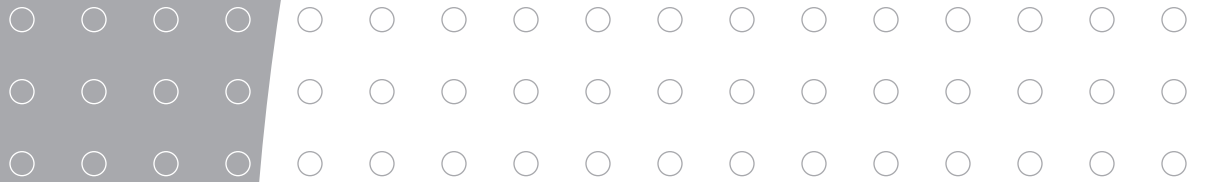




**TELEGRA**

*Smart Traffic Management®*



**PRISMATIC VARIABLE MESSAGE SIGNS**

« SIGNS OF INTELLIGENCE® »



## Prismatic Variable Message Signs

**AFFORDABLE. RELIABLE. ROBUST.**

Using three-sided prism technology, Telegra's Prismatic Variable Message Signs (VMS) can instantaneously deliver critical, easily changeable messages on any roadway – at a lower cost than LED signs.

Like all Telegra products, our prismatic signs are created specifically for the transportation industry and feature the most robust and reliable engineering on the market today. Regardless of wind, ice, snow, heat or other environmental conditions, you can easily place Telegra's prismatic signs wherever they are needed.

### **OUR PRISMATIC SOLUTIONS OFFER:**

- » Robust construction
- » Low cost of ownership over extended lifetime
- » Simple operation and maintenance
- » Innovative suspension – designed for operation in high wind area
- » Automatic return to the default position
- » Precise positioning of the prisms, with resolution of  $\pm 1$  degree
- » Rapid change of position
- » Intelligent control

That's why Telegra's prismatic sign products are as practical – and as critical to roadside safety – as they are affordable.

## NEW TECHNOLOGY EMPOWERS A ROADSIDE FAVORITE

Mechanical variable message signs are only effective when messages can be changed quickly with 100% accuracy. And that's just what Telegra's prismatic VMS products allow you to do.

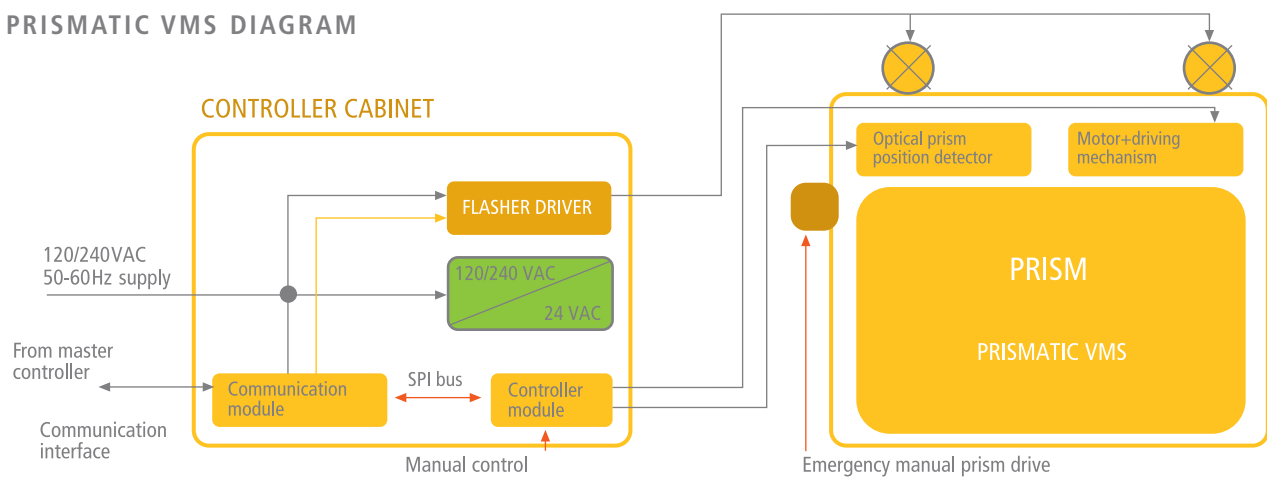
Our prismatic VMS products use an optical prism position detector to precisely detect prism position, rotation direction and the necessary speed to accurately position the sign.

Messages may be changed remotely via an array of standard interfaces including wireless and Bluetooth or can be changed manually on site.

Other important features include:

- » Robust weight-bearing framework
- » Durable steel-aluminum construction with enhanced prism-bearing mechanism
- » Three-sided prism system driven by the worm gear transmission
- » Applied optical positioning system to detect a system error and perform recovery via automatic calibration and quick positioning
- » Controller cabinet with controller and communication modules
- » Flasher driver with adjustable flashing frequency

### PRISMATIC VMS DIAGRAM

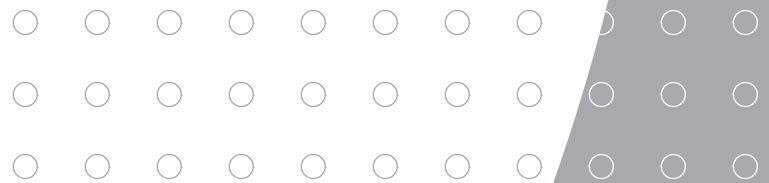




## ADVANCED COMPONENTS PROVIDE SUPERB PERFORMANCE

A durable controller cabinet contains the crucial components needed to operate Telegra's prismatic VMS products. Key components include the controller module that contains interfaces for motor driving and prism position reading. Additional components include a:

- » Communication module with an 8-bit microcontroller
- » Power control with 120/240 VAC, 50-60 Hz transformer
- » Cabinet climate control
- » Flasher driver to activate flashing warning lights typically placed above the sign





## CERTIFICATIONS

Telega's Prismatic VMS products meet and often exceed all international standards for the most stringent mechanical and environmental requirements. Our products are UL and CUL listed, and approved for EN 12966-1. They also comply with:

- » NEMA TS-4, NTCIP, and ITE requirements
- » EN 287, ISO EN 131 (GMAW process) and ISO EN 141 (GTAW process) for cabinet welding and fabrication
- » TUV, CE, RoHS, BAST and ISO 9001:2000 standards
- » ANSI, IEEE, AASHTO, and AWS certification criteria
- » IEC60068-2-64 and MIL-810C standards for vibration and shock endurance
- » IEC60950-1, HD.384.4 and HD.638 safety standard
- » IEC60529 standard for enclosure protection



American Welding Association | ISO 9001:2000 Certification

Telega is a member of AAAE, AASHTO, ATSSA, IBTTA, IEEE, IMSA, IRF, ITE, ITS America, NEMA, TEAM Florida, TEAM Texas and TRB

## COMMUNICATION MODULE TECHNICAL DATA

Communication Interface	RS485/422/232, Ethernet, GSM/GPRS, Bluetooth, wireless; SM/MM fiber, twisted Cu pairs, radio
Communication Protocol	TLS, PROFIBUS, MODBUS, TCP/IP (others on demand)
Indicators	LED for +5 VDC indication and serial port communication indication
Power Supply	120/240 VAC, 50-60 Hz
Technology	8-bit controller core with communication interfaces for peripherals
Working Temp.	-22° to +185° F

## CONTROLLER MODULE

Environmental Monitoring	Temperature control system with adjustable temperature sensor switch and heater
Error Detection	Motor over-current detection; self-recovery in case of mechanical malfunction
Indicators	LED indicators on the front plate for prism position +5 VDC motor direction
Manual Control Interface	Push-button on the front plate for prism position change; LED Indicators
Technology	MOS-FET bridge for motor speed and direction control using PWM modulation
Working Temp.	-22° to +185° F

## STEEL-ALUMINUM CONSTRUCTION

Carrier	Welded steel construction (St 37-2) Prism-bearing mechanism Zinc-plated
Exterior Finish	Housing and service doors feature electrostatic powder coating with chemical preparation using TIGER Drylac matte (based on polyester)
Housing	Welded profile construction (AlMgSi0,5) Housing plates (AlMg2/3) enables opening of entire device Service doors (AlMg2/3) are positioned at the top side Surface protection: exterior quality electrostatically powder coated
Mechanism	Enhanced prism-bearing mechanism which simplifies mechanical construction and operates efficiently
Transient Protection	Varistors, fuses, opto-couplers, suppressors, gas dischargers

## THREE-SIDED PRISM DATA

Drive	Worm gear motor DC 24 V, IP 54 Manual operation available in case of emergency
Electromagnetic Interference	The Prismatic VMS meets electromagnetic interference immunity levels defined in EN 50293:2000 standard: EN 55022: terminal disturbance voltage, class: B EN 55022: radiated emissions, class: B EN 55014-1: terminal disturbance voltage, discontinuous, clicks EN 61000-3-2: limits for harmonic current emissions, class: A EN 61000-3-3: limitation and voltage fluctuations and flicker low voltage supply system EN 61000-4-2: immunity to electrostatic discharge; failure criteria: B EN 61000-4-3: immunity to radiated electromagnetic fields; failure criteria: A EN 61000-4-4: immunity to fast transients (burst); failure criteria: B EN 61000-4-5: immunity to surges; failure criteria: B EN 61000-4-6: immunity to conducted high frequency interference; failure criteria: A EN 61000-4-11: immunity to voltage drops, short interruptions and voltage variations; HD 638 point 4.5
Power Requirements	120/240 VAC, 50-60 Hz Low power consumption
Prisms	Extruded, three-sided; standard five inches wide, with additional dimensions available (AlMgSi0,5) Each prism can be replaced without dismantling the rest of the device Covered with highly reflective foil
Sign Character Heights	Continuous graphics display using retro-reflective film
Transmission	Worm gear transmission on drive shaft; adjustable prism bearings

## OTHER SPECIFICATIONS

Manufacturer Experience	More than 20 years
Options	Flashing signals installed on sign to alert drivers
Warranty	Two years on products and services

