

# CAT® ENERGY CONTROL SYSTEM (ECS)

INNOVATIVE SOLUTIONS FOR IMPROVED ENERGY MANAGEMENT

**CAT ECS 100**



**CAT ECS 200**



**CAT ECS 300**



**CAT ECS 400**



**CAT®**

# CONTROLLERS THAT MEET YOUR NEEDS IN AN EVOLVING WORLD

CONSTANTLY  
CHANGING  
ENERGY DEMANDS,  
REGULATIONS, AND  
TECHNOLOGIES  
CAN BE  
COMPLICATED.  
YOUR ENERGY  
CONTROLS  
SHOULDN'T BE.

The new Cat® ECS range offers a series of integrated, connected, and scalable controllers that gives customers flexibility when managing their energy needs. Control anything from single generators to cohesive full-site hybrid solutions that link multiple assets, all with a modern and easy-to-use interface.

## THE CAT ECS RANGE

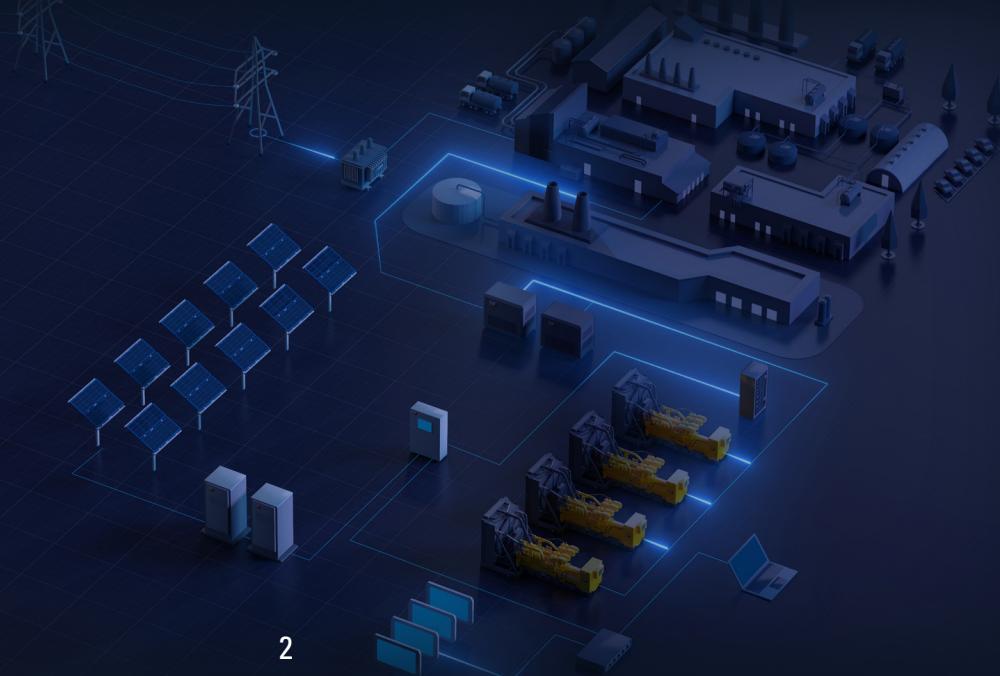
The energy landscape is shifting and so is the regulatory environment. Caterpillar's network of global engineering experts designed these controls to meet those challenges and help you adapt to change. The Cat ECS range has the flexibility, scalability, and connectivity to support your operation no matter where your energy journey takes you.

They include:

- **Cat ECS 100** – A powerful standby control system
- **Cat ECS 200** – For genset paralleling, cogeneration systems, balance of plant control, and grid code
- **Cat ECS 300** – For utility breaker control and site level applications, which include hybrid assets
- **Cat ECS 400** – For site level applications of up to 32 diverse assets

Like all Cat products, the Cat ECS range comes with the support of the worldwide Cat dealer network, with local experts available to provide full product support, including training, service, and a solid warranty. They also integrate with Cat Connect and Cat AMP services, giving you optimized power generation and use.

Be confident your site has a reliable control system that is future-proof and able to work with your power assets throughout the energy transition.



# CAT ECS RETROFIT KITS

Smarter control starts with an upgrade. We offer aftermarket upgrades that replace ECMP 4.2, 4.2B, and 4.3 controls to the Cat ECS standard for consistent, modern, and advanced functionality. Consult your dealer for full details on available retrofit kits and/or guidance on making this transition.

## CAT ECS CUSTOMIZED SOLUTIONS

You can also be confident that there's a solution for your site's unique needs. Caterpillar's experts can design, manufacture, test, and supply highly customized switchgear solutions for your total energy control needs. Benefits include:

- Full site control of assets and power flow
- Island and Grid Connected Operations with a variety of bus configurations
- Scalable and flexible systems to match your specific operational needs
- Fully integrated design optimized for Cat ECS 200 features and operation

For full details, contact your Cat dealer.

## THE BENEFITS OF BETTER CONTROL



### INTUITIVE CONTROL

New 8-inch/203 mm color touchscreens (15.6-inch/396 mm on the Cat ECS 300 and 400) provide a more intuitive user experience and simplified control, customizable to your specific business needs.



### FLEXIBILITY

User-defined tasks, integrated programmable logic controller (PLC) functionality, and additional remote human-machine interfaces (HMIs) give you greatly enhanced flexibility, safety, and site monitoring.



### VITAL DATA INSIGHTS

Full integration via Product Link™ allows remote monitoring for optimum engine efficiency.



### EASIER CODE AND REGULATORY COMPLIANCE

The Cat ECS range complies with UL 2200 3rd edition requirements, UL 6200, and major grid code requirements, including USA (IEEE1547), Germany (VDE 4110), and European Standards (EN 50549).



### DEPENDABLE SAFETY

Full automatic mains failure functionality featuring three-phase generator, mains voltage sensing, and breaker transfer pair control.



### SYSTEM PROTECTION FEATURES

Provides warnings, automatic shutdown, voltage data, and event history, while engine protection monitors fluids, temperature, and gas pressure.



### SCALABILITY

Use expanded functionality to build your energy management system from a single generator to cohesive site-level solutions by simple modular upgrades.



### SERVICEABILITY

Our global network of dealers is on hand to provide you with full product support, warranties, training, and servicing.

# CAT ECS 100

POWERFUL CONTROL FOR STANDBY AND PRIME



The first in the series of new controllers, the Cat ECS 100 comes as standard on new diesel standby, gas (fast-response), and prime power generator sets in select regions.

## FEATURES

- Uses system graphic icons and labels that allow for simple, comprehensive genset operation
- Island mode – single unit operation
- Integrated annunciation function to meet requirements of NFPA 110 for simplified site regulatory compliance
- Ethernet Modbus TCP for external communications
- Multi-language support
- Three programmable security levels
- Meets UL 6200 standards, allowing 60Hz gensets to meet UL 2200 3rd edition



[DOWNLOAD FULL CAT ECS 100 SPEC SHEET](#)



# CAT ECS 200

## PARALLELING POWER

The Cat ECS 200 builds upon the features of the Cat ECS 100 and enables paralleling of up to 32 generator sets. It's an excellent choice for genset paralleling, cogeneration, Balance of Plant (BOP) control, and grid code applications.\*

### FEATURES

- Integrated annunciator function to meet requirements of NFPA 110 for simplified site regulatory compliance
- Ethernet Modbus TCP for external communications
- Multi-language support
- Lockout provision with five programmable security levels
- IVR or CDVR voltage regulation compatibility
- Automatic/manual synchronization
- Dead bus arbitration
- Real and reactive load sharing
- Support for ring network configuration
- Load sense/load demand and load shed/load add
- Failsafe adaptive load sharing/droop operation

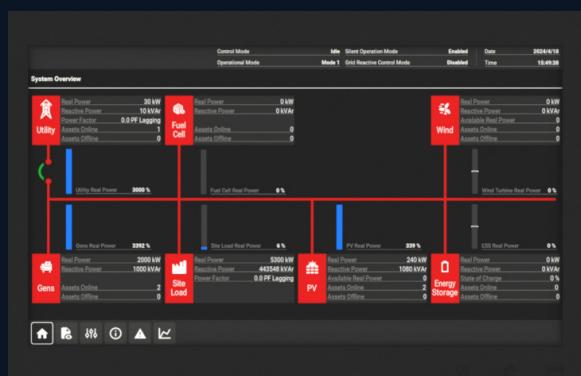


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\*Balance of Plant control and grid-code capabilities to be announced.

# CAT ECS 300

## SITE CONTROL FOR DIVERSE ASSETS WITH UTILITY OPTION



The Cat ECS 300 control system is an advanced site controller that monitors and controls up to four power generation assets concurrently, with or without the utility.

### FEATURES

- High visibility, intuitive touchscreen interface with event descriptions, system setpoints, and utility and generator monitoring, including power metering
- Ethernet Modbus TCP for external communications
- Lockout provision with two programmable security levels

### ADVANCED FUNCTIONALITY

- Soft load transition, open transition to/from utility
- Hardwire backup genset start
- Genset and utility breaker control
- Automatic load shed/load add control based on available capacity to prevent genset(s) overloading
- Grid Parallel feature with Import, Export, and Baseload capability
- High-speed communications with individual Cat ECS 200 genset controls provide the operator with control and data acquisition capability of each genset from a centralized location
- Password security system for user interface
- Interface capability with SCADA system
- Customizable for virtually any application, including tie breakers

### LOAD BREAKER CONTROL (LOAD ADD/SHED)

Load breaker control for connecting a generator set bus and a load bus is included with the Cat ECS 300 operation. The advanced programming capability of this feature allows for the controlled sequencing of up to four load shed/add stages.

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The Cat ECS 400 controller provides supervisory control and monitoring of up to 32 power generation assets. Customers can expand their existing sites by managing additional power generation assets while maximizing the use of renewable energy sources, leading to reduced fuel consumption and overall lower energy costs.

## FEATURES

- NEMA 1 wall mountable panel with 15.6" color touchscreen display
- 120 VAC, 5A service receptacle on door
- Operating temperature -20°C to 40°C (0 to 95% relative humidity)
- Voltage and lightning protection
- Cat A6L3 electronic control module (ECM)
- Ethernet router for connection to Telematics A6N2
- Expansion Input/Output Ethernet module for interfacing with ATS and other relays
- Input Circuit Breaker Protection (Single phase 120/240 VAC 50/60 Hz)
- Uninterruptible Power Supply (UPS) for backup

## DISTRIBUTED ENERGY RESOURCES (DER) DISPATCH

Control a range of DERs, including (but not limited to) photovoltaic (PV) systems, battery energy storage systems (BESS), and generator sets.

- Control the contribution from each DER to maximize system reliability and use of renewable energy sources.
- Optimize asset performance with pre-programmed routines based on minimizing fuel cost, optimizing engine operation, or maximizing system reliability. Set schedules for charging, discharging, and grid export/import.
- Maintain a spinning reserve to respond to sudden load transients.
- Customizable by Cat Engineering Services.

## GRID IMPORT/EXPORT CONTROL

The Cat ECS 400 will regulate the amount of real and reactive power exported from DERs to the utility based on a programmable setpoint.

[DOWNLOAD FULL CAT ECS 400 SPEC SHEET](#)

# CAT ECS 400

## SITE CONTROL FOR UP TO 32 POWER GENERATION ASSETS



Visit <https://www.cat.com/catecs> to learn more.

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