PRIVATE-WIRE ENERGY SOLUTION

GridLink G99 Variant

5 MVA · G99 Fault-Ride-Through Compliant

A controlled power-electronics interface that connects local generation directly to local demand — islanded or grid-parallel — with fault ride-through and fast fault current injection engineered to G99.

A Smarter Way to Connect Local Generation Directly to Local Demand

GridLink provides a controlled electrical interface between a generator and a private consumer, delivering part or all of the generator's output directly to site — either as an islanded supply or as part of a dual connection operating in parallel with the public grid. At its core is a power electronics converter that manages voltage, frequency and active power flow, ensuring energy is delivered safely, predictably, and in accordance with applicable network and equipment standards.

Direct Private-Wire Supply

Delivers part or all of a generator's output directly to a private consumer, avoiding unnecessary export to the public grid.

Islanded or Grid-Parallel

Operates as a standalone islanded supply, or in parallel with an existing grid connection while maintaining controlled power flow.

Higher-Value Generation

Enables direct energy sales to a private consumer at a higher unit value than conventional grid export, improving project revenue.

Lower-Cost Supply

Gives consumers access to locally generated electricity, typically at a lower unit cost than the public grid, improving security of supply.

G99 Fault Ride-Through

Output stage engineered to meet fault ride through (FRT) and fast fault current injection (FFCI) as defined within G99.

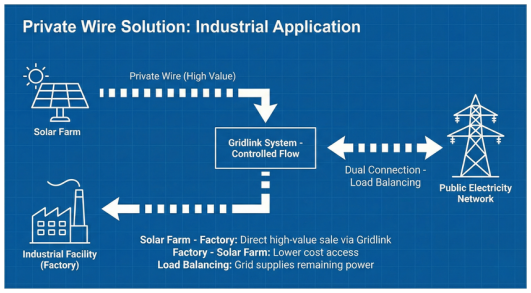
Modular & Future-Ready

Factory-assembled, outdoor-rated architecture that adapts to different network voltages, generation technologies and loads.

GridLink private-wire concept — connecting local generation (solar, wind) directly to local demand (industrial, commercial, residential)

Example: Industrial Application

A solar farm sells power directly to an industrial facility at high value via GridLink. Lower-cost access flows back the other way, and the public electricity network provides load-balancing on a dual connection.



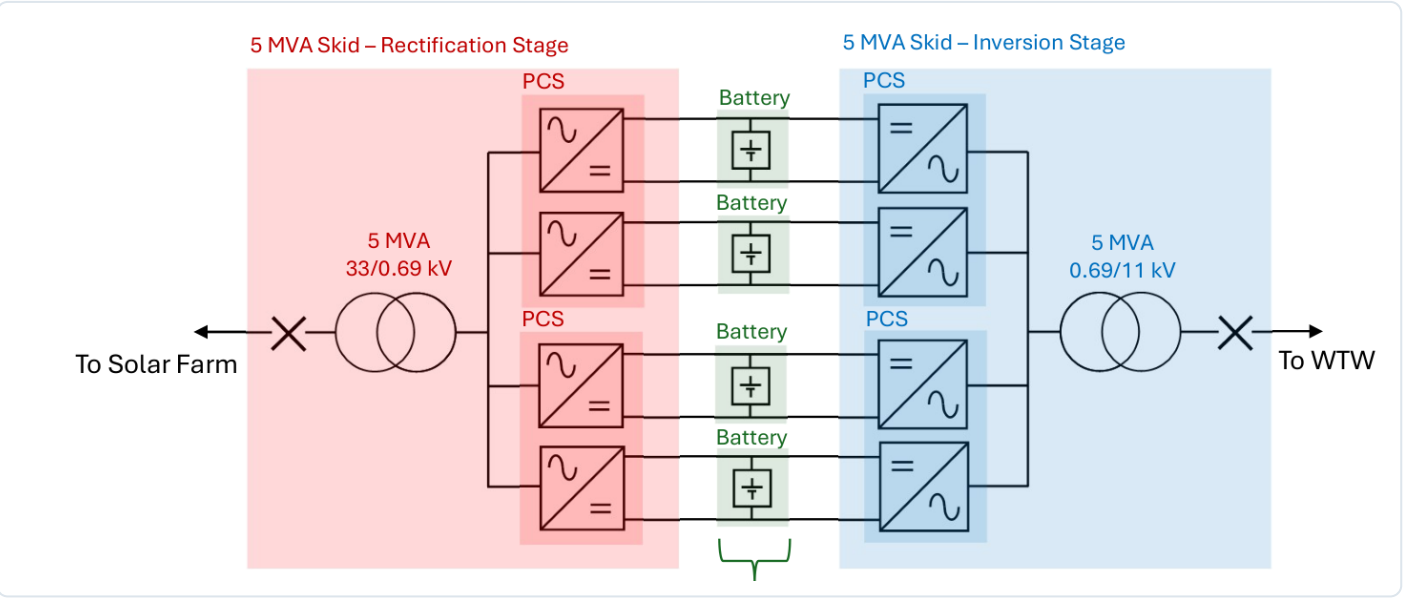
Private wire solution — industrial application, with dual connection load-balancing to the public network

5 MVA	G99	IP54/55	10 YR	C3/C5M
RECT + INVERSION CAPACITY	TUV RHEINLAND CERTIFIED	SKID / BATTERY ENCLOSURE	BATTERY DESIGN LIFE	ANTI-CORROSION GRADE

Applications

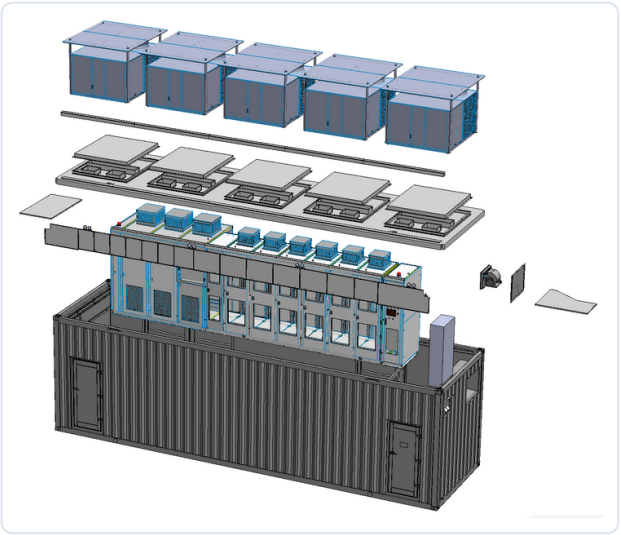
- Solar Farms
- Private-Wire Networks
- Industrial Facilities
- Utilities
- Infrastructure Operators
- Renewable Energy Projects

GridLink Power System Architecture — G99 Variant



Rectification stage (33/0.69 kV) — DC link with battery voltage support — inversion stage (0.69/11 kV) — from solar farm to water treatment works (WTW)

- **Rectification stage** maintains DC link voltage.
- **Inversion stage** provides PQ (active/reactive power) control on the output.
- **DC link batteries** provide DC link voltage support only in the event of external system voltage collapse — no capability to provide energy storage services (e.g. DC, DM or DR frequency support).
- **DC link cabling** supplied by others; external communications architecture to be agreed per project.
- **Power conversion system (PCS) blocks** are certified against G99 by TUV Rheinland.
- **5 MVA skid**: 33/0.69 kV rectification transformer, 0.69/11 kV inversion transformer, ONAN cooling, IP54, C3 anti-corrosion grade.



Containerised skid — exploded assembly view showing PCS modules, roof panels and switchgear bays

4
PCS MODULES PER STAGE

2
DC-LINKED CONVERSION STAGES

Factory-Built, Site-Proven

Each GridLink skid is factory-assembled and tested as a complete containerised unit before shipping, minimising on-site installation time. The design is proven in the field, with outdoor-rated enclosures and solar canopy options for site power at deployment.

Fault Ride-Through & Fast Fault Current Injection — The G99 Variance

- The earlier converter iteration was based on a modified off-the-shelf variable-speed drive, designed only to transfer active power — it could not perform fault ride through (FRT) or fast fault current injection (FFCI) as defined within G99.
- Under that architecture, the solar farm's own generation equipment had to satisfy FRT/FFCI, with an interlock preventing the converter from operating while the solar farm was disconnected from grid.
- The regulatory interpretation of G99 has since changed: the converter's output stage must now perform FRT and FFCI directly.
- This has driven a change in converter equipment and system architecture to the current **G99-compliant variant**.

G99 Performance Requirement	Original Variant	New G99 Compliant Variant
Reactive power capability across the voltage range	Yes	Yes
Voltage control and reactive power stability	Yes	Yes
Fault ride through & fast fault current injection	No	Yes
Limited frequency sensitive mode — overfrequency (LFSM-O)	Yes	Yes
Limited frequency sensitive mode — underfrequency (LFSM-U)	Yes	Yes

The G99-compliant 5 MVA skid — footprint and interfaces unchanged from the original variant

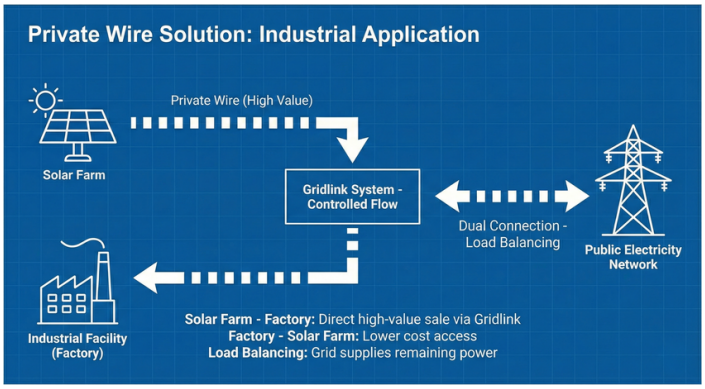
Why it matters: the New G99 Compliant Variant closes the single compliance gap in the original design — FRT and FFCI are now performed by the converter's output stage itself, removing dependency on the generator's own ride-through capability and the disconnection interlock.

G99 Compliant **TUV Rheinland Certified**

FRT Verified **FFCI Verified**

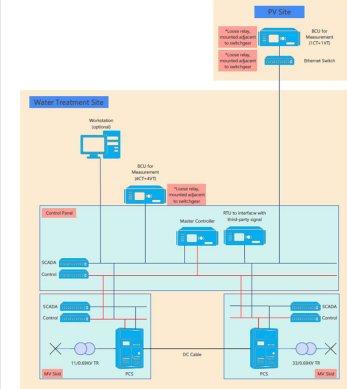
What Is G99?

Engineering Recommendation G99 is the UK grid code governing the connection of generating plant to distribution networks. It sets requirements for fault ride-through, fast fault current injection and frequency response so that embedded generation supports, rather than destabilises, the wider network — directly relevant wherever a GridLink installation operates in parallel with the public grid.

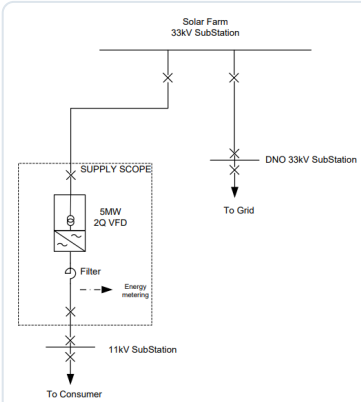


Engineered for Network Compliance

- Complies with applicable regional and international standards governing **network voltage and frequency limits**, **power quality and harmonic performance**, and **electrical safety and equipment design**.
- Engineered to meet the compliance requirements of local utilities and regulatory authorities applicable to the project location.
- Indicative SCADA / control architecture spans both ends of the private wire — generation site and consumer site — via a master controller, RTU and BCU measurement units on each MV skid.
- Communications architecture shown is indicative at proposal stage; exact interfaces (SCADA, control, third-party RTU signal) to be agreed per project.
- Single-line supply scope runs from the solar farm 33 kV substation, through the 5 MW converter and energy metering, to the 11 kV substation and consumer — with a separate connection from the DNO 33 kV substation to grid.
- Interlock and protection coordination maintained at the point of common coupling to preserve network stability.



Indicative communications architecture — PV site and consumer site (e.g. water treatment) linked via SCADA/control network



Indicative single-line supply scope — solar farm to 11 kV consumer connection, with separate DNO 33 kV grid link

Point of connection: the 5 MW converter and energy metering sit within the defined supply scope between the solar farm's 33 kV substation and the consumer's 11 kV substation. The DNO's 33 kV substation connects separately to the public grid, keeping the private-wire and public network paths distinct while both remain available.

Outdoor Container

Islanded Mode

Dual Grid-Parallel Mode

SCADA / Remote Monitoring

Compliance Documentation

Type-test reports, G99 witness-test certificates and TUV Rheinland certification are available to support DNO connection applications and project due diligence.

Project-Specific Assessment

Voltage step, fault level and protection studies are carried out per project to confirm the point-of-connection design meets the local DNO's specific G99 requirements.

5 MVA G99 Variant — Technical Specifications

5 MVA POWER CONVERSION SKID	
Dimensions (W×H×D)	6058 × 2896 × 2438 mm
Weight	24,300 kg
Enclosure rating	IP54
Anti-corrosion grade	C3
Transformer cooling	ONAN
Certification	**G99 (TUV Rheinland)**
BATTERY ENCLOSURE	
Dimensions (W×H×D)	1300 × 2350 × 1350 mm
Weight	3,700 kg
Enclosure rating	IP55
Anti-corrosion grade	C5M
Design life / warranty	10-year design life, 2-year warranty
Function	DC link voltage support only — no DC/DM/DR frequency energy-storage services

DC link cabling by others. External communications architecture to be agreed per project. Figures are indicative and subject to change without notice — contact RED for project-specific ratings and certified data.

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Why RED & Severn

Renewable Energy & Drives and Severn Drives & Energy engineer, build and support GridLink from a single point of contact — from grid-code compliance and project-specific ratings through to factory testing and commissioning.

Next Steps

Contact either facility with your generation and demand profile, network voltage, and target commissioning date, and we will confirm the GridLink configuration and compliance route for your project.

“Providing solutions and assuring you of our closest attention at all times”