

Overview

The DECS-150 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-150 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

- Precise excitation control for synchronous generator or synchronous motor applications
- 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 and 125 Vdc @ 10 Adc pulse-width-modulated (PWM) output
- Capable of 10 Adc continuous field current output when system temperature is 55°C (131°F) or below
- Load Sharing over Ethernet
- Auto tuning feature with two PID stability groups
- Var/PF control
- Exciter Diode Monitor (EDM)
- Overexcitation limiting
- Underexcitation limiting
- Stator current 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 500 Hz
- Integrated protection functions including Loss of Sensing and Transfer to Manual
- LED annunciation of operating conditions
- Ethernet communications with Modbus[®] TCP
- Set up via PC using BESTCOMSPi[®] software (included)
- Customizable logic in BESTlogic™ Plus
- IP54 rating when rear-mounted USB option is selected

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.
- Auto tuning allows for easier commissioning, saving time and money.
- External Autotracking provides redundancy and more reliable system design.
- 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.

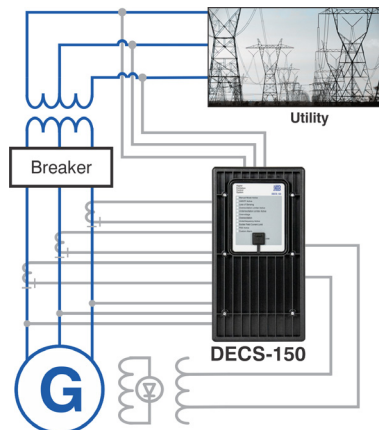


Figure 1 - DECS-150 Connection Diagram for a Typical Application

Specifications

AC Operating Power and DC Operating Power

All Styles	
Full Load Continuous Current:	10 A at 55°C (131°F) 7 A at 70°C (158°F)
Power Input Configuration:	1-phase and 3-phase
Power Input Frequency:	dc, 50 to 500 Hz
63 Vdc	
Nominal Input Voltage:	120 Vac, 125 Vdc
Full Load Continuous Voltage:	63 Vdc
Minimum Field Resistance:	9 Ω
10-Second Forcing:	100 Vdc, 11 Adc
125 Vdc	
Nominal Input Voltage:	240 Vac, 250 Vdc
Full Load Continuous Voltage:	125 Vdc
Minimum Field Resistance:	18 Ω
10-Second Forcing:	200 Vdc, 11 Adc

Generator and Bus Voltage Sensing

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

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 with 1 Aac Sensing:	<0.1 VA
Burden with 5 Aac Sensing:	<0.3 VA

Inputs and Outputs

Contact Inputs:	8 programmable
Type:	Dry contact
Interrogation Voltage:	12 Vdc
Auxiliary Inputs:	1
Current Input:	4 to 20 mAdc
Voltage Input:	-10 to +10 Vdc
Output Contacts:	2 programmable 1 watchdog 1 breaker shunt trip
Rating:	7 A at 24 Vdc/240 Vac

Communication

USB:	USB type B port (front or rear panel optional)
Ethernet:	RJ45 jack (rear panel) 10BASE-T/100BASE-TX (copper), Modbus® TCP
CAN Bus:	External Autotracking

Agency/Certification

UL recognized (evaluated to UL 6200:2019), CSA certified, EAC certified, CE, UKCA, LVD, EMC, and RoHS compliant, maritime recognitions by BV, DNV, and ABS

Environmental

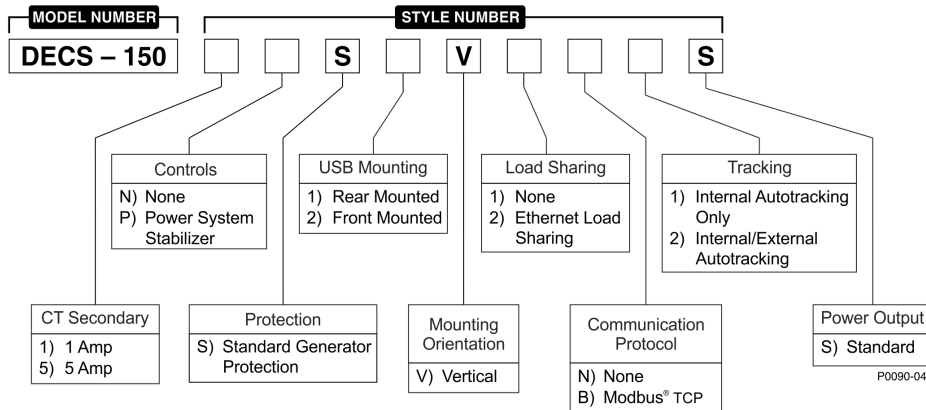
Operating Temperature	
10 A Continuous:	-40°C to 55°C (-40°F to 131°F)
7 A Continuous:	-40°C to 70°C (-40°F to 158°F)
Storage Temperature: -40°C to 85°C (-40°F to 185°F)	
Humidity:	MIL-STD-705B, Method 711-1C
Salt Fog:	IEC 60068-2-11
Shock:	Withstands 30 G in 3 perpendicular planes
Vibration:	5 G for 3 hours from 18 to 2,000 Hz
Transients:	EN61000-4-4
Static Discharge:	EN61000-4-2

Physical

Weight:	3.95 lb (1.79 kg)
Dimensions (WxHxD):	6.41 x 11.88 x 3.23 inches (163 x 302 x 82 mm)

For complete specifications, download the instruction manual at www.basler.com.

Style Chart



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.

DECS-250 Digital Excitation Control System

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

DGC-2020 Digital Genset Controller

An advanced genset control system with extensive functionality and flexibility.

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

ICRM-7, ICRM-15

Protects PWM-type voltage regulators from high inrush currents when powered by an independent source.

MVC Manual Voltage Controllers

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