



Euro-Signal

Quarz

Type 2643211C
2643211CR



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Subject to technical alterations!

1. Safety Instructions

The unit must be switched off before making any interventions!

Information about the operating manual

The operating manual provides some important instructions on handling the unit. All technical details in the manual have been prepared and compiled with the greatest possible care. Even so, errors cannot be excluded. We wish to point out that we cannot assume any guarantee, legal responsibility or any liability for consequences resulting from incorrect information. We would, at all times, welcome any notification of possible errors. Safe working depends on the indicated safety and handling instructions being adhered to. Also to be adhered to are those local accident prevention provisions which are in force where the unit is used as well as the general safety requirements.

The operating manual is to be studied carefully before any work begins!

As an integral part of the overall product it is to be securely kept right next to the unit and for ease of consultation by the personnel.

Do hand over this manual should this product be sold or passed on to another party. For a better understanding of what is involved, some of the diagrams in this manual may not be true-to-scale and may deviate slightly from the actual constructional design.

General Safety Instructions

Key to symbols

Notes are identified by symbols. They are also preceded by signal terms that express the extent of the danger.

- All instructions must be observed!
- Always work carefully in order to avoid accidents, personal injury and damage to property!

WARNING!



Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.

CAUTION!



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION!



Indicates a potentially hazardous situation which, if not avoided, may result in material damage.

Tips and recommendations

NOTE!



Highlights useful tips and recommendations together with information for efficient and trouble-free operation. *ten und störungsfreien Betrieb hervor.*

Limitation of liability

All information and instructions in this manual have been compiled taking the applicable

standards and regulations, the state of the art and our many years of knowledge and experience into consideration.

The manufacturer accepts no liability for damages caused

- by non-observance of the instructions
- Unintended use
- Deployment of untrained personnel
- Unauthorised modifications
- Technical modifications
- Use of unapproved spare parts

The actual scope of delivery may deviate from the explanations and representations described here if special versions are supplied, additional options are ordered or as a result of the latest technical changes. Otherwise, the obligations agreed in the supply contract, the General Terms and Conditions, the manufacturer's terms of delivery and the statutory regulations applicable when the contract was concluded shall apply.

Warranty

The manufacturer guarantees the functionality of the applied process technology and the stated performance parameters.

The warranty period shall commence from the time the goods were accepted without defects.

Wear parts

Wear parts include all components that come into direct contact with the material to be machined or processed.

These components are excluded from the warranty and shall not be subject to claims for defects insofar as they are subject to wear.

Warranty conditions

The individual warranty conditions are contained in the sales documents.

In general, the following shall apply:

All warranty claims shall be rendered void if conversions or technical modifications have been carried out that have not been certified by the **horizont group gmbh!**

Repairs to the towing gear of the vehicle may only be carried out by certified workshops or by the manufacturer itself.

Spare parts

WARNING!



Incorrect or faulty spare parts can lead to damage, malfunctions or total failure and severely impair safety.

Only use original spare parts!

Original spare parts can be obtained directly from the manufacturer.

Customer Service

Our Customer Service department is available to provide technical information.

Furthermore, our employees are always interested in receiving new information and experiences gained during use, which can be valuable for improving our products.

Copyright

This manual is intended exclusively for persons who work with the unit. The manual may not be forwarded to third parties without the manufacturer's written consent.

NOTE!



The content, texts, drawings, images and other representations are protected by copyright and are subject to industrial property rights. Improper use in any manner is punishable by law. Reproductions of any type or form - in whole or in part - as well as the exploitation and/or communication of the contents are not permitted without a written declaration of consent from the manufacturer. Infringements shall result in a claim for damages. We reserve the right to assert further claims.

Safety

This section provides an overview of all important safety aspects for the optimum protection of personnel as well as for safe and smooth operation. Failure to observe the instructions and safety information given in this manual may result in significant danger.

Operator's responsibility

The operator of the unit is subject to the legal occupational safety obligations. In addition to the occupational safety instructions given in this operating manual, the safety, accident prevention and environmental protection regulations applicable to the area of use of the unit must also be observed.

In particular, the operator must:

- Inform himself of the applicable occupational health and safety regulations.
- Conduct a risk assessment in order to determine any additional hazards resulting from the specific working conditions at the place of use of the unit.
- Implement the necessary rules of conduct given in the operating manual for operating the unit at its place of use.
- Conduct regular checks, during the unit's entire period of use, to ascertain whether the operating instructions drawn up by him comply with the current status of the regulations.
- Clearly delegate the responsibilities for installation, operation, maintenance and cleaning of the unit.
- Ensure that all staff who work on or with the unit have read and understood the operating instructions. Furthermore, he must instruct the personnel at regular intervals in the use of the unit and inform them of the potential hazards.

Moreover, the operator is responsible for ensuring that

- the unit is always in technically perfect condition,
- the unit is maintained in accordance with the specified maintenance intervals,
- all safety devices are regularly checked for completeness and functionality,
- the prescribed inspections are performed at a self-defined or specified time interval.

Personnel requirements

Qualification

WARNING!



Improper handling can lead to significant personal injury and property damage. Qualified personnel must be engaged to perform all activities.

Hazards

The following section deals with residual risks that have been determined on the basis of a hazard analysis. It is essential that the information given here and the safety instructions set forth in the other chapters of this manual are observed, in order to reduce possible health hazards and avoid dangerous situations.

Electric current

Danger!



Touching live parts can cause serious injury and even death. Damage to insulation or individual components can be life-threatening.

Repairs to the electrical system may only be performed by qualified electricians.

Before performing any work on the electrical warning system, first disconnect the negative pole and then the positive pole from the accumulators.

Accumulators and batteries

WARNING!



The accumulators or batteries used may release harmful substances or explode if incorrectly handled.

Explosive gas mixtures may be produced when batteries are charged. You must ...

- not smoke,
- avoid sparks and ensure adequate ventilation,
- not use flammable cleaning agents in the vicinity of the batteries.

Observe the battery manufacturer's instructions!

Environmental protection



CAUTION!

Batteries contain toxic heavy metals. They are hazardous waste and must be collected and disposed of in accordance with the applicable regulations. It is the owner's responsibility to inquire about collection points and disposal procedures.

Intended use

WARNING!



Any use of the unit beyond its intended use and/or use in a different manner may lead to hazardous situations for which the **horizont group gmbh** accepts no responsibility.

Therefore:

- Only use the unit for its intended purpose.
- Strictly observe all information given in this operating manual. In particular, refrain from the following uses, which are considered unintended: Modification, conversion or alteration of the design or individual parts of the equipment with the aim of changing the applicability or usability of the device.

Claims for damages of any kind resulting from unintended use are excluded. The operator is solely liable for all damages resulting from unintended use.

2. Euro-Signal

The Euro-Signal signalling system is a modern quartz-controlled portable traffic light system for controlling bottlenecks.

The system is programmed using the simple and intuitive Micro-Terminal. A pre-installed bottleneck program limits the required inputs to just a few parameters. An integrated calculation program automatically determines RiLSA-compliant times from the construction site length and clearance speed. (RiLSA = Richtlinien für Lichtsignalanlagen/German Guidelines for Traffic Signals).

The terminal can be removed once programming has been completed. This protects the system against unauthorised intervention.

Error and status messages are output in full text format.

The operating modes “flashing”, “red”, “manual” and “lamps off” remain available.

To synchronise with permanent systems, the system offers the most frequently used extrapolation methods for time synchronisation.

The Euro-Signal is manufactured to the highest quality standards and complies with the European standards DIN EN 12368 (Traffic control equipment - Signal heads) and DIN EN 12675 (Traffic signal controllers) for Type A quartz-controlled traffic light systems.

Further features

Securing the signals:

- Red lamp monitoring
- Test for incorrectly switched on lamps
- Control unit self-test

Programming

- Various national languages and signal aspects
- Time calculation according to RiLSA specifications using construction site length and clearance speed
- Adjustable “red/amber” and “amber” time
- Adjustable dimming curve
- Red times from 3s ... 999s
- Green times from 10s ... 999s
- Calculation of green times based on traffic volume

Special features:

- Housing of the control unit in the green chamber
- Removable controller to protect against unauthorised operation
- Monitoring of operating voltage and protection of the battery against deep discharge
- Adaptation of the lamp brightness to the ambient brightness
- Post-synchronisation possible

2.1 Micro-Terminal



The system is operated via 12 keys which offer the following basic functions:

- E** Select a menu item or confirm an entered value on the primary display: Select the operating mode
- +** Increase an input value/select the input “Yes”
- Decrease an input value/select the input “No”
- R** Cancel the current input and return to the beginning of a sub-item or an input loop.
On the primary display: Open the info display, press again to invoke the radio channel selection function.
- ↑** Scroll the display or jump to the previous line. Switch between the signal heads on the main display. The selected signal head is marked with an underscore
- ↓** Scroll the display or jump to the next line. Switch between the signal heads on the main display. The selected signal head is marked with an underscore



Open the bottleneck program for fast system set-up



Open the bottleneck program for fast system set-up



Open the bottleneck program for fast system set-up



Open the error memory (log book)



Delete/reset error



Open the main menu for various programming and advanced settings

All entries and changes (with the exception of changing the operating mode) are initially only stored in the terminal. Only when a new program is transferred do the new values also become effective in the system.

The various settings and programming options are described below.

2.2 Main menu functions

- Programming
- Retrieving a program
- Setting the clock
- Options
- Operating log

Brief description of the individual functions

Programming:

These are used to open the data entry window.

This can also be opened via the keyboard.

Since the Euro-Signal can only be programmed for bottlenecks, all keys open the same data entry field.



Retrieving a program:

Load current program from the signal head to a controller.

Setting the time:

Setting the correct time is essential for the signal head to function correctly, because the time is transferred to the signal head during programming and is therefore of particular relevance when using extrapolation.

Options:

The basic settings of the signal head are entered here. These include the country variant (different signal aspects), language and system dimming at night.

The signal head is preset for use in Germany, see point 3.5.

Operating log:

Open the error memory (log book)

The setting must be adjusted accordingly if the signal head is used in other countries!

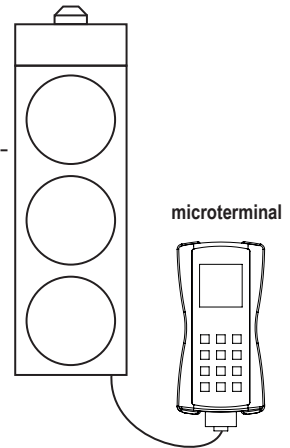
2.3 Signal head

The signal head comprises three chambers for the red, amber and green signal lamps and a half chamber mounted at the top. The signal heads are fitted with LED optics.

A 6-pin socket (CA6) is fitted in the lower chamber. The operating terminal is connected to this socket.

The electronics and main fuse are located inside the lower "green" chamber.

Depending on the version, the red time counter is located inside the upper half chamber.



3. Setting up and putting a system into operation

Quartz systems can be set up extremely quickly and reliably.

Since there is no connection between the individual signal heads, they are not capable of vehicle actuation and also do not have the signal safeguarding function. They are therefore only suitable for use in type A systems.

- Position the signal heads in accordance with the technical traffic documentation and cover the signal heads or turn them to face away from traffic.
- Now start at the signal head that is to be assigned number 1. Connect the power supply, ensuring correct polarity, and plug in the operating terminal. Check (correct if necessary) the time and enter the program as set forth in point 4.2.
(If a previously entered program is still active, the signal head displays the "red" signal after a brief "amber" flash and then runs through the old programme).
- Once programming has been completed, answer the question "Is this traffic light 1?" with "yes" and then confirm the entry with "E". The traffic light number of the signal head to which the terminal is connected is now set to 1 and all required program values are transferred.

You will then be prompted to go to traffic light 2. Connect the power supply, ensuring correct polarity, and plug in the terminal.

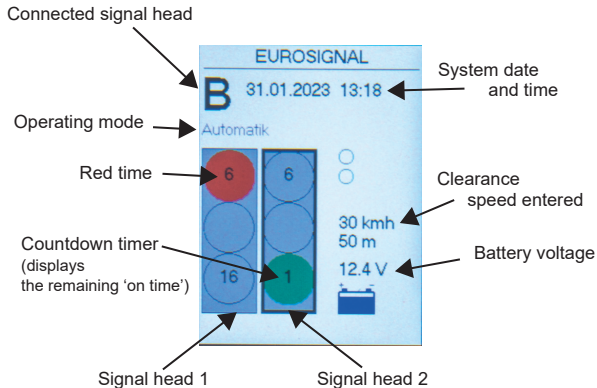
After a few seconds, the message "Is this traffic light 2?" appears. Answer the question with "yes" and then confirm the entry with "E". The traffic light number of the signal head is now set to 2 and all required program values are transferred.

- Remove the covers or turn the signal heads to face the traffic at a suitable moment.

4. Programming

4.1 Status display on the operating terminal

Once the operating terminal has been plugged in, the current program is first loaded from the control unit into the controller and, after a few seconds, the following status appears on the display:



The wide cursor (underscore) indicates the signal head for which the battery voltage and any errors are displayed.

With the Euro-Signal, the programmed times are displayed in the respective LED fields.

When the LED field is active, the remaining time counts down.

If errors occur in the LED fields, a corresponding symbol appears on the display.

WARNING!



The other signal head continues to run its program unaffected!

The buttons perform the following functions:



Transition to operating mode selection. The possible modes are “Automatic”, “Manual”, “Amber flashing”, “Lamps off”, “Red” and the “Stop” command.



Transition to the programming menu



Transition to the information window and frequency menu (see point 2.3.2).

4.2 Programming

Program entry window

Programmieren	
Geschw.:	30 kmh
Entfern.:	50 m
Grün A:	16 s
Rot A:	6 s
Grün B:	16 s
Rot B:	6 s
Umlauf:	54 s

Programming is limited to two parameters. Once the clearance speed and the distance between the two signal heads have been entered, the times are calculated according to the RiLSA specifications, taking the set volume of traffic into account.

After entering the two aforementioned values, the green and red times are calculated for both signal heads. If these are not to be changed, simply confirm the individual values with the “E” key until “Upload program?” appears on the display.

If the red and green times are to be changed, this can be manually performed for each signal head.

The system’s total cycle time is displayed on the bottom line.

4.3 For professionals

Green times depending on traffic volume

In addition to setting the times in accordance with the RiLSA specifications, the controller also allows a number of other settings. Under normal conditions the optimal green times are calculated for an average traffic volume (ATV) of 700 vehicles per hour.

Press the programming menu key. Select “Options” and under the item “Traffic:” set the value for the traffic volume to the value observed at the bottleneck.

In order to calculate the program with the new values and transfer it to the system, turn the signal heads to face away from the traffic and stop the current program on both sides.

Reprogram the system as described in point 2.

4.4 Setting the time

The time is required for synchronising the quartz units and for synchronising multiple systems with each other. It is also needed for recording the internal operating log. It should therefore always be checked and, if necessary, set when setting a system up.

4.5 Extended program options

Under the “Set OPTIONS” menu item you will find various parameters for internationalising the programs together with some items that should only be changed in special cases:

These settings are not required for normal use. They are set to the appropriate default

values upon delivery. If in doubt, consult your specialist dealer.

The following overview lists all of the setting options.

Language	German	E/FR/ES/IT/NO/PL/SE/SK/SI
Signal aspect	D	A, E, F, I, IRL, N, N, PL, S, SK, SLO
Red/amber	1	0...2
Green signal	Green	FIAmb, fl amber3
Flashing green	0	0...9
Amber	4	0...9
min. power	10	25...max
max. power %	50	min...95
ATV in MOVH/hr.	700	1000...15000

Changing the signal aspect sets all parameters, together with the construction site length, clearing speed and traffic density to their default values.

Signal aspect	Red/amber [s]	Green signal	Fl. green [s]	Amber [s]	Min. [%]	Max. [%]	Traffic [MOVH/hr.]
A	2	Green	4	2	50	100	700
CH	1	Green	0	4	50	100	700
D	1	Green	0	4	50	100	700
E	1	Green	0	4	50	100	700
F	0	Fl. amber 3	0	5	50	100	700
I	1	Green	0	4	50	100	700
IRL	1	Green	0	4	50	100	700
N	1	Green	0	4	50	100	700
NZ	1	Green	0	4	50	100	700
PL	1	Green	0	4	50	100	700
S	1	Fl. amber	0	5	50	100	700
SK	1	Green	0	4	50	100	700
SLO	1	Green	0	4	50	100	700

The traffic volume is given here in motor vehicles per day (MOVH/d).

Red/amber Red/amber time in s. 0 = no red/amber

Green signal Signal aspect that allows the corresponding direction to move. The signal head displays this during the green time. Under certain circumstances, the diffuser lenses in the signal heads must be replaced with the corresponding colours.

Green Green (continuous signal) in the lower chamber

FIAmb Flashing amber in the middle chamber FIGr

FIAmb.3 Flashing amber in the lower chamber (fit amber diffuser lens)

Off All signals off

Green-F. Flashing green time in s. 0 = no flashing green

Amber Amber time in s. 0 = no amber

Min. % of the lamp power to be reduced to in darkness

Max. % of the lamp power achieved during daylight

WARNING!



After changing the signal aspect, the user must check to ensure the individual parameters are correct!

Post-synchronisation during operation

The Euro-Signal systems are fitted with highly accurate quartz movements, but these have low tolerances.

If they are operated for a longer continuous period, minor time differences will occur between the two signal heads, as with all quartz clocks. Depending on the length of the bottleneck, this can lead to a failure of the clearance procedure. I.e. one direction will already receive the “green” signal, although not all of the vehicles travelling in the opposite direction will have cleared the bottleneck. This makes it necessary to resynchronise the system.

- To do this, connect the controller to the first signal head while the system is running in automatic mode and wait until the current program is displayed.
- Navigate to the controller’s main menu via the gear icon
- Go to the menu item “Retrieve program” and confirm with the “E” key
- Transfer the program again, by navigating to the menu item “Programming”
- Disconnect the controller from the first signal head and connect it to the second signal head. The message “Is this traffic light 2?” appears
Select “Yes” and then confirm with the “E” key

The program will be restarted at a suitable time

The time between connecting the controller to each of the signal heads should not be greater than 15 minutes.

4.5.1 Operating modes

In the case of quartz-controlled signalling systems, the lack of feedback means that the operating mode can only be changed at the signal head to which the controller is connected.

WARNING!



The second signal head continues to run its program unaffected.

- Automatic

- Manual -> see the point on manual operation
- Flashing -> flashes amber permanently
- Lamps off -> all lamps are turned off, the program continues to run in the background
- Red -> permanent red
- Stop -> Stops the program to which the controller is connected and switches to flashing amber

Manual operation



Manual operation only works if the system has been previously programmed.

With quartz-controlled signalling systems, only one signal head can be controlled with one controller at a time, due to the lack of feedback.

The operating personnel carry sole responsibility for proper and conflict-free signalling.

Press the “E” key in main screen mode and select “Manual” operating mode. After the “green” time specified in the program, the signal head now switches to “amber” and then to “red”.

To switch the signal head to green, press the “+” key; the signal head then switches to green after the specified time.

To switch the signal head to red, press the “-” key; the signal head then switches to red after the specified time.

The current light status is simultaneously displayed on the controller’s screen.

WARNING!



The second signal head continues to run its program unaffected.

The red time can be shortened to 1 s using the manual switch.

To switch to automatic mode, press the “E” key in main screen mode and select “Automatic” operating mode. The signal head will now switch to the programmed sequence at a safe time (after one cycle at the latest).

Manual operation does not affect synchronisation between A and B.

5. Status messages and error display

Errors that occur during operation are displayed on the operating terminal. The signal head in question is no longer displayed in a rectangle with a continuous line. The errors can be read out by pressing the “R” key. All errors that have occurred appear here in plain text. Pressing the reset button resets the errors, if possible.

In order to read out errors on the second signal head, the controller must first be connected to it.

6. Securing the signals

The signals between the signal heads are not secured in quartz systems because the heads are not connected. However, the individual signal head control units have a comprehensive self-test function that is constantly executed during operation.

The LED fields are also monitored. In the event of a fault, the respective signal head

switches to flashing amber, while all of the other signal heads continue to operate normally.

7. Red time counter (RTC)

Depending on the version, the signal head is supplied with or without a red time counter. With multi- and Euro-signal systems it is possible to retrofit a red time counter at any time.

The red time counter allows the remaining dwell time to be displayed.

After the program has started, the red time counter on Eurosignal systems needs around one cycle before the display activates and

around three cycles for MultiSignal systems. If an error is detected, the red time counter switches the display to dark.

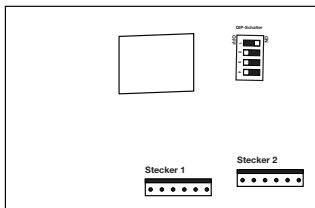
Since MultiSignal programs are normally vehicle-actuated, the red time is averaged and automatically adjusted by the red time counter in the event of a green time extension.

The red time counter has automatic brightness control. This can be deactivated if required. The display is at full brightness when dimming is deactivated.

DIP switch - condition at delivery

Switch position	OFF	ON
Switch 1:	MultiSignal	EuroSignal
Switch 2:	No function	No function
Switch 3:	Dimmer on	Dimmer off
Switch 4:	RTC on	RTC off

Rear of red time counter



7.1. Cabling

Some of the cables in each signal head are already pre-installed at the factory.

In the upper half chamber there is a 6-pole plug with two wires. This is plugged onto connector 1 (towards the centre).

On plug 2 (towards the outside) is the power supply and the signals of individual LED fields.

The red chamber contains Wago terminals for the supply voltage.

Three further wires are connected to the LED fields. When retrofitting, the wire end ferrules must be removed beforehand, the wire stripped by about 10 mm and twisted with the

accessory cable. They must then be connected to the Wago terminal.

7.2 Terminal assignment

Note: The individual wires of connector 2 are connected to the same-coloured wires in the signal head via Wago terminals.

Plug 1

Pin 5	brown
Pin 4	amber/green

Plug 2

Pin 1	pink	+ LED field red
Pin 2	amber	+ LED field amber
Pin 3	green	+ LED field green
Pin 5	black	Ground connection
Pin 6	red	Positive connection

8. Error displays

The following table lists various messages that are displayed on the controller to indicate operating errors or system faults. If the errors cannot be eliminated by following the instructions provided, please contact your specialist dealer or return the signal head and the controller for inspection.

Error message/error	Possible cause	“First aid”
Red, amber, green do not illuminate or flash	Terminals of the power supply cable are reversed	- Correctly connect the power supply cable
No display on the controller	No power available	- Check battery terminals - Check whether the plug of the controller is properly inserted into the socket on the signal head and that it is not dirty
Horizont logo Continuous display	The controller is waiting for the data connection to the control unit in the signal head.	- Check whether the plug of the controller is properly inserted into the socket on the signal head and that it is not dirty - Unplug the plug from the operating terminal then plug it back in
No program	No program in the traffic light control unit	- Reprogram both signal heads
“Send program” is frozen		- Unplug the plug from the operating terminal and plug it back in - Reconfirm the request.

Signalling system switches to flashing amber	The battery voltage has fallen below the reserve value - Green or red LED field defective	- Replace the battery with a charged one - Check the pole terminals and the power supply cable - Check the wiring of the LED fields - Replace the defective LED field
The screen displays “Warning! Different options”	The program running in the signal head uses a different signal aspect or different values for lamp dimming than are set on the controller.	- Go to “Options” - Set the signal aspect and lamp dimming to the correct values - Check the values set on the operating terminal and reprogram the system
“Error 21” is displayed on the screen	An error has occurred in the operating terminal’s internal memory.	- Go to “Options” - Set the individual parameters to the correct values before making changes to, or reprogramming, the system - Have the controller checked

9. Changing the battery and putting a system into operation

CAUTION!



When changing the battery, ensure the battery trolley is sufficiently stable – there is a risk of it tipping over when empty!

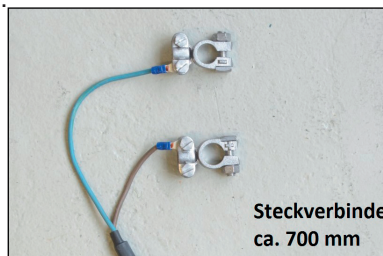
RISK OF SHORT CIRCUIT !!

The signal head is supplied with a Rema plug system. To prevent short circuiting, first disconnect the Rema plug and then connect the terminals to the battery. Then reconnect the Rema plug to the traffic light system.

A dummy Rema plug is supplied with each signal head. Always connect this to the second Rema plug that is not in use.

9.1 Changing the battery

Changing the battery without interrupting the program that is running using the optional Rema connector (accessory).



Rema connector



1. Connect the optional Rema connector to the charged battery.
2. Disconnect the dummy plug from the second Rema connector on the discharged battery and connect it to the second battery.
3. Disconnect the Rema connector from discharged battery and place the dummy connector on the open Rema connector.
4. Disconnect the terminals from the discharged battery and remove the battery from the battery trolley.
5. Place the charged battery into the battery trolley.

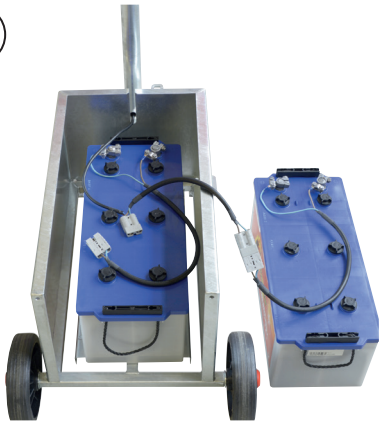
1



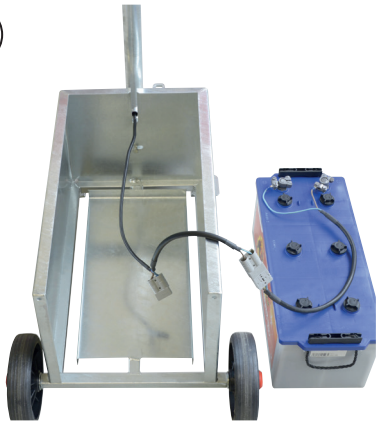
2



3



4



5



9.2 Fuse

The system is also fitted with a fuse to prevent malfunctions. It is fitted inside the green chamber.

If the system no longer functions, check the fuse and replace it with a standard 5 A automotive fuse if necessary.

9.3 Care instructions



Signalling systems are technically advanced, microprocessor-controlled devices that are largely maintenance-free. Nevertheless, they should be handled with due care and checked from time to time.

Cables must not be kinked or crushed. Particular attention should be paid to ensuring pole terminals and bulb contacts are clean. The diffuser lenses must be cleaned before and during use to ensure the signals can be clearly seen during operation. During longer breaks in use, the system should not be stored outdoors. In particular, the controller must not be stored inside the battery trolley as it can be damaged by the acid vapours.

10. Technical parameters

Operating voltage.....11 - 15 V DC

Av. power consumption – cable/quartz operation.....7 W

Operating temperature range..... -20°C - +55°C

Time setting range.....0 s - 999 s

Lamp 12 V / 4W LED

Subject to technical alterations

10.1 Classification:

Performance class A2/2

Light intensity distribution: W

Phantom class: 5

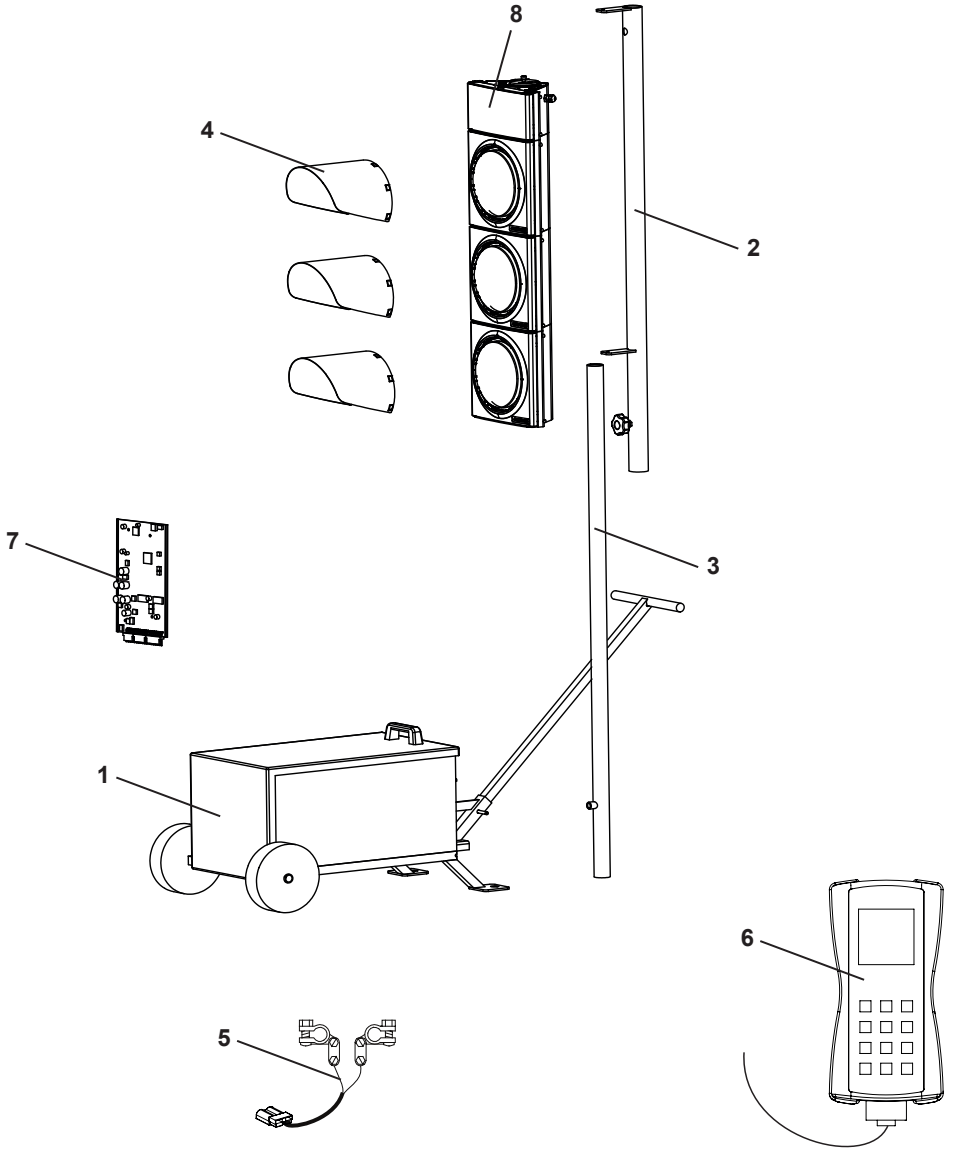
Symbol class: S1

Impact resistance: Class IR3, Class IR2, Class IR1

Protection class: IP55, IP54

Environmental class: Class A, Class B, Class C

11. Spare parts overview



Item Name _____

- 1 Battery trolley.....on request
- 2 Signal post, upper
- 3 Signal post, lower > auf Anfrage
- 4 Hood93991
- 5 Rema plug/connector82243
- 6 Microterminal control unit26214
- 7 Control unit (EuroSignal).....on request
- 8 Red time counteron request

Contact number

Euro-Signal Service-Hotline 0151-17419286

