



Technical specifications **CANBUS** electrical/electronic system

1 General Principles

The CANBUS iCAN-P system is made by connecting a Master unit, provided with a Panasonic engine, with a Slave unit through a Bus connection with 2 wires plus a screen with CANopen protocol.

All the nodes are connected between them and with the Master unit through n.2 CAN lines:

CANBUS 1 : main CAN line for handling operation and safety signals.

CANBUS 2 : secondary CAN line for handling just safety signals.

This system compared to the PLC one requires:

- less electrical connections
- less electro electro-mechanical components (relays)

Therefore it offers guarantees of less failures and easier diagnostics (check at the end of this chapter a schematic comparison of the two systems)

Besides, carrying on the comparisons with the PLC system, the CANBUS guarantees the always more necessary expansibility, due to the continuous updating of the regulations and due to the frequent customer requests (data collection/memorization and organization during the service)

Our CANBUS system is homologated according to the European Automotive Directive 2004/104/CE that refers to the electromagnetic interference and is in conformity with EN13309 norm (electromagnetic compatibility according to the Machinery Directive)

TUV has certified that our CANBUS system is in conformity with category 3, as defined in the point 6.2.6 of the norm UNI ISO 13849-1:2007.

TUV has also tested our CANBUS system in respect to the severe std motor test for collision and vibration and has certified the utilization in tough climatic conditions (-25°C/+55°C)

Comparison between PLC and CANBUS system

Fig.a) PLC SYSTEM = One PLC connected with all the sensors and actuators spread all around the vehicle as you can see in the picture:

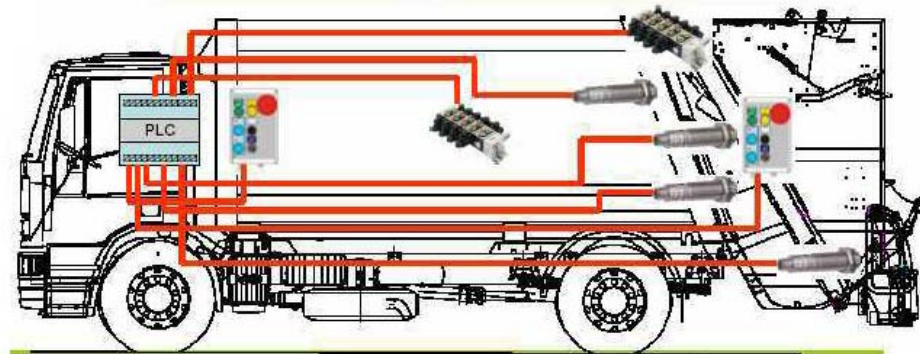
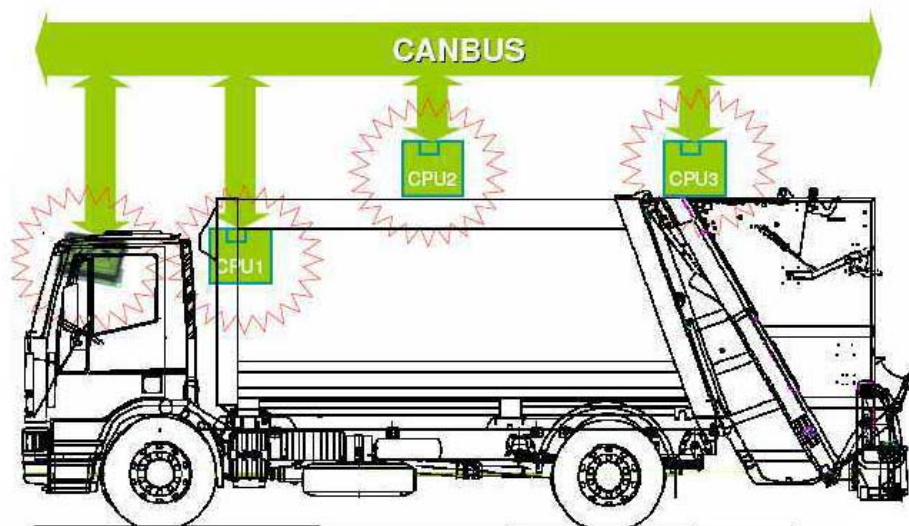


Fig. b) CAN BUS SYSTEM = The CPU (central processing units) are connected and they “communicate” through the CANBUS which is made by only one cable. It guarantees a simple and reliable system



2 The electrical system



The electrical system, engineered and produced by FARID, “supervises” the activation of the majority of the equipment controls, the emergency stop system and the automatic compaction cycle system.

The control system has been produced utilising the CANBUS logic.

All the used components are CE mark, purchased from qualified companies, leaders in the european markets.

The electrical components, cables and electrical box where all the wires coming from the sensors and electro-valves converges, have all an IP65 protection grade. The sensors used for doing the different operations have an IP67 protection grade.

The system for the emergency push-buttons, connected directly on the chassis battery, has a positive logic to ensure the interruption of the equipment operations in case of manumission or damages on the same line.

Each branch of the electrical system is provided with a safety electronic for the protection of overloadings and short-circuit.

All the cables of the electrical system are made with IP69K connectors and substitute the previous cables-press.

3 Controls

The respect of the working safeties norms and of the ergonomics principles is the basis for the position of the controls on the equipment and for an optimal use.

3.1. A) Controls in the cab

There are the following devices:

The main position inside of the cab of the FARID T1 compactor allows the driver to set up the working types and the working parameters.

It is made up by a control panel, engineered to centralise all the working functions and to occupy less space possible inside the cab, so not to obstruct the visibilità of the driver.



The control panel is made up mainly by a plastic box shaped-press and by a LCD colour monitor multi-functions.



On this screen that works from a single desktop it is possible to see:

The colours images coming from the rear camera, the touch screen controls icons, the signalling of the working parameters and of the alarms and if requested the pages for setting up the system

On the control panel are presents:

- the red emergency push-button
- the PTO engagement push-button
- the push-button for excluding the speed limiter with man on the step as per EN1501-1
- the LCD touch screen colours monitor 12,4"

On the monitor it is possible:

1. To display the image with 5,0" amplitude, coming from the black and white rear camera.
2. To control the on/off of the rotating beacons
3. To read the working hours of the PTO
4. To read the working hours of the engine
5. To read the compaction cycles numbers
6. To read the unloading cycles numbers
7. To read the container lifting device cycles numbers
8. To read the PTO mode and its engagements numbers
9. To read the selected compaction cycle (single, continuous etc)
10. To read the warnings and signalling of the next maintenance check
11. To read the system condition and through a detailed check control to understand which component (electrovalve, micro-switch, cable etc) has caused the bad system functioning (short circuit etc)
12. To read the alarms record and their condition
13. To make a diagnostics of the electro-hydraulic system of first level
14. To enter, through the push-buttons touch screen presents on the monitor, in special pages protected by password to modify the equipment programme.
15. To allow to add to a complete unit controls or new options such as anti-dust system etc
16. To allow to add to a complete unit controls and new diagnostics such as: pressure variation of the hydraulic system or control of the pressure value and/or oil

Some examples of managing the available informations

-Interface operator touch screen

-Interfaccia operatore da touch screen



*PRINCIPIO DI FUNZIONAMENTO
PREMENDO UN TASTO FUNZIONE SI
ACCEDE ALLE PAGINE CORRISPONDENTI*



BY PUSHING A KEY FUNCTION IT IS POSSIBLE TO ENTER ON THE CORRESPONDING PAGES

-Maintenance management



Main screen:

-50 hrs from reaching a prearranged number of working PTO (actually 500 to be set up) the light starts blinking

-when reached the prearranged number of working PTO the light becomes red. The equipment does not stop working

Maintenance screen for the CUSTOMER:

-By pushing the maintenance key it is possible to enter in the related menu

-It is possible to visualize:

Remaining hours before of the expiring period of the recommended maintenance programme

Overpassed hours after the expiring period of the recommended maintenance programme

Numbers of the maintenance checks made by Farid authorised workshop

3.1. B) External controls on the rear right side of the tailgate:

Compaction cycles and container lifting device controls, warning buzzer for the cab and emergency push-button, white light push-button. The position of the



push-buttons controls on the tailgate allows the operator to inspect the working area and at the same time to be enough distant from device in movement.

Besides that the push-buttons have a bigger diameter (40mm) and are back-lighted so to be safer during nights operations.



3.1. C) External controls on the rear left side of the tailgate:

Emergency push-button according to injury legislation and warning buzzer

3.1. D) External control, on the left front side of the body:

push-button controls for tailgate raising and ejection plate operations



3.1. E) External control, on the left rear side of the body:

push-button control for tailgate lowering. The activation of the control for lowering the tailgate causes the automatic re-entering of the ejection plate (approx.500mm from the end of the body) in the loading position and subsequently the complete closing of the tailgate.



To guarantee the safety of the operation, the n.2 push-buttons are approx.300mm distant and have to be activated contemporaneously.

All the pus-buttons having 40mm diameter can be activated easily with working gloves. All the labels on the push-button control are black on white back-ground.



The white light for night operations and the rotating beacons (n.1 on the front of the vehicle, n.2 on the rear part) for signalling that the equipment is working are also part of the electrical system of the compactor.

The rotating beacons can be activated with a “virtual” push-button in the cab display with related signalling light

The equipment is also provided with all the lighting and signalling devices required by the road rules, positioned so to allow to the driver the max.visibility during the loading and the unloading phases.