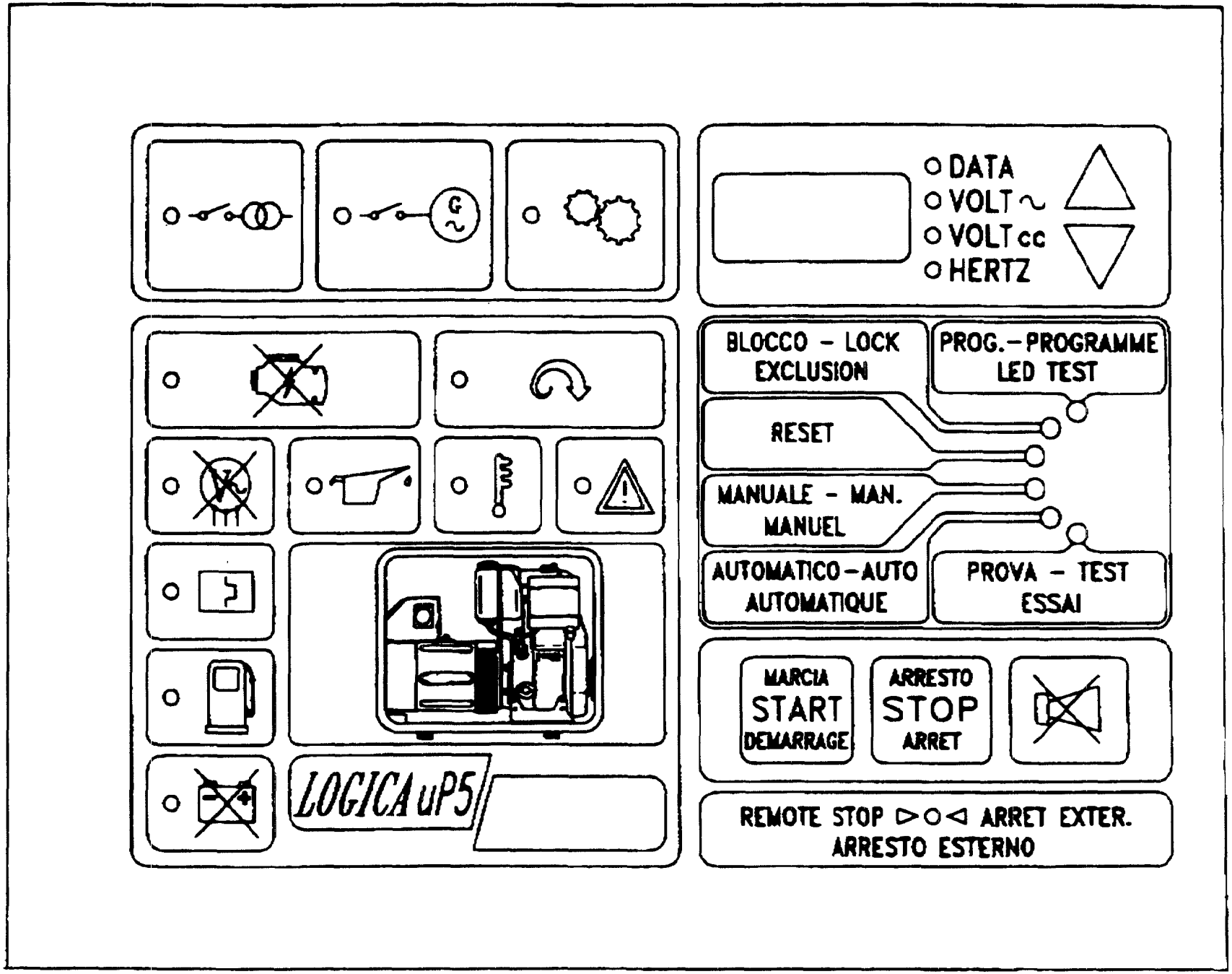

DATA
VOLT ~
VOLT cc
HERTZ
BLOCCO - LOCK EXCLUSION
PROG. - PROGRAMME LED TEST
RESET
MANUALE - MAN. MANUEL
AUTOMATICO - AUTO AUTOMATIQUE
PROVA - TEST ESSAI
MARCIA START DEMARRAGE
ARRESTO STOP ARRET
LOGICA uP5
REMOTE STOP ▷○◁ ARRET EXTER. ARRESTO ESTERNO

MICROPROCESSOR LOGIC

TYPE MICRO P.5

FOR CONTROL AND ADMINISTRATION OF GENERATOR SET

GENERAL INFORMATION

The logic "MICRO P.5" is an apparatus, equipped with microcomputer, for automation of generating sets and has following:

INCOMING INPUTS:

- fuel reserve, overspeed, overload, high temperature, low oil pressure, alarm, belt break, no alternator voltage, remote stop and input engine run.

OUTGOING OUTPUTS:

- start, stop, mains telecontactor, genset telecontactor, statics outgoing of alarm siren and candle preheating.

Mains forcing input. The activation of this incoming , simulates mains on.

The controls on frontal are:
- start push button / stop / interruption alarm.
The switch selects modes and cursors of display function.

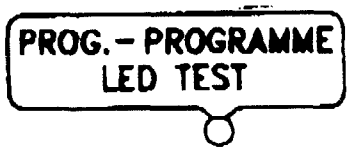
All inputs and outputs are separated, assuring an high immunity from interferences and overvoltage

A fuse placed on the back, guarantees the logic protector in case of wrong connection or overvoltage on direct supply.

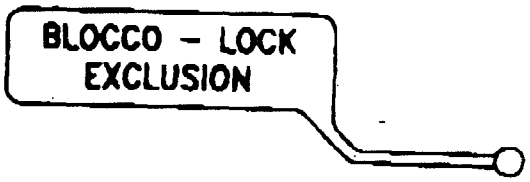
N.B.

MICRO P5 logic is equiped with security system that in case of fault or non-supply direct-current / alternating-current, gates permanent closing to mains telecontactor, assuring the supply at load, through mains.

SELECTABLE FUNCTIONS

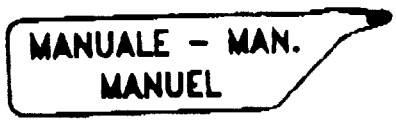


A) Programming system mode.
In this position is possible to modify the programming of default's time (base values)



B) Function of inhibition of all operations.
Each switch's passage, in this position, cause the intervention of stop.
Is guaranteed the alarm's supervision.

C) Function of return to zero of alarms.
The intervention of each alarm cause a lighting on panel and excitation siren.
The push-button of interruption siren cause fixed memory of signal and disexcitation of siren.
To zeoring alarm must eliminate the cause and to switch over on **RESET** position.



D) Engine starting is interloched with "START" push button.
STOP control activates directly the stop relay.
The changeover of TLG is inhibited. All alarms are actives.
The start's control is conditioned to presence of starting motor signal.

E) Function for automatic administration of genset intervention.
Difference to **TEST** function, engine control is interlocked to events of mains "ON" or "OFF".
If during engine operation on drive stop push button, the system proceed automatically to sequence of immediate STOP.
Is activated, in this case, stop signal, to indicate sequence of stop's emergency, with optic signal of STOP led.

F) Engine starting control in automatic sequence.
All programmed automatic function are "ON".
Stop of engine is actuaded turnin in position "AUTO" (when mains "ON") or in position "MAN" operating then "STOP" push button.
Emergency engine stop is also possible switchin selector commutator in position "SHUT DOWN" or mantaining "TEST" position and just pushing STOP button.
All alarms always "ON", as well as, the control of (TLG) changeover genset switch, incase mains go "OFF" while testing.

FUNCTIONS ON DISPLAY

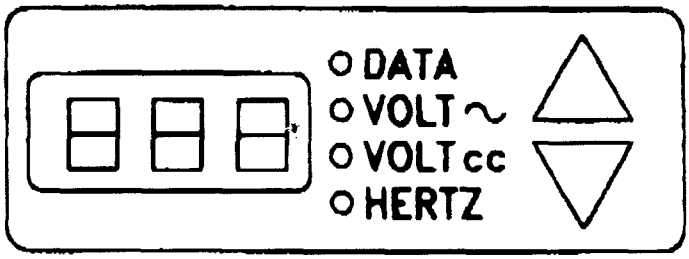
Possible choices are: Hz, Volt d.c., Volt. a.c., Data.

Hz: generator frequency, measure readable when voltage is at least 80 Volt. a.c.

Volt. d.c.: battery voltage, measure ragn 200mV up to 25 V.

Volt. a.c.: genset and mains voltmeter:
(*) with TLR closed, the voltmeter read mains voltage;
with TLR open the voltmeter read genset voltage.
- READING FIELD to Vac 380 (L=00) from Vac 100 to Vac 437
- READING FIELD to Vac 220 (L=01) from Vac 100 to Vac 249

Data: visualization of reference table.
scanning of all parameters is possible pressing at the same time interrruption alarm push button and encrease / decrease push button.
The first digit on the left side is the channel
Following two digits means value of function.



(*) N.B. WITH PROGRAM L=00 Vac 380 THE LIGHTING OF DISPLAY OR VOLTAGE BELOW TO Vac 100 INDICATES NO-SIGNIFICANT READING OR SHRINKING MAINS

WITH PROGRAM L=01 Vac 220, FIXED DISPLAY TO Vac 250, INDICATES NO-SIGNIFICANT VOLTAGE OR SHRINKING MAINS.

SYSTEM PROGRAM

UP 5 logic allows to the user to program the main functions of genset automation. Parameters are indicated in reference table 1. The logic, after testing, is supplied with basic program (DEFAULT).

User may modify table with commutator in position "PROG".

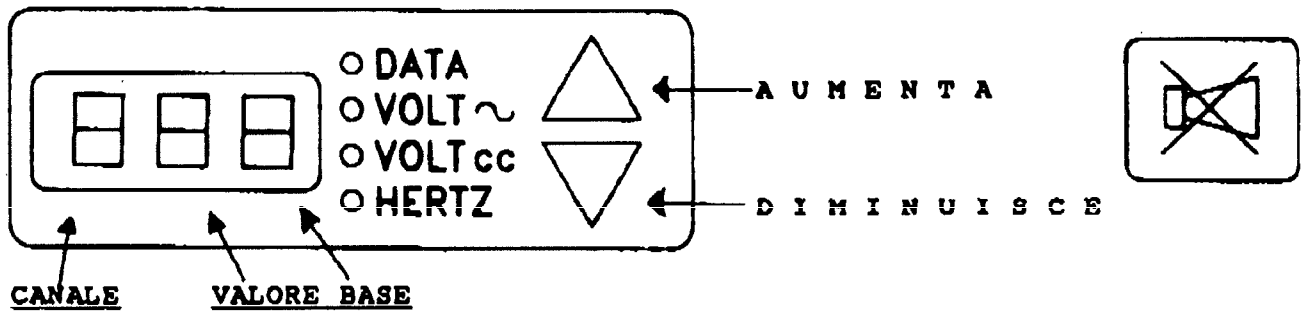
In mode "PROG", the UP 5 logic makes a led test of 6 seconds.

After autotest, it is possible to choose the channel to be modified by pushing "ENCREASE" (triangle upwards) or "DECREASE" (triangle downwards). Changing of default value (basic value) is obtained by pushing in sametime both push bottons "STOP" and above said encrease/decrease.

In case of programming mistake, it is possible to recall the original default table by pushing in contemporaryly both triangles "ENCREASE/DECREASE" for at least 3 seconds. The made recalling is visualised on the display by short blinking.

Parameters are automatically stored in memory by getting out from function "PROG" of mode selector.

EXAMPLE



DESCRIPTION OF PROGRAMMED PARAMETERS	TAB. 2

0.05	MAINS FAILURE 0"/59" - DEFAULT:5" 1'/09

Number of consecutives seconds or minutes of mains off necessaries to begin start's automatic sequences.

1.05	MAINS "ON" 0"/59" - DEFAULT:5" 1'/09

Number of consecutives seconds or minutes of mains on necessaries to begin stopping automatic sequences.

2.05	DELAY LOW OIL PRESSURE 0"/99" - DEFAULT: 5"

Delay to sample low oil pressure alarm from starting engine gate.

3.15	STOPPING TIME 0"/99" - DEFAULT:15"

Seconds of excitation of stopping solenoid.

4.60	ALARM SIREN TIME 0"/99" - DEFAULT:60"

Seconds of siren excitation of alarm. Carring in 00 the horn can be deenergized from pushbutton.

5.05	ENGINE STARTING TIME 0"/99" - DEFAULT: 5"

Seconds of excitation of starting solenoid.

6.03	NUMBER OF STARTING ATTEMPTS 1/99 - DEFAULT:3

Number of automatic starting attempts.

7.05	STARTING STANDSTILL 0"/99" - DEFAULT:5"

Interval of standstill between start attempts. Ist foreseen 3 automatics attempts.

8.10	ENGINE COOLING TIME 1'/09 - DEFAULT:30"

Delay between opening of genset switch and engine stop.

9.05	ENGINE "ON" 0"/59" - DEFAULT:5" 1'/09

Voltage "on" checking time before power changeover operate.

DESCRIPTION OF PROGRAMMED PARAMETERS — TAB. 3

A.00 — GATED BY REQUEST

B.00 — GATED BY REQUEST

C.09 — BATTERY VOLTAGE ALARM
0V/99V - DEFAULT:11V

Battery low voltage threshold programming. The decrease of programmed parameter cause alarm.

D.33 — MAINS VOLTAGE
00/99 Vac
DEFAULT:33 (330 Vac)

Threshold of mains "OFF" or "ON". The hysteresis is fixed to 5%.

E.31 — GENERATOR VOLTAGE
00 / 99 Vac
DEFAULT:31 (310 Vac)

Threshold of generator voltage "OFF" or "ON". The hysteresis is fixed to 5%.

L.00 — FUNCTION 380 / 220
DEFAULT: 00

Programming logic.

- For system Vac 380 L = 00
- For system Vac 220 L = 01

F.00 — CANDLE TIME
DEFAULT: 0"/99

Excitation's time of output candle. Programming 0 (default value) the output is not actives from starting engine.

G.99 — ENGINE "ON" SETTING OUTCOMING
0"/99" - DEFAULT:99"

Engine "ON" setting outcoming. Programming 0 the output is always inhibited. The values included between 1 and 99 permits monostable excitation when starting. Carring in 99, the output is actives for all time motor running

H.57 — OVERSPEED
0/99Hz - DEFAULT:57

Calibration of overspeed.
The encrease of programmed value for two seconds, cause alarm.

I.00 — BELT BREAK ALARM
DEFAULT: 00

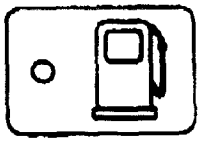
RIF.	DISPLAY	BELT BREAK
00	ON	OFF
01	ON	ON
04	OFF	OFF
05	OFF	ON

BELT BREAK ALARM APPEARS ON

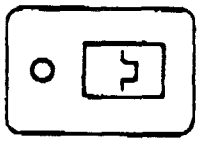
DISPLAY WITH "RC" WRITE

SYNOPTIC DESCRIPTION

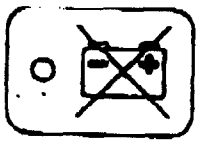
General stop alarm.
His intervention is dilaied of 10" from engine starting.



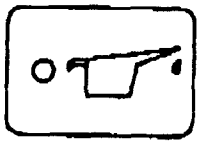
Low fuel level alarm is only optic and acustic signal.



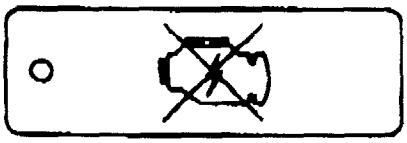
Generator overload (terminal of thermic or amperometric relay) operates genset stop.



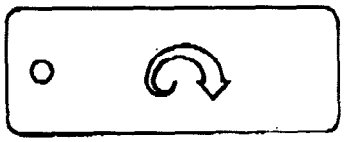
Low battery voltage signal.
The threshold of alarm is programming to C address of reference table. The alarm is stoped during start's phase.



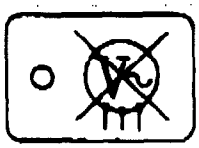
Low oil pressur alarm.
Cause engine stop and the time of blanking to start is to 2 address of reference's table.



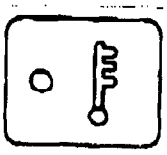
Starting wrong sequence alarm.
The parameters for starting are defined to point 6 and 7 of reference table (pag. 6).



The overspeed is calculate in to UP5 logic on the ground frequence measured on generator voltage.
The protection is delaied of 2 seconds and frequence value is established at address "H" of referenc table (pag. 7).



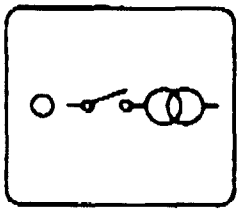
No-voltage generator.
Intervenes with delay of 150 seconds (2,5 min.) when generator voltage is greater of threshold of 150 Vac, but lower to programmed value to address "E" (V. GENERATOR THRESHOLD) or when the engine is running (input energized of engine 300 revolutions) and ther'isnt generator voltage.

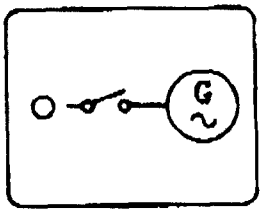


High temperature.
Stop of engine is immediate.

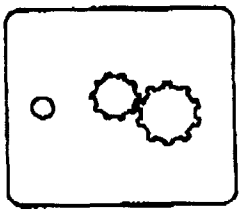
Stop led is energized from pressure of "STOP" push button with engine running and with functions commutator on "AUTOMATIC" or "TEST".

Remote stop alarm of emergency to be by its incoming input (JF6). The alarm cause stop (for programmed time on channel 3 of reference table) - pag. 6 - .

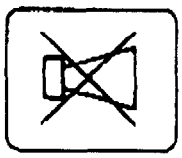




Sight signals related to control of the relay of genset and mains switch. Theese signals are activated by programmed voltage threshold (channels "D" and "E") for programmed time (channels "1" and "9").
The genset switch is futhermore interlocked with selector commutator in position "AUTO" and "TEST".



Signal engine "ON" (engine run).
The signal is activated when intervenes or signal of engine run (applied to terminals JC11 and 12) or overcoming of threshold of 150 Vac generator voltage.



Alarm acknowladge push button.
In case of alarm permits to stop siren and to memorize di alarm.
With encrease and decrease push button permits to select the channels of table with display in mode "DATA".
In mode "PROG" is a control of change of parameters table.
The triangles encrease / decrease, select the channel and pressure contemporary of stop siren and encrease or decrease change programmed value.

Motor starting control.
Is activated only in "MAN". Operates on start relay the push button is active from signal engine run intervention. (green signal).

Stop push button. It operates directly on stop's relay. It's always active on any position of commutator. If operated with engine starting and with commutator in AUTO and TEST, cause emergency sequency of stop.
The sequency stay in memory with switching on of led STOP.

TO SELECT FUNCTION ON " L " CHANNEL

01 FUNCTION Vac 220

TO PROGRAM

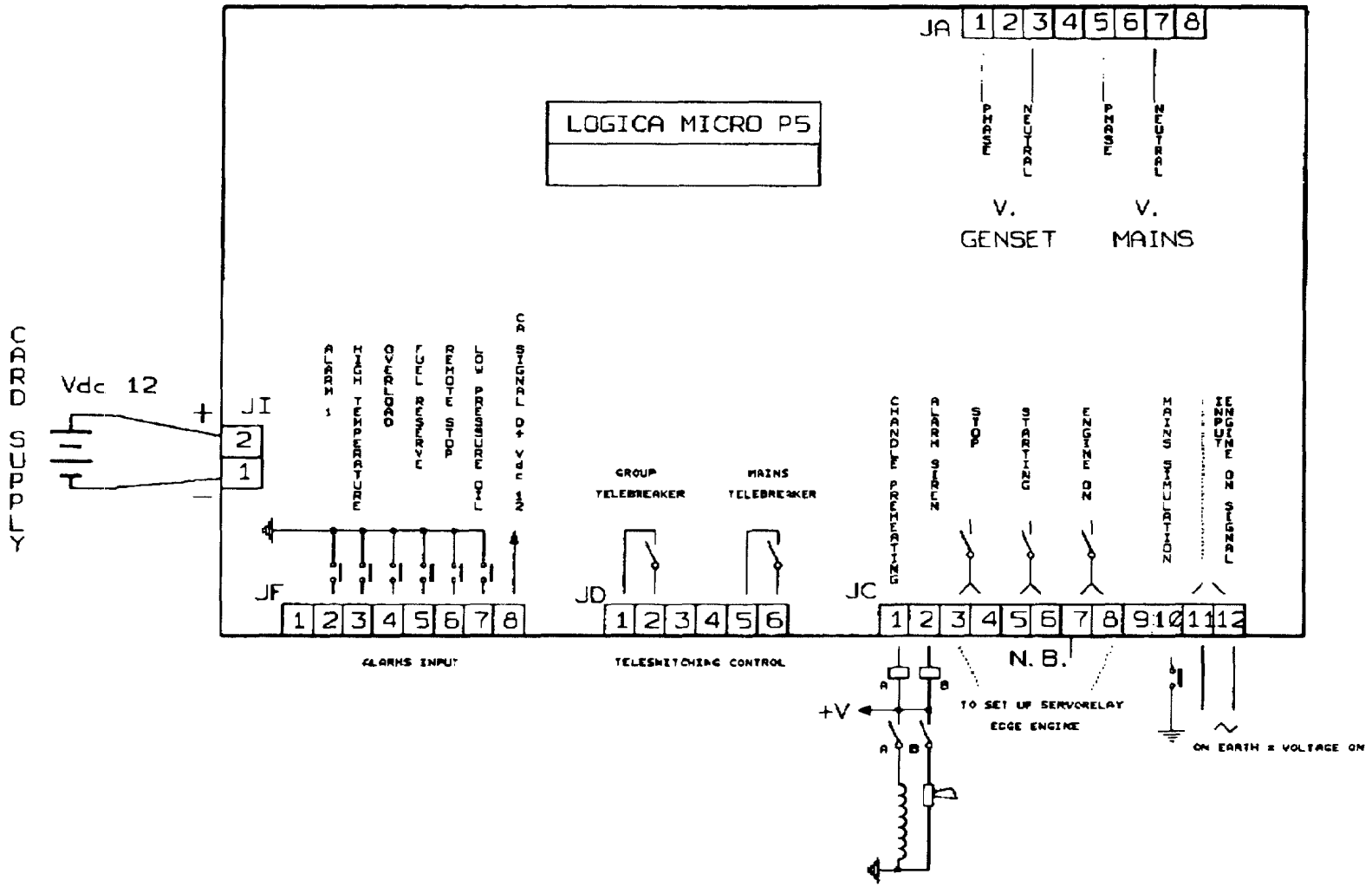
00 FUNCTION Vac 380

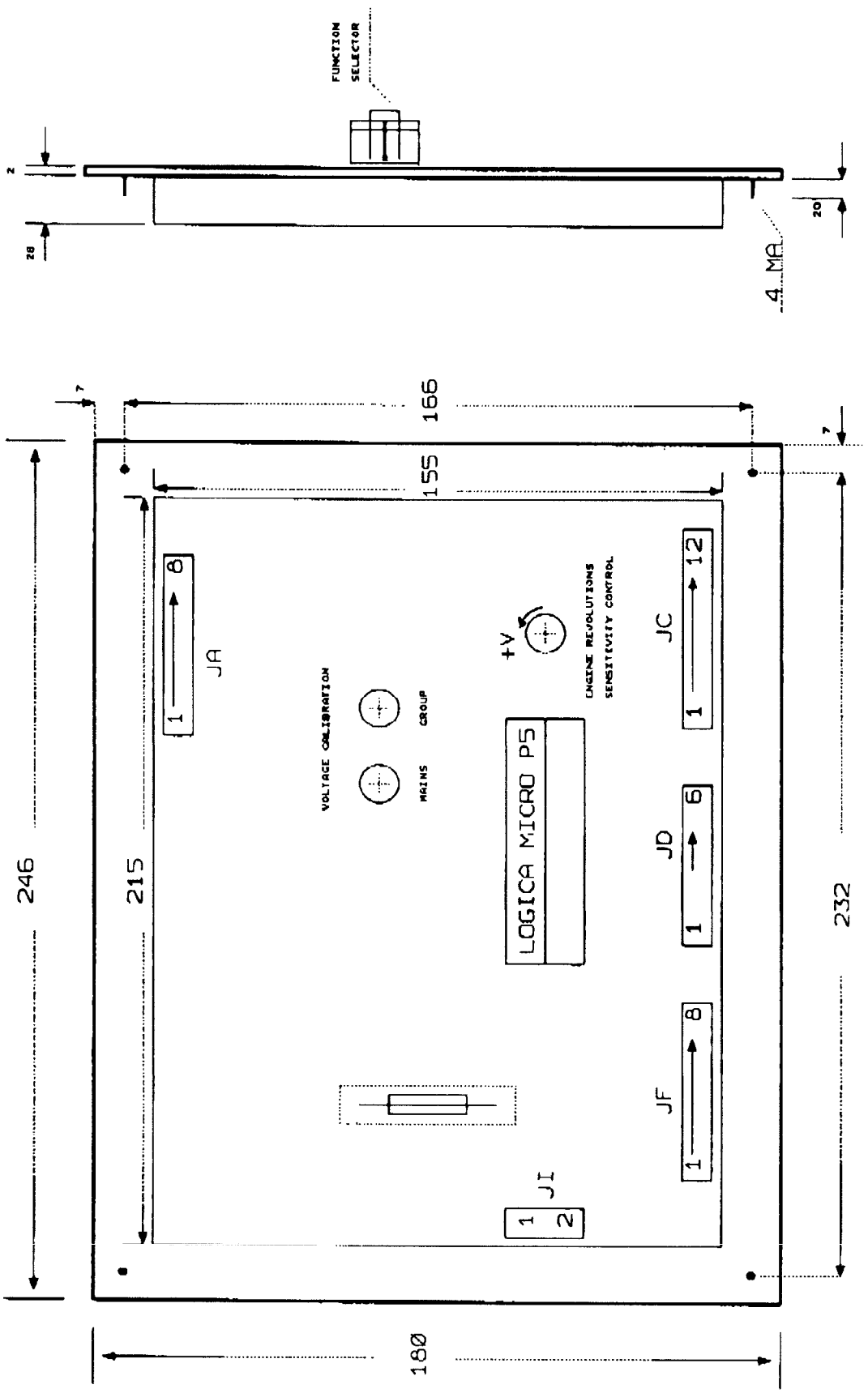
NB

EXCLUSIVELY

VOLTAGE Vac 220 INPUT

(FOR Vac 380 FUNCTION TCO)




FUNCTION SELECTOR
2
28
20
4 MA
166
155
7
246
215
232
180
JA
1
8
JC
1
12
JD
1
6
JF
1
8
JI
1
2
+V
VOLTAGE CALIBRATION
MAINS
GROUP
ENGINE REVOLUTIONS SENSITIVITY CONTROL
LOGICA MICRO P5