ICM-UDEFROST

Universal Defrost Control

Replaces: All ICM Controls Legacy defrost boards and their crosses

INSTALLATION, OPERATION & APPLICATION GUIDE

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

MODE OF OPERATION

The ICM-UDefrost board monitors thermostat calls for Y, O/B and Win inputs. During a heat call If conditions for defrost are met, the control will perform a time and temperature defrost cycle. During normal operation, the control continuously monitors safeties such as the low-pressure switch, high-pressure switch, brownout detection, and sensor health while displaying status and fault conditions via onboard LED diagnostics.

FEATURES

- Universal time & temperature defrost board for heat pumps
- Configurable settings with NFC
  - Compressor anti-short cycle delay
  - High ambient temperature auxiliary heat lockout
  - Low ambient temperature compressor lockout
  - Defrost end & defrost enable temperature
  - Defrost interval timer
  - Max defrost time
  - Quiet shift
  - Compressor staging delay (after brownout or at power up)
  - Heat active/cool active reversing valve configuration
- Field test mode
- Brownout protection
- LED indicators to aid in troubleshooting

REPLACES

All ICM legacy products including: DFORB24A2I300, DFORB-AB1004, DFORF, DFOSP24A2, ICM300C, ICM301C, ICM302C, ICM303C, ICM304, ICM307, ICM314, ICM315, ICM316, ICM317, ICM318, ICM319, ICM320, ICM321, ICM322, ICM323, ICM324, ICM350, ICM3000, W1001, W1001-4 and their associated crosses.

For the complete list of crosses please visit our website at www.icmcontrols.com.

WARNING! Voltage input to R and C of the ICM-UDefrost control board is 24VAC only.

CAUTION! Installation of the ICM-UDefrost control board must be done by a certified HVAC technician or licensed professional.

To service control, remove all power by shutting off the disconnect or removing appropriate fuse. To prevent severe shock or electrocution always turn the power OFF at the service panel. Label all wires prior to disconnection. Failure to do so may result in wiring errors which can cause undesired or dangerous operation.

SPECIFICATIONS

Inputs:

- Power Supply
  - R, C (24 VAC, 50/60 Hz)
- Thermostat
  - 24 VAC, 24mA
- Outdoor Ambient Thermistor (OAT)
  - 10 K ohm
- Outdoor Coil Sensor (OCT)
  - 10 K ohm
- Low Pressure Switch (LPS)
  - 24VAC
- High Pressure Switch (HPS)
  - 24VAC
- Field Test Button

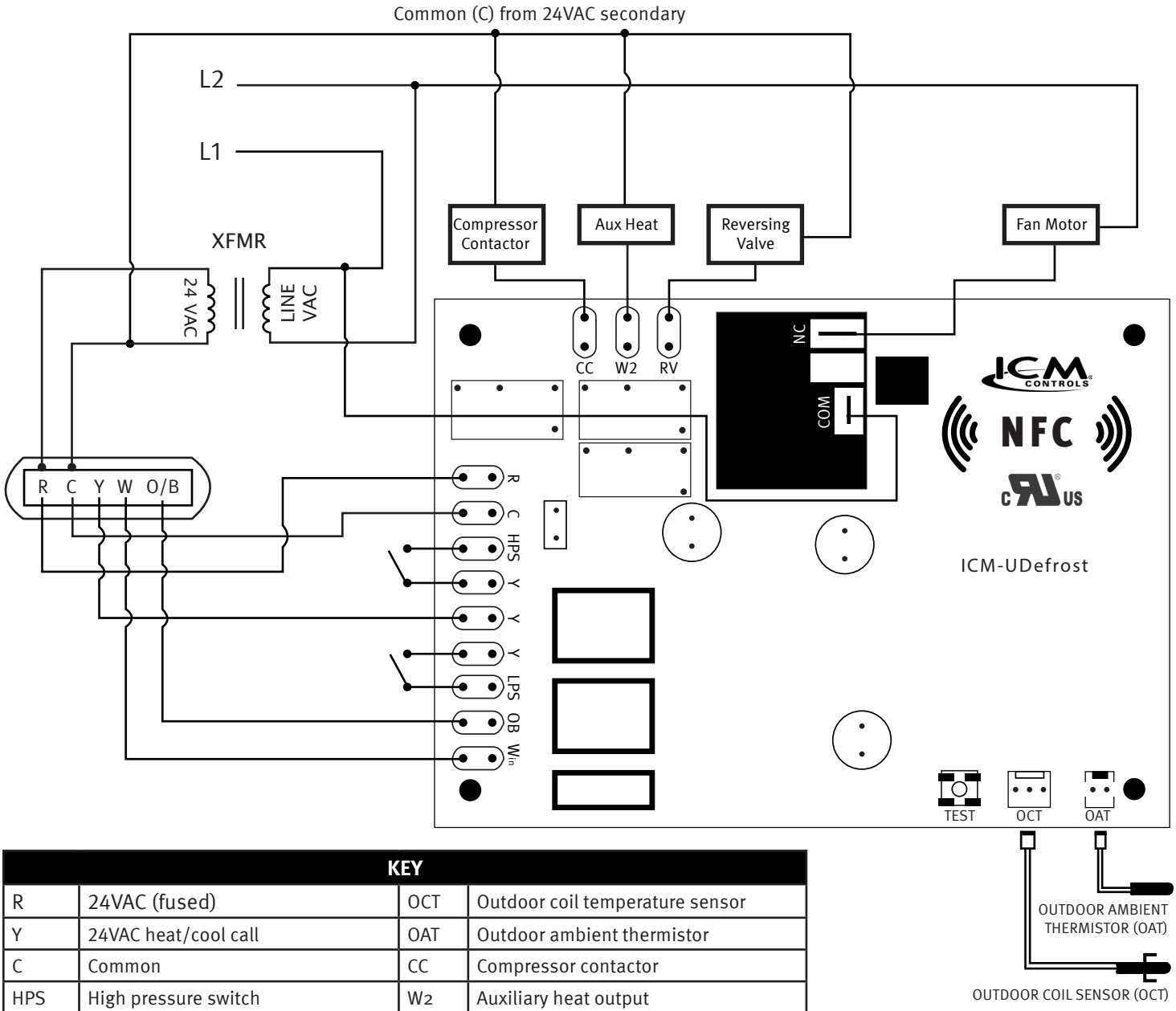
Outputs:

- Fan
  - N.C. ; 1/2HP, (2.7 FLA), 240 VAC
- Compressor Contactor
  - 24 VAC, 1A, Pilot Duty
- Reversing Valve (O/B)
  - 24 VAC, 1A, Pilot Duty
- W2
  - 24 VAC, 1A, Pilot Duty
- Cool LED
  - Blue
- Heat LED
  - Red
- Status LED
  - Green

Environment:

- Operating Ambient Temperature
  - -40°C to 70°C
- Shipping and Storage Temperature
  - -40°C to 75°C

WIRING DIAGRAM



KEY			
R	24VAC (fused)	OCT	Outdoor coil temperature sensor
Y	24VAC heat/cool call	OAT	Outdoor ambient thermistor
C	Common	CC	Compressor contactor
HPS	High pressure switch	W2	Auxiliary heat output
LPS	Low pressure switch	NC	Normally closed
O/B	Heat/cool active reversing valve	XFMR	Transformer
W_{in}	Auxiliary heat call	RV	Reversing Valve

TEST MODE

The TEST button located adjacent to the OCT sensor input is used to bypass each of the accumulating timers (anti-short cycle delay timer, compressor contactor output run timer, and the defrost run timer.

After pressing the push button down for greater than ½ second, the ICM-UDefrost control will bypass the timer that is currently being waited on. The bypass will begin upon the release of the TEST button. The control will need multiple button presses to bypass sequential timers.

NOTE: Conditions to enter defrost must be met for Test mode to function. These condition's include having a heat call in place, all safety switches closed, (HPS & LPS) and the OCT temperature must be at or below the defrost enable temperature.

Example:

State of operation:

- The ICM-UDefrost control is presently operating in the heat state with the OCT (outdoor coil temperature sensor) reading less than the defrost enable temperature

TEST button operation:

- The first press and release of the TEST button will bypass the accumulation of the Compressor Contactor Output Run Timer, placing the UDefrost into the defrost state.
- A second press and release of the TEST button will bypass the Defrost runtimer, placing the UDefrost into the heat state.

CROSS-REFERENCE SET-UP TABLE

Part Number	Reversing Valve (Cool/Heat Active)	Defrost Enable Temperature	Defrost End Temperature	Max Defrost Time
DFORB24A21300, DFORB-AB1004, DFORF, DFOSP24A2, ICM300C, ICM301C, ICM302C, ICM304, ICM307, ICM314, ICM316, ICM317, ICM318, ICM319, ICM320, ICM321, ICM322, ICM324, ICM350, W1001(ICM3185), W1001-4 (ICM318)	Cool Active	**	**	10 Min
ICM303C, ICM315	Cool Active	28°F	55°F	10 Min
ICM323	Heat Active	**	**	10 Min
ICM3000	Cool Active	34°F	80°F	14 Min

Note: ** Indicates switch type defrost termostat
Recommended defrost enable temperature 28°F and recommened end temperature of 55°F

DIAGNOSTICS

Display	Cool LED	Heat LED	Status LED	Troubleshooting Tips
Off	Off	Off	Off	N/A
Normal/Idle	Off	Off	On	N/A
Power Up	On	On	On	N/A
Cool	On	Off	On	Cooling call active
Cool ASC	Heartbeat	Off	On	ASC delay
Heat	Off	On	On	Heating call active
Heat ASC	Off	Heartbeat	On	ASC delay
Defrost	Off	Off	Heartbeat	Defrost call active
LPS Fault	Off	Off	1	Low pressure switch sensed open
LPS Lockout	Off	Off	2	Low pressure switch has opened 3 times
HPS Fault	Off	Off	3	High pressure switch sensed open
HPS Lockout	Off	Off	4	High pressure switch has opened 3 times
Outdoor Ambient Thermistor Error	Off	Off	5	Check connection verify resistance with multimeter
Outdoor Coil Sensor Error	Off	Off	6	Check connection verify resistance with multimeter
Brown Out	Off	Off	7	Check voltage between R&C

USING THE NFC TECHNOLOGY

Download the app

Locate and download the "ICM Omni" app from the Google Play Store or Apple Store.

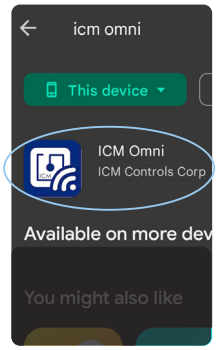
Available on the App Store | Available on Google play

Reading Your Device

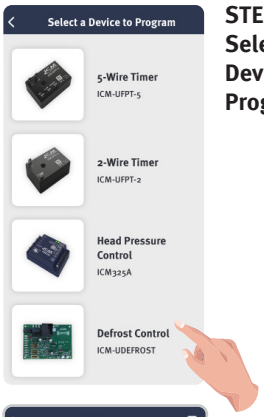
From the Home Screen, tap on Read Device.

Read Device Program

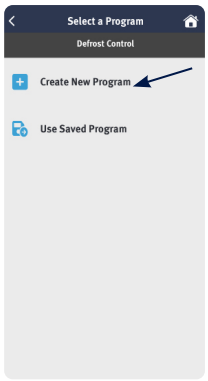
Hold your phone near your ICM device. The check mark shows complete.



STEP 1 - Open the app and select Program Device

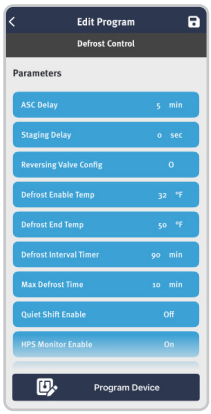


STEP 2 - Select a Device to Program



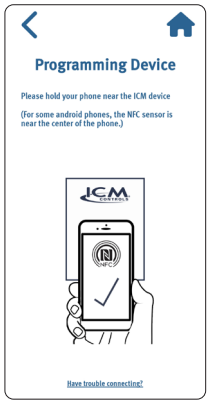
STEP 3 - Select a Program

Choose the option to create a new program or select a saved program.



STEP 4

Select each Parameter and Program while following the app.



STEP 5 - Programming Your Device

Hold your phone near your ICM device. The check mark shows complete.

USER SETTINGS

ASC Delay	Anti short-cycle
Staging Delay	Delay between turn on time
Reversing Valve Config	Heat active/cool active setting
Defrost enable temp	Temperature to enter defrost
Defrost end temp	Temperature to exit defrost
Defrost interval timer	Time between defrost cycles
Max defrost time	Defrost terminate based on time
Quiet shift enable	Reduce noise during defrost cycle
HPS monitor enable	Monitor high pressure switch
LPS monitor enable	Monitor low pressure switch
CC lockout enable	Enable low ambient lockout
CC lockout temp	Temperature at which low ambient lockout occurs
Aux lockout enable	Auxillary heat lockout enable
Aux lockout temp	Temperature at which the aux heat output is locked out

LIMITED LIFETIME PROTECTION WARRANTY

For warranty information and registration, please go to www.icmcontrols.com and click on Warranty Registration.

USA INNOVATION

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