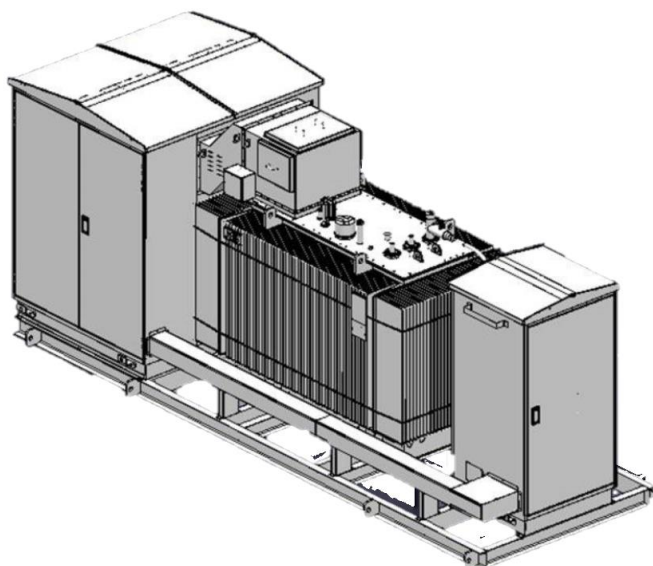





Secondary Skid Unit


Solar power collection application with string inverter



 **High safety** – arc suppressor increases the arc safety

 **Reliability** – pre-engineered product reduces the risk of failure

 **Maximal efficiency** – open air cooling for maximal efficiency of transformer

 **Low cost of ownership** – pre-designed and tested unit reduce installation and commissioning cost

A Secondary Skid Unit (SSU) is an assembly comprising of MV switchgear, transformer and Low voltage switchboard for power collection in solar generating plants. The SSU is the power collection unit which converts the solar energy generated by the string inverters into a usable medium voltage grid voltage. The SSU is a plug-and-play solution usually installed as close as possible to the solar strings, enabling solar power to be easily and rapidly connected to the electrical grid.

Features

- Simple and quick installation – pre-tested unit at the factory, drop in place and connect cables
- Pre-engineered products reduce commissioning time at site while reducing risks
- Engineered for efficient cooling in order to extend the life of the equipment
- All ABB designs are green to support the environment
- No exposed live parts, safe for operator and personnel
- SCADA ready
- All equipment contained in the SSU is type tested according to their relevant standards
- Easy access to equipment for visual inspection and service
- Open-air cooling for maximum efficiency of transformer
- Compact and easily transportable using standard transportation equipment
- Locking system for MV compartment to prevent unauthorized entry

Medium voltage

The SSU can be equipped with SF6 and non SF6 insulated ABB medium voltage secondary switchgear

- SafeRing/SafePlus
- SafeRing Air/SafePlus Air
- SafeRing Airplus/SafePlus Airplus
- SafeRing/SafePlus36

Transformer

The SSU can accommodate hermetically sealed oil type transformer with 1 or 2 secondary windings. Transformer can be provided with several options:

- key interlocked LV and MV cable covers ensuring access to the live parts only in case of safe condition
- DGPT protection relay including gas discharge contact, oil temperature alarm and trip contacts, pressure contact
- PT100 oil temperature sensors
- Oil container with a provision to release the rainwater but keep oil in case of leakage
- Natural ester oil

Power ratings of SSU are aligned with the most common inverter power ratings.

Low voltage

SSU is capable to accommodate one or two low voltage switchboards with different options:

Incoming from transformer – Air circuit breaker

String inverters connection – fuse switch disconnecter or MCCB
SPD device type 2

Additional equipment

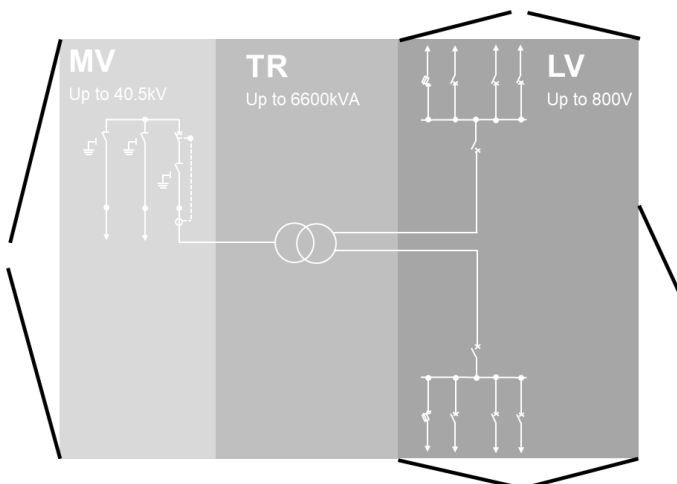
- Devices for metering and control circuit available
- Smart Grid ready for easy connection to any SCADA System through standard communication protocols
- Remote Terminal Unit (RTU) to monitor the CSS and store data for operation, maintenance and fault analysis. Local and remote monitoring and commands available
- Smart Grid compatibility provides supervision and operation of all substations from a central office by utilizing end user communication infrastructure and ABB Station Automation device
- Advanced medium voltage fault management ensures automated fault localization, network reconfiguration and restoration in case of overcurrent or earth faults providing reduced fault consequences cost and improvement of network performance KPIs.

Installation

- Complete factory-delivered solution with only external connection to be done at site, resulting in significantly reduced installation time
- Can be shipped with transformer installed at factory
- Completely preassembled and tested at factory

Technical data

Max power	6600 kVA
Operating temperature range	From -25 to +40°C
Short circuit withstand current of SSU earthing circuit	20 kA, 1 s
Rated voltage MV	Up to 40.5 kV
Rated current MV	Up to 630 A
Short time withstand current MV	Up to 25 kA 1s
Rated voltage LV	Up to 800 V
Nr of string inverters	185 kVA 800V – up to 36 PC 250 kVA 800V – up to 26 PC
Auxiliary transformer	Up to 10kVA
Overall dimensions (LxWxH)	7350x2375x2925 mm
MV compartment IP protection degree	IP 43 IP54 as an option
LV compartment IP protection degree	IP 23D IP54 as an option
MV cabling	XPLE Al or Cu. The cross section is selected to fulfill short circuit requirement of the arrangement
MV terminations	MV SWG side – Pre-molded screened separable connector
LV connection to transformer	Double insulated cable sized according to the rated power of transformer
Corrosion protection	C4M
Weight (approximate)	16000 kg



Technical data and types with 185kVA 800VAC string inverter

Inverter, kVA	185	185	185	185	185	185	185	185	185
Nr of inverters	14	16	18	20	22	24	28	32	36
TR power	2590	2960	3330	3700	4070	4440	5180	5920	6660
Connection with fuse switch disconnecter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connection with breaker	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No
Nr. of secondary windings	1	1	1	1	2	2	2	2	2

Technical data and types with 250kVA 800VAC string inverter

Inverter, kVA	250	250	250	250	250	250	250	250	250
Nr of inverters	8	10	12	14	15	18	20	24	26
TR power	2000	2500	3000	3500	3750	4500	5000	6000	6500
Connection with fuse switch disconnecter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connection with breaker	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Nr. of secondary windings	1	1	1	1	2	2	2	2	2

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