ACCESSORY INFORMATION

NU-1550 Tank Guard™ AUTOMATIC TANK SWITCH
OPERATION & INSTALLATION INSTRUCTIONS

OPERATION

The TankGuard™ automatic tank switch has been designed to provide reliable service to perform the critical backup gas (i.e. CO2, N2) tank switch for a tissue cell culture incubator. The TankGuard™ tank switch continuously monitors and indicates the selected source gas tank and the status of the non-selected or secondary source gas tank. If the selected source gas tank pressure falls below 8 PSI, the selected source internal pressure switch will detect the low pressure and automatically change sources. During the automatic change, as audible alarm will sounds for 5 seconds, then ring back one every ten seconds (to silence, press either source key to acknowledge the tank switch occurrence). The green LED for the new source will blink and the original source red LED will indicate an empty tank.

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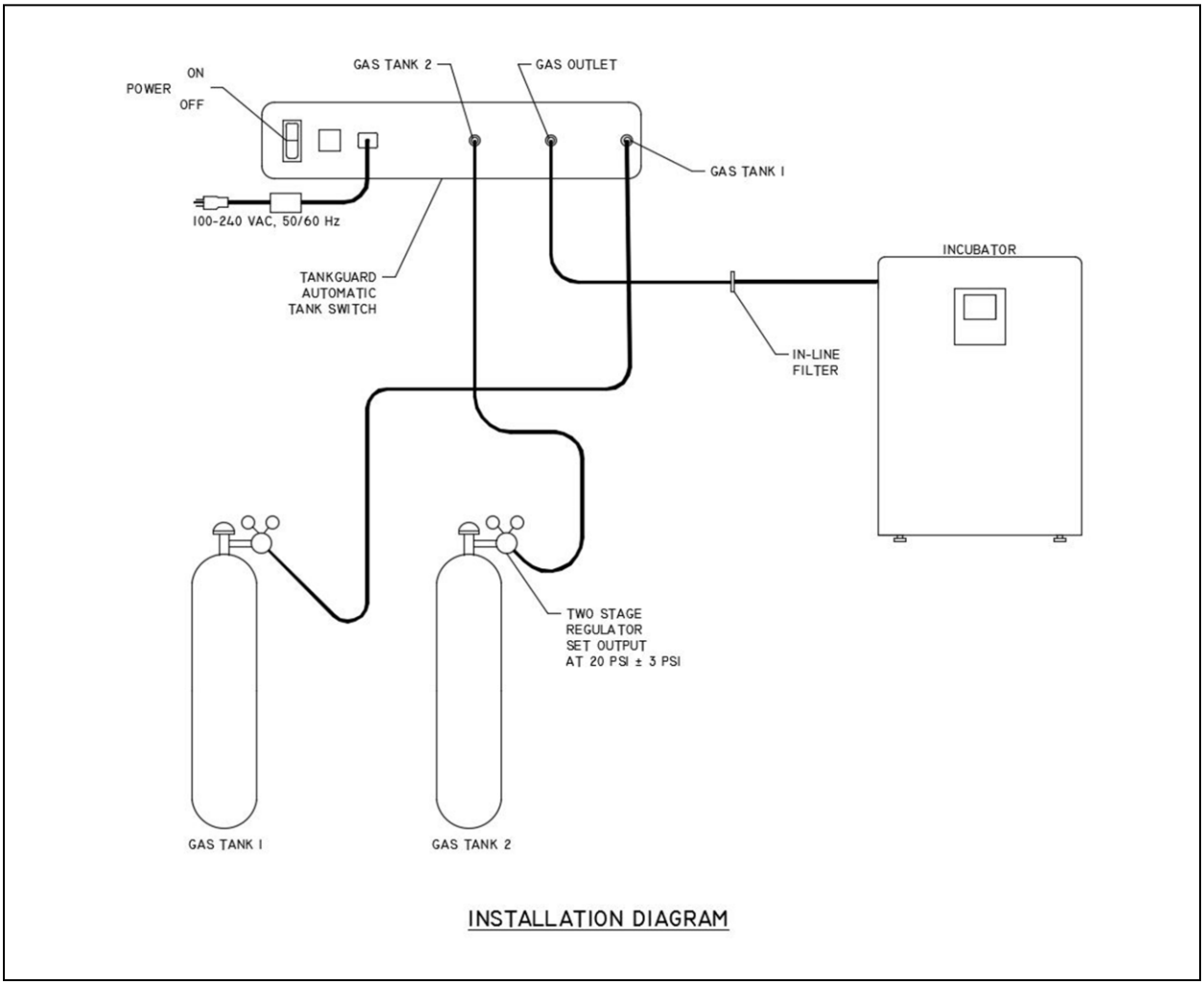
If for some reason, the original gas tank was not replaced and the secondary source gas tank was empty, the second internal pressure switch will detect the low pressure and change back to the original source. Again, during the automatic change, an audible alarm will sound and not having pressure on the original tank, will cause the audible alarm to stay on and only can be silenced by turning off the main power switch.



INSTALLATION DIAGRAM

User Operational Features

1. TankGuard™ LED indicator lights
    a. LED indicator lights
    -Selected Green LED – On means selected tank in use, blinking means tank switch just occurred (press either source key acknowledge tank switch)
    -Ready Blue LED – On means secondary tank has pressure and is ready for change, blinking means a power interruption occurred (press source key to acknowledge power interruption.
    -Empty Red LED – empty tank

    Note: If blinking LED is not turned solid on by pressing either source key, clear by manually switching tank sources to and from current tank as discussed per operational feature item 3 below.

    b. Press Key switches
    -Source 1 key
    -Source 2 key

2. TankGuard™ Default condition power turned on
    a. Blue LED on source selected side will blink indicating a power interruption.
    Pressing source key next to blue LED will acknowledge the power interruption and turn off the LED light.
    b. Power interruption inactivates the solenoid valve, which is defaulted to source 1 gas tank.
    Before the power interruption, if source 2 gas tank was active,
    when power is restored source 1 gas would be the active tank.
    If desired, source 2 gas tank can be manually switched.

3. Manually switching Tank sources
    a. Press and hold desired source key (3 seconds) to switch the solenoid valve to the desired source.
    b. The selected LED on the active source will be lit and the ready light will be on continuously indicating pressure is present.
    c. If the pressure switch indicates that the source being switched to is empty then the switch will not occur and the alarm will beep when the source key is being pressed.

4. Disabling TankGuard™ audible alarm
    a. Press and hold source 1 key
    Then press source 2 until beep
    Audible alarms are now deactivated.
    b. To reactivate the audible alarm press and hold source 2 key
    Then press the source 1 key until beep
    Audible alarms are now activated

5. TankGuard™ Relay (Dry) Contacts
    Set of relay contacts normally open (NO), normally closed (NC) and common (COM) are provided to remotely monitor of the following tank switch functions:
    a. Tank switch occurrence (or optionally not change states during a tank switch occurrence)*
    b. Both tank sources empty alarm
    c. Power interruptions (if connected using (COM) and (NC))

* TankGuard™ relay (Dry) contacts optional configuration of not changing state during a tank switch occurrence.
    a. With the TankGuard™ power switch off. Press and hold source key 1, then turn power on. Release source key 1 after 3 seconds. (Note, since the TankGuard™ microprocessor does not contain memory, any power interruption will reset the option. If the option function is desired, the source key 1 must be pressed during all power up's.)

The relay will change states when the power switch is turned on. This enables the ability to remotely detect the power interruptions. It is connected to the remote monitor by a cable connected through a cable that plugs into an RJ-11 receptacle (Pin 1-(NO), Pin 2-(NC), Pin 3-(COM), Pins 4-6 (Not used).

The relay in the normal configuration will change state upon a tank switch occurrence. It will stay in the changed state until the tank switch occurrence is acknowledged by pressing either source key (this also silences the audible alarm). However, in the optional configuration, the relay will not change state upon a tank switch occurrence. It will change state when both tanks are empty.

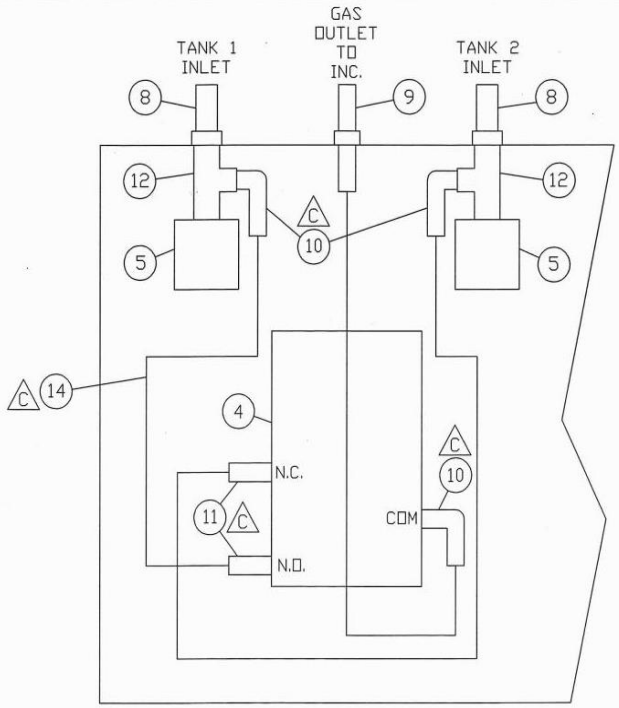
Tank Switch Usage: NuAire recommends that this Tank Switch is used to supply no more than 4 Incubator chambers at a time.

Securing Power Cord Transformer: Transformer has a piece of double stick tape attached. Remove cover layer off tape exposing sticky layer and attach Transformer to desired horizontal surface.

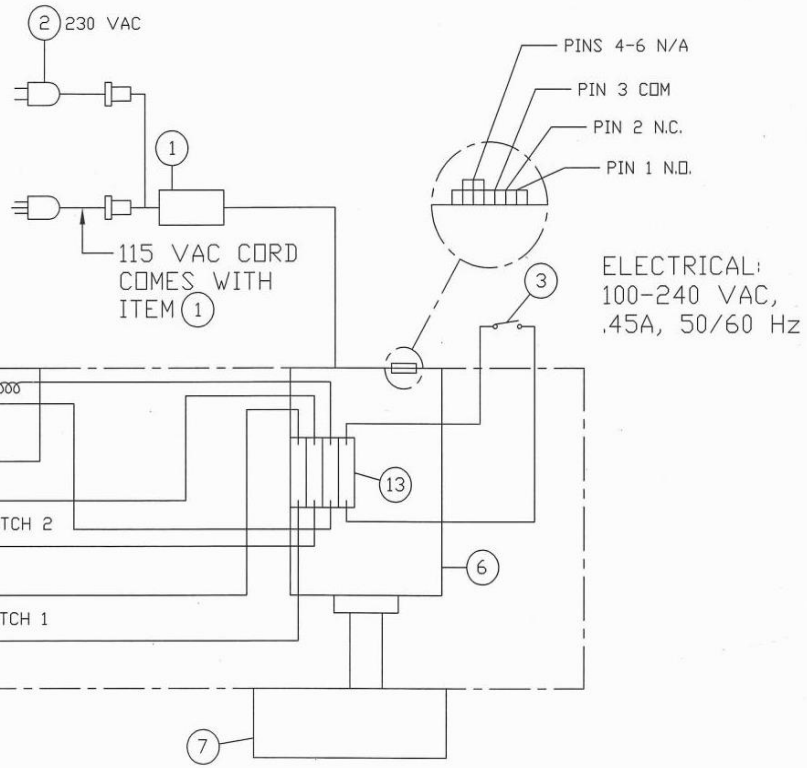
ITEM	QTY	DESCRIPTION	NUAIRE P/N
1	1	POWER SUPPLY (12 VDC)	X-999863-06
2	1	POWER CORD SCHUKO (ALTERNATE FOR 230 VAC USE)	X-999501
3	1	POWER SWITCH (SPST)	X-999678-03
4	1	SOLENOID VALVE	X-999614-11
5	2	PRESSURE SWITCH	X-999659-01
6	1	MAIN CONTROL BOARD	A-1550-3808-A
7	1	FRONT PANEL LABEL, FRONT PANEL	B-990750
8	2	FTG, BULKHEAD UNION 1/4 BARB X 1/8 NPT	X-980896-03
9	1	FTG, BULKHEAD UNION 1/4 DUAL BARB	X-980896-02
10	3	FTG, 90°, 3/16 BARB X 1/8 NPT	X-980372-01
11	2	FTG, 3/16 BARB X 1/8 NPT	X-980308
12	2	FTG, TEE 1/8 NPT FEMALE	X-980923-05
13	2	CONNECTOR PLUG, 4 PIN, SPRG CLMP	X-999269-03
14	2 FT.	TUBE 3/16 ID - 5/16 OD - CLR	X-3062-05

REV	ECO	DESCRIPTION	DATE	DRFT	CHKD
C	13597	CHANGED TUBING	2/5/2018	TH	JCP

JCP



TUBING SCHEMATIC



ELECTRICAL SCHEMATIC

ORIGINAL

NU-1550 TANKGUARD ELECTRICAL/TUBING SCHEMATIC

DFTM	TH	02/23/16	CHKD	BP	SHEET 1 OF 1

DRAWING NUMBER BCD-18165 C

TankGuard™ Specifications

Electrical:	100-240 VAC	.45A	50/60Hz
Gas types:	Carbon Dioxide (CO2)	Nitrogen (N2)	(Oxygen is not permitted)
Gas Input Pressure from two stage gas regulator (required):			20 +/- 3 PSI
Gas Connections:	1/4" (6mm) male tubing		
Dimensions:	10" (254mm) wide x 7" (178mm) depth x 3"(76mm) high		

WARRANTY

NuAire, Inc. warrants that it will repair F.O.B its factory or furnish without charge F.O.B. its factory, a similar part to replace any material in its equipment within 12 months after the date of sale if proved to the satisfaction of the company to have been defective at the time it was sold provided that all parts claimed defective shall be returned, properly identified to the company at its factory, charged prepaid. Factory installed equipment or accessories are warranted only to the extent guaranteed by the original manufacturer and this warranty shall not apply to any portion of the equipment modified by the user. Claims under this warranty should be directed to NuAire, Inc. setting forth in detail the nature of the defect, that date of the initial installation and the serial and model number of the equipment.

This warranty shall not apply to any NuAire product or part thereof which has been subject to misuse, abuse, accident, shipping damage, improper installation or service or damage by fire, flood or acts of God. If the serial number of the product is altered, removed or defaced as to be illegible, the warranty shall be null and void in its entirety.

The warranty is for the sole benefit of the original purchaser and is not assignable or transferable.

SHIPMENTS

NuAire takes every reasonable precaution to insure that your incubator arrives without damage. Motor carriers are carefully selected and shipping cartons have been specially designed to insure your purchase. However, damage can occur in any shipment and the following outlines the steps you should take on receipt of a NuAire incubator to be sure that if damage has occurred, the proper claims and actions are taken immediately.

DAMAGED SHIPMENTS

Terms are factory, unless stated otherwise. Therefore it is important to check each shipment before acceptance.

If there is visible damage, the material can be accepted after the driver makes a notation on the consignee's copy of the freight bill. Then an inspection must be made to verify the claim against the carrier. This inspection is the basis of your filing the claim against the carrier.

If concealed damage is found, it is absolutely necessary to NOTIFY THE FREIGHT AGENT AT ONCE, and request an inspection. Without this inspection, the transportation company may not accept a claim for loss or damage. If the carrier will not perform the inspection, an affidavit must be prepared stating that he was contacted on a certain date and that he failed to comply with the request. This along with other papers in the customer's possession will support the claim.