

SINCE 1889



LOW TEMPERATURE FREEZER LTF PLATINUM SERIES

MODEL

**LTF401UP / LTF501UP
LTF601UP / LTF701UP / LTF801UP**

INSTRUCTION MANUAL

- FIRST EDITION –

- Thank you for purchasing LTF Platinum Series Low Temperature Freezer of Yamato Scientific.
- To use this unit properly, read this "Instruction Manual" thoroughly before using this unit. Keep this instruction manual around this unit for referring at any time.



WARNING: Carefully read and thoroughly understand the important warning items described in this manual before using this unit.

**Yamato Scientific America Inc.
Santa Clara, CA**

CONTENTS

◆ SYMBOLS AND STARTING INSTRUCTIONS.....	1
• MEANING OF ILLUSTRATED SYMBOLS.....	1
• STARTING INSTRUCTIONS.....	1
◆ UNIT REQUIREMENTS.....	2
• PRE-INSTALLATION INFORMATION.....	2
◆ GENERAL SPECIFICATIONS.....	3
• TEMPERATURE SPECIFICATIONS.....	3
• ELECTRICAL SPECIFICATIONS.....	3
◆ REFRIGERATION SPECIFICATIONS.....	4
◆ MAINTENANCE.....	5
◆ UNIT OPERATION.....	6
◆ ALARM OPERATION.....	7
◆ TEMPERATURE CONTROL.....	8
• TOUCHSCREEN INTERFACE.....	8
• DISPLAY INTERFACE.....	9
• BATTERY BACKUP.....	10
• TEMPORARY STORAGE.....	10
• EXTERNAL CONTROLLER DISPLAY.....	11
• DATA DOWNLOAD VIA USB.....	11
• ETHERNET CONNECTION PORT.....	12
• DATA SETTINGS ADJUSTMENTS.....	12
◆ TEMPERATURE CONTROL ADJUSTMENTS.....	13
• DATA SETTINGS ADJUSTMENTS.....	13
• TEMPERATURE OFFSET ADJUSTMENT.....	14
• ALARM DIFFERENTIAL.....	15
◆ OPERATING SYSTEM.....	16
◆ WIRING DIAGRAM.....	17
◆ ALARM WIRING DIAGRAM.....	18
◆ REFRIGERATION FLOW CHART.....	19
◆ REPLACEMENT PARTS LIST.....	20
◆ AFTER SERVICE AND WARRANTY.....	21

SYMBOLS AND STARTING INSTRUCTIONS

Explanation

MEANING OF ILLUSTRATED SYMBOLS

ILLUSTRATED SYMBOLS

Various symbols are used in this safety manual in order to use the unit without danger of injury and damage of the unit. A list of problems caused by ignoring the warnings and improper handling is divided as shown below. Be sure that you understand the warnings and cautions in this manual before operating the unit.



CAUTION

BLACK WITH YELLOW BACKGROUND
LIGHTNING BOLT
CAUTION, RISK OF ELECTRICAL SHOCK



WARNING

BLACK WITH YELLOW BACKGROUND
EXCLAMATION POINT
CAUTION, REFER TO ACCOMPANYING DOCUMENTS

STARTING INSTRUCTIONS

1. Move the freezer to an indoor location and plug the freezer into an appropriate outlet with an adequate power supply. Consult your maintenance department for additional information on the proper electrical configuration for this unit.
2. Once plugged in, the compressor(s) will start to operate and pull down to the setpoint on the temperature control.
3. Allow the freezer to reach the setpoint temperature. Depending on the size of the unit, this may take up to 12 hours.
4. Product can now be loaded into the freezer for storage.

Unit Information

PRE-INSTALLATION INFORMATION

RANGE OF ENVIRONMENTAL CONDITIONS FOR WHICH THIS EQUIPMENT IS DESIGNED

1. Indoor use.
2. Altitude up to 2000m.
3. Ambient temperatures 15°C to 30°C (60°F TO 85°F)
4. Recommended humidity range of 30% to 90%.
5. Mains supply fluctuations up to -5% to +10% of the nominal voltage.
6. Transient over-voltages typically present on the mains supply (overvoltage category II). Pollution degree 1.



WARNING

THIS FREEZER IS PROVIDED WITH AN INPUT CIRCUIT PROTECTIVE DEVICE WHICH SHALL BE MAINTAINED AND SERVICED BY QUALIFIED PERSONNEL ONLY.



CAUTION

FUSES OR BREAKERS USED INSIDE PROTECTIVE DEVICE 15A OR 20A 250V TIME DELAY.



CAUTION

UNPLUG FREEZER BEFORE ANY TECHNICAL SERVICE IS PERFORMED ON THE UNIT.



WARNING

DO NOT POSITION EQUIPMENT SO IT IS DIFFICULT TO DISCONNECT FROM THE POWER SUPPLY.

GENERAL SPECIFICATIONS

Specifications

TEMPERATURE SPECIFICATIONS


OPERATIONAL TEMPERATURE RANGE

0°C TO -40°C

ELECTRICAL SPECIFICATIONS

ELECTRICAL PLUG

- Plug the freezer into the proper outlet with an adequate power supply.
- This unit requires a **Dedicated Electrical Line**.

MODEL	VOLTAGE	AMPERAGE	PLUG
LTF401UP LTF501UP LTF601UP LTF701UP LTF801UP	115 VOLTS 60 HERTZ 1 PHASE	20 AMP DEDICATED LINE	 NEMA 5-20



WARNING

ONLY PLUG THIS UNIT INTO THE PROPER OUTLET. DO NOT ATTEMPT TO MODIFY PLUG IN ANY WAY. IMPROPER USE OF THE ELECTRICAL PLUG WILL VOID WARRANTY

REFRIGERATION SPECIFICATIONS

REFRIGERATION SPECIFICATIONS

MODEL	CU. FT.	REFRIGERATION SYSTEM	HIGH STAGE REFRIGERANT
LTF401UP	13	1 HP TECUMSEH	R404A – 14 oz. R290 30" to 0 psi
LTF501UP	18	1 HP TECUMSEH	R404A – 15.5 oz. R290 30" to 0 psi
LTF601UP	22	1 HP TECUMSEH	R404A – 15 oz. R290 30" to 0 psi
LTF701UP	25	1 HP TECUMSEH	R404A – 17 oz. R290 30" to 0 psi
LTF801UP	28	1 HP TECUMSEH	R404A – 19 oz. R290 30" to 0 psi

PREVENTATIVE MAINTENANCE

BEFORE PERFORMING MAINTENANCE

To reduce the risk of fire, electric shock or injury to persons using this freezer, read all instructions and follow basic safety precautions.



CAUTION

DISCONNECT THIS UNIT FROM THE POWER SUPPLY BEFORE PERFORMING MAINTENANCE ON THE UNIT.

CLEANING PROCEDURE

- Wipe down the exterior of the freezer with a soft cloth and spray type polish.
- If frost builds up in the chamber, a bucket and ice-scraper can be used to remove the ice.
- If excessive ice builds up, the unit can be defrosted (see below).

DEFROST PROCEDURE

1. Remove any product in the freezer and store it in a back-up freezer or elsewhere.
 2. Unplug the freezer, and open the freezer front door / lid.
 3. Use a cloth to protect the control from dripping water.
 4. Air out the freezer for at least 12 hours, allowing the unit to reach room temperature.
 5. Take a rag and wipe up all the excess water in the unit (melted frost).
 6. Plug the unit in and set your temperature to the desired setpoint
 7. Once the desired temperature is reached, add product back into the unit.
-
-



WARNING

IT IS RECOMMENDED TO SLOWLY RE-ADD YOUR PRODUCT INTO THE FREEZER TO PREVENT AN EXTREME LOAD ON THE COMPRESSORS, WHICH COULD SHORTEN FREEZER LIFE EXPECTANCY.

AUTOMATIC STARTING SYSTEM

The automatic starting system is provided on all freezer systems in case of power failure. If there is an electrical power interruption to the unit and power is not restored immediately, the unit will automatically start up whenever power is returned.



WARNING

ALWAYS LEAVE THE REFRIGERATION SWITCH IN ON POSITION, AS THIS WILL AUTOMATICALLY ACTIVATE THE AUTOMATIC STARTING SYSTEM.



CAUTION

COVER SCREEN ON BACK OF FREEZER MAY ONLY BE REMOVED BY AUTHORIZED PERSONNEL ONLY.

FOR CONNECTIONS TO THE EXTERNAL ALARM COVER SCREEN MUST BE REPLACED BEFORE PUTTING FREEZER INTO SERVICE.

FAILURE TO REINSTALL COVER COULD RESULT IN HAZARD.

ALARM SYSTEM

Alarm will automatically activate when the freezer reaches set point or 8 hours after the unit has been first plugged in.

The alarm will not sound again until the temperature varies 12°C (20°F) from the temperature control set point.

Please note that the alarm will use battery power to sound if there is a power outage to the freezer.

ALARM SYSTEM BATTERY REPLACEMENT

- Rechargeable batteries should be changed approximately every three years with lead acid rechargeable 12 AMP/HR, model PS-12120F2 or equivalent.



WARNING

ALARM SYSTEM SHOULD BE TESTED EVERY 30 DAYS.

DRY CONTACT RELAY

The dry contact relay is a terminal strip located on the back of the freezer.

RATING OF THIS CONNECTION:

2A 250 VAC

2A 30 VDC

RED – NORMALLY CLOSED
WHITE – COMMON
BLUE – NORMALLY OPEN



WARNING

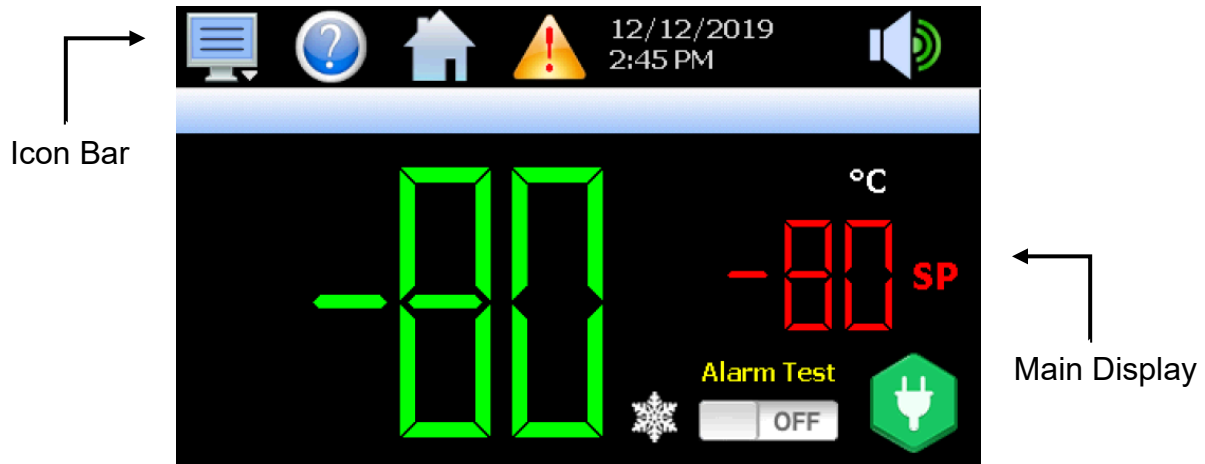
IF IT IS NECESSARY TO REMOVE METAL COVER SCREEN ON BACK OF FREEZER TO MAKE CONNECTIONS TO ALARM RELAY, COVER MUST BE REPLACED BEFORE FREEZER IS PUT INTO OPERATION






TEMPERATURE CONTROL

TOUCHSCREEN INTERFACE

The nCompass display is split into two sections: the upper icon bar and bottom main display area.

The basic functions and settings for the upper **Icon Bar** are listed below:



ICON	DESCRIPTION
	The menu icon will open the main menu for navigating to the different control and monitoring screens. Menu items will dynamically appear providing available options based on the system area the user is in, i.e., security, data logging, setup, etc.
	The information (help) icon will display text based help associated with the current screen. Help is available in three languages, English, Spanish and French based on the user selection in the offline setup of section of nCompass.
	The home icon will return the user to the main view from anywhere in the nCompass application. The main view is set by the OEM in the nCompass configuration and can be the single or dual loop, trend, alarm, alarm history, event or digital IO view.
	The alarm icon will appear and flash when a new system alarm occurs. Pressing the alarm icon will take the user directly to the alarm monitor screen in order to view and /or reset the active alarm condition.
	The speaker icon will open the volume control menu, which controls the audible level of temperature and condition alarms. The volume setting of "100" is the factory default setting. Moving the volume dial to the "0" will disable the audible alarm.

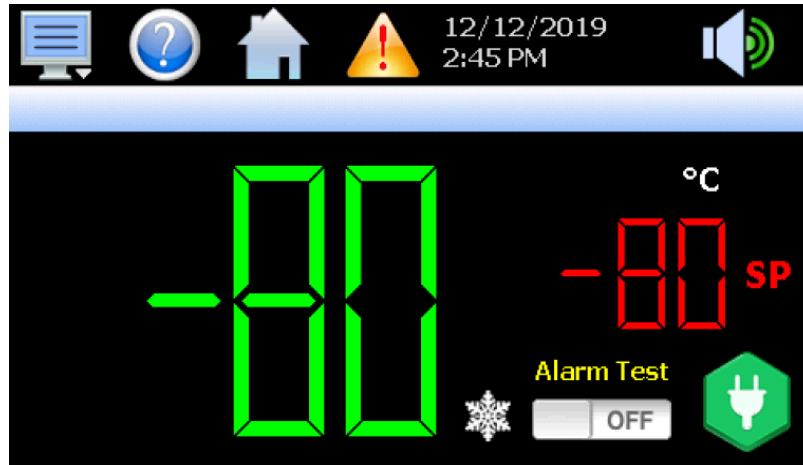


Do not use any sharp or metal objects on the touch screen as they may damage the surface. Also be sure that hands and fingers are free from oils or chemicals which may mar the surface of the touch screen

Loading time between menu screens or parameter selection screens may vary. Some menu screens may require several seconds to load before the information is displayed. Pushing the display several times while a menu or parameter is loading may result in menus being opened, or parameters being changed unintentionally.

TEMPERATURE CONTROL

DISPLAY INTERFACE



LOCATION	FUNCTION	ICON	DESCRIPTION
A	Temperature Scale		This display shows the temperature scale of the freezer (°C or °F). Pressing this display allows you to reset the historical maximum and minimum temperature (see location C for additional information).
B	Setpoint Temperature		This number display shows the setpoint temperature of the unit. Press and release the red numbers to change the setpoint temperature. Input the new setpoint temperature with number pad and press and release the done key.
C	Actual Temperature		This number display shows the actual temperature inside the unit. Pressing this display will show the historical maximum and minimum temperatures. The historical record can be set by pressing the Temperature Scale button.
D	Snowflake		This display shows when the refrigeration system compressors are cycled on. There is no additional functionality of this icon.
E	Alarm Test		This display shows if the alarm test is active. Pressing this display will move the slider to the ON position, and sound the audible alarm as a test. Note that if the volume is set to "0", no alarm will sound. Press the icon again to reset it to OFF .
F	Power Connection		This display shows the current power connection for the control. If the control is on AC power, a green plug icon will appear. If the control is on backup battery power, a red battery icon will appear. There is no additional functionality of this icon.



Note: When changing unit setpoint temperature, the unit must have active power from an electrical grid for at least 5 minutes after the setpoint temperature is changed, for the new setpoint to become permanent.

If electrical power to the control is lost before the 5 minute setpoint adjustment period, the unit will restore itself to the last saved setpoint temperature on power start-up.

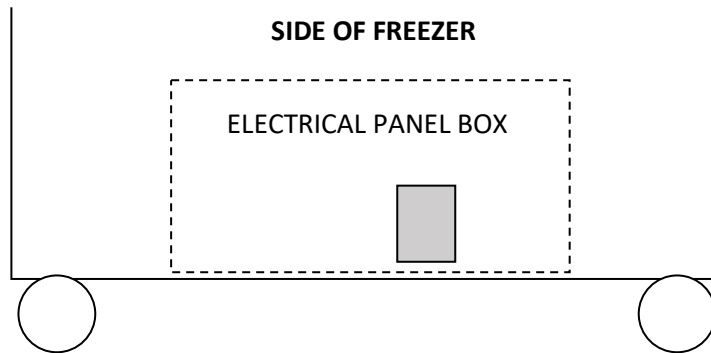
TEMPERATURE CONTROL

BATTERY BACKUP

In the case of power failure, the nCompass temperature control switches from AC power to a backup battery located inside the electrical panel of the freezer. This battery is the 6 volt rechargeable type, and is designed to last approximately 24-48 hours during power failure. It is recommended to test the battery on a regular basis and replace the battery when needed (approximately 3-5 years).



ATTENTION: The battery backup system only powers the control during power failure. It does not power the refrigeration system, and the freezer will not run during power failure.



TEMPORARY STORAGE

When unplugging the freezer to put it into storage, the power failure alarm will sound. To disable this power failure alarm, you will need to disconnect the battery, which is located in the electrical panel.

To do this, complete the following procedure:



CAUTION

*RISK OF ELECTRICAL SHOCK
USE CAUTION NEAR ELECTRICAL CONNECTIONS*

1. Locate the electrical panel on the side of the freezer.
2. Remove the screws with a Phillips screwdriver, and remove the panel.
3. Locate the battery (which is clearly marked) in the lower right hand corner.
4. Disconnect one lead from the battery by removing the connector on the battery.
5. When returning the unit to service, complete steps 1-4, but reconnect the unplugged battery in step 4. Then plug the freezer into the outlet to restore power.



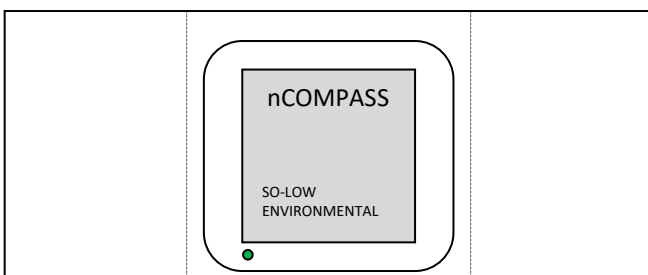
It is recommended to keep the freezer plugged in and running when possible. Leaving the unit unplugged for long periods of time may shorten the life expectancy of the freezer.

TEMPERATURE CONTROL

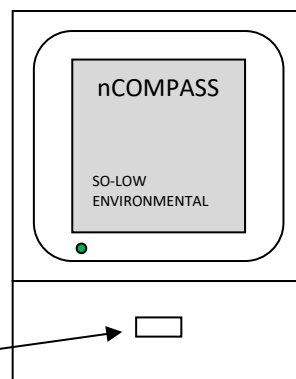
EXTERNAL CONTROLLER DISPLAY

The nCOMPASS controller plate located on the front of the chamber can be vertical or horizontal depending on the orientation of your unit. **Upright** freezer models use the horizontal format (shown in the picture below to the left). **Chest** freezer models use the vertical format (shown in the picture below to the right).

UPRIGHT STYLE







CHEST STYLE



USB PORT

DATA DOWNLOAD VIA USB

STEP	DESCRIPTION	ICON	INSTRUCTIONS
1	Insert USB		Insert your USB Drive / Flash Drive into the USB port located on the front of the control.
2	Home Menu		Press the menu icon, at the top of the display area. This will open the Home menu.
3	Data Menu		Press the Data button, located in the Home menu. This will open the Data panel. This menu controls how data is transfer to your USB device.
4	Specify name of Data File		(Optional) Enter the requested information into the File Name field. If no file name is entered, the control will automatically generate a file name for you.
5	Save Data		Press the Save button, located in the Data menu.
6	Home		Press the home key, to return to the home screen.
7	Remove USB		Remove your USB Drive / Flash Drive from USB port located on the front of the control.

ETHERNET CONNECTION PORT

On the bottom of the freezer (located either next to the electrical panel, or on the back of the unit), is an RJ45 ethernet connection port. This connection port can be used to connect the nCompass control to your local computer network. When connected to your computer network the nCompass control has access to the following functionality:

- VNC access for remote connection, for local network users.

When your local computer network also has internet access, the nCompass control has access to the following functionality:

- Email (and text) alerts to a specified email address (or phone).
- Upload temperature data to an FTP server

EMAIL / TEXT ALARMS MAY NOT OPERATE DURING POWER FAILURE IF YOUR NETWORK IS NOT PROPERLY CONFIGURED



The battery backup system on the freezer only powers the control during power failure. It does not power any additional network systems which may be required for your internet to operate. It is recommended to have your local network router, and modem, connected to a battery backup, so the freezer's internet connection will continue to operate during power failure.




DATA SETTINGS ADJUSTMENTS

Follow the below procedure for adjustments which require the DATA setting to be turned **OFF**.

Follow the below procedure for adjustments which require the DATA setting to be turned **ON**.



ATTENTION: While the DATA setting is turned **OFF**, temperature data will not be recorded.

1	Home Menu		Press the menu icon, at the top of the display area. This will open the Home menu.
2	Data Menu		Press the Data button, located in the Main menu. This will open the Data panel.
3	DATA		Press the Data button on the right hand side to turn the data light off/on. A BRIGHT green light indicates the data is turned on. A DARK green light indicates the data is turned off.
4	Home		Press the home key, to return to the home screen.








TEMPERATURE CONTROL ADJUSTMENTS

TEMPERATURE ADJUSTABLE SCALE

The nCOMPASS temperature controller has an adjustable temperature scale (**Celsius** or **Fahrenheit**).



Note: Once the temperature scale has been changed, all past and future temperature data will be converted into the selected temperature scale.

STEP	DESCRIPTION	ICON	INSTRUCTIONS
1	DATA OFF		Follow the steps in the DATA SETTINGS ADJUSTMENTS to turn the data OFF.
2	Home Menu		Press the menu icon, at the top of the display area. This will open the Home menu.
3	Settings		Press the settings button, located in the Home menu. This will open the Settings panel.
4	Settings Menu		Press the menu icon, at the top of the display area. This will open the settings menu.
5	Offline Mode		Press the offline button, located in the Settings Menu. Press YES when prompted to open the control in offline mode. This will open the Offline mode panel.
6	Offline Menu		Press the menu icon, at the top of the display area. This will open the offline menu.
7	Units		Press the units button, located in the Offline menu. This will open the units panel.
8	Select Scale		Select the temperature scale (Celsius or Fahrenheit) you wish to display. A BRIGHT yellow icon indicates the scale has been selected. A DARK yellow icon indicates the scale has not been selected.
9	Home		Press the Home button when completed, to return to the home screen.
10	DATA ON		Follow the steps in the DATA SETTINGS ADJUSTMENTS to turn the data ON.

TEMPERATURE CONTROL ADJUSTMENTS

TEMPERATURE OFFSET ADJUSTMENT

The nCOMPASS temperature controller has an adjustable offset to calibrate the temperature control.



Note: Adjustments made to the temperature offset will calibrate the control. Adjusting this setting improperly can cause inaccuracies and fluctuations in the temperature of the freezer.

STEP	DESCRIPTION	ICON	INSTRUCTIONS
1	DATA OFF		Follow the steps in the DATA SETTINGS ADJUSTMENTS to turn the data OFF.
2	Home Menu		Press the menu icon, at the top of the display area. This will open the Home menu.
3	Settings		Press the settings button, located in the Home menu. This will open the Settings panel.
4	Settings Menu		Press the menu icon, at the top of the display area. This will open the settings menu.
5	Offline Mode		Press the offline button, located in the Settings Menu. Press YES when prompted to open the control in offline mode. This will open the Offline mode panel.
6	Offline Menu		Press the menu icon, at the top of the display area. This will open the offline menu.
7	Calibrate		Press the calibrate icon, located in the Offline menu. This will open the calibration menu.
8	User Calibration		Press "Perform User Calibration Offset" This will open the user calibration menu.
9	Low Point Offset		Enter the desired offset in the Low Point Offset Field.
10	Done		Press "Done" when completed.
11	Home		Press the Home button when completed, to return to the home screen.
12	DATA ON		Follow the steps in the DATA SETTINGS ADJUSTMENTS to turn the data ON.

TEMPERATURE CONTROL ADJUSTMENTS

ALARM DIFFERENTIAL

The nCOMPASS temperature controller has an adjustable alarm differential, to set when the freezer goes into alarm state.



Note: Improper adjustments to the Alarm Differential could result in the alarm not operating as designed. **The factory configuration for the Alarm Differential is 12.**

It is not recommended to set the Deviation Band to a value less than 10, as this may result in the alarm sounding during the freezers normal temperature cycle.

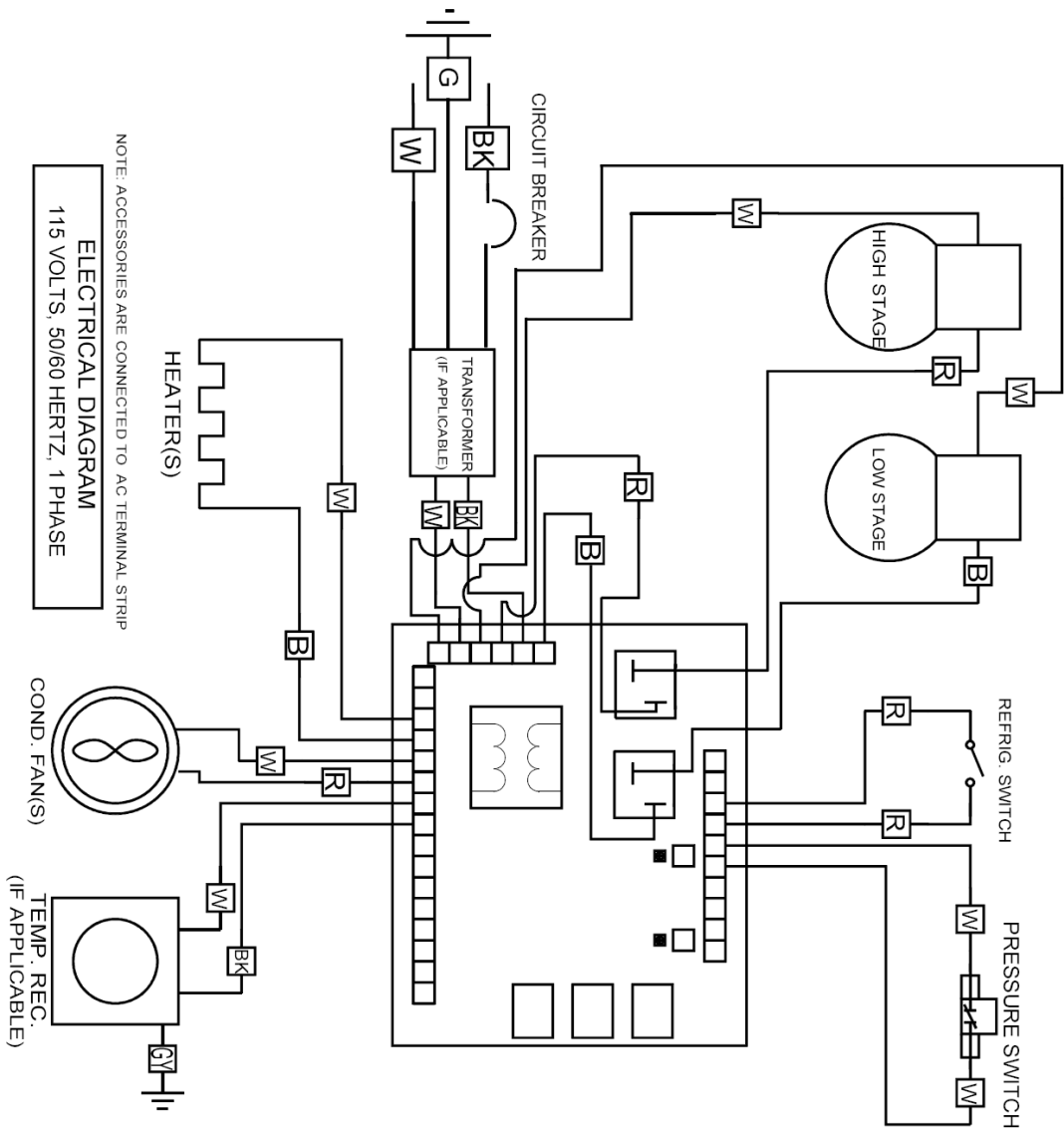
STEP	DESCRIPTION	ICON	INSTRUCTIONS
1	Home Menu		Press the menu icon, at the top of the display area. This will open the Home menu.
2	Settings		Press the settings button, located in the Home menu. This will open the Settings panel.
3	Settings Menu		Press the menu icon, at the top of the display area. This will open the settings menu.
4	Alarm		Press the alarm button, located in the Settings menu. This will open the Alarm panel.
5	Deviation Band		Set the Deviation Band value to the desired Alarm Differential. Note: Alarm #1, and Alarm #2 can be set for different values for different alarm states.
6	Home		Press the Home button when completed, to return to the home screen.

OPERATING SYSTEM

The nCompass Control uses a custom Windows CE based software stored on an internal hard drive inside the device. Future Design Controls Windows CE based nCompass display and Control Module (Idec PLC) software (listed as "SOFTWARE" in this document) is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. All ownership and rights remain with Future Design Controls. The nCompass Control does not receive software updates through the internet, or other means.

- ✗ **DO NOT ATTEMPT TO REMOVE THE HARD DRIVE FROM THE DEVICE.**
- ✗ **DO NOT ATTEMPT TO REMOVE THE SD CARD FROM THE DEVICE.**

WIRING DIAGRAM



NOTE: ACCESSORIES ARE CONNECTED TO AC TERMINAL STRIP

ELECTRICAL DIAGRAM
115 VOLTS, 50/60 HERTZ, 1 PHASE

COND. FAN(S)	TEMP. REC. (IF APPLICABLE)

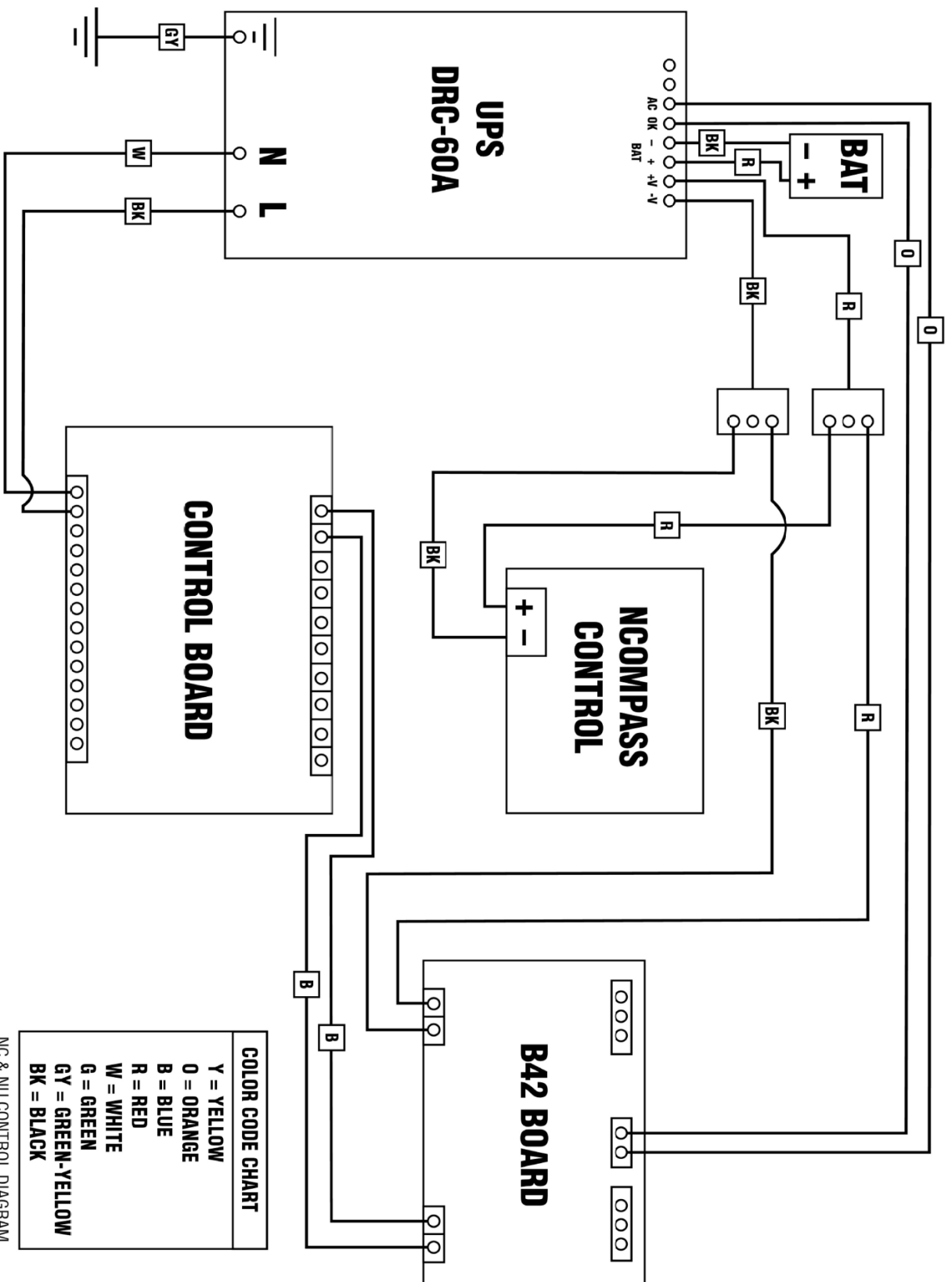
TEMP. REC.
(IF APPLICABLE)

GEN115 CASCADE ELECTRICAL DIAGRAM

COLOR CODE CHART
YELLOW = Y
ORANGE = O
BLUE = B
RED = R
WHITE = W
GREEN = G
GREEN/YELLOW = GY
BLACK = BK

12-12-2019

ALARM WIRING DIAGRAM

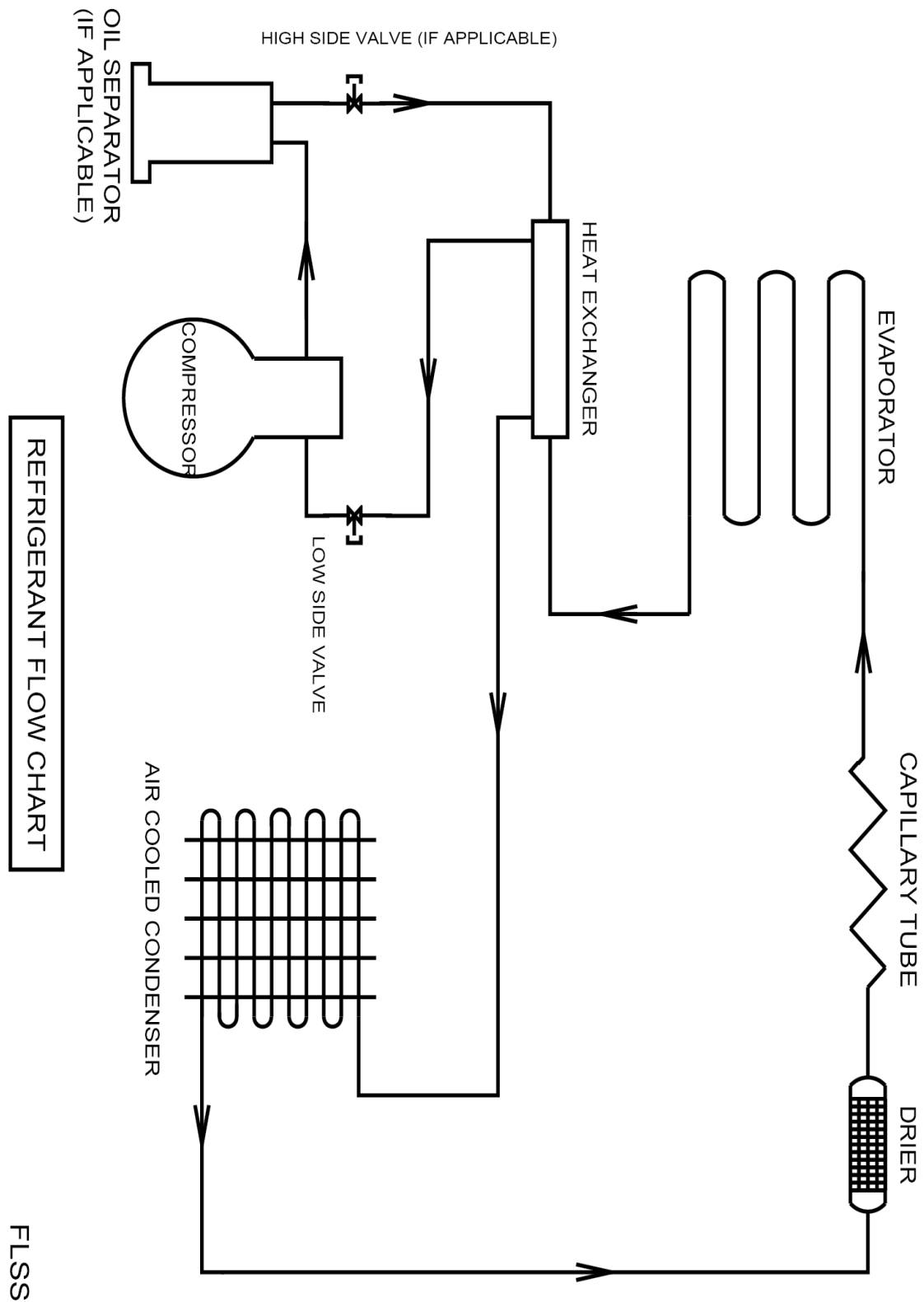


UPDATED: 12-12-2019

COLOR CODE CHART	
Y = YELLOW	
O = ORANGE	
B = BLUE	
R = RED	
W = WHITE	
G = GREEN	
GY = GREEN-YELLOW	
BK = BLACK	

NC & NU CONTROL DIAGRAM
115 VOLTS, 50/60 HZ, 1 PH
UPS CASCADE

REFRIGERATION FLOW CHART



REPLACEMENT PARTS LIST

COMPRESSOR MODEL	HP	VOLTAGE	HERTZ	PHASE	PART #
TECUMSEH AJB2433ZXA	1	115	50/60	1	AJB24-115
TECUMSEH AJB2433ZXD	1	208/220/230	50/60	1	AJB24-208
EMBRACO FFI12HBX	1/3	115	50/60	1	FF12-115
DANFOSS SC15FTX	1/3	115	50/60	1	SC15-115
DANFOSS SC18FTX	1/2	208/220/230	50/60	1	SC15-208

TEMPERATURE CONTROL PARTS	PART #
FDC 4000	4000
FDC nCOMPASS	nCOMPASS

CASCADE ELECTRICAL PARTS	PART #
Heater Harness No. H-200	217-VOLTAGE
Refrigeration Switch No. 2X464	TOGGLE
Condenser Fan Motor No. GE-5411 - 115/60/1	500-115
Condenser Fan Motor No. GE-5421 - 230/50-60/1	500-VOLTAGE
Electrical Cord No. 8-3 (Please Specify Voltage)	PWRCRD-VOLTAGE
Control Board No. CECB2TUV (Please Specify Voltage)	231-VOLTAGE

REFRIGERATION HIGH STAGE PARTS	PART #
Air Cooled Condenser No. 3CZ0602B	254
Drier No. C-053-S	256H
Capillary Tube	HS-17, HS-20
Oil Separator, Temprite Series 900 (If Applicable)	900

REFRIGERATION LOW STAGE PARTS	PART #
Pressure Control No. 20PS01-0039	259
Receiver Condenser	RCN-LS
Drier No. CO-52S-S	256L
Capillary Tube	LS-28, LS-31
Oil Separator, Temprite Series 900 (If Applicable)	900

HARDWARE PARTS	PART #
Latch No. METL-L1-99	REX37L1-3
Chest Hinge	59-928M
Upright Hinge No. Polar 109-LH	59-928U
Cabinet Gasket	NX504B1
Lid or Door Gasket	PSOS
Grill No. 650H	356F, 356S
Sub-Lids (Must have Model Number)	SL-MODEL NUMBER
Inner Door (Must have Model & Serial Number)	357-MODEL NUMBER-SERIAL NUMBER
Clips & Rollers for Inner Doors (Quantity 10 minimum)	405
Shelves for Freezer (Must have Model Number)	4015-MODEL NUMBER

WARRANTY POLICY

Yamato Scientific America warrants, from the date of shipment from warehouse in Cincinnati, Ohio, U.S.A., for a period of one (1) year. All products, parts and materials shall be free of defects in material and workmanship under normal use consistent with the product instructions. This product warranty does not apply to products purchased from unauthorized resellers/distributors.

Yamato reserves the right to inspect the product under claim before having an obligation to repair or replace the defective unit covered by this warranty. All costs of shipping to Yamato for inspection shall be borne solely by the purchaser. Products repaired or replaced under the terms of the warranty may be refurbished or new product will be provided at the discretion of Yamato.

Warranty Conditions

This warranty shall have force and effect only if all items are used with proper circuits, voltages, and frequencies and the operation thereof is in accordance with instructions furnished by the manufacturer.

This warranty shall not extend to such parts as refrigerants, finishes, belts, and dryers.

This warranty shall not extend to ordinary wear and tear, or ordinary refrigeration service and refrigeration adjustments, unless specifically included in the equipment purchase contract.

This warranty does not apply to equipment or parts which fail because of abuse, accident, alteration, misuse, erosion, improper installation, or improper replacement of a repaired item.

The buyer assumes all risks for results obtained from these products, whether used alone or in combination with other items. It is expressly understood that we are not responsible and will not be held liable for damage and/or injury caused using our products.

WARRANTY POLICY CONTINUED

Product Return Policy

If you are not satisfied with your purchase and wish to make a return, contact our customer service to inquire about a Return of Merchandise Authorization Number (RMA). Merchandise returned without an RMA number will not be accepted and will be returned to the sender. Return requests must be made within 15 days of the customer's receipt of the merchandise.

All returns must be unused and in unopened original packaging and include all items and manuals originally shipped.

The purchaser is responsible for the shipping cost of return shipment. Insurance on the return shipment is required. Damage or loss of merchandise during shipping is the responsibility of the sender. Returned shipments that arrive damaged will be returned back to the sender, and credit will not be rendered.

All returned products, parts and materials are subject to a 25% restocking fee. Shipping and handling cost are non-refundable. All retrofitted, customized and special order item sales are final and non-returnable.

In Case of Request for Repair

If the failure occurs, stop the operation, turn OFF the power switch, and unplug the power plug. Please contact the sales agency that this unit was purchased, or Yamato Scientific's sales office.

< Check following items before contact >

- ◆ Model Name of Product
- ◆ Serial Number
- ◆ Purchase Date
- ◆ Issue (as detailed as possible)

Responsibility

Please follow instructions in this document when using this unit. Yamato Scientific has no responsibility for accidents or breakdown of device due to failure to comply. Never conduct what this document forbids as unexpected accidents or breakdown may result.

Yamato Scientific America Inc.
925 Walsh Ave, Santa Clara, CA 95050
Tel: 1-800-292-6286 / 408-235-7725
<http://www.yamato-usa.com>

For customer service:
Email: customerservice@yamato-usa.com
For technical support:
Email: technical@yamato-usa.com