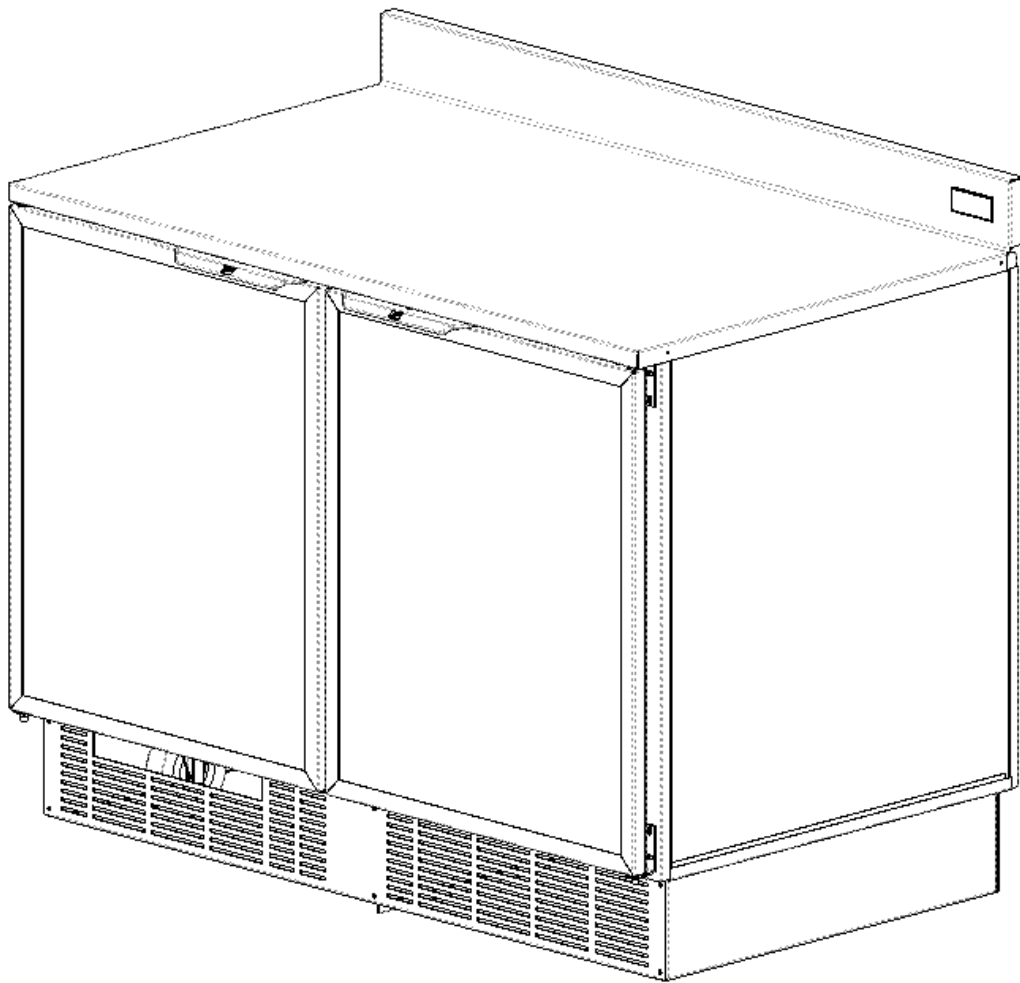




Your Solutions Partner

# Installation and Operation Manual

## Refrigerated Counter RUF48 Digital



**CAUTION:** Please read this manual completely before attempting to install, operate or service this equipment

 **WARNING for CA residents: go to [www.dukemfg.com/prop65](http://www.dukemfg.com/prop65) for prop 65 warning**

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**IMPORTANT SAFETY INSTRUCTIONS**

Throughout this manual, you will find the following safety words and symbols that signify important safety issues with regards to operating or maintaining the equipment.



**Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**



**Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**



**Indicates Important Information**



**Indicates electrical shock hazard which, if not avoided, could result in death or serious injury and/or equipment damage.**



**Indicates hot surface which, if not avoided, could result in minor or moderate injury.**



**Indicates risk of fire or explosion. Flammable refrigerant used which, if not avoided, could result in death or serious injury.**



**Electrical shock hazard. Do not wash with water jet or hose.**

## IMPORTANT SAFETY INSTRUCTIONS

***In addition to the warnings and cautions in this manual, use the following guidelines for safe operation of the unit.***

- Read all instructions before using equipment.
- For your safety, the equipment is furnished with a properly grounded cord connector. Do not attempt to remove or disconnect the grounded connector.
- Install or locate the equipment only for its intended use as described in this manual.
- Do not use corrosive chemicals on this equipment.
- Do not operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
- This equipment should be serviced by qualified personnel only. Contact the nearest Duke authorized service facility for adjustment or repair.
- Do not block or cover any openings on the unit.
- Do not immerse cord or plug in water.
- Keep cord away from heated surfaces.
- Do not allow cord to hang over edge of table or counter.

***The following warnings and cautions appear throughout this manual and should be carefully observed.***

- Turn the unit off, disconnect the power source and allow unit to cool down before performing any service or maintenance on the unit.
- The procedures in this manual may include the use of chemical products. You must read the Material Safety Data Sheets before using any of these products.
- The unit should be grounded according to local electrical codes to prevent the possibility of electrical shock. It requires a grounded receptacle with dedicated electrical lines, protected by fuses or circuit breaker of the proper rating, in accordance with all applicable regulations.
- Disposal of the unit must be in accordance with local environmental codes and/or any other applicable codes.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.

## **CAUTION: OBSERVE THE FOLLOWING:**

- Minimum clearances must be maintained from all walls and combustible materials.
- Keep the equipment area free and clear of combustible material.
- Adequate clearance for air openings.
- Unit exhausts air to the bottom and the rear.
- Do not set unit on a curb or seal to the wall.
- Do not block the slots in the front kickplate
- Operate equipment only on the type of electricity indicated on the specification plate.
- Retain this manual for future reference.

## **INTRODUCTION**

This publication contains information regarding the installation and operation of Duke Refrigerated Counter units. The information contained within applies to the models RUF 48. Please read this manual completely before attempting to install and/or operate this equipment.

Model number RUF 48 describes the 48" wide counter length of the Refrigerated Counter. (Fig. 1)

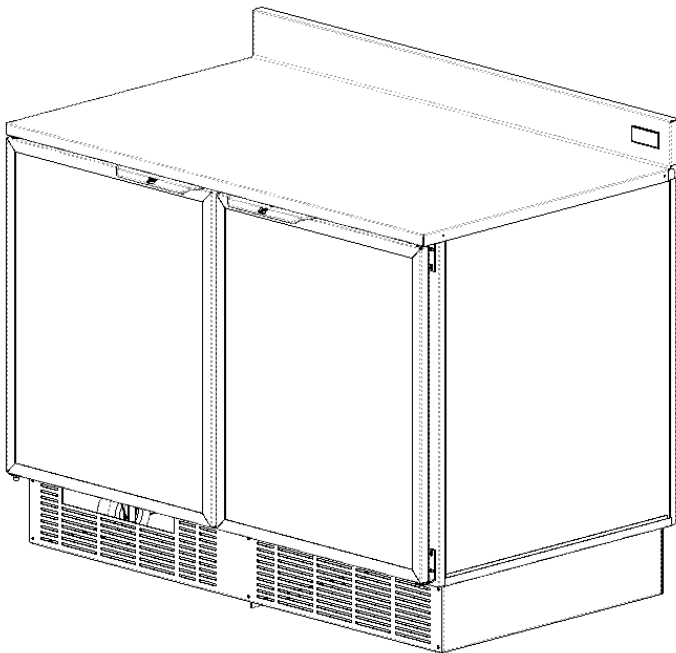


Figure. 1  
RUF 48

### **SERIAL NUMBER**

Always have the serial number of your unit available when calling for parts or service. The serial number can be found on the data plate inside the refrigerated compartment.

### **RECEIVING & INSPECTING THE EQUIPMENT**

Care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If damaged, open and inspect the contents with the carrier.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment notify the carrier. Notification should be made verbally as well as in written form.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Check the lower portion of the unit to be sure legs/casters are not bent.
6. Also view compressor compartment housing and visually inspect the refrigeration package. Be sure lines are secure and base is still intact.
7. Freight carriers can supply the necessary damage forms upon request.
8. Retain all shipping material until an inspection has been made or waived.

## SPECIFICATIONS

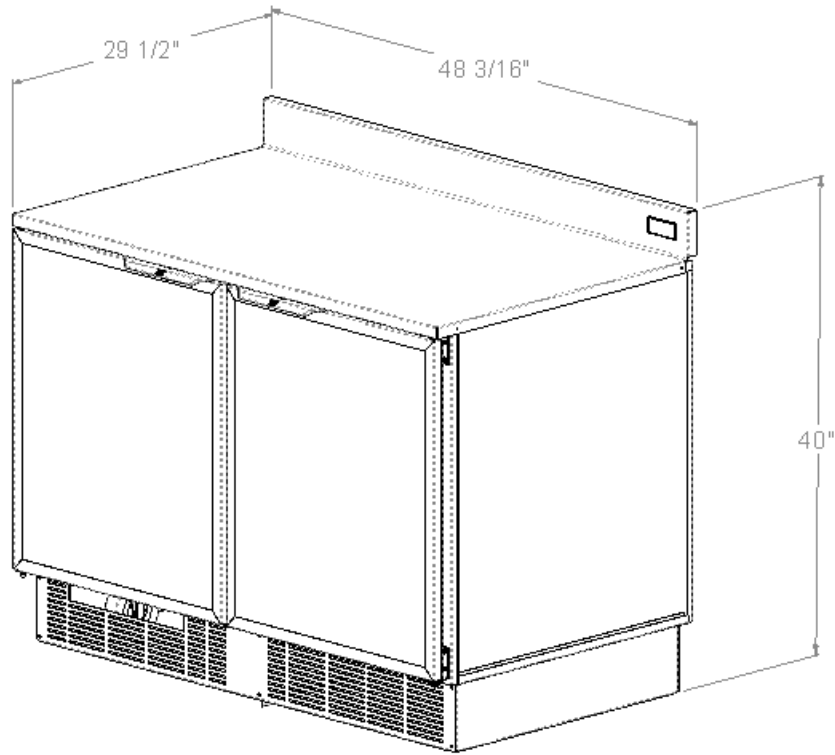


Figure. 2  
RUF 48

<b>Model</b>	<b>Volts</b>	<b>Frequency (Hz)</b>	<b>Amps</b>	<b>Watts (Label)</b>	<b>Refrigerant</b>	<b>HEIGHT</b>	<b>WIDTH</b>	<b>LENGTH</b>
RUF-48 M	120	60	4.2	N/A	R-513A	40.00 In.	29.50 In.	48.18 In.
RUF-48 M	220	60	2.7	590	134A	40.00 In.	29.50 In.	48.18 In.
RUF-48 M	230	50	2.5	580	134A	40.00 In.	29.50 In.	48.18 In.
RUF-48 M	230	50	2.3	530	R290	40.00 In.	29.50 In.	48.18 In.

## INSTALLATION

### INSTALLATION - LOCATION

Units represented in this manual are intended for indoor use only. Be sure the location chosen has a floor or counter strong enough to support the total weight of the units. Reinforce the floor or counter if necessary to provide for maximum loading. For the most efficient operation, be sure to provide good air circulation inside and out. These units should be located so that they can be moved for service. Major service to the refrigeration system is done from the rear of the cabinet.

### INSTALLATION – Inside Unit

Take care not to block air flow to the fans and allow space along the front, back and sides.

### INSTALLATION – Outside Unit

Be sure that the unit has access to ample air; avoid hot corners and locations near stoves and ovens.

### CAUTION

This unit exhausts air to the bottom and the back. Do not seal the unit to the wall or set unit on a curb. The ventilation slots in the kickplate must remain open.

### INSTALLATION – Leveling

Be sure that the units are placed on a firm, flat surface/floor. Check for cracks in flooring or tile and avoid these areas if possible. If necessary place support pads, properly rated for the weight of the unit, to “bridge” uneven or cracked flooring. Level unit accordingly.

### INSTALLATION – Stabilizing

Make sure the unit is installed on a flat surface to insure that the unit is solid to the floor at all four contact points. Insure that the unit does not “rock” when pressure is applied to the top corners.

### INSTALLATION – Electrical Wiring

The RUF 48 is available as a 120VAC, 60 Hz or as 230VAC, 50 Hz dependent on model. All electrical connections should be performed by a certified electrician and should comply with local electrical codes for your municipality.

### WARNING

**REFER TO THE AMPERAGE DATA LIST IN THE SPECIFICATIONS OR THE SERIAL TAG DATA AND YOUR LOCAL CODE OR THE NATIONAL ELECTRICAL CODE TO BE SURE UNIT IS CONNECTED TO THE PROPER POWER SOURCE. A PROTECTED CIRCUIT OF THE CORRECT VOLTAGE AND AMPERAGE MUST BE RUN FOR CONNECTION OF THE SUPPLY CORD OR PERMANENT CONNECTION TO THE UNIT. THE POWER MUST BE TURNED OFF AND DISCONNECTED WHENEVER PERFORMING MAINTENANCE OR REPAIR FUNCTIONS.**

## OPERATION

### OPERATION – Location of Controls

The refrigeration control/temperature setting adjustment is located on the back splash. This is the only user adjustable component on the unit.

### OPERATION – Operating Procedure

Press and hold the (i) button to display setpoint. Keep (i) button pressed and use the up/down arrows to adjust setpoint. When the (i) button is released, the new setpoint is stored. To exit from the setup, press the power button or wait 30 seconds. Display will display “dEF” while unit is in defrost mode. Check the cooling specifications required for the products/goods to be stored.

Use a simple thermometer to set to a specific temperature. Allow time for temperature changes before making a final temperature check.



Figure. 3

Refrigeration control / Temperature display

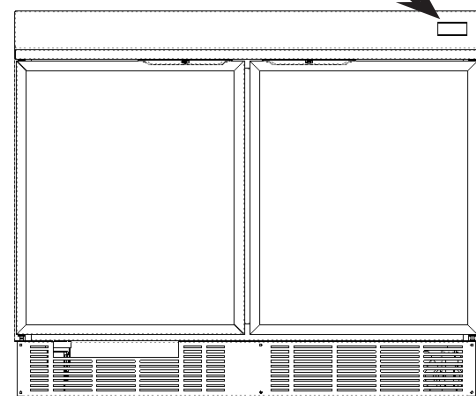


Figure. 4

## MAINTENANCE

### MAINTENANCE – Stainless Steel Care & Cleaning

To prevent discoloration or rust on stainless steel several important steps need to be taken. Stainless steel contains 70-80% iron which will rust. It also contains 12-30% chromium which forms an invisible passive film over the steel's surface which acts as a shield against corrosion. As long as the protective layer is intact, the metal will not corrode. If the film is broken or contaminated, outside elements can begin to breakdown the steel and begin to form rust or discoloration.

Proper cleaning of stainless steel requires soft cloths or plastic scouring pads.

**CAUTION: Never use steel pads, wire brushes or scrapers.**

Cleaning solutions need to be alkaline based or non-chloride cleaners. Any cleaner containing chlorides will damage the protective film of the stainless steel. Chlorides are also commonly found in hard water, salts and household and industrial cleaners. If cleaners containing chlorides are used, be sure to rinse repeatedly and dry thoroughly upon completion.

Routine cleaning of stainless steel can be done with soap and water. Extreme stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. It is always good to rub with the grain of the steel. There are also stainless steel cleaners available which can restore and preserve the finish of the steel's protective layer.

Early signs of stainless steel breakdown can consist of small pits and cracks. If this has begun, clean thoroughly and start to apply stainless steel cleaners in attempt to restore the passivity of steel.

### **WARNING**

**NEVER USE AN ACID BASED CLEANING SOLUTION!  
MANY FOOD PRODUCTS HAVE AN ACIDIC CONTENT WHICH CAN DETERIORATE THE FINISH.  
BE SURE TO CLEAN ALL FOOD PRODUCTS FROM ANY STAINLESS STEEL SURFACE.  
COMMON ITEMS INCLUDE, TOMATOES, PEPPERS AND OTHER VEGETABLES.**

### **WARNING**

**THE POWER MUST BE TURNED OFF AND DISCONNECTED AT ALL TIMES WHEN PERFORMING  
MAINTENANCE OR REPAIR FUNCTIONS.**

### MAINTENANCE – Cleaning the Condenser Coil

The condenser coil is located behind the unit (See Figure 5). This unit has a replaceable filter, discard old filters. The condenser coil requires regular cleaning and is recommended every 60 days. However, in some instances you may find that there is a large amount of debris, dust or grease that has accumulated prior to the 60 day time frame. In these cases the condenser coil should be cleaned every 30 days.

## MAINTENANCE

If the build up on the coil consists of only light dust and debris the condenser coil can be cleaned with a simple brush, heavier dust build up may require a vacuum or even compressed air to blow through the condenser coil.

If heavy grease is present degreasing agents are available for refrigeration use and specifically for the condenser coils. The condenser coil may require a spray with the degreasing agent and then blown through with compressed air.

Failure to maintain a clean condenser coil can initially cause high temperatures and excessive run times. Continuous operation with dirty or clogged condenser coils can result in compressor failures. Neglecting the condenser coil cleaning procedures will void any warranties associated with the compressor or cost to replace the compressor.

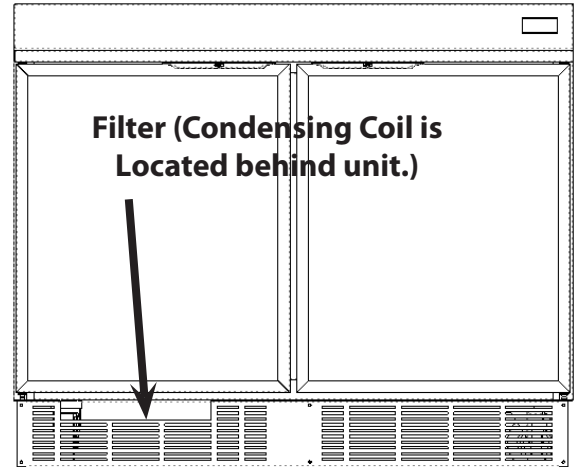


Figure. 5



**CAUTION:**



**NEVER USE A HIGH-PRESSURE WATER WASH FOR THIS CLEANING PROCEDURE AS WATER CAN DAMAGE ELECTRICAL COMPONENTS LOCATED NEAR OR AT THE CONDENSER COIL.**

### MAINTENANCE – Door Gasket Care

Gaskets require regular cleaning to prevent mold and mildew build up and also to keep the elasticity of the gasket. Gasket cleaning can be done with the use of warm soapy water. Avoid full strength cleaning products on gaskets as this can cause them to become brittle and prevent proper seals. Also, never use sharp tools or knives to scrape or clean the gasket which could possibly tear the gasket and rip the bellows.

Gaskets can easily be replaced and do not require the use of tools or authorized service persons. The gaskets are “Dart” style and can be pulled out of the groove in the door and new gaskets can be “pressed” back into place.

### MAINTENANCE – Drain

Each unit has a drain tube located in the rear the unit which removes condensation from the evaporator coil and deposits it onto a drain pan where it can evaporate. If you notice excessive water accumulation on the inside of the unit be sure that the drain tube is connected from the evaporator housing to the condensate evaporator drain pan. If water is collecting underneath the unit you may want to check the condensate evaporator drain tube to be sure it is still located above the drain pan. The leveling of the unit is also important as the units are designed to drain properly when on a level surface, if your floor is not level this can also cause drain problems. Be sure the drain pan is kept free of dirt, dust and other debris as excessive amounts will cause water to back up and overflow from the drain pan.

### MAINTENANCE – Drain Pan Access

The drain pan and drain tube can be accessed from the rear of the unit. Pull the unit away from wall to expose the rear of the cabinet. The drain pan is located on the left/rear of the unit.



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