



Overview

The DECS-450R is a simplified version of the DECS-450 for applications that do not require advanced features such as PSS or redundant controllers. It is a versatile Automatic Voltage Regulator that can be used as the primary controller of a Digital Excitation Control System for almost any synchronous machine. This makes the DECS-450R ideal for digital front-end controller upgrades and retrofit applications. It is available as a standalone controller or as part of a custom Basler excitation system.

Features

- Five control modes with autotracking between modes: AVR, FCR, FVR, var, and PF
- 0.10% voltage regulation accuracy
- Paralleling provisions: reactive droop, line drop, and cross-current compensation
- Integrated generator protection (25, 27, 59, 810/U, 32R, 40Q), field overvoltage, and field overcurrent
- Limiters include overexcitation, underexcitation, stator current, var and underfrequency or V/Hz
- Auto tuning feature with two PID settings groups (Patent: US 2009/0195224 A1)
- Utility as a DECS-400 replacement for many applications
 - Installation: Same footprint as DECS-400
 - Compatible with DECS-400 to DECS-450 Transition Plate for easy upgrades
- Trending, oscillography, and sequence of events recording
- Digital I/O: 14 programmable inputs, 11 programmable outputs, and 1 Form-C output dedicated to watchdog function
- Four analog meter driver outputs
- BESTlogic™ Plus programmable logic is easy to configure and verify
- Compatibility with Field Isolation Transducer (P/N 9372900105) for field voltage and field current sensing capabilities

Benefits

- With its high levels of flexibility and reliability, the DECS-450R is suitable for virtually any synchronous machine.
- Reduce your setup time with Basler's intuitive BESTCOMSPPlus® software that simplifies complex setup with simple drag-and-drop programmable logic (BESTlogic™ Plus), 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 (Patent: US 2009/0195224 A1).

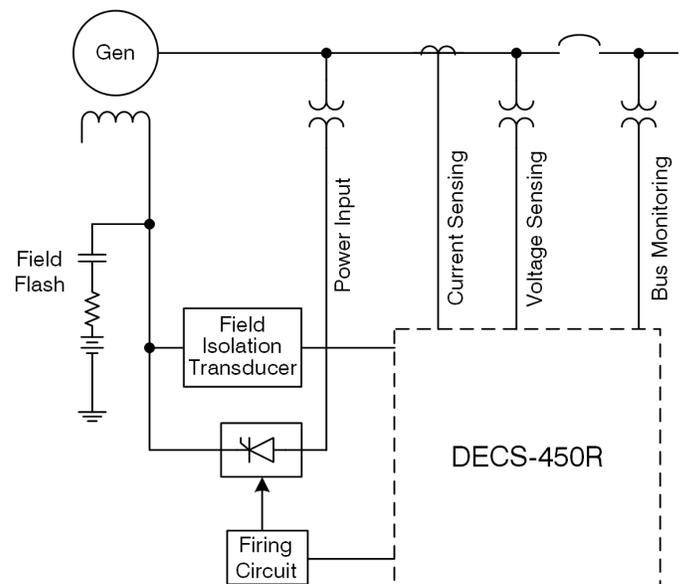


Figure 1 - DECS-450R Connection Diagram for a Typical Application

Specifications

Power Supply

Style XLXXXXXXX: 24/48 Vdc (nominal)
16 to 60 Vdc

Style XCXXXXXXX: 125 Vdc/120 Vac (nominal)
90 to 150 Vdc,
82 to 132 Vac, 50/60 Hz

Burden: 50 VA or 35 W

Generator and Bus Voltage Sensing

Configuration: 1-phase or 3-phase

Nominal: 100/120 Vac, ±10%, 50/60 Hz
200/240 Vac, ±10%, 50/60 Hz

Burden: <1 VA per phase

Generator Current Sensing

Configuration: 1-phase or 3-phase with
separate input for cross-
current compensation

Nominal: 1 Aac or 5 Aac, 50/60 Hz

Burden, 1 Aac CT: <1 VA

Burden, 5 Aac CT: <1 VA

Regulation Accuracy

AVR Mode: ±0.10%

FCR Mode: ±1.0%

FVR Mode: ±1.0%

Var Mode: ±2.0%

Power Factor Mode: ±0.02 pu

Agency/Certification

UL 6200:2019 recognized, CE UKCA EMC, LVD, and
RoHS compliant, China RoHS compliant, and American
Bureau of Shipping (ABS) recognized

Communication

USB: USB type B

RS-485: Modbus® RTU protocol

Ethernet: 100BASE-TX or 100BASE-FX,
Modbus TCP

Expansion Port: Optional Profibus protocol

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

Related Products

Field Isolation Transducer

Enables field voltage and field current sensing for
DECS-450 and DECS-450R applications.

DECS-400 to DECS-450 Transition Plate

Supports quick and easy upgrades from the
DECS-400 to the DECS-450.

DECS-450 Digital Excitation Control System

A high performance, extremely reliable excitation
controller for any size synchronous machine.

DECS-2100 Digital Excitation Control System

An extremely powerful, flexible excitation system
that precisely controls, protects, and monitors
synchronous generators and motors.

DECS-250E Digital Excitation Control System

Accurate and reliable regulation, control, and
protection in a compact enclosure for synchronous
motors or generators. Three models supply 50, 100,
or 200 Adc of continuous excitation current.

IDP-801 Interactive Display Panel

A 7.5" (191 mm) Human Machine Interface to view
generator system parameters locally or remotely.

IDP-1201 Interactive Display Panel

A 12.1" (307 mm) Human Machine Interface to view
generator system parameters locally and remotely.

BE1-FLEX Protection, Automation, and Control System

Designed to be configurable for nearly any Power
System Application.

DECS-450/DECS-450R Differences

Features	DECS-450	DECS-450R
Transient Boost Functionality	Yes	No
Reactive Load Sharing over Ethernet	Yes	No
V/Hz Limiting	Yes	Yes
Two-Level V/Hz Limiting	Yes	No
V/Hz Protection (24 Element)	Yes	No
Redundant DECS Operation	Yes	No
Automatic Synchronizing	Yes	No
Power System Stabilizer (PSS)	Yes	No
OEL with Voltage Dependency	Yes	No
Exciter Diode Monitoring (EDM)	Yes	No
Field Overtemperature Protection	Yes	No
Configurable Protection	Yes	No
Expansion Module Support (AEM-2020, CEM-125, CEM-2020)	Yes	No
CAN bus Communications	Yes	No

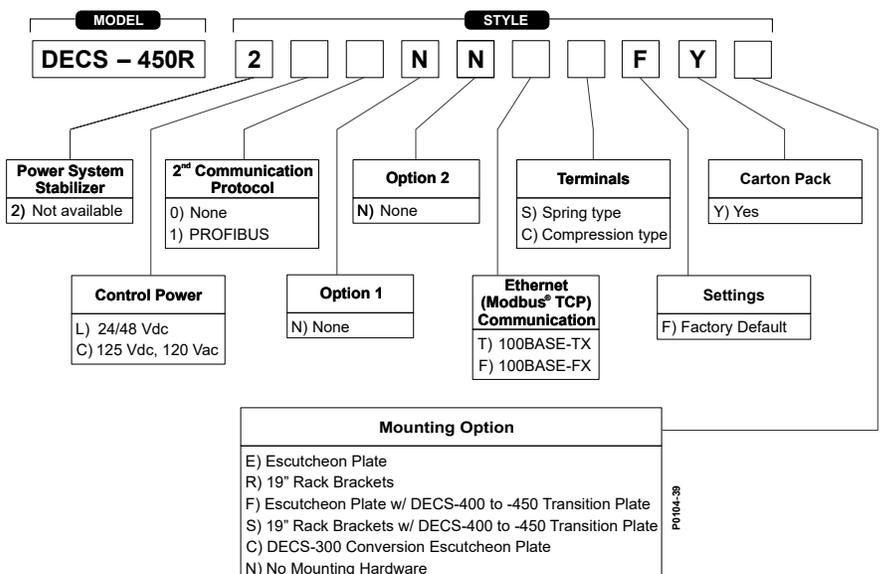


Figure 2 - DECS-450R Style Options

Custom Solutions

The DECS-450R is a versatile stand-alone controller intended for customer-developed excitation control systems. Contact Basler Electric directly for customized excitation systems designed to meet your specific application requirements.