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# AELIO+HR76

49.9kW/50kW/60kW/61kW  
38.4kWh-215kWh

SolaX Split C&I Energy Storage Solution

# X3-AELIO



## Flexible Configuration

- Customizable battery setup: batteries can be flexibly configured according to customer site requirements, supporting indoor and rack-mounted installations.
- Parallel operation: supports up to 10 parallel systems, meeting power requirements from 49.9 kW to 600 kW on grid.
- Battery options: two-way battery connector, catering to single system capacities ranging from 38.4 kWh to 215 kWh.
- PV oversizing: supports up to 200% PV oversizing.



## Safe and Reliable

- Three-phase unbalance: inverter supports 100% three-phase unbalance.
- Long-term overload: inverter supports 110% long-term overload.
- Seamless switching: inverter supports 10ms on-grid/off-grid switching, ensuring uninterrupted power supply for onsite loads.



## Intelligent and Convenient

- Remote monitoring: supports web/app remote data viewing and remote OTA updates.
- Versatile operating modes: supports various operating modes to meet different application scenarios such as self-consumption, peak shaving, and demand management.
- VPP integration: supports VPP through IEEE 2030.5, OpenADR.\*
- Generator control: work seamlessly with generator to save fuel and back up

\* Feature to be upgraded in the future

|                                               | X3-AELIO-49.9K                                     | X3-AELIO-49.9K-P                 | X3-AELIO-50K                     | X3-AELIO-60K                      | X3-AELIO-61K                      |
|-----------------------------------------------|----------------------------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| PV INPUT                                      |                                                    |                                  |                                  |                                   |                                   |
| Max. recommended PV array power               | 100 kWp                                            | 120 kWp                          | 100 kWp                          | 120 kWp                           |                                   |
| Max. PV input voltage <sup>①</sup>            | 1000 V                                             |                                  |                                  |                                   |                                   |
| Rated PV input voltage                        | 650 V                                              |                                  |                                  |                                   |                                   |
| MPPT voltage range <sup>②</sup>               | 160 ~ 950 V                                        |                                  |                                  |                                   |                                   |
| Start-up voltage                              | 180 V                                              |                                  |                                  |                                   |                                   |
| No. of MPP trackers / strings per MPP tracker | 5 / 2                                              | 6 / 2                            | 5 / 2                            | 6 / 2                             |                                   |
| Max. input current per MPPT                   | 40 A                                               |                                  |                                  |                                   |                                   |
| Max. input short circuit current per MPPT     | 50 A                                               |                                  |                                  |                                   |                                   |
| AC INPUT & OUTPUT (ON-GRID)                   |                                                    |                                  |                                  |                                   |                                   |
| Rated output power                            | 49.9 kW                                            | 49.9 kW                          | 50 kW                            | 60 kW                             | 61 kW                             |
| Rated output current                          | 75.7 A @ 220 V<br>72.4 A @ 230 V                   | 75.7 A @ 220 V<br>72.4 A @ 230 V | 75.8 A @ 220 V<br>72.5 A @ 230 V | 91.0 A @ 220 V<br>87.0 A @ 230 V  | 92.5 A @ 220 V<br>88.5 A @ 230 V  |
| Max. output apparent power                    | 49.9 kVA                                           | 49.9 kVA                         | 55.0 kVA                         | 66.0 kVA                          | 66.0 kVA                          |
| Max. output continuous current                | 75.7 A @ 220 V<br>72.4 A @ 230 V                   | 75.7 A @ 220 V<br>72.4 A @ 230 V | 83.4 A @ 220 V<br>79.8 A @ 230 V | 100.0 A @ 220 V<br>95.7 A @ 230 V | 100.0 A @ 220 V<br>95.7 A @ 230 V |
| Rated AC voltage                              | 3 / N / PE, 220 / 380 V<br>3 / N / PE, 230 / 400 V |                                  |                                  |                                   |                                   |
| Rated AC frequency                            | 50 Hz / 60 Hz                                      |                                  |                                  |                                   |                                   |
| AC frequency range <sup>③</sup>               | 50 ± 5 Hz / 60 ± 5 Hz                              |                                  |                                  |                                   |                                   |
| Adjustable power factor range                 | ~1 (0.8 leading to 0.8 lagging)                    |                                  |                                  |                                   |                                   |
| THDi (rated power)                            | < 3%                                               |                                  |                                  |                                   |                                   |

## X3-AELIO-49.9K

## X3-AELIO-49.9K-P

## X3-AELIO-50K

## X3-AELIO-60K

## X3-AELIO-61K

| BATTERY                              |                                                                                                                                 |             |             |             |             |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|
| Battery type                         | LFP                                                                                                                             |             |             |             |             |
| Battery voltage range                | 180 ~ 820 V                                                                                                                     |             |             |             |             |
| Max. charge / discharge current      | 160 A (80 A × 2)                                                                                                                |             |             |             |             |
|                                      | EPS (OFF-GRID) OUTPUT                                                                                                           |             |             |             |             |
| Rated EPS output voltage, frequency  | 3 / N / PE, 220 / 380 V, 50 Hz / 60 Hz<br>3 / N / PE, 230 / 400 V, 50 Hz / 60 Hz                                                |             |             |             |             |
| Rated EPS output power               | 49.9 kVA                                                                                                                        | 49.9 kVA    | 50.0 kVA    | 60.0 kVA    | 61.0 kVA    |
| Max. EPS output power                | 75 kVA, 10s                                                                                                                     | 75 kVA, 10s | 75 kVA, 10s | 90 kVA, 10s | 90 kVA, 10s |
| Switchover time                      | < 10 ms                                                                                                                         |             |             |             |             |
|                                      | EFFICIENCY                                                                                                                      |             |             |             |             |
| Max. efficiency                      | 98.0%                                                                                                                           |             |             |             |             |
| European efficiency                  | 97.2%                                                                                                                           |             |             |             |             |
|                                      | GENERAL                                                                                                                         |             |             |             |             |
| Ingress protection                   | IP66                                                                                                                            |             |             |             |             |
| Operation temperature range          | -35 ~ 60°C (derating +45°C)                                                                                                     |             |             |             |             |
| Max. operating altitude              | 3000 m                                                                                                                          |             |             |             |             |
| Relative humidity                    | 0 ~ 100% RH (condensing)                                                                                                        |             |             |             |             |
| Overvoltage category                 | Mains: III, Battery: II, PV: II                                                                                                 |             |             |             |             |
| Dimensions (W × H × D)               | 670 × 820 × 257 mm                                                                                                              |             |             |             |             |
| Net weight                           | < 100 kg                                                                                                                        | < 105 kg    | < 100 kg    | < 105 kg    |             |
| Cooling concept                      | Smart air cooling                                                                                                               |             |             |             |             |
| Communication interfaces             | RS485-Meter, RS485-Monitor, RS485-Parallel (daisy-chain), CAN-BMS, CAN-Parallel (daisy-chain), USB, DI×2, DO×1, RCR (DI×4), DRM |             |             |             |             |
| Topology                             | Non-isolated                                                                                                                    |             |             |             |             |
| Certifications                       | CE, VDE4105, G99, AS4777, EN50549, CEI 0-21, IEC61727, PEA/MEA, NRS-097-2-1, RD1699, TOR                                        |             |             |             |             |
|                                      | PROTECTION                                                                                                                      |             |             |             |             |
| Over / under voltage protection      | Yes                                                                                                                             |             |             |             |             |
| DC isolation protection              | Yes                                                                                                                             |             |             |             |             |
| DC reverse-polarity protection       | Yes                                                                                                                             |             |             |             |             |
| Grid monitoring                      | Yes                                                                                                                             |             |             |             |             |
| DC injection monitoring              | Yes                                                                                                                             |             |             |             |             |
| Back feed current monitoring         | Yes                                                                                                                             |             |             |             |             |
| Residual current detection           | Yes                                                                                                                             |             |             |             |             |
| Over temperature protection          | Yes                                                                                                                             |             |             |             |             |
| Active anti-islanding method         | Frequency shift                                                                                                                 |             |             |             |             |
| Surge protection (DC / AC)           | DC: Type II, AC: Type II                                                                                                        |             |             |             |             |
| Arc-fault circuit interrupter (AFCI) | Optional                                                                                                                        |             |             |             |             |
| AC auxiliary power supply (APS)      | Built-in                                                                                                                        |             |             |             |             |

① The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter

② Input voltage exceeding the MPPT voltage range may triggers inverter protection

③ The AC frequency range may vary from different country codes

# TSYS–HR76

## Efficiency

- Delivers sustained 1C performance
- Embedded installation design for rapid deployment
- Modular architecture for streamlined maintenance

## Intelligence

- Automated charge/discharge management
- Multi-level protection: overcharge, over-discharge, thermal extremes

## Reliability

- High-safety LFP battery
- Extended cycle life for long-term performance

## Flexible Configuration

- Scalable battery cluster (5–14 modules per set)
- Remote firmware upgrade support
- Full compatibility with SolaX inverters



| SYSTEM SPECIFICATION                                |                                             |                       |                       |                       |                       |                       |                       |                       |                       |                         |
|-----------------------------------------------------|---------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|
| SYS modle name                                      | T-HR38.4<br>T-HR38.4P ②                     | T-HR46.0<br>T-HR46.0P | T-HR53.7<br>T-HR53.7P | T-HR61.4<br>T-HR61.4P | T-HR69.2<br>T-HR69.2P | T-HR76.8<br>T-HR76.8P | T-HR84.4<br>T-HR84.4P | T-HR92.1<br>T-HR92.1P | T-HR99.8<br>T-HR99.8P | T-HR107.5<br>T-HR107.5P |
| Module quantities                                   | 5                                           | 6                     | 7                     | 8                     | 9                     | 10                    | 11                    | 12                    | 13                    | 14                      |
| Nominal energy                                      | 38.4 kWh                                    | 46.0 kWh              | 53.7 kWh              | 61.4 kWh              | 69.1 kWh              | 76.8 kWh              | 84.4 kWh              | 92.1 kWh              | 99.8 kWh              | 107.5 kWh               |
| Usable energy (90%DOD)                              | 34.5 kWh                                    | 41.4 kWh              | 48.3 kWh              | 55.2 kWh              | 62.2 kWh              | 69.1 kWh              | 76.0 kWh              | 82.9 kWh              | 89.8 kWh              | 96.7 kWh                |
| Nominal voltage                                     | 256.0 V                                     | 307.2 V               | 358.4 V               | 409.6 V               | 460.8 V               | 512.0 V               | 563.2 V               | 614.4 V               | 665.6 V               | 716.8 V                 |
| Operating voltage range                             | 200 ~ 292 V                                 | 240 ~ 350.4 V         | 280 ~ 408.8 V         | 320 ~ 467.2 V         | 360 ~ 525.6 V         | 400 ~ 584 V           | 440 ~ 642.4 V         | 480 ~ 700.8 V         | 520 ~ 759.2 V         | 560 ~ 817.6 V           |
| Recommended charge / discharge current <sup>①</sup> | 90 A                                        |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Max. charge / discharge current <sup>①</sup>        | 150 A                                       |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Rated power                                         | 23.0 kW                                     | 27.6 kW               | 32.2 kW               | 36.8 kW               | 41.4 kW               | 46.0 kW               | 50.6 kW               | 55.2 kW               | 59.8 kW               | 64.5 kW                 |
| BATTERY MODULE                                      |                                             |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Battery model                                       | TB-HR76                                     |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Nominal energy                                      | 7.68 kWh                                    |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Nominal voltage                                     | 51.2 V                                      |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Rated capacity                                      | 150 Ah                                      |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Cycel life (90% DOD)                                | ≥ 6000 (@25°C ± 2°C , 0.5C / 0.5C, 70%EOL)  |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Battery type                                        | LFP                                         |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Dimensions (W x H x D)                              | 450 × 170 × 580 mm                          |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Weight                                              | 60 kg                                       |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| BMS                                                 |                                             |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| BMS model                                           | TBMS-R76                                    |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Dimensions (W x H x D)                              | 450 × 180 × 580 mm                          |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Net weight                                          | 19.2 kg                                     |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| RACK                                                |                                             |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Dimensions (W x H x D)                              | 530 x 1800 x 600 mm                         |                       |                       |                       | 1110 x 1800 x 600 mm  |                       |                       |                       |                       |                         |
| Weight                                              | 38.5 kg                                     |                       |                       |                       | 77 kg                 |                       |                       |                       |                       |                         |
| GENERAL                                             |                                             |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Battery roundtrip efficiency (0.5C / 0.5C, 25°C)    | 95%                                         |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Operating temperature range <sup>①</sup>            | 0 ~ 55°C (charge)<br>-20 ~ 55°C (discharge) |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Communication interface                             | CAN                                         |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Installation type                                   | Rack mounting                               |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Relative humidity                                   | 5 ~ 85%                                     |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Max.operating altitude                              | 3000 m                                      |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Environment                                         | Indoor                                      |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Safety                                              | IEC 62619, IEC 60730, IEC 63056, IEC 61000  |                       |                       |                       |                       |                       |                       |                       |                       |                         |
| Transport testing requirement                       | UN38.3                                      |                       |                       |                       |                       |                       |                       |                       |                       |                         |

① The current is affected by temperature and SOC.  
② The models with "P" are battery systems delivered with rack protection cover