



Model 3050/3052

Gas Guard

Operating and Maintenance Manual 7013050 Rev. 5

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Caution Model 3050/3052 Gas Guard is designed to be used with CO₂ and N₂ only. ▲

MANUAL NUMBER 7013050

5	31031/31321/IN-4552	12/4/15	Updated specifications, parts list, schematics	ccs
4	23451/IN-3294	6/30/06	Added ±5 psig to incoming CO ₂ pressure range	ccs
3	--	9/29/03	Clarified description (power failure on Gas Guard)	ccs
-	20325/IN-2981	9/6/01	Release 3 updated declaration of conformity	aks
2	20302	8/16/01	Electrical mains connection and service revisions	aks
1	19988/IN-2929	4/23/01	Elec. Schematics and specifications updated	aks
-	IN-2200	12/12/96	Additional updates for 1010	heg
-	SI-5967	12/12/96	Added RJ-11 wiring color codes	heg
-	15794	12/12/96	Added Alarm system warning	heg
0		12/3/96	Updated for 1010 and FLA Ratings	deg
REV	ECR/ECN	DATE	DESCRIPTION	By



Important Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

Caution All internal adjustments and maintenance must be performed by qualified service personnel. ▲

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Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.



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- ✓ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
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- ✓ Always follow good hygiene practices.
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When more extensive service is necessary, we will assist you with direct factory trained technicians or a qualified service organization for on-the-spot repair. If your service need is covered by the warranty, we will arrange for the unit to be repaired at our expense and to your satisfaction.

Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

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Section 1 Introduction

Model 3050/3052 Gas Guard is a monitoring and switching device for CO₂ and N₂ gas supplies. The unit will monitor a two cylinder gas supply. When the active supply tank is depleted, an audible alarm sounds and the gas guard automatically switches to the second tank. The audible alarm is silenced by manually switching the SILENCE switch to the other tank position.

Power failure stops the automatic tank switching operation of the Gas Guard. Gas will continue to flow from Tank #1 in a power failure, if the tank is not empty. An Uninterrupted Power Source is recommended to ensure continuous gas flow, no matter which tank is in service at the time of power failure.

Located on the back of the unit, a voltage selector switch permits the appropriate voltage selection (115V/230V). The unit is also equipped with a single remote alarm contact that monitors alarm conditions such as an empty supply tank, or a power failure to the unit.



Caution Model 3050/3052 Gas Guard is designed to be used with CO₂ and N₂ only. ▲

Location

Locate Model 3050/3052 on a level surface. Provide adequate space near the incubator for storage of the CO₂ or N₂ cylinders.



Warning O.S.H.A. Regulations have been established for the handling, storage, and use of high pressure gas storage cylinders. Consult the latest edition of the O.S.H.A. Regulations to ensure compliance with all safety requirements. Also, consult all applicable state and local regulations. ▲

Section 2 Installation and Start-Up

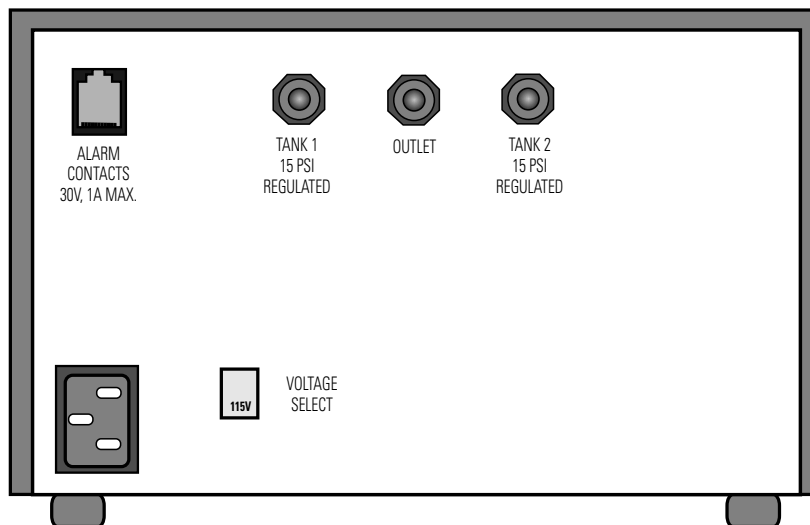


Figure 2-1. Rear View

Connect the Gas Tanks

Connect a regulated gas supply to each of the two inlet fittings located on the back of the unit. The fittings are labeled. Refer to Figure 2-1. A filter (Stock No. 770001) is recommended to be installed on each of the inlet connections. Check the connections for leaks.

Connect the Gas Outlet

The gas outlet is located between the inlet fittings. Refer to Figure 2-1. Connect the supply tubing to the barbed outlet and connect the other end to the incubator or other piece of equipment requiring a gas supply. Check the gas outlet for a possible leak.

Connect Gas Guard to Power Source

Set the voltage select switch to the proper setting (115V or 230V). For Model 3050 set the voltage select switch to 115V and use part number 430108 line cord. For Model 3052 set the voltage select switch to 230V and use part number 430109 line cord. Should the application require an alternate cordset, consult the factory. See Figure 2-2.

With the power switch OFF, plug the cord set into the receptacle on the back of the unit. The cord set is the mains disconnect for the gas guard. Connect the other end of the cord set to an adequate power source. Refer to the serial tag located on the back of the unit or see the Specifications section or electrical schematics in the back of this manual for specific power requirements.

Note It is recommended that the gas guard be connected to a separate electrical circuit. ▲



Warning Use only a grounded electrical receptacle. Failure to ground the unit can result in serious injury from electrical shock. ▲

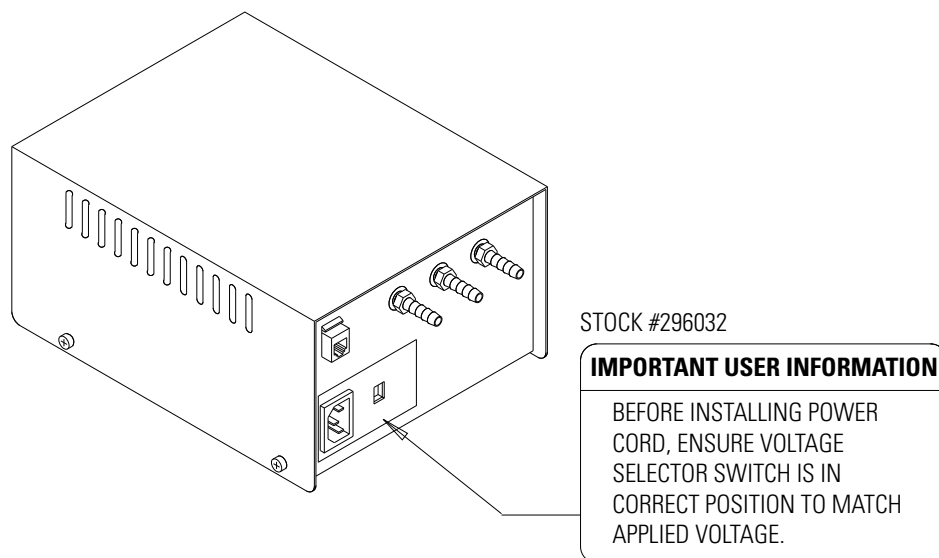


Figure 2-2. Voltage Switch and Receptacle Location

Start-Up Procedure

1. Turn the CONTROL switch On.
2. Select the active tank using the SILENCE switch.

Section 3 Control & Indicating Devices

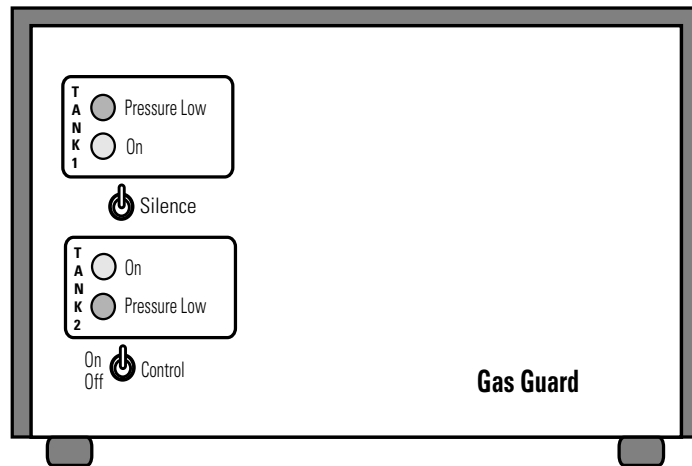


Figure 3-1. Front View

Control Switch

The Control switch controls power to the Gas Guard control circuit board. The yellow LEDs on the front panel designate which tank is active and indicate the unit is receiving power.

Silence Switch

The Silence switch silences the alarm and selects the alternate tank. If the Silence switch fails to silence the alarm, it is an indication that both gas tanks are depleted or incapable of producing 15 PSIG.



Warning During initial start-up, the incubator connected to the Model 3050/3052 Gas Guard should not be injecting gas. ▲

Gas Depletion Alarm

The gas depletion alarm sounds automatically when the active supply tank becomes empty. The other tank becomes active with the sounding of the alarm.

Note Should both supply tanks become depleted, the only way to silence the alarm is to turn the CONTROL switch to Off. ▲

Active Tank Indicating Lights

The two yellow indicating lights, labeled TANK1 On and TANK2 On, located on the front of the control panel, show which gas tank is active.

Pressure Low Indicating Lights

The two red indicating lights, labeled Pressure Low, show when a supply tank is depleted. If both tanks are depleted, both red indicating lights will be lighted.

Voltage Select Switch (refer to Figure 2-1)

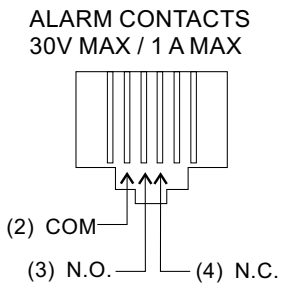
The VOLTAGE SELECT switch, on the back of the unit, permits the selection of the proper electrical line voltage (115V or 230V).



Caution Make sure to set the switch to the correct voltage before connecting the unit to power. ▲

Remote Alarm Contact (refer to Figure 2-1)

A SPDT relay is provided for monitoring alarm conditions on the Gas Guard. Connections are made by means of an RJ-11, telephone style jack, located on the back of the unit. Figures 3-2 and 3-3 show the connector wiring diagram. A power outage or low gas pressure on the Gas Guard will activate the relay.



IMPORTANT USER INFORMATION

Caution! Stored product should be protected by an activated alarm system capable of initiating a timely response 24 hours/day. Alarms provide interconnect for centralized monitoring.

Figure 3-2. Connections

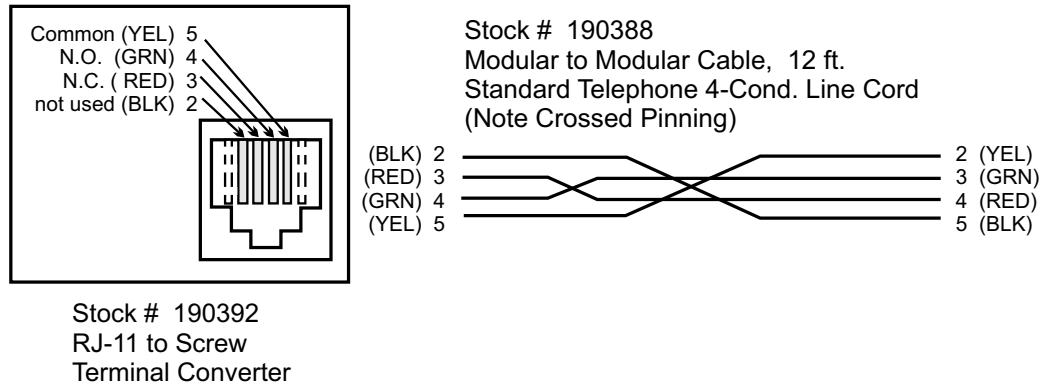


Figure 3-3. Wiring

A modular to modular cable, part no. 190388 and an RJ-11 telephone style terminal converter, part no. 190392 or equivalent may be used to convert to a screw terminal connection. Refer to the above illustration.

Section 4 Maintenance and Service

Routinely check all the following every six months to ensure their proper operation.

1. Check all piping connections between the CO₂/N₂ source, the gas guard and the incubator
2. Check the Mains Disconnect and the power indicator to make sure that the unit is on.
3. Change gas inlet filters yearly, or as needed (if applicable).

Cleaning



Caution Before using any cleaning or decontamination method except those recommended by the manufacturer, users must check with the manufacturer that the proposed method will not damage the equipment. ▲

Warning Turn the unit off and disconnect power cord before cleaning. ▲

Clean the exterior with a damp sponge or soft, well-wrung cloth and mild detergent dissolved in water. Dry with a soft cloth.

Service



Warning High voltage is present behind control panel. Servicing must be performed by qualified electrical service personnel only. ▲

Section 5 Specifications

Exterior Dimensions . . 7.13”W x 5.13”H x 9.25 F-B
.....(18.1 cm x 13.1 cm x 23.5 cm)

Gas ConnectionsInlet - two ¼” barb fittings;
.....Outlet - one ¼” barb fitting

Inlet Pressure15 PSIG, ±5 PSIG

Construction . . . 18 Ga. CRS, Heavy-gauge metal w/powder coated finish

ElectricalSwitchable from 115/230V

100-115V, 1PH, 50/60 Hz, 0.3 FLA

200-230V, 1PH, 50/60 Hz, 0.15 FLA

Not to exceed ±10% of nominal

Power ConnectionIEC 320 Female Plug

Remote Alarm Contact . . RJ-11 Phone Jack (C, NO, NC)

Contact Rating30V, 1A Max

Shipping Weight13 lbs. (5.9 kg)

The Model 3050/3052 Gas Guard is designed to be electrically safe in the following environmental conditions:

Indoor use only

Altitude: Up to 2,000 meters

Temperature: 5°C to 40°C

Humidity: 80% RH at or below 31°C, decreasing linearly to 50% RH at 40°C

Mains Supply Fluctuations: ±10% of nominal voltage

Installation Category II¹

Pollution Degree 2²

Class of Equipment

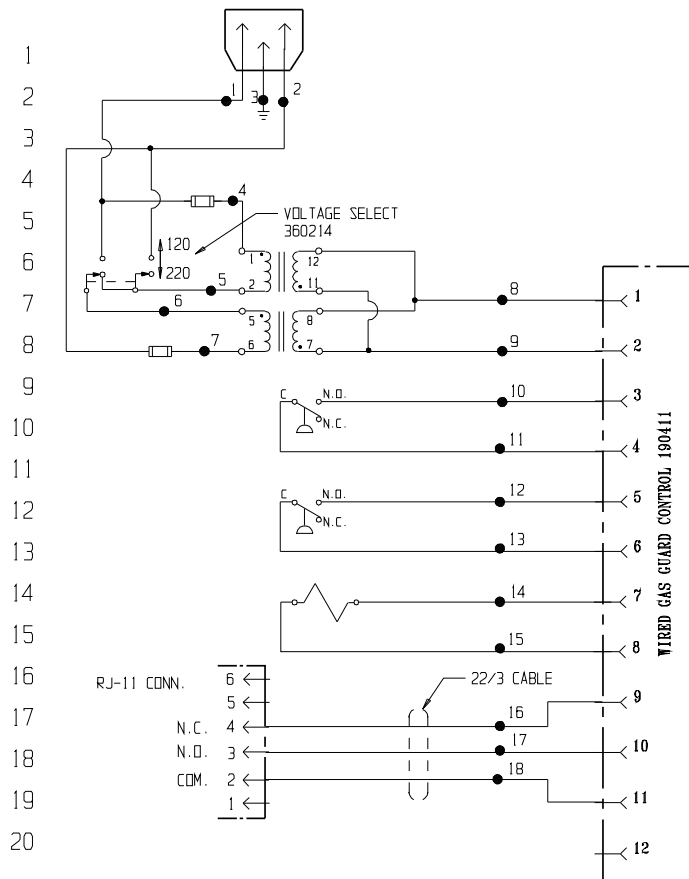
¹ Installation category (overvoltage category) defines the level of transient overvoltage which the instrument is designed to withstand safely. It depends on the nature of the electricity supply and its overvoltage protection means. For example, in CAT II which is the category used for instruments in installations supplied from a supply comparable to public mains such as hospital and research laboratories and most industrial laboratories, the expected transient overvoltage is 2500V for a 230V supply and 1500V for a 120V supply.

² Pollution Degree describes the amount of conductive pollution present in the operating environment. Pollution Degree 2 assumes that normally only non-conductive pollution such as dust occurs with the exception of occasional conductivity caused by condensation.

Section 6 Parts List

Stock No.	Description
190411	Wired WJ Gas Guard Control
230120 ..	Fuse, BK/GMC-500mA, 250V Time Delay (T)
250108	Solenoid Valve, Brass, 12VDC
360213	Pressure Switch, 12.5 Adjustable
360214	Voltage Select Switch, DPDT
420082	Transformer, 80 VA
430108	Cordset, 10A, 125V (Model 3050 only)
430109	Cordset, 10A, 250V (Model 3052 only)
460123	Power Inlet, Snap-In
190388	Telephone cable, RJ-11 plugs, 12 ft.
190392	RJ-11 Jack to Screw Terminal Converter
770001	Disposable filter 99.97

POWER CONNECTION
100-115V / 200-230V 50/60HZ
0.3A / 0.15A 1PH 2WIRE



POWER ENTRY, (IEC 320)
460123

500 MA FUSE
230120

TRANSFORMER, 80VA
420082

500 MA FUSE
230120

SUPPLY #1, PRESSURE SWITCH
360213

SUPPLY #2, PRESSURE SWITCH
360213

GAS CONTROL SOLENOID
250108

REMOTE ALARM OUTPUT
(Shown in Alarm State)

RJ-11 CONN.

6
5
4
3
2
1

WIRE REFERENCE CHART

NO.	GA.	COLOR
1	22	BLACK
2	22	WHITE
3	22	GRN/YEL
4	22	BLACK
5	22	BLUE
6	22	ORANGE
7	22	WHITE
8	22	BROWN
9	22	YELLOW
10	22	PURPLE
11	22	PURPLE
12	22	ORANGE
13	22	ORANGE
14	22	BLUE
15	22	BLUE
16	22	BLACK
17	22	RED
18	22	GREEN

22/3 CABLE

REV	ECN NO.	DATE	BY	CAD	APPD	DESCRIPTION OF REVISION
3	IN-4552	08-05-15	GSW	JAS	CCS	REVISE ELECTRICAL SPECIFICATIONS
2	IN-2929	04-16-01	WCW	POK	LON	CORRECT FLA RATINGS
1	IN-2200	12-04-96	BKH	KDG	LON	IEC-1010 UPDATES
0	N/A	08-19-93	GLM	GLM	M.H.	RELEASED FOR PRODUCTION

Electrical Schematic
Model:
3050 and 3052
Gas Guard



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SENSITIVE DEVICES

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BOX 649, MARIETTA, OHIO 45750

MODEL/PART NAME: 3050 GAS GUARD
DWG TITLE: ELECTRICAL SCHEMATIC
DWG: GLM CAD: GLM APPD: M.H. DATE: 07-26-93 SCALE: NONE

MATERIAL:
PAINT COLOR:
TOLERANCE UNLESS OTHERWISE SPECIFIED
ANGLES: DECIMAL: .XX±
DRAWING NUMBER
3050-70-0
SIZE
D

3050-70-0-0 REV. 3
Page 1 of 1

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Thermo Fisher Scientific International Dealer Warranty

The Warranty Period starts two months from the date your equipment is shipped from our facility. This allows for shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner during the first year warranty period. Dealers who stock our equipment are allowed an additional six months for delivery and installation, provided the warranty card is completed and returned to the Technical Services Department.

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