



SABIK

BRAND OF SPX AIDS TO NAVIGATION



Product Catalogue

Railway Signals



Product Catalogue

Railway Signals

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LED Signals for Railway Signaling Applications

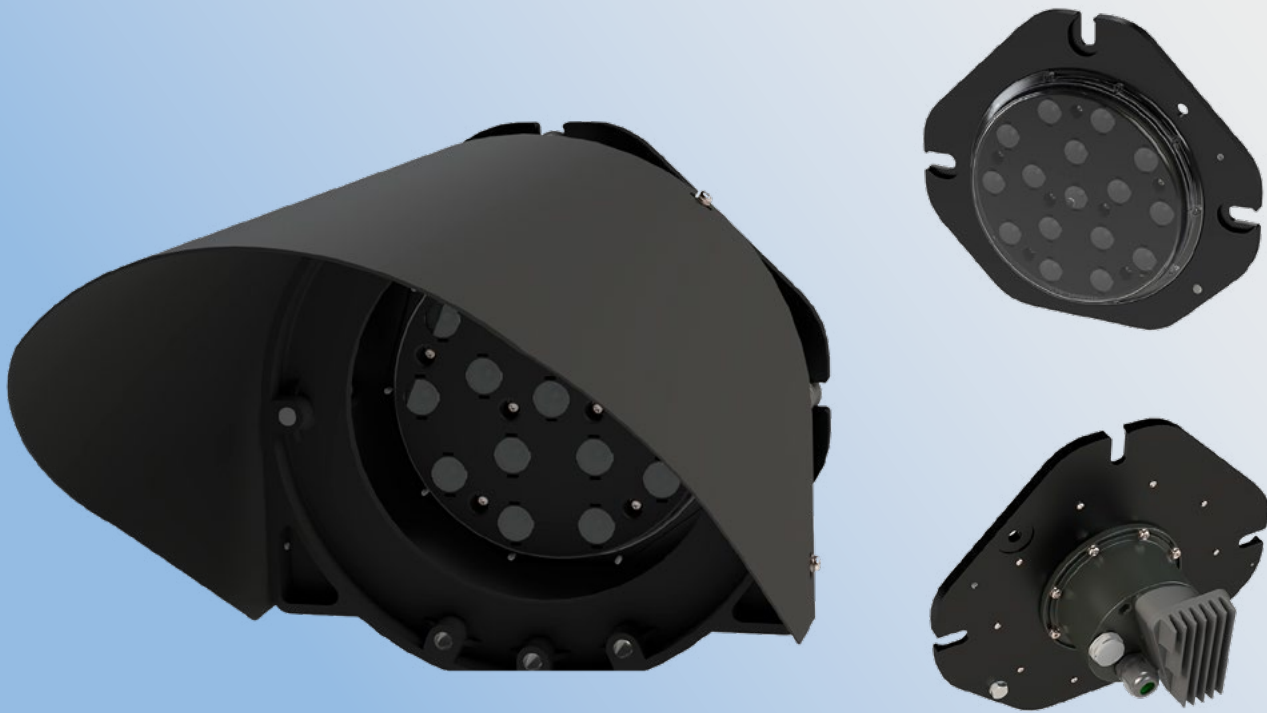
Sabik has been supplying LED railway signals for more than 30 years. LED technology is the preferred solution for most signal lights in various industries today. The reasons for the success of the LED signals are very simple; the LED signals are solid state, maintenance free, mechanically robust and 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.





RSL200

The state of the art architecture of the RSL200 LED Signal 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.

- Compatible with most applications as a replacement for incandescent lamps
- 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: 6,0-18,0 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
 - Voltage hysteresis level for day-night-mode change
 - Number of failed LEDs allowed for operation
- Access to operational parameter with wireless IrDA connection or with serial cable
- Thermally designed for power LEDs to be used for the light source
- High optical performance, special design to minimize the Phantom effect

MAIN TECHNICAL SPECIFICATION

Visual lens size	200 mm
Lens material	Polycarbonate
Light source	16 power LEDs
Luminous intensity day	1200 cd (can be adjusted)
Luminous intensity night	400 cd (can be adjusted)
Luminous divergence	8° @ 50% ($\pm 1^\circ$) of top intensity
Supply voltage day	10–18 VAC, nominal voltage 12 VAC
Supply voltage night	6–10 VAC, nominal voltage 8 VAC
Supply voltage frequency	50, 60, 95, 105 Hz
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 (Supply voltage < 3 VAC)
Signal turn on and off delay	70 ms
Temperature range	-40° – +65° according to EN 50125-3 class T1 and T2
IP class	IP 66
EMC compliance	According to EN 50121 and EN 50124
Functional safety compliance	Suitable for EN 50129 SIL 4 applications
Weight	3 kg

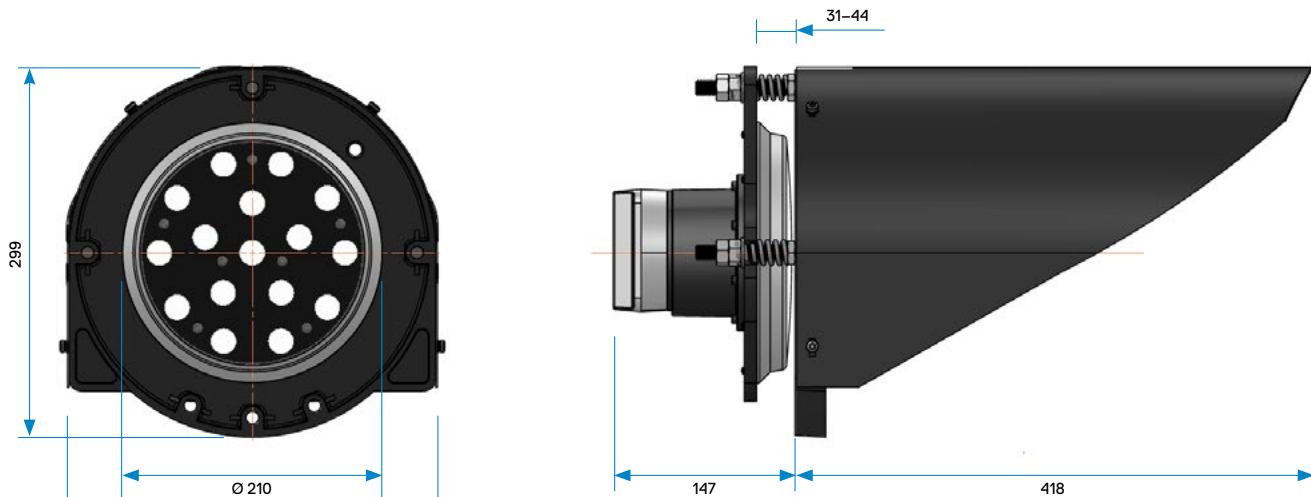
PRODUCT

200 mm, 12 VAC interface

RSLR200.12P	Red
RSLG200.12P	Green
RSLY200.12P	Yellow
RSLW200.12P	White
RSLB200.12P	Blue

OPTIONS

M000343	Light hood
M101079	Front frame
M133275	Light shielding ring
P-LSPC	Line surge protection card





RSSL100 Shunting Signal

RSSL100.12 shunting signal is 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.

- Compatible with most applications as a replacement for incandescent lamp systems
- 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: 6,0–18,0 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
 - Voltage hysteresis level for day-night-mode change
 - Number of failed LEDs allowed for operation
- Access to operational parameter with wireless IrDA connection or with serial cable
- Thermally designed for power LEDs to be used for the light source
- High optical performance
- Metal housing of stainless steel tolerates impacts and offers good EMC protection

MAIN TECHNICAL SPECIFICATION

Visual lens size	4 × 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	10–18 VAC, nominal voltage 12 VAC
Supply voltage night	6–10 VAC, nominal voltage 8 VAC
Supply voltage frequency	50, 60, 95, 105 Hz
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–20 W, can be adjusted with the dummy load resistor
Power consumption off mode	< 0,5 W (with Supply Voltage < 3 VAC)
Signal turn on and off delay	70 ms
Temperature range	-40° – +65° according to EN 50125-3 class T1 and T2
IP class	IP 54 (IP66 for the LED units)
EMC compliance	According to EN 50121 and EN 50124
Functional safety compliance	Suitable for EN 50129 SIL 4 applications

PRODUCT

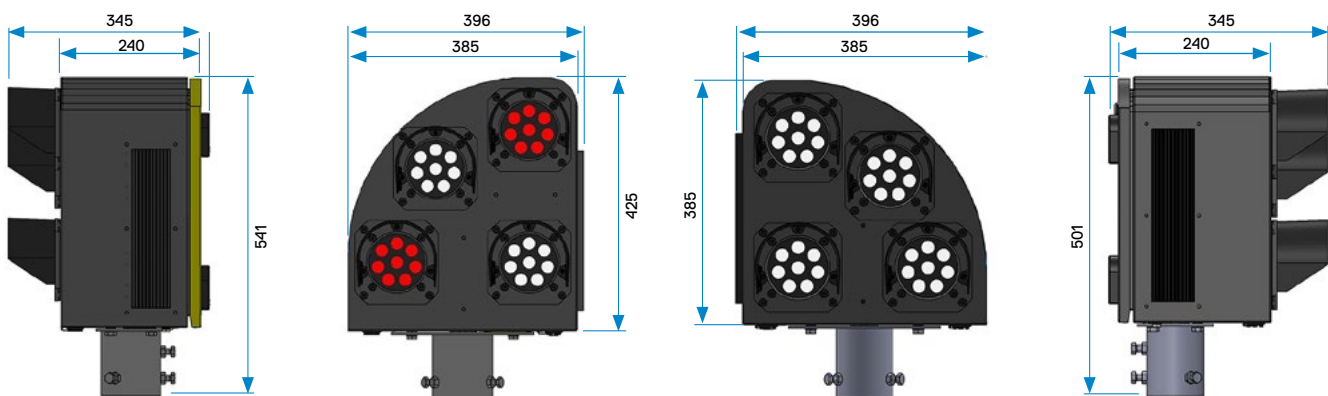
12 VAC interface

RSSL100P.FI	●● 2 × red ●● 2 × white
RSSL100P.NO	●●●● 4 × white

Also available different shapes & signal amounts, ask for more information.

OPTIONS

- Heat mask for anti-frosting
- Color options: Red, White, Green, Blue, Yellow
- Possible to customize the enclosure mechanical design and number of lights & colors
- Customizable mounting bracket





TRV 200 / TRV 100 / RCS2 / RCS3

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 100/200 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 $\pm 15^\circ$ @ 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 for 200 m unit / 2,0 m for 100 mm unit
Traffic light enclosures	One, two and three aspect housings available

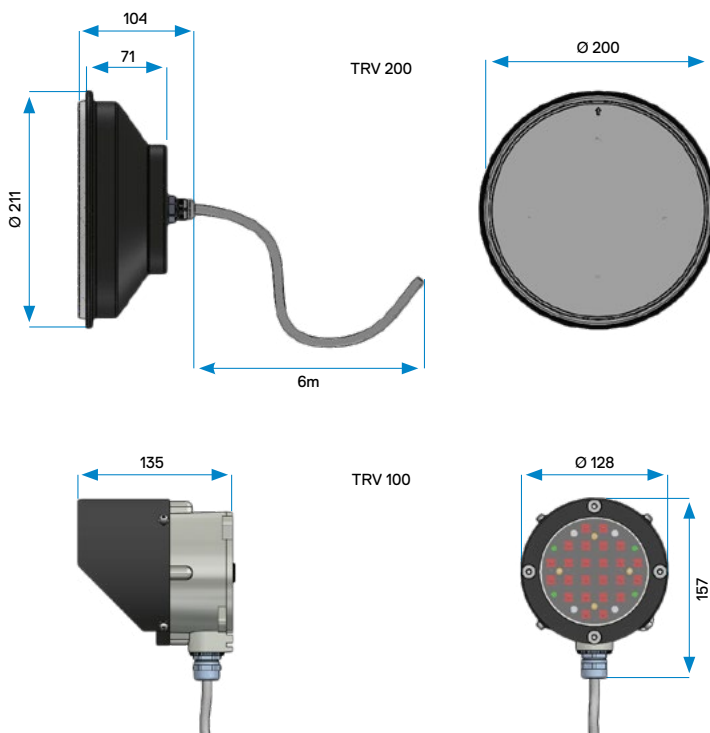
PRODUCT

200 mm, 24 VDC interface

TRV 200W	white
TRV 200R	red
TRV 200G	green
TRV 200Y	yellow
TRV 200B	blue
TRV 200RW	red/white

100 mm, 24 VDC interface

TRV 100W	white
TRV 100R	red
TRV 100G	green
TRV 100Y	yellow





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 per light unit used with low current for high reliability
- Automatic night time dimming according to the input voltage / power level
- Wide operational voltage range: 6,0–18,0 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
 - voltage hysteresis level for day-night-mode change
 - number of failed LEDs allowed for operation
- Access to operational parameters with wireless IrDA connection or with serial cable
- 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	10–18 VAC, nominal voltage 12 VAC
Supply Voltage Night	6–10 VAC, nominal voltage 8 VAC
Supply Voltage Frequency	50, 60, 95, 105 Hz
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–20 W, can be adjusted with the dummy load resistor
Power consumption Off mode	<0,5 W (Supply voltage < 3 VAC)
Signal turn on and off delay	70 ms, adjusted to 40 ms
Temperature range	-40° – +65° according to EN 50125-3 class T1 and T2
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

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

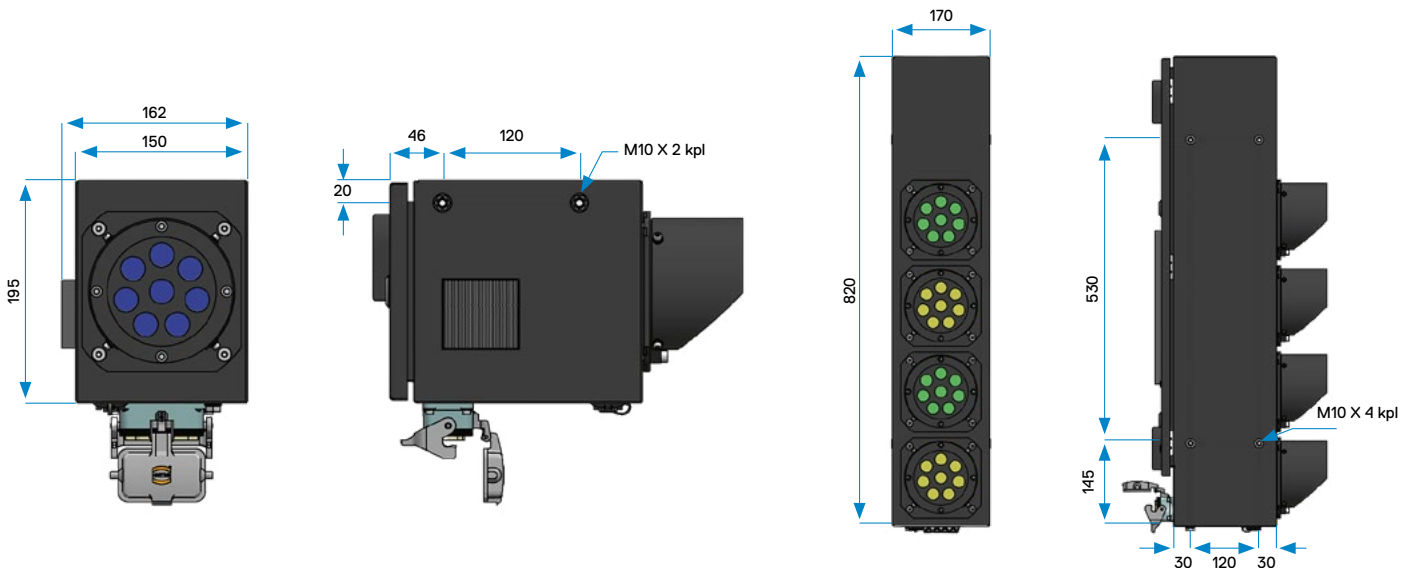
RSLY 100.12EWF ● yellow flashing

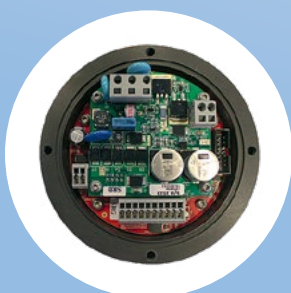
RSLW 100.12EWF ● white flashing

RSLR 100.12EWF ● red flashing

RSLB 100.12EWF ● 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. An example is the Finnish Ring Line, using Sabik LEDs that meet the Finnish OJ 2010 specifications. 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: 6,0–18,0 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
 - voltage hysteresis level for day-night-mode change
 - number of failed LEDs allowed for operation
- Access to operational parameters with wireless IrDA connection or with serial cable
- 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	10–18 VAC, nominal voltage 12 VAC
Supply Voltage Night	6–10 VAC, nominal voltage 8 VAC
Supply Voltage Frequency	50, 60, 95, 105 Hz
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–20 W, can be adjusted with the dummy load resistor
Power consumption Off mode	<0,5 W (Supply voltage < 3 VAC)
Signal turn on and off delay	70 ms
Temperature range	-40° – +65° according to EN 50125-3 class T1 and T2
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

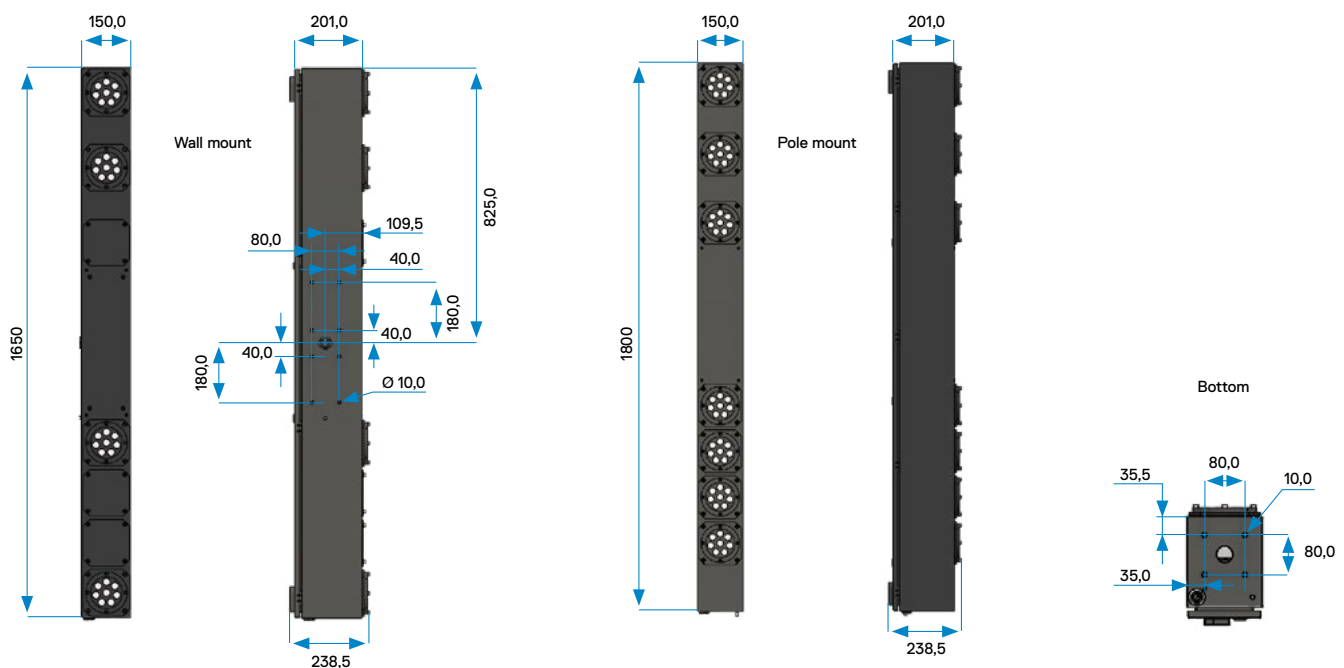
RSLG 100.12FI ● green

RSLY 100.12FI ● yellow

RSLB 100.12FI ● blue

RSLG 100.12FIF ● green flashing

RSLY 100.12FIF ● yellow flashing





Sabik LED Signals Ensuring Safety on Finland's Ring Rail Line

After decades of planning, the Ring Rail Line –linking Helsinki city center to Helsinki Airport– was constructed as one of Finland's most ambitious civil infrastructure projects. Opened to traffic in July 2015, the 18-kilometer-long railway includes 8 kilometers of tunnels and connects key residential, industrial, and commercial zones. To meet the high availability demands of dense commuter traffic and challenging environmental conditions, Sabik delivered a customized LED signaling solution that played a critical role in ensuring operational safety and reliability.

Background and Challenge

The Ring Rail Line connects Helsinki with its airport in Vantaa and intersects two existing radial railway lines. Planning began in the early 2000s, and construction commenced in 2009. The route includes five operational stations, with provisions for three additional ones, and accommodates a train every 10 minutes in both directions.

With an estimated daily ridership of 16,000 passengers and frequent train intervals, the signaling infrastructure needed to meet extremely high standards. Compounding the challenge were:

- Harsh environmental conditions, including damp tunnels and cold temperatures
- Vibration and air pressure shifts caused by the piston effect in tunnels
- High electromagnetic compatibility (EMC) interference from passing trains

These demands necessitated robust, reliable, and high-performance LED signals designed for long-term, fault-free operation.

Solution – Sabik’s Advanced Combined Signal Lanterns

Sabik worked closely with Thales Transportation System GmbH, which supplied an adapted Thales interlocking system tailored to Finnish Interlocking Requirements (FIR). The project marked the first large-scale implementation of the **Finnish Signalling System 2010**.

To meet the complex signaling requirements of the Ring Rail Line, Sabik developed a **new combined signal lantern**, integrating:

- Three main signals (red, yellow, green)
- Two flashing distant signals (yellow and green)
- Two shunting signals (white and blue)

All components were housed within a single, compact unit. Each signal module was based on the **RSLx100.12 FI(F) LED lantern**, featuring a 100 mm light opening. This design reduced the number of separate units needed, simplified installation, and ensured greater durability.

The concept for the combined signal emerged as early as 2005. Multiple prototypes with different shapes and configurations were tested in laboratory and field conditions. These tests focused on:

- Optimal luminous intensities and color contrast
- Flashing functionality
- Overall visibility in varying northern light and weather conditions

Integration with the Thales Field Element Controller (FEC) was also tested extensively to ensure seamless operation across various cable lengths and types used in both domestic and export markets.



Outcome – High Reliability and Client Satisfaction

The result was a reliable, fully integrated LED signaling solution capable of withstanding Finland’s demanding environmental and operational conditions. Throughout the project, Sabik’s signals demonstrated:

- High optical performance
- Consistent electrical compatibility
- Resistance to environmental stressors including tunnel humidity, EMC disturbances, and vibration

Client Testimonial

“We are expecting that the system will meet the desired stability in operation. We have seen Sabik products in use previously and believe that Sabik products will be as reliable as before. During the integration of the Sabik signal lanterns into the Thales interlocking system, the easy adaption of the Thales Field Element Controller (FEC) showed the flexibility of the Sabik lanterns. We were able to achieve all the correct optical and electrical parameters with Sabik signals. This was to ensure the reliable operation with Thales FEC with all cable types and lengths which are used not only in Finland but also in our other export countries.”

Oliver Ipp

Sales Manager for International Business
Thales Transportation System GmbH



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