



## Installation Instructions

Suitably qualified personnel must install the F100. The following installation instructions are a guide to the successful installation and commissioning of an F100 Fire Alarm system.

### 1. Pre-Installation Check

- Before opening the F100 system packaging, inspect the packaging for external damage.
- Remove the F100 from its packaging and inspect the cabinet for external damage.
- Check that the cabinet key is attached to the top of the cabinet.
- Open the cabinet, and visually check that all circuit boards and cabling are firmly in place.
- Check that all fuses on the Master PCB, the power supply, and other auxiliary PCBs (where applicable) are in place.
- Check if the batteries set supplied correspond with the system load calculated. (7Ah, 18Ah, 24Ah).

### 2. Battery Installation

For compliance with NZS 4512:2021's seismic restraint requirements (NZS 1170.5, category P.5, SLS2), the following battery mounting instructions must be followed:

- Velcro is a brand name for a product known as hook and loop tape.
- The battery restraint system in the F100 requires the use of heavy duty Velcro with a minimum holding power of 675g per 25mm<sup>2</sup>.
- Pertronic has Velcro Kits available:

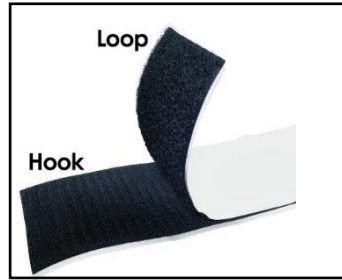
| Sales Code    | Velcro 50mm Hook and Loop | Note                                                  |
|---------------|---------------------------|-------------------------------------------------------|
| TAVELF5F1     | 500mm                     | For a single battery < 24Ah. Typically F1 and F5.     |
| TAVELF100F220 | 2000mm                    | For a single battery ≥ 24Ah. Typically F100 and F220. |

Table 1: Velcro Kits

- Alternatively, Velcro product may be purchased elsewhere, as long as it meets the minimum holding requirements.
- Pertronic recommend using **Velcro® Heavy Duty 50mm x 2.5m Hook & Loop Tape**, as shown below to fix the batteries to the panel's base and gear plate.

For example

[https://www.bunnings.co.nz/velcro-brand-50mm-x-2-5m-white-heavy-duty-hook-and-loop-tape-vl25585\\_p3960040](https://www.bunnings.co.nz/velcro-brand-50mm-x-2-5m-white-heavy-duty-hook-and-loop-tape-vl25585_p3960040)



**The Pertronic kits may have a higher holding power rating than that listed above.**

### 3. Velcro Strips Installation

- Loop tape is applied to batteries.
- Hook tape is applied to the fire panel cabinet.
- The Hook tape in the cabinets must match the size and position of the batteries Loop tape.
- Extra Hook tape may be installed to make battery installation easier.
- The minimum amount of Velcro installed, to the floor of the cabinet and bottom of the batteries, is the width and depth of the batteries that can be made with 50mm strips.
- The minimum amount of Velcro installed, to the back of the cabinet (or gearplate) and back face of the battery, is 85mm x 50mm per battery.
- There is no restriction on installing more than the minimum requirements.
- Batteries must also have padding between the contacting side faces, an easy solution is the softer loop tape on the touching side faces.

| Velcro Application      | Hook or Loop | Location                                           | Coverage                                                                                                               |
|-------------------------|--------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Fire Panel or Bat. Cab. | Hook         | Floor                                              | Cover enough of the floor of the unit to match the location and amount installed on the batteries.                     |
|                         |              | Rear wall / Gear plate                             | One strip of hook tape, 85mm x 50mm, placed in the location to match where the batteries are to be installed.          |
|                         |              | Front of rear battery (when stacked front-to-back) | If smaller-capacity batteries are to be stacked front-to-back then apply a strip to the front of the rearmost battery. |
| Battery                 | Loop         | Base                                               | Cover the entire base of the battery using 50mm-wide strips.                                                           |
|                         |              | Back                                               | Apply one strip of 85mm-long x 50mm-wide, per battery, to align with the rear wall/gear plate hook strip.              |
|                         |              | Back of front battery (when stacked front-to-back) | If smaller-capacity batteries are stacked front to back then apply a strip to the rear of the front-most battery.      |
|                         |              | Side (when side-by-side)                           | Apply one 50mm-wide strip of adequate size as padding between batteries.                                               |

Table 2: Velcro Strips installation

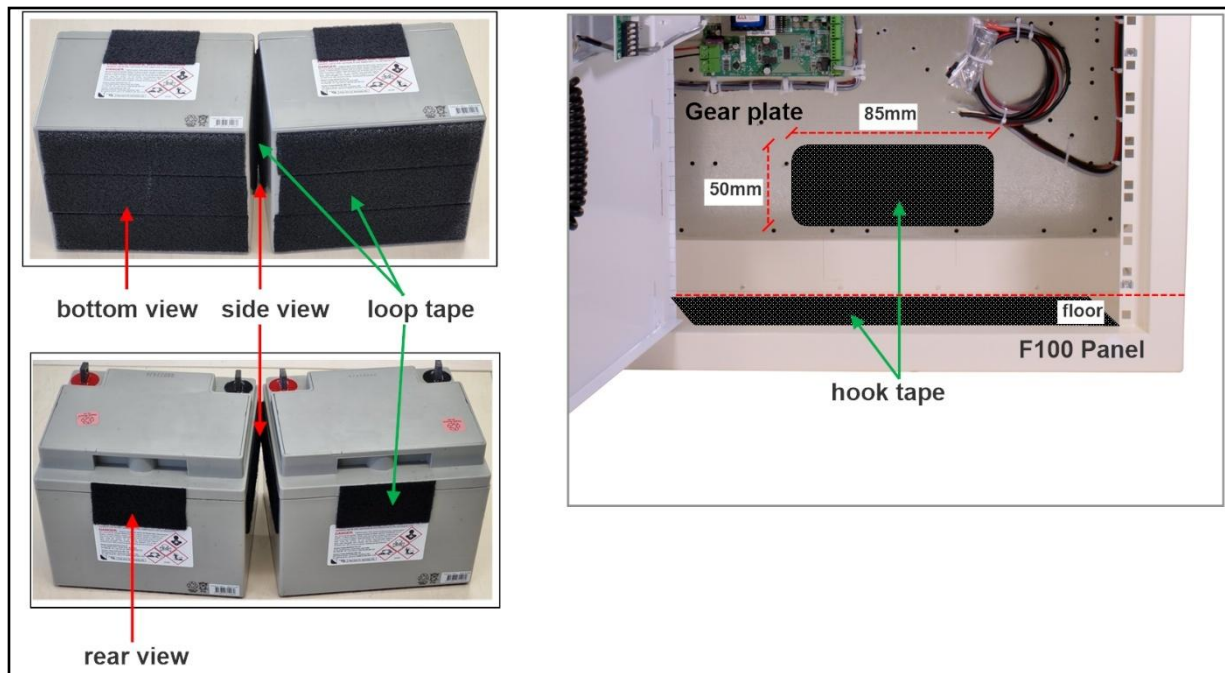


Figure 1: Velcro Strips installation

#### 4. Positioning the Batteries

- **Preparation**

Ensure the Velcro strips intended for battery fixation are properly installed on the inner wall and on the floor of the F100 panel.

- **Positioning the First Battery**

- Take the first battery and orient it with its front face facing forward.
- Tilt the battery approximately 45 degrees from its back edge, with the lower front face in contact with the front edge of the panel's interior (See Figure 2).



Figure 2: Installing the first battery

- Maintaining this angle, slide the battery along the panel floor until the battery is aligned with the edge of the raised floor of the gear plate (See Figure 3)
- Lower the base to the horizontal position, flush against the interior wall and the panel floor.

- e. Confirm that the Velcro adheres securely, anchoring the battery firmly in place.

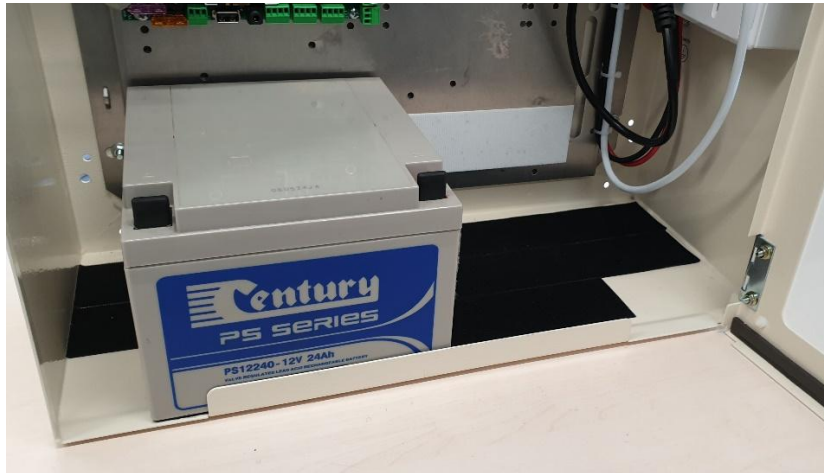


Figure 3: The first battery is installed

- **Positioning the Second Battery**

- a. The second battery is installed to the right of the first as shown in Figure 4 using the same technique that was used to install the first battery.
- b. Maintaining the same 45-degree tilt, slide the battery along until it is positioned next to the first battery. Keep the gap between the two to a minimum to maintain mechanical stability.



Figure 4: Installing the second battery

- c. Lower the battery to the horizontal position, flush against the interior wall and the panel floor.
- d. Confirm that both batteries are securely fastened by the Velcro and do not move under light manual pressure.



Figure 5: The two batteries successfully installed

**For the 600 Cabinet:** When a Masterboard, Loop Driver, and Amplifier are installed, this limits the height of the battery options to around 165mm – this restricts the installation of 18Ah & 40Ah batteries, and 33Ah batteries may be getting very close to sensitive electronics. 7Ah and 24Ah batteries are recommended for this configuration

Front-to-back batteries installation for the 18Ah battery capacity as well as the strip on the rearmost-battery's back, sticking it to the gear plate, there will be a second strip of 85mm x 50mm joining the front battery to the back battery how is depicted in the Figure 6: Bottom-Front Velcro 18Ah Battery.



Figure 6: Bottom-Front Velcro 18Ah Battery



Figure 7: Front-to-back 18Ah batteries installation

## 5. Panel Installation and Power Connection

- Install the cabinet to its assigned position.
- To meet seismic compliance; the fastening of the Pertronic Fire Panel must be affixed to the solid wood of the wall by three 30mm 8-gauge Pan-head self-tapping screws through the back of the cabinet. Two screws at the top corners and one at the bottom left to limit the cabinet jumping off the top screws.
- The 30mm 8-Gauge screws were calculated to hold up to a F100 in a 900 cabinet with 2x 40Ah batteries (or 50kg) in the worst-case seismic areas of New Zealand. However, there is a calculator provided if your situation is different:

<https://support.pertronic.nz/tools/seismic-calculator>

- Ensure that F100 is clean internally and that no residual contamination such as metal filings is present.
- Ensure that all monitored outputs requiring an EOL resistor are correctly terminated at the panel. It is assumed that the external loop and other external site wiring have been installed but not connected to the F100, at this point.
- Ensure that a detailed plan and address assignment table is available for each of the loops.
- Before connecting the external loops and other external wiring, install the Mains power (230Vac  $\pm 10\%$ ). Do not connect the batteries.
- Check that the system is correctly Earthed.
- Apply the Mains power to the system and observe that the F100 goes through its initialisation phase. This takes about 30 seconds. Defects will be detected (such as Loop Defects and Battery missing) but ignore these at this stage.
- Connect the batteries and reset the system with the RESET push-button on the F100 Master PCB.

- **Loop Device Configuration:** The entry of the Loop device configurations may be carried out manually through the keypad, or by using a PC and uploading the configuration data from a file on the PC.
- Connect Loop 1, and either run the learn option or enter the detector, module, and relay configuration data through the Engineer's Menu. Ensure that each device on Loop 1 has been configured. (When using a PC, load the data for Loop 1).
- Reset the F100 (using RESET on the Master PCB).
- Deal with any Defects. For loop or device defects, investigate the source of the defect (for example, wrong configuration data, double addressing), and correct the fault. For other (system) Defects, locate and deal with these before proceeding.
- When Loop 1 has been configured correctly and no other faults are present, connect Loop 2 to the F100, and repeat the configuration and test process.
- Repeat this for Loops 3 and 4 as applicable.

## 6. Other External Devices

- When the Loops have been successfully configured and tested, connect and test the sounders connected to the BELL1 and BELL2 relays.
- Connect and test the devices controlled by AUXM and AUX.
- Test the operation of the Loop Relays.
- Connect and test any other devices that are a requirement of the system.
- Test the system as a complete functional unit, testing all input and output devices.

### Document Change History

| Issue Number        | Reason for Update | Description of Changes | Author |
|---------------------|-------------------|------------------------|--------|
| Issue 1<br>Aug 2025 | New document.     | CN3946<br>NZS4512:2021 | MQ     |