

DW Series Overview

Battery Connectors for Power Storage

January 2014

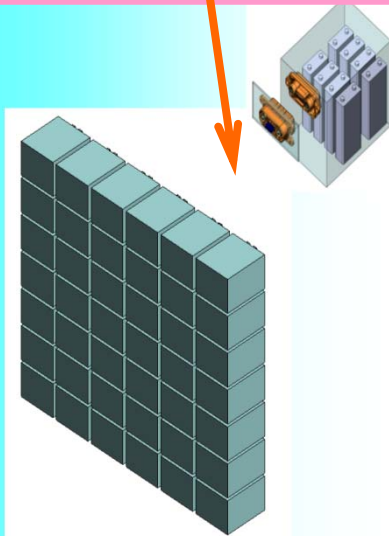
Connector Line-up for Power Storage



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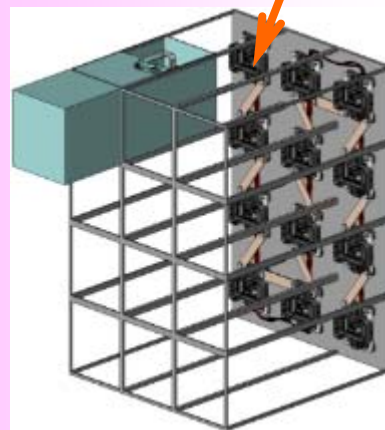
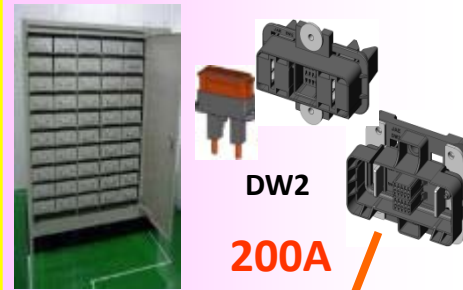
DW1

Large-scale power storage battery (>25kWh)
Plant, Building, etc



DW2

Mid-range power storage battery (10-25kWh)
Industrial, Office, etc

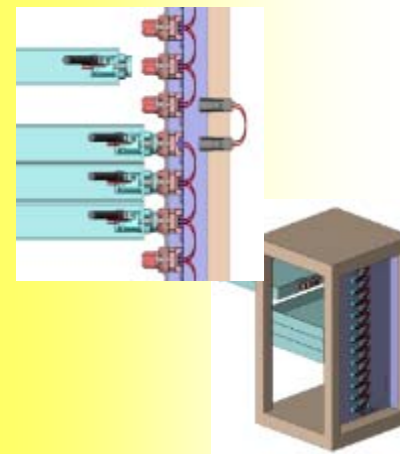


DW3

Rechargeable battery (<10kWh)
Residential, Commercial, etc

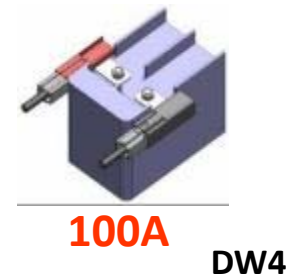


For 1U rack size



DW4

Commercial facility (<10kWh)
Convenience store, etc



Integrated Signal and Power Connectors



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Easy to harness

DW1

Receptacle
On Battery

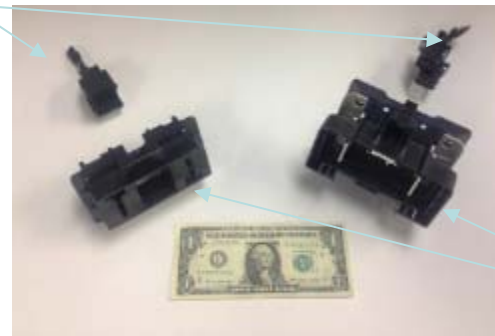


Plug
On Panel

Power

DW2

Receptacle
On Battery



Plug
On Panel

Power

DW3

Receptacle
On Battery



Plug
On Panel

Power

DW1, 2, 3 Series Overview



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| | | DW1 | DW2 | DW3 |
|--------------------------|------------|------------|------------|-----------|
| Power Contact Current | | 500A | 200A | 150A |
| Floating Range | | +/- 2.75mm | +/- 2.75mm | +/- 2.0mm |
| Mounting Dimensions (mm) | Plug | 185 x 63 | 115.7 x 95 | 168 x 40 |
| | Receptacle | 190 x 72 | 115 x 84.6 | 156 x 28 |

Ideal for 1U racks

Features

- Power and signal contacts in one robust insulator
- Easy to harness signal contact unit
- High-reliability 2 points of contact (similar to automotive contacts)
- Electric shock prevention (DW1 plug, DW2 rec, DW3 plug and rec)
- Bus-bar or ring terminal harnessed cable to connect battery modules
- Mold and rubber flame retardant 94-V0

DW1 Specifications



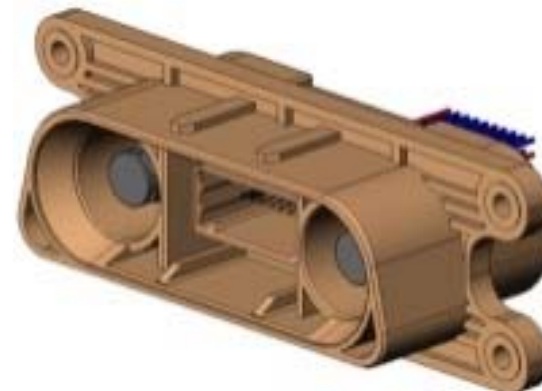
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| | | |
|---------------------------------------|--------|--------------|
| Power pins | | 2 |
| Signal pins | | 20 |
| Rated current | Power | 500 A |
| | Signal | 2 A |
| Rated voltage | Power | 600 V |
| | Signal | 100 V |
| Overvoltage category | | 4 |
| Pollution grade | | 3 |
| Temperature increase at power portion | | 45 C |
| Ambient temperature | | -25 to +60 C |
| Allowable temp at power portion | | 105 C |

Receptacle



Plug

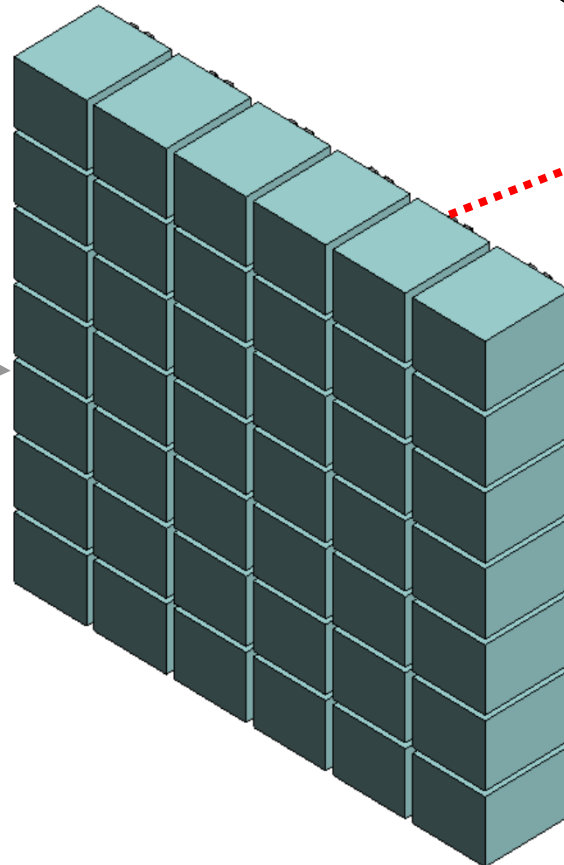


DW1 Application Example

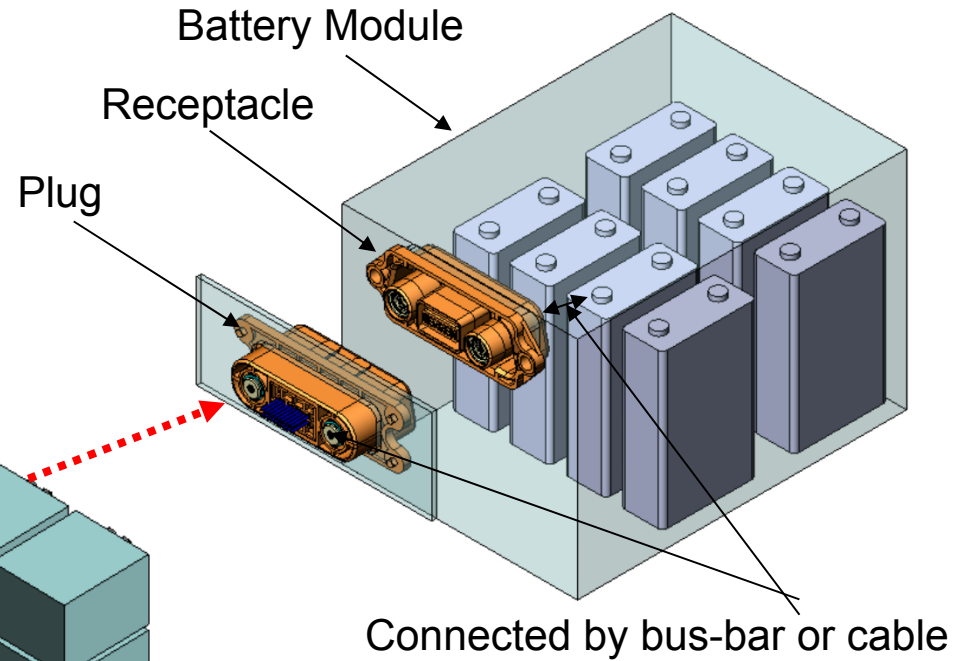


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Large-scale Power Storage



Rack and Panel

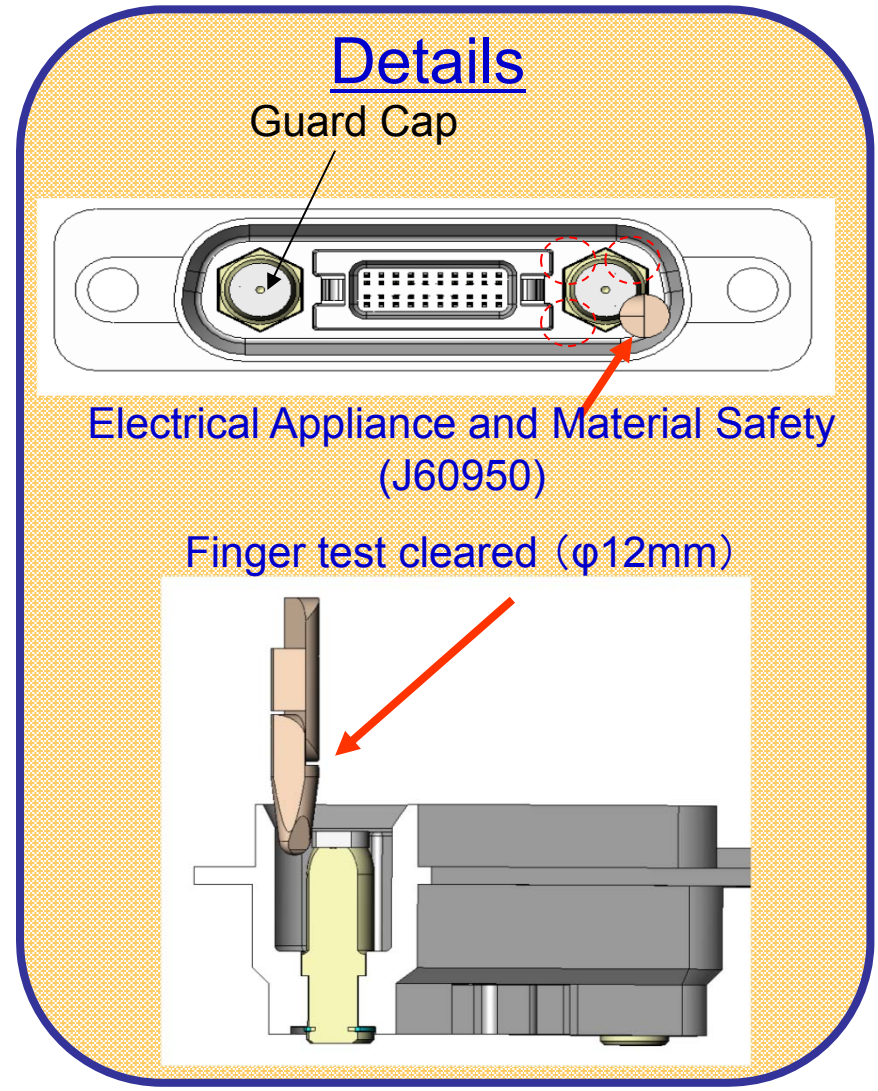
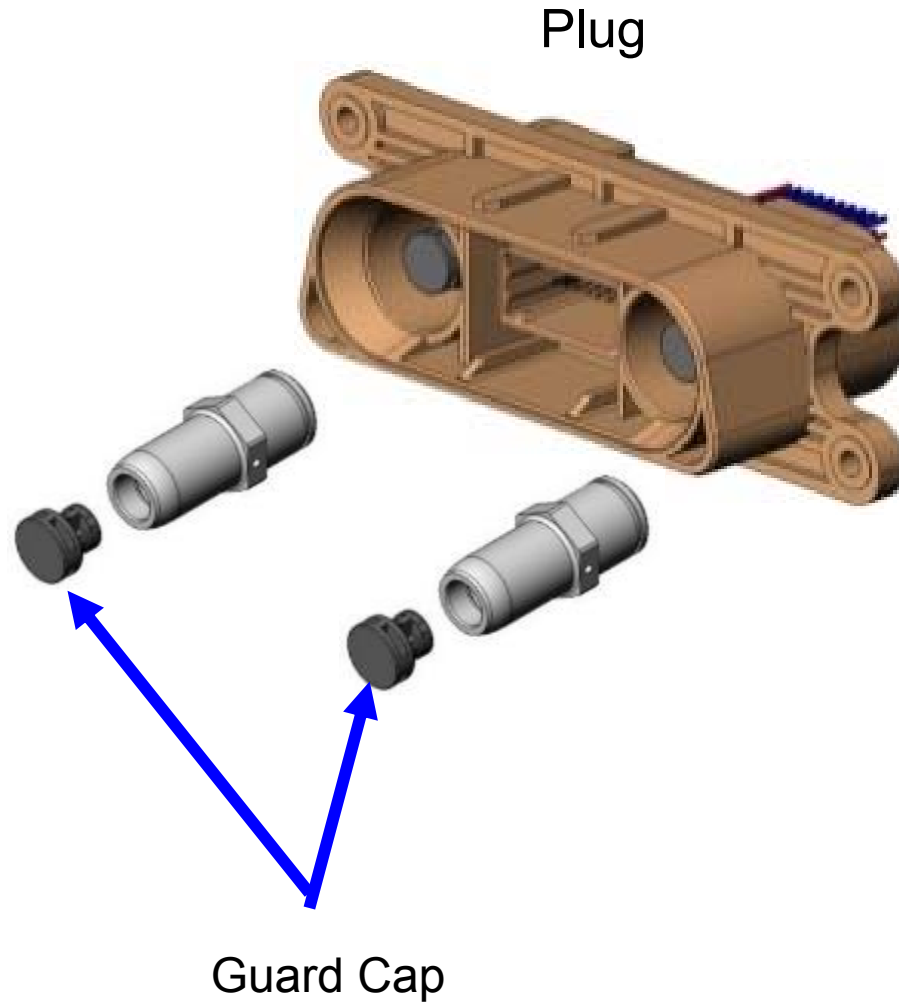


Battery Module mounting image

DW1 Electric Shock Prevention



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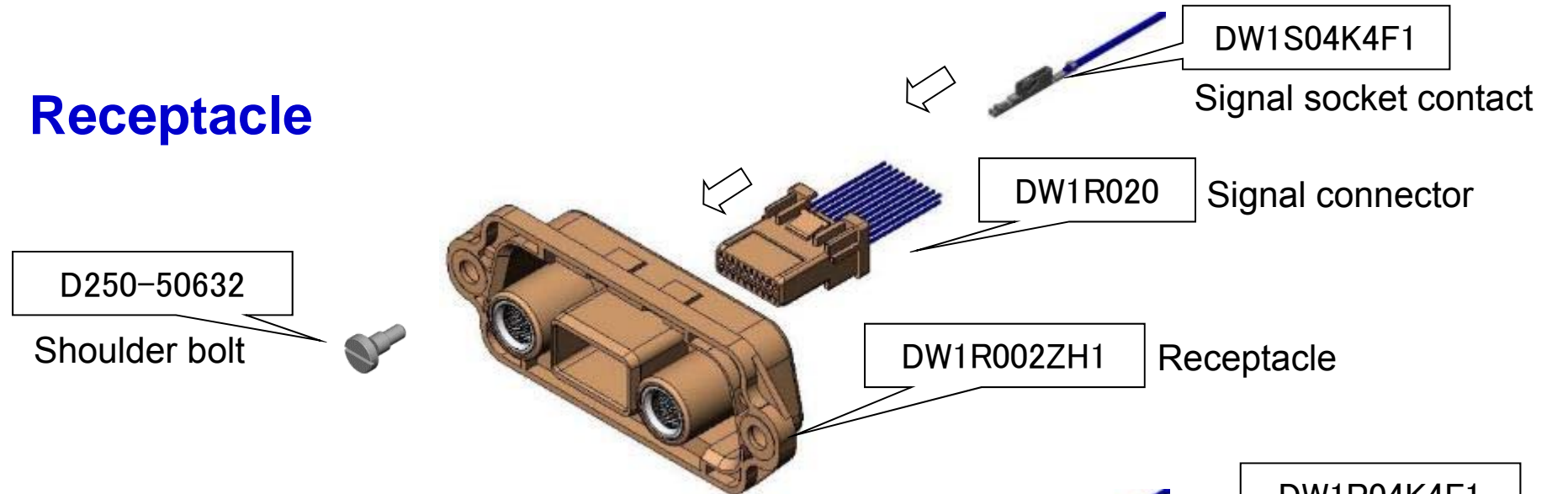


DW1 Connector Parts

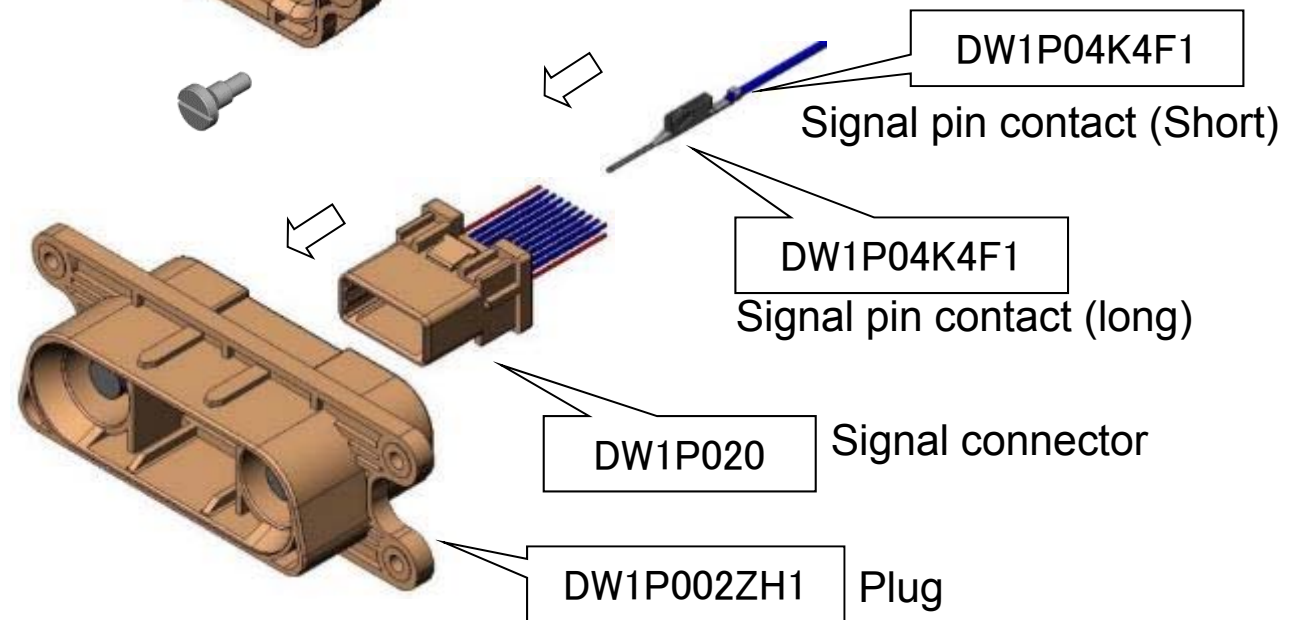


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Receptacle



Plug



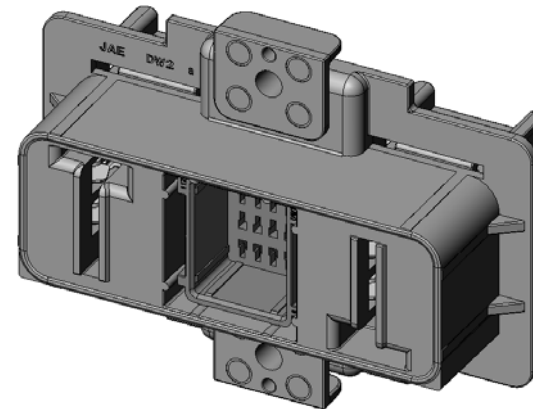
DW2 Specifications



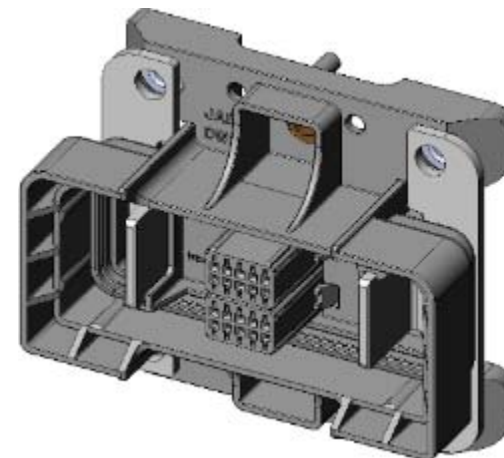
Technology to Inspire Innovation

| | | |
|---|---------------|---------------------|
| Power pins | | 2 |
| Signal pins | | 20 |
| Rated current | Power | 200 A |
| | Signal | 2 A |
| Rated voltage | Power | 1000 V |
| | Signal | 100 V |
| Overvoltage category | | 4 |
| Pollution grade | | 3 |
| Temperature increase at power portion | | 45 C |
| Ambient temperature | | -25 to +60 C |
| Allowable temperature at power portion | | 105 C |

Movable side (battery side)



Fixed side (panel side)



DW2 Application Example

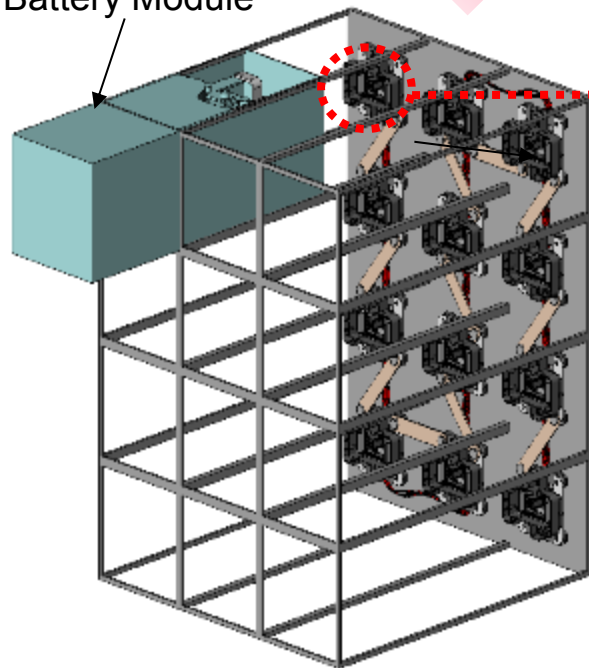


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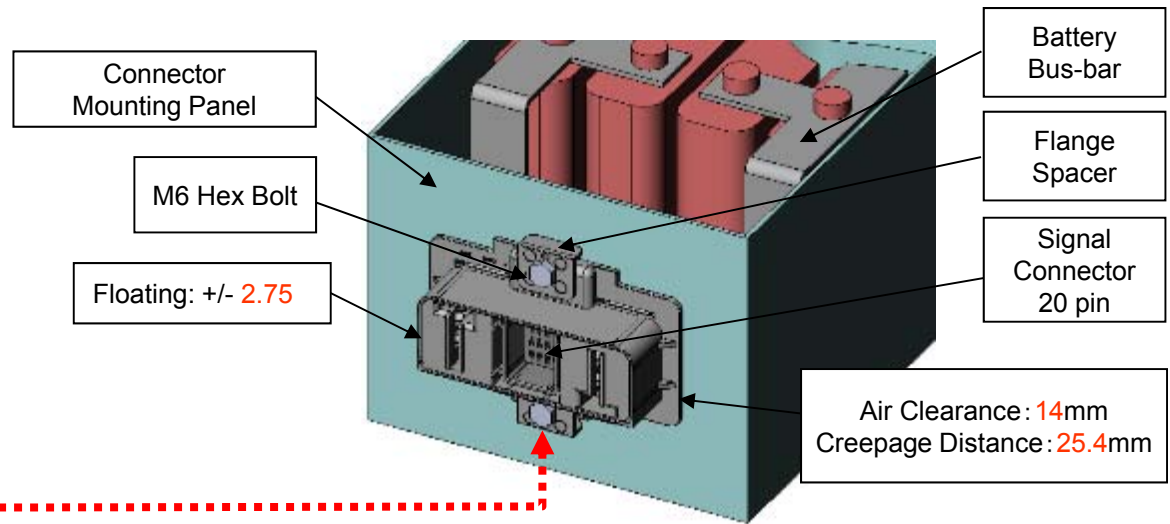
Mid-range Power Storage



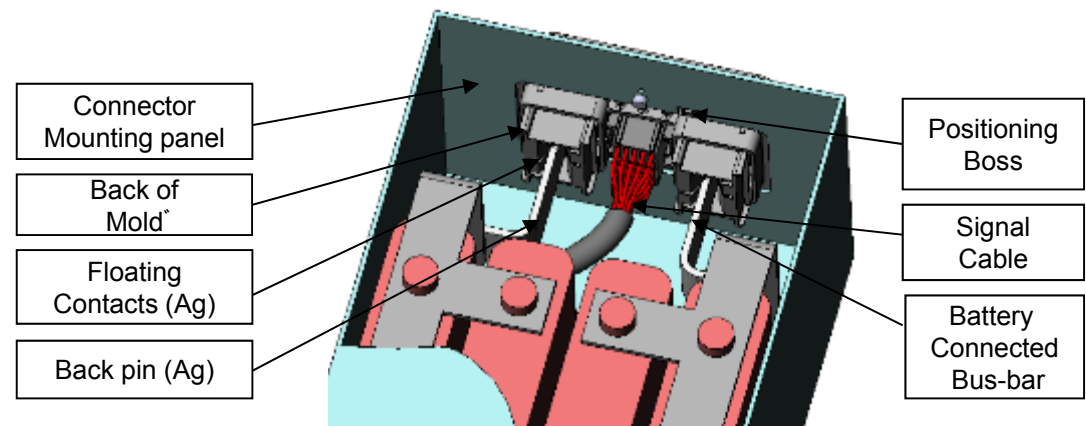
Battery Module



Rack and Panel

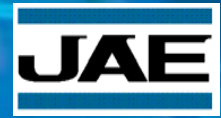


Battery Module Exterior

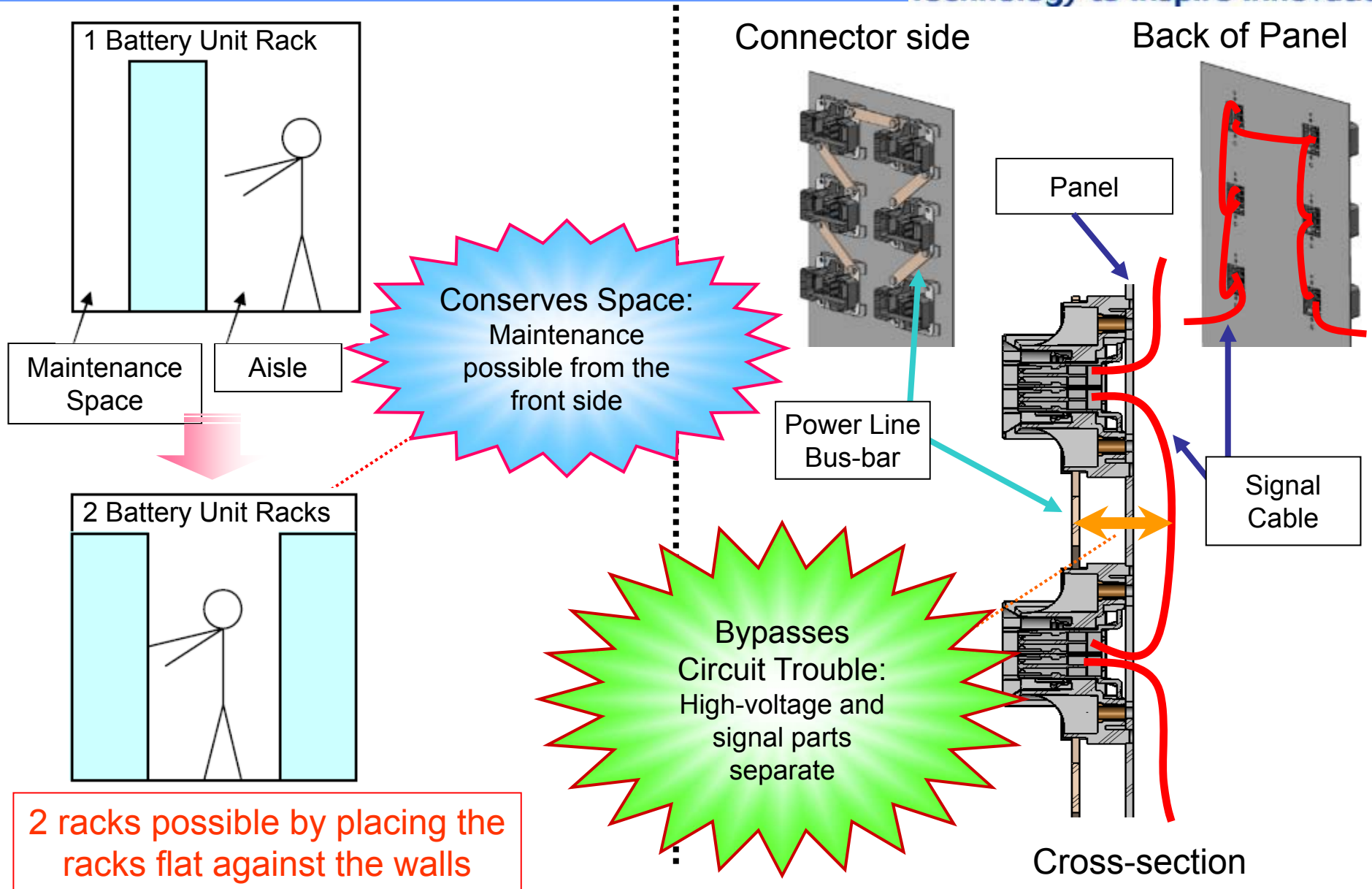


Battery Module Interior

DW2 Mounting Features



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DW2 Connector Parts

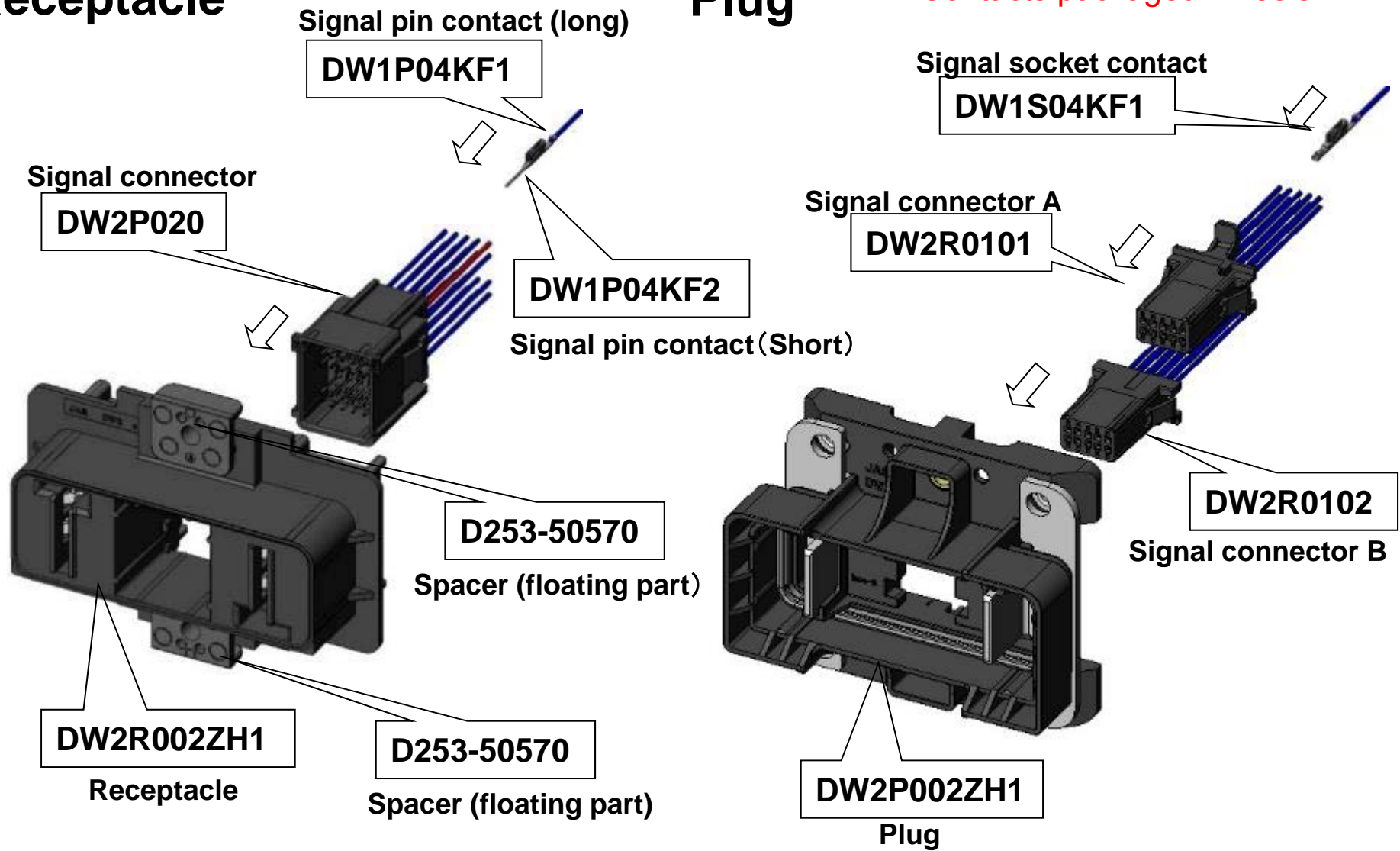


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Receptacle

Plug

Contacts packaged in reels



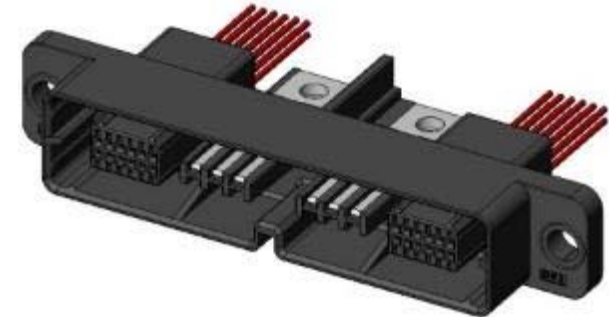
DW3 Specifications



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| Item | Power | Signal |
|--|---|--|
| Pin count | 2 pins | 24 pins |
| Rated current | 150 A | 2 A |
| Rated voltage | 1,000 V | 100 V |
| Contact resistance | Initial: Max. 0.2 | Initial: Max. 20 After evaluation: Max. 30 |
| Cable | Bus bar: Width 15 +/- 1mm Thickness 3 +/- 0.1mm | AWG22 (0.3mm ²) Outer diameter of coated cable: 1.5mm |
| Durability | 100 times | |
| Overvoltage category | 4 | |
| Pollution grade | 3 | |
| Ambient temperature | -25 to 60 C | |
| Temperature increase at power contact | Max. 45 C | |
| Allowable temperature at power contact | Max. 105 C | |

Receptacle



Plug

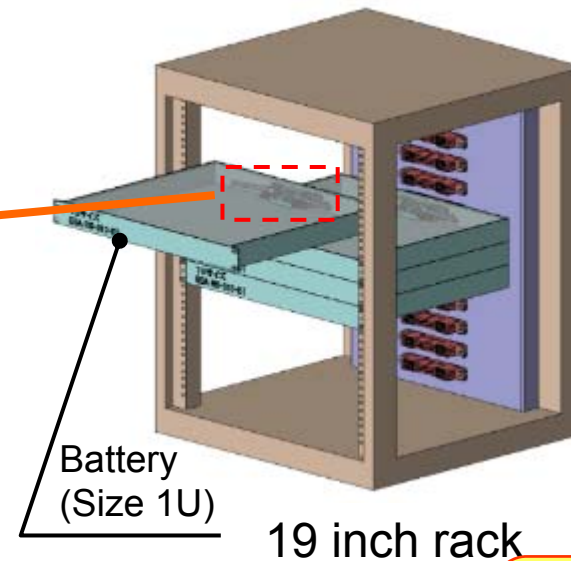
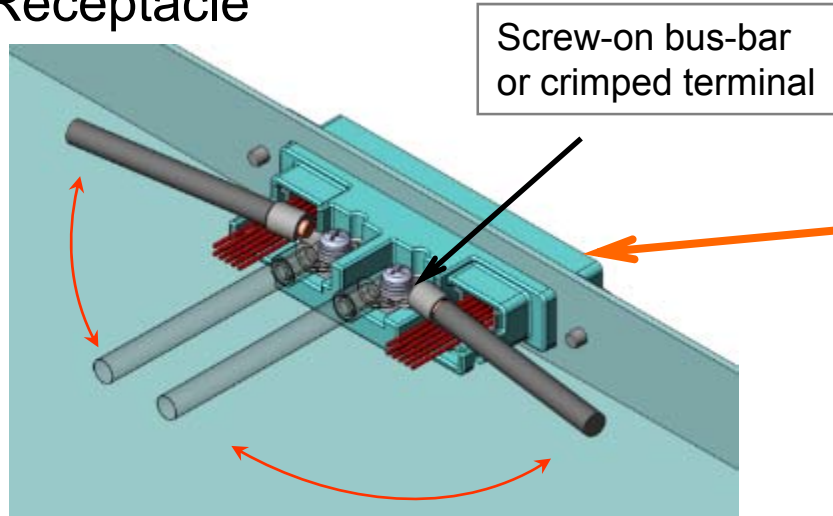


DW3 Application Example

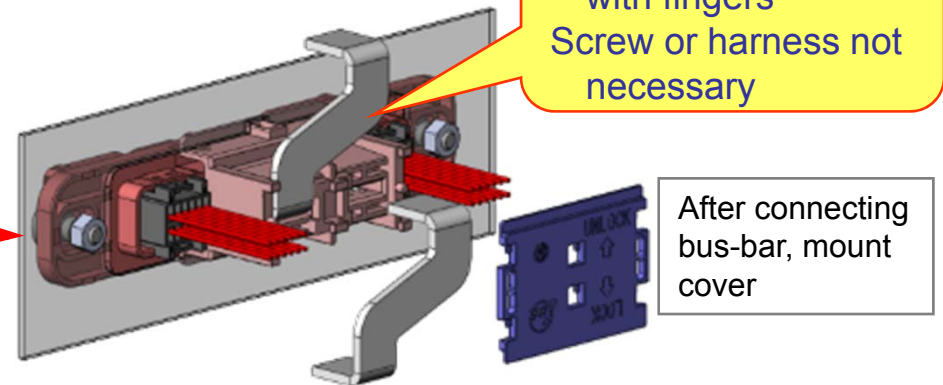
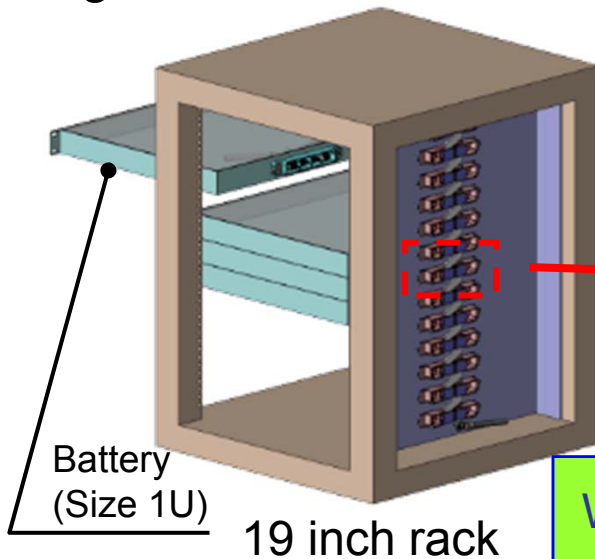


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Receptacle



Plug



Workability made easy by direct connect to bus-bar (plug)

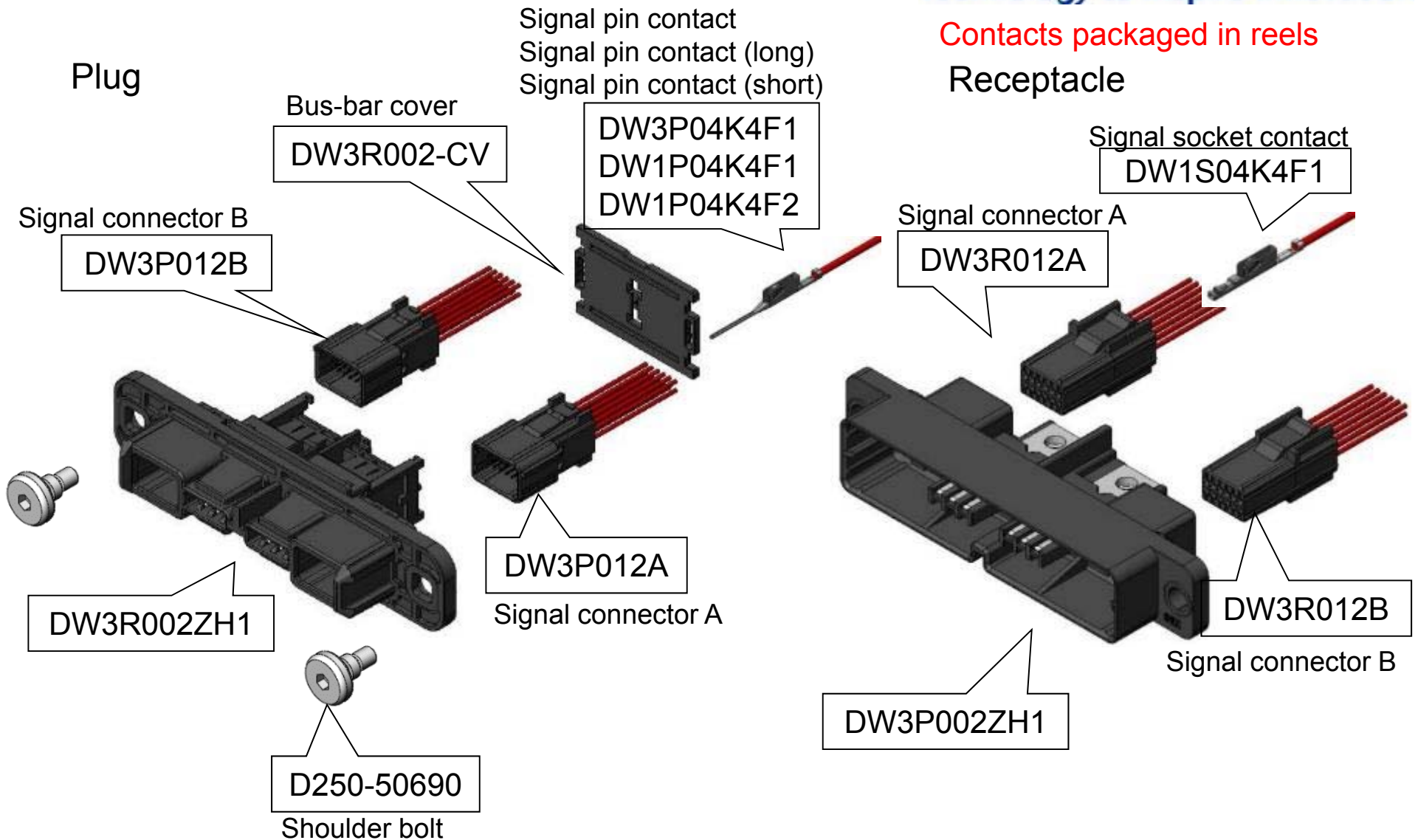
DW3 Connector Parts



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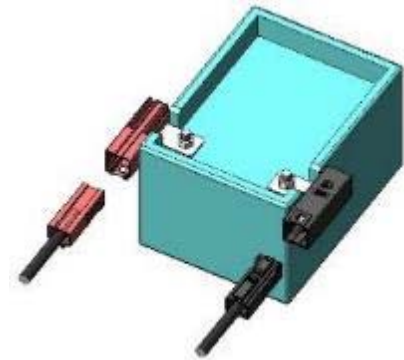
Contacts packaged in reels

Receptacle



Features

- **100A current**
- **Electric shock prevention**
 - For safety, fingers cannot touch contact
- **Keyed to prevent mis-mating**
 - Reduce the risk of incorrect wiring
- **Easy connection and unplug**
 - Reduction of time needed for maintenance
- **Surface finishing**
 - Possible to change electrode plating
- **UL-approved flame retardant**



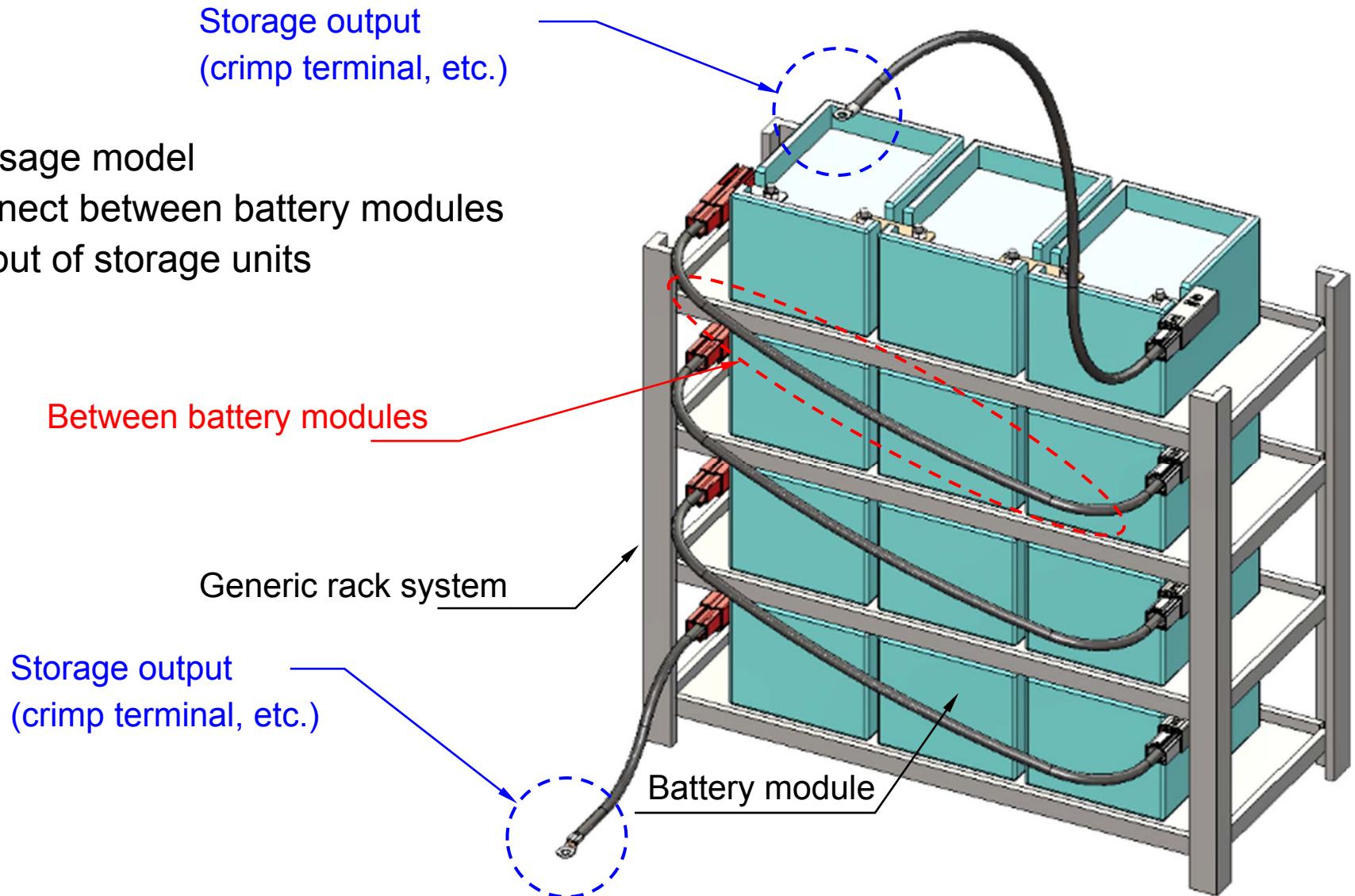
DW4 Application Example



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DW4 usage model

- 1) Connect between battery modules
- 2) Output of storage units



DW4 Connector Mounting

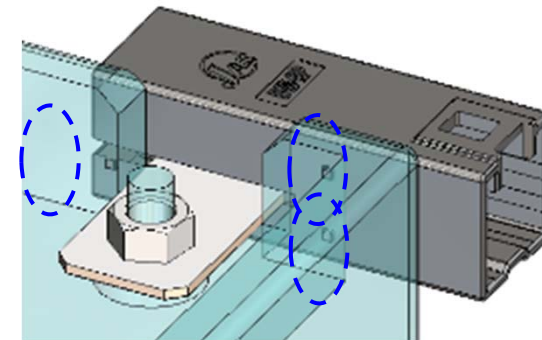


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Attachment to battery electrodes

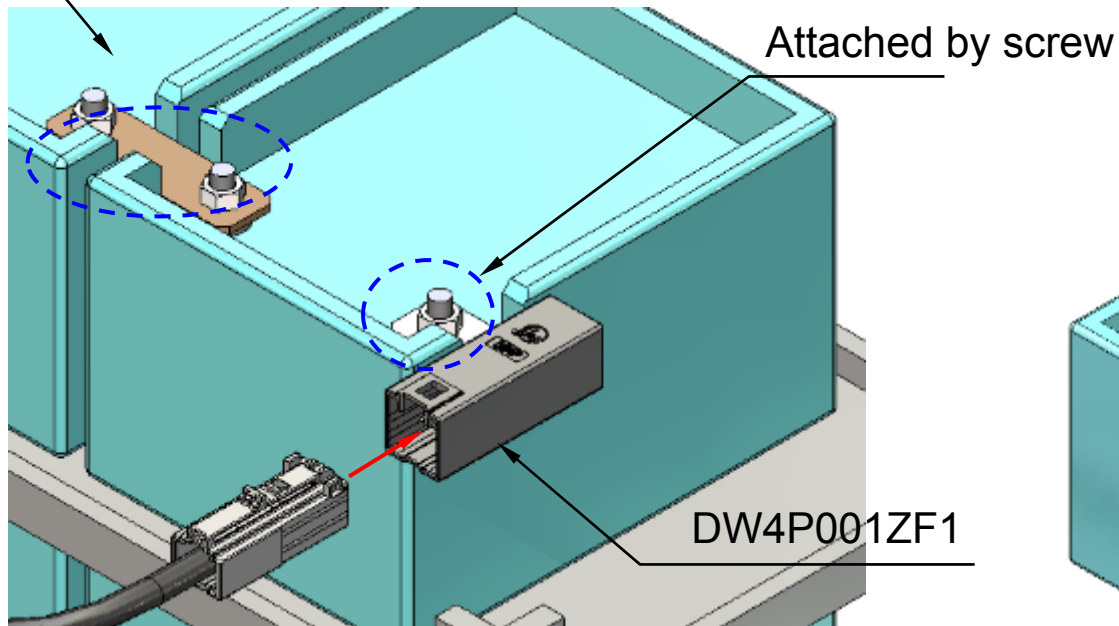
-Plate and electrode secured by M8 screw.

Positioning by three insulator bosses



Positioning

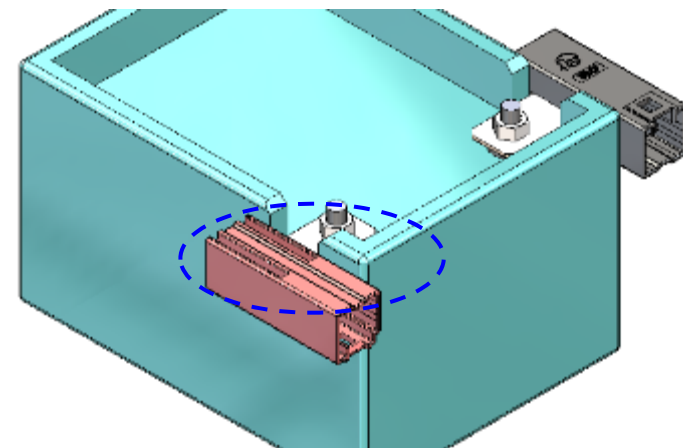
Side bus-bar mating also possible



Attached by screw

DW4P001ZF1

Also possible to mount upside-down
Can be mounted to both sides of module



Mount on battery module (1)

Mount on battery module (2)

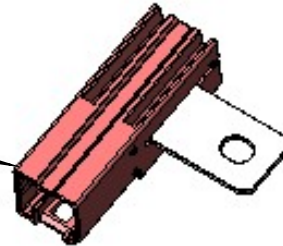
DW4 Part Numbers



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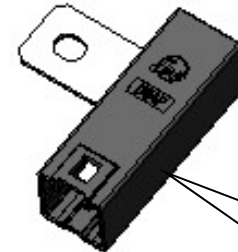
Battery side connector (red)

DW4P001ZF2



Battery side connector (black)

DW4P001ZF1



Harness

DW4R001W0012880

