OVERVIEW

Three Phase Soft Starter is designed to reduce the inrush current to below 45 Amps on each phase of the compressor to comply with Energy Authority regulations. This reduces the mains interference that can affect both the owners of the equipment and neighboring consumers. The interference predominantly shows up as "light flicker" but extends to interruption of computers and other electronic devices. The ActronAir Soft Starter uses a combination of new technologies to ensure reliable performance at a reduced start current. The on-board LED indicates the current status of operation for service personnel.

DISPLAY CODES

NORMAL OPERATION MODE	ON-BOARD LED INDICATION
At first Power Up (Compressor Delay Start)	One blink per seconds for 10 seconds
Ready to Start	LED Off
Compressor Running	LED remains Off
Delay After Compressor Stop	One Blink per seconds for 50 secs, then LED Off

FAULT OPERATION	ON-BOARD LED INDICATION
Phase L1 missing	LED Off (No lights and No Compressor Operation)
Compressor Winding Open	4 Blinks (in burst) for 50 secs, then Comp. tries to start again
Incorrect Phase Rotation	3 Blinks (in burst), Compressor will not try to start
Phase Lost or Low Voltage (less than 200V)	3 Blinks (in burst), Compressor will not try to start
Compressor Winding Swapped	LED Off (Compressor runs noisy - clacking sound)
Compressor Failed to Start	2 Blinks for 4 minutes

TROUBLE SHOOTING

On first application of Mains Power, the LED will blink to indicate the initial 10 seconds power up delay and then turn OFF to indicate the unit is ready to start.

If the Compressor does not start and results in LED display burst of 2 blink, this can be caused by:

1. Compressor current of each phase not dropping to below 31 Amps within 0.5 seconds.
2. Excessive mains voltage drop (cable size to small). Rest after 4 minutes.

If the Compressor does not start and the LED is giving burst of 3 blinks.
Probable cause: Phase Rotation Incorrect, Phase Lost or Low Voltage i.e. less than 200V.

If the Compressor stops and the LED gives burst of 4 blinks.
Probable cause: Less than 50% current was detected in one phase.

Sufficient bleed of the refrigerant must be provided for between compressor starts to allow suction and discharge pressures to equalise. A high pressure differential can prevent the compressor starting at the regulated 45 Amps. A crank case heater maybe required as liquid refrigerant can also prevent the compressor from starting at the regulated 45 Amps.

A large voltage drop (e.g. >12Vac measured with compressor running) between the supply and the compressor would indicate insufficient conductor size. The minimum recommended cable conductor size is 6mm from mains source. For compressors with rated LRS>110 or if the cable run is over 10m you should use 10mm cable, please consult your local wiring authority regulations.

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THREE PHASE SOFT STARTER

SPECIFICATIONS

Nominal Control Operating Voltage	230 Vac ±10%
Power Frequency	50Hz
Start Signal	230 Vac ±10%
Operation Indication	LED
Compressor Operating Voltage	380 - 420V / 3~ / 50Hz
Compressor Input Power Max.	9.1 kW (12.2 HP)
Maximum Compressor LRA	118 Amps
Maximum Compressor Run Current	22.3 Amps
Maximum Operating Frequency	12 times per hour
Power Up Delay	10 seconds
Anti-Cycle Protection Time	4 minutes
Maximum Soft Start Time	0.5 seconds
Maximum Soft Start Current	45 Amps per Phase
Control Power Consumption	Approx ~ 5 VA at rated voltage
Ambient Temperature	Typical Operation: - 10°C ~ 50°C
Ambient Humidity	Operation 10% to 85% non condensing
Recommended Wire Size	Minimum 6.0mm² for compressor and incoming mains
	1.5mm2
Size	172mm x 116mm x 65mm
Weight	Approx 700g
Mounting Holes	M4 x 4 (106mm x 162mm spacing) + 3 M4 supports
Manufacturers Warranty	12 months (Limited)

WIRING DIAGRAM

