ICM870 9A/16A

Installation, Operation & Application Guide

For more information on our complete range of American-made products – plus wiring diagrams, troubleshooting tips and more, visit us at **www.icmcontrols.com**

IMPORTANT SAFETY INFORMATION

HIGH VOLTAGE WARNING ***– Always turn off power at the main service panel before installing.***

CAUTION: ***The ICM870 must be mounted in an area where it will not be exposed to water or the elements. Exposure of the ICM870 soft start to water can cause failure of the control and is a risk for fire or other electrical safety hazards.***

Suitable for use on a circuit capable of delivering not more than 5,000 rms symmetrical Amperes, 240 V maximum when protected by a circuit breaker having not more than 40 A, 240 volts maximum

Installation of any ICM870 soft start must be done by a certified HVAC technician or licensed electrician. All installations are to be done in accordance with local, state, and national electrical codes.

ICM870 Comparable Amperage Crosses

The **ICM870-9A** and **16A** models cross to the comparable amperage models from the following manufacturer's

Micro-Air (Easy Start)
Network RV (Soft Start)
Dometic (Smart Start)
Hyper Engineering (Sure Start)

FEATURES

- **Starting current reduction and self-learning algorithm**
- **Built-in start capacitor**
- **Over-current protection**
- **Over/under voltage monitoring**
- **Diagnostic indicators**
- **Sealed enclosure**

APPLICATION

The **ICM870** is intended for Marine, Recreational Vehicle, and commercial applications. The **ICM870** integrates compressor in-rush current over startup time, thus reducing peak current demand on a power supply source (generator or other). The **ICM870** will monitor system health including voltage, current, compressor startup and self integrity. Upon a fault condition, the **ICM870** will halt operation and initiate a 3 minute anti-short cycle routine while providing diagnostic fault information by means of an LED indicator.

LED INDICATORS

Start = Green
Run = Green
Fault = Red (flashing)

INSTALLATION

Step #1 a) Disconnect factory installed compressor run wire from the run capacitor (c/common/L2) terminal

b) In its place, connect the **ICM870 RED WIRE** > to the run capacitor (c/common/L2) terminal

Step #2 Connect the **ICM870 BROWN WIRE** > to the factory installed compressor run wire previously disconnected in step #1a

If there is a Start Capacitor and or PTCR already in place, additional steps will be required to disconnect them.

Step #3 Connect the **ICM870 BLUE WIRE** > to the run capacitor (herm/hermetic/start) terminal

Step #4 Splice the **ICM870 BLACK WIRE** > with the factory install compressor Overload Switch wire (OL/L1)

FAULT CODES

Fault Code	Fault Condition
1	High or low voltage
2	Compressor not Sensed or open fuse
3	High current
4	Compressor start error
5	Invalid operating frequency

SPECIFICATIONS

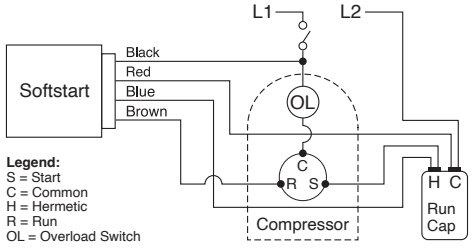
Semiconductor soft-start motor controller, Form 2, bypassed controller
- SCCR: 5kA
- Ue = 240 VAC
- Ui = 240 VAC
- Uimp = 4kv
- FCC 47 CFR Part 15 Subpart B: 2021, Class B
- Pollution degree 3

Input (L1, L2) – 100-240 VAC 50/60Hz
- **Over voltage limits:** 115 VAC nominal = 140 VAC
  240 VAC nominal = 250 VAC
- **Under voltage limits:** 115 VAC nominal = 95 VAC, 240 VAC nominal =195 VAC

Outputs: Compressor
- **Solid state/relay**
- **Current:** Max. nominal = 9 FLA for ICM870-9A, 16 FLA for ICM870-16A
- **Over current limits:** ICM870-9A = 11.25A, ICM870-16A = 20A

Environmental:
- **Ambient temperature:**
  40°C @ 16 FLA, 8 h duty
  50°C @ 16 FLA, Temporary duty F = 30% (3 mins ON and 7 mins OFF)
  S = 6 (6 cycles per hour)
- **Storage temperature:** -40°F to 149°F (-40°C to 65°C)
- **Humidity:** 0-95% non-condensing
- **Enclosure:** IP65
- **Dimensions:** ICM870-9A/16A(7.60" x 3.20" x 2.10")
- **Screw Hole Center Points:** 7.36" x 2.90"

WIRING DIAGRAM



STANDARD AND TEST RESULTS

- UL 60947-4-2
- IEC 60947-4-2: 2020
- CAN ICES-003(B) / NMB-003(B)
- IEC 61000-4-2, Class 3 air, Class 2 contact
- IEC 61000-4-3, Class 3
- IEC 61000-4-4, Class 3
- IEC 61000-4-5, Class 3
- IEC 61000-4-6, Class 3
- IEC 61000-4-8, Class 4
- IEC 61000-4-11, Class 2
- Altitude: 2000 m
- 9A: AC-58b: 9-180: 420
- 16 A: AC-58b: 16-180: 420
- IP65

c UL us LISTED E340301