

## Overview

The DECS-250 is a complete digital excitation control system. Total control in a compact package provides precise voltage, var and Power Factor regulation, and exceptional system response, plus generator protection. An optional power system stabilizer helps meet stringent grid code compliance requirements. The DECS-250 offers extreme flexibility and total functionality in a cost effective, easy-to-use package.

## Features

- Precise excitation control for synchronous generator or synchronous motor applications.
- True RMS sensing, single-phase or three-phase voltage and current
- Full generator metering capabilities
- Automatic Voltage Regulation / Field Current Regulation / Field Voltage Regulation, Power Factor and var modes of operation
- Integrated Generator Protection (27/59, 810/U, 32R, 40Q), EDM, 59F, 51F, Loss of PMG, Field Short Circuit, and 25 Sync Check
- Load sharing over Ethernet
- Auto tuning feature with two PID stability groups
- Optional integrated power system stabilizer (PSS), IEEE Std. 421.5 type PSS2A/2B/2C
- Configurable Protection
- Conformal coating is applied to certain internal circuitry for additional protection and reliability
- Overexcitation Limiting (with temperature compensation)
- Underexcitation Limiting
- Stator Current Limiting (with temperature compensation)
- Var Limiting
- Underfrequency Limiting or V/Hz Limiting
- Exciter Diode Monitoring
- Trending, Oscillography, and Sequence of Events Recording
- Sixteen Programmable Contact Inputs
- Twelve Programmable Contact Outputs
- I/O Expansion Module compatibility
  - AEM-2020 Analog Expansion Module
  - CEM-2020 Contact Expansion Module

## Benefits

- Reduce your setup time with Basler's intuitive BESTCOMSPi<sup>us</sup>® software that simplifies complex setup with simple drag-and-drop programmable logic, visual real-time strip chart capabilities, and cutting edge auto PID selection capabilities.
- The revolutionary auto tuning function automatically establishes optimum PID and gain settings, taking the guesswork out of system setup, reducing commissioning time and cost while maximizing overall system performance.
- Powerful 15-amp pulse-width-modulated (PWM) power stage provides a high initial response for exceptional system response to load transients. Flexible PWM power stage makes it easily adaptable to any system - shunt, auxiliary winding, permanent magnet, or DC fed.
- Grid code settings provide compatibility with grid code compliant systems. Component certified per standard VDE-AR-N 4110.
- Easy user-configurable settings for synchronous motor or generator modes of operation.

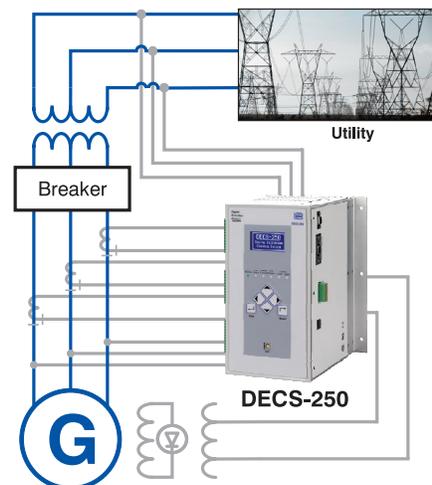


Figure 1 - DECS-250 Connection Diagram for a Typical Application

## Specifications

### Power Supply

Nominal:	Style LXXXXXX:	16 to 60 Vdc
	Style CXXXXXX:	90 to 150 Vdc, 82 to 132 Vac
Burden:		50 VA or 30 W

### AC Operating Power and DC Output Power

All Styles

Full Load Continuous Current:	20 Adc up to 55°C (131°F) 15 Adc up to 70°C (158°F)
10-Second Forcing:	30 Adc
Power Input Configuration:	1-phase and 3-phase
Power Input Frequency:	50 to 500 Hz

32 Vdc

Nominal Input Voltage:	60 Vac
Full Load Continuous Voltage:	32 Vdc
Minimum Field Resistance:	2.13 Ω

63 Vdc

Nominal Input Voltage:	120 Vac
Full Load Continuous Voltage:	63 Vdc
Minimum Field Resistance:	4.2 Ω

125 Vdc

Nominal Input Voltage:	240 Vac
Full Load Continuous Voltage:	125 Vdc
Minimum Field Resistance:	8.33 Ω

### Generator Current Sensing

Configuration:	1-phase or 3-phase with separate input for cross-current compensation
Nominal Current:	1 Aac or 5 Aac
Frequency:	50/60 Hz
Burden:	<1 VA

### Generator and Bus Voltage Sensing

Configuration:	1-phase or 3-phase
Voltage Ranges:	100/120 Vac ±10% 200/240 Vac ±10% 400/480 Vac ±10% 600 Vac ±10%
Frequency:	50/60 Hz nominal
Burden:	<1 VA per phase

### Inputs and Outputs

Contact Inputs:	16 programmable, dry contact
Auxiliary Inputs:	1
Current Input:	4 to 20 mAdc
Voltage Input:	-10 to +10 Vdc
Output Contacts:	11 programmable form A 1 watchdog form C
Rating:	Make, break, and carry 7 A resistive @ 24/48/125 Vdc (120/240 Vac).

### Communication

USB:	USB type B
RS-232:	RS-232, 9 pin, sub D for optional external autotracking
RS-485:	Modbus® RTU protocol
CAN Bus:	One port for ECU communications One port for expansion modules
Ethernet:	100baseT (standard), 100baseFX (optional), Modbus TCP protocol for unit-to-unit communication.
Expansion Port:	Optional Profibus protocol

### Agency/Certification

CSA certified, UL 6200:2019 recognized, CE UKCA EMC and LVD compliant, EAC certified, Bureau Veritas (BV), Det Norske Veritas (DNV), and American Bureau of Shipping (ABS) recognized

### Environmental

Operating Temperature	20 Adc Continuous: -40°C to 55°C (-40°F to 131°F) 15 Adc Continuous: -40°C to 70°C (-40°F to 158°F)
Storage Temperature:	-40°C to 85°C (-40°F to 185°F)
Salt Fog:	Per MIL-STD 810E method 509.3
Shock:	Withstands 15 G in 3 perpendicular planes
Vibration:	5 G from 18 to 2,000 Hz in 3 perpendicular planes

### Physical

Weight:	14.6 lb (6.62 kg)
Dimensions (WxHxD):	6.26 x 12.00 x 8.62 inches (159.0 x 304.8 x 219.0 mm)

For complete specifications, download the instruction manual at [www.basler.com](http://www.basler.com).

### Visit the DECS-250 mobile site!

Use your smartphone and scan the QR code to gain quick access to our mobile-enabled site featuring the field support information you need.



[m.basler.com/qrs/DECS-250](http://m.basler.com/qrs/DECS-250)

## Related Products

### BE1-FLEX Protection, Automation and Control System

Designed to be configurable for nearly any Power System Application.

### ES Series Protection Relays

A wide range of cost-saving options to simplify industrial application protection.

### DGC-2020 Digital Genset Controller

An advanced genset control system with extensive functionality and flexibility.

### DGC-2020HD Digital Genset Controller

An advanced, but rugged genset control system designed for paralleling and complex load sharing schemes.

## Accessories

### MVC Manual Voltage Controllers

Provides backup manual source for excitation in the event of AVR failure.

### IDP-801 Interactive Display Panel

A 7.5" (190.5 mm) Human Machine Interface to view generator system parameters locally or remotely.

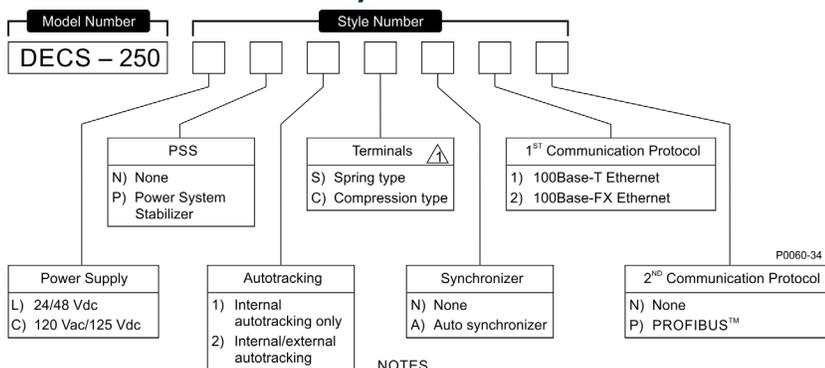
### CEM-2020 Contact Expansion Module

Provides additional contact I/O for large or complex logic schemes.

### AEM-2020 Analog Expansion Module

Provides additional metering and control with external peripherals through analog I/O.

## Style Chart



### NOTES

△ Compression type terminals are available for the current sensing (CT) inputs, operating power input, and power output connections only.