



TELEGRA

Smart Traffic Management®



LED LANE USAGE SIGNS

« SIGNS OF INTELLIGENCE® »



LED Lane Usage Signs

POINTING THE WAY AHEAD WITH
ADVANCED TECHNOLOGY.

Telegra LED Lane Usage Signs offer the most visible and reliable method to identify traffic direction for tunnels, open roads or toll booths. With sharp, clear symbols, our LED Lane Usage Signs provide precise and unambiguous directional messages to motorists, ensuring safety on roads and in tunnels.

True to Telegra's commitment to using the latest technology, our Lane Usage Signs employ the same superior LED technology as our other LED products. They also feature an advanced fixed pictogram technology, in which LED chains form different fixed pictograms on the front plate. This allows you to install LED Lane Usage Signs you can rely on. For motorists, it means clear, succinct directions to guide them on your roads and in your tunnels. Telegra's LED Lane Usage Signs offer:

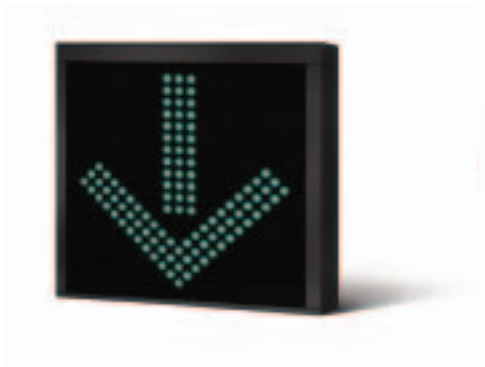
- » Engineering of the highest quality
- » Exceptional durability and longevity
- » Remote control on roads or tunnels from the Traffic Management Center
- » Control above toll booths from the management center at the toll station
- » Intelligent error detection
- » Clear and easily recognizable pictograms
- » Versatile design and display options
- » Multiple interfaces, protocols and communication choices
- » Fast, easy and reliable control
- » Modular design for easier maintenance
- » Proven reliability

Backed by more than 20 years of experience and 3,000 successful installations worldwide, Telegra's LED Lane Usage Signs are approved, tested and certified by all relevant international standards. Telegra is the *only* producer of intelligent traffic management solutions that's 100% dedicated to the transportation industry. That means our LED Lane Usage Signs, like all Telegra products, are designed to meet your specific needs.

DIRECT YOUR ATTENTION TO INDUSTRY STANDARD FEATURES

Telegra LED Lane Usage Signs are manufactured with the latest generation of LEDs so they provide high light intensity at the lowest power consumption rates. Basic features include:

- » Independent control, adjustment and reporting on every single LED or LED chain
- » Error detection and event logging for each pixel or chain in both "on" and "off" states
- » LED drive with or without multiplexing
- » Specially designed optical system applies lower current through the LED to increase light intensity, improving LED light output and efficiency while significantly increasing LED life
- » Enhanced graphic image quality ensures visibility under the most adverse weather and environmental conditions
- » State-of-the-art prismatic optical system delivers superior clarity and high contrast ratios while optimizing light output, LED performance and longevity
- » Measurement and monitoring of internal environmental conditions with safety alerts
- » Adjustable light intensity from 0 to 100% in 1% increments
- » Customized dimension, color combination and pixel pitch options
- » Certified for highest optical requirements according to EN 12966 and TS4
- » EMC immunity
- » High mechanical protection



ESSENTIAL COMPONENTS LEAD TO LONG LIFE

LED Lane Usage Signs from Telegra are specifically designed for outdoor environments, no matter how extreme. Back-panel service doors make maintenance easier, and highly durable self-cleaning front-panel lenses minimize system disruption and down times.

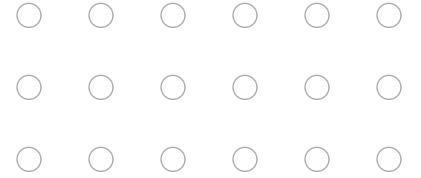
With Telegra's customized approach, you can select features and components specifically suited for your own environmental needs. Components include:

- » Highly durable external housing
- » Intelligent control and drive modules
- » LED mounting on printed circuit boards
- » Control and drive of single LEDs
- » Power supply modules (AC-DC SMPS)
- » Temperature supervision modules
- » Circuits and equipment for environmental monitoring (thermostat, hydrostat, ventilation system)

- » Multiple communication options:
 - Hardware interfaces (relay contact, copper wire, fiber optics, serial, Ethernet, wireless (GSM/GPRS/Bluetooth))
 - Communications protocols (TLS, TLS over IP, Profibus, OPC, XML, NTCIP)
- » An optional ambient (external) light intensity measuring module
- » Stand-alone system manager (Windows XP and handheld PDA versions)

Telegra's LED Lane Usage Signs exceed the most stringent quality standards and they utilize an advanced control system to intelligently track and measure light intensity for optimum LED output.





CERTIFICATIONS

Telegra's LED Lane Usage Signs meet and often exceed all international standards. Our products are UL and CUL listed, and approved for EN 12966, TUV, CE, RoHS, BAST and ISO 9001:2000 standards. These products also comply with:

- » NEMA TS4 and all NTCIP requirements
- » ANSI, IEEE, AASHTO, and AWS certification criteria
- » IEC60068-2-64 standard for vibration and shock endurance
- » MIL-STD-810F standard for sand and dust, vibration and icing/freezing rain
- » IEC60950-1, HD384.4 and HD638 safety standards



American Welding Association | ISO 9001:2000 Certification

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

PRODUCT SPECIFICATIONS

Cabinet Welding	Process and fabrication meet ISO EN 131 (GMAW process) and ISO EN 141 (GTAW process) standards; also certified for EN 287
Communication Modes	RS485/422/232, Ethernet, GSM/GPRS, Bluetooth, wireless; TLS, PROFIBUS, MODBUS, TCP/IP; SM/MM fiber, twisted copper pairs, radio; others on demand
Contrast Ratio	R2-R3 according to EN 12966
Control Panel	NEMA 3R design and fabrication standards
DC Power Supply	Stabilized, 5 V-12 V
Dimensions	Standard: 28" x 28" x 7"; other dimensions on demand
Electromagnetic Interference	LED signs meet electromagnetic interference immunity levels as defined in EN 50293:2000: 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
EN 12966 Compliance Classification	LED intensity (luminance): L3, L3(*), L3t Luminance ratio: R2-R3 Beam width: B1-B7 Color class: C2 in amber or RGB Temperature: T1, T2, T3 (-38° to +140° F) IP protection: P2, P3 (IP55-IP56)
Exterior Finish	Electrostatic powder coating with chemical preparation using TIGER Drylac RAL matte (based on polyester)
Front Plate	Two-component black matte paint for low light reflection rate
LED Color	Color class C2; various dimensions and combinations
LED Control	Discreet control of each LED
Power Requirements	120-240 VAC, 50-60 Hz; 12 V, 24 VDC; low power consumption
Surge Protection	Varistors, fuses, opto-couplers, suppressors, gas dischargers
Warranty	10 years on the external casing; two years on products and services

