



## MF Signal

MF signals are dwarf signals at the beginning of a signal block and function as main signal, distant signal or shunt signal.



## PRODUCT BENEFITS

- Most commonly used dwarf main signal and distant signal on Dutch railways
- Highly reliable and energy-efficient thanks to VIRLU160 LED light
- Good visibility under all the most common weather conditions in the Netherlands
- Signals are almost maintenance-free despite high degree of availability

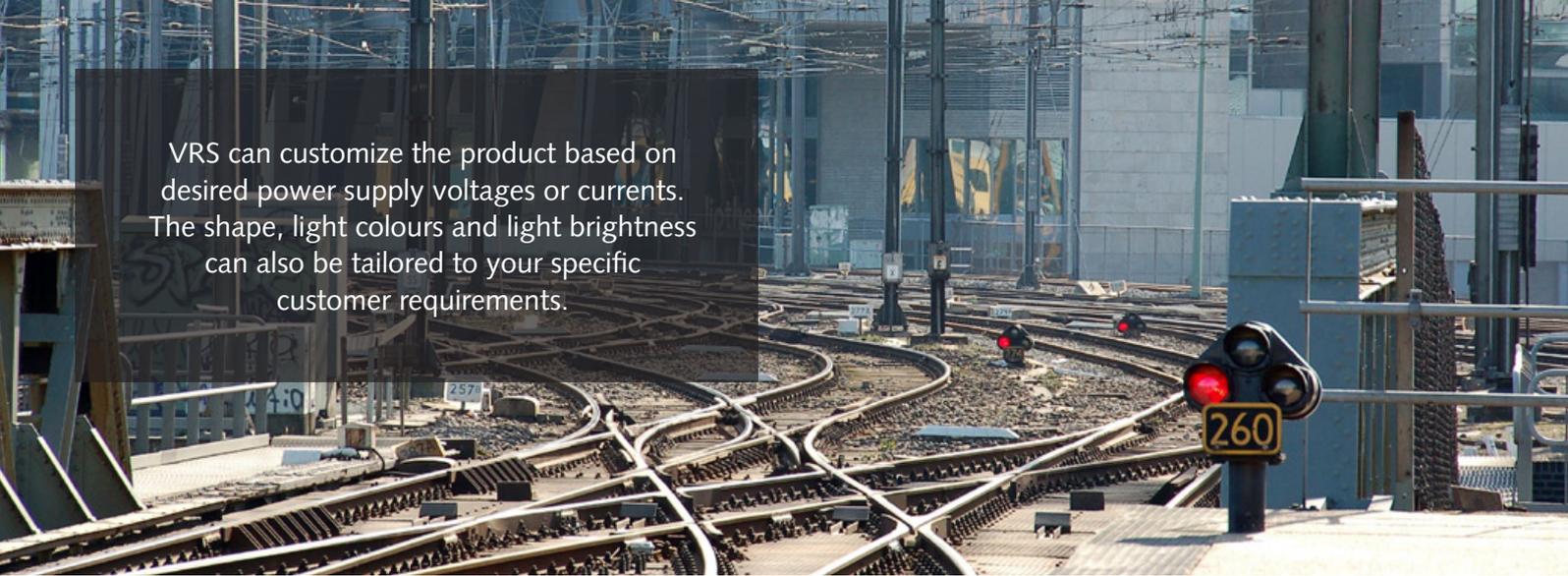
## OPTING FOR SAFETY

MF signals are dwarf signals at the beginning of a signal block and function as main signal, distant signal or shunt signal. They are the most frequently used dwarf main signals and distant signals on Dutch railways, representing the signal aspect as per current rail traffic regulations. Low-maintenance, reliable and high visibility. Dwarf main signal consists of 3 aspects coloured red, yellow, green and with exception white. Dwarf distant signal consists of 2 aspects coloured yellow and green. For dwarf shunt signals, an additional white signal aspect is added to the dwarf main signal.



MF signals can be supplied with adjustable foot, raised foot or with platform wall mounting.

VRS can customize the product based on desired power supply voltages or currents. The shape, light colours and light brightness can also be tailored to your specific customer requirements.



## Technical specifications

Areas of application	1500V and 25kV zone
Supply voltage	to 24 Vac/dc
Supply voltage	110V/80Hz (day/night)
Power usage	< 1'8 A @ 10.2V Vac/dc
Power-on time	1
Isolation voltage	3kV (1 minute)
Luminous intensity	220cd (+30% / -15%)
Luminous intensity variation	± 15%
Colour of light	red 615nm as per EN12368
Luminous intensity distribution	wide beam as per EN12368
Light rise and fall time	< 20ms
Frequency	50 of 75 Hz ± 4%
Climate test	as per IEC 60068-2-38, additional till -25°C
Operating temperature	-25°C - +65°C
Storage temperature	-30°C - +80°C
Shock and bump test	as per IEC 571
EMC compatibility	as per EN 50121-4
Impact resistance	IR3 as per EN12368
Ingress protection	IP54 as per EN60529 tests 13 & 14
MTBF	> 1,000,000 hours
Service life	15 years

## Colour of light as per IE S 004/E-2001

Red	Red Light signal colours Class A with restriction $y \leq 0.295$
Yellow	Yellow Light signal colours
Green	Green Light signal colours Class A
White	White Light Signal Colours, Class A, with restriction $x \leq 0.420$
Blue	Blue Light Signal Colours, Class A

## VIRLU 160

Capacity	100 Watt
Voltage	110 ± 10% V AC
Supply voltage, dimmed	80 ± 10% V AC
Frequency	50 and 75 Hz ± 4%
Nominal voltage	10.2 Vac (at 110 Vac line voltage)
Night voltage	7.4 Vac (at 80 Vac line voltage)
Power consumption at 10.2 Vac	30 Watts ± 15%
EMC compliance	as per ENV 50121-4 + RLN00007 version 3
MTBF	> 10,000,000 hours (calculated as per IEC 1709/SN29500)



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