



Installation Instructions

Suitably qualified personnel must install the F1. The following installation instructions are a guide to the successful installation and commissioning of a F1 Fire Alarm system.

1. Pre-Installation Check

- Before opening the F1 system packaging, inspect the packaging for external damage.
- Remove the F1 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.

2. Battery Installation

For compliance with NZS 4512:2021's seismic restraint requirements, follow these battery mounting instructions:

In the event of an earthquake, to limit the movement of the battery within the cabinet, the battery restraint system uses heavy duty hook and loop, or Velcro®, tape. (**Note:** Velcro® is the brand name of the hook and loop tape manufactured by Velcro Companies).

The hook and loop tape Pertronic recommends is Velcro® Heavy Duty 50 mm x 100 mm Hook and Tape which has a minimum holding power of 675 g per 25 mm². A 500 mm length is available as a kit from Pertronic (Product code: TAVELF5F1) or alternatively from Bunnings:

https://www.bunnings.co.nz/velcro-brand-50mm-x-2-5m-white-heavy-duty-hook-and-loop-tape-vl25585_p3960040

2.1 Battery

The loop tape is placed on the base of the battery as well as on its longer face; the one that will contact the cabinet's rear wall (See Figure 1).

Velcro Type	Location	Coverage
Loop	Battery base	Cover the entire length of the battery's base (c. 150 mm) with one 50 mm wide strip of loop Velcro.
	Battery wall	Apply one strip (50 mm) of 50 mm loop Velcro. Mount the Velcro as high as possible on the battery's wall.

The strips of Velcro on the base, and long face of the battery, should be 150 mm and 50 mm in length, respectively. These are the minimum lengths of Velcro required; more can be installed if desired.

The 50 mm strip on the long face should be mounted as high as possible on the wall of the battery (See Figure 1).

2.2 Cabinet

Two locations of the hook tape are required: one on the floor of the cabinet and the other on the cabinet's rear wall.

Velcro Type	Location	Coverage
Hook	Cabinet floor	Cover enough of the panel's floor with 50 mm hook Velcro (length c.150 mm) to match the length and location of the loop Velcro installed on the battery
	Rear cabinet wall	One strip of hook tape, 50 mm x 50 mm, placed in the location where the battery is to be installed. Ensure the Velcro tape aligns with the loop Velcro tape mounted near the top on the battery's wall.

2.3 Positioning the Battery

1. Take the battery and orient it so that the face with the Velcro is facing the rear wall of the cabinet.
2. Tilt the battery to around 45 degrees, so that the lower back edge is in the air and the lower front edge is in contact with the panel's front ledge.
3. Maintaining this angle, move the battery into cabinet.
4. Lower the base to the horizontal position so that the battery is flush with the panel's back wall and the floor.
5. Confirm that the hook and loop faces of the Velcro strips are securely in contact with each other, and do not move under light manual pressure.

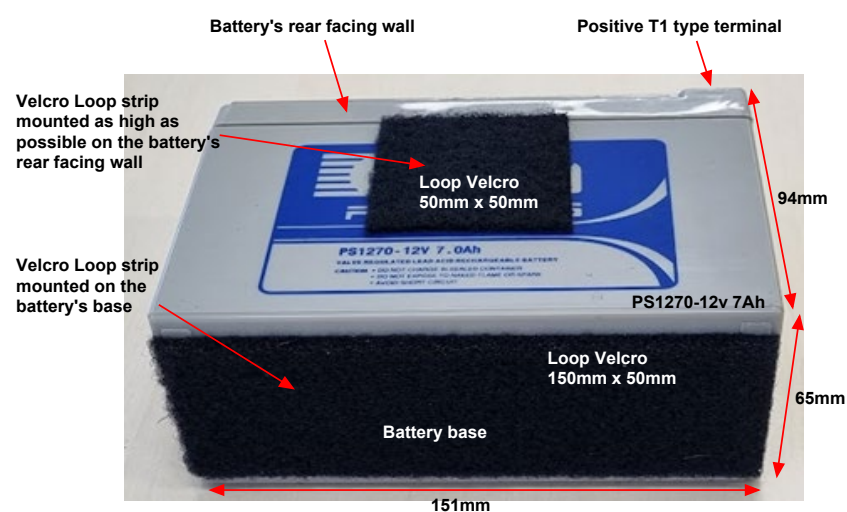


Figure 1: Location of Velcro on the battery's rear facing wall and base

3. Panel Installation and Power Connection

- Install the cabinet to its assigned position and height as required by the relevant installation standards.
- The fixings used must be of sufficient strength to reliably carry the weight of the cabinet and its contents. The fixings must also use the existing cabinet mounting holes.
- If drilling is required, for example, to mount the panel on a concrete wall, the cabinet can be put in place and the mounting hole locations marked on the wall from inside the cabinet. Remove the cabinet for drilling so that no drilling debris or swarf enters the cabinet.
- To meet **seismic compliance**, the fastening of the Pertronic Fire Panel must be affixed to the solid wood of the wall by three 30 mm 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 30 mm 8-Gauge screws were calculated to hold up to a 900 cabinet with 2 x 40 Ah batteries (or 50 kg) in the worst-case seismic areas of New Zealand. Given your location may be in a different seismic area and the F1 is housed in a 390 mm cabinet with one 7 Ah battery (or 5.5 kg), a calculator has been provided for you to use.
<https://support.pertronic.nz/tools/seismic-calculator>
- Ensure that F1 is clean internally and that no residual contamination such as metal filings is present.
- Ensure that the monitored output which requires an EOL resistor, is 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 F1 at this point.
- Ensure that all external inductive loads, such as relays, magnetic door holders etc. are fitted with suitable diodes across the inductive load to reduce the effect of back-EMF which can cause damage and/or malfunction of the equipment. The diode should always be fitted at the inductive load end and not at the drive end of the circuit. Pertronic equipment is always supplied with back-EMF diodes already fitted.
- Ensure that a detailed plan and address assignment table is available for each of the loops.
- Remove the knockout panels as required for the external wiring and fit suitable wiring protection, such as conduit, cable glands or grommet edging.
- Before connecting the external loops and other external wiring, install the Mains power (230 V ac $\pm 10\%$). Do **NOT** connect the batteries.
- Check that the system is correctly Earthed.
- Apply the Mains power to the system and observe that the F1 goes through its initialisation phase. This takes about 30 seconds. Defects such as 'Loop Defects' and 'Battery missing' will be detected but ignore these at this stage.
- Connect the batteries and reset the system with the RESET push-button on the F1 Master PCB.

CAUTION:	RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE LOCAL REGULATIONS.
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4. Cable Requirements

- All cabling for the Pertronic F1 shall comply with AS/NZS 3000 (New Zealand Wiring Rules) and NZS 4512:2021 (Fire Detection and Alarm Systems in Buildings), together with relevant project requirements and local codes or regulations.
- The mains circuit supplying power to the F1 panel shall be supplied from a circuit breaker with a rated capacity no greater than 16 Amps.
- Pertronic Industries recommend that loop cabling should be tested with the Pertronic Loop Cable Tester (LOOPTEST-KIT-A) before connecting the loops to the F1 Fire Alarm Control Panel.



Note:

The maximum allowable loop cable resistance is 50 Ω . A comprehensive loop length calculator is available on <https://pertronic.co.nz/tools/loop-length-calculator/>. This can be used to confirm that installations are not exceeding maximum limits.

- Connect Loop 1 and reset the F1 (using RESET on the Master PCB).
- Deal with any Defects. For loop or device defects, investigate the source of the defect.

5. Other External Devices

- When the Loops have been successfully configured and tested, connect and test the sounders connected to the BELL relay.
- 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 No	Reason for Update	Description of Changes	Change Note	Author
Issue 1.0	New Document		CN3938	RJK