PurgeGuard™

Installation &Operation

Literature File No. 1104-01

General Information

Purpose of the ***PURGE GUARD™***

There are certain control malfunctions which can occur with ***any thermal type purge*** regardless of make or model, such as welded relay contacts, locked-up microprocessor, or a unit accidentally left in manual mode, which can cause the pump-out compressor to latch-up in a ***non-stop running condition***. Under these conditions the purge unit's built-in **"Excessive Purge Fault"** safety cannot stop the ***pump-out compressor*** and can result in ***catastrophic loss of refrigerant***.

The purpose of the ***PURGE GUARD™*** is to detect the above condition and terminate pump-out activity. Since the ***PURGE GUARD™*** functions ***independently*** from the purge unit's microprocessor control it is able to terminate pump-out activity irrespective of the nature of the malfunction.

How the ***PURGE GUARD™*** **WORKS**

A Purge Unit's' non-condensable pump-out cycle time is normally about 2 or 3 minutes. A cycle time in excess of 2 or 3 minutes is generally an indication that a problem is developing.

The ***PURGE GUARD™*** monitors pump-out compressor ***run time*** during each pump-out cycle. If pump-out run time exceeds what is predetermined as a **Normal Maximum Time,** as pre-set on the ***PURGE GUARD™*** dip-switch, (e.g. ***30 minutes***)**,** the ***PURGE GUARD™*** will automatically ***lockout*** purge pump out compressor operation. Purge activity will remain ***locked out until manually reset.***

It is important to understand the difference between the purge unit's normal **"Excessive Purge Fault"** and the ***PURGE GUARD™*** excessive pump-out compressor ***"Run Time".*** The Purge Unit's **Excessive Purging Fault** lock-out occurs whenever the cumulative pump-out time during any 24 hour period exceeds the maximum allowable time preset on the purge unit's Fault Time Dip Switch. The ***PURGE GUARD™*** **Excessive pump-out compressor** "***Run T*ime"** lockout occurs whenever the pump-out compressor's **"ON "** time exceeds the time value pre-set on the ***PURGE GUARD™*** Dip Switch.

Application

The ***PURGE GUARD™*** is designed for application to any brand of ***Thermal Purger*** utilizing a ***pump-out compressor*** for extraction of non-condensibles. Although the instructions given here are for **Redi Controls** purge units, these same general instructions are applicable to other brands as well.

The primary installation requirement applicable to ***all*** thermal purge units is to re-wire the purge unit's control so that electrical power from the purge unit's controls which normally energizes the ***pump-out compressor motor*** and ***isolation solenoid valve*** is ***re-routed*** through the ***PURGE GUARD™*** relay.

The ***PURGE GUARD™*** has no control over purge unit operation. Its only function is to interrupt power to the pump-out compressor motor and the isolation solenoid valve in the event excessive pump-out compressor "run time" is detected.

Mounting Location & Installation Instructions

Generally the best location for mounting the PURGE GUARD™ is on the top left side of the purge unit's control panel. However, you may mount it any place you wish as long as the flying leads can reach the unit's electrical controls.

1) ***Without*** peeling off the adhesive backing, temporarily position the ***PURGE GUARD™*** on top of the unit control box and mark the location for the wiring entry hole
2) Using a 5/8" bit, drill the entry hole. (*Be careful not to damage any electrical controls inside the electrical control box.*)
3) Peel off adhesive backing. Insert the five wiring leads through entry hole. **Very carefully** position the ***PURGE GUARD™*** box so that it is flush with the top of the control panel. Press down firmly securing the box in place. **Note: once the box is stuck in place it is VERY DIFFICULT to reposition!**
4) Refer to ***wiring Instructions*** included herein. Select the Wiring Instruction applicable to the purge unit ***model*** you are installing the ***PURGE GUARD™*** on. Follow the instructions carefully.

Wiring on Redi Controls Purges (for other Models see next Section)

Four (4) sets of wiring instructions are provided with this Manual, one for each model of the Redi Controls purge units. **If you are installing** the ***PURGE GUARD™*** **on a Redi Controls purge, carefully, select the wiring diagram that matches the Model Number of the unit you are installing the *PURGE GUARD™* on.**

Wiring on Brands other than Redi Controls

The ***PURGE GUARD™*** is designed to work with **ALL Brands, Makes** and models of **Thermal Purge** units. However, it is not possible to provide actual wiring diagrams for every thermal

purger in existence. Therefore, when installing the ***PURGE GUARD™*** on brands other than Redi Controls purges the following general wiring instructions will apply.

Look at any of the Redi Controls wiring diagrams. You will see that the primary goal is to modify the existing wiring so that both the unit's **pump-out compressor** and **primary isolation solenoid valve** power wiring is re-routed through the ***PURGE GUARD™*** N.C. relay contacts (i.e. the **Blue** & **Yellow** wires)

The **Black, White** and **Green** wires of the ***PURGE GUARD™*** are connected in a similar manor as shown on the wiring diagrams.

Remote Alarm

The ***PURGE GUARD™*** has an on-board S.P.D.T. relay dedicated to remote alarm enunciation. There are no flying leads. Connection is made direct to the spade connectors provided on the circuit board. **See one of the Redi Controls wiring diagrams for location of spade connectors.**

PURGE GUARD™ SET-UP

The ***PURGE GUARD™*** Dip Switch has eight timing settings numbered 1 through 8. Each Dipswitch represents 10 minutes time, i.e., switch 1 = 10 min., switch 2 = 20 min., etc. up to 80 minutes total time. The Dip Switch is pre-set at the factory at 1 for a maximum of ten (10) minutes of pump out activity.

Determine the best maximum pump out time for your application and then set the dip switch by placing the appropriate switch lever to the ON position.

NOTE: Only **ONE** switch lever should be in the ON position. All other switches **MUST** be in the OFF position.

The idea is to select the lowest time setting possible without causing nuisance trip-outs. The typical setting is ***30 minutes***. However, your application may require a different setting. The appropriate setting must be determined on a case by case basis.

PURGE GUARD™ OPERATION

The ***PURGE GUARD™*** has two LED indicator lights. A Green LED and a Red LED. Under normal conditions with power to the purge unit "ON**"** and the pump-out compressor "OFF" the Green LED will be "**ON" continuously** and the Red LED will be "OFF".

When the pump-out compressor is energized the Green LED will remain "**ON" *and blinking,*** the Red LED will remain "OFF".

Should the ***PURGE GUARD™*** preset maximum pump-out compressor run time be exceeded purge operation will be ***locked-out*** and the **Red LED** will come "**ON"** and the Green LED goes "OFF".

To re-set ***PURGE GUARD™*** and resume normal operation following a fault condition, momentarily remove electrical power from purge unit and reapply.

WARNING: **DO NOT RESET** ***PURGE GUARD™*** until the cause of the FAULT lockout has been determined and corrected. Doing otherwise can result in ***serious loss of refrigerant.***

OPERATIONAL TEST PROCEDURE

At the conclusion of installation you should perform the ***operational test*** to verify that the ***Purge Guard™*** is installed and functioning properly.

1 Set **ALL** of the ***Purge Guard™*** dip switches to the **OFF** position. This sets the maximum pump-out compressor run time that ***Purge Guard™*** will allow to **30 seconds.**

2 Apply power to the purge unit. The **Green LED** on the ***Purge Guard™*** should now be **ON.**

3 Manually operate the purge unit's pump-out compressor. If you are not sure how to run the pump manually refer to the purge unit operation manual.

Note: If the pump-out compressor fails to come on, go back and check your wiring.

4) When the pump-out compressor comes on the **Green LED** should begin **blinking.**

5) At the end of 30 seconds the ***Purge Guard™*** should turn the pump-out compressor **OFF**. The **Green LED** should go **OFF**. The **Red LED** should come **ON**.

6) Verify that the ***isolation solenoid valves*** are also ***de-energized.*** If the isolation valves fail to de-energize and close, air can enter the chiller.

7) If everything checks out, terminate power to purge unit.

8) Set the maximum run time that is desired for your application by selecting the appropriate dip switch setting on the ***Purge Guard™***. (E.g., 1 for 10 minutes, 2 for 20 minutes, up to the maximum of 8 for 80 minutes.) Place that switch in the **ON** position.

9) Re-apply power to purge unit. The **Green LED** on the ***Purge Guard™*** should come **ON**.

10) Change the purge's operating mode from manual to the desired mode.

Operational Test Procedure is now complete and the purge unit is ready for normal operation.

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