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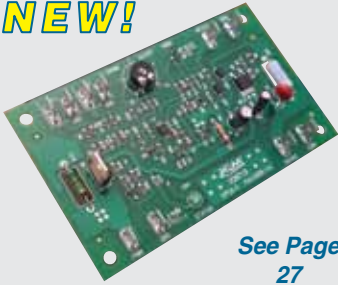
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# INNOVATION CONTINUES

**NEW!**



See Page  
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## ICM713 ECM Control

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

**NEW!**



See Page  
33

## ICM2810 Furnace Control Board

- Low cost, Goodman replacement board with microprocessor-based precision
- Controls inducer and blower fan motors, hot surface ignitor, and gas valve
- Monitors timing, trial for ignition, flame sensing, pressure and limit switches, and lockout
- Designed for 100% gas shutoff in case of ignition failure
- Reverse polarity protection
- Compatible with 24 VAC standard thermostat
- Twinning compatible with another ICM2810 control board
- Compatible with LP or natural gas
- Provides diagnostic LED to aid in testing/troubleshooting

**NEW!**



See Page  
34

## ICM2904 Gas Ignition Control

- Intermittent pilot gas ignition control module
- For use with intermittent pilot boilers, furnaces and other heating appliances
- Microprocessor-based
- Remote flame sensing
- Compatible with LP or natural gas
- Brown out monitoring circuit

**NEW!**



See Page  
34

## ICM2905 Gas Ignition Control

- Intermittent pilot gas ignition control module
- For use with intermittent pilot boilers, furnaces and other heating appliances
- Microprocessor-based
- Monitor timing, Trial for ignition, flame sensing & lockout
- Remote flame sensing
- 2 minute trial for ignition
- 60 min. lock out if pilot flame is not sensed in 2 min.
- Compatible with LP or natural gas
- Damper control input

**NEW!**See Page  
35

## ICM2906 Gas Ignition Control

- Direct Spark Ignition (DSI) control board
- Cooling and heating fan outputs
- Microprocessor-based
- Controls inducer motor, blower motor, air cleaner (if equipped), spark ignitor and the gas valve
- Monitors timing, trial for ignition, system switches, flame sensing and lockout
- Compatible with LP or natural gas
- LED indication for status and fault codes to aid in troubleshooting

**NEW!**See Page  
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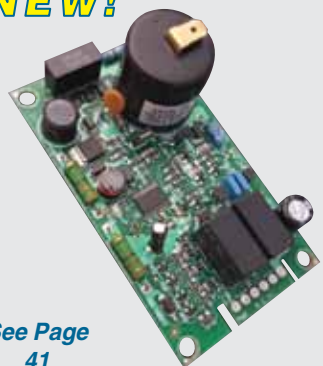
## ICM2907 Gas Ignition Control

- Direct Spark Ignition (DSI) control board
- Microprocessor-based
- Controls inducer motor, blower motor, air cleaner (if equipped), spark ignitor and the gas valve
- Monitors timing, trial for ignition, system switches, flame sensing and lockout
- Compatible with LP or natural gas
- LED indication for status and fault codes to aid in troubleshooting

**NEW!**See Page  
41

## ICM6700 Direct Replacement Part

- Direct Spark Ignition (DSI) control board.
- Monitors timing, trial for ignition, flame sensing and lockout
- Status LED for fault codes to aid in troubleshooting
- Microprocessor-based precision
- Designed for 100% gas shutoff in the case of ignition failure

**NEW!**See Page  
41

## ICM6701 Direct Replacement Part

- Direct Spark Ignition (DSI) control board
- Monitors timing, trial for ignition, flame sensing and lockout
- Microprocessor-based precision
- Designed for 100% gas shutoff in the case of ignition failure

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REPLACEMENT MODEL	ICM P/N
<b>AIR HANDLER CONTROL</b>	
Vtronics: R200A	ICM6500
<b>CONDENSATION CONTROL/ALARM</b>	
Water Guard: 401475	ICM340
<b>DELAY ON MAKE TIMERS</b>	
A-1: 7061	ICM103
A-1: EAC-701-ADJ	ICM102
A-1: EAC-710-180, EAC-701-180-W, EAC-700-A	ICM100
A-1: EAC-710-300, EAC-701-300-W	ICM101
Diversified: ASC-200	ICM150
Diversified: AC-800	ICM102, ICM105
Diversified: ASC-600, ASC-601	ICM105
Diversified: ASC-600-3, ASC-601-3	ICM100
Gemline: 1C213	ICM102, ICM103, ICM105
Gemline: 1C310	ICM102, ICM105
Ice-O-Matic: TD3001A	ICM103
MARS: 32019, 32391, 32367	ICM102
MARS: 32394, 32396	ICM103
MARS: 32091	ICM105
MARS: 32395	ICM175
MARS: 32377, 32397	ICM500
MARS: 32378, 32398	ICM501
MARS: 32379, 32399	ICM502
MARS: 32350	ICM500D-C-11
MARS: 32351	ICM501D-C-11
MARS: 32352	ICM502D-C-11
MARS: 32361,32362	ICM150
Robertshaw: 3310-068	ICM103
Supco: TD32	ICM175
Supco: TD68	ICM105
Supco: TD69	ICM102
Supco: TD693 (18-30 VAC)	ICM100
Supco: TD693W (18-30 VAC)	ICM100F
Supco: TD695 (18-30 VAC)	ICM101
Supco: TD695W (18-30 VAC)	ICM101F
Supco: TD69W	ICM102F
Supco: TMF-19, TMF-80	ICM103
Wagner/DiversiTech: ADM-1	ICM102
Wagner/DiversiTech: ADM-2	ICM102F
York: 031-01204-000	ICM151

DELAY ON BREAK TIMERS	
A-1: EAC-426-180	ICM204, ICM207
A-1: EAC-426-300	ICM205, ICM208
A-1: EAC-426-ADJ	ICM206, ICM209
A-1: EAC-500	ICM200F, ICM201, ICM201F
A-1: EAC-501-300-W	ICM201, ICM201F
A-1: EAC-501-180-W	ICM200
A-1: EAC-501-ADJ	ICM203
A-1: EAC650	ICM210, ICM212
Diversified: AC-100-3	ICM200, ICM204, ICM207
Diversified: AC-100-5	ICM205, ICM208
Diversified: AC-503	ICM203

REPLACEMENT MODEL	ICM P/N
<b>DELAY ON BREAK TIMERS (continued)</b>	
Diversified: AC-505-5	ICM201F
Diversified: ASC-500-5	ICM201
MARS: 32390	ICM201
MARS: 32005, 32505	ICM201F
MARS: 32001, 32387, 32392	ICM203
MARS: 32381	ICM204, ICM207
MARS: 32382	ICM205, ICM208
MARS: 32565	ICM209
Robertshaw: 3310-072	ICM203
Robertshaw: 3310-183	ICM204, ICM207
Robertshaw: 3310-305	ICM205, ICM208
Supco: TD72, TD73	ICM203
Supco: TD733 (18-30 VAC)	ICM200
Supco: TD733W (18-30 VAC)	ICM200F
Supco: TD735 (18-30 VAC)	ICM201
Supco: TD735W (18-30 VAC)	ICM201F
Supco: TD73W	ICM203F
Supco: TD74	ICM206
Supco: TD74H	ICM209
Supco: TL243	ICM204
Supco: TL243	ICM207
Supco: TL245	ICM205, ICM208
Wagner/DiversiTech: ADB-1	ICM203
Wagner/DiversiTech: ADB-2	ICM203F

DEFROST CONTROLS	
Amana: C64301-1, C64310-1	ICM300
Arcoaire: 32312-00, 3232140	ICM300
Artesian: 10321-00	ICM300
Avion: DFT100	ICM315
Carrier: CES0110063-00, -01, -02, -02A	ICM321
Carrier: CES0130024-00	ICM322
Carrier: HK25SZ359/9A	ICM320
Carrier: HK32FA006	ICM320
Carrier: HK32EA001, EA003, EA008	ICM350
Coleman: 3030A374	ICM300
Essex: 621-1 to 621-10, 621-110, 621-111, 621-310-110	ICM300
Evcon: 9218-374	ICM303
Fast: 1093410	ICM307
Goettl: 305007	ICM301
Goettl: 305023	ICM329
Goettl: 305057	ICM324
Goodman: B12260-06	ICM300
Goodman: B1226008	ICM318
Goodman: PCBDM 133 (Direct replacement)	ICM314
Grasslin: 010-0011B	ICM550
Heil Quaker: HQ1052757	ICM300
Honeywell: ST74A1004/20/38	ICM300
ICM: AG1004	ICM329
ICM: AJ1008	ICM324
ICM: DFORB24A2I300	ICM319
ICM: DFORB-AB1004	ICM302
ICM: DFORF	ICM303



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<b>DEFROST CONTROLS (continued)</b>	
<b>ICM:</b> DFOSP24A2	ICM301
<b>ICM:</b> W1001-4	ICM318
<b>ICP:</b> 1052757	ICM300
<b>ICP:</b> 1069364	ICM304
<b>ICP:</b> Heat active (B) RV	ICM323
<b>Intermatic:</b> DTAV40	ICM550
<b>Intertherm:</b> 6208800	ICM300
<b>Lennox:</b> 33G9501	ICM300
<b>Lennox:</b> 86G16	ICM307
<b>MARS:</b> 32572	ICM300
<b>Nordyne:</b> 621301A, 621579B, 621579C, 917178	ICM302
<b>Nordyne:</b> 624519A	ICM319
<b>Ranco:</b> DT2	ICM307
<b>Ranco:</b> E-15	ICM315
<b>Rheem:</b> 47-21776-01	ICM300
<b>Rheem:</b> 47-21776-06	ICM301
<b>Robertshaw/Uni-Line:</b> TD-10, DT2-1000	ICM300
<b>Snyder General:</b> 1395-329	ICM300
<b>Steveco:</b> 90-621	ICM300
<b>Therm-O-Disc:</b> 26E-10	ICM300
<b>Trane:</b> 21C142827G01, CNT1152, CNT1642	ICM316
<b>Weatherking (Addison):</b> 840-4-5548	ICM300
<b>White-Rodgers:</b> 90-621	ICM300
<b>York:</b> 03101251000, 9218-3741	ICM303

<b>DUTY CYCLE CONTROLS</b>	
<b>Carrier:</b> HN67ZA012A	ICM305
<b>SSAC:</b> ESDR, TSDR Series	ICM305
<b>SSAC:</b> ESDR, TSDR Series	ICM306

<b>ECM CONTROLS</b>	
<b>EVO/ECM:</b> VCU-36-mp	ICM708
<b>EVO™/ECM:</b> 4Spd	ICM709
<b>EVO™/ECM:</b> ACU+-S1	ICM711
<b>IEC:</b> E025-71521506	ICM712
<b>Hoffman:</b> 880-ECM(10)SSHP	ICM713

<b>FAN BLOWER CONTROLS</b>	
<b>A-1:</b> 5893	ICM255
<b>Bard:</b> 8201-056	ICM255
<b>Carrier:</b> 302075-3, CES0110017, CES0110018,	ICM271
<b>Carrier:</b> CES0110019	ICM275
<b>Carrier:</b> HH84AA001/003/005/009/014/015/021	ICM275
<b>Carrier:</b> HH84AA010/011/012/013/020, P771-7002	ICM271
<b>Carrier:</b> HH84AA017, HH84AA018	ICM278
<b>Carrier:</b> HK61GA001/03	ICM272
<b>EMI:</b> 240000-969	ICM273
<b>EMI:</b> 240-1764	ICM274
<b>Evcon:</b> 2702-300	ICM270
<b>Field Controls:</b> 46144700	ICM253
<b>Gemline:</b> 1C216	ICM253
<b>Goodman:</b> B1370735S, PCBFBM131S	ICM277
<b>Goodman:</b> PCBFBM 103	ICM256
<b>Honeywell:</b> S876A1016	ICM254

REPLACEMENT MODEL	ICM P/N
<b>FAN BLOWER CONTROLS (continued)</b>	
<b>MARS:</b> 32377, 32378, 32379	ICM251
<b>MARS:</b> 32393	ICM253
<b>MARS:</b> 32574	ICM255
<b>Rheem:</b> 42-22515-01/02/03	ICM255
<b>Rheem:</b> 47-22827-01, 47-22827-81/82/83, 47-22828-01/02	ICM270
<b>Robertshaw:</b> 695-003	ICM270
<b>Robertshaw:</b> 695-100	ICM271
<b>Robertshaw:</b> 695-101	ICM275
<b>Snyder General/ICP:</b> 1395336	ICM255
<b>Texas Instruments:</b> 2FD-1	ICM272
<b>Watsco:</b> PSTD-000-005W, PSTD-000-060W	ICM254

<b>FAN COIL RELAY CONTROL BOARDS</b>	
<b>BSR/Xactone:</b> FC/H-1, FC/H-2	ICM6201
<b>Honeywell:</b> W6380B	ICM6200
N/A	ICM6202

<b>FAN SAFETY ALARM</b>	
<b>Functional Devices:</b> RIBMNLB-6	ICM6100

<b>FURNACE CONTROL BOARDS</b>	
<b>Carrier:</b> 325878-751	ICM282
<b>Carrier:</b> CES0110057-00/01/02	ICM281
<b>Carrier:</b> CES0110020, CES0110048	ICM281
<b>Carrier:</b> CES0110074-01	ICM2804
<b>Carrier:</b> HK42FZ-004/007/008/009/ 011/013/016	ICM282A
<b>Carrier:</b> HK42FZ017	ICM2807
<b>Carrier:</b> HH84AA016	ICM281
<b>Carrier:</b> LH33WP003/3A	ICM291
<b>Goodman:</b> PCBFBF112S, B1809926S	ICM286
<b>Goodman:</b> B18099-04	ICM287
<b>Goodman:</b> PCBFBF136	ICM2810
<b>Goodman:</b> PCBFBF140	ICM2810
<b>Goodman:</b> B18099-06/08/10/13/13S	ICM280
<b>Lennox:</b> All BCC1, BCC2, BCC3 circuit boards, including 48K98	ICM289
<b>Nordyne:</b> 624631	ICM2805A
<b>Rheem:</b> 62-24140-04	ICM292
<b>Rheem:</b> 62-24084-82	ICM288
<b>Texas Instruments:</b> 41F-5	ICM280
<b>UTEC:</b> 1012-933D	ICM280
<b>White-Rodgers:</b> 50T35-730, 50T35-743	ICM280
<b>White Rodgers:</b> 50T55-289-03	ICM2809
<b>York:</b> 03101280000	ICM284
<b>York:</b> S1-331-03010000, S1-331-02956000	ICM2808
<b>York:</b> 7990-319P	ICM2801

<b>GAS IGNITION CONTROLS</b>	
<b>Carrier:</b> LH33WZ510	ICM295
<b>Carrier:</b> LH33WZ512A	ICM296
<b>Honeywell:</b> S8610U (and compatible Camstat, Fenwal, HSC, Penn-Johnson, Robertshaw and White Rodgers models)	ICM290A
<b>Honeywell:</b> S8910U-1000	ICM283

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REPLACEMENT MODEL	ICM P/N
<b>GAS IGNITION CONTROLS (continued)</b>	
<b>Johnson Controls:</b> G770RJA-1	ICM2901
<b>Lennox:</b> G776 (63K2401, 41K8701, 69J3601)	ICM2902
<b>Reznor:</b> 257009	ICM2904
<b>Reznor:</b> 257010	ICM2905
<b>Reznor:</b> 195573	ICM2906
<b>Reznor:</b> 195265	ICM2907
<b>Robertshaw:</b> H5780	ICM283
<b>White Rodgers:</b> 50E47, 50F47	ICM283

<b>HEAD PRESSURE CONTROLS</b>	
<b>ACT:</b> FM2000	ICM325HN
<b>ACT:</b> FM4000	ICM326HN
<b>ACT:</b> FM4000	ICM327HN
<b>Hoffman:</b> 800, 800A, 800AA, 814-50, 816-10	ICM325HN, 326HN, 327HN
<b>Johnson Controls:</b> P66AAB/AAD	ICM330 (DIN Rail), ICM332 (For 1 temp or 1 pres input)
<b>Johnson Controls:</b> P66BAB/BAD	ICM333 (For 2 temp or 2 pres inputs)
<b>Mitsubishi:</b> MU09NW, MUH09NW, MU12NN, MU15NN, MU17NN, MUM18NW, MUM30NN, MUM30NN2	ICM326HM2
<b>Ranco:</b> E31	ICM325HN, 326HN, 327HN
Optional Pressure Transducer	ICM380
N/A	ICM334

<b>IMPEDANCE/LOCKOUT RELAY</b>	
<b>Essex:</b> Relay Series 84,93	ICM220

<b>LEAD-LAG CONTROLLERS</b>	
Regulates 1 or 2 heating/cooling systems	ICM600
Open board version of ICM600	ICM601
Open board lead-lag control	ICM602

<b>LINE MONITORS</b>	
<b>A-1:</b> EAC-401, 402, 403, 404	ICM491, ICM492, ICM493
<b>A-1:</b> EAC-800, EAC-8000, EAC-8002	ICM400, ICM450, ICM450S, ICM455
<b>Bristol:</b> 241680	ICM441
<b>Copeland:</b> 071-0376-01 & -02, 071-0397-00 & -01, 071-0424-00 & -01, 071-9800-01 & -02	ICM441
<b>Copeland:</b> 085-0160-00	ICM450, ICM450S, ICM455
<b>Diversified:</b> AC-2020, AC-301, AC-302	ICM400, ICM450, ICM450S, ICM455
<b>Diversified:</b> CV-100-RS, CV-200-RS15, CV-200-RS20	ICM491
Function of ICM400C, DIN rail mount	ICM409
Function of ICM400C, plug-in panel mount	ICM408
<b>MARS:</b> 32512, 32515, 32516, 32517	ICM400
<b>MARS:</b> 32536	ICM401, ICM402
<b>MARS:</b> 32532, 32534, 32540, 32541, 32542	ICM408
<b>MARS:</b> 37300, 37302, 37304, 37306, 37322	ICM441
<b>MARS:</b> PFM-2000	ICM450
<b>Motorsaver:</b> 455	ICM400, ICM450, ICM450S, ICM455
<b>SSAC:</b> QLM, QLV	ICM400, ICM450, ICM450S, ICM455

REPLACEMENT MODEL	ICM P/N
<b>LINE MONITORS (continued)</b>	
<b>Supco:</b> TPMP2	ICM401, ICM402
<b>Texas Instruments:</b> 15AA1600B, 15AA1600C, 15AA1603B, 15AA1603C, 31AA1600E, 31AA1606E	ICM441
<b>Time Mark:</b> 265	ICM400, ICM450, ICM450S, ICM455
<b>Wagner/DiversiTech:</b> DSP-1	ICM491, ICM492
<b>Wagner/DiversiTech:</b> DTP-3, WPC-800	ICM400, ICM450, ICM450S, ICM455
N/A	ICM442
<b>Wagner/DiversiTech:</b> DSP-1	ICM493

<b>MOTOR STARTERS/RAPID START</b>	
<b>5-2-1:</b> CSR-U1	ICM803, ICM866U
<b>5-2-1:</b> CSR-U2/U3	ICM805, ICM866U
<b>A-1:</b> WSX-5	ICM855
<b>A-1:</b> WSX-6	ICM856
<b>Kickstart:</b> KS1	ICM805, ICM866U
<b>Kickstart:</b> TO5, KS8	ICM803, ICM866U
<b>MARS:</b> 32701, 35701	ICM855
<b>MARS:</b> 32702, 35702	ICM856
<b>MARS:</b> 32481	ICM857
<b>Supco:</b> SPP-5	ICM855
<b>Supco:</b> SPP-5E	ICM850, ICM866U
<b>Supco:</b> SPP-6	ICM856
<b>Supco:</b> SPP-6E	ICM860, ICM866U
<b>Supco:</b> SPP-8, SPP-8E	ICM803, ICM866U
<b>Supco:</b> RCO210	ICM859
<b>Supco:</b> RCO410	ICM858
<b>Supco:</b> RCO810	ICM857
<b>Wagner/DiversiTech:</b> DST-5	ICM855
<b>Wagner/DiversiTech:</b> DST-6	ICM856

<b>OIL BURNER PRIMARY CONTROL</b>	
<b>Carlin:</b> 48245	ICM1503
<b>Honeywell:</b> R8184G: 4009, 1138, 1427, 4025	ICM1503
<b>Honeywell:</b> R8184G: 4066, 1161, 1294	ICM1501
<b>Honeywell:</b> R8184G: 4074, 1179, 1302, 4033	ICM1502
<b>White-Rodgers:</b> 668-401	ICM1503

<b>RV REPLACEMENT PARTS</b>	
<b>Suburban:</b> 521099, 35-533900-113	ICM6700
<b>Suburban:</b> 520814, 35-525900-113	ICM6701

<b>SINGLE PHASE SURGE PROTECTION</b>	
<b>Intermatic:</b> AG3000	ICM517
<b>Supco:</b> SCMPPlus, SCM150	ICM516, ICM517

<b>UNIVERSAL MOTOR STARTING RELAYS</b>	
<b>Supco:</b> SUPR, APR5	UMSR-30, UMSR50



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REPLACEMENT MODEL	ICM P/N
<b>i3™ SERIES TOUCH THERMOSTATS</b>	
Honeywell: TH8580WF	I2010WR
Honeywell: VisionPro Wi-Fi	I3020WR
Honeywell: VisionPro RedLINK	I2020HR (2-stage heat/cool)
Honeywell: TH9580WF, Wi-Fi 9000	I3020WR
Honeywell: TH8110U	I1010R
Honeywell: TH8320U	I3020R
Honeywell: TH8321U	I2020HR (2-stage heat/cool)
PRO1: T955WH	I2020WHR
PRO1: T955, T925	I3020R
PRO1: T905	I1010R
PRO1: T915	I2020R
White-Rodgers: 1F97-1277	I1010R
White-Rodgers: 1F95-1277	I3020R
White-Rodgers: 1F95-129	I2020HR (2-stage heat/cool)

<b>7-DAY PROGRAMMABLE THERMOSTATS</b>	
Honeywell: T8011R Series	SC3211L
Honeywell: T8112D, T8000C, T8600D Series	SC3000L
Honeywell: TH6110D1005, TH6110D1021	SC5010
Honeywell: TH6220D1002, TH6220D1028	SC5811 (hardwired only)
Honeywell: TH6320U1000, TH8320U1008	SC5813 (hardwired only)
Honeywell: T8600D2028, TH4110D1007, TH2110D1099	SC3010L, SC5010
Honeywell: TH4210D1005, TH2110D1007	SC3211L (hardwired only)
Robertshaw: 300-227	SC5812, SC5813
Robertshaw: 300-229, 9615	SC5811
Robertshaw: 8600-1, 9600, 9610, RS3110	SC3000L, SC3010L
Robertshaw: 8601-1	SC3001L
Robertshaw: 8625-1	SC3211L (HP only), SC5811
Robertshaw: RS5110, RS6110	SC5010
White-Rodgers: 1F78-151	SC3000L
White-Rodgers: 1F80-361, 1F80-0261, 1F87-361	SC3010L
White-Rodgers: 1F80-0471, 1F80-0671, 1F97-1277	SC5010
White-Rodgers: 1F72-151, 1F82-261, 1F82-0261	SC3211L
White-Rodgers: 1F81-261, 1F85-0422	SC5811
White-Rodgers: 1F85-275, 1F85-277, 1F85-0471	SC5813 (w/2-stage HP only)
White Rodgers: 1F93-380, 1F95-1277	SC5812 (HW only; w/2-stage HP only)

REPLACEMENT MODEL	ICM P/N
<b>TEMPORARY THERMOSTATS</b>	
Jackson Systems: CL-45, CL-55, CL-75 (cool)	SC0: 45, 55, 75
Jackson Systems: TS-60, TS-65 & TS-70 (heat)	SC0: 60, 65, 70

<b>NON-PROGRAMMABLE THERMOSTATS</b>	
Honeywell: Mechanical T810C, T822C	SC1901L, SC1901VL
Honeywell: T8034N, T834N, T822K Series	SC1001, SC1001V
Honeywell: T8400, T8401 Series	SC2000L, SC2000VL, SC2001L, SC2001VL, SC2010L
Honeywell: T8411R	SC2211L
Honeywell: T8411R, T8511G	SC2201L, SC2201VL
Honeywell: T8775A1009	SC1600L, SC1600VL, SC1800L, SC1800VL
Honeywell: T8775C1005	SC2001L, SC2001VL
Honeywell: T87F-3467, T87N1000, T87N1026	SC1001, SC1001V
Honeywell: TH1100D1001	SC1600L, SC1600VL (battery only)
Honeywell: TH1110D1000, TH3110D1008	SC2010L
Honeywell: TH1210D1008, TH3210D1004	SC2201L, SC2201VL (HW only)
Honeywell: TH5110D1006, TH5110D1022	SC4010
Honeywell: TH5220D1003, TH5220D1029	SC4811 (hardwired only)
Honeywell: TH5320U1001	SC4812
Robertshaw: 900 Series, 9200	SC1001, SC1001V
Robertshaw: 300-201	SC4010, SC4011
Robertshaw: 300-202	SC4812, SC4813
Robertshaw: 300-203	SC4811
Robertshaw: 300-208	SC4211
Robertshaw: 300-206	SC2000L, SC2000VL, SC2001L, SC2001VL, SC2010L
Robertshaw: 300-207	SC2201L, SC2201VL
Robertshaw: 300-204	SC1600L, SC1600VL, SC1800L, SC1800VL
Robertshaw: 300-205, 8406-1	SC1901L, SC1901VL
Robertshaw: 8400-1, 9400, 9500, RS2110	SC2000L, SC2000VL, SC2010L
Robertshaw: 8401-1, 9401	SC2001L, SC2001VL
Robertshaw: 8405-1, 9405, 9505	SC1800L, SC1800VL
Robertshaw: 8425-1, 9420, 9520	SC2211L
Robertshaw: 9415, 9555	SC4811
Robertshaw: 9550	SC4010, SC4011
Robertshaw: 9560	SC4211
Robertshaw: RS2210	SC2311L
Robertshaw: RS4110	SC4010
White-Rodgers: 1E56, 1F56 Series	SC1001, SC1001V
White-Rodgers: 1E78-140 Vertical	SC1600VL, SC1800VL
White-Rodgers: 1F78-144	SC2000L, SC2000VL
White-Rodgers: 1F86-344, 1F86-0244	SC2010L
White-Rodgers: 1F86-0471	SC4010
White-Rodgers: 1F79-111, 1F89-211	SC2201L, SC2201VL, SC2211L
White-Rodgers: 1F83-261	SC4811
White-Rodgers: 1F83-277, 1F83-0422, 1F83-0471	SC4813 (w/2-Stage HP only)
White-Rodgers: Mechanical 1F30-321, 1C20-102	SC1600L, SC1600VL
White-Rodgers: Mechanical 1F51-609	SC1901L, SC1901VL

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## Delay on Make Timers • Ideal for Compressor Staging

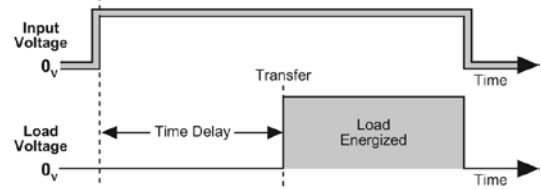
### APPLICATIONS

Ideal for compressor staging and stagger starting multiple motors and other equipment. Helps to reduce power surges.



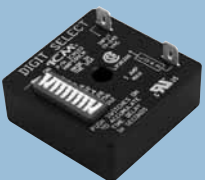
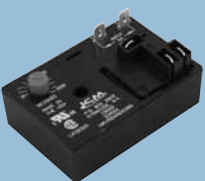
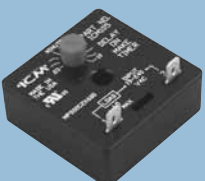
### MODE OF OPERATION

When power is applied to the input, the time delay begins. After the time delay is complete, the load energizes.

### TIMING DIAGRAM



## Delay on Make Timers

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM100, 100F, 101, 101F</b> <ul style="list-style-type: none"> <li>Higher 1.5 amp power rating</li> <li>Ideal for compressor staging/delaying the startup of motors and other devices</li> <li>Works with anticipator-type thermostats</li> <li>Simple 2-wire hookup</li> <li>ICM100, 100F: 3-minute delay</li> <li>ICM101, 101F: 5-minute delay</li> <li>"F" suffix denotes 6" wire leads</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC                             <ul style="list-style-type: none"> <li>1.5 amps</li> <li>15 amp inrush</li> <li>40 mA holding current</li> </ul> </li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Fixed delays:</b> 3 or 5 minutes</li> <li><b>Voltage drop:</b> 2.5 V @ 1.5 amps</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<b>ICM100</b> <ul style="list-style-type: none"> <li>A-1: EAC-710-180, EAC-701-180-W, EAC-700-A</li> <li><b>Diversified:</b> ASC-600-3, ASC-601-3</li> <li><b>Supco:</b> TD693 (18-30 VAC)</li> </ul> <b>ICM100F</b> <ul style="list-style-type: none"> <li><b>Supco:</b> TD693W (18-30 VAC)</li> </ul> <b>ICM101</b> <ul style="list-style-type: none"> <li>A-1: EAC-710-300, EAC-701-300-W</li> <li><b>Supco:</b> TD695 (18-30 VAC)</li> </ul> <b>ICM101F</b> <ul style="list-style-type: none"> <li><b>Supco:</b> TD695W (18-30 VAC)</li> </ul>
	<b>ICM102, 102F</b> <ul style="list-style-type: none"> <li>Universal voltage operation</li> <li>Higher 1.5 amp power rating</li> <li>Knob-adjustable time delays</li> <li>Works with anticipator-type thermostats</li> <li>One model replaces many in field</li> <li>Ideal for compressor staging</li> <li>Simple 2-wire hookup</li> <li>"F" suffix denotes 6" wire leads</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC                             <ul style="list-style-type: none"> <li>1.5 amps</li> <li>15 amp inrush</li> <li>40 mA holding current</li> </ul> </li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Adjustable delay:</b> .03-10 minutes (1.8-600 seconds)</li> <li><b>Voltage drop:</b> 2.5 V @ 1.5 amps</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<b>ICM102</b> <ul style="list-style-type: none"> <li>A-1: EAC-701-ADJ</li> <li><b>Diversified:</b> AC-800</li> <li><b>Gemline:</b> 1C310, 1C213</li> <li><b>Mars:</b> 32019, 32391, 32367</li> <li><b>Supco:</b> TD69</li> <li><b>Wagner/DiversiTech:</b> ADM-1</li> </ul> <b>ICM102F</b> <ul style="list-style-type: none"> <li><b>Supco:</b> TD69W</li> <li><b>Wagner/DiversiTech:</b> ADM-2</li> </ul>
	<b>ICM103</b> <ul style="list-style-type: none"> <li>Highly precise digital timing</li> <li>Switch-settable time delays</li> <li>Ideal for ice machine applications</li> <li>Universal voltage operation</li> <li>Repeat accuracy .5% over voltage and temperature range</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC                             <ul style="list-style-type: none"> <li>1 amp</li> <li>10 amp inrush</li> <li>40 mA holding current</li> </ul> </li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Switch-settable delays:</b> Range from 1-1,023 sec.</li> <li><b>Voltage drop:</b> 2.5 V @ 1 amp</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<b>ICM103</b> <ul style="list-style-type: none"> <li>A-1: 7061</li> <li><b>Gemline:</b> 1C213</li> <li><b>Ice-O-Matic:</b> TD3001A</li> <li><b>Mars:</b> 32394, 32396</li> <li><b>Robertshaw:</b> 3310-068</li> <li><b>Supco:</b> TMF-19, TMF-80</li> </ul>
	<b>ICM104</b> <ul style="list-style-type: none"> <li>Highly precise digital circuitry</li> <li>High power, SPDT relay output</li> <li>Input to output isolation</li> <li>Works with anticipator-type thermostats</li> <li>Repeat accuracy .5% over voltage and temperature range</li> <li>Rugged, compact package</li> <li>115 and 240 VAC models available</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li>N.O.: 20 amps @ 240 VAC</li> <li>N.C.: 10 amps @ 240 VAC</li> </ul> </li> <li><b>Form:</b> SPDT, 1 form C</li> <li><b>Knob-adjustable time delay:</b> 10-1,000 seconds</li> <li><b>Dimensions:</b> 2" x 3"</li> </ul>	<ul style="list-style-type: none"> <li><b>Mars:</b> 32394/32398</li> </ul>
	<b>ICM105</b> <ul style="list-style-type: none"> <li>Low holding current</li> <li>Low cost version of the ICM102 without the cooling anticipator circuitry</li> <li>Ideal for compressor staging</li> <li>Universal voltage operation</li> <li>Knob-adjustable time delays</li> <li>Simple 2-wire hookup</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC                             <ul style="list-style-type: none"> <li>1.5 amps</li> <li>15 amp inrush</li> <li>10 mA holding current</li> </ul> </li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Adjustable delay:</b> .03-10 minutes (1.8-600 seconds)</li> <li><b>Voltage drop:</b> 2.5 V @ 1 amp</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<ul style="list-style-type: none"> <li><b>Diversified:</b> AC-800, ASC-600/601</li> <li><b>Gemline:</b> 1C310/1C213</li> <li><b>Mars:</b> 32091</li> <li><b>Supco:</b> TD68</li> </ul>



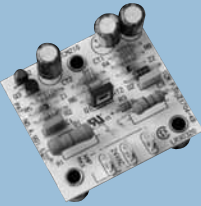
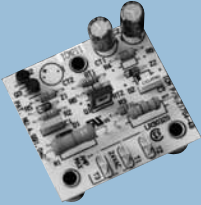
## Delay on Break Timers (Anti-Short Cycle Protection)

APPLICATIONS	TIMING DIAGRAM
<p><b>“Anti-short cycle” “ON delay on break”</b></p> <p>Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short cycling of compressors.</p>	
MODE OF OPERATION	
<p>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.</p>	

## Delay on Break Timers

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM200, 200F, 201, 201F</b></p> <ul style="list-style-type: none"> <li>Higher 1.5 amp power rating</li> <li>Compressor lockout/anti-short cycle timer</li> <li>Helps to protect compressors from damage caused by rapid short cycling</li> <li>Simple, 2-wire hookup</li> <li>Series: <b>ICM200, 200F:</b> 3-minute delay <b>ICM201, 201F:</b> 5-minute delay</li> <li>"F" suffix denotes 6" wire leads</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1.5 amps</li> <li>15 amp inrush</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Fixed time delays:</b> 3 or 5-minutes</li> <li><b>Voltage drop:</b> <ul style="list-style-type: none"> <li>3.5 V typical</li> <li>4.5 V maximum @ 1.5 amps</li> </ul> </li> <li><b>Holding current minimum:</b> 40 mA</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<p><b>ICM200</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-501-180-W</li> <li><b>Diversified:</b> AC-100-3</li> <li><b>Supco:</b> TD733 (18-30 VAC)</li> </ul> <p><b>ICM200F</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-500</li> <li><b>Supco:</b> TD733W (18-30 VAC)</li> </ul> <p><b>ICM201</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-500, EAC-501-300-W</li> <li><b>Diversified:</b> ASC-500-5</li> <li><b>Mars:</b> 32390</li> <li><b>Supco:</b> TD735 (18-30 VAC)</li> </ul> <p><b>ICM201F</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-500, EAC-501-300-W</li> <li><b>Diversified:</b> AC-505-5</li> <li><b>Mars:</b> 32005, 32505</li> <li><b>Supco:</b> TD735W (18-30 VAC)</li> </ul>
	<p><b>ICM203, 203F</b></p> <ul style="list-style-type: none"> <li>Universal voltage operation</li> <li>Higher 1.5 amp power rating</li> <li>Compressor lockout/anti-short cycle timer</li> <li>Helps to protect compressors from damage caused by rapid short cycling</li> <li>Simple, 2-wire hookup</li> <li>"F" suffix denotes 6" wire leads</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC</li> <li>1.5 amps</li> <li>15 amp inrush</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Knob-adjustable delays:</b> .03-10 mins. (1.8-600 sec.)</li> <li><b>Voltage drop:</b> <ul style="list-style-type: none"> <li>3.5 V typical</li> <li>4.5 V maximum @ 1.5 amps</li> </ul> </li> <li><b>Holding current minimum:</b> 40 mA</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<p><b>ICM203</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-501-ADJ</li> <li><b>Diversified:</b> AC-503</li> <li><b>Mars:</b> 32001, 32387, 32392</li> <li><b>Robertshaw:</b> 3310-072</li> <li><b>Supco:</b> TD72, TD73</li> <li><b>Wagner/DiversiTech:</b> ADB-1</li> </ul> <p><b>ICM203F</b></p> <ul style="list-style-type: none"> <li><b>Supco:</b> TD73W</li> <li><b>Wagner/DiversiTech:</b> ADB-2</li> </ul>
	<p><b>ICM204, 205, 206</b></p> <ul style="list-style-type: none"> <li>Brownout protection</li> <li>UL 873 recognition as compressor controller</li> <li>Helps prevent scroll compressor reversal</li> <li>Fast response time: 16 ms</li> <li>Compressor lockout/anti-short cycle timer</li> <li>Prevents low voltage starts</li> <li>Eliminates relay chatter due to thermostat bounce or tampering</li> <li>Works with anticipator-type thermostats</li> <li>Patented: U.S. Patent No. 4,991,049</li> <li>Series: <b>ICM204:</b> 3-minute delay <b>ICM205:</b> 5-minute delay <b>ICM206:</b> 3-10 minute delay</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1.5 amps</li> <li>15 amp inrush</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Time delays:</b> <ul style="list-style-type: none"> <li>3 or 5-minute fixed or 3 to 10-minute adjustable time delay</li> </ul> </li> <li><b>Holding current minimum:</b> 40 mA</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<p><b>ICM204</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-426-180</li> <li><b>Diversified:</b> AC-100-3</li> <li><b>Mars:</b> 32381</li> <li><b>Robertshaw:</b> 3310-183</li> <li><b>Supco:</b> TL243</li> </ul> <p><b>ICM205</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-426-300</li> <li><b>Diversified:</b> AC-100-5</li> <li><b>Mars:</b> 32382</li> <li><b>Robertshaw:</b> 3310-305</li> <li><b>Supco:</b> TL245</li> </ul> <p><b>ICM206</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-426-ADJ</li> <li><b>Supco:</b> TD74</li> </ul>
	<p><b>ICM207, 208, 209</b></p> <ul style="list-style-type: none"> <li>Universal voltage operation</li> <li>Helps prevent scroll compressor reversal</li> <li>Fast response time: 16 ms</li> <li>Compressor lockout/anti-short cycle timer</li> <li>Eliminates relay chatter due to thermostat bounce or tampering</li> <li>Works with anticipator-type thermostats</li> <li>Series: <b>ICM207:</b> 3-minute delay <b>ICM208:</b> 5-minute delay <b>ICM209:</b> .03-10 minute delay</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC</li> <li>1 amp</li> <li>10 amp inrush</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Adjustable time delays:</b> <ul style="list-style-type: none"> <li>3 or 5-minute fixed or 10-minute adjustable time delay</li> </ul> </li> <li><b>Holding current minimum:</b> 40 mA</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<p><b>ICM207</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-426-180</li> <li><b>Diversified:</b> AC-100-3</li> <li><b>Mars:</b> 32381</li> <li><b>Robertshaw:</b> 3310-183</li> <li><b>Supco:</b> TL243</li> </ul> <p><b>ICM208</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-426-300</li> <li><b>Diversified:</b> AC-100-5</li> <li><b>Mars:</b> 32382</li> <li><b>Robertshaw:</b> 3310-305</li> <li><b>Supco:</b> TL245</li> </ul> <p><b>ICM209</b></p> <ul style="list-style-type: none"> <li><b>A-1:</b> EAC-426-ADJ</li> <li><b>Mars:</b> 32565</li> <li><b>Supco:</b> TD74H</li> </ul>


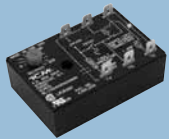
## Delay on Break Timers (continued)

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM210, ICM212</b> <ul style="list-style-type: none"> <li>UL 873 recognition as compressor controller</li> <li>Compressor lockout/anti-short cycle timer plus random start function</li> <li>Dual functiON delay on make/break</li> <li>Random start delay is ideal for stagger-starting multiple units</li> <li>Low cost, open board package</li> <li>Conformally coated for added protection</li> <li>Order <b>ICM212</b> for plastic standoffs</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1 amp</li> <li>10 amp inrush</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Random start time:</b> up to 3 seconds</li> <li><b>ASC time delay:</b> 5-minute fixed</li> <li><b>Voltage drop:</b> 2.5 V @ 1 amp</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> EAC 650</li> </ul>
	<b>ICM211</b> <ul style="list-style-type: none"> <li>UL 873 recognition as compressor controller</li> <li>Compressor lockout/anti-short cycle timer</li> <li>Low cost, open board package</li> <li>Conformally coated for added protection</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1 amp</li> <li>10 amp inrush</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>ASC time delay:</b> 5-minute fixed</li> <li><b>Voltage drop:</b> 2.5 V @ 1 amp</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	Same as <b>ICM210</b> without random start time

## Random Start Timers

APPLICATIONS	TIMING DIAGRAM
<p><b>"Delay on make/delay on break"</b></p> <p>Ideal for use in compressor staging and to stagger-start multiple rooftop units. Helps to reduce power surges. No need to wait for the 5-minute delay typical of delay on make timers.</p>	<p>* Delay on make time is proportional to selected delay on break time.</p>
<p><b>MODE OF OPERATION</b></p> <p>Upon application of power, the delay on make period begins. Once the delay is complete, the unit energizes. Upon opening of thermostat or loss of power, the load is de-energized and the anti-short cycle period begins. The compressor will not start again during the delay period.</p> <p>Safety Switch (ICM151): Upon interruption of power to the compressor via the pressure/limit switch(es), the compressor will be locked out until the lockout delay expires and the control is reset by cycling the thermostat OFF then ON, with the pressure/limit switch(es) closed.</p>	

## Ideal for Stagger Starting

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM150</b> <ul style="list-style-type: none"> <li>UL 873 recognition as compressor controller</li> <li>Compressor lockout/anti-short cycle timer</li> <li>Integral random start capability</li> <li>Random start delay is ideal for stagger-starting multiple units</li> <li>Reduces nuisance lockouts/service calls</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1 amp</li> <li>10 amp inrush</li> <li>40 mA holding current</li> <li><b>Form:</b> SPST, N.O.</li> <li><b>Time delay:</b> <ul style="list-style-type: none"> <li>6-600 seconds knob-adjustable</li> <li>Voltage drop 1.5 V @ 1 amps</li> </ul> </li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<ul style="list-style-type: none"> <li><b>Diversified:</b> ASC-200</li> <li><b>Mars:</b> 32361, 32362</li> </ul>
	<b>ICM151</b> <ul style="list-style-type: none"> <li>UL 873 recognition as compressor controller</li> <li>Compressor lockout/anti-short cycle timer with random start feature plus:                             <ul style="list-style-type: none"> <li>Safety switch lockout</li> <li>Remote thermostat reset</li> </ul> </li> <li>Reduces nuisance lockouts/service calls</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1 amp</li> <li>10 amp inrush</li> <li>40 mA holding current</li> <li><b>Time delay:</b> <ul style="list-style-type: none"> <li>.1-600 seconds knob-adjustable</li> </ul> </li> <li><b>Dimensions:</b> 2" x 3"</li> </ul>	<ul style="list-style-type: none"> <li><b>York:</b> 031-01204-000</li> </ul>

## Bypass Timers

APPLICATIONS	TIMING DIAGRAM
<p><b>"ON delay interval timer," "Normally closed delay on make"</b></p> <p>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.</p>	
MODE OF OPERATION	
<p>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.</p> <p>At the end of the time delay, the condition of the load is determined by the state of the switch.</p>	

## To Bypass a Switch or Device During Startup

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM175</b></p> <ul style="list-style-type: none"> <li>Designed to bypass a low pressure switch or other device during startup</li> <li>Ideal for low ambient startups</li> <li>Key component for "winter start" kits</li> <li>Helps to reduce nuisance lockouts</li> <li>Universal AC voltage operation</li> <li>Knob-adjustable time delay</li> <li>Epoxy-encapsulated circuitry</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC</li> <li>• 1 amp maximum</li> <li>• 10 amp inrush</li> <li>• 40 mA minimum</li> <li><b>Frequency:</b> 50/60 Hz</li> <li>• <b>Knob-adjustable time delay:</b> 10-1,000 seconds</li> <li><b>Dimensions:</b> 2" x 2"</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mars:</b> 32395</li> <li>• <b>Supco:</b> TD32</li> </ul>

## Multimode Digital Timers • Versatile, Simple, Accurate

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM500/501/502/503/504/505</b></p> <ul style="list-style-type: none"> <li>Multi-mode, selectable time delay ranges</li> <li>Crystal timing accuracy</li> <li>Microprocessor controlled</li> <li>4 single and two dual timing modes                             <ul style="list-style-type: none"> <li>• DOM, DOB, interval, single shot</li> <li>• DOM/DOB and repeat cycle</li> </ul> </li> <li>Easy to select, switch-settable delays</li> <li>Bright LEDs indicate input and output</li> <li>Switch-settable time delays: 1 to 1,023 seconds or minutes in multiples of 0.1, 1, 10, 100</li> <li>75 millisecond reset time during and after timing; May be reset during the time delay period without false output</li> <li>8-pin base standard models. Add suffix D for 11-pin models</li> <li>8-pin is for single pole; 11-pin is for double pole</li> <li>Base sold separately</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 24, 115 or 240 VAC 12, 24 or 110 VDC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Power consumption:</b> 2 watts maximum</li> <li><b>Output:</b> 8-pin = SPDT 11-pin = DPDT</li> <li><b>Relay:</b> 10 amps resistive at 240 VAC 1/6 HP @ 115 VAC 1/3 HP @ 240 VAC</li> <li><b>Dimensions:</b> 4" x 2.5" x 1.75"</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mars:</b> 32350, 32351, 32352</li> </ul>
	<p><b>ACS-8, ACS-11 Relay Sockets</b></p> <ul style="list-style-type: none"> <li>Relay socket</li> <li>8-pin octal plug-in base</li> <li>Locating key ensures proper orientation</li> <li>Order <b>ACS-11</b> for 11-pin base</li> <li>For use with <b>ICM408, ICM410-427, ICM431, ICM432 and ICM500-505</b></li> </ul>	<ul style="list-style-type: none"> <li>• 10 amps up to 480 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Diversified:</b> RB-08</li> </ul>

## Series 500 Ordering Information

ICM Series	Input Voltage	Output Type	Description
<b>ICM500</b>	<b>24 VAC</b>	Single pole, 1 FORM C 8-pin	Control operating modes: <ul style="list-style-type: none"> <li>• DOM, DOB, interval, single shot, DOM/DOB and repeat cycle</li> </ul> Time delay adjustment: <ul style="list-style-type: none"> <li>• Switch-settable delays from 1-1,023 seconds/minutes in multiples of .1, 1, 10 and 100</li> </ul> Plug-in bases are to be ordered separately <ul style="list-style-type: none"> <li>• Specify 8-pin or 11-pin*</li> </ul> 8-pin = ACS-8    11-pin = ACS-11
<b>ICM501</b>	<b>115 VAC</b>		
<b>ICM502</b>	<b>240 VAC</b>		
<b>ICM503</b>	<b>12 VDC</b>		
<b>ICM504</b>	<b>24 VDC</b>		
<b>ICM505</b>	<b>110 VDC</b>		

\*Note: For 11-pin base model, double pole, 2 FORM C- add suffix D Example: ICM501D = 115 VAC, 11 pin

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## Freeze Protection Modules

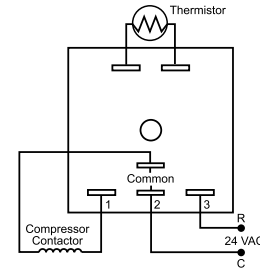
### APPLICATIONS

The ICM308/309/310 are low cost, fixed, single setpoint temperature controls that provide freeze protection.

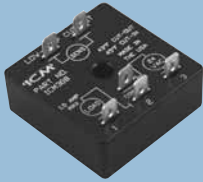
### ORDERING INFORMATION

Part #	Temperature Cut out (OFF)	Temperature Cut-in (ON)
ICM308	43°F	45°F
ICM309	28°F	55°F
ICM310	44°F	48°F

### WIRING DIAGRAM



### ICM Control



### Features and Applications

#### ICM308/309/310

- Low cost, fixed, single setpoint temperature controls that provide freeze protection
- Small compact package
- Epoxy encapsulated for moisture protection
- Temperature sensor included

### Specifications

- **Input:**
- **Voltage:** 18-30 VAC
- **Frequency:** 50/60 Hz
- **Output:**
- Solid state (triac)
- 1.5 amps @ 30 VAC
- **Dimensions:**
- 2" X 2" X 1 1/4"

### Replaces

N/A

## Low Ambient Cutoff Switch

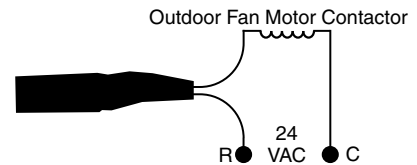
### APPLICATIONS

The ICM **SC045** and **SC055** are low cost, easy to install, single setpoint temperature sensors that can be used as low ambient cutoff switches for condenser fan motors.

### MODE OF OPERATION

The ICM **SC045** and **SC055** can be used as a low ambient cutoff switches for a condenser fan motor. When the ambient temperature drops to 45°F/55°F, the **SC045** or **SC055** will open the fan signal and turn the fan motor off. It will not allow the fan to turn back on until the temperature rises above 45°F-55°F.

### WIRING DIAGRAM



### ICM Control



#### SC045

- Cutoff setpoint 45°F
- 2-wire installation

### Specifications

- **Input:** 18-30 VAC
- **Output:** 2 amp maximum
- **Temp. control range:** 45°F (±9°F)

N/A



#### SC055

- Cutoff setpoint 55°F
- 2-wire installation

### Specifications

- **Input:** 18-30 VAC
- **Output:** 2 amp maximum
- **Temp. control range:** 55°F (±9°F)

N/A

## Fixed Setpoint Thermostat

### ICM Control



#### FS40 Frost Sentry™

- Easy 2-wire installation
- Fixed setpoint at 40°F
- Special foam backing improves accuracy; helps eliminate "wall effect"
- Compatible with most standard electric heating units
- Ideal for storage areas, garages, workshops and crawl spaces

### Specifications

- **Input:** 18-30 VAC
- **Output:** 2 amp maximum
- **Temp. control range:** 40°F (±5°F)

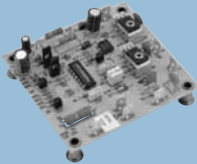
N/A

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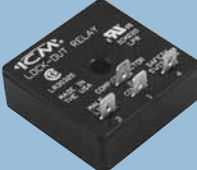
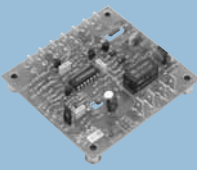
## Compressor Protection Module

APPLICATION	TIMING DIAGRAM
<p>The <b>ICM221</b> is a low cost compressor protection module that monitors safety switch inputs and provides anti-short cycle protection.</p>	
MODE OF OPERATION	
<p>Upon a Y call from the thermostat, the compressor contactor is energized (T) after the selected delay on make time, given all safety switches are closed and the unit is not in the anti-short cycle period.</p> <p>If a safety switch opens for longer than the 1-second interrogation, the compressor contactor is de-energized and the selected anti-short cycle time begins.</p> <p>If three consecutive safety faults occur in a 90-minute period, the control will lock the compressor out and energize the alarm terminal (X). A lockout condition can only be reset by a loss of the Y signal from the thermostat.</p> <p>Custom controls available. Consult factory for low pressure switch bypass, status LED and other custom options.</p>	

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM221</b></p> <ul style="list-style-type: none"> <li>• Low cost compressor protection module</li> <li>• Anti-short cycle/lockout control</li> <li>• Safety switch monitoring (1-second interrogation)</li> <li>• Alarm output during lockout</li> <li>• 5-minute or 10-second ASC</li> <li>• 3- or 6-second DOM</li> <li>• Conformal coating for moisture protection</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Solid state (triac)</b></li> <li>• <b>1 amp @ 30 VAC</b></li> <li>• <b>Dimensions:</b> 3.25" x 3" x 1"</li> <li>• <b>Delay on make time:</b> 3- or 6-seconds (selectable)</li> <li>• <b>Anti-short cycle time:</b> 10-seconds or 5-minutes (selectable)</li> </ul>	N/A

## Lockout Protection

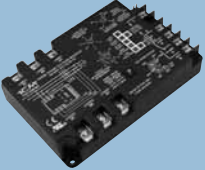


APPLICATION	WIRING DIAGRAM - ICM220	WIRING DIAGRAM - ICM222
<p>ICM offers low cost lockout protection modules that monitor various switch inputs to help protect your compressor.</p>		

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM220</b></p> <ul style="list-style-type: none"> <li>• UL 873 recognition as compressor controller</li> <li>• Low cost lockout relay</li> <li>• Helps eliminate nuisance lockouts typical of Series 84 and 93 impedance relays</li> <li>• Ideal for use with safety/interlock switches</li> <li>• Replaces impedance relays Series 84 and 93</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Power consumption:</b> 2 watts maximum @ lockout</li> <li>• <b>Relay:</b> 1 form C</li> <li>• <b>Contacts:</b> 2 amps @ 30 VAC resistive</li> <li>• <b>Dimensions:</b> 2" x 2"</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Essex:</b> Impedance Relays Series 84 and 93</li> </ul>
	<p><b>ICM222</b></p> <ul style="list-style-type: none"> <li>• Low cost lockout protection module</li> <li>• Anti-short cycle/lockout control</li> <li>• Pressure/flow switch monitoring</li> <li>• Alarm output during lockout</li> <li>• 5-minute ASC delay (5-second test mode)</li> <li>• LED fault codes for lockout status</li> <li>• Test mode for reduced test time</li> <li>• Conformal coating for moisture protection</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>CC</b></li> <li>• <b>Type:</b> Solid state (Triac)</li> <li>• <b>Rating:</b> 1 amp @ 30 VAC</li> <li>• <b>Fault</b></li> <li>• <b>Type:</b> Relay (SPDT) N.O.</li> <li>• <b>Rating:</b> 1 amp @ 30 VAC</li> <li>• <b>Anti-short cycle time:</b> 5-minutes fixed <math>\pm 20\%</math> (5-second test mode)</li> <li>• <b>Dimensions:</b> 3.5" x 3.25" x 1"</li> </ul>	N/A



ICM's line voltage monitors continuously monitor incoming line voltage to provide superior motor protection from premature failure and damage due to voltage unbalance, high and low voltages, phase loss, phase reversal, faulty power, incorrect sequencing and/or rapid short cycling. Some models include LED indicators or LCD diagnostic displays to indicate the current system condition. Single phase surge protectors help protect your system against lightning, power surges and voltage surges.

## 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.








ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM400</b> <ul style="list-style-type: none"> <li>Lower cost, full performance version featuring bright LED indicators to display system faults</li> <li>Monitors "front" and "back" sides of system</li> <li>Universal voltage operation: 190-630 VAC</li> <li>Knob-adjustable features and system set points</li> <li>Reset mode: choice of auto or manual (lockout)</li> <li>Built-in anti-short cycle protection</li> <li>Protects against voltage unbalance, high/low voltage, phase loss, reversal, faulty power, incorrect sequencing and rapid short cycling</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-630 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Voltage unbalance:</b> Adjustable: 2-25%</li> <li><b>Control:</b> 18-240 VAC</li> <li><b>Delay on break timer:</b> .1-5 minutes</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPDT</li> <li><b>N.O.:</b> 10 amps</li> <li><b>N.C.:</b> 6 amps</li> </ul> </li> <li><b>Dimensions:</b> 6.5" x 4.25" x 1.5"</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> EAC-800, EAC-8000, EAC-8002</li> <li><b>Diversified:</b> AC-2020, AC-301, AC 302</li> <li><b>Mars:</b> 32512, 32515, 32516, 32517</li> <li><b>Motorsaver:</b> 455</li> <li><b>SSAC:</b> QLM/QLV</li> <li><b>Time Mark:</b> 265</li> <li><b>Wagner/DiversiTech:</b> DTP-3, WPC-800</li> </ul>
	<b>ICM450 (ICM450S for Spanish)</b> <ul style="list-style-type: none"> <li>Fully programmable with LCD diagnostic display</li> <li>Easy to configure - simple push button setup</li> <li>Easy to customize - set points, variables and features are fully adjustable and may be defined by the user while in control SETUP mode</li> <li>25-fault memory storage, non-volatile</li> <li>Independent high and low voltage settings ideal for dual voltage compressor applications</li> <li>Identifies front and back side faults</li> <li>Reset mode: choice of auto or manual</li> <li>Protects against: voltage unbalance, high/low voltage, phase loss, reversal, faulty power, incorrect sequencing and rapid short cycling</li> <li>Reliable, high temperature LCD to 167°F</li> <li>Simultaneous voltage display, no scrolling</li> <li>Line voltage programmable</li> <li>Universal voltage operation: 190-630 VAC</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-630 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Voltage unbalance:</b> Adjustable: 2-25%</li> <li><b>Control:</b> 18-240 VAC (optional)</li> <li><b>Delay on break timer:</b> 0-10 minutes</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPDT</li> <li><b>N.O.:</b> 10 amps</li> <li><b>N.C.:</b> 6 amps</li> </ul> </li> <li><b>Dimensions:</b> 6.5" x 4.25" x 1.5"</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> EAC-800, EAC-8000, EAC-8002</li> <li><b>Copeland:</b> 085-0160-00</li> <li><b>Diversified:</b> AC-2020, AC-301, AC-302</li> <li><b>Mars:</b> PFM-2000</li> <li><b>Motorsaver:</b> 455</li> <li><b>SSAC:</b> QLM, QLV</li> <li><b>Time Mark:</b> 265</li> <li><b>Wagner/DiversiTech:</b> DTP-3, WPC-800</li> </ul>
	<b>ICM455</b> <ul style="list-style-type: none"> <li>Fully programmable with LED backlit diagnostic display</li> <li>Simple 7-step push-button setup</li> <li>Monitors "front" and "back" sides of system</li> <li>Universal voltage operation: 190-600 VAC</li> <li>50+ fault memory and storage with real-time clock for accurate fault timestamps</li> <li>Backup supply reliably records brownout conditions for up to 4 hours</li> <li>Built-in anti-short cycle protection</li> <li>Protects against voltage unbalance, high/low voltage, phase loss, reversal, faulty power, incorrect sequencing and rapid short cycling</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Voltage unbalance:</b> Adjustable: 2-20%</li> <li><b>Fault interrogation:</b> Adjustable: 0-15 sec</li> <li><b>Over/under voltage:</b> Adjustable: 2-25%</li> <li><b>Reset modes:</b> AUTO or 0-10 retries</li> <li><b>Control mode:</b> ON or OFF</li> <li><b>Control:</b> 18-240 VAC</li> <li><b>Delay on break timer:</b> 0-10 minutes</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPDT</li> <li><b>N.O.:</b> 10 amps</li> <li><b>N.C.:</b> 6 amps</li> </ul> </li> <li><b>Dimensions:</b> 5.5" x 4.5" x 1.5"</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> EAC-800, EAC-8000, EAC-8002</li> <li><b>Copeland:</b> 085-0160-00</li> <li><b>Diversified:</b> AC-2020, AC-301, AC 302</li> <li><b>Mars:</b> PFM-2000</li> <li><b>Motorsaver:</b> 455</li> <li><b>SSAC:</b> QLM/QLV</li> <li><b>Time Mark:</b> 265</li> <li><b>Wagner/DiversiTech:</b> DTP-3, WPC-800</li> </ul>

## Phase Loss and Reversal Protection • Ultra Low Cost

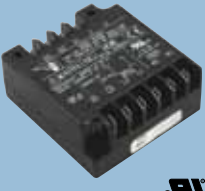

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM401</b> <ul style="list-style-type: none"> <li>Low cost 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % as a function of input voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>Universal 3-phase input: 190-600 VAC</li> <li>Highly reliable passive electronics</li> <li>Epoxy coated for added protection</li> <li>Patented: U.S. Patent No. 5,337,206</li> <li>For open-board model order <b>ICM403</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Control:</b> 18-30 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPST</li> <li><b>N.O.:</b> 10 amps</li> </ul> </li> <li><b>Dimensions:</b> 3.25" x 3" x 1.25"</li> </ul>	<ul style="list-style-type: none"> <li><b>Supco:</b> TPMP2</li> <li><b>Mars:</b> 32536</li> </ul>
	<b>ICM402</b> <ul style="list-style-type: none"> <li>Low cost 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % as a function of input voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>Universal 3-phase input: 190-600 VAC</li> <li>Highly reliable passive electronics</li> <li>Epoxy coated for added protection</li> <li>Patented: U.S. Patent No. 5,337,206</li> <li>For open board model order <b>ICM404</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Control:</b> 115 or 208/230 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPST</li> <li><b>N.O.:</b> 30 amps</li> </ul> </li> <li><b>Dimensions:</b> 3.25" x 3" x 1.25"</li> </ul>	<ul style="list-style-type: none"> <li><b>Supco:</b> TPMP2</li> <li><b>Mars:</b> 32536</li> </ul>



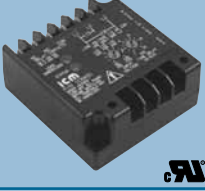



## Phase Loss and Reversal Protection • Ultra Low Cost (continued)

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM408</b></p> <ul style="list-style-type: none"> <li>Reliable 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % and high/low voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>High/low voltage cut out:                             <ul style="list-style-type: none"> <li>High voltage cut out setpoint: +12%</li> <li>Low voltage cut out setpoint: -12%</li> </ul> </li> <li>Highly reliable passive electronics</li> <li>Power/phase loss detection: within 100 ms</li> <li>User selectable unbalance voltage: 2 to 8%</li> <li>Phase reversal detection: detects on power up</li> <li>User selectable delay on make: .1 to 5 minutes</li> <li>8-pin plug-in mount (base sold separately)</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-480 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Adjustable DOB:</b> .1-5 minutes</li> <li><b>Adjustable DOM:</b> .1-5 minutes</li> <li><b>Heavy duty SPDT</b></li> <li><b>Relay output:</b> <ul style="list-style-type: none"> <li><b>N.O./N.C. contacts:</b> 10 amps resistive @ 250 VAC</li> </ul> </li> <li><b>Dimensions:</b> 4" x 2.5" x 1.75"</li> </ul>	<ul style="list-style-type: none"> <li><b>Mars:</b> 32532, 32534, 32540, 32541, 32542</li> </ul>
	<p><b>ICM409</b></p> <ul style="list-style-type: none"> <li>Reliable 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % and high/low voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>High/low voltage cut out:                             <ul style="list-style-type: none"> <li>High voltage cut out setpoint: +12%</li> <li>Low voltage cut out setpoint: -12%</li> </ul> </li> <li>Highly reliable passive electronics</li> <li>Power/phase loss detection: within 100 ms</li> <li>User selectable unbalance voltage: 2 to 8%</li> <li>Phase reversal detection: detects on power up</li> <li>User selectable delay on make: .1 to 5 minutes</li> <li>DIN rail mount</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-480 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Adjustable DOB:</b> .1-5 minutes</li> <li><b>Adjustable DOM:</b> Heavy duty SPDT</li> <li><b>Relay output:</b> <ul style="list-style-type: none"> <li><b>N.O./N.C. contacts:</b> 10 amps resistive @ 250 VAC</li> </ul> </li> <li><b>Dimensions:</b> 4.25" x 3.5" x 2.375"</li> </ul>	N/A
	<p><b>ICM431</b></p> <ul style="list-style-type: none"> <li>Low cost 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % as a function of input voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>Universal 3-phase input: 190-600 VAC</li> <li>Control voltage: 18-30 VAC</li> <li>Highly reliable passive electronics</li> <li>Patented: U.S. Patent No. 5,337,206</li> <li>8-pin plug-in mount (base sold separately)</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Control:</b> 18-30 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPST</li> <li><b>N.O.:</b> 10 amps</li> </ul> </li> <li><b>Dimensions:</b> 4" x 2.5" x 1.75"</li> </ul>	N/A
	<p><b>ICM432</b></p> <ul style="list-style-type: none"> <li>Low cost 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % as a function of input voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>Universal 3-phase input: 190-600 VAC</li> <li>Control voltage input: 115, 208, 240 VAC</li> <li>Highly reliable passive electronics</li> <li>Epoxy coated for added protection</li> <li>Patented: U.S. Patent No. 5,337,206</li> <li>8-pin plug-in mount (base sold separately)</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Control:</b> 115 or 208/240 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPST</li> <li><b>N.O.:</b> 20 amps</li> </ul> </li> <li><b>Dimensions:</b> 4" x 2.5" x 1.75"</li> </ul>	N/A
	<p><b>ICM461</b></p> <ul style="list-style-type: none"> <li>Low cost 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % as a function of input voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>Universal 3-phase input: 190-600 VAC</li> <li>Control voltage: 18-30 VAC</li> <li>Highly reliable passive electronics</li> <li>Patented: U.S. Patent No. 5,337,206</li> <li>DIN rail mount</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Control:</b> 18-30 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPST</li> <li><b>N.O.:</b> 10 amps</li> </ul> </li> <li><b>Dimensions:</b> 3.75" x 2" x 3.2"</li> </ul>	N/A
	<p><b>ICM462</b></p> <ul style="list-style-type: none"> <li>Low cost 3-phase protection for single side</li> <li>Monitors for phase reversal, phase loss, unbalance % as a function of input voltage</li> <li>Bright LED indicators for ON and FAULT</li> <li>Universal 3-phase input: 190-600 VAC</li> <li>Control voltage: 115, 208, 240 VAC</li> <li>Highly reliable passive electronics</li> <li>Patented: U.S. Patent No. 5,337,206</li> <li>DIN rail mount</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 190-600 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Control:</b> 115 or 208/240 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Relay:</b> SPST</li> <li><b>N.O.:</b> 30 amps</li> </ul> </li> <li><b>Dimensions:</b> 3.75" x 2" x 3.2"</li> </ul>	N/A
	<p><b>ACS-8/ACS-11 Relay Sockets</b></p> <ul style="list-style-type: none"> <li>Relay socket</li> <li>8-pin octal plug-in base</li> <li>Locating key ensures proper orientation</li> <li>Order ACS-11 for 11-pin base</li> <li>For use with <b>ICM408, ICM431, ICM432</b> and <b>ICM500-505</b></li> <li>Rated for 480 VAC</li> </ul>	<ul style="list-style-type: none"> <li><b>10 amps up to 480 VAC</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Diversified:</b> RB-08</li> </ul>


## 3-Phase Temperature Monitor

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM441</b> <b>Protects Against:</b> <ul style="list-style-type: none"> <li>Under voltage</li> <li>Over temperature</li> <li>Power interruptions</li> <li>Rapid short cycling</li> <li>Shorted temperature sensor</li> <li>Open temperature sensor</li> <li>Control duty, SPST relay layout</li> <li>Anti-short cycle time delay, 4 minutes (nominal)</li> <li>1-second manual bypass</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 120 or 208/240 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li>Relay: SPST</li> <li>N.O.: 6 amps resistive</li> </ul> </li> <li><b>Dimensions:</b> 3.25" x 3" x 1.25"</li> </ul>	<ul style="list-style-type: none"> <li><b>Bristol:</b> 241680</li> <li><b>Copeland:</b> 071-0376-01, 071-0376-02, 071-0397-00, 071-0397-01, 071-0424-00, 071-0424-01, 071-9800-00, 071-9800-01</li> <li><b>Mars:</b> 37300, 37302, 37304, 37306, 37322</li> <li><b>Texas Instruments:</b> 15AA1600 B, 15AA1600 C, 15AA1603 B, 15AA1603 C, 31AA1600 E, 31AA1606 E</li> </ul>
	<b>ICM442</b> <ul style="list-style-type: none"> <li>Protects against over temperature in motor windings</li> <li>Control Duty SPST Relay Layout: 10 amps, 250 VAC</li> <li>Uses up to four (4) 100 Ohm thermistors in series</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 200-575 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Voltage unbalance:</b> Adjustable: 2-25%</li> <li><b>Control:</b> 115-277 VAC</li> <li><b>Thermistors:</b> Four (4) 100Ω thermistors in series</li> <li><b>Relay Rating:</b> 250 VAC at 10 A</li> <li><b>Dimensions:</b> 3.25" x 3" x 1.25"</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>

## Single Phase Surge Protection

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM491</b> <ul style="list-style-type: none"> <li>Low cost Single Phase Surge protection</li> <li>Built in anti-short cycle protection</li> <li>Detects high/low voltage conditions</li> <li>Helps prevent rapid system recycling</li> <li>LED indicators: Green (normal), Red (fault)</li> <li>Heavy duty SPDT, isolated relay output</li> <li>Interrogation delay prevents nuisance trips: 5 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 95-270 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li>Relay: SPDT</li> <li>N.C./N.O.: 5 amps</li> </ul> </li> <li><b>Time delay range:</b> Adjustable 6-600 seconds</li> <li><b>Dimensions:</b> 3.25" x 3" x 1.25"</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> EAC-401, EAC-402, EAC-403, EAC-404</li> <li><b>Diversified:</b> CV-100-RS, CV-200-RS15, CV-200-RS20</li> <li><b>Wagner/DiversiTech:</b> DSP-1</li> </ul>
	<b>ICM492</b> <ul style="list-style-type: none"> <li>Protects against over and under voltage, and rapid short cycling caused by transient faults and power interruptions</li> <li>Easy-view, backlit digital display</li> <li>RMS voltage monitoring</li> <li>Adjustable voltage set point</li> <li>Adjustable over voltage setting</li> <li>Adjustable under voltage setting</li> <li>Adjustable anti-short cycle time delay</li> <li>Adjustable response time</li> <li>Control mode</li> <li>5-fault memory</li> <li>Universal line voltage input</li> <li>Heavy duty SPDT relay output</li> <li>Universal control voltage input (for integrating a thermostat)</li> </ul>	<b>User adjustable settings:</b> <ul style="list-style-type: none"> <li><b>Voltage set point:</b> 80-300 VAC</li> <li><b>Anti-short cycle time delay:</b> 0-720 sec.</li> <li><b>Over/under voltage setting:</b> 5-25%</li> <li><b>Control mode:</b> ON and OFF</li> <li><b>Response time:</b> 0.1-10 seconds</li> </ul> <b>Inputs:</b> <ul style="list-style-type: none"> <li><b>Line voltage:</b> 80-300 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Accuracy:</b> ±2%</li> <li><b>Low power consumption:</b> <ul style="list-style-type: none"> <li>Maximum 50 mA @ 120 VAC</li> <li>Maximum 100 mA @ 240 VAC</li> </ul> </li> <li><b>Control voltage:</b> 24-240 VAC</li> </ul> <b>Output:</b> <ul style="list-style-type: none"> <li><b>Type:</b> Dry relay contacts</li> <li><b>Form:</b> SPDT</li> <li><b>Relay contact ratings:</b> <ul style="list-style-type: none"> <li><b>N.C. contacts:</b> 10A resistive @ 277 VAC</li> <li><b>N.O. contacts:</b> 10A resistive @ 277 VAC</li> </ul> </li> </ul> <b>Dimensions:</b> 3" x 3.2" x 1.35"	<ul style="list-style-type: none"> <li><b>Wagner/DiversiTech:</b> DSP-1</li> </ul>
	<b>ICM493</b> <ul style="list-style-type: none"> <li>Protects against over and under voltage, rapid short cycling caused by transients, and high-power surges</li> <li>Easy to view, backlit digital display</li> <li>Bank of five L-L surge arresters</li> <li>Built-in 40A contactor</li> <li>NEMA-rated 3R enclosure for outdoor use</li> <li>Easy installation and setup</li> <li>Ideal for mini-splits or other condensing units</li> </ul>	<b>User adjustable settings:</b> <ul style="list-style-type: none"> <li><b>Voltage set point:</b> 200-240 VAC</li> <li><b>Over/under voltage setting:</b> 5% - 10%, adjustable</li> <li><b>Anti-short cycle delay:</b> 0.5-10 minutes</li> <li><b># of surge arresters required for operation:</b> 0-5</li> <li><b>Number of trials:</b> 1-5, auto</li> </ul> <b>Inputs:</b> <ul style="list-style-type: none"> <li><b>Line voltage:</b> 180-264 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Accuracy:</b> +/- 2%, user calibration</li> </ul> <b>Output:</b> <ul style="list-style-type: none"> <li><b>Type:</b> Contactor, 2-pole</li> <li><b>Contactor ratings:</b> 40A FLA, 240A LRA</li> </ul> <b>Dimensions:</b> 8" x 8" x 4"	<ul style="list-style-type: none"> <li>N/A</li> </ul>
	<b>ICM516</b> <ul style="list-style-type: none"> <li>Type 2 surge protective device; UL listed</li> <li>Low cost, high performance</li> <li>Rugged, reliable</li> <li>Protects against:                     <ul style="list-style-type: none"> <li>Lightning power surges</li> <li>Voltage surges from A/C, generators, motors</li> </ul> </li> <li>Limited lifetime protection warranty</li> </ul>	<ul style="list-style-type: none"> <li><b>Service voltage:</b> 120-240 VAC, single phase</li> <li><b>Maximum surge current:</b> 100,000 amps</li> <li><b>Maximum energy dissipation:</b> 1,020 Joules</li> <li><b>Installation point:</b> <ul style="list-style-type: none"> <li>Electrical panel</li> <li>Electrical disconnect</li> </ul> </li> <li><b>AC protection modes:</b> Line-line, line-ground</li> <li><b>Dimensions:</b> 2.75" x 4.75" x 1.75"</li> </ul>	<ul style="list-style-type: none"> <li><b>Supco:</b> SCM Plus, SCM150</li> </ul>

Single Phase Surge Protection (continued)

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM517</b> <ul style="list-style-type: none"> <li>• Easy installation</li> <li>• Low cost, high performance</li> <li>• Rugged, reliable</li> <li>• UL Listed, Type 2 device</li> <li>• NEMA Type 3R waterproof metal enclosure</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Service voltage:</b> 120/240 volt, single phase</li> <li>• <b>Maximum surge current:</b> 100,000 Amps</li> <li>• <b>Maximum energy dissipation:</b> 1,020 Joules</li> <li>• <b>Installation point:</b> Electrical panel/disconnect</li> <li>• <b>Diagnostics:</b> Green light indicates surge suppression present</li> <li>• <b>AC protection modes:</b> L-L, L-N, L-G, N-G</li> <li>• <b>Conduit connection:</b> 3/4"</li> <li>• <b>Dimensions:</b> 5.0" x 2.78" x 2.16"</li> <li>• <b>Weight:</b> 0.55 lbs.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Supco:</b> SCM Plus, SCM150</li> <li>• <b>Intermatic:</b> AG3000</li> </ul>

# ICM Surge Protective Devices

## Lightning has met its match!



**Protects Against...**

- **Lightning power surges**
- **Voltage surges from air conditioners, generators, motors...**
- **100,000 amps, 1,020 Joules of protection**
- **For dual 120/240 volt, single-phase applications**
- **Easy installation**
- **Low cost, high performance**
- **Rugged, reliable**
- **UL Listed, Type 2 device**
- **NEMA Type 3R waterproof, metal enclosure**
- **Backed by ICM's Limited Lifetime Equipment Protection Warranty**



**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

**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.



Selection Matrix		Protects Against					Limited Lifetime Guarantee
Part No.	Type	Spike	Surge	Over Voltage	Under Voltage	Short Cycling	
ICM517	SPD	X	X				X
ICM493	Combo	X	X	X	X	X	

**Glossary of Terms:**

- **Spike:** Fast, temporary voltage increases lasting a short duration.
- **Surge:** Fast, temporary, yet uninterrupted voltage increase lasting a few microseconds in duration.
- **Overvoltage:** When the applied voltage exceeds the rated voltage's upper design limit in a circuit.
- **Undervoltage:** When the applied voltage falls below 90% of the rated voltage in a circuit for a duration of one minute or longer. This condition commonly leads to brownouts.
- **Short Cycle:** When the system turns on and off again quickly.

800.365.5525 [www.icmcontrols.com](http://www.icmcontrols.com)



Visit [www.icmcontrols.com](http://www.icmcontrols.com) to find all of our latest products, sell sheets and wiring diagrams

All features and specifications subject to change without notice.

Application Assistance  
800.365.5525

Customer Service Fax  
315.233.5282

Phone  
315.233.5266








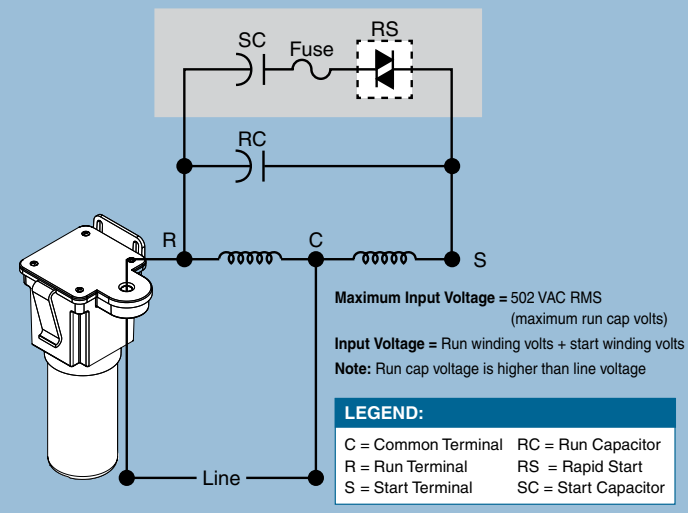
## The Current Advantage

**“EXTENDS THE LIFE OF YOUR COMPRESSOR”**

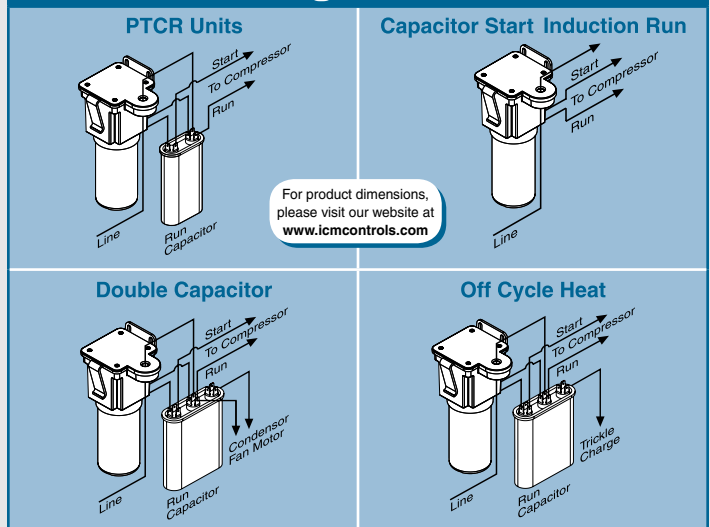
By monitoring the compressor current upon start-up, RapidStart® is able to engage the hard start capacitor for precisely the correct amount of time, ensuring maximum starting torque without the risk of supplying too much current into the start winding. A timed safety circuit is provided in the event the motor fails to start within 2 seconds. Current sensing hard start precisely increases starting torque.

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM803</b> <ul style="list-style-type: none"> <li>Operates from 95-288 VAC</li> <li>Patented current sensing circuitry</li> <li>Easy to install, 2-wires</li> <li>OEM approved</li> <li>Solid-state circuitry</li> <li>Boosts starting torque</li> <li>Disengages upon start</li> <li>Recycles instantly (less than 1 second)</li> <li>Fuse protection</li> <li>Not affected by voltage or current fluctuations</li> <li>Not affected by ambient temperatures</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 95-288 VAC</li> <li><b>Maximum input voltage:</b> 502 VAC</li> <li><b>Operating temperature range:</b> -40° F to +149° F (-40° C to +65° C)</li> <li><b>Capacitor:</b> 88-106 Mfd. 330 V</li> <li><b>Range:</b> 1/12 to 3 HP applications</li> </ul>	<ul style="list-style-type: none"> <li><b>5-2-1:</b> CSR-V1</li> <li><b>Kickstart:</b> T05, KS8</li> <li><b>Supco:</b> SPP-8, SPP-8E</li> </ul>
	<b>ICM805</b> <ul style="list-style-type: none"> <li>Operates from 95-288 VAC</li> <li>Patented current sensing circuitry</li> <li>Easy to install, 2-wires</li> <li>OEM approved</li> <li>Solid-state circuitry</li> <li>Boosts starting torque</li> <li>Disengages upon start</li> <li>Recycles instantly (less than 1 second)</li> <li>Fuse protection</li> <li>Not affected by voltage or current fluctuations</li> <li>Not affected by ambient temperatures</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 95-288 VAC</li> <li><b>Maximum input voltage:</b> 502 VAC</li> <li><b>Operating temperature range:</b> -40° F to +149° F (-40° C to +65° C)</li> <li><b>Capacitor:</b> 145-175 Mfd. 330 V</li> <li><b>Range:</b> 1/12 to 5 HP applications</li> </ul>	<ul style="list-style-type: none"> <li><b>5-2-1:</b> CSR-U1, CSR-U2, CSR-U3</li> <li><b>Kickstart:</b> KS1</li> <li><b>Supco:</b> SPP-8, SPP-8E</li> </ul>
	<b>ICM810</b> <ul style="list-style-type: none"> <li>Operates from 95-288 VAC</li> <li>Patented current sensing circuitry</li> <li>Easy to install, 2-wires</li> <li>OEM approved</li> <li>Solid-state circuitry</li> <li>Boosts starting torque</li> <li>Disengages upon start</li> <li>Recycles instantly (less than 1 second)</li> <li>Fuse protection</li> <li>Not affected by voltage or current fluctuations</li> <li>Not affected by ambient temperatures</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 95-288 VAC</li> <li><b>Maximum input voltage:</b> 502 VAC</li> <li><b>Operating temperature range:</b> -40° F to +149° F (-40° C to +65° C)</li> <li><b>Capacitor:</b> 243-292 Mfd. 330 V</li> <li><b>Range:</b> 3 1/2 to 10 HP applications</li> </ul>	N/A

### Typical Wiring Diagram





### Assorted Configurations

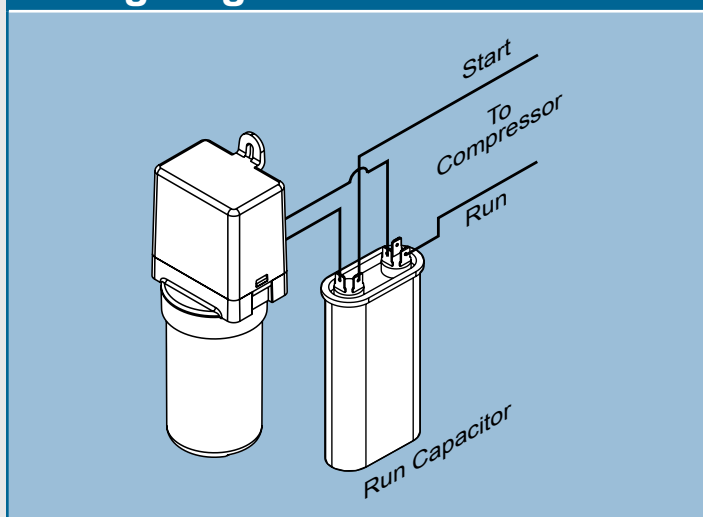


### Voltage Sensing

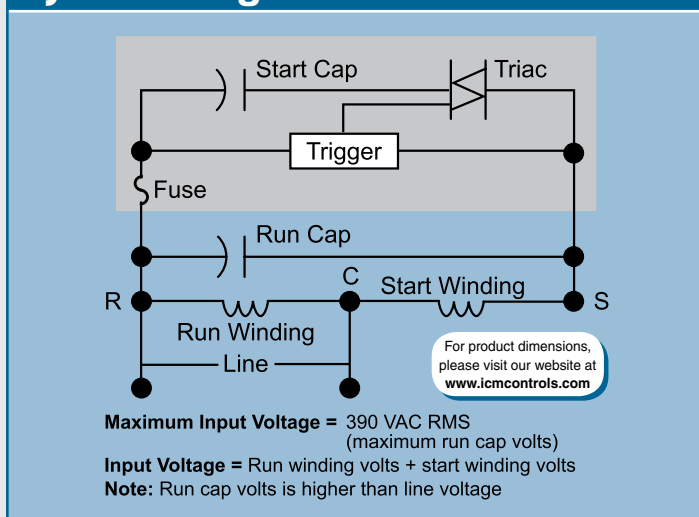
ICM's differential voltage sensing products employ patented circuitry which monitors differential compressor auxiliary voltage, determines the state of the motor and precisely engages and disengages the start capacitor. A timed safety circuit is provided in the event the motor fails to start within 2 seconds.

ICM Controls	Features and Applications	Specifications	Replaces
	<p><b>ICM860</b></p> <ul style="list-style-type: none"> <li>Increases starting torque up to 500%</li> <li>Ensures precise starts</li> <li>Reduces inventory</li> <li>Not affected by ambient temperature</li> <li>Recycles Instantly (less than one second)</li> <li>Dual voltage operation: either 115 or 240 VAC motors</li> <li>Fuse protection</li> <li>Not affected by voltage or current fluctuations</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 90-277 VAC</li> <li><b>Maximum input voltage:</b> 390 VAC</li> <li><b>Operating temperature range:</b> -40°F to +149°F (-40°C to +65°C)</li> <li><b>Capacitor:</b> 88-106 Mfd. 330 V</li> <li><b>Range:</b> 1/12 to 5 HP applications*</li> </ul> <p>* Recommended range is 1/12 to 3 HP applications.</p>	<ul style="list-style-type: none"> <li><b>Supco:</b> SPP-5E, SPP-6E</li> </ul>
	<p><b>ICM866</b></p> <ul style="list-style-type: none"> <li><b>Patented circuitry with differential voltage sensing technology</b> <ul style="list-style-type: none"> <li>Monitors differential compressor auxiliary voltage</li> <li>Precisely engages/disengages the start capacitor</li> <li>Not affected by ambient temperatures</li> <li>Recycles instantly</li> </ul> </li> <li><b>Self-adjusting to changes in voltages</b> <ul style="list-style-type: none"> <li>Does not rely on relay with pre-set, factory default ranges</li> <li>Eliminates guesswork in "tweener" applications</li> <li>Extends motor life</li> </ul> </li> <li><b>Rated for 1/12 to 5 HP applications</b> <ul style="list-style-type: none"> <li>Reduces inventory, saves money</li> <li>One model is all you need</li> </ul> </li> <li><b>Simple, two-wire installation</b> <ul style="list-style-type: none"> <li>Faster install time and minimizes risk of accidental miswires</li> </ul> </li> <li><b>Multi-voltage operation</b> <ul style="list-style-type: none"> <li>115 or 230 VAC motors</li> </ul> </li> <li><b>UL Recognized</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 90-240 VAC</li> <li><b>Recommended range:</b> 1/12 to 5 HP</li> <li><b>Capacitor:</b> 145-175 Mfd. 330 V</li> </ul>	<ul style="list-style-type: none"> <li><b>Supco:</b> SPP5, SPP6, SPP5E, SPP6E, SPP7E, SPP8E, SPP9E, SPP10E</li> <li><b>Kickstart:</b> KS1, TO-5, KS8</li> <li><b>5-2-1:</b> CSR-U1, CSR-U2, CSR-U3</li> <li><b>Watsco:</b> WSX1</li> <li><b>Mars:</b> 32708, SS1, SS5, 32703, 32704, 32701, 32702</li> <li><b>DiversiTech:</b> DST-5, DST-6</li> </ul>



### Wiring Diagram






### System Diagram



**PTCR Hard Start Capacitors**

ICM Controls	Features and Applications	Specifications	Replaces
	<p><b>ICM855</b></p> <ul style="list-style-type: none"> <li>Increases torque up to 300%</li> <li>Positive Temperature Coefficient (PTC) technology</li> <li>Easy to install</li> <li>Low cost motor starting device</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 115-288 VAC</li> <li><b>Capacitor:</b> 43-52 Mfd, 330 V</li> <li><b>Range:</b> 1/2 to 10 HP (up to 1 1/2 HP recommended)</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> WXS-5</li> <li><b>MARS:</b> 32701, 35701</li> <li><b>Supco:</b> SPP-5</li> <li><b>Wagner/DiversiTech:</b> DST-5</li> </ul>
	<p><b>ICM856</b></p> <ul style="list-style-type: none"> <li>Increases torque up to 500%</li> <li>Positive Temperature Coefficient (PTC) technology</li> <li>Easy to install</li> <li>Low cost motor starting device</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 115-288 VAC</li> <li><b>Capacitor:</b> 130-156 Mfd, 330 V</li> <li><b>Range:</b> 1/2 to 10 HP (2-5 HP recommended)</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> WXS-6</li> <li><b>MARS:</b> 32702, 35702</li> <li><b>Supco:</b> SPP-6</li> <li><b>Wagner/DiversiTech:</b> DST-6</li> </ul>

**Relay, Overload and Start Capacitors**

ICM Controls	Features and Applications	Specifications	Replaces
	<p><b>ICM857</b></p> <ul style="list-style-type: none"> <li>For single-phase commercial and domestic capillary refrigeration systems and freezers</li> <li>Pre-wired for fast installation</li> <li>Overload: 12A</li> <li>145-175 mfd</li> <li>For 1/12 to 1/5 HP motors</li> </ul>	<ul style="list-style-type: none"> <li><b>Operating voltage:</b> 120 VAC</li> <li><b>Maximum voltage:</b> 180 VAC</li> <li><b>Maximum current:</b> 12A</li> <li><b>Retry time:</b> Within 90 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Mars:</b> 32481</li> <li><b>Supco:</b> RCO810</li> </ul>
	<p><b>ICM858</b></p> <ul style="list-style-type: none"> <li>For single-phase commercial and domestic capillary refrigeration systems and freezers</li> <li>Pre-wired for fast installation</li> <li>Overload: 22A</li> <li>243-292 mfd</li> <li>For 1/4 to 1/3 HP motors</li> </ul>	<ul style="list-style-type: none"> <li><b>Operating voltage:</b> 120 VAC</li> <li><b>Maximum voltage:</b> 180 VAC</li> <li><b>Maximum current:</b> 12A</li> <li><b>Retry time:</b> Within 90 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Mars:</b> 32741</li> <li><b>Supco:</b> RCO410</li> </ul>
	<p><b>ICM859</b></p> <ul style="list-style-type: none"> <li>For single-phase commercial and domestic capillary refrigeration systems and freezers</li> <li>Pre-wired for fast installation</li> <li>Overload: 30A</li> <li>243-292 mfd</li> <li>For 1/3 to 1/2 HP motors</li> </ul>	<ul style="list-style-type: none"> <li><b>Operating voltage:</b> 120 VAC</li> <li><b>Maximum voltage:</b> 180 VAC</li> <li><b>Maximum current:</b> 12A</li> <li><b>Retry time:</b> Within 90 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Supco:</b> RCO210</li> </ul>

RapidStart® “Current Sensing” Comparison	HARD START			SOFT START	
	Differential Current Relay	Potential Relay		PTCR Devices	Timing Devices
	ICM RAPIDSTART®	KICKSTART	Conventional 3-Wire Relay & Capacitor Kit	GEMLINE HS600 & HS650 MARS 32701 & 32702 ROBERTSHAW 600-052 & 600-057 SUPCO SPP5, SPP6, SPP7 WATSCO WSX-5, WSX-6	SUPCO SPP8 WATSCO WSX-1
Self Adjusting	YES	NO	NO	NO	NO
Uses Current Differential Technology	YES	NO	NO	NO	NO
Uses Potential Motor Start Relay	Not Required	YES	YES	NO	NO
Two Wires, Non-Polarized	YES	YES	NO	YES	YES
Recycles Instantly	YES	YES	YES	NO	NO
Senses Whether Motor Started or Not	YES	YES	YES	NO	NO
Replaces 3-Wire Relay and Capacitor Kit	YES	YES	YES	NO	NO
UL Recognized #E11867	YES	YES	YES	NO	NO
Timing Circuit Device	NO	NO	NO	YES	YES
Safety Cut-Off	YES	NO	NO	NO	NO
Affected by Ambient Temperature	NO	NO	NO	YES	YES
Factory Calibration	Not Required	YES	YES	YES	YES
Voltage Sensitive	NO	NO	NO	YES	NO
PTCR Device	NO	NO	NO	YES	YES
Fuse Protected	YES	NO	NO	NO	NO

RapidStart® “Voltage Sensing” Comparison	HARD START			SOFT START	
	Differential Voltage Relay	Potential Relay		PTCR Devices	Timing Devices
	ICM RAPIDSTART®	KICKSTART	Conventional 3-Wire Relay & Capacitor Kit	GEMLINE HS600 and HS650 MARS 32701 and 32702 ROBERTSHAW 600-052 and 600-057 SUPCO SPP5, SPP6 and SPP7 WATSCO WSX-5 and WSX-6	SUPCO SPP5 SPP6 WATSCO WSX-1
Self Adjusting	YES	NO	NO	NO	NO
Uses Differential Voltage Technology	YES	NO	NO	NO	NO
Uses Potential Motor Start Relay	Built-in w/ ICM866U Not required on ICM860	YES	YES	NO	NO
Two Wires, Non-Polarized	YES	YES	NO	YES	YES
Recycles Instantly	YES	YES	YES	NO	NO
Senses Whether Motor Started or Not	YES	YES	YES	NO	NO
Replaces 3-Wire Relay and Capacitor Kit	YES	YES	YES	NO	NO
UL Recognized #E11867	YES	YES	NO	NO	NO
Approved by Compressor Manufacturers	YES	YES	YES	NO	NO
Approved by Equipment Manufacturers	YES	YES	YES	NO	NO
Used by OEM Manufacturers	YES	NO	NO	NO	NO
Safety Cut-Off	YES	NO	NO	NO	NO
True Power Factor Starting	Not Required	YES	YES	YES	YES
Factory Calibration	Not Required	YES	YES	YES	YES
Voltage Sensitive	NO	NO	NO	YES	NO
PTCR Device	NO	NO	NO	YES	YES
Timing Circuit Device	NO	NO	NO	YES	YES
Affected by Ambient Temperature	NO	NO	NO	YES	YES

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## Series UMSR

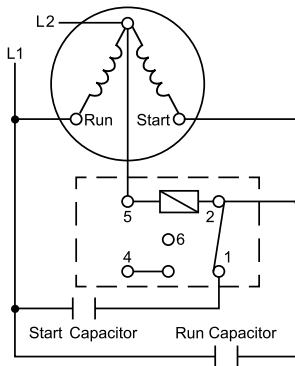
### APPLICATIONS

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.

Great way to reduce inventory. Ideal for A/C, commercial refrigeration, heat pump or any single-phase motor application up to 10 HP.

### WIRING DIAGRAM

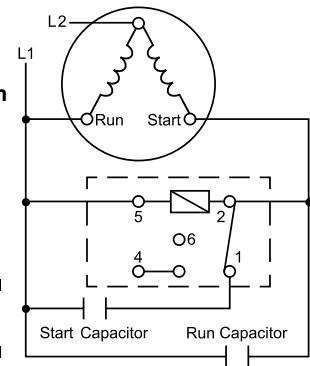
**Standard Wiring Diagram**



Terminal 4 = Common Park Terminal

Terminal 6 = Common Park Terminal

**Alternative Reduced Arcing Configuration**



Terminal 4 = Common Park Terminal

Terminal 6 = Common Park Terminal

### ICM Control



### Features and Applications

- 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

Also available with 30A switching capabilities (UMSR-30)

### Specifications

- General:**
- **Input: Voltage rating:** 110-270 VAC, Single Phase
  - **Maximum 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:** 5VA max.
  - **Insulation:** Class B (130°C); Conforms to IEC 1000- standards (6kV impulse / 6kV contact)
- Life expectancy (minimum operations):**
- **Mechanical:** 1 x 10<sup>6</sup>
  - **Electrical:** 1 x 10<sup>6</sup> at 16A 400 VAC  
5 x 10<sup>5</sup> at 35A 400 VAC (break only)  
5 x 10<sup>5</sup> at 50A 400 VAC (break only)
- Contacts:**
- **Contact rating:** 50A (break only), 400 VAC cos Ø = 0.7 to 0.8

### Replaces

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

# Motor Speed Controls

## Comfort Control Center

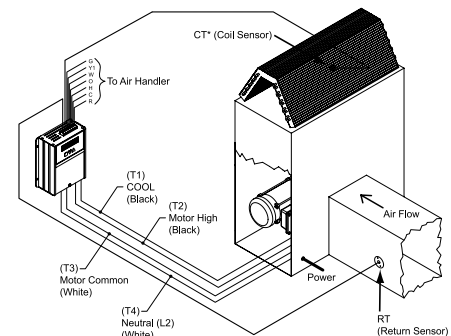
### Applications

The award-winning CC750 Comfort Control Center works with your existing single-phase A/C or Heat Pump to more effectively remove moisture from the air. Provides enhanced comfort and improved indoor air quality with greater system efficiencies. Generates warmer air discharge temperatures for winter months in heat pump applications.

Converts an inverter or standard grade PSC or shaded pole motor to a variable speed motor. Simple, menu driven programming gives the installer the ability to fine-tune key parameters that establish a latent and sensible cooling ratio best suited for the unique conditions of each installation. Also provides warmer air discharge temperatures for heat pumps during winter months.



### Wiring Diagram



### Mode of Operation

A variable frequency/variable voltage fan motor speed control, the CC750 varies the blower speed based on the evaporator and return air temperature. A field adjustable temperature differential between the evaporator and the return air duct is maintained by controlling blower speed. A simple to use, menu driven program lets the installer establish a latent and sensible cooling ratio to best meet the specific environmental conditions unique to each install.

### ICM Control



### ICM CC750

- Converts an inverter or standard grade PSC or shaded pole motor to a variable speed motor
- Field programmable
- Varies the air flow based on delta T
- Mounts in or out of air handler
- Motor lubrication algorithm
- Inverter bypass
- Over-current protection
- Standard thermostat interface
- Available in 115 VAC (CC750-115) and 230 VAC (CC750-230)
- Replaces: N/A


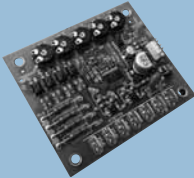

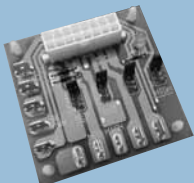

### Specifications

- Ratings**
- **Nom 24 VAC inputs (±25%):** 18-30 VAC RMS absolute
  - **Power consumption:** 10 watts typical
  - **Line Ratings: Nominal, 115 VAC RMS**
  - **Inverter operation:** 95-135 VAC RMS absolute
  - **Bypass operation:** 85-145 VAC RMS absolute
  - **Maximum inverter amps:** 10 amps RMS
  - **Maximum bypass amps:** 20 amps (60 Hz)
  - **Line Ratings: Nominal 208-230 VAC RMS**
  - **Inverter operation:** 180-264 VAC RMS absolute
  - **Bypass operation:** 170-264 VAC RMS absolute
  - **Maximum inverter amps:** 8.5 amps RMS
  - **Maximum bypass amps:** 10 amps (60 Hz)

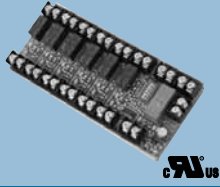
# Electronically Commutated Motor

*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.*

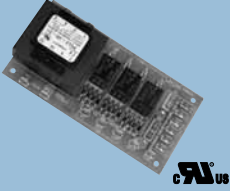
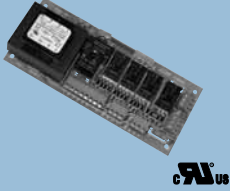
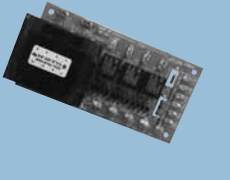
ECM Controls			
ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM708 PWM Output</b> A low current pulse width modulated signal for controlling the speed of a GE 2.3 ECM based on a user settable potentiometer.</p> <p><b>RPM Feedback</b> On-board LED diagnostics for a visual indication of the motor's status.</p>	<ul style="list-style-type: none"> <li>• Power supply: 18-30 VAC</li> <li>• RPM input: 5 VDC</li> <li>• PWM &amp; ON/OFF outputs: 14 VDC (PWM 80 Hz)</li> </ul>	<ul style="list-style-type: none"> <li>• EVO™/ECM-VCU-36-mp</li> </ul>
	<p><b>ICM709 PWM Output</b> 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.</p> <p><b>RPM Feedback</b> On-board LED diagnostics for a visual indication of the motor's status.</p>	<ul style="list-style-type: none"> <li>• Power supply: 18-30 VAC</li> <li>• RPM input: 15 VDC</li> <li>• Thermostat inputs: (SPD1 - SPD4): 18-30 VAC</li> <li>• PWM &amp; ON/OFF outputs: 14 VDC (PWM 80 Hz)</li> </ul>	<ul style="list-style-type: none"> <li>• EVO™/ECM-4Spd</li> </ul>
	<p><b>ICM711</b> 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 &amp; 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 &amp; COMMON) to supply an automated control system.</p>	<p><b>Power supply:</b> 18-30 VAC, 60 Hz  <b>Signal &amp; common:</b> 0-10 VDC → 0-100% PWM request  <b>ECM supplied feedback:</b> 5 VDC (motor at rest or not connected)  <b>PWM supplied to ECM:</b> 18 VDC (10mA max)  <b>ON/OFF supplied to ECM:</b> 18 VDC (10mA max)  <b>RPM &amp; common:</b> 0-10 VDC (5mA max) → 0 to 2000 RPM (10 RPM increments)</p>	<ul style="list-style-type: none"> <li>• EVO™/ECM-ACU+-S1</li> </ul>
	<p><b>ICM712</b> The ICM712 is a motor speed controlling interface for use with a low voltage thermostat or automated control unit to control the ECM's output.</p>	<ul style="list-style-type: none"> <li>• 24 VAC thermostat inputs: O, MED, HIGH, Y1 &amp; LOW</li> <li>• PWM input: BK/PWM</li> <li>• Electrical rating: 24 VAC (18-30 VAC)</li> </ul>	<ul style="list-style-type: none"> <li>• IEC: E025-71521506</li> </ul>
 <b>NEW!</b>	<ul style="list-style-type: none"> <li>• Single or dual temperature inputs</li> <li>• Heat pump bypass circuitry</li> <li>• Low current pulse width modulated output</li> <li>• Lead free design</li> </ul>	<ul style="list-style-type: none"> <li>• Voltage: 18-30 VAC</li> <li>• Frequency: 50/60 Hz</li> <li>• Output: 13.5 VDC, 10mA maximum, 80 Hz, 0-100%</li> <li>• Operating temperature: -40°F to 158°F (-40°C to 70°C)</li> <li>• Storage temperature: -40°F to 185°F (-40°C to 85°C)</li> <li>• Temperature probes: 10 KOhm (NTC, J-Curve)</li> </ul>	<ul style="list-style-type: none"> <li>• Hoffman: 880-ECM(10)SSHP</li> </ul>

## Fan Safety Alarm

ICM Control	Features and Applications	Specifications
	<b>ICM6100</b> <ul style="list-style-type: none"> <li>• Fan safety alarm circuit</li> <li>• Outputs provided ensure that a DDC controller can determine the root cause of a shutdown</li> <li>• Dip switch to bypass inputs not in use</li> <li>• Ideal for air handling unit safety-shutdown</li> <li>• 2.75" mounting track provided</li> </ul>	<b>Input:</b> 24 VAC; 50/60 Hz (4A max) <b>Output</b> <ul style="list-style-type: none"> <li>• <b>Relay outputs (6):</b> 2A @ 24 VAC/DC per output</li> <li>• <b>Master relay 24 VAC (2):</b> 1.5A @ 24 VAC per output</li> <li>• <b>Master relay dry contacts:</b> 10A @ 250 VAC</li> <li>• <b>Alarm status:</b> <b>Green LED ON</b> = Activated <b>Red LED ON</b> = Not Activated</li> </ul> <b>Replaces:</b> Functional devices: RIBMNLB-6


## Fan Coil Relay Control Boards

## Fan Coil Relay Controls

ICM Control	Features and Applications	Specifications
	<b>ICM6200</b> <ul style="list-style-type: none"> <li>• Ability to operate line voltage 3-speed fan motor with low voltage controls</li> <li>• Compatible with 4-pipe, 2-pipe, HP, auto-changeover</li> <li>• 20 VA 24 VAC power supply</li> <li>• Suitable for 1/8 HP motors</li> <li>• 1/4" Quick connect terminals and mounts with standard 3" track</li> </ul>	<b>Input</b> <ul style="list-style-type: none"> <li>• <b>Transformer primary:</b> 115 VAC; 50/60 Hz</li> <li>• <b>Fan inputs HI, MED, LOW:</b> nominal 17mA @ 24 VAC</li> <li>• <b>Heat &amp; cool:</b> 1.5A @ 24 VAC</li> </ul> <b>Output</b> <ul style="list-style-type: none"> <li>• <b>Transformer secondary:</b> 24 VAC; 20 VA</li> <li>• <b>Relay outputs H, M, L:</b> 1/8HP @ 115 VAC, 10A @ 240 VAC resistive</li> <li>• <b>Heat &amp; cool valves:</b> 1.5A @ 24 VAC</li> </ul> <b>Replaces:</b> Honeywell W6380B, BSR/Xactone FC/H-2
	<b>ICM6201</b> <ul style="list-style-type: none"> <li>• Ability to operate line voltage 3-speed fan motor with low voltage controls</li> <li>• Ability to operate line voltage electric heating element with low voltage controls</li> <li>• Compatible with 4-pipe, 2-pipe, aquastat autochangeover, and heat pump</li> <li>• 20 VA 24 VAC power supply</li> <li>• Suitable for 1/8 HP motors</li> <li>• Screw terminal receptacles and mounts with standard 3" track</li> </ul>	<b>Input</b> <ul style="list-style-type: none"> <li>• <b>Transformer primary (L1 &amp; L2):</b> 115 VAC; 50/60 Hz</li> <li>• <b>HI, MED, LOW (8, 7, 6):</b> Nominal 17 mA @ 24 VAC</li> <li>• <b>Inputs 1, 2, 3, 4, 5, Aqua heat &amp; Cool:</b> 1.5A @ 24 VAC</li> </ul> <b>Output</b> <ul style="list-style-type: none"> <li>• <b>Transformer secondary:</b> 24 VAC; 20 VA</li> <li>• <b>Relay outputs H, M, L:</b> 1/8HP @ 115 VAC, 10A @ 240 VAC resistive</li> <li>• <b>HTR output:</b> 30A @ 240 VAC resistive</li> <li>• <b>Heat &amp; cool valves:</b> 1.5A @ 24 VAC</li> </ul> <b>Replaces:</b> Honeywell W6380B, BSR/Xactone FC/H-1
	<b>ICM6202</b> <ul style="list-style-type: none"> <li>• Ability to operate line voltage 3-speed fan motor with low voltage controls</li> <li>• Compatible with 4-pipe and 2-pipe systems with auto-changeover</li> <li>• 20 VA 24 VAC power supply</li> <li>• Suitable for 1/8 HP motors</li> <li>• 1/4" Quick connect terminals</li> <li>• Mounts with standard 3" track</li> </ul>	<b>Input:</b> <ul style="list-style-type: none"> <li>• <b>Transformer primary:</b> 115 VAC/230 VAC; 50/60 Hz</li> <li>• <b>Fan inputs HI, MED, LOW:</b> Nominal 17mA @ 24 VAC</li> <li>• <b>Heat &amp; cool:</b> 0.83A @ 24 VAC</li> </ul> <b>Outputs:</b> <ul style="list-style-type: none"> <li>• <b>Transformer secondary:</b> 24 VAC; 20 VA</li> <li>• <b>Relay outputs H, M, L:</b> 1/8HP @ 115 VAC, 10A @ 240 VAC resistive</li> <li>• <b>Heat &amp; cool valves:</b> 0.83A @ 24 VAC</li> </ul> <b>Mechanical:</b> 5.850" x 3.000" x 1.850", Mounts in standard 3" track

## Air Handling Controller

## Electric or Water Heating Systems

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM6500</b> <ul style="list-style-type: none"> <li>• Multi-functional control</li> <li>• Microprocessor controlled</li> <li>• Precision timing</li> <li>• Low cost solution</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Input voltage:</b> 120/240 VAC, 50/60 Hz</li> <li>• <b>Valve output:</b> 24 VAC, 50/60 Hz</li> <li>• <b>Blower fan:</b> 120/240 VAC, 50/60 Hz</li> <li>• <b>Water pump:</b> 120/240 VAC, 50/60 Hz</li> <li>• <b>Timing</b> <ul style="list-style-type: none"> <li>– Cool fan ON delay: 0 sec</li> <li>– Cool fan OFF delay: 45 sec</li> <li>– Electric heat fan ON delay: 0 sec</li> <li>– Electric heat fan OFF delay: 0 sec</li> <li>– Water heat fan ON delay: 60 sec</li> <li>– Water heat fan OFF delay: 30 sec</li> </ul> </li> <li>• <b>Dimensions:</b> 2"W x 7"L</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Vtronics:</b> R200A</li> </ul>

## Fan Blower • OFF Delay on Break

APPLICATIONS	TIMING DIAGRAM
<p><b>"OFF delay on break"</b></p> <p>Controls the circulating fan in heat pump, air conditioning and forced air systems. OFF delay timing function continues to run the fan at the end of the heating/cooling cycle, thereby purging ducts of residual air and increasing system efficiency.</p>	
<p><b>MODE OF OPERATION</b></p> <p>Power must be applied before and during the time delay period. When the initiate contact closes, the load energizes and remains energized as long as the initiate contact is closed. The time delay begins when the initiate contact opens. At the end of the time delay period, the load is turned off. If the initiate contact recloses during the time delay period the load remains energized and the time delay is reset to zero. Removal of input power during the delay turns off the load and resets the time delay to zero. A one-second interrogation delay is provided to avoid nuisance trips due to thermostat bounce or tampering.</p>	

## OFF Delay Timing Purges Residual Air

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM253</b></p> <ul style="list-style-type: none"> <li>UL 873 recognition for compressor applications</li> <li>Post-purge fan delay timer</li> <li>OFF delay purges ducts of residual air at the end of the heating/cooling cycle</li> <li>Interrogation delay eliminates nuisance trips due to thermostat bounce/tampering</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1 amp maximum</li> <li>40 mA minimum</li> <li>10 amp inrush</li> <li><b>Adjustable time delay:</b> <ul style="list-style-type: none"> <li>12-390 seconds</li> </ul> </li> <li><b>Dimensions:</b> 2" x 3"</li> </ul>	<ul style="list-style-type: none"> <li><b>Field Controls:</b> 46144700</li> <li><b>Gemline:</b> 1C216</li> <li><b>Mars:</b> 32393</li> </ul>

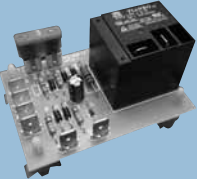
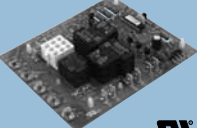
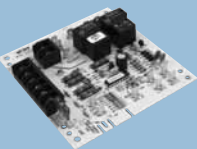
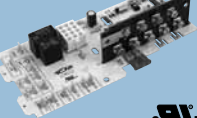
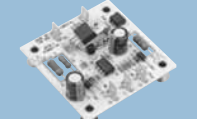
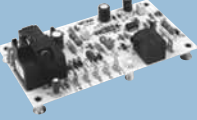
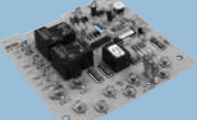
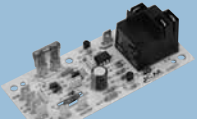
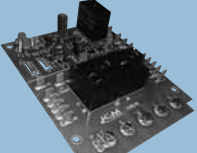
## Fan Blower • Dual On/Off

APPLICATIONS	TIMING DIAGRAM
<p><b>"ON delay on make" and "OFF delay on break"</b></p> <p>Controls the circulating fan in heat pump, air conditioning and forced air systems. Delay on make lets air reach proper level prior to turning on the fan. OFF delay timing function continues to run the fan at the end of the heating/cooling cycle, thereby purging ducts of residual air and increasing system efficiency.</p>	
<p><b>MODE OF OPERATION</b></p> <p>Power must be applied before and during the time delay period. When the initiate contact closes, the delay on make period begins. The load then energizes and remains energized as long as the initiate contact is closed. The delay on break period begins when the initiate contact opens. At the end of the time delay, the load is turned off. If the initiate contact recloses during the time delay, the load remains energized and the time delay is reset to zero. Removal of input power during the delay turns off the load and resets the time delay to zero.</p>	

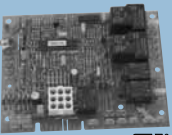

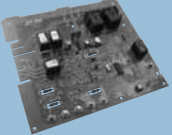

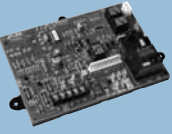



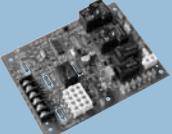



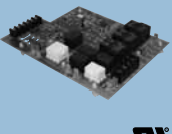

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM251</b></p> <ul style="list-style-type: none"> <li>Drives fan directly</li> <li>High power, relay output</li> <li>Dual function fan delay timer</li> <li>Controls the circulating fan in heat pump, A/C and forced air systems</li> <li>OFF delay controls fan relay to purge ducts of residual air at the end of the heating/cooling cycle</li> <li>ON delay allows air to reach the proper comfort level prior to energizing the fan</li> <li>115 and 230 VAC are also available, please consult factory (HBVR series)</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li>N.O.: 20 amps @ 240 VAC</li> <li>N.C.: 10 amps @ 240 VAC</li> </ul> </li> <li><b>Time delays adjustable:</b> <ul style="list-style-type: none"> <li>ON: 1-180 seconds</li> <li>OFF: 12-390 seconds</li> </ul> </li> <li><b>Dimensions:</b> 2" x 3"</li> </ul>	<ul style="list-style-type: none"> <li><b>Mars:</b> 32377, 32378, 32379</li> </ul>
	<p><b>ICM254</b></p> <ul style="list-style-type: none"> <li>Dual function fan delay timer</li> <li>Controls the circulating fan in heat pump, A/C and forced air systems</li> <li>OFF delay controls fan relay to purge ducts of residual air at the end of the heating/cooling cycle</li> <li>ON delay allows air to reach the proper comfort level prior to energizing the fan</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li>1 amp maximum</li> <li>40 mA minimum</li> <li>10 amp inrush</li> <li><b>Time delays adjustable:</b> <ul style="list-style-type: none"> <li>ON: 1-180 seconds</li> <li>OFF: 12-390 seconds</li> </ul> </li> <li><b>Dimensions:</b> 2" x 3"</li> </ul>	<ul style="list-style-type: none"> <li><b>Honeywell:</b> S876A1016</li> <li><b>Watsco:</b> PSTD-000-005W, PSTD-000-060W</li> </ul>
	<p><b>ICM255</b></p> <ul style="list-style-type: none"> <li>Low cost open board design</li> <li>High power, relay output</li> <li>Dual function fan delay timer</li> <li>Controls the circulating fan in heat pump, A/C and forced air systems</li> <li>OFF delay purges ducts of residual air</li> <li>ON delay allows air to reach the proper comfort level prior to energizing the fan</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>N.O.:</b> 20 amps @ 240 VAC</li> <li><b>N.C.:</b> 20 amps @ 240 VAC</li> <li><b>Time delays fixed:</b> <ul style="list-style-type: none"> <li>ON: 1 second</li> <li>OFF: 60 seconds</li> </ul> </li> <li><b>Dimensions:</b> 2.5" x 2.5"</li> </ul>	<ul style="list-style-type: none"> <li><b>A-1:</b> 5893</li> <li><b>Bard:</b> 8201-056</li> <li><b>Mars:</b> 32574</li> <li><b>Rheem:</b> 42-22515-01, 42-22515-02, 42-22515-03</li> <li><b>Snyder General/ICP:</b> 1395336</li> </ul>

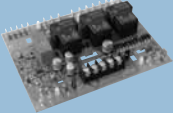

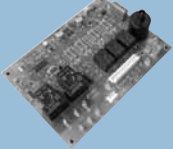

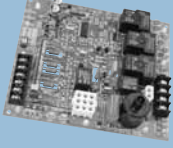



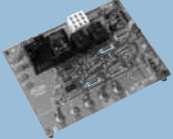
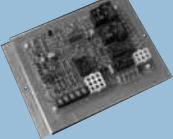


## Form, Fit and Functional OEM Replacement Parts


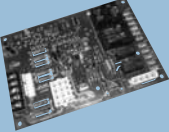

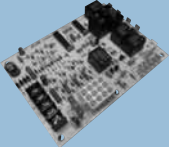
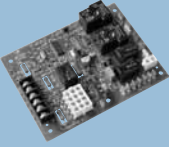

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM256</b></p> <ul style="list-style-type: none"> <li>Fan post purge timer to control circulating fan in forced air systems</li> <li>Dual function 7 second ON delay / 65 second OFF delay</li> <li>Speed up terminals for test mode</li> <li>Fuse protected control voltage</li> <li>High power relay output</li> </ul>	<ul style="list-style-type: none"> <li><b>Input</b> <ul style="list-style-type: none"> <li><b>Control voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> </ul> </li> <li><b>Output</b> <ul style="list-style-type: none"> <li><b>Type:</b> Relay</li> <li><b>Form:</b> SPST N.O.</li> <li><b>Rating:</b> 25 amps @ 240 VAC</li> </ul> </li> <li><b>Time Delays</b> <ul style="list-style-type: none"> <li><b>ON delay:</b> 7 seconds</li> <li><b>OFF delay:</b> 65 seconds</li> </ul> </li> <li><b>Speed Up Options</b> <ul style="list-style-type: none"> <li>Speed up to C = Reduced delay (3 seconds ON, 5 seconds OFF)</li> <li>Speed up to R = No delay</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Goodman:</b> PCBFBM-103</li> </ul>
	<p><b>ICM270</b></p> <ul style="list-style-type: none"> <li>Dual function fan delay timer</li> <li>Controls the circulating fan in heat pump, A/C and forced air systems</li> <li>OFF delay purges ducts of residual air</li> <li>ON delay allows air to reach the proper comfort level prior to energizing the fan</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Contact ratings:</b> Heat/cool speed <ul style="list-style-type: none"> <li><b>N.O.:</b> 20 amps @ 240 VAC</li> <li><b>N.C.:</b> 10 amps @ 240 VAC</li> </ul> </li> <li><b>Time delays:</b> <ul style="list-style-type: none"> <li><b>Blower ON delay:</b> 30 seconds</li> <li><b>Blower OFF delay:</b> 90, 120, 150, 180 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Evcon:</b> 2702-300</li> <li><b>Rheem:</b> 47-22827-01, 47-22827-81/82/83, 47-22828-01/02</li> <li><b>Robertshaw:</b> 695-003</li> </ul>
	<p><b>ICM271</b></p> <ul style="list-style-type: none"> <li>Reliable solid state fan blower control</li> <li>Specifically designed to replace popular gas furnace centers</li> <li>Pin selectable blower delays • High power, relay output</li> <li>Dual function fan delay timer</li> <li>Controls the circulating fan in HP, A/C and forced air systems</li> <li>OFF delay purges ducts of residual air</li> <li>ON delay allows air to reach the proper comfort level prior to energizing the fan</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Contact ratings:</b> <ul style="list-style-type: none"> <li><b>N.O.:</b> 20 amps</li> <li><b>N.C.:</b> 10 amps</li> </ul> </li> <li><b>Time delays:</b> <ul style="list-style-type: none"> <li><b>Heat ON delay:</b> 75 seconds</li> <li><b>Heat OFF delay:</b> 105 seconds</li> <li><b>Cool OFF delay:</b> 90 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> 302075-3, CES0110017, CES0110018, HH84AA010, HH84AA011, HH84AA012, HH84AA013, HH84AA020, P771-7002</li> <li><b>Robertshaw:</b> 695-100</li> </ul>
	<p><b>ICM272</b></p> <ul style="list-style-type: none"> <li>Cooling control module with fan delay</li> <li>Integral low voltage terminal board with field thermostat wiring</li> <li>Electronic air cleaner output • High power, relay output</li> <li>DC output for fan relays and 1st stage of electric heater control</li> <li>Interlock circuitry prevents 2nd &amp; 3rd stage electric heat energization without proper fan operation</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Contact ratings:</b> <ul style="list-style-type: none"> <li><b>N.O.:</b> 20 amps</li> <li><b>N.C.:</b> 10 amps</li> </ul> </li> <li><b>Time delay:</b> <ul style="list-style-type: none"> <li><b>Blower OFF delay:</b> 60 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> HK61GA001, HK61GA003</li> <li><b>Texas Instruments:</b> 2FD-1</li> </ul>
	<p><b>ICM273</b></p> <ul style="list-style-type: none"> <li>Solid state output</li> <li>Silent operation, "no clicking"</li> <li>Controls the circulating fan in HP, A/C and forced air systems</li> <li>OFF delay purges ducts of residual air</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Output:</b> 2 amps @ 240 VAC</li> <li><b>Time delay:</b> <ul style="list-style-type: none"> <li><b>Blower OFF delay:</b> 60 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>EMI:</b> 240000-969</li> </ul>
	<p><b>ICM274</b></p> <ul style="list-style-type: none"> <li>Microprocessor-based fan blower control</li> <li>Built in humidity relay</li> <li>Manually adjustable post-purge OFF delay from 60-240 seconds</li> <li>Electronic air cleaner output</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Outputs:</b> <ul style="list-style-type: none"> <li><b>Y out:</b> 1.5 amps</li> <li><b>Fan:</b> 2 amps</li> <li><b>Elec. heat relay:</b> 30 amps @ 240 VAC</li> </ul> </li> <li><b>Time delay:</b> <ul style="list-style-type: none"> <li><b>Blower OFF delay:</b> 60 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>EMI:</b> 240-1764</li> </ul>
	<p><b>ICM275</b></p> <ul style="list-style-type: none"> <li>Heavy duty heat relay</li> <li>Purges ducts of residual air</li> <li>Integral short cycle protection</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Contact ratings:</b> <ul style="list-style-type: none"> <li><b>High:</b> 20 amps @ 240 VAC</li> <li><b>Low:</b> 10 amps @ 240 VAC</li> </ul> </li> <li><b>Time delays:</b> <ul style="list-style-type: none"> <li><b>Heat ON delay:</b> 60 seconds</li> <li><b>Heat OFF delay:</b> 60-240 seconds</li> <li><b>Cool OFF delay:</b> 90 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> CES0110019, HH84AA001, HH84AA003, HH84AA005, HH84AA009, HH84AA014, HH84AA015, HH84AA021</li> <li><b>Robertshaw:</b> 695-101</li> </ul>
	<p><b>ICM277</b></p> <ul style="list-style-type: none"> <li>Microprocessor-based fan blower</li> <li>For circulating fan in heat pump, A/C and forced air systems</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Contact ratings:</b> <ul style="list-style-type: none"> <li><b>N.O.:</b> 20 amps</li> <li><b>N.C.:</b> 10 amps</li> </ul> </li> <li><b>Time delays:</b> <ul style="list-style-type: none"> <li><b>Blower ON:</b> 7 seconds</li> <li><b>Blower OFF:</b> 65 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Goodman:</b> B1370735S, PCBFBM131S</li> </ul>
	<p><b>ICM278</b></p> <ul style="list-style-type: none"> <li>Controls blower motor and inducer</li> <li>Combines functionality of two boards into one</li> <li>Microprocessor-based precision</li> <li>Adjustable blower OFF delay</li> <li>Compatible with 24 VAC standard thermostats</li> </ul>	<ul style="list-style-type: none"> <li><b>Input voltage</b> <ul style="list-style-type: none"> <li><b>120/240 VAC:</b> N1-N5, S1-S5, H, L, L1, D1</li> <li><b>18-30 VAC:</b> Y, G, W, C, R, W2, X, HL, PS1, PS2</li> </ul> </li> <li><b>Line frequency:</b> 60 Hz</li> <li><b>Operating temperature:</b> -40°F to +176°F</li> <li><b>Maximum operating humidity:</b> 95% R.H. non-condensing @ 50°C</li> <li><b>Time delays</b> <ul style="list-style-type: none"> <li><b>Heat ON:</b> 60 seconds</li> <li><b>Heat OFF:</b> 60-200 seconds</li> <li><b>Cool OFF:</b> 40 seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> HH84AA017 and HH84AA018 (replaces both boards together)</li> </ul>

**ICM offers low cost, form, fit and functional replacement furnace controls for many popular OEM models. Our furnace controls come standard with many safety features including 100% gas shutoff in case of ignition failure.**

ICM Control	Features and Applications	Specifications	Replaces
 	<b>ICM280</b> <ul style="list-style-type: none"> <li>• Microprocessor-based fan blower</li> <li>• Inducer fan outputs</li> <li>• Hot surface ignitor output</li> <li>• Flame sensor input</li> <li>• Gas valve output</li> <li>• Status LED for fault codes</li> <li>• Twinning compatible with another <b>ICM280</b> board</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> Line (98-132 VAC) @ 60 Hz</li> <li>• <b>Fan:</b> 2 HP @ 240 VAC</li> <li>• <b>Inducer motor:</b> 7 amps @ 250 VAC</li> <li>• <b>Gas valve:</b> 1 amps @ 24 VAC</li> <li>• <b>Ignitor:</b> 5 amps @ 120 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Goodman:</b> B1809906, B1809908, B1809910, B1809913, B1809913S,</li> <li>• <b>UTEC:</b> 1012-933D</li> <li>• <b>Texas Instruments:</b> 41F-5</li> <li>• <b>White-Rodgers:</b> 50T35-730, 50T35-743</li> </ul>
 	<b>ICM281</b> <ul style="list-style-type: none"> <li>• Control gas valve, ignitor, blower motor, inducer, humidifier and air cleaner</li> <li>• Microprocessor-based</li> <li>• Designed for 100% gas shutoff in case of ignition failure</li> <li>• Model selection of 80+ and 90+ furnace operation</li> <li>• Reverse polarity protection</li> <li>• Secondary brownout voltage protection</li> <li>• Heating and cooling fan functions in response to standard thermostat</li> <li>• Provides diagnostic LEDs to aid in troubleshooting</li> <li>• Twinning compatible with another <b>ICM281</b> board</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> Line (98-132 VAC) @ 60 Hz</li> <li>• <b>Operating temperature:</b> -40°F to 176°F -40°C to 75°C</li> <li>• <b>Ignitor:</b> 5A @ 120 VAC</li> <li>• <b>Cool blower:</b> 30A, 2HP, 240 VAC</li> <li>• <b>Heat:</b> 5A, 1/2 HP, 240 VAC</li> <li>• <b>Inducer motor:</b> 4A, FLA-8.0 LRA @ 120 VAC</li> <li>• <b>Gas valve:</b> 1.5A @ 30 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Carrier:</b> CES0110020, CES0110048, CES0110057-00, CES0110057-01, CES0110057-02, HH84AA016</li> </ul>
 	<b>ICM282A</b> <ul style="list-style-type: none"> <li>• Control gas valve, ignitor, blower motor, inducer, humidifier and air cleaner</li> <li>• Microprocessor-based</li> <li>• Designed for 100% gas shutoff in case of ignition failure</li> <li>• Reverse polarity protection</li> <li>• Secondary brownout voltage protection</li> <li>• Heating and cooling fan functions in response to standard thermostat</li> <li>• Provides diagnostic LEDs to aid in troubleshooting</li> <li>• Includes adapter harness (not shown)</li> <li>• Twinning compatible with another <b>ICM282A</b> board</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> Line (98-132 VAC) @ 60 Hz</li> <li>• <b>Operating temperature:</b> -40°F to 176°F -40°C to 75°C</li> <li>• <b>Ignitor:</b> 5A @ 120 VAC</li> <li>• <b>Cool blower:</b> 30A, 2HP, 240 VAC</li> <li>• <b>Heat:</b> 5A, 1/2 HP, 240 VAC</li> <li>• <b>Inducer motor:</b> 4A, FLA-8.0 LRA @ 120 VAC</li> <li>• <b>Gas valve:</b> 1.5A @ 30 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Carrier:</b> HK42FZ004, HK42FZ007, HK42FZ008, HK42FZ009, HK42FZ011, HK42FZ013, HK42FZ016, 325878-751</li> </ul>
 	<b>ICM284</b> <ul style="list-style-type: none"> <li>• Microprocessor based</li> <li>• Controls vent motor, blower control, hot surface ignitor and gas valve</li> <li>• Monitors timing, trial for ignition, flame sensing and lockout</li> <li>• Diagnostic LEDs to aid in testing/troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Line voltage:</b> 208 VAC @ 60 Hz</li> <li>• <b>Ignitor:</b> 5A resistive @ 208 VAC</li> <li>• <b>Heat blower:</b> 10A, .5 HP, 250 VAC</li> <li>• <b>Cool blower:</b> 30A, 2HP, 240 VAC</li> <li>• <b>Inducer motor:</b> 4A, 120 VAC</li> <li>• <b>Gas valve:</b> 4A @ 24 VAC</li> <li>• <b>Compressor:</b> 5A resistive @ 24 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>York:</b> SI-03101280000</li> </ul>
 	<b>ICM286</b> <ul style="list-style-type: none"> <li>• Microprocessor-based precision</li> <li>• Controls inducer and blower fan motors, hot surface ignitor, and gas valve</li> <li>• Monitors timing, trial for ignition, flame sensing, pressure and limit switches, and lockout</li> <li>• Designed for 100% gas shutoff in case of ignition failure</li> <li>• Reverse polarity protection</li> <li>• Twinning compatible with another <b>ICM286</b> boards</li> <li>• Compatible with LP or natural gas</li> <li>• Diagnostic LED to aid in testing/troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Trial for ignition:</b> 7 seconds</li> <li>• <b>Pre-purge time:</b> 15 seconds</li> <li>• <b>Ignitor warm up time:</b> 7 seconds</li> <li>• <b>Post-purge time:</b> 15 seconds</li> <li>• <b>Total trials for ignition:</b> 3 (auto reset after 1 hour)</li> <li>• <b>Heat blower ON:</b> 30 seconds</li> <li>• <b>Heat blower OFF:</b> Selectable 90/120/150/180 seconds</li> <li>• <b>Fan (Heat) ON/OFF delay:</b> 1 second</li> <li>• <b>Cool ON:</b> 5 seconds</li> <li>• <b>Cool OFF:</b> 45 seconds</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Goodman:</b> PCBBF112S, B18099-26S, 0130F00005S</li> </ul>
 	<b>ICM287</b> <ul style="list-style-type: none"> <li>• Microprocessor based</li> <li>• Controls inducer and blower control</li> <li>• Monitors timing and gas valves</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Line voltage:</b> 120 VAC @ 60 Hz</li> <li>• <b>Control voltage:</b> 24 VAC @ 60 Hz</li> <li>• <b>Heat blower:</b> 10A, 120 VAC</li> <li>• <b>Cool blower:</b> 30A, 120 VAC</li> <li>• <b>Inducer blower:</b> 30A, 120 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Goodman:</b> B18099-04</li> </ul>
 	<b>ICM288</b> <ul style="list-style-type: none"> <li>• Microprocessor-based precision</li> <li>• Monitors pressure, roll-out and limit switches</li> <li>• Controls gas valve, inducer draft motor, circulating blower and hot surface ignitor.</li> <li>• Reverse polarity detection</li> <li>• Twinning compatible with another <b>ICM288</b> board</li> <li>• Diagnostic LEDs to aid in testing/troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage range:</b> Line (98-132 VAC) @ 60 Hz</li> <li>• <b>Ignitor:</b> 5A, 120 VAC</li> <li>• <b>Cool blower:</b> 10A, 2HP, 240 VAC</li> <li>• <b>Heat:</b> 5A, 1/2 HP, 250 VAC</li> <li>• <b>Inducer blower:</b> 4A, 120 VAC</li> <li>• <b>Gas valve:</b> 1A, 24 VAC</li> <li>• <b>Humidifier motor:</b> 0.5A, 24 VAC</li> <li>• <b>Electronic air cleaner:</b> 1A, 120 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Rheem:</b> 62-24084-82</li> </ul>

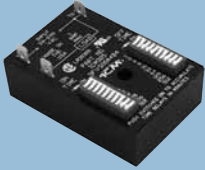
ICM Control	Features and Applications	Specifications	Replaces
 	<p><b>ICM289</b></p> <ul style="list-style-type: none"> <li>Controls inducer fan motor, blower fan and monitors limit switches</li> <li>Microprocessor based design</li> <li>Functions with all 24 VAC thermostats</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage range:</b> Line (98-132 VAC) @ 60 Hz</li> <li><b>Cool blower:</b> 20A @ 120 VAC</li> <li><b>Heat blower:</b> 20A @ 120 VAC</li> <li><b>Inducer motor:</b> 5A @ 120 VAC</li> <li><b>Cool blower ON delay:</b> 1 second</li> <li><b>Cool blower OFF delay:</b> 1 second</li> <li><b>Heat blower ON delay:</b> 45 seconds</li> <li><b>Heat blower OFF delay:</b> 90, 150, 210 or 270 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Lennox:</b> Replaces all BCC1, BCC2 and BCC3 circuit boards, including 48K98 and 45K48.</li> </ul>
 	<p><b>ICM291</b></p> <ul style="list-style-type: none"> <li>Direct Spark Ignition (DSI) control board</li> <li>Microprocessor-based</li> <li>Controls combustion, blower and indoor motors; spark ignitor and the gas valve</li> <li>Monitors timing, trial for ignition, flame sensing and lockout</li> <li>100% lockout safety feature</li> <li>Compatible with LP or natural gas</li> <li>Status LED for fault codes to aid in troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> 24 VAC (18-30 VAC), 60 Hz</li> <li><b>Line voltage:</b> 208/230 VAC, 60 Hz</li> <li><b>Power cons:</b> 0.3A plus gas valve current @ 24 VAC</li> <li><b>Operating temp:</b> -40°C (-40°F) to 75°C (176°F)</li> <li><b>Pre-purge:</b> 45 seconds • <b>Trial for ignition:</b> 5+2 sec.</li> <li><b>Retry period:</b> Every 20 seconds for 15 minutes</li> <li><b>Lockout:</b> manual reset • <b>Post-purge:</b> 45 seconds</li> <li><b>Power:</b> RT and C • <b>Thermostat interface:</b> R, W, G</li> <li><b>Safety switches:</b> RS, LS, and CS</li> <li><b>Combustion motor Hall Effect sensor</b></li> <li><b>Flame sensing</b> • <b>Spark</b> • <b>Gas valve:</b> GV</li> <li><b>Combustion motor:</b> CM • <b>Blower motor:</b> BM</li> <li><b>Indoor fan motor:</b> IFO</li> <li><b>LED indicators</b> <ul style="list-style-type: none"> <li><b>Red LED: Steady ON</b> – normal operation</li> <li><b>Flashing</b> – fault codes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> LH33WP003/3A</li> </ul>
 	<p><b>ICM292</b></p> <ul style="list-style-type: none"> <li>Direct Spark Ignition (DSI) control board</li> <li>Microprocessor-based</li> <li>Controls induced draft and indoor blower motors; humidifier output, spark ignitor and gas valve</li> <li>Monitors timing, trial for ignition, flame sensing and lockout</li> <li>100% lockout safety feature</li> <li>Compatible with LP or natural gas</li> <li>Status LEDs for fault codes to aid in troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> 24 VAC (18-30 VAC), 60 Hz</li> <li><b>Line voltage:</b> 115 VAC, 60 Hz</li> <li><b>Power cons:</b> 0.3A plus gas valve current at 24 VAC</li> <li><b>Operating temp:</b> -40°C (-40°F) to 75°C (176°F)</li> <li><b>Pre-purge:</b> 30 seconds • <b>Trial for ignition:</b> 7 sec.</li> <li><b>Retries:</b> 2 groups of 2, 30 seconds delay within the group and 3 minutes delay between groups</li> <li><b>Lockout:</b> 1 hour • <b>Power:</b> 24 VAC and COM</li> <li><b>Post-purge:</b> 90, 120, 160 and 180 seconds</li> <li><b>Thermostat interface:</b> R, W, Y and G</li> <li><b>System switches:</b> Vent pressure and limit switches (main and over-temperature switches in series)</li> <li><b>Flame sensing</b> • <b>Spark:</b> SE • <b>Gas valve:</b> GV</li> <li><b>Heat blower OFF delay:</b> SW1 toggle switch</li> <li><b>Spark:</b> SE • <b>Gas valve:</b> GV</li> <li><b>Inducer draft motor:</b> IDM • <b>Electric Air Cleaner:</b> EAC</li> <li><b>Relay:</b> HUM • <b>Heat/cool relay:</b> H/C</li> <li><b>Blower motor:</b> FAN, COOL and HEAT speeds</li> <li><b>LED indicators:</b> <ul style="list-style-type: none"> <li><b>Power, green LED:</b> PWR</li> <li><b>Status, green LED:</b> OK</li> <li><b>Flame status, yellow LED:</b> FLAME</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Rheem:</b> 62-24140-04</li> </ul>
 	<p><b>ICM2801</b></p> <ul style="list-style-type: none"> <li>Controls vent motor, blower control, hot surface ignitor and gas valve</li> <li>Monitors timing, trial for ignition, flame sensing &amp; lockout</li> <li>Microprocessor-based • Reverse polarity protection</li> <li>100% lockout safety feature</li> <li>Compatible with LP or natural gas</li> <li>Twinning compatible with another ICM2801 control</li> <li>Status LED for fault codes to aid in troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Line voltage:</b> 98-132 VAC @ 60 Hz</li> <li><b>Ignitor:</b> 5A, 120 VAC</li> <li><b>Cool blower:</b> 10A, 2 HP, 240 VAC</li> <li><b>Heat:</b> 5A, ½ HP, 250 VAC</li> <li><b>Inducer blower:</b> 4A, 120 VAC</li> <li><b>Gas valve:</b> 1A, 24 VAC</li> </ul>	<ul style="list-style-type: none"> <li><b>York/Evcon:</b> 7990-319P</li> </ul>
	<p><b>ICM2804</b></p> <ul style="list-style-type: none"> <li>Hot Surface Ignition (HSI) control board</li> <li>Microprocessor-based</li> <li>Controls vent motor and blower control</li> <li>Monitors limit switch, pressure switch and gas valve</li> <li>100% lockout safety feature</li> <li>Compatible with LP or natural gas</li> <li>Status LED for fault codes to aid in troubleshooting</li> </ul>	<p><b>ENVIRONMENT</b></p> <ul style="list-style-type: none"> <li><b>Ambient temperature</b> <ul style="list-style-type: none"> <li><b>Operating:</b> -40°F to 176°F</li> <li><b>Storage:</b> -40°F to 185°F</li> </ul> </li> <li><b>Humidity:</b> 5% to 95% R.H. (non-condensing) @ 131°F</li> <li><b>Vibration:</b> 13.8Hz @ 0.2 Gs for one hour in each orthogonal axis</li> </ul> <p><b>ELECTRICAL</b></p> <ul style="list-style-type: none"> <li><b>Voltage range:</b> Line (98-132 VAC) @ 60 Hz</li> <li><b>Cool blower:</b> 20A, 2 HP, 240 VAC • <b>Heat:</b> 10A, 240 VAC</li> <li><b>Inducer motor:</b> 4A FLA, 8A LRA @ 120 VAC</li> </ul> <p><b>TIMING</b></p> <ul style="list-style-type: none"> <li><b>Inducer pre-purge time:</b> 1 second</li> <li><b>Heat blower ON delay:</b> 45 seconds</li> <li><b>Heat blower OFF delays:</b> 120 or 180 seconds</li> <li><b>Cool blower ON delay:</b> 1 second</li> <li><b>Cool blower OFF delay:</b> 1 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> CES0110074-00 and CES0110074-01</li> </ul> <p><b>Note:</b> This board functions identically as the CES0110074-00 and the CES0110074-01. It is a replacement of the CES0110074-01. When replacing the CES0110074-00 some quick connectors have to be changed or added. EAC-1 and EAC-2 must have 1/4" connectors. COM, SEC-1 and SEC-2 must have 3/16" connectors.</p>
	<p><b>ICM2805A</b></p> <ul style="list-style-type: none"> <li>Controls gas valve, inducer draft motor, circulating blower and hot surface ignitor</li> <li>Monitors timing, trial for ignition, flame sensing, lockout, plus pressure, rollout and limit switches.</li> <li>Microprocessor-based precision</li> <li>Twinning compatible with another ICM2805 furnace control</li> <li>Diagnostic LEDs aid in testing and troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage range:</b> Line (98 to 132 VAC) @ 60 Hz</li> <li><b>Ignitor:</b> 5A, 120 VAC</li> <li><b>Cool blower:</b> 10A, 2HP, 240 VAC</li> <li><b>Heat:</b> 5A, ½ HP, 250 VAC</li> <li><b>Inducer blower:</b> 4A, 120 VAC</li> <li><b>Gas valve:</b> 1A, 24 VAC</li> <li><b>Humidifier motor:</b> 0.5A, 24 VAC</li> <li><b>Electronic air cleaner:</b> 1A, 120 VA</li> </ul>	<ul style="list-style-type: none"> <li><b>Nordyne:</b> 624631 (for use with G3, G4, G5, G6, M2 and M3 furnace modules)</li> </ul>



ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM2807</b> <ul style="list-style-type: none"> <li>Controls gas valve, ignitor, blower motor, inducer, humidifier and air cleaner</li> <li>Microprocessor-based precision</li> <li>Designed for 100% gas shutoff in case of ignition failure</li> <li>Twining compatible with another ICM2807 control</li> <li>Reverse polarity protection</li> <li>Secondary brownout voltage protection</li> <li>Compatible with 24 VAC standard thermostat</li> <li>Continuous blower speed jumper</li> <li>Limit switch lockout time</li> <li>Limit switch lockout after power interruption</li> <li>Self diagnostics</li> <li>Provides diagnostic LEDs to aid in troubleshooting</li> </ul>	<b>ENVIRONMENT</b> <ul style="list-style-type: none"> <li><b>Ambient temperature</b> <ul style="list-style-type: none"> <li>Operating: -40°F to 176°F</li> <li>Storage: -40°F to 185°F</li> </ul> </li> <li><b>Humidity:</b> 5% to 95% R.H. (non-condensing) @ 131°F</li> </ul> <b>ELECTRICAL</b> <ul style="list-style-type: none"> <li><b>Voltage range:</b> Line (98 to 132 VAC) @ 60 Hz</li> <li><b>Ignitor:</b> 5A @ 120 VAC</li> <li><b>Cool blower:</b> 10 HP, 120 VAC</li> <li><b>Low heat:</b> 5A, 1/2 HP, 120 VAC</li> <li><b>High heat:</b> 10A, 1 HP, 120 VAC</li> <li><b>Inducer motor:</b> 4A, FLA-8.0 LRA @ 120 VAC</li> <li><b>Gas valve:</b> 1.5A @ 30 VAC</li> <li><b>EAC:</b> 1A @ 120 VAC</li> <li><b>Humidifier:</b> 0.5A &amp; 24 VAC</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> HK42FZ017</li> </ul>
 	<b>ICM2808</b> <ul style="list-style-type: none"> <li>Controls gas valve, Ignitor, blower motor, Inducer, humidifier, and air cleaner.</li> <li>Microprocessor-based precision</li> <li>Designed for 100% gas shutoff in case of ignition failure</li> <li>Twining compatible with another ICM2808 control</li> <li>Reverse polarity protection</li> <li>Secondary brownout voltage protection</li> <li>Compatible with 24 VAC standard thermostat</li> <li>Provides dual-color diagnostic LED to aid in troubleshooting</li> </ul>	<b>ENVIRONMENT</b> <ul style="list-style-type: none"> <li><b>Ambient temperature</b> <ul style="list-style-type: none"> <li>Operating: -40°F to 176°F</li> <li>Storage: -40°F to 185°F</li> </ul> </li> <li><b>Humidity:</b> 5% to 95% R.H. (non-condensing) @ 131°F</li> </ul> <b>ELECTRICAL</b> <ul style="list-style-type: none"> <li><b>Voltage range:</b> Line (98 to 132 VAC) @ 60 Hz</li> <li><b>Control voltage range:</b> 18-30 VAC @ 60 Hz</li> <li><b>Relay outputs:</b> Meets or exceeds O.E.M. board</li> </ul> <b>TIMING</b> <ul style="list-style-type: none"> <li><b>Heat blower ON delay:</b> 30 seconds</li> <li><b>Heat blower OFF delay:</b> 90-180 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>York:</b> S1-331-03010000 and S1-331-02956000</li> <li><b>Note:</b> Does not include bracket requested on some models, or wiring harness</li> </ul>
	<b>ICM2809</b> <ul style="list-style-type: none"> <li>Low cost, White-Rodgers replacement board as used in Goodman systems</li> <li>Microprocessor-based precision</li> <li>Controls inducer and blower fan motors, hot surface ignitor, and gas valve</li> <li>Monitors timing, trial for ignition, flame sensing, pressure and limit switches, and lockout</li> <li>Designed for 100% gas shutoff in case of ignition failure</li> <li>Reverse polarity protection</li> <li>Compatible with 24 VAC standard thermostat</li> <li>Compatible with LP or natural gas</li> <li>Provides diagnostic LED to aid in testing/troubleshooting</li> </ul>	<b>ENVIRONMENT</b> <ul style="list-style-type: none"> <li><b>Ambient temperature:</b> <ul style="list-style-type: none"> <li>Operating: -40°F to 176°F (-40°C to 80°C)</li> <li>Storage: -40°F to 185°F (-40°C to 85°C)</li> </ul> </li> <li><b>Humidity:</b> 5% to 95% R.H. (non-condensing) @ 131°F</li> </ul> <b>ELECTRICAL</b> <ul style="list-style-type: none"> <li><b>Voltage:</b> Line (98 to 132 VAC) @ 60 Hz</li> <li><b>Ignitor:</b> 10A max. (resistive) @ 120 VAC</li> <li><b>Cool blower:</b> 10A max. @ 120 VAC</li> <li><b>Heat:</b> 10A max. @ 250 VAC</li> <li><b>Inducer blower:</b> 10A max. @ 120 VAC</li> <li><b>Gas valve:</b> 1.5A @ 24 VAC</li> </ul> <b>TIME DELAYS</b> <ul style="list-style-type: none"> <li><b>Trial for ignition:</b> 7 sec.</li> <li><b>Pre-purge time:</b> 15 sec.</li> <li><b>Ignitor warm up time:</b> 7 seconds</li> <li><b>Post-purge time:</b> 15 seconds</li> <li><b>Total trials for ignition:</b> 3 (auto reset after 1 hour)</li> <li><b>Heat blower ON:</b> 30 seconds</li> <li><b>Heat blower OFF:</b> Fixed 150 seconds</li> <li><b>Cool ON:</b> 5 seconds, <b>Cool OFF:</b> 45 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>White Rodgers:</b> 50T55-289-03</li> </ul>
<b>NEW!</b>  	<b>ICM2810</b> <ul style="list-style-type: none"> <li>Microprocessor-based precision</li> <li>Controls inducer and blower fan motors, hot surface ignitor, and gas valve</li> <li>Monitors timing, trial for ignition, flame sensing, pressure and limit switches, and lockout</li> <li>Designed for 100% gas shutoff in case of ignition failure</li> <li>Reverse polarity protection</li> <li>Twining compatible with another ICM2810 boards</li> <li>Compatible with LP or natural gas</li> <li>Diagnostic LED to aid in testing/troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Pre-purge time:</b> 15 seconds</li> <li><b>Ignitor warm up time:</b> 18 seconds</li> <li><b>Post-purge time:</b> 15 seconds</li> <li><b>Total trials for ignition:</b> 3 (auto reset after 1 hour)</li> <li><b>Heat blower ON:</b> 30 seconds</li> <li><b>Heat blower OFF:</b> Selectable 90/120/150/180 seconds</li> <li><b>Fan (Heat) ON/OFF delay:</b> 1 second</li> <li><b>Cool ON:</b> 5 seconds</li> <li><b>Cool OFF:</b> 45 seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Goodman:</b> PCBBF136 and PCBBF140</li> </ul>

## Duty Cycle Timers

### Duty Cycle Timers • Ideal for Defrost Applications

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM305 (minutes), ICM306 (seconds)</b> <ul style="list-style-type: none"> <li>Reliable duty cycle timer ideally suited for defrost applications</li> <li>Suitable for process equipment or applications requiring intermittent delays</li> <li>Switch-settable time delays</li> <li>Digital timing accuracy</li> <li>Reliable solid state output</li> <li>Epoxy-encapsulated for greater reliability</li> <li>On time starts at power up</li> <li>Series: <b>ICM305:</b> Delay in minutes <b>ICM306:</b> Delay in seconds</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-240 VAC</li> <li>• 1 amp</li> <li>• 10 amp inrush</li> <li><b>Time delay: ICM305</b> <ul style="list-style-type: none"> <li><b>Switch-settable from:</b> 1-1,023 minutes in 1-minute intervals</li> </ul> </li> <li><b>Time delay: ICM306</b> <ul style="list-style-type: none"> <li><b>Switch-settable from:</b> 1-1,023 seconds in 1-second intervals</li> </ul> </li> <li><b>Dimensions:</b> 2" x 3"</li> </ul>	N/A

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All features and specifications subject to change without notice.

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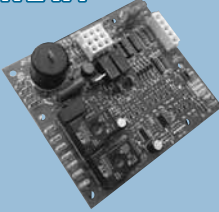
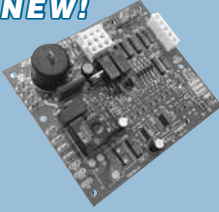
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315.233.5266






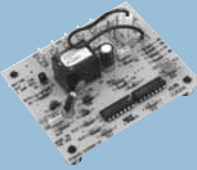

ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM283</b> <ul style="list-style-type: none"> <li>Hot Surface Ignition (HSI) Module</li> <li>Single/Dual rod sensing capabilities</li> <li>For gas fired furnaces, boilers and other heating appliances</li> <li>Switch selectable lockout times, ignition trials</li> <li>Works with both Natural &amp; LP gas systems</li> <li>Diagnostic LED to aid in troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Input voltage:</b> 120 &amp; 24 VAC, 60 Hz</li> <li><b>HSI:</b> 120 VAC, 5A maximum</li> <li><b>Valve:</b> 24V, 2A maximum</li> <li><b>Total:</b> 24V Load = 0.4 + valve load</li> <li><b>Pre-purge time:</b> 32 seconds</li> <li><b>Trial time:</b> 4 or 7 seconds (switch selectable)</li> <li><b>Ignition trials to lockout:</b> 1 or 3 (switch selectable)</li> <li><b>Flame sense:</b> Single rod or dual rod</li> <li><b>Gas type:</b> Natural or LP</li> </ul>	<ul style="list-style-type: none"> <li><b>Honeywell:</b> S8910U-1000</li> <li><b>Robertshaw:</b> HS780</li> <li><b>White Rodgers:</b> 50E47, 50F47</li> </ul>
	<b>ICM290A</b> <ul style="list-style-type: none"> <li>Universal intermittent pilot gas ignition control</li> <li>Provides ignition sequence, flame monitoring and safety shutoff for single/dual rod intermittent pilot control applications</li> <li>For gas fired furnaces, boilers &amp; heating app.</li> <li>Switch selectable pre-purge and ignition trial times with permanent lock</li> <li>Works with both Natural &amp; LP gas systems</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> Line 24V (18-30 VAC), 50/60 Hz</li> <li><b>Anticipator setting:</b> 0.3A plus valve load @ 24 VAC</li> <li><b>Trial for ignition:</b> 15 or 90 seconds (switch selectable)</li> <li><b>LEDs:</b> <ul style="list-style-type: none"> <li><b>Green status LED</b> provides system status and error codes</li> <li><b>Yellow flame LED</b> indicates flame presence &amp; flame strength</li> </ul> </li> <li><b>Operating temperatures:</b> Min. ambient temperature rating of -40°F (-40°C) and max. of 176°F (75°C)</li> <li><b>Relative humidity:</b> 0% to 95% non-condensing</li> </ul>	<ul style="list-style-type: none"> <li><b>Honeywell:</b> S8610U3009 (and compatible Camstat, Fenwal, HSC, Penn-Johnson, Robertshaw and White Rodgers models)</li> </ul>
	<b>ICM295</b> <ul style="list-style-type: none"> <li>Spark Ignition Control Module</li> <li>Microprocessor based</li> <li>For use with intermittent pilot boilers, furnaces and other heating appliances</li> <li>Continuous spark until pilot flame established</li> <li>Push-on, high tension quick connect terminals</li> <li>Compatible with LP or natural gas</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> Line 24 VAC (18-30 VAC) @ 50/60 Hz</li> <li><b>Prepurge:</b> 0 or 10 seconds (system dependent)</li> <li><b>Retries:</b> Continuous</li> <li><b>Operating temperature:</b> -40°F to 176°F -40°C to 75°C</li> <li><b>Relative humidity:</b> 0% to 95% non-condensing</li> <li><b>Spark frequency:</b> 15Hz for 90 seconds, 10 Hz thereafter</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> LH33WZ510</li> </ul>
	<b>ICM296</b> <ul style="list-style-type: none"> <li>Spark Ignition Control Module</li> <li>Microprocessor based</li> <li>For use with intermittent pilot boilers, furnaces and other heating appliances</li> <li>100% safety lockout</li> <li>Compatible with LP or natural gas</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> Line 24 VAC (18-30 VAC) @ 50/60 Hz</li> <li><b>Prepurge:</b> None</li> <li><b>Lockout:</b> 5-6 minutes</li> <li><b>Retries:</b> None</li> <li><b>Operating temperature:</b> -40°F to 176°F (-40°C to 75°C)</li> <li><b>Relative humidity:</b> 0% to 95% non-condensing</li> <li><b>Relay contact rating:</b> 1 amp @ 24 VAC</li> <li><b>Trial for ignition:</b> 90 seconds</li> <li><b>Flame failure response time:</b> 0.8 sec. max.</li> <li><b>Spark frequency:</b> 60 Hz</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> LH33WZ512A</li> </ul>
	<b>ICM2901</b> <ul style="list-style-type: none"> <li>For use with intermittent pilot boilers, furnaces and other heating appliances</li> <li>Microprocessor-based precision</li> <li>Monitors timing, trial for ignition, rollout switch, flame sensing and lockout</li> <li>Remote flame sensing</li> <li>100% lockout safety feature</li> <li>Compatible with LP or natural gas</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> Line 24 VAC (18-30 VAC) 50/60 Hz</li> <li><b>Anticipator setting:</b> 0.3A plus valve load @ 24 VAC</li> <li><b>Prepurge:</b> None</li> <li><b>Trial for ignition:</b> 85 seconds</li> <li><b>Flame failure response time:</b> 0.5 seconds</li> <li><b>Retry:</b> None</li> <li><b>Relative humidity:</b> 0% - 95% non-condensing</li> <li><b>Operating temperature:</b> <ul style="list-style-type: none"> <li>Min. ambient temperature rating is -40°F (-40°C)</li> <li>Max. ambient rating when used with 2.0A main valve is 160°F (71°C)</li> </ul> </li> <li><b>Relative humidity:</b> 0% to 95% non-condensing</li> </ul>	<ul style="list-style-type: none"> <li><b>ICM:</b> 294</li> <li><b>Johnson Controls:</b> G770RJA-1</li> <li><b>York:</b> 025-27762-700 and comparable ignition controls.</li> </ul>
	<b>ICM2902</b> <ul style="list-style-type: none"> <li>For use with intermittent pilot boilers, furnaces and other heating appliances</li> <li>Microprocessor-based precision</li> <li>Monitors timing, trial for ignition, flame sensing and lockout</li> <li>Remote flame sensing</li> <li>100% lockout safety feature</li> <li>Compatible with LP or natural gas</li> <li>Status LED for fault codes to aid in troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li><b>Control voltage:</b> Line 24 VAC (18-30 VAC) 50/60 Hz</li> <li><b>Anticipator setting:</b> 0.3A plus valve load @ 24 VAC</li> <li><b>Prepurge:</b> 15 seconds</li> <li><b>Trial for ignition:</b> 60 minutes</li> <li><b>Lockout:</b> 2 seconds</li> <li><b>Flame failure response time:</b> 0.5 seconds</li> <li><b>Status LED:</b> See product label for error codes</li> <li><b>Operating temperature:</b> <ul style="list-style-type: none"> <li>Min. ambient temperature rating is -40°F (-40°C)</li> <li>Max. ambient rating when used with 2.0A main valve is 160°F (71°C)</li> </ul> </li> <li><b>Relative humidity:</b> 0% to 95% non-condensing</li> </ul>	<ul style="list-style-type: none"> <li><b>ICM:</b> 293</li> <li><b>Johnson Controls:</b> G776 (63K2401, 41K8701, 69J3601) ignition controls</li> <li><b>Lennox:</b> 30W33 ignition control,</li> <li><b>Robertshaw:</b> 735L (18G91) or 745 (95H04) ignit. controls</li> </ul>
<b>NEW!</b> 	<b>ICM2904</b> <ul style="list-style-type: none"> <li>Intermittent pilot gas ignition control module</li> <li>For use with intermittent pilot boilers, furnaces and other heating appliances</li> <li>Microprocessor-based</li> <li>Remote flame sensing</li> <li>Compatible with LP or natural gas</li> <li>Brown out monitoring circuit</li> </ul>	<ul style="list-style-type: none"> <li><b>Control Voltage:</b> Line 18-30 VAC, 50/60 Hz</li> <li><b>Pilot Valve:</b> 2A @ 24 VAC</li> <li><b>Main Gas valve:</b> 2A @ 24 VAC</li> <li><b>Current draw:</b> 100mA maximum</li> <li><b>Pre-purge delay:</b> 0 seconds</li> <li><b>Operating temp.:</b> -40°F to 167°F</li> <li><b>Humidity:</b> 5%-95% R.H. (non-condensing) @ +55°C</li> </ul>	<ul style="list-style-type: none"> <li><b>Reznor:</b> 257009</li> </ul>
<b>NEW!</b> 	<b>ICM2905</b> <ul style="list-style-type: none"> <li>Intermittent pilot gas ignition control module</li> <li>For use with intermittent pilot boilers, furnaces and other heating appliances</li> <li>Microprocessor-based</li> <li>Monitor timing, Trial for ignition, flame sensing &amp; lockout</li> <li>Remote flame sensing</li> <li>2 minute trial for ignition</li> <li>60 min. lock out if pilot flame is not sensed in 2 min.</li> <li>Compatible with LP or natural gas</li> <li>Damper control input</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Humidity:</b> 5%-95% R.H. (non-condensing) @ +55°C</li> <li><b>Operating temp.:</b> -40°F to 167°F</li> <li><b>Pilot valve:</b> 2A @ 24 VAC</li> <li><b>Main gas valve:</b> 2A @ 24 VAC</li> <li><b>Current draw:</b> 100 mA maximum</li> <li><b>Pre-purge delay:</b> 0 seconds</li> <li><b>Trial for ignition:</b> 2 minutes</li> <li><b>Lock out time:</b> 60 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>Reznor:</b> 257010</li> </ul>

ICM Control	Features and Applications	Specifications	Replaces
<b>NEW!</b> 	<b>ICM2906</b> <ul style="list-style-type: none"> <li>• Direct Spark Ignition (DSI) control board</li> <li>• Cooling and heating fan outputs</li> <li>• Microprocessor-based</li> <li>• Controls inducer motor, blower motor, air cleaner (if equipped), spark ignitor and the gas valve</li> <li>• Monitors timing, trial for ignition, system switches, flame sensing and lockout</li> <li>• Compatible with LP or natural gas</li> <li>• LED indication for status and fault codes to aid in troubleshooting</li> </ul>	<b>Voltage:</b> 18-30 VAC <b>Frequency:</b> 60 Hz <b>Inducer blower type:</b> Relay <b>Rating:</b> 1/6 HP @ 125 VAC <b>Gas valves type:</b> Relay <b>Rating:</b> 1A @ 24 VAC <b>Heat blower type:</b> Relay <b>Rating:</b> 1/4 HP @ 125 VAC <b>Cool blower type:</b> Relay <b>Rating:</b> 1 HP @ 125 VAC <b>Operating Temp:</b> -40°F to 165°F <b>Dimensions:</b> 14.5" x 5"	<b>Reznor:</b> 195573
<b>NEW!</b> 	<b>ICM2907</b> <ul style="list-style-type: none"> <li>• Direct Spark Ignition (DSI) control board</li> <li>• Microprocessor-based</li> <li>• Controls inducer motor, blower motor, air cleaner (if equipped), spark ignitor and the gas valve</li> <li>• Monitors timing, trial for ignition, system switches, flame sensing and lockout</li> <li>• Compatible with LP or natural gas</li> <li>• LED indication for status and fault codes to aid in troubleshooting</li> </ul>	<b>Voltage:</b> 18-30 VAC <b>Frequency:</b> 60 Hz <b>Inducer blower type:</b> Relay <b>Rating:</b> 1/6 HP @ 125 VAC <b>Blower type:</b> Relay <b>Rating:</b> 1/4 HP @ 125 VAC <b>Gas valves type:</b> Relay <b>Rating:</b> 1A @ 24 VAC <b>Operating Temp:</b> -40°F to 165°F <b>Dimensions:</b> 14.5" x 5"	<b>Reznor:</b> 195265

## Oil Burner Primaries

Intermittent Ignition			
ICM Controls	Application		
	ICM's 1500 Series Intermittent Ignition Oil Primary Controls come standard with patented energy transfer technology that ensures the fuel valve and pump will only be energized if the control is functioning properly. Features a solid state flame sensing circuit, LED to indicate system lockout, an enclosed safety switch and an external reset button. Form, fit and functional replacement for popular competitive models.		
	Ordering Info	Safety Timing	Replaces
	<b>ICM1501</b>	15 seconds	<b>Honeywell:</b> R8184G4066, R8184G1161, R8184G1294
	<b>ICM1502</b>	30 seconds	<b>Honeywell:</b> R8184G4074, R8184G1179, R8184G1302, R8184G4033
	<b>ICM1503</b>	45 seconds	<b>Carlin:</b> 48245 <b>Honeywell:</b> R8184G4009, R8184G1138, R8184G1427, R8184G4025 <b>Tempstar/Heil:</b> 1147017 <b>White-Rodgers:</b> 668-401

## Defrost Controls

Duty Cycle Timers • Ideal for Defrost Applications			
ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM300</b> <ul style="list-style-type: none"> <li>• Replacement for OEM Type 621</li> <li>• Low cost, time and temperature defrost</li> <li>• HOLD input tracks compressor run times</li> <li>• Time and temperature terminate</li> <li>• 10-minute fixed defrost time</li> <li>• Pin-selectable intervals: 30/60/90 minutes</li> <li>• Test pins reduce test time by 256x</li> <li>• Stable pin post construction</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Output:</b> <ul style="list-style-type: none"> <li>• Relay, SPST</li> <li>• N.O.: 1 amp</li> </ul> </li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/60/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Amana:</b> C64301-1, C64310-1</li> <li>• <b>Arcoaire:</b> 32312-00, 3232140</li> <li>• <b>Artesian:</b> 10321-00</li> <li>• <b>Coleman:</b> 3030A374</li> <li>• <b>Essex:</b> 621-1 to 621-11, 621-310</li> <li>• <b>Goodman:</b> B12260-06</li> <li>• <b>Heil Quaker:</b> HQ1052757</li> <li>• <b>Honeywell:</b> ST74A1004, ST74A1020, ST74A1038</li> <li>• <b>ICP:</b> 1052757</li> <li>• <b>Intertherm:</b> 6208800</li> <li>• <b>Lennox:</b> 33G9501</li> <li>• <b>Rheem:</b> 47-21776-01</li> <li>• <b>Robertshaw/Uni-Line:</b> TD-10, DT2-1000</li> <li>• <b>Snyder General:</b> 1395-329</li> <li>• <b>Steveco:</b> 90-621</li> <li>• <b>Therm-O-Disc:</b> 26E-10</li> <li>• <b>Weatherking (Addison):</b> 840-4-5548</li> <li>• <b>White-Rodgers:</b> 90-621</li> </ul>
	<b>ICM301</b> <ul style="list-style-type: none"> <li>• Low cost, time and temperature defrost</li> <li>• Sensor input for defrost terminate</li> <li>• Time and temperature terminate</li> <li>• 10-minute fixed defrost time</li> <li>• Pin-selectable intervals: 30/60/90 minutes</li> <li>• Test pins reduce test time by 256x</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Output:</b> <ul style="list-style-type: none"> <li>• Type: Relay, SPST</li> <li>• N.O.: 1 amp</li> </ul> </li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/60/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Goettl:</b> 305007</li> <li>• <b>ICM:</b> DFOSP24A2</li> <li>• <b>Rheem:</b> 47-21776-06</li> </ul>

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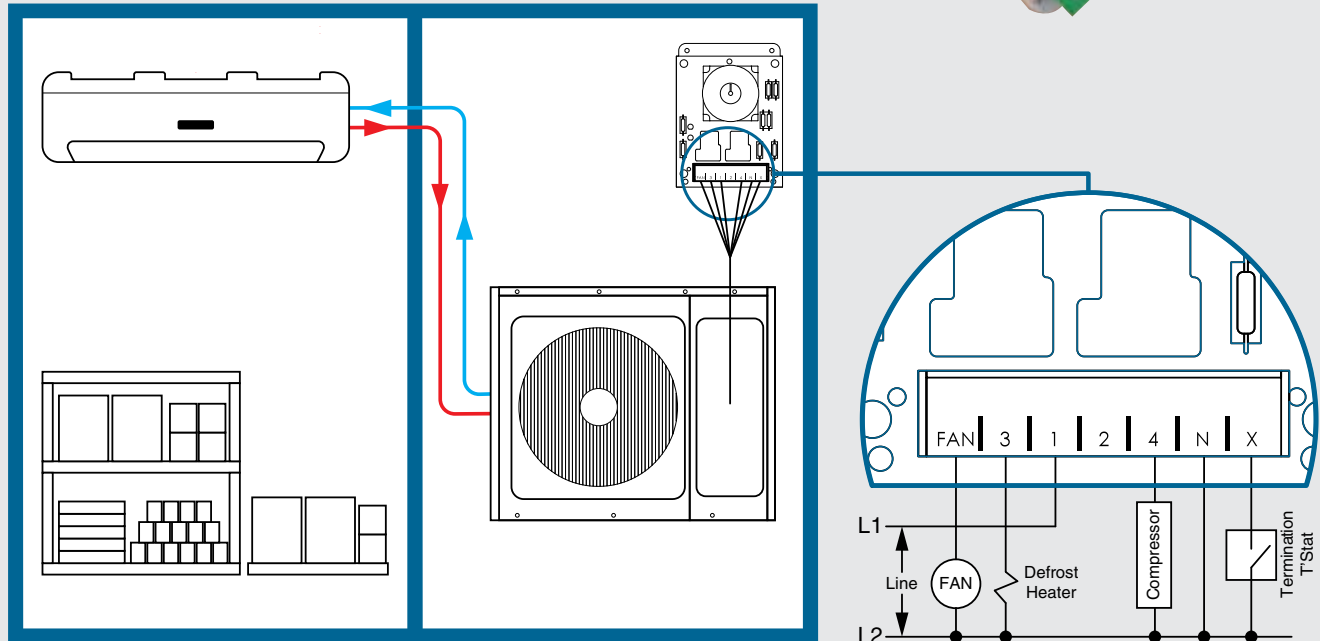
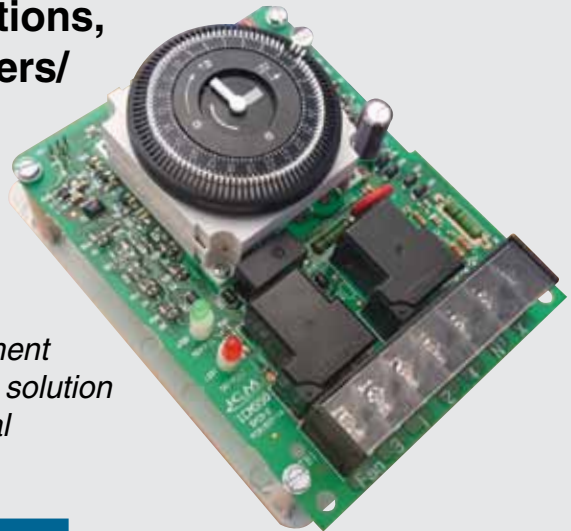


# Increase refrigerant system efficiency by evading massive ice blankets on evaporator coils!

The ICM550 reduces the need for excess defrost cycles in refrigerating applications, specifically applicable to walk-in coolers/ commercial freezers.

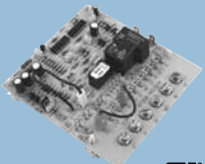
**Why does this matter?** The increased efficiency presents the opportunity for a decrease in utility costs.

*An elegant, simple to use, drag – and – drop replacement for popular defrost timers, the ICM550 is a bare board solution with the simple, user-friendly time clock for commercial refrigerant cooler applications.*



## Defrost Controls

### Form, Fit and Functional OEM Replacement Parts

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM302</b></p> <ul style="list-style-type: none"> <li>• Low cost, time and temperature defrost</li> <li>• Time and temperature terminate</li> <li>• 10-minute fixed defrost time</li> <li>• Pin-selectable intervals: 30/60/90 minutes</li> <li>• Test pins reduce test time by 256x</li> <li>• Strip heat, reversing valve outputs</li> <li>• High power output (1 HP fan @ 240 VAC)</li> <li>• Integral short cycle protection</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Output:</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay, SPST</li> <li>• <b>N.O.:</b> 1 amp</li> </ul> </li> <li>• <b>Anti-short cycle time:</b> 5 minutes</li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/60/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>ICM:</b> DFORB-AB1004</li> <li>• <b>Nordyne:</b> 621301A, 621579B, 621579C, 917178</li> </ul>



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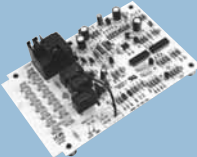
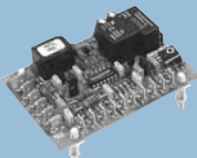
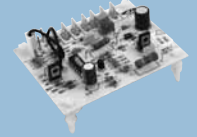
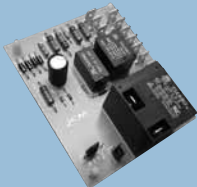
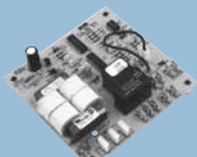



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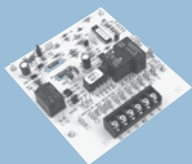
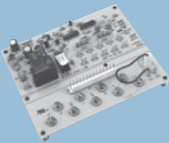
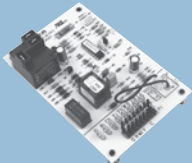
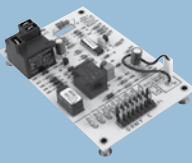
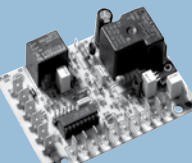
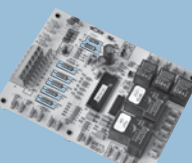
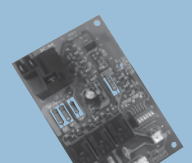
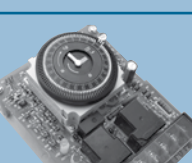


Form, Fit and Functional OEM Replacement Parts

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM303</b></p> <ul style="list-style-type: none"> <li>• Replacement for York 03101251000</li> <li>• Time and temperature terminate</li> <li>• Integral short cycle protection</li> <li>• Pin-selectable intervals: 30/60/90 minutes</li> <li>• High/low pressure switch monitoring</li> <li>• High power, condenser relay output</li> <li>• Strip heat, reversing valve outputs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Relay output:</b> 1 HP fan @ 240 VAC</li> <li>• <b>Strip heat, reversing valve outputs:</b> 24 VAC, 2 amps</li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/60/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• Evcon: 9218-374</li> <li>• ICM: DFORF</li> <li>• York: 03101251000, 9218-3741</li> </ul>
	<p><b>ICM304</b></p> <ul style="list-style-type: none"> <li>• Replacement for ICP 1069364</li> <li>• Sensor input for defrost terminate</li> <li>• Time and temperature terminate</li> <li>• 10-minute fixed defrost time</li> <li>• Pin-selectable intervals: 30/60/90 minutes</li> <li>• Y input tracks compressor run times</li> <li>• Integral short cycle protection</li> <li>• Cool active reversing valve (See ICM323 for heat active model)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Strip heat, reversing valve outputs:</b> 24 VAC, 1 amp</li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/60/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• ICP: 1069364</li> </ul>
	<p><b>ICM307</b></p> <ul style="list-style-type: none"> <li>• 3-minute anti-short cycle protection</li> <li>• Low cost, time and temperature defrost</li> <li>• Time and temperature terminate</li> <li>• 10-minute fixed defrost time</li> <li>• HOLD input tracks compressor run times</li> <li>• Pin-selectable intervals: 30/60/90 minutes</li> <li>• Test pins reduce test time by 256x</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Output:</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay, SPST</li> <li>• <b>N.O.:</b> 1 amp</li> </ul> </li> <li>• <b>Anti-short cycle time:</b> 3 minutes</li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/60/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• Fast: 1093410</li> <li>• Lennox: 86G16</li> <li>• Ranco: DT2</li> </ul>
 <p style="text-align: right;"><b>UL</b></p>	<p><b>ICM314</b></p> <ul style="list-style-type: none"> <li>• Time and temperature terminated defrost</li> <li>• Integral short cycle protection</li> <li>• High/low pressure switch monitoring</li> <li>• Pressure switch bypass</li> <li>• High power condenser fan relay output</li> <li>• Strip heat &amp; reversing valve outputs</li> <li>• Anti-bang feature when entering and exiting defrost mode</li> <li>• User selectable compressor delay mode</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Power:</b> 4.8 VA Maximum (200 mA at 24 VAC)</li> <li>• <b>Output: O-RV</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay</li> <li>• <b>Rating:</b> 1 amp @ 24 VAC</li> </ul> </li> <li>• <b>CNT</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay</li> <li>• <b>Rating:</b> 1 amp @ 24 VAC</li> </ul> </li> <li>• <b>OFM</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay</li> <li>• <b>Form:</b> SPST N.C.</li> <li>• <b>Rating:</b> 15 amps @ 240 VAC</li> </ul> </li> <li>• <b>Time Delays</b> <ul style="list-style-type: none"> <li>• <b>Anti-Short Cycle Delay:</b> 3 minutes</li> <li>• <b>Defrost Time:</b> Fixed at 12 minutes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Goodman: PCBDM-133</li> </ul>
	<p><b>ICM315</b></p> <ul style="list-style-type: none"> <li>• Solid state replacement for Ranco E-15</li> <li>• Reliable thermistor-type sensor is less susceptible to breakage, easier to mount</li> <li>• Replaces faulty bulb-type sensors</li> <li>• 10-minute fixed defrost time</li> <li>• Pin-selectable intervals: 30/45/90 minutes</li> <li>• Test pins reduce test time by 256x</li> <li>• Stable pin post construction</li> <li>• Time and temperature terminate</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 24, 120, 240 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Output:</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay, SPDT</li> <li>• <b>N.O.:</b> 20 amps</li> <li>• <b>N.C.:</b> 10 amps</li> </ul> </li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 30/45/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• Avion: DFT100</li> <li>• Ranco: E-15</li> </ul>
 <p style="text-align: right;"><b>UL</b></p>	<p><b>ICM316</b></p> <ul style="list-style-type: none"> <li>• Replacement for Trane 21C142827G01</li> <li>• Low cost, time and temperature defrost</li> <li>• Time and temperature terminate</li> <li>• Pin-selectable intervals: 50/70/90 minutes</li> <li>• Test pins reduce test time by 256x</li> <li>• High power output (1/2 HP fan @ 240 VAC)</li> <li>• Strip heat, reversing valve outputs (24 VAC, 1 amp)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Outdoor fan relay output:</b> 1/2 HP fan @ 240 VAC</li> <li>• <b>Strip heat, reversing valve outputs:</b> 24 VAC, 1 amp</li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-Sel. 50/70/90 min.</li> </ul>	<ul style="list-style-type: none"> <li>• Trane: 21C142827G01, CNT1152, CNT1642</li> </ul>
	<p><b>ICM317</b></p> <ul style="list-style-type: none"> <li>• Anti-bang reversing valve feature</li> <li>• Select 0 or 3 minute anti-short cycle time</li> <li>• Time and temperature terminate</li> <li>• 10-minute fixed defrost time</li> <li>• Test pins reduce test time by 256x</li> <li>• HOLD input tracks compressor run times</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Output:</b> <ul style="list-style-type: none"> <li>• <b>Type:</b> Relay, SPST</li> <li>• <b>N.O.:</b> 1 amp</li> </ul> </li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-selectable 50/70/90 minutes</li> </ul>	<p>N/A</p>
	<p><b>ICM318</b></p> <ul style="list-style-type: none"> <li>• Replacement for Goodman B1226008</li> <li>• Low cost, time and temperature defrost</li> <li>• Time and temperature terminate</li> <li>• Pin-selectable intervals: 30/60/80 minutes</li> <li>• Test pins reduce test time by 256x</li> <li>• HOLD input tracks compressor run times</li> <li>• High power output (1/2 HP fan @ 240 VAC)</li> <li>• Strip heat, reversing valve outputs (24 VAC, 1 amp)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Voltage:</b> 18-30 VAC</li> <li>• <b>Frequency:</b> 50/60 Hz</li> <li>• <b>Outdoor fan relay output:</b> 1/2 HP fan @ 240 VAC</li> <li>• <b>Strip heat, reversing valve outputs:</b> 24 VAC, 1 amp</li> <li>• <b>Defrost time:</b> 10-minute fixed</li> <li>• <b>Interval times:</b> Pin-selectable 30/60/80 minutes</li> </ul>	<ul style="list-style-type: none"> <li>• Goodman: B1226008</li> <li>• ICM: W1001-4</li> </ul>



## Form, Fit and Functional OEM Replacement Parts (continued)

ICM Control	Features and Applications	Specifications	Replaces
	<p><b>ICM319</b></p> <ul style="list-style-type: none"> <li>Replacement for <b>Nordyne</b>: 624519A</li> <li>Low cost, time and temperature defrost</li> <li>Time and temperature terminate</li> <li>10-minute fixed defrost time</li> <li>Pin-selectable intervals: 30/60/90 minutes</li> <li>Test pins reduce test time by 256x</li> <li>Recycle function melts frost on coils</li> <li>Integral short cycle protection</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Outdoor fan relay output:</b> <ul style="list-style-type: none"> <li>1/2 HP fan @ 240 VAC</li> </ul> </li> <li><b>Strip heat, reversing valve outputs:</b> <ul style="list-style-type: none"> <li>24 VAC, 1 amp</li> </ul> </li> <li><b>Anti-short cycle time:</b> 5 minutes</li> <li><b>Defrost time:</b> 10-minute fixed</li> <li><b>Interval times:</b> Pin-selectable 30/60/90 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>ICM:</b> DFORB24A2I300</li> <li><b>Nordyne:</b> 624519A</li> </ul>
	<p><b>ICM320</b></p> <ul style="list-style-type: none"> <li>Replacement for Carrier HK32FA006</li> <li>Low cost, time and temperature defrost</li> <li>Time and temperature terminate</li> <li>10-minute fixed defrost time</li> <li>Pin-selectable intervals: 30/50/90 minutes</li> <li>Test pins reduce test time by 256x</li> <li>Stable pin post construction</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Outdoor fan relay output:</b> <ul style="list-style-type: none"> <li>1/2 HP fan @ 240 VAC</li> </ul> </li> <li><b>N.O.:</b> 2 amps</li> <li><b>Form:</b> SPST</li> <li><b>Defrost time:</b> 10-minute fixed</li> <li><b>Interval times:</b> Pin-selectable 30/50/90 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> HK25SZ359/9A, HK32FA006</li> </ul>
	<p><b>ICM321</b></p> <ul style="list-style-type: none"> <li>Low cost, time and temperature defrost</li> <li>Time and temperature terminate</li> <li>10-minute fixed defrost time</li> <li>Pin-selectable intervals: 30/50/90 minutes</li> <li>Test pins reduce test time by 256x</li> <li>High power output, outdoor fan (1/2 HP fan @ 240 VAC)</li> <li>Strip heat, reversing valve outputs (24 VAC, 1 amp)</li> <li>Integral short cycle protection</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Outdoor fan relay output:</b> <ul style="list-style-type: none"> <li><b>N.O.:</b> 20 amps</li> <li><b>N.C.:</b> 10 amps</li> </ul> </li> <li><b>Form:</b> SPDT</li> <li><b>Anti-short cycle time:</b> 5 minutes</li> <li><b>Defrost time:</b> 10-minute fixed</li> <li><b>Interval times:</b> Pin-selectable 30/50/90 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> CES0110063-00, CES0110063-01, CES0110063-02, CES0110063-02A, CES0130024-01, 150-83-6A</li> </ul>
	<p><b>ICM322</b></p> <ul style="list-style-type: none"> <li>Low cost, time and temperature defrost</li> <li>Time and temperature terminate</li> <li>10-minute fixed defrost time</li> <li>Pin-selectable intervals: 30/50/90 minutes</li> <li>Test pins reduce test time by 256x</li> <li>High power output, outdoor fan (1/2 HP fan @ 240 VAC)</li> <li>Strip heat, reversing valve outputs (24 VAC, 1 amp)</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Outdoor fan relay output:</b> <ul style="list-style-type: none"> <li><b>N.O.:</b> 20 amps</li> <li><b>N.C.:</b> 10 amps</li> </ul> </li> <li><b>Defrost time:</b> 10-minute fixed</li> <li><b>Interval times:</b> Pin-selectable 30/50/90 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> CES0130024-00</li> </ul>
	<p><b>ICM323</b></p> <ul style="list-style-type: none"> <li>Same as ICM304 but for heat active reversing valve</li> <li>Sensor input for defrost terminate</li> <li>Time and temperature terminate</li> <li>10-minute fixed defrost time</li> <li>Pin-selectable intervals: 30/60/90 minutes</li> <li>Y input tracks compressor run times</li> <li>Integral short cycle protection</li> <li>Heat active reversing valve</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Strip heat, reversing valve outputs:</b> <ul style="list-style-type: none"> <li>24 VAC, 1 amp</li> </ul> </li> <li><b>Defrost time:</b> 10-minute fixed</li> <li><b>Interval times:</b> Pin-selectable 30/60/90 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>ICP:</b> Heat active (B) RV</li> </ul>
	<p><b>ICM324</b></p> <ul style="list-style-type: none"> <li>Time and temperature terminate</li> <li>3 or 5 minute selectable ASC delay</li> <li>Pin selectable defrost intervals: 30/60/90 minutes</li> <li>10 minute fixed defrost time</li> <li>High/low pressure switch monitoring</li> <li>Strip heat and reversing valve outputs</li> <li>Test pins reduce test time by 256x</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50-60 Hz</li> <li><b>Power Consumption:</b> 1 watt maximum</li> <li><b>CC, Aux. Heat, RVS</b> <ul style="list-style-type: none"> <li><b>Type:</b> Relay - <b>Form:</b> SPST, N.O.</li> <li><b>Rating:</b> 2 amps @ 24 VAC</li> </ul> </li> <li><b>IDF, ODF</b> <ul style="list-style-type: none"> <li><b>Type:</b> Relay - <b>Form:</b> SPST, N.C.</li> <li><b>Rating:</b> 10 amps @ 240 VAC</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Goettl:</b> 305057</li> </ul>
	<p><b>ICM350</b></p> <ul style="list-style-type: none"> <li>Adjustable 30, 60, 90, &amp; 120 minute timing sequences</li> <li>Speedup jumper for quicker testing and troubleshooting</li> <li>Brownout monitoring</li> <li>Microcontroller precision timing</li> <li>Time and temperature termination</li> <li>Quiet Shift: Reduces noise disturbance when entering &amp; exiting the defrost sequence (HK32EA003 &amp; HK32EA008)</li> <li>5-min. anti short cycle delay (HK32EA003 &amp; HK32EA008)</li> <li>Optional random start timer (HK32EA003 &amp; HK32EA008)</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Power consumption:</b> 1 watt max.</li> <li><b>Current draw:</b> 300 mA maximum</li> <li><b>Max. defrost sequence:</b> 10 minutes</li> </ul>	<ul style="list-style-type: none"> <li><b>Carrier:</b> HK32EA001, HK32EA003, HK32EA008 and comparable defrost control boards</li> </ul>
	<p><b>ICM550</b></p> <ul style="list-style-type: none"> <li>Adjustable 15 minutes to 23 hours 45 minutes defrost cycle</li> <li>Time or manual defrost termination</li> <li>High power condenser fan and defrost heater relay output</li> <li>100% monitoring of defrost inputs and outputs</li> </ul>	<p><b>Electrical Rating:</b></p> <ul style="list-style-type: none"> <li><b>Voltage:</b> 120-240 VAC</li> <li><b>Frequency:</b> 60 Hz</li> </ul> <p><b>Fan:</b></p> <ul style="list-style-type: none"> <li><b>Type:</b> Relay</li> <li><b>Form:</b> SPST, normally closed</li> <li><b>Rating:</b> 30 amps @ 240 VAC</li> </ul> <p><b>Time Delays</b></p> <ul style="list-style-type: none"> <li><b>Minimum defrost time:</b> 15 minutes</li> <li><b>Maximum defrost time:</b> 23 hr, 45 min.</li> </ul>	<ul style="list-style-type: none"> <li><b>Grasslin:</b> 010-0011B</li> <li><b>Intermatic:</b> DTAV40</li> </ul>

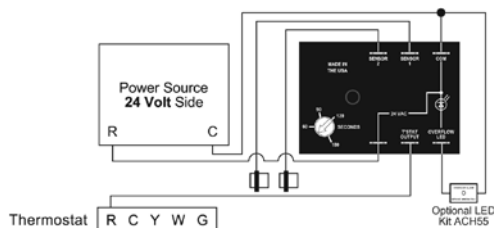
## Prevent Overflowing of an Evaporator Condensation Pan

### APPLICATION

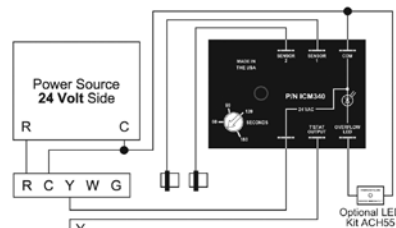
ICM's condensate control systems protect your cooling and refrigeration equipment by detecting and preventing overflows in the evaporator condensation pan due to slow and/or blocked drains or pump failure. These reliable, low cost controls come with fixed or adjustable delays to eliminate nuisance trips and lockouts. Use in conjunction with our audible alarm to quickly alert you to an ensuing condensate problem.

### ICM340 Wiring Diagrams

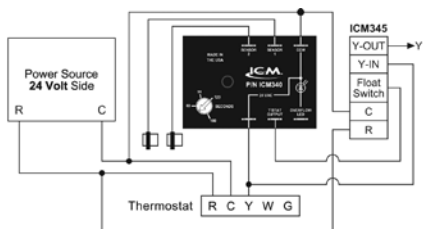
#### Wiring Diagram Breaking "R" Wire



#### Wiring Diagram Breaking "Y" Wire

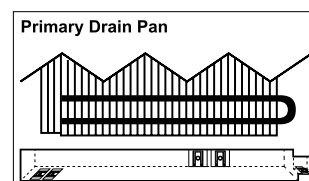






#### Wiring Diagram ICM340 with ICM345 Alarm



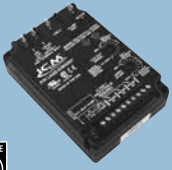

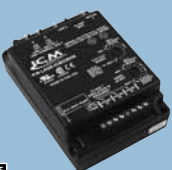




#### Application

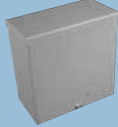


Sensors can be clipped to or pressed onto side, adhered to bottom of pan or inserted into drain pipe.



ICM Control	Features and Applications	Specifications	Replaces
	<b>ICM340</b> <ul style="list-style-type: none"> <li>Low cost condensation control used to prevent overflowing of an evaporator drain pan</li> <li>Two sensors for water detection</li> <li>Adjustable delay before break time to prevent nuisance trips</li> <li>Optional overflow LED kit</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li>24 VAC to thermostat/cooling control</li> <li>24 VAC to optional overflow LED</li> </ul> </li> <li><b>Output rating:</b> 2 amps</li> <li><b>Delay before trip:</b> 1-3 minutes</li> <li><b>Operating frequency:</b> 50/60 Hz</li> <li><b>Maximum operating/storage relative humidity:</b> 95% non-condensing</li> <li><b>Storage temperature:</b> -40°C to +85°C</li> <li><b>Quick connects:</b> (1/4 inch) for easy hookup</li> <li><b>Provides:</b> Maximum protection against moisture and allows use in extreme environmental conditions</li> </ul>	<b>Water Guard:</b> 401475
	<b>ICM342</b> <ul style="list-style-type: none"> <li>Low cost condensation sensing control with an integral delay on make timer</li> <li>Condensation sensing for overflow protection</li> <li>Alarm output during lockout</li> <li>Custom delay on make available (fixed or adjustable)</li> <li>Conformal coating for moisture protection</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Type:</b> Relay</li> <li><b>N.O.:</b> 10 amps @ 120 VAC</li> <li><b>N.C.:</b> 10 amps @ 120 VAC</li> </ul> </li> <li><b>Time delay:</b> DOM – Custom delay available, fixed or adjustable</li> <li><b>Dimensions:</b> 2.75" x 3.25"</li> </ul>	N/A
	<b>ICM345</b> <ul style="list-style-type: none"> <li>Low cost condensation sensing control with anti-short cycle delay and audible/visual condensation alarm</li> <li>Condensation sensing for overflow protection</li> <li>Audible and visual alarm when condensation is detected</li> <li>ASC protection for compressor</li> <li>Works in conjunction with any thermostat or existing condensation control</li> <li>Elegant design</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Output:</b> <ul style="list-style-type: none"> <li><b>Type:</b> Relay</li> <li><b>N.O.:</b> 1 amp @ 30 VAC</li> </ul> </li> <li><b>Audible:</b> Buzzer</li> <li><b>Visual:</b> LED Indicator</li> <li><b>Time delay:</b> Anti-short cycle: 5-minute fixed</li> <li><b>Dimensions:</b> 4 1/2" x 2 3/4" x 7/8"</li> </ul>	N/A
	<b>ACH55</b> <ul style="list-style-type: none"> <li>Optional overflow alarm LED kit</li> <li>For use with <b>ICM340</b> or <b>ICM342</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Length:</b> 70"</li> <li><b>Weight:</b> 0.1 lbs.</li> </ul>	N/A

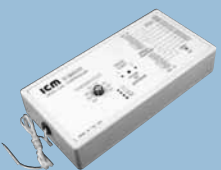

## Head Pressure/Low Ambient Fan Controls

ICM Control	Features and Applications	Specifications	Replaces
 <p>LEAD FREE Pb RoHS COMPLIANT</p> <p>UL cUL us</p>	<p><b>ICM325HN (120-480 VAC)</b>  <b>ICM325HNV (600 VAC)</b></p> <ul style="list-style-type: none"> <li>Integral heat pump bypass circuitry allows electronic bypass of speed control</li> <li>Eliminates overshoots common to on/off and pressure switch controls</li> <li>Helps prevent evaporator freeze-ups, low pressure cut outs and liquid-slugged compressors in low ambient conditions</li> <li>Hard start, low temperature cutoff, isolated 24 VAC supply</li> <li>Controls up to 3 refrigerant circuits</li> <li>Typical application: A/C and heat pumps</li> </ul>	<ul style="list-style-type: none"> <li><b>Input:</b></li> <li><b>Control:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz, 1.8 VA max.</li> <li><b>Line input:</b> 120-480 VAC (ICM325HN) 600 VAC (ICM325HNV)</li> <li><b>Output:</b></li> <li><b>Maximum:</b> 10 amps</li> <li><b>Minimum:</b> 100 mA</li> <li><b>Modulation:</b> 70°F to 100°F</li> <li><b>Dimensions:</b> 4.5" x 3" x 1.75"</li> </ul>	<ul style="list-style-type: none"> <li><b>ACT:</b> FM2000</li> <li><b>Hoffman:</b> 800, 800A, 800AA, 814-50, 816-10</li> <li><b>Ranco:</b> E31 Series</li> </ul>
 <p>LEAD FREE Pb RoHS COMPLIANT</p> <p>UL cUL us</p>	<p><b>ICM326HN (120 or 208/240 VAC)</b></p> <ul style="list-style-type: none"> <li>Integral heat pump bypass circuitry allows electronic bypass of speed control</li> <li>Built in transformer eliminates cost, reduces installation time and simplifies wiring</li> <li>Helps prevent evaporator freeze-ups, low pressure cut outs and liquid-slugged compressors in low ambient conditions</li> <li>Hard start, low temperature cutoff, high temperature bypass</li> <li>Ideal for line voltage air conditioning and refrigeration</li> </ul>	<ul style="list-style-type: none"> <li><b>Input:</b></li> <li><b>Control:</b> 120 or 208/240 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Output:</b></li> <li><b>Maximum:</b> 10 amps</li> <li><b>Minimum:</b> 100 mA</li> <li><b>Modulation:</b> 70°F to 100°F</li> <li><b>Dimensions:</b> 4.5" x 3" x 2"</li> </ul>	<ul style="list-style-type: none"> <li><b>ACT:</b> FM4000</li> <li><b>Hoffman:</b> 800, 800A, 800AA, 814-50, 816-10</li> <li><b>Ranco:</b> E31</li> </ul>
 <p>LEAD FREE Pb RoHS COMPLIANT</p> <p>UL cUL us</p>	<p><b>ICM326HM2 (120 or 240 VAC)</b></p> <ul style="list-style-type: none"> <li>Integral heat pump bypass circuitry allows you to electronically bypass the speed control during heat pump operation</li> <li>Solid state 10 amp load carrying capability</li> <li>Single unit controls up to 3 refrigerant circuits</li> <li>Hard start, low temperature cutoff, high temperature bypass</li> <li>Integral transformer simplifies installation, reduces cost; direct setup from the line voltage</li> <li>Ideal for "low ambient" conditions found in: <ul style="list-style-type: none"> <li>Supermarkets, frozen food storage</li> <li>Computer rooms, cooling tower fans</li> <li>Temperature/humidity-sensitive environments</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Input/Output Voltage</b></li> <li><b>Input/output:</b> 120 or 208/240 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Power consumption:</b> 4 VA @ 24 VAC</li> <li><b>Output</b></li> <li><b>Type:</b> Solid state</li> <li><b>Form:</b> Triac</li> <li><b>Output current:</b> Maximum: 10 amps Minimum: 100 mA</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Voltage drop:</b> 3.0 volts maximum</li> <li><b>Leakage current:</b> 5 mA maximum</li> <li><b>Modulation:</b> 80°F to 105°F</li> </ul>	<ul style="list-style-type: none"> <li><b>Mitsubishi:</b> MU09NW, MUH09NW, MU12NN, MU15NN, MU17NN, MUM18NW, MUM30NN, MUM30NN2</li> </ul>
 <p>LEAD FREE Pb RoHS COMPLIANT</p> <p>UL cUL us</p>	<p><b>ICM327HN (480 VAC)</b></p> <ul style="list-style-type: none"> <li>Integral heat pump bypass circuitry allows electronic bypass of speed control</li> <li>Built in transformer eliminates cost, reduces installation time and simplifies wiring</li> <li>Helps prevent evaporator freeze-ups, low pressure cut outs and liquid-slugged compressors in low ambient conditions</li> <li>Hard start, low temperature cutoff, high temperature bypass</li> <li>Ideal for line voltage air conditioning and refrigeration</li> </ul>	<ul style="list-style-type: none"> <li><b>Input:</b></li> <li><b>Control:</b> 480 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Output:</b></li> <li><b>Maximum:</b> 10 amps</li> <li><b>Minimum:</b> 100 mA</li> <li><b>Modulation:</b> 70°F to 100°F</li> <li><b>Dimensions:</b> 4.5" x 3" x 2"</li> </ul>	<ul style="list-style-type: none"> <li><b>ACT:</b> FM4000</li> <li><b>Hoffman:</b> 800, 800A, 800AA, 814-50, 816-10</li> <li><b>Ranco:</b> E31</li> </ul>
	<p><b>ICM330 (120-480 VAC)</b></p> <ul style="list-style-type: none"> <li>Pressure or temperature control</li> <li>Integral heat pump bypass circuitry allows electronic bypass of speed control and eliminates overshoots common to on/off and pressure switch controls</li> <li>Helps prevent evaporator freeze-ups, low pressure cut outs and liquid-slugged compressors in low ambient conditions</li> <li>One model covers 120-480 VAC</li> <li>Hard start, low temperature bypass, isolated 24 VAC supply</li> <li>Controls one refrigerant circuit</li> <li>Typical application: A/C and heat pumps + DIN rail mount</li> </ul>	<ul style="list-style-type: none"> <li><b>Input:</b></li> <li><b>Control:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz, 1.8 VA max.</li> <li><b>Line input:</b> 120-480 VAC</li> <li><b>Output:</b></li> <li><b>Maximum:</b> 4 amps</li> <li><b>Minimum:</b> 100 mA</li> <li><b>Modulation:</b> 70°F to 100°F 35-465 psi set point</li> <li><b>Opt. pressure transducer:</b> ICM380</li> <li><b>Dimensions:</b> 4.5" x 3" x 1.75"</li> </ul>	<ul style="list-style-type: none"> <li><b>Johnson Controls:</b> P66AAB/AAD</li> </ul>
 <p>LEAD FREE Pb RoHS COMPLIANT</p> <p>UL cUL us</p>	<p><b>ICM333 (120-600 VAC)</b></p> <ul style="list-style-type: none"> <li>Support for dual temperature OR dual pressure probes</li> <li>120-600 VAC</li> <li>Integral heat pump bypass circuitry allows for electronic bypass of speed control</li> <li>Dial temperature or pressure setpoint: 70°F to 140°F 35-465 psig</li> <li>Helps prevent evaporator freeze-ups, low pressure cut outs and liquid slugged compressors in low ambient conditions</li> <li>Hard start, low temperature cutoff, high temp bypass</li> <li>Ideal for line voltage air conditioning and refrigeration</li> </ul>	<ul style="list-style-type: none"> <li><b>Line voltage:</b> 120, 208, 240, 277, 480 and 600 VAC</li> <li><b>Control voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Operating temp.:</b> -40°F to +176°F</li> <li><b>Probes:</b></li> <li><b>Temp.:</b> Thermistor, 10K ohm at 77°F</li> <li><b>Pressure:</b> ICM380 (ordered separately)</li> <li><b>Heat pump override:</b> 24 VAC, N.C./N.O.</li> <li><b>Mounting:</b> Surface mount using (2) #8 screws</li> </ul>	<ul style="list-style-type: none"> <li><b>Johnson Controls:</b> P66BAB/BAD</li> </ul>
	<p><b>ICM334 (208-600 VAC)</b></p> <ul style="list-style-type: none"> <li>One temperature and two pressure inputs</li> <li>Integral heat pump bypass circuitry <ul style="list-style-type: none"> <li>Allows you to electronically bypass the speed control during heat pump operations</li> </ul> </li> <li>Solid start 10 amp load carrying capability</li> <li>Hard Start – 10 second hard start</li> <li>208-600 VAC</li> <li>High temperature bypass <ul style="list-style-type: none"> <li>Applies full voltage to the motor under normal conditions</li> </ul> </li> <li>3-phase ON/OFF control</li> </ul>	<ul style="list-style-type: none"> <li><b>Line voltage:</b> 208-600 VAC</li> <li><b>Control voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Operating temp.:</b> -40°F to +140°F</li> <li><b>Probes:</b></li> <li><b>Temp.:</b> Thermistor, 10K ohm at 77°F</li> <li><b>Pressure:</b> ICM380 (ordered separately)</li> <li><b>Heat pump override:</b> 24 VAC, N.C./N.O.</li> <li><b>Mounting:</b> Surface mount using (2) #8 screws</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>



Head Pressure/Accessories			
ICM Control	Features and Applications	Specifications	Replaces
	<b>ACC-OE-03 (Outdoor Enclosure)</b> <ul style="list-style-type: none"> <li>Rugged steel construction</li> <li>Easy to mount</li> <li>Helps to protect controls from harsh environmental conditions such as temperature, shock, humidity and vibration</li> <li>Ideal for use with ICM head pressure controls</li> </ul>	NEMA 3R rated <ul style="list-style-type: none"> <li><b>Dimensions:</b> 4.25" x 6.25" x 6.25"</li> </ul>	N/A
	<b>ICM379 Probe</b> <ul style="list-style-type: none"> <li>Probe for use with <b>ICM325HN, ICM326HN, ICM327HN</b> and <b>ICM330/ICM332/ICM333</b> head pressure controls with optional heat pump bypass feature</li> </ul>	<ul style="list-style-type: none"> <li><b>Length:</b> 6' - 7"</li> <li>70°F to 100°F (21°C to 38°C)</li> </ul>	N/A
	<b>ICM380</b> <ul style="list-style-type: none"> <li>Optional pressure transducer for <b>ICM330/ICM332/ICM333</b> single phase head pressure controls</li> </ul>	<ul style="list-style-type: none"> <li><b>Length:</b> 72"</li> <li>0-500 psi</li> <li>1/4" SAE female flare with Schraeder deflator</li> </ul>	N/A

## Lead-Lag Controls

*ICM lead lag controls offer true, dual-stage control to balance the operating run time between two redundant units. They feature built-in short cycle protection and status LED lights for at a glance diagnostics. Ideal for use in conjunction with telephone relay hubs/substations and/or remote, unmanned computer stations.*

Reliable Long Life Switching				
ICM Control	Features and Applications	Specifications	Replaces	
	<b>ICM600</b> <ul style="list-style-type: none"> <li>True dual stage control</li> <li>Built in Tstat with a setpoint, deadband and sequencer</li> <li>Regulates 1 or 2 H/C systems</li> <li>Compact housing</li> <li>Safety system halon contacts</li> <li>Memory on power loss</li> <li>Accelerated test mode</li> </ul>	<ul style="list-style-type: none"> <li>Isolated inputs</li> <li>Isolated solid state outputs</li> <li>Built in ASC delays</li> <li>Status LEDs</li> <li>Advance state switch</li> <li>Ideal for refrigeration applications, communication substations, water treatment plants anywhere redundant systems are used</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Maximum amps:</b> 2 amps</li> <li><b>Power consumption:</b> 2 watts maximum</li> <li><b>Adjustable thermostat features:</b> <ul style="list-style-type: none"> <li><b>Set point:</b> 55°F to 90°F (adjustable)</li> <li><b>Deadband:</b> 2°F to 20° (adjustable)</li> <li><b>Sequencer:</b> 1-28 days (adjustable)</li> </ul> </li> <li><b>Dimensions:</b> 4.25" x 8.5" x 2"</li> </ul>	N/A
	<b>ICM602</b> <ul style="list-style-type: none"> <li>Low cost, open board lead lag control</li> <li>Regulates two single stage devices</li> <li>Reliable, long life switching</li> <li>Status LEDs</li> <li>Ideal for refrigeration applications</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 18-30 VAC (24 VAC)</li> <li><b>Frequency:</b> 50/60 Hz</li> <li><b>Maximum amps:</b> 2 amps</li> <li><b>Power consumption:</b> 2 watts maximum</li> <li><b>Dimensions:</b> 3" x 3.5"</li> </ul>	N/A	

## RV Replacement Parts

Reliable Long Life Switching			
ICM Control	Features and Applications	Specifications	Replaces
 <b>NEW!</b>	<b>ICM6700</b> <ul style="list-style-type: none"> <li>Direct Spark Ignition (DSI) control board.</li> <li>Monitors timing, trial for ignition, flame sensing and lockout</li> <li>Status LED for fault codes to aid in troubleshooting</li> <li>Microprocessor-based precision</li> <li>Designed for 100% gas shutoff in the case of ignition failure</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 12 VDC</li> <li><b>Current draw:</b> 100mA max.</li> <li><b>Gas valve:</b> N.O.: 0.5A @ 12 VDC</li> <li><b>Inducer blower:</b> 3.7A @ 12 VDC</li> <li><b>Trial for ignition:</b> 7 seconds</li> <li><b>ON delay:</b> 15 seconds</li> <li><b>OFF delay:</b> 90 seconds</li> </ul>	Suburban: 521099, 35-533900-113
 <b>NEW!</b>	<b>ICM6701</b> <ul style="list-style-type: none"> <li>Direct Spark Ignition (DSI) control board</li> <li>Monitors timing, trial for ignition, flame sensing and lockout</li> <li>Microprocessor-based precision</li> <li>Designed for 100% gas shutoff in the case of ignition failure</li> </ul>	<ul style="list-style-type: none"> <li><b>Voltage:</b> 12 VDC</li> <li><b>Current draw:</b> 100mA max.</li> <li><b>Gas valve:</b> N.O.: 0.5A @ 12 VDC</li> <li><b>Trial for ignition:</b> 7 seconds</li> <li><b>ON delay:</b> 15 seconds</li> </ul>	Suburban: 520814, 35-525900-113



# Thermostats

- Programmable & non-programmable
- A model for every situation
- Wi-Fi & humidity control models
- Managed Property thermostats
- Large displays
- Simple installation
- Available with custom logo



## I3-Serie

### Base Models

- i1010R:** 1-stage heat/cool, 7-day programmable, dual powered  
**i2010R:** 2-stage heat/1-stage cool, 7-day programmable, dual powered  
**i2020R:** 2-stage heat/2-stage cool, 7-day programmable, dual powered  
**i3020R:** 3-stage heat/2-stage cool, 7-day programmable, dual powered

### Wi-Fi Models

- i1010WR:** 1-stage heat/cool, 7-day programmable, hardwired  
**i2010WR:** 2-stage heat/1-stage cool, 7-day programmable, hardwired  
**i2020WR:** 2-stage heat/2-stage cool, 7-day programmable, hardwired  
**i3020WR:** 3-stage heat/2-stage cool, 7-day programmable, hardwired

### Humidity Control Models

- i1010HR:** 1-stage heat/cool, 7-day programmable, dual powered  
**i2010HR:** 2-stage heat/1-stage cool, 7-day programmable, dual powered  
**i2020HR:** 2-stage heat/2-stage cool, 7-day programmable, dual powered

### Wi-Fi + Humidity Control Models

- i1010WHR:** 1-stage heat/cool, 7-day programmable, hardwired  
**i2010WHR:** 2-stage heat/1-stage cool, 7-day programmable, hardwired  
**i2020WHR:** 2-stage heat/2-stage cool, 7-day programmable, hardwired

## Simple Comfort® Non-Programmable Heat Only Thermostats

- SC1600L:** 1-stage heat, battery, no fan output  
**SC1600VL:** 1-stage heat, battery, no fan output, vertical  
**SC1800L:** 1-stage heat, battery  
**SC1800VL:** 1-stage heat, battery, vertical

### Cool Only Thermostats

- SC1901L:** 1-stage cool, hardwired  
**SC1901VL:** 1-stage cool, hardwired, vertical

### Heat/Cool Thermostats

- SC1001:** 1-stage heat/cool, analog  
**SC1001V:** 1-stage heat/cool, analog, vertical  
**SC2000L:** 1-stage heat/cool, backlit display, battery  
**SC2000VL:** 1-stage heat/cool, backlit display, battery, vertical  
**SC2001L:** 1-stage heat/cool, backlit display, hardwired  
**SC2001VL:** 1-stage heat/cool, backlit display, hardwired, vertical  
**SC2010L:** 1-stage heat/cool, backlit display, dual powered  
**SC4010:** 1-stage heat/cool, auto changeover, dual powered, PRO series  
**SC4011:** 1-stage heat/cool, auto changeover, hardwired, PRO series

### Heat Pump Only Thermostats

- SC2201L:** 2-stage heat/1-stage cool, backlit display, hardwired  
**SC2201VL:** 2-stage heat/1-stage cool, backlit display, hardwired, vertical  
**SC2211L:** 3-stage heat/2-stage cool, backlit display, hardwired  
**SC4211:** 2-stage heat pump, auto changeover, hardwired, PRO series

### Multi-Stage Thermostats

- SC2311L:** 2-stage heat, 1-stage cool, hardwired  
**SC4811:** 2-stage heat/cool, auto changeover, hardwired, PRO series  
**SC4812:** 3-stage heat, 2-stage cool, auto changeover, hardwired, dual fuel compatible, PRO series  
**SC4813:** 3-stage heat, 2-stage cool, auto changeover, hardwired, PRO series

## Simple Comfort® Programmable Heat/Cool Thermostats

- SC3000L:** 1-stage heat/cool, battery  
**SC3001L:** 1-stage heat/cool, hardwired  
**SC3010L:** 1-stage heat/cool, dual powered  
**SC5010:** 1-stage heat/cool, auto changeover, dual powered, PRO series  
**SC5011:** 1-stage heat/cool, auto changeover, hardwired, PRO series

### Heat Pump Only Thermostats

- SC3211L:** 2-stage heat pump, hardwired,  
**SC5211:** 2-stage heat pump, auto changeover, hardwired, PRO series

### Multi-Stage Thermostats

- SC5811:** 2-stage heat/cool, auto changeover, hardwired, PRO series  
**SC5812:** 3-stage heat, 2-stage cool, auto changeover, hardwired, dual fuel compatible, PRO series  
**SC5813:** 3-stage heat, 2-stage cool, auto changeover, hardwired, PRO series

## Fan Coil

- SC700V:** 4-pipe heat/cool, 3-speed fan, auto changeover  
**SC710V:** 4-pipe heat/cool, 3-speed fan, manual changeover  
**SC900V:** 2 or 4-pipe, 3-speed fan, auto or manual changeover

## Managed Property Non-Programmable

- MP2010L:** 1-stage heat/cool, one-time configurable, dual powered  
**MP2211L:** 3-stage heat/2-stage cool, HP only, one-time configurable, hardwired  
**MP4010:** 1-stage heat/cool, one-time configurable, auto changeover, dual powered  
**MP4211:** 2-stage HP only, one-time configurable, auto changeover, hardwired

### Programmable

- MP5010:** 1-stage heat/cool, one-time configurable, 7-day/5-2-day or 5-1-1-day programmable, auto changeover, dual powered  
**MP5211:** 2-stage HP only, one-time configurable, 7-day/5-2-day or 5-1-1-day programmable, auto changeover, hardwired

## Garage

- FS40:** Frost Sentry™, 40°F fixed, no display, hardwired  
**FS1500L:** Frost Sentry™, 35°F-75°F, heat only, battery  
**FS1500VL:** Frost Sentry™, 35°F-75°F, heat only, battery, vertical

## Temporary Construction

- SC045:** Cool only, 45°F fixed      **SC070:** Heat only, 70°F fixed  
**SC055:** Cool only, 55°F fixed      **SC075:** Cool only, 75°F fixed  
**SC060:** Heat only, 60°F fixed      **SC085:** Cool only, 85°F fixed  
**SC065:** Heat only, 65°F fixed

## Accessories

- ACC-OD103:** Outdoor sensor for SC4812 and SC5812 thermostats  
**ACC-RT103:** Remote Sensor for PRO Series (except SC4010 and SC5010 series)  
**ACC-RT104:** Remote Sensor for SC1000/SC2000/SC3000 series, PRO series dual power (SC4010, SC5010) and i3 series  
**ACC-WIH21:** SimpleSet™ Master-to-Target Cable PRO Series  
**ACC-WP03:** Large, universal insulated wall plate  
**ACC-WP04:** Small, universal insulated wall plate

# Through innovation, comes affordability!

*Designed around capacitive touch sensing technology, the new and innovative i3 Series Touch Thermostats from ICM Controls feature huge displays and a patent-pending dynamic interface for intuitive programming that uses familiar icons that illuminate only when they are needed.*

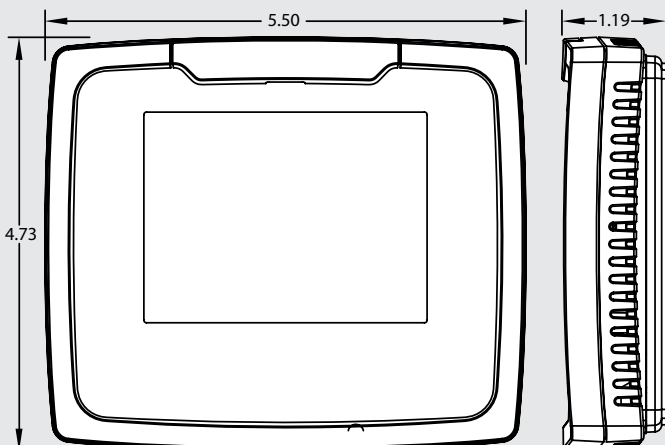


## Features:

- **Alexa 5.0 Compatible** – The Wi-Fi i3 is compatible and can communicate with your Alexa!
- **Large Display** – The touch icons are positioned away from the display for a larger viewing area; keeps display clean of fingerprints
- **Button/Switch Free Front** – No mechanical buttons or switches to break or wear
- **Dynamic Interface** – Highly intuitive – patent-pending! Icons illuminate ONLY when they are needed
- **Customized Printed Interface** – Color and plastic can be customized
- **Customized Icons** – Uses branded icons, or those found on most cell phones, in any desired backlit color

- **Humidity Control** – Humidity Control models available
- **Positioning** – Thin profile ideal for either “internal” or “wall mount” applications
- **Mounting Base** – Designed with sub base to make installation a “snap”
- **Removable Logo Plate** – Great for customers to promote their business
- **Wi-Fi** – Wi-Fi compatible models available with user friendly connectivity
- **Thermal Safety** – Excessive heating bi-metal safety switch
- **User Coded Lockout** – Designed with renters and children in mind

## Dimensions



## Specifications:

- 6 (1A) relay outputs
- 7-Day, 5-2-Day, or 5-1-1 day programmable
- Configurable for multiple systems
- Large display with backlight
- Selectable Fahrenheit or Celsius
- Icon indicator lights
- Relay outputs – minimum voltage drop in thermostat
- Remote sensor compatible
- Ideally suited for:
  - Residential (new construction/replacement)
  - Light commercial
- Works with two-transformer systems

## Typical Applications:

- Temperature controls in residential and commercial buildings
- Appliances such as heating, air conditioning, and refrigeration equipment including commercial freezers



All features and specifications subject to change without notice.

Visit [www.icmcontrols.com](http://www.icmcontrols.com) to find all of our latest products, sell sheets and wiring diagrams

Phone  
315.233.5266

Customer Service Fax  
315.233.5282

Application Assistance  
800.365.5525

## i3 Standard Thermostats

P/N	PROGRAM	STAGES	HP	POWER	WI-FI	HUMIDITY	TERMINATIONS
i1010R	7-Day	1H/1C	Y	Dual	N	N	RC, RH, C, W1/O/B, Y1, G, S1, S2, SC
i2010R	7-Day	2H/1C	Y	Dual	N	N	RC, RH, C, W1/O/B, W2, Y1, G, S1, S2, SC
i2020R	7-Day	2H/2C	Y	Dual	N	N	RC, RH, C, W1/O/B, W2, Y1, Y2, G, S1, S2, SC
i3020R	7-Day	3H/2C	Y	Dual	N	N	RC, RH, C, W1/O/B, W2, AUX, Y1, Y2, G, S1, S2, SC

## i3 Wi-Fi Thermostats

P/N	PROGRAM	STAGES	HP	POWER	WI-FI	HUMIDITY	TERMINATIONS
i1010WR	7-Day	1H/1C	Y	Hardwired	Y	N	RC, RH, C, W1/O/B, Y1, G, S1, S2, SC
i2010WR	7-Day	2H/1C	Y	Hardwired	Y	N	RC, RH, C, W1/O/B, W2, Y1, G, S1, S2, SC
i2020WR	7-Day	2H/2C	Y	Hardwired	Y	N	RC, RH, C, W1/O/B, W2, Y1, Y2, G, S1, S2, SC
i3020WR	7-Day	3H/2C	Y	Hardwired	Y	N	RC, RH, C, W1/O/B, W2, AUX, Y1, Y2, G, S1, S2, SC

## i3 Humidity Control Thermostats

P/N	PROGRAM	STAGES	HP	POWER	WI-FI	HUMIDITY	TERMINATIONS*
i1010HR	7-Day	1H/1C	Y	Dual	N	Y	RC, RH, C, W1/O/B, AUX, Y1, G, S1, S2, SC
i2010HR	7-Day	2H/1C	Y	Dual	N	Y	RC, RH, C, W1/O/B, W2, AUX, Y1, G, S1, S2, SC
i2020HR	7-Day	2H/2C	Y	Dual	N	Y	RC, RH, C, W1/O/B, W2, AUX, Y1, Y2, G, S1, S2, SC

## i3 Wi-Fi & Humidity Control Thermostats

P/N	PROGRAM	STAGES	HP	POWER	WI-FI	HUMIDITY	TERMINATIONS*
i1010WHR	7-Day	1H/1C	Y	Hardwired	Y	Y	RC, RH, C, W1/O/B, AUX, Y1, G, S1, S2, SC
i2010WHR	7-Day	2H/1C	Y	Hardwired	Y	Y	RC, RH, C, W1/O/B, W2, AUX, Y1, G, S1, S2, SC
i2020WHR	7-Day	2H/2C	Y	Hardwired	Y	Y	RC, RH, C, W1/O/B, W2, AUX, Y1, Y2, G, S1, S2, SC

\* Includes AUX output that is software configurable for humidification or dehumidification applications.

## Customize your i3 thermostat!

- Add your company name and/or phone number to the removable tab on top of the thermostat or leave it blank.
- Logo is laser engraved directly into the tab so it will never fade, wash off, rub off or peel off. Logo will be 50% grey.
- **Maximum custom logo** area is 1.75" w x .25" h.





Simple to install.  
Simple to operate.  
Simply dependable.









**SimpleComfort®** means simple control for year-round comfort and energy savings. These elegantly designed thermostats are extra rugged, highly reliable and accurate — ready for many years of worry-free operation. Simply perfect for residential or light commercial new construction or replacement. Easy, intuitive operation makes it simple to match temperature to any family's lifestyle. And with exclusive **SimpleComfort®** staging control, you can easily configure for optimum energy savings — or extra comfort.







### **SimpleComfort®** thermostats feature:

- Vertical or horizontal mounting options (model dependent)
- Large display
- Precise temperature sensing
- Accuracy:  $\pm 1^{\circ}\text{F}$
- Easy access terminal block
- Soft touch controls
- Adjustable temperature differential
- Zoning system compatible
- Integrated four-minute short-cycle protection
- Mercury-free, environmentally safe
- Status LEDs

## Standard Non-Programmable Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<p><b>SC1001</b></p> <ul style="list-style-type: none"> <li>• Low cost, electronic, heat/cool thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Easy "slide-bar" temperature adjustment</li> <li>• Easy-view adjustment scale</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, C, W, Y, O, B, G
	<p><b>SC1001V</b></p> <ul style="list-style-type: none"> <li>• Low cost, electronic, heat/cool thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Easy "slide-bar" temperature adjustment</li> <li>• Easy-view adjustment scale</li> <li>• Vertical design for easy J-box installations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, C, W, Y, O, B, G
	<p><b>SC1600L</b></p> <ul style="list-style-type: none"> <li>• Single-stage heat thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Battery operated</li> <li>• Low battery indicator</li> <li>• Millivolt compatible</li> <li>• Freeze protection feature</li> <li>• Remote sensor compatible</li> <li>• Compatible with gas, oil and hydronic systems</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, W, S1, S2
	<p><b>SC1600VL</b></p> <ul style="list-style-type: none"> <li>• Single-stage heat thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Battery operated</li> <li>• Low battery indicator</li> <li>• Millivolt compatible</li> <li>• Freeze protection feature</li> <li>• Remote sensor compatible</li> <li>• Compatible with gas, oil and hydronic systems</li> <li>• Vertical design for easy J-box installations</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, W, S1, S2
	<p><b>SC1800L</b></p> <ul style="list-style-type: none"> <li>• Heat only thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Battery operated</li> <li>• Low battery indicator</li> <li>• Millivolt compatible</li> <li>• Freeze protection feature</li> <li>• Remote sensor compatible</li> <li>• Compatible with gas, oil and electric systems</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, W, G, S1, S2
	<p><b>SC1800VL</b></p> <ul style="list-style-type: none"> <li>• Heat only thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Battery operated</li> <li>• Low battery indicator</li> <li>• Millivolt compatible</li> <li>• Freeze protection feature</li> <li>• Remote sensor compatible</li> <li>• Compatible with gas, oil and electric systems</li> <li>• Vertical design for easy J-box installations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, W, G, S1, S2

Standard Non-Programmable Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<p><b>SC1901L</b></p> <ul style="list-style-type: none"> <li>• Single-stage cool only thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Remote sensor compatible</li> <li>• Compatible with A/C systems</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y, G, S1, S2</p>
	<p><b>SC1901VL</b></p> <ul style="list-style-type: none"> <li>• Single-stage cool only thermostat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Remote sensor compatible</li> <li>• Compatible with A/C systems</li> <li>• Vertical design for easy J-box installations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y, G, S1, S2</p>
	<p><b>SC2000L</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Battery operated</li> <li>• Low battery indicator</li> <li>• Millivolt compatible</li> <li>• Manual changeover</li> <li>• Freeze protection</li> <li>• Zone compatible</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, W, Y, O, B, G</p>
	<p><b>SC2000VL</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Battery operated</li> <li>• Low battery indicator</li> <li>• Millivolt compatible</li> <li>• Manual changeover</li> <li>• Freeze protection</li> <li>• Zone compatible</li> <li>• Vertical design for easy J-box installations</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, W, Y, O, B, G</p>
	<p><b>SC2001L</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• 4- or 5-wire compatible</li> <li>• Zone compatible</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, W, Y, O, B, G</p>
	<p><b>SC2001VL</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• 4- or 5-wire compatible</li> <li>• Zone compatible</li> <li>• Vertical design for easy J-box installations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, W, Y, O, B, G</p>



All features and specifications subject to change without notice.






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Standard Non-Programmable Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<p><b>SC2010L</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• SimpleSet™ target programming technology (configuration only)</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Dual powered</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• 4- or 5-wire compatible</li> <li>• Freeze protection</li> <li>• Keypad lockout</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, C, W, Y, O, B, G</p>
	<p><b>SC2201L</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat, one-stage cool heat pump only</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• Status LEDs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y1, W2, O, B, G, E</p>
	<p><b>SC2201VL</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat, one-stage cool heat pump only</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• Status LEDs</li> <li>• Vertical design for easy J-box installations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y1, W2, O, B, G, E</p>
	<p><b>SC2211L</b></p> <ul style="list-style-type: none"> <li>• For three-stage heat, two-stage cool heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• SimpleSet™ target programming technology (configuration only)</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• Zoning system compatible</li> <li>• Selectable °F and °C</li> <li>• Status LED</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y1, Y2, W2, O, B, G, E, L, W3</p>
	<p><b>SC2311L</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat, single-stage cool or single-stage heat pump with auxiliary heat</li> <li>• ICM patented thermal intrusion barrier</li> <li>• SimpleSet™ target programming technology (configuration only)</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• Selectable °F and °C</li> <li>• Status LED</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, W1/O/B, Y, W2, E, G</p>



Standard Programmable Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<p><b>SC3000L</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• New SimpleSet™ Target Programming technology</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Battery powered</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• Millivolt compatible</li> <li>• Freeze protection</li> <li>• Zoning system compatible</li> <li>• Soft-touch controls</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, W, Y, O, B, G</p>
	<p><b>SC3001L</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• New SimpleSet™ Target Programming technology</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• Zoning system compatible</li> <li>• Soft-touch controls</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, W, Y, C, O, B, G</p>
	<p><b>SC3010L</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• New SimpleSet™ Target Programming technology</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Dual powered</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• 4- or 5-wire compatible</li> <li>• Freeze protection</li> <li>• Zoning system compatible</li> <li>• Soft-touch controls</li> <li>• Selectable °F and °C</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, C, W, Y, O, B, G</p>
	<p><b>SC3211L</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• New SimpleSet™ Target Programming technology</li> <li>• Large display with backlight</li> <li>• Adjustable temperature differential</li> <li>• Hardwired</li> <li>• Manual changeover</li> <li>• Permanent memory</li> <li>• Easy access terminal block</li> <li>• Field adjustable calibration</li> <li>• Vacation hold</li> <li>• Selectable °F or °C</li> <li>• Keypad lockout</li> <li>• Zoning system compatible</li> <li>• Soft-touch controls</li> <li>• Status LEDs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 3 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y1, Y2, W2, O, B, G, E, L</p>



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# Simple to install and operate enhanced quality features






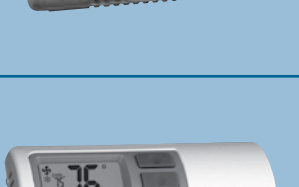


Simplicity is in its name. ICM Controls **SimpleComfort® PRO** thermostats feature innovation and technology that delivers measurable value, simplifies installation and increases profitability. Blending the latest advances in thermostat technology with our new, patented **thermal intrusion barrier** and patented **SimpleSet™ Target Programming**, our **PRO** series thermostats set new industry standards exclusive to ICM Controls.

## SimpleComfort® PRO thermostats feature:

- Flexible 7-day, 5-2-day and 5-1-1-day programming (5000 series models only)
- ICM patented **thermal intrusion barrier**
- New ICM patented **SimpleSet™ Target Programming** technology
- Large display with backlight
- Permanent memory
- Accuracy:  $\pm 1^{\circ}\text{F}$ ,  $\pm 0.5^{\circ}\text{C}$
- Manual or auto changeover
- Field adjustable calibration
- Adjustable maximum heat/minimum cool setpoints
- Extra comfort and energy savings modes between stages
- Adjustable temperature differential
- Integrated four-minute short-cycle protection
- Configurable remote sensor compatible
- Mercury-free, environmentally safe
- Selectable  $^{\circ}\text{F}$  or  $^{\circ}\text{C}$
- Keypad lockout
- Soft-touch controls
- Remote sensor compatible
- Status LEDs

**PRO Series Non-Programmable Thermostats**

ICM Control	Features and Applications	Specifications	Terminations
	<p><b>SC4010 PRO</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming (configuration mode only)</li> <li>• Large display with backlight</li> <li>• Dual powered (battery or hardwired)</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, C, W/O/B, Y, G, S1, S2</p>
	<p><b>SC4011 PRO</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming (configuration mode only)</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>RC, RH, C, W/O/B, Y, G, S1, S2</p>
	<p><b>SC4211 PRO</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming (configuration mode only)</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, Y1, Y2, W2, O/B, G, E, L, S1, S2</p>
	<p><b>SC4811 PRO</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat/cool or two-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming (configuration mode only)</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, W1/O/B, Y1, W2, Y2, G, S1, S2</p>
	<p><b>SC4812 PRO</b></p> <ul style="list-style-type: none"> <li>• For three-stage heat/two-stage cool or two-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming (configuration mode only)</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Dual fuel compatible (requires ACC-OD103 outdoor sensor)</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, W1/O/B, Y1, W2, Y2, G, W3, S1, S2</p>
	<p><b>SC4813 PRO</b></p> <ul style="list-style-type: none"> <li>• For three-stage heat/two-stage cool or two-stage heat pump</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming (configuration mode only)</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	<p>R, C, W1/O/B, Y1, W2, Y2, G, W3, S1, S2</p>



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800.365.5525

## PRO Series Programmable Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<p><b>SC5010 PRO</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• Manual or auto changeover</li> <li>• ICM patent-pending SimpleSet™ Target Programming technology</li> <li>• Large display with backlight</li> <li>• Permanent memory</li> <li>• Dual powered (battery or hardwire)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	RC, RH, C, W/O/B, Y, G, S1, S2
	<p><b>SC5011 PRO</b></p> <ul style="list-style-type: none"> <li>• For single-stage heat/cool or single-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	RC, RH, C, W/O/B, Y, G, S1, S2
	<p><b>SC5211 PRO</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, C, Y1, Y2, W2, O/B, G, E, L, S1, S2
	<p><b>SC5811 PRO</b></p> <ul style="list-style-type: none"> <li>• For two-stage heat/cool or two-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, C, W1/O/B, Y1, W2, Y2, G, S1, S2
	<p><b>SC5812 PRO</b></p> <ul style="list-style-type: none"> <li>• For three-stage heat/two-stage cool or two-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Dual fuel compatible (requires ACC-OD103 outdoor sensor)</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, C, W1/O/B, Y1, W2, Y2, G, W3, S1, S2
	<p><b>SC5813 PRO</b></p> <ul style="list-style-type: none"> <li>• For three-stage heat/two-stage cool or two-stage heat pump</li> <li>• 7-day, 5-2-day and 5-1-1-day programming</li> <li>• ICM patented thermal intrusion barrier</li> <li>• ICM SimpleSet™ Target Programming</li> <li>• Large backlit LCD display</li> <li>• Hardwired</li> <li>• Auto or manual changeover</li> <li>• Permanent memory</li> <li>• Adjustable temperature differential for each stage</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Electrical rating:</b> <ul style="list-style-type: none"> <li>• 24 VAC (18-30 VAC)</li> <li>• 1 amp maximum per terminal</li> <li>• 4 amp maximum total load</li> </ul> </li> <li>• <b>Easy access terminal block</b></li> <li>• <b>Temperature control ranges:</b> 45°F to 90°F, Accuracy ± 1°F</li> </ul>	R, C, W1/O/B, Y1, W2, Y2, G, W3, S1, S2






## Fan Coil Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<b>SC700LV/SC700V</b> <ul style="list-style-type: none"> <li>4-pipe heat/cool</li> <li>3 speed fan</li> <li>Auto changeover</li> <li>24 VAC (SC700LV) and 120-240 VAC (SC700V) versions available</li> <li>Remote room temperature sensor (Optional: Order ACC-RT103)</li> <li>Horizontal model available</li> <li>UL Listed</li> </ul>	<ul style="list-style-type: none"> <li><b>Temperature control ranges:</b> <ul style="list-style-type: none"> <li>45°F to 90°F, accuracy ±1°F</li> <li>7°C to 32°C, accuracy ±.5°C</li> </ul> </li> <li><b>System configurations:</b> <ul style="list-style-type: none"> <li>Fan coil thermostat, 4-pipe; 3 speed fan</li> </ul> </li> </ul>	L1, L2, Y, W, GL, GM, GH, RS
	<b>SC710LV/SC710V</b> <ul style="list-style-type: none"> <li>4-pipe heat/cool</li> <li>3 speed fan</li> <li>Manual changeover</li> <li>24 VAC (SC710LV) and 120-240 VAC (SC710V) versions available</li> <li>Remote room temperature sensor (Optional: Order ACC-RT103)</li> <li>Horizontal model available</li> <li>UL Listed</li> </ul>	<ul style="list-style-type: none"> <li><b>Temperature control ranges:</b> <ul style="list-style-type: none"> <li>45°F to 90°F, accuracy ±1°F</li> <li>7°C to 32°C, accuracy ±.5°C</li> </ul> </li> <li><b>System configurations:</b> <ul style="list-style-type: none"> <li>Fan coil thermostat, 4-pipe; 3 speed fan</li> </ul> </li> </ul>	L1, L2, Y, W, GL, GM, GH, RS
	<b>SC900V</b> <ul style="list-style-type: none"> <li>2 or 4-pipe</li> <li>3 speed fan</li> <li>Pipe sensor for seasonal changeover</li> <li>24 VAC and 120-240 VAC versions available</li> <li>Manual or auto changeover</li> <li>Selectable °F or °C</li> <li>Valve purge timer</li> <li>Remote room temperature sensor (Optional: Order ACC-RT103)</li> <li>Large backlit display</li> <li>Icons for fan and outputs</li> <li>Permanent memory</li> <li>Key pad lockout function</li> <li>Maximum heat/minimum cool set point limits</li> <li>Soft touch controls</li> </ul>	<ul style="list-style-type: none"> <li><b>Temperature control ranges:</b> <ul style="list-style-type: none"> <li>45°F to 90°F, accuracy ±1°F</li> <li>7°C to 32°C, accuracy ±.5°C</li> </ul> </li> <li><b>System configurations:</b> <ul style="list-style-type: none"> <li>Fan coil thermostat</li> <li>2 or 4-pipe; 3 speed fan</li> </ul> </li> </ul>	L, N, W/Y, Y/A, GL, GM, GH, RS, SC, SB, PS

## Frost Sentry™ Garage Thermostats

When it comes to freezing cold temperatures, you can relax knowing that ICM's Frost Sentry™ is on guard. These low-cost thermostats are perfect for areas where protection from extreme cold is essential. Its special foam backing improves accuracy by providing separation from the wall at installation, while sealing up any unsightly wiring holes. This insulated backing helps eliminate the risk of "wall effect" (wall temperature causing false temperature readings). Ideal for storage areas, garages, workshops, crawl spaces and other critical areas.

## Frost Sentry™ Garage Thermostats

ICM Control	Features and Applications	Specifications	Terminations
	<b>FS40</b> <ul style="list-style-type: none"> <li>Easy, two-wire installation</li> <li>Fixed setpoint at 40°F</li> <li>Special foam backing improves accuracy; helps eliminate "wall effect"</li> <li>Sleek, rugged design</li> <li>Compatible with most standard electric heating units</li> <li>Ideal for storage areas, garages, workshops and crawl spaces</li> </ul>	<ul style="list-style-type: none"> <li><b>Input:</b> 18-30 VAC</li> <li><b>Output:</b> 2 amps max.</li> <li><b>Temperature setpoint:</b> Fixed 40°F</li> <li><b>Accuracy:</b> ±5°F</li> </ul>	R, W, G
	<b>FS1500L</b> <ul style="list-style-type: none"> <li>Controls single stage heating systems</li> <li>Millivolt, hydronic (water or steam) system, gas and electric systems</li> <li>Battery operated</li> <li>Backlit display</li> <li>Mercury-free, environmentally safe</li> <li>Remote sensor compatible (ACC-RT104)</li> <li>Perfect for use with unit heaters</li> </ul>	<ul style="list-style-type: none"> <li><b>Electrical rating:</b> <ul style="list-style-type: none"> <li>24 VAC (18-30 VAC)</li> <li>1 amp maximum per terminal</li> <li>2 amp maximum total load</li> <li>Easy access terminal block</li> </ul> </li> <li><b>Temperature control ranges:</b> <ul style="list-style-type: none"> <li>35°F to 75°F, accuracy ±1°F</li> </ul> </li> </ul>	R, W, G, S1, S2
	<b>FS1500VL</b> <ul style="list-style-type: none"> <li>Controls single stage heating systems</li> <li>Millivolt, hydronic (water or steam) system, gas and electric systems</li> <li>Battery operated</li> <li>Backlit display</li> <li>Mercury-free, environmentally safe</li> <li>Remote sensor compatible (ACC-RT104)</li> <li>Vertical design for easy J-box installation</li> <li>Perfect for use with unit heaters</li> </ul>	<ul style="list-style-type: none"> <li><b>Electrical rating:</b> <ul style="list-style-type: none"> <li>24 VAC (18-30 VAC)</li> <li>1 amp maximum per terminal</li> <li>2 amp maximum total load</li> <li>Easy access terminal block</li> </ul> </li> <li><b>Temperature control ranges:</b> <ul style="list-style-type: none"> <li>35°F to 75°F, accuracy ±1°F</li> </ul> </li> </ul>	R, W, G, S1, S2

**Why waste time and money installing dummy thermostats or cases that can be broken into?**

ICM Controls' new line of **Managed Property Thermostats** give landlords peace of mind knowing that their profits are safe from tenants who like to "tamper" with their thermostat set points, often resulting in unsuspected, skyrocketing utility costs. Each model features digital accuracy with one-time configurable heat/cool set point limits that cannot be reconfigured, to deter tenants from tampering!

### Managed Property Thermostats feature:

- One-time configurable temperature minimum/maximum set points
- Patent-pending Abnormal Rate of Change (ARC) detection technology
- Placebo option
- 7-Day, 5-2 day, and 5-1-1 day programming (programmable models only)
- Auto and/or manual changeover
- Large, digital backlit display
- Selectable °F and °C
- Precise temperature sensing (accuracy ±1°F)
- Patented thermal intrusion barrier
- Permanent memory
- Adjustable temperature differential
- Easy-access terminal block
- Integrated 4-minute short-cycle timer
- Soft-touch controls
- Status LEDs (all models but MP2010L)
- Mercury-free, environmentally safe









### Specifications:

**Electrical rating:** 24 VAC (18-30 VAC)

- 1 amp maximum per terminal
- 3 amp maximum total load (4 amps on multiple-stage units)

**Temperature control ranges:**

- 45°F to 75°F Heat (7°C to 24°C)
- 70°F to 90°F Cool (21°C to 32°C)

	Model #	Type	Stages	Changeover	Power	Remote Sensor Compatible	Terminations
	MP2010L	Non-Programmable	1H/1C or 1HP	Manual	Dual	N	RC, RH, C, W, Y, O, B, G
	MP2211L	Non-Programmable	3H/2C HP Only	Manual	HW	N	R, C, Y1, Y2, W2, O, B, G, E, L, W3
	MP4010	Non-Programmable	1H/1C or 1HP	Auto/Manual	Dual	Y	RC, RH, C, W/O/B, Y, G, S1, S2
	MP4211	Non-Programmable	2-Stage HP Only	Auto/Manual	HW	Y	R, C, Y1, Y2, W2, O/B, G, E, L, S1, S2
	MP5010	Programmable	1H/1C or 1HP	Auto/Manual	Dual	Y	RC, RH, C, W/O/B, Y, G, S1, S2
	MP5211	Programmable	2-Stage HP Only	Auto/Manual	HW	Y	R, C, Y1, Y2, W2, O/B, G, E, L, S1, S2

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The SC045 to SC085 series thermostats are low-cost, single setpoint thermostats intended for use as temporary devices to provide heating or cooling to allow drywall to dry during construction. They also can be used as a low ambient cutoff switch.



## Features

- Two-wire installation
- Seven fixed setpoint models to choose from: 45°F to 85°F
- Temporary use for dryout applications
- Can be used as a low ambient cutoff switch

## Specifications

- **Input:** 18-30 VAC
- **Output:** 2 amp maximum
- **Temperature control range:** 45°F to 85°F ( $\pm 9^\circ\text{F}$ )

## Modes of Operation

### • Heat/Cool Thermostat

The heating models will close when the ambient temperature drops below the respective setpoint and open when the ambient temperature is above the respective set point. The cooling models will close when the ambient temperature is above the respective setpoint and open when the ambient temperature drops below the respective set point.

### • Low Ambient Cutoff: Condenser Fan Motor

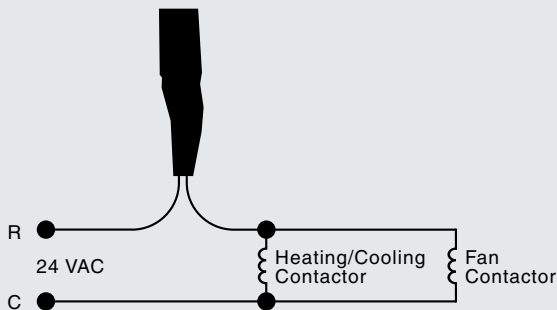
The SC045 and SC055 models can be used as a low ambient cutoff switch for a condenser fan motor. When the ambient temperature drops below the set point, the unit will open the fan signal and turn the fan motor off. It will not allow the fan to turn back on until the temperature rises above the set point.

### • Low Ambient Cutoff: Compressor

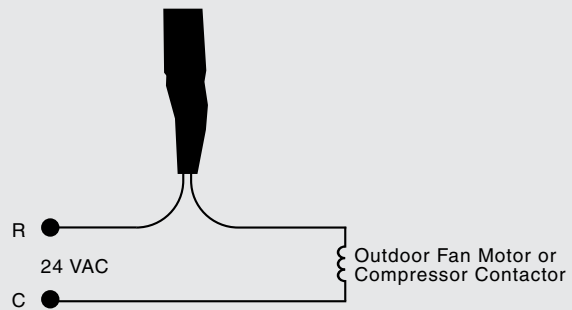
The SC045 and SC055 models can also be used as a low ambient cutoff switch for the compressor when wired in series with the Y circuit from the thermostat. When using with the compressor circuit, an anti-short cycle timer is recommended to prevent possible damage to the compressor from short cycling.

## Wiring Diagrams

for Heating/Cooling Thermostats



for Low Ambient Cutoff



## Ordering Information

Dryout Thermostats							
Part Number	SC045	SC055	SC060	SC065	SC070	SC075	SC085
Temperature Range*	45°F $\pm 9^\circ$	55°F $\pm 9^\circ$	60°F $\pm 9^\circ$	65°F $\pm 9^\circ$	70°F $\pm 9^\circ$	75°F $\pm 9^\circ$	85°F $\pm 9^\circ$
2-wire	✓	✓	✓	✓	✓	✓	✓
Heat			✓	✓	✓		
Cool	✓	✓				✓	✓

\* Consult factory for other set points



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## Wall Plate

Need more wall coverage?  
Choose an ICM insulated wall plate.



The fast, easy solution for hiding wall problems.

- Rugged, flexible construction
- Foam gasket prevents drafts through wall opening
- Hidden mounting screws (included) for a sleek appearance
- **Order: ACC-WP03** – 5 19/32" x 7 1/2"
- **Order: ACC-WP04** – 5 27/32" x 5 15/16"

## SimpleSet™ Transfer Cable

Program each thermostat in seconds!



- Transfer configuration and/or program from one thermostat to another
- **Order: ACC-WIH21**

## Remote Sensor

Need to monitor the temperature away from the thermostat?  
Choose an ICM remote sensor.

The fast, easy solution for temperature sensing problems.

- For tamper-prone areas
- Poor air flow areas
- Troubled applications
- Foam gasket prevents drafts through wall opening
- Mounts to standard 2" x 4" outlet box
- **Order: ACC-RT103** – 2 3/4" x 4 1/2"
- **ACC-RT104** – 2 3/4" x 4 1/2"



### Remote Sensor Compatible with the Following SimpleComfort® Thermostats

#### ACC-RT103

SC700V	SC710V	SC900V	SC4011	SC4211	SC4811	SC4812	SC4813	SC5011	SC5211	SC5811	SC5812	SC5813
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### Remote Sensor Compatible with the Following SimpleComfort®, Frost Sentry™ and I3 Series Touch Thermostats

#### ACC-RT104

SC1600L	SC1600VL	SC1800L	SC1800VL	SC1901L	SC1901VL	SC4010	SC5010	FS1500L	FS1500VL	I <sup>3</sup> SERIES
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# SimpleComfort® Thermostats Custom Logo Request Form

See complete instructions on  
Page 56 of this catalog.

Fax to: **(315) 233-5282**

The complete **custom logo request form** is available on the home page of our web site at [www.icmcontrols.com](http://www.icmcontrols.com)

On the **ICM home page**, below **"What's New"** click on **"Custom Logo Form."**

When the document appears, either print it or save it to your desktop. **Note:** Adobe Acrobat Reader is required.

## CONTRACTOR INFORMATION

\_\_\_\_\_  
Contractor Name

\_\_\_\_\_  
Contractor Address (City, State, Zip)

( ) \_\_\_\_\_ ( ) \_\_\_\_\_  
Phone No. Fax No.

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Email Address

PLEASE FILL OUT COMPLETELY

## WHOLESALE COMPANY INFORMATION

\_\_\_\_\_  
Wholesaler Name

\_\_\_\_\_  
Wholesaler Address (City, State, Zip)

( ) \_\_\_\_\_ ( ) \_\_\_\_\_  
Phone No. Fax No.

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Email Address

## CONTRACTOR NEW or EXISTING?

- New customer** (logo sign off is mandatory)
- Existing customer logo** **Changes to Logo \*\*YES\*\***  
i.e.: Previous "L" number or Old part numbers • AG, AH, AJ
  - **REQUIRES** New request form to be completed and submitted
  - Logo will be issued a new logo "L" number and changes made
  - **REQUIRES** contractor sign off to be faxed in with P/O
  - **Reference new logo "L" number on all future P/O's.**  
\*\*\*Reference to old part numbers = incorrect markings\*\*\*
- Existing customer logo** **Changes to Logo \*\*NO\*\***  
i.e.: Previous "L" number or Old part numbers • AG, AH, AJ
  - LOGO IS CORRECT - There are no changes
  - Original logo will be issued a new logo "L" number and faxed
  - No sign off is necessary. Logo will be on hold until P/O arrives

## LOGO ORIGIN (check one)

- Accommodations** have already been made to have a PROPERLY FORMATTED LOGO emailed to ICM. *See Logo Specifications*
- Please create** a basic imprint for customer
  - A basic imprint will be generated. Simply enter information below
  - *From the "Sample Fonts Page," use font #  for this logo*  
(Please print legibly and double check for accuracy)

## LOGO PLACEMENT

Logo will be marked on thermostats in predetermined locataions for existing thermostats. "SimpleComfort®" branding to remain.

**Maximum logo size:**

Line 1: \_\_\_\_\_

Line 2: \_\_\_\_\_

Line 3: \_\_\_\_\_

## WHOLESALE'S RESPONSIBILITIES

1. Fax completed request form to ICM at number listed above
  - Attach copy of contractor's logo if logo is being emailed
  - If basic imprint is being created, enter information at left
  - **DO NOT include P/O with initial request form**
2. It is the wholesaler's responsibility to make initial contact and accommodations with the graphics company and to have a properly formatted logo submitted. Please forward the logo specifications listed below to graphics company.
3. When logo arrives, get contractor's approval & sign off.
4. **Fax to ICM:** signed off logo + P/O referencing logo number. **\*\*Failure to reference a logo number on a P/O may result in plain thermostats being delivered. \*\*Incorrect logo numbers on your P/O result in your customer receiving someone else's logo on their delivered thermostat shipment.**

## GRAPHICS SPECIFICATIONS

### PLEASE FORWARD TO GRAPHICS COMPANY

1. **Email logo to:** [jkocik@icmcontrols.com](mailto:jkocik@icmcontrols.com)
2. **Preferred Formats:** **Illustrator or FreeHand** with text converted to paths/curves. This prevents having to redraw the logo from scratch.
3. **Submissions must be: BLACK and WHITE ONLY • NO COLOR NO SHADING NO GREY-SCALE**
4. Logo can be submitted in either JPG, TIF, or EPS formats
5. Logo scans must be **HI-RESolution • 600+ dpi • b/w only**  
• **Low resolution logos acquired from the web are not acceptable**
6. **UNACCEPTABLE LOGO FORMATS:** **Graphics with color or gray scale**, BMP formats, Corel Draw files, DAT files, DXF/CAD files, GIF files, **Low-res scans**, MSWord files, Page Maker files, PDFs, PowerPoint files, Quark Xpress files, Window Metafiles and Web images (72 dpi logos downloaded from web sites)

## GRAPHICS COMPANY INFO

COMPANY NAME: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

CONTACT PERSON: \_\_\_\_\_

**NOTE** If necessary, this page can be used as an actual request form. Simply complete this form, carefully remove this page from the catalog and fax it to 315.233.5282 or the fax number directly below.

**NOTE**



All features and specifications subject to change without notice.

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Phone  
315.233.5266

Customer Service Fax  
315.233.5282

Application Assistance  
800.365.5525

Contractor can choose from any of the following fonts for their logo

Enter font number in provided box on request form (lower left).

FONT #	SAMPLE FONT
1	ICM CONTROLS Made in the USA 800-365-5525
2	ICM CONTROLS Made in the USA 800-365-5525
3	ICM CONTROLS Made in the USA 800-365-5525
4	ICM CONTROLS Made in the USA 800-365-5525
5	ICM CONTROLS Made in the USA 800-365-5525
6	ICM CONTROLS Made in the USA 800-365-5525
7	ICM CONTROLS Made in the USA 800-365-5525

FONT #	SAMPLE FONT
8	ICM CONTROLS Made in the USA 800-365-5525
9	ICM CONTROLS Made in the USA 800-365-5525
10	ICM CONTROLS Made in the USA 800-365-5525
11	ICM CONTROLS Made in the USA 800-365-5525
12	ICM CONTROLS Made in the USA 800-365-5525
13	ICM CONTROLS Made in the USA 800-365-5525
14	ICM CONTROLS Made in the USA 800-365-5525

FONT #	SAMPLE FONT
15	ICM CONTROLS Made in the USA 800-365-5525
16	ICM CONTROLS Made in the USA 800-365-5525
17	ICM CONTROLS MADE IN THE USA 800-365-5525
18	ICM CONTROLS Made in the USA 800-365-5525
19	ICM CONTROLS Made in the USA 800-365-5525
20	ICM CONTROLS Made in the USA 800-365-5525
21	ICM CONTROLS MADE IN THE USA 800-365-5525

## Customize your i3™ thermostat!

- Add your company name and/or phone number to the removable tab on top of the thermostat or leave it blank.
- Logo is laser engraved directly into the tab so it will never fade, wash off, rub off or peel off. Logo color will be 40-50% grey.
- **Maximum custom logo** area is 1.75”w x .25”h.



# SimpleComfort® Custom Logo Thermostats

## Ordering Recommendations

1. **Read entire Custom Logo Request Form prior to completing it:**
  - If you do not understand something, contact your ICM representative
  - ANY modifications to a previous “signed off” logo require a new request form
2. **Completely fill out request form:**
  - Print appropriate information in blank spaces on form
  - Pay special attention to check boxes
  - If you are choosing a font from the Sample Font Page, make sure the font number appears in the appropriate box on the form (lower left)
  - **DO NOT send in P/O with initial request form** (i.e.: on fax cover page)
3. It is especially important to note that you should contact the customer’s graphics company to get a properly formatted logo emailed to ICM. Contact the graphics company and review with them items 1-6 under “Graphics Specifications” on the Custom Logo Request Form. They will understand the terminology.
4. Get a commitment from the graphics company as to when the graphic will be emailed to ICM. Note this date on the request form and follow up to verify the logo was sent by the graphics company and received by ICM.
5. If the graphics company charges a fee to transmit the logo to ICM, the customer is responsible for that fee.
6. If the “Accommodations have been made...” box was checked under Logo Origin, and no logo is submitted, there will be no completed thermostats.
7. Fax in completed request form and a clean/enlarged copy of the customer’s logo, and be sure the logo is exactly what the customer wants; if there is something on the logo that will not go on the thermostat, please cross it off.
8. The finished drawing will be assigned a logo number that will begin with the letter “L”. **Reference this number on your purchase order AFTER you receive the drawing;**
  - Failure to reference this “L” number on your P/O may result in the customer receiving blank thermostats. New covers with new logo are \$3.75 each
  - Referencing an incorrect or outdated logo number will result in wrong covers
9. Sign offs with purchase orders are expected within 10 days of the drawing’s completion. Both signed off drawing and purchase order (referencing a specific “L” number) must be faxed to ICM to complete the order. Failure to submit one or the other will cause delays.

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Phone  
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*ICM offers a wide variety of selling tools, and displays.*

*Please contact your ICM Controls sales representative for more information.*

Part #	Description
ICM002	ICM screwdriver, reversible phillips head/flat head, with pocket clip
ICM450 Demo	3-phase motor protection demonstration unit
Display-36PB	Pegboard – Standard merchandising display kit with 36" header and pegboard backer sheets
Display-48PB	Pegboard – Standard merchandising display kit with 48" header and pegboard backer sheets
Display-36SW	Slatwall – Standard merchandising display kit with 36" header and slatwall backer sheet
Display-48SW	Slatwall – Standard merchandising display kit with 48" header and slatwall backer sheet
LIM134	Authorized ICM Controls distributor window decal (8" w x 6" h)
LIM157	ICM Controls banner with gromets (52" w x 22" h)
LIM166	Static Window Sticker - Proudly Made in America ... for showroom windows
LIM167	Bumper Sticker - Proudly Made in America, Be a Patriot Buy American

**Note:** Some restrictions may apply. Please contact your ICM Controls sales representative for more information.

LIM134



LIM157



LIM166



LIM167



Display-36PB



- 36" pegboard *Each display ships with a separate header and a display kit. The kit contains all necessary parts to build the display, as shown above.*
- 48" pegboard
- 36" slatwall *Each slatwall display incorporates the header and ships with a display kit. It contains all necessary parts to build the display, as shown above, only for a slatwall configuration.*
- 48" slatwall

**Call your local sales representative for available options!**

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**\$4.99**

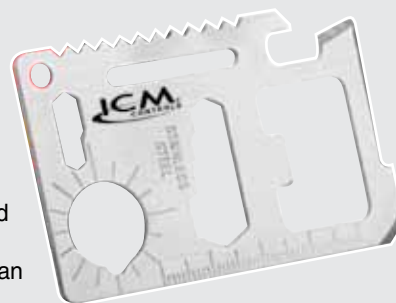


**Multi-Function Tape Measure**

Measure up at any promotional event with something that any handyman can put to use. This multi-function tape measure comes complete with a 10' retractable steel tape with a push button locking mechanism and a metric and inch scale. It comes complete with a notepad, a pen, a level and a belt clip.

**\$9.99**

**11 in 1 Palm Multi Tool**



Why carry around a bulky pocket knife when you can bring the 11 in 1 Palm Multi Tool with you almost anywhere? The 11 in 1 Palm Multi Tool is conveniently compact and can fit in almost any wallet. Stainless steel; can opener, knife edge, screwdriver, ruler, bottle opener, multi size wrench, butterfly screw wrench, saw blade, direction ancillary wrench, key chain hole. Polyurethane black pouch.

**Hugo Copper Vacuum Insulated Tumbler**

20 oz. durable, double-wall stainless steel vacuum construction with copper insulation, which allows your cold beverage to stay cold for 24 hours and at least 6 hours for hot beverages. The construction also prevents condensation on the outside of the tumbler. Easy sipping, push-on lid. Wide opening for comfortable filling and pouring. Design features the spinning, geometric bottom.

**\$16.99**



**KOOZIE Can & Bottle Cooler**

Keep your suds and soda colder, longer with this ICM Koozie. With a non-slip grip, it fits most can and bottles and folds flat so you can keep it in your pocket.

**\$4.99**



**Proudly Made in America!**

**Nike Golf Dri-FIT Classic**

The Dri-FIT fabric technology delivers superior moisture management, while the stitch-trimmed shoulder panels and gussets make a distinctive difference. Flat knit collar, three-button placket and open hem sleeves. Pearlized buttons are selected to complement the shirt color. Nike Swoosh design trademark is embroidered on the left sleeve. Made of 4.7-ounce, 100% polyester Dri-FIT fabric.

**\$39.99**



**Eddie Bauer® 1/2-Zip Base Layer Fleece**

This smooth-faced fleece is designed for next-to-skin comfort. Sleek and functional, it easily transitions from outdoor pursuits to everyday wear. Flat seam details. Reverse coil zipper. Open cuffs and hem. Contrast Eddie Bauer logo heat transfer on left sleeve. Made of 9.3-ounce, 100% polyester fleece.

**\$69.99**





Made in USA



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AMERICA**

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rapidstart® motor starters  
furnace controls  
gas ignition controls  
fan blower controls  
defrost controls  
condensate controls  
time delay relays  
ECM controls  
IR/RF controls  
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