

# Which single-phase hybrid inverter is best?

10–16 kW single-phase hybrid inverters for Thai homes, compared on power, battery choice, protection, warranty and service

Solis · GoodWe · Deye · Sungrow · LuxPower · Growatt

## 1 The short answer

BEST OVERALL FOR HOMES



### Solis S6-EH1P 12–16K

IP66 · < 4 ms · 2x surge

- Starts air cons and pumps easily
- Works with any approved 48 V battery
- Toughest casing, fastest backup
- 10-year warranty, good support

BEST FOR UP TO 12 KW



### GoodWe ES 8–12K

IP66 · < 4 ms · 10 yrs

- 2x surge for 10 s for motors
- 48 V batteries, generator input
- Reliable brand, 10-year warranty

MOST ENERGY-MANAGEMENT FEATURES



### Deye SUN-12–16K

100 A pass-through · 16 in parallel

- Very strong specs and energy management
- Generator input built in
- Claims can be slow in Thailand

## 2 Overall scorecard

| Inverter             | Power & surge | Battery choice | Protection & features | Warranty & service | Overall |
|----------------------|---------------|----------------|-----------------------|--------------------|---------|
| Solis S6-EH1P 16K    | ★★★★★         | ★★★★★          | ★★★★★                 | ★★★★★              | 4.8     |
| GoodWe GW12K-ES-C10  | ★★★★★         | ★★★★★          | ★★★★★                 | ★★★★★              | 4.5     |
| Deye SUN-16K-SG01LP1 | ★★★★★         | ★★★★★          | ★★★★★                 | ★★★★★              | 4.1     |
| Sungrow SH10RS       | ★★★★★         | ★★★★★          | ★★★★★                 | ★★★★★              | 3.6     |
| LuxPower SNA12000    | ★★★★★         | ★★★★★          | ★★★★★                 | ★★★★★              | 3.4     |
| Growatt SPE 12000 ES | ★★★★★         | ★★★★★          | ★★★★★                 | ★★★★★              | 3.2     |

Solar ESS assessment, 5 = best, for single-phase homes of 10–16 kW. Based on makers' datasheets and our field experience in Thailand. Sol-Ark and EG4 are left out: they are built for the US 120/240 V split-phase supply and are not offered in Thailand.

### 3 Power and surge

#### Rated single-phase output

|                      |       |
|----------------------|-------|
| Solis S6-EH1P 16K    | 16 kW |
| Deye SUN-16K-SG01LP1 | 16 kW |
| GoodWe GW12K-ES-C10  | 12 kW |
| LuxPower SNA12000    | 12 kW |
| Growatt SPE 12000 ES | 12 kW |
| Sungrow SH10RS       | 10 kW |

Largest single-phase model in each range.

#### Short surge for starting air cons and pumps

|                      |                     |
|----------------------|---------------------|
| Solis S6-EH1P 16K    | 32 kW (2x, 10 s)    |
| Deye SUN-16K-SG01LP1 | 32 kW (2x, 10 s)    |
| GoodWe GW12K-ES-C10  | ≈ 24 kVA (2x, 10 s) |
| Sungrow SH10RS       | 13.7 kVA            |
| LuxPower SNA12000    | not published       |
| Growatt SPE 12000 ES | not published       |

A high surge rating lets compressors start without tripping the inverter.

### 4 Technical specifications

| Item               | Solis S6-EH1P 16K | GoodWe GW12K-ES-C10 | Deye SUN-16K-SG01LP1 | Sungrow SH10RS | LuxPower SNA12000 | Growatt SPE 12000 ES |
|--------------------|-------------------|---------------------|----------------------|----------------|-------------------|----------------------|
| Single-phase sizes | 12/14/16 kW       | 8/10/12 kW          | 12/14/16 kW          | 8/10 kW        | 12 kW             | 12 kW                |
| Battery type       | 48 V LV           | 48 V LV             | 48 V LV              | HV (Sungrow)   | 48 V LV           | 48 V LV              |
| Max solar panels   | 22.4 kWp          | ≈ 2x (10K: 20 kWp)  | 25.6 kWp             | 20 kWp         | 24 kWp            | 15 kWp               |
| MPPT               | 3 x 40 A          | 2 x 32 A            | 3 x 32 A             | 4              | 2 x 35 A          | 2 x 27 A             |
| Backup switch      | < 4 ms            | < 4 ms              | UPS-class            | < 10 ms        | < 10 ms           | n/p                  |
| Max efficiency     | 97.6%             | 97.6%               | 97.6%                | 97.5%          | n/p               | 96.5%                |
| Enclosure          | IP66              | IP65–66             | IP65                 | IP65           | n/p               | IP20 (indoor)        |
| Parallel units     | 10                | 6–16                | 16                   | —              | 3                 | 9                    |
| Generator input    | ✓                 | ✓                   | ✓                    | —              | ✓ 15 kW           | ✓                    |
| Warranty           | 10 yrs            | 10 yrs              | 5 or 10 yrs          | 10 yrs (5+5)   | n/c †             | n/p                  |

n/p = not published · n/c = not confirmed. † Warranty for LuxPower varies by dealer; one listing shows 2 years. GoodWe parallel count differs between listings (6–16). Solis 12–16K figures from the maker's preliminary datasheet. Confirm Thai availability and PEA certificate before ordering.

## 5 Warranty and after-sales service

| Inverter                                                                                                      | Service | What to expect in Thailand                                                                                                       |
|---------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------|
|  <b>Solis S6-EH1P 16K</b>    | ★★★★★   | Responsive back-office support through official distribution; strong off-grid and unbalanced-load support; practical remote app. |
|  <b>Deye SUN-16K-SG01LP1</b> | ★★★★☆   | Rich energy-management features, but claims are handled through regional distributors and can take a long time.                  |
|  <b>Sungrow SH10RS</b>       | ★★★★☆   | Large global brand with structured warranty; best with Sungrow's own high-voltage batteries.                                     |
|  <b>GoodWe GW12K-ES-C10</b>  | ★★★★★   | Established brand with a 10-year standard warranty, structured claims and a good monitoring app.                                 |
|  <b>LuxPower SNA12000</b>    | ★★★★☆   | Widely used for off-grid; service via local dealers, warranty terms vary by dealer.                                              |
|  <b>Growatt SPE 12000 ES</b> | ★★★★☆   | Off-grid unit for indoor installation; service via local dealers.                                                                |

## 6 Three golden rules before buying



### Match the battery voltage

Low-voltage (48 V) inverters need 48 V batteries; high-voltage inverters need high-voltage batteries. Never mix them.



### Closed-loop communication

Check the battery is on the inverter maker's approved list and talks to it over CAN or RS485.



### Check surge, not just kW

Air cons and deep-well pumps need high starting power. Check the surge rating and pass-through current.

## 7 Our recommendation

**Most single-phase homes, 12–16 kW** → **Solis S6-EH1P 12–16K** with 48 V LiFePO4 batteries.

**Advanced energy management, large parallel systems** → **Deye SUN-12–16K**, with a plan for slower warranty claims.

**Homes up to 12 kW** → **GoodWe ES 8–12K**. Premium 10 kW with high-voltage battery and AFCI: **Sungrow SH10RS**.

**Simple off-grid, indoor install** → **LuxPower SNA12000** or **Growatt SPE 12000 ES**, installed indoors, with a clear written warranty from the dealer.

**Thai rules:** home rooftop systems up to 10 kWp qualify for the PEA-connected tax deduction. Very large single-phase loads may need a bigger meter or a 3-phase supply. Check with PEA before you buy.

Sources: solisinverters.com (S6-EH1P 12–16K-L), deyeinverter.com (SUN-12/14/16K-SG01LP1, 2026), GoodWe ES-C10 (GW10K/GW12K), Sungrow SH10.0RS / SH8.0RS, LuxPower SNA12000, Growatt SPE 12000 ES, PEA (pea.co.th). October 2026. Confirm against the current datasheet before ordering.