APEX ELECTRICS

Power Transformer

Solar Transformer

Logo & Packaging Customization | **Parameter & Drawing Design Customization**

GRID ADAPTIVE | ULTRA-LOW LOSS | HARMONIC RESISTANT | SOLAR OPTIMIZED | REMOTE MONITORING

Overview

Grid-Adaptive Photovoltaic Infrastructure: Engineered specifically as the critical link for solar power plants, our PV step-up transformers ensure stable and efficient energy conversion from inverter outputs to the medium-voltage grid, optimized for intermittent power generation.

Harmonic-Resilient Engineering: Utilizing high-permeability grain-oriented silicon steel and reinforced insulation, our designs are built to withstand the high-frequency harmonics and pulsed voltage stress typical of modern solar inverters, ensuring a service life exceeding 25 years.

Ultra-Low Loss & Eco-Efficiency: Designed to meet and exceed the latest global efficiency standards (including Tier 2 / EcoDesign requirements). Our transformers minimize no-load losses during non-generation hours, maximizing the overall Levelized Cost of Energy (LCOE) for your solar project.

Extreme Environment Durability: Tailored for harsh outdoor deployment—from high-UV desert regions to corrosive coastal salt spray. Featuring C5-class anti-corrosion coating, high-grade sealing, and optimized cooling systems to maintain full-load performance in ambient temperatures up to 50°C.

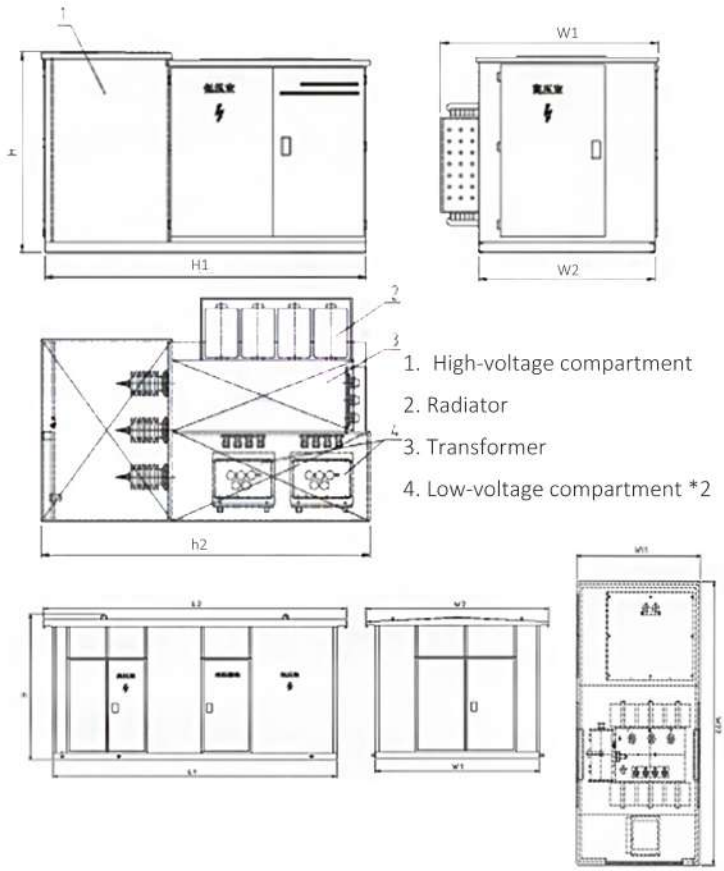
Application

Utility-Scale Solar Farms
Step-up solutions for large-scale PV plants and high-voltage grid integration.

Commercial & Industrial PV
Compact, low-noise transformers optimized for rooftop solar and urban grids.

Solar + Storage Integration
Bi-directional power support for hybrid PV systems and energy storage (ESS).

Outline Drawing



1. High-voltage compartment
2. Radiator
3. Transformer
4. Low-voltage compartment *2

Accessories / Components

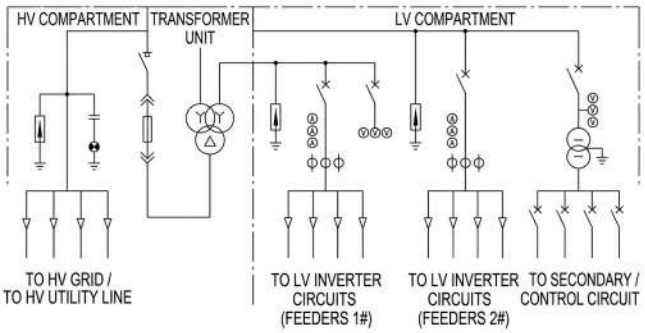
INTEGRATED TANK DEVICE | INTELLIGENT SOLAR GATEWAY | RAPID PRESSURE RELIEF | INTELLIGENT COOLING ARRAY | LV GRID-Tie BREAKERS

Technical Parameters

HV Rating (kV)	Rated Capacity (kVA)	Tapping Range (%)	LV Rating (kV)	Vector Group	No-load Current (i0 %)	Impedance (uk %)	No-load Loss (P0 kW)	Load Loss (Pk kW)
10 / 11	1,250	±2×2.5%	0.315 - 0.8	Dy11 / YNd11	0.45	6	1.15	11.5
10 / 11	2,500	±2×2.5%	0.315 - 0.8	Dy11 / YNd11	0.4	6.5	1.95	21
20 / 22	3,150	±2×2.5%	0.4 - 0.8	Dy11y11*	0.38	7	2.6	26.5
33 / 35	1,600	±2×2.5%	0.6 - 0.9	Dy11 / YNd11	0.42	6.5	1.65	15
33 / 35	3,150	±2×2.5%	0.6 - 0.9	Dy11 / YNd11	0.35	7.5	2.85	28.5
33 / 35	6,300	±5%	0.6 - 1.1	Dy11y11*	0.3	8	4.8	49

Note: Vector group Dy11y11 is specifically used for split-winding configurations to support dual-inverter inputs, a common feature in utility-scale solar skids.

System Electrical Schematic



Product Structural Features

1."Two-Inverters-One-Transformer" Scheme

Designed to accommodate two sets of solar inverter units with a single transformer, significantly reducing investment and operational costs.

2.Dual-Split Low Voltage Windings

Features dual-split windings on the LV side with independent outgoing lines, allowing simultaneous connection and isolation for two separate inverter groups.

3.Extreme Environment Enclosure

Available in composite, stainless steel, or non-metallic materials to resist sand, rain, snow, and salt spray with C5-level corrosion protection.

4.Safety Interlocking System

Complies with "Five-Prevention" safety standards, integrating HV load-break switches with transformer room door interlocks for absolute operational safety.

Intelligent Control & Protection

1.Automated Thermal Management

Combines natural ventilation with temperature-controlled forced air cooling to ensure full-load operation under varying ambient temperatures.

2.LV Protection Suite

Equipped with 690V main circuit breakers and high-precision overvoltage protection modules for maximum electrical stability.

3.Smart Monitoring & Connectivity

Supports integrated digital metering and smart control systems for remote data tracking and unmanned substation management.

Diverse Transformer Portfolio for Renewables

· Smart Monitoring & Connectivity

Features ultra-low no-load loss, saving up to 70% energy compared to traditional cores. Ideal for solar plants where intermittent generation requires minimal standby power consumption.

· American-Style Pad-Mounted Transformers

A compact, "dead-front" design with integrated HV/LV protection. Widely used in Commercial & Industrial (C&I) rooftop solar projects across the Americas and Asia.

· Dry-Type Cast Resin Transformers

Fire-resistant and maintenance-free. Perfect for indoor solar integration or sensitive rooftop environments where oil-filled units are restricted.

Global Standards & Quality Assurance

· Compliance with International Standards

Our products are engineered and tested strictly according to IEC, ANSI/IEEE, and EN standards, ensuring seamless grid integration worldwide.

· Comprehensive Quality Testing

Every unit undergoes mandatory tests including Insulation Resistance (Megger), Turns Ratio (TTR), and Dielectric Strength (BDV) before shipment.

· Customization & Technical Support

We offer tailored engineering for specific voltage ratios, cooling configurations, and harsh environment coatings (C4/C5-M).

Specialized Adaptation & Technical Commitment

· Extreme Cold Resistance (-50°C)

Engineered with specialized sealants and low-temperature resilient steel to ensure stable operation in Russia and CIS regions.

· C5-M Harsh Environment Protection

Available with high-grade C4 or C5-M anti-corrosion coatings for long-term durability in coastal or high-humidity solar farms.

· Solar & BESS Optimized Step-Up

Specifically designed for the "low-to-high" voltage step-up process required for modern PV and Battery Energy Storage Systems (BESS)

· Global Standards Compliance

All products are strictly manufactured and tested according to IEC and ANSI/IEEE standards to ensure global grid compatibility.

Photovoltaic transformer (Solar Transformer)