Automatic Gateway Release Timer

Instruction Manual

Updated **March 2021**

Batt-Latch Instruction Manual

Contents

Note that your Batt-Latch may not have all features described in this manual if its firmware version is older than v6.05.

While every effort has been made to ensure the accuracy of the information in this manual, Novel Ways Limited accepts no responsibility or liability for any errors or their consequences.

The contents of this manual are subject to change without notice.

1 FEATURES AND OVERVIEW

- The Batt-Latch is a **portable timer** which waits until a preset time and week day, then mechanically releases an attached spring/bungy/tape gate using its internal gearbox.

- It can be incorporated into normal farming practice by swinging standard or any other types of gates open and temporarily replacing them with the Batt-Latch release unit, and the supplied spring or a tape gate.

- The Batt-Latch is a valuable **labour-saving tool** for herd management, and will also help **reduce pasture pugging, stock lameness** and **fuel costs**.

- The latest advances in technology have been harnessed to develop new circuitry that uses less power to deliver an improved performance. The **integrated solar panel** on the Batt-Latch maintains battery charge without intervention, eliminating downtime for charging.

- The already **rugged and dependable** outer case has been made even more durable with refinements in design, and the use of a superior **waterproofing gasket**.

- The durable **webbing belt supplied** easily attaches the Batt-Latch to posts and battens.

- The keypad is **simple to use** and gives you total control and flexibility to set up and **store up to four recurring or one-off release events** at a time, for up to two weeks in advance. The full message LCD display screen lets you know exactly what you've programmed in.

- With the increasing trend towards **feedpads** or **supplements** on most farms, stock have an extra incentive to leave the paddock. No other portable product will release the herd to a feedpad near the dairy at 3a.m, for example, **saving hours of effort** every week.

- A cellular modem version of the timer is also available to release gates on text command, but also to adjust daily release times, check operation or adjust the clock. See **Chapter 5** for more information.

- For farms with poor cellular coverage, a remote-control release Batt-Latch has been developed. See **Chapter 6** for more information.

What can the Batt-Latch be used for?

- **Release herd for milking** – The cows are closed into their paddock with the Batt-Latch, which is programmed to release a spring gate at the morning and/or evening milking time. As the spring gate is released against a post it will alert the cows that the gateway has been opened. They will then walk up to the dairy on their own, especially with the added incentive of a feedpad or supplements, as is common practice. Depending on the farm's shape and the distance to the rear of the farm, up to 45 minutes per milking can be saved.

- **Hold the herd back after milking** – Another Batt-Latch can be used to set up a spring gate at the back of the dairy or nearby race to hold the cows back after they have been milked. At the end of the milking session the farmer can get ahead of the cows to set up gates or feed out supplements, normally using another Batt-Latch to close the cows in with. This will also mean that the cows will be entering the paddock together, so heifers will get less stressed. Our timer is also ideal for ensuring that break-fed maize and other crops are equally available to the whole herd (or allow the first cows in from milking just some of the crop, and release more when all cows are milked).

- **Break feeding or Run-offs** - One or more Batt-Latches can be set up with spring gates to let stock into an adjacent break-feeding area, or open another paddock off a common race. At the set time, the Batt-Latch will release the gateway and the cows or stock will go into the next area for grazing. This can be done for a maximum of fourteen days with multiple units, which will allow the farmer to be away from the farm for longer periods.

  Using a timer can also reduce pasture pugging, as the stock are less likely to get agitated and walk up and down the fence line as they normally do. Using the Batt-Latch timer, the gate will be opened without prior warning so the stock will simply walk out at their own pace.

  Visits to the run-off can be made less frequently by using the Batt-Latch. The Batt-Latch(es) can be set up so that they are releasing 2 or 3 days apart and letting stock into a fresh new grazing area. This method can reduce run-off visits to only once in 10 days.

  Several users have multiple Batt-Latch units that they are using in this manner, which saves them a substantial amount of time and travelling costs.

- **Cell or mob grazing** - a technique of using semi-permanent electric fences to hold a mob of animals in a confined space for a short time, before moving them to the next break – see page 15.

- **Horses** – Horses need regular feeding opportunities not only to maintain energy levels, but the right feeding frequency helps to control physiological, digestive, and behavioural issues. Teamed up with a roller gate (tidy and safe retraction), the Batt-Latch can be used to release horses to new pasture or hard feed.

- **Other uses** – Some farmers also use rubber isolation or shock cords to attach standard pipe gates to the Batt-Latch timer. When the timer releases, the gates swing either open or closed, pulled by a large spring. You can use this technique to move stock around the farm in various ways at different times of the day, or (for example) to trap feral animals like deer in well-fenced enclosures or paddocks.

Note: Be aware of potential health and safety risks and exercise caution when operating, transporting, or storing the Batt-Latch unit. See **Chapter 4**.

2 OPERATING INSTRUCTIONS

Your Batt-Latch kit should contain:

Batt-Latch timer unit incorporating a solar panel, attached webbing strap, extra long spring gate with high tension hook and black clip, manual, and a clip-to-clip energiser lead.

Full operation of the Batt-Latch is covered in the following step-by-step instructions.

2.1 SWITCHING ON/OFF

Press any of the keys on the Batt-Latch, and it will switch on and display the current job(s), battery voltage, day and time. **The Batt-Latch automatically switches itself off again after 45 seconds of inactivity (no button presses).** Remember to check that the current day and time are set correctly - if they are not correct, refer to section **2.3 *Setting the Time*.**

The Batt-Latch can be switched off by holding down the **CLEAR** key for 5 seconds. This will also display the version number of its firmware.

2.2 MANUAL SELF TEST

To give yourself an idea of how the Batt-Latch works, try this simple manual release test.

Step 1. Press and hold the **ENTER** key for 3 seconds. You will hear short beeps that will change to the warning gate release sound after 3 seconds.

Step 2. You can release the **ENTER** key now and the Batt-Latch will perform a gate release (cam will rotate 360º and return to original position) and should display [**STAND CLEAR!OPEN]** then **[RELEASE OK!]**

This is a good way to check that your Batt-Latch is in good working order. If something is not right and the Batt-Latch displays **[RELEASE FAILED]** or **[LOW BATTERY]** then refer to the troubleshooting section at the end of this manual. No job settings will be affected by this release.

2.3 SETTING THE TIME AND WEEKDAY

You will only have to do this if the background (or reference) time and day settings are not correct. Check this by turning on the Batt-Latch by pressing any key, and checking the display for the day and time.
If you need to adjust the time and day, follow the instructions below. Once you set the time you should not have to set it again (except for daylight saving twice a year) but it is advisable to check the settings are correct every now and then.

Press and hold the **CLOCK** key for 3 seconds to enter clock setup mode: while beeping the display will show **[SET CLOCK]**, give a higher pitched beep, then display the currently set time, such as the example below:

[SET: MON 8:20AM]

The correct day and time can be set by pressing the **DAY**, **HOUR** and **MIN** keys. You can only move *forward* in days or numbers on each key. Use one press, or hold the key down for faster input, especially on the **MIN** key. Make sure you have the **AM/PM** setting correct on the **HOUR** key.

When you have finished entering the corrected day and time, you need to press the **ENTER** key to exit from clock setup mode. The new background time will be displayed briefly, and saved.

A note on daylight saving: It won't update automatically, so you will need to change the clock, as above, to adjust for daylight saving time.

2.4 SETTING A JOB (GATE RELEASE)

Step 1. Switch on the unit by pressing any key.

Step 2. Press either **DAY**, **HOUR** or **MIN** to ask the timer to begin setting up a new JOB e.g. **[JOB1 MON 3:30PM]**

Step 3. Set the time and date for a job using the **DAY**, **HOUR** and **MIN** keys.
Note: by selecting **ALL** as your DAY (after SAT), the Batt-Latch will execute the JOB **every day of the week** at the specified time. This is the most common setting on dairy farms, most will have a morning and afternoon job set to run each day at the same time.
e.g. **[JOB1 ALL 4.30AM]** **[JOB2 ALL 2.30PM]**

Step 4. Press **ENTER** once you have entered the correct time and day for the JOB. If you selected **ALL** for your day in the above step then you have finished setting a **repeat** JOB. Go directly to **Step 6**.

Step 5. Now decide if you want the job to repeat **[REPEAT JOB? NO]**. If you confirm **NO**, the JOB will be performed **once only.** Use any key except the **ENTER** or **CLEAR** key to change your answer from **NO** to **YES**. If you select **YES**, the Batt-Latch will perform the JOB at the **same time on <u>one</u> selected day every week**, until told otherwise. Press **ENTER** to confirm your answer.

Step 6. The JOB is set. The Batt-Latch will now do a gate release at the set time. To set another JOB repeat steps 2 – 5. A maximum of four JOBs can be stored.

Congratulations -You have just set a JOB!
The Batt-Latch will now cycle through displays showing the current day and time and each of the JOBs that are set. It is a good idea to review the JOBs to check that you have set them correctly. If everything is set OK just leave the Batt-Latch and after 45 seconds it will switch off automatically. The display will show:

[GOING TO SLEEP..]

The internal clock will still be running and the Batt-Latch is always checking to see if it has to perform a JOB. When the time comes to perform a JOB the Batt-Latch will "wake up" and perform a gate release.

Points to note:

- When setting the time, take careful note of **AM or PM** settings.
- Repeat JOBs show ***** next to the day e.g. **[JOB2 TUE* 1:30PM]** is a repeat JOB occurring on Tuesday afternoons.

To run a **QUICK TIMER TEST** at any stage, simply wake the unit up with a keypress if needed. Then press the **MIN** key two or three times to set a job a few minutes ahead. Press **ENTER** to confirm it's a one-off JOB. Within the next two or three minutes the timer will at first go to sleep, then wake up and rotate the cam once. That JOB is now finished, and is not held in memory.

2.5 CLEARING A JOB

You will need to Clear a JOB if:

- You don't want a JOB any more (saves battery and release system).
- You made a mistake in the settings for a JOB.
- You want to set a new JOB but there are already 4 JOBs set (4 is the maximum)
- Repeat JOBs are no longer required.

Step 1. Switch on the unit by pressing any key, the display will cycle through the jobs currently set.

Step 2. When the JOB that you want to clear is displayed on the screen, press **CLEAR.**

Step 3. You will get a message e.g. **[CLEAR JOB1? YES]**

Step 4. Use any key except **ENTER** to toggle between **YES** and **NO** if needed, and then press **ENTER** when you are sure. That JOB has now been cleared (or left as it was).

Note: When storing the Batt-Latch or changing release times, it is a good idea to clear old JOBs, which saves the battery life and the mechanism from redundant release operations.

2.6 CHARGING THE UNIT

In normal use, you should not have to worry about charging the battery as the sun provides plenty of free energy.

However, if the Batt-Latch has been stored indoors over winter, it is advisable to recharge the Batt-Latch before the first use. This will prevent any possible release failure due to the battery being in a low state of charge.

You will need to recharge the Batt-Latch if it begins to display the low battery warning message: **[LOW BATTERY!]**

To recharge the Batt-Latch place the unit in sunshine or on a windowsill for the day, with the solar panel facing the sun.

If the Batt-Latch is used in deep shade it may require to be placed in sunlight for an hour or two to top up the battery.

You can always test the state of your Batt-Latch by using the manual self test as described on page 6; this allows you to gauge its capacity as it performs a full cam revolution.

Direct sunlight is up to 1,000 times brighter than inside lighting conditions, and the Batt-Latch is always using a small amount of battery power when in storage. Additional self-discharge within the battery pack means that if the Batt-Latch is stored continuously in the dark, it will have a flat battery within 3-6 months.

Try not to let the battery discharge to a level where it can't turn the Batt-Latch on; it will be harder for the solar panel to recharge the battery pack again.

2.7 STORAGE

If storing for lengthy periods it is recommended that you clear all JOBS from the memory (see 2.5 on page 9) and place the unit into “Deep Sleep” mode.

Follow the steps below to place the unit in **Deep Sleep** mode:

Step 1. Press and hold the **CLEAR** button (approximately 7 seconds) until the Batt-Latch displays **[DEEP SLEEP?]**

Step 2. When the unit displays **[DEEP SLEEP? NO]** press any of the top keys so that the display changes to **[DEEP SLEEP? YES]**

Step 3. Press **ENTER** to confirm you want to place the Batt-Latch into Deep Sleep

To wake the Batt-Latch up from Deep Sleep:

Step 1. Press any of the keys.

Step 2. When the screen displays **[WAKE UP? NO]** press any of the top row of keys to change the display to **[WAKE UP? YES]**

Step 3. Press **ENTER** to confirm you want the Batt-Latch to wake up and return to normal operation.

If possible, store the Batt-Latch so that some light will fall on the solar panel to overcome the self-discharge of the Ni-MH battery. A windowsill is ideal for this.

Note: In deep sleep mode, the Batt-Latch will not complete any automatic releases.

3 USING THE BATT-LATCH

This section is provided to help you use your Batt-Latch on the farm or elsewhere. These are only guidelines to help you to begin using your Batt-Latch, and changes in the suggested procedure may have to be made to suit your own needs.

The Batt-Latch can be used on any farm. All that needs to be done is to open the standard gates (wood, pipe or any other type) so that they are out of the way and temporarily fit a spring/tape gate to one side of the gateway. Hook the Batt-Latch onto the other side of the gateway with the webbing strap and slip the spring/tape gate hook behind the release cam of the Batt-Latch.

For a more detailed description refer to the step by step instructions below.

Step 1. You need to temporarily replace any existing standard gateway with a spring (preferable) or tape gate. This is done by opening the standard gateway and locking it against the fenceline, or securing it so that any wind or stock cannot move it. Attach the supplied spring gate to one of the posts using the black nylon attachment hook. The best position to attach the black hook is directly opposite the other gate post, so that when the handle end is let go by the timer, it hits the opposite post in the middle and makes a noticeable noise. Fit the black clip end on the post closest to the direction of the shed/dairy/more forage. Some dairy farmers hammer a gatehook staple to the inside of each of their gateway posts at fence height to make attaching the black clip easier – ensure stock or humans aren't harmed by any set up. The timer should be attached to the less-rubbed post to reduce any chances of it being crushed against gate hardware.

Step 2. Attach the Batt-Latch to the other post using the webbing strap that comes fitted to the Batt-Latch. **Leave enough slack so that on release the Batt-latch unit tilts out of the way of stock, and make sure it will not come into contact with sharp objects.**

Step 3. Pull the spring gate or tape gate across the gateway by the handle and slip its hook behind the cam of the Batt-Latch. Restrict the force applied to the timer's cam to less than 7kg (you can use a spring balance to check if unsure). Use extended length spring gates, rather than the shorter standard ones.

Step 4. **This step is optional**. You can **energise** the spring/tape gate using the clip to clip lead supplied. Attach one clip on the metal hook side of the spring/tape gate handle. Loop the middle of the lead around a standard fence wire or the timer's strap to keep it from flying off. Attach the other clip to a nearby live electric fence wire.

That's it! You should have already programmed the Batt-Latch to release at the time you want, so it is ready to go.

For detailed instructions on how to program the Batt-Latch see the *Operating Instructions*, section 2.

3.1 USEFUL HINTS FROM USERS

- **Training.** The cows will be easier to train or entice to the dairy by themselves if they are early in the season (just calved), hungrier than normal, or there is a feedpad or supplements at the dairy or beyond the release point. The normal training period is quite short, 2-3 weeks or even less.

- **Energising** the spring/tape gates that are used with the Batt-Latches is optional. Most have found that there is almost no need to energise the gateway for dairy herds. The only time that farmers should need to energise the gateway is during periodic training of younger stock, or during calving and the early part of the season, because they may try to break through the gateway.

- **Automatic release reduces herd stress**. Many farmers have noticed that there is less lameness in their dairy herd because cows can pick their own way in the race, which also preserves herd hierarchy. If stock are being handled incorrectly in unsuitable races for long distances, the use of your Batt-Latch for unattended stock movements can **reduce herd lameness** by up to 70% or more, it is reported.

- **Spring gates versus Bungy**. Some farmers are using a cut down spring gate (less bulky) with a rope or bungy cord to get it to spring out of the way of moving stock. Try the Taragate bungy (Tarabungy) cord or Gallagher's shock cord (G89104). The spring gate we supply is a special export length capable of spanning 8m gateways (PEL/Stafix/Datamars 814632). Do not exceed 7kg of strain (in line with the gearbox shaft) which is quite a high force. Check gate forces using a spring balance if unsure.

- **Once-a-day summer milking**: By milking in the morning and utilising a Batt-Latch to free the herd to new pasture in the afternoon, there is no need for workers to come back onto the farm just for that job, saving labour and freeing up leisure time.

- **Spring Gate tips:** You can use an empty 15kg acid pail or similar as a receptacle for the spring gate. Simply cut a circle in the base big enough for the spring, position that on the "receiving" post end ahead of the black plastic hook, and the released spring will have a landing point rather than possibly tangling in the wire fence. Makes more noise and also makes a handy bucket for transporting the system to the next gateway on the bike. Some farmers bring the Batt-Latches back to a central point for pickup.

- **Release noise:** Virtually all farmers report that no extra noise is required when the gate releases. Stock will move if the new conditions on the other side are an improvement. However, small cowbells attached to the spring or shock cord gates work quite well.

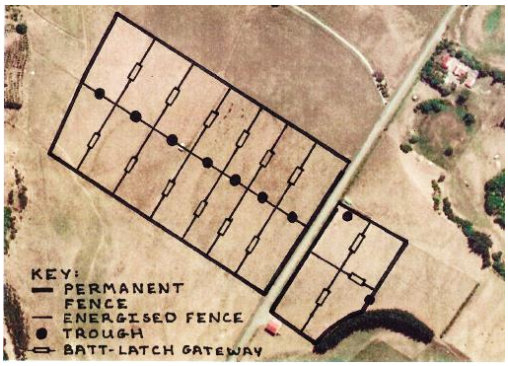
- **Herd health benefits:** Many farmers report reduced bullying in the dairy and feedpad area as the “herd hierarchy” is retained, also anecdotal evidence implies that mastitis is reduced by the more leisurely pace and single file walk to those areas. Because the gate release is unattended and at a set time, less manure is deposited on the race, the bulk remaining in the paddock, lessening teat contamination and helping race maintenance.

- **Preventing new pasture pugging:** Some dairy farmers save major pugging damage to new and susceptible pasture by blocking the gateway to that paddock with a Batt-Latch until all the herd has arrived from milking. About 10 minutes later the gate is released and the herd enters quietly and together with no human intrusion, reducing impact on the sward, particularly in the gateway. Drystock farmers also confirm substantial pugging reduction along fencelines and gateways due to Batt-Latch use, as the animals soon work out that the timer will reliably allow access to new feed.

- **Race layout:** With your herd making its own way along the race, it is desirable that there be no sharp angles or visual obstructions in the race where individual animals lose sight of the animal ahead, causing a stoppage or bottleneck. Curved or angled corners work much better than right angles.

- **Cell or mob grazing** - a technique of using semi-permanent electric fences to hold a mob of animals in a confined space for a short time, before moving them to the next break.

  A set of Batt-Latch timers can be set up to open sequentially, over a period of several days, to move the stock for the farmer. Water must always be available, and baleage can be pre-fed into each cell, but otherwise the farmer need not be present – perfect for a remotely-run operation. You can get an idea of how it works, from this diagram:



- **Further uses:**
  - One farmer uses a Batt-Latch attached to a bungy cord to activate a switch on his water pump at the top of his farm, switching it off and saving him a trip every evening.
  - Another use has been to enclose hens safely in their coops in the evening by releasing spring-loaded doors.
  - Birds nesting in barns and tractors? Try setting a spare timer to release a gate spring into the underneath of the roofing iron in the middle of the night!

Do you have any bright ideas,

handy hints

or helpful uses for the Batt-Latch?

We are always happy to hear from
Batt-Latch users and innovators.

Apart from applications with dairy, dry stock, horses,
and (yes!) sheep, we've adapted a unit
to release seed for quail and pheasants.

Talk to us about your bright ideas!
Phone: 0800 003 003 *or*
Email: enquiries@novel.co.nz

Visit our website for up-to-date news and information on sales, service and repairs: https://www.novel.co.nz/

Find our newsletters, manuals and further helpful documents on our downloads page:
https://www.novel.co.nz/downloads.html

3.2 EXTRA FOR EXPERTS

Releasing a week ahead: It is possible to save a one-off JOB (no repeat) that skips the first week after setting, and **releases in the next week**. In this way, the maximum time delay before a release occurs becomes almost two weeks if needed.

Go through Steps 1 to 3 in section 2.4 above, Setting a JOB.

Step 4: Press **CLOCK** and **ENTER** together, to get (for example)

[JOB3 WED▲ 2:30PM]

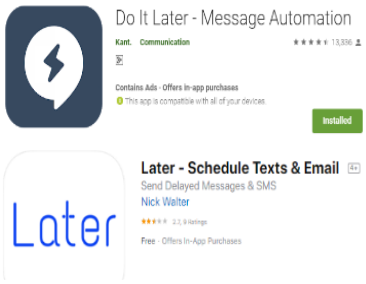
The new JOB will show the special character ▲ when reviewed. The timer waits at least 1 week before releasing, and then automatically clears the JOB.
Use with care, and ensure stock have water at all times.

Holding stock on a feedpad: You might need to hold stock on a feedpad or crop break at some stage, to stop them wandering around the farm. The classic but unusual example is a dairy herd being released to the feedpad by the Batt-Latch in the early hours, but running out of feed before milking starts, and deciding to return to the paddock! One of our customers suggests this technique: stretch a bungy cord across the front of the feedpad (or down the race a bit). Pull the middle of the cord upwards and hold it there with a pulley and rope system attached to another Batt-Latch timer. The herd will move in under this gateway, and when you are fairly certain they will all be there, the timer releases and holds them in for you. This could be a semi-permanent setup – a low cost boom gateway.

Split herds: If you have split herds using a feedpad and/or dairy, you will find uses for more than one Batt-Latch. You could number or name these so that the release times follow the same herd, to make it easier for staff. Make sure you have good "lead" cows in each herd.

Release counters (v.6.04 onwards): On the home screen, hold the **CLEAR** and **MIN** keys for 5 seconds. The screen will display **[RELEASE COUNTERS]**. Then, by pressing the **ENTER** key, you can cycle through timed, manual, remote and failed releases since the Batt-Latch was new (**SN**), and since it was last repaired (**SR**).

For Modem units: Do It Later: We all put off things we are supposed to do now… but here is an App which encourages you to do just that!



Do It Later (Android) or Later (IOS) Apps allow you to pre-program and schedule a text message to be sent out at a specified time. You can also set up recurring messages.

This can extend the functionality of the Batt-Latch Modem Unit. For example, you can schedule a job for more than seven days in the future, edit or change a message before it goes out, or ask for a periodic status update.

Search in the Play Store or App store for details.

Allowing standard pipe gates to open or close by timer is possible, and a few farmers are getting great value out of this idea. Use a large spring or inner tube to swing the gate, and of course there should be no obstacles or misaligned gates. Isolate the gate and any wind or animal pressure from the timer cam, by adding a medium spring or section of inner tube between the gate and the cam attachment. This technique has also been successfully used for feral animal capture.

Below, you can see the new **standard gate bracket system** that we have developed. This portable bracket clips onto the gate, while holding the Batt-Latch in place, controlling a 200kg latch holding a spare gate hook chain. A special cam on the Batt-Latch opens the latch at the alarm time, which releases the gate from an open or closed position (your choice). The gate is forced into moving by a portable spring (rubber or metal), or a gas strut arm fitted to the gateway.

The Batt-Latch can be triggered using the normal internal timer, or by remote control, if that option is fitted. So now you can control any stock movements with the Batt-Latch system – unattended, or from a range of 5km by remote if needed. A lower cost portable remote can be used from a nearby vehicle.

The kit includes the zinc plated metal bracket with pins, latch and spare gate hook chain, and gives farmers options for managing sheep, bulls and steers, goats, deer and horses.

4 SAFETY INFORMATION AND TROUBLESHOOTING

The Batt-Latch unit uses battery power and is itself electrically safe. Should the cam be mechanically prevented from rotating, the motor will switch off within 2-3 seconds.

Care should be taken with ANY moving parts. Keep fingers away from the rotating cam area. The Batt-Latch has many applications, each posing its own potential safety issues. For example, when using as a spring gate release, the Batt-Latch will display and sound a warning before it releases the gate. **However, extra care should be taken when children are around**. Stock will generally keep well clear of a spring gate, even if it is not energised.

If you are using homemade spring gates (not advisable) make sure that you fit a flange behind the hook for protection, and that all flanges are at least the same diameter as the furthest point of the hook. Note that our spring gate kit uses the PEL/Stafix/Datamars XL spring (814632) which is 50% longer than standard NZ springs, handling up to 8m gateways.

Warranty Terms:

Novel Ways manufacture and sell the Batt-Latch direct to farmers in NZ, or through retailers. **We offer a return to base warranty on our product for 24 months**. International sales are supported by return or with spares held by the local agent.
See https://www.novel.co.nz/DistributorsBL.html

We can normally repair and despatch the unit on the same day we receive it. This covers any faulty circuitry and components. Please be aware that damage to the gearbox shaft or cam caused by high external force, e.g. too much tension from the spring gate, or drops onto hard surfaces, will not be covered. Internal condensation leading to corrosion (caused by an obviously damaged or pierced front screen panel that hasn't been resealed) will also be outside warranty, as well as a fractured case, LCD screen or solar panel.

We have looked hard at any problems seen in the last twenty-five years of farm exposure, and, if you take reasonable care of the unit, it will serve you very well. We are always keen to return any units back into service if sent to us outside warranty, for a reasonable charge. We welcome any feedback on the Batt-Latch, and greatly appreciate the continuing sales made by word-of-mouth from thousands of satisfied users.

See the website for our Service and Repair Guide:
https://www.novel.co.nz/136209/files/BL_service_and_repairs_notice_10_2019_FINAL.pdf

TROUBLESHOOTING

- **The unit does not turn on when you press a button**. This is possibly due to a flat internal battery. Refer to ***CHARGING THE UNIT (page 10)*** for help. If the 2-3 hours in sunlight has not recovered the battery, return the unit to us.

- **The unit displays [RELEASE FAILED]** on test after a failed gate release. This can also be due to a flat battery. Try recharging, otherwise return unit to base for repair.

- **If the cam has not returned to its normal position after release**, do not use tools to apply turning force, this will only damage the shaft and gearbox. Keep the cam and shaft area clean.

- **If the cam snaps off completely**, it's had too much strain put on it (max load 7kg). Are you using it outside the recommended limits?

- **If any moisture appears inside the case, please** send it in for repair.
  It probably won't stay sealed even if you manage to open up the unit and dry it out.

For these and other issues, such as a damaged front keypad membrane, broken or black LCD screen, obvious internal condensation, bent, loose or damaged cam or shaft, noisy operation on test, "BATT FLAT" warning etc, contact us or send the unit(s) in for repair:

Contact Novel Ways Limited for information or advice:

Freephone (NZ)		0800 003 003
	Or	+64 7 376 5658
Email		enquiries@novel.co.nz

Or return the unit for repair (either to your store, agent or directly to us):

Novel Ways Limited
Unit 3 / 6 Ashwood Avenue
Tauhara
TAUPŌ 3330
NEW ZEALAND

or

Novel Ways Limited
P O Box 2340
TAUPŌ 3351
NEW ZEALAND

A checklist for returning the unit is included in our: Service and Repair Guide:

https://www.novel.co.nz/136209/files/BL_service_and_repairs_notice_10_2019_FINAL.pdf

Refer to our website for a useful Owner's Care Guide:

https://www.novel.co.nz/136209/files/BL_Owner_Care_Guide_October_2019_FINAL.pdf

5 BATT-LATCH MODEM INSTRUCTIONS

5.1 OVERVIEW

For the control of the Batt-Latch from a cell phone, a cellular modem version of the Batt-Latch is available for purchase.

By texting different commands to the unit, any function of the Batt-Latch can be controlled as if you had the timer in your hands. These texts can come from any cell phone, or it can be set so that the Batt-Latch will only respond to texts from a "master number."

For example, if you are in town and are running late for a milking, you can text the Batt-Latch to delay the release to a later time, after which it will restore itself to its previous setting (if it is a recurring job). Jobs can also be advanced if an earlier release is required.

If an unusual rainfall event occurs, and stock remaining in a paddock could cause pugging, they can be released remotely from your cell phone to a different standoff area.

The cellular modem version of the Batt-Latch can also be used to release the second herd with perfect timing as the first herd is finishing its milking.

Other features include setting and clearing jobs, changing the date and time (such as for daylight saving), viewing and altering the configuration and receiving notifications of releases.

Each unit has a unique number, and can respond to confirm any commands sent by the user.

Please visit our website at www.novel.co.nz
or call us on **0800 003 003** (within NZ) for information and pricing.

NOTE:
We cannot guarantee that the network provider will always provide prompt transmission of the text commands – just as with normal texting.

Allow for this in your operation of the timer.

5.2 MODEM SIM CARD

For NZ Customers:

- Your SIM card has credit pre-loaded on to it, so it is ready to go.
- Your SIM card is currently on a prepaid plan. You can change the plan at any time by logging onto your provider's website (this will be Spark or Vodafone). For example (if with Vodafone), you may be able to change to a monthly plan that will allow it to send unlimited text messages.
- Your Batt-Latch SIM card has not been registered – you will need to do this yourself by logging on to your provider's website.
- The unit does not monitor its prepaid credit (with certain prepay plans and add-ons it is possible to have $0 credit but still have thousands of texts remaining).
- If the device runs out of credit/texts it will not be able to send messages.
- The Batt-Latch will forward any messages received from your provider to the Master number, if it is set in the Batt-Latch – refer to the setup options.

NOTE: The credit and SIM card will expire after 12 months if you have not topped up within this time. You will need to purchase a new SIM card if this happens.

For International Customers:

- Ideally, your local distributor will have installed a SIM card in your Batt-Latch. Either visit your provider's website or call your provider in order to register and (if needed) top up your SIM card or change the plan.
- The Batt-Latch will forward any messages received from your provider to the Master number, if it is set in the Batt-Latch – refer to Section 5.3.

5.3 BATT-LATCH SETUP OPTIONS

Firstly, the Batt-Latch must be configured to enable SMS messaging and some options decided. These settings are accessed in the "SETUP OPTIONS" menu by pressing and holding the **CLEAR** and **ENTER** keys for 5 seconds. Press **DAY**, **HOUR** or **MIN** to toggle between **YES/NO**, **ENTER** to accept, **CLEAR** to cancel.

NOTE: You can press **CLEAR** at any time to exit the setup menu.

ALARM ON? NO	- Select **NO** for a standard Batt-Latch. - Select **YES** if you want four releases done for each job, more noise
SET SMS? NO	- Select **NO** to exit setup without setting SMS parameters. - Select **YES** to configure the SMS parameters below.
SMS ENABLE? YES	- Select **NO** to disable the SMS modem. - Select **YES** to enable the SMS modem and allow commands to be received.
SMS CONFIRM? NO	- Select **NO (default)** if you do not wish to confirm each SMS command. - Select **YES** if you wish to check and confirm each SMS command before it is executed. For every command, the Batt-Latch will respond by repeating the command back to you and requiring you to confirm with a positive response within 4 minutes (e.g. by sending a Y, YES, or OK). A negative response (such as N, or NO) will cancel the command, as will sending a new command.
SMS RESPOND? YES	- Select **NO** if you do not want the Batt-Latch to respond with the result of each successful SMS command. - Select **YES (default)** if you do want the Batt-Latch to respond with the result of each successful SMS command.
SMS NOTIFY? NO	- Select **NO (default)** if you do not want the Batt-Latch to send SMS messages on successful and unsuccessful gate releases. - Select **YES** if you do want the Batt-Latch to send SMS messages on successful and unsuccessful gate releases.
USE MASTER#? NO	- Select **NO (default)** to allow SMS commands from any cell phone to be executed. This will skip the **[SET MASTER#? YES]** option. - Select **YES** to allow SMS commands from only the programmed master cell phone number to be executed.

SET MASTER#? NO

- Select **NO** if you do not wish to set the SMS master number at this time.
- Select **YES** if you do wish to set the SMS master number. The SMS modem is then powered on and waits for a network connection, it displays PLEASE WAIT until ready. Then if a master number is already programmed it will display on the screen. Any SMS received (content of message unimportant) will chirp and display the caller ID. Pressing DAY, HOUR, MIN or CLOCK keys blanks the displayed number. Pressing ENTER saves the displayed number as the new Master number (or if there is no number, it erases the Master number), or pressing the CLEAR key cancels the operation and exits without saving.

If you set **[USE MASTER #?]** to **YES** and have not entered a contact phone number, the unit will not respond to anyone.

DAY OPTIMIZE?YES

- Select **NO** if you do not wish to enable the Day Optimize setting.
- Select **YES (default)** if you would like the Batt-Latch to slow the modem down at night (roughly doubling the response time). This is to conserve battery power when it is unlikely you will be communicating with the Batt-Latch. The slower response "night' time starts at 10pm and finishes either at 5am or 1 hour prior to the earliest jobs set.

AUTOSTORE ON?YES

- Select **YES** if you would like the modem to enter Auto Storage. This will shut the modem function down if the Batt-Latch is not solar charging for three days and it has no key presses. Sunshine/keypress restarts the modem.
-Select **NO** if you do not wish to use this feature.

VIEW SIGNAL? NO

- Select **NO** if you do not wish view the signal strength.
- Select **YES** if you would like to view the modem's received signal strength (RSSI). The SMS modem is then powered on and waits for a network connection, it displays PLEASE WAIT until ready. It will then display the signal strength, out of 31, and Bit Error Rate (BER) in brackets. i.e. **[SIGNAL:10/31 (2)]** where the signal strength is 10 and the BER is 2. Press CLEAR or ENTER to exit the menu.

Please note that this is a full resolution measurement which is different to the one displayed during normal use, which is only out of 9.

5.4 SETUP COMPLETE

Once setup is completed, as described above, the Batt-Latch is ready to accept SMS/TXT commands. You will have noticed that while switched on, your Batt-Latch will display its signal strength as a number out of 9 when cycling through the time, voltage and jobs. This is followed by a number enclosed in brackets – this is the bit error rate, and can be ignored (but a lower number is better).

Modem Interval:

While inactive or "sleeping" the Batt-Latch checks for commands every so often, depending on the battery voltage. In other words, the Batt-Latch switches its Cell-phone modem ON according to the following schedule:

Battery Full	5 minutes
Battery Good	10 minutes
Battery OK	20 minutes
Battery Low	40 minutes
Battery Flat	Never

i.e. For the 10-minute schedule it will repeat like this:
ON from 2:00pm - 2:01pm
ON from 2:10pm - 2:11pm
ON from 2:20pm - 2:21pm etc

Any commands sent/received during the ON time cause the ON time to be extended for 5 minutes. So once a "conversation" is established there is little delay in subsequent responses.

Additionally:

- Waking the Batt-Latch from sleep by pressing a button on the keypad turns on the modem. It stays on for at least 1 minute after the last key press.
- The modem will also be turned on 5 minutes prior to a release.

When the Batt-Latch receives a SMS text message it will give a short chirp. This could be handy when familiarising yourself with the operation or fault finding. For example, if you send it a single message and hear one chirp followed shortly after by another chirp, it could indicate that your credit has run out. i.e. the Batt-Latch has received your message and has tried to send another message. Your provider has then sent it another message (second chirp) to let it know that there is no credit remaining.

If the Batt-Latch detects a flat battery it will disable the modem, as this has large power consumption, in an attempt to let the battery recharge.

Note:

~~Any SMS received from a "short" phone number (less than or equal to 5 digits) will be assumed to be from a network provider (such as a message advising credit expiring or acknowledging a credit top-up) and the Batt-Latch will forward these messages to the Master number.~~

This feature is not yet available

SMS Footer:

Some status information is added to the bottom of each SMS message you receive from the Batt-Latch. This includes the battery condition and voltage, Modem Interval (see above) and the signal strength.

For example:

> Gate released OK
>
> Battery Good (6.53V)
> Modem Interval: 10mins
> Signal: 2/9

5.5 SMS COMMANDS

A simple command format is employed for ease of use with a degree of flexibility. SMS commands sent by the user to the Batt-Latch may be lower-case, upper-case, or a mixture. Commas, spaces and other punctuation marks can be used and will not affect interpretation of the command. E.g. a colon ":" may be used to separate hours and minutes when setting a job but is not required.

A description of the commands follows. For the sake of simplicity, the example commands and responses are simplified, and do not show the confirmation message and response that follow if SMS CONFIRM is set to yes. Likewise, various error messages may be returned if the command is formed incorrectly, but the error messages should be self explanatory.

Firstly, the user needs to know how to respond with a Yes or No when the Batt-Latch needs a command to be confirmed, and this is explained below. Beyond that, each command is listed in alphabetical order and explained with an example.

Y Y is for Yes. Accepted keywords: **Y, YES, OK**	**Yes** The Batt-Latch can send you an SMS asking for confirmation before executing a command (when SMS CONFIRM is set to YES in SETUP OPTIONS). To respond in the positive, simply reply with a yes or one of the alternatives. You have 4 minutes to reply before the command times-out waiting for confirmation and the command is cancelled. Sending a new command also cancels waiting for confirmation.
N N is for No. Accepted keywords: **N, NO**	**No** As above, confirmation for a command may be required. To respond in the negative, simply reply with N or NO. The result is that the command is cancelled.

C C is for Clock. Accepted keywords: **C, CLOCK**	**Clock** Returns the current day and time (hours & minutes, AM/PM) of the internal clock in the Batt-Latch. Example response: **Clock:** **Mon 6:24PM**
J J is for Jobs. Accepted keywords: **J, JOBS** Optionally the job number can be included to return the details of just one Job. Examples: **J** **JOBS** **J2**	**Jobs** Returns the current status of the Batt-Latch including Cellular signal strength, solar charging voltage (when charging), and the status of jobs. Example response: **Signal= 4/5** **Job1= Mon 5:45am** **Job2= ---** **Job3= ---** **Job4= ---** The above shows Cellular reception is good (4 on a scale of 0-5), Job1 is set, and Jobs 2,3 & 4 are clear.
JxC Job followed by number (x = 1-4) followed by C or CLEAR. Accepted keywords: **C, CLEAR** Examples: **J1C** **Job1 clear**	**Clear Job** Where x is the Job number 1-4, the Job is cleared/deleted. Example command: **J1C** Response, assuming Job1 was set and Confirmation has been given or not required: **OK, Job1 cleared**

JxDHM*> Job followed by number (x = 1-4), followed by Day, followed by Hour, followed by Minutes, optionally followed by > for next and/or * for repeat. Day can be any of these: **SU, MO, TU, WE, TH, FR, SA, AL, SUN, MON, TUE, WED, THU, FRI, SAT, ALL,** **SUNDAY, MONDAY, TUESDAY, WEDNESDAY,** **THURSDAY, FRIDAY, SATURDAY** Time can be in 12 or 24-hour format, optional colon, optional A, P or AM, PM. Examples: 9 - Single digit hours = 9:00AM 05 - Two-digit hours = 5:00AM 15 - Two-digit hours = 3:00PM 015- Three digits = 12:15AM 123 - Three digits = 1:23AM 3:35 - Three digits = 3:35AM 3:35P - Three digits = 3:35PM 3:35PM - Three digits = 3:35PM 3:35A - Three digits = 3:35AM 3:35AM - Three digits = 3:35AM 0920 - Four digits = 9:20AM 1820 - Four digits = 6:20PM 12:25 - Four digits = 12:25PM 22:30 - Four digits = 10:30PM Optional ***** or **R** after time means Repeat job. Optional **>** or **N** after time means Next week. Examples: **J1SU3** (Job1 = Sun 3AM) **J1SU330** (Job1 = Sun 3:30AM) **Job1, Tue 6:30p*** (Job1= Tue 6:30PM Repeat) **Job 2 = All 3pm** (Job3 = All days 3:00PM) **Job three Sunday 20:00>** (Job3= Sun 8:00PM starting Next week)	**Set Job** The specified job number is set to occur at the specified day and time (hours & minutes). An existing job can be overwritten (updated). Optional * means job repeats. Optional > means begins Next week. Note that * and > can not be used together, > can not be applied when day = All, and day = All (every day) implies repeat. Example command: **J1MO545** Response (all examples assume Confirmation has been given or is not required, and the Respond option is set to Yes): **OK, Job1= Mon 5:45AM**

JxAM Job followed by number (x = 1-4), followed by A for Advance (or -), followed by number of Minutes (one or two digits, 0-99), optionally followed by anything else (such as m, min, or minutes). Examples: **J1A5** (Advance Job 1 by 5 minutes) **J1A30** (Advance Job 1 by 30 minutes) **J1-30** (Advance Job 1 by 30 minutes) **Job 2 A = 90mins** (Advance Job 2 by 90 minutes) **J1A0** (Remove Job 1 advance & restore)	**Advance Job** The specified Job is advanced (to an earlier time) by the specified minutes, one time only. After this occurrence, the Job will be restored to its previous settings. The specified job must already be set and not already advanced or delayed. The advance can be from 1 to 99 minutes. The specified job will typically be a repeat job (else when it executes the job will be cleared and not restored). To remove an Advance, specify a new advance of 0 minutes. Example command **J1A30** gives the following response (assuming Job1 is previously set for Monday 5:45AM repeat, and we want to advance it by 30 minutes): **OK, Job1 advanced by 30 minutes to the earlier time of Mon 5:15AM** Job1 will then execute at Mon 5:15AM. At that time Job1 will be restored to Mon 5:45AM, in addition, the > setting is applied. At 5:45AM the > setting is removed, and the job will execute normally the following day.

JxDM Job followed by number (x = 1-4), followed by D for Delay (or +), followed by number of Minutes (one or two digits, 0-99), optionally followed by anything else (such as m, min, or minutes). Examples: **J1D5** (Delay Job 1 by 5 minutes) **J1D30** (Delay Job 1 by 30 minutes) **J1+30** (Delay Job 1 by 30 minutes) **Job 2 D = 90mins** (Delay Job 2 by 90 minutes) **J1D0** (Remove Job 1 delay & restore)	**Delay Job** The specified Job is delayed (to a later time) by the specified minutes, one time only. After this occurrence, the Job will be restored to its previous settings. The specified job must already be set and not already advanced or delayed. The delay can be from 1 to 99 minutes. The specified job will typically be a repeat job (else when it executes the job will be cleared and not restored). To remove a Delay, specify a new delay of 0 minutes. Example command **J1D30** gives the following response (assuming Job1 is previously set for Monday 5:45AM repeat, we want to delay it by 30 minutes): **OK, Job1 delayed by 30 minutes to the later time of Mon 6:15AM** Job1 will then execute at Mon 6:15AM. At that time Job1 will be restored to Mon 5:45AM and will execute normally the following day.

H

H is for Help.
Accepted keywords:
H, HELP, ?

Help
Returns an abbreviated list of commands.

Example response:

```
Commands:
C=Clock
J=Jobs
JxC=Clear
JxDHM*>=Set
JxAM=Advance
JxDM=Delay
R=Release
 (x=1-4,D=Day,H=Hour,
M=Min,*=Repeat,>=Next)
```

R

R is for Release.
Accepted keywords:
O, OPEN,
R, RELEASE

Release
Command to release (open) the gate immediately.

Example response:

```
Release the gate?
Reply with Yes or OK
to confirm.
```

Then repeating the command, the response will be:

```
Gate release OK
```

Or if the battery was flat:

```
Gate release failed!
```

S S is for Setup Accepted keywords: **S, SETUP**	**Setup** Returns the current Setup configuration of the Batt-Latch, as accessed under Setup Options by pressing and holding the Clear and Enter keys. Example response: **Setup:** **Alarm = NO** **AutoStorage = YES** **SMS Confirm = YES** **SMS Respond = YES** **SMS Notify = NO** **SMS Use master# = NO** **BATTERY GOOD (6.52v)** **MODEM INTERVAL: 10mins** **SIGNAL: 6/9**

V V is for Version Accepted keywords: **V, VER, VERSION**	**Version** Returns the Batt-Latch firmware version number. Example response: **Version:** **6.07M**

6 BATT-LATCH REMOTE KIT

6.1 OVERVIEW

Remote Control Release: For farms with poor cellular coverage, we have developed a remote-control release for the Batt-Latch, allowing you to activate a gateway release from up to **5 km** away. This means you can advance a release when required, helping with the timing for the second herd. We can supply a new Batt-Latch with onboard receiver and aerial as pictured. The 27MHz 4-channel transmitter and high-power aerial are mounted in the dairy or other building.

Please visit our website at www.novel.co.nz
or call us on **0800 003 003** (within NZ) for information and pricing.

6.2 INSTRUCTIONS

Your remote Batt-Latch will have been configured at the factory. The following steps should only be required if you have ordered a remote Batt-Latch separately from the transmitter/remote or wish to change away from the standard setup to avoid false triggering.

1. Press and hold the **CLEAR** and **ENTER** keys together, **[SETUP OPTIONS]** will be displayed on the LCD. Release buttons immediately when the tone changes and **[ALARM ON? NO]** is displayed on the LCD. Note: If **YES** is displayed press any of the keys on the top row to change to **NO**.

2. Press the **ENTER** key to move onto the next step. **[SET REMOTE? NO]** will be displayed on the LCD.

3. Press any one of the top row of keys (**DAY**, **HOUR** or **MIN**) to change the LCD display from
   [SET REMOTE? NO] to **[SET REMOTE? YES]**

4. Press the **ENTER** Key. The LCD will now display the current code followed by the channel number, e.g. **[CODE1111010101:1]**. This code corresponds to that used by your transmitter or handheld remote.

5. Choose which button on your Batt-Latch Boss (long range transmitter) or Mini Boss (short range remote) you want to operate with your Remote Batt-Latch and press it.
   The code displayed on the Batt-Latch LCD should now change (if different) to display the new code and the Batt-Latch will beep.

6. Press the **ENTER** key to store the new code in the Batt-Latch memory.

Note: If you wish to use both the Batt-Latch Boss (long range transmitter) and a Mini Boss (short range remote) you will need to complete the steps above using the Batt-Latch Boss. Then match the code displayed (1 = On, 0 = Off) after completion of step 5 to the DIP switches in your Mini Boss. The DIP switches are located under the battery cover.

7 OTHER NOVEL WAYS PRODUCTS

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8 TECHNICAL SPECIFICATIONS

Batteries:	Internal 5 x AA NiMH rechargeable battery pack
Solar Charger:	Resin mounted panel, 8VDC 400mW capability
Motor and gearbox:	6V DC carbon brush motor 336:1 reduction gearbox with cam 7kg max holding weight in line with shaft
Electronics:	Low power single chip microprocessor design on a single fibreglass printed circuit board
Display:	1-line x 16-character alphanumeric liquid crystal display
Power consumption:	Standby: less than 50uA
Case:	Engineering plastic, waterproofed with rubber sealing gasket and O-rings, underwater tested.

For your records

Batt-Latch Purchase Date:	
Purchased from:	
Serial Number:	
SIM Phone No. (Modem):	

24 Month Warranty from purchase date.

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