

INTELIGEN 500 G2

PV Control for Simple Hybrid Sites

One controller for grid + genset + PV coordination

TECHNICAL SOLUTION PRESENTATION

RIGHTTECH E.A.S INDIA PVT. LTD.

Hybrid power management | DG synchronization | PV integration

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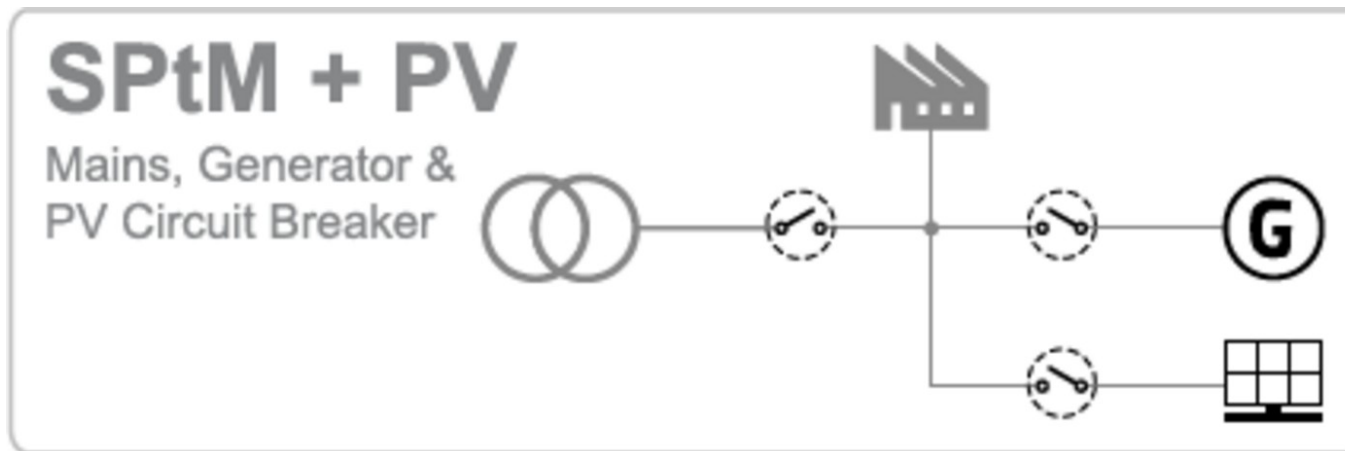
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One controller coordinates the complete hybrid site

REFERENCE TOPOLOGY



The IG500 G2 manages the mains, generator and PV breakers as one coordinated system.

SYSTEM CAPACITY

No extra gateway

3

breakers controlled
MCB | GCB | PVCB

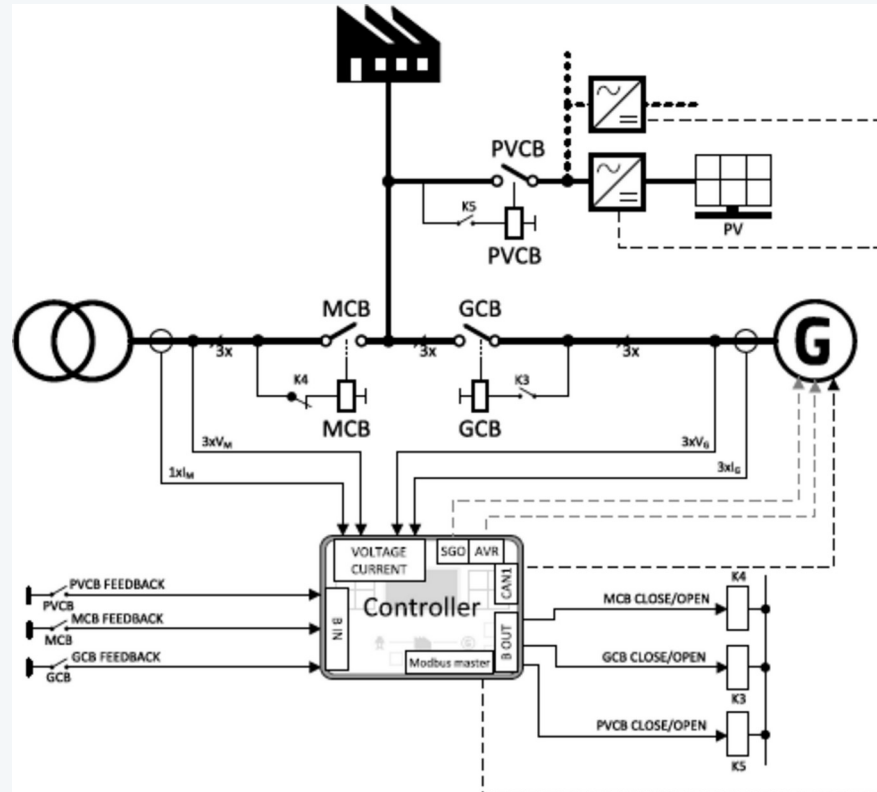
8

PV inverters
configurable per site

10

ECU devices total
in one configuration

The reference architecture is built for one-genset hybrid sites



Reference schematic - final site SLD must reflect actual breakers, protection and metering.

APPLICATION BOUNDARY

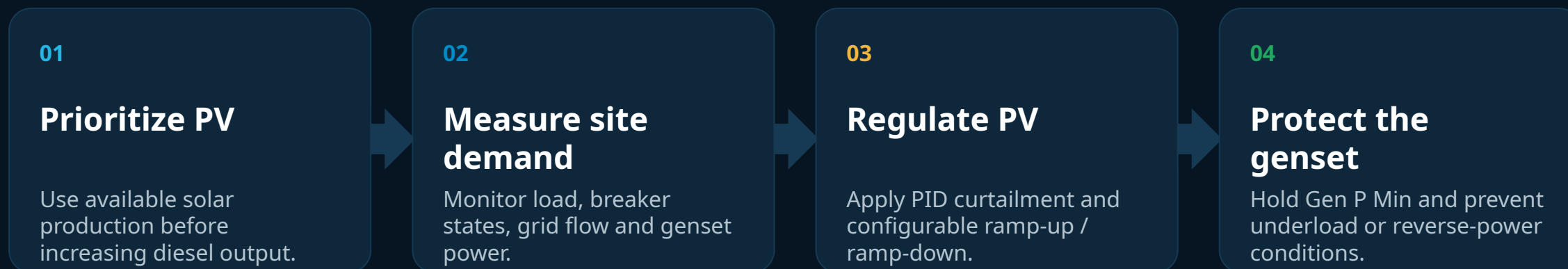
Supported configuration

- 1 genset + grid connection + PV inverters
- SPtM / PTM control with AMF capability
- MCB, GCB and PVCB control with breaker feedback
- Sites without a dedicated PVCB are also supported
- Genset + PV operation without a mains incomer, when required

MULTI-GENSET MINT OR BESS INTEGRATION

Use the IntelliNeo family for these applications.

PV is maximized without allowing genset underloading



CONTROL LEVERS

Curtailment

Gain and integral settings determine the PV limiting response.

PV ramping

Configurable times manage the transition between 0% and 100% PV power.

Power factor

A configurable PV PF request is sent directly to compatible inverters.

Three operating approaches cover the main site conditions

01

Baseload mode

Genset + PV provide the baseload. The genset holds Gen P Min while PV supplies the balance and the genset tops up any shortfall.

Stable genset loading with maximum practical PV contribution

02

Import / export mode

The controller maintains a constant mains import or export target while genset + PV cover the remaining site demand.

Supports zero-export and limited-export strategies

03

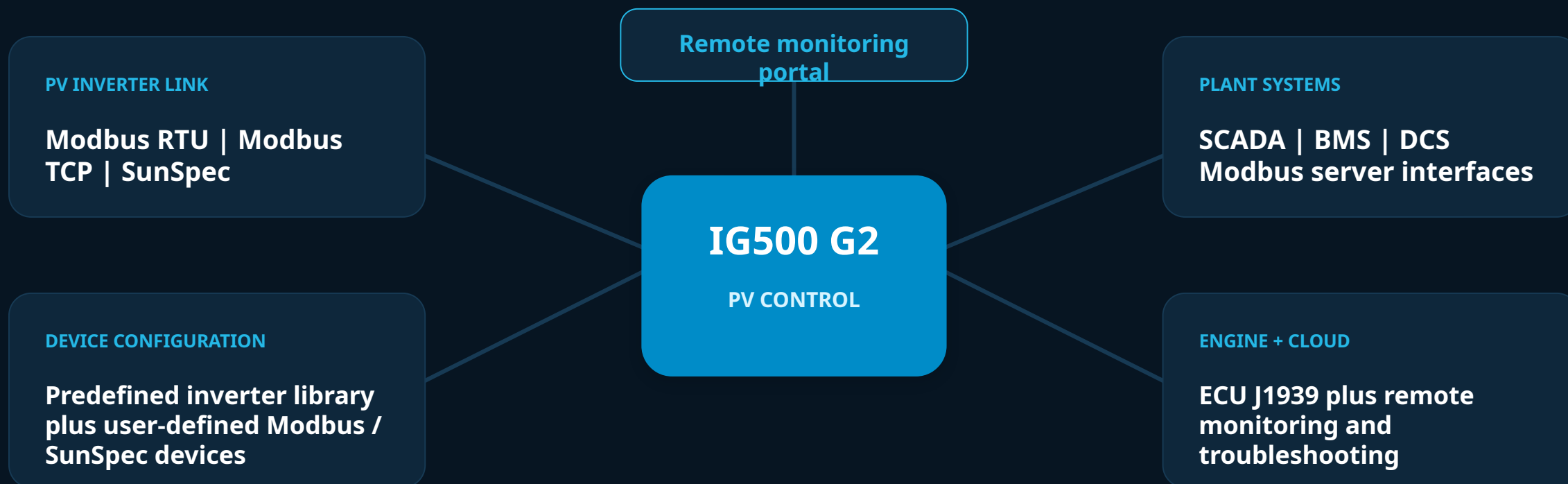
Genset + PV mode

Where required, the application can operate without a mains incomer, coordinating the genset and PV on the isolated bus.

Hybrid operation remains available when grid supply is absent

Across modes: AMF + forward/reverse synchronization + solar-genset synchronization

Inverter and plant integration are built into the controller



CLOUD TELEMETRY LIMIT

Maximum 8 data points per PV inverter in the cloud path. Full detail remains available locally over Modbus / SunSpec or via SCADA, BMS and DCS.

DIAGNOSTIC DEPTH

32nd

harmonic THD measurement on voltage and current

500

event log entries for post-event analysis

L2

ISA / IEC 62443-aligned cybersecurity

Protection and diagnostics remain at power-system grade

SELECTED ANSI PROTECTION COVERAGE

Grid quality 27 | 47 | 59 | 78 | 81O / 81U / 81R

Under/overvoltage, imbalance, vector shift, frequency and ROCOF

Power and current 32P | 32R | 40 | 46 | 50 / 51 | 50G

Overload, reverse power, loss of excitation, unbalance and overcurrent

Synchronization and breakers 25 | 50BF | 52 | 79 | 83 | 90

Synch-check, breaker failure, reclosing, transfer and regulating functions

Engine and process 12 | 14 | 49T | 63 | 71

Speed, temperature, pressure and liquid-level protection

Some functions require an IGL-RA15 extension or relevant feature support; confirm final protection scope during engineering.

Operators see the site locally and remotely

LOCAL HMI

- Live genset power, frequency, voltage and engine gauges
- Breaker position indication and MCB / GCB control
- Aggregate PV power plus per-inverter values for PV 1 to PV 8
- Curtailment output, run request and operability status
- Lifetime, annual, monthly, weekly and daily PV energy statistics



Local data remains available to SCADA / BMS / DCS over Modbus, with cloud monitoring for remote support.

Operational value: faster diagnosis, clearer breaker status and direct visibility of PV curtailment behavior.

The deployment boundary is deliberate

STRONG FIT

Use IG500 G2 PV Control when the site has:

- One genset with grid parallel / AMF operation
- Up to eight PV inverters
- Zero-export, limited-export or baseload objectives
- A need to avoid a separate PV master / gateway
- Local Modbus integration with SCADA, BMS or DCS

USE THE INTELINEO FAMILY

Choose a broader platform when the project requires:

- Multi-genset MINT applications
- Battery energy storage system (BESS) integration
- More complex multi-source power-management architectures
- A configuration outside the single-genset PV control scope

Cloud note: 8 data points maximum per inverter; use local Modbus / SunSpec or SCADA for richer per-inverter telemetry.

Savings depend on engineering inputs, not generic promises

The controller provides the control tools; the project design determines the result.

01

Load profile

Demand, transients and critical operating periods

02

+ PV yield

Available irradiance, inverter capacity and seasonal output

03

+ DG fuel curve

Specific fuel consumption and minimum stable loading

04

+ Grid rules

Export permission, setpoint limits and protection requirements

OPTIMIZED HYBRID OPERATION

Maximize usable PV while maintaining genset health and grid compliance

Lower diesel use

Prioritize PV and reduce unnecessary genset contribution.

Simpler architecture

Remove the need for a separate PV master controller.

Export control

Hold zero, limited or defined grid-flow targets.

Protected operation

Maintain Gen P Min and controlled PV transitions.

A disciplined commissioning sequence converts the concept into a reliable plant



PRE-RELEASE VALIDATION

Confirm current firmware, Feature Key SKEFPVCTRLX, grid-code requirements, ANSI protection scope and cloud data-point limits against the latest ComAp documentation.

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Engineer the hybrid system around your real site data

Share the SLD, load profile, DG ratings and PV inverter list to begin the technical proposal.

PROJECT CONTACT

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ComAp 

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**Hybrid Controllers DG + GRID + PV
Synchronization Load Management**

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