



TELEGRA

SMART TRAFFIC MANAGEMENT



DYNAMIC MESSAGE SIGNS

NEXTGEN^{SERIES}

Modularized, Water/Sand Proof - IP67/NEMA 6
No Heating, No Ventilation, No Welding
Tool-Free Servicing
Limitless Size
NEMA TS4, NTCIP, EN12966

STANDARD^{SERIES}

Completely Customizable
Front And Rear Access, Walk-in Housing
NEMA TS4, NTCIP, EN12966

NEXTGEN SERIES



QUANTUM LEAP IN DYNAMIC MESSAGE SIGNS TECHNOLOGY

- ✓ **Hermetically Sealed**
- ✓ **No Need For Active Heating/Cooling**
- ✓ **Modular - Fast Delivery**
- ✓ **Maintenance Free ***
- ✓ **Compliant To The Strictest Requirements**
- ✓ **Accepted By Authorities in US and Worldwide**

The NextGen series of LED Dynamic Message Signs (DMS) are lightweight, standard, modularized and hermetically sealed panels that can be assembled to create any size DMS. Its innovative design simplifies maintenance and eliminates need for heating and ventilation.

* SIMPLIFIED MAINTENANCE

- **Hermetically sealed sign housing** - extended MTBF of sign panel (>40,000 hrs expected)
- **Superior performance in cold climates** - front face defrosting system
- **Easy replacement of any sign segment**
- **Quick and simple repair** - only one replaceable module in display matrix

IP67/NEMA 6 technology provides optimum working conditions for all active components. The high efficiency and low current optical system ensures no deterioration of LEDs over the DMS lifetime.

There are no consumable parts, no filters, and no ventilation fans.

Modular construction allows replacement of single display panel in case of damage. The LED module is the only active component in the sign panel that needs replacement, which can be completed in a few short minutes without tools (optional).

FLAWLESS DESIGN AND EXECUTION

- **Tested for minimum 10-year durability** by accelerated weathering test methods
- **Superior resistance to loads and deflections** - reinforced die-casted aluminium
- **Superior impact resistance** - front face reinforced on multiple points
- **Welding process eliminated**
- **Industrial grade electronic components**
- **Completely automated production** - low error margin
- **Superior vibration performance** - no internal wiring

Experience with customers and their operational problems in different climates and environments from around the world is reflected in the design and production process of these products.

NextGen technology is certified through the highest grades in performance tests and operates in the most demanding environments worldwide since 2012.

NEXTGEN SERIES



TROUBLE FREE REPAIR

Some of the most common headaches related to repairs are:

- What is the cost of traffic regulation during maintenance?
- How long does it take to repair a faulty LED module?
- What tools are required?
- What level of education is required by a maintenance technician to perform it?
- How many spare parts does a maintenance technician need during repair process?
- How big of problem is it if a rock damages front face of a big display?

They are all solved by the design of NextGen technology:

- Power supplies and controller can be located inside roadside cabinet or DMS panel
- Extraordinarily fast and straightforward repair process
- No tools required
- Only basic training needed
- Sign module is the only replaceable component in sign display matrix
- Each segment is replaceable independently in case of mechanical damage

ULTRA LOW POWER CONSUMPTION

- **Ventilation and heating are not required** for operation under full load in wide temperature range of -40 to +165°F (-40 to +74°C)

- **Maximized light output using latest generation lens technology** - NextGen newest optical lens technology ensures low current drive of LED (5-20% of nominal current), significantly reducing its aging.

O&M SAVINGS UP TO 60%



By using NextGen technology, Operation & Maintenance (O&M) costs estimated savings may reach 60% comparing to traditional DMS technologies.

USDOT ITS costs database states that operation and maintenance (O&M) cost of average installed DMS reaches up to 5% of its capital cost annually (source: www.itscosts.its.dot.gov).

SPECIFIC ADVANTAGES OF NEXTGEN TECHNOLOGY

- **Limitless size of viewing area**
The structure of NextGen panel consists of aluminum frame and LED modules allowing extreme flexibility in sizing and transport of panels. Page 5 photo shows a project with 25-meter-long continuous DMS viewing area.
- **Fast production**
Pre-manufacturing of LED modules and easy assembly of DMS allows shorter production cycles comparing to traditional technology.

STANDARD SERIES



STANDARD EXECUTION

Standard Series stands for execution of DMS housing in traditional design of cabinet with front or rear access or walk-in housing.

Our capability to customize any desired execution, dimension and matrix combination resulted so far in more than 300 different models of Dynamic Message Signs. Different executions are delivered in more than 10,000 units (purpose, size, matrix, color, pixel pitch).

OFFERING OF SIZES, SYMBOLS, HOUSING EXECUTIONS

25 years of experience in DMS design brings unlimited possibilities of customizations in materials, executions, functional characteristics and applications such as:

- **Tunnel blank-out and matrix signs**
- **Lane Use, Lane Control, Speed Limit blank-out or matrix signs**
- **Warning and Information blank-out or matrix signs**
- **Variable/Dynamic Message Signs**
- **Aluminum or Stainless-Steel housings with 2, 3 or 5mm thicknesses**
- **Different options of internal and/or front face heating and thermal insulation**
- **etc**



WALK-IN HOUSINGS

Our walk-in Dynamic Message Signs are produced since 2007. Walk-in technology is approved and accepted by reputable authorities in US and Europe.

EXTREME ENDURANCE, RELIABLE PERFORMANCE

Standard Series LED signs are installed and operate in extreme environments (temperature -40 to $+165^{\circ}\text{F}$, humidity 0-100%, AASHTO wind extremes, vibrations, ice, snow, freezing rain, blowing sand).

Advanced diagnostics of all Dynamic Message Signs functionalities includes the status of each component, cold state LED testing, and testing of fans.

Optical performance exceeds the highest optical classes according to NEMA TS-4 and EN12966.

Unique certified Press Fit[®] self-cleaning and easy to replace lens cap system provides distinctively clear, recognizable, focused to the driver and uniform messages - easy to recognize in distances ranging from 50 to 400m.

Controller supports most widely used protocols (NTCIP, TCP/IP, PROFIBUS, MODBUS, XML-OPC, TLS, etc.) and custom protocols are available on demand.



INTELLIGENT LIGHT BEAM WIDTH SHAPING

NEMA TS-4 and European EN-12966 standards are created to define the most usable light beam shapes to be used in traffic applications. Typical light shape for highway applications is usually NEMA class e or EN12966 class B6 (30° horizontally and 10° vertically). In Telegra DMS optical system raw LED light output is shaped by proprietary lens system.

LOW REFLECTION FRONT FACE

Each DMS front face is coated with our proprietary coating that achieves extremely low reflections (typically, less than 700 cd/m2).

Low reflection enables our signs to achieve superb contrast ratio by using minimum current through LEDs.

CUTTING EDGE PERFORMANCE

THE ULTIMATE MISSION IS SAFETY

- **Superb legibility** - for drivers travelling at higher speeds
- **High resolution** - clarity identical to static signs
- **Fast reading** - true-type fonts embedded
- **Faster recognition** - applied anti-aliasing software algorithms smoothen images and text
- **Smart intensity control** - luminosity intelligently adjusted to ambient lighting
- **Fully controllable matrix** - flexibility to transfer any message

SIGN CONTROLLER

Our Sign Controllers provide almost limitless customization options that support different models of DMS technology. They are available in three executions:

- **Rack mounted DMS Controller** - for ITS cabinets with 19" racks, for large and small DMS panels
- **DIN rail mounted DMS controller** - for ITS cabinets or mounted inside DMS/VSM cabinet, for large and small DMS panels
- **Nano Sign Controller** - for small DMS or blank-out signs

All sign controllers can be loaded with firmware to support almost all existing protocols and interfaces in ITS industry, such as NTCIP, TLS FG4, Modbus TCP, Profibus, XML-DA, Simple ASCII, I/O-interface, etc. Custom protocols can be supported on demand.

Built-in web interface inside sign controller allows extensive diagnostic and control options of LED panel and controller itself using standard web browsers.

MULTIPLE QUALITY CONTROLS

In production of NextGen, each sign module is functionally tested while submerged in water to ensure perfect sealing. Each stage of production carries its own quality control mark and is traceable at any moment. Entire electronics are functionally tested in extended temperature range before final assembly. Prior to delivery, each sign is burn-in tested for a minimum of 168 hours.

TECHNICAL FEATURES AND STANDARDS

	NEXTGEN SERIES	STANDARD SERIES
Sign display	Sign display is assembled with LED modules; LED modules form the LED matrix; Welding is not used in production of DMS	Traditional "cabinet" design of sign housing constructed of bended and welded aluminum sheets and profiles, with LED modules mounted inside the cabinet
Sign controller and power supply location	Can be installed on sign panel or in roadside cabinet	Can be installed on sign panel or in roadside cabinet
Maintenance access	Front and rear access	Front and rear access Walk-in
LED module dimensions	720,0 x 360,0 x 56,6 mm 360,0 x 360,0 x 56,6 mm	Completely customizable as per project requirement
Pixel color	Full color (RGB)	Full color (RGB), Amber, White, Green, Red
Pixel pitches	20 mm On demand: 15; 18,5; 22,2; 27,8 mm	12; 15; 16; 20; 22; 25; 30 mm Others available on demand
Optical system	Lens in front of LEDs	Lens in front of LEDs
Optical performance according to NEMA-TS4/ EN12966	<p>Color: C2</p> <p>Beam width: Class E according to NEMA-TS4; Class B6 according to EN12966 (+-15 degrees horizontally, +0-10 degrees vertically). Class B7 available for STANDARD Series</p> <p>Minimum Light intensity: L3 According to EN12966 and NEMA-TS4 Yellow 7440 CD/m² / Amber 9200 CD/m²; White 12400 CD/m²; Green 3720 CD/m²; Red 3100 CD/m²; Blue 1240 CD/m²</p> <p>Contrast ratio: R3 According to EN12966; exceeds NEMA-TS4 requirements</p>	
Sign durability	<p>All sign panel structural components exposed to environmental influences are environmentally tested using accelerated weathering ISO standard to verify minimum 10 year durability</p> <p>All sign panel materials are certified to durability compliance with EN12966 standard</p> <p>Vibration test, EN60068-22-64; test Fh, Class AJ2</p> <p>Change of temperature, IEC 60068-2-14 - classes T1, T2 and T3</p> <p>Damp heat, EN 60068-2-30 - classes T1, T2 and T3</p> <p>Impact resistance, EN 60598-1</p> <p>Water ingress, EN 60529 - class x7</p> <p>Dust ingress, EN 60529 - class 6x</p> <p>Corrosion test (neutral salt spray test), EN ISO 9227</p>	
Front face coating	Certified for durability according to ISO 11997 (corrosion), and according to ISO 4892 (accelerated weathering), which guarantees at least a 10 year front face lifecycle	
Environmental protection	IP67 / NEMA 6	Up to IP66 / NEMA 4X
Heating and ventilation	Not required in full temperature range -40...+74°C; (-40...+165°F)	Depending on location and purpose, may be required for operation in full temperature range -40...+74°C; (-40...+165°F)
Ambient temperature range	Exceeds Class T1, T2 and T3 According to EN12966 (-40...+74°C; -40...+165°F)	
Structural performance	Designed and constructed to comply with AASHTO requirements. Certified EN12966 classes: up to WL9, DSL4, PLO, TDB2, TDT0	

TECHNICAL FEATURES AND STANDARDS

	NEXTGEN SERIES	STANDARD SERIES
Front face defrosting system	Available	Available
Communication and functionality	Conforms to all relevant subsets of NTCIP standards TLS FG4; ModBus TCP; Profibus; XML-DA; Simple ASCII; I/O-interface Others on demand	
Servicing interface	Web based over Ethernet; Ethernet port located on sign controller located in cabinet by the gantry; No need to access sign panel itself	
Functionality of servicing interface	Status and error information; Control options; Configuration options; Log status	
Firmware upload	Through sign controller's Ethernet port	
Electrical safety	Compliant with NEMA TS4 and EN12966; Power supply units and all electric components operating at voltages higher than 24VDC are UL listed	
Applicable standards	EN12966; NEMA-TS4; AASHTO; NTCIP, NEC	

MODELS AND APPLICATIONS

SERIES	6200	6400	6600	6800	5500	5000	5000
Technology / Execution	NextGen SlimFrame		NextGen		Standard Technology		
	Front	Rear	Front	Rear	Walk-in	Front	Rear
Service Access							
Extra Large Overhead VMS/DMS			✓	✓	✓	✓	✓
Large Overhead VMS/DMS	✓	✓	✓	✓	✓	✓	✓
Small Overhead VMS/DMS	✓	✓				✓	✓
Large Side-Mounted VMS/DMS	✓	✓	✓	✓		✓	✓
Small Side-Mounted VMS/DMS	✓	✓				✓	✓
Highways, Freeways, Urban Roads	✓	✓	✓	✓	✓	✓	✓
Tunnels	✓	✓	✓	✓		✓	✓
Lane Use / Lane Control	✓	✓				✓	✓
Variable Speed Limit	✓	✓				✓	✓
Managed Lanes	✓	✓				✓	✓
Travel Times / Embedded Signs	✓	✓				✓	✓
Parking Guidance / Space Availability	✓	✓				✓	✓
Multi Sign Systems	✓	✓				✓	✓
Toll Facilities	✓	✓				✓	✓



Executive elements of any traffic management system, visual signals must be reliable and legible under all conditions.

Often one of the most expensive parts of system, they need to guarantee a certain return on investment.

Telegra manufactures rugged, compliant to strictest norms, endlessly customizable and practically no-maintenance DMS for that purpose.