



# ICM<sup>®</sup>

CONTROLS



**Electrical Market**



### **Engineering. Manufacturing. Innovation.**

ICM Controls is a leader in the manufacture of electronic controls for the HVAC/R, Electrical, Pool & Spa, Appliance, RV and Marine Industries. We have achieved this position through product and process innovation, and we strive to maintain this position through extensive capitalization, focusing on our greatest manufacturing strength: true vertical integration.

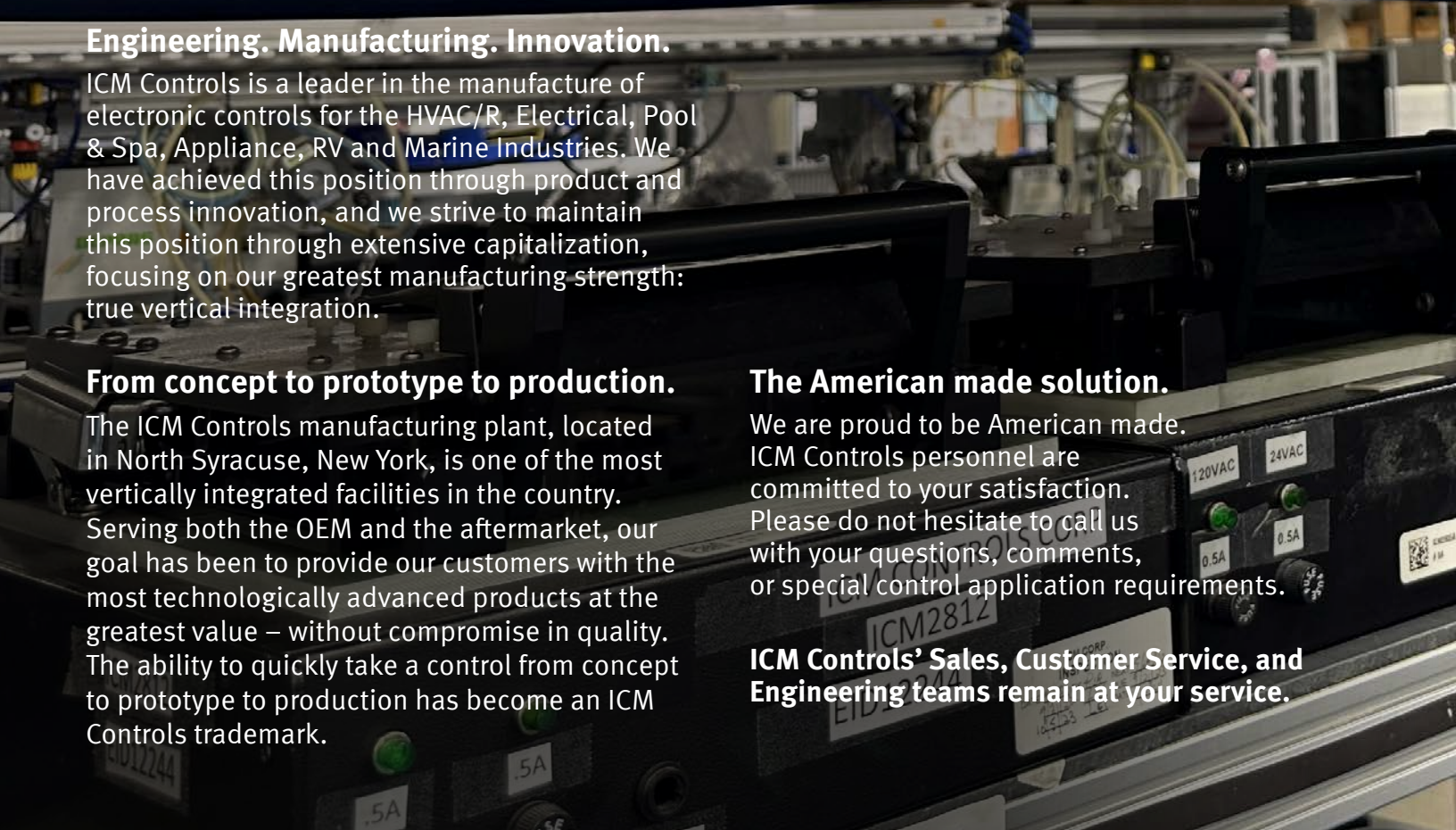
### **From concept to prototype to production.**

The ICM Controls manufacturing plant, located in North Syracuse, New York, is one of the most vertically integrated facilities in the country. Serving both the OEM and the aftermarket, our goal has been to provide our customers with the most technologically advanced products at the greatest value – without compromise in quality. The ability to quickly take a control from concept to prototype to production has become an ICM Controls trademark.

### **The American made solution.**

We are proud to be American made. ICM Controls personnel are committed to your satisfaction. Please do not hesitate to call us with your questions, comments, or special control application requirements.

**ICM Controls' Sales, Customer Service, and Engineering teams remain at your service.**





PREP

SN926  
ICM280 #5  
ICM CORP  
INSPECTION  
PROPERTY OF ICM CORP  
DATE: 01/11/11

120 VAC  
24VAC

ED1109

ICM280 #4

0.5A  
0.5A

ICM CORP  
INSPECTION  
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ICM CORP  
INSPECTION  
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ED1184

ICM2813

120 VAC  
24VAC

0.5A  
0.5A

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# WORLD WIDE ICM CONTROLS SALES REPS

We are proud to be an American Electronics company. Our ICM Controls Electrical Team is committed to your satisfaction. Please do not hesitate to call us with your questions, comments, or special control application requirements, or if you need help finding an ICM Controls distributor near you.

Contact	Territory	Phone	Email
Keith Clark	Aftermarket: (HVAC/R) - National Sales Manager	(636) 328-1074	kclark@icmcontrols.com
Matthew Conant	Aftermarket & OEM: New England / Mid-Atlantic / Southeast	(315) 828-9114	mconant@icmcontrols.com

## CUSTOMER SUPPORT INFORMATION

Phone Number:  
1-800-365-5525

PO Submission/Order Status:  
icmorders@icmcontrols.com

Product Info/  
Pricing and Availability:  
info@icmcontrols.com

## MANUFACTURE REP FIRM

**TEC Sales**

1-888-470-2444  
sales@tec-sales.com

TX, LA, OK, NM, AR,  
MS, CA, NV, AZ

## ORDER INFORMATION

Minimum order: \$250

Minimum order for free freight:  
\$1,200+

*\*\* All products shipped from  
Syracuse, NY*



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## INDUSTRIES WE SERVE



**Appliance**



**Electrical**



**HVAC/R**



**Electric Vehicle**



**Pool & Spa**



**Transportation**

# ICM CONTROLS – CROSS REFERENCE GUIDE

OEM	OEM Part #	ICM Part #	Control Type
5.2.1	CSR-U1	<b>ICM866U</b>	Motor Starters/Rapid Start
5.2.1	CSR-U2/U3	<b>ICM866U</b>	Motor Starters/Rapid Start
A-1	EAC-501-ADJ	<b>ICM203</b>	Delay On Break Timers
A-1	7061	<b>ICM103</b>	Delay On Make Timers
A-1	5893	<b>ICM255</b>	Fan Blower Controls
A-1	EAC-401, 402, 403, 404	<b>ICM492, ICM493</b>	Line Voltage Monitors
A-1	EAC-800, EAC-8000, EAC-8002	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors
A-1	EAC-701-ADJ	<b>ICM102</b>	Delay On Make Timers
ABB	OVRHLDX-120	<b>ICM530</b>	Surge Protective Device
ABB	OVRHLDX-277	<b>ICM531</b>	Surge Protective Device
ACT	FM2000	<b>ICM325A</b>	Head Pressure Controls
ASCO	420120S	<b>ICM518</b>	Split Phase Surge Protective Device
ASCO	420120Y, 420240D	<b>ICM530</b>	Surge Protective Device
ASCO	420240H	<b>ICM533</b>	Surge Protective Device
ASCO	420277Y, 420480D	<b>ICM531</b>	Surge Protective Device
ASCO	420347Y, 420600D	<b>ICM532</b>	Surge Protective Device
Bard	8201-056	<b>ICM255</b>	Fan Blower Controls
Bristol	241680	<b>ICM441</b>	Line Voltage Monitors
Carlo Gavazzi	RSBS Series, Smooth Starter - SS230VIP16-32	<b>ICM870-32A</b>	Soft Start
Carlo Gavazzi	RSmooth Starter - SS230VIP16-16	<b>ICM870-16A</b>	Soft Start
Copeland	071-0376-01, 071-0376-02, 071-0397-00, 071-0397-01, 071-0424-00, 071-0424-01, 071-9800-01, 071-9800-02	<b>ICM441</b>	Line Voltage Monitors
Copeland	085-0160-00	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors
Diversified	AC-503	<b>ICM203</b>	Delay On Break Timers
Diversified	AC-800	<b>ICM102</b>	Delay On Make Timers
Diversified	AC-2020, AC-301, AC-302	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors
Dometic Smart Start	340582	<b>ICM870-16A</b>	Soft Start
Dometic Smart Start	340583	<b>ICM870-9A</b>	Soft Start
Eaton	SP1-240S, SP2-240S	<b>ICM518</b>	Split Phase Surge Protective Device
Eaton	SP1-208Y, SP1-240D, SP2-208Y, SP2-240D	<b>ICM530</b>	Surge Protective Device
Eaton	SP1-480Y, SP1-480D, SP2-480Y, SP2-480D	<b>ICM531</b>	Surge Protective Device
Eaton	SP1-600Y, SP1-600D, AP2-600Y	<b>ICM532</b>	Surge Protective Device
Eaton	SPD050240H1	<b>ICM533</b>	Surge Protective Device
Erico (Critec)	TDX50C240	<b>ICM518</b>	Split Phase Surge Protective Device
Erico (Critec)	TDX50C277/480	<b>ICM531</b>	Surge Protective Device
Erico (Critec)	TDX50C120/208, TDX50C120/240D	<b>ICM530</b>	Surge Protective Device
Erico (Critec)	TDX50C347/600	<b>ICM532</b>	Surge Protective Device
EVO/ECM	VCU-36-MP	<b>ICM708</b>	ECM Controls
EVO™/ECM	4SPD	<b>ICM709</b>	ECM Controls
EVO™/ECM1	ACU+-S1	<b>ICM711</b>	ECM Controls
Gemline	1C213	<b>ICM102, ICM103</b>	Delay On Make Timers
Gemline	1C310	<b>ICM102</b>	Delay On Make Timers
Generac	G0073000	<b>ICM518</b>	Split Phase Surge Protective Device
Goodman	PCBFM103, PCBFM103S	<b>ICM256</b>	Fan Blower Controls
Hoffman	880-ECM(10)SSH	<b>ICM713</b>	ECM Controls
Hoffman	800, 800A, 800AA, 814-50, 816-10	<b>ICM325A</b>	Head Pressure Controls
Hyper Engineering	Sure Start	<b>ICM870-9A/16A/32A</b>	Soft Start
Ice-o-matic	TD3001A	<b>ICM103</b>	Delay On Make Timers
IEC	E025-71521506	<b>ICM712</b>	ECM Controls
Intermatic	AG3000	<b>ICM517A</b>	Single Phase Surge Protection
Intermatic	AG2401C3, IG1200RC3, IG1240RC3, IG3240RC3	<b>ICM518</b>	Split Phase Surge Protective Device
Intermatic	AG2403C3, L5F13D1DG1	<b>ICM533</b>	Surge Protective Device
Intermatic	AG4803C3, L5F13Y2DG1	<b>ICM531</b>	Surge Protective Device
Intermatic	AG6503, L5F13Y3DG1	<b>ICM532</b>	Surge Protective Device
Intermatic	AG2083C3 L5F13Y1DG1	<b>ICM530</b>	Surge Protective Device
Intermatic/Grasslin	010-0011B, DT040, DT140, DTAV40, DTAV40M, DF-B, DTMV, DTSX	<b>ICM550, ICM550-ENC</b>	Multi-Functional Timers
Johnson Controls	P66BAB/BAD	<b>ICM325A (FOR 2 TEMP OR 2 PRES INPUTS)</b>	Head Pressure Controls
Kickstart	KS1	<b>ICM866U</b>	Motor Starters/Rapid Start
Kickstart	T05, KS8	<b>ICM866U</b>	Motor Starters/Rapid Start
Leviton	55240-ASA	<b>ICM518</b>	Split Phase Surge Protective Device

OEM	OEM Part #	ICM Part #	Control Type
Leviton	55208-ASA	<b>ICM530</b>	Surge Protective Device
Leviton	55480-ASA	<b>ICM531</b>	Surge Protective Device
Mars	32395	<b>ICM175</b>	Bypass Timers
Mars	32001, 32387, 32392	<b>ICM203</b>	Delay On Break Timers
Mars	32019, 32391, 32367	<b>ICM102</b>	Delay On Break Timers
Mars	32394, 32396	<b>ICM103</b>	Delay On Break Timers
Mars	32574	<b>ICM255</b>	Fan Blower Controls
Mars	32536	<b>ICM401A, ICM402</b>	Line Voltage Monitors
Mars	PFM-2000	<b>ICM450A</b>	Line Voltage Monitors
Mars	37300, 37302, 37304, 37306, 37322	<b>ICM441</b>	Motor Protection
Mars	83916	<b>ICM495-30A</b>	Surge Protective Device
Mars	83915	<b>ICM495-60A</b>	Surge Protective Device
Mars	83905	<b>ICM518</b>	Split Phase Surge Protective Device
Micro-Air	Easy Start	<b>ICM870-9A/16A/32A</b>	Soft Start
Mitsubishi	MU09NW, MUH09NW, MU12NN, MU15NN, MU17NN, MUM18NW, MUM30NN, MUM30NN2	<b>ICM325A</b>	Head Pressure Controls
Motorsaver	455	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors
Network RV	Soft Start	<b>ICM870-9A/16A</b>	Soft Start
Paragon	8041, 8045, 8047, 8141, 8143, 8145, 8245, 8247	<b>ICM550, ICM550-ENC</b>	Multi-Functional Timers
Precision	6041, 6045, 6047, 6141, 6145	<b>ICM550, ICM550-ENC</b>	Multi-Functional Timers
Qwik products	QWIKSWAPX1	<b>ICM715</b>	ECM Controls
Qwik Products	QWIKSWAPX3	<b>ICM716</b>	ECM Controls
Ranco	E31	<b>ICM325A</b>	Head Pressure Controls
RectorSeal	RSH-50 96477	<b>ICM495-30A</b>	Surge Protective Device
RectorSeal	RSH-50 96419	<b>ICM495-60A</b>	Surge Protective Device
Rheem	42-22515-01, 42-22515-02, 42-22515-03	<b>ICM255</b>	Fan Blower Controls
Robertshaw	3310-072	<b>ICM203</b>	Delay On Break Timers
Robertshaw	8625-1	<b>ICM518</b>	Split Phase Surge Protective Device
Robertshaw	300-229, 9615	<b>ICM518</b>	Split Phase Surge Protective Device
Siemens	TPS3B	<b>ICM533</b>	Surge Protective Device
Siemens	TPS3D, TPS3C	<b>ICM530</b>	Surge Protective Device
Siemens	TPS3E, TPS3F	<b>ICM531</b>	Surge Protective Device
Siemens	TPS3L, TPS3G	<b>ICM532</b>	Surge Protective Device
Siemens	TPS3A	<b>ICM518</b>	Split Phase Surge Protective Device
Snyder General/ICP	1395336	<b>ICM255</b>	Fan Blower Controls
Square D	SDSA2040, SDSA2040D	<b>ICM530</b>	Surge Protective Device
Square D	SDSA2040D	<b>ICM533</b>	Surge Protective Device
Square D	SDSA3650, SDSA3650D	<b>ICM532</b>	Surge Protective Device
Square D	SDSA4040, SDSA4040D	<b>ICM531</b>	Surge Protective Device
SSAC	QLM, QLV	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors
Supco	TD32	<b>ICM175</b>	Bypass Timers
Supco	TD72, TD73	<b>ICM203</b>	Delay On Break Timers
Supco	TD73W	<b>ICM203F</b>	Delay On Break Timers
Supco	TD69	<b>ICM102</b>	Delay On Make Timers
Supco	TD69W	<b>ICM102F</b>	Delay On Make Timers
Supco	TMF-19, TMF-80	<b>ICM103</b>	Delay On Make Timers
Supco	TPMP2	<b>ICM401A, ICM402</b>	Line Voltage Monitors
Supco	SCMPLUS, SCM150	<b>ICM517A</b>	Single Phase Surge Protection
Supco	SUPR, APR5	<b>UMS50</b>	Universal Motor Starting Relays
Texas Instruments	15AA1600B, 15AA1600C, 15AA1600E, 15AA1603C, 31AA1600E, 31AA1606E	<b>ICM441</b>	Motor Protection
Time Mark	265	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors
Wagner/Diversitech	ADB-1	<b>ICM203</b>	Delay On Break Timers
Wagner/Diversitech	ADB-2	<b>ICM203F</b>	Delay On Break Timers
Wagner/Diversitech	ADM-1	<b>ICM102</b>	Delay On Make Timers
Wagner/Diversitech	ADM-2	<b>ICM102F</b>	Delay On Make Timers
Wagner/Diversitech	DSP-1	<b>ICM492</b>	Line Voltage Monitors
Wagner/Diversitech	DSP-1	<b>ICM493</b>	Line Voltage Monitors
Wagner/Diversitech	DTP-3, WPC-800	<b>ICM450A, ICM450A PLUS+</b>	Line Voltage Monitors

# TIME DELAY RELAYS

## DELAY ON MAKE TIMERS

Ideal for compressor staging and stagger starting multiple motors and other equipment. Helps to reduce power surges. When power is applied to the input, the time delay begins. After the time delay is complete, the load energizes.

### ICM102, ICM102F

Delay on Make Timer (ICM102),  
With 6" Wire Leads (ICM102F)



SP US LR30320  
UL US E53944

#### FEATURES/BENEFITS

- Universal voltage operation
- Higher 1.5 amp power rating
- Knob-adjustable time delays
- Works with anticipator-type thermostats
- One model replaces many in field
- Ideal for compressor staging
- Simple 2-wire hookup
- **"F"** suffix denotes **6"** wire leads

#### SPECIFICATIONS

- **Voltage:** 18-240 VAC
- 1.5 amps • 15 amp inrush
- 40 mA holding current
- **Frequency:** 50/60 Hz
- **Adjustable delay:** .03-10 min (1.8-600 secs)
- **Voltage drop:** 2.5 V @ 1.5 amps
- **Dimensions:** 2.00" x 2.00" x 1.25"

#### REPLACES

- ICM102**
- **A-1:** EAC-701-ADJ • **Diversified:** AC-800
  - **Gemline:** 1C310, 1C213
  - **Mars:** 32019, 32391, 32367
  - **Supco:** TD69
  - **Wagner/DiversiTech:** ADM-1
- ICM102F**
- **Supco:** TD69W
  - **Wagner/DiversiTech:** ADM-2

### ICM103

Delay on Make Timer



SP US LR30320  
UL US E53944

#### FEATURES/BENEFITS

- Highly precise digital timing
- Switch-settable time delays
- Ideal for ice machine applications
- Universal voltage operation
- Repeat accuracy .5% over voltage and temperature range

#### SPECIFICATIONS

- **Voltage:** 18-240 VAC
- 1 amp • 10 amp inrush
- 40 mA holding current
- **Frequency:** 50/60 Hz
- **Switch-settable delays:** Range from 1-1,023 sec.
- **Voltage drop:** 2.5 V @ 1 amp
- **Dimensions:** 2.00" x 2.00" x 1.25"

#### REPLACES

- **A-1:** 7061 • **Gemline:** 1C213
- **Ice-O-Matic:** TD3001A
- **Mars:** 32394, 32396
- **Robertshaw:** 3310-068
- **Supco:** TMF-19, TMF-80

### ICM104

Delay on Make Timer



SP US LR30320  
UL US E53944

#### FEATURES/BENEFITS

- Highly precise digital circuitry
- High power, SPDT relay output
- Input to output isolation
- Works with anticipator-type thermostats
- Repeat accuracy .5% over voltage and temperature range
- Rugged, compact package

#### SPECIFICATIONS

- **Control voltage:** 18-30 VAC
- **Frequency:** 50/60 Hz
- **Output:**
  - **N.O.:** 20 amps @ 240 VAC
  - **N.C.:** 10 amps @ 240 VAC
  - **Form:** SPDT, 1 form C
  - **Knob-adj. time delay:** 10-1,000
- **Dimensions:** 2.00" x 3.00" x 1.25"

#### REPLACES

- **Mars:** 32394/32398



## DELAY ON BREAK TIMERS

Helps to protect your equipment from damage which may be caused by the rapid short cycling of compressors. Upon application of power, the load is energized. When the thermostat or other switch opens or there is a loss of power, the load is de-energized and the delay period begins. The compressor will not start again during the delay period. Restart occurs after the delay period has elapsed.

### ICM203, ICM203F

Delay on Break Timer (ICM203),  
With 6" Wire Leads (ICM203F)



ICM203F

#### FEATURES/BENEFITS

- Universal voltage operation
- Higher 1.5 amp power rating
- Compressor lockout/anti-short cycle timer
- Helps to protect compressors from damage caused by rapid short cycling
- Simple, 2-wire hookup
- **"F"** suffix denotes **6"** wire leads

#### SPECIFICATIONS

- **Voltage:** 18-240 VAC
- 1.5 amps, 15 amp inrush
- **Frequency:** 50/60 Hz
- **Knob-adjustable delays:** .03-10 min. (1.8-600 sec.)
- **Voltage drop:** 3.5 V typical, 4.5 V max. @ 1.5 amps
- **Holding current min.:** 40 mA
- **Dimensions:** 2.00" x 2.00" x 1.25"

#### REPLACES

##### ICM203

- **A-1:** EAC-501-ADJ • **Diversified:** AC-503
- **Mars:** 32001, 32387, 32392
- **Robertshaw:** 3310-072 • **Supco:** TD72, TD73 • **Wagner/DiversiTech:** ADB-1

##### ICM203F

- **Supco:** TD73W
- **Wagner/DiversiTech:** ADB-2

## BYPASS TIMERS

Designed to bypass a control or device during startup. Typically used to bypass a low pressure switch during compressor heat pump startup or to bypass an oil pressure switch upon startup. Helps to eliminate nuisance lockouts. With power applied to the input, the load energizes immediately and remains energized for the length of the time delay, regardless of the state of the switch being bypassed. At the end of the time delay, the condition of the load is determined by the state of the switch.

### ICM175 Bypass Timer



#### FEATURES/BENEFITS

- Designed to bypass a low pressure switch or other device during startup
- Ideal for low ambient startups
- Key component for "winter start" kits
- Helps to reduce nuisance lockouts
- Universal AC voltage operation
- Knob-adjustable time delay
- Epoxy-encapsulated circuitry

#### SPECIFICATIONS

- **Voltage:** 18-240 VAC
- 1 amps • 10 amp inrush
- 40 mA holding current
- **Frequency:** 50/60 Hz
- **Knob adjustable time delay:** 10-1,000 sec.
- **Dimensions:** 2.00" x 2.00" x 1.25"

#### REPLACES

- **Mars:** 32395 • **Supco:** TD32



# UFPT-2 & UFPT-5

Universal Time Delay Relays



ICM-UFPT-2



ICM-UFPT-5

## FEATURES/BENEFITS

- Universal input voltage 24 -240VAC
- 40ma min load requirement (2-wire only)
- Reduce truck stock inventory
- Includes a 5 Amp dry contact output relay for controlling a load directly - no minimum load requirement (5-wire only)
- Compatible with over 85 legacy ICM timers
- NFC technology allows for the user to change timer application on the fly using a smart phone to set up all functionality of the timer including mode and delay time.
- Installation instructions, wiring diagrams, and timing diagrams conveniently displayed on the App
- Easy installation
- Increased digital accuracy

## USES NEAR FIELD COMMUNICATION IN CONJUNCTION WITH A SMART PHONE APP TO ALLOW THE USER TO SELECT FROM SIX DIFFERENT TIMER MODES

- On delay
- Off delay (5-wire model only)
- Interval
- Anti-Short Cycle
- Repeat Cycle
- Single shot (5-wire model only)

## NEW UNIVERSAL CONTROLS VIA NFC TECHNOLOGY



Scan QR code for the Cross Reference Guide



# UNIVERSAL CLOCK TIMER

## ICM550

Multi-Functional Timer



## FEATURES/BENEFITS

- 24-hour multi-functional timer
- Timed or manual termination
- Adjustable 15 min to 23 hours 45 min defrost cycle
- High power relay outputs
- 100% monitoring of inputs and outputs
- Simple to use, drag & drop replacement for popular models
- User-friendly time clock
- For replacement board only order: **ICM550**

## FEATURES/BENEFITS

- Enclosed 24-hour multi-functional timer
- Timed or manual termination
- Adj. 15 min to 23 hours 45 min defrost cycle
- High power relay outputs
- 100% monitoring of inputs and outputs
- Simple to use, drag & drop replacement for popular models
- User-friendly time clock
- Weatherproof Enclosure Ratings
- Rugged, NEMA/TYPE 4X rated plastic, weatherproof enclosure
- Easy to mount and lockable
- Helps to protect controls from harsh environmental conditions such as temperature, shock, humidity and vibration
- For replacement board and enclosure order: **ICM550-ENC**

# Universal

## SPECIFICATIONS

### ELECTRICAL RATING

- Voltage: 120-240VAC • Frequency: 60 Hz

### OUTPUT

- Type: Relay
- Form: SPDT, SPST
- Rating:
  - [2] & [4]: 30A R, 1HP @ 120 VAC, 2HP @ 240 VAC
  - [1] & [3]: 40A R, 1HP @ 120 VAC, 2HP @ 240 VAC
  - [1] & [F]: 30A R, 1HP @ 120 VAC, 2HP @ 240 VAC

### TIMING

- Minimum cycle time: 15 min
- Maximum cycle time: 23 hr 45 min
- Terminate cycle: Cycle can be terminated by shorting "X to N"

### STATUS LED

- Cycle mode: (Red LED)
- Normal mode: (Green LED)

### DIMENSIONS

- ICM550: 4.50" x 3.12" x 6.00"
- ICM550-ENC: 8.75" x 6.50" x 2.75"

## REPLACES

- Intermatic/Grasslin: 010-0011B, DT040, DT140, DTAV40, DTAV40M, DT-B, DTMV, DTSX
- Paragon: 8041, 8045, 8047, 8141, 8143, 8145, 8245, 8247
- Precision: 6041, 6045, 6047, 6141, 6145

## ICM550-ENC

Enclosed Multi-functional Weatherproof Timer



PHONE: 1-800-365-5525 FAX: 315-233-5276 WEB: WWW.ICMCONTROLS.COM

All features and specifications are subject to change without notice.



# MOTOR PROTECTION CONTROLS

## 3-PHASE LINE VOLTAGE MONITORS • FULL PERFORMANCE

ICM's full performance line voltage monitors offer complete system protection by monitoring both the line (front) and load (back) side of the system including the power, motor and contactor lines. In addition, an integral "delay on break timer" guards against rapid short cycling at both the control circuit and the 3-phase lines. Provides highly reliable protection for your valuable equipment.

### ICM450A & ICM450A PLUS+

Programmable 3-Phase Line Voltage Monitors



ICM450A



ICM450A PLUS+

FEATURES	ICM450A	ICM450A PLUS+
✓ Backlit LCD	•	•
✓ Simultaneous 3-phase true RMS voltage monitoring	•	•
✓ Factory calibrated	•	•
✓ 3-phase voltages simultaneously displayed on LCD	•	•
✓ Fault memory	•	•
✓ Fault monitoring: High / low voltage, voltage unbalance, phase loss, phase reversal	•	•
✓ Real time clock, date and time stamped events		•
✓ Simple configuration	•	•
✓ Fully adjustable variables	•	•
✓ Modbus RS485 communication port		•
✓ LED indicators	•	•
✓ Common 1/4" quick connect terminations	•	•
✓ English or Spanish menu options	•	•

### SPECIFICATIONS

#### INPUT

- **Line voltage:** Universal, 190-600 VAC
- **Frequency:** 50-60 Hz
- **Load side monitoring:** Optional
- **Voltage:** 18-240 VAC

#### OUTPUT

- **Type:** Relay, SPDT
- **Voltage:** 277 VAC @ 6A maximum

#### CONTROL OPERATING TEMPERATURE

- **Operating temperature:** -40°F to +149°F (-40°C to +65°C)
- **Storage temperature:** -40°F to +185°F (-40°C to +85°C)

#### MECHANICAL

- **Mounting:** Surface mount using (2) #8 screws
- **Terminations:** 1/4" quick connects
- **Weight:** 12 ounces (341 grams)
- **ModBus:** RS485 Communication (ICM450A plus+)
- **Dimensions:** 6.50" x 4.75" x 1.09"

#### ORDERING INFORMATION

- **ICM450A:** Supersedes ICM450
- **ICM450A PLUS+:** Supersedes ICM450, ICM455

### REPLACES

- **A-1:** EAC-800, EAC-8000, EAC-8002
- **Copeland:** 085-0160-00
- **Diversified:** AC-2020, AC-301, AC-302
- **Mars:** PFM-2000
- **Motorsaver:** 455
- **SSAC:** QLM, QLV
- **Time Mark:** 265
- **Wagner/DiversiTech:** DTP-3, WPC-800

## ICM401A

3-Phase Motor  
Protection Control



UL<sup>®</sup> US  
E53944

### FEATURES/BENEFITS

- Low cost 3-phase protection for single side
- Monitors for phase reversal
- Bright LED indicators for ON and FAULT
- Universal 3-phase input: 180-600 VAC
- Control voltage: 18-32 VAC
- Epoxy-encapsulated for moisture protection
- Includes wiring harness
- Patented: U.S. Patent No. 5,337,206

### SPECIFICATIONS

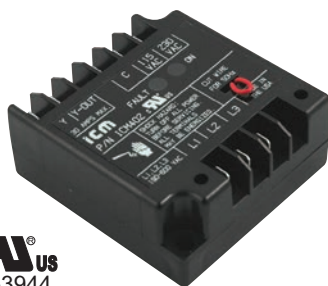
- **Voltage:** 180-600 VAC
- **Frequency:** 50/60 Hz
- **Control:** 18-32 VAC
- **Output:**
  - **Relay:** SPDT
  - **N.O.:** 6 amps @ 32 VAC max
- **Dimensions:** 3.00" x 3.25" x 1.00"

### REPLACES

- **Mars:** 32536
- **Supco:** TPMP2

## ICM402

3-Phase Motor  
Protection Control



UL<sup>®</sup> US  
E53944

### FEATURES/BENEFITS

- Low cost 3-phase protection for single side
- Monitors for phase reversal and phase loss
- Bright LED indicators for ON and FAULT
- Universal 3-phase input: 190-600 VAC
- Highly reliable passive electronics
- Epoxy coated for added protection
- Patented: U.S. Patent No. 5,337,206

### SPECIFICATIONS

- **Voltage:** 190-600 VAC
- **Frequency:** 50/60 Hz
- **Control:** 115 or 208/230 VAC
- **Output:**
  - **Relay:** SPST
  - **N.O.:** 30 amps
- **Dimensions:** 3.00" x 3.20" x 1.35"

### REPLACES

- **Mars:** 32536
- **Supco:** TPMP2

## 3-PHASE MOTOR PROTECTORS

## ICM441

3-Phase Motor  
Protection



UL<sup>®</sup> US  
E118867

### FEATURES/BENEFITS

- Protects Against:
  - Under voltage
  - Over temperature
  - Power interruptions
  - Rapid short cycling
- Shorted temperature sensor
- Open temperature sensor
- Control duty, SPST relay layout
- Anti-short cycle time delay, 4 minutes (nominal)
- 1-second manual bypass

### SPECIFICATIONS

- **Control Voltages:** 24 - 240 VAC
- **3-Phase Line Voltage:** 208/460 VAC
- **Frequency:** 50/60 Hz
- **Output:**
  - **Relay:** SPST
  - **N.O.:** 6 amps resistive
- **Dimensions:** 3.00" x 3.20" x 1.35"

### REPLACES

- **Bristol:** 241680
- **Copeland:** 071-0376-01, 071-0376-02, 071-0397-00, 071-0397-01, 071-0424-00, 071-0424-01, 071-9800-00, 071-9800-01
- **Mars:** 37300, 37302, 37304, 37306, 37322
- **Texas Instruments:** 15AA1600 B, 15AA1600 C, 15AA1603 B, 15AA1603 C, 31AA1600 E, 31AA1606 E



## 3-PHASE MOTOR PROTECTORS

## ICM442

## 3-Phase Motor Protection



**UL**<sup>®</sup>  
E118867

## FEATURES/BENEFITS

- Protects against over temperature in motor windings
- Uses up to four (4) 100 Ohm thermistors in series

## SPECIFICATIONS

- **3-Phase Input Voltage:** 200-575 VAC
- **Frequency:** 50/60 Hz
- **Voltage unbalance:** Adjustable: 2-25%
- **Control:** 115-277 VAC
- **Heavy duty SPST relay output:** 10 amps, 250 VAC
- **Thermistors:** Four (4) 100Ω thermistors in series
- **Relay rating:** 250 VAC at 10 A
- **Dimensions:** 3.00" x 3.20" x 1.35"

## SINGLE PHASE VOLTAGE MONITORS

## ICM492

## Single Phase Digital Line Voltage Monitor



**UL**<sup>®</sup>  
E53944

## FEATURES/BENEFITS

- Protects against over and under voltage, and rapid short cycling caused by transient faults and power interruptions
- Easy-view, backlit digital display
- Adjustable voltage set point
- Adjustable anti-short cycle time delay
- Adjustable response time
- Control mode (optional)
- 5-fault memory
- Universal line voltage input
- Heavy duty SPDT relay output
- Universal control voltage input (for integrating a thermostat)

## SPECIFICATIONS

User adjustable settings:

- **Line voltage set point:** 80-300 VAC
- **Anti-short cycle time delay:** 0-720 seconds
- **Over/under voltage setting:** 5-25%
- **Control mode:** ON and OFF
- **Response time:** 0.1-10 seconds
- **Line voltage:** 80-300 VAC
- **Frequency:** 50/60 Hz
- **Accuracy:** ±2%
- **Low power consumption:**
  - Maximum 50 mA @ 120 VAC
  - Maximum 100 mA @ 240 VAC
- **Control voltage:** 18-240 VAC
- **Relay type:** Dry relay contacts
- **Form:** SPDT
- **Relay contact ratings:**
  - **N.C. contacts:** 10A resistive @ 277 VAC
  - **N.O. contacts:** 10A resistive @ 277 VAC
- **Dimensions:** 3.00" x 3.20" x 1.35"

## REPLACES

- **Wagner/DiversiTech:** DSP-1

## ICM493

Single Phase Line Monitor with Built-In Surge Suppression



### FEATURES/BENEFITS

- Protects against over and under voltage, rapid short cycling caused by transients, and high-power surges
- Fault history feature records and retains the five most recently occurred faults in non volatile memory
- Ideal for mini-splits or other condensing units
- Easy to view, backlit digital display
- Bank of five L-L surge arresters
- Built-in 40A contactor
- NEMA Type 3R rated metal enclosure for outdoor use
- Easy installation and setup

### SPECIFICATIONS

- **Voltage set point:** 200-240 VAC
- **Over/under voltage setting:** 5% - 10%, adjustable
- **Anti-short cycle delay:** 0.5-10 min.
- **# of surge arresters required for operation:** 0-5
- **Accuracy:** +/- 2%, user calibration
- **Contactor ratings:** 40A FLA, 240A LRA
- **Number of trials:** 1-5, auto
- **Line voltage:** 195-264 VAC
- **Frequency:** 50/60 Hz
- **Type:** Contactor, 2-pole
- **Dimensions:** 8.00" x 8.25" x 4.30"

## ICM493-60A

Single Phase Line Monitor with Built-In Surge Suppression



### FEATURES/BENEFITS

- Protects against over and under voltage, rapid short cycling caused by transients, and high-power surges
- Fault history feature records and retains the five most recently occurred faults in non volatile memory
- Ideal for mini-splits or other condensing units
- Easy to view, backlit digital display
- Bank of five L-L surge arresters
- Built-in 60A contactor
- NEMA Type 3R rated metal enclosure for outdoor use
- Easy installation and setup

### SPECIFICATIONS

- **Input:** 195-264 VAC, 50/60Hz
- **Voltage:** 240 VAC
- **FLA:** 60A, **LRA:** 360A
- **Operating/storage/LCD temperature:** -40°F to 167°F
- **Enclosure:** Weather resistant, NEMA 3R rated for outdoor installation
- **ASC time delay:** 0.5-10 minutes
- **# of trials:** 1-5, auto
- **# of movistors:** 0-5
- **Dimensions:** 8.00" x 10.00" x 6.00"



## COMMON CAUSES OF POWER SURGES:

- Lightning storms
- Downed power lines
- Substandard / incorrect wiring
- Power outages/system recovery grid overload
- Large appliances turning On/Off
- Old electrical components
- Short circuits
- Loose wiring



# ICM SURGE PROTECTIVE DEVICES



## Why do you need protection?

All homes are constantly under attack from power surges and spikes, even though they may not always be apparent. These energy irregularities can be caused from just about anything, including weather, poor wiring, old parts, not to mention an aging power grid that has difficulty handling today's energy demands. Over time, these repeated energy surges will wear down your equipment and reduce its life expectancy. It is common for homeowners to place surge protectors on their televisions, personal computers and appliances. However, people often forget about their HVAC system, which represents your home's most valuable electronic investment.

## Why ICM Controls?

You can't see the harmful surges and transients in your power lines, but ICM's products can! For more than 30 years, ICM Controls has been a recognized leader for manufacturing controls that protect your valuable HVAC equipment against today's most common and severe power threats. From basic surge protective devices to line voltage monitors to combination devices, ICM Controls has you covered. Consult your local HVAC contractor to determine which control is right for your application.

Located in North Syracuse, NY, ICM's quality products are proudly manufactured in the USA.

# SURGE PROTECTION DEVICES

## SINGLE-PHASE SPDs

### ICM517A

Surge Protection Device



#### FEATURES/BENEFITS

- Built to withstand the high impact of a major surge event
- Constructed in a robust Cast Aluminum enclosure for maximum durability
- Featuring a redesigned rivet sealed molded case with an internal gasket
- Nema Type 4X rated for indoor/outdoor installation
- Featuring a thinner more compact profile than previous versions
- Updated to the latest addition of UL standards
- Withstands effects of prolonged UV exposure better than ABS plastics
- UL Rated Powder Coating for superior corrosion resistance
- Easy Installation
- Proudly Made in America
- Limited lifetime product, up to a 3-year \$25,000 connected equipment warranty

#### SPECIFICATIONS

- **Service voltage:** 120/240 volt, single phase
- **Maximum surge current:** 100,000 Amps
- **Maximum energy dissipation:** 1,020 Joules
- **Installation point:** Electrical panel/disconnect
- **Diagnostics:** Green light indicates surge suppression present
- **AC protection modes:** L-L, L-N, L-G, N-G
- **Conduit connection:** 3/4"
- **Weight:** 0.55 lbs.
- **Dimensions:** 5.0" x 2.78" x 2.16"

## SPLIT PHASE SPDs

### ICM518

240 VAC Split Phase  
Surge Protective Device



#### FEATURES/BENEFITS

- 240 VAC split surge protective device
- Easy 3-wire installation
- 3/4" conduit connection
- Highest UL rating for nominal discharge current (in 20kA), for increased longevity & durability of the SPD
- Green LED indicator tells whether the device is operational
- Low cost, high performance
- Rugged and reliable
- UL Listed Type 1 or Type 2 SPD
- NEMA Type 4X watertight enclosure for indoor/outdoor use
- Limited Lifetime Protection Warranty
- 100 kA maximum surge current protection

#### SPECIFICATIONS

- **Service voltage:** Split 240 VAC
- **Maximum surge current:** 100 kA
- **Short Circuit Current Rating (SCCR):** 200 kA
- **Nominal discharge current (In):** 20 kA
- **Protection mode:** L1-L2, L1-N, L2-N
- **Maximum Continuous Operation Voltage (MCOV):**
  - L-L: 300 VAC • L-N: 150 VAC
- **VPR:** • L-L: 1200 VAC • L-N: 700 VAC
- **SPD type:** Type 1 (can also be used in Type 2 apps)
- **Surge protection technology:** TFMOV
- **Input power frequency:** 50/60 Hz
- **Dimensions:** 4.30" x 4.10" x 2.30"

#### REPLACES

- **ASCO:** 420120S
- **Eaton:** SP1-240S, SP2-240S
- **ERICO (Critec):** TDX50C240
- **Generac:** G0073000
- **Intermatic:** AG2401C3, IG1200RC3, IG1240RC3, IG3240RC3
- **Leviton:** 55240-ASA
- **MARS:** 83905
- **Siemens:** TPS3A
- **Ditek:** DTK 120/240HD2
- **Citel:** MLPXUVG



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# ICM495-30A-F/60A-NF

Disconnect with Internal Surge Protection

## FEATURES/BENEFITS

- UL Listed Electrical Disconnect including both enclosure & surge protector
- 240VAC split-phase
- Features an internal surge protective device
- Maximum Surge Current Rating of 100kA
- Highest UL rating for nominal discharge current (in 20kA), for increased longevity & durability of the SPD
- Constructed with 2 high-quality thermally protected MOV's (TFMOV)
- Completely factory wired for quick and easy installation
- NEMA Type 3R rated powder coated metal enclosure for indoor/outdoor use
- Fully accessible mounting holes, no disassembling required
- Braided strap thoroughly grounding both the enclosure and cover
- LED indicator light showing when surge protection is operational
- 30A Fused & 60A non-fused models available
- Limited lifetime product, up to a 3-year \$10,000 connected equipment warranty



Built-In Internal Surge Protective Device



## SPECIFICATIONS

### INPUT:

- **Voltage:** Split phase 240 VAC
- **Frequency:** 50/60Hz

### CONTACT RATINGS:

- **Voltage:** 240 VAC
- **FLA:** 30A/60A (depending on model)
- **LRA:** 360A

### PARAMETERS:

- **Short Circuit Current Rating (SCCR):** 10kA
- **Nominal discharge current (In):** 20kA
- **Protection mode:** L1-L2, L1-N, L2-N
- **Maximum Continuous Operation Voltage (MCOV):**
  - **L-L:** 300 VAC
  - **L-N:** 150 VAC
- **VPR:**
  - **L-L:** 1200 VAC
  - **L-N:** 700 VAC
- **SPD type:** Type 2
- **Surge protection technology:** TFMOV

## REPLACES

- All standard disconnect boxes rated for equal voltage and current configurations
- **30A – MARS:** 83916, **RectorSeal:** RSH-50 96417
- **60A – MARS:** 83915, **RectorSeal:** RSH-50 96419

## 3-PHASE SPDs

# ICM530

3-Phase Surge Protective Device for 3-Phase Delta 240 VAC or Wye 120/208 VAC

## FEATURES/BENEFITS

- 240 VAC or Wye 120/208 VAC
- Delta or Wye Configuration
- NEMA Type 4X watertight plastic enclosure for outdoor and indoor installation
- Green LED indicates surge protection present
- Easily connects to electrical panel or disconnect for indoor and outdoor apps
- UL Listed Type 1 or Type 2 SPD
- Limited Lifetime Protection Warranty
- 150 kA maximum surge current protection



## SPECIFICATIONS

- **Service voltage (3-phase):** 240 VAC Delta or 120/208 VAC Wye
- **Maximum surge current:** 150 kA
- **Short Circuit Current Rating (SCCR):** 200 kA
- **Nominal discharge current (In):** 20 kA
- **Protection mode:**
  - 3 for Delta configuration
  - 6 for Wye configuration (neutral tied to ground)
- **Maximum Continuous Operation Voltage (MCOV):**
  - **L-L:** 300 VAC
  - **L-N:** (for Wye configuration only): 150 VAC
- **VPR:**
  - **Delta L-L:** 1200 VAC
  - **Wye L-L:** 1200 VAC
  - **Wye L-N:** 700 VAC
- **SPD type:** Type 1 (can also be used in Type 2 apps)
- **Surge protection technology:** TFMOV
- **Input power frequency:** 50/60 Hz
- **Dimensions:** 4.30" x 4.10" x 2.30"

## REPLACES

- **ABB:** OVRHLDxx-120
- **ASCO:** 420120Y, 420240D
- **Eaton:** SP1-208Y, SP1-240D, SP2-208Y, SP2-240D
- **ERICO (Critec):** TXD50C120/208, TXD50C120/240D
- **Intermatic:** AG2083C3 L5F13Y1DG1
- **Leviton:** 55208-ASA
- **Siemens:** TPS3D, TPS3C
- **Square D:** SDSA2040, SDSA2040D



# ICM531

3-Phase Surge Protective Device for 3-Phase Delta 480 VAC or Wye 277/480 VAC



## FEATURES/BENEFITS

- 480 VAC or Wye 277/480 VAC
- Delta or Wye Configuration
- NEMA Type 4X watertight plastic enclosure for outdoor and indoor installation
- Green LED indicates surge protection present
- Easily connects to electrical panel or disconnect for indoor and outdoor apps
- UL Listed Type 1 or Type 2 SPD
- Limited Lifetime Protection Warranty
- 150 kA maximum surge current protection

## SPECIFICATIONS

- **Service voltage (3-phase):** 480 VAC Delta or 277/480 VAC Wye
- **Maximum surge current:** 150 kA
- **Short Circuit Current Rating (SCCR):** 200 kA
- **Nominal discharge current (In):** 20 kA
- **Protection mode:**
  - 3 for Delta configuration
  - 6 for Wye configuration (neutral tied to ground)
- **Maximum Continuous Operation Voltage (MCOV):**
  - L-L: 700 VAC
  - L-N: (for Wye configuration only): 350 VAC
- **VPR:**
  - Delta L-L: 2500 VAC
  - Wye L-L: 2500 VAC
  - Wye L-N: 1200 VAC
- **SPD type:** Type 1 (can also be used in Type 2 apps)
- **Surge protection technology:** TFMOV
- **Input power frequency:** 50/60 Hz
- **Dimensions:** 4.30" x 4.10" x 2.30"

## REPLACES

- **ABB:** OVRHLDxx-277
- **ASCO:** 420277Y, 420480D
- **Eaton:** SP1-480Y, SP1-480D, SP2-480Y, SP2-480D
- **ERICO (Critec):** TDX50C277/480
- **Intermatic:** AG4803C3, L5F13Y2DG1
- **Leviton:** 55480-ASA
- **Siemens:** TPS3E, TPS3F
- **Square D:** SDSA4040, SDSA4040D

# ICM532

3-Phase Surge Protective Device for 3-Phase Delta 600 VAC or Wye 347/600 VAC



## FEATURES/BENEFITS

- 600 VAC or WYE 347/600 VAC
- Delta or Wye Configuration
- NEMA Type 4X watertight plastic enclosure for outdoor and indoor installation
- Green LED indicates surge protection present
- Easily connects to electrical panel or disconnect for indoor and outdoor apps
- UL Listed Type 1 or Type 2 SPD
- Limited Lifetime Protection Warranty
- 150 kA maximum surge current protection

## SPECIFICATIONS

- **Service voltage (3-phase):** 600 VAC Delta or 347/600 VAC Wye
- **Maximum surge current:** 150 kA
- **Short Circuit Current Rating (SCCR):** 200 kA
- **Nominal discharge current (In):** 20 kA
- **Protection mode:**
  - 3 for Delta configuration
  - 6 for Wye configuration (neutral tied to ground)
- **Maximum Continuous Operation Voltage (MCOV):**
  - L-L: 920 VAC
  - L-N: (for Wye configuration only): 460 VAC
- **VPR:**
  - Delta L-L: 2500 VAC
  - Wye L-L: 2500 VAC
  - Wye L-N: 1500 VAC
- **SPD type:** Type 1 (can also be used in Type 2 apps)
- **Surge protection technology:** TFMOV
- **Input power frequency:** 50/60 Hz
- **Dimensions:** 4.30" x 4.10" x 2.30"

## REPLACES

- **ASCO:** 420347Y, 420600D
- **Eaton:** SP1-600Y, SP1-600D, AP2-600Y
- **ERICO (Critec):** TXD50C347/600
- **Intermatic:** AG6503, L5F13Y3DG1
- **Siemens:** TPS3L, TPS3G
- **Square D:** SDSA3650, SDSA3650D

# ICM533

3-Phase Surge Protective Device for 3-Phase Delta High Leg 120/240 VAC



## FEATURES/BENEFITS

- High Leg 120/240 VAC
- Delta High-Leg Configuration
- NEMA Type 4X watertight plastic enclosure for outdoor and indoor installation
- Green LED indicates surge protection present
- Easily connects to electrical panel or disconnect for indoor and outdoor applications
- UL Listed Type 1 or Type 2 SPD
- Limited Lifetime Protection Warranty
- 150 kA maximum surge current protection

## SPECIFICATIONS

- **Service voltage (3-phase):** 120/240 VAC Delta High-Leg
- **Maximum surge current:** 150 kA
- **Short Circuit Current Rating (SCCR):** 200 kA
- **Nominal discharge current (In):** 20 kA
- **Protection mode:** 3 for Delta configuration
- **Maximum Continuous Operation Voltage (MCOV):**
  - L-L: 300 VAC
  - H-L: 450 VAC
  - L-N: 150 VAC
  - H-N: 300 VAC
- **VPR:**
  - L-L: 2500 VAC
  - H-L: 1500 VAC
  - L-N: 700 VAC
  - H-N: 900 VAC
- **SPD type:** Type 1 (can also be used in Type 2 apps)
- **Surge protection technology:** TFMOV
- **Input power frequency:** 50/60 Hz
- **Dimensions:** 4.30" x 4.10" x 2.30"

## REPLACES

- **ASCO:** 420240H
- **Eaton:** SPD050240H1
- **Intermatic:** AG2403C3, L5F13D1DG1
- **Siemens:** TPS3B
- **Square D:** SDSA2040D



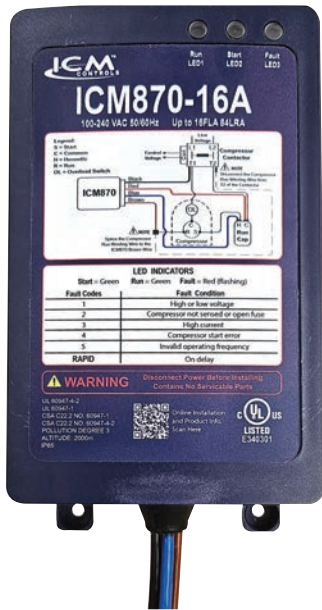
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# MOTOR STARTERS

## SOFT START CONTROLS

### ICM870-9A/ICM870-16A

Soft Start Controls



#### FEATURES/BENEFITS

- Reduces in-rush current/draw necessary at startup by up to 70%
- Prolong the life of the A/C by reducing excessive torque, wear and tear
- Reduce loud noises, light flickering, and breaker trips
- Built-in self-learning algorithm
- Over-current protection
- Over/under voltage monitoring
- Built-in start capacitor
- LED fault indicators
- Ultrasonic sealed tamper-proof enclosure
- Installation hardware is included
- 9A Model – Order: **ICM870-9A**
- 16A Model – Order: **ICM870-16A**

#### SPECIFICATIONS

- **Inputs:** L1 & L2
- **Nominal voltage:** 120 VAC, 240 VAC
- **Over voltage limits:**  
120 VAC nominal = 140 VAC  
240 VAC nominal = 264 VAC
- **Under voltage limits:**  
120 VAC nominal = 95 VAC  
240 VAC nominal = 195 VAC
- **Outputs:** Compressor
- **Current:** Maximum nominal = 9A, 16A
- **Over current limits:**  
ICM870-9A = 11.25A  
ICM870-16A = 20A
- **Operating temp.:** -40°F to 131°F  
(-40°C to 55°C)
- **Storage temp.:** -40°F to 149°F  
(-40°C to 65°C)
- **Humidity:** 0-95% non-condensing
- **Enclosure:** IP65
- **Dimensions:** 7.94" x 4.20" x 2.10"

### ICM870-32A

Soft Start Control



#### FEATURES/BENEFITS

- Reduces in-rush current/draw necessary at startup by up to 70%
- Prolong the life of the A/C by reducing excessive torque, wear and tear
- Reduce loud noises, light flickering, and breaker trips
- Built-in self-learning algorithm
- Over-current protection
- Over/under voltage monitoring
- Built-in start capacitor
- LED fault indicators
- Ultrasonic sealed tamper-proof enclosure
- Installation hardware is included

#### SPECIFICATIONS

- SCCR: 5kA
- Uimp = 4kv
- Ue = 240 VAC
- Pollution degree 3
- Ui = 240 VAC
- **Input (L1, L2) – 100-240 VAC 50/60 Hz**
- **Over voltage limits:**  
115 VAC nominal = 140 VAC,  
240 VAC nominal = 264 VAC
- **Under voltage limits:** 115 VAC nominal = 95 VAC, 240 VAC nominal = 195 VAC
- **Outputs: Compressor**
- **Solid state/relay**
- **Current:** Max. nominal = 32A
- **Over current limits:** ICM870-32A = 40A
- **Environmental:**
- **Ambient temperature:**  
40°C @ 32 FLA, 8 hour duty
- **Storage temperature:** -40°F to 149°F  
(-40°C to 65°C)
- **Humidity:** 0-95% non-condensing
- **Enclosure:** IP65
- **Dimensions:** 7.94" x 4.20" x 2.10"
- **Screw hole center points:** 7.36" x 2.97"

## VOLTAGE SENSING HARD START

ICM's differential voltage sensing products employ patented circuitry which monitors differential compressor auxiliary voltage, determines the state of the motor and precisely engages and disengages the start capacitor.

A timed safety circuit is provided in the event the motor fails to start within 2 seconds.

### ICM866U

Motor Starter



ICM<sup>®</sup> US  
E118867

#### FEATURES/BENEFITS

- Patented circuitry with differential voltage sensing technology
- Monitors differential compressor auxiliary voltage
- Not affected by ambient temperatures
- Recycles instantly
- Self-adjusting to changes in voltages
- Extends motor life
- Rated for 1/12 to 5 HP applications
- Reduces inventory, saves money – One model is all you need
- Simple, two-wire installation
- Multi-voltage operation for 115 or 230 VAC motors
- Precisely engages/disengages the start capacitor
- Does not rely on relay with preset, factory default ranges
- Faster install time and minimizes risk of accidental miswires

### Universal

#### SPECIFICATIONS

- **Voltage:** 90-240 VAC
- **Recommended range:** 1/12 to 5 HP
- **Capacitor:** 145-175 Mfd. 330 V
- **Dimensions:** 7.90" x 1.50" x 2.25"

#### REPLACES

- **5-2-1:** CSR-U1, CSR-U2, CSR-U3
- **DiversiTech:** DST-5, DST-6
- **Kickstart:** KS1-KS5 & KS8
- **Mars:** 32708, SS1, SS5, 32703, 32704, 32701, 32702
- **Supco:** SPP5, SPP6, SPP5E, SPP6E, SPP7E, SPP8E, SPP9E, SPP10E, RCO810, RCO410, RCO210
- **Watsco:** WSX1

## UMSR – UNIVERSAL MOTOR STARTING RELAY

ICM's Universal Motor Starting Relay incorporates patented differential voltage sensing and a non-positional mounting configuration to offer a single replacement for all standard potential relays. Ideal for A/C, commercial refrigeration, heat pump or any single-phase motor application up to 10 HP.

### UMSR-50

Universal Motor Starting Relay



DD 2007  
DEALER DESIGN  
AWARDS  
NEWS | BRONZE

ICM<sup>®</sup> US  
E118867

#### FEATURES/BENEFITS

- Replacement for all standard potential relays
- Patented differential voltage sensing
- No user-adjustments required
- Non-positional mounting configuration
- 50A switching capabilities
- Universal mounting bracket for easy installation
- .250" quick connect termination
- Safety timer

### Universal

#### SPECIFICATIONS

- **Voltage rating:** 110-270 VAC, single phase
- **Max. voltage contact rating:** 502 VAC (absolute)
- **Motor power rating:** Up to 10 HP
- **Operating position:** Non-positional
- **Safety time out:** Approximately 1-second per 100 microfarads
- **Consumption:** 5 VA maximum
- **Contact rating:** 50A (break only)
- **Dimensions:** 2.00" x 2.00" x 1.75"

#### REPLACES

- All standard potential relays
- **Supco:** APR5, SUPR



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# HEAD PRESSURE CONTROLS

## ICM325A

Universal Single-Phase Head Pressure Control



UL US  
E118867

### FEATURES/BENEFITS

- Operates as temperature or pressure sensitive motor fan speed control
- Helps prevent evaporator freeze-ups, low pressure cut-outs and liquid-slugged compressors in low ambient conditions
- Integral heat pump bypass circuitry allows electronic bypass of speed control
- Eliminates overshoots common to on/off and pressure switch controls
- Near field communication (phone tap) using the ICM OMNI App
- Features: hard start, isolated 24 VAC supply
- Controls up to 2 refrigeration circuits
- RoHS compliant / lead free design
- Typical application: A/C and heat pumps
- Universal 120-600VAC line voltage and 24-240VAC control voltage

## Universal

### SPECIFICATIONS

- **Line voltage:** 120 - 600 VAC
- **Control voltage:** 24-240 VAC (Jumper enabled)
- **Frequency:** 50-60 Hz
- **Operating temperature:** -40°F to +176°F (-40°C to +75°C)
- **Temperature sensors:** 10K ohms at 77°F (25°C)
- **Heat pump reversing valve input:** 24-240 VAC. Heat Active Default, HP O RV jumper provided for cool active reversing valve.

### REPLACES

- **ACT:** FM2000
- **Hoffman:** 800, 800A, 800AA, 814-50, 816-10
- **Ranco:** E31Series
- **Johnson Controls:** P66AAB/ P66AAD
- **ICM:** ICM325H, ICM325HNV, ICM326HM2, ICM326HN, ICM327HN, ICM333

NEW UNIVERSAL CONTROLS  
VIA NFC TECHNOLOGY



## ICM334

3-Phase ON/OFF Head Pressure Control



UL US  
E118867

### FEATURES/BENEFITS

- 3-phase ON/OFF control
- One temperature and two pressure inputs
- Integral heat pump bypass circuitry
- Solid 10 amp load carrying capability
- Hard Start – 10 second hard start
- 120-600 VAC
- Heat pump bypass
- Applies full voltage to the motor under normal conditions

### SPECIFICATIONS

- **Control voltage:** 18-30 VAC
- **Line voltage:** 120-600 VAC
- **Frequency:** 50/60 Hz
- **Operating temp.:** -40°F to +140°F
- **Probes:**
  - **Temperature:** ICM379 thermistor, 10K ohm at 77°F
  - **Pressure:** ICM380 (ordered separately)
- **Heat pump override:** 24 VAC, N.C./N.O.
- **Mounting:** Surface mount using (2) #8 screws
- **Dimensions:** 4.00" x 3.25" x 1.75"

## CONTROL ACCESSORIES

### ICM379/ICM386 PROBE

Head Pressure Control Accessory



#### FEATURES/BENEFITS

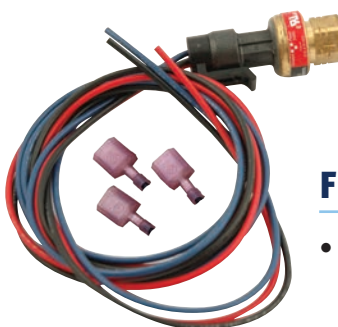
- **ICM379:** Temperature probe accessory for ICM334 3-phase head pressure control & all legacy head pressure controls.
- **ICM386:** Temperature probe accessory for use with ICM325A head pressure control using 1/4 inch quick connect inputs.

#### SPECIFICATIONS

- **70°F to 100°F (21°C to 38°C)**
- **Dimensions:** 79.0" x 0.12" x 0.75"

### ICM380

Head Pressure Control Accessory



Items shown included in a bagged kit

#### FEATURES/BENEFITS

- **ICM380:** Optional pressure transducer for legacy ICM333, and for ICM334 & ICM325A head pressure controls.

#### SPECIFICATIONS

- **Length:** 72"
- **0-500 psi**
- **1/4" SAE female flare with Schraeder deflator**
- **Dimensions:** 39.0" x 2.00" x 0.75"

## ECM CONTROLS

### ELECTRONICALLY COMMUTATED MOTOR

ICM's controllers provide a line of form, fit and functional OEM replacements for efficiently controlling a motor's speed. Manual or automated control of an ECM is available (model dependent), while monitoring and displaying the RPM/CFM of the motor.

### ICM708

ECM Control



#### FEATURES/BENEFITS

A low current pulse width modulated signal for controlling the speed of a GE 2.3 ECM based on a user settable potentiometer.

#### RPM Feedback

On-board LED diagnostics for a visual indication of the motor's status.

#### SPECIFICATIONS

- **Power supply:** 18-30 VAC
- **RPM input:** 5 VDC
- **PWM & ON/OFF outputs:** 14 VDC (PWM 80 Hz)
- **Dimensions:** 4.25" x 2.35" x 1.50"

#### REPLACES

- **EVO™/ECM-VCU-36-mp**

### ICM709

ECM Control



#### FEATURES/BENEFITS

A low current pulse width modulated signal for controlling the speed of a GE 2.3 ECM based on user settable potentiometers (SET0 - SET4) and a thermostat's requested call.

#### RPM Feedback

On-board LED diagnostics for a visual indication of the motor's status.

#### SPECIFICATIONS

- **Power supply:** 18-30 VAC
- **RPM input:** 15 VDC
- **Thermostat inputs: (SPD1 - SPD4):** 18-30 VAC
- **PWM & ON/OFF outputs:** 14 VDC (PWM 80 Hz)
- **Dimensions:** 3.25" x 3.00" x 0.75"

#### REPLACES

- **EVO™/ECM-4Spd**

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# ECM CONTROLS

## ICM711

ECM Control



### FEATURES/BENEFITS

The **ICM711** is used to control the speed of an Electronically Commutated Motor (**ECM**) by automated control systems via a 0-10 VAC input (**SIGNAL & COMMON**), or manually via potentiometer (**SET SPEED**). The **ICM711** will also provide motor speed feedback via visual LED indication (**MOTOR RPM**) as well as a 0-10 VAC output (**RPM & COMMON**) to supply an automated control system.

### SPECIFICATIONS

- **Power supply:** 18-30 VAC, 60 Hz
- **Signal & common:** 0-10 VDC  
→ 0-100% PWM request
- **ECM supplied feedback:** 5 VDC (motor at rest or not connected)
- **PWM supplied to ECM:** 18 VDC (10 mA max)
- **ON/OFF supplied to ECM:** 18 VDC (10mA max)
- **RPM & common:** 0-10 VDC (5 mA max)  
→ 0 to 2000 RPM (10 RPM increments)
- **Dimensions:** 4.25" x 2.35" x 1.50"

### REPLACES

- **EVO™/ECM-ACU+-S1**

## ICM713

ECM Control



### FEATURES/BENEFITS

- Single or dual temperature inputs
- Heat pump bypass circuitry
- Low current pulse width modulated output
- Lead free design

### SPECIFICATIONS

- **Voltage:** 18-30 VAC
- **Frequency:** 50/60 Hz
- **Output:** 13.5 VDC, 10mA max., 80 Hz, 0-100%
- **Operating temperature:** -40°F to 158°F
- **Storage temperature:** -40°F to 185°F
- **Temperature probes:** 10 KOhm (NTC, J-Curve)
- **Dimensions:** 5.00" x 3.25" x 1.50"

### REPLACES

- **Hoffman:** 880-ECM(10)SSHP

## ICM715

ECM Control



### FEATURES/BENEFITS

- Provides a single, user selected motor speed when replacing an OEM constant torque electronically commutated motor
- Simple installation
- Works on constant torque blower motor such as X13 or SelecTech constant torque electronically commutated motor up to 1 HP
- User selectable 3 minute delay on break option

### SPECIFICATIONS

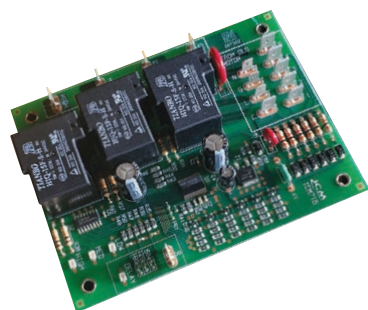
- **Motor voltage:** 120 VAC or 208-240 VAC
- **Input voltage:** 24 VAC
- **Frequency:** 50-60 Hz
- **Horse power:** 1 HP max.
- **Dimensions:** 4.00" x 2.25" x 1.25"

### REPLACES

- **QwikSwapX1**

## ICM716

ECM Control



### FEATURES/BENEFITS

- Provides a means to replace an X13 or SeleTech constant torque ECM with a single phase PSC motor
- Eliminates costly ECM repairs
- 3 High power relay outputs for automated speed selection
- 3 LED's indicate selected speed
- LED indicator illuminates when OFF delay is active
- User selectable 60, 120, or 180 second OFF delay

### SPECIFICATIONS

- **Motor voltage:** 120 VAC or 208-240 VAC
- **Input voltage:** 24 VAC
- **Frequency:** 50-60 Hz
- **Horse power:** 1 HP max.
- **Dimensions:** 5.00" x 3.75" x 1.25"

### REPLACES

- **QwikSwapX3**

# FAN BLOWER CONTROLS

## POST PURGE, OFF DELAY TIMER

### ICM253

Post Purge,  
OFF Delay Timer



UL<sup>®</sup> US  
E118867

#### FEATURES/BENEFITS

- UL 873 recognition for compressor applications
- Post-purge fan delay timer
- OFF delay purges ducts of residual air at the end of the heating/cooling cycle
- Interrogation delay eliminates nuisance trips due to thermostat bounce/tampering

#### SPECIFICATIONS

- **Voltage:** 18-30 VAC
  - 1 amp maximum
  - 40 mA minimum
  - 10 amp inrush
- **Adjustable time delay:**
  - **OFF:** 12-390 seconds
- **Dimensions:** 2.00" x 3.00" x 1.25"

#### REPLACES

- **Field Controls:** 46144700
- **Gemline:** 1C216
- **Mars:** 32393

## OFF DELAY ON BREAK

### ICM255

Fan Blower Control



UL<sup>®</sup> US  
E53944

#### FEATURES/BENEFITS

- Low cost open board design
- High power, relay output
- Dual function fan delay timer
- Controls the circulating fan in heat pump, A/C and forced air systems
- OFF delay purges ducts of residual air

#### SPECIFICATIONS

- **Voltage:** 18-30 VAC
- **Contact ratings:**
  - **N.O.:** 20 amps @ 240 VAC
  - **N.C.:** 20 amps @ 240 VAC
- **Time delays fixed:**
  - **ON:** 1 second
  - **OFF:** 60 seconds
- **Dimensions:** 2.50" x 2.50" x 1.50"

#### REPLACES

- **A-1:** 5893
- **Bard:** 8201-056
- **Mars:** 32574
- **Rheem:** 42-22515-01, 42-22515-02, 42-22515-03
- **Snyder General/ICP:** 1395336

## FORM, FIT AND FUNCTIONAL OEM REPLACEMENT PARTS

### ICM256

OFF Delay on Break Control



UL<sup>®</sup> US  
E53944

#### FEATURES/BENEFITS

- Fan post purge timer to control circulating fan in forced air systems
- Dual function 7 second ON delay / 65 second OFF delay
- Speed up terminals for test mode
- Fuse protected control voltage
- High power relay output

#### SPECIFICATIONS

- Input:**
- **Control voltage:** 18-30 VAC
  - **Frequency:** 50/60 Hz
- Output:**
- **Type:** Relay
  - **Form:** SPST N.O.
  - **Rating:** 25 amps @ 240 VAC
- Time Delays:**
- **ON delay:** 7 seconds
  - **OFF delay:** 65 seconds
- Speed Up Options:**
- **Speed up to C** = Reduced delay (3 seconds ON, 5 seconds OFF)
  - **Speed up to R** = No delay
- Dimensions:** 2.85" x 2.00" x 2.00"

#### REPLACES

- **Goodman:** PCBFM-103



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