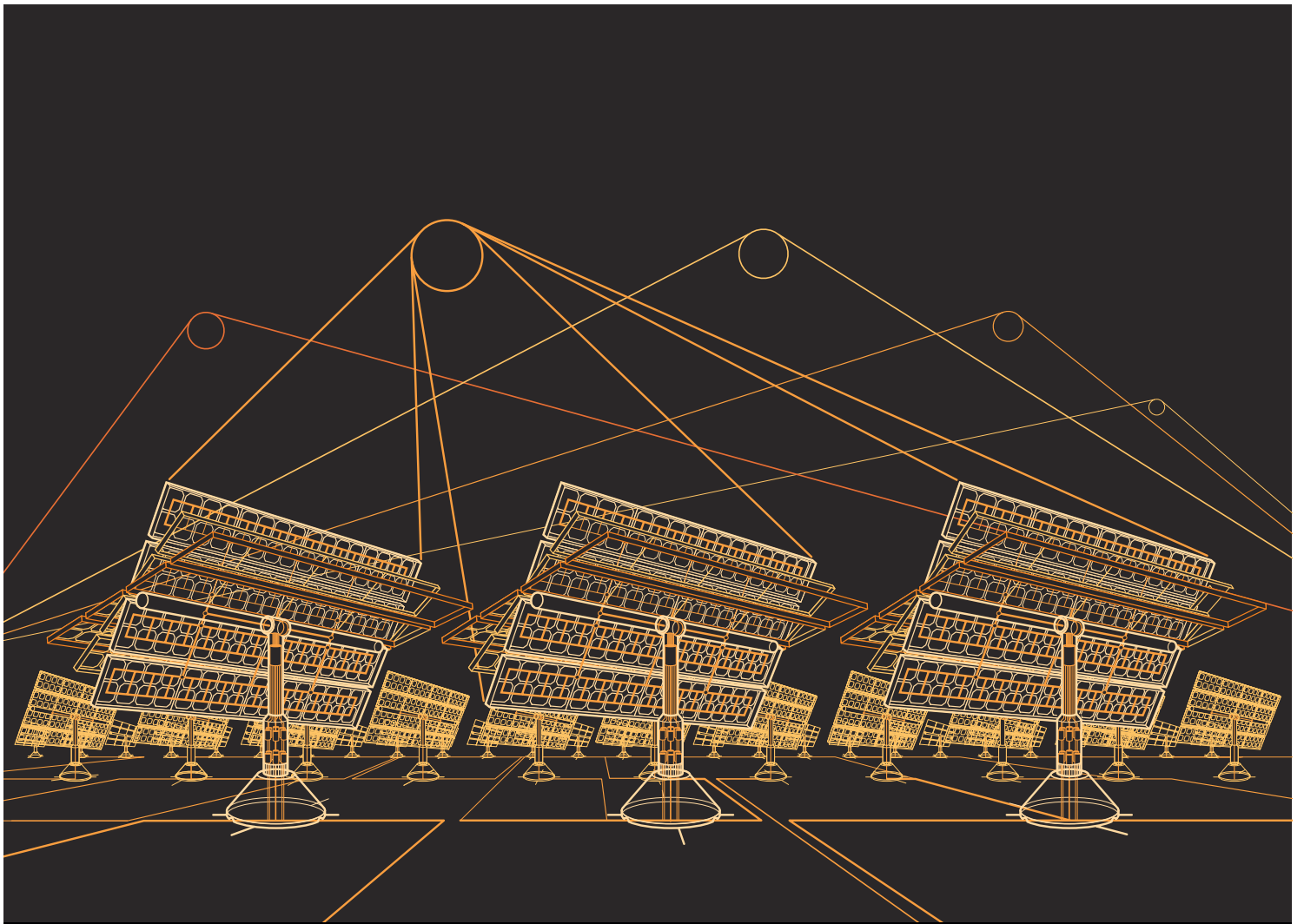




Power Generation

Photovoltaic power plants

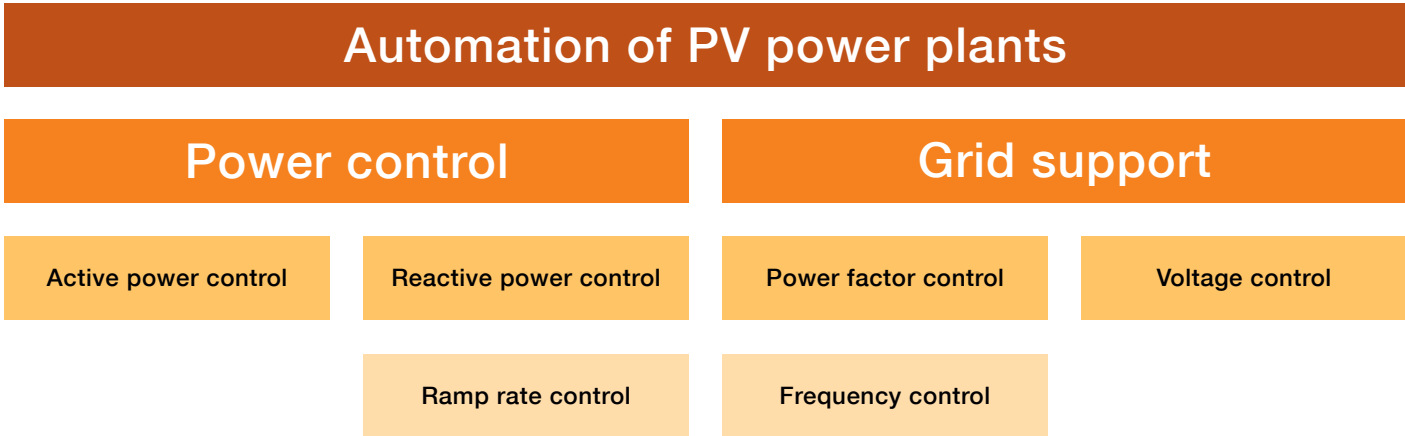
Comprehensive automation solutions and services

Power and productivity
for a better world™



High performance automation solution

ABB’s automation solution for PV power plants ensures grid code compliance at all times, everywhere. It offers not only control over the power produced but also grid support functions to facilitate integration in power systems.



As solar power continues to grow, plant automation and control becomes more important. It comprises all the necessary intelligence to turn the solar energy into a reliable and flexible power source. As leading automation provider, ABB offers a high performance automation system for solar plants. Symphony

Plus for Solar combines our experience in automation with the expertise in solar industry to ensure maximum production at all times. Field proven PLC and SCADA system accompanied by dedicated control and diagnostics functions assure reliable power production and grid code compliance at all times.

Plant monitoring

A real-time SCADA system monitors all relevant plant devices, including the string monitoring boxes, meteorological station, inverters, transformers, switchgear and the substation.

- Acquires data from inverters and other devices through various protocols and wired I/O
- Supports a broad ranges of communication protocols, e.g. IEC 60870-5-101/104, DNP3, OPC, Modbus
- Data acquisition from the Substation and direct connection to the IEDs through 61850
- Supports connection to any other plant device like STATCOM, Capacitor Banks, Energy Storage
- Performance monitoring & reporting of all stages across production chain

Plant control

A software library in the control system coordinates the plant’s active and reactive power production to comply with the grid codes.

- Central plant controller coordinates all inverters to achieve the required control command
- Limits power production (active and reactive) of the plant according to requested setpoint
- Controls the ramp rate of power production according to specifications in grid codes
- Provides power factor, voltage and frequency control at the point of connection to the utility grid
- Accounts for outages and scheduled maintenance of the inverters

PV Remote – a complete portfolio of services

The ServiceGridSM offering provides comprehensive services that address the full range of remote monitoring and plant maintenance. This improves plant availability and performance.

Services		Core	Select	ProActive	Enterprise
Remote Monitoring	Web access support	✓	✓	✓	✓
	Data hosting	✓	✓	✓	✓
	Portfolio-wide reports and dashboards	✓	✓	✓	✓
	Monitoring and alerts service 24x7x365	✓	✓	✓	✓
	Phone support 24x7x365	✓	✓	✓	✓
	Data validation, editing	○	✓	✓	✓
	Customized reports and dashboards	○	✓	✓	✓
	Telecontrol service			✓	✓
	Health and safety support			✓	✓
	Management of warranties			✓	✓
	Preventive maintenance			○	✓
	Corrective maintenance			○	✓
	Designated support leader			✓	✓
	Guaranteed intervention and fixing time			✓	✓
	Spare parts			✓	✓
	Performance and availability guarantee			✓	✓
	Logistics (handling of spare parts)			○	✓
Full O&M	PV panels cleaning			○	✓
	Grass cutting, Snow removing			○	✓
	Site maintenance (cleaning, civil works, etc.)			○	✓

Options				
Key components retrofit	○	○	○	○
PV energy forecast app.	○	○	○	○
Predictive maintenance apps.	○	○	○	○
Power plant optimization	○	○	○	○

○ = Optional ✓ = Included

Grouped in four levels, these services are provided by a remote service center, where an array of tools and experts are available to customers. Single or multiple plants can be monitored and serviced from the remote service center. In addition to a state-of-the-art web portal which provides

data access, it offers advanced services such as alarm management, performance calculations, predictive maintenance applications, etc.

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