

KONTRAC Vehicle Control Unit type VCU/Locomotives

MŽ 442 - Thyristorised Bo'Bo' locomotive for Macedonian Railways



VCU is a digital control system for control, regulation, measuring, sequencing, protection, supervision and communication tasks for retrofitted (modernized) locomotives.

It has been successfully used in applications such as modernization (thyristorization) of old diode locomotives where the following functions are supported:

- regulation system of the main electromotor drive
- control of pantographs and vacuum circuit breaker
- control of auxiliary services
- control of change-over switches
- control of traction contactors
- train circulation at ordered speed
- control of protection circuits
- slip protection and control of traction motor currents
- display of locomotive status
- indication of locomotive operating parameters
- safety control and driver vigilance ("dead man" function)
- man-machine interface
- communication with TCN/ UIC556 gateway



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HARDWARE

VCU cabinet consists of three 19" sub-racks with:

- electronic modules
- power supplies
- motherboard (buses)

The core of the VCU is a multi-processor VMEbus based sub-system (placed in one of the sub-racks) with different I/O modules.

The hardware is modular and adaptable to a wide range of customer requirements.

A complete range of the hardware modules consists of:

- Supply sub-system which consists of power supplies and its control circuits
- Conditioning units
- Conditioning and protection units
- I/O signals extenders
- Digital input units
- Digital output units
- Central processing unit(s)
- A/D and D/A conversion units
- Digital speed measurement unit
- V/F measuring unit
- Pulse triggering unit
- Synchronization unit
- Galvanic isolation units
- Pulse amplifier unit

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SOFTWARE

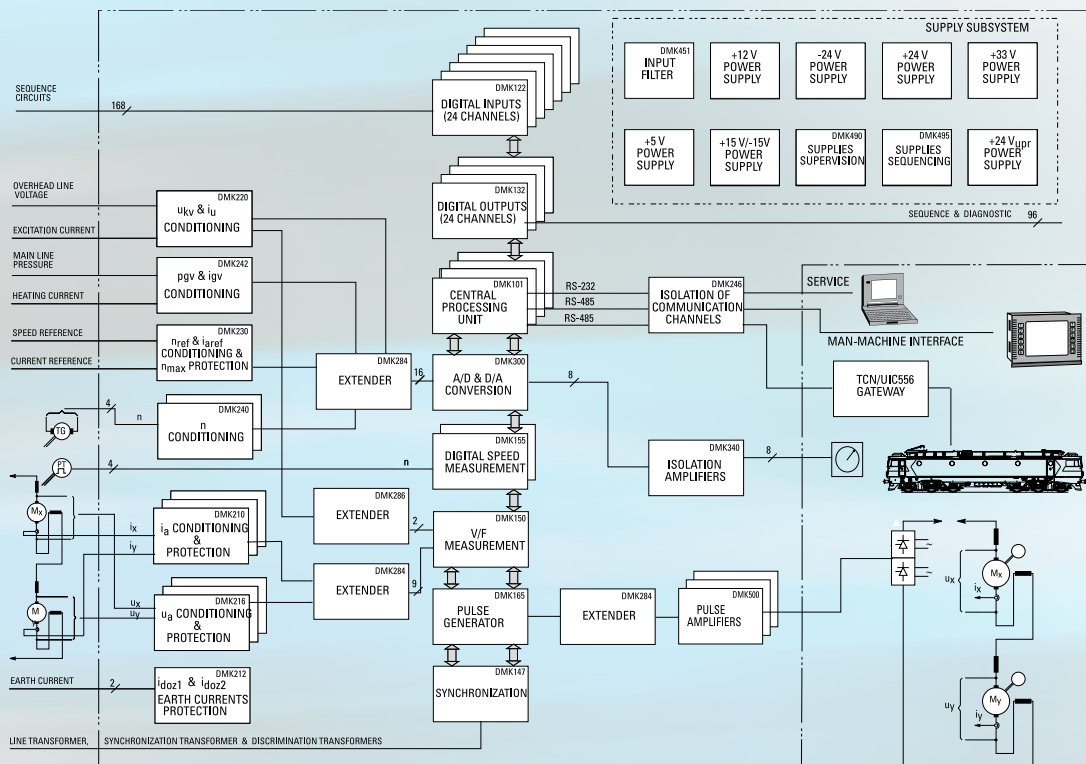
Consists of three main parts:

- system software (real time kernel and system programs) that are delivered together with central processing unit
- integrated development environment that gives the user the possibility to create desired application program
- control program (the union of application and system software)

VCU allows easy designing of a particular traction application because of a wide range of hardware modules available and flexible programming.

VCU has been successfully certified in exploitation and continuously improved and extended by new features.

THE COMPLETE RANGE OF VCU HARDWARE MODULES



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