

ELECTROMECHANICAL VARIABLE MESSAGE SIGNS

- Extreme wind-proof construction
- Intelligent control
 - Anti-icing design
 - Interchangeable prisms
- Rapid change of position
- Available in any size



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Traffic Management Systems
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ELECTROMECHANICAL VARIABLE MESSAGE SIGNS

Electromechanical variable message signs employing three-sided prism technology are traditional products of the company, in use for many years as irreplaceable components of the highway traffic system. The solid construction of the devices includes the customary elements such as a durable weight-bearing framework, three-sided prisms of extruded aluminum, electrical motor with worm transmission and an intelligent electronic controller.



Electromechanical VMS is formed of following parts:

- > 3-side prism system driven by the worm gear transmission
- > steel-aluminum construction harnessed to a reactive elastic suspension
- > optical prism position detector
- > controller cabinet with controller and communication modules
- > flasher driver with adjustable flashing frequency

Block diagram of electromechanical VMS is given in the Figure 1:

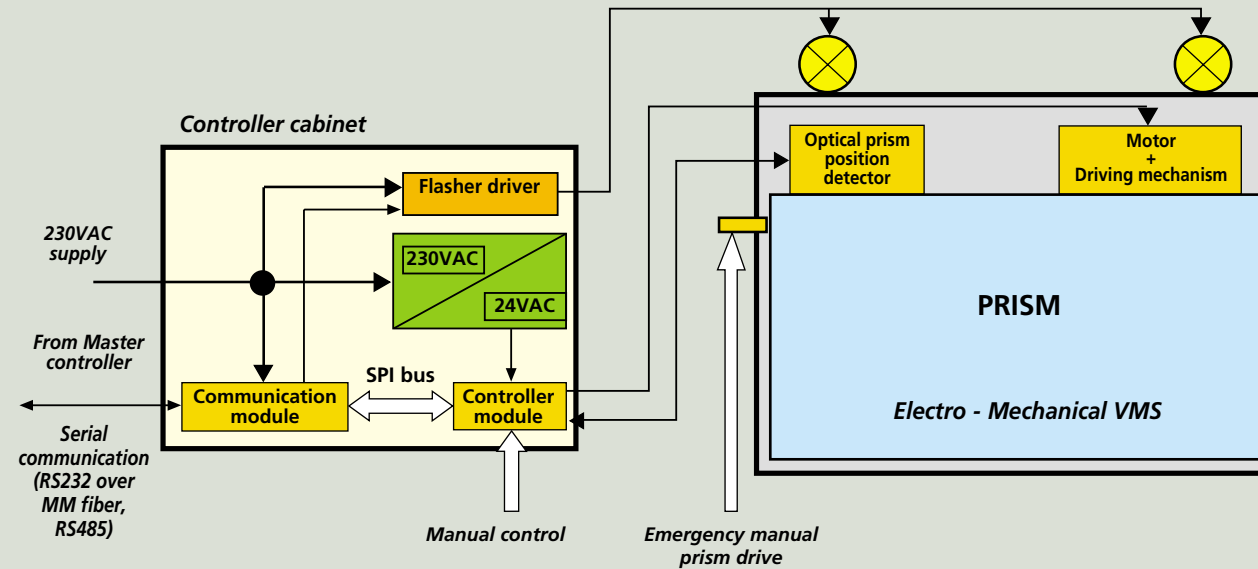


Figure 1 - Block diagram of the electromechanical VMS

Detection of prism position and rotation direction is performed with the optical prism position detector. Position and rotation detector enables decreasing of rotation speed and stopping in the desired position with the resolution of ± 1 degree.

The controller module is part of the controller cabinet.

The controller cabinet is formed of:

- > controller module
- > communication module
- > flasher driver
- > 230/24 V transformer

The controller module contains interfaces for motor driving and prism position reading. The communication module has 8-bit microcontroller which is used for performing two basic tasks - generating control signals for motor rotation and communication with the Main Controller (Remote Roadside Outstation).

Communication with the main controller is done using some common serial communication interface (RS232 over MM fiber or RS485). The communication module has implemented TLS communication protocol. The implementation of other protocols is also possible.

The flasher driver drives flashers usually placed above the electromechanical VMS.

Technical data of 3-side prism system

Prisms:	> extruded, three-sided, 100 mm wide (AlMgSi0,5) > each prism can be replaced without dismantling the rest of the device > covered with highly reflective foil
Transmission:	> worm gear transmission on drive shaft > adjustable prism bearings
Drive:	> worm gear motor DC 24V, IP 54 > manually in case of emergency

Technical data of steel-aluminum construction

Housing:	> welded profile construction (AlMgSi0,5) > housing plates (AlMg3) enables opening of entire device > service doors (AlMg3) are positioned at the top side > surface protection: exterior quality electro-statically powder coated
Carrier:	> welded steel construction (St 37-2) > attached to housing construction with springs and rods > zinc-plated
Springs:	> made of stainless steel > amortizes strong impact of wind

Controller module technical data

Technology:	> MOS-FET bridge for motor speed and direction control using PWM modulation
Error detection:	> motor over-current detection
Indicators:	> LED indicators on the front plate for: <ul style="list-style-type: none"> • prism position • +5VDC • motor direction
Manual control interface:	> push-button on the front plate for prism position change
Working temperature:	> -30° do + 85°C

Communication module technical data

Technology:	> 8-bit controller core with communication interfaces for peripherals
Power supply:	> 230 VAC
Communication interface:	> RS232 over fiber / RS485
Communication protocol:	> TLS
Indicators:	> LED for +5VDC indication and serial port communication indication
Working temperature:	> -30° do + 85°C