



# Matrix Signal MSG2w

The MSG2w (“Matrix signal geveer” ~ matrix signal provider) is a matrix signal displaying signal aspect to the drivers via powerful white LEDs.

 **VRS Railway Industry**



## PRODUCT BENEFITS

- ✓ Very high reliability: MTBF > 10,000,000 hours (calculated as per IEC 1709)
- ✓ Very high availability by design: signs remains legible even after failure of multiple individual LEDs
- ✓ Service life of 15 years with guaranteed light output
- ✓ High visibility due to LEDs and use of special coating to prevent as far as possible reflection of light sources, such as sunlight
- ✓ Up to 4 different characters in one housing
- ✓ Can be used in combination with various interlocking systems

## MAIN SIGNALS AND DISTANT SIGNALS

The VRS Matrix Signal Generator is the most commonly used light box along Dutch rail tracks. The MSG2w can be placed either in combination with an AY signal or on its own. It can also be attached to a high post, a dwarf post in case of a repeater signal, or to a gantry. All our MSG2w units are made up of LEDs, which ensures great visibility, low energy consumption and a very long service life. The brightness can be adjusted using the night mode.



The lenses are in the form of numbers, letters or symbols for the purpose of conveying information to the driver. An MSG2w can display up to 4 different characters in one housing.



## Technical specifications - general

<b>Voltage</b>	110 ± 10% V AC
<b>Supply voltage, dimmed</b>	80 ± 10% V AC
<b>Frequency</b>	50 en 75 Hz ± 4%
<b>Nominal current</b>	350 mA at 110 VA
<b>Power at rated current</b>	approx. 38,5 VA
<b>Front panel dimensions</b>	approx. 500 x 700mm
<b>Number of LEDs per character</b>	between 40 and 100

## Technical specifications - electrical

<b>dimmer voltage</b>	50-80Vac line voltage
<b>Power usage at 110V</b>	45 Watt ±10% (with maximum cable resistance of 33 Ohm)
<b>Cosine phi</b>	> 0,9
<b>Light rise/fall time</b>	< 50ms
<b>EMC-compatibility</b>	as per ENV 50121-4 + RLN00007 version 3
<b>Maximum power-on time</b>	∞

## Technical specifications - optical

<b>colour of light</b>	complies with CIE S 004/E-2001 white with restriction X ≤ 0,420
<b>Nominal (daytime) lighting intensity</b>	+/- 8.100 cd/m
<b>Dimmer level.</b>	between 150 and 315 cd/m <sup>2</sup>
<b>Viewing distance</b>	+/-350m
<b>Legibility distance</b>	approx. +/-250m
<b>Luminous intensity distribution</b>	2x5° +/- 0,5°
<b>Phantom ratio</b>	7:1 (as per EN12368)

## Technical specifications - environmental

<b>Ambient temperature</b>	- 30 [°C] to + 55 [°C]
<b>storage temperature</b>	- 30 [°C] to + 70 [°C]
<b>Climate resistance</b>	as per IEC 68-2-38 (Z/AD test) additional till - 30 [°C]
<b>Vibration resistance</b>	as per IEC 721-3-4 4M6 4 - 8.4 [Hz] 7 [mm] amplitude 8.4 - 200 [Hz] 2 [g] sweep rate 1 [oct/min]
<b>Shock resistance</b>	as per IEC-721-3-4 4M6, type 2, acceleration: 25 [g], duration: 6 [ms]

## Technical specifications - RAMS

<b>Hazard rate</b>	< 1x10 <sup>-8</sup> [1/h]
<b>MTBF</b>	> 10.000.000 hours (calculated as per IEC 1709)
<b>Service life</b>	15 years with guaranteed light output