Precision Cooling
For *Business-Critical Continuity™*

Liebert Dual Unit Control for InteleCool® and InteleCool2®

User Manual

UNIT 1   UNIT 2   UNIT 1   UNIT 2
LEAD UNIT   POWER ON

DUAL UNIT CONTROL

Liebert

Inside   Cool
Setting

75°   75°

Fan   System
On   Auto

Liebert.

EMERSON
Network Power

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FIGURES

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1.0   INSTALLATION

The optional Dual Unit Control is designed to control two InteleCool or two InteleCool2® units in a lead/lag fashion. The control contains an electronic timer for switching the operating sequence of two units at intervals of one, two, four or eight days.

It also contains a two-stage heat/two-stage cool electronic thermostat with individual heat and cool setpoints. Light emitting diodes (LEDs) indicate Lead Unit 1 or 2 and power to Unit 1 or Unit 2. If required for service, thelead/lag unit may be selected manually with the P2 jumper on the Dual Unit Control board.

1.1   Connecting the Dual Unit Controller to an Electronic Thermostat

The instructions below refer to Liebert's original InteleCool and newer InteleCool2.

1.1.1   Connecting the Dual Unit Controller to an InteleCool2

1. Install and level the Dual Unit Control. Leveling is not critical because the electronic thermostat does not contain mercury-filled limit switches.
2. Wire the InteleCool2 Units to the Dual Unit Control using industry standard thermostat cable. Each IntlelCool2 will need at least 4 conductor, 20 gauge copper, Class 2 wire for distances up to 50 feet (15.2m). Use 18 gauge copper, Class 2 wire for distances between 50 and 75 feet (15.2 - 22.9m).
3. Wire the Dual Unit Control per the diagram on the inside cover of the Dual Unit Control. The InteleCool2 to Dual Unit Control low voltage control wiring connections are:

InteleCool2 Terminals	Dual Unit Control Terminals
R - 24 VAC	R
1 - 24 VAC RTN	1/2
W - Heating	W
G - Evaporator Fan	See **Step 4** below
Y - Cooling	Y

4. Each InteleCool2 MUST have a jumper wire installed between terminals "G" and "Y". This ensures that the fan will energize on a call for cooling.

    For continuous operation of InteleCool2 unit evaporator fans, the "G" and "R" terminals may be connected. In this mode the jumper between the "G" and "Y" terminals should be removed, and the lead/lag function will control only the condenser fans, compressors, and heaters.
5. Tighten and check all connections for correct installation.
6. Refer to the thermostat user manual for setup and operation of the electronic thermostat.

1.1.2 Connecting the Dual Unit Controller to the InteleCool

1. Install and level the Dual Unit Control.Leveling is not critical because the electronic thermostat does not contain mercury-filled limit switches.
2. Wire the InteleCool units to the Dual Unit Control using industry-standard thermostat cable. Each InteleCool will need at least 4 conductor, 20 gauge, Class 2 copper wire for distances up to 50 feet (15.2m). Use 18 gauge, Class 2 copper wire for distances between 50 and 75 feet (15.2 - 22.9m).
3. Wire the Dual Unit Control per the diagram on the inside cover of the Dual Unit Control. The InteleCool to Dual Unit Control low voltage control wiring connections are as follows:

InteleCool Terminals	Dual Unit Control Terminals
R & 1 - 24 VAC	R
2 - 24 VAC RTN	1/2
W - Heating	W
G - Evaporator Fan	See **Step 4** Below
Y - Cooling	Y

4. Each InteleCool MUST have a jumper wire installed between terminals "G" and "Y". This assures that the fan will energize on a call for cooling.
5. For continuous operation of InteleCool unit evaporator fans, the "G" and "R" terminals may be connected. In this mode the jumper between the "G" and "Y" terminals should be removed, and the lead/lag function will control only the condenser fans, compressors, and heaters.
6. Tighten and check all connections for correct installation.
7. Refer to the thermostat user manual for setup and operation of the electronic thermostat.

NOTE

The electronic thermostat does not contain mercury, but it is not for use with older versions of the DUC printed wiring assembly. The electronic thermostat requires a connection to the 24VAC RTN terminal (Connector P1, Terminal 7) on the newer versions of the DUC printed wiring assembly. This connection is not available on the older version of the DUC.

Mercury thermostats may be used with the newer version of the DUC, but the P1 Terminal 7 connection noted above is not required for the mercury-style thermostat.

2.0   CONTROL STARTUP

2.1   Start the Dual Unit Control

1. Turn the thermostat Off.
2. Turn on power to both InteleCool2 units.
3. Turn on circuit breakers in each InteleCool2. Both green "POWER ON" LED's and 1 of the green "LEAD UNIT" LED's of the Dual Unit Control will be lit if the unit has been properly connected.
4. Turn the thermostat switch to the "Auto" setting.
   One or both of the InteleCool2 units should start if the thermostat is in a call for heating or cooling.

2.2   Check for Operation

1. Raise the thermostat setpoint to force a call for heating.
2. Then lower the thermostat setpoint to force a call for cooling.

The InteleCool2 unit's fans should run when there is a call for either heating or cooling.

2.3   Lead Unit Schedule & Selection

After verifying the connections and startup, the lead unit may be selected and the lead/lag schedule may be set.

2.3.1   Designating the Lead InteleCool2 Unit

The position of the P4 jumper on the Dual Unit Control board determines which InteleCool2 unit is the lead unit: the P4 jumper will be on pins 3 and 4, or "NORMAL."

Designation as the lead unit may be determined externally by checking a unit's LEAD UNIT LEDs on the front panel of the DUC. The InteleCool2 unit whose LEAD UNIT LED is lit is the lead unit. If the designation is satisfactory, no changes are necessary.

To change which InteleCool2 unit is the lead unit, place the P4 jumper on pins 1 and 2 or "REVERSE" on the Dual Unit Control in the InteleCool2 unit chosen to serve as the lead unit.

2.3.2   Schedule

The Dual Unit Control lead/lag schedule may be set with jumpers on the printed circuit board. By using the P2 and P3 jumpers and **Table 1**, the jumpers may be placed for the desired number of days between switchover. The P2 jumper is on the lower right hand corner of the board (see **Figure 1**). The P3 jumper is on the lower mid section of the board (see **Figure 1**).

Table 1   Switch/jumper settings

# Days for Lead/ Lag Switchover Cycle	P2	P3
8	Pins 8/4DAY	Pins 1 & 2 (SLOW)
4	Pins 4/2DAY	Pins 1 & 2 (SLOW)
2	Pins 4/2DAY	Pins 3 & 4 (FAST)
1	Pins 2/1 DAY	Pins 3 & 4 (FAST)

NOTE
If the lead/lag schedule is changed while the unit is running, the schedule change may not take effect until the original schedule is completed. Also, the unit will retain the lead/lag order of the units, even if power is removed, for two to five days, depending on the setting of the P2 and P3 jumpers.

Figure 1   Dual Unit Control Board
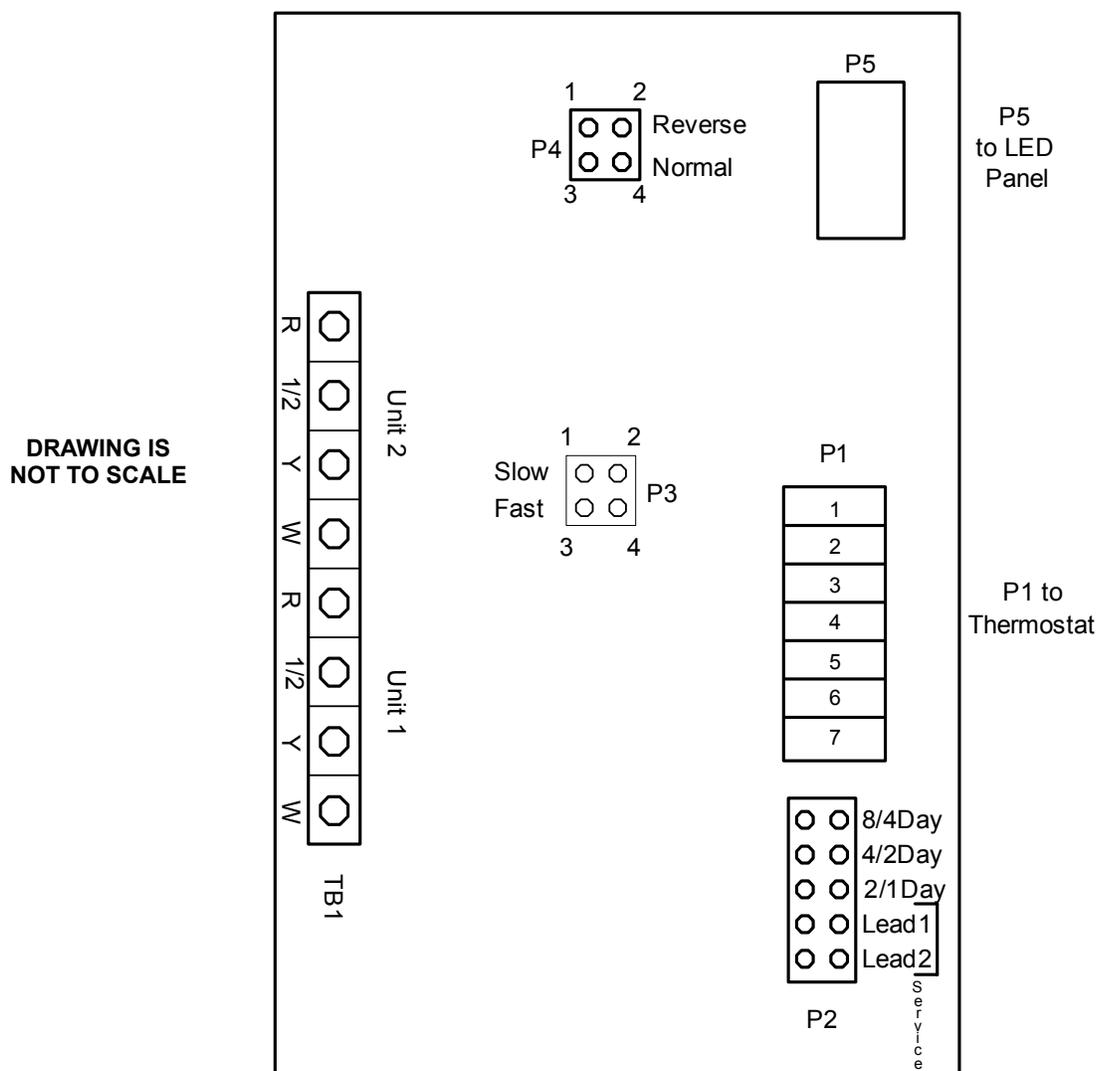
⚠ WARNING

InteleCool and InteleCool2 units contain potentially lethal voltage.

Shut off power before performing any service work.

During service, the P2 jumper should be placed on the pins that identify the unit NOT being serviced. Refer to **Table 2** for required jumper pin connections. The P2 setting will override the lead unit setting until the jumper is returned to the proper number-of-days location.

Table 2   Jumper settings for servicing InteleCool2 unit

To service desired unit	Jumper Settings P2	Jumper Setting P4
Unit 1	Lead 2	Pins 3 & 4 (normal)
Unit 2	Lead 1	Pins 3 & 4 (normal)

3.0   DISPOSAL OF DUAL UNIT CONTROL

Some thermostats used on this control may contain mercury in a sealed tube. Do not place the control in the trash at the end of its useful life. If this control is replacing a control that contains mercury in a sealed tube, do not place the old control in the trash.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of this control or of an old control containing mercury in a sealed tube. If you have questions, call the thermostat manufacturer at 1-800-468-1502.

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Locations
United States
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Columbus, OH 43229
Europe
Via Leonardo Da Vinci 8
Zona Industriale Tognana
35028 Piove Di Sacco (PD) Italy
+39 049 9719 111
Fax: +39 049 5841 257
Asia
7/F, Dah Sing Financial Centre
108 Gloucester Road, Wanchai
Hong Kong
852 2572220
Fax: 852 28029250

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