

Elson

SOLAR HYBRID INDUSTRIAL INVERTER (PCU) ESI SERIES (HKVA)



Our Solar Inverters (Pure Sine Wave) are much perfect for hybrid solar system. It has inbuilt sine wave inverter and PWM solar charger/SMPS charger in a single unit. It is specially designed to keep battery healthy for longer time period.

Convenience

Solar Hybrid PCU uses both Solar Power as well as A.C. Mains for charging the battery bank according to priority setting providing the users availability of uninterrupted power supply.

Salient Features

- ▶ User friendly Wide LCD display for better user interface.
- ▶ Smart Load sharing compatibility.
- ▶ Monitoring/data logging feature for better system information at user end (optional)
- ▶ Selectable charging current with high charging (HI) and Normal Charging (Low).
- ▶ PV availability, battery charging from solar power indication with solar power priority
- ▶ User friendly, control and selection switches with LCD indication on front panel
- ▶ Protections such as Mains MCB Trip, Overload, Short circuit, Battery low, over temperature indication with buzzer as well as display on LCD available
- ▶ Power Saving through No Load Shutdown Feature
- ▶ Maximum Solar Power Utilization during charging and backup mode
- ▶ PV pole reversal protection indication on LCD
- ▶ Deep discharge battery charging from A.C. Mains as well as Solar
- ▶ No humming Noise (Silent UPS)
- ▶ AC Mains available, battery charging/charged and it voltage indication provided on LCD display
- ▶ Two Modes of operation (EC/QC)
- ▶ Grid bypass option available.



2.5KVA | 3KVA | 3.5KVA | 5 KVA | 7.5 KVA | 10 KVA

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Technical Specifications

| Model Name | Units | ESI 3000 | ESI 3500 | ESI 4000 | ESI 5500 | ESI 6000 | ESI 8000 | ESI 10000 | ESI 11000 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------|-------------|--------------|-------------|----------------------------------------|-------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System rating | VA | 2500 | 3000 | 3500 | 5000 | 5000 | 7500 | 10000 | 10000 |
| Full Load Input Current ±2A | Amp | 63/46 | 63/48 | 63 | 104 | 50 | 75/63 | 77 | 48 |
| Operating DC voltage | Volts | 36/48 | 36/48 | | 48 | 96 | 96/120 | 97 | 192 |
| PV input | | | | | | | | | |
| Maximum Solar PV Power | Vdc | | 75/90 | 75/90 | | 180 | | 180/235 | 300 |
| Maximum Solar array power | Wp | 2500 | 3000 | 3500 | 5000 | 5000 | 7500 | 10000 | 10000 |
| Max PV modules | Nos | 10 | 12 | 14 | 16 | 20 | 30 | 30 | 40 |
| Modules in series | Nos | 3/2 | 3/2 | 2 | 2 | 4 | 4/5 | 5 | 8 |
| Parallel strings | Nos | 5 | 4 | 7 | 8 | 5 | 6 | 6 | 5 |
| Max current rating of SCC | Adc | 50.0 | 50.0 | 50.0 | 70.0 | 50.0 | 70/50 | 70.0 | 50.0 |
| Efficiency of SCC | % | | | | | >90 | | | |
| Switching element in Inverter MOSFET IGBT | | | | | | | | | |
| Type of Control | | | | | | PWM | | | |
| Nominal Output voltage in inverter mode | Vac | | | 220V ± 7V | | | | 230±7V | |
| Output supply phases | | | | | | single | | | |
| Nominal Frequency (in inverter mode) | Hz | | | | | 50 ± 1 | | | |
| Frequency (Min - Max during Grid by pass) UPS mode | Hz | | | | | 47-53 | | | |
| Frequency (Min - Max during Inverter mode) | Hz | | | | | 40-60 | | | |
| Output voltage regulation | % | | | 195-220 | | | | 195-230 | |
| Output THD (v) at linear load | % | | | | | <5% | | | |
| Crest Factor | | | | | | 3:01 | | | |
| Overload capacity 125% | Sec | | | | | 6 (6 Retry) | | | |
| Overload capacity 150% | Sec | | | | | 2 (6 Retry) | | | |
| Cooling Fan ON at temp | °C | 60 (or >45%load and Solar >15A) | | | | | | Continuous Run | |
| Cooling Fan Off at temp | °C | 55 (or <40%load and Solar <10A) | | | | | | Continuous Run | |
| Peak efficiency of inverter | % | 86 | 82 | 89 | 88 | 87 | 88 | 89 | 88 |
| Battery low voltage alarm per battery | Vdc | | | | | 10.8 ± 0.2 | | | |
| Battery low voltage cut per battery | Vdc | | | | | 10.5 ± 0.2 (4 Retry) | | | |
| Batter low cut recovery per battery through Solar | Vdc | | | | | 12.7 ± 0.2 (Or mains and Front Switch) | | | |
| Max Battery charging voltage by grid per battery | Vdc | | | | | 14.4±0.2V | | | |
| Max Battery charging current by grid in Hi/Lo option | Adc | | | | | 18±2 | | | |
| Max Battery charging voltage by Solar per battery | Vdc | | | | | 14.4±0.2V | | | |
| Battery High cut with Alarm per battery | Vdc | | | | | 14.8±0.2 | | | |
| Battery High cut Recovery per battery | Vdc | | | | | 14.3±0.2 | | | |
| Max Battery charging current by Solar | Adc | | | | | 20±2 | | | |
| Max Charging current to battery by Solar+ Grid | Adc | | | | | 20±2 | | | |
| Grid low cut voltage (IT load/Normal load) | Vac | | | | | 180/100 ± 10 | | | |
| Grid low cut voltage recovery (IT load/Normal load) | Vac | | | | | 190/110 ± 10 | | | |
| Grid high cut voltage (IT load/Normal load) | Vac | | | | | 265/280 ± 10 | | | |
| Grid high cut voltage recovery (IT load/Normal load) | Vac | | | | | 255/270 ± 10 | | | |
| Grid charging Enable/Disable | | | | | | yes | | | |
| Selection of UPS Load/Normal Load | | | | | | Through switch | | | |
| <p>Selection of Operating Mode</p> <p>EC-Charging current= 20A ±1A Solar + Mains till boost voltage, System will cut off the mains when battery voltage reaches boost voltage level and output load is transferred to Solar + Battery and Grid reconnected <=11.5V per Battery.</p> <p>QC-Charging current = 20A ±1A Solar + Mains till battery boost voltage with maximum Solar Sharing. System will not be disconnect Grid in any case</p> | | | | | | | | | |
| Output Voltage at 100% load at Nominal Battery voltage | Vac | | | 218±5 | | | | 228±5 | |
| Input current at no load at Nominal Battery voltage | Adc | 2.2 | 2.2 | 2 | 2.2 | 2.2 | 2 | 2 | 2.2 |
| Noise @ 1 meter | dB | | | | | | | | <50 |
| Protections | | | | | | | | | Batt. Low, Batt. High,Overload, Short circuit,Over temp, PV reverse,MCB Trip/Fuse Trip |
| LCD Display parameters | | | | | | | | | PV Current, Bty voltage, Mains voltage, PCU on-off, UPS Mode on-off, Solar On-off, Load percentage (0 to 150%), Load status (on solar, battery or grid), Charging status, over load, short ckt, fault, battery low, over temp, PV reverse, MCB trip, (Alpha numeric 16x2) |
| Operating Temperature range | °C | | | | | 0-50 | | | |
| Storage Temperature range | °C | | | | | 0 +65 | | | |
| Max RH | % | | | | | 95 | | | |
| Front panel details (MCB, Display, Selection switch etc) | | | | | | Display with Rocker Switch | | | |
| Rear panel details (MCB, Terminals etc) | | | | | | Fan,mcb,rotary,terminal,switch | | | |
| Enclosure protection | | | | | | 20 | | | |
| Changeover time from inverter to mains in UPS mode | ms | | | | | <10 | | | |
| Changeover time from inverter to mains in Normal mode | ms | | | | | <10 | | | |
| Changeover time from mains to inverter in UPS mode | ms | | | | | <10 | | | |
| Changeover time from mains to inverter in Normal mode | ms | | | | | <50 | | | |
| Mains connection | | | | TERMINAL 30A | | | | TERMINAL 60A | |
| Output | | | | Terminal 30A | | | | TERMINAL 60A | |
| MCB in battery path | | | | | | Yes | | | |
| Fuse in battery path | | | | | | NO | | | |
| MCB in Solar path | | | | | | Yes | | | |
| Fuse in Solar Path | | | | | | NO | | | |
| TDR (For Compressive Load) | | NA | | | | | Provided | | |
| Input Protection | | | | | | Through MCB | | | |
| Cabinet | | | | | | Metal Cabinet | | | |
| Dimension (LxWxH) in mm | | 470x440x610 | 470x440x610 | 470x440x610 | 470x440x610 | 500x495x660 | 600x500x740 | 600x500x740 | 600x500x740 |
| Net Weight | | 38 | 38 | 40 | 52 | 52 | 72 | 92 | 92 |
| Gross Weight | | 40 | 40 | 42 | 56 | 56 | 76 | 96 | 96 |

Technical Specifications can be changed without prior notice.