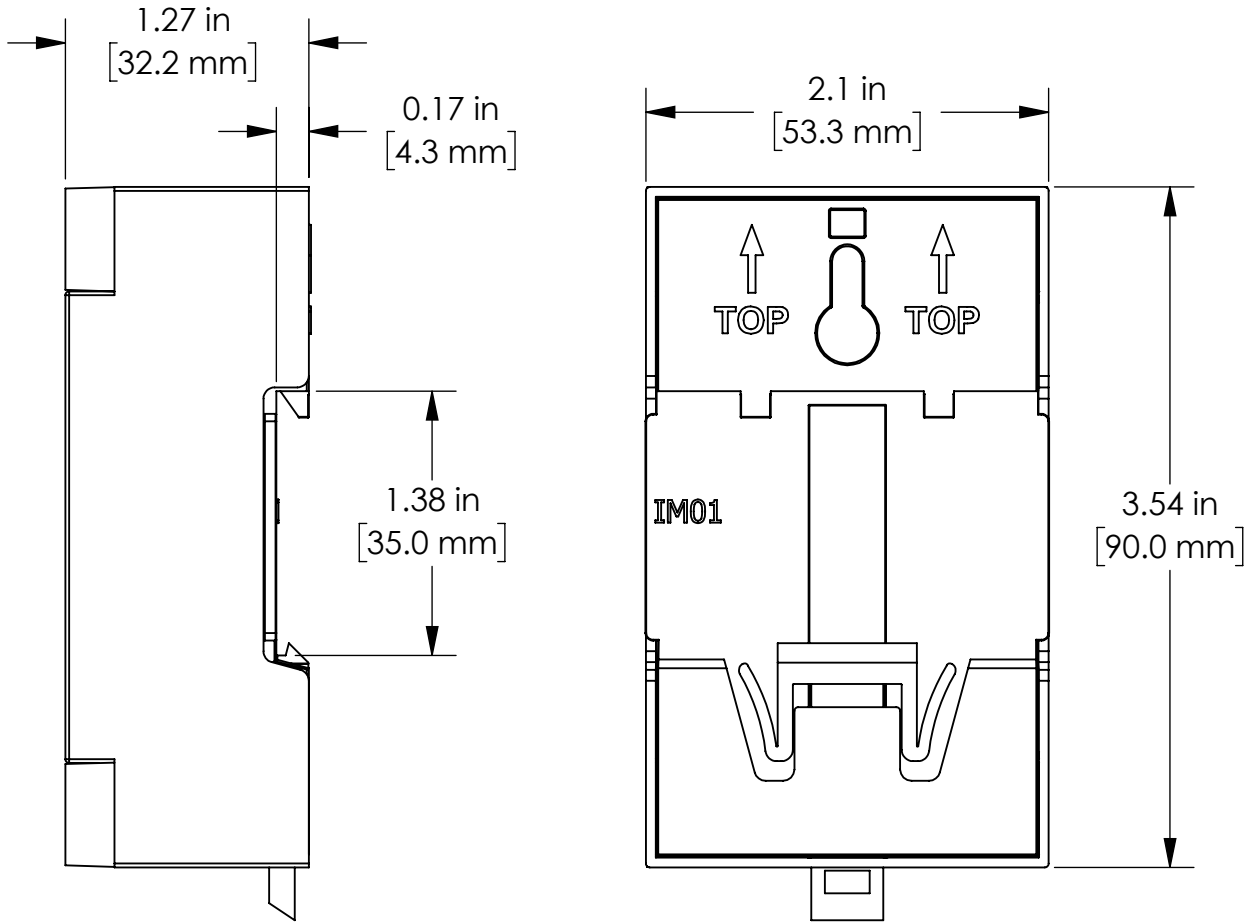
The SR35-AUX-IO expansion module is DIN rail mounted for easy installation.

The supplied ribbon cable connects the expansion module to the adapter module. The adapter module then connects to the SR35 soft starter edge connector as shown below.



**NOTE:** Fit screw and nylon washer (supplied). DO NOT over-tighten (Max 40 cN m)

**SR35-AUX-IO DIMENSIONS:**

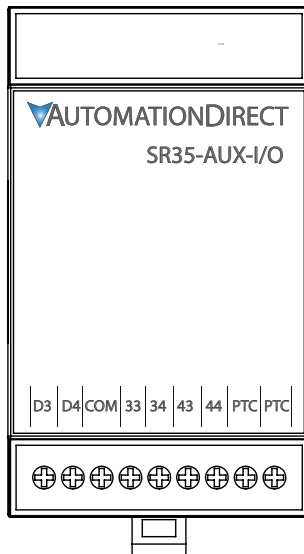


Weight: 0.14 kg (0.31 lb)

General Specification			
<b>Rated Insulation Voltage</b>	$U_i$	230VAC r.m.s.	
<b>Rated Impulse Withstand Voltage</b>	$U_{imp}$	4kV	
<b>IP Code</b>	-	IP20	
<b>Overvoltage Category/Pollution Degree</b>	-	III/3	
<b>Control Circuit</b>	Programmable Opto-Isolated Inputs	D3, D4	Must be supplied by class 2, limited voltage current, or
	Common Input, Marking	COM	
	Kind Of Current, Rated Frequency	DC or AC, 50 – 60 Hz $\pm$ 5Hz'	
	Rated Voltage $U_c$	24VDC or 110 – 230 VAC	
<b>Auxiliary Circuit</b>	Form A – Single Gap Make -Contact (Normally Open)	33, 34 and 43, 44	Protected with a UL248 listed fuse rated Max 4A
	Utilization Category, Voltage Rating, Current Rating	Resistive load, 250VAC, 2A 250VAC, 0.75A (AC-15 / C300)	
<b>PTC Circuit</b>	Trip Level	3.6 k $\Omega$	-
	Reset Level	1.6 k $\Omega$	-

Wire Sizes and Torques				
Terminal	Wire/Busbar Size		Torque	
	Metric	Imperial	N m	lb in
Control Terminals	0.2–1.5 mm <sup>2</sup>	24-16 AWG	0.5	4.5

## SR35-AUX-IO CONNECTIONS



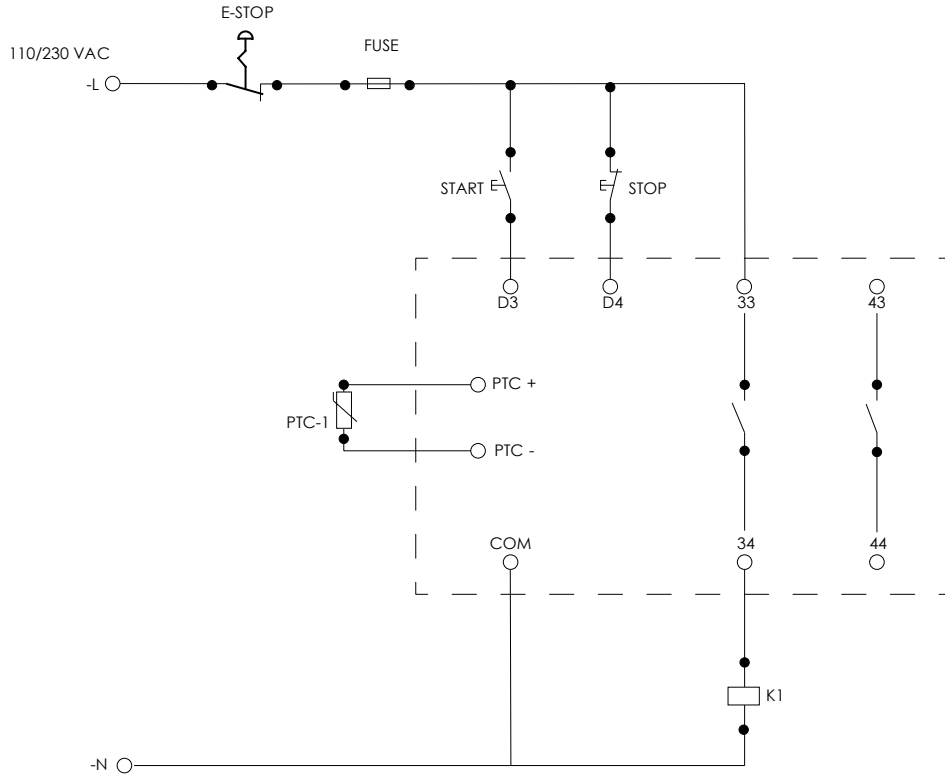
Terminal	Description	Function Selectable	Parameter options (When used with SR35)
<b>D3</b>	Digital Input A	Yes (Via Cntrl Funct)	0- Three Wire (D3 Start / D4 Stop) 1- Two Wire (D3 Start, Stop and Reset / D4 No function) 2- DI-Prog Reset (D3 Start, Stop) 3- DI-Prog Hold (D3 Start, Stop and Reset) 4- DI-Prog Enable (D3 Start, Stop and Reset) 5- DI-Prog Fire (D3 Start, Stop and Reset)
<b>D4</b>	Digital Input B		
<b>COM</b>	Digital Inputs Common	No	-
<b>33/34</b>	Digital Output A	Yes	0- End of Start (At Speed) 1- Fault 2- Run 3- Pending 4- Exceeded 5- Breaker 6- Ph/SCR  DEFAULT - Run
<b>43/44</b>	Digital Output B	Yes	0- End of Start 1- Fault 2- Run 3- Pending (Auto Reset) 4- Exceeded (Auto Reset) 5- Breaker 6- Ph/SCR  DEFAULT - End of Start
<b>*PTC +</b>	PTC Thermistor +	Yes	0- ON (The Unit will trip if the motor thermistor exceeds its response temperature or the PTC input is open circuit) 1- OFF (The Unit will continue to operate regardless of the PTC value)  DEFAULT - OFF
<b>*PTC -</b>	PTC Thermistor -		

\*PTC: A single PTC motor thermistor or set of PTC motor thermistors can be connected to the PTC terminals.

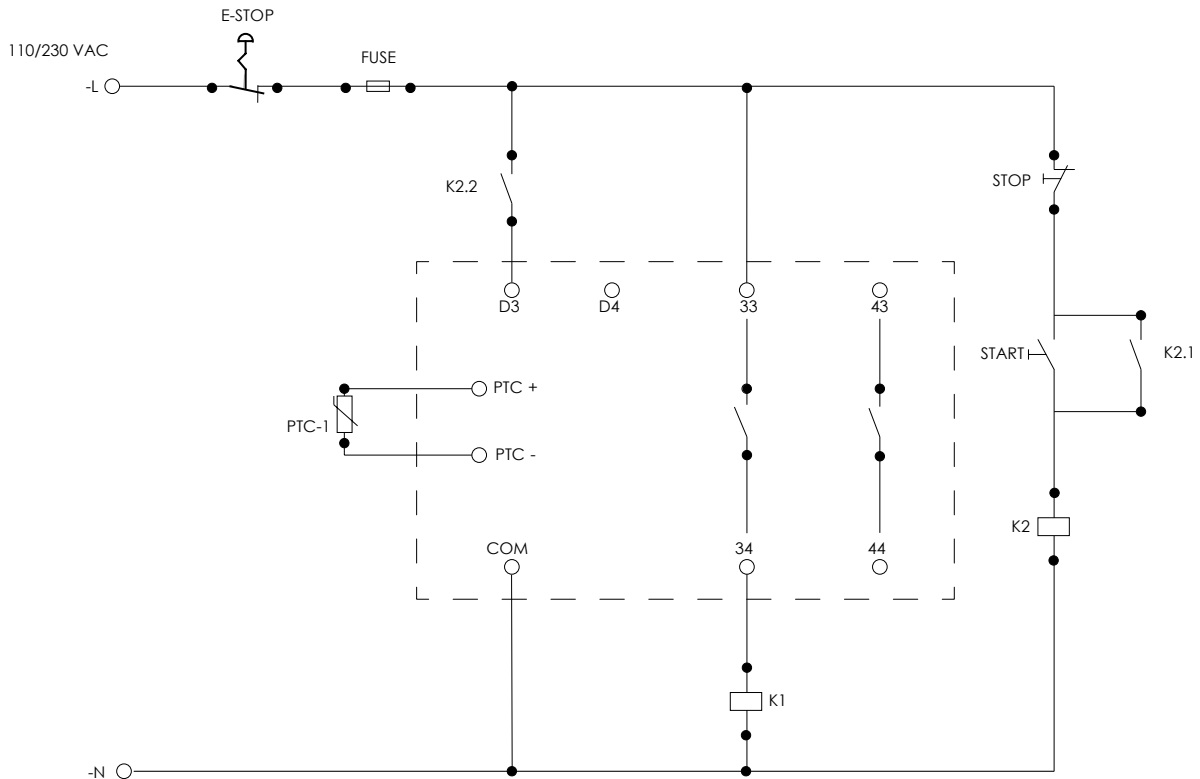
- Trip level = 3.6 kΩ
- Reset Level = 1.6 kΩ



**THREE WIRE CONTROL USING SR35-AUX-IO:**



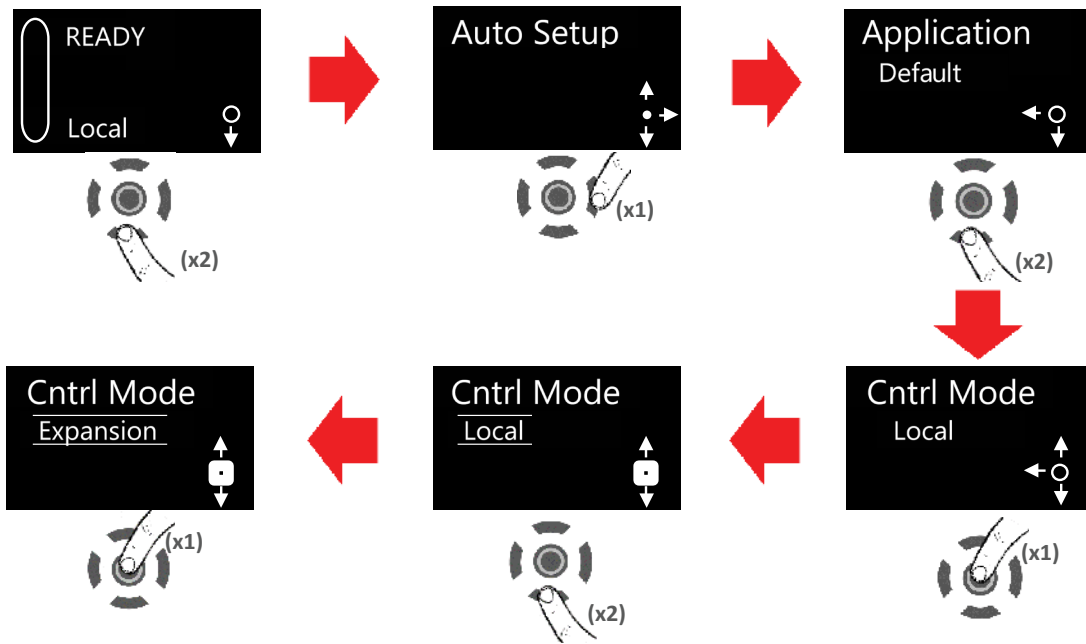
**TWO WIRE CONTROL USING SR35-AUX-IO:**



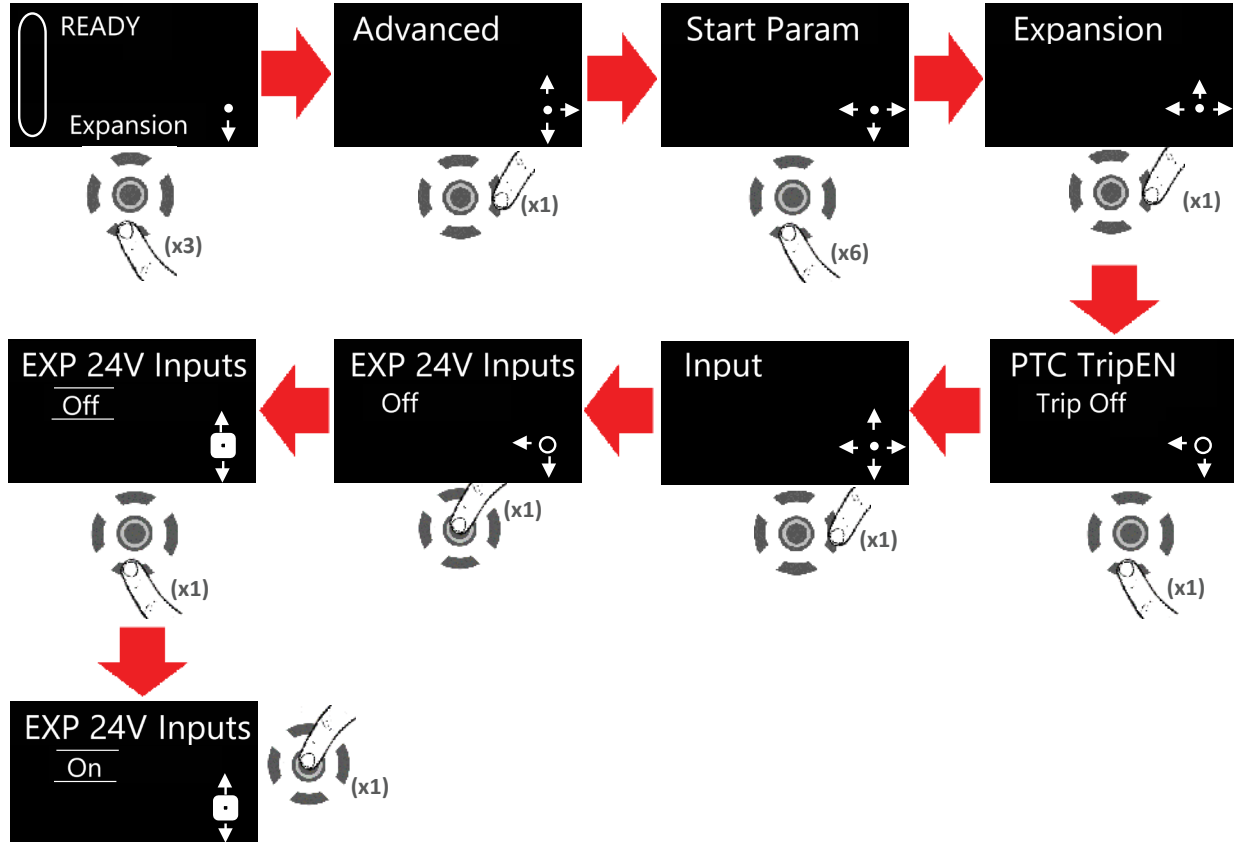
**PROGRAMMING (FOR USE WITH SR35 MODELS)**

**DIGITAL INPUT PROGRAMMING**

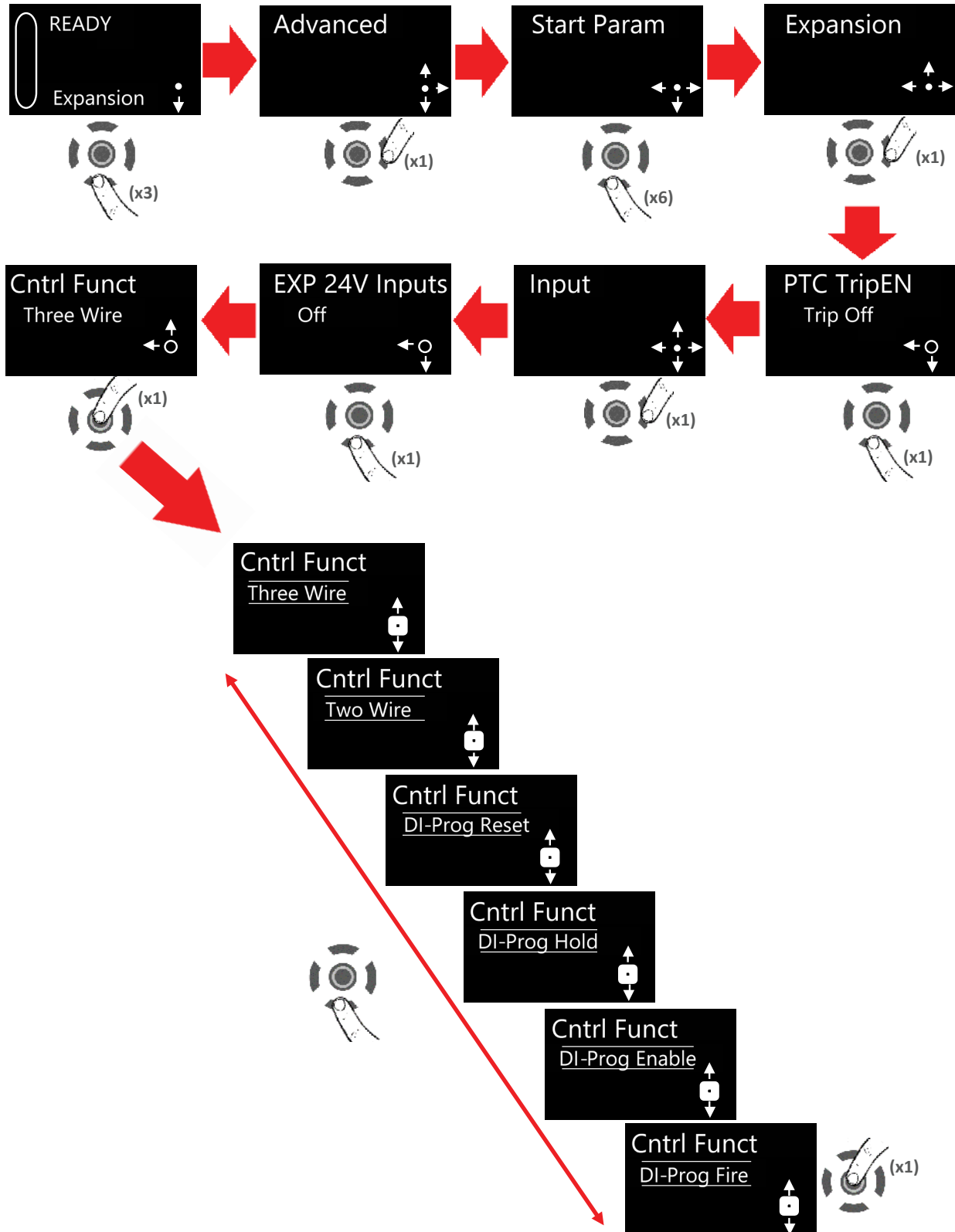
Setting the control Mode to “Expansion”:



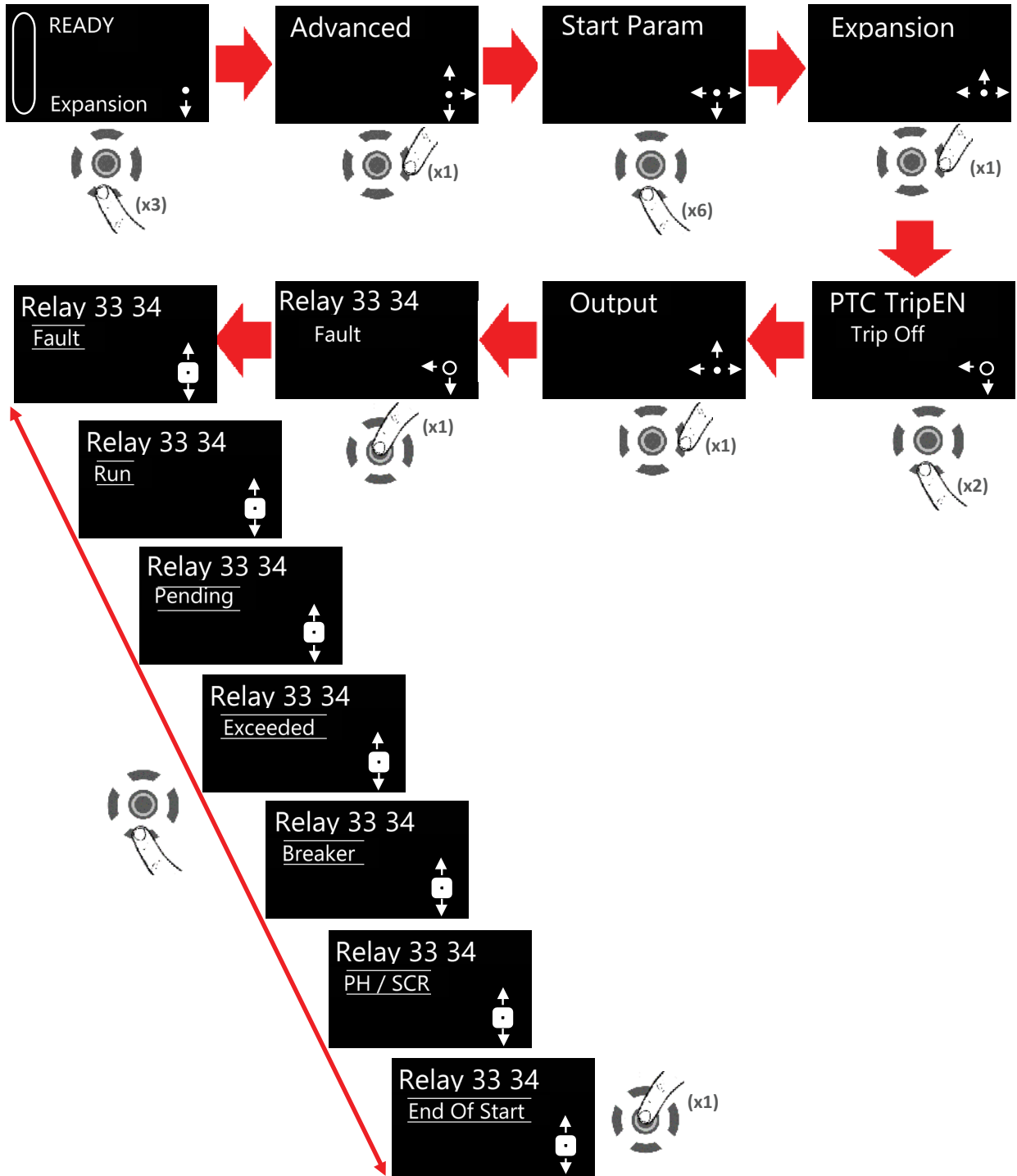
Setting the control inputs to 24VDC (Off=240V / On = 24VDC):



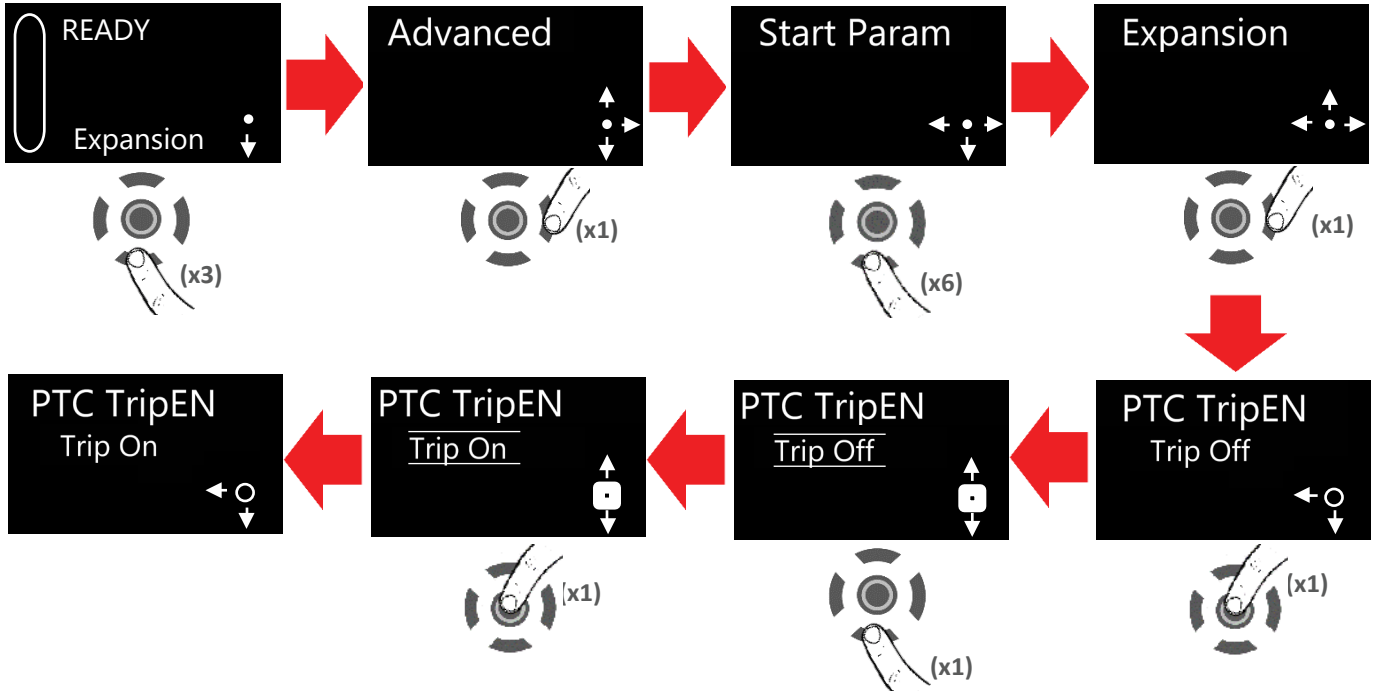
*Setting the control Input Function*



*Setting the Digital Output Function*



*Activate the PTC Thermistor Trip:*



## REMOTE KEYPAD (SR35-KPD-REM)

### CONNECTION AND OPERATION

The remote keypad (SR35-KPD-REM) can be used to control, monitor and program up to 32 SR35 soft starters.

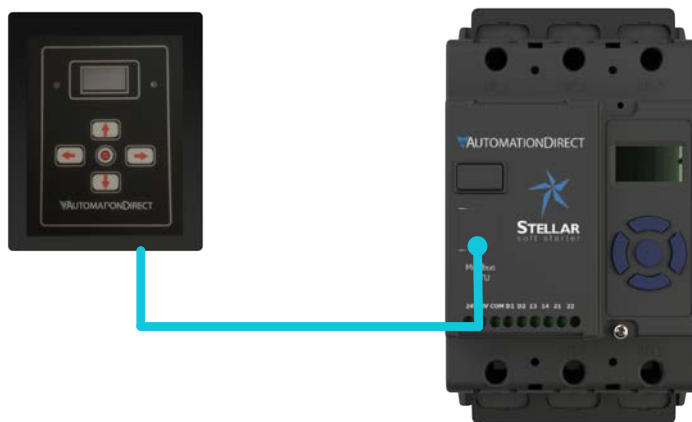
The keypad is powered from the host SR35 starter and requires an Ethernet cable for communication (Modbus RTU).



*NOTE: As the remote keypad acts as the Modbus master, no additional masters may be placed on the network. Failure to observe this restriction may lead to erratic behavior, network failure and/or equipment damage.*

### NETWORK CONNECTION

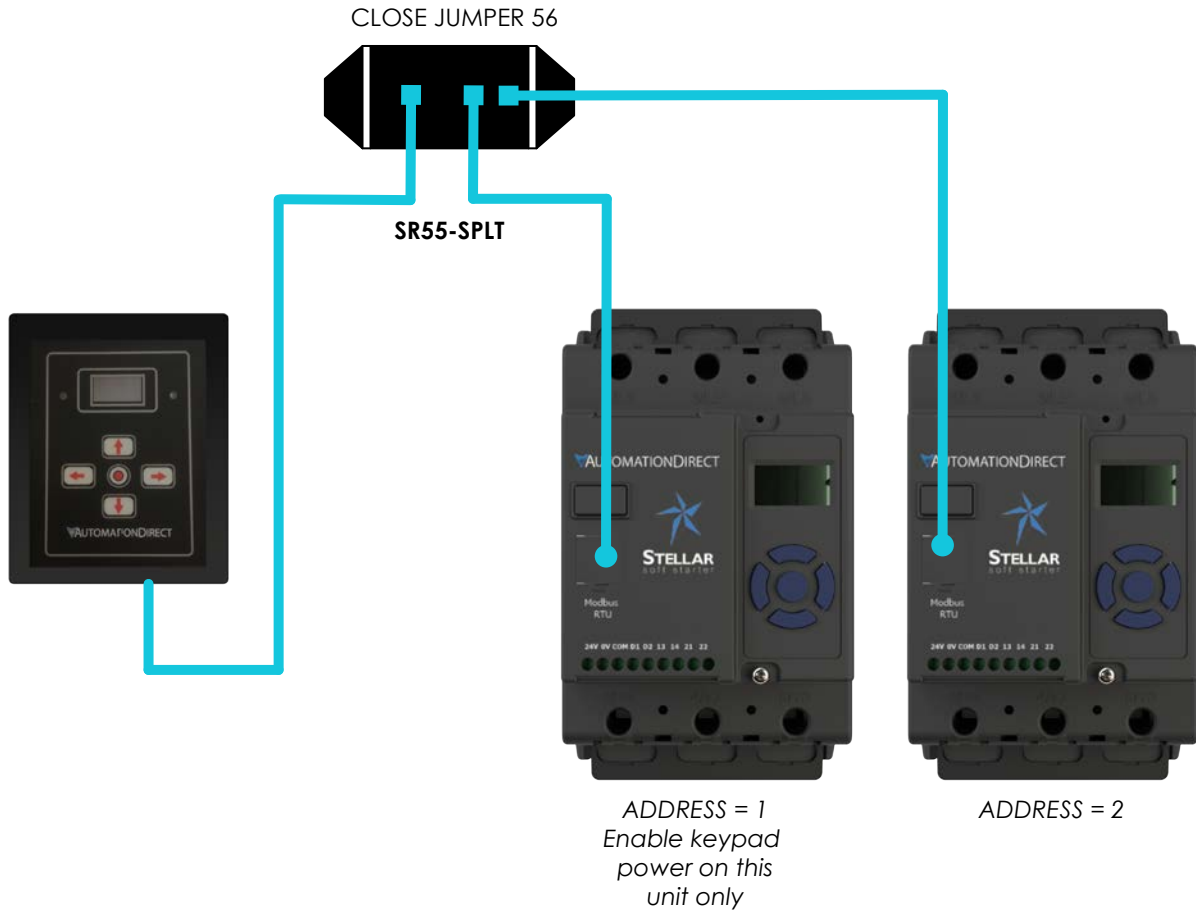
For a configuration where there is only one SR35 unit (one-to-one), the remote keypad and SR35 starter can be directly cabled. See Diagram below:





**NOTE:** Keypad power must be enabled on the SR35 starter. Scroll to *DEVICE* menu > *KEYPAD* menu > *KEYPAD PWR = ON*

For multiple SR35 starters connected to the keypad, the use of SR55-SPLT is highly recommended. See diagram below.



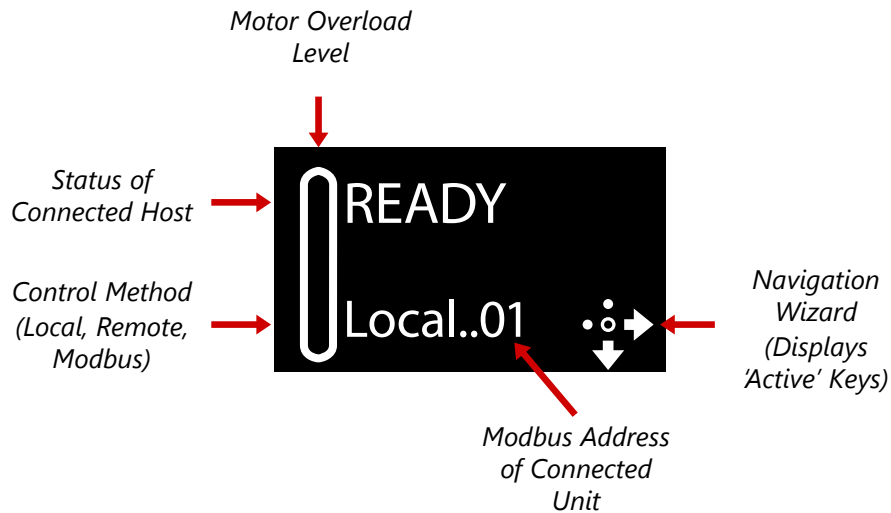
**OPERATION**

Once connected to the SR35 starters, menu structures and programming are the same as detailed in the SR35 user manual and quick start guide.

However, specific steps must be taken to connect the Remote Keypad to one or more SR35 starters.

**INITIAL POWER-UP**

If the host SR35 starters and the remote keypad have the default Modbus transmission parameters set, and the host SR35 is powered and has Keypad power set to 'on', the keypad will automatically communicate with the host. The following status screen will be seen:

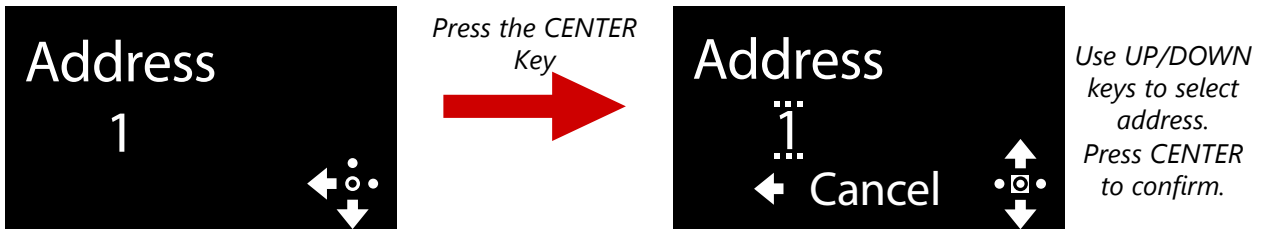




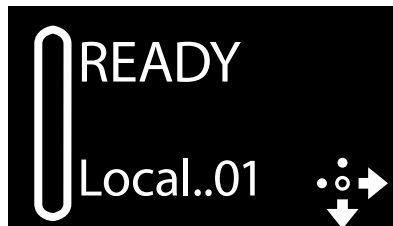
If any of the Modbus communication parameters are dissimilar on the host unit or remote keypad, communication will not be established. The keypad will display the following screen:



By pressing the Right key, the user will be taken directly to the Modbus address selection menu:



If the selected Modbus address is valid, the status screen is displayed:



**SELECTING UNITS TO MONITOR/CONFIGURE**

When the Remote Keypad is attached to multiple SR35 starters on the Modbus network, the user can switch between each unit by using the following method.



*NOTE: To simplify this selection process, it is recommended that the host SR35 units are configured with consecutive Modbus addresses.*

Procedure:



14) Press the 'Right' key

15) Address selection screen will be shown

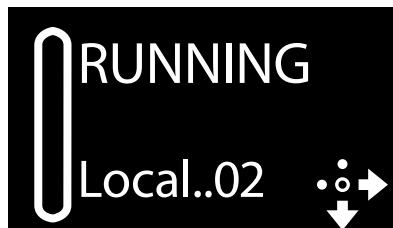


16) Press the 'Centre' key. Display will change mode



17) Use 'Up' or 'Down' keys to change address to the desired number (SR35 address). Press the 'Center' key to confirm

18) Remote display will return to the Status screen and display the new address



## INSTALLATION

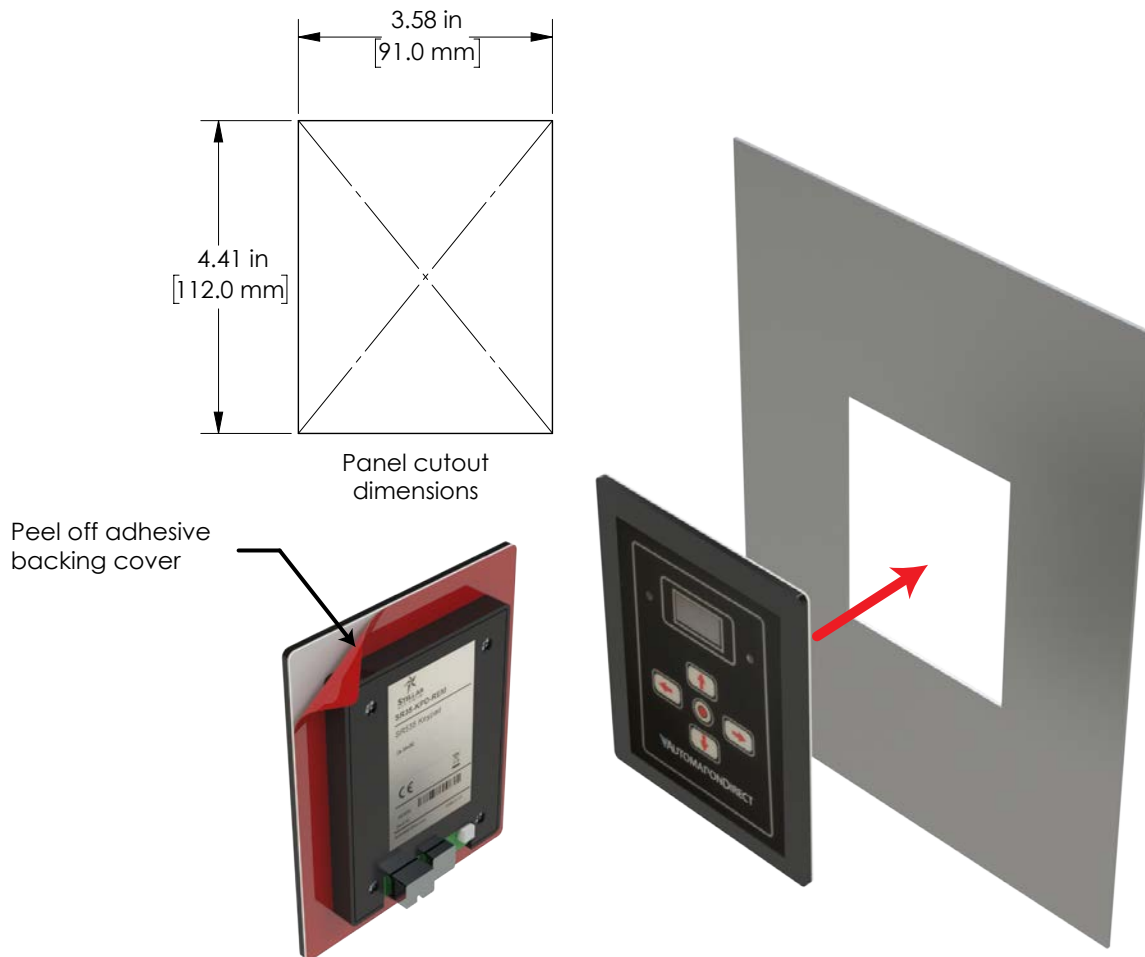
### MOUNTING

Fix the unit to a flat, vertical surface using the self-adhesive gasket supplied with the keypad enclosure.

- The orientation of the unit has the 'TOP' uppermost
- The location allows adequate front access
- The screen can be viewed



**DO NOT INSTALL OTHER EQUIPMENT THAT GENERATES SIGNIFICANT HEAT CLOSE TO THE KEYPAD.**



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### **FIRMWARE UPDATE**

- 19) Download the latest firmware version from [www.automationdirect.com](http://www.automationdirect.com) and copy the files to a USB flash drive
- 20) Power down the Remote Keypad and insert the USB flash drive
- 21) Power-up the remote Keypad, the update will start automatically
- 22) When the update is complete (status screen shown), recycle the Remote Keypad power



*NOTE: The host units and Keypad must have the same firmware version.*

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