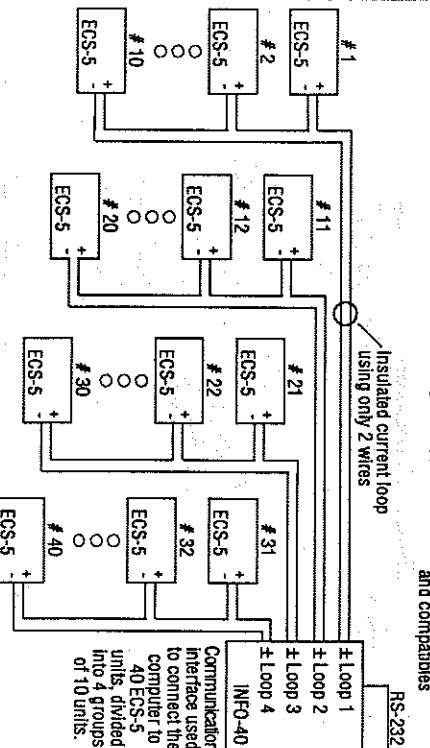


ELECTRICAL REQUIREMENTS: Voltage: 115/230 VAC, 60 Hz FIG. 3

TERMINAL 1	DESCRIPTION	MAXIMUM RATING
1	9 and 10	SUPPLIED VOLTAGE 6 AMP. @ 230V
2	7 and 8	SUPPLIED VOLTAGE 6 AMP. @ 230V
3	5 and 6	CONTACT RELAY 10 AMP. @ 230V
4	3 and 4	CONTACT RELAY 10 AMP. @ 230V
5	1 and 2	CONTACT RELAY 10 AMP. @ 230V
6	-----	CONTACT RELAY 2 AMP. @ 30V AC or DC

CENTRALIZED COMPUTER CONTROL FIG. 5

A personal computer may be used to create a centralized control unit (at home or at the office) for one or more ECS-5 units (maximum 40). The user will be able to see, on the screen, the measures and set points of each ECS-5 control system and then will be able to make any changes with the use of the keyboard. For more information, contact your supplier.



INTERNAL ELECTRICAL DIAGRAM

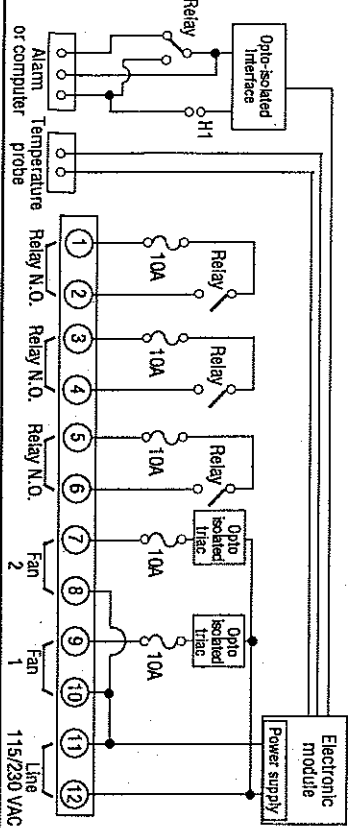


FIG. 4



INTERNAL DIP SWITCH SELECTION MODE

The four Dip switch allows to select the proper operating mode.































Dip switch number	FUNCTION	OFF (left side)	ON (right side)
S1	Temperature unit	°F	°C
S2	Lock adjustable value (except for the main set point)	Yes	No
S3	Minimum speed operating (stage 1 only)	Automatically shut-off	Run continuously
S4	Minimum speed operating (stage 2 only)	Automatically shut-off	Run continuously

FIG. 6

OPERATION

The selector knob indicates the parameters presented on the display. Among these, there is the detected ambient temperature , as well as eleven control variables. In the "non-protected variable" operating mode (S2=ON), the control variables are adjustable, by using the SET knob; however when in the "protected variable" operating mode (S2=ON), the control variables are not modifiable, with the exception of the main set point variable  which is adjustable in all instances. It must be noted that the display will flash whenever the displayed parameter can be modified.

SETTING INSTRUCTIONS FOR THE CONTROL

- ① Actual room temperature.
- ② Desired room temperature and set point.
 - ② The heater  turns off, when the room temperature  is above the relative heat set point  coupled to the set point .
 - ② (Example: If set at pre-set factory chart, the heater  will turn off at 24.0°C, and turn on at 23.5°C).
- ③ The variable ventilation fan 1 group  will start to speed up, when the room temperature  is above the relative temp. offset  coupled to the set point .
 - ③ (Example: If set at pre-set factory chart, the fan 1 group  will start to speed up at 25°C).
- ④ The variable ventilation fan 2 group  will start to speed up, when the room temperature  is above the relative temp. offset  coupled to the set point .
 - ④ (Example: If set at pre-set factory chart, the fan 2 group  will start to speed up at 27°C).
- ⑤ The fan 3 group  will shut off, when the room temperature  drops below the relative temp. offset  coupled to the set point .
 - ⑤ (Example: If set at pre-set factory chart, the fan 3 group  will turn off at 26.0°C, and turn on at 27.5°C).
- ⑥ The fan 4 group  will shut off, when the room temperature  drops below the relative temp. offset  coupled to the set point .
 - ⑥ (Example: If set at pre-set factory chart, the fan 4 group  will turn off at 26.5°C and turn on at 28°C).
- ⑦ Temperature band width for the minimum to maximum speed of the fan 1 and fan 2 group.
 - ⑦ (Example: If set at pre-set factory chart, fan 1 group  will start to speed up at 25°C and will reach full speed at 27°C).
- ⑧ Minimum speed of fan 1 group . (Example: "25" = 25% of maximum fan speed).
- ⑨ Minimum speed of fan 2 group . (Example: "25" = 25% of maximum fan speed).
- ⑩ Minimum temperature desired.
- ⑪ (Example: If set at pre-set factory chart, the alarm will sound when the ambient temperature  drops to 18°C).
 - ⑪ (Example: If set at pre-set factory chart, the alarm will sound when the ambient temperature  reaches 32°C).

FACTORY PRE-SET AND SUGGESTED ADJUSTMENTS

① 25°C	② -1.5°C	③ 0°C	④ 2°C	⑤ 1.5°C	⑥ 2°C
⑦ 2°C	⑧ 25%	⑨ 25%	⑩ 18°C	⑪ 32°C	

WARRANTY

Should these goods (here under referred to as "Goods") prove defective by reason of improper workmanship of any of its parts, MONITROL INC. warrants that it shall assume full costs for the repair or replacement of the defective part, without charge for either parts or labour, for a period of two years from the date of the original purchase and for the original purchaser only, subject to the following terms and conditions.

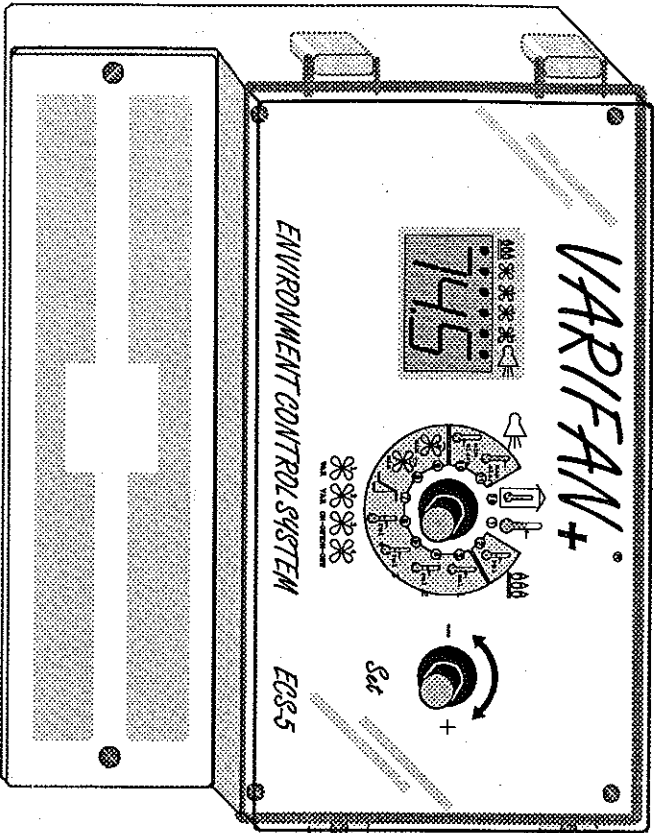
In all cases, the warranty shall apply only the defects in workmanship and specifically exclude any damage caused by overvoltage, short circuit, misuse, act of vandalism, fortuitous event, act of God, flood, fire, hail or natural disaster. This warranty becomes invalid should the "Goods" have been resold or transferred to a third party, or should the installation have been made contrary to the instructions contained in the installation manual.

MONITROL INC. assumes only those obligations set forth herein, excluding all other warranties or obligations. This warranty stipulates that in all cases, MONITROL INC. is liable only for necessary adjustments, repairs, rectifications or replacements and shall not be liable for any personal injury damages, loss of profits, halted operations, fine, contract of the Law or damages to the production of the PURCHASOR and the PURCHASOR shall take up the defence and hold MONITROL INC. faultless regarding any legal or extralegal proceedings, notice or claim by the customer or by a third party and regarding any legal and extralegal expenses and fees brought on by such damages.

VARIABLE + ECS-5 ENVIRONMENT CONTROL SYSTEM



APPROVED



- PROVIDES 5 POWER LEVEL OUTPUTS**
- 1 PROPORTIONAL VENTILATION
 - 2 PROPORTIONAL VENTILATION
 - 3 ON/OFF VENTILATION
 - 4 ON/OFF VENTILATION
 - 5 ON/OFF HEATING UNIT
- ALARM UNIT

FEATURES

- 5 outputs regulated by the same temperature collector.
- Alarm signal generated by low or high levels of temperature or by a power failure.
- 3-digit display
- 6 display lights that indicate the operating and non-operating outputs.
- Protective fuse for each output.
- 4 functions regulated by DIP switch on the interior.
- The alarm output can be converted into a serial port to allow communication with a personal computer.

Observations for figures 1 and 2 :

- 1 Power cut and protection devices in case of overload.
- 2 Only use fans that have thermic protection devices.
- 3 Terminals 8, 10 et 11 are connected together in the unit's circuit. (see fig. 4)
- 4 Connect the grounding wire to the grounding plate inside the casing.

INSTALLATION :

1. Verify the nominal characteristics to be sure that the duct is suitable for the application. (See fig. 3)
2. The installer must be an experienced technician.
3. Fasten the waterproof cable-holders in the pre-pierced holes, situated at the bottom of the casing, according to local wiring codes.
4. Mount the casing on any level vertical surface. The casing can be placed in the area to be ventilated, in the area where the air is extracted or outside the area (Permitted temperature range of 0° to 40°C).

WIRING :

WARNING

Disconnect the power source before installing to prevent any electrical shock. The ECS-5 controller does not ensure a positive power cut of the ventilator's power supply. A distinct power cutting device is needed for installation and servicing jobs.

Collector :

The thermostat collector constitutes a class 2 circuit part of very low limited energy voltage. The collector's conductions have no polarity and can reach 150 meters (500 feet) if lengthened by a line junction.

Alarm system :

Only alarm systems that are activated by a low voltage signal (30 volts or less) can be connected to the equipment. The wires must be passed through the hole that is covered by a cap on the bottom of the casing.

Personal computer :

The alarm output transforms itself into a communication port by inserting a jumper staple into the H1 pins on the circuit of the equipment. The units communicate with a computer via a 2-wire cable and a serial interface, INFO-4, sold separately (see Fig. 5) It is recommended to use a shielded and twisted cable of 22 AWG caliber (e.g. Belden #9414).

Fan and heating unit :

The wiring must be done according to local codes (see Fig. 1 et 2).

IMPORTANT : ADJUST THE LINE VOLTAGE SELECTOR TO THE CORRECT VOLTAGE, TO THE CORRESPONDING POSITION OF LINE VOLTAGE HOOKED UP TO TERMINALS 11 AND 12 ON THE TERMINAL BLOCK.

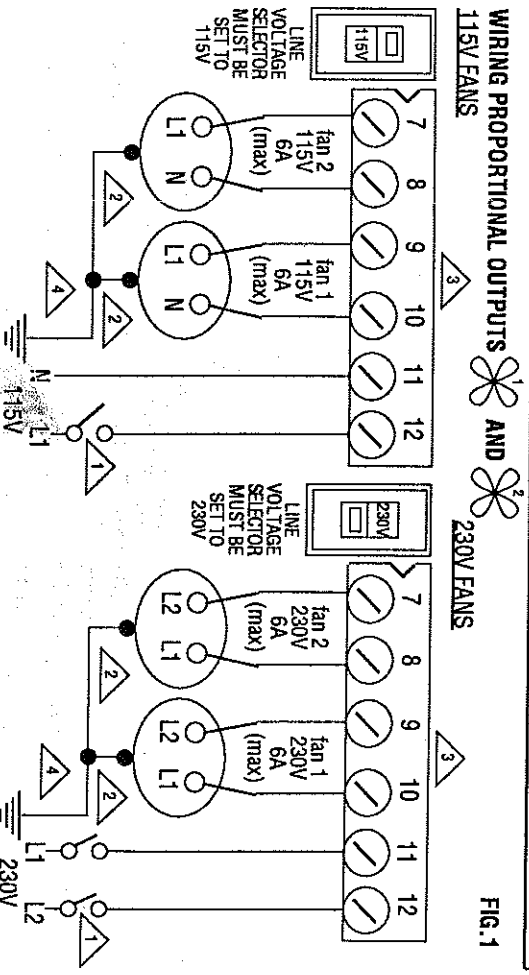


FIG. 1

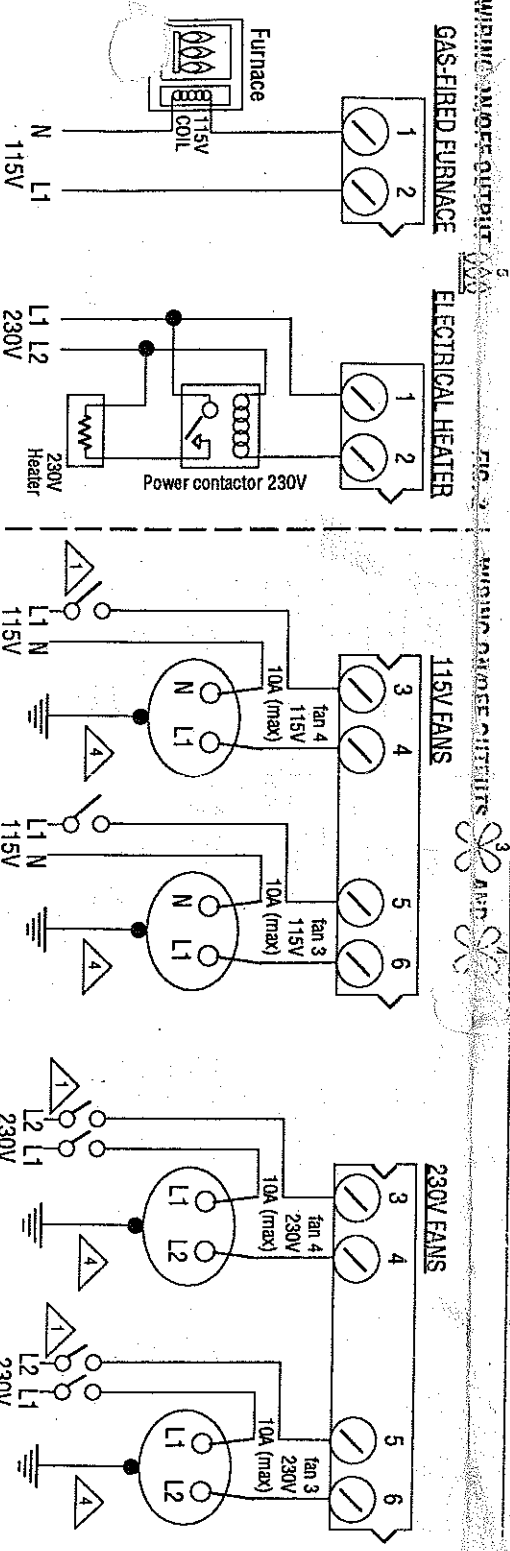


FIG. 2