

PRIOLITE

M-PACK + PRIO HEAD

Instruction manual

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USER MANUAL

Technical data are subject to change. No guarantee for misprints. The listed values are guide values and should not be understood as binding in a legal sense. The values can differ due to tolerances in used components.

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Introduction

Dear photographer,

Thank you for selecting the **PRIOLITE** power pack and flash head.

As a young, aspiring company, **PRIOLITE** intends to use innovative technologies and high-quality products to open up new market segments for professional photography.

Our devices are based on state-of-the-art technology and equipped with carefully selected components. Our production process is being continuously monitored to ensure high quality and safety standards.

Before using this unit, please read the operating manual and safety instructions carefully to prevent damage to the device and maintain your warranty.

We wish you many successful years of productive and innovative work with our equipment. Should you have questions about our products, please contact us!

Best regards,
PRIOLITE GmbH

Description

The **PRIOLITE** M-PACK 500 and 1000 are radio-controlled, battery-operated power packs with an exchangeable battery which provide one socket for flash head connection per power pack. The PRIO HEAD 1000 is intended for use with the M-PACKs and works with both types of generators (500 and 1000). The power packs' power output ranges from a minimum level of 16J up to a maximum of 500J and 1000J covering a range of 6 and 7 f-stops, respectively, which are precisely adjustable in 1/10 increments. The flash recycle time to maximum output is less than 2.8 seconds. The flash head is equipped with an energy-saving LED array as modelling lamp.

Delivery power pack includes

- ◇ 1 M-PACK 500 or M-PACK 1000
- ◇ 1 multi-voltage battery charger (M-PACK 500, 16V; M-PACK 1000, 58V)
- ◇ 1 synchronization cable

Delivery flash head includes

- ◇ 1 PRIO HEAD 1000
- ◇ 1 flash tube, pluggable
- ◇ 1 modelling lamp (LED)
- ◇ 1 glass dome
- ◇ 1 tilting head
- ◇ 1 black plastic protective cap for transport

For the composition of the kits, please refer to our currently valid price-list.

Intended use

This power pack is intended for mobile use in professional photography in the studio or on location. Its purpose is the provision of electrical power for flash generation. The generated power output is delivered to the flash head. The units must not be used for any other purpose.



Power packs store energy in capacitors by collecting high voltages, which creates particular sources of danger. Before using this unit, read and comply the following safety instructions.

Safety instructions

- ❖ Flash units may not be operated without supervision.
- ❖ Always use extreme care when handling power packs and flash heads. Damages to flashtubes should be excluded. **A damaged flash tube poses a risk of severe injury or death, as the voltage-carrying electrodes are exposed and you might come in contact with them. Therefore, in case of a damaged flash tube the power pack must be switched off immediately and the flash head disconnected from the generator.** For safety reasons, before exchanging the flash tube you must wait at least 5 minutes after separating the flash head from the switched-off power pack to ensure that the capacitors have completely discharged via the internal safety circuit. The same applies to any type of maintenance work or before transports, which may be undertaken on the units only when they have been switched off/separated and after the waiting period has expired.
- ❖ Contact with the capacitor voltage is life-threatening; thus the opening of the casing and repairs on power packs and flash heads must be carried out only by authorized customer service personnel.
- ❖ Only the provided original **PRIOLITE** charger must be used for charging the batteries. Before each use, check to ensure that the casing as well as all cables, connectors and sockets are in good, undamaged condition. Otherwise operation of this device is forbidden; damaged units and/or cables must be repaired or replaced by authorized customer service personnel.
- ❖ Flash heads must be operated only with a properly mounted glass dome, as flash tubes can explode due to the development of overpressure.
- ❖ It is particularly important to protect power packs and flash heads from moisture, splash water, and impacts during use or transport. These units are not designed for operation in dusty environments. Flash systems must never be used in potentially explosive areas; to prevent the risk of fire, do not store flammable materials (e.g. decorative materials, paper, etc.) in the immediate vicinity of the flash units.
- ❖ Do not insert any objects into the ventilation slits or the charging or synchronization sockets. The ventilation slits must be kept clear during operation.
- ❖ Flash units mounted on pantographs, ceiling systems, or extended stands must be doubly secured against falling down.

- ⚠ Do not flash into eyes from a short distance (under 5 meters) as this can cause injury to your eyes. Do not look directly into the flash reflector; the flash could be inadvertently triggered.
- ⚠ Ventilate closed rooms regularly to prevent illegal ozone levels, which can be generated by the use of high-performance flash units.

Specific safety precautions when working with Lithium-ion batteries

The provided Lithium-ion battery contains a protection circuit that protects the battery against overload, deep discharge, short circuit and overheating.

In case of improper use (cutting, breaking, overheating) the batteries can explode or cause fires, even after a prolonged time interval. Therefore, Lithium-ion batteries are generally to be protected from mechanical damage and kept away from heat, open flames, and corrosive liquids. Batteries must not be damaged in any way. Lithium cells generally respond violently with water (particularly in fully charged condition); therefore, in case of burning do not extinguish the flames with water, but use sand. Damaged Lithium-ion batteries are readily to be disposed of in appropriate containers.

Lithium-ion batteries contain flammable and / or corrosive solutions and Lithium salts, which may cause in the case of leakage irritation to skin, eyes, and mucous membranes. In case of contact with escaped electrolytes, gases, or fire by-products of a Lithium-ion battery, the following first aid measures must be observed:

Eyes: In case of contact with eyes, rinse immediately for at least 15 minutes with water. Keep eyelids open in order to ensure the complete flushing of the eye.

Skin: Take off contaminated clothing and rinse under cold water for at least 15 minutes.
Respiratory system: Ensure fresh air supply. If necessary, perform first aid measures.

In any case, following first aid measures a doctor should be consulted.

Lithium-ion batteries must be only recharged with the supplied **PRIOLITE** charger of the respective voltage class; use the 16V charger for M-PACK 500 and the 58V charger for M-PACK 1000.

The charge should be performed only under supervision and not in close proximity to combustible materials; sufficient dissipation of heat must be provided (do not charge the battery in the sun).

If a Lithium-ion battery is carried on air travel, then it must be discharged prior to departure to avoid any risks.

Technical data	M-PACK 500	M-PACK 1000
Output:	500 Ws	1000 Ws
Voltage supply:	Lithium-ion battery with protection circuit, no memory effect 16V, 35 Wh weight approx. 600 g	58V, 80 Wh weight approx. 900 g
Flash recycle time:	2.5 sec. at full power	2.5 sec. at full power
Fastest flash sequence:	5 flashes per second	5 flashes per second
Flash duration t0.5 (sec):	1/4500 at full power	1/4500 at full power
f-stop: 1m distance, 7" reflector, ISO100, measuring time 1/125	64,2	90.2
shortest sync time:	1/200 sec. with focal plane shutter cameras 1/800 sec. with central shutter cameras	
Sync voltage:	5V for safe flash triggering by modern digital cameras socket for 3.5 mm phone jack	
Flash power control:	1/10 increments over 6 f-stops 10 = full power (500 Ws) 5 = min power (16 Ws)	in 1/10 increments over 7 f-stops 10 = full power (1000 Ws) 4 = min power (16 Ws)
No. of flashes/charge:	220/full power (display '10') 440/250 Ws (display '9') >6000 at low power	160/full power (display '10') 320/500 Ws (display '9') >6000 at low power
Charger:	16V (multi-voltage)	58V (multi-voltage)
Charging time:	approx. 2 hrs to 80% and approx. 3 hrs to full charge	
Weight (without tilt):	3,2 kg (battery included)	4,5 kg (battery included)
Dimensions (cm x cm):	40 x 17	46 x 17
Code No.:	01-0500-02	01-1000-03

Technical data	PRIO HEAD 1000
Modelling lamp:	LED array (equivalent to 80W halogen)
Color temperature (K):	5500
Weight (without tilt):	1,2 kg
Dimensions (cm x cm):	21 x 17
Code No.:	05-1000-01

Initial operation

Set-up and assembly

For power packs, use the following options for transportation / operation:

- 1) Standing upright on firm, dry ground with the flash socket on top
- 2) clamped to the tripod using a combination of Manfrotto Superclamp and **PRIOLITE** tilting head (accessories not included in the standard delivery). The **PRIOLITE** tilt head is thus inserted into the rail profile of the generator and securely locked using the small lateral wing screw. The Manfrotto Superclamp mounted on a tripod now takes the stand mount of the **PRIOLITE** tilt head. In this case, the generator serves as a weight loading on the stand. Depending on the height the power pack is fixed on the tripod, it can be operated easily from waist height.
- 3) The power pack can be stored for transportation purposes in the **PRIOLITE** gear tube (accessories not included in the standard delivery) hanging around the shoulder. In the gear tube, the power pack must only be operated at low power levels to avoid heat problems.

The flash head is equipped as standard with a tilting head. For set-up on tripods, pantographs or ceiling systems, this is screwed securely onto the appropriate tripod mount using the locking thumbscrew on the side of the panner.



If the units are suspended from pantographs, ceiling rails, or extended stands, a second secure connection is required in accordance with the applicable safety regulations. It is recommended to insert a steel cable suitable for this purpose (not included) through the opening of the handle and to secure it to a suitable lug on the suspension unit.

Adjustment of the tilting head

Dependent on the direction the tilting head is inserted into the rail profile, right and left hand use is possible. You have the following options for adjusting the flash unit:

- ◆ The inclination angle can be precisely adjusted by means of the large thumbscrew. The rotation angle (360 °) is set using the tripod mounting screw.

- ◇ Using the lateral small thumbscrew on the opposite side, the flash unit can be shifted backwards or forwards in the rail profile; this might be useful for weight compensation (e.g., when attaching heavy accessories).



To prevent the unit from sliding off the rail and dropping down, the provided M6 screw is to be inserted into the provided thread hole on the rear end of the rail.

Attachment and removal of the glass dome before operating flash heads



The glass dome must be attached or removed only when the flash head unit is disconnected from the power pack which had been switched-off before. Always ensure that the flash tube and modelling lamp remain intact and undamaged!

The protective glass dome is fixed to the four pre-mounted springs. The best procedure for mounting and dismantling is to place the flash unit vertically on a solid surface. Then put the glass dome carefully over the flash tube, and push it down firmly with gentle pressure until the glass dome snaps audibly into the springs. For dismantling hold the glass dome firmly with both hands. Then tilt it slightly so that it disengages from the mounting springs and pull the glass dome straight off.

Mounting of accessories to flash heads

Light modifiers (reflector, soft box, umbrella, etc.) are to be mounted to flash heads before the units are put into operation. Accordingly, the power pack must always be switched off and the flash head disconnected from the power pack before the light modifier is changed.



After longer periods of operation the flash head and the attached accessories (particularly reflectors) can become very hot. To avoid burns upon contact, you should use suitable heat guards when handling the equipment or wait until it has cooled down. Due to the heat build-up, power pack and flash head must not be operated in the vicinity of flammable objects. Sufficient safety clearance with regard to decoration for photographic purposes must be ensured.

Connection of reflectors to flash heads

To attach reflectors the clamps are put into open position by pressing the reflector lever against the spring force until it hits the stop and keep it there. Now place the accessory evenly and flush to the unit (for accessories with Bowens S-type adapter, place the three flanges of the accessory that they fit into the corresponding recesses). Do not tilt the accessory during this process. Then return the lever to its initial position moving with the spring force to lock the accessory into place. To remove the accessory, hold it firmly (caution - it could be very hot!), press the lever against the spring force to unlock it and remove the accessory.

The system is generally compatible with most reflectors of the Bowens / S-Line as well as HENSEL / E and EH series. As for HENSEL reflectors, the clamps fit around the raised edge of the reflector from the outside. Should you have any questions concerning compatibility, please contact us.

Connection of softboxes to flash heads

The **PRIOLITE** softboxes have a speedring which is mounted to the reflector locking mechanism of the flash head the same way as reflectors (see description above). For softboxes of other brands adapters are available upon request. Please ask for details.

Umbrella attachment to flash heads

To attach an umbrella to the flash head insert the rod in the round opening at the front of the rail profile to the desired length and tighten it using the knurled screw.

Acclimatization

If the flash units are to be set up at a new location with a different humidity level and/or temperature, the units should stand for a while before operation in the room in which it is to be used. This should prevent the formation of leakage current which can develop due to precipitation.

Overheating

All units are equipped with a fan to prevent damage to the flash tube and the unit itself during long series of flashes. Nonetheless, should overheating occur, an error message will appear on the LED display. The error message will be automatically reset as soon as the unit has cooled down.

Starting up

The flash head does not have a main switch. Before starting-up, the flash head cable has to be connected to the generator by connecting the plug into the socket of the power pack. This is done by clockwise turning the plug into the bayonet lock. After switching-on the power pack, the flash head is ready to flash.



Before each operation, the black plastic transportation cap has to be removed.



Each power pack provides only one socket for flash head connection. Only operation of **one** PRIO HEAD 1000 per generator is approved. The flash head is suitable for both types of power packs (M-PACK 500 and M-PACK 1000).

The power pack is switched on and off by pressing the main switch protected by a flap against unintentional switching.

M-PACK generators are equipped with a removable drawer that contains a Lithium-ion battery. The battery status is displayed by pressing the button located below the row of LEDs. If no LED lights up, the battery is discharged. Full charge is indicated by lightening up of all LEDs. The battery is electronically protected against deep discharge.

If the battery is discharged, either the battery drawer can be easily replaced by a new one or the battery charger is connected to the flash unit to continue operation. The charger is designed for multi-voltage operation, i.e., it operates worldwide from 90V - 240V.

The 16V chargers for M-PACK 500 have a 2-pin connector, the 58V chargers for M-PACK 1000 have a 6-pin connector so that any confusion is excluded.



Under no circumstances any manipulation on connectors and / or sockets are to be made. Only spare parts from **PRIOLITE** are to be used.

Replacement of battery drawers



Removal of the battery

For battery replacement, please proceed as follows:

Before exchanging the drawer the power pack is to be switched off by using the main switch protected by a flap; the green LED light located on the left side of the main switch goes off. Then, place your index finger into the pull-out handle and press your thumb against the bottom flap of the battery drawer. With combined upward push and pull, the drawer is to be completely removed out of the housing of the power pack.



Plug-in of the battery



With the battery drawer pulled out of the unit, under no circumstances reach into the opening of the power pack!

An exchange drawer fitted with an original **PRIOLITE** battery of the same voltage class (M-PACK 500, 16V; M-PACK 1000, 58V) is to be inserted completely into the opening of the power pack with slight pressure. To do so, use both hands and press your index fingers from reverse and thumbs against each other until the battery drawer clicks in.

Connection to the charger

The charging of the battery can be done inside the power pack (switched on or off) or outside. The charging cable of the supplied charger (16V or 58V, resp.) is plugged into the charging socket of the battery drawer and the provided power cable is connected to the mains outlet. The charging unit is intended for global supply voltages (multi-voltage: 230V/115V). The charging time of a flat battery to full charge is approximately 3 hours. Full charge is indicated by the lighting up of all 5 LEDs.

The batteries for M-PACK 500 and M-PACK 1000 are of different size and weight; in addition, chargers for M-PACK 500 and M-PACK 1000 are fitted with a 2-pole and 6-pole charging plug, respectively. They are also provided with a special coding to prevent damage in case of confusion.

Functions on the operating panel



M-PACK 500 / M-PACK 1000 operating panel

From right to left and top to bottom:

PILOT function box (modelling lamp options)

2-digit LED display

Turning knob

Battery drawer with

> Mains switch behind the flap,

> Pull-out handle and upper/lower flap,

> Charging socket and

> row of LEDs for charging control (top left)

RADIO function box (options for remote control)

1-digit LED-display

Flash release button (TEST)

AUXILIARIES function box (Slave, FC, Audio)

Control knob

The control knob is used to set the desired flash power in 1/10 increments from a minimum of 16V to a maximum of 500J (M-PACK 500) or 1000J (M-PACK 1000) covering 6 f-stops for M-PACK 500 and 7 f-stops for M-PACK 1000. The output is displayed on the two-digit 7-segment display in f-stops: 10 stands for maximum power and 5.0 (M-PACK 500) and 4.0 (M-PACK 1000) for minimum power. Increasing or decreasing the f-stop by 1.0 point doubles or halves the flash output, resp.

PILOT function box (modelling lamp)

The modelling lamp is switched on or off using the "PILOT" buttons.

The PRIO HEAD 1000 designed for the use with the M-PACKs is equipped with a LED array as energy-saving modelling light.

By pressing the FULL button, the LED lamp lights up with maximum power. FREE mode allows for adjustment independently of the selected flash power output by simultaneously pressing the FREE button and turning the control knob. In PROP mode the light output is proportional to the flash power setting.



Bear in mind that longer operation of the modelling lamp consumes battery capacity which is then no longer available for flash triggering. Therefore, it is advised to limit the duration with the pilot light switched on.

RADIO function box (radio operation)

For remote radio operation, use the three radio buttons on the right.

ON:

If the ON button is activated (control LED lights up), the flash can be triggered and controlled by radio. Additional entries for TEAM and ID are required.

Team/ID:

Selection of a team (A, B, C, or D) or an ID (1 to 9) is done by pressing the Team or the ID button and simultaneously turning the control knob until the desired selection is indicated on the LED display. By adjusting all possible combinations, a maximum of 36 **PRIOLITES** (LED 400, series M, MB, MBX, M-PACK) can be individually controlled.



Team and ID can be changed only when the radio function is "ON".

AUXILIARIES function box (additional functions)

Slave:

If the "Slave" button is activated, an external flash is triggered via the photocell (see the section entitled "Flash triggering" below).

FC:

IF FC (Flash Check) is activated, the modelling lamp goes off immediately after the flash has been released and lights up again only after the unit has charged up to the selected level. This ensures correct charging as well as renewed flash readiness. The flash control ensures that the flash lamps light up when several flash units are used.

Audio:

If the "Audio" button is activated, flash readiness is indicated by an acoustic signal.

Test

Test flashes can be released by pressing the "TEST" button.

For additional flash triggering options, please refer to the next section.

Flash readiness

Flash readiness is indicated by

- ◇ lighting up of the "TEST" button
- ◇ lighting up of the plastic cap covering the photocell
- ◇ re-lighting up of the modelling lamp when FC is activated
- ◇ an acoustic signal when the Audio function is switched on

Flash triggering

Flashes can be triggered as follows:

Flash triggering via the synchronization cable

The power pack is connected to the camera using a synchronization cable with a 3.5 mm phone jack via the synchronization socket. The synchronization socket is located besides the photocell in the area of the handle. The synchronization voltage is 5 V.

The synchronization circuit was designed using state-of-the-art semiconductor technology. This enables reliable flash triggering even in older cameras with mechanical contacts.

However, due to the large number of different electronic circuits used in the cameras for synchronization control, we cannot assume any liability for any damage to the camera by triggering the flash. You should therefore contact the camera manufacturer before using cameras that are not generally commercially available.

Flash triggering via the photocell

The generator can also be triggered via the built-in photocell. Triggering then occurs when a flash from another unit “strikes” the first unit. This operating mode is activated by pressing the **Slave** button (control LED is on).

The photocell is designed as an impulse photocell. Thus, it works only when the striking flash has a higher aperture value than the ambient light. You must therefore ensure that no excessively strong external light falls on the photocell. If this cannot be avoided, another method of flash triggering must be selected.

Flash triggering via radio remote control

The power pack is equipped with a built-in bi-directional radio module. To trigger the flash via radio, the radio remote control must be mounted onto the hot shoe of the camera and then switched on using its main switch.

You must also ensure that the **TEAM/ID** settings on the radio control unit and the power pack match. The flash is triggered by activating the camera shutter.

Flash triggering via the TEST button

The flash can also be manually triggered by pressing the “TEST” button.

Automatic Power Drop (APD)

If the power setting is reduced, the stored energy is internally dissipated. During this process no flash will be triggered. Power packs that are switched off are automatically discharged. It is also possible to reduce the energy quickly to the current value by triggering a test flash.

Maintenance

Before maintenance works are to be done, the following safety precautions must be strictly observed:



Before replacing the flash tube, the power pack must be switched off and the flash head disconnected. Then you must wait at least 5 minutes for safety reasons to ensure the complete discharge of the capacitors via the internal safety circuit. Furthermore, before replacing the flash tube, you must wait until it has cooled down.



To remove the glass dome, please refer to the instructions described above. The flash tube must not be touched during this procedure (danger!). Always use extreme caution when handling an exposed flash tube due to the existing overpressure.



If the glass of the flash tube is broken, do not touch the electrodes in any case when you are replacing the flash tube! In this case you must use fully insulated pliers to remove the damaged flash tube!

Replacement of flash tubes

For replacement pull the flash tube carefully out of the plug connector and replace it with a new one (to be ordered from **PRIOLITE**) by plugging the three contacts into the sockets. Before using the unit once again the glass dome is to be mounted for safety reasons.

Regular inspection and repairs

Except for the work described in the “Maintenance” section, users must not perform any repairs on flash systems; these are to be carried out exclusively by authorized customer service personnel.

In accordance with country-specific safety regulations, inspection and maintenance of electrical systems and devices should be carried out at regular intervals. We recommend an annual inspection of the units to ensure operational safety and reliability and to maintain the value of the system.

Return to customer service

To prevent damage during transport and to ensure optimal protection of the units, we recommend to ship the devices only in the original packaging.

Disposal

Disused and defective units must be disposed of in the electronic recycling.

Accessories

The following accessories are available:

- ◇ Radio remote control
- ◇ Lightformers (reflectors, grids, softboxes, octaforms, striplights, umbrellas)
- ◇ Stands, bags
- ◇ Glass domes, flash tubes, cables
- ◇ Multi-voltage charger, battery exchange drawers

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Declaration of Conformity

The company **PRIOLITE** GmbH
Gattingerstr. 7, D-97076 Würzburg, Germany
declares that the products
M-PACK 500, M-PACK 1000, and PRIO HEAD 1000
are in conformity with the following standards:
EN 61000-6-3:2007, EN 61000-6-2:2005 and DIN EN 60335
according to the provisions of the Directives
2004/108/EG and 2006/95/EG

Place and date of issue:
Würzburg, 01-October-2012



Dipl.-Ing. Joachim Renschke
Managing Director **PRIOLITE** GmbH