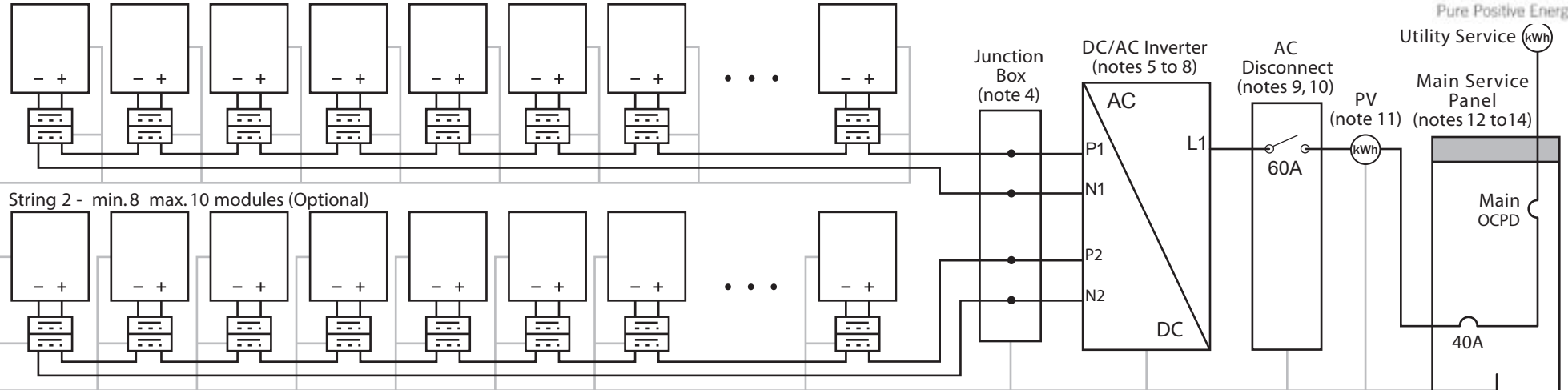


One Line Diagram | 4.95 kW Grid-Tie Solar PV



Solar Array 18 - 275W PV Modules
 2 series strings of variable length (notes 1 to 3)
 String 1 - min.8 max.10 modules



Notes:

- 1) PV Module: Silfab SLA275M
 $P_{max}=275W$, $V_{mp}=31.4V$, $V_{oc}=38.4V$
 $V_{oc, temp\ corr}=42.3V$ per mfg. guidelines
 $I_{mp}=8.76A$, $I_{sc}=9.32A$, $I_{max}=11.65A$ per NEC 690.8 @ 125% of short circuit
 PV Module specs matched to SolarEdge DC to DC Converter (Optimizer).
 SolarEdge Optimizer and Inverter control PV Module output eliminating need for PV source and output circuit calculations per 690.6.
 PV Array (18 - 275W Modules)
 SolarEdge Optimizers wired in series strings of variable length with min. 8 and max. 10 Optimizers per string per mfg. guidelines. Optionally, a single series string of 18 optimizers may be used.
 $P_{max}=4950W$ (18 Modules)
- 2) DC/DC Converter: SolarEdge Power Optimizer P300
 Rated DC Input: 300W; Max Voltage (Voc): 48VDC; Mppt Range: 8 - 48VDC; Max Short Circuit Current (Isc): 10A; Max DC Input Current: 12.5A; Max Output Current: 15A; Operating Voltage: 5 - 60VDC Max String Voltage: 500VDC (Controlled by Inverter) Max Power Per String: 5250W; IP68/NEMA 6P rated for outdoor use.
- 3) PV Array racking, Modules and SolarEdge Optimizers grounded with #6 AWG Bare Copper. Listed grounding clips and star washers may be utilized to bond PV module frames and SolarEdge Optimizers to racking. Equipment grounding conductors sized per NEC 690.45 and 250.122.
- 4) NEMA 3R Junction Box: Serves as transition from array wiring to conduit wiring including equipment ground.
 Conductors: 4 - #10 AWG THHN Copper meets NEC derating guidelines
 Equipment Ground: #10 AWG THHN Copper; Conduit: 1/2" EMT min. Voltage Drop to Inverter: 2.2% @ 350VDC, Max 200 ft. RTD

- 5) PV/Optimizer Circuits are ungrounded and conform to NEC 690.35
- 6) Inverter bundled DC Disconnect suitable as disconnecting means per NEC 690.13
- 7) DC/AC Inverter: SolarEdge SE5000A-US Utility Interactive ETL listed per UL 1741 Max DC Voltage: 500V; Max DC Power Input: 6750W
 Nominal DC Voltage: 350V; Max DC Current: 15.5A
 AC Output: 240V @ 60Hz; Max Current 21A; Max AC Power: 5450W
 Internal GFID; NEMA 3R rated for outdoor use.
- 8) AC Wiring: 3 - #10 AWG THHN Copper; Equipment Ground: #10 AWG THHN Copper Conduit: 1/2" EMT min.
 Mfg. recommends Voltage Drop to Main Service Panel of 1% @ 240 VAC:
 - using #10 AWG up to 46 ft. RTD
- 9) AC Disconnect nonfusible 240V, 60A
 Lockable in the open position, located outside within 20 ft. of utility meter.
- 10) Where permitted by both the AHJ and the Utility, this device may be omitted allowing the Accessible Interactive point of connection to serve as the disconnecting means.
- 11) Locus Energy LGate 120-3Gy Residential Solar Monitoring Solution or equivalent for dedicated PV performance tracking. Meter to be ANSI Residential Meter Form 2S, 3-wire, single phase unit compatible with standard 2S, 3-wire meter sockets. PV connected to line side of meter. Meter socket wiring #10 AWG THWN Copper. Meter configured to record energy delivered by PV system only.
- 12) Interactive point of connection a 30A 2P circuit breaker.
- 13) Per NEC 690.94, sum of ampere ratings of all ocpd's supplying power not to exceed 120% of bus bar rating.
- 14) AC Equipment ground connected to main house grounding system at main service panel.

Customer:	
Address:	
Title: One Line Diagram 4.95kW Grid-Tie Solar PV	Dwg. No. Rev
Drawn By: A.Zsilavec	Date: 3-30-2020