

User Manual – Hive Strength Monitor

System components:

- **Satellite Communication Hub** if satellite model (refer to Hub user manual).
- Electronics enclosure with hive doorway activity sensor and protruding hive humidity sensor.
- 2AA batteries (included)



Fig. 1. Hive strength monitor mounted in hive.



Fig. 2. User input button.

Getting Started

1. **Mounting:**
 - Install hive strength monitor onto the front edge of the hive's lower box so that it can monitor the hive doorway for activity (fig. 1).
 - The protruding temperature and humidity sensor should insert into the hive immediately above the lower box so that it lies on top of the frame area.
2. **Button:** there is a button underneath a round weather seal at the bottom of the electronics enclosure (fig. 2).
3. **LED indicator:** there is an LED indicator showing through the side of the transparent lid near the button.
4. **Satellite hub Connection Setup:** Press the button up to 3 times until the LED begins to flash. It will flash for up to 30 seconds while establishing communication with the satellite hub. ***This step should be repeated every time the monitor is moved in relation to the hub to ensure continued operation.***
5. **LED Flash codes:**
 - While connecting, the LED will flash quickly for good battery or slowly for a bad battery
 - Once connected to the hub, the LED will turn on **solid** for 15 seconds. If it couldn't connect, it will **turn off**.
 - The solid 15-seconds is followed by a series of flashes: once per 10% of radio signal to the hub, eg: 5 flashes = 50% connection (over 20% is good)

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6. **Bee detection:** After connection is finished, the LED will flash very briefly every time a bee is detected by the activity sensor. Not every bee is detected, but it does give a good indication of overall doorway activity.
7. **Login:** Now browse to hivemind.co.nz/login and log in (per instructions in the Hub user manual)

Maintenance

1. **Batteries:** The batteries should be replaced whenever the user graph indicates a bad battery level (approximately once a year).
 - The batteries are to be found inside the electronics enclosure.
 - Undo the enclosure lid's four screws to access the batteries.
 - Do not damage the delicate flat cable leading to the humidity sensor.
 - When reassembling, ensure the flat cable enters the enclosure at the matching kink in the cable.

Specifications – Hive Strength Monitor

Dimensions: 150 x 100 mm to fit standard 8- or 10-frame Langstroth hive

Weather proofing: IP54

Operating temperature: -20 to 40°C

Battery Life: 1 year; replaceable with 2 x AA 1.5V Lithium or Alkaline

Resolution: 1% humidity, 0.1 degC

Accuracy: 3% humidity, 0.2 degC (typical)

Maximum distance device to hub: 10m to 50m typical (signal depends on what objects are in between)

Regulatory Compliance

This device complies with the following compliance regimes:

- US FCC: CFR Parts 15 and 25
- Industry Canada (IC) 7084A-SM220
- CE (Europe Aus/NZ): EN 300 328 Version 1.8.1, AS/NZS CISPR 22: 2009 + Amendment 1: 2009 as a class B device



Warranty

1. Purchased product warranty is 12 months from the date of purchase, day / mth / year as follows. Repair or replacement will be made to any faulty product returned to the purchasing location within that time. Hivemind will bear the cost of repair unless the product has been mistreated or operated outside specification. Hivemind will pay transit costs for only the transit of the product between the purchasing location and the repair facility.
2. Leased products have a perpetual warranty as follows. Hivemind will cover repair and shipping costs for damage from ordinary wear and tear. If the product has been mistreated or operated outside specification then the customer is liable to pay for the cost of the product and return shipping.

Other details of warranty are specified in the Hivemind Terms and Conditions at

<http://hivemind.co.nz/agreement>.