

# Pytes Small & Medium C&I ESS systems



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## TYPICAL PROJECTS

- Commercial Buildings
- Light Industrial
- Agriculture
- EV Charging
- Off-Grid

## APPLICATIONS

## TYPICAL USE CASES

- Demand Charge Reduction
- Solar Self-Consumption Optimization
- EV Charging Load Management
- Commercial Backup Power
- Energy Cost Optimization

## WHY CHOOSE PYTES C&I HV BATTERIES



Certified to UL Standards & Compliant with Local Codes



All-Weather Durability for Extreme Temperatures and Coastal Environments



Modular & Flexible Configurations from 25 kWh to MWh+



Local Inventory with U.S. Based Technical Support



**NFPA 68/69/855**  
Code-Compliant



**UL 9540/9540A (2025)/1973**  
Certified Safety



### Fire Suppression System Safety Oriented

Multi-Level Active Fire Suppression

1. Smoke, Heat & Hazardous Detector (Detection)
2. Explosion Relief Fan (Ventilation)
3. Aerosol Suppression
4. Explosion Relief Panel
5. Fire Hose Port
6. Fire Alarm Control Panel

5  
Fire Hose Port

2  
Explosion Relief Fan  
(Ventilation)

1  
Smoke and Heat Detector  
(Detection)

4  
Explosion Relief Panel

3  
Aerosol Suppression

1  
Hazardous Gas Detector

6  
Fire Alarm  
Control Panel



### INVERTER COMPATIBILITY LIST



### PARTNERS

# HV48100 SPECIFICATIONS

(WITH IP20 INDOOR CABINET)



| HV48100 BMU                         |                                                   |                                              |
|-------------------------------------|---------------------------------------------------|----------------------------------------------|
| Battery Chemistry                   | Lithium Iron Phosphate (LFP)                      |                                              |
| Battery Module Energy               | 5.12 kWh                                          |                                              |
| Battery Module Nominal Voltage      | 51.2 V                                            |                                              |
| Battery Module Voltage Range        | 44.8 V – 57.6 V                                   |                                              |
| Battery Module Nominal Capacity     | 100 Ah                                            |                                              |
| Dimensions (W x D x H)              | 19.1 x 20.1 x 5.5 inch / 484 x 510 x 140 mm       |                                              |
| Weight                              | 29.3 lb / 13.3 vkg                                |                                              |
| Continuous Charge/DisCharge Current | 50 Adc                                            |                                              |
| External Comm.Port                  | CAN, RS485                                        |                                              |
| HV48100 BCU                         |                                                   |                                              |
| Dimensions (W x D x H)              | 19.1 x 20.1 x 5.5 inch / 484 x 510 x 140 mm       |                                              |
| Weight                              | 29.3 lb / 13.3 kg                                 |                                              |
| Ingress Rating                      | IP20                                              |                                              |
| Self-consumption Power              | 7.56 W                                            |                                              |
| Monitoring Comm.Port                | RS232                                             |                                              |
| External Comm.Port                  | CAN, RS485, Dry Contact, WiFi                     |                                              |
| System                              |                                                   |                                              |
| Battery Pack Internal Configuration | 8S1P                                              | 12S1P                                        |
| Nominal Voltage                     | 409.6 V                                           | 614.4 V                                      |
| Operating Voltage Range             | 364 ~ 454 V                                       | 546 ~ 682 V                                  |
| Nominal Energy                      | 40.96 kWh                                         | 61.44 kWh                                    |
| Nominal Power                       | 100 A                                             | 50 A                                         |
| Charge / Discharge Current          | 3                                                 | 6                                            |
| General                             |                                                   |                                              |
| Dimensions (W x D x H)              | 47.2 x 43.3 x 79.3 inch/ 1200 x 1100 x 2015 mm    | 26.8 x 23.4 x 82.7 inch/ 680 x 595 x 2100 mm |
| Weight                              | 985 lb / 448 kg                                   | 1364 lb / 620 kg                             |
| Operating Temperature               | -4 °F ~ 122 °F / -20 °C ~ 50 °C                   |                                              |
| Ingress Rating                      | IP20                                              |                                              |
| Operating Altitude                  | 9843 ft / 3000 m                                  |                                              |
| Relative Humidity                   | 0~95% non-condensing                              |                                              |
| Communication                       | CAN, RS485                                        |                                              |
| Cycle Life                          | ≥ 6000 cycles                                     |                                              |
| Warranty and Certification          |                                                   |                                              |
| Product Warranty <sup>1</sup>       | 10 years                                          |                                              |
| Certifications                      | UL 9540 Ed.3 (2023), UL 9540A, UL 1973, CEC, SGIP |                                              |

1. Operating Conditions 77 °F ± 7 °F 0.5 C / 0.5 C, EOL (End of Life) 70% retained capacity.

# HV48100 SE SPECIFICATIONS

(WITH IP55 OUTDOOR CABINET)



| Battery Module (BMU)                    |                                                                                         |                   |                   |                  |                   |                   |                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|
| Chemistry                               | Lithium Iron Phosphate (LFP)                                                            |                   |                   |                  |                   |                   |                   |
| Nominal Energy                          | 5.12 kWh                                                                                |                   |                   |                  |                   |                   |                   |
| Nominal Voltage                         | 51.2 V                                                                                  |                   |                   |                  |                   |                   |                   |
| Operating Voltage                       | 47.5 V ~ 57.6 V                                                                         |                   |                   |                  |                   |                   |                   |
| Nominal Capacity                        | 100 Ah                                                                                  |                   |                   |                  |                   |                   |                   |
| Weight                                  | 99 lb / 45 kg                                                                           |                   |                   |                  |                   |                   |                   |
| System                                  |                                                                                         |                   |                   |                  |                   |                   |                   |
| BMU Internal Configuration <sup>1</sup> | 5S2P                                                                                    | 6S2P              | 7S2P              | 12S1P            | 13S1P             | 14S1P             | 15S1P             |
| Rated Energy                            | 51.20 kWh                                                                               | 61.44 kWh         | 71.68 kWh         | 6144 kWh         | 66.56 kWh         | 71.68 kWh         | 76.80 kWh         |
| Rated Power                             | 25.60 kW                                                                                | 30.72 kW          | 35.84 kW          | 30.72 kW         | 33.28 kW          | 35.84 kW          | 38.40 kW          |
| Operating Voltage                       | 237.5 V ~ 288 V                                                                         | 285 V ~ 345.6 V   | 332.5 V ~ 403.2 V | 570 V ~ 691.2 V  | 617.5 V ~ 748.8 V | 665 V ~ 806.4 V   | 712.5 V ~ 864 V   |
| Charge/Discharge Current                | 50 A*2                                                                                  |                   |                   | 50 A             |                   |                   |                   |
| General                                 |                                                                                         |                   |                   |                  |                   |                   |                   |
| Dimensions (W x D x H)                  | 43 × 47 × 79 inch / 1100 × 1193 × 2015 mm                                               |                   |                   |                  |                   |                   |                   |
| Approximate weight                      | 2029 lb / 920 kg                                                                        | 2234 lb / 1013 kg | 2439 lb / 1106 kg | 2203 lb / 999 kg | 2306 lb / 1046 kg | 2408 lb / 1092 kg | 2511 lb / 1139 kg |
| Communication                           | CAN / RS485/ RS232 / Dry Contact / WiFi                                                 |                   |                   |                  |                   |                   |                   |
| Ingress Protection Rating               | IP55                                                                                    |                   |                   |                  |                   |                   |                   |
| Anti-Corrosion Grade                    | C4-M                                                                                    |                   |                   |                  |                   |                   |                   |
| Cycle Life <sup>2</sup>                 | 6000 cycles                                                                             |                   |                   |                  |                   |                   |                   |
| Warranty <sup>3</sup>                   | System: 3 Years <sup>4</sup><br>Battery module: 10 Years                                |                   |                   |                  |                   |                   |                   |
| Battery Module Internal Heating Film    |                                                                                         |                   |                   |                  |                   |                   |                   |
| Rated Input Voltage                     | 110Vac @ 60 Hz                                                                          |                   |                   |                  |                   |                   |                   |
| Rated Power                             | 176 W                                                                                   |                   |                   |                  |                   |                   |                   |
| Control Temperature                     | On: ≤50 °F / 10 °C<br>Off: ≥59 °F / 15 °C                                               |                   |                   |                  |                   |                   |                   |
| Environmental                           |                                                                                         |                   |                   |                  |                   |                   |                   |
| Operating Temperature                   | -4 °F ~ 131 °F / -20 °C ~ 55 °C                                                         |                   |                   |                  |                   |                   |                   |
| Operating Altitude                      | ≤ 9843 ft / 3000 m                                                                      |                   |                   |                  |                   |                   |                   |
| Relative Humidity                       | 5% ~ 80 % non-condensing                                                                |                   |                   |                  |                   |                   |                   |
| Fire Suppression System                 |                                                                                         |                   |                   |                  |                   |                   |                   |
| Level 1: Detection & Ventilation        | Hazardous gas detection activates ventilation system                                    |                   |                   |                  |                   |                   |                   |
| Level 2: Aerosol Suppression            | Heat and smoke detection activates aerosol fire suppression system                      |                   |                   |                  |                   |                   |                   |
| Level 3: Pressure Relief                | The explosion relief valve opens automatically if internal pressure exceeds safe limits |                   |                   |                  |                   |                   |                   |
| Level 4: Fire Hose Connection Port      | Equipped with a fire hose connection port for firefighter hose attachment               |                   |                   |                  |                   |                   |                   |
| HVAC                                    |                                                                                         |                   |                   |                  |                   |                   |                   |
| Max. Cooling Capacity                   | 2300 W (L35)                                                                            |                   |                   |                  |                   |                   |                   |
| Max. Heating Capacity                   | 1050 W                                                                                  |                   |                   |                  |                   |                   |                   |
| Ingress Protection Rating               | IP55                                                                                    |                   |                   |                  |                   |                   |                   |
| Compliance                              |                                                                                         |                   |                   |                  |                   |                   |                   |
| Certifications                          | UL 9540 Ed.3 (2023), UL 9540A, UL 1973, UN 38.3                                         |                   |                   |                  |                   |                   |                   |
| Code Compliance                         | NFPA 68 / 69 / 855                                                                      |                   |                   |                  |                   |                   |                   |
| Listings                                | CEC, SGIP, OGP <sub>e</sub>                                                             |                   |                   |                  |                   |                   |                   |

1. Flexible Configuration: Number of connectable BMUs per Battery Control Unit (BCU) ranges from 3 to 15. Voltage Range: 47.5 V x (3 ~ 15) ~ 57.6 V x (3 ~ 15). The HV48100SE has 16 available positions for BMU and BCU. The maximum configuration per HV48100 SE cabinet is 15S1P / 7S2P.

2. Operating conditions: 77°F / 25°C, 0.5C @ 90% DOD, ret @70% (EOL).

3. Warranty: 3 years for the cabinet system (excludes the BMU and BCU), 10 years or 6000 cycles for the battery (whichever comes first).

4. Optional 2 year warranty extension available for purchase.

# HV48300 Max SE SPECIFICATIONS

(WITH IP55 OUTDOOR CABINET)

Pytes

| Battery Module (BMU)                    |                                                                                         |                   |                   |                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|
| Chemistry                               | Lithium Iron Phosphate (LFP)                                                            |                   |                   |                   |
| Nominal Voltage                         | 51.2 V                                                                                  |                   |                   |                   |
| Operating Voltage                       | 46.5 ~ 56.8 V                                                                           |                   |                   |                   |
| Nominal Capacity                        | 314 Ah                                                                                  |                   |                   |                   |
| Energy                                  | 16.076 kWh                                                                              |                   |                   |                   |
| Weight                                  | 262 ± 11 lb / 119 ± 5 kg                                                                |                   |                   |                   |
| System                                  |                                                                                         |                   |                   |                   |
| BMU Internal Configuration <sup>1</sup> | 7S2P                                                                                    | 12S1P             | 14S1P             | 15S1P             |
| Nominal Energy                          | 225.07 kWh                                                                              | 192.92 kWh        | 225.07 kWh        | 241.15 kWh        |
| Nominal Output Power                    | 112.53 kW                                                                               | 96.46 kW          | 112.53 kW         | 120.57 kW         |
| Operating Voltage                       | 325.5 ~ 397.6 V                                                                         | 558 ~ 681.6 V     | 651 ~ 795.2 V     | 697.5 ~ 852 V     |
| Recommended Charge / Discharge Current  | 157 A*2                                                                                 | 157 A             | 157 A             | 157 A             |
| Peak Charge / Discharge Current         | 205 A*2                                                                                 | 205 A             | 205 A             | 205 A             |
| General                                 |                                                                                         |                   |                   |                   |
| Dimensions (W x D x H)                  | 69 x 57 x 93 inch / 1750 x 1450 x 2350 mm                                               |                   |                   |                   |
| Weight                                  | 5388 lb / 2444 kg                                                                       | 4667 lb / 2117 kg | 5291 lb / 2400 kg | 5454 lb / 2474 kg |
| Communication                           | CAN / RS485/ RS232 / Dry Contact / WiFi                                                 |                   |                   |                   |
| Ingress Protection Rating               | IP55                                                                                    |                   |                   |                   |
| Anti-Corrosion Grade                    | C4-H                                                                                    |                   |                   |                   |
| Cycle Life <sup>2</sup>                 | 6000 cycles                                                                             |                   |                   |                   |
| Warranty <sup>3</sup>                   | System: 3 Years <sup>4</sup><br>Battery module: 10 Years                                |                   |                   |                   |
| Environmental                           |                                                                                         |                   |                   |                   |
| Operating Temperature                   | Charging: 32 °F ~ 131 °F / 0 °C~55 °C<br>Discharging: -4 °F ~ 131 °F / -20 °C~55 °C     |                   |                   |                   |
| Operating Altitude                      | ≤ 6561.68 ft / 2000 m                                                                   |                   |                   |                   |
| Relative Humidity                       | 5 % ~ 95 %, non-condensing                                                              |                   |                   |                   |
| Fire Suppression System                 |                                                                                         |                   |                   |                   |
| Level 1: Detection & Ventilation        | Hazardous gas detection activates ventilation system                                    |                   |                   |                   |
| Level 2: Aerosol Suppression            | Heat and smoke detection activates aerosol fire suppression system                      |                   |                   |                   |
| Level 3: Pressure Relief                | The explosion relief valve opens automatically if internal pressure exceeds safe limits |                   |                   |                   |
| Level 4: Fire Hose Connection Port      | Equipped with a fire hose connection port for firefighter hose attachment               |                   |                   |                   |
| HVAC                                    |                                                                                         |                   |                   |                   |
| Rated Cooling Capacity                  | 5000 W (L35)                                                                            |                   |                   |                   |
| Rated Heating Capacity                  | 2500 W                                                                                  |                   |                   |                   |
| Ingress Protection Rating               | IP55                                                                                    |                   |                   |                   |
| Compliance                              |                                                                                         |                   |                   |                   |
| Certifications                          | UN 38.3, UL 1973, UL 9540A (2025), UL 9540 Ed.3 (2023) – July                           |                   |                   |                   |
| Code Compliance                         | NFPA 68 / 69 / 855                                                                      |                   |                   |                   |
| Listings                                | CEC, SGIP, OGP <sub>e</sub>                                                             |                   |                   |                   |

1.Flexible Configuration: Number of connectable BMUs per Battery Control Unit (BCU) ranges from 1 to 15. Voltage Range: 46.5 V x (1 ~ 15) ~ 56.8 V x (1 ~ 15). The HV48300 Max SE has 16 available positions for BMU and BCU. The maximum configuration per HV48300 Max SE cabinet is 15S1P / 7S2P.

2. Operating conditions: 77 °F / 25°C, 0.5 P @ 90% DOD, ret @70% (EOL)

3. Warranty: 3 years for the cabinet system (excludes the BMU and BCU), 10 years or 6000 cycles for the battery (whichever comes first).

4.Optional 2 year warranty extension available for purchase.

# HV48300 Max SPECIFICATIONS

## (WITHOUT IP55 OUTDOOR CABINET)

### HV48300 Max BMU

|                                       |                                             |
|---------------------------------------|---------------------------------------------|
| Battery Chemistry                     | Lithium Iron Phosphate (LFP)                |
| Cooling Method                        | Air Cooling                                 |
| Battery Module Energy                 | 16.076 kWh                                  |
| Battery Module Nominal Capacity       | 314 Ah                                      |
| Continuous Discharge / Charge Current | 157 Adc                                     |
| Battery Module Nominal Voltage        | 512 V                                       |
| Battery Module Voltage Range          | 44.8 V ~ 57.6 V                             |
| Dimensions (W x D x H)                | 17.3 x 30.9 x 8.9 inch / 440 x 787 x 227 mm |
| Weight                                | 265.8 lbs / 120.6 kg                        |
| Communication                         | CAN, RS485                                  |
| Weight                                | 255.7±11 lb / 116±5 kg                      |
| Cycle Life <sup>1</sup>               | ≥ 6000 cycles                               |

### HV48300 Max BCU

|                        |                                             |
|------------------------|---------------------------------------------|
| BCU Working Voltage    | 224 V ~ 1497 V                              |
| Dimensions (W x D x H) | 17.1 x 21.3 x 8.8 inch / 436 x 543 x 225 mm |
| Weight                 | 55.1 lbs / 25 kg                            |
| Self-consumption Power | 7.8 W                                       |
| Communication          | CAN, RS485, WiFi, Dry Contact               |

### HV48300 Max System (Customized)

|                                                    |                                                        |
|----------------------------------------------------|--------------------------------------------------------|
| Battery Module Quantity (Optional)                 | 5 ≤ N ≤ 26                                             |
| Number of Units in One Bracket Column <sup>2</sup> | 6 ~ 8                                                  |
| System Configuration <sup>3</sup>                  | 1 * HV48300 MAX BCU + N * HV48300 MAX BMU (5 ≤ N ≤ 26) |
| Rated Energy                                       | N * 16.076 kWh                                         |
| Rated Power                                        | N * 8.038 kW                                           |
| System Operating Voltage                           | N * 512 V                                              |
| System Voltage Range                               | N * 44.8 V ~ N * 57.6 V                                |
| Continuous Charge / Discharge Current              | 157 Adc                                                |

### DC Cooling Fan <sup>4</sup>

|                     |          |
|---------------------|----------|
| Rated Power per BMU | 9.6 W    |
| Rated Voltage       | 24.0 Vdc |

### General

|                       |                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | Charge: 32 °F ~ 113 °F / 0 °C ~ 45 °C , Discharge: 14 °F ~ 122 °F / -10 °C ~ 50 °C                                                            |
| Storage Temperature   | Within 1 month: -4 °F ~ 122 °F / -20 °C ~ 50 °C<br>1~3 months: 14 °F ~ 104 °F / -10 °C ~ 40 °C<br>3~12 months: > 32 °F ~ 86 °F / 0 °C ~ 30 °C |
| Protection Level      | IP20                                                                                                                                          |
| Operating Altitude    | ≤ 6561.68 ft / 2000 m                                                                                                                         |
| Relative Humidity     | 0% ~ 95% RH, non-condensing                                                                                                                   |

### Warranty

|                       |                                                   |
|-----------------------|---------------------------------------------------|
| Warranty <sup>5</sup> | System: 3 years <sup>6</sup><br>Battery: 10 years |
|-----------------------|---------------------------------------------------|

### Certifications

|               |                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| Certification | UL 1973, UL 9540A, UL 9540, UL 60730, IEC 62619, IEC 63056, IEC 60730, CE EMC, IEC 62477, IEC 62040, ECM, UN 38.3 |
|---------------|-------------------------------------------------------------------------------------------------------------------|

1. Standard Operating conditions: 77 °F / 25°C, 0.5 P @ 90% DOD, ret @70% (EOL)

2. Recommended number of units per bracket column is 6, maximum 8 units in static state.

3. Flexible Configuration: Number of connectable BMUs per Battery Control Unit (BCU) ranges from 5 to 26, voltage Range: 46.5 V x (5 ~ 26) ~ 56.8 V x (5 ~ 26). Providing a wide range of configuration options for all scenarios.

4. DC cooling fan is pre-assembled in each battery pack to maintain operation temperature of battery cells. No additional external power is required.

5. Warranty: 3 years for the system (excluding BMU and BCU), 10 years or 6000 cycles for the battery (whichever comes first)

6. Optional 2-year warranty extension for system available for purchase.