NetRail

EMS Management system

NET RAIL

Divisione elco s.r.l.

NetRail

Introduction

Net Rail system is a kind of EMS having the goal of summing up the advantages of the traditional system to the management obtained through the communication net.

In particular:

- high reliability
- use of a min. number of bands for the management and diagnostic signals (max 2 bands)
- improving of flexibility
- improving of working devices
- precise and on time diagnostick
- lower costs of maintenance

NetRail

Description

NetRail system is based on the hardware and software principles of CanBus system.

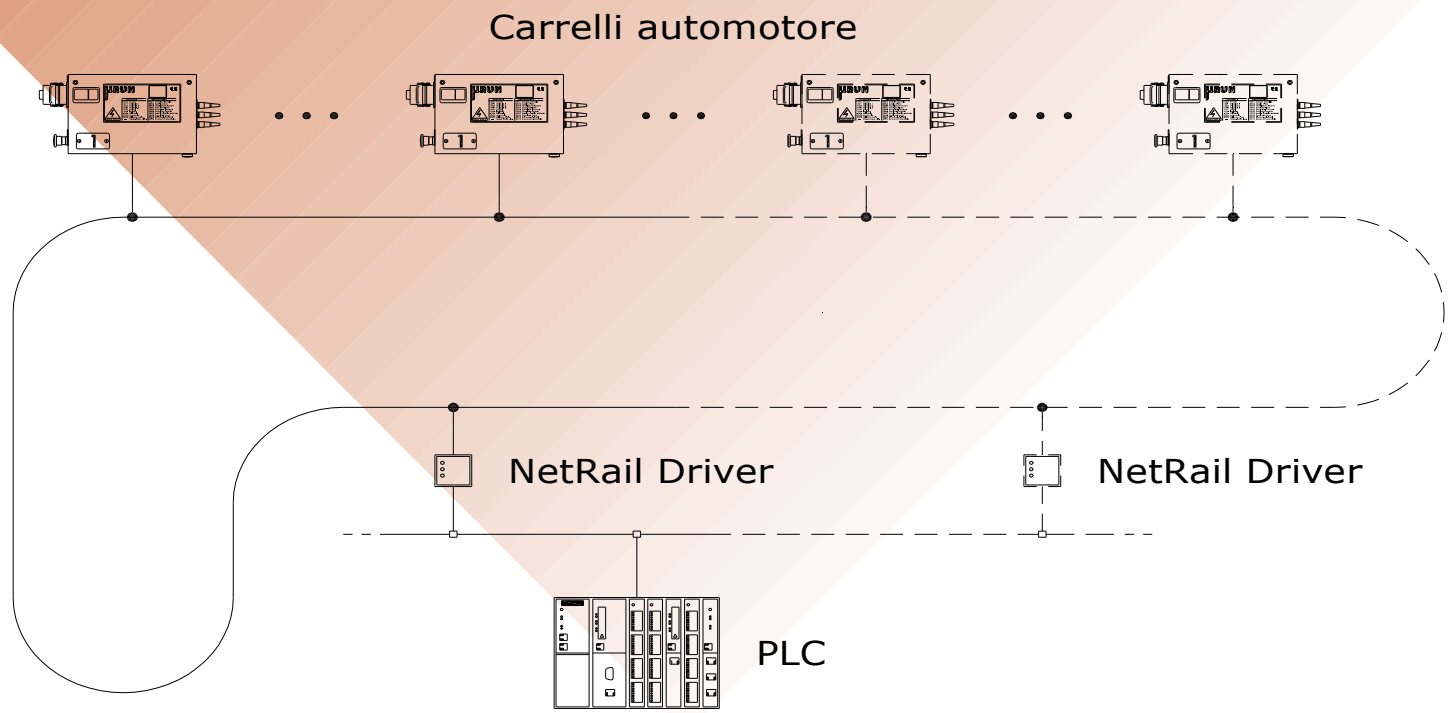
In detail, we respect the protocol rules adopted by constructors dealing with the constitution of communication frame, with the message decoding operations, with communication time and with the whole building of the system.

NetRail system is made up with the following elements:

- 2 communication ways for orders and diagnostic (2 bands to join to power ones)
- One or more ***DRIVERS*** in the principal earth cranes that create the right signal levels and interface net to the plant management logic (plc)
- Terminator at the end of communication line.

NetRail Description of the system - 1

As represented below, we can see the ***NetRail*** system. Driver ***NetRail*** is the interface between PLC and trolleys running on the plant.



NetRail Description of the system - 2

Depending on the length of the path, on the number of net working trolleys and on the quantity of infos to communicate, each plant can have one or more net segments.
Each net segments is managed by a ***NetRail DRIVER*** *(Master of segment)*.

In plants in which cables and path are bayond limits, the net architecture foresees the development of many net segments each controlled by a driver “master of segment”. Masters of segment are connected to the plant management logic through field bus or Ethernet line.

NetRail

Why NetRail ?

Reliable:

Like the traditional one with the positive aspect of having less bands/brushes and less joining cuts.

Flexible:

Each trolley is indipendently managed; you can modify parameters or function following your needs.

High performing:

Felexible system with high performances (it's possible to vary speed of each trolley in every position).

Diagnostic in details:

On time and with every detail.

NetRail Technical features

Main features of ***NetRail*** System***.***

- Communication speed: 50Kbps
- Communication time for each knot: min. 3msec *(1)*
- Max length of a net segment: 300 mts.
- Bus voltage: about 50V
- Voltage in bus: less of 1A

(1) Case of transmission on NetRail of 8 bytes by Master to Slave

Components

Components that form the ***NetRail*** are the following:

- Supply device (*NetRail* Supply)
- Master segment (*NetRail* Driver)
- *NetRail* Terminator
- *NetRail* Slave

The supply device gives the proper voltage to *NetRail*.

The NetRail Driver manages the direct communication with slaves (EMS trolleys). We must foresee a master for each net segment.

NetRail Terminator is a resistive not inductive load, used to balance the net. We must foresee a Terminator at the beginning and at the end of each Net segment.

The slaves are the EMS trolleys (net knots).

Summary

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- General
- Description of the system - 1
- Description of the system - 2
- Why NetRail?
- Technical features
- Components of ***NetRail***