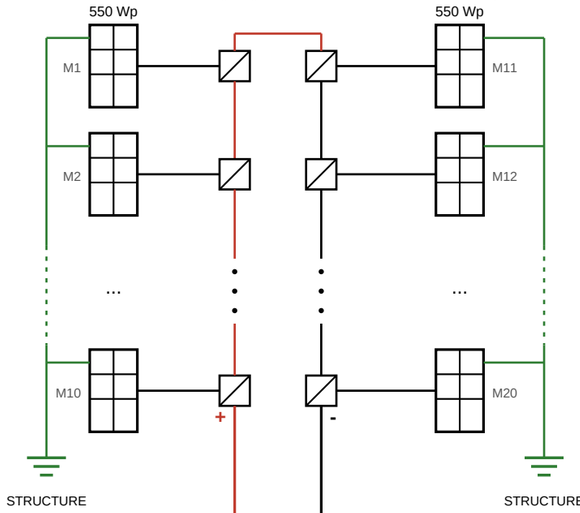
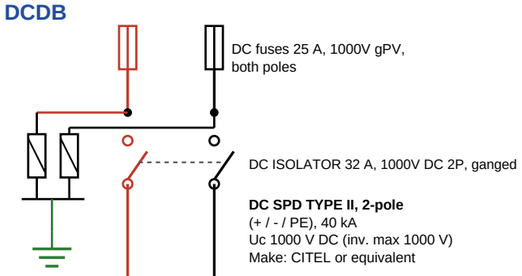
PV ARRAY: 20 x 550 Wp = 11.00 kWp, 1 STRING x 20 S-SERIES OPTIMISERS (1:1)

S-Series optimisers with SE10K (3-ph): 14 to 30 optimisers per string, max 13,500 W per string, one module per optimiser

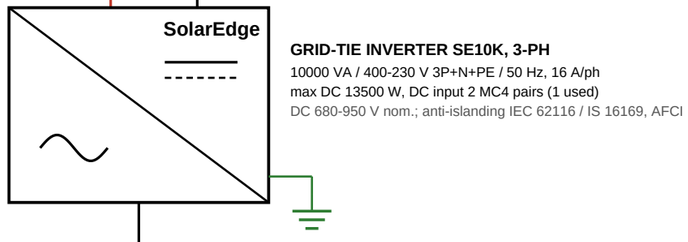


4 sq.mm x 1C solar XLPE Cu cable, + / -

DCDB



4 sq.mm x 1C solar XLPE Cu cable, + / -



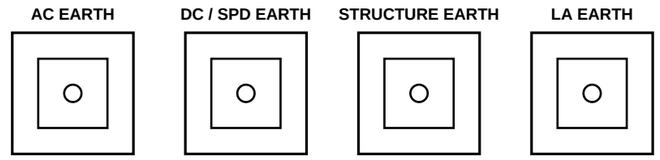
GRID-TIE INVERTER SE10K, 3-PH
10000 VA / 400-230 V 3P+N+PE / 50 Hz, 16 A/ph
max DC 13500 W, DC input 2 MC4 pairs (1 used)
DC 680-950 V nom.; anti-islanding IEC 62116 / IS 16169, AFCI

6 sq.mm x 4C Cu + 6 sq.mm PE PVC/XLPE cable

3P+N

50 sq.mm Al down conductor to dedicated LA earth pit

LIGHTNING ARRESTER
as per IS/IEC 62305



Earth pits: GI pipe 40 mm dia x 2.5 m (or Cu-bonded rod), chemical backfill; 16 sq.mm Cu / 25x3 GI; LA 50 sq.mm Al. LA earth kept separate; AC, DC and structure earths interconnected. Earth resistance < 5 ohm (CEA Reg. 41).

FROM KSEB SUPPLY, 400/230 V 3-PH 4-WIRE

CONSUMER METER BOX

KSEB cut-out fuse

kWh — **NET METER Class 1.0, 3-ph 4-wire** bidirectional, replaces existing meter installed and sealed by KSEB

LOCKABLE ENCLOSURE

MAIN ISOLATOR 40 A, 4P
lockable, KSEB access

CONSUMER MAIN DB / LT PANEL (existing)

busbar

TO CONSUMER EXISTING LOAD (existing MCBs / RCCB retained)

solar feeder 6 sq.mm x 4C Cu + 6 sq.mm PE

3-PH SOLAR METER BOX

(lockable, KSEB access)

AC ISOLATOR 40 A, 4P

kWh — **SOLAR ENERGY METER** 3-ph 4-wire, 10-60 A, Cl. 1.0

6 sq.mm x 4C Cu + 6 sq.mm PE

ACDB

SOLAR MCB 25 A, 4P, C
10 kA (>= 1.25 x 16 A)

backup MCB 20 A, 4P

AC SPD TYPE II, 40 kA, Uc 275 V
3L+N / PE, Make: CITEL or equiv.

PE

GENERAL NOTES

1. Scheme: KSEB net metering under PM Surya Ghar: Muft Bijli Yojana. Solar capacity shall not exceed the sanctioned connected load; prior feasibility approval from KSEB section office.
2. Three-phase service connection required for solar capacity above 5 kW (KSEB).
3. Inverter: grid-interactive, anti-islanding, BIS IS 16221 / IS 16169, IEC 61727 / 62116 compliant.
4. Modules: ALMM-listed, DCR (domestic cells and modules) as required for central subsidy.
5. Net meter (bidirectional) supplied / tested / sealed by KSEB; solar generation meter Class 1.0 installed in a separate lockable box with KSEB access (MNRE requirement).
6. Lockable AC isolator accessible to KSEB staff; 'DUAL SUPPLY - SOLAR PV' warning labels at consumer DB, meter box and ACDB (CEA Safety Regulations 2010 / 2023).
7. Earthing: separate pits for AC, DC/SPD, structure and LA; < 5 ohm; LA down conductor 50 sq.mm Al, LA earth not bonded to others (IS/IEC 62305). Earth electrodes as per IS 3043.
8. If an RCD is called for by the Electrical Inspectorate, use Type A, trip >= 100 mA (SolarEdge).
9. Module mounting structure hot-dip galvanised, designed for wind load per IS 875 (Part 3).
10. DC cables 1.1 kV UV-resistant XLPE in UPVC conduit; AC cables FRLS PVC/XLPE; voltage drop <= 2%.
11. One S-Series optimiser per module; string length and power within SolarEdge limits; no mixing.
12. Installation to CEA Technical Standards for Connectivity (2013, as amended) and KSEB Soura norms.
13. Internet (Wi-Fi/Ethernet) for SolarEdge monitoring; commissioning via SetApp; O&M per schedule.

DESIGN DATA - SE10K (10 kW) WITH S-SERIES OPTIMISERS

PV modules	20 x 550 Wp = 11.00 kWp (DC/AC ratio 1.10)
Optimiser	SolarEdge S-Series: 1100 W in, module Voc <= 125 V, 15 A in, 18 A / 80 V max out
String	1 string, 20 optimisers (min 14, max 30); 11000 W <= 13,500 W
Inverter AC	10000 VA, 400/230 V 3-ph 4-wire, 50 Hz, max 16 A/ph continuous
Inverter DC	max 13500 W, 1000 V max, 680-950 V nominal, max 16.5 A
DC fuses	25 A, 1000V gPV, both poles (>= 1.25 x 16.5 A)
DC isolator	32 A, 1000V DC 2P, ganged
DC SPD	Type II, 2-pole, Uc 1000 V DC, 40 kA
DC cable	4 sq.mm x 1C solar XLPE Cu, 1.1 kV, UV rated
String voltage	680-950 V in operation (inverter regulated); never above 1000 V inverter max; 1 V/optimiser when off
AC MCB	25 A, 4P, C-curve, 10 kA (>= 1.25 x 16 A per phase)
AC SPD	Type II, 3P+N, 40 kA, Uc 275 V, backup MCB 20 A, 4P
AC cable	6 sq.mm x 4C Cu + 6 sq.mm PE
AC isolator	40 A, 4P, lockable, in solar meter box
Gen. meter	3-ph 4-wire, 10-60 A, Class 1.0, in-line
Earthing	4 pits: AC, DC/SPD, structure: 16 sq.mm Cu or 25x3 GI strip; LA: 50 sq.mm Al
Bonding	10 SWG bare Cu: module frames to structure and frame-to-frame jumpers
Phases	L1/L2/L3 + N; inverter neutral connected (WYE with neutral)

LEGEND

PV module — S-Series power optimiser — SPD
MCB — Isolator — Fuse
Earth — kWh Energy meter — Junction
DC positive — DC negative / AC — Earth / PE

CUSTOMER / SITE DETAILS

Customer name	
Consumer number	
Site address / KSEB section	

SOLAREDGE ON-GRID PV SYSTEM - 10 kW THREE PHASE

SE10K + S-SERIES OPTIMISERS - SINGLE LINE DIAGRAM

PROVISIONAL - VERIFY BEFORE USE

Drawing No.	Revision	Scale	Size
JSS/SE/SLD/3PH/10KW/01	**00**	**NONE**	**A3**
Originated by	Checked by	Approved by	Date

Jasper Solar Solutions | Thiruvananthapuram, Kerala | jasper.solar

Ratings from SolarEdge DS-000193-IND (Jan 2025) and S-Series (S1000) India datasheet (Jul 2025). Subject to KSEB approval.