

Re-defining the utility-scale inverter

Conext SmartGen™

We believe in green energy—in the ability to meet and contribute to growing power demands while supporting a smart grid that serves a smart society.



Solution at a glance

Far more than a new inverter, the Conext SmartGen™ is the new paradigm for large-scale renewable power installations. It provides greater efficiency in power generation with lower short-term and long-term costs, and a far longer service life.

Key Benefits:

- **More power generation and a longer service life:** 30+ year service life and conversion efficiency of 98.6% Peak, 98.4% CEC
- **Lower CAPEX:** 1500VDC system with fewer inverter stations, less equipment and less wiring
- **Lower OPEX:** True Design for Service™ and cloud connectivity for fewer service calls
- **Deploy everywhere:** designed and tested for any environment and application—PV and Energy Storage, on-grid, off-grid or microgrid
- **Secure:** backed by a bankable company with 180 years of history

Global specialist in energy management

180 years of history

160,000+ total workforce in 100+ countries

5% of Group revenues devoted to annual R&D spend

True Bankability with Schneider Electric

€27 billion in consolidated revenue

€2.1 billion adjusted net income

7 GW

More than 7GW of Schneider Electric's utility scale inverters installed worldwide

Reliable and cloud-connected

Conext SmartGen™

Lifetime reliability

Through the most stringent selection and qualification of components, the Conext SmartGen is designed to have a 30 year lifespan with just one major preventive maintenance at mid-life in worst case conditions.

The most demanding reliability and environmental testing methodology, developed over 15 years experience in the PV industry, has been applied to ensure that the SmartGen maintains adequate operating margins over its entire lifetime, in even the most severe environments.



Desert



Ocean



Continental



Tropical

- Built to last in the most severe environments (desert, tropical, continental, sea shore, high seismic)
- Greater uptime for increased power generation

True Design for Service™

Ease of service was the driving force behind big and small decisions that shaped the Conext SmartGen.

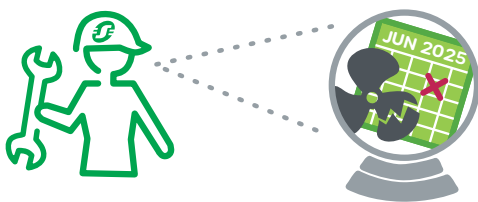
From a comprehensive suite of diagnostics, troubleshooting and maintenance tools to quickly replaceable sub-assemblies, every step of servicing has been meticulously optimized to minimize operating expenses.



- Designed for one hour mean time to repair and first time fix rate >97%
- Advanced configuration and service tool with full local and remote functionality
- Immediate access to all field replaceable systems and components

Predictive maintenance

Advanced Predictive Maintenance algorithms running in the Power Cloud enable remaining lifetime estimation of major components, as well as failure prediction.



- Predict when components or systems may fail, ensuring they can be replaced just in time (not too early, and not too late)
- Enhanced Predictive Maintenance functionality for network connected inverters through advanced Cloud Computing

Advanced configuration and service tool

Conext™ Viewer is a powerful software utility that connects to the inverter locally (via Wi-Fi or wired Ethernet), and remotely allowing for easy and intuitive interaction with the inverter.

Advanced troubleshooting, high resolution oscillography, lifetime service logging, remote firmware upgrades, online service documentation and help files—all the power and capabilities of the digital world supporting your Conext SmartGen inverter.

- Reduced learning curve that increases user satisfaction and minimizes risks
- Incorporated help mechanism that enables service personnel to do fast and accurate troubleshooting

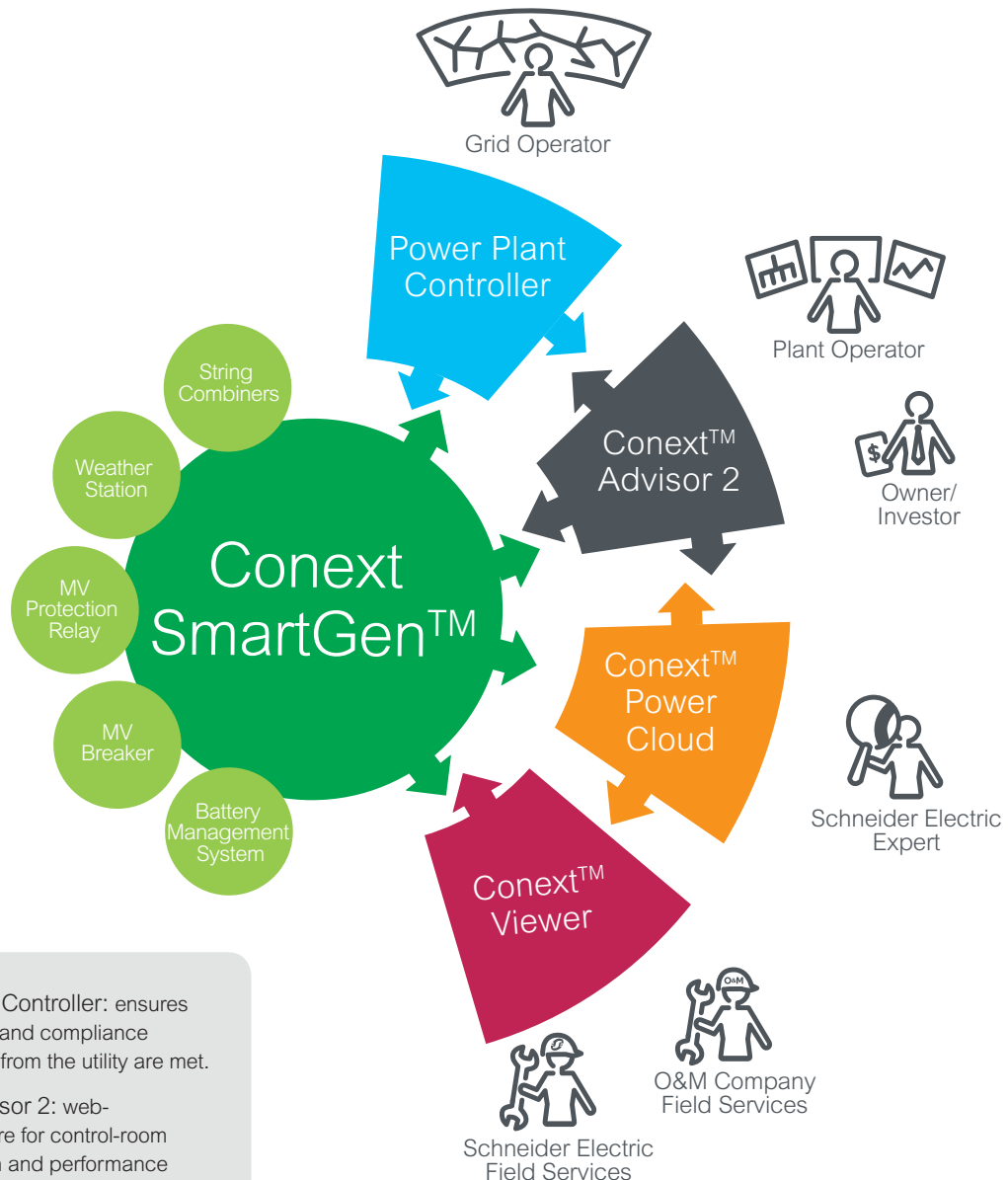


See “True Design for Service” and “Power of Data” brochures

Part of a complete solution

Power EcoSystem™ by Schneider Electric

The Conext SmartGen is at the center of Schneider Electric's Power EcoSystem—a suite of integrated applications that provide remote control, visibility, and analytics for owners, operators and service staff. In addition to the Conext SmartGen, our full ecosystem of products and solutions work together to secure your return on investment.



Power Plant Controller: ensures that requests and compliance requirements from the utility are met.

Conext Advisor 2: web-based software for control-room administration and performance management of PV power plants.

Conext Power Cloud: data mining and data collection tool for advanced predictive maintenance and better remote service support.

Conext Viewer: configuration and service software, including diagnostics, troubleshooting tools, and contextualized help.

Product specifications

Conext SmartGen™

Device short name	CS 1670	CS 1800	CS 2000
Electrical specifications			
AC			
Nominal output power at 45°C	1670 kVA	1791 kVA	2000 kVA
Nominal output power at 50°C	1570 kVA	1684 kVA	1880 kVA
Nominal output voltage	480 V	515 V	575 V
Nominal frequency	50/60 Hz	50/60 Hz	50/60 Hz
Maximum output current at 45°C	2008 A	2008 A	2008 A
Maximum output current at 50°C	1888 A	1888 A	1888 A
Continuous operation output voltage range	+/- 20% (384 - 576 V)	+/- 20% (412 - 618 V)	+/- 20% (460 - 690 V)
Continuous operation frequency range	50 / 60 Hz +/- 10%	50 / 60 Hz +/- 10%	50 / 60 Hz +/- 10%
Power factor	0 to 1 lead/lag	0 to 1 lead/lag	0 to 1 lead/lag
Harmonic distortion (THDI)	< 3% at rated power	< 3% at rated power	< 3% at rated power
Peak efficiency ²	98.6% (Target)	98.6% (Target)	98.6% (Target)
Weighted efficiency (EU weightings) ²	98.2% (Target)	98.2% (Target)	98.4% (Target)
DC			
Nominal input voltage range, MPPT ¹	750 V - 1500 V	800 V - 1500 V	890 V - 1500 V
Max. input voltage, open circuit	1500 V	1500 V	1500 V
Max. input operating current at 45°C	2272 A	2285 A	2293 A
Max. input operating current at 50°C	2136 A	2148 A	2156 A
Max. input short-circuit current	6000 A	6000 A	6000 A
Max. input short-circuit current at STC conditions	4480 A for UL models / 5600 A for IEC models		
DC combiner	Integrated	Integrated	Integrated
Number of DC inputs	10 to 14	10 to 14	10 to 14
DC fuse rating	160A to 400A		
General specifications			
Service life	30 years ³	30 years ³	30 years ³
Power consumption, night time	< 156 W (Target) ⁴	< 156 W (Target) ⁴	< 156 W (Target) ⁴
Degree of protection	Outdoor (Type 4X / IP65) ⁵	Outdoor (Type 4X / IP65) ⁵	Outdoor (Type 4X / IP65) ⁵
Enclosure	Aluminum		
Seismic rating	IEEE 693-2005 qualification to high seismic performance levels (ZPA = 1.0g 2% damping) IBC ICC-ES AC156-2012 certification to a SDS equal to 1.78g and with a z/h equal to 0 and IP=1.5U BC Zone 4		
Product weight (estimate only)	2800 kg (6160 lb)		
Product dimensions (H x W x D)	220 x 300 x 130 cm (86.6 x 118.1 x 51.2 in)		
Ambient air temperature for operation	-40°C to 60°C (-40°F to 140°F) -40°C to -25°C (-40°F to -13°F) requires optional heaters		
Operating altitude	2,000 m without derating, up to 4,000 m with derating		
Relative humidity	5% to 100% condensing		
Features			
Type of cooling	Temperature-dependent low pressure closed-loop liquid cooling		
Graphic user interface	Conext™ Viewer application for mobile, tablet and PC		
External communication interface	RS485/Modbus standard, Modbus over TCP/IP, and Ethernet/IP™ optional		
AC/DC disconnect	Integrated load-break-rated DC and AC circuit breaker standard		
Ground fault detection/interruption	Isolation monitoring relay and pre-connection isolation monitoring relay with GFDI and RCD		
Options			
	Grounding (floating, positive grounding, negative grounding), string current monitoring, class I surge arresters, AC insulation monitoring, cold environment option (-40°C, -40°F)		
Standards			
Safety standards	IEC version: IEC62109-1, -2 / NA version: UL1741		
EMC standards	IEC61000-6-2, -6-4 ; FCC Class B ; CISPR 11 Ed. 6		
Grid interconnection	IEEE1547, California Rule 21, BDEW, CEI, French Decree, IEC61727, PEA, South Korea, CPC and more		
¹ MPPT for Power Factor 0 to 1 lead/lag. Applicable up to 40°C. Contact Schneider Electric for derating information. ² Auxiliary self consumption not included.			
³ Designed for a service life of 30 years with preventative maintenance. ⁴ Estimated 312W on a SmartGen Power System with two inverters. Average of 156W per inverter (312W/2).			
⁵ Except heat exchanger section and DC wiring compartment.			

Product options

Conext SmartGen™

Extreme Cold Option

- Cold start ability down to -40°C (-40°F)

→ Secure operation in the harshest environmental conditions

IEC and UL versions

- UL version includes NEC compliant DC disconnect switches

→ Reduced footprint
→ Easier fuse servicing

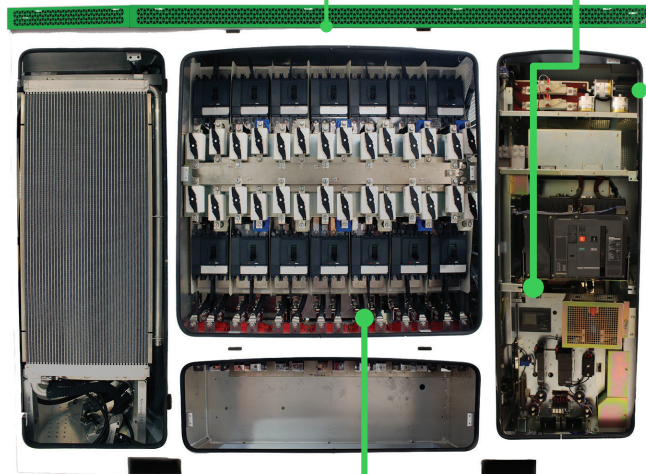
Multiple grounding options

- Floating with permanent isolation monitoring
- Negative or positive grounding with pre-connection insulation check, RCD, and GFDI protection
- Optional AC insulation monitoring

→ Enhanced personnel and equipment safety

- ### Class I surge arrestors
- Selectable on DC mains, AC mains and AC auxiliary inputs

→ Enhanced protection against lightning



Integrated Communications and Control Panel

- Modbus / TCP or Ethernet / IP gateway
- Conext Advisor 2 communications hub for all skid mounted and field equipment
- Conext Advisor 2 Programmable Logic Controller for fast controls of PV and ES inverters
- Copper or fiber optic switch for your Conext Advisor 2 communications hub

→ Wide range of communication protocols
→ Fully integrated monitoring and control hardware

Auxiliary Power Distribution Panel

- Selection of auxiliary AC voltage (100/110/120/200/220/230/240V)
- Input circuit breaker with under voltage release
- Auxiliary consumption metering
- Power supply to string combiners

→ Elimination of external low voltage panel

Varied DC Input Configurations

- 10 to 14 inputs with 160 to 400A fusing
- Input channel current monitoring

→ Wide range of overpaneling ratio