INNOVAL®
Value of Innovation

MOBILE HARBOR CRANE REVAMPING

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INNOVAL
Revamping

"We have developed an electronic system that completely replaces any native electronics on mobile harbor crane."

The idea of giving a second life to mobile harbor crane sytems starts from the increasingly difficult finding of electronic spare parts for MHC and to allow the end customer to use a crane for longer with high performance without having to buy a new one .

Benefits of New System

- New generation electronics
- Better modularity of movements
- Configurable with different components
- Always up-to-date software
- Remote monitoring of the crane
- Remote assistance from anywhere
- Usage customizations
- 24 months warranty
- Spare parts at low prices
- PI-D security protocol

INNOVAL
Software

CSV SW

It allows you to configure all the different resources of the native system at will in order to minimally intervene on the existing wiring

CONTROL SW

Fully parameterizable to allow great versatility in customizing the vehicle and the use of different types of sensors

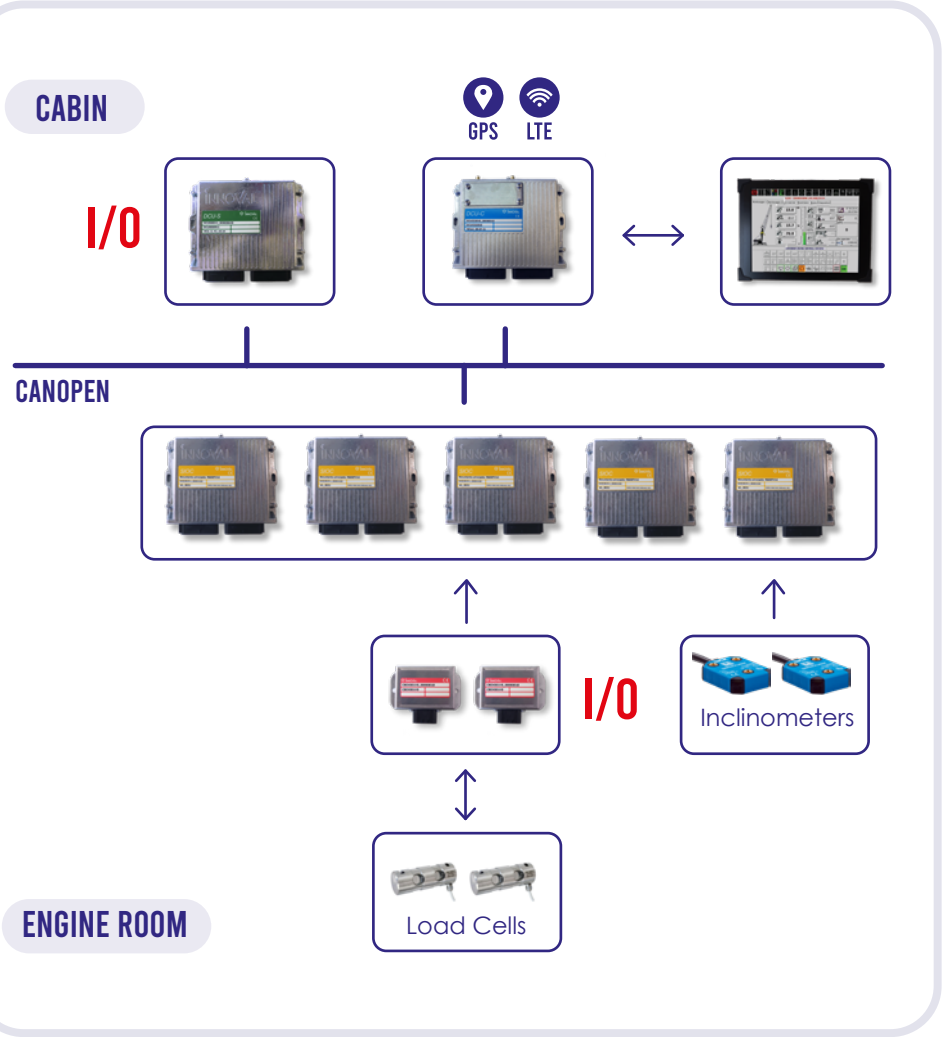
VNC SW

Allows remote control of the master unit display and allows quick and inexpensive assistance and software updates with minimum movement of technicians

iOM®

It allows the bidirectional transfer of all the data and files necessary for an optimal operational management of the crane

Master-slave System Architecture



The master unit is the ***DCU-C*** combined with an external VGA touch-screen display, is also used as a human machine interface.

All slave units are connected to the master via the ***CANbus*** and communication is based on the CANOpen protocol, allowing easy integration of further external devices.

The ***SIOC*** slave units are equipped with a suitable standard control software and are all identical and interchangeable: the identification on the CAN network is defined by the wiring through two specially made digital inputs. The same principle also applies to ***DCU-S*** slave units.

New Hardware

1. ***Display*** touch-screen VGA with integrated virtual keyboard

2. ***Right joystick*** for winch and implement movement control + 6 function buttons

3. ***Left joystick***, arm and rotation + 6 function buttons

4. ***Foot pedal*** for rotation / travel proportional braking (analog potentiometer)

5. ***Pulpit*** with:
   DCU-C Master Control Unit
   DCU-S Slave Control Unit
   Joystick for moving the stabilizers
   Ignition key of the system
   Emergency button of control cabin

6. ***LTE antenna***

7. ***LAN cable***

8. ***SIOC*** Slave Control Units

9. Service ***PC***

DCU-C V2

Slave Control Unit

The DCU-C V2 is a fully programmable automotive grade controller designed to be used as high performance master controller and Man-Machine-Interface (combined with an external VGA) in industrial vehicles.

FEATURES:

- Controlling of a color VGA Display with touch-screen
- Handling of external video signals
- High speed data communication (4G/LTE)
- CPU n.1: Microchip PIC24HJ128GP506 (40Mips, 16 bit Core, Internal memory: 8 kByte RAM, 128 kByte Flash)
- CPU n.2: Microchip PIC18F4580 (10Mips, 8 bit Core, Internal memory: 1.5 kByte RAM, 32 kByte Flash, 256 byte EEPROM)
- Full CAN 2.0B (11 bit or 29 bit ID), with programmable baud rate from 125 kbit/s to 1 Mbit/s, redundant CANOpen protocol (optional: J1939, ISOBUS)
- Serial interfaces: RS485, programmable baud rate from 1.2 to 115.2 kbit/s

SIOC

Slave PL-d Control Unit

The SIOC (Secure IO Controller) control unit is a programmable controller designed to operate in the automotive environment on systems that require a high degree of reliability and safety. It offers the possibility of realizing, with a master unit, master-slave systems of the distributed type with safety level PL-d (ISO EN 13849), without having to certify the application software, resident on the master unit, for that security level.

FEATURES:

- CPU n.1: Microchip PIC24HJ128GP506 (40Mips, 16 bit Core, Internal memory: 8 kByte RAM, 128 kByte Flash)
- CPU n.2: Microchip PIC18F4580 (10Mips, 8 bit Core, Internal memory: 1.5 kByte RAM, 32 kByte Flash, 256 byte EEPROM)
- Full CAN 2.0B (11 bit or 29 bit ID), with programmable baud rate from 125 kbit/s to 1 Mbit/s, redundant CANOpen protocol (optional: J1939, ISOBUS)
- Serial interfaces: RS485, programmable baud rate from 1.2 to 115.2 kbit/s

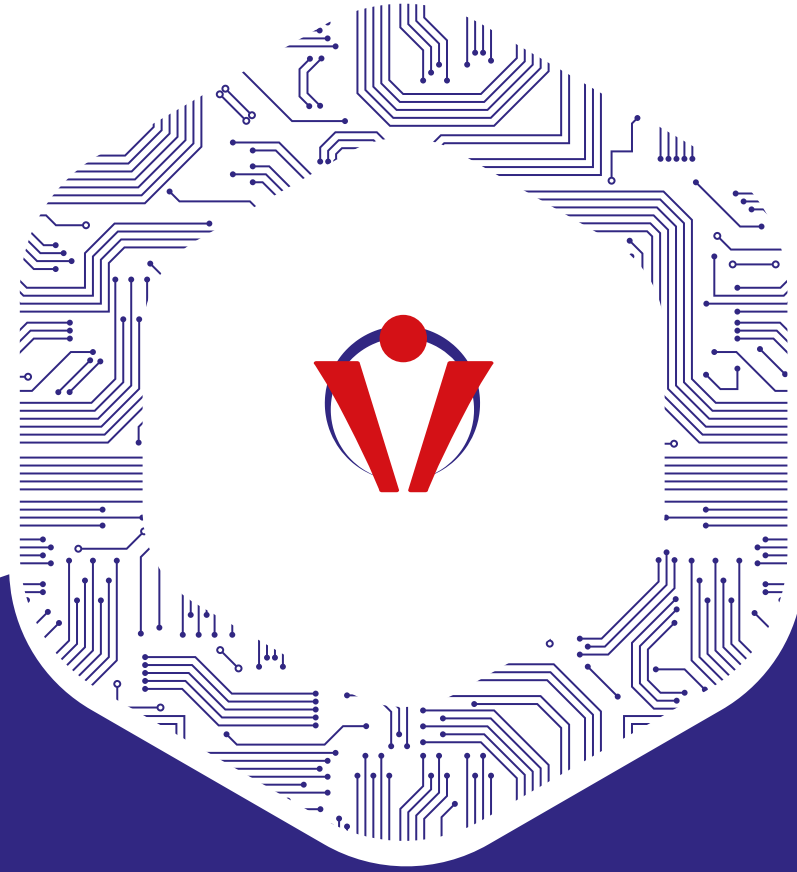
DCU-S

Slave Control Unit

DCU-S V.2 is a programmable controller designed for use on industrial vehicles, able to operate independently even in extreme conditions (humidity, temperature, dust, vibrations, etc.), both for reading the signals coming from the sensors of the machine, and for the control of the management of the actuators.

FEATURES:

- CPU: ARM Cortex M3 (LPC1518)
- Internal memory: 20 kByte RAM, 128 kByte Flash, 4 kByte EEPROM
- CAN Bus: full CAN 2.0B (11-bit or 29-bit identifiers), with programmable baud rate from 125 kbit/s to 1 Mbit/s, CANOpen protocol (optional: J1939, ISOBUS)
- Functions: Watch Dog, Brown Out, Undervoltage



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