

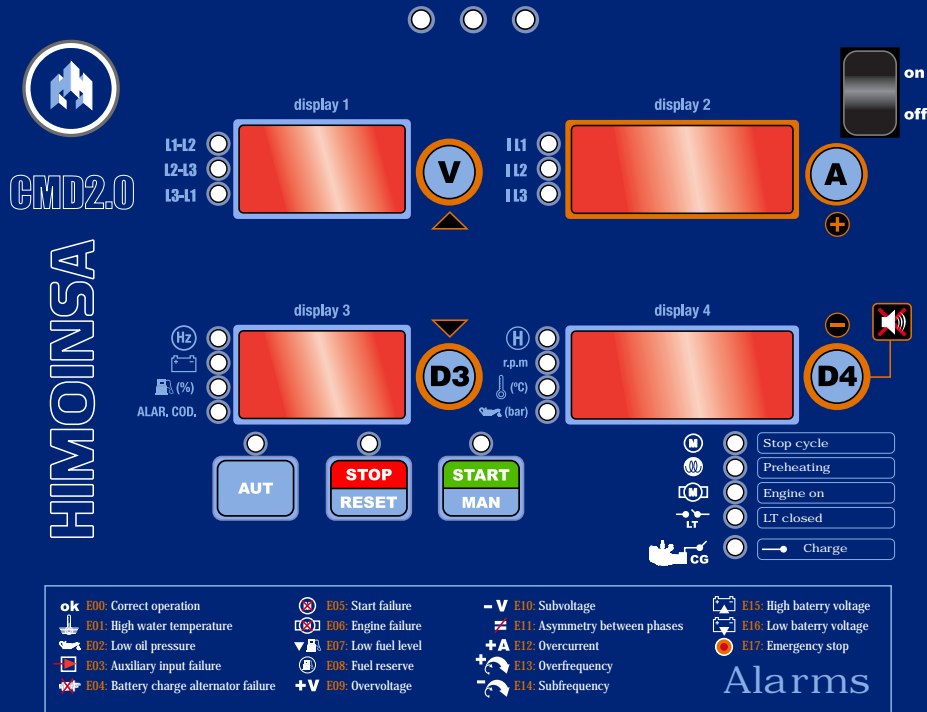
CMD2.0 2002

DIGITAL ERA

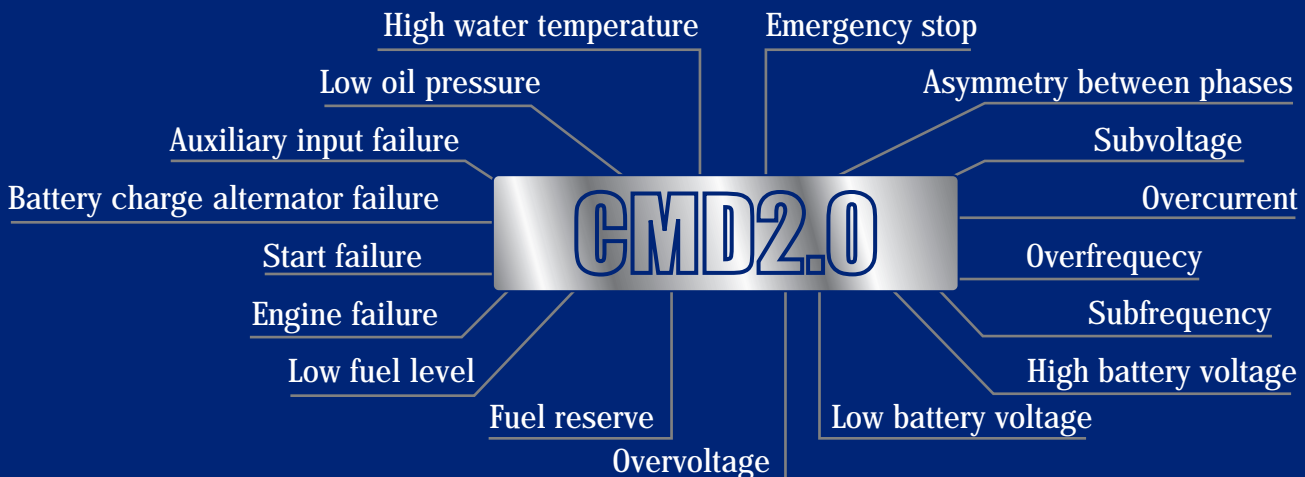
CONTROL & PROTECTION DIGITAL SWITCHBOARD

This switchboard integrates the possibility of starting the engine in a manual or automatic way (by free voltage contact), and protecting it from possible breakdowns during operation. Management is effected in the interior, through an electronic circuit controlled by microprocessor.

Samples of signals that order the close of contact for free voltage could be: gauges, programmes, buoys, switches, etc..



Alarms programmed through code for:



Main advantages

- **HIGH PROTECTION**, not only for the Generating Set but also for the instruments and switchboards fed by the generating set. Protection in case of: over-voltage, sub-voltage, asymmetry, over-current, over-frequency (over-speed), sub-frequency (speed loss), etc.
- **LARGE MEASURING RANGE**, a whole set of measuring has been incorporated. External monitoring elements or gauges are not needed. Besides protection, it continuously offers the working parameters of the generating set and digital readings of: Voltage, Intensity, Fuel level, Pressure, Temperature, Battery voltage, Hour meter, Tachometer (speed indicator), Frequency.
- **HIGH VERSATILITY**, you can use the same panel model for different voltages. Supply voltage 12/24V.

- **SIMPLICITY**, the fuel tank can be automatically filled up with a simple programming of the switchboard. External elements are not needed.
- **EASY PROGRAMMING**, this switchboard offers the possibility of personal selection of functions to particular applications. Besides programming alarm parameters, you can program the switchboard for stopping the genset (with or without cooling down) or for activating the acoustic alarm.
- **MULTIPLE STARTING MODES**, manual start or automatic free contact voltage start.
- **SENSOR**, three-phase sensor for generating set voltage.

Description

CMD2.0

This switchboard is presented in a box isolated from electromagnetic radiation and incorporates 4 displays, with red light segments, clearly showing electric parameters and visual indicators from any angle.

Central panel components:

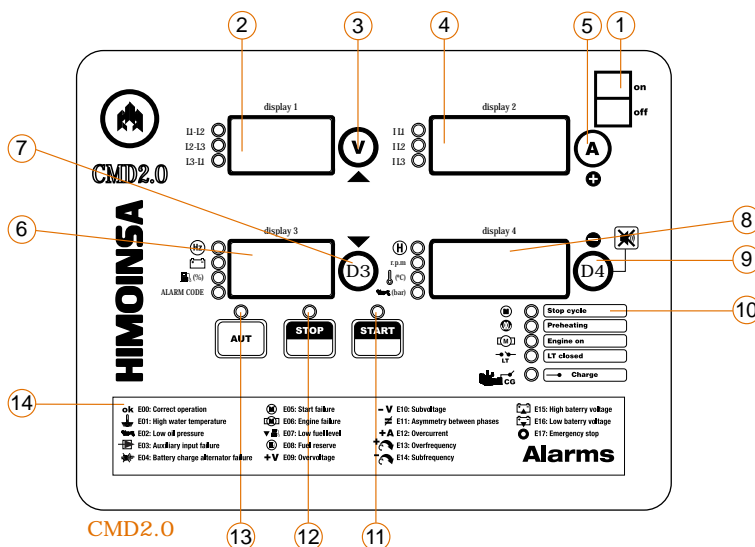
- 1. Switch-on button.**
- 2. Display 1**, phase voltage visual display, indicates which led is lighted on the left-hand side of the display.
- 3. Push-button V**, to select voltage between phases to be measured.
- 4. Display 2**. Intensity visual display, we can read the led intensity on the left hand side of display.
- 5. Push-button A**. Phase intensity selector.
- 6. Display 3**. Visual display for, frequency, battery level, fuel level or alarm code.
- 7. Push-button D3**. With this push-button is possible to select the frequency, the battery level, fuel level or alarm code.
- 8. Display 4**. Visual display for working hours, speed meter, water level temperature or oil level pressure. The last 2 measures mentioned can only work when their sensors are connected.
- 9. Push-button D4**. With this push-button is possible to select the hour meter, the speed indicator, the water level temperature, the oil level pressure. This button is able to silence the acoustic alarm.

10.1 Stopping cycle. This led will turn on as soon as the switchboard orders a stopping cycle and will not stop until the cycle is finished. The cycle period is determined by P12 and P13 parameters.

10.2 Preheating. This led lights on when switchboard order the preheating. An acoustic alarm advice during the preheating of the imminent starting of the Generating set.

10.3 Engine on. It indicates that engine is starting to work. This condition is carried out if voltage in any of the phases is higher than the established threshold P14 parameter, or there is a signal in the alternator voltage input of battery charger higher than the indicated value in P15 parameter, or if the frequency of engine Pick-up is higher than frequency indicated in P16 parameter.

10.4 LT Closed. This signal is activated when the free contact voltage is closing and it switches off when it is open. Automatically the switchboard will start the starting cycle when closing the LT. When stop mode, there will not be any change on the switchboard.



10.5 Loading. This indicator lights on when closing Generating Set change over, indicating that is working with load. The stabilising and heating time of Generating Set before activating the loading is defined by P11 parameter.

- 11. Push-button working mode START/MAN.** This push button starts the engine and selects the manual working
- 12. Push-button working mode STOP/RESET.** It allows selecting the stop working type. The switchboard will reset by keeping the button pushed down for 5 seconds.
- 13. Push-button working mode START/MAN.** It allows selecting the automatic working type.
- 14. Alarm codes:** these codes will be at display 3

Code	Description	Code	Description
E00	Correct operation	E09	Overvoltage
E01	High water temperature	E10	Subvoltage
E02	Low oil pressure	E11	Asymmetry between phases
E03	Auxiliary input failure	E12	Overcurrent
E04	Battery charge alternator failure	E13	Overfrequency
E05	Start failure	E14	Subfrequency
E06	Engine failure	E15	High battery voltage
E07	Low fuel level	E16	Low battery voltage
E08	Fuel reserve	E17	Emergency stop