

Operating instructions

b r o n c o l o r
Scoro A2
Scoro A2S
Scoro A4
Scoro A4S

Before use

We are pleased you have chosen a broncolor Scoro power pack which is a high-quality product in every respect. If used properly, it will render you many years of good service. Please read all the information contained in these operating instructions carefully. They contain important details on the use, safety and maintenance of the appliance. Keep these operating instructions in a safe place and pass them on to further users if necessary. Observe the safety instructions.

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Important safety instructions



broncolor flash light systems should exclusively be utilised for professional photo shootings by qualified personnel. Before starting up your flash light equipment read carefully all the information in your operating instruction. The safety instructions in the operating instructions must be strictly followed!

- Read and understand all instructions before using!
- Remove the transport protection and the packing material
- Close supervision is necessary when any appliance is used near children. Do not leave the flash light appliance unattended while in use!
- Flash light contains, similar to sunlight, a specific portion of UV radiation!
The undesirable side effects on skin and eyes are considerably reduced by using flash tubes or protecting glasses with UV safety measures! Nevertheless, taking pictures at close distances with unprotected skin and eyes should be avoided! Also avoid eye contact with the light source! The maximum daily UV radiation according to IEC 60335-2-27 / DIN 5031-10 is: 50 J/m^2 . This value should not be exceeded!
- With due allowance for heat radiation, the distance between the lamp and a person or between the lamp and inflammable respectively heat sensitive surfaces should be at a minimum distance of 1 m!
- The power pack must be switched off to plug-in and to unplug! The lamp plugs and sockets have mechanical interlocks! When plugging in, ensure that those interlocks engage completely! To unplug, push down the locking spring below the cable guide and lift out the plug from the socket!
- Prior to replacing flash tubes, halogen lamps, protecting glasses or fuses, disconnect the power pack and the lamp from the power supply!
Prior to replacing the halogen lamp or the flash tube, the lamp should cool down for 10 min.!
- broncolor flash light systems should only be equipped with original broncolor flash tubes, original broncolor combustible and packing material, original broncolor accessories, and also original broncolor spare parts!
- broncolor power packs, lamps and accessories meet an extremely high safety standard! When connecting broncolor lamps to power packs of other brands or broncolor power packs to lamp bases or accessories of other brands, integrated safety measures may become ineffective! Due to different design features and contact assignment of the lamp plugs of other brands, the user himself/herself may even be at risk. We offer no guarantee and accept no liability for damages which may be caused by this type of usage!
- Only lamps which are approved for operation with this power pack should be utilised!
- Only earthed extension cables which are approved for operation with the corresponding lamp should be utilised!

- **To avoid the risk of fire, electric shock or injury to persons utilise exclusively the accessory recommended by the manufacturer!**
- **Check that the mains voltage corresponds to the information on the type plate of the unit!**
- **The flash light equipment is designed for use in dry conditions and in an ambient temperature from 0°C to 35°C! The flash light equipment has to be protected from wetness, condensation, from dripping and splash water, humidity, dirt, sand, metal chips and exposure to dust!**
- **Protect the flash light equipment from electromagnetic fields, shock and vibration!**
- **Protect the flash light equipment from heat and frost! If the power pack freezes continuous loss of power output and serious technical damage can result!**
- **Sudden temperature differences can cause condensation water in the unit! In such situations the equipment must stay for 1 hour in a well ventilated place to acclimatise to the new temperature before start up!**
- **Do not operate the units in an environment where there is a risk of explosion!**
- **The power pack should not be operated in or near water!
Attention: high voltage!**
- **The power pack and the lamps should not be immersed in water or other liquids!
It could cause an electric shock!**
- **Remove the transport protection cap on the front side of the lamp before connecting it to the power pack!**
- **For safety reasons, never operate the lamp base without the protecting glass in place! UV-coated protecting glasses or UV-coated flash tubes must be utilised as a protection against UV radiation for eyes and skin!**
- **Before operation the lamp has to be fastened on a stand or a suspension device!
The lamp must be locked by tightening the mounting screw!**
- **Only sand-filled fuses of the type indicated on the safety type plate may be used!
Sand-filled fuses can be identified by their opaque fuse body!
With incorrect fuse protection the halogen lamp may burst!**
- **Filters or diffusers should not be fastened directly on the flash tube, halogen modelling lamp or protecting glass!**
- **Do not operate appliance with a damaged earthed cable. Cables which are damaged or twisted must be replaced!**
- **The unit must only be connected to an earthed socket, or an emergency power generator!**
- **If an extension cable is necessary, a cable with a current rating at least equal to that of the appliance should be used. Cables rated for less amperage than the appliance may overheat. When using a cable reel, it must be completely unrolled before use to prevent overheating of the cable!**
- **The unit is suitable for operation with a motor generator provided that the voltage lies within all the load conditions (including capacitive load) and within the tolerance limit of 200-264 V respectively 95-135 V! From experience this means that only electronic stabilised motor generators are to be utilised! When operating on unstabilised motor**

generators, voltage peaks of 300 V and more have been observed! This can lead to damages for which we assume no liability!

- Do not operate the lamps inside a bag or a box!
- The ventilation slots on the unit or on the lamp should not be covered!
- Pay attention when laying, clearing away or rolling up cables that they do not contact hot surfaces or parts of lamps and that they will not be tripped over by persons!
- Do not touch the connection socket for mains cable and lamp outlets on the power pack and do not poke in it with metal objects!
- Flash tubes, modelling light, halogen lamps and protecting glasses heat up to a high operating temperature, this also applies to the front side of the lamps! Therefore the attachments also assume high temperatures! Handle with care! Contact with hot components can cause injuries!
- Do not come into contact with glass or metal whilst operating the flash light system!
- Let the unit and its connected lamp base cool completely after use and before packing!
- Always unplug appliance from electrical socket before cleaning and servicing and when not in use! Never jerk cable to pull the plug from the socket. Grasp plug and pull to disconnect!
- Dropped or damaged units or lamps must be checked by a specialist before reconnection!
- To reduce the risk of electric shock, do not open this appliance, but take it to a qualified service person when service or repair work is required. Incorrect reassembly can cause electric shock when the appliance is used subsequently!

- **Shipping instructions Scoro A2 / A2S / A4 / A4S:**

Use original broncolor packing for the transport of the power pack!

- **Shipping instructions lamps:**

Use original broncolor packing for the transport of the lamps. Before shipping flash tubes, halogen lamp and protection glass pack them with our protective pack material (foam plastic and transport cap). If the protective packaging material is incomplete, remove flash tube, halogen lamp and protection glass from the lamp and send them separately!

Controls and displays

Power pack Scorò A2

Art. no. 31.040.xx

Power pack Scorò A2S

Art. no. 31.041.xx

Power pack Scorò A4

Art. no. 31.042.xx

Power pack Scorò A4S

Art. no. 31.043.xx

1. Mains switch
2. Circuit breaker
3. Connection socket for computer
4. Sync socket
5. Connection socket for mains cable
- 6.1 Lamp outlet 1
- 6.2 Lamp outlet 2
- 6.3 Lamp outlet 3
- 7.1 Lamp key 1, on/off
- 7.2 Lamp key 2, on/off
- 7.3 Lamp key 3, on/off
8. IR receiver cell and photocell
- 9.1 Power selector lamp 1 "▼/▲"
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- 9.3 Power selector lamp 3 "▼/▲"
10. Master power selector "▼/▲"
11. Digital power distribution display per lamp
12. Digital master power display
13. Photocell on/off
14. IR receiver and/or RFS-interface on/off
15. Modelling light on/off
16. Test key and „ready“ indicator blue, fault display red
17. Speed key
18. User key
19. Reset key
20. LCD display
21. Selection keys (function analogue to display in LCD)
22. Menu key
23. Handle with integrated antenna



1. Application Scoro

We are pleased that you have chosen a “Scoro” power pack which is a high-quality state-of-the-art product in every respect. If used properly, it will render you many years of good service.

This mains (AC-line) supplied studio flash unit is designed for professional photography. For your safety use a three-wire extension cable when possible.

2. Start up

2.1 Mains voltage

As a standard feature, all the Scoro power packs are supplied as multi-voltage units. They automatically adapt to the respective mains voltage.

Scoro power packs A2S and A4S deliver for all operating voltages (85-240 V) constant 1600 J or 3200 J.

Scoro power packs A2 and A4 can also be operated on 120 V or 100 V.

However, the following limitations apply for 100 V –120 V:

- 800 J are available instead of 1600 J (Scoro A2).
- 1600 J are available instead of 3200 J (Scoro A4).

Attention: Ensure that the operating voltage of the modelling lamp corresponds to the local mains supply.

2.2 Earthed mains (AC-line)

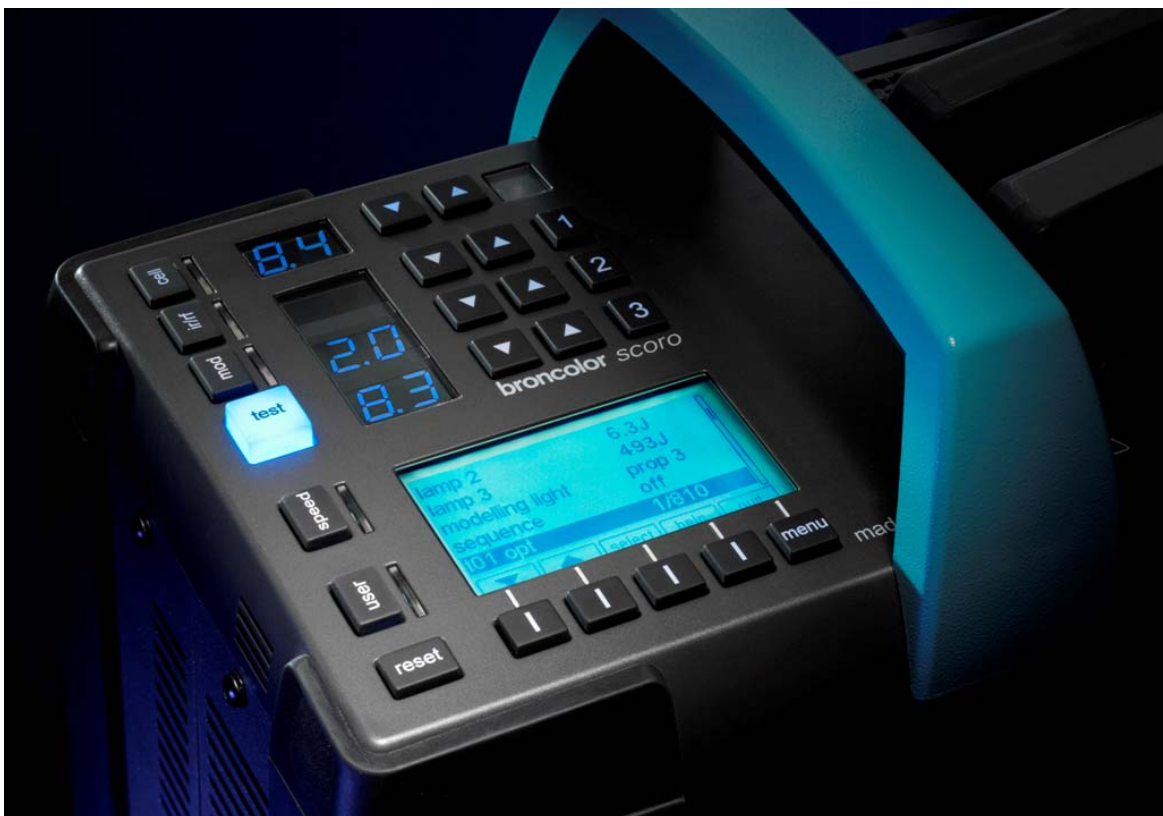
Whenever possible, connect unit to current supply always using an earthed mains plug.

2.3 Start up

Use the mains (AC-line) switch (1) to power up the unit. During the charging process, the digital master power display (12) flashes, after which, it becomes continuous.

3. LCD display and menu system

The LCD display presents an absolute innovation. It has never been so easy to activate that many settings with so few keys. The display is a significant tool, and therefore it is important that, firstly, you become well acquainted with the structure of the menu system.



The brightness of the user interface can be automatically or manually dimmed dependent on the ambient light. See LCD setting function “brightness display” (section 11.20).

3.1 LCD display menu system

Directly after switching on the unit a start display appears for approximately 5 s with information about the unit and the owner. Afterwards the unit changes automatically to the normal operating mode.

By default, the flash duration (t 01) is shown permanently. In addition, depending on whether the flash duration or the colour temperature have been altered, the display will adjust and the current value will be indicated.

When delay (dly), sequence (seq), interval (int), alternate (alt) are activated as well as the studio and unit address (if desired), the corresponding functions will be shown on the main page. The functions shown in the display give an overview of the most important activated additional functions of the power pack.

The main menu is called up with the key „menu“ (22). At the same time, at the bottom edge of the display, a user guide appears, showing the selection keys (21 & 22) each with their supplementary functions ("▼/▲", "+/-", "select", "cancel", "quit", "help"). To return to normal mode, press the key "menu" (22). Each set value is displayed in a box at the top of the LCD.



The desired unit functions are selected with the keys "▼/▲" and confirmed with the key "select". The selected function is visually highlighted with a bar.

After selecting the desired function, one reaches the second level. There, the options are visible within the chosen function, which can then be selected with the keys "▼/▲" or "-/+ ". The previously stored setting is always indicated in a box at the top line. The function on which the cursor is currently positioned is marked with a bar. **The new setting will only be set after the select key has been pressed again.** The key "quit" or menu (22) leads back to the respective higher level. Therefore, it is also possible to quit the submenu without storing a new setting.

3.2 Auxiliary function

The key "help" activates an info-text for the respective setting. A practical short description of the addressed functions is stored there. To return to the main menu press the key "menu" (22).



4. Energy control

4.1 Scoro A2/A2S

Use the "▼/▲" keys (9.1/9.2/9.3) to control the flash energy (flash intensity) on each individual outlet (I, II & III) within a range of 9 f-stops. The entire energy, however, cannot exceed 1600 J. A value of 10 in the digital master power display (12) indicates maximum intensity, 1.0 minimum intensity.

Whole numbers are full f-stop intervals, decimals indicate 1/10 f-stop steps. Brief pressure on the keys "▼/▲" (9.1/9.2/9.3/10) runs the power up (or down) by a 1/10 f-stop interval, prolonged pressure by a full f-stop. The digital display (12) then blinks until charging or discharging has reached the newly selected level and the „test“ key light (16) goes out. An acoustic signal announces that the new energy level has been achieved.

4.2 Scoro A4/A4S

Use the "▼/▲" keys (9.1/9.2/9.3) to control the flash energy (flash intensity) on each individual outlet (I, II & III) within a range of 9.9 f-stops. The entire energy, however, cannot exceed 3200 J. A value of 10 in the digital master power display (12) indicates maximum intensity, 0.1 minimum intensity.

Whole numbers are full f-stop intervals, decimals indicate 1/10 f-stop steps. Brief pressure on the keys "▼/▲" (9.1, 9.2, 9.3, 10) runs the power up (or down) by a 1/10 f-stop interval, prolonged pressure by a full f-stop. The digital display (12) then blinks until charging or discharging has reached the newly selected level and the "test" key light (16) goes out. An acoustic sound announces that the new energy level has been achieved.



4.3 Individual energy distribution (asymmetry) & flash cut-off

Scoro power packs incorporate an electronic flash cut-off system for all 3 channels. The units have three individual lamp outlets which can be controlled, with neutral colour (**Enhanced Color Temperature Control**) over the whole range, and with asymmetry up to 6 f-stop increments and independently of each other. The unit allows power selection in 1/10 and whole f-stop increments.

4.4 Colour temperature control / Asymmetry (t 0.1 optimum)

All Scoro units are equipped with an enhanced ECTC-process which ensures that no colour temperature shifts or double exposure can occur during individual power distribution. On partial power, the colour temperature of the set energy can be influenced by relative shifts in increments of 200 K upwards or downwards (see section 11.5). The control range of the colour temperature adjustment is increased when on reduced power.

Due to the direct dependence of colour temperature and flash duration, t 0.1 is automatically adjusted.

5. Lamp outlets

The lamp outlets of the Scoro units are marked with the numerals 1 – 3.

Lamp plugs and sockets have a mechanical locking device to prevent them from accidentally coming loose. When plugging in, ensure that the front part of the plug is inserted first, and that the rear locking device locks completely into place. To release, press down the locking device spring under the cable guide and lift out the plug from the socket. The power pack must be switched off whilst plugging in and unplugging.

Each outlet may be switched individually (7.1/7.2/7.3). The digital power distribution display (11) indicates the set energy of each individual lamp. The digital master power display (12) indicates the total energy control range of all the connected or activated lamps.

It is unnecessary to disconnect a lamp when not in use, simply deactivate it by using the lamp outlet on/off switch.

Energy can be asymmetrically allocated to the individual lamps until the maximum energy has been achieved. If an additional lamp is connected, and should the other lamps already be using the maximum energy, no more energy can be allocated to the newly connected lamp.

5.1 Meaning of the digital displays (11)

Example with lamp energy "8.7":

- "8.7" blinks flash monitor has detected a misfire
- „—„ lamp connected but switched off
- " " no lamp connected
- „-0„ no energy allocation possible (the entire energy has already been used up by other lamps)

6. Modelling light

The "mod" key (15) switches on the modelling lamp for all connected lamps. When switched on, the blue LED next to the "mod" key lights up. The lamps have also an additional modelling lamp switch. Furthermore, it is possible to operate the modelling light proportionally (section 6.1) and adapt it to the various maximum outputs of broncolor power packs.

Pressing the "mod" key (15) (1 s. long) when the modelling lamp is on, will give direct access to the "full" mode. To return to the previous mode briefly press "mod" again.

Attention: Please ensure that the modelling lamp voltage corresponds with the local mains (AC-line) voltage.

6.1 Proportionality

The modelling light brightness can be set proportionally to the flash intensity.

Stages prop1, prop2, prop3, prop4 and prop5 are used to adapt the modelling light brightness of power packs with different output. The setting “modelling light proportional” duly allows for the output set, the number of lamps as well as a possible asymmetrical energy distribution of the Scoro power packs.

Proportionality is guaranteed if the identical operating mode has been set for all power packs. The higher the digit, the brighter the modelling light.

The following operating modes are possible:

"propmax" When working with only a single power pack (in asymmetrical operation); using the setting “p.max“, the modelling light of the lamp with the highest flash energy operates at full output, and the other lamps will be proportionally dimmed, in accordance with their power settings.

"full" All lamps with full modelling light, independent of flash output, type of power pack and output distribution.

"low" Lighting level reduced for all lamps to reduce power consumption and extend the service life of the halogen lamps.

"prop1- prop 5" These levels allow adapting the Scoro units to the proportionality of other broncolor power packs.

Note: If a power pack is used with less power, it is known that the halogen modelling light is relatively weak and yellowish. To solve this problem, all broncolor power packs may be operated with higher modelling light proportionality.

Attention: The Scoro software automatically indicates in the LCD selection text the possible proportionality levels, and warns of sudden altered power settings made by the user.

Important: The modelling lights of all the connected lamps are proportional when all the power packs (independent of their output) have the same proportionality level. This only applies when all the modelling lights have the same wattage.

6.2 Reduced modelling light

To avoid overloading the mains supply (AC-line), the 100 - 120 V versions of the power packs reduce the modelling light intensity during charging. You can clear this factory-installed feature if the power rating of the mains supply (AC-line) is sufficient - see setting possibilities of the dimmer in section 11.11. When working on poor-quality mains supplies (AC-line) you can also slow down the charging rate with the additional function “charge time” – this reduces the risk of blowing the supply fuses (section 11.10).

During fast charging of Scoro A2S and A4S, the modelling light is dimmed, with the exception of the lamp with the highest power, to avoid overloading the mains supply, even when no reduction/ dimmer was set (section 11.11).

6.3 Modelling light switch on lamp

The switch on the lamp is used to switch the modelling light on and off. To avoid damage to the lamp filament, always switch off the modelling light before moving the lamp.

7. Release

7.1 RFS interface (Radio Frequency System)

As a standard feature, Scoro power packs are supplied with a built-in RFS system. The antenna is not visible as it is integrated into the handle. RFS can be switched on or off with the key "ir/rf" (14). A flash release is activated via RFS and ir by default. The definition of the IR/RF key is entered in the LCD display under the position "infrared / RFS". The following settings are possible: IR/-, -/RFS, IR/RFS. See LCD setting function "IR/ RFS channel" (section 11.12).

For flash triggering via RFS, the channel (studio address) must correspond with the channel of the RFS transmitter. The definition of the channel (studio address) is entered in the LCD display under the position "Studio address" (section 11.14). If the power pack is triggered via RFS, flash triggering follows with a minimal time delay of approximately 1/1200 s.

7.2 Flash triggering via infrared receiver (ir)

The IR receiver can be switched on or off with the key "ir/rf" (14). If the function is activated, the blue LED next to the key lights up. A flash release is activated via RFS and ir by default.

The definition of the IR/RF key is entered in the LCD display under "IR/RFS channel". The following settings are possible: IR/-, -/RFS, IR/RFS. See LCD setting function "IR/ RFS channel" (section 11.12).

Scoro power packs may be triggered by broncolor infrared transmitters. If the power pack is triggered via infrared, the flash release follows with a minimal time delay of approximately 1/2000 s.

7.3 Photocell (cell)

The photocell can be switched on or off using the "cell" key (13). If it is activated, the blue LED next to the key lights up.

After the first flash of a sequence, the active photocell will be blocked and the blue info-LED next to the "cell" key (13) blinks. By pressing the "cell" key the cell is reactivated.

7.4 Sync socket (4)

The synchronous cables art. no. 34.111.00 and 34.112.00 may be plugged into the socket to trigger flashes via cable.

7.5 "test" key (16)

This key (16) allows manual release of the power pack as soon as 70 % of the set energy is available.

7.6 Servor d

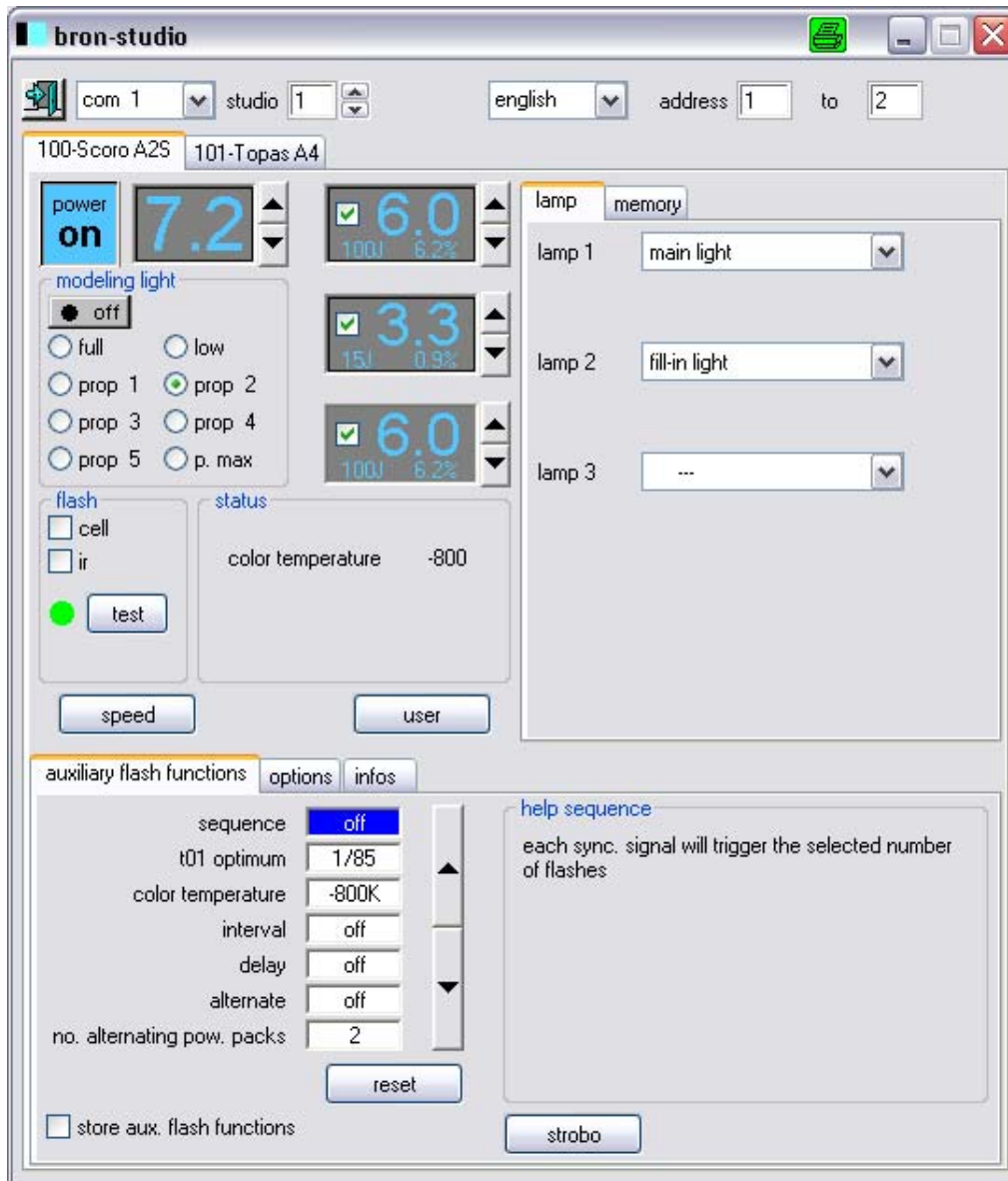
Please note: when you are working in the studio with the remote control Servor d, unintentional and uncontrolled flash triggering by the Scoro power packs could occur. In this case, please switch off the "IR" function (see section 11.12).

8. Remote control

The remote control system has 15 channels (studio addresses) and 15 unit addresses. The channels divide the studio into different workstations of up to 15 flash units. Each flash unit within a workstation is identifiable by its own unit address. Every other workstation can each operate up to 15 flash units. Therefore, flash units of multiple workstations are clearly identifiable. A PC or Macintosh computer, or an RFS transmitter can control all the flash units of a studio workstation (channels/studio address).

8.1 Computer connection with RFS (Radio Frequency System)

All Scoro A power packs have a built in interface which allows remote control or flash triggering of the power pack via radio from RFS transmitter, as well as RFS transceiver from PC or Macintosh computer. Therefore all the Scoro power pack functions can be comfortably controlled from a digital workstation.



8.2 Remote control channels (RFS studio address)

Remote control by means of RFS may be performed via separate channels (studio workstations). These can be set in the LCD-menu under "Studio address" (see section 11.14). All flash units within a studio workstation must have the same channel number (studio address).

8.3 RFS unit addresses

Unit addresses will be assigned to each power pack for individual control. (See section 11.15).

8.4 Computer connection with cable

Scoro units are equipped with a computer connection socket (3). This allows operation of the power pack from the computer via cable. Each channel can control up to 15 units. Hence, Scoro power packs can be remotely controlled by cable with the Bron studio

9. **Displays visual/audible**

9.1 The visual ready signal

This is the blue LED at the “test” key or ready display (16). It lights up only when the unit is fully charged or discharged. After triggering a flash, this LED goes out, and lights up again when the unit is fully charged once more.

The visual ready signal is easy to read even from larger distances. The brightness can be altered by the user (high & low) (see section 11.17).

9.2 The audible ready signal

An acoustic signal (beep) sounds when the power capacitors are 100 % charged, or discharged. The signal may be switched on or off, and the volume may be regulated. The corresponding setting options are explained in section 11.18.

When Scoro power packs are assigned an individual address, the acoustic signal can be programmed with an individual acoustic (beep) tone. The tone is different for each power pack address.

9.3 Visual fault signal

In case of technical faults or a signal from the flash-monitoring, the test release button / the ready signal (16) will light up red.

9.4 Audible fault signal

When the flash discharge fails, a warning signal (two-sound tone) of approx. 0.5 s duration will sound and the display (11) of the relevant lamp will flash.

9.5 Audible messages

Clicking tone:

- Keys sound (setting of volume is explained in section 11.19).

„Beep“ tone:

- End of charging or discharging (setting of volume is explained in section 11.18).

“Double-beep” tone:

- Energy limit top or bottom when controlling energy via RFS transmitter
- Reset key pressed for 2 s (resetting of additional functions)
- Reset key pressed for 10 s (reset to factory settings)

“Two-sound” tone:

- Technical fault. Ready signal (16) lights red.
- Flash monitoring. The display of the lamp which has not fired lights up.
- Beginning and end of a thermal blocking procedure. Display in LCD.
- A suggestion appears on the LCD when setting changes are not possible with the previous specifications.

10. Special functions

10.1 Speed key (17)

When the speed key is activated, the corresponding LED lights blue and the maximum flash energy of A2 models is reduced from 1600 J to 1200 J, and the energy of A4 models is reduced from 3200 J to 2400 J. The flash duration $t_{0.1}$ is also reduced. In speed operation, the optimum colour temperature is fractionally colder, however, consistent over the energy adjustment range.

10.2 Energy display

- By default, the power display indicates the residual flash energy resulting from the decrease of the maximum flash energy. The maximum power indicated in the master power display (12) of the Scoro A2 and A2S can be reduced from 10 to 9.0 (see LCD function “Max.display”, section 11.22). Therefore, with the same set energy of a Scoro A4 or A4S or of another 3200 J flash unit, an identical value will be displayed.

- In speed mode, the maximum power indicated in the master power display (12) can be increased from 9.6 to 10 (see LCD function “Max. display”, section 11.22). Should the maximum power indicated in the master power display be reduced from 10 to 9.0 (see above, first paragraph), then in speed mode, because of the direct association, the display will be increased from 8.6 to 9.0.

10.3 User key (18) and memory function

When the user key is „on“ it activates the initial settings of a further operator. With this, Scoro A power packs can be individually configured for two or more users in which all the relevant functions and settings are separately stored, thus providing independent preference capabilities for multiple users.

In normal and user mode, there are each four own memories available. All the unit settings can be stored therein (see LCD function “memory 1-4” section 11.21). Selecting one of the four memories redirects to an information window in the LCD, in which the most important data of the corresponding memory are indicated. Pressing the “recall” soft button reinitializes the data in the memory. Pressing the “store” soft button overwrites the memory contents with the latest unit settings.

10.4 Reset key (19)

- Brief pressure on the reset key advances the cursor directly to the main page. When pressing the menu key (22) the cursor returns to the beginning of the main menu.
- Pressing this key for approximately 2 s reinitializes the (visual) additional functions which are listed in the display. An acoustic sound (double-beep tone) confirms the resetting of the values.
- Pressing this key for approximately 10 s resets all the functions to the factory settings. An acoustic sound (double-beep tone) confirms the resetting of the values.

11. Additional functions and their listing in LCD main menu

Section	Function	Description of function	Selection possibility	Default value	Mem	Standard User
11.1	Lamp outlets1-3	Display of the activated lamp outlets in joules or percentage.	- joules ("J") - percentage ("%")	J		√
11.2	Modelling light	Choice of the modelling light level. See chapter 6.1.	- propmax - full - low - prop1 – prop5	prop3 for Scoro A2/A2S prop2 for Scoro A4/A4S	√	√
11.3	Sequence (seq)	Allows to define a flash series or the pre-selection of a defined number of flashes to be triggered together with the shortest possible intervals; provided that the „interval“ function is not activated. After the flash series has been triggered, the photocell becomes deactivated. To prevent overheating after extended flash series (to protect the flash tubes), the unit will automatically shut off.	- off - +/- (number of flashes per series)	off	√	√
11.4	t 0.1	Choice of flash duration. The setting range is dependent on the selected power.	example: 1/2000 s	t 0.1 / optimal colour	√	√
11.5	Colour temperature	Selection of colour temperature adjustment with simultaneous display of flash duration (see 11.4), on the main page.	example: + 400 K	optimal colour	√	√
11.6	Interval (int)	Allows to define the time between each flash of a sequence. By briefly pressing the +/- key, the setting is effected in 0.01 s steps. Prolonged pressure alters the values in bigger or increasing steps. 50 s are the maximum for intervals.	- off - +/- (time between two flashes of a series).	off	√	√

Section	Function	Description of function	Selection possibility	Default value	Mem	Standard User
11.7	Delay (dly)	Delay triggering of first or only flash. The first flash release can be delayed in the range of 0.01s – 50.00 s.	-off - +/- (time between trigger signal and first flash)	off	√	√
11.8	Alternate (alt)	“ping-pong release“ of up to 4 power packs. Here, using up to 4 power packs, you can determine the triggering sequence of these power packs i.e. only one power pack is triggered per IR or RFs signal while the others are waiting, or are being recharged. This function allows even quicker flash sequences.	- number of units (2-4) - sequence (off, active, waiting 1-3)	off off	√	√
11.9	Aux. backup	Auxiliary backup stores additional functions when switching off or in case of a power grid cut.	on / off	off		√
11.10	Charge time	Choice of charging time slow / fast. ”Slow” for longer charging times as option for weak power grids and converters.	- slow - fast	slow	√	√
11.11	Dimmer	The modelling light is reduced (dimmed) during charging. This option provides protection in case of overloaded power grids or as a visual flash control.	on / off	- on (100 - 120 V) - off (200 - 240 V)	√	√
11.12	Flash release channel	Selection of flash release mode: Radio and/or infrared.	- IR/RFS (infrared & radio) - IR/-- (infrared only) - --/RFS (radio only)	IR/RFS		√
11.13	Cell sensitivity	Selection of photocell sensitivity.	- low - high	high		√
11.14	Studio address	To determine studio address or RFS channel. The same channel can be set at the bottom of the RFS transmitter and in the RFS software.	- Scoro 1 – 20	1		√

Section	Function	Description of function	Selection possibility	Default value	Mem	Standard User
11.15	Unit address	To determine the unit address / number. Different unit addresses are possible for each studio address. With remote control by means of RFS-software each unit must have a different address.	- Scoro 1 – 20	1		√
11.16	Studio display	Studio and unit addresses can be displayed on the main page of the LCD display.	- on - off	off		√
11.17	Test key	Brightness of the test key and visual ready display can be altered.	- dark - bright	bright		√
11.18	Audio ready signal	An acoustic ready signal sounds when the power capacitors are 100 % charged. The volume of the signal can be defined. With “standard” mode, each unit has the same signal. With “address” mode, the audio signal adapts itself to the unit number.	- volume: (off, low, medium, high) - mode (standard, address)	- “standard“ mode - medium volume		√
11.19	Volume key sound	Setting of volume of acoustic tone when pressing the keys. 4 different settings are available.	- off - quiet - medium - loud	quiet		√
11.20	Brightness display	The brightness intensity of all backlighting LEDs and LCD displays can be varied. 3 pre-defined settings are available and a variable function for automatic adjustment to the ambient light.	- high - medium - low - auto	auto		√
11.21	Memory 1-4	Stores and recalls the set unit functions.	Each with store or recall	Last saved data		

Section	Function	Description of function	Selection possibility	Default value	Mem	Standard User
11.22	f-stop display	- Standardization of f-stop display of Scoro A2 and A2S whilst operating with power packs of different output levels. As max. power Scoro A2 or A2S indicate number 9. Further in "speed mode", the power reduction can be calculated with the power display, this means 9.6 for 2400 J for Scoro A4, or A4S and 9.6, or 8.6 for Scoro A2, or A2S, respectively.	- maximum output level 9.0 or 10 (Scoro A2 & A2S) - speed max. 9.6 or 10 (Scoro A4 & A4S), resp. 8.6 or 9.0 (Scoro A2 & A2S) on max. output level	10 9.6		√
11.23	Flash sequence	Fixed strobo-setting with the longest possible flash sequence. This concerns all connected lamps.	- on - cancel	off		√
11.24	Daily counter	Counts the number of flashes triggered over a certain period of time determined by the user. A brief pressure on the "reset" key sets the counter back to 0.	- reset	Number of flashes since last reset of daily counter		
11.25	Flash counter	Counts the number of flashes triggered over the entire lifespan of the unit. It cannot be reset.	n.a.	Number of flashes triggered since delivery ex factory		
11.26	Serial number	Individual serial number of the unit. Keep available in case of servicing / repair.	n.a.	Serial number		
11.27	Program version	Current program version. Can be updated by our service department.	- scoro - charge	Program versions		
11.28	Country	Country code for service.	n.a.	Country code		
11.29	Delivery date	Date of initial operation.	n.a.	Date (mm/yy)		
11.30	Language	Choice of language for the user menu In numeric English the figures of the functions correspond to the LCD menu of the sub sections of section 11. For example: "23 flash sequence" corresponds to the LCD menu from section 11.23 of the operating instructions	- English, German, Spanish, French, Italian, Swedish, Chinese, Japanese, Korean, Indonesien, Numerical / English	According to language region		√

12. Protective facilities / Fault indication

12.1 Cooling

The cooling fan switches to a higher speed for a certain time after a few flashes.

12.2 Thermal overheating display

To protect against overheating after extended flash series, the unit will automatically switch off. At that stage, the following message will appear on the LCD display: "alarm: thermo" and the approximate time required for cooling. The cooling time is shortened if the unit remains connected and switched on.

12.3 Circuit breaker (2)

In the event of an electrical malfunction, the circuit breaker will automatically disconnect the power pack from the power source. The unit can be restarted by pressing the circuit breaker button. If it disconnects again immediately the power pack must be serviced by an authorised service station.

13. Lamp compatibility

All broncolor lamps are electrically compatible with the Scoro A power packs. The most popular lamps, such as the Pulso and Unilite range, as well as Ringflash (C & P) may be used with the Scoro A power packs without any limitations.

Particularly for the small lamps, there are thermal limitations which must be taken into consideration when using them with the Scoro A power pack (see corresponding max J / min.).

14. Technical data

		Scoro A2*	Scoro A2S	Scoro A4*	Scoro A4S
Flash energy		1600 J	1600 J	3200 J	3200 J
F-stop at distance of 2 m (6 ½ ft.) 100 ISO, reflector P70		64 2/10	64 2/10	90 2/10	90 2/10
Flash duration t 0.1 on max. energy		1/265 s	1/265 s	1/132 s	1/132 s
Variation range of flash duration t 0.1		1/150 - 1/8000 s	1/150 - 1/8000 s	1/85 - 1/8000 s	1/85 - 1/8000 s
Variation range of flash duration t 0.5		1/450-1/12000 s	1/450-1/12000 s	1/240-1/12000 s	1/240-1/12000 s
		Flash duration and energy automatically regulated for optimum colour temperature. Minimum flash duration can be preselected.			
Charging time	230 V	0.03-1.1 s	0.02-0.6 s	0.03-2.2 s	0.02-1.3 s
(min.-max. energy)	120 V	0.03-1.5 s	0.02-1.0 s	0.03-3.0 s	0.02-2.0 s
	100 V	0.03-2.5 s	0.02-1.1 s	0.03-5.0 s	0.02-2.2 s
		Can be switched to slow charging mode			
Flash energy speed mode		1200 J	1200 J	2400 J	2400 J
F-stop at distance of 2 m (6 ½ ft.) 100 ISO, reflector P70 speed mode		45 9/10	45 9/10	64 9/10	64 9/10
Flash duration t 0.1 on max. energy		1/535 s	1/535 s	1/285 s	1/285 s
Variation range of flash duration t 0.1		1/150 - 1/8000 s	1/150 - 1/8000 s	1/85 - 1/8000 s	1/85 - 1/8000 s
		Flash duration and energy automatically regulated for optimum colour temperature. Minimum flash duration can be preselected.			
Charging time	230 V	0.03-0.7 s	0.02-0.4 s	0.03-1.3 s	0.02-0.8 s
(min.-max. energy)	120 V	-	0.02-0.6 s	-	0.02-1.2 s
	100 V	-	0.02-0.7 s	-	0.02-1.4 s
Ready display		Visual and audible (can be switched off), signals when 100 % of selected energy is reached			
Lamp outlets		3 main connectors with flash cut-off and ECTC			
Power output distribution		Symmetrical and individually asymmetrical			
Controls		Illuminated silicone keyboard, resistant to dust and scratches. Wireless remote control of all functions with RFS			
Control range		over 9 f-stops in 1/10 or whole f-stop intervals. Displayed simultaneously in f-stops and joules, joules switchable to percentage.		over 10 f-stops	
Colour temperature		ECTC technology (Enhanced Colour Temperature Control) for consistent but also deliberately modified colour temperature			
Modelling light		Halogen max. 3 x 650 W at 200 - 240 V Halogen max. 3 x 300 W at 100 - 120 V or 200 - 240 V (selectable) Proportional to flash energy and "full" and "low" settings. Proportionality adjustable to other broncolor power packs and monolights and their various output ranges			
Additional functions		Sequence, delay, interval, t0.1, colour temperature, alternation, stroboscopic, memory, etc.			
Flash release		Manual release button, photocell (can be switched off), infrared and RFS receiver (can be switched off), sync cable, IRX2			
No. of sync sockets		1			
Computer connection for remote control		1			
Stabilised flash voltage		+/- 0.5 %	+/- 0.3 %	+/- 0.5%	+/- 0.3 %
Operating temperature range		-10°C-45°C			
Power requirements	230 V	16.0 A	16.0 A	16.0 A	16.0 A
	120 V	15.0 A	15.0 A	15.0 A	15.0 A
	100 V	15.0 A	15.0 A	15.0 A	15.0 A
Dimensions without handle		288 x 190 x 295 mm 11.3 x 7.5 x 11.6 inch.		288 x 190 x 400 mm 11.3 x 7.5 x 15.7 inch.	
Dimensions incl. handle		288 x 190 x 348 mm 11.3 x 7.5 x 13.7 inch.		288 x 190 x 453 mm 11.3 x 7.5 x 17.8 inch.	
Weight		8.1 kg / 17.8 lbs	9.2 kg / 20.3 lbs	11.3 kg / 24.9 lbs	12.5 kg / 27.5 lbs

* A2 and A4: operation 100 V- 120 V each with max. 9.0 f-stops, no strobo and no speed mode

15. Declaration of Conformity

**KONFORMITÄTserklärung
DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE**

Wir / We / Nous :

Bron Elektronik AG, Hagmattstrasse 7, CH-4123 Allschwil, Schweiz

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product
déclarons sous notre seule responsabilité que le produit

bruncolor Scoro A2, Scoro A4, Scoro A2S, Scoro A4S

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder
normativen Dokument(en) übereinstimmt:
to which this declaration relates is in conformity with the following standard(s) or
other normative document(s):
*auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s)
document(s) normatif(s):*

EN 60065/A1	EN 55014	EN 300 220-1, -3
EN 50371	EN 60950	EN 301 489-1, -3

gemäss den Bestimmungen den Richtlinien:
following the provision of the Directives:
conformément aux dispositions des Directives:

2006/95/ECC 2004/108/EEC 99/5/EEC 96/EEC 95/EEC

Ort und Datum der Ausfertigung:
Place and date of issue:
Lieu et date:

Allschwil, 11.07.2008

Name und Unterschrift des Befugten:
Name and signature of authorised person:
Nom et signature du signataire autorisé:

Marcel Griessmann
Technical Manager


Bron Elektronik AG
Hagmattstrasse 7
CH-4123 Allschwil

11.07.2008

16. Guarantee

All **brncolor** power packs, lamps, monolights and accessories have a high quality standard. We offer a 2-year factory guarantee from the date of purchase (for the first owner) on the aforementioned units, except for flash tubes, halogen lamps, protecting glasses, cable, batteries, rechargeable batteries and textiles.

Faults resulting from non-observance of safety instructions, incorrect handling, use of accessories of another manufacturer or unauthorised intervention/modification are excluded

from the factory guarantee. We assume no liability for damages resulting from non-observance of the safety instructions, incorrect handling, use of accessories of another manufacturer or unauthorised intervention/modification.

In case of technical problems please contact immediately the nearest authorised **brncolor** service station.

September 2008

Article numbers, product descriptions and scope of delivery can vary from one country to another. Detailed information are available from your responsible brncolor distributor.

Errors and misprints excepted.