

Product Catalogue

Railway Signals

Table of Contents

| | |
|--|----|
| LED Signals for Railway Signaling Applications | 01 |
| Main and Distant Signals | 02 |
| Shunting Signals | 04 |
| Railway Crossings / Road Traffic Signals | 06 |
| Railway Crossings / Railway Signals | 08 |
| Solutions for Undergrounds | 10 |
| Country Specific Solutions | 12 |
| System Assemblies | 14 |



LED signals for railway signaling applications

Sabik has been supplying railway signals for more than 35 years. LED technology is the preferred solution for most signal lights in various industries today. The reasons for the success of the LED signals are very simple; the LED signals are solid state, maintenance free, mechanically robust and reliable and offer also lower power consumption compared to the incandescent signals previously used. Sabik’s range of LED signals covers a wide range of applications currently used within the railway signaling system:

- Main and Distant Signals
- Shunting Signals
- Underground Signals
- Railway Crossings Signals
- Country Specific Signals

Sabik lanterns are appreciated for their luminous performance, reliability, modularity and functionality. By selecting a Sabik signal you do not only get a reliable product but also an intelligent signal unit that can be configured to fit different type of interlockings. Our customers have the possibility to choose right features for their specific needs to operate their signal system efficiently and at lower life time cost.

Our long experience as designer and supplier of LED signals for marine and rail applications have taught us not to compromise safety in any given situation.

Contact us for more information: SABIK Oy
Tel +358 19 560 1100, sales@sabik-marine.com

RSL200

RSL200.12 is our new generation of LED Signal Units for railways with brand new features. The state of the art architecture of the unit offers adjustability needed for safe and smooth operation with various interlocking systems and local environmental conditions such as cable type and length and signal transformer type.

- Light generation with 16 power LEDs used with low current for high reliability
- Automatic night time dimming according to the input voltage / power level
- Wide operational voltage range: 6,0-14,0 VAC (TRMS)
- Unique Line Test feature ensuring stable turn on and off regardless of the coupled power on the signal line
- Optical feedback monitoring of each individual LED
- Adjustable power consumption with Dummy Load power resistor
- Many adjustable operational parameters: current consumption in day and night mode, turn on and off power levels, luminous intensity levels, turn on and off delays, voltage hysteresis level for day-night-mode change, frequency of the AC line voltage, number of failed LEDs allowed for operation
- Access to operational parameters with wireless IrDA connection or with serial cable
- Optional features: 3 optoisolated digital outputs for the interlocking system to monitor the signal status: Signal On output, Minor Error output for signal health monitoring, Major Error output for self shutdown monitoring



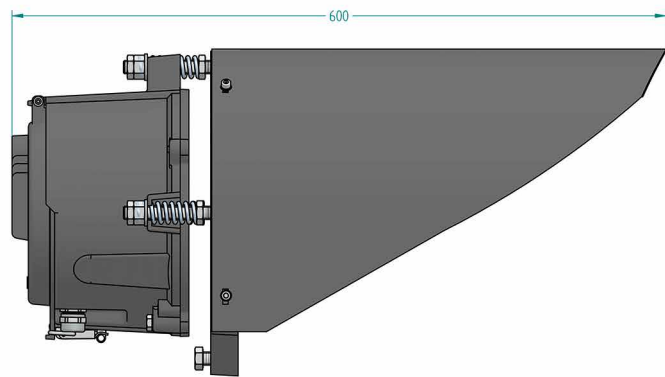
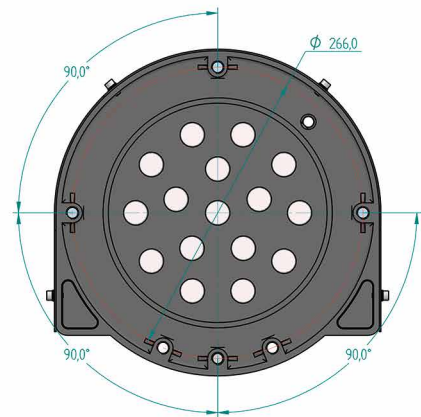
- All optoisolated digital outputs are potential free and non-polar
- Robust mechanical structure – signal housing of casted aluminum
- Thermally designed for power LEDs to be used for the light source
- High optical performance, special design to minimize the Phantom effect
- Metal housing tolerates impacts and offers good EMC protection

Main Technical Specification

| | |
|------------------------------|--|
| Visual lens size | 200 mm |
| Lens material | Polycarbonate |
| Light source | 16 power LEDs |
| Luminous intensity day | 1600 cd (can be adjusted)/1200 cd for W models |
| Luminous intensity night | 500 cd (can be adjusted)/300 cd for W models |
| Luminous divergence | 8 ° @ 50 % (±1 °) of top intensity and 12 ° @ 50 % (± 1,5 °) for W models of top intensity |
| Supply Voltage Day | 10 - 14 VAC, nominal voltage 12 VAC |
| Supply Voltage Night | 6 - 10 VAC, nominal voltage 8 VAC |
| Line Transient Protection | Signal Unit equipped with overvoltage protection units |
| Power Consumption Day | 10 W - 30 W, can be adjusted with the dummy load resistor |
| Power Consumption Night | 5 W - 15 W, can be adjusted with the dummy load resistor |
| Power consumption Off mode | < 0,5 W |
| Signal turn on and off delay | 70 ms, can be adjusted to 40 ms |
| Temperature range | -40 ° - + 65 ° according to EN 50125-3 class T1 and T2 |
| Control outputs | 3 optoisolated digital outputs, voltage max 350 VDC or 250 VAC |
| Protection class | IP 56 |
| EMC test | According to EN 50121 and EN 50124 |
| Design | According to EN 50129 |
| Weight | 9 kg |

Product

| 200 mm, 12 VAC interface | |
|--------------------------|-------------------|
| RSLR 200.12 | red |
| RSLG 200.12 | green |
| RSLY 200.12 | yellow |
| RSLW 200.12 | white |
| RSLB 200.12 | blue |
| RSLR 200.12W | red, wide beam |
| RSLG 200.12W | green, wide beam |
| RSLY 200.12W | yellow, wide beam |
| RSLW 200.12W | white, wide beam |



RSSL100

RSSL 100.12 is our new generation shunting signal equipped with reliable power LED signal units. The signal housing is produced of stainless steel and painted in matt black colour. Sabik shunting signal can easily be modified for different market specifications and the state of the art architecture of the unit offers adjustability needed for safe and smooth operation with various interlocking systems and local environmental conditions such as cable type and length and signal transformer type.

- Light generation with 8 power LEDs used with low current for high reliability
- Automatic night time dimming according to the input voltage / power level
- Wide operational voltage range: 6,0-14,0 VAC (TRMS)
- Unique Line Test feature ensuring stable turn on and off regardless of the coupled power on the signal line
- Optical feedback monitoring of each individual LED
- Adjustable power consumption with Dummy Load power resistor
- Many adjustable operational parameters: current consumption in day and night mode, turn on and off power levels, luminous intensity levels, turn on and off delays, voltage hysteresis level for day-night-mode change, frequency of the AC line voltage, number of failed LEDs allowed for operation
- Access to operational parameters with wireless IrDA connection or with serial cable



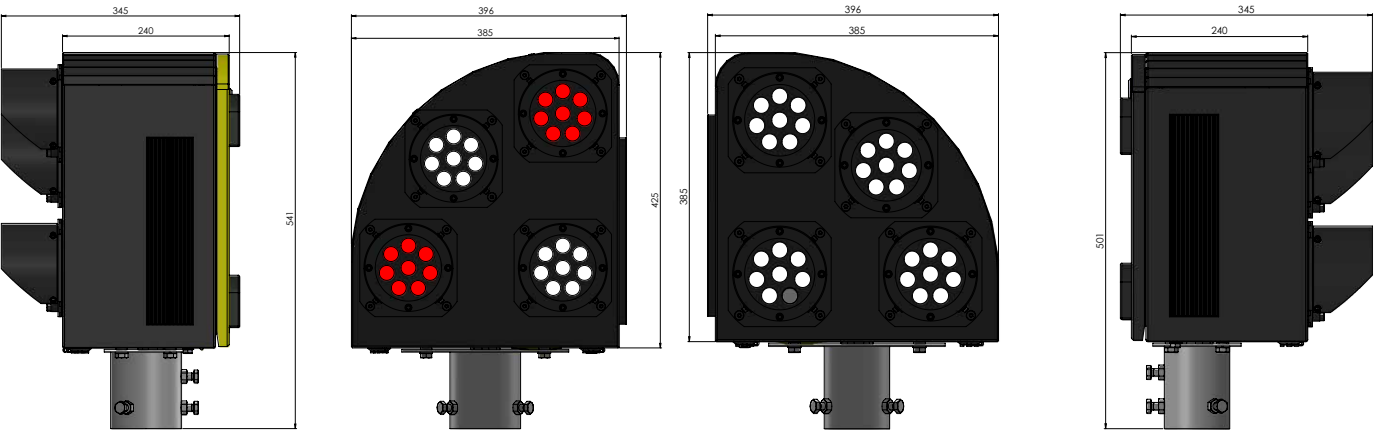
- Optional features: 3 optoisolated digital outputs for the interlocking system to monitor the signal status: Signal On output, Minor Error output for signal health monitoring, Major Error output for self shutdown monitoring
- All optoisolated digital outputs are potential free and non-polar
- Robust mechanical structure – LED Signal Unit housing of casted aluminum
- Thermally designed for power LEDs to be used for the light source
- High optical performance, special design to minimize the Phantom effect
- Metal housing of stainless steel tolerates impacts and offers good EMC protection

Main Technical Specification

| | |
|------------------------------|--|
| Visual lens size | 4 x 100 mm |
| Lens material | Polycarbonate |
| Light source | 8 power LEDs per light unit |
| Luminous intensity day | 600 cd (can be adjusted) |
| Luminous intensity night | 100 cd (can be adjusted) |
| Luminous divergence | 8 ° @ 50 % (±1 °) and 15 ° @ 10 % (±2 °) of top intensity |
| Supply Voltage Day | 10 - 14 VAC, nominal voltage 12 VAC |
| Supply Voltage Night | 6 - 10 VAC, nominal voltage 8 VAC |
| Line Transient Protection | Signal Unit equipped with overvoltage protection units |
| Power Consumption Day | 10 W - 30 W, can be adjusted with the dummy load resistor |
| Power Consumption Night | 5 W - 15 W, can be adjusted with the dummy load resistor |
| Power consumption Off mode | < 0,5 W |
| Signal turn on and off delay | 70 ms, can be adjusted to 40 ms |
| Temperature range | -40 ° - +65 ° according to EN 50125-3 class T1 and T2 |
| Control outputs | 3 optoisolated digital outputs, voltage max 350 VDC or 250 VAC |
| Protection class | IP 56 |
| EMC test | According to EN 50121 and EN 50124 |
| Design | According to EN 50129 |
| Weight | 18,5 kg |

Product

| 12 VAC interface | | |
|------------------|-----|-------|
| RSSL 100.12FI | 2 x | red |
| Finnish model | 2 x | white |
| RSSL 100.12NO | 4 x | white |
| Norwegian model | | |



Finnish model

Norwegian model

TRV 200
TRV 100

LED Road Traffic Light Signals
for Railway Crossings

The Light Emitting Diode road traffic light signal has been developed to be used as a traffic signal for level crossings in harsh road and railway environments. The light unit has an increased safety and reliability compared to traditional signal lights.

- Increased safety and reliability thanks to high quality LEDs used in the signal
- Low maintenance cost because of the long lifetime of the LEDs
- Reduced energy consumption compared to traditional incandescent signal units
- Self monitoring with 2 optoisolated outputs giving the feedback that LEDs are OK and that the LED unit is turned ON
- Two level luminous intensity for day and night mode control
- TRV 200 can be installed in a standard 200mm traffic light enclosure. The LED unit is delivered with a 6 meter cable
- TRV 200 unit has an extremely robust design with a UV-resistant polycarbonate lens and a back cover produced in aluminium
- TRV100 can be installed in a 100 mm traffic light enclosure, 2- and 3-aspect enclosures can be supplied as standard products
- TRV100 LED unit is delivered with a 2 m cable

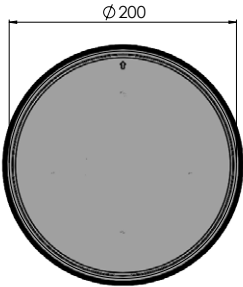
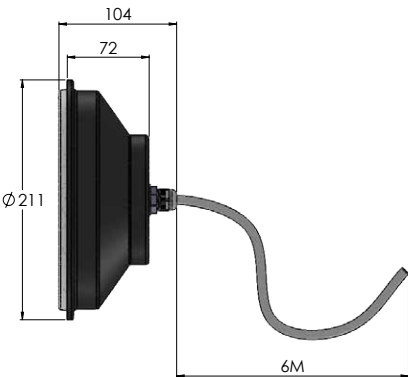


Main Technical Specification

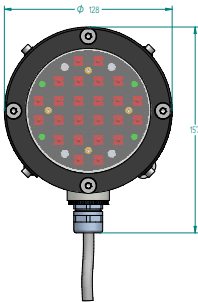
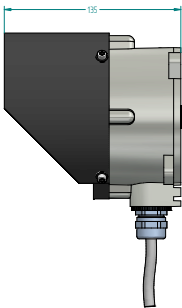
| | |
|---|---|
| Visual lens size | Ø 200 mm |
| Lens material | Polycarbonate |
| Light source | LED (Light Emitting Diode) |
| Minimum luminous intensity on optical axis white, green and red | Day 400 cd and Night 100 cd |
| Minimum luminous intensity on optical axis blue and yellow | Day 200 cd and Night 50 cd |
| Distribution of the luminous intensity | Wide beam signal type W according to EN12368 (horizontal divergence about ±15 ° @ 50 % intensity) |
| Colors | White, red, yellow, green, blue and red/white |
| Signal standards | According to EN12368 |
| Supply Voltage | 20 - 32 V DC, nominal 24 V DC |
| Protection class of the unit housing | IP 66 |
| Weight | 800 g |
| Temperature range | -40 ° - +40 °C (EN 12368 Class C) |
| Power consumption | 8 - 13 W in the day mode 3 - 5 W in the night mode |
| Control inputs | 2 optoisolated inputs: On/Off and Day/Night |
| Feedback outputs | 2 optoisolated outputs: LEDs OK and Unit On |
| Overvoltage protection at Voltage supply | Transient protection with MOV and short circuit protection |
| Protection for control inputs and feedback outputs | 4 kV isolation and transient protection with MOVs |
| Unit connection cable | SAB SD 200 C 12x0,5 mm ² / length 6,0 m |
| Traffic light enclosures | One, two and three aspect housings available |

Product

| 200 mm, 24 VDC interface | |
|--------------------------|-----------|
| TRV 200W | white |
| TRV 200R | red |
| TRV 200G | green |
| TRV 200Y | yellow |
| TRV 200B | blue |
| TRV 200RW | red/white |
| 100mm, 24 VDC interface | |
| TRV 100W | white |
| TRV 100R | red |
| TRV 100G | green |
| TRV 100Y | yellow |



TRV 200



TRV 100

RCS 100 FSS
RLS 100 FSS

LED Signal for
Railway Crossings

- RCS 100FSS and RLS 100 FSS have been developed for railway crossings as a warning signal for the trains. These maintenance free signals are equipped with two reliable LED units: RCS 100 FSS with 2 white and RLS 100 FSS with 1 red and 1 white LED units
- The signal is easy to customize and can be modified to different market needs
- Low maintenance cost because of robust enclosure and the long lifetime of the LEDs
- The enclosure is equipped with two 24 VDC signal units; as standard products there is a version with 2 white LED units and another version with 1 red + 1 white LED units available, but also other signal colours can be supplied
- Self monitoring with 2 optoisolated outputs giving the feedback that LEDs are OK and the signal unit is turned on
- Two level luminous intensity for day and night mode

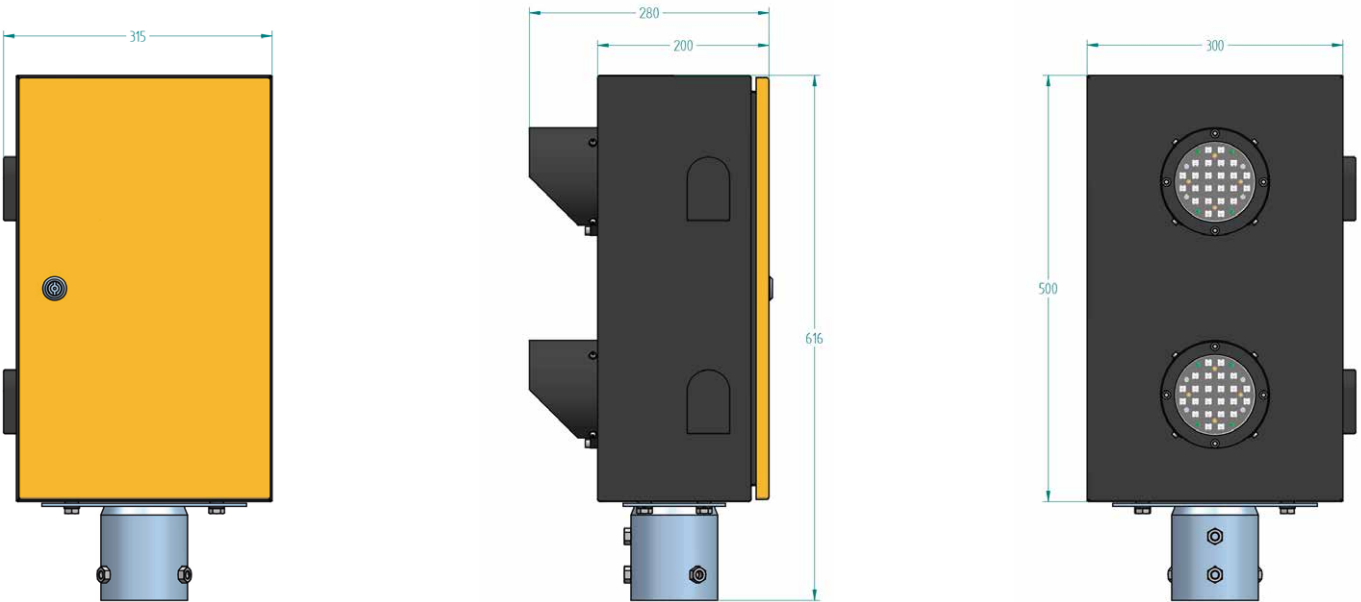


Main Technical Specification

| | |
|--------------------------|--|
| Visual lens size | 100 mm |
| Lens material | Polycarbonate |
| Light source | LEDs (Light Emitting Diodes) |
| Luminous intensity day | 600 - 1000 cd |
| Luminous intensity night | 100 - 200 cd |
| Luminous divergence | 7 ° @ 50 % (±1 °) and 14 ° @ 10 % (±2 °) of top intensity |
| Supply Voltage | 20 - 30 VDC, nominal voltage 24 VDC |
| Power Consumption Day | 6 W - 10 W |
| Power Consumption Night | 2,5 - 4 W |
| Temperature range | -40 ° - +40 ° |
| Control outputs | 2 optoisolated inputs : On/Off and Day/Night |
| Control inputs | 2 optoisolated outputs: LEDs OK and Unit On |
| Protection class | IP 56 |
| Weight | 13 kg |

Product

| | |
|---|------------|
| Railway crossing signal for trains | |
| RCS 100 FSS | 2 x white |
| Railway locking signal for trains | |
| RLS 100 FSS | red, white |
| Separate signal units with 24 VDC interface | |
| RO 100W | white |
| RO 100R | red |



Solutions for Undergrounds

Sabik offers a flexible solution also for underground requirements. This signal is equipped with Sabik standard 100mm intelligent signal units. The slim enclosure can be customized for different underground signal applications.

- Light generation with 8 power LEDs used with low current for high reliability
- Automatic night time dimming according to the input voltage / power level
- Wide operational voltage range: 6,0-14,0 VAC (TRMS)
- Unique Line Test feature ensuring stable turn on and off regardless of the coupled power on the signal line
- Optical feedback monitoring of each individual LED
- Adjustable power consumption with Dummy Load power resistor
- Many adjustable operational parameters: current consumption in day and night mode, turn on and off power levels, luminous intensity levels, turn on and off delays, voltage hysteresis level for day-night-mode change, frequency of the AC line voltage, number of failed LEDs allowed for operation
- Access to operational parameters with wireless IrDA connection or with serial cable
- Optional features: 3 optoisolated digital outputs for the interlocking system to monitor the signal status: Signal On output, Minor Error output for signal health monitoring, Major Error output for self shutdown monitoring



- All optoisolated digital outputs and inputs are potential free and non-polar
- Robust mechanical structure – 100 mm LED Signal Unit housing of casted aluminum
- Thermally designed for power LEDs to be used for the light source
- High optical performance, special design to minimize the Phantom effect
- Metal housing of stainless steel tolerates impacts and offers good EMC protection
- Signal housings equipped with a robust Harting connector for the field cable

Main Technical Specification

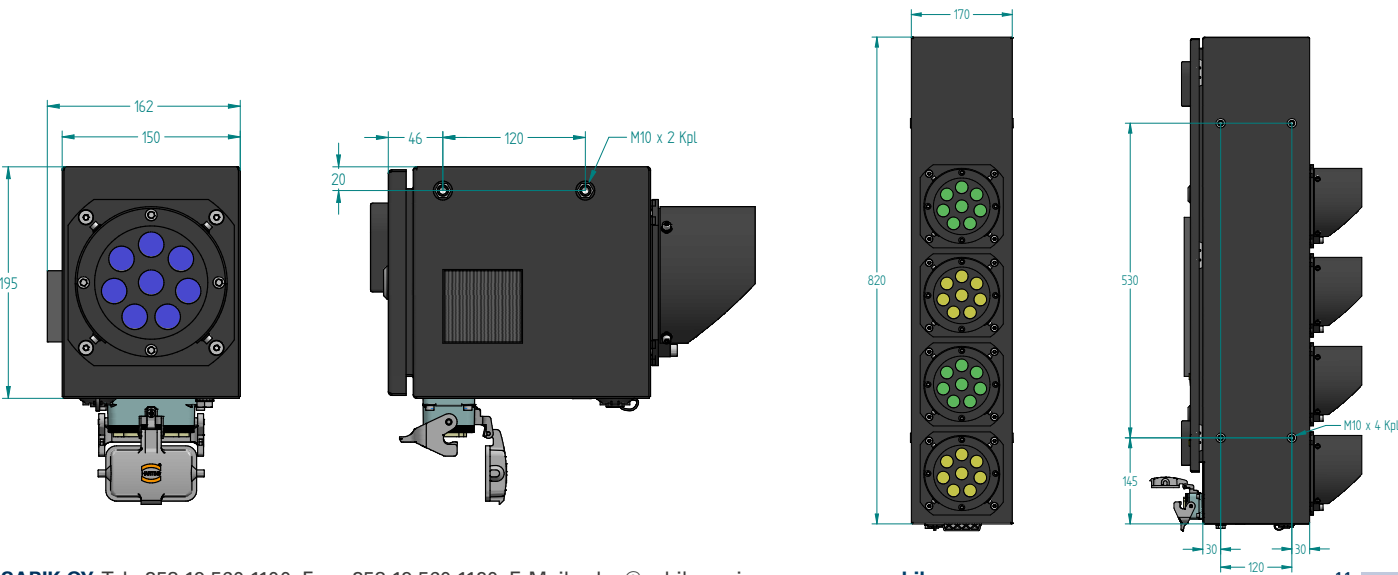
| | |
|-------------------------------------|--|
| Visual lens size | 100 mm |
| Lens material | Polycarbonate |
| Light source | 8 power LEDs per light unit |
| Luminous intensity day all colors | 200 cd (can be adjusted) |
| Luminous intensity night all colors | 50 cd (can be adjusted) |
| Luminous divergence | 46 ° @ 50 % (± 4) and 64 ° @ 10 % (±6) of top intensity |
| Supply Voltage Day | 10 - 14 VAC, nominal voltage 12 VAC |
| Supply Voltage Night | 6 - 10 VAC, nominal voltage 8 VAC |
| Line Transient Protection | Signal housing equipped with overvoltage protection units |
| Power Consumption Day | 10 W - 30 W, can be adjusted with the dummy load resistor |
| Power Consumption Night | 5 W - 15 W, can be adjusted with the dummy load resistor |
| Power consumption Off mode | < 0,5 W |
| Signal turn on and off delay | 70 ms, can be adjusted to 40 ms |
| Temperature range | -40 ° - +65 ° according to EN 50125-3 class T1 and T2 |
| Control outputs | 3 optoisolated digital outputs, voltage max 350 VDC or 250 VAC |
| Protection class | IP 56 |
| EMC test | According to EN 50121 and EN 50124 |
| Design | According to EN 50129 |
| Weight | 6 kg (1-aspect signal unit) 19 kg (4-aspect signal unit) |
| Mounting | Pole or wall (left and right) mount options |

Product

Separate signal units with 12 VAC interface

| | |
|----------------|-----------------|
| RSLW 100.12EW | white |
| RSLR 100.12EW | red |
| RSLG 100.12EW | green |
| RSLY 100.12EW | yellow |
| RSLB 100.12EW | blue |
| RSLG 100.12EWF | green flashing |
| RSLY 100.12EWF | yellow flashing |
| RSLW 100.12EW | white flashing |
| RSLR 100.12EW | red flashing |
| RSLB 100.12EW | blue flashing |

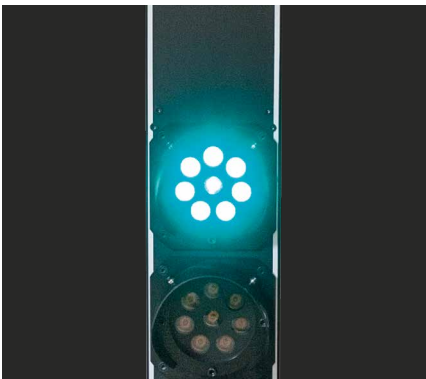
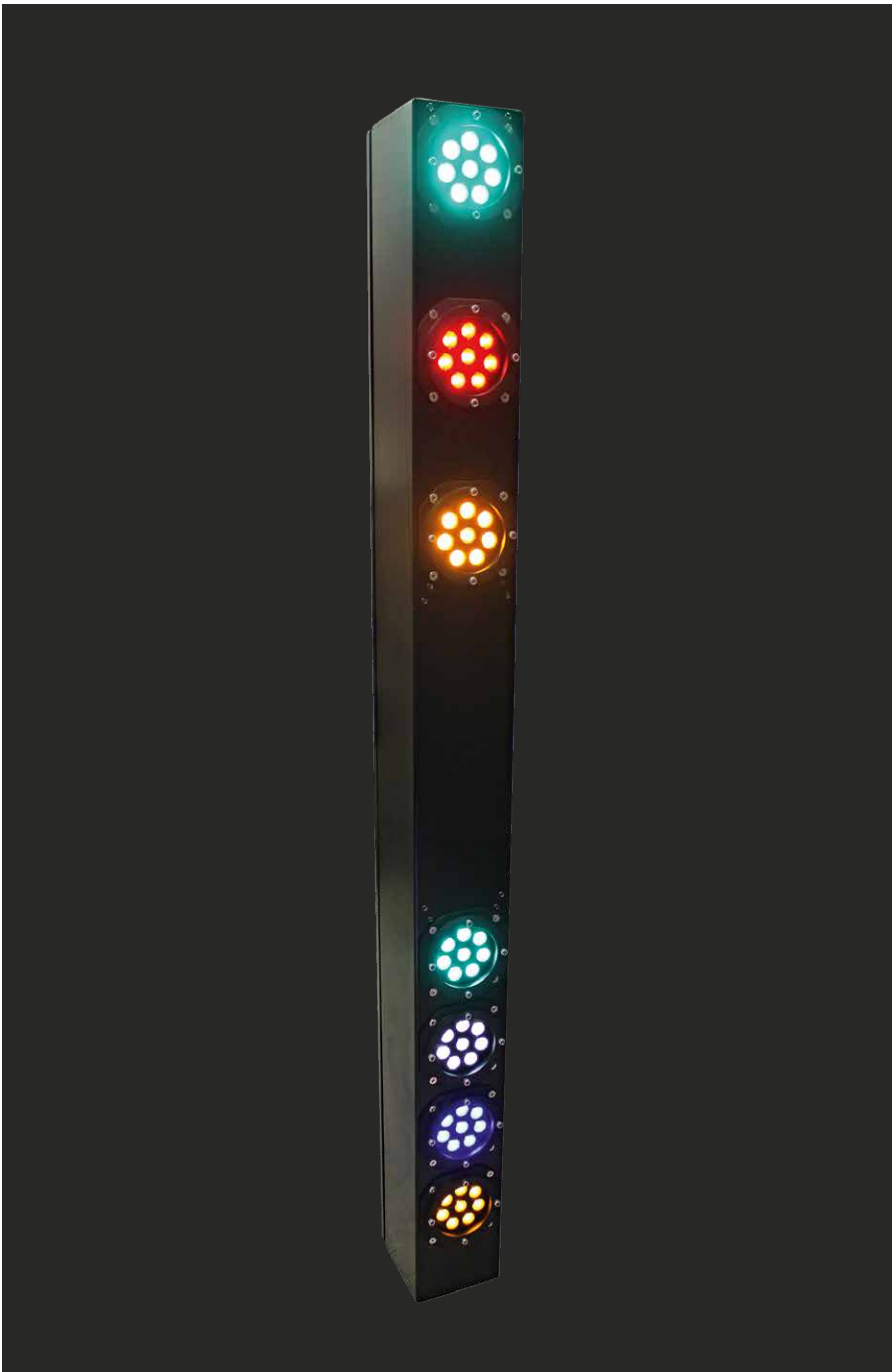
Product codes on ready equipped metro signals on request



Country Specific Solutions

Sabik is a reliable and flexible partner in developing products for country specific needs. One of our latest development is a signal that meet the new Finnish specification OJ 2010. The 100mm signal units are equipped with power LEDs installed in a special slim and tall housing.

- Light generation with 8 power LEDs used with low current for high reliability
- Automatic night time dimming according to the input voltage / power level
- Wide operational voltage range: 6,0-14,0 VAC (TRMS)
- Unique Line Test feature ensuring stable turn on and off regardless of the coupled power on the signal line
- Optical feedback monitoring of each individual LED
- Adjustable power consumption with Dummy Load power resistor
- Many adjustable operational parameters: current consumption in day and night mode, turn on and off power levels, luminous intensity levels, turn on and off delays, voltage hysteresis level for day-night-mode change, frequency of the AC line voltage, number of failed LEDs allowed for operation
- Access to operational parameters with wireless IrDA connection or with serial cable
- 3 optoisolated digital outputs for the interlocking system to monitor the signal status: Signal On output, Minor Error output for signal health monitoring, Major Error output for self shutdown monitoring



- All optoisolated digital outputs and inputs are potential free and non-polar
- Robust mechanical structure – LED Signal Unit housing of casted aluminum
- Thermally designed for power LEDs to be used for the light source
- High optical performance, special design to minimize the Phantom effect
- Metal housing of stainless steel tolerates impacts and offers good EMC protection

Main Technical Specification

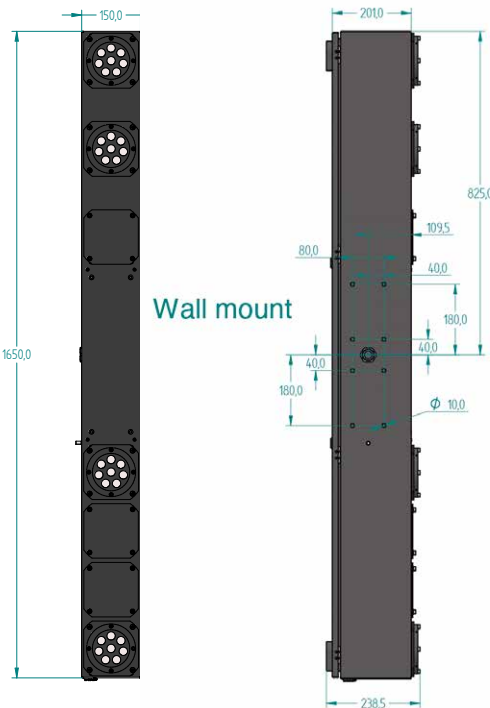
| | |
|---|--|
| Visual lens size | 100 mm |
| Lens material | Polycarbonate |
| Light source | 8 power LEDs per light unit |
| Luminous intensity day all colors | 1000 cd (can be adjusted) |
| Luminous intensity night yellow | 400 cd (can be adjusted) |
| Luminous intensity night red and green | 250 cd (can be adjusted) |
| Luminous intensity night white and blue | 250 cd (can be adjusted) |
| Luminous divergence | 8 ° @ 50 % (±1 °) and 15 °@ 10 % (±2 °) of top intensity |
| Supply Voltage Day | 10 - 14 VAC, nominal voltage 12 VAC |
| Supply Voltage Night | 6 - 10 VAC, nominal voltage 8 VAC |
| Line Transient Protection | Signal housing equipped with overvoltage protection units |
| Power Consumption Day | 10 W - 30 W, can be adjusted with the dummy load resistor |
| Power Consumption Night | 5 W - 15 W, can be adjusted with the dummy load resistor |
| Power consumption Off mode | < 0,5 W |
| Signal turn on and off delay | 70 ms, can be adjusted to 40 ms |
| Temperature range | -40 ° - +65 ° according to EN 50125-3 class T1 and T2 |
| Control outputs | 3 optoisolated digital outputs, voltage max 350 VDC or 250 VAC |
| Protection class | IP 56 |
| EMC test | According to EN 50121 and EN 50124 |
| Design | According to EN 50129 |
| Weight | 27 - 32 kg |
| Mounting | Pole or wall (left and right) mount options |

Product

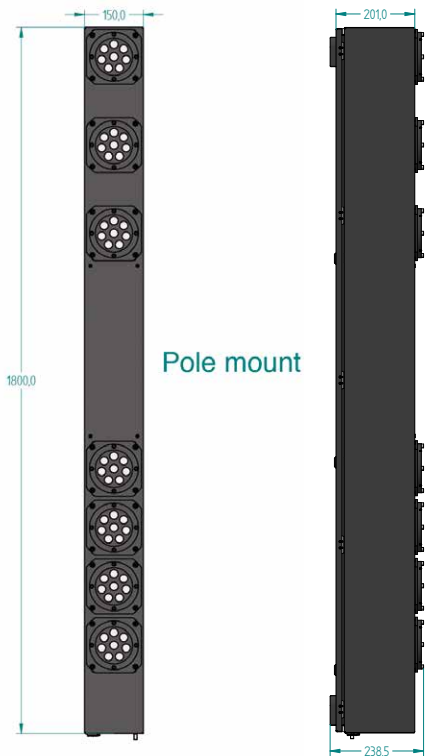
Separate signal units with 12 VAC interface

| | |
|----------------|-----------------|
| RSLW 100.12FI | white |
| RSLR 100.12FI | red |
| RSLG 100.12FI | green |
| RSLY 100.12FI | yellow |
| RSLB 100.12FI | blue |
| RSLG 100.12FIF | green flashing |
| RSLY 100.12FIF | yellow flashing |

Product codes for the ready equipped OJ 2010 signals available on request



Wall mount



Pole mount



Bottom

System Assemblies

TRV 200
TRV 100

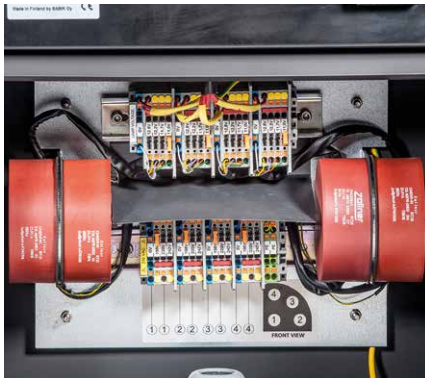
Products and assemblies related to railway projects Sabik has specialized in:

- Railway crossing signals with backing boards
- Railway crossing signals to fit into standard traffic light enclosures
- Special variable message signs
- Supply of housings for railway signals
- Supply of traffic light enclosures
- Tailor made steel support structures

Product

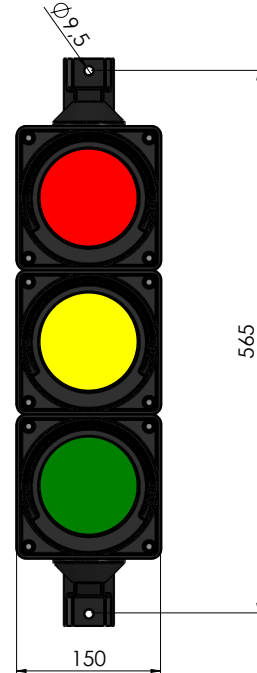
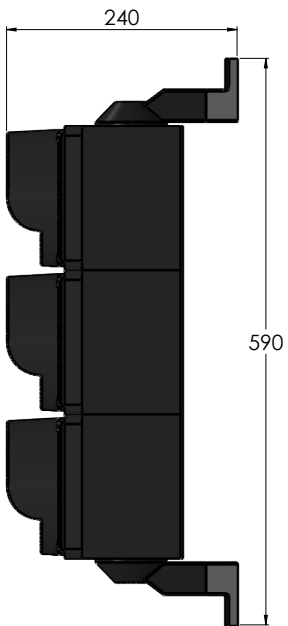
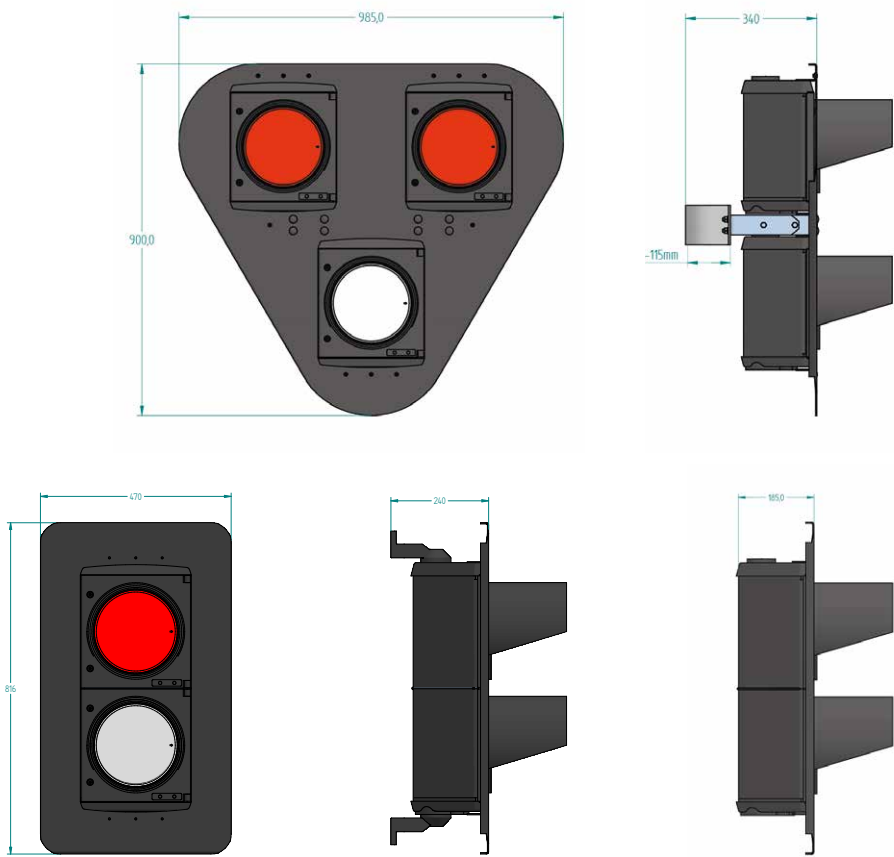
Signals equipped with TRV signal units
24VDC Interface

| | |
|----------------|--|
| TRVA 200.2.RW | 2 aspect signal equipped with one red and one white ø 200 mm LED units |
| TRVA 200.3.RRW | 3 aspect signal equipped with two red and one white ø 200 mm LED units |
| TRVA 100.2.RW | 2 aspect signal equipped with one red and one white ø 100 mm LED units |
| TRVA 100.3.RYG | 3 aspect signal equipped with one red, one yellow and one green ø 100 mm LED units |



RSSL100TB

- A special stainless steel enclosure designed for direct fitting to Sabik shunting signals RSSL 100.12FI and RSSL 100.12NO
- TB enclosure is equipped with 4 signal transformers and row connectors for connecting the field cable and protecting earth wire.
- Tailormade row connectors for the primary and secondary coils of signal transformers, easy selection of the voltage taps for adjusting the correct voltage for the LED units.
- Marking with labelled row connectors and instruction stickers for safe and correct connection and configuration.



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