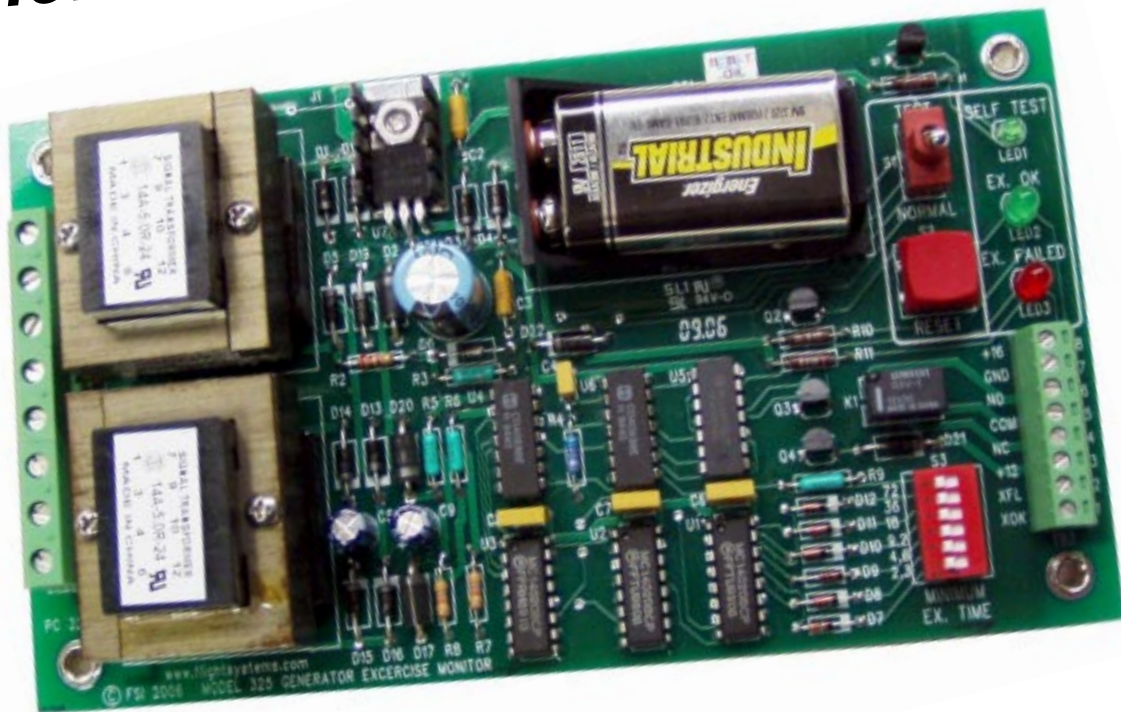


The Model 325
GEM
Generator Exercise Monitor



**INSTALLATION
- OPERATION
MANUAL**



FLIGHT SYSTEMS

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PURPOSE

Every standby power unit must be exercised regularly in order to remain healthy and in a state of readiness to meet any emergency. A standby engine can fail to start for many reasons including lack of fuel, contaminated fuel, dead battery, etc. A regular exercise cycle helps prevent some of these problems or at least gives a warning that they are developing. The exercise cycle is usually performed weekly by means of an automatic timer that is incorporated into the generator controls. Many generators do not monitor the exercise cycle and warn if it does not take place as scheduled. Unless you happen to be standing nearby when the generator runs, you have no way of knowing if it exercised or not (except by recording the readings of the running time meter). Consequently, it may not be ready when you really need it.

The Flight Systems Model 325 Generator Exercise Monitor (GEM) is specifically designed to solve this problem in a simple and cost-effective way. The Model 325 GEM monitors the exercise cycle on a weekly basis to make sure that the generator *actually ran* and produced voltage. Indicators on the unit show the status as simply “Exercise OK” or “Exercise Failed”. These indications can be remotely displayed at another location, if desired. The alarm output can be connected to any alarm system or automatic telephone dialer. The GEM is easily installed in the generator control or transfer switch cabinet and requires no connections to the existing controls. ***A half-speed/half-voltage modification is available at no extra cost.***

APPLICATION

The Model 325 GEM can be used with any size generator and is compatible with its existing controls. One unit covers 115 V, 208 V and 230 V, single or three-phase power systems. Since it does not require any connection to the control or to the exerciser, installation is simple. The only connections required are to the incoming AC line and the generator output. Various lengths of exercise time periods can be selected. A remote status indicator is supplied. The alarm output can be connected to a conventional or a PC based alarm system or an automatic telephone dialer. An isolated set of sealed relay contacts (SPDT) is provided for this purpose. These contacts are also suitable for dry circuit (very low current) operation. Remote indication, a dialer or an alarm system require additional wiring. ***Exercise at half-speed requires the half-speed modification.***

DESCRIPTION OF FEATURES

The Model 325 GEM is a low cost but valuable addition to any standby generator because it enhances system reliability by monitoring the exercise cycle. Installation is quick and easy with just four screws and four AC power connections. One model covers the most popular voltages of 115, 208 and 230, single or three phase.

The unit is AC line powered but is protected against memory loss by a standard 9-volt alkaline battery. Minimum exercise time periods from 2.3 to 72 minutes may be selected. The unit remembers from week to week if the exercise cycle has been successfully completed and indicates the exercise status as EX. OK or EX. FAILED. These indications can also be displayed by means of a remote indicator (supplied) that fits in a standard outlet box and uses low voltage wiring. An SPDT relay output is provided for interfacing with alarm systems or automatic telephone dialers. The generator can respond to a power failure or be run for maintenance at any time without disturbing the exercise monitoring function.

NOTE: The unit *will not* tell you if the generator failed to start in an actual power failure situation. (***Our Model 326 Power Failure Detector can - please see page 15 of this manual***) It is purposely designed to respond *only* to a failed exercise cycle. A built-in self-test feature permits the user or a service person to verify proper operation of all functions of the unit. In the self-test mode, a week of monitoring is accelerated to less than one minute of real time.

A summary of the Model 325's features appears on the following page.

SUMMARY OF FEATURES

- Low cost
- Easy to install – connections to line, generator and remote/alarm (if used).
- Line powered, battery backed (standard 9V) for power outages.
- Covers 115V, 208V, and 230V single phase and 208/230V three phase.
- Connects to any alarm system or automatic telephone dialer. Powers the dialer.
- Selectable minimum exercise times from 2.3 to 72 minutes.
- Complete self-test function with continuous status indication.
- Alarm grace period of 6.7 hrs. tolerates exerciser timing variations.
- Manual and automatic reset.
- Surge protected.
- Generator can be run without disturbing exercise-monitoring cycle.
- Remote Status Indicator (included) mounts in any standard outlet box. (Box supplied if requested)
- Remote status wiring is low voltage (12V) and therefore safe and inexpensive.
- Optional weatherproof enclosure and Generac mounting plate available.

INSTALLATION

QUALIFIED PERSONNEL

Installation of the unit should be done by a licensed electrician or other qualified person. A basic knowledge of electrical practice and codes is required to ensure that the installation is completed correctly, is safe and complies with all applicable NEC and local electrical and building codes.

LOCATION

Since the length of the wiring to and from the Model 325 is not critical, the unit may be mounted in any convenient location in the generator control or transfer switch enclosure. Avoid locations near direct engine or exhaust system heat sources. An optional weatherproof enclosure (P/N 56-A325-10) is available for mounting the GEM separately inside or outside of an existing enclosure (See separate instruction sheet). The unit may be mounted in any position, however it should be oriented so that there is convenient access to the controls and indicators. Allow adequate clearance for wiring to the terminal blocks on the ends of the unit.

MOUNTING

Mounting is by means of the 4 holes provided in the corners of the PC board assembly. The holes in the metal spacers are sized for #6 screws. Use self-tapping or sheet metal screws. Machine screws may also be used if there is access to the back or outside surface of the enclosure for the nuts. (See Fig. D, Pg. 10) Mounting is simple with the optional weatherproof enclosure, P/N 56-A325-10, which includes all hardware. Also available is an optional mounting plate for many Generac models. (See Accessories on Pg. 14)

WIRING

Refer to the Wiring Diagrams, Figure E, F & G on Pg. 10. Voltage selection is determined by the connections at TB-1. Wiring to the AC line and the generator output should be run with stranded building wire type THHN / THWN / TFFN or machine tool wire type MTW / AWM / TEW (UL style 1015/1230) rated at 600 volts. Use #18, #16, or #14 AWG. Comply with all applicable NEC and local electrical codes. Wiring must be properly supported if it is subject to vibration.

REMOTE INDICATOR PANEL (INCLUDED as of 1/08)

Refer to Figure A “Connections for Remote Indicators” on Pg. 9. For convenience, the status of the exercise cycle may be displayed at a remote location at a distance of up to 1000 feet from the generator. The remote indicator panel is currently available in white (P/N 56-A325-02) and ivory (P/N 56-A325-01). The remote panel is designed for installation in a standard outlet box and is compatible with standard “designer” wall plates. A matching wall plate is included with the remote indicator. Obtain the wire locally. Also supplied at no charge (if requested) is an outlet box that permits retro-fit installation in an existing wall. (Carlton B114R “Old work”).

Remote indicator wiring is “low voltage” (12 VDC) and may be run with #24 or #22 AWG 3-conductor PVC jacketed cable (such as ALPHA 1173C). Stranded wire is preferred. NOTE: Some building codes require the use of plenum rated cable. Connections to the Model 325 outputs are made at terminal block TB-2. Connections at the remote indicators are to be made with the gray size 71B wire nuts supplied with the remote panel. Crimp splices may be used instead if desired.

REMOTE ALARM / TELEPHONE DIALER

Refer to the Wiring Diagrams, Figure H, I & J on Pg. 12 and Figure K, L & M on Pg. 13. A relay output is provided for interfacing the GEM to a remote alarm system or an automatic telephone dialer. The relay normally open and normally closed contacts are rated to handle currents from a dry circuit up to 1 ampere at 30 VDC or 0.5 ampere at 125 VAC. Most alarm systems and dialers use a normally open dry-circuit contact that closes on alarm. Other configurations are possible. See wiring diagrams. When the GEM has detected a “failed exercise” condition, the relay normally open contacts close and remain closed as long as utility power is present and until the unit is reset. A dialer can be powered directly from TB2-7 (GND) and TB2-3 (+12 VDC). If a dialer backup battery is used, the dialer is powered from TB2-8 (+16 VDC). See Wiring Diagrams.

GEM BACKUP BATTERY

The GEM is normally powered by the AC line from the utility or the generator. A standard 9-volt alkaline battery (supplied) is used to power the memory in case of a total power failure and during the time it takes for the generator to start in actual power failures. At all other times, the battery is not being used at all. DO NOT install the 9-volt backup battery in its holder until the unit is ready to be powered from the AC line. Otherwise, the battery may be prematurely discharged and its life shortened (battery life is approximately 30 days without AC power). In normal use, the battery should last at least 2 years and possibly up to 5 years. It should be tested or replaced at the same time that smoke detector batteries are tested or replaced. Testing every 6 months would be even better.

Remove the battery if the utility power is off for long periods of time. To remove the battery, lift up on the bottom end until it *completely clears* the battery holder tab, and then disengage the terminals.

SETTING MINIMUM EXERCISE TIME

This setting determines the minimum time that the generator must run in order to be counted as a valid exercise cycle. This length of time, called MINIMUM EX. TIME, is switch selectable in time intervals of 2.3, 4.6, 9.2, 18, 36 and 72 minutes. One of these time periods is selected by turning on the corresponding switch. Turn on **only one** switch. The switches *do not* work in combination. If more than one time period is selected, the *shortest* time will take effect. Be sure to select a time interval that is *shorter* than the actual time the generator is expected to run. For example, if the generator exerciser is set to run the generator for 20 minutes, use the 9.2 or 18 minute setting. If the generator runs for *less* than this amount of time, the cycle will not be counted. This will ultimately result in an EX. FAILED indication.

NOTE: If *no* time is selected, *any* exercise period, regardless of length, will *not* be counted and the unit will *not* reset. This also will ultimately result in an EX. FAILED indication. However, this feature is useful when it is desired to run the generator for maintenance purposes at a time of the week **other than the programmed exercise time**. By temporarily turning off the selected MINIMUM EX. TIME, the generator may be run as long as desired without interfering with the weekly monitoring cycle. If this feature is used, be sure to re-select the MINIMUM EX. TIME when finished performing maintenance.

OPERATION IN NORMAL MODE

When AC power is applied to the unit from the line or the generator, the green EX. OK indicator will be on (if not, pressing the red RESET button will return the unit to this state). Whenever normal AC power is present from the utility, the small green SELF TEST indicator will flash at a rate of about once per second. This indicates the unit is timing properly. Timing of the weekly cycle will continue until the generator starts and completes a valid exercise period **while normal utility power is present**. This automatically resets the weekly timer. If the generator runs because of a loss of utility power, this is **not counted** as a valid exercise period. During the time that the generator is actually exercising and producing voltage, the green EX. OK indicator flashes.

When the generator stops, this indicator returns to a steady indication. If the generator is running because of a loss of utility power, the EX. OK and EX. FAILED indicators will be off until utility power returns. The SELF TEST indicator does not flash if utility power is lost (it may remain on steady – disregard). If neither the utility or generator power sources are present, no indicators will be illuminated.

If the generator fails to complete a valid exercise period within a week plus the grace period (approximately 6.7 hours), the red EX. FAILED indicator will begin flashing and the relay will energize. This indication will continue until the generator does complete a valid exercise period (on its own or with human intervention), or reset is accomplished by pressing the red RESET button. This resets the weekly timer, turns off the EX. FAILED indicator, turns on the EX. OK indicator and de-energizes the relay.

OPERATION IN SELF-TEST MODE

The self-test mode is used to quickly verify proper operation of the Model 325. Placing the mode switch in the TEST position causes the weekly timer to speed up and complete its cycle in about one minute instead of one week. In the TEST mode, the SELF TEST indicator will come on steady instead of flashing. In about one minute, the EX. OK indicator will go off and the EX. FAILED indicator will come on steady instead of flashing and the relay will energize. Pressing the RESET button will cause the cycle to repeat. Starting the generator will cause the unit to reset immediately, by-passing the normal MINIMUM EX. TIME setting.

Using the TEST mode or pressing the RESET button causes the unit to “forget” the time that it has counted since the last valid exercise. When you are finished testing, make sure that the mode switch is returned to the NORMAL position and the RESET button has been pressed. A new weekly monitoring cycle will begin at this point. The first time the generator completes a valid exercise period, the weekly timer will automatically reset and will now be re-synchronized to the generator’s exercise cycle.

CHART 1 - MEANING OF INDICATORS (NORMAL MODE)

CONDITION	SELF TEST	EX. OK	EX.FAILED
Utility power on, generator off, exercise completed successfully.	Flashing	On	Off
Utility power on, generator on, exercise in progress.	Flashing	Flashing	Off
Utility power on, generator off, exercise failed.	Flashing	Off	Flashing
Utility power off, generator on.	Disregard	Off	Off
Utility power off, generator off. (unit is in battery backup)	Off	Off	Off

CHART 2 - MEANING OF INDICATORS (TEST MODE)

CONDITION	SELF TEST	EX. OK	EX.FAILED
Utility power on, generator off, <u>during</u> one-minute test period.	On	On	Off
Utility power on, generator off, <u>after</u> one-minute test period.	On	Off	On
Utility power on, generator on, after one-minute test period. Generator resets unit immediately.	On	On	Off

MODEL 325 FAQ's

Q. Does the GEM alter or control the exercise cycle of the generator in any way?

A. No. The GEM only *monitors* the exercise cycle of the generator.

Q. Will the GEM display a warning if the generator fails to start during a power failure?

A. No. The GEM will only warn of a missed exercise, and only when AC power is present. (*Our Model 326 Power Failure Detector will advise you of a power outage - see Page 15 of this manual for details*)

Q. Will the GEM display a warning immediately after a missed exercise?

A. No. The EX. FAILED warning will be displayed when the grace period (6.7 hr.) elapses.

Q. How is the GEM powered?

A. The GEM is AC powered from the normal utility or the generator to which it is always connected. It uses a standard 9-volt alkaline battery to prevent memory loss during power failures before the generator starts, or if the generator fails to start.

Q. How often does the 9-volt alkaline battery need to be replaced?

A. Battery life depends on the number and duration of power failures and if the generator always started promptly during those failures. *The battery is not used at all when normal or standby power is present.* In general, the battery should last for at least 2 years and possibly up to its shelf life of 5 years or more. Ideally, it should be checked every 6 months with a battery tester (such as Radio Shack 22-096C), or more often if there have been frequent or long outages without standby power. It is a good practice to check or replace the battery when replacing smoke detector batteries, and/or when performing seasonal generator preventative maintenance.

Q. What is the life of the 9-volt alkaline battery without AC power?

A. Approximately 30 days.

Q. Is it safe to check or replace the battery with the power on?

A. Yes. The GEM is isolated from the AC line and generator circuits. For your own personal safety, **DO NOT TOUCH ANYTHING ELSE** in the generator control cabinet unless you are a qualified service person or are very familiar with your generator's controls and are aware of the potential hazards involved. If unsure, refer service to qualified personnel.

Q. Will a dead 9-volt alkaline battery cause the GEM to malfunction?

A. Not immediately. Since the GEM is AC powered, it will likely go unnoticed for a while. A dead battery will result in a loss of memory during power failures, which may cause the GEM to display a false EX. FAILED warning some time after normal power returns. This serves as a reminder to check the battery. A dead battery left in the unit for several months may cause corrosion damage.

Q. When should the 9-volt alkaline battery be removed?

A. If for any reason the normal commercial power source is to be turned off for more than a few hours, such as in the seasonal closing of a cottage or summer home, the battery should be removed to prevent discharge and/or corrosion damage.

Q. How does the GEM "know" if the generator has exercised?

A. The GEM senses the generator voltage when it is running and keeps track of the elapsed time since the generator completed a valid exercise. If this time exceeds one week plus a grace period of 6.7 hours, the EX. FAILED warning is turned on.

(FAQ's Continued on the following page)

Q. What is a valid exercise period?

A. In order to be counted as a valid exercise period, the generator must run and produce voltage *while the normal power is on* for a length of time that exceeds the MINIMUM EX. TIME that has been set on the GEM (See “Setting Minimum Exercise Time”).

Q. If the generator runs for longer than the MINIMUM EX. TIME in response to or as a result of a failure of the normal utility power, does this count as a valid exercise?

A. In general, no. The length of time that the generator runs *when the normal utility power is off* does not count toward the exercise time. If, however, the generator continued to run for a length of time greater than the MINIMUM EX. TIME *after* the normal utility power was restored, as it might in a cool-down mode, it would be counted as a valid exercise period.

Q. What conditions would cause a false EX. FAILED warning to be displayed?

A. A false EX. FAILED indication can be caused by either: 1) using the TEST mode without pressing RESET afterward (or completing a valid exercise), or 2) a dead 9-volt battery.

Q. Does it matter if the load is transferred to the generator during exercise?

A. No. The GEM will sense the generator output regardless of load transfer.

Q. If the generator delivers power for a long period of time because the utility power has failed, will this interfere with the exercise monitoring cycle?

A. No. The time that the generator runs *without* utility power present is not counted. It is a “time out” period as far as the exercise cycle is concerned. Counting resumes when the utility power returns.

Q. Will manual resetting of the GEM between exercises cause false indications?

A. No. The GEM will automatically re-synchronize with the weekly cycle the first time that the generator completes a valid exercise.

Q. Does it matter what time of day or day of the week when the generator is exercised?

A. No. Exercise may be at any time but should be at the *same time* every week. The GEM will automatically synchronize with the exercise cycle the first time exercise is performed.

Q. Does the exercise need to take place *exactly* at the same time each week to the minute?

A. No. The GEM allows for exerciser inaccuracies by providing a grace period of 6.7 hours.

Q. Will more than one exercise cycle in a week confuse the GEM?

A. No. The GEM will reset and begin counting again after the last valid exercise.

Q. What is the purpose of the TEST mode?

A. The TEST mode provides a quick and convenient way to verify all of the functions of the GEM by “speeding up” time, so that what normally happens in a week only takes 1 minute.

Q. When is the alarm relay energized?

A. The alarm relay is energized whenever the red EX. FAILED indicator is flashing (normal mode) or on steady (test mode).

AUTOMATIC DIALER FAQ's

Q. Which automatic dialer offers the most features for the price?

A. In our opinion, the Model AD-2001 made by United Security Products, Inc. offers the most features for the price and is very easy to program. As a convenience to our customers, we can supply the AD-2001 from stock. Please order P/N 56-A325-11.

Q. Are all automatic dialers compatible with the Model 325 GEM?

A. Yes. Virtually all dialers are compatible, including the AD-2001 which we have tested extensively with the Model 325 GEM.

Q. How is a dialer, including the AD-2001, activated?

A. A dialer is normally activated by the closing or opening of a set of contacts or a voltage being sent to it by the alarm system, or in this case the Model 325, which can operate in any of these modes. The most common mode is a normally open contact that closes on alarm and remains closed until the alarm condition (exercise failed) has been cleared (325 is reset).

Q. How is the dialer powered?

A. The dialer can be powered by an AC adaptor (P/N 56-A325-13) or it can be powered directly from the Model 325 GEM without the need for an extra AC outlet or an adaptor. See wiring diagrams. This option can significantly lower installation cost.

Q. Does the AD-2001 dialer have batteries to replace?

A. No. It does not use batteries.

Q. Will the AD-2001 dialer lose its memory if the utility power fails?

A. No. The AD-2001 dialer uses non-volatile flash memory that will not be lost.

Q. Can the AD-2001 dialer dial out if the utility power fails?

A. Yes, but only if the standby generator is supplying power to the AC adaptor or to the 325 and the dialer is powered from the 325. It can not dial out if there is no AC power. However, it will "remember" to dial and will dial out as soon as power returns. See next question.

Q. Can the AD-2001 dialer be equipped to dial out immediately, even with a total power failure?

A. Yes. This is accomplished by adding the PP-1 backup battery pack (P/N 56-A325-12) which simply plugs into the AD-2001. The AD-2001 can still be powered by the AC adaptor or directly from the Model 325 GEM. In either case, the PP-1 charge is maintained automatically.

Q. Does the AD-2001 dialer require a separate dedicated phone line?

A. No. The AD-2001 dialer can use an existing phone or FAX line and will not interfere with the normal use of that line. It will automatically seize the line when it needs to dial out.

Q. Can the AD-2001 dialer accept a signal from more than one alarm device?

A. Yes. The AD-2001 dialer has two zones, one for the 325 and the second for another device, each with its own pre-recorded message. Other models are available with all of the same features and four or eight zone capability, depending on your requirements.

TROUBLESHOOTING

The installation and operation of the 325 is basically simple and straightforward. If you have a problem with the initial installation, it is most likely caused by improper wiring or the setting of the Minimum Exercise Time switches. A chart to guide you in the troubleshooting process appears below. A voltage chart is also provided to help isolate a problem to a particular circuit (this chart appears on the following page). The screws on top of the terminal blocks TB1 and TB2 are accessible and may be used as voltage test points. **CAUTION:** Line voltage is present on TB1.

CHART 3 - TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	WHAT TO DO
No indicators are illuminated.	Wrong or loose connections at TB1.	Check connections at TB1.
	Missing jumpers on TB1.	Check Jumpers at TB1.
SELF TEST indicator not flashing.	No utility power at TB1 terminals 1-4.	Check for power at TB1 terminals 1-4.
SELF TEST indicator is on steady. EX. FAILED indicator keeps coming on.	Mode switch is in TEST position.	Select NORMAL mode and Press RESET.
Ex. FAILED indicator comes on even after generator has completed its exercise.	MINIMUM EX. TIME set longer than generator exercise time.	Set MINIMUM EX. TIME for a shorter period of time.
	No MINIMUM EX. TIME set.	Set MINIMUM EX. TIME.
EX. OK indicator does not flash during exercise period with utility power on.	Wrong or loose connections at TB1 terminals 5-8.	Check connections at TB1 terminals 5-8.
	Generator running but not producing normal voltage.	Check generator output voltage.
Remote indicators do not illuminate.	Wrong or loose connections at TB2 terminals 1-3	Check connections at TB2 terminals 1-3.
	Wrong or loose connections at remote indicators.	Check connections at remote indicators.
Remote indicators do not agree with those on the main unit.	Connections reversed on TB2 terminals 1 and 2 or at indicators.	Correct wrong connections on TB2 terminals 1 and 2 and/or at indicators.

CHART 4 - VOLTAGE

CONDITION	TEST POINTS	READ THIS VOLTAGE
115 V utility power on	TB1 1 to 4	109 -121 VAC
115 V generator power on	TB1 5 to 8	109 -121 VAC
208 V utility power on	TB1 1 to 4	198 - 218 VAC
208 V generator power on	TB1 5 to 8	198 - 218 VAC
230 V utility power on	TB1 1 to 4	218 - 242 VAC
230 V generator power on	TB1 5 to 8	218 - 242 VAC
Utility and/or generator power on	TB2 7 to 3	11.7 -12.3 VDC
EX. OK indicator on steady	TB2 7 to 1	0.0 - 0.2 VDC
EX. FAILED indicator off	TB2 7 to 2	11.7 -12.3 VDC

CHART 5 - RESISTANCE

CONDITION	TEST POINTS	READ THIS RESISTANCE
EX. FAILED indicator off	TB2 5 to TB2 6	INFINITY
	TB2 5 to TB2 4	Near 0 Ohms
EX. FAILED indicator on / flashing	TB2 5 to TB2 6	Near 0 Ohms
	TB2 5 to TB2 4	INFINITY

FIG. A - CONNECTIONS FOR REMOTE INDICATORS

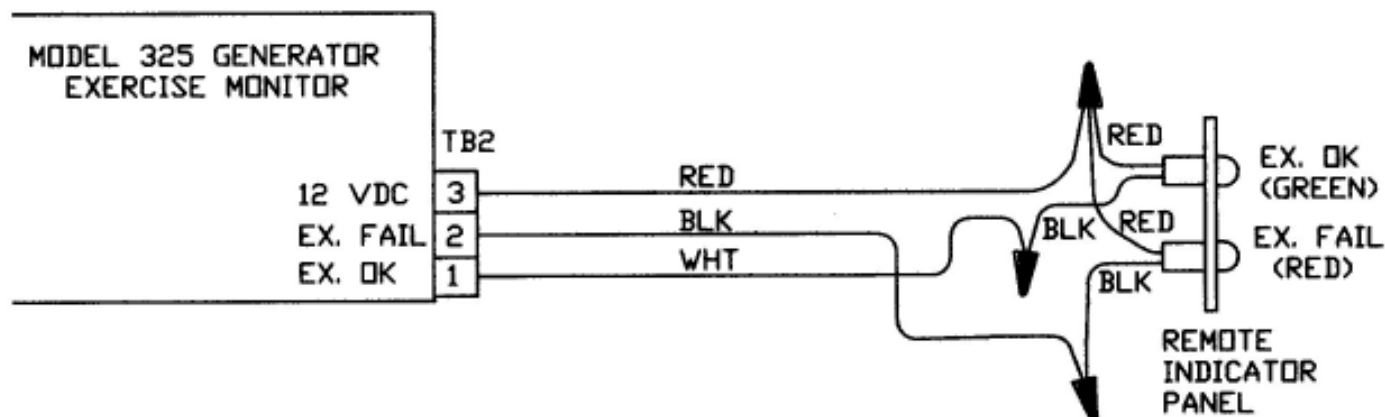
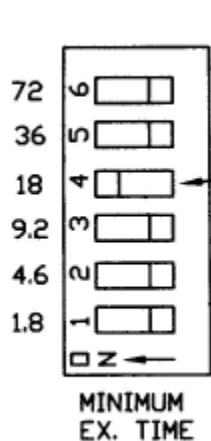


FIG. B - SETTING MINIMUM EXERCISE TIME



SWITCH IS LOCATED IN LOWER RIGHT-HAND CORNER OF THE PC ASSEMBLY.

MOVE THE SWITCH TO THE 'ON' POSITION TO SELECT A TIME IN MINUTES. SELECT ONLY ONE.

THIS IS THE MINIMUM TIME THE GENERATOR MUST RUN FOR A VALID EXERCISE PERIOD.

A SETTING OF 18 MINUTES IS SHOWN.

FIG. C - REMOTE INDICATOR WALL INSTALLATION

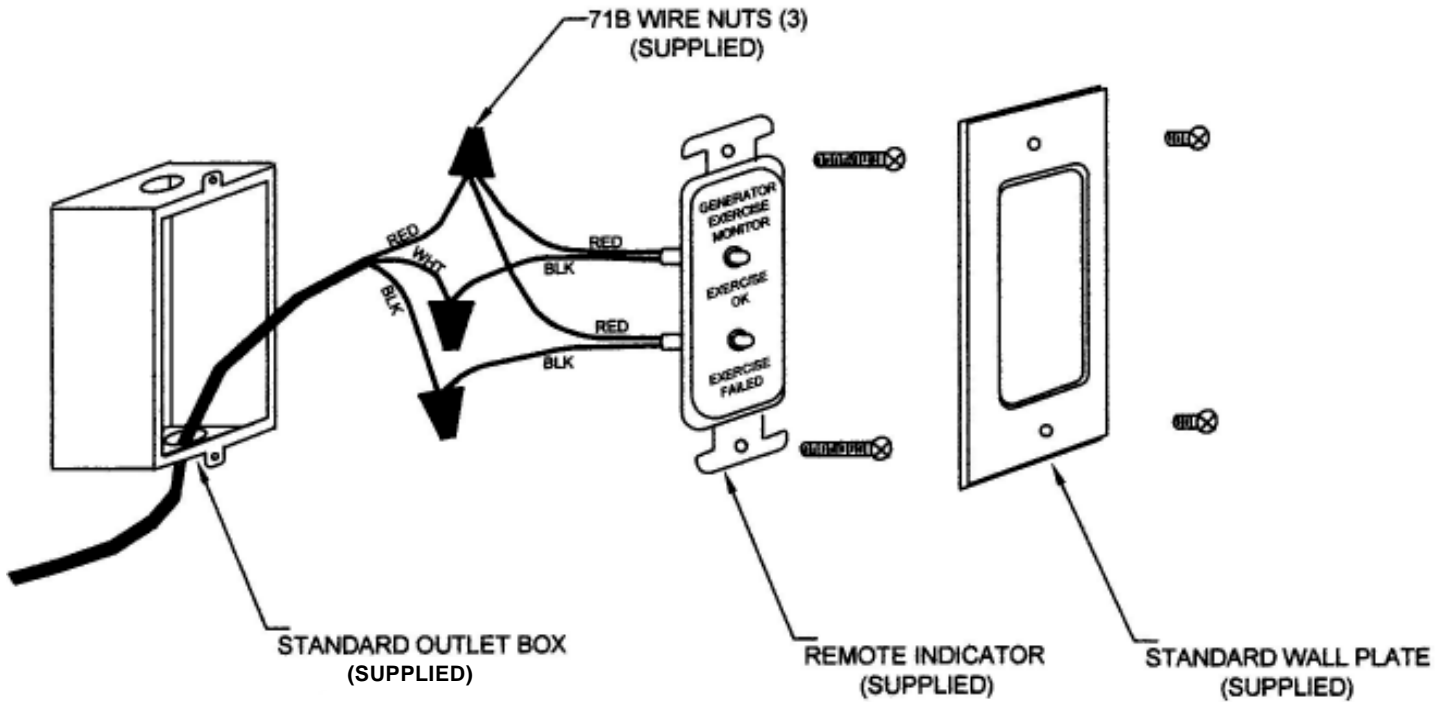


FIG. D - MODEL 325 UNIT DIMENSIONS AND MOUNTING CENTERS

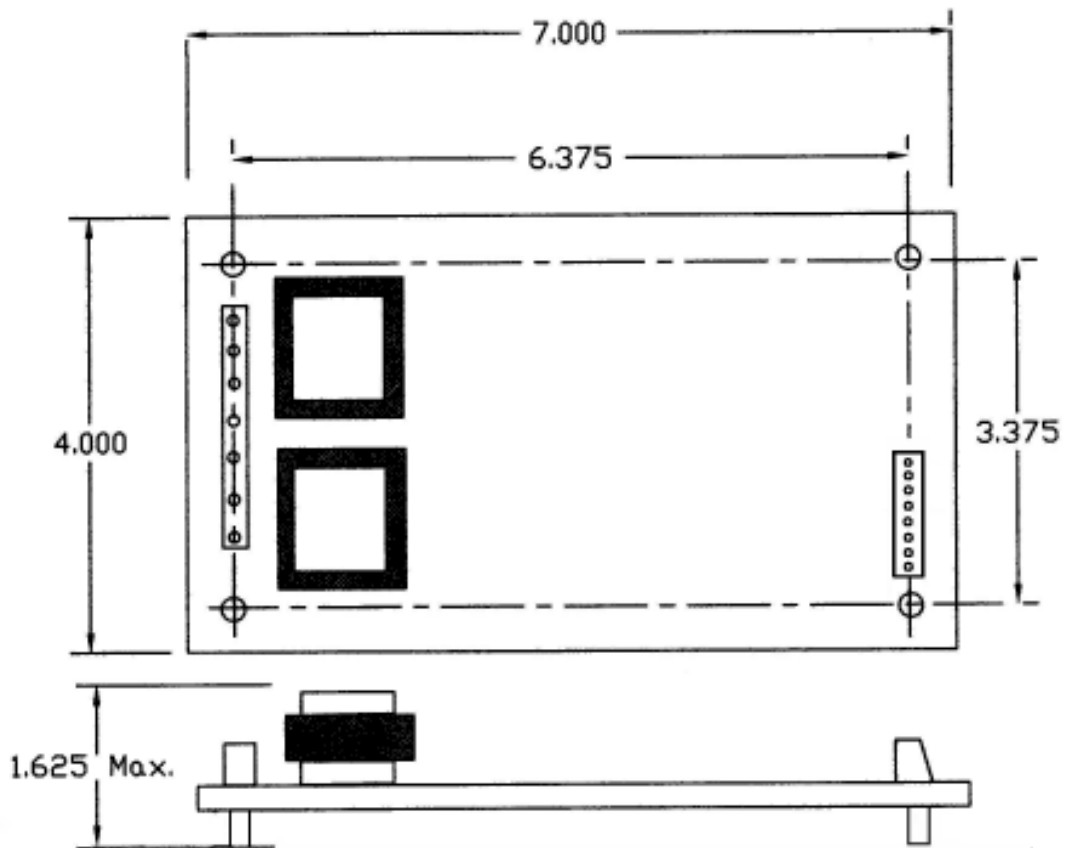


FIG. E - CONNECTIONS FOR 115 VAC SYSTEMS

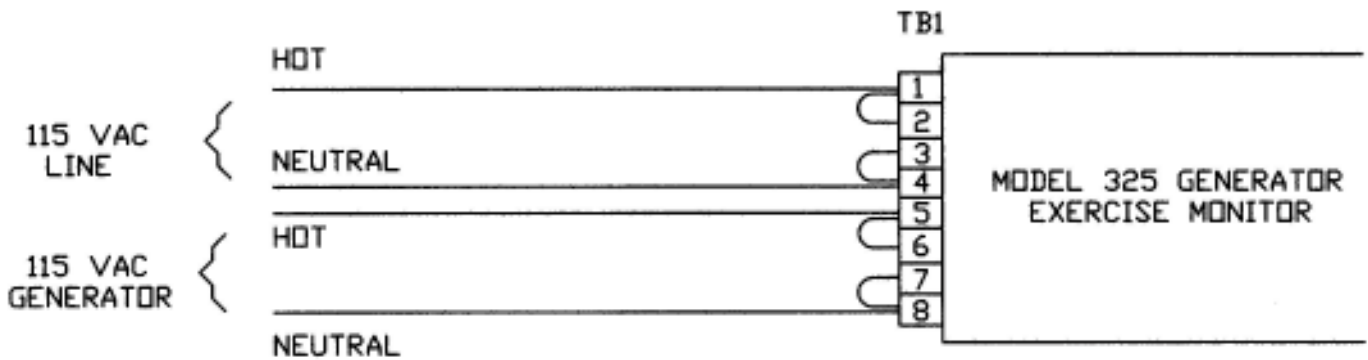


FIG. F - CONNECTIONS FOR 208/230 VAC SYSTEMS (SINGLE PHASE)

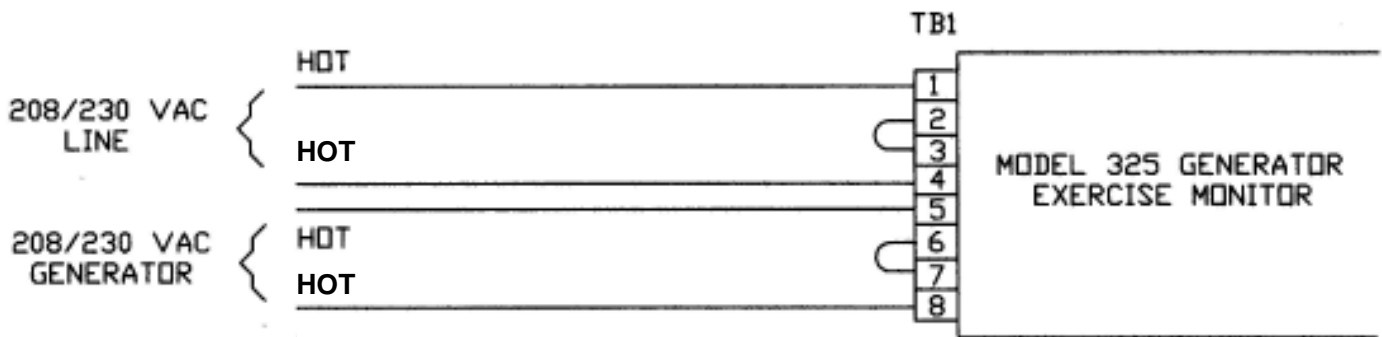
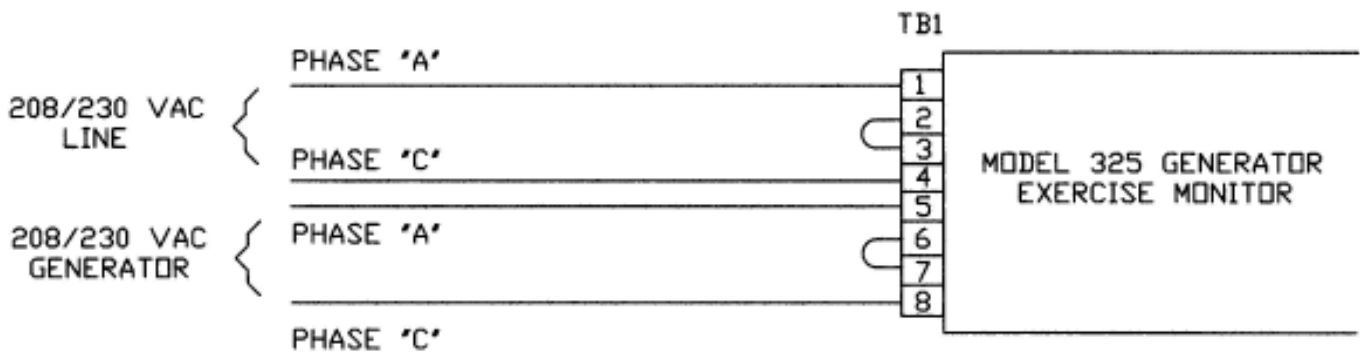


FIG. G - CONNECTIONS FOR 208/230 VAC SYSTEMS (THREE PHASE)



*Note: Exercise at half-speed (half-voltage) requires a no extra cost factory modification.
Please specify when ordering.*

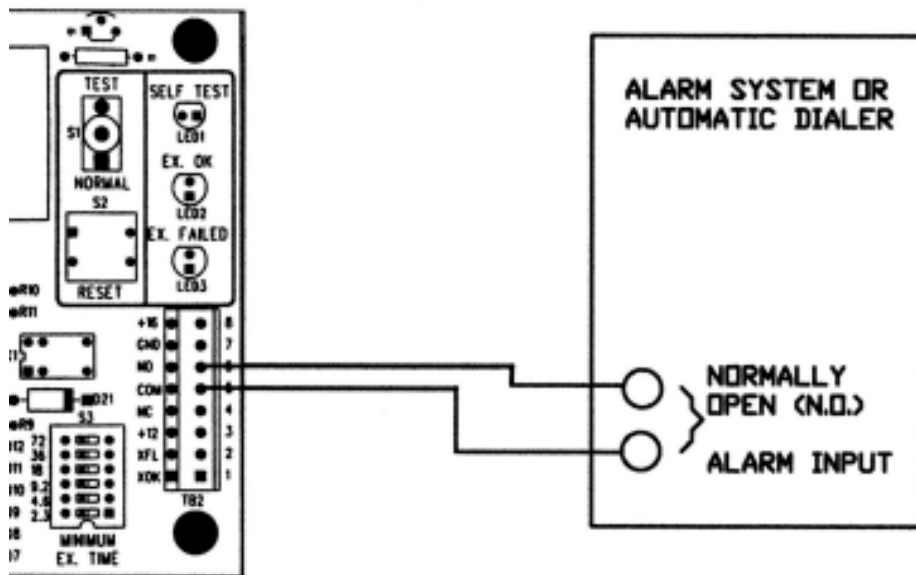


FIG. H -
WIRING DIAGRAM FOR
NORMALLY
OPEN CONTACTS THAT
CLOSE ON ALARM

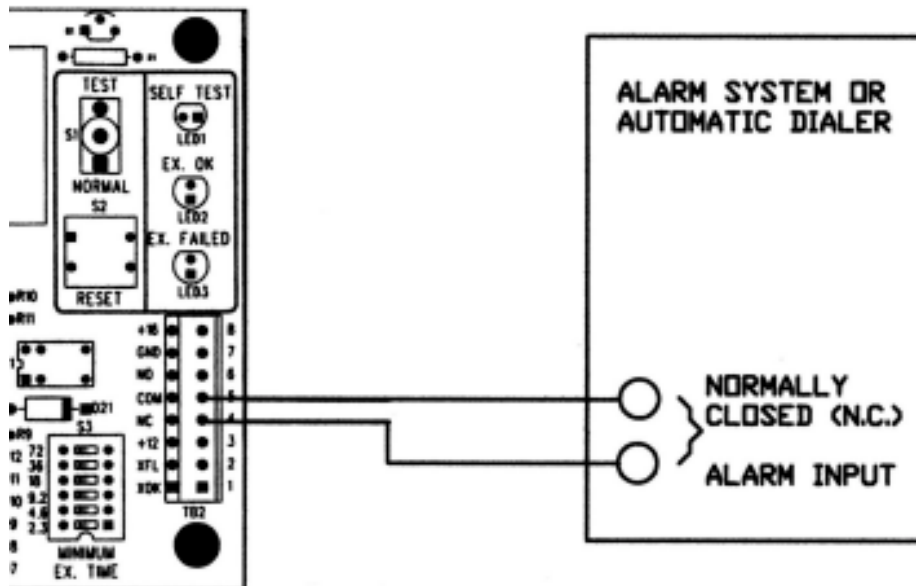


FIG. I - WIRING DIA-
GRAM FOR NORMALLY
CLOSED CONTACTS
THAT OPEN ON ALARM

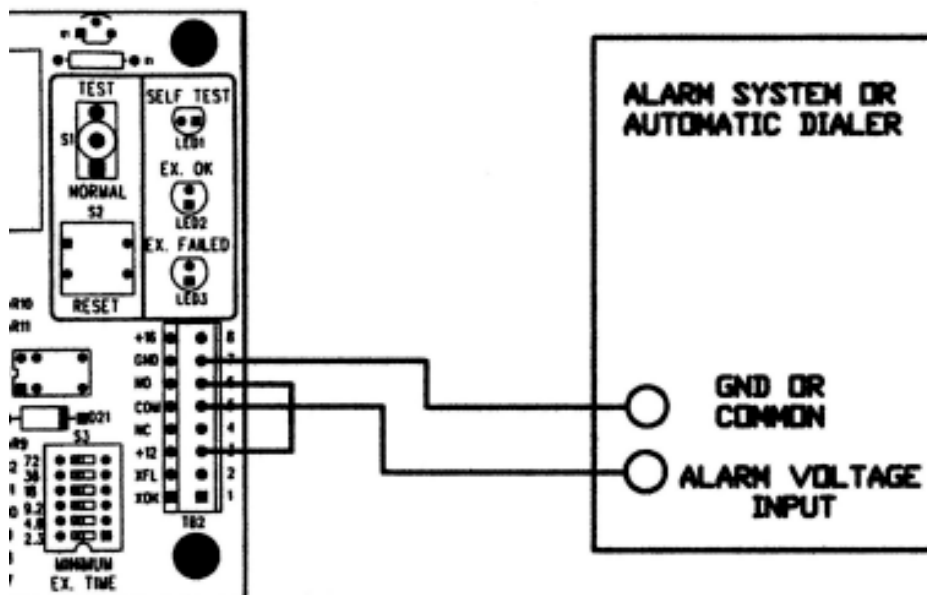
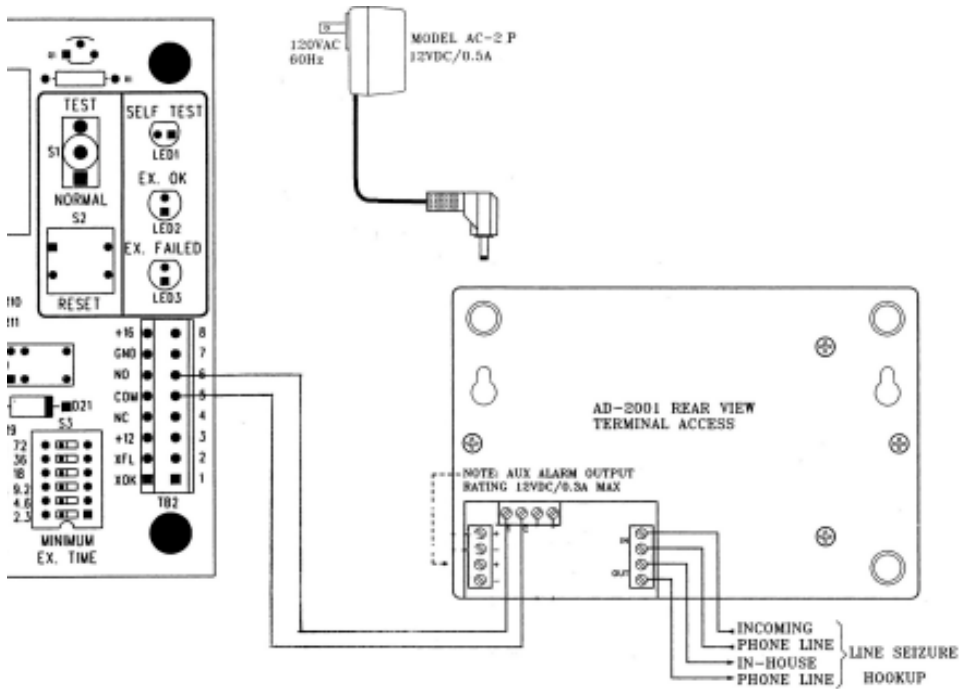
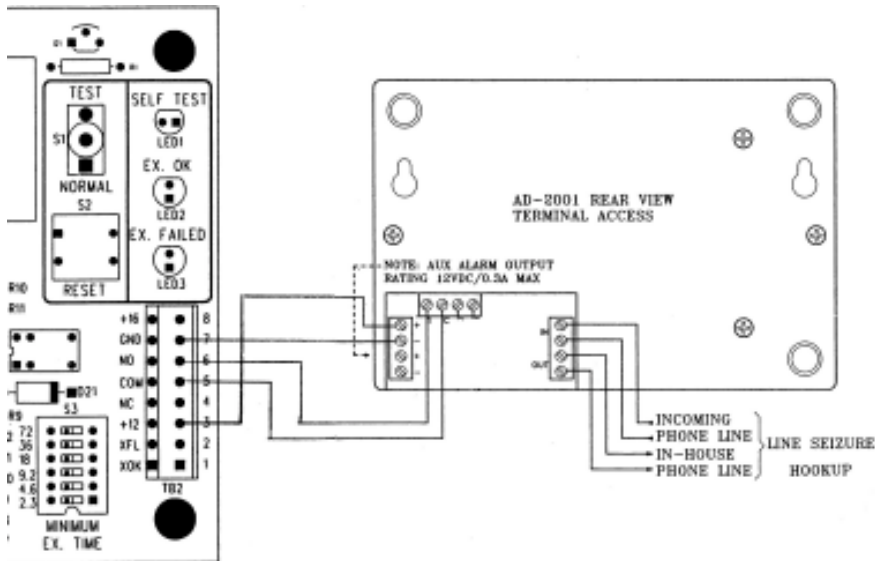


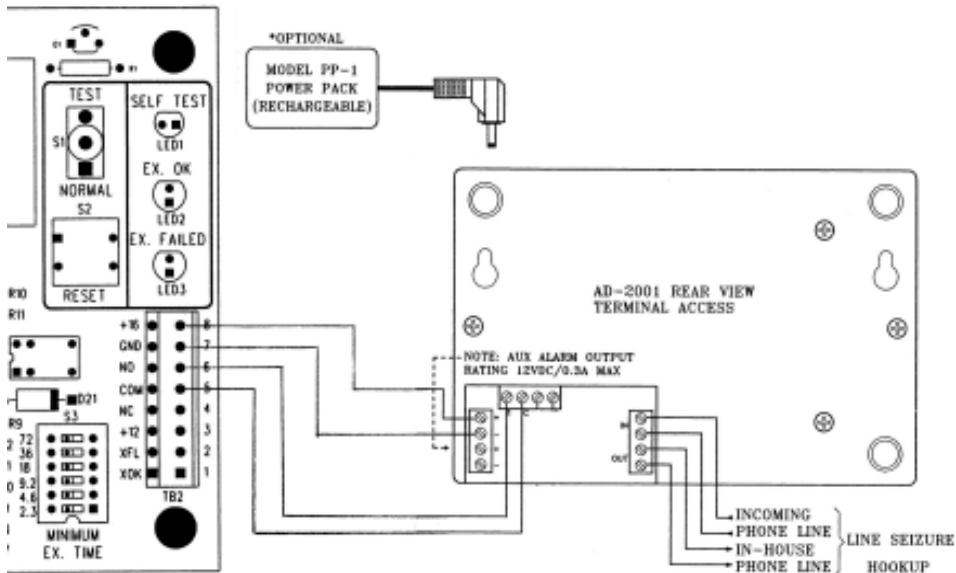
FIG. J - WIRING DIA-
GRAM FOR VOLTAGE
INPUT THAT GOES
FROM OPEN CIRCUIT
TO 12V ON ALARM



**FIG. K -
WIRING DIAGRAM FOR
AD-2001 DIALER POWERED
FROM AC ADAPTER**



**FIG. L -
WIRING DIAGRAM FOR
AD-2001 DIALER POWERED
DIRECTLY FROM GEM**



**FIG. M -
WIRING DIAGRAM FOR
AD-2001 DIALER POWERED
DIRECTLY FROM
GEM WITH BATTERY
BACKUP**

INCLUDED WITH MODEL 325 G.E.M.

REMOTE INDICATOR PANEL

*Available in Ivory or White
(Junction box also included if requested)*



OPTIONAL ACCESSORIES

WEATHERPROOF ENCLOSURE, NEMA 4, with transparent cover P/N 56-A325-10



(Note: Fittings shown in photos NOT included)



Weatherproof Enclosure shown w/ Model 325 Installed (RT)

**AD-2001
AUTOMATIC DIALER
P/N 56-A325-11**



**PP-1 BATTERY BACKUP
P/N 56-A325-12**

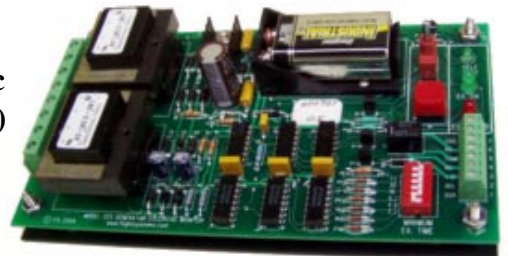


**AC-2P AC ADAPTER
P/N 56-A325-13**

GENERAC MOUNTING PLATE P/N 56-A325-14



Model 325 shown installed on Generac Mounting Plate (RT)



(Order accessories direct from the mfg.; contact info. is on next page)

The Model 326

POWER FAILURE DETECTOR



**Dealer
Price
Only
\$89.**

POWER FAILURE?

Did you ever return home from a trip to find your electronic gear and clocks flashing and a mess in your freezer? Obviously the power had been off while you were away, but you don't know when or for how long. If you had a stand-by power system (generator and transfer switch), it may not have done its job. Perhaps you own a small business where a prolonged power loss would be damaging to your operation. Wouldn't you at least like to know when the power is off while you are away? Now you can.

You can receive a phone call after the power has been off for a pre-selected amount of time. And if you like, you can receive another phone call when the power comes back on. These features (and more) are available when the Model 326 Power Failure Detector is connected to an automatic telephone dialer such as the AD-2001 (Order Flight Systems P/Ns 56-A325-11, and 56-A325-12).

MODEL 326 FEATURES

- Can be used with or without a standby power source (generator).
- Monitors the LOAD side of the transfer switch and warns of power loss.
- Connects easily to any automatic telephone dialer or alarm system.
- Operates during a total power loss. No backup battery required.
- Powers the dialer and keeps the dialer's backup battery charged.
- No separate AC power adapter ("wall wart") required.
- Ignores momentary power interruptions and "brown outs."
- Alarm time delay adjustable from 0.6 to 6.0 minutes (an additional minutes of delay can be programmed into the dialer).
- Resets automatically when power returns.
- Double isolated, latching relay outputs: 1 form C, 1 form A, 1 Amp.
- Green LED "Power On" indicator.
- Screw-clamp type terminal blocks for ease of wiring.
- 120/240 VAC, 50-60 Hz operation.

OPTIONAL ACCESSORIES

**Battery Backup
\$35.50**



**2-Zone Auto.
Dialer \$129.00 ~~3.3~~**



Available from:



FLIGHT SYSTEMS

505 Fishing Creek Road • Lewisberry, PA 17339

Call Toll-Free (US/Canada): 800-403-3728

Ph: 717-932-9900 • Fax: 717-932-9925 • www.flightsystems.com



REPAIR SERVICE / PARTS / TECHNICAL SUPPORT

The Model 325 Generator Exercise Monitor is fully rebuildable. Service, Technical Support and Accessories are available through the manufacturer:

**FLIGHT SYSTEMS, INC.
505 Fishing Creek Rd. Dock 16
Lewisberry, PA 17339**

**Ph: 800-403-3728 / 717-932-9900
Fax: 800-333-9912 / 717-932-9925**

**Sales: John Weaver / Anthony Misiti / Josh Leeds
Engineering/Tech. Support: Bob York /Brian Attinger**

www.flightsystems.com

WARRANTY

The MODEL 325 GENERATOR EXERCISE MONITOR is warranted to be free from defects in materials and workmanship for a period of two years from the date of shipment.

FLIGHT SYSTEMS' liability is limited to the repair or replacement of defective product within the warranty period, and does not cover installation or removal costs incurred or possible damage to other equipment (including generator sets and transfer switches) as a result of a malfunction of the GENERATOR EXERCISE MONITOR.

If, in the opinion of FLIGHT SYSTEMS (or its authorized agent) the malfunction of the GENERATOR EXERCISE MONITOR was caused by abuse, misuse or improper installation, the warranty claim will be disallowed and established repair rates shall apply.

Units should be shipped, freight charges prepaid, directly to FLIGHT SYSTEMS, 505 Fishing Creek Rd, Dock 16, Lewisberry, PA 17339, USA