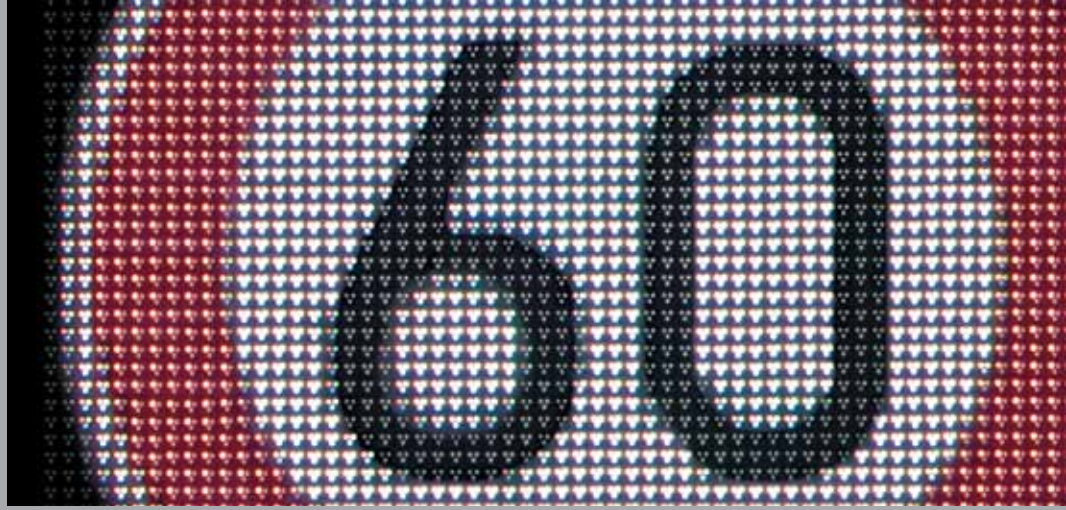




TELEGRA

SMART TRAFFIC MANAGEMENT



COMPLETE INTEGRATION OF ADVANCED TRAFFIC MANAGEMENT SYSTEM

TELEGRA'S CORE SUBSYSTEMS AND PRODUCTS

FULLY PROGRAMMABLE LED DISPLAY - FULL COLOR OR MONOCHROMATIC

- Conforms to most stringent European and US standards (EN12966 certified and NEMA-TS4 compliant)
- Low cost of ownership over extended lifetime
- Simple to operate and maintain
- Distinctively clear picture and text display due to applied anti-aliasing
- Failsafe operation increases safety in traffic applications
- Improved serviceability - quick module replacement with minimized number of spares
- Any interface, any protocol any transmission media
- Wireless local control, set up and fault diagnostics
- Versatile design and display options - any size, any color with low different module count

GENERAL

BASIC FEATURES



The technologically most advanced products in the line of LED based variable traffic signs – full color or monochromatic.

Fully programmable, they can display any symbol or text with display intensity adjusted to the outdoor light conditions in any part of the world.

Great visibility and uniformity increase driver safety as they display uniform and clear, easy legible text, clear and uniform pictures similar to those on commonly used static signs.

Capable of storing large number of symbols in non-volatile memory, while any other additional symbols can be downloaded to the sign using any of wide range of available communication interfaces. Texts in multiple downloadable True Type fonts in various sizes and alignment options can be displayed.

Applied optical and mechanical design insures specified visibility and continuous reliable operation in any climate and environment.

Failsafe – operator knows whether sign will operate correctly when switched on, even if not used for long time.

- Extended display lifetime due to high optical efficiency allowing low current LED drive
- Low picture degradation during exploitation due to low LED drive current
- Low current LED drive without multiplexing for high end markets
- Low current LED drive with multiplexing for price conscious markets
- High contrast ratio provides great visibility and low current LED drive
- Highly recognizable and outstanding uniformity of displayed symbols
- Independent control, adjustment and reporting on every single LED
- Error detection in both “off” and “on” state for each pixel

MAIN COMPONENTS



- Light intensity adjustable continuously from 0 to 100% in 1% steps
- Capable of storing up to 255 various symbols
- Ability to display symbol sequences at 10 symbols per second rate
- Able to display characters in true type fonts
- Text displaying with smoothening (anti-aliasing)
- Modular design, ability to combine various dimensions, color combinations and pixel raster as per specific requirement
- High mechanical protection
- Internal measurement and sign temperature alert
- EMC immunity



Main Components of Fully programmable LED Display:

- Housing designed for outdoor exploitation: back and front panel access/service door materials adopted in accordance with EU norms (AlMg2/3, AlMgSi0,5)
- Extremely durable self cleaning front panel lenses
- Intelligent Control and Drive Modules
- Power supply Modules (AC-DC SMPS)
- LED's mounted on Printed Circuits Board
- Ambient (External) Light Intensity Measuring Module
- Intelligent Climate Control (multiple temperature, humidity sensors and efficient ventilation system)
- Communication Modules (RS485/422/232, Ethernet, GSM/GPRS, Bluetooth) for all transmission Media (SM/MM fiber/copper cables & Wireless)

TECHNICAL DATA



AC Supply:	Single phase 120/240 VAC, 60Hz and 230 VAC, 50 Hz (-15% to +10%) or Three phase 380 VAC, 50 Hz (-15% to +10%)	
DC Supply:	12 - 48 V	
Over-voltage/current and Surge Protection:	Varistors, fuses, opto-couplers, suppressors, gas dischargers	
Pixel pitch	12 mm minimum	
Classification according to EN 12966:	LED Intensity (Luminance):	L3,L3(*),L3T
	Luminance ratio:	R2-R3
	Beam width:	B1-B7
	Colour class:	C2
	Temperature:	T1, T2,T3 (-40 - +60)
	IP protection:	P2, P3 (IP55 - IP66)
	Communication Protocols:	TLS, PROFIBUS, MODBUS, TCP/IP, XML-OPC, NTCIP (others on demand)
LED Monitoring and Test:	Continuous, for each LED separately, testing of both ON and OFF state	

STANDARDS AND CERTIFICATES

Standards:

Teagra's Programmable LED VMS products meet and often exceed all international standards for the most stringent optical, mechanical and environmental requirements. Our products are UL and CUL listed, and approved for EN12966, TÜV, CE, RoHS, BAST and ISO 9001 standards. Teagra programmable LED products also comply with:

- NEMA TS4, NTCIP and ITE requirements
- ANSI, IEEE, AASHTO and AWS certification criteria
- IAC6008-2-34, IEC60068-2-37 and MIL-810C standards for vibration and shock endurance
- IEC60950-1, HD.384.4 and HD.638 safety standard
- IEC60529 standard for enclosure protection

Certificates and Third Party (Independent Laboratory) Test Results

- Optical performance certified according to EN-12966-1-Variable, vertical road traffic signs Part 1: Variable message signs
- Vibration tests according to IEC 60068-2-34, IEC 60068-2-37
- Temperature requirements
 - Cold in accordance to IEC 60068-2-1
 - Dry heat in accordance to IEC 60068-2-2
 - Humidity in accordance to IEC 6006-2-30
 - Temperature range in accordance to IEC 60068-2-14)
- Degrees of protection provided by Enclosure in accordance to IEC 60529
- General requirements – Information technology equipment – Safety in accordance with IEC 60950-1
- Electrical safety: Requirements for electrical installations in accordance to HD.384.4 and HD.638
- EMC testing in accordance to:
LED signs meet electro-magnetic interference immunity levels as defined in EN 50293:2000:
 - EN 55022: Terminal disturbance voltage, Class B
 - EN 55022: Radiated emissions, Class B
 - 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
- Environmental standards for shock in accordance to MIL-810C

European
Certificate of
Conformity



Quality System According to
EN ISO 9001:2000
Certificate Registration
No. 04 100 20021575

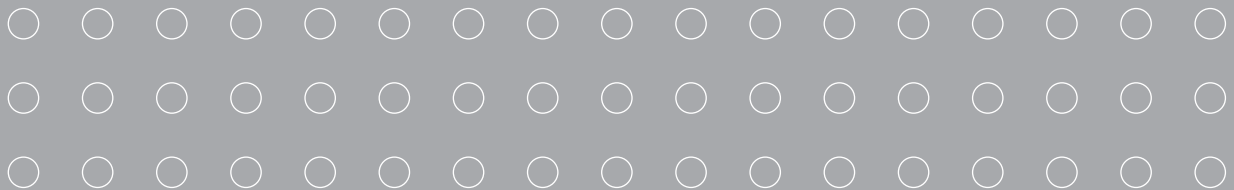


Croatian Quality

Member of:



GRAA award:



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