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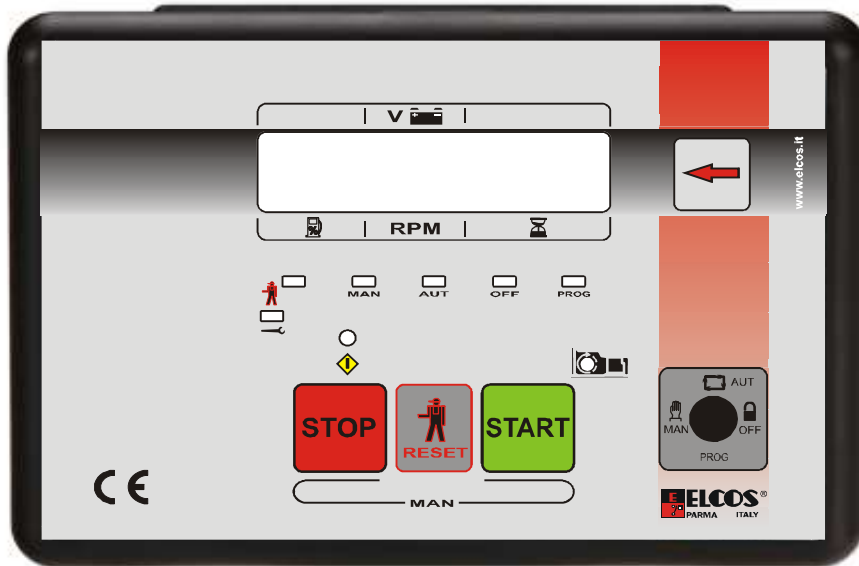
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# Технические характеристики на блоки управления и защиты дизельных двигателей DCA-109, DCA-120/10, DCA-339 компании **ELCOS**

# CONTROL UNIT FOR AUTOMATIC DIESEL OR PETROL ENGINE TYPE DCA-109

This carries out the control and command function of a diesel engine or a petrol engine.

## OPERATING AND INSTRUCTION MANUAL



It is equipped with display  
to show THE  
INSTRUMENTS:

(simultaneous reading of 4)

- battery voltmeter
- total hour meter
- partial hour meter
- starting counter
- starting failures counter
- fuel level indicator
- tachometer

- Automatic faults surveillance with messages on the display
- Texts in 6 languages: Italian, English, French, German, Spanish and Portuguese
- Remote control (start and stop)
- Glow plugs preheating management or engine heating cooling
- Clock for programming the starting or the stopping of the engine
- Preventive maintenance warning
- Programmable weekly selftest
- Available fully programmable input for anomaly or inhibition protections
- Possibility of starting the engine when the charge of the battery is low
- Anomaly historical record (Including data from the last 100 occurred anomalies)

**TECHNICAL DATA**

|                                                                  |                                            |
|------------------------------------------------------------------|--------------------------------------------|
| Battery power supply                                             | 12 Vdc and 24 Vdc                          |
| Supply voltage                                                   | 8 ÷ 32V                                    |
| Selfconsumption with engine stopped                              | 4 mA at 12V 4 mA at 24V                    |
| Selfconsumption with stopped engine and pressed emergency button | 170 mA at 12 V 100 mA at 24V               |
| Max consumption                                                  | 210 mA at 12V 145 mA at 24V                |
| Rated insulation voltage:<br>• Terminal board of battery         | 32V                                        |
| Max load of the outputs                                          | 15 (starting) 0,25A, 6 (glow plugs) 0,25A, |
|                                                                  | 17 (stopping) 1,5A, 19 (key) 0,25A,        |
|                                                                  | 70 (general alarm) 0,25A.                  |
| Degree of rear protection                                        | IP00                                       |
| Degree of front protection                                       | IP64                                       |
| Temperature range                                                | -20 ÷ + 50 °C                              |
| Weight                                                           | 410 g                                      |
| Dimensions (LxHxP)mm                                             | 157x109x52                                 |
| Hole mm                                                          | 88x137                                     |
| Hour-meter                                                       | 5 digits                                   |
| Tachometer                                                       | Max 4000 RPM precision ± 10 RPM            |

**ORDERING DATA****Type DCA-109**

code 00242293

**ACCESSORIES SUPPLIED****KIT MU-DCA-109**

code 40804503

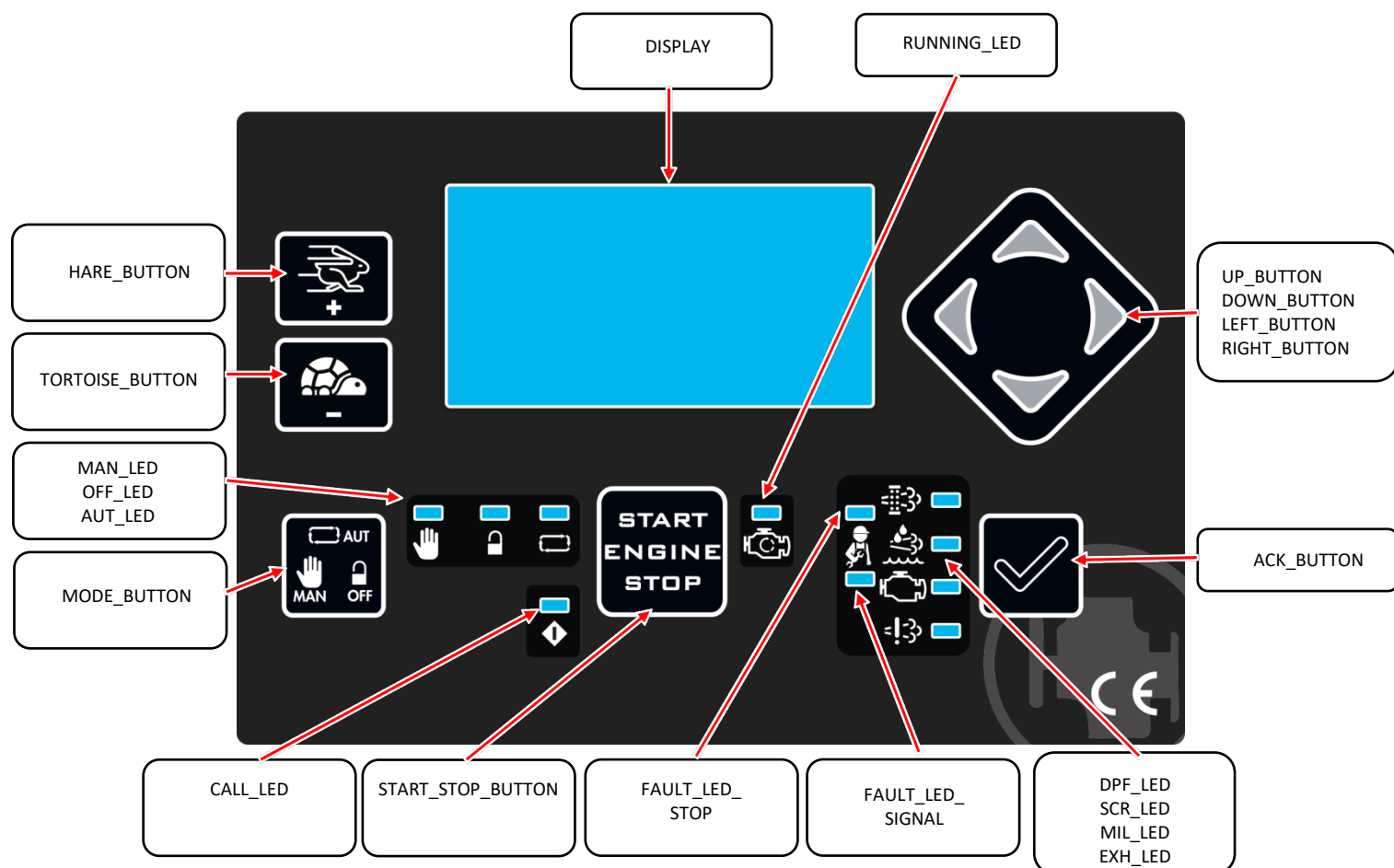
# DCA-339

Performs command and protection functions for a diesel engine. Allows manual or automatic adjustment of the engine rpm and stopping if a fault occurs.



## USER'S MANUAL

## INSTRUCTIONS IN BRIEF



**UP\_, DOWN\_, RIGHT\_ and LEFT\_BUTTON.....** Used to browse display menus. They silence the alarm.

**HARE\_, TORTOISE\_BUTTON.....**

To accelerate and decelerate the engine. When the control unit is on, the buttons are always enabled, even when the engine is stopped.

**ACK\_BUTTON .....** Confirms the action.

**MODE\_BUTTON.....** Selects the MANUAL MODE, OFF MODE, AUTOMATIC MODE modes

**START\_STOP\_BUTTON.....** Starts and stops the engine in manual mode.

**STOP\_FAULT\_LED .....** Flashing light points to the presence of a fault that causes a stop; steady light indicates a RED STOP fault active in the ECU.

**SIGNAL\_FAULT\_LED.....** Signals the presence of a fault that does not cause a stop; steady light indicates an AMBER WARNING fault active in the ECU.

**RUNNING\_LED.....** Running engine detected by the control unit.

**SCR\_LED .....** Indicates SCR system faults.

**DPF\_LED .....** Indicates DPF system faults.

**MIL\_LED .....** Indicates an engine derate due to a problem with the SCR or DPF.

**EXH\_LED.....** Indicates faults on the regeneration system for the anti-pollution systems.

**CALL\_LED.....** Remote start-up

**MAN\_LED.....** Indicates manual mode.

**OFF\_LED.....** Indicates off mode.

**AUT\_LED.....** Indicates automatic mode.

## TECHNICAL SPECIFICATIONS

|                                                    |                   |                                         |             |
|----------------------------------------------------|-------------------|-----------------------------------------|-------------|
| Power supply                                       |                   |                                         |             |
| Suitable for batteries                             |                   | 12Vdc                                   | 24Vdc       |
| Operating range                                    |                   | 8–48Vdc                                 |             |
| Absorption with engine not running                 |                   | 280mA@12Vdc                             | 175mA@24Vdc |
| Absorption with control unit OFF                   |                   | 15mA@12Vdc                              | 8mA@24Vdc   |
| Voltage dip on battery power supply                |                   | From 10Vdc to 0Vdc for 15ms             |             |
| Digital inputs [30], [41], [42], [51], [52]        |                   |                                         |             |
| Type of input                                      |                   | Negative                                |             |
| Maximum current supplied                           |                   | 1 mA                                    |             |
| Voltage threshold for low signal                   |                   | ≤ 0.7Vdc                                |             |
| Voltage threshold for high signal                  |                   | ≥ 1.2Vdc                                |             |
| Digital inputs [23], [24]                          |                   |                                         |             |
| Type of input                                      |                   | Positive                                |             |
| Maximum input current                              |                   | 0.6mA@48Vdc                             |             |
| Voltage threshold for low signal                   |                   | ≤ 1.8Vdc                                |             |
| Voltage threshold for high signal                  |                   | ≥ 2.3Vdc                                |             |
| Terminal input [65]                                |                   |                                         |             |
| AC voltage                                         |                   | 5.5–65Vac                               |             |
| Measurement range                                  |                   | 50–1500 Hz                              |             |
| Terminal input [66]                                |                   |                                         |             |
| Measurement range                                  |                   | 0.5–30Vdc                               |             |
| Pick-up input terminals [63-64]                    |                   |                                         |             |
| AC voltage                                         |                   | 1.5–15Vac                               |             |
| Measurement range                                  |                   | 300 to 15000 Hz                         |             |
| Minimum pick-up impedance                          |                   | >400ohm                                 |             |
| Digital outputs                                    |                   |                                         |             |
| Type of output                                     |                   | Positive (battery voltage)              |             |
| [6], [19], [70]                                    | Type              | BATT+ [1]                               |             |
|                                                    | Maximum load      | 0.25 A                                  |             |
| Outputs [K1], [K2]                                 |                   |                                         |             |
| Type of output                                     |                   | Clean contact with shared C1            |             |
| Maximum applicable voltage                         |                   | 48Vdc, 65Vac                            |             |
| Maximum load                                       |                   | 3 A (AC1)                               |             |
| Outputs [K3], [K4], [K5]                           |                   |                                         |             |
| Type of output                                     |                   | Clean contact with shared C2            |             |
| Maximum applicable voltage                         |                   | 48Vdc, 65Vac                            |             |
| Maximum load                                       |                   | 3 A (AC1)                               |             |
| Engine instruments                                 |                   |                                         |             |
| Oil pressure                                       | 0–360ohm          | 0.0 ÷ 9.0BAR                            | 0–900kPa    |
| Temperature                                        | 0–3000ohm         | 0–140 °C                                | 0–284 °F    |
| Fuel level                                         | 0–360ohm          | 0–100%                                  |             |
| Accuracy (pressure gauge, thermometer, fuel level) |                   | ± 2%                                    |             |
| Lines of communication                             |                   |                                         |             |
| RS232 (no optoisolator)                            | Baud-rate         | 1200 ÷ 115200 bps                       |             |
|                                                    | Parity            | None/even                               |             |
| RS485 (optoisolated)                               | Baud-rate         | 1200 ÷ 115200 bps                       |             |
|                                                    | Parity            | None/even                               |             |
| USB 2.0 (Micro USB-B)                              | Interface         | Not isolated. Maximum cable length 3 m. |             |
| CAN Bus (no optoisolator)                          | Baud-rate         | 250kbps                                 |             |
|                                                    | Protocol          | SAE J1939                               |             |
| Environmental conditions                           |                   |                                         |             |
| Operating temperature                              |                   | -20 to 60 °C                            |             |
| Storage temperature                                |                   | -20 to 60 °C                            |             |
| Relative humidity                                  |                   | ≤ 80%                                   |             |
| Protection class                                   |                   |                                         |             |
| Back                                               |                   | IP 20                                   |             |
| Front                                              |                   | IP 54                                   |             |
| Container                                          |                   |                                         |             |
| Weight                                             |                   | 480g                                    |             |
| Dimensions (LxHxD)                                 |                   | 157x109x74mm                            |             |
| Perforations                                       |                   | 137x88mm                                |             |
| Material                                           |                   | PC/ABS V0                               |             |
| Terminals                                          |                   |                                         |             |
| Screw                                              |                   | M3                                      |             |
| Max. section                                       |                   | 2.5 mm <sup>2</sup>                     |             |
| Installation                                       |                   |                                         |             |
| Wall-mounted                                       |                   |                                         |             |
| Nuts                                               | Thread            | M4                                      |             |
|                                                    | Tightening torque | 1.0 ÷ 1.5 Nm                            |             |

### INFORMATION FOR ORDERING

| Type    | Item Code |
|---------|-----------|
| DCA-339 | 00242326  |

### STANDARD ACCESSORIES

| Type                     | Item Code |
|--------------------------|-----------|
| Connector kit MU DCA-339 | 40804502  |

### ACCESSORIES AVAILABLE ON REQUEST

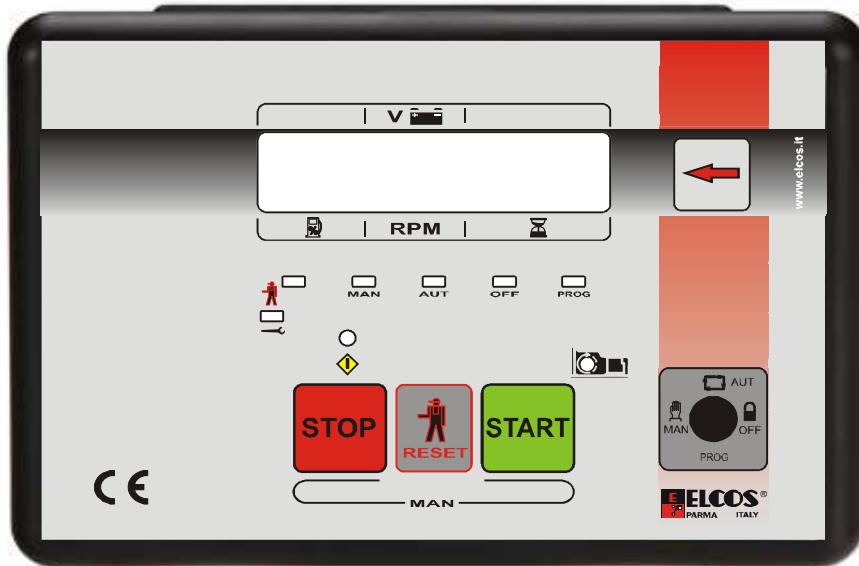
| Type        |                                         | Item Code |
|-------------|-----------------------------------------|-----------|
| AST-015/00  | Rod electrode, including accessories    | 40241012  |
| E-25        | Screw electrodes, including accessories | 40190115  |
| VAR-201 12V | Linear actuators                        | 00571547  |
| VAR-201 24V | Linear actuators                        | 00571548  |
| ZW-SMART    | Programming software                    | 00070212  |

### DOCUMENTATION ON REQUEST

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## OPERATING AND INSTRUCTION MANUAL



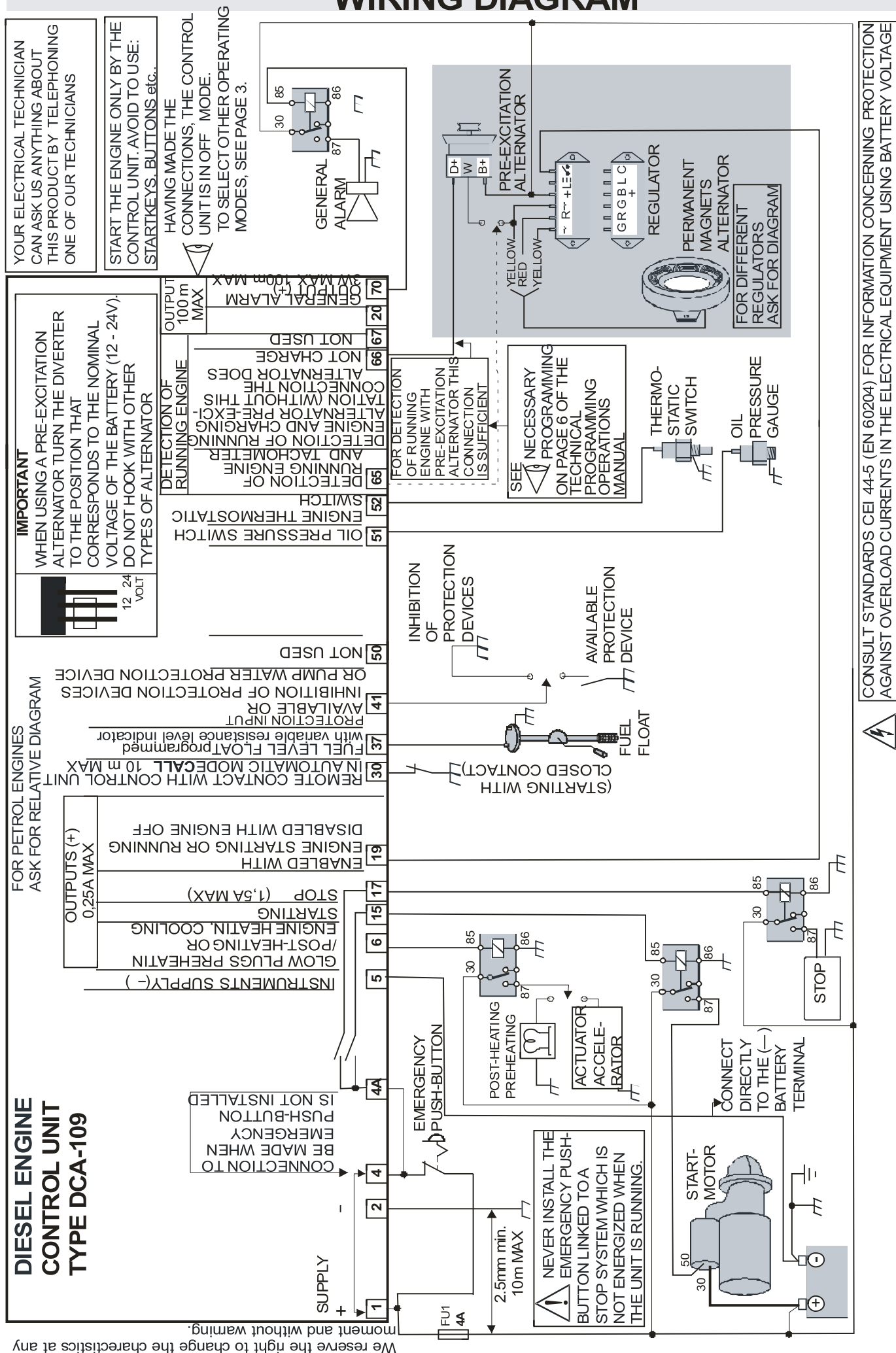
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to show THE  
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(simultaneous reading of 4)

- battery voltmeter
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- Programmable weekly selftest
- Available fully programmable input for anomaly or inhibition protections
- Possibility of starting the engine when the charge of the battery is low
- Anomaly historical record (Including data from the last 100 occurred anomalies)

## WIRING DIAGRAM



## TECHNICAL DATA

|                                                                  |                                                                                                                |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Battery power supply                                             | 12 Vdc and 24 Vdc                                                                                              |
| Supply voltage                                                   | 8 ÷ 32V                                                                                                        |
| Selfconsumption with engine stopped                              | 4 mA at 12V 4 mA at 24V                                                                                        |
| Selfconsumption with stopped engine and pressed emergency button | 170 mA at 12 V 100 mA at 24V                                                                                   |
| Max consumption                                                  | 210 mA at 12V 145 mA at 24V                                                                                    |
| Rated insulation voltage:<br>• Terminal board of battery         | 32V                                                                                                            |
| Max load of the outputs                                          | 15 (starting) 0,25A, 6 (glow plugs) 0,25A,<br>17 (stopping) 1,5A, 19 (key) 0,25A,<br>70 (general alarm) 0,25A. |
| Degree of rear protection                                        | IP00                                                                                                           |
| Degree of front protection                                       | IP64                                                                                                           |
| Temperature range                                                | -20 ÷ + 50 °C                                                                                                  |
| Weight                                                           | 410 g                                                                                                          |
| Dimensions (LxHxP)mm                                             | 157x109x52                                                                                                     |
| Hole mm                                                          | 88x137                                                                                                         |
| Hour-meter                                                       | 5 digits                                                                                                       |
| Tachometer                                                       | Max 4000 RPM precision ± 10 RPM                                                                                |

## ORDERING DATA

Type DCA-109

code 00242293

## ACCESSORIES SUPPLIED

KIT MU-DCA-109

code 40804503

|                             |                            |                                 |                                |                          |
|-----------------------------|----------------------------|---------------------------------|--------------------------------|--------------------------|
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| Екатеринбург (343)384-55-89 | Липецк (4742)52-20-81      |                                 | Тамбов (4752)50-40-97          | Ярославль (4852)69-52-93 |

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