

# CONTROL UNIT FOR AUTOMATIC DIESEL ENGINE TYPE DCA-120/10

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



It is equipped with display to show the INSTRUMENTS:

(simultaneous reading of 6)

- fuel level indicator
- water oil thermometer
- oil pressure gauge
- battery voltmeter
- total hour meter
- partial hour meter
- tachometer
- starting counter
- starting failures counter

- Automatic faults surveillance with messages on the display
- Texts in 6 languages: Italian, English, French, German, Spanish and Portuguese
- Preventive maintenance warning
- Possibility of associating 2 relays with various functions.
- Remote control (starting and stop)
- Preheating glow plugs management
- Engine heating cooling
- Clock for programming the starting or the stopping of the engine
- Programmable weekly selftest
- Available and fully programmable input for anomaly
- CAN Bus SAE J1939
- Possibility of starting the engine when the charge of the battery is low
- Anomaly historical record (Including data from the last 50 occurred anomalies)

## MODES OF COMMUNICATION OF DCA-120/10

- CAN Bus Connection SAE J1939.
- Serial ports RS232 and RS485.
- GSM Modem (optional), possibility of displaying the control unit instruments with a mobile phone, operating the starting and stopping and notifying with an SMS message when the engine is in alarm state.
- MOD Bus protocol.
- Remote operation with personal computer (optional):
  - Reading of the instruments shown on the display of the control unit.
  - Anomaly historical record.
  - Displaying of anomalies and operating status of the engine.
  - Start stop controls.

PARMA



**ELCOS**®

ITALY

Tel. +39 0521/772021 Fax +39 0521/270218  
E-mail: info@elcos.it - HTTP://www.elcos.it

## BRIEF INSTRUCTIONS

**WATER OR OIL THERMOMETER**

**BATTERY VOLTMETER**

**TACHOMETER**

**CUMULATIVE ALARM WITH ENGINE STOP**

**THE CALL IS CLOSED**

**PRESS TO DECELERATE THE ENGINE IN MANUAL MODE**

**PRESS TO STOP THE ENGINE WHEN THE CONTROL UNIT IS IN MANUAL OPERATION**

**PRESS TO RESET THE CONTROL UNIT**

**PRESS TO START THE ENGINE WHEN THE CONTROL UNIT IS IN MANUAL OPERATION MODE**

**PRESS TO ACCELERATE THE ENGINE IN MANUAL MODE**

**OIL PRESSURE GAUGE**

**FUEL LEVEL INDICATOR**

**HOUR METER**

**3.4 bar | 58 | 3823h  
90 °C | 24 | 1500**

**IV | RPM**

**MAN | AUT | OFF | PROG**

**STOP**

**RESET**

**START**

**MAN | AUT | OFF | PROG**

**ELCOS PARMA ITALY**

**PRESS BRIEFLY TO SHOW THE INSTRUMENTS, HOLD DOWN TO VERIFY THE LED TEST. GENERAL ALARM SILENCING**

**THE OPERATION MODE OF THE CONTROL UNIT IS:**

- MANUAL
- AUTOMATIC
- OFF
- USER PROGRAMMING

**PREVENTIVE MAINTENANCE AND CUMULATIVE ALARM WITHOUT STOPPING**

**ENGINE IS RUNNING**

**PRESS TO SELECT THE OPERATION MODE:**

- MANUAL
- AUTOMATIC
- OFF
- USER PROGRAMMING

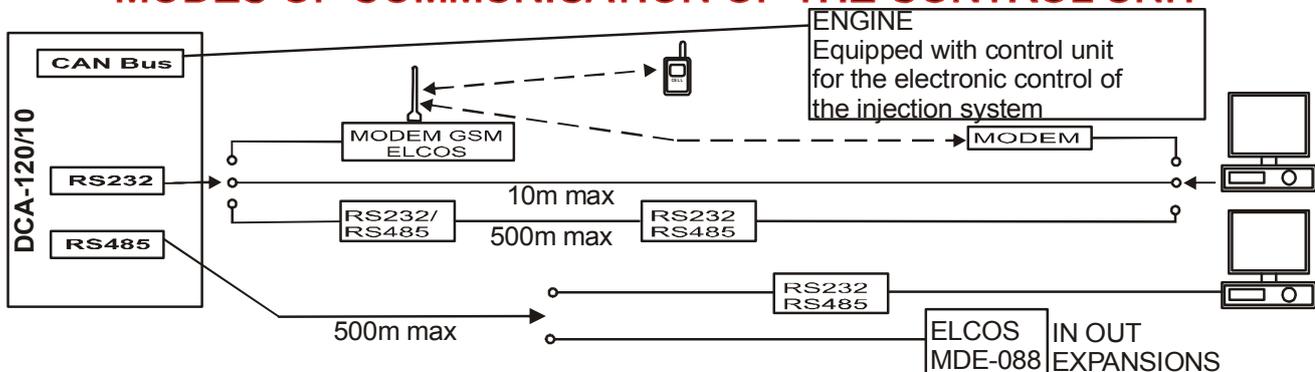
## INSTRUMENTS

<p>With the running engine the instruments are shown. In the event of a fault, instead of the measurement, the display shows the message of the occurred fault.</p>	<ul style="list-style-type: none"> <li>• FUEL LEVEL INDICATOR</li> </ul>	Displays the percentage of fuel present in the tank
	<ul style="list-style-type: none"> <li>• WATER OIL THERMOMETER</li> </ul>	Displays the water and oil temperature of the engine up to 140°C (284°F)
	<ul style="list-style-type: none"> <li>• OIL PRESSURE GAUGE</li> </ul>	Displays the oil pressure of the engine up to 9 bar (900kPa)
	<ul style="list-style-type: none"> <li>• BATTERY VOLTMETER</li> </ul>	For voltages ranging between 9 and 38 Volt
	<ul style="list-style-type: none"> <li>• TOTAL HOUR-METER</li> </ul>	With five figures and a maximum reading of 59999 (hours and minutes).
	<ul style="list-style-type: none"> <li>• PARTIAL HOUR-METER</li> </ul>	With four figures and a maximum reading of 9999 (hours and minutes), The hours indicated are zero-set the next time the engine is started up.
	<ul style="list-style-type: none"> <li>• TACHOMETER</li> <li>• STARTING COUNTER</li> <li>• STARTING FAILURE COUNTER</li> </ul>	<p>Displays the number of engine revs up to 8500 rpm</p> <p>Displays the number of startings up to 65535</p> <p>Displays the number of FAILURE STARTINGS up to 9999</p>

### SIMULTANEOUS READING OF THE INSTRUMENTS WITH THE RUNNING ENGINE:

OIL PRESSURE GAUGE - FUEL LEVEL INDICATOR - HOUR METER - WATER THERMOMETER - BATTERY VOLTMETER - TACHOMETER

## MODES OF COMMUNICATION OF THE CONTROL UNIT



## REVISIONS HISTORY

Date	Level of the REVISION	Description	Page
17/12/2012	1.29	No more fuel: intervention delay modified.	Technical settings on page 10
October 2013	1.30/1.31	Motor speed management 1-2-3 added to SCANIA on page 3.	Technical settings on page 4-12
October 2015	1.34	Updated speed management with SETPOINT in SCANIA electronic engines page 3.	Technical settings on page 4-15

## OPERATION

### FUNCTIONS SELECTION



The function selected with the key is shown by the associated warning light.

### MANUAL

The control unit commands are enabled.

Starting with key stopping with key (it is obtained by pressing once the key). Deceleration with key, acceleration with key .

### PROTECTIONS

The engine protection function in manual mode can be programmed in two ways:

- Display only of the fault that has intervened WITHOUT STOPPING the engine.

The overspeed fault is programmed with stopping of the engine. It cannot be programmed without stopping of the engine.

- Display of the fault that has intervened WITH ENGINE STOPPING.

(The control unit is programmed in this way).

### SETTING THE WORKING SPEED

Start the engine in manual mode with button . Set the speed to the required value with buttons after 4 secs the STORED RPM are displayed (working speed). After the speed has been set the accelerator remains fixed at the preset working speed. The engine speed can always be corrected.

### ENGINE SPEED 1-2

In manual mode, if the "ENGINE SPEED 1-2" function is enabled and the engine is running, press the button to energize relay K3, which stays as such until button is pressed. Relay K3 gets de-energized when the Stop button is pressed or whenever a stopping fault occurs.

### ENGINE SPEED 1-2-3

This function is enabled exclusively in **SCANIA** electronic motors set to CAN BUS management and control unit switched to **Manual** mode. The factory setup does not include this function. To enable it, go to the menu "CAN Bus".

Press START to ignite the motor at min. rpm. Press button for three seconds: the speed will rise to 1380 rpm. Press the button quickly to increase the rpm by a programmable value (from 5 to 50 rpm). The rpm increase to 1620. Press button for 1 second to further increase the rpm to 1680. Pressing of the button intermittently will increase the speed to 1720 rpm. Button has the same functions as above, but it is used for deceleration. A click on the STOP button will cause the motor to stop. Shift to the 1500 rpm, 1800 rpm and min. rpm range is possible at any time by pressing the button or for 1 second.

### RPM WITH SETPOINT

Function active only in SCANIA electronic engines with CAN Bus management and with control unit in Manual mode. By default the function is switched off, to switch it on see the RPM VARIATIONS parameter in the "CAN Bus" programming menu. When button is pressed the engine will start at idle speed, when button is pressed the speed will reach the previously programmed setpoint, see the RPM SPEED and RPM DEVIATION parameters. When button is pressed the engine will go to idle. When STOP is pressed the engine will stop.

### ENGINE HEATING

In automatic mode after the call contact closes the engine stays on idle for a time to allow engine heating. After this time has elapsed the engine slowly reaches the working speed. During heating the protection devices are active.

### ENGINE COOLING

In manual mode with button it decelerates. In automatic mode when the call contact opens the engine slowly decelerates. When the engine is on idle the COOLING TIME starts, and after this time has elapsed the engine stops. During cooling the protection devices are active. The deceleration command can be cancelled immediately by pressing button .

### AUTOMATIC

On closing the call contact, once the STARTUP DELAY AFTER CALL time has elapsed, the control unit switches on the glow plugs (if set) and then starts the engine. If preset, the engine stays on idle for the whole ENGINE HEATING time, and after this time has elapsed the engine slowly reaches the preset working speed. When the call contact opens after the STOP AFTER CALL OPENING DELAY has elapsed the engine slowly decelerates. When the engine is on idle the ENGINE COOLING TIME starts. After this time has elapsed the engine stops.

## OPERATION

### FUNCTIONS SELECTION WEEKLY SELFTEST

ENABLED WITH POWER UNIT IN AUTOMATIC MODE (for programming see page 5 of the Technical Programming Manual)

The engine starts and continues to run for the WEEKLY TEST TIME (programmed to 3 minutes). This test will be repeated automatically every week on the exact day and at the hour to which it has been programmed. During the automatic test cycle, WEEKLY TEST IN PROGRESS is shown on the display.

#### STOPPING OF ENGINE DURING THE TEST

Press key 

If the engine remains stopped for a few days a week, we advise extending the duration of the weekly test to charge the battery by means of the battery charging alternator.

WEEKLY TEST STOP: the weekly test is stopped when an ANOMALY is displayed on the display.

#### OFF

When key  is pressed until Led  comes on. The engine cannot be started in any way and, if running, is stopped.

#### GLOW PLUGS PREHEATING

- During the preheating period has passed, the display shows the phrase 
  - In **manual** with key  (it is obtained by pressing once the key).
  - In **automatic** it is activated automatically before starting.
- The preheating action time can be adjusted, the preheating action stops before startup start. The factory preheating command is inhibited as it has been programmed to zero seconds.

#### STARTING

- In **manual** with key 
- In **automatic** on closing the call contact and after the STARTUP DELAY AFTER CALL time has elapsed.

To make starting easier, a special circuit establishes a series of programmable startups (programmed to 4 STARTUPS); the number of startups, the length of the pause time and the startup time can be programmed.

#### STARTING FAILURE

If the whole series of attempts is unable to start the engine, at the end of this cycle STARTING FAILURE is shown on the display and the stop signal is activated.

#### DETECTION OF RUNNING ENGINE

This is obtained by the detection of the battery charger alternator voltage (PERMANENT MAGNETS or PRE-EXCITATION). A pick-up device can be used to charge the battery as an alternative to the alternator. When the engine featuring unit that controls the injection system electronically sends the "running engine" signal (CAN Bus), the pick-up device is disabled and the alternator only controls belt breakage (not running engine).

When detection has been made, this disconnects the starter motor and lights the LED .

#### STOP

- In **manual** mode using key  (it is obtained by pressing once the key).
- In **automatic** mode on opening the call contact, or when the protection systems intervene. Stopping can occur in two ways:
  - With the solenoid deactivated while the engine is running and activated when stopped. This condition is maintained during the STOP TIME (programmed to 20 seconds) after the engine stopped detection.
  - With solenoid or electro-valve activated while the engine is running and deactivated when stopped. This condition is maintained even when the engine is stationary.

#### INPUT (terminal) 41

Can be combined with AVAILABLE FAULT (factory programming) or INHIBITION OF PROTECTION DEVICES or as remote button of the hare button .

## OPERATION

### REMOTE HARE TORTOISE BUTTONS

It is possible to take buttons  and  to remote. For programming see SWITCHING OFF OF FUNCTIONS in the technical programming settings manual. Close input 41 to ground equivalent to pressing button  and close input 56 to ground equivalent to pressing button . When the function is switched on the AVAILABLE FAULT 1 input and DISABLING OF PROTECTION DEVICES input are no longer available.

### ENGINE PROTECTION DEVICES

The intervention of the fault is displayed; it can cause the engine to be stopped and activates the general alarm. See TABLE at page 10 of the DCA-120 TECHNICAL PROGRAMMING manual.

#### FAULT DISPLAY

When the engine is running the engine instruments are shown.

When there is a fault, instead of the reading, the display shows the intervened fault message, and the associated LED  flashes.

#### HOW TO SEE THE INSTRUMENT READINGS AGAIN

It is possible to access the reading of the measurements by pressing key  for 1 second.

The display will resume showing the previous fault 10 seconds after the last pressing of the key.

#### FAULT RESET

On pressing the key , the protection devices and all the locked functions are reactivated.

### GENERAL ALARM

This is produced by mounting an acoustic signal, linked to the appropriate terminal.

It can be arranged so that it is activated continually or for a set time.

When key  is pressed the general alarm is silenced.

Before starting automatically the engine activates the intermittent general alarm for 8 seconds, followed by a pause of 3 seconds. This function can be switched off: see DCA-120 TECHNICAL PROGRAMMING OPERATIONS manual on page 14.

### PREVENTIVE MAINTENANCE

When preventive maintenance operations need to be carried out, the yellow LED  flashes while the number of the intervened maintenance appears.

The timing for the maintenance operations and the procedure for zeroing the time up maintenance indication can be programmed by the manufacturer of the engine.

### EMERGENCY STOP

The emergency stop can be activated in all working conditions, by mounting one or more click down push-button. The stop is immediate, does enable the general alarm and EMERGENCY STOP is shown



**Do not use the emergency button combined with a stopping system that is not energized in run mode.**

### STOPPING FAILURE

This intervenes if the engine running signal is detected 60 seconds after the stop command. STOPPING FAILURE will be read on the display.

### POSSIBILITY TO START THE ENGINE WITH A POORLY CHARGED BATTERY (with control unit in automatic mode)

Starts or stops the engine depending on the voltage measured on the battery terminals.

Before starting automatically, the generator set activates the intermittent general alarm for 8 seconds, followed by a pause of 3 seconds.

When **the voltage measured on the battery is lower** than the minimum threshold, the engine starts. When **the voltage exceeds** the maximum threshold after the intervention delay, the engine stops. To change the programming of the thresholds and of the delay see the DCA-120 TECHNICAL PROGRAMMING OPERATIONS manual on page 12.

# WIRING DIAGRAM

TO OBTAIN AUTOMATIC CONTROL OF THE WORKING SPEED AND AUTOMATIC COOLING OF THE ENGINE, CONNECT THE ACTUATOR (VAR-201) AND THE TERMINAL **65**

## CONTROL UNIT TYPE DCA-120/10

- 84 RS485 +
  - 85 RS485 -
  - 86 GND
- RS 485

CAN CAN  
H L  
CONNECT USING TWISTED OR SHIELDED CABLES  
CAN Bus 10m MAX

TERMINATION RESISTANCE (120 Ohm)  
Check in the control unit manual (ECM/ECU)  
if the resistance must be inserted (engine side)  
between the CAN-H and CAN-L  
(CAN Bus J1939) wires.

RS 232

+ SUPPLY  
-  
1 2 4

CONNECTION TO BE MADE WHEN EMERGENCY PUSH-BUTTON IS NOT INSTALLED

INSTRUMENTS SUPPLY (-)  
GLOW PLUGS PREHEATING  
STARTING  
STOP (1,5A MAX)  
ENABLED WITH ENGINE STARTING OR AND RUNNING.  
DISABLED WITH ENGINE STATIONARY.  
REMOTE CONTACT WITH CONTROL UNIT IN AUTOMATIC MODE  
CALL 10m MAX

OUTPUTS (+)  
0,25A MAX

FUEL LEVEL FLOAT programmed with variable resistance level indicator  
INPUT OF PROTECTION DEVICE AVAILABLE OR INHIBITION OF PROTECTION DEVICE OR REMOTE HARE

RADIATOR COOLANT LEVEL PROBE

OIL PRESSURE SWITCH

ENGINE THERMOSTATIC SWITCH

REMOTE TORTOISE

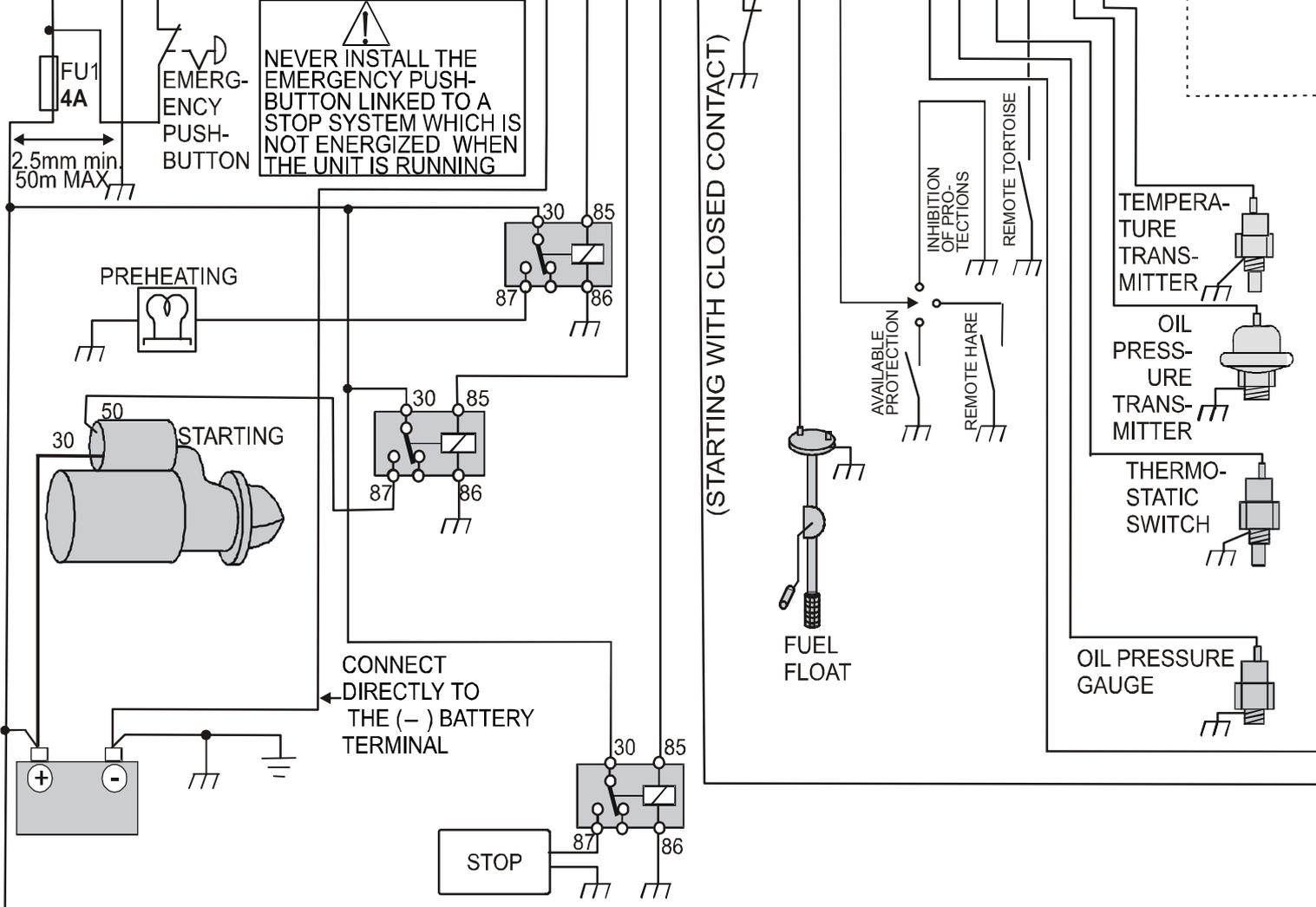
OIL PRESSURE TRANSMITTER

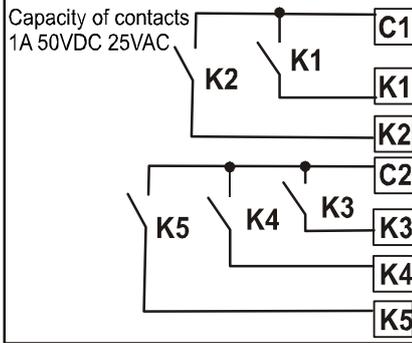
TEMPERATURE TRANSMITTER

DETECTION OF RUNNING ENGINE AND TACHOMETER

4A 5 6 15 17 19 30 37 41 50 51 52 56 57 58 65

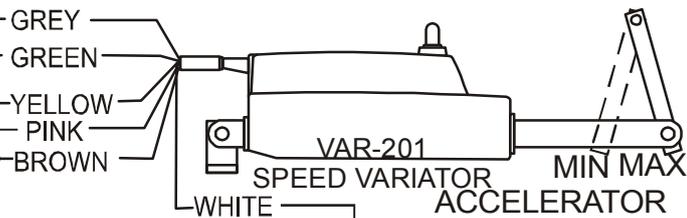
NEVER INSTALL THE EMERGENCY PUSH-BUTTON LINKED TO A STOP SYSTEM WHICH IS NOT ENERGIZED WHEN THE UNIT IS RUNNING





TWO RELAYS THAT CAN BE ASSOCIATED WITH THE FUNCTIONS AND PROTECTION DEVICES LISTED ON PAGE 8 OF THE TECHNICAL PROGRAMMING MANUAL

**K3** ACCELERATION   
**K4** DECELERATION   
**K5** CLOSSES THE CONTACT FOR 1 SEC. AFTER DETECTION OF ENGINE RUNNING



**NECESSARY PROGRAMMING**  
SEE PAGE 7 OF THE TECHNICAL PROGRAMMING MANUAL

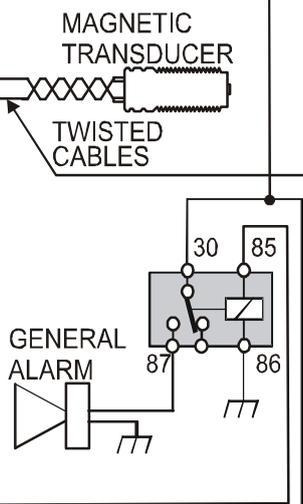
WHEN AUTOMATIC WORKING SPEED CONTROL IS INCLUDED (See technical programming operations manual on page 15), connect the WHITE and YELLOW wires to terminal K4.

START THE ENGINE ONLY BY THE CONTROL UNIT. AVOID TO USE: STARTKEYS, BUTTONS etc..

**DETECTION OF RUNNING ENGINE**  
WHEN TERMINALS 63 AND 64 ARE CONNECTED, TERMINAL 65 MUST NOT BE CONNECTED

**DETECTION OF RUNNING ENGINE**  
OUTPUT 100m MAX

**DETECTION OF RUNNING ENGINE AND CHARGING ALTERNATOR PRE-EXCITATION (WITHOUT THIS CONNECTION THE ALTERNATOR DOES NOT CHARGE)**  
GENERAL ALARM OUTPUT (+) 3W MAX 100m MAX

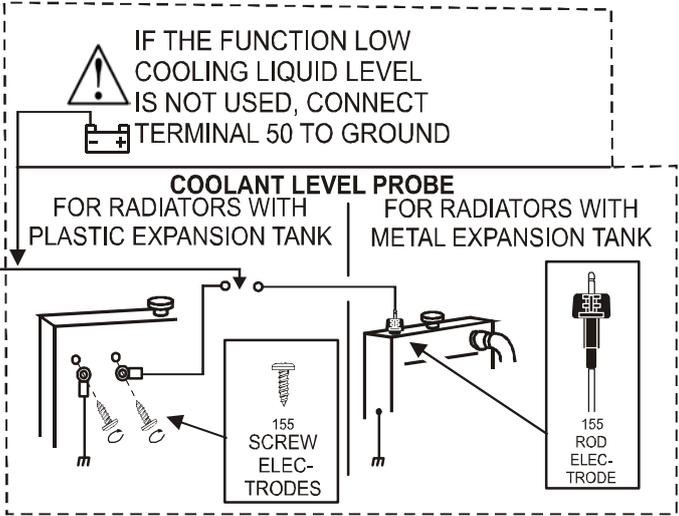
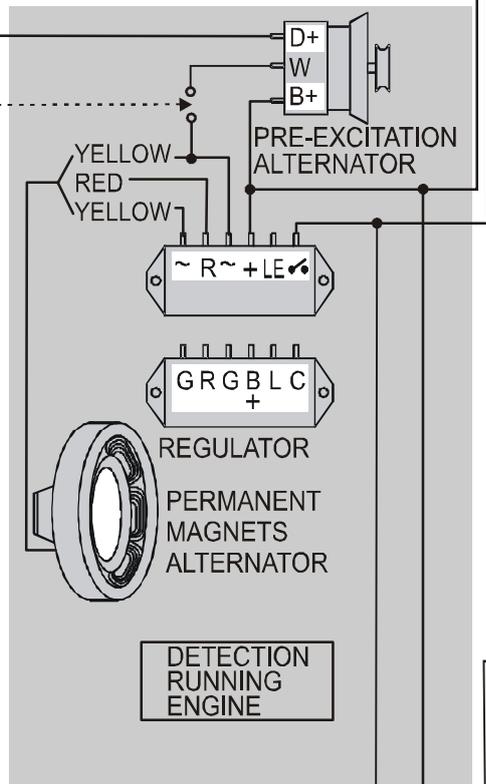


**IMPORTANT**

WHEN USING A PRE-EXCITATION ALTERNATOR TURN THE DIVERTER TO THE POSITION THAT CORRESPONDS TO THE NOMINAL VOLTAGE OF THE BATTERY (12 - 24V). DO NOT HOOK WITH OTHER TYPES OF ALTERNATOR

FOR DETECTION OF RUNNING ENGINE WITH PRE-EXCITATION ALTERNATOR THIS CONNECTION IS SUFFICIENT

**NECESSARY PROGRAMMING**  
SEE PAGE 6 OF THE TECHNICAL PROGRAMMING MANUAL



**BEFORE CONNECTING THE CONTROL UNIT CHECK THE NOTES ON PAGE 5. HAVING MADE THE CONNECTIONS, THE CONTROL UNIT IS IN MODE OFF. TO ENABLE THE OTHER FUNCTIONS, PRESS THE RELEVANT BUTTONS**

## MESSAGES AND INSTRUMENTS

**Sent (SAE J1939 protocol Bus) from the engine equipped with control unit for electronic control of the injection system.**

All the messages or instruments displayed on the display regarding the injection control unit and the CAN Bus, are identified by the presence of the characters  at bottom right.

### ANOMALY MESSAGES

In the event of no communication with the injection control unit of the engine, the following fault is activated:

ANOMALY  
CAN Bus

The fault messages collected by the injection control unit of the engine are indicated with their code:

SPN.....  
FMI.....ANOMALY 

The most common messages are displayed as text:

INTAKE  
OVERTEMPERATURE 

### CAN Bus INSTRUMENTS

These are read by the injection control unit and shown on the display when the engine is running.

All anomalies regarding these instruments are managed by the **injection control unit**.

INSTRUMENTS	DESCRIPTION	UNIT OF MEASUREMENT	
TACHOMETER	Displays the number of engine revolutions	rpm	
OIL PRESSURE GAUGE	Displays the pressure of the engine oil	bar	kPa
THERMOMETER	Displays the engine water or oil temperature	°C	°F
USED FUEL	Total amount of litres of fuel used	l	
INSTANTANEOUS FUEL CONSUMPTION	Amount of fuel consumed by the engine per unit of time (l/h)	l/h	
FUEL TEMPERATURE	Temperature of the fuel from the inlet of the injectors	°C	°F
TURBO-CHARGER TEMPERATURE	Temperature of turbocharger lubricant	°C	°F
OIL TEMPERATURE	Temperature of the engine lubricant oil	°C	°F
INTERCOOLER TEMPERATURE	Temperature of intercooler liquid after the turbocharger	°C	°F
INTAKE TEMPERATURE	Temperature of the pre-combustion air	°C	°F
COOLANT LEVEL	Level of the coolant expressed in %	%	
FUEL PRESSURE	Pressure of the fuel between the supply pump and the injection pump	bar	kPa
COOLANT PRESSURE	Pressure of the liquid in the cooling system	bar	kPa
ENGINE TORQUE	Torque percentage at engine outlet	Nm	
ENGINE LOAD	Load percentage delivered by the engine	%	
ENGINE POWER	Torque percentage at engine outlet	kW	

SOME MAKES OF ENGINE DO NOT PROVIDE FOR THE DISPLAY OF ALL THE LISTED INSTRUMENTS

### CUMULATIVE ALARMS

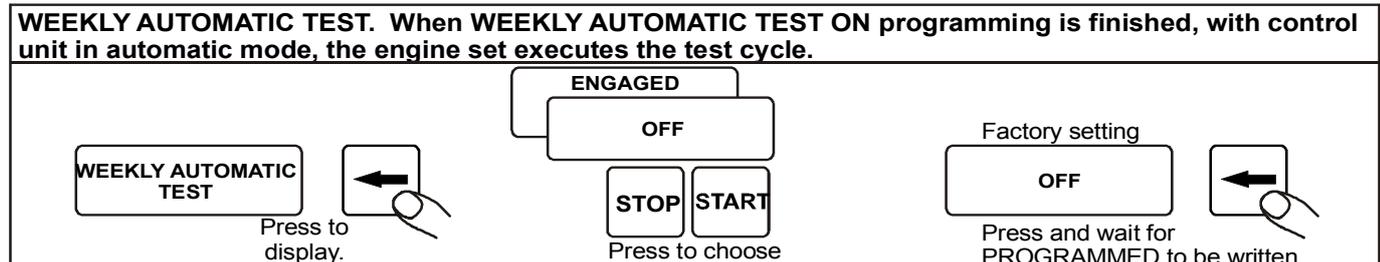
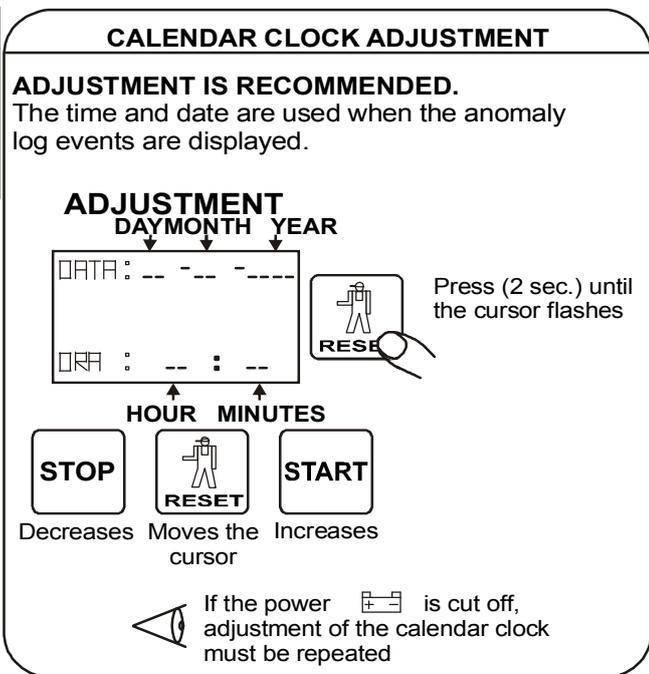
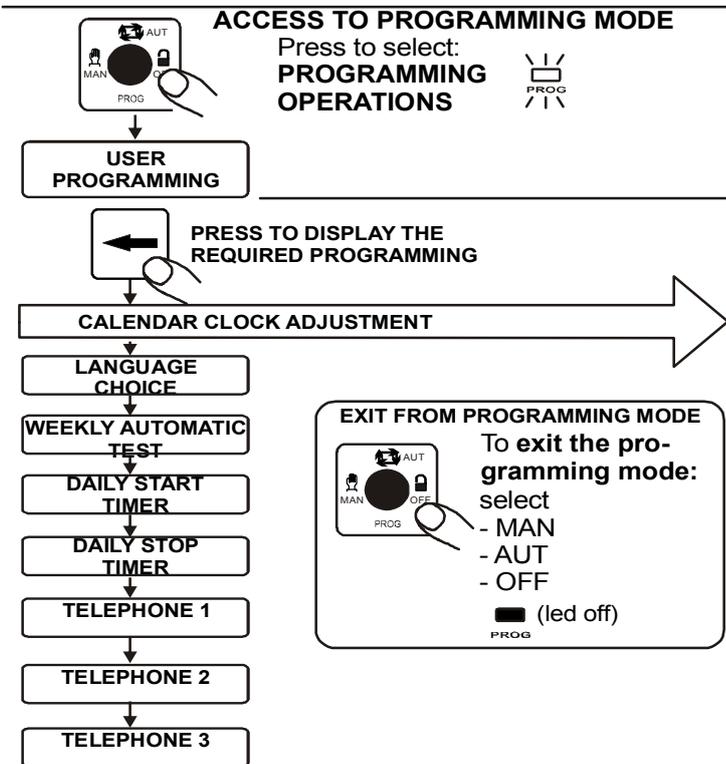
 LED (red) STEADY LIGHT: anomaly managed by the injection control unit **will cause** the engine **to stop**.

LED (red) FLASHING LIGHT: anomaly managed by the control unit DCA-120 **will cause** the engine **to stop**.

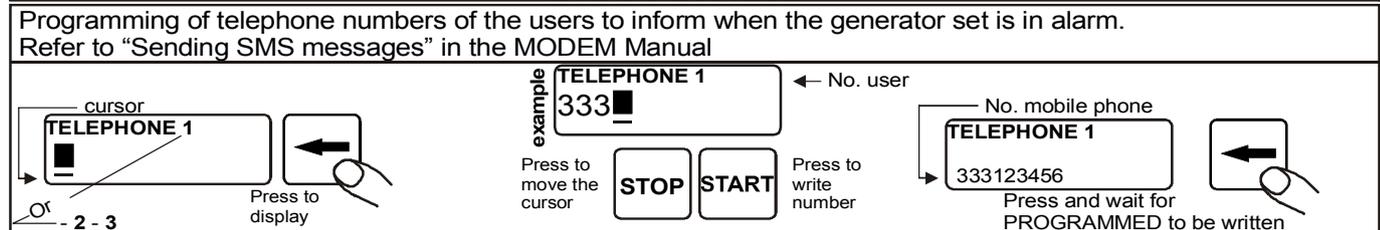
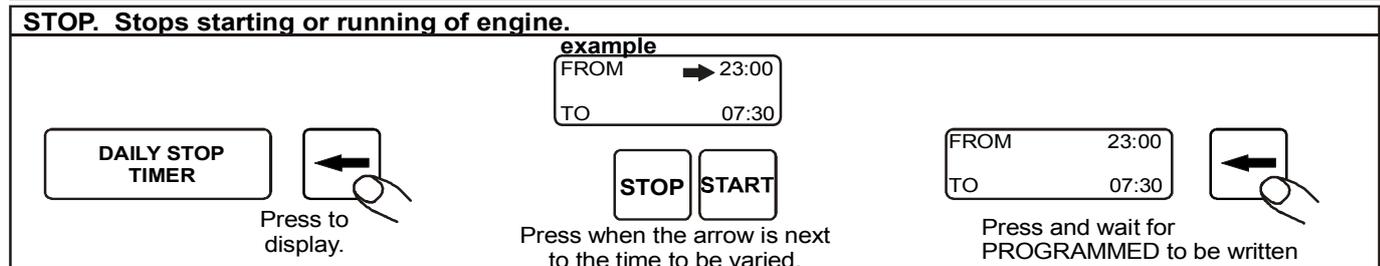
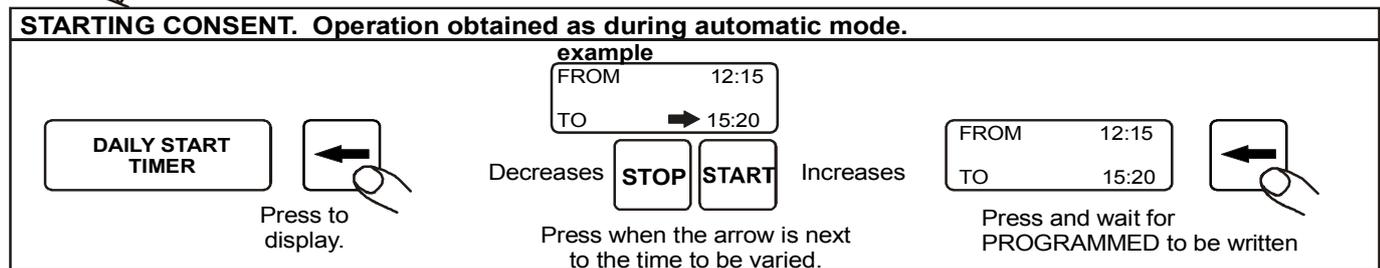
 LED (yellow) STEADY LIGHT: anomaly managed by the injection control unit **will NOT cause** the engine **to stop**.

LED (yellow) FLASHING LIGHT: anomaly managed by the control unit DCA-120 **It will NOT cause** the engine **to stop**, or indicates a preventive maintenance operation.  
LED OFF ALL OK.

# USER PROGRAMMING



The **TIMER** permits to programme the operation or the block of the engine.  
 ADJUST THE CALENDAR CLOCK.





## NOTICES

Used only to check a diesel engine, while operating, commanding stopping if there are anomalies in the parts controlled by the probes.

Designed to be installed inside dashboards, electric panels etc..



### **Warning:**

#### **Adhere closely to the following advice**

- When making connections always follow the instructions and the Wiring Diagram on page 5.
- Any interventions on the unit must be performed with the engine stationary and terminal 50 of the starting motor disconnected.
- Check that the consumption of the connected equipment are compatible with the described technical characteristics.
- Install in such a way that there is always adequate heat disposal.
- Always install under other equipment which produces or spreads heat.
- Handle and connect without mechanically stressing the electronic card.
- Make sure that no copper conductor cuttings or other waste material fall inside the control unit.
- Never disconnect the terminals of the battery with running engine.
- Never use a battery charger for the emergency start-up; the control panel could be damaged.
- In order to safeguard people and equipment, before connecting an external battery charger, disconnect the electrical system terminals from the battery poles.

#### **THIS CONTROL UNIT IS NOT SUITABLE FOR OPERATING IN THE FOLLOWING CONDITIONS:**

- Where the environmental temperature is outside the limits indicated in the manual.
- Where the air pressure and temperature variations are so rapid as to produce exceptional condensation.
- Where there are high levels of pollution caused by dust, smoke, vapour, salts and corrosive or radioactive particles.
- Where there are high levels or heat from radiation caused by the sun, ovens or the like.
- Where attacks from mould or small animals are possible.
- Where there is the risk of fire or explosions.
- Where the control unit can receive strong vibrations or knocks.
- Where the control unit is protected by barriers or casing with protection level less than IP40.

#### **ELECTROMAGNETIC COMPATIBILITY**

This control unit functions correctly only if inserted in plants which conform with the CE marking standards; it meets the exemption requirements of the standard EN61326-1 but it cannot be excluded that malfunctions could occur in extreme cases due to particular situations.

The installer has the task of checking that the disturbance levels are within the requirements of the standards.

#### **CONDUCTION AND MAINTENANCE**

The following maintenance operations should be performed every week:

- check that the indicators function;
- check the batteries;
- check that the conductors are tight, check the condition of the terminals.

**UNLESS WE MAKE A WRITTEN DECLARATION STATING THE CONTRARY, THIS CONTROL UNIT IS NOT SUITABLE FOR USE AS A CRITICAL COMPONENT IN EQUIPMENT OR PLANTS RESPONSIBLE FOR KEEPING PERSONS OR OTHER LIVING BEINGS ALIVE.**

YOUR ELECTRICAL TECHNICIAN CAN ASK ANY QUESTIONS ABOUT  
THIS CONTROL UNIT BY TELEPHONING OUR TECHNICIAN

**TECHNICAL DATA**

Battery power supply	12Vdc	24Vdc
Supply voltage	8 ÷ 32V	
Selfconsumption with engine stopped (STAND BY)	4mA at 12V	3mA at 24V
Selfconsumption with engine stopped and modem connected (STAND BY)	85mA at 12V	45mA at 24V
Selfconsumption with stopped engine and pressed emergency button	190mA at 12V	110mA at 24V
Max consumption	265mA at 12V	150mA at 24V
Rated insulation voltage:		
- Terminal board of battery	32V	
- Capacity of 5 contacts that can be associated with various functions	1A 50VDC 25VAC	
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	450g	
Dimensions (LxHxP) mm	157x109x74	
Hole mm	88x137	
Tachometer	Max 4000 RPM precision ± 10 RPM	

**ORDERING DATA**

Type DCA - 120/10

code 00242289

**ACCESSORIES SUPPLIED**

KIT MU-DCA-120

code 40804434

# CONFORMITY DECLARATION



ELCOS s.r.l. assumes full responsibility for declaring that the control unit:

type **DCA-120/10**

installed and used in the ways and for the purposes described in the instruction and user manual, is in conformity with the following directives:

- 2004/108/CE related to the electromagnetic compatibility and that repeals the directive 89/336/CEE,
- 2011/65/UE on the restriction of the use of certain hazardous substances in electrical and electronic equipment, because it is built and functions in accordance with the harmonized Standards:  
EN61326-1, EN61326/A1, EN61000-4-2, EN61000-4-4, EN61000-4-6, EN60529.

**E ELCOS**® S.r.l.  
Via Arandora Star, 28/a  
I 43122 PARMA ITALIA  
Tel. +39 0521/772021 Fax +39 0521/270218  
E-mail: info@elcos.it - HTTP://www.elcos.it

Parma, 10/09/2012

President

Margini Enzo