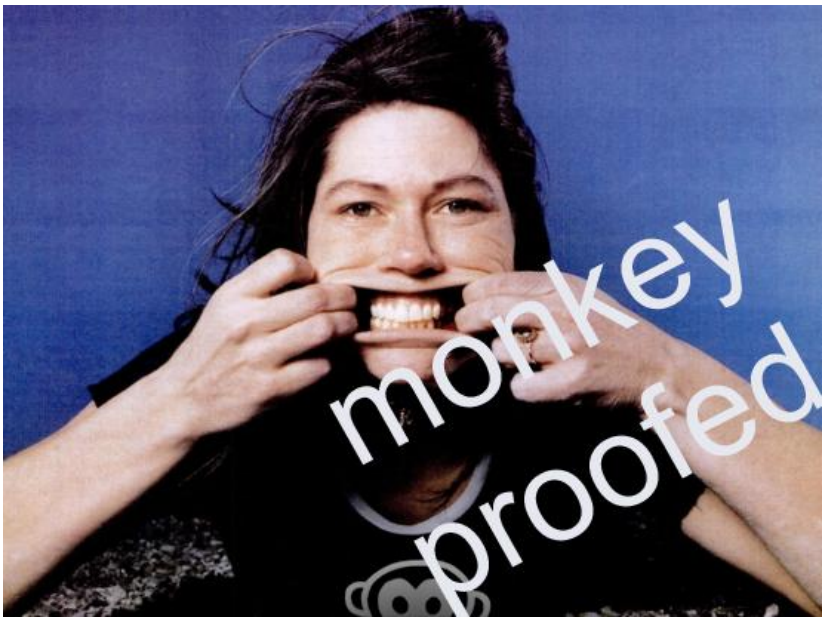
Rude Nora 3 – Monkey Manual



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Nora3 Overview

Nora3 has two main LEDs. A focused **spot** LED and a wide angle **flood** LED. In normal operation the lamp has **4 light settings** as factory default.

Nora3 also has a separate **moon mode** LED (white smd LED) for maximum run time, and **battery charge level indication** (white smd LED blinks 1-5 times).

Nora3 can be programmed using infrared remote control. From 1-9 light settings can be specified, and the level of light provided by each setting can be configured by the user. The **spot** and **flood** LEDs can be operated separately or blended together. Each LED can be operated at **low, medium, medium plus, high** and **maximum**, offering a choice from 26 possible light combinations.

Nora3 Operation

Nora3 is operated by the fully sealed switch on the top side of the lamp body. In normal operation, the switch can be operated in two distinct ways, ***<short push>*** or a ***<long push>*** (push and hold).

The available light settings are in a continuous forward loop, **1 to 4,** and **off**. Each of the settings can be selected in turn, by pressing the switch ***<short push>***.

The **factory default light settings** are;

1. **medium flood** (20 hours) - general progression around cave
2. **maximum spot** (2.5 hours) - route finding in very large passages
3. **medium plus flood & low spot** (10 hours) - progression in larger passages
4. **high spot & high flood** (2 hours) - if you really must !!
5. **off** (effectively zero battery consumption)

In order to avoid cycling through subsequent light settings, Nora3 can be **turned off** from any setting with a long switch press ***<long push>***.

Note - when initially connected to the battery pack, Nora3 will turn on in moon mode (separate white SMD LED). The next press of the switch (short or long) ***<push>*** will turn the lamp off, and the smd LED will indicate battery charge level.

Nora3 has effectively zero battery consumption when switched off, so there is no particular requirement to disconnect batteries. However it is always best practice to do so when not in use for more than a few days.

Auto Transport Lock

Nora3 has an auto transport lock feature, to avoid the lamp being turned on accidently. When Nora3 has been switched off for more than **5 minutes** the transport lock is automatically activated. To restart lamp subsequently requires two presses of switch ***<push-push>*** in reasonably quick succession.

Moon Mode LED and Battery Charge Level Indicator

Moon mode is provided by a separate white smd LED, providing **very low** light (approx. 8 lumen) for ultimate duration (320 hours / 2 weeks). Well suited to underground camp, expedition, small passage caving, and emergency. Moon mode can be selected by a long switch press ***<long push>*** from lamp **off** setting.

The next press of the switch (short or long) ***<push>*** will turn the lamp back off. At this point the white smd LED will display level of battery charge by blinking 1 to 5 times. 5 blinks indicates fully charged and 1 blink very flat, for li-ion batteries. The light is visible underground, on the back of your hand, such that battery condition can be determined without removing your helmet.

Low Battery Charge Level Indication

If battery charge is getting low, then Nora3 will automatically blink the main LEDs to indicate this, a few seconds after a new setting has been selected. Following this brief warning, operation will continue as normal with reducing light output as battery is now quite low, and green indicator LED will blink (not visible with helmet on) at 1 second intervals. Nora3 has been configured to deliver a low light from fundamentally flat battery packs for some time, therefore minimizing the risk of being left without light. However, at this point you might consider using a lower light setting, or changing battery.

Ultimately, the Nora3 will restrict illumination to moon mode, and li-ion batteries will shut down at a set low voltage level (typically around 2.7v) to prevent damage. In event of battery protection circuitry failure, Nora3 incorporates an additional layer of protection to ensure that batteries will not be over discharged.

Thermal Management

While operating, Nora3 continually monitors lamp temperature. If lamp gets too hot then main LEDs will blink and the power will be reduced to a allow lamp to cool. White smd indicator LED will blink (not visible with helmet on) at 1 second intervals while under thermal regulation. Lamp function is not locked, and simply changing light setting will restore full operation, though be aware that unless a lower light setting is used for a few minutes in order to provide time for the lamp to cool, then thermal management may quickly reactivate. In reality, you are probably only likely to see this if running continuously for extended periods, using high settings and in warm environments; as the Nora3 provides a very effective heat sink.

Nora3 Programming

Nora3 can be easily configured to individual requirements, using infrared remote control. To program lamp, point the controller at Nora3 front window. The receiver is within the lamp housing.

Programming is possible when Nora3 is initially connected to a battery and with lamp switched **off**. If programming function is required, it is important to press the switch before connecting battery (or alternatively disconnect the battery from a lamp **on** setting and reconnect). If no programming activity has occurred for **5 minutes**, the programming link is disabled, in order to protect your settings, until the battery is next reconnected. While the programming link is active the green indicator LED will blink every 8 seconds.

Number of Light Settings

Nora3 has **4 factory default light settings**. This can be modified from **1 to 9 settings** depending on your requirement. To select the desired number of light settings enter # followed by the number of settings required and OK to confirm, ***<#(number of settings 1-9)OK>***.

If the number of light settings selected is less than the current number, then any settings no longer required will be taken from the end of the current sequence. For example, if lamp is currently configured with 6 settings, and 3 settings are selected, settings 4-6 will be removed.

Any additional settings will be added to the end of the current sequence, immediately before the off position. These will be set at **low flood,** unless they have previously been programmed, in which case they will be set at the last stored configuration.

Configuring a Light Setting

Nora3 allows the light level of each setting to be modified to individual requirement. To modify a light setting, enter * followed by the number of the specific setting you wish to modify ***<*(setting number 1-9)>***. This will only respond to the number of light settings currently specified (as described above). For example, if the lamp currently has 4 light settings, then only controller buttons 1-4 will respond.

When a valid light setting is selected, use the arrow buttons on the remote to select the desired level of light for each LED. The level of the **spot** LED is set using the ***<up>*** and ***<down>*** arrows, and the level of the **flood** LED is set using the ***<left>*** and ***<right>*** arrows. Either of the LEDs can be set as off, but not both. When you have selected the desired light levels of spot and flood LEDs, then enter ***<OK>*** to confirm. This procedure can be repeated for any specified light setting.

The spot and flood LEDs can each be operated at 5 light output levels, **low, medium, medium plus, high** and **maximum**. The LEDs can be operated separately or blended together in any combination of these levels (see table below), with the exception of maximum setting. Maximum setting is restricted to either flood LED only or spot LED only, as a combination of both at this level of output rather misses the point!

While using the arrow buttons to select light level of the LEDs, you will note that the flood and spot LEDs light up at significantly lower levels than during actual lamp operation! These levels are simply representative of the 5 power settings of each LED, but set at lower level in order to protect your vision when programming. However, even at these lower levels direct eye exposure should be avoided.

(default settings 1-4)	**off – spot**	**low spot**	**medium spot**	**medium plus spot**	**high spot**	**maximum spot**
off - flood	n/a	50 lumen 60 hours	150 lumen 20 hours	250 lumen 12 hours	675 lumen 4 hours	**1000 lumen 2.5 hours (2)**
low flood	50 lumen 60 hours	100 lumen 30 hours	200 lumen 15 hours	300 lumen 10 hours	725 lumen 3.5 hours	n/a
medium flood	**150 lumen 20 hours (1)**	200 lumen 15 hours	300 lumen 10 hours	400 lumen 7.5 hours	825 lumen 3 hours	n/a
medium plus flood	250 lumen 12 hours	**300 lumen 10 hours (3)**	400 lumen 7.5 hours	500 lumen 6 hours	925 lumen 2.5 hours	n/a
high flood	675 lumen 4 hours	725 lumen 3.5 hours	825 lumen 3 hours	925 lumen 2.5 hours	**1350 lumen 2 hours (4)**	n/a
maximum flood	1000 lumen 2.5 hours	n/a	n/a	n/a	n/a	n/a

max. regulated light outputs,& approx. run times based on 6800mAh battery pack (see website)

Monkey Mode ….. for Monkeys !!

Monkey Mode simplifies the operation of Nora3, for people who just want things super simple, or monkeys! To select Monkey Mode, enter ***<*(0)OK>***.

Monkey Mode allows a maximum of 3 light level settings (default settings 1-3 from above table), selected in a forward loop with OFF at the end of the sequence. Monkey Mode has only one length of switch press ***<push>***. There is no distinction between short and long switch pushes. The Moon Mode and battery charge level indicator are also disabled, except on initial connection of battery. The auto transport lock remains active. Press switch twice ***<push-push>*** to escape from this little monkey trap! The number of light settings can still be specified from 1-3, and the desired level of light output set for each. To exit Monkey Mode and restore Nora3 to normal operation (at last stored setting), enter ***<*(0)OK>***. On exit, Nora3 will retain (to memory) changes made to Monkey Mode settings.

Restore Factory Default Settings

If at any point you get in a pickle, then enter ***<#(0)OK>*** to restore all Nora3 settings to factory default settings.

Nora3 Fitting Guidance

Nora3 is designed to be helmet mounted. Fitting is fairly intuitive. The standard alloy lamp bracket requires 3 holes drilled in the front of the helmet (4.5mm). When drilling, take care not to damage cradle etc, on inside of helmet. The lamp bracket can be used as a template. Position of lamp bracket is personal preference, and helmet type dependant. If possible, position lamp high enough to avoid interference with peripheral vision. Orientate lamp and mark position of lamp bracket central fixing hole, drill helmet, and attach bracket to helmet. M4 stainless steel allen screws & lock nuts are provided for this. Mark other 2 bracket holes, twist bracket to one side (or remove completely) and drill helmet. When fixing bracket to helmet, nuts should be on the outside. The extending arms of the alloy lamp bracket will need to be adjusted to suit lamp and accommodate curved helmet profile. They can be bent carefully by hand as required.

Fitting the battery box, with 2 off M3x35mm allen screws, washers and nuts, requires 2 holes (3.5mm-4.5mm) drilled in rear of helmet 49.5mm apart. Screw heads and washers should be on the inside of the helmet, and nuts on the outside. Battery box should be orientated so that bottom of box is just above the helmet rim. Some helmets may benefit from shorter 30mm screws (not supplied). Alternatively, the battery box can be attached with two cable ties or with suitable shock cord. The battery box has 2 grooves to accommodate this and requires that 4 suitably positioned holes are drilled in helmet.

The lamp can now be fitted to the lamp bracket. The lamp housing and cable should be threaded under the rim of the helmet, behind the cradle inside the helmet and back and out at the front of the helmet. Nora has been designed for cable to run inside the helmet. Nothing pisses us off like a cable draped around the outside of a helmet.

The lamp is fitted to the bracket with 2 off M5 cap head screws. The M5 stainless spring washers fit between the screw heads and the bracket, the M5 stainless washers fit between the bracket and the lamp body. Orientate lamp to desired angle and lock up both screws. The lamp bracket and battery box lid use the same 4mm allen key. This will need to be carried along with any spare batteries if on a very long trip that might require additional batteries. To maintain good water integrity, high viscosity silicone grease can be used on battery box O ring and front window O ring.

Battery and lamp connectors are polarized so correct polarity is ensured. Battery connections should be made outside of the box, and battery pack orientated in battery box, with wires and connectors typically orientated down inside wall of box (opposite side to cable entry). Battery is best inserted with wires from heat shrunk pack positioned to the bottom of the box. Take reasonable care when fitting battery pack that battery and lamp wires do not get trapped / damaged, and individual batteries are orientated correctly in Nora battery holders.

The Modification of Helmets for Caving

By necessity helmets have to be modified in order that they can effectively be used for caving or adapted to suit the requirements of a particular task within the caving environment. Invariably holes will need to be drilled in the shell so that lamp brackets or reserve lamps can be fitted. Cavers drill helmets; as they principally use these to mount lamps and protect from light bumps.

If holes are drilled in sensible positions and kept to a minimum they are unlikely to have an adverse effect on the overall strength or protection offered by the helmet shell, but obviously this can't be guaranteed. Drilling holes into a helmet shell technically invalidates its certification as Personal Protective Equipment (PPE) and may have an adverse effect on the amount of protection provided by it, so anyone who modifies or uses a modified helmet must be aware of, and fully accept, the potential incurred risks of the modification beforehand and during subsequent use.

Li-ion Battery Packs

Nora3 uses high capacity, quality 2p li-ion battery packs, professionally manufactured with appropriate protection circuitry. Our cell packs are produced in an industry standard flat pack configuration; no fancy layouts to tie you into our product. You can also use 2x individual 18650 li-ion batteries (unprotected) and 3x AA batteries with appropriate Nora holders.

Knowing some fundamentals about your battery pack will help to ensure that you maximise the life of the packs. While li-ion battery packs are fairly robust, they are potentially susceptible to damage particularly from severe impact, temperature and water ingression. Our lamps have been designed to best protect the battery packs in operation, while maintaining a practical helmet mounted solution for underground use. If carrying spare packs take care to avoid severe impact and water as they will potentially break. A hard case waterproof container is probably advisable.

We do not take responsibility for injury to persons or damage to property from cells or chargers. These should be used and charged under supervision, stored safely, appropriately maintained and correctly disposed of if there is any suspicion that they have been damaged or are defective.

Battery Pack Charging

Although the charging algorithm for li-ion cells is relatively complex, this is sorted out by Nora chargers and battery protection circuitry. Consequently, chargers are invariably simple plug in and go solutions. Red light charging, green light fully charged, with automatic charging shut off. Battery packs can be part discharged or part charged without consequence. There is fundamentally no rapid high current charge option for li-ion packs. Although charging is automatically shut off on completion, it is always advisable to disconnect battery packs from chargers when charging has finished.

Battery Pack Storage

The capacity of li-ion batteries is reduced with age. The chemical process that relates to this is accelerated with increased temperature and charge level. To realise maximum battery life, cell packs should be stored around half charge and in a cool and dry environment (around 15 degC, do not freeze). Under no circumstances should battery packs be left discharged for an extended period, in order to avoid self discharge below 2.5v and permanent damage.

Battery Compatibility

Nora3 operates from **3.7v li-ion**, and is compatible with 3 series NiMh / alkaline cells. Nora is not compatible with high voltage li-ion packs, typically ranging from 7.4v to 14.8v, connection to which could result in damage. Always ensure correct battery polarity, to avoid potential damage to lamp.

Battery Pack Summary

- Avoid getting battery packs wet, it will kill them
- Avoid severe impact. Do not puncture.
- Store battery packs somewhere cool, around 15 degrees C
- Store packs part charged, around 50% is good
- Do not store packs discharged (as deep self discharge will kill them)*
- Do not store packs connected to lamp
- Use a Nora charger, or a suitable equivalent
- Keep a watch on general battery pack condition (avoid damage to leads and connector)
- Do not use or charge a potentially damaged battery pack
- Dispose of dead battery packs at suitable recycling facility
- Do not short circuit or reverse polarity batteries
- Keep away from children and monkeys

High Power LEDs

Nora3 uses high power LEDs and is fairly bright. Do not look at LEDs in operation. Eye injury can result. Be especially careful of this when programming light settings. Do not shine you light into other people's eyes, particularly at close range. For more information, see Cree website.

Warranty

Nora3 has a standard 1 year warranty against defects in material and manufacture. If your product or accessories fails to operate to specification during the Warranty period we will arrange for your product to be repaired or at our discretion replaced. This warranty is subject to reasonable wear and tear (in our opinion) and correct use and maintenance of the product as applicable. We will not provide warranty repair / replacement if the problem, in our opinion, resulted from use outside the product specification, modifications or alterations, incorrect connection, operation or fitting where applicable, external damage due to accident, impact/ abrasion, poor storage, poor maintenance, use of non approved parts, wear and tear parts (e.g. Nora front window). We will always endeavour to keep any costs due to damage to an absolute minimum.

Nora3 has been designed to operate effectively in a hostile environment, i.e. caves, and be as robust / reliable / practical as possible for this purpose. As a consequence it will get battered and while we appreciate that it is entirely feasible to break things occasionally, any such damage is beyond the scope of the product warranty. Expect to pay for any damage related repairs. Battery packs in particular are sensitive and subject to damage from misuse, impact, temperature and most significantly water ingress / moisture. Although in reality fairly robust (we see very few failures), battery packs / chargers are only covered by warranty if defects in materials or manufacture can be demonstrated to our satisfaction, and limited to a 3 month period from purchase. Nora battery packs / chargers are professionally manufactured, and as distributers we will only undertake very minor repairs to these items. Your safety is our priority.

Disclaimer

Caving is not without risks. We would not presume to tell you how to kit up and use your equipment. What we will say is that the Nora3 is not, and should not be considered as, Personal Protective Equipment (PPE). How you interpret any guidance that we give on the use of our products and how you use our equipment is entirely at your own risk. Caving is a rigorous activity that is harsh on equipment. Nora3 has been designed to be safe, robust and best withstand the demands of caving, while remaining practical as a tool for this purpose. This does not mean that it cannot be broken. Lights can fail without warning, and we take no responsibility for any consequence of this. Always carry a reliable and accessible independent backup light source for any light crucial activity / function. Good caving practice is your own responsibility. We do not take responsibility for any accident, injury, liability or cost, to yourself or that you may cause to anyone else, or to any property. This applies to caving or any other function for which you choose to use and place reliance upon our product. We are aware that our lights are often used for cave diving. Information relating to the scope of this activity will be published on the little monkey website.

Please note that you personally assume full responsibility for the risk of property damage, bodily injury or death which may occur from the use of this product in any manor whatsoever. If you are not able, or not in a position to, assume this responsibility, or take the risk, then do not use this product. We are not responsible for the consequences (direct, indirect or accidental) or any other type of damage befalling or resulting from the use of this product. If you are not entirely comfortable with the above, then do not purchase or use any of our products.

About Us

Rude Nora is designed and manufactured by us, trading as Customduo. We are based in Cheddar, in the Mendip Hills, a significant UK caving region. To contact us or view latest version of Nora3 manual, product guidance and terms & conditions, please visit website **www.littlemonkeycaving.co.uk**

Nora3 Operation Flow Chart