

WAVE.COM4

LED-COLOURED

LIGHT

OPERATING INSTRUCTIONS



Consisting of:
LED power element(s) (ASFA22)
und LED-coloured lamp or
LED-coloured lamp "L" and their
operating functions

LED coloured light

Description	LED coloured light
Order reference	AB6001000101 (LED coloured lamp) or AB6001000201 (LED coloured lamp long) AB0601000102 (LED power element ASFA22)
for company	
version	V05
drafted	06.2013

CONTENTS

1.0.0 GENERAL	30
1.1.0 INTRODUCTION	30
1.2.0 SAFETY NOTICES	30
2.0.0 MANUFACTURER'S DECLARATION	32
3.0.0 CONNECTIONS BETWEEN THE MODULES	33
3.1.0 SINGLE OPERATION WITHOUT WAVE.COM4	33
3.2.0 OPERATION IN CONJUNCTION WITH WAVE.COM4 (ABATEC-BUS)	33
3.3.0 SINGLE-CONTROL ELEMENT MASTER MODE coloured lamp or coloured lamp „L“	34
4.0.0 COLOUR CONTROL ELEMENT	35
4.1.0 MODULE DESCRIPTION	35
4.2.0 DIMENSIONS / FITTING	35
4.3.0 PLUG DESCRIPTION	36
4.4.0 TECHNICAL DATA CONTROL ELEMENT	36
5.0.0 LED POWER ELEMENT (ASFA22)	36
5.1.0 MODULE DESCRIPTION	36
5.2.0 DIMENSIONS / FITTING	37
5.3.0 PLUG DESCRIPTION LED POWER ELEMENT	38
5.4.0 TECHNICAL DATA LED POWER ELEMENT	38
6.0.0 LED COLOURED LAMP	39
6.1.0 MODULE DESCRIPTION	39
6.2.0 DIMENSIONS / FITTING Coloured lamp	39
6.3.0 DIMENSIONS / FITTING Coloured lamp LANG	40
6.4.0 TECHNICAL DATA LED COLOURED LAMP	41
7.0.0 FUNCTION DESCRIPTION	41
7.1.0 SWITCH ON	41
7.2.0 SWITCH OFF	42
7.3.0 MODES	42
7.4.0 TABLE OF COLOURS	43
7.5.0 CONNECTING SEVERAL LED COLOURED LAMPS	43

WE DO IT FIRST.

8.0.0	PROGRAMMING FUNCTION	43
8.1.0	PROGRAMMING CYCLE TIME	43
8.2.0	PROGRAMMING COLOURS	44
8.3.0	PROGRAMMING COLOUR TRANSITION PERIOD	45
8.4.0	USING SEVERAL CONTROL ELEMENTS	45
8.5.0	MASTER/SLAVE COLOUR CONTROL ELEMENT PROGRAMMING	46
8.6.0	COLOUR-LED/RELAY MENU PROGRAMMING	46
8.7.0	DISPLAY SOFTWARE VERSION	47
9.0.0	FAULTS, CAUSES AND SOLUTIONS	48

WE DO IT FIRST.

CONTROLLED BY



ABATEC Electronic AG

Oberregauer Straße 48
4844 Regau, Austria

Tel.: +43 (0) 7672-27720-0
Fax : +43 (0) 7672-27720-401

E-Mail: info@abatec-ag.com
www.abatec-ag.com

WE DO IT FIRST.

1.0.0 GENERAL

1.1.0 INTRODUCTION

Welcome to the user manual for the innovative, high-tech LED coloured lamp from ABATEC.

This user manual is designed to help you connect the LED coloured lamp to the appropriate parts of the sauna control "wave.com4" and put them into operation.

This device allows the LED coloured lamp to be controlled by the colour control element of the sauna control and the LED power element (ASFA22). You can operate the colour control in 2 connection modes. (The setting is described in Item 8.5.0)

a) Single – control element master - mode

Pure colour led control, no sauna function, can only be operated with one control element.

Hardware (connected to the bus bar):

- one colour control element and
- one or more LED power elements + associated LED coloured lamp

b) Sauna – control element slave - mode

The colour-led control is integrated into the sauna control and the control element acts as a slave here.

Hardware (connected to the bus bar):

- Colour control element(s)
- the sauna base section
- one or more LED power elements + associated LED coloured lamp

1.2.0 SAFETY NOTICES

- Please be aware that the components in the housing of the wave.com4 are operated with dangerous mains voltage.
- Do not connect or disconnect any live components! Always isolate the mains connection beforehand using the appropriate circuit breaker in the building's distribution system.

- Electrical switch-off must be completed in all poles in line with the relevant regulations of the local Electricity Boards.
- Electrical work should only be carried out by a qualified expert. Any interventions by unauthorised persons shall render the warranty null and void. There is also a risk of serious electric shocks of live parts are touched.
- Keep the controls away from heat sources.
- Before start-up, check that all connections are properly connected and that no cables or parts are damaged.

WE DO IT FIRST.

2.0.0 MANUFACTURER'S DECLARATION

We
ABATEC® Electronic AG
Oberregauer Straße 48
A-4844 Regau

hereby declare in relation to the product below

LED Coloured light AB6001000101 und
LED Coloured light long AB6001000201

consisting of

Power element „ASFA22“ and
LED board „ABFLED“

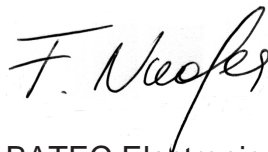
that it complies with the following directives

Low-Voltage Directive 2006/95/EG
EMC Directive 2004/108/EG

applied harmonised standards:

Standard designation

- 1 EN 60335-1: A12:06
- 2 EN 60335-2-53: 03+A1:2007
- 2 EN 50366:06



ABATEC Electronic AG
Dipl.Ing. Friedrich Niederndorfer, MBA

We reserve the right to make technical changes in the interests of progress. This description has been drafted to the best of our knowledge. Please inform your dealer or us if you find any errors therein. **Many thanks!**

ABATEC Electronic AG

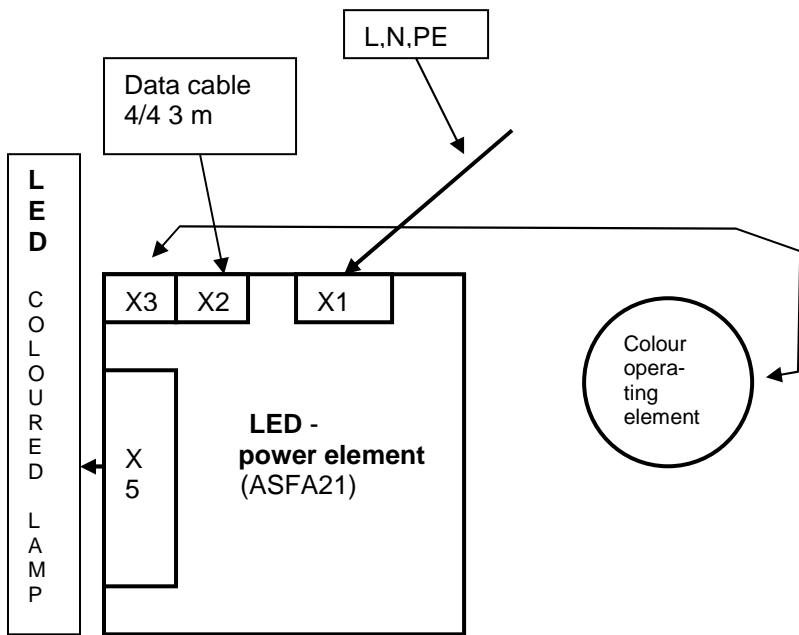
for:

WE DO IT FIRST.

3.0.0 CONNECTIONS BETWEEN THE MODULES

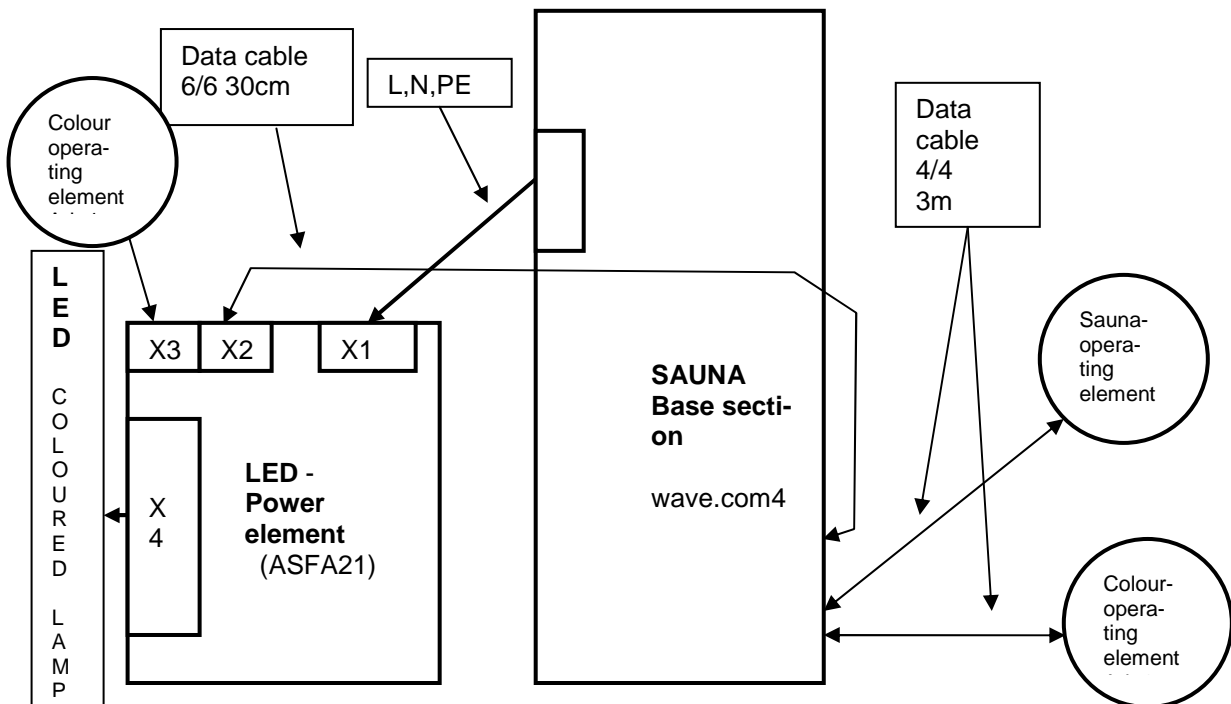
3.1.0 SINGLE OPERATION WITHOUT WAVE.COM4

Pure colour control, only one colour control element is possible.



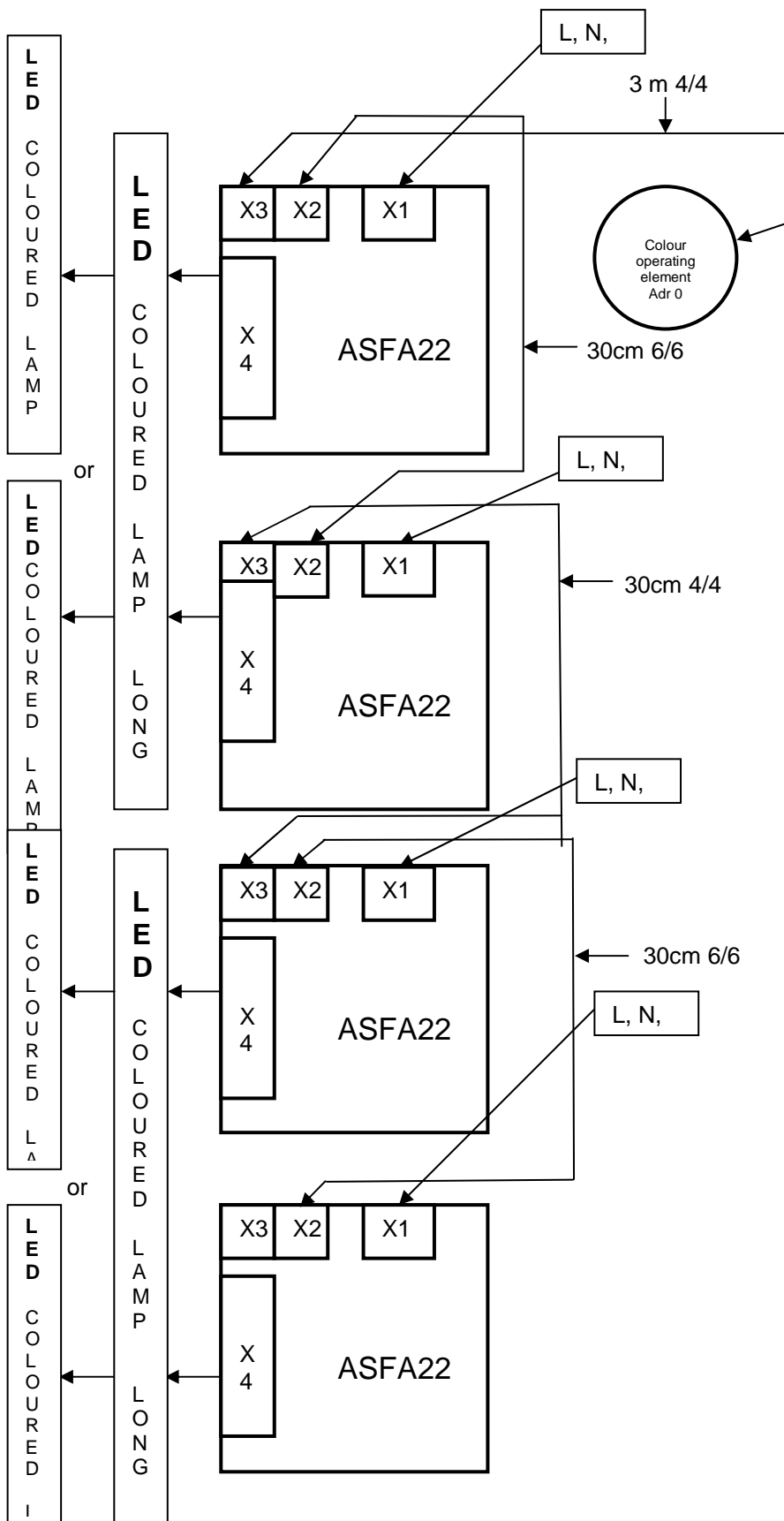
3.2.0 OPERATION IN CONJUNCTION WITH WAVE.COM4 (ABATEC-BUS)

Colour- and sauna control, up to 3 colour control elements connectable.



WE DO IT FIRST.

3.3.0 SINGLE-CONTROL ELEMENT MASTER MODE coloured lamp or coloured lamp „L“



WE DO IT FIRST.

4.0.0 COLOUR CONTROL ELEMENT

4.1.0 MODULE DESCRIPTION

Control element is made up of the following Components:

- Control element board in flush-mounted box with front panel
- Data cable
- Fixing material

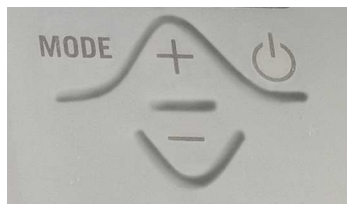
- Display



- Symbols (LED's)



- Keys



4.2.0 DIMENSIONS / FITTING

L x W x D = 120 x 92 x 44,5 mm; ~200 g without cable and loose; differences possible depending on customer finish.



WE DO IT FIRST.

Fitting suggestion:

Insert into the fitting hole and fasten to the sauna wall using the 4 screws supplied.

4.3.0 PLUG DESCRIPTION

Plug in modular Jack 4/4 (supply and communication) until you hear it click



1	+5V=
2	CAN+
3	CAN-
4	Earth

4.4.0 TECHNICAL DATA CONTROL ELEMENT

Connection:	4-pin with supply and communication lines (3m)
Power consumption:	5V= / <100 mA normal operation (<0.5 W)
Ambient conditions:	0°C – 110°C, max. 99 % rel. humidity, non-condensing!
Housing:	Flush-mounted box; board; optical fibre for display; wooden front with temperature-resistant foil. Board over M2.5 bolt on wooden front; rear with flush-mounted box
Mounting:	Fasten to the sauna wall with the screws supplied

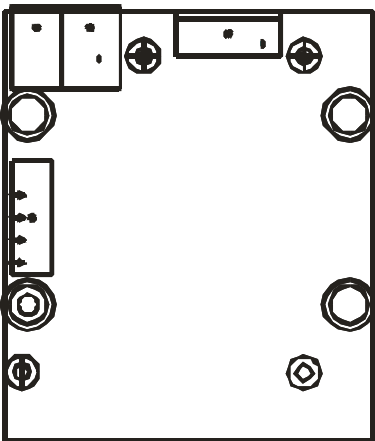
5.0.0 LED POWER ELEMENT (ASFA22)

5.1.0 MODULE DESCRIPTION

Das LED Power element is made up of the following components:

- ASFA22 board
- Data cable to the wave.com4 or to other ASFA22 boards

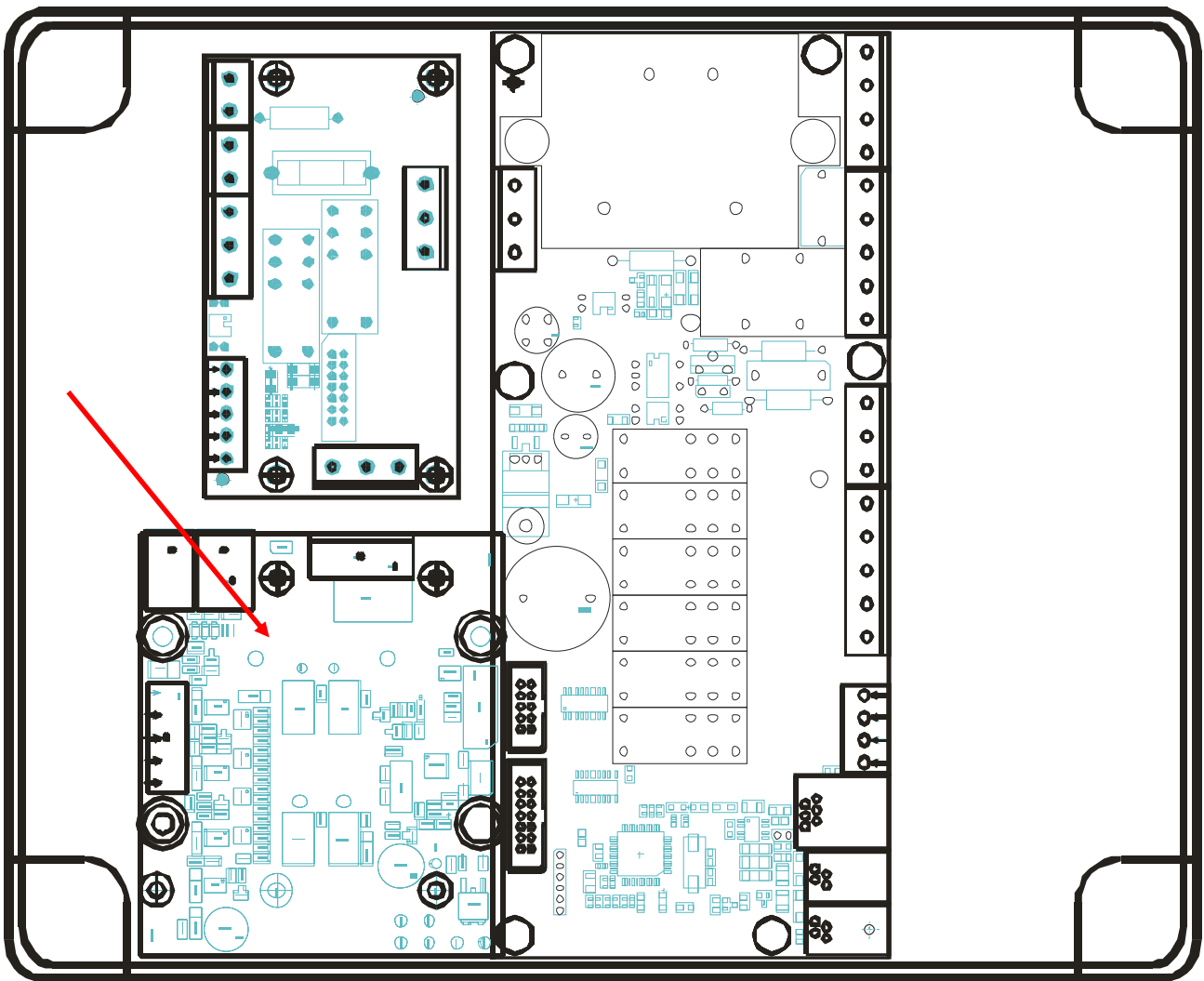
5.2.0 DIMENSIONS / FITTING



L x W x D = 83 x 93 x 73 mm
~850 g without cables and loose

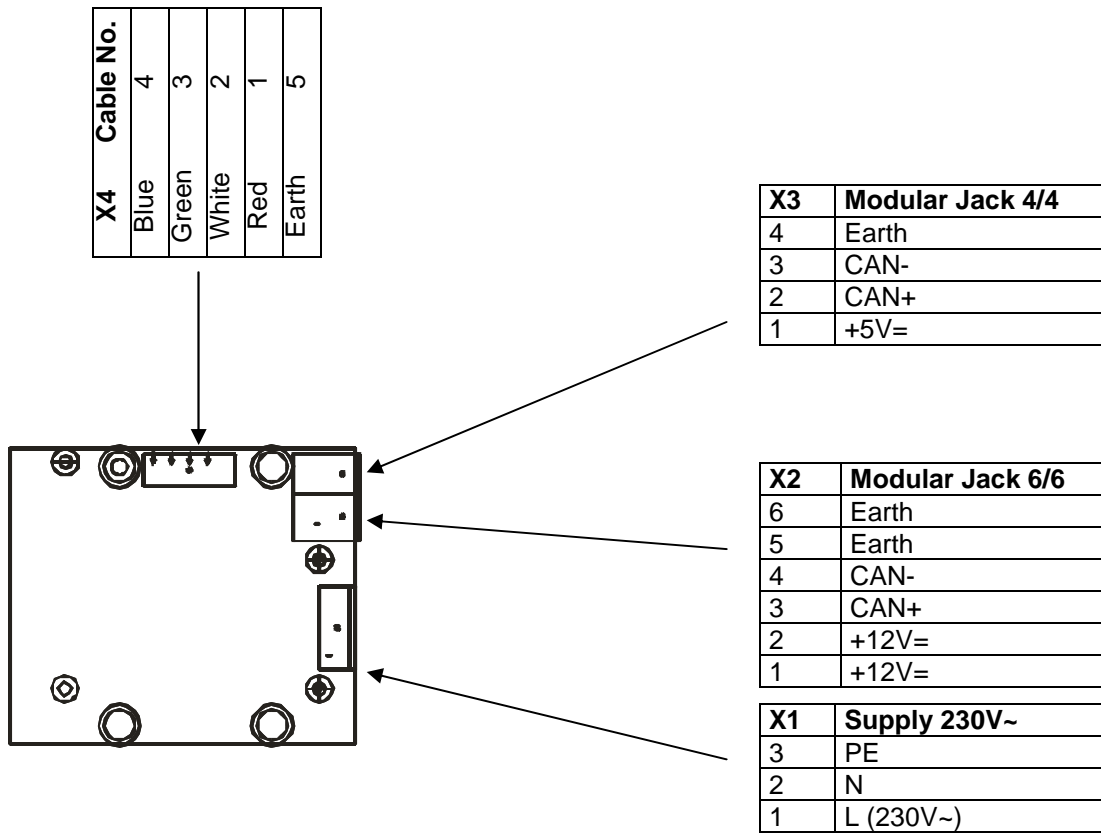
Fitting in the wave.com4 Housing:

Screw with the fitting material provided in the mounting bolts of the carrier plate. Position as per sketch



WE DO IT FIRST.

5.3.0 PLUG DESCRIPTION LED POWER ELEMENT



5.4.0 TECHNICAL DATA LED POWER ELEMENT

Supply:	3-pin 230V +/-6%; 50Hz; with protective conductor (PE) of L1 of the sauna control
Power consumption:	Depending on chroma and brightness max. 0,16 A eff.
Ambient conditions:	0-50°C, max. 95% rel. F. non- condensing
Housing:	In the plastic housing of the wave.com4
Mounting:	Screw the 4 mounting holes onto the mounting bolts of the wave.com4 base plate. To do so: extend the mounting bolts using the spacer bolts supplied; fasten with 4 No. M3 screws and spring rings

6.0.0 LED COLOURED LAMP

6.1.0 MODULE DESCRIPTION

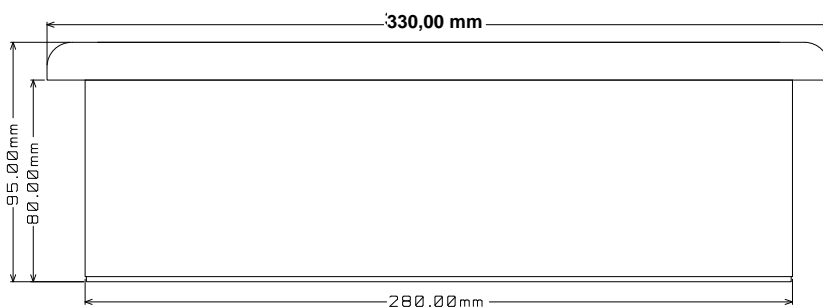
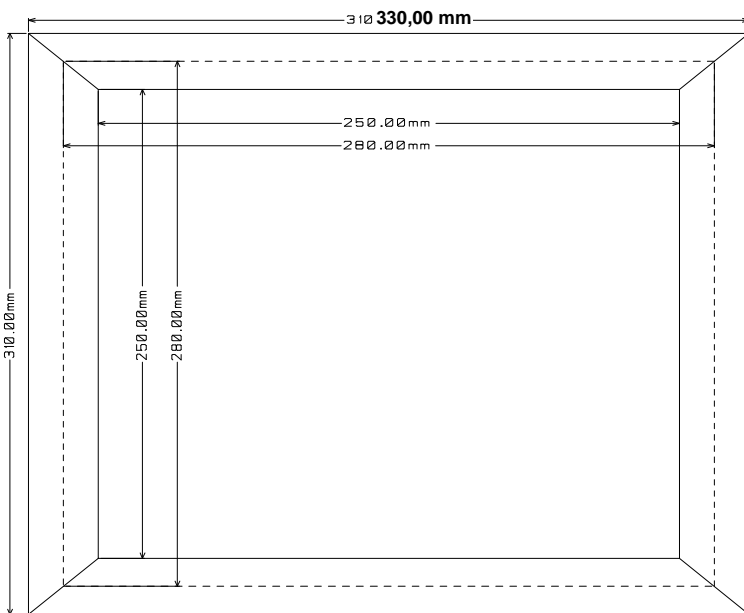
The ABATEC coloured lamp may only be operated with the ABATEC power element ASFA22! It consists of:

- LED board
- Housing
- Supply cable from the LED power element ASFA22 (5m)

ATTENTION!

Due to the temperature load in the sauna and the high level of brightness, the back wall of the coloured lamp becomes hot (80°C). The user's attention must be drawn to the danger of burns, or the design must prevent this. Under no circumstances must a burn guard impair the cooling of the rear. The maximum ambient temperature on the rear must not exceed 30°C.

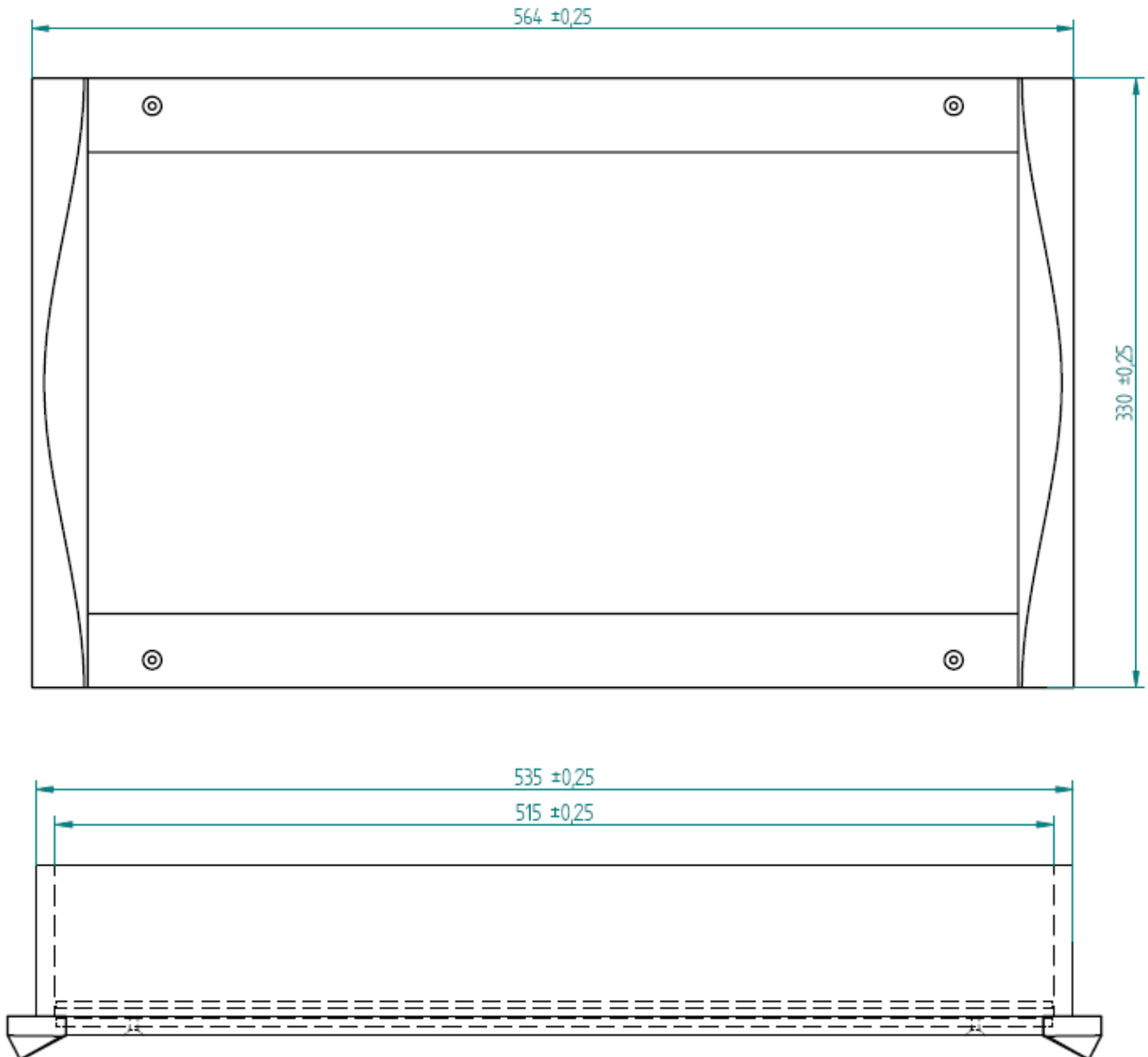
6.2.0 DIMENSIONS / FITTING Coloured lamp



WE DO IT FIRST.

L x W x D = 330 x 310 x 96 mm; light-emitting surface = 250 x 250mm;
 ~3000 g without cable and loose; differences possible depending on customer finish

6.3.0 DIMENSIONS / FITTING Coloured lamp LONG



L x W x D = 564 x 330 x 88 mm; light-emitting surface = 250 x 500mm;
 ~6000 g without cable and loose; differences possible depending on customer finish

WE DO IT FIRST.

Fitting suggestion

- Fitting on sauna ceiling not right above the oven. (Max. 110°C glass temperature)
- Fitting recess 282 x 282mm or 282 x 536 mm for coloured lamp long; do not enlarge recess, to ensure fitting is water-tight(!).
- Rear free for cooling (max. 30°C ambient temperature, NB: 80°C housing temperature is possible)
- 4 mounting holes are pre-drilled on the front of the coloured lamp. However, depending on the sauna design or the weight of the coloured lamp
- (approx. 3kg) further fastening measures (e.g. screws from the front, etc.) may be required.
- You should also ensure that the coloured lamp is sealed on the sauna ceiling.


6.4.0 TECHNICAL DATA LED COLOURED LAMP

Connection:	At least 5x0.75mm ² ; with 5m silicone cable
Power consumption:	Depending on chroma and brightness see LED power element ASFA22
Ambient conditions:	Glass surface: max. 110°C outside Rear: max. 30°C ambient temperature
Housing:	L x W x D = 330 x 310 x 96 mm, or 564 x 330 x 88 mm Light-emitting surface = 250 x 250mm; or 250 x 500mm Size of recess 282 x 282 mm; or 282 x 536 mm With full timber cabins additional frame into the ceiling element and make the recess larger accordingly.
Mounting:	As per sauna design or with 4 wood screws onto the sauna ceiling

7.0.0 FUNCTION DESCRIPTION

The following description gives an overview of the operating options of the software of the LED power element ASFA22 and colour control element Version 14.

7.1.0 SWITCH ON

If the colour control was switched off, it can be activated by pressing the  key.











The colour control changes into the last activated mode (automatic or manual) and the normal internal lighting goes out.

7.2.0 SWITCH OFF

If the colour control was switched on, it is deactivated by pressing the  key .

The colours are switched off and the normal internal lighting goes on.

7.3.0 MODES

Mode	Display symbols	Description
8.3.1. Off		No Colour active. The sauna interior is only lit up by the normal internal lighting
8.3.2. Automatic Colour	 	The chroma is automatically further switched after the programmed time. The chroma can be manually further switched. When colour 7 ends, the control again changes to colour 1 (=rollover). The display shows the number belonging to the particular active chroma.
8.3.3. Automatic time	  	Here, too, the chroma is automatically further switched after the programmed time (as in Automatic mode). The sequence time for the particular active chroma can be extended or shortened in minute steps. This setting is only active for one cycle. After this, there is a change again to the standard cycle time. The display shows the time still remaining (minutes) of the particular chroma. (=countdown)
8.3.4. Brightness	 	The brightness of the particular chroma can be set in this mode. 0-100% in 5% steps.
8.3.5. Manual	 	The chroma never changes. No time lapse. The display shows die number belonging to the active chroma. The +/- keys can be used to select the colour desired.

7.4.0 TABLE OF COLOURS

Each colour number is allocated a chroma. (Standard on delivery).

Colour number	Chroma	Brightness	Red	Green	Blue	White
1	Red	20	20	0	0	2
2	Gelb	20	20	20	0	4
3	Green	20	0	20	0	5
4	Turquoise	20	0	20	18	7
5	Blue	20	0	0	20	5
6	Lila	20	18	0	20	11
7	White	20	17	20	20	20

7.5.0 CONNECTING SEVERAL LED COLOURED LAMPS

Up to eight LED coloured lamps or up to four coloured lamps long can be controlled via a control element. To allow this, the power elements are connected to each other via a BUS line and controlled via the LED coloured light-control element. The LED coloured lamps connected to a control element can not be individually controlled but only together.

The power elements are built into a splash-proof plastic housing. Four power elements can be screwed into every housing.

8.0.0 PROGRAMMING FUNCTION

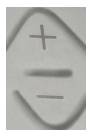
The following points provide information on the programmability of the LED coloured lamp. These settings are stored in a power failure-proof manner.

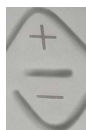
8.1.0 PROGRAMMING CYCLE TIME

The coloured lamp automatically changes, with the exception of "Manual" mode, the chroma when the *Cycle time* ends. This *Cycle time* is 5 minutes when delivered. It can be adjusted in minute steps.


Proceed as follows:


- On the control element with the MO **MODE** key, go into "Automatic-time" mode.



- Press  together and simultaneously for approx. 3 sec.

- The programmed *Cycle time* in minutes flashes in the display.

9. Use  to change the *cycle time*.


10. Use the Mode key  to confirm the input and thus leave the programming.

8.2.0 PROGRAMMING COLOURS

The coloured lamp mixes the desired chroma from the 4 LED-base colours (Red-Green-Blue-White). This mix can be programmed. This gives the customer the option of programming his personal colours behind the colour numbers.



Range of the individual components of the colour is always 0 to 20 (5%steps)

11. On the control element with the MODE  key, go into "**Manual**" mode.



12. Press  together and **simultaneously** for approx. 3 sec

(NB: do not change the colour number in the process!)



13. The programmed **RED** – portion of the chroma flashes in the display.

14. Changeable with  and with the MODE  key, confirm the input



15. The programmed **GREEN** – portion of the chroma flashes in the display.

16. Changeable with  and with the MODE  key, confirm the input

17. The programmed **BLUE** – portion of the chroma flashes in the display.

18. Changeable with  and with the MODE  key, confirm the input

19. The programmed **White** – portion of the chroma flashes in the display.

20. Changeable with  and with the MODE  key, confirm the input


On completion of all inputs (or time-out), the control is again in "**Manual**" mode.


WE DO IT FIRST.

8.3.0 PROGRAMMING COLOUR TRANSITION PERIOD

This is the time the LED control takes on change of colour (manual or at the end of the interval period), for the colour drift from the current to the next colour.

1. On the control element with the **MODE** go to mode "Automatic Colour".

2. Press the  simultaneously for approx. 3 sec. (NB: do not change the colour number in the process!)


3. With the  keys, the colour transition period is extended or shortened. Each change of the colour occurs with this programmed time.

4. The **MODE** takes you back to the mode "Automatic Colour".

8.4.0 USING SEVERAL CONTROL ELEMENTS

For several colour control elements to be used, each must have a separate address(0-3). The control elements have the address 0 ex works. The address is changed as follows.

7. Disconnect 4-pin bus/supply cable from the control element

8. Simultaneous pressing of the  keys.

9. Plug in cable again when pressing the key.

10. Display flashes and the address set for this control element appears.

11. Change address with  or  key

12. Confirm inputs with **MODE** and jump to the "Master/Slave colour operating element programming" (see 8.5 master/slave colour control element programming)

WE DO IT FIRST.

8.5.0 MASTER/SLAVE COLOUR CONTROL ELEMENT PROGRAMMING

Here you can set to decide whether the control element is used in the

- Slave Operation
- Selection „SLA“, standard setting, with sauna base section as master.

or in the

- Single/Master operation
- Selection „SIN“, without sauna base section
- Setting for pure colourLEDcontrol without sauna function

3. Use  or  key to change selection

4. Use  to confirm inputs and jump to the "LED/REL menu

Programming" (see [8.6 Colour-led/Relay Menu Programming](#))


8.6.0 COLOUR-LED/RELAY MENU PROGRAMMING

Here you can set whether the menu should be adjusted to control the colour relay module or des colourLEDmodule.

Difference:

The relay module (not dimmable) has 8 adjustable Colours, das LEDmodul 7 (dimmable).
The setting only becomes effective with the colour control element with the address 0.

2. Change selection with  or  key

3. Confirm inputs with 

IMPORTANT!


If the control element is used in the slave operation (standard mode), the sauna base section "must" be started again (briefly isolate mains supply), so that the new control element is recognised. The participant is recognised when the sauna base section is started .

- 2 colour control elements must not be connected with the same address.
- The sauna- and colour control elements have addresses that are independent of each other. One sauna control element can therefore have the same address as a colour control element.

WE DO IT FIRST.

8.7.0 DISPLAY SOFTWARE VERSION

By simultaneously pressing the keys  ,  and  in the standby mode, the software version number of the sauna base section is shown for 3 seconds; e.g.: „ 14“.

If, within this time, you press the  key again, then the software version number of the control element is displayed preceded by a "P"(like Panel), so that it can be distinguished from the base section. e.g.: "P14"

If you operate the control element in the single/master mode (without base section), only the control element version is displayed.

Once the time has ended, the display then returns to the standby mode.

WE DO IT FIRST.

9.0.0 FAULTS, CAUSES AND SOLUTIONS

This list shows possible problems, their causes and recommended procedure for resolving them.

Fault	Possible cause
The display of the colour module cannot be activated with 0/1	Check power supply to the sauna. If this is in order but none of the symbols on the display lights, then check the data connection of the colour control element; check Master/Slave setting and control, if need be, briefly isolate from mains.
No lamp/colour lights although the colour control element shows colour numbers	No lamp supply between LED coloured lamp and LED power element; Check cables/terminals; and if need be check the programming (brightness of the individual colours) or no data connection between the wave.com4 and LED power element; check data cables/plugs
There are 7 or 8 colours but no lamp lights and the normal internal lighting stays on	No data connection between the colour control element and the other modules. Change slot, Check data cable
The colour of the lamp and the numbers on the display change but do not correspond	Check connection sequence of the connection between LED coloured lamp and LED power element
One colour and its mixed colours are missing	Check terminal wire of the connection between LED coloured lamp und LED power element and if need be check the programming (brightness of the individual colours)
The colour of the lamp and the numbers on the display do not change	Set to “Automatic“ mode; If need be connect through manually and if need be check the programming (interval period of the individual colours)
The colour of the lamp and the numbers on the display change automatically	Set to “Manual“ mode; If need be check programming (interval period of the individual colours)
The coloured lamp long shows 2 different colours	Check connection sequence of the connection between LED coloured lamp and LED power element
The brightness of the coloured lamp can not be changed	Check setting colour – LED/relay in the menu and if necessary switch to LED

VERSIONS

Valid for:

Hardware: (or higher)

- ASIN2
- ASAU front
- ASAU back
- ASFA11
- ASFE20
- ASBA21
- ASFA21
- ASFA22

Software: (or higher)

- Basic module Version 14
- Sauna control element Version 14
- Colour control element Version 14
- LED power element Version 14

In the software version 14, the bus protocol has been changed and is no longer compatible with lower versions.

WE DO IT FIRST.