

How to Select a Battery Holder

A practical guide to matching the cell, enclosure, assembly method and service life to an MPD holder.

Start with the battery specification

A battery name is only a starting point. Confirm the actual cell diameter, length or thickness, terminal shape, chemistry, protection circuit and manufacturer tolerances. A protected 18650, for example, can be longer than a nominal 65 mm cell. Test several cell brands and the full expected size range before committing to a cavity.

Make five decisions in order

- 1 Cell format and count. Identify the exact size and number of cells; calculate the pack voltage and required operating current for the circuit.
- 2 Mechanical fit. Check the holder drawing against PCB area, height, mounting holes, enclosure clearance, battery insertion path and polarity markings.
- 3 Connection and assembly. Choose surface mount, through hole PC pins, solder lugs, wire leads, snaps or separate contacts for the production process.
- 4 Retention and access. Evaluate vibration, shock, child access, battery replacement and whether a cover, latch, strap or enclosed tray is needed.
- 5 Reliability and qualification. Check contact resistance, material ratings, temperature, compliance and handling; validate a physical sample in the final assembly.

Examples from MPD product photography



CR2032 Glider



AAA holder



Extended 18650



9V holder

Product photos: MPD part pages. Examples illustrate form factors; confirm exact features on each current datasheet.

Choose the holder family by battery size

MPD lists a broad range of battery formats. The representative parts below are a starting point, not a substitute for checking the

Cell family	Common sizes	MPD starting examples
Coin and button cells	CR2032 and other coin sizes	BHX1-2032-SM: low profile CR2032 Glider; consider retainers, verticals or covered Snap Dragon designs when access or retention changes.
Small cylindrical	AAAA, AAA, AA, A, 1/2 AA, N	BE-AAAA-PC for a single AAAA; BA1AAAPC for AAA; BC22AASF for 2 AA. Pick cell count and termination before the footprint.
Lithium cylindrical	CR123A / 2/3A, CR2, 18650, 17500	BH123A for CR123A; BK-18650-PC4-E for two extended protected 18650 cells. Confirm length, diameter and protection circuit.
Large cylindrical	C and D	BH2CL for 2 C cells; BHD-2 for a D cell. Plan enclosure depth, mounting and expected loads.
Rectangular and specialty	9V, 23A, 223A, 6V / 12V	BH9VPC for PCB mounting of 9V; BH23AL for 23A. Check terminal style and that the label voltage describes the battery pack, not its dimensions.

latest drawing and cell compatibility.

Match connection to manufacturing

Connection	Best fit when	Verify on the drawing
SMT / surface mount	Automated PCB assembly and controlled reflow	Land pattern, profile, tape and reel availability, reflow compatibility
PC pins / through hole	A mechanically secured board connection	Hole pattern, insertion height, wave solder limits
Solder lugs / wire leads	Remote battery placement or hand assembly	Lead gauge and length, strain relief, polarity, current
Snaps / separate contacts	9V interfaces or an enclosure with its own cavity	Mating geometry, accessible replacement, retention

A useful dimensional check

For a 2 AA product, choose the chemistry and cell brands first, then select the holder orientation and outputs. A two cell series pack is about 3 V with 1.5 V primary alkaline AA cells; nominal voltage differs with rechargeable chemistry. Measure the assembly with both cells installed, including wire exit and cover clearance.

Worked selection examples

Compact PCB backup power

A replaceable CR2032 on a densely populated board. Start with BHX1-2032-SM if a sliding tray and surface mount assembly suit the product. Compare it with a Snap Dragon covered design where stronger retention is needed. Verify insertion clearance and user access.

Portable controller with two AA cells

Field battery replacement and a separate compartment. Start with BC22AASF for two AA cells and snap output, then check whether leads, a covered holder or different mounting would simplify the enclosure. Validate with the intended cells and usage cycle.

Protected rechargeable pack

Two 18650 cells near 70 mm long. Start with BK-18650-PC4-E, which MPD describes for protected button top extended 70 mm cells and 65–68 mm protected cells. Its cover is a separately identified accessory; verify battery protection and pack electronics with the battery supplier.

Industrial device with high capacity

A replaceable C or D cell. Compare BH2CL and BHD-2 based on the actual cell count and size. Check available compartment volume, mount strength, contact force and vibration exposure.

MPD compared with an alternative holder

Make a part to part comparison against a candidate competitor drawing. MPD's advantage is the range of documented configurations plus the option to adapt a design when the standard part does not fit; performance still depends on the exact parts and test conditions.

Selection question	MPD option to evaluate	Ask of any alternative
Fit and variety	Coin cell retainers, Gliders, covered styles and cylindrical formats from small cells through D and 9V	Does the exact part fit the cell tolerance, mounting space and assembly process?
Contact security	Covered Snap Dragon coin cell design and MPD retention options where the application calls for them	Can it maintain connection under the specified shock, vibration and replacement cycles?
Production support	Part drawings, material and termination details, sample evaluation and custom design	Are drawings, samples, compliance documents and production packaging available?
Design change	MPD can design or source a custom holder or substitute when a catalog part misses a requirement	What engineering support and qualification evidence accompany a modification?

Qualify the final selection

- Build the worst case cell stack. Test minimum and maximum cell dimensions, multiple brands, terminal profiles and the final enclosure rather than one convenient sample.
- Test contact continuity and temperature at the maximum expected load; cycle insertion and removal where the user will replace cells.
- Run shock, vibration and environmental testing appropriate to the device. Pay attention to contact disengagement, corrosion, cell leakage and accessibility.
- Confirm polarity and service instructions. Check that the selected cell chemistry and battery management design meet the application's safety requirements.
- Request the current MPD datasheet and relevant compliance documentation for the exact part number before design release.

When a catalog holder is not the right fit

MPD is also a custom manufacturer. Send the battery drawing and size range, cell count, enclosure or PCB layout, termination, expected current, environmental requirements and volume forecast. MPD can discuss a modified holder, a new design or a suitable existing substitute. A custom Glider case study describes changes to its latch, tray material and packaging for a toll tag application.

Request samples and engineering help

Samples are available on request. Email sales@memoryprotectiondevices.com or call MPD at (631) 249-0001. Include the intended cell, desired holder style, annual quantity and application so MPD can suggest relevant samples.

Image references



MPD sources

Battery holder catalog <https://www.memoryprotectiondevices.com/documents/catalogs/MPD-Battery-Holders.pdf>

Battery holder design guide <https://www.memoryprotectiondevices.com/documents/catalogs/Battery-Holders-Design-Guide-English.pdf>

Current part pages and product images <https://www.batteryholders.com/>

Custom design example https://products.memoryprotectiondevices.com/?page_id=42

ISO 9001:2015 certificate listing <https://www.memoryprotectiondevices.com/documents.php?type=Press+Releases>

Examples and images are illustrative. Product availability and specifications should be confirmed with MPD before purchase or qualification.