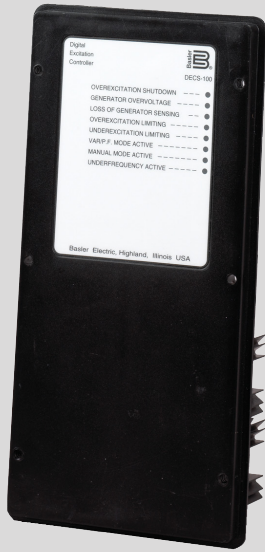


# DECS-100 Digital Excitation Control System



## Overview

The DECS-100 Digital Excitation Control System is a high powered, low-cost, and environmentally rugged solution for controlling the output of rotary excited synchronous generators. The DECS-100 is perfect for machines that are paralleled to other generators and/or the utility system. It is ideal for distributed generation, cogeneration, and peak shaving applications.

## Features

- Microprocessor based
- 0.25% Voltage Regulation Accuracy
- 0.5% accuracy up to 40% Total Harmonic Distortion (THD) (harmonics associated with six-thyristor load)
- 63 Vdc @ 7 Adc pulse-width-modulated (PWM) output
- 0-3X V/Hz limiting
- Soft Start capability
- Twenty standard stability selections and one customizable selection
- VAR/PF control
- Overexcitation limiting
- Underexcitation limiting
- Voltage Matching
- Manual Mode (Field current regulation)
- Paralleling input from 1-amp or 5-amp CT secondaries
- Nominal sensing inputs of 120, 240, 480, and 600 Vac
- Power Input from 50/60 Hz shunt connection or permanent magnet generator (PMG) operating at 50 to 400 Hz
- Integrated protection functions including Loss of Sensing transfer to manual
- LED annunciation of operating conditions
- Setup via PC using BESTCOMS™ software (included)
- Models capable of 10 Adc continuous field current output are available upon request. See reverse for details.

## Benefits

- Microprocessor-based design provides high functionality and performance.
- Powerful 7-amp, PWM power stage provides high field forcing for increased system response.
- THD-tolerant design offers reliable operation with nonlinear loads.
- Integrated generator and exciter protection ensure proper system operation.
- Rugged, potted design for exceptional reliability in the harshest environments.

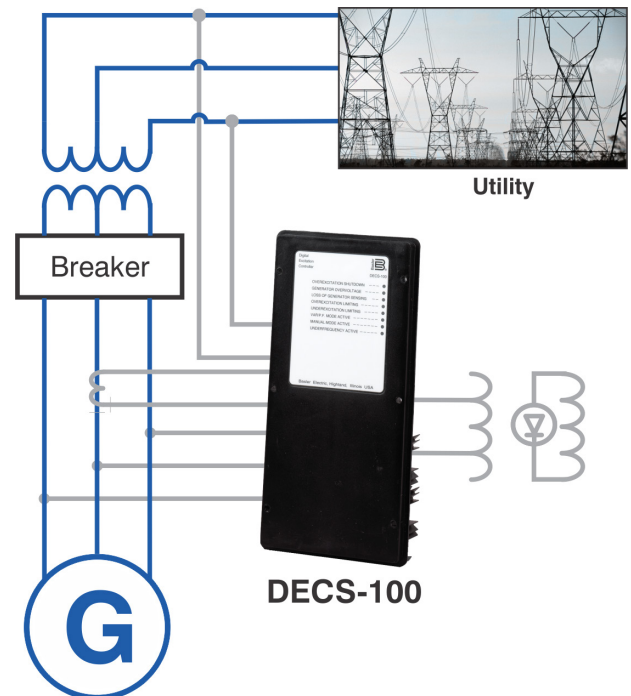


Figure 1 - DECS-100 Connection Diagram for a Typical Application

## Specifications

### Input Power

Voltage: 88 to 250 Vac  
 Phase: 1-phase or 3-phase  
 Burden: 650 VA  
 Frequency: 50 to 400 Hz  
 Minimum Build-up Voltage: 6.0 Vac

### Voltage Sensing

Nominal Voltage Input: 100/120, 200/240, 400/480, 600 Vac, 1-phase or 3-phase  
 Burden: <1 VA per phase  
 Frequency: 50/60 Hz

### Current Sensing

Max Continuous: 1 or 5 Amp (two models)  
 Burden: <1 VA

### Accessory Input

Voltage Range: -3 Vdc to +3 Vdc  
 Setpoint Range: -30% to +30% shift  
 Burden: 1 ka

### Field Output

Continuous Rating: 63 Vdc, 7 Adc  
 10-Second Forcing  
 200 Vac Input: 135 Vdc, 15 Adc  
 110 Vac Input (9  $\Omega$  field): 90 Vdc, 10 Adc  
 110 Vac Input (5  $\Omega$  field): 75 Vdc, 15 Adc  
 Minimum Field Resistance: 9  $\Omega$

### Common Alarm Output

Type: Form A  
 Rated Load: 7 Aac/Adc continuous  
 Make: 30 Aac/Adc, carry for 0.2 seconds  
 Break: 7 Aac/0.1 Adc  
 Operating Voltage: 240 Vac/250 Vdc max

### Regulation Accuracy

Regulation Accuracy:  $\pm 0.25\%$  no-load to full-load  
 Temperature Drift:  $\pm 0.5\%$  for a 40°C change  
 Response Time: Within 1 cycle  
 THD:  $\pm 0.25\%$  for 20% THD and  $\pm 0.5\%$  for 40% THD (distortion as seen with a six-thyristor load)

### Agency/Certifications

UL recognized (evaluated to UL6200), CSA certified, CE EMC and LVD compliant, EAC certified, Type approved with Bureau Veritas (BV)\*, Det Norske Veritas-Germanischer Lloyd (DNV•GL)\* and RMRS\*

\* Does not apply to models with 10 Adc field current output.

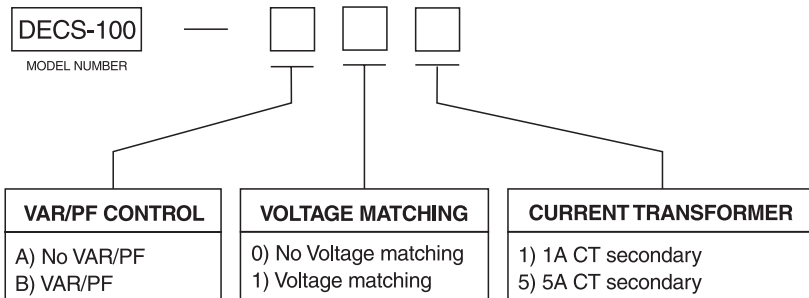
### Environmental

Operating Temperature: -40°C to 70°C (-40°F to 158°F)  
 Storage Temperature: -40°C to 85°C (-40°F to 185°F)  
 Shock: 20 G in three perpendicular planes  
 Vibration  
 5 to 26 Hz: 1.2 G  
 27 to 52 Hz: 0.036" double amplitude  
 53 to 500 Hz: 5.0 G  
 Salt Fog: Per MIL-STD-810E

### Physical

Weight: 2.42 lb (1.10 kg)  
 Shipping Weight: 2.88 lb (1.31 kg)  
 Dimensions (WxHxD): 5.34 x 10.82 x 2.84 inches (135.6 x 274.8 x 72.1 mm)

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



### ORDERING INFORMATION FOR 10 ADC FIELD CURRENT OUTPUT MODELS

Part Number	DECS-100 Style	Special Requirements		
		Input Power	Minimum Field Resistance	Maximum Operating and Storage Temperature
9287500147	DECS-100-B11	3-phase only	6.3 $\Omega$	55°C (131°F)
9287500148	DECS-100-B15			

## Related Products

### BE1-11g Generator Protection System

Combines with the DECS-100 to offer a complete generator control and protection system.

### ES Series Protection Relays

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

### DECS-250 Digital Excitation Control System

Provides precise voltage, var and Power Factor regulation, and exceptional system response, plus generator and motor protection.

### DECS-250N Digital Excitation Control System with Negative Forcing

A high-powered digital excitation control system featuring negative field forcing that provides exceptional system response, precise voltage regulation, and integrated generator protection.

### DGC-2020ES Digital Genset Controller

The total system solution for emergency and stand alone generator set applications.

### 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.