Basler Now Part of Littelfuse®

Basler Electric has been providing advanced excitation control systems to the generation industry since 1965.

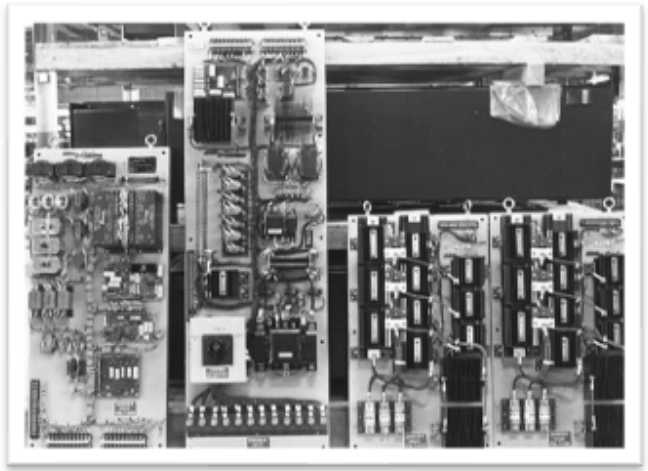
Excitation System Portfolio

Always Innovating. Always Evolving.

www.basler.com

Excitation History

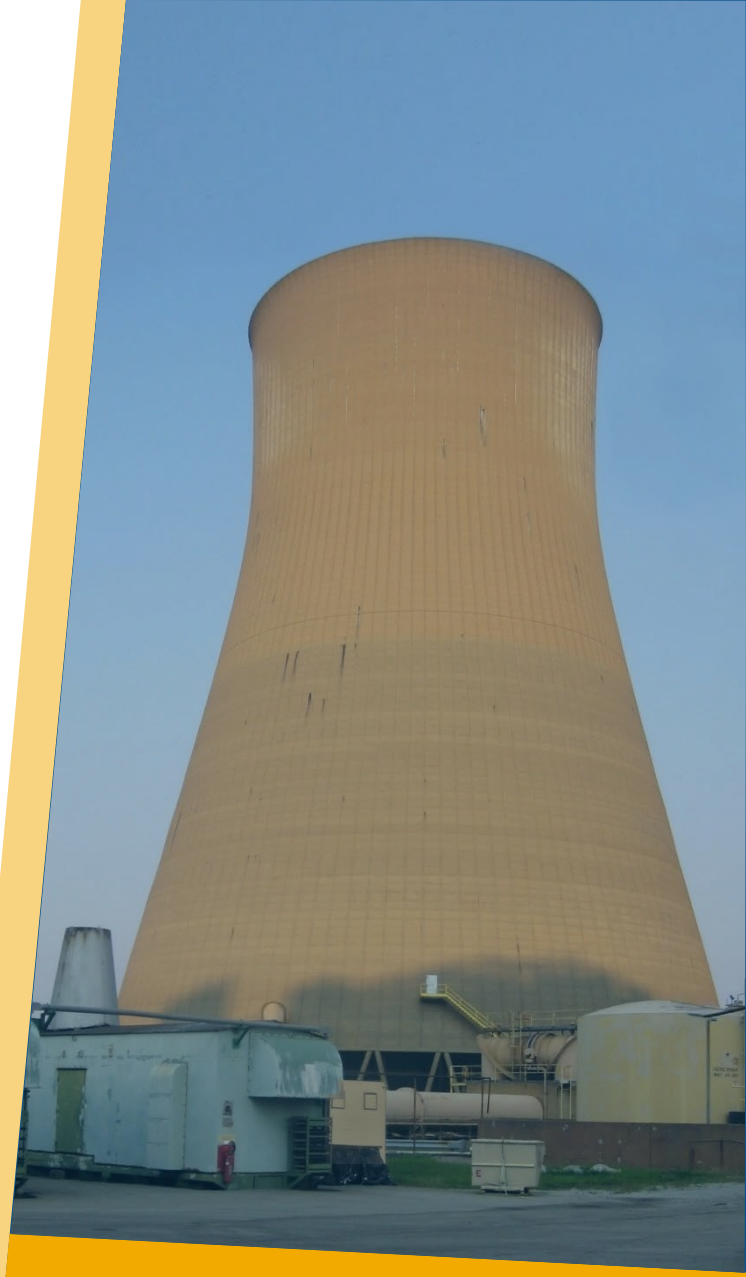
Basler has been providing custom excitation systems since 1965. Our first excitation product, SBSR, is still being manufactured and is widely used by the nuclear power industry on emergency diesel generator sets to supply reliable backup power to reactor cooling water pumps and other critical loads. Our second-generation static excitation system, the SSE, was released in 1974 and became the industry standard for 25 years. Many SSE systems are still in operation today. Negative forcing was added in 1993. Our first digital controller, the DECS-300, was introduced in 1999. Our current flagship controller, the DECS-450, is immensely more capable and can directly replace the DECS-300 in existing systems.



Series Boost Senior Regulator (SBSR)

Shunt Static Exciter (SSE)

DECS-450



ECS2100

In 2006 Basler expanded our excitation product line to include the ECS2100, whose beginnings trace back to the Westinghouse WTA first released in 1962.

Shortly after this acquisition, we created the DECS-2100, leveraging the architecture of the ECS2100 while updating and modernizing every aspect of the system, from circuit boards to software. The DECS-2100 can meet the requirements of the largest and most demanding applications.

DECS-2100

Westinghouse WTA (1962-1986)

WTA-300 (1984-1994) WTA-300B (1992-2000)

WDR-2000 (1993-2000)

ECS2100 (2000-2011)

Made by Basler

Our products are specifically engineered and built to meet the rigorous demands of the power industry. Decades of innovation by Basler have produced exceptional systems. We will continue to be a leader in excitation system design with expanded features, advanced control algorithms, and increased flexibility for your demanding applications.

Basler provides excitation systems for both new and retrofit applications. We have retrofit solutions for ABB, Alstom, Andritz, GE, Siemens, Toshiba, and Westinghouse exciters.

Basler Excitation Components

- Voltage regulators
- System controllers
- Power converters
- Bridge controllers
- I/O modules
- Power potential transformers (PPT)
- Sensing modules
- Protective relays
- Enclosures & pan chassis
- De-excitation provisions

Built in the USA

Basler Electric is a family-owned American company based in Highland, Illinois, USA. We design and manufacture the core and secondary components of excitation systems domestically in ISO 9001:2015 certified facilities. Engineering design work is done in Highland, Illinois, USA. Most system assembly and component manufacturing are done in Highland and complimented by our factory in Taylor, Texas, USA.

By keeping engineering and manufacturing within the company, we have the flexibility to choose the best solution for your application. It also allows us to provide long term support for our current and legacy products. It is common for us to supply spare parts to systems or make repairs to components decades after they were commissioned.

Voltage Regulators

Our custom voltage regulator and excitation systems are built around our high-performance DECS voltage regulators. These systems include protection and features that would otherwise require additional field installation efforts. Our systems are engineered to minimize site work for easy and efficient installation.

DECS-150

The DECS-150 features entire system solutions and total control in one compact package, providing up to 10 amps of excitation current. It includes various control modes such as voltage, var and power factor regulation, and exceptional system response, plus generator protection and programmable logic.

Grid code features and an optional power system stabilizer help you meet stringent compliance requirements.

DECS-250/250N

The DECS-250 is a complete digital excitation control system that can provide 20 amps of excitation current. Beyond the DECS-150 control modes and features, it offers more I/O, more programmable logic, expansion module compatibility, network load sharing, optional auto synchronizer, and PROFIBUS communications.

The DECS-250N offers all the functionality of the DECS-250 in the same form factor, but includes a negative forcing 6-SCR power stage capable of providing 20 amps of excitation current for machines demanding the highest performance. As an additional option, the DECS-250N can accept 480 Vac operating power to work with 250 Vdc exciter fields.

The DECS-250 and 250N offer maximum flexibility and total functionality in a cost effective, easy-to-use package.

Voltage Regulators

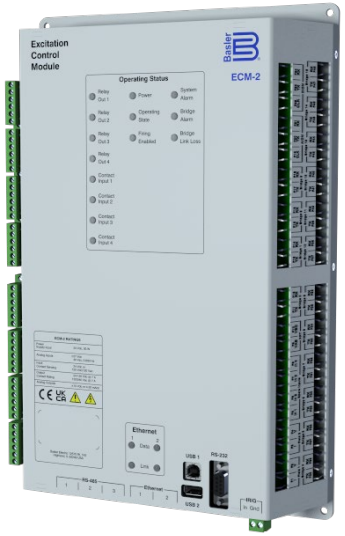
DECS-250E is our most powerful voltage regulator with an internal power stage. When field current exceeds 200 amps, a DECS-2100 or DECS-450 system is required.

DECS-250E

The DECS-250E offers a similar feature set as our other voltage regulators, but can provide more field current. Three models are available to supply 50, 100, or 200 A of excitation current continuously in a static or rotary exciter application. All DECS-250E components are housed in a compact enclosure which makes for a simple and cost-effective installation in a variety of applications.

ECM-2

DECS-2100 systems use the ECM-2 as the primary system controller. The ECM-2 can control up to 16 power converters and can be used in single, dual, or supervisory excitation control systems. All control signals are sent via optical fiber, offering superior noise immunity.



DECS-450

The DECS-450 automatic voltage regulator controls and monitors the output of a synchronous machine. It shares many of the features and functionally of the DECS-250. Rather than relying on an internal power stage, the DECS-450 supplies a control signal to a power converter which is sized to the synchronous machine requirements. This makes the DECS-450 compatible with virtually any synchronous machine, both in rotary and static excitation applications.

Basler Meets All of Your Excitation Needs!

We offer a complete line of excitation systems that can supply up to 10,000 amps of field current.

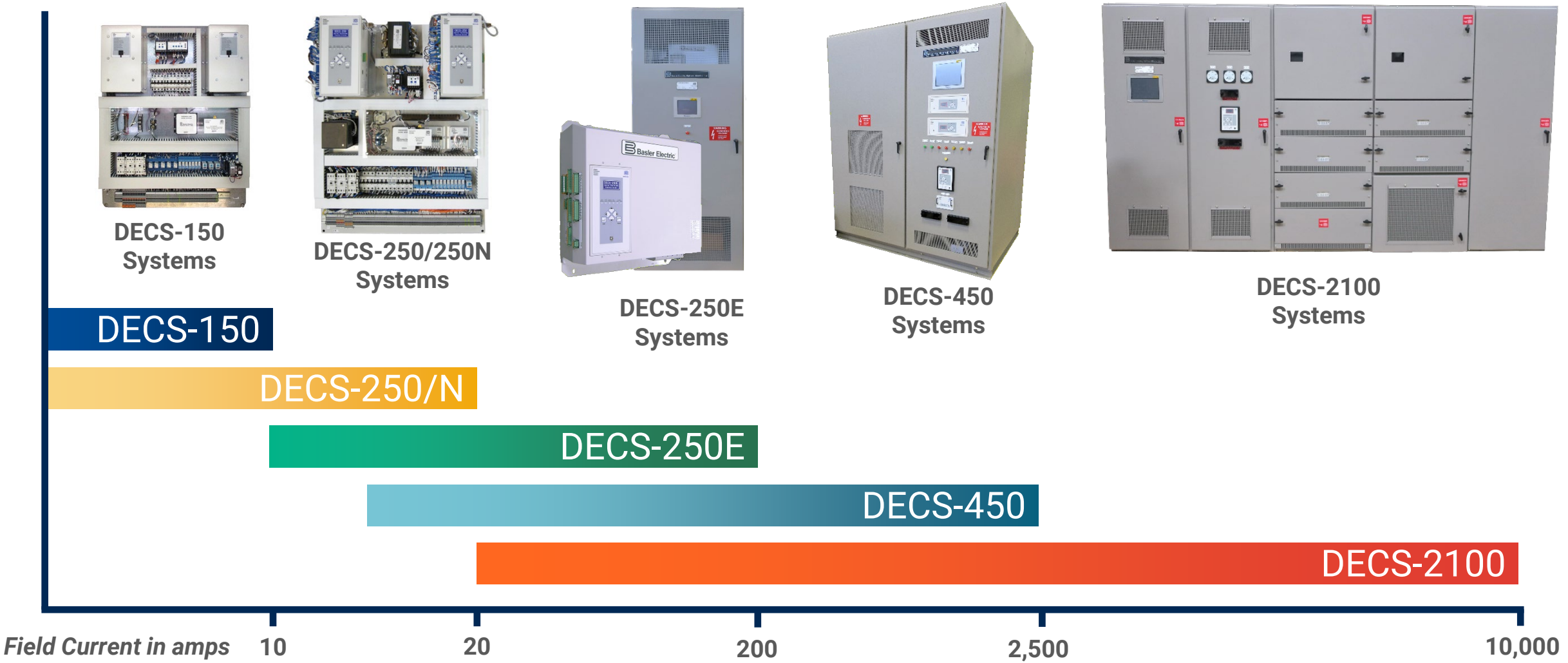
DECS-150 Systems

DECS-250/250N Systems

DECS-250E Systems

DECS-450 Systems

DECS-2100 Systems



Standard DECS Systems

The Synchronous Generator Controller (SGC) and Synchronous Motor Controller (SMC) are pre-engineered voltage regulator systems. With configurable features and options, they offer a flexible, pre-configured solution that adapts to a variety of applications. These standard systems are especially well-suited for projects where minimizing lead-time or budget is a key priority.

Available Style Options

Controllers

- DECS-150
- DECS-250
- DECS-250N

Selectable Features

- Motor or generator control
- Control power
- Power system stabilizer
- Redundant controllers
- Auto synchronizer
- Protective relays

Custom DECS Systems

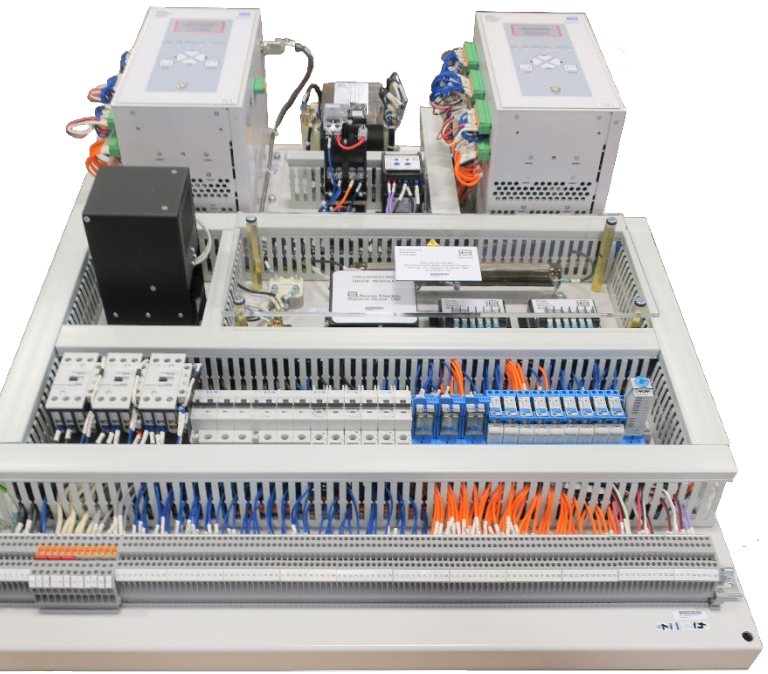
Basler custom voltage regulator and excitation systems come in all shapes and sizes. Our design and approval process ensures the custom excitation system meets all of your application needs.

Features and Options

- Redundant voltage regulators with automatic failover
- Redundant power converters
- Redundant control power sources
- Single or multifunction protective relays (Basler or other OEMs)
- Convenient touch-safe customer connection terminals
- Circuit breakers (fixed or draw-out)
- Touchscreen controls
- Field flashing with ac or dc
- Fused control and power circuits
- Front panel metering, annunciation, and control switches
- Choice of pan chassis, mounting plate, or custom NEMA or IP enclosure, all fabricated in house.
- Meets IEEE 421 standards. Can be built to meet CSA, CE/UKCA, or other standards on a case by case basis.
- Custom paint colors, ANSI 61 Grey is our standard
- Shipping splits for easier transportation and installation
- Complete functional factory testing

Voltage Regulator Systems

Custom Pan Chassis / Mounting Plate Examples

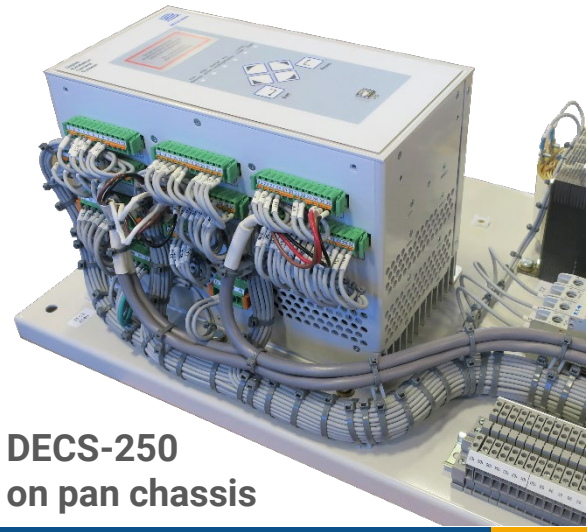


CE compliant dual
DECS-250 on pan chassis

DECS-250N Brush AVR replacement with rack mount plate and auxiliary chassis

Dual DECS-250 system on custom pan chassis

DECS-150 Synchronous Motor Control System on mounting plate



DECS-250
on pan chassis

Voltage Regulator Systems

Custom Cubicle Examples

Wall mountable
dual DECS-250

Single DECS-250
with DGC-2020HD

Custom color dual DECS-250
with BE1-11 & 8” HMI

Dual DECS-250 with BE1-FLEX
auto/manual sync cubicle

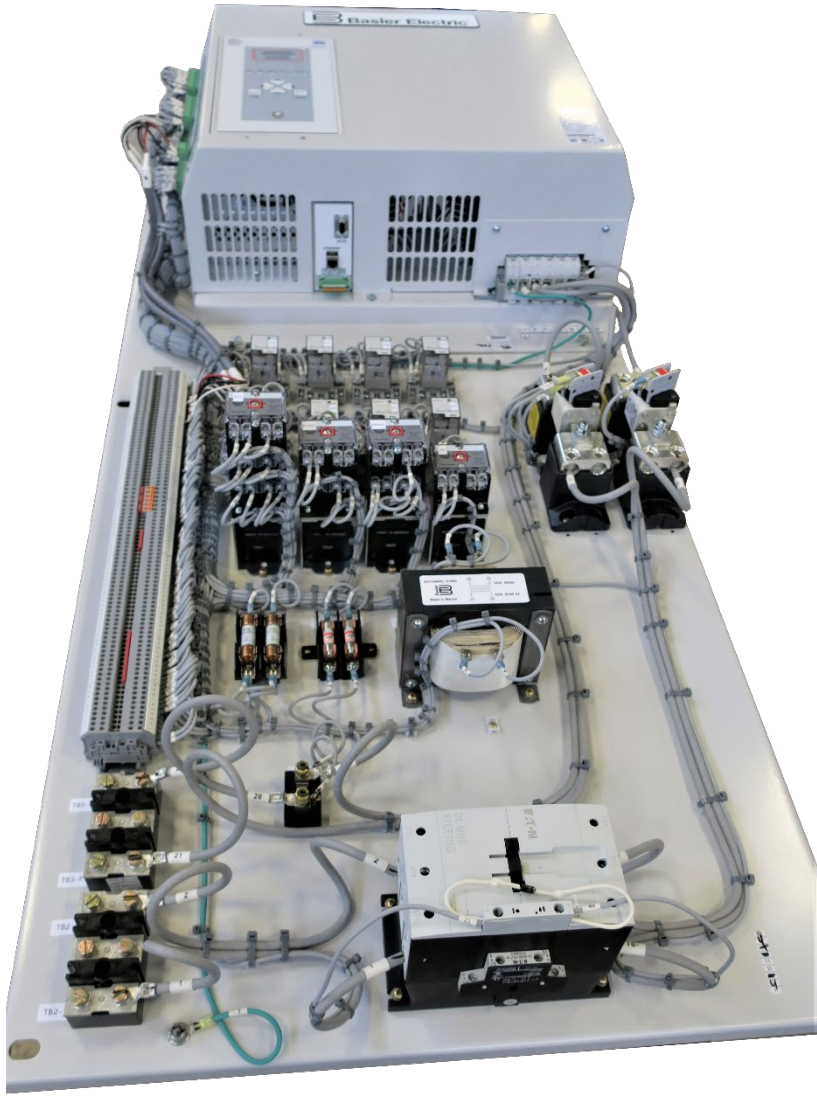
Static/Rotary Excitation Systems

DECS-250E System Examples

Minimum depth (15”)
DECS-250E System

DECS-250E system
with touchscreen HMI

DECS-250E system
with front panel control



DECS-250E pan chassis
system for retrofit

Excitation System Components

DECS-450

- Single or redundant DECS-450 controls
- Single or redundant 6-SCR power converters up to 2,500 amps of field current
- Power converters feature redundant fans
- Field Isolation Transducer (FIT)
- Field discharge resistor
- De-excitation and crowbar integrated in bridge
- AC power disconnect (breaker or switch)
- SCR bridge firing circuit (BCM-2 or IFM-150)
- Field flashing contactor and resistors
- 8- or 12-inch touchscreen HMI
- Field ground detection (BE1-64F)
- Expansion modules: CEM-125, CEM-2020, AEM-2020

DECS-2100

- Single, redundant, or supervisory ECM-2 controls
- Single, parallel, or redundant draw-out 6-SCR power converters up to 10,000 amps of field current
- Power cubicles feature redundant fans
- Field isolation transducer (IT-2)
- Field discharge resistor
- De-excitation and crowbar modules (DX/CB-2)
- AC Power disconnect (fixed or draw-out breaker)
- SCR bridge firing circuit (BCM-2)
- Field flashing contactor and resistors
- 12-inch touchscreen HMI
- Field ground detection (FGD-2)
- Expansion modules: DIOM-2, AIOM-2

Static Excitation Systems

DECS-450 System Examples

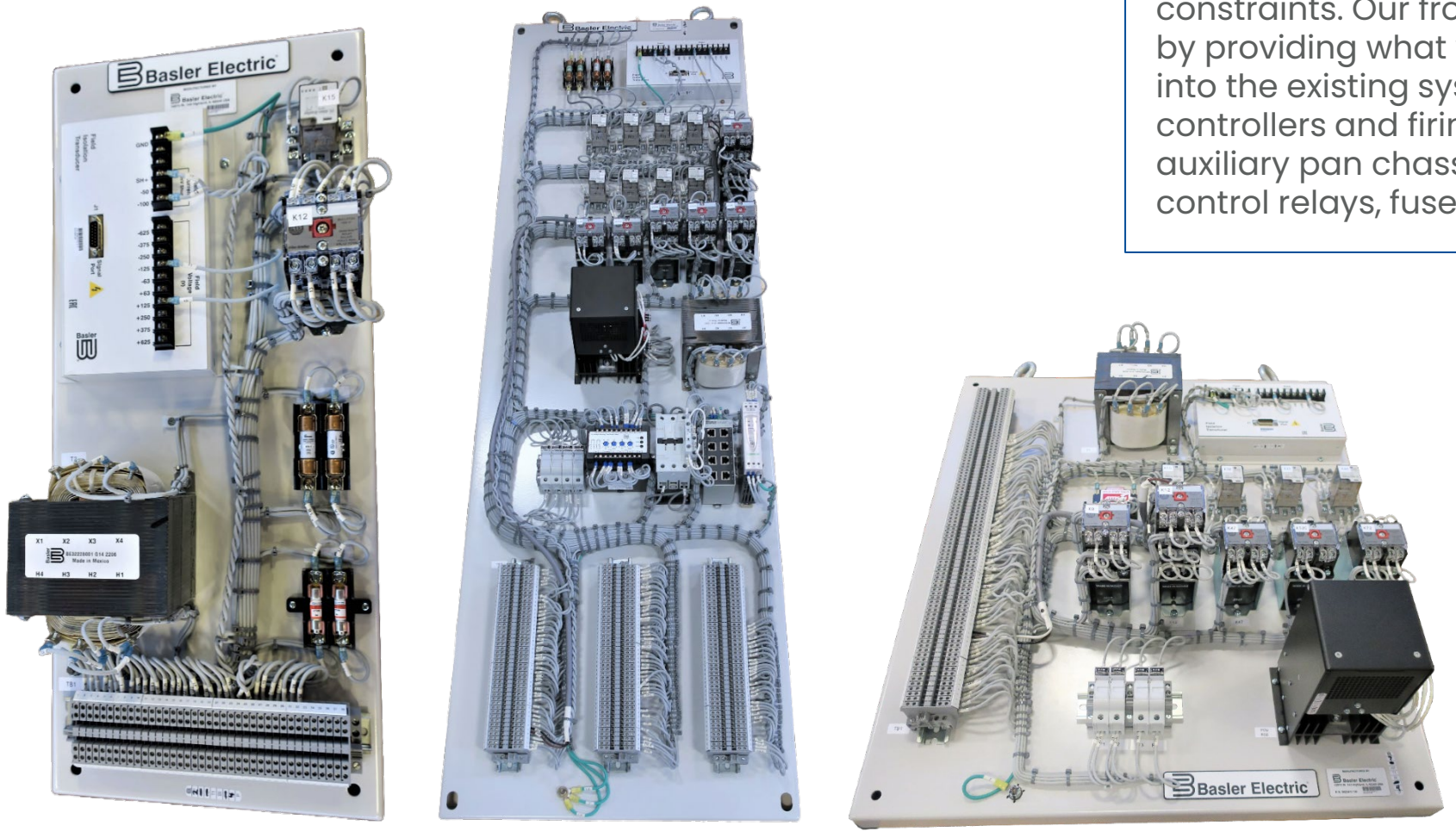
Single DECS-450 with a 12-inch touchscreen HMI

Dual DECS-450 with redundant power converters

Dual DECS-450 with a single power converter

Static Excitation Systems

DECS-450 Front-End Retrofit



DECS-450 Front-End Retrofit auxiliary pan chassis examples

Best of Both Worlds

Many customers want the performance and features of the DECS-450, but need to reuse the existing power stage and PPT due to space, lead time, or budgetary constraints. Our front-end retrofit kits accommodate this by providing what you need to integrate the DECS-450 into the existing system. These kits feature new controllers and firing circuits and may also include an auxiliary pan chassis. This pan chassis commonly has control relays, fuses, and other supporting components.

Retrofit Kits

We offer a number of custom and standard retrofit solutions for upgrading existing systems, these include:

- GE SCT/PPT
- GE Busfed
- GE EX2000 & EX2100
- ABB UNITROL
- Westinghouse
- Emerson/TCSA
- And more!

Static Excitation Systems

DECS-2100 System Examples

Power & Performance

The system below is an example of a large DECS-2100 configuration. This specific system provides up to 8,140 amps of excitation current to the main field of a 970 MVA generator in the Midwestern US. The project included conversion of the generator from rotary to static excitation for increased performance and reduced maintenance. This DECS-2100 uses 14 parallel power drawers and can continue full load operation with up to two power drawers out of service.

DECS-2100

Static Excitation Systems

DECS-2100 System Examples

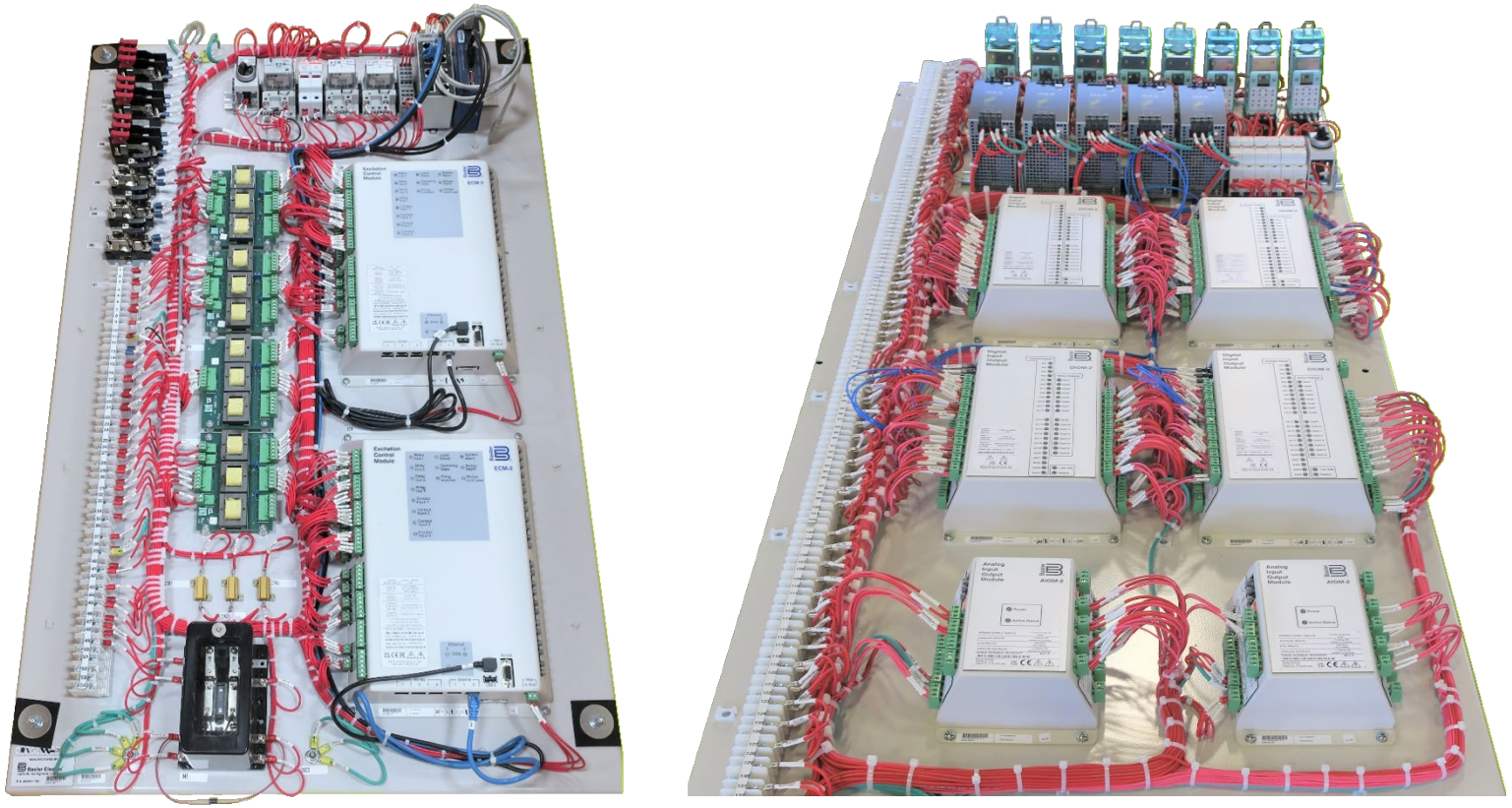
DECS-2100 System with N+1 redundancy

DECS-2100 System with N+1 redundancy rated for 3,100 amps of excitation current and a Basler BE1-11

Static Excitation Systems

DECS-2100 Front-End Retrofit

Most beneficial to users with large exciters where existing controls are obsolete or no longer supported by the original OEM.



DECS-2100 front-end retrofit panels

Less Time

DECS-2100 Front-End Retrofit kits come as custom pan chassis assemblies for a tailored fit in your existing control panels, saving installation time and effort.

Less Risk

Other OEMs obsolete and discontinue support for legacy excitation systems, sometimes considerably sooner than industry expectations. Basler has a long history of supporting products and providing upgrade paths when original components are no longer available.

A retrofit kit reduces the risk of a long term unplanned outage that comes from being forced to replace an entire system when only the controls fail.

Less Cost

Reusing the long-lasting power components of the excitation system reduces overall project cost, allowing for critical controls updates when a completely new system isn't financially justifiable.

Service and Support

- 24/7/365 customer support
- Field service for commissioning and troubleshooting support
- Regional technical support worldwide
- Complete engineering and installation service
- Private-labeled and custom-engineered products
- Application and design support

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Our core purpose is to enhance people's lives by developing highly reliable solutions that add quality to their lives. This is achieved through innovation and performance of our core values.

Headquartered in Highland, Illinois, Basler Electric is a family-owned business with a global presence. That global presence helps us identify the needs of specific markets and applications worldwide and provide solutions with quality products and services to meet our customer's requirements.

Basler Now Part of Littelfuse®

Basler Electric Worldwide Headquarters
12570 State Route 143 • Highland IL 62249-1074
1.618.654.2341 • info@basler.com

Suzhou, PR, China
86.512.8227.288
chinainfo@basler.com

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