

Fully Programmable LED Monochromatic and Full Colour Display

- Connective to all standard systems
- Intelligent error detection
["20% shut down"]
- Outstanding uniformity
- Exceptional longevity



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Telefon-Gradnja
Traffic Management Systems
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Fully Programmable LED Monochromatic and Full Colour Display

Fully programmable LED monochromatic and full colour Displays are technologically the most advanced products in the line of variable traffic signs manufactured in LED technology. Due to fully programmable picture and ability to display colours in max. 24 bit resolution, they can display any symbol within the light intensity range from 5 to 100%. It is possible to store up to 64 symbols in non-volatile memory, while the other user symbols can be transmitted to the sign using any of the available communication interfaces.

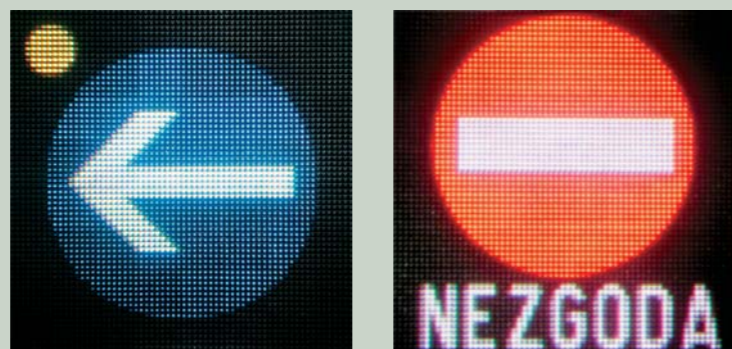


Basic features:

- > independent control of every single pixel
- > error detection in both "off" and "on" state of each pixel
- > LED drive without multiplexing
- > low picture degradation during exploitation due to low LED drive current
- > high recognizability and outstanding uniformity of displayed symbols
- > EMC immunity
- > high mechanical protection
- > internal measurement and sign temperature alert
- > continuous light intensity regulation within 5 to 100% range
- > high contrast ratio
- > capability of storing up to 64 various symbols
- > ability to display symbol sequences at 25 symbol per second rate
- > max. 24-bit colour resolution
- > modular design, ability to combine various dimensions, colour combinations and pixel raster as per specific requirement

Main components of fully programmable LED display

- > Housing designed for outdoor exploitation:
 - back panel service door
 - materials adopted in accordance with EU norms (AlMg3, AlMgSi0,5)
 - IP protection class: IP55 - IP66
- > Power Supply Cable Terminals
- > Communication Cable Terminals
- > Electronic Control and Drive Modules
- > Power Supply Modules (AC-DC SMPS)
- > LED's mounted on Printed Circuit Boards (PCB)
- > Temperature Regulation Modules
- > Ambient (External) Light Intensity Measuring Module (option)
- > Circuits and Equipment for Climate Control (thermostat, hydrostat, ventilation system)
- > Communication Modules (RS 485/232, Ethernet, GPS, GPRS) for all Transmission Media (SM and MM Fiber Optics, Twisted Cu Pairs, Airwaves)



Technical data:

AC Supply:	230V 50Hz (-15% to +10%)	
DC Supply:	Regulated; 5 V-12V	
Over-voltage/Surge Protection:	5 levels (varistors, fuses, opto-couplers, suppressors, gas dischargers)	
LED Control:	Each LED separately	
Pixel raster:	12 mm minimum	
Classification according to EN 12966:	LED Intensity (Luminance):	L3
	Luminance ratio:	R2
	Beam width:	B1 - B5
	Colour Class:	C2
Remote Control:	RS485 / RS422 / RS232 / LAN / fiber-optic	
Communication Protocol:	TLS - FG4 local bus or as requested	
LED Monitoring and Test:	Continuous, for each LED separately, in ON and OFF state	
Ambient Temperature Range:	-40°C to 60°C in accordance with all EN 12966-1 Classes T1, T2 and T3	
IP Protection:	IP 55 - IP66	

Certified according to following norms:

- > Visual performance according to EN12966-1
- > Electrical features
- > Vibration tests (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 60068-2-30, temperature range in accordance to IEC 60068-2-14)
- > Degrees of protection provided by enclosure in accordance to IEC 60529
- > Environmental standards for shock in accordance to MIL-810C
- > General requirements - information technology equipment - safety in accordance with IEC 60950-1
- > EMC testing in accordance to:
 - HRN EN 55022: Radio disturbance
 - HRN EN 61000-3-2: EMC limits for harmonic current emissions
 - HRN EN 61000-4-2: Electrostatic discharges (EDS) immunity tests
 - HRN EN 61000-4-3: Radiated, radio-frequency, electromagnetic field immunity tests
 - HRN EN 61000-4-4: Electrical fast transients/burst immunity tests
 - HRN EN 61000-4-5: Surge immunity tests
 - HRN EN 61000-4-6: Immunity to conducted disturbances, induced by radio-frequency fields
 - HRN EN 61000-4-11: Voltage drops, short interruptions and voltage variations immunity tests