

Radio ripple control equipment

Product overview

Our expertise for the networks of
today and tomorrow

www.langmatz.de



▲ Plastic granulate

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Langmatz –

Our expertise for the networks of today and tomorrow

The specialist for technical system solutions

Langmatz technical system solutions are considered the gold standard of modern infrastructure in telecommunications and energy networks. Langmatz’s customers include energy providers, local councils, public utilities, and telecommunication companies.

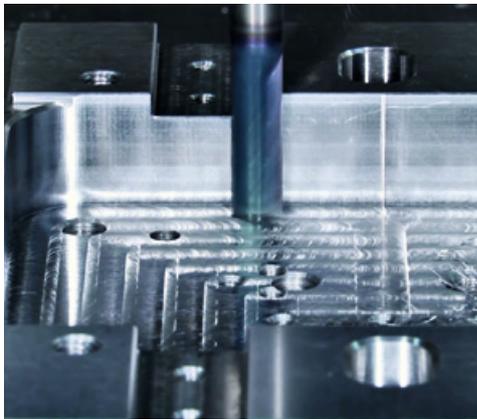
“Made in Germany” is our guiding principle. One of our greatest strengths is that we carry out all processes at our sites in Germany. From design and development supported by the latest 3D printing technology, prototype and mould making, to production and installation.

Our quality management system (QMS) forms the daily basis for meeting our challenging goals. As standards are often not enough for us, we have evolved extensive testing processes and integrated special testing methods into our quality processes. These include regular checks in our material and product testing laboratory, which is equipped with a special static load hydraulic press for manholes.

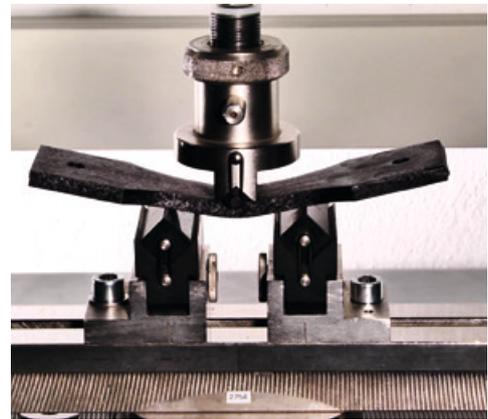
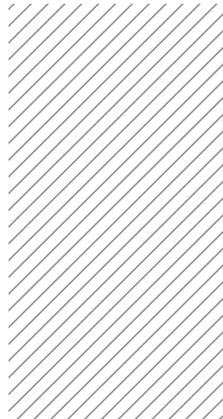
The core elements of our corporate strategy include qualified employees, national supply chains, and Made in Germany manufacturing with state-of-the-art production facilities.



▲ Injection moulding machines



▲ Mould and tool making



▲ Product and materials testing laboratory

Ongoing digitalisation requires technologically mature systems for the networked towns and cities of today. We are one of the most innovative companies in Germany and, as such, we are the perfect partner to implement your projects.

Your partner Langmatz –

Digitally networked environments are our future

A fundamental structural transformation is taking place in towns, cities and in rural areas. Digitalisation, climate protection and the energy and mobility transition require new concepts for a functional urban infrastructure in which people can enjoy life. This approach has given rise to the idea of the Smart City and the Smart Village – the vision of digitally networked environments. Langmatz has looked

into these requirements in detail and developed future-centric solutions for energy and data connectivity, as well as transport infrastructure. In doing so, we have placed great importance on ensuring that our systems boast a high level of security, can be integrated seamlessly into the cityscape, and are particularly user-friendly.

We offer a broad-based portfolio of high-quality products for the many different requirements of the cities and towns of today and tomorrow:

- ▲ Polycarbonate manholes
- ▲ Underground distribution systems
- ▲ Outdoor cabinets and outdoor pedestals
- ▲ Building cable & pipe entry systems
- ▲ Fuse boxes
- ▲ Signal requesting devices
- ▲ Radio ripple control receivers



Radio ripple control –

Functional principle of radio ripple control receivers

Radio ripple control receivers (RRCR) help you to take care of load management, tariff switching, lighting control, and all other switching tasks directly from your PC. The radio ripple control assumes all the tasks of traditional centralised ripple control, but – compared to these control systems – offers a series of important advantages.

Advantages of radio ripple control

- ▲ Thanks to reduced system and operating costs, the radio ripple control system is usually more cost-effective than audio-frequency remote control
- ▲ Radio ripple control involves minimal effort to install and the receivers are easy to assemble. Users can employ them immediately and with comprehensive coverage
- ▲ Data transmission is network-independent and so there are no “network retroactive effects” and it works without connection-related disruptions
- ▲ Group and individual control is possible, precise to the second and across Germany
- ▲ Easy development of new markets (bundle and chain customers)
- ▲ Straightforward network mergers and sales co-operation, thanks to standardised interfaces and receiver technology

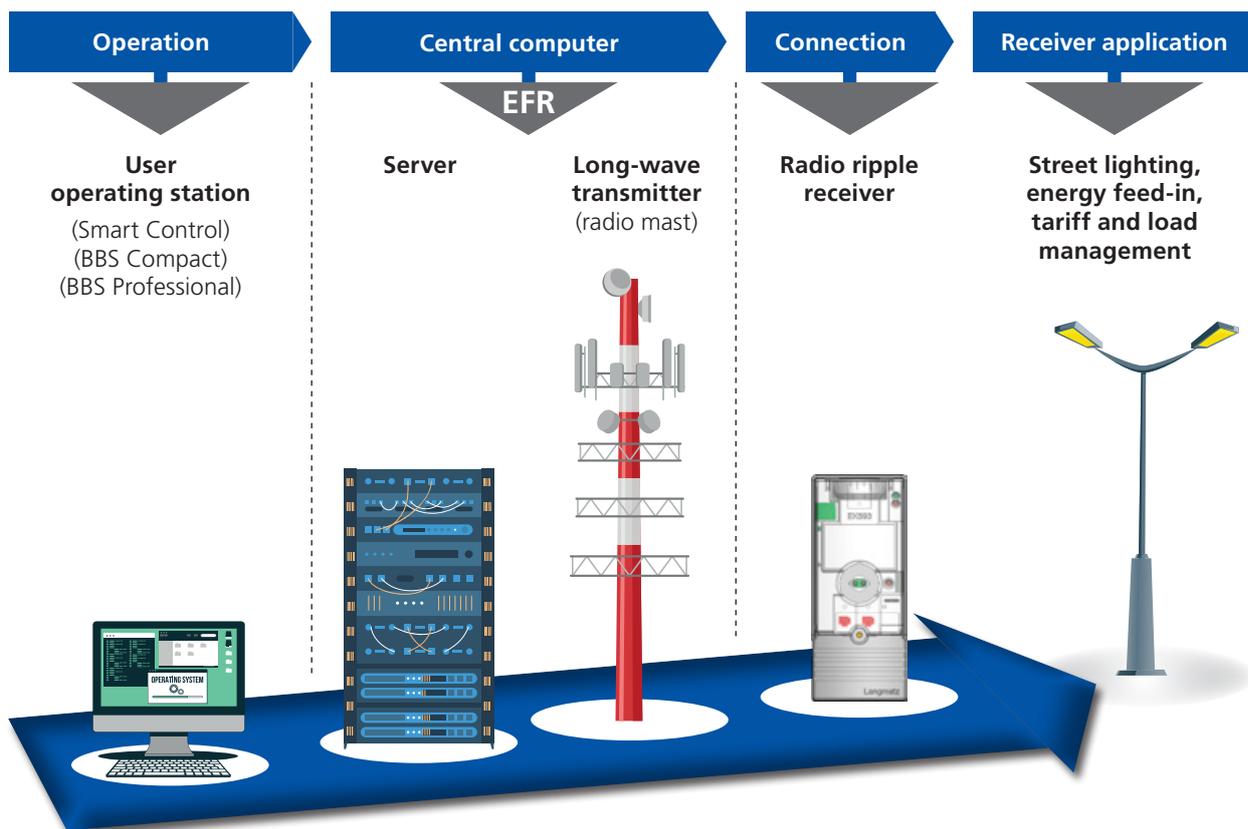
What tasks does radio ripple control solve?

- ▲ **Lighting control**
 - The power costs of street lighting can be optimised with exact switching times, adapted to local circumstances
- ▲ **Tariff switching for special contract customers**
 - Reach your customers in other network areas and offer flexible tariffs with radio control of the receivers
- ▲ **Load management**
 - Simply control your active load management with the switching program stored in the receiver and the possibility of changing it by radio command actively and precisely to the second
- ▲ **Special switching**
 - Program and implement individual switching operations with ease with the many features of radio ripple control
- ▲ **Energy feed-in management systems**
 - 100%, 60%, 30%, and 0% step switching or On/Off switching

The mode of operation is simple, and the system cost-effectively scalable

- ▲ The control tasks are transmitted as telegrams to the central computer of the EFR along a secure internet connection.
- ▲ The central computer manages the administration and forwarding of the telegrams to the transmitter. It guarantees that the transmission wishes of each participant can be fulfilled individually. The transmissions are automatically repeated once.
- ▲ Date and time synchronisation takes place in the pauses between the participants’ transmissions (currently every 10 seconds).
- ▲ A multitude of security measures guarantees the functionality of the system even under unfavourable conditions. The central computer and transmission systems are designed redundantly to guarantee maximum availability. Lightning protection, a UPS system and a diesel generator guarantee secure operation even in the event of mains power failure. Should the signals from the transmitter ever fail to arrive, the receiver can resort to the individual basic program stored in the program memory (time switch function).

Functional principle



▲ Functional principle

The user requires the following system components

- ▲ A user operating station at the user's for the simple generation of switching tasks, with an internet connection to transmit data to the transmission systems
- ▲ Radio ripple control receivers, which can be sited anywhere in the reception area of the transmitters

Transmission protocols (DIN 43861)

- ▲ The VERSACOM and SEMAGYR-TOP transmission protocols optimise operational reliability and create transparency

Lighting control – Connection options

Langmatz radio ripple control receivers (RRCR) offer wireless and accurate-to-the-second lighting control in cities and municipalities. Modern load management and intelligent tariff switching also save energy. Langmatz radio ripple control receivers ensure excellent reception.

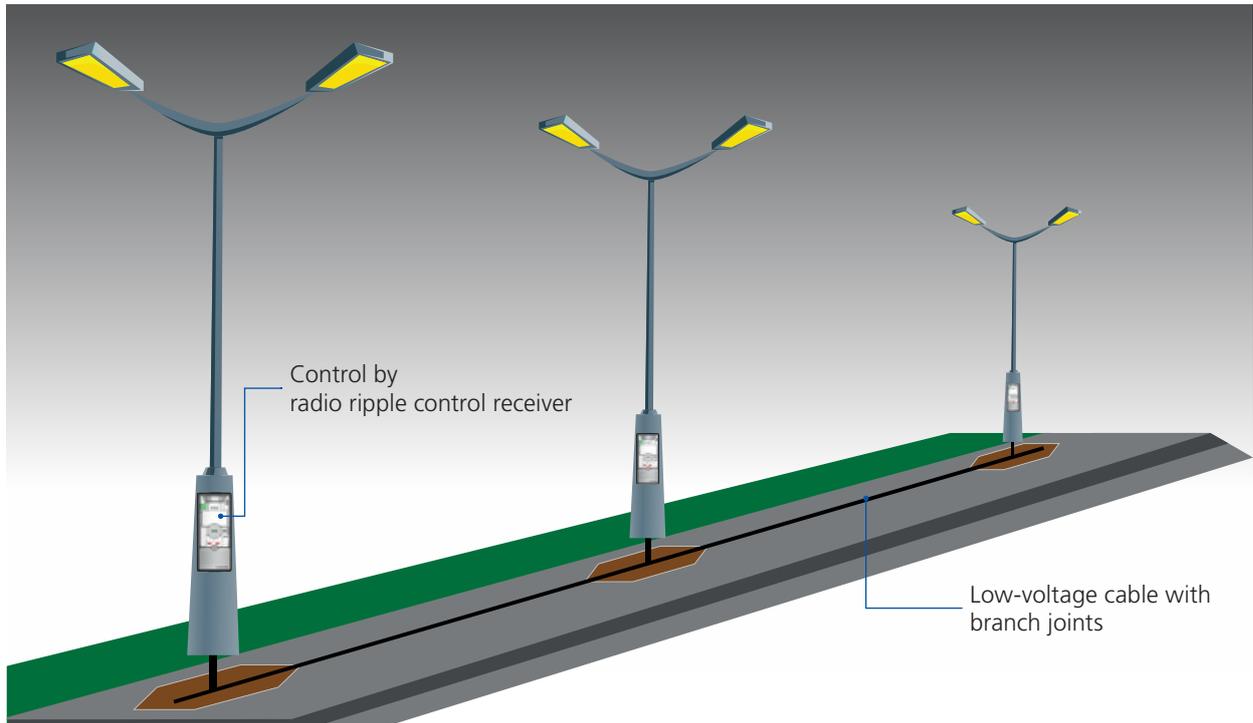
Benefits of lighting control

- ▲ Many different control versions can be set up, such as half-night or all-night switching and power reduction
- ▲ Optimised power costs by exact On and Off times or by the use of different switching methods
- ▲ Excellent operational reliability
- ▲ Summer or winter time
- ▲ Simultaneous switching On or Off of all light points
- ▲ Program changes and switching variations are possible at any time by radio signal
- ▲ Precise lighting calendar



Single circuit connection version

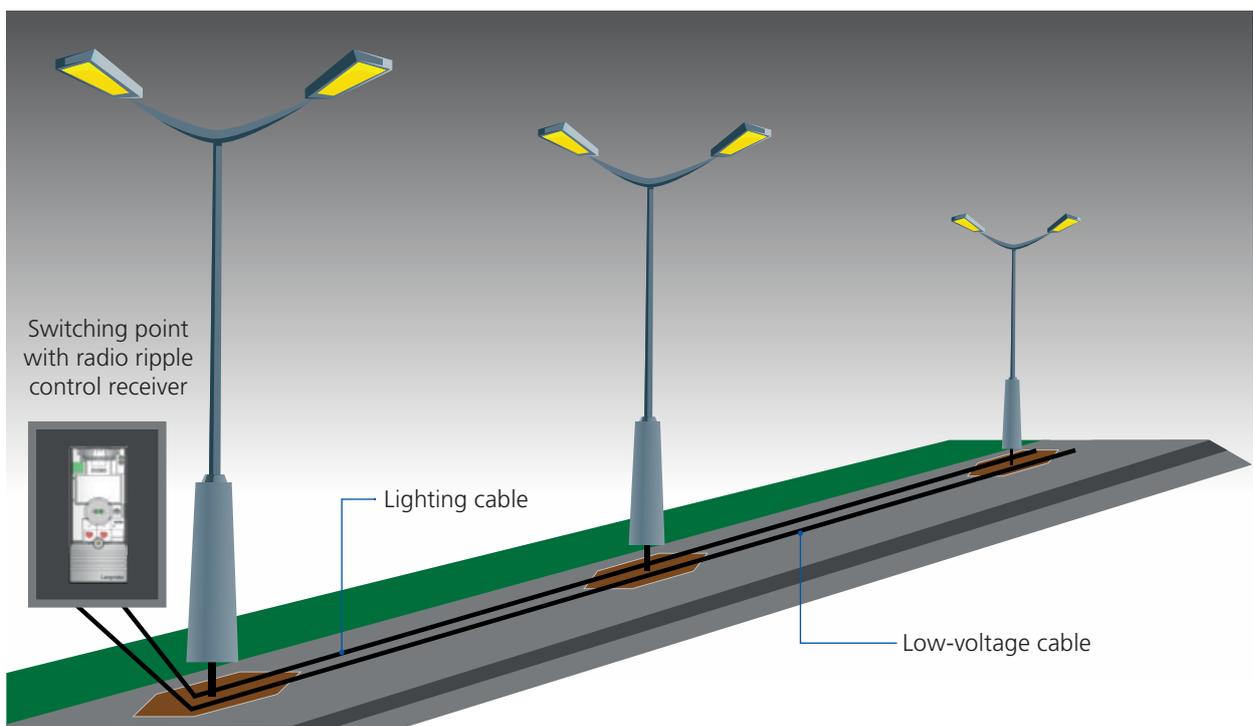
- ▲ Street lighting is connected directly to the low-voltage cable network
- ▲ Every light point is controlled separately by a radio receiver



▲ Graphic: Single circuit

Group circuit connection version

- ▲ Street lighting is fed by a separate cable
- ▲ Light points are controlled in groups by a radio receiver



▲ Graphic: Group circuit

EK893 – Radio ripple control receiver

Performance features

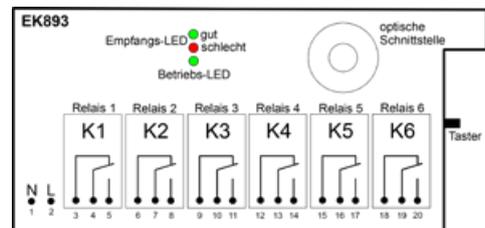
- ▲ Attached by meter panel or piggyback installation using snap-on technology
- ▲ Sturdy three-point attachment – If one catch breaks away, two additional ones ensure a secure hold
- ▲ RRCR can be equipped with up to 6 mechanical relays (25 A or 40 A)
- ▲ Optionally selectable cable cover – short or long cover

Advantages of the Langmatz radio ripple control receiver

- ▲ **Mature technology**
 - Langmatz has delivered more than 1,000,000 radio ripple control receivers in the last 20 years
- ▲ **Lighting control**
 - The power costs of street lighting can be optimised with exact switching times, adapted to local circumstances
- ▲ **Tariff switching for special contract customers**
 - Reach your customers in other network areas with the radio ripple control
- ▲ **Load management**
 - Simply control your load management with the control program in the receiver with the option of changing it by radio command actively and precisely to the second
- ▲ **Special switching**
 - The radio ripple control can be individually programmed and implemented with ease



▲ EK893 – RRCR with housing



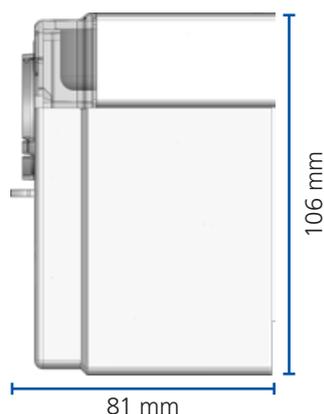
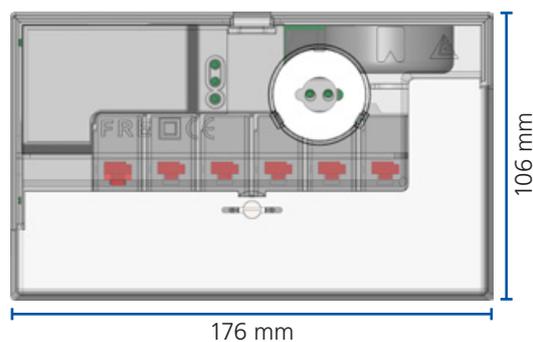
▲ EK893 – Circuit diagram for radio ripple control receiver

Technical data – Radio ripple control receiver

Designation	EK893 radio ripple control receiver (RRCR)
Version	With permanently installed antenna and radio receiver
Housing colour	RAL 7035 (similar to grey)
Protection class	II (double-insulated)
Protection rating	IP51
Mounting	According to DIN 43861 Part 2 for meter panel or piggyback installation using snap-on technology
Operating temperature	-20 to +60° Celsius
Radio transmission format	DIN 19244 FT 1.2
Decoding format	LIC-Versacom compatible with DIN 43861-2-3 or Semagyr Top compatible with DIN 43861-3-2
Parametrisation set	Versacom
Parametrisation interface	Optical
Interference resistance	EN 61037, EN 61000-4-2, -4-3, -4-4, -4-5, -4-8, -4-11, EN 50204
Interference emission	EN 55022, EN 55014-1
Reception display	LEDs, red and green (next to type plate)
Reception frequency	129.1 kHz or 139 kHz
Status display	By operating LED
Operating voltage	230V +/-10%, a voltage of 265V can be present for a short time (<=60sec)
Grid frequency	50Hz +/- 5%
Power consumption	Max. 2.5 VA
Wire cross-section	Max. 2 x 2.5 mm ²
Configuration	Up to 6 plug-in relays
Switching voltage	250 V/50 Hz
Switching current	25 A per plug-in relay, optional 40 A
Wire cross-section	2 x 2.5 mm ² per relay output

Technical data – Housing

Material	Polycarbonate
Colour	RAL 7035 (similar to grey)
Protection rating	IP51
Protection class	II (double-insulated)
Dimensions	Height: 106 mm Width: 176 mm Depth: 81 mm
Cover	Sealable



EK593 –

Radio ripple control receiver

Performance features

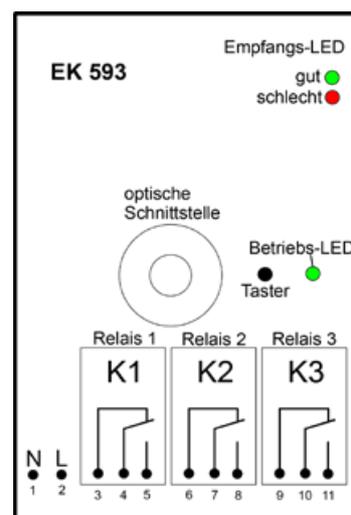
- ▲ Attached by pole installation
- ▲ Sturdy 3-point attachment – If one catch breaks away, two additional ones ensure a secure hold or optionally with top hat rail by adaptation
- ▲ RRCR can be equipped with up to 3 mechanical relays (25 A or 40 A)
- ▲ Mounting option on a fuse box, e.g. EK580

Advantages of the Langmatz radio ripple control receiver

- ▲ **Mature technology**
 - Langmatz has delivered more than 1,000,000 radio ripple control receivers in the last 20 years
- ▲ **Lighting control**
 - The power costs of street lighting can be optimised with exact switching times, adapted to local circumstances
- ▲ **Tariff switching for special contract customers**
 - Reach your customers in other network areas with the radio ripple control
- ▲ **Load management**
 - Simply control your load management with the control program in the receiver with the option of changing it by radio command actively and precisely to the second
- ▲ **Special switching**
 - The radio ripple control can be individually programmed and implemented with ease



▲ EK593 – Radio ripple control receiver



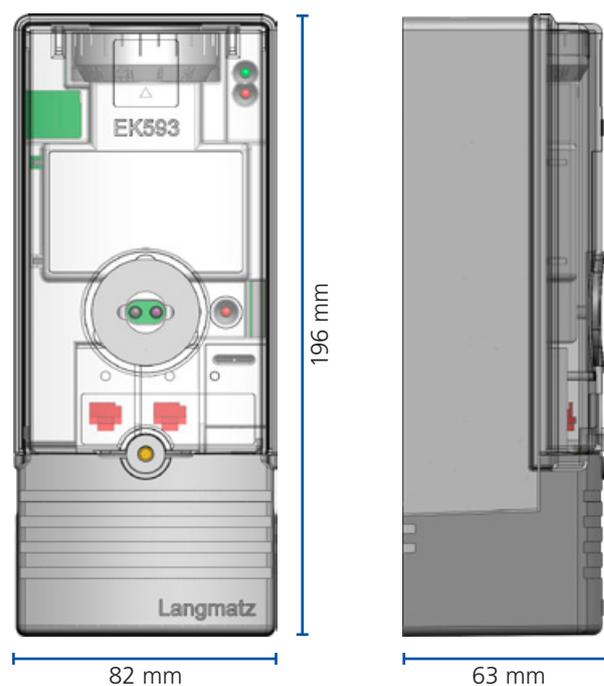
▲ EK893 – Circuit diagram for radio ripple control receiver

Technical data – Radio ripple control receiver

Designation	EK593 radio ripple control receiver (RRCR)
Version	With integrated antenna and radio receiver or remote antenna
Housing colour	RAL 7035 (similar to grey)
Protection class	II (double-insulated)
Protection rating	IP51
Mounting	3-point attachment
Operating temperature	-20 to +60° Celsius
Radio transmission format	DIN 19244 FT 1.2
Decoding format	LIC-Versacom compatible with DIN 43861-2-3 or Semagyr Top compatible with DIN 43861-3-2
Parametrisation set	Pre-parametrised or non-parametrised according to the customer's request
Parametrisation interface	Optical according to IEC 1107
Interference resistance	EN 61037, EN 61000-4-2, -4-3, -4-4, 4-5, -4-8, -4-11, EN 50204
Interference emission	EN 55022, EN 55014-1
Reception display	LEDs, red and green on the receiver
Reception frequency	129.1 kHz or 139 kHz
Status display	By operating LED
Operating voltage	230V +/-10%, a voltage of 265V can be present for a short time (<=60sec)
Grid frequency	50Hz +/- 5%
Power consumption	Max. 2.5 VA
Connection cross-section	Max. 2.5 mm ² per relay output
Configuration	2 plug-in relays with 25 A switching capacity each, optionally 40 A
Switching voltage	250 V/50 Hz
Switching current	25 A per relay
Wire cross-section	2 x 2.5 mm ² per relay output
Plug-in adaptation optional	Linear and offset according to DIN 43861

Technical data – Housing

Material	Polycarbonate
Colour	RAL 7035 (similar to grey)
Protection rating	IP51
Protection class	II (double-insulated)
Dimensions	Height: 196 mm Width: 82 mm Depth: 63 mm
Cover	Sealable



EK793 –

Radio ripple control receiver as top hat rail module
Tariff control of the domestic supply meter / EDL21

Performance features

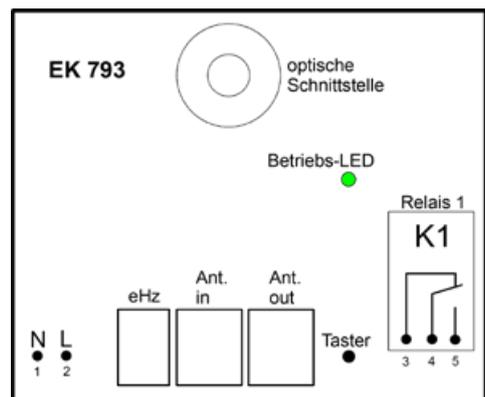
- ▲ Attached using top hat rail assembly
- ▲ RRCR equipped with 1 load relay / 25 A
- ▲ Standardised interface for tariff switching at the domestic supply meter (SML protocol)
- ▲ Operation exclusively with remote antenna

Advantages of the Langmatz radio ripple control receiver

- ▲ **Mature technology**
 - Langmatz has delivered more than 1,000,000 radio ripple control receivers in the last 20 years
- ▲ **Lighting control**
 - The power costs of street lighting can be optimised with exact switching times, adapted to local circumstances
- ▲ **Tariff switching for special contract customers**
 - Reach your customers in other network areas with the radio ripple control
- ▲ **Load management**
 - Simply control your load management with the control program in the receiver with the option of changing it by radio command actively and precisely to the second
- ▲ **Special switching**
 - The radio ripple control can be individually programmed and implemented with ease
- ▲ **Structure**
 - Width 5 DU – smallest RRCR solution available on the market



▲ EK793 – Radio ripple control receiver



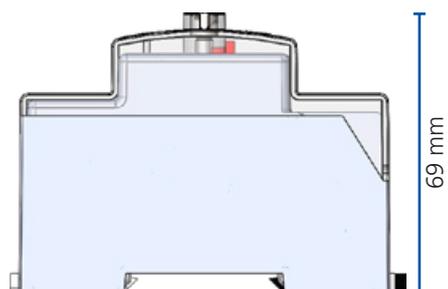
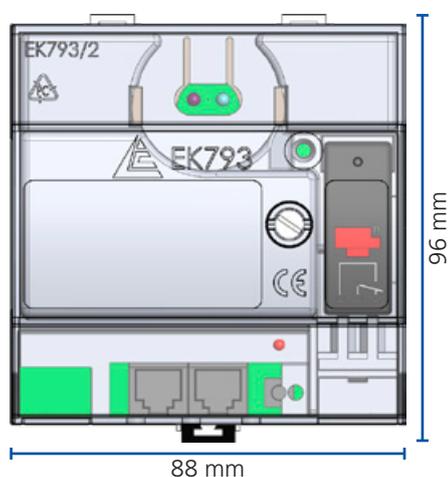
▲ EK793 – Radio ripple control receiver -
Circuit diagram

Technical data – Radio ripple control receiver

Designation	EK893 Radio ripple control receiver (RRCR)
Housing colour	RAL 7035 (similar to grey)
Protection class	II (double-insulated)
Protection rating	IP51
Mounting	Top hat rail by adaptation
Operating temperature	-20 to +60° Celsius
Radio transmission format	DIN 19244 FT 1.2
Decoding format	LIC-Versacom compatible with DIN 43861-2-3
Parametrisation set	Pre-parametrised or non-parametrised according to the customer's request
Parametrisation interface	Optical according to IEC 1107
Interference resistance	EN 61037, EN 61000-4-2, -4-3, -4-4, -4-5, -4-8, -4-11, EN 50204
Interference emission	EN 55022, EN 55014-1
Reception display	LEDs, red and green on the receiver
Status display	By operating LED
Operating voltage	230V +/-10%, a voltage of 265V can be present for a short time (<=60sec)
Grid frequency	50Hz +/- 5%
Power consumption	<2 VA
Wire cross-section	2.5 mm ²
Configuration	3 electronic relays with 100 mA switching capacity each
Switching voltage	250 V/50 Hz
Switching current	100 mA per relay (up to 40° Celsius, otherwise 80 mA)
Reception frequency	129.1 kHz or 139 kHz

Technical data – Housing

Material	Polycarbonate
Colour	RAL 7035 (similar to grey)
Protection rating	IP51
Protection class	II (double-insulated)
Dimensions	Height: 96 mm Width: 88 mm Depth: 69 mm
Cover	Sealable



EK794 – Radio ripple control receiver

Performance features

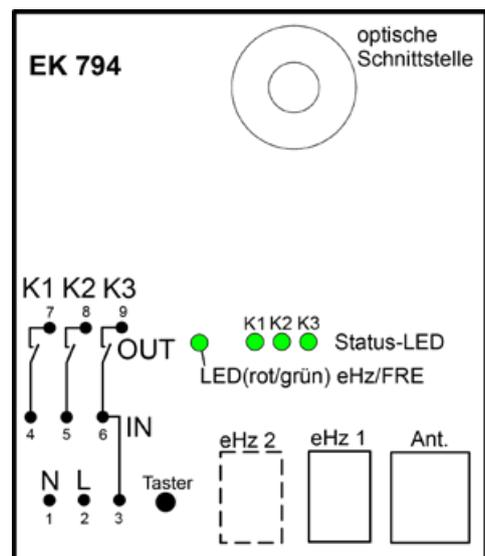
- ▲ Attached using top hat rail assembly
- ▲ RRCR can be equipped with up to 3 electronic “load” relays (100mA)
- ▲ Standardised interface for tariff switching at the domestic supply meter (SML protocol)
- ▲ Operation exclusively with remote antenna

Advantages of the Langmatz radio ripple control receiver

- ▲ **Mature technology**
 - Langmatz has delivered more than 1,000,000 radio ripple control receivers in the last 20 years
- ▲ **Lighting control**
 - The power costs of street lighting can be optimised with the exact switching times, adapted to local circumstances
- ▲ **Tariff switching for special contract customers**
 - Reach your customers in other network areas with the radio ripple control
- ▲ **Load management**
 - You can control your dispositive load management simply with the control program in the receiver and have the option of changing it by radio command actively and precisely to the second
- ▲ **Special switching**
 - The radio ripple control can be individually programmed and implemented with ease



▲ EK794 – Radio ripple control receiver



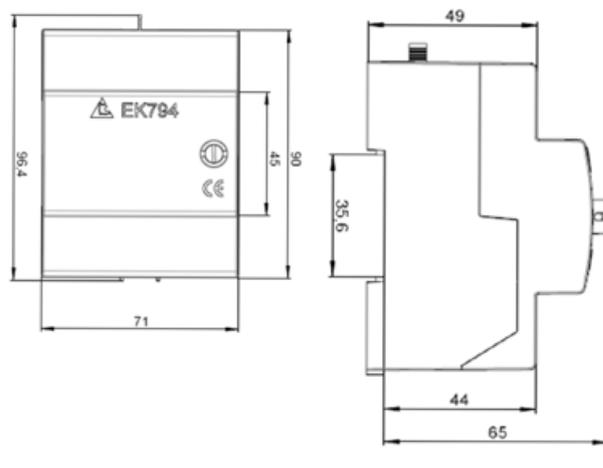
▲ EK794 - Circuit diagram for radio ripple control receiver

Technical data – Radio ripple control receiver

Designation	EK794 radio ripple control receiver (RRCR)
Housing colour	RAL 7035 (similar to grey)
Protection class	II (double-insulated)
Protection rating	IP51
Mounting	Top hat rail by adaptation
Operating temperature	-20 to +60° Celsius
Radio transmission format	DIN 19244 FT 1.2
Decoding format	LIC-Versacom compatible with DIN 43861-2-3
Parametrisation set	Pre-parametrised or non-parametrised according to the customer's request
Parametrisation interface	Optical according to IEC 1107
Interference resistance	EN 61037, EN 61000-4-2, -4-3, -4-4, -4-5, -4-8, -4-11, EN 50204
Interference emission	EN 55022, EN 55014-1
Reception display	LEDs, red and green on the receiver
Status display	By operating LED
Operating voltage	230V +/-10%, a voltage of 265V can be present for a short time (<=60sec)
Grid frequency	50Hz +/- 5%
Power consumption	<2 VA
Wire cross-section	6 x 2.5 mm ²
Configuration	3 electronic relays
Switching voltage	250 V/50 Hz
Switching current	100 mA per relay (up to 40° Celsius, otherwise 80 mA)
Reception frequency	129.1 kHz or 139 kHz

Technical data – Housing

Material	Polycarbonate
Colour	RAL 7035 (similar to grey)
Protection rating	IP51
Protection class	II (double-insulated)
Dimensions	Height: 90 mm Width: 71 mm Depth: 65 mm
Cover	Sealable



Radio ripple control receiver – Accessories

Designation	Product
<p>Housing for EK595 Housing with integrated antenna for remote operation in the event of disrupted reception conditions at the installation site of the radio ripple control receiver.</p> <ul style="list-style-type: none"> ▲ Product is sealed ▲ Protection rating IP 67 (outdoors) 	
<p>Housing for EK595 Housing with integrated antenna for remote operation in the event of disrupted reception conditions at the installation site of the radio ripple control receiver.</p> <ul style="list-style-type: none"> ▲ Product is unsealed ▲ Protection rating IP 54 (indoors) 	
<p>EK303 type 3 – Optical-acoustic alignment aid To measure the absolute field strength in dBμV/m and the acoustic presentation of the bit data flow via loudspeaker.</p> <ul style="list-style-type: none"> ▲ Reception frequency: 129.1 kHz or 139.0 kHz ▲ Equipped with an original long-wave receiver for the relevant frequency ▲ The ideal installation position of the RRCR can be determined with the assistance of the setting wheel. The degrees set can then be set 1:1 on the radio ripple control receiver 	
<p>EK303 type 1 – Optical-acoustic alignment aid The alignment aid is attached to the antenna to find the ideal location for the antenna. The optimum installation site and ideal alignment of the antenna is determined with the original RRCR. Also ideal for testing reception conditions if, for example, the meter cabinet is closed.</p>	
<p>EK315 – Meter snap-on cover For the plug-in piggyback installation of the radio ripple control receiver beneath a meter. The meter snap-on cover can also optionally be equipped with a back-up fuse module.</p>	

Awards



2009
German Materials Efficiency Prize
"From vehicle roof to manhole"



2010
Environmental Prize
"From vehicle roof to manhole"



2011
Bavarian Founder Award
"Succession" category



2012
Intertraffic Innovation Award
"Charging at the light pole"



2013
WPC Innovation Award
"Product Development & Product Design" category



2015
In the Top 3 – GreenTec Awards,
"Recycling & Resources" category



2019
Inno4wood Innovation Award



2021
Top Employer German SMEs 2021

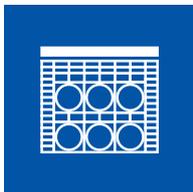


2022
F.A.Z Institute

We will gladly send you further detailed product information for your planning.

Please contact your local Langmatz representative or our head office.
Data sheets and other information can be found on our website:

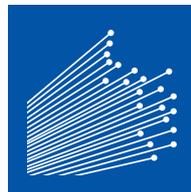
www.langmatz.de



Polycarbonate manholes



Underground distribution systems



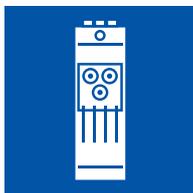
FTTx-solutions for optical fibre networks



Outdoor cabinets and outdoor pedestals



Building cable & pipe entry systems



Fuse boxes



Signal requesting devices



Radio ripple control receivers

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