

BATTERY ENERGY STORAGE SYSTEMS (BESS)

Connecting the Future of Energy Storage

Battery Energy Storage Systems (BESS) are essential building blocks to modern power infrastructure, from residential units storing rooftop solar energy to commercial and utility-scale installations that stabilize the grid.

In BESS design, connectivity component selections are vital to achieving safe, continuous performance and long-term system integrity. Employing robust connectors, terminals and power interfaces can help maximize uptime and reduce total lifecycle costs.

This guide showcases the Molex portfolio of advanced interconnect, power and signal solutions for both categories, built to meet the reliability, safety and scalability demands of an emerging infrastructure.

Battery systems have evolved into two major market segments for residential and commercial uses, each with different connectivity criteria.



RESIDENTIAL BESS

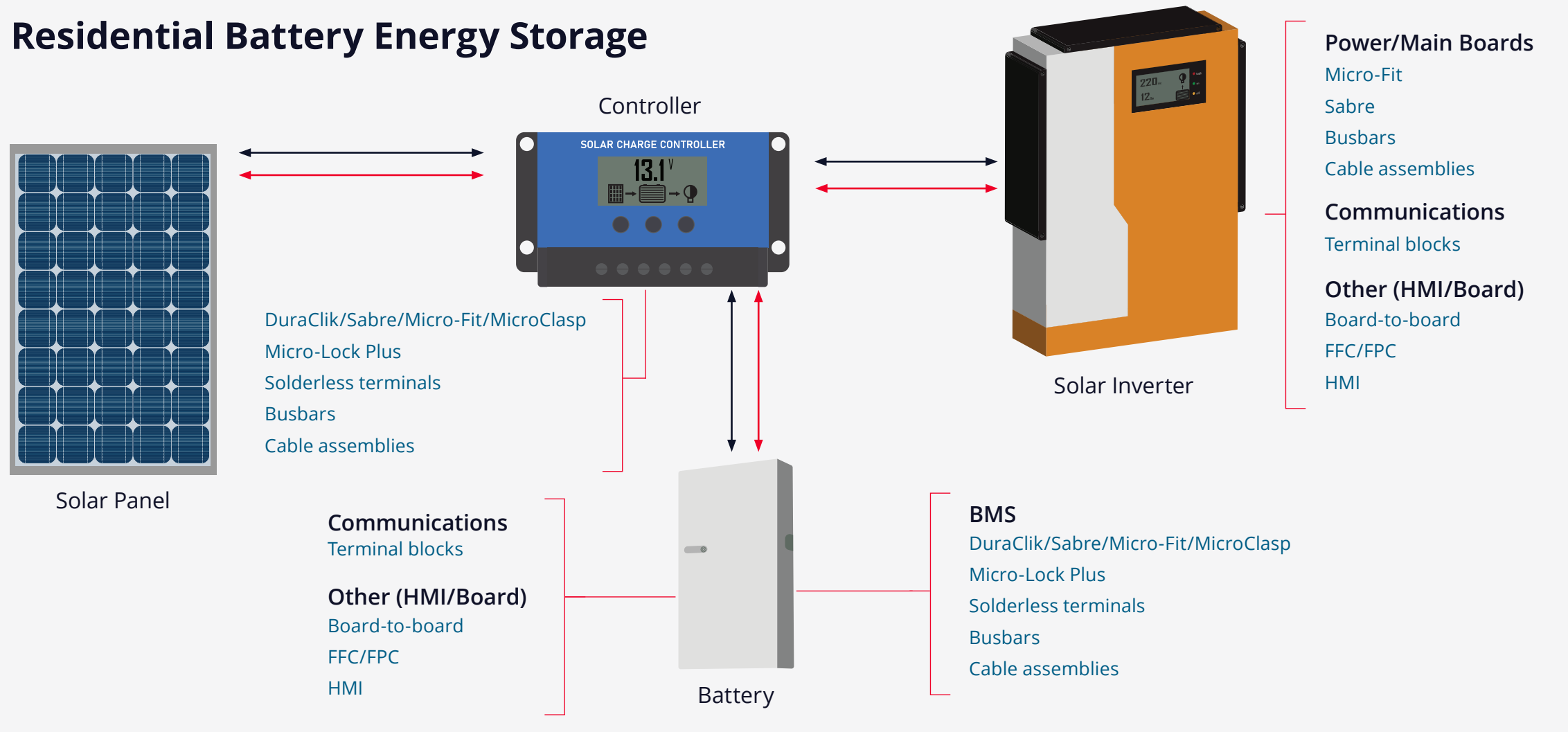
Home systems prioritize compact footprints, serviceable layouts and user-friendly interfaces to fit in space-constrained settings while ensuring long-term reliability. Components are selected to optimize safety, minimize heat build-up, and support efficient installation and maintenance.



COMMERCIAL AND UTILITY BESS

High-capacity commercial and utility BESS require scalable architectures that can handle continuous duty cycles and operate under harsh environmental conditions. Hardware must withstand higher voltages, greater thermal loads and the mechanical stresses of large-scale power distribution.

Residential Battery Energy Storage



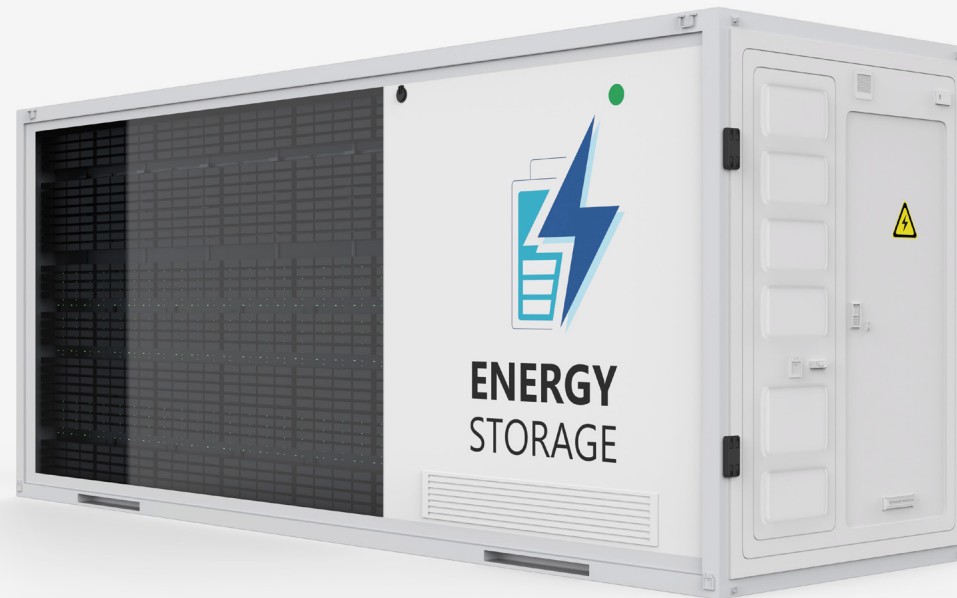
The Molex BESS product portfolio features hardware that meets compliance standards for residential and utility installations, such as UL 9450 and UL 1973. To find out more about a component, consult the product listing on page 4.

Utility Battery Energy Storage

BMS

Mega-Fit
COEUR Socket Technology
Sentrality Pin and Socket
SW1 and PowerWize
Busbars
Cable assemblies

Container



Power Conversion System (PCS) (Inverter)/Energy Management System

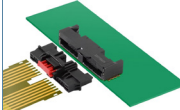
Mini50
MicroClasp
Micro-Lock Plus
Cable assemblies

Thermal Management

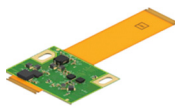
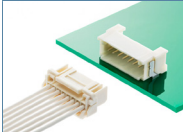
Nano-Change M8

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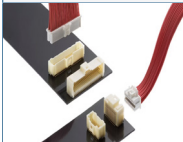
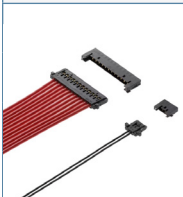
Molex Products for Battery Energy Storage Systems

Product Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Gauge	Circuit Sizes	Configuration	Colors	Keys	TPA Option	Single Row/ Double Row	Operating Temp (max.)	Plating Option	Glow Wire Capable
Barrier Strips													
	N/A	50A	600V	18 to 8 AWG	2 to 20	Wire-to-wire, wire-to-board	1	N/A	No	Single row	115°C	Tin, gold	Yes
Battery Cable Lugs													
	N/A	50 to 230A	N/A	8 to 1 AWG	N/A	Wire terminals	2	N/A	No	N/A	343°C	Tin	No
CLIK-Mate Connectors													
	1.25mm	2.5A	150V	30 to 22 AWG	2 to 34	Wire-to-board	2	N/A	Yes	Single row, double row	105°C	Tin, gold	No
	1.50mm	3.0A											
	2.00mm	4.0A	250V										
CP Connectors													
	2.50mm	3.0A	300V	28 to 22 AWG	2 to 8	Wire-to-wire	4	4	Yes	Single row	105°C	Tin	No
	3.30mm	7.0A	500V	28 to 18 AWG	2 to 6	Wire-to-board				Double row			Yes
	4.50mm	10.0A	600V	26 to 16 AWG		Wire-to-wire	Up to 6	Up to 6		120°C			
	6.50mm	12.5.0A				Wire-to-wire, wire-to-board	Up to 12	Up to 12		105°C			
Flexi Latch+ Connectors													
	N/A	1.0A	250V (single row) 400V (dual row)	N/A	12 to 40	FFC/FPC-to-board, FFC/FPC-to-FFC/ FPC	Black	N/A	No	1.50mm pitch, single row; 2.00mm pitch, dual row	-40 to +105°C	Gold, nickel	No

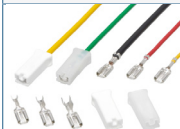
Molex Products for Battery Energy Storage Systems (Continued)

Product Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Gauge	Circuit Sizes	Configuration	Colors	Keys	TPA Option	Single Row/ Double Row	Operating Temp (max.)	Plating Option	Glow Wire Capable
Flexible Printed Circuits (FPCs)													
	0.30mm and larger	Variable; >50A capable	Variable, 40V, 250V; >250V capable	N/A	Based on connector	N/A	N/A	N/A	No	Dependent on connector	130°C	ENIG, gold, tin	No
Float Stack Connectors													
	N/A	5.0A*4	200V	N/A	20 to 80	Board-to-board	Black	N/A	No	N/A	-40 to +130°C	Gold, nickel	No
KK Plus Connectors													
	2.50mm	6.5A	250V	28 to 22 AWG	2 to 8	Wire-to-board	1	1	Yes	Single row	105°C	Tin	Yes
	3.00mm	11.0A	350V	20 to 18 AWG	2 to 4								
	3.96mm	11.0A	600V	20 to 18 AWG	2 to 6								
Micro-Lock Plus Connectors													
	2.00mm	4.7A	250V	26 to 22 AWG	2 to 16	Wire-to-board	1	1	Yes	Single row	105°C	Tin, gold	No
Micro-One Connectors													
	2.00mm	4.0A	250V	28 to 22 AWG	2 to 8	Wire-to-board	2	1	Yes	Single row	105°C	Tin	Yes
Mini-Lock Connectors													
	2.50mm	5.0A	250V	26 to 20 AWG	2 to 15 TPA version; 2 to 10, 12 ISL version	Wire-to-board	2	1	Yes	Single row	105°C	Tin	Yes

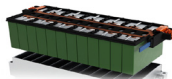
Molex Products for Battery Energy Storage Systems (Continued)

Product Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Gauge	Circuit Sizes	Configuration	Colors	Keys	TPA Option	Single Row/ Double Row	Operating Temp (max.)	Plating Option	Glow Wire Capable
MX150L Connectors													
	5.84/ 7.62mm	40A	600V	22 to 8 AWG	2 to 16	Wire-to-wire, wire-to-board, wire-to-panel	1	1	Yes	Double row	125°C	Tin, gold	No
OneBlade Connectors													
	1.00mm	2.5A	100V	32 to 28 AWG	2 to 8	Wire-to-baord	N/A	N/A	Yes	N/A	105°C	Tin, gold	No
Pico-Clasp Connectors													
	1.00mm	2.0A	100V	32 to 28 AWG	2 to 50	Wire-to-board	2	N/A	No	Single row, double row	105°C	Tin, gold	No
Pico-EZmate Connectors													
	1.00mm	2.8A	50V	32 to 28 AWG	2 to 20	Wire-to-board	N/A	N/A	No	Single row	105°C	Copper, gold	No
	1.20mm	3.0A											
	1.80mm	5.0A	250V										
Pico-Lock Connectors													
	1.00mm	2.5A	150V	32 to 28 AWG	2 to 12	Wire-to-board	N/A	N/A	No	Single row	105°C	Gold, nickel	No
	1.50mm	3.5A											
	2.00mm	6.5A	250V										
	3.00mm	10.0A											
PowerPlane Busbar Connectors													
	N/A	Up to 320A	N/A	N/A	N/A	Wire-to-busbar, wire-to-PCB	N/A	N/A	No	N/A	125°C	Silver	No

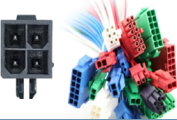
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Product Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Gauge	Circuit Sizes	Configuration	Colors	Keys	TPA Option	Single Row/ Double Row	Operating Temp (max.)	Plating Option	Glow Wire Capable
PowerWize Connectors													
	6.00mm	120A	300V	10 AWG to 1/0 AWG	N/A	Wire-to-board, wire-to-busbar	3	1	Yes	N/A	125°C	Gold, silver	No
	8.00mm	175A	600V										
Quick Disconnects													
	N/A	600A	600V	26 to 10 AWG	N/A	Wire-to-wire, wire-to-board	3	N/A	No	N/A	105°C	Tin	No
Ring/Spade Terminals													
	N/A	600A	600V	22 to 4/0 AWG	N/A	Wire-to-wire	3	N/A	No	N/A	650°C	Tin	No
SideWize High-Voltage Connectors													
	N/A	80.0A	1,500V per UL 4128 1,000V per UL 1977	N/A	N/A	Wire-to-panel, panel-mounted	3	N/A	No	N/A	-40 to +125°C	Gold, silver	No
Splices													
	N/A	600A	600V	22 to 4/0 AWG	N/A	Wire-to-wire	3	N/A	No	N/A	105°C	Tin	No
Squba Connectors													
	1.80mm	6.0A	125V	24 to 22 AWG	2 to 10	Wire-to-wire	9	9	No	Single row	105°C	Tin	Yes
	3.60mm	14.0A	600V	20 to 16 AWG	2 to 4								

Molex Products for Battery Energy Storage Systems (Continued)

Product Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Gauge	Circuit Sizes	Configuration	Colors	Keys	TPA Option	Single Row/ Double Row	Operating Temp (max.)	Plating Option	Glow Wire Capable
SW1 Connectors													
	6.00mm	120A	1,000V	4/0 to 2 AWG	N/A	Wire-to-board, wire-to-busbar	N/A	N/A	No	N/A	125°C	Gold, silver	No
	8.00mm	185A											
	11.00mm	300A											
Terminal Blocks													
	2.00mm	115A	600V	30 to 2 AWG	2 to 20	Wire-to-board	2	N/A	No	Single row	115°C	Tin, gold	Yes
UltraWize Connectors and Cable Assemblies													
	13.58mm	170A	125V	N/A	2	Wire-to-board	N/A	1	No	N/A	125°C	Silver, gold	No
VersaBlade Connectors													
	6.20mm	15.0A	300V	24 to 14 AWG	1 to 9	Wire-to-wire	1	1	Yes	Single row, double row	105°C	Tin	Yes
	6.20mm, 7.30mm	14.0A	600V		2 to 4						150°C		
Volfinity System													
	Designed to meet customer requirements	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	N/A	N/A	No
ZN Stack Connectors													
	N/A	Total 120A; 60.0A(+) into 4 power pin, 60.0A(-) into 4 ground pin	200V	N/A	60 to 200	Board-to-board	Black	N/A	No	N/A	-40 to +125°C	Gold, nickel	No

Fit-Family Products

Fit Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Range	Position Sizes Single Row/ Double Row	Configuration	Colors	Keys	Terminal Position Assistance (TPA) Option	SMT option	Operating Temp (max.)	Plating Option	Glow Wire Capable
Mega-Fit Connectors													
	5.70mm	30.0A	600V	16 to 10 AWG	2 to 8, 2 to 12	Wire-to-wire, wire-to-board	1	1	Yes	No	105°C, 120°C	Tin, gold	Yes
Mega-Fit Versa Color Connectors													
	5.70mm	30.0A	600V	16 to 10 AWG	2 to 8, 2 to 12	Wire-to-board	4	4	Yes	No	105°C	Tin	Yes
Micro-Fit Connectors													
	3.00mm	10.0A	600V	30 to 18 AWG	2 to 12, 2 to 24	Wire-to-wire, wire-to-board, board-to-board	1	1	Yes	Yes	105°C, 115°C	Tin, gold	Yes
Micro-Fit+ Connectors													
	3.00mm	13.0A	600V	30 to 16 AWG	2 to 8, 2 to 22	Wire-to-wire, wire-to-board	1	1	Yes	Yes	105°C	Tin, gold	Yes
Micro-Fit+ Versa Color Connectors													
	3.00mm	13.0A	600V	30 to 16 AWG	2 to 8, 2 to 12	Wire-to-wire, wire-to-board	4	4	Yes	No	105°C	Tin, gold	Yes
Mini-Fit Connectors													
	4.20mm	13.0A	600V	28 to 16 AWG	2 to 24 double row	Wire-to-wire, wire-to-board, board-to-board	5	1	No	Yes	105°C, 125°C	Tin, gold	Yes

Fit-Family Products (Continued)

Fit Family	Centerline	Current Rating (max.)	Voltage Rating	Wire Range	Position Sizes Single Row/ Double Row	Configuration	Colors	Keys	Terminal Position Assistance (TPA) Option	SMT option	Operating Temp (max.)	Plating Option	Glow Wire Capable
Mini-Fit Max Connectors													
	4.20mm	20.5A	600V	16 to 14 AWG	2 to 12 double row	Wire-to-board	1	1	Yes	Yes	105°C	Tin	Yes
Mini-Fit Sigma Connectors													
	4.20mm	11.5/13.5A	600V	24 to 16 AWG	2 to 6, 2 to 18	Wire-to-wire, wire-to-board	1	1	Yes	Yes	105°C	Tin	Yes
Nano-Fit Connectors													
	2.50mm	8.0A	250V	26 to 20 AWG	2 to 8, 4 to 16	Wire-to-wire, wire-to-board	2	2	Yes	Yes	105°C, 115°C	Tin, gold	Yes
Ultra-Fit Connectors													
	3.50mm	14.0A	600V	22 to 16 AWG	2 to 8, 4 to 16	Wire-to-wire, wire-to-board	2	2	Yes	No	105°C, 120°C	Tin, gold	Yes

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