

# Product Information Packet

## Model TLC-700

Solid State Liquid Chiller with TC-3300

Temperature Controller and RS-232 Communications

Part #6-A0D0-0-004

Thank you for your purchase. Information has been inclosed regarding the installation, specifications, and wiring of your solid state assembly.

Please read and follow all instructions carefully before installation. Only qualified technicians should install this equipment.

If you have any questions with your equipment, please do not hesitate to call us toll free at (888) TECA-USA (832-2872), we will be happy to assist. We are open from 8:00 am to 4:30 pm Central Time.

Included in this packet you will find:

Getting Started

Product Literature and Specifications

Wiring Drawing # SK000724

Temperature Control Literature Set-Up and Communications Information

Warranty Information

TC-3300 Manual

The logo for TECA, featuring the word "teca" in a bold, lowercase, sans-serif font, with a registered trademark symbol (®) to its upper right. The logo is positioned on the left side of a horizontal line that spans the width of the page.

ThermoElectric Cooling America Corporation • 4048 W. Schubert Ave. • Chicago IL (USA) 60639  
Phone: 773-342-4900 Fax: 773-342-0191 • [www.thermoelectric.com](http://www.thermoelectric.com) • [teca@thermoelectric.com](mailto:teca@thermoelectric.com)

# GETTING STARTED:

(Read entire instructions before operating)

**STEP #1** This unit should operate with the bottom feet resting on a flat surface. The internal heat exchanger is cooled by a tubeaxial fan. It is necessary to keep the inlet/outlet air path free from any restrictions that may impede your cooling performance. A 6" minimum spacing from the rear of the unit to any obstruction is required. External tubing with insulation has been provided for a total of 12' plumbing line. Trim the tubing and insulation as necessary to minimize the ambient thermal load. 4 clamps have been provided to attach the tubing (2 to the quick connectors provided and 2 for your load connectors). The tubing lines are a 3/8" inner diameter. Connect the external plumbing lines to the device(s) being cooled.

**STEP #2** Low fluid and low flow indicators have been provided on the front panel. It is necessary to fill the internal reservoir before you apply power. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE PUMP The internal reservoir holds approximately 500 ml of fluid. The "add fluid" light will come on when the reservoir is approximately 1/2 full. There is a visual indicator of the water level on the side of the unit. Distilled water is the recommended fluid for temperatures to 5EC. For temperatures below 5EC, a 30% glycol 70% distilled water mix is suggested. Remove the reservoir cap located at the top left corner of the unit and fill the reservoir. Keep the reservoir cap off until the external plumbing is filled and the reservoir is topped off.

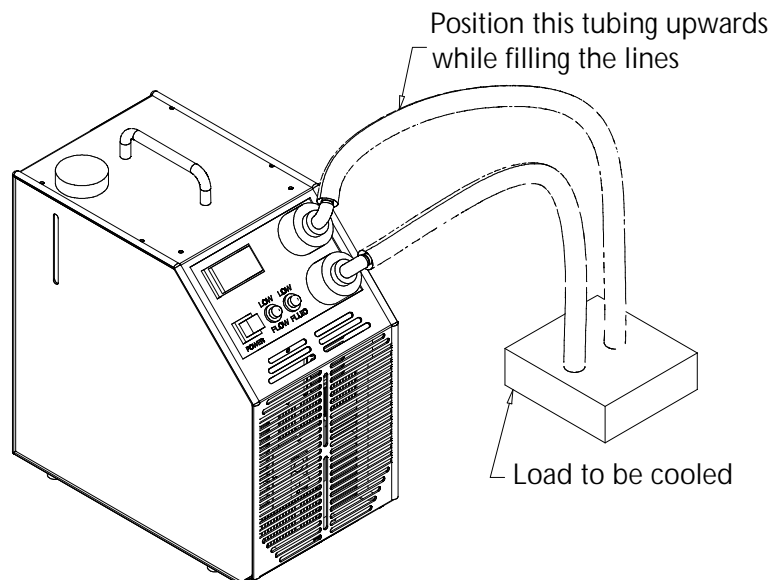
**STEP #3** Connect the power cord to an appropriate outlet. The power cord must be connected to a receptacle protected by a circuit protected per local and or national codes. While you are filling the external lines, position the supply quick connect upwards. (See Figure A) This will assist in removing air trapped in the lines. At this point, depress the power switch on the front panel to turn the system on. For a 12' plumbing line, it should take about 30 seconds before the "add fluid" light illuminates. At this point, turn the power off and add additional fluid. Re-apply power. Another 30 seconds or so should be enough time to completely fill the lines. Turn off the power switch and top off the reservoir. Reattach the reservoir cap securely.

Please Note: It may be necessary to add fluid to the reservoir from time to time. The "add fluid" indicator will illuminate if the reservoir requires a refill. If the "low flow" indicator light appears, check to see if there are any obstructions or leaks within the plumbing lines.

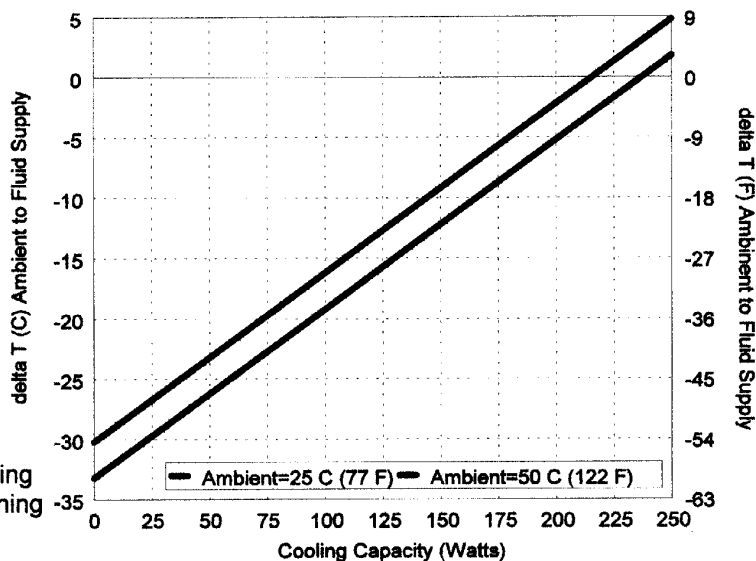
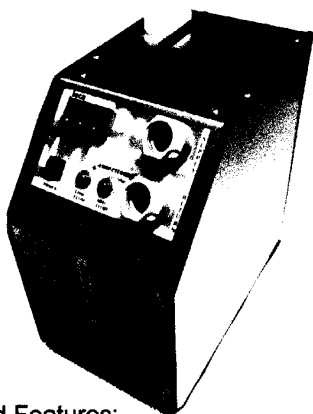
The "low flow" indicator appears when the flow is approximately 0.3 liter/min or less.

**STEP #4** A digital temperature controller has been provided. Hold the \* button and adjust ?> to adjust the set point. More detailed temperature control information has been included with your product information packet. We suggest changing the temperature controllers programming to a PID control method and then performing an autotune for better temperature control.

We hope you enjoy your new Ameritemp™ series liquid chiller. If you have any questions, please do not hesitate to call our technical department @ 888-TECA-USA (888-832-2872).



# ameritemp<sup>TM</sup> TLC-700 Solid State Liquid Chiller

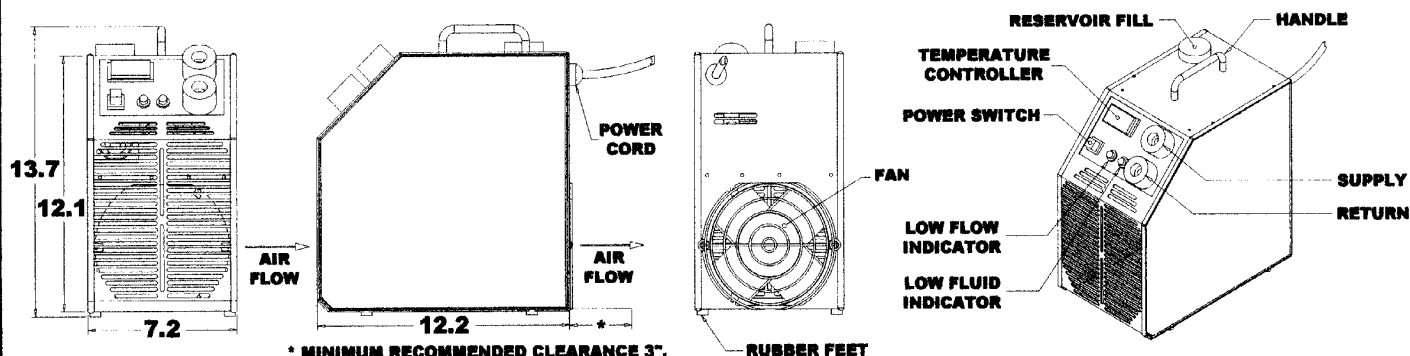


## Standard Features:

- ◆ 215 Watt Capacity
- ◆ PID Temperature Control
- ◆ Fluid Quick Connects
- ◆ Stainless Steel Housing
- ◆ Low Fluid/Flow Warning
- ◆ External Plumbing

Model Number	Part Number	Voltage (VAC)	Current (Amps RMS)	Frequency (Hz)	Weight Kg(Lbs)	Maximum Ambient	Heating Option (HC suffix)
TLC-700	6-A0D0-0-000	120	4.2	50/60	13.6(30)	50°C(+122°F)	200 Watt
TLC-700HC	6-A0D0-1-000						
Control Stability	Control	Housing	Liquid Jacket	Reservoir Capacity	Pump Flow	External Plumbing Provided with Shipment	Size (Inches)
< +/- 0.5°C	Digital Display 0.1°C Indication	Stainless Steel Type 304	Aluminum Type 6063	500 mL 0.13 Gal	2 1/2 LPM (.66 GPM) Open Flow	6 Foot Supply & Return Reinforced 3/8" ID PVC Tubing with Insulation	13.69 x 7.2 x 12.2

**TECA's Ameritemp<sup>TM</sup> Series Chillers** are a compact and reliable alternative to conventional recirculating coolers. A complete integrated package is now offered in a standard configuration. Precise temperature control and external plumbing lines with quick connectors are included with our base model. Options such as heating, RS-232 & Computer Communications software are offered as well. Windows<sup>TM</sup> based software includes logging, charting, remote configuration and set point adjustment. The Ameritemp<sup>TM</sup> is ideal for bench-top or portable applications such as laboratory, laser, x-ray, out-patient and medical therapy as well as many others.

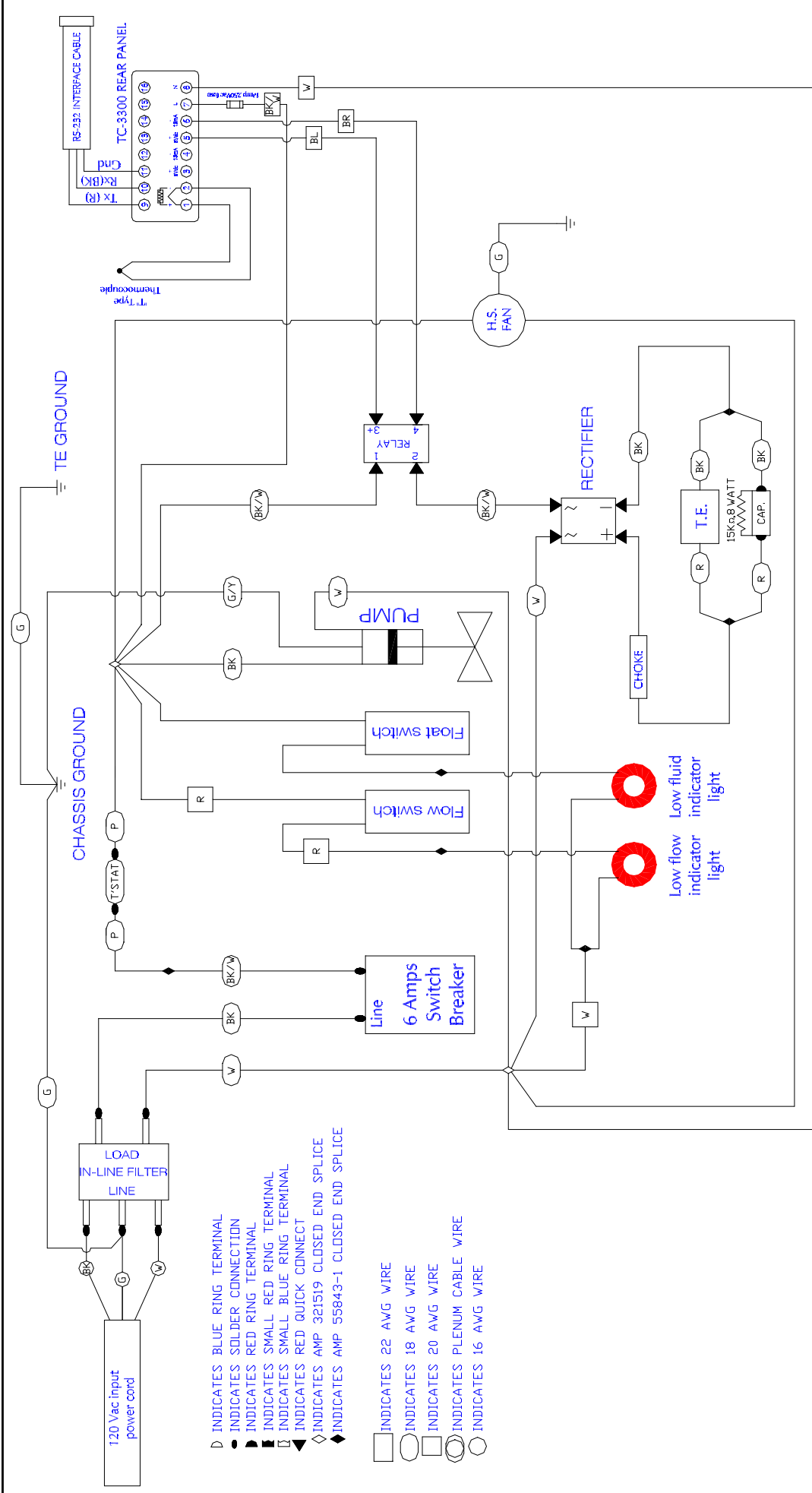


Dimensions are in inches

**teca**

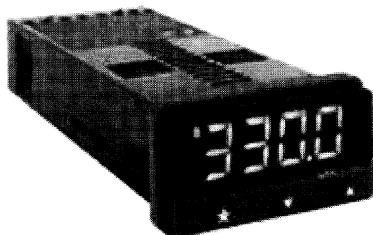
Call us toll free at 888-TECA-USA (832-2872)

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				INFORMATION DISCLOSED HEREIN IS THE PROPERTY OF TEGA CORP. RECIPENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER.  FINISH:		UNLESS OTHERWISE SPECIFIED DIMENSIONS IN FIGURES TO LEANCES ARE: <table><tr><td>DECIMALS</td><td>ANGLE</td><td>FRACTION</td></tr><tr><td>XX +/-</td><td>1/2</td><td>1/2</td></tr></table>		DECIMALS	ANGLE	FRACTION	XX +/-	1/2	1/2	AMERITEMP LIQUID CHILLER TLC-700 W/RS-232 WIRING DIAGRAM		THERMOELECTRIC COOLING AMERICA CORP.	
DECIMALS	ANGLE	FRACTION															
XX +/-	1/2	1/2															
A	Added EMI filter & revised wiring accordingly.	12/28/00	AA			DRAWN BY: AA		SK000724		REV LEVEL A							
REV	DESCRIPTION	DATE	APPROVED			DATE: 07/19/00		SCALE: D5404		MASTER: SK990502	SHEET						

# Temperature Controllers



## Featuring

Front panel display	<b>000.0 Digital High Brightness Display</b>
Operator lockout	<b>Included</b>
Ramp/Soak	<b>Included</b>
Type	<b>P.I.D.</b>
Auto tuning	<b>Included</b>
Data retention	<b>Included</b>
Size (1/32 DIN)	<b>2" w x 1.2" h x 4.57" d</b>
Weight	<b>3.9 oz</b>
Power Input	<b>AC &amp; DC Models</b>
Sensor (Provided)	<b>T-Type (6' Length cable)</b>
Calibration Accuracy	<b>+/- 0.25% of span +/- 1 LSD</b>
Control Stability	<b>Application Dependant Typically &lt; +/- 1°C</b>
Ambient Range	<b>0-50°C (32-130°F)</b>
Approvals (pending)	<b>UL873, EN 61010, CSA 22.2 No. 1010.1-92</b>
EMC Emission:	<b>EN50081-1 FCC Rules 15 subpart J Class A</b>
EMC Immunity:	<b>EN50082-2</b>
Sensor Range (T-Type)	<b>-200°C to +250°C</b>

## PC Compatible

Communications and communications software are available for PC supervision, offering remote adjustment, instrument configuration, cloning, saving and retrieving instrument settings to files together with logging and charting in real time.

To gain the full benefit of the COMMS software, it is recommended that the PC is fitted with a Pentium® Processor and is running Windows™ 95/98 Windows™ NT programs. A minimum of 16 Mb Ram is recommended, together with 20 Mb of hard disc space, to allow ample space for logging files.

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**M**odel 3300 is a digital, microprocessor based temperature controller designed to be used in conjunction with TECA heat pumps. When ordering a complete package, simply plug in the control cable and with factory preset tuning already provided, you are ready to go!

All models are designed with a Nema-4X front panel for corrosion and water resistance. This is ideal for applications such as food processing and food packaging, where equipment needs to be cleaned frequently. Features such as auto-tuning, dual output, and single input are available from these controllers. Each unit comes with factory default programming, but can be user modified through a setup menu.

## Part Number

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✧ (Standard)

### ▲ OUTPUT

- 0 Single Output (Cool Only) ✧
- 1 Dual Output (Cool/Heat)

### ○ INPUT

- 0 AC Input 100-240 VAC ✧
- 1 DC Input 12-24 VDC

### ● SOLID STATE RELAY

- 0 Internal Relay(s) ✧  
\*Choose this option if ordering with AC input TECA units. Relay(s) are contained within the power supply.
- 1 External Relay(s) AC load (10 amp)
- 2 External Relay(s) DC load (20 amp)

### □ COMMUNICATIONS

- 0 No Communications ✧
- 1 RS-232
- 2 RS-485

SOFTWARE (ORDER SEPARATELY)  
Windows™ Based, Includes Software Manual

**Part Number: 100-1GB-300**

Call us toll free at 888-TECA-USA (832-2872)

## **TC-3300 SET UP (ON/OFF STYLE)**

To access the set up menu push and hold **UP** and **DOWN** buttons simultaneously for 3 seconds.

Press and hold **UP** or **DOWN** button to navigate through the menu.

To change settings: Press and hold \* button, then use **UP** or **DOWN** buttons to enter new values.

Press and hold **UP** and **DOWN** buttons simultaneously for 3 seconds to exit the set up menu.

To set the main temperature: Press and hold \* button, then use **UP** or **DOWN** buttons to enter the new value.

### **LEVEL 1:**

tune	off
bAnd	0.5
int.t	5.0
dEr.t	25
dAc	1.5
cyc.t	on.off
oFst	0
sp.Lk	off
sprr	0
sprn	off
soAk	- -
sEt.2	0.2
bAnd.2	0.5
cyc.2	on.off

### **LEVEL 3:**

#### **Output configuration**

sp1.d	ssd1
sp2.d	ssd2
burn	1u.2d
rEu.d	1r.2r
reu.L	1n.2n
spAn	0.0
zEro	0.0
chEk	off
rEAd	Var
tEch	ctA
uEr	(see note)
rsEt	nonE

### **LEVEL 4:**

Lock	nonE
Prog	Auto
no.AL	on
dis.s	6
dEr.s	0.5

### **LEVEL C:**

#### **COMMS menu**

Addr	1
bAud	9600
dAtA	18n1
dbuG	off

### **LEVEL 2:**

#### **Manual control modes**

sp1.p	(as is)
hAnd	off
pL.1	100
pL.2	100
sp2.A	dv.hi
sp2.b	nonE
disp	0.1
hisc	70
Lo.sc	-10
inpt	tc t
unit	c

Note: "uEr" value is preset and can not be changed, however it provides access to LEVEL 4. Press and hold UP and DOWN buttons for 10 seconds to access LEVEL 4.

LEVEL C only visible when COMMS option fitted.

Set SP1 (main temperature set point) to 10 C.

## TC-3300 SET UP (PID STYLE) FOR COOL ONLY.

To access the set up menu push and hold **UP** and **DOWN** buttons simultaneously for 3 seconds.

Press and hold **UP** or **DOWN** button to navigate through the menu.

To change settings: Press and hold \* button, then use **UP** or **DOWN** buttons to enter new values.

Press and hold **UP** and **DOWN** buttons simultaneously for 3 seconds to exit the set up menu.

To set the main temperature: Press and hold \* button, then use **UP** or **DOWN** buttons to enter the new value.

### LEVEL 1:

tune	off
bAnd	4.0
int.t	20
dEr.t	10
dAc	1.0
cyc.t	10
oFst	0
sp.Lk	off
sprr	0
sprn	off
soAk	- -
sEt.2	0.0
bAnd.2	2.0
cyc.2	on.off

### LEVEL 3:

#### Output configuration

sp1.d	rLy2
sp2.d	rLy1
burn	dn.sc
rEu.d	1d.2d
reu.L	1i.2n
spAn	0.0
zEro	0.0
chEk	off
rEAd	Var
tEch	ctA
uEr	(see note)
rsEt	nonE

### LEVEL 4:

Lock	nonE
Prog	Auto
no.AL	on
dis.s	6
dEr.s	0.5

### LEVEL C:

#### COMMS menu

Addr	1
bAud	9600
dAtA	18n1
dbuG	off

### LEVEL 2:

#### Manual control modes

sp1.p	(as is)
hAnd	off
pL.1	100
pL.2	100
sp2.A	nonE
sp2.b	nonE
disp	0.1
hisc	70
Lo.sc	-10
inpt	tc t
unit	c

Note: "uEr" value is preset and can not be changed, however it provides access to LEVEL 4. Press and hold UP and DOWN buttons for 10 seconds to access LEVEL 4.

LEVEL C only visible when COMMS option fitted.

Set SP1 (main temperature set point) to 10 C.

In order to use **tune** option with the controller for cool only set up, the controller should be set up with **PID STYLE COOL ONLY** settings. Follow the steps outlined below to change the controller settings from **ON/OFF STYLE** to **PID STYLE COOL ONLY**.

**Method 1:**

- In **LEVEL 3** change the **rsEt** value to **All**.

rsEt	All
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- Change the settings in **LEVEL 1** through **LEVEL 4** to match the settings in the **PID STYLE COOL ONLY** set up.

**Method 2:**

- In **LEVEL 2** change the **unit** value to **nonE**.

unit	nonE
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- In **LEVEL 3** change the **sp1.d** value to **rLy2** and **sp2.d** to **rLy1**.

sp1.d	rLy2
sp2.d	rLy1

- Change the settings in **LEVEL 1** through **LEVEL 3** to match the settings outlined in **PID STYLE COOL ONLY** set up.





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## **DECLARATION OF CONFORMITY**

<b>TYPE OF EQUIPMENT</b>	Electrical Heat Pump, Liquid Chiller, Solid State Cooling Device
<b>BRAND NAME</b>	TLC
<b>TYPE DESIGNATION</b>	700, 702
<b>YEAR OF MANUFACTURE</b>	Refer to the first two digits of the serial number on the manufacturers ID label
<b>MANUFACTURER</b>	TECA Corporation 4048 W. Schubert Ave. Chicago, IL, 60639 U.S.A.
<b>APPLIED STANDARDS</b>	
Application of Council directive: Standards to which conformity is declared:  Report number:	Machinery Directive (89/336/EEC) EN61326:1997, Class A EN61326:1997, Industrial Location J20022721.011
Low voltage directive Standards to which conformity is declared:  Report number:	73/23/EEC - European union (EU) EN61010-1-A1:97 EN61010-2-010-A1:97 J20022721.L01
<b>TESTING AGENCY</b>	ITS Intertek Testing Services ETL SEMKO

VP of Engineering  
Andy Brecklin

June 19, 2003

## LIMITED WARRANTY

In the event a defect in material or workmanship is discovered in any of TECA's products within one year after the date they are delivered to Buyer, and if: (a) TECA is notified of the defect in writing by certified mail within 14 days of the date of discovery; (b) TECA may then either, at its sole discretion, inspect the product at Buyer's location, or require that the product be made available at Buyer's expense at TECA's premises for TECA's inspection within 14 days of the date of notification; and (c ) the products are defective and the defects result from faulty materials and/or workmanship and not in any way from accident, misuse, misapplication, mishandling, modification, or alteration by the Buyer or the shipper, then TECA shall, at its sole option, repair or exchange defective products free of charge to Buyer, or credit to buyer the price of the defective products. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL TECA BE LIABLE FOR ANY CLAIM BASED UPON BREACH OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER DAMAGES WHETHER SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, LOST PROFITS, BUSINESS INTERRUPTION, OR LOSS OF BUSINESS OR CUSTOMER RELATIONSHIPS.

## RETURNED GOODS, RESTOCKING CHARGES

In order to return merchandise for any reason ( repair, replacement, or credit) a return authorization number must be issued by TECA. New merchandise may not be returned for credit beyond 60 days from shipment. Charges for incidental or other damages may also be made. All returned goods must be sent freight prepaid. A restocking charge of 15% will apply. On special equipment and custom modified equipment orders, additional incremental cancellation charges may be made.