

| EQUIPMENT FEATURES  | Model Number |              |
|---|--------------|--------------|
|   | ECS2100      | DECS-2100    |
| <b>Voltage Regulation Accuracy % (or Better)</b>  | <b>0.20%</b> | <b>0.10%</b> |
| <b>Other Operating Modes</b>  |              |              |
| Var or Power Factor Control   | Yes          | Yes          |
| Field Current Regulation  | Yes          | Yes          |
| Field Voltage Regulation  | Yes          | Yes          |
| High Side AVR Mode after Synchronized (using high side set of PTs/CTs)  | No           | Yes          |
| <b>Automatic Nulling between Operating Modes and Redundant Controllers</b>  | Yes          | Yes          |
| <b>Volts/Hertz Limiter</b>  | Yes          | Yes          |
| <b>Minimum/Under Excitation Limiter</b>   |              |              |
| Based on Generator Capability Curve   | Yes          | Yes          |
| Based on Generator Stability  | Yes          | Yes          |
| Summing Point   | No           | Yes          |
| Takeover Style  | Yes          | Yes          |
| Dual Set Points Selectable via Programmable Logic   | No           | Yes          |
| Programmable Enable for Field Current Regulator   | Yes          | Yes          |
| Voltage Compensated   | Yes          | Yes          |
| <b>Maximum/Over Excitation Limiter</b>  |              |              |
| Off-Line Excitation Limiter Summing Point   | No           | Yes          |
| Takeover, works direct into Firing Circuit  | Yes          | Yes          |
| On-Line Excitation Limiter Monitors Field Current Summing Point   | No           | Yes          |
| Takeover, works direct into Firing Circuit  | Yes          | Yes          |
| Provisions for Temperature/Hydrogen Pressure Compensation of Set Point via External Transducer  | Yes          | Yes          |
| Dual Set Points Selectable via Programmable Logic   | No           | Yes          |
| Field and Gen. OEL Simultaneous   | No           | Yes          |
| <b>Stator Current Limiter - Prevents Extended Stator Overcurrent for Long Periods</b>   |              |              |
| Either Single Phase or Three Phase  | Yes          | Yes          |
| Dual Set Points Selectable via Programmable Logic   | No           | Yes          |
| Provisions for Temperature/Hydrogen Pressure Compensation of Set Point via External Transducer  | Yes          | Yes          |
| <b>Dual PID Setting Groups - Allows for programmed changes in PID gain settings for use with Power System Stabilizer or alternate system configurations</b> | <b>No</b>    | <b>Yes</b>   |
| <b>Autovoltage Matching - Automatically matches generator voltage to bus voltage</b>  | <b>Yes</b>   | <b>Yes</b>   |
| <b>(2) Preposition Set points - Programmable for AVR, Manual, Var/PF Controller</b>   | <b>Yes</b>   | <b>Yes</b>   |
| <b>Reactive Droop or Line Drop Compensation</b>   | <b>Yes</b>   | <b>Yes</b>   |
| <b>Comm-Linked Cross Current Compensation</b>   | <b>No</b>    | <b>Yes</b>   |
| <b>Loss of Voltage Sensing - Transfers to manual control automatically (programmable) due to loss of voltage sensing at the voltage regulator</b>           | <b>Yes</b>   | <b>Yes</b>   |
| <b>Integrated Provisions to Transfer Between 2 Sets of PTs</b>  | <b>Yes</b>   | <b>Yes</b>   |
| <b>Oscillography - w/ Trending Capability</b>   | <b>Yes</b>   | <b>Yes</b>   |
| <b>Real Time Monitoring Measured Parameters for Test Analysis</b>   | <b>n/a</b>   | <b>6</b>     |

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|  | ECS2100      | DECS-2100 |
| <b>Built-in Dynamic Analyzer for measuring Frequency Response of Generator and Excitation System</b>             | No           | Yes       |
| <b>Protection</b>  |              |           |
| Field Overvoltage  | Yes          | Yes       |
| Gen. Over/Undervoltage   | Yes          | Yes       |
| Field Overcurrent  | Yes          | Yes       |
| Field and Gen. OEP Simultaneous  | No           | Yes       |
| Loss of Voltage Sensing  | Yes          | Yes       |
| Loss of Field  | Yes          | Yes       |
| Minimum Field Excitation Protection (MEP)  | No           | Yes       |
| Volts/Hertz Protection   | Yes          | Yes       |
| Field Temp. Monitoring Protection  | Yes          | Yes       |
| Integrated Generator and Exciter Field Ground Monitoring Protection  | No           | Yes       |
| <b>External microprocessor watchdog monitors the processors and power supply voltages</b>                        | No           | Yes       |
| <b>Three (3) Configuration Levels for Loss of Sensing Hierarchy (Dependant on available system PT/CT inputs)</b> | No           | Yes       |
| <b>Color Remote Interactive Display Panel</b>  | Yes          | Yes       |
| <b>Time Synchronization Stamp</b>  | GPS          | IRIG/NTP  |
| <b>Analog Transducers Outputs</b>  | 12           | 16        |
| <b>Configurable between 4-20ma and +/- 10Vdc</b>   | Yes          | Yes       |
| <b>Optional Built-in Power System Stabilizer</b>   |              |           |
| Dual Input, Integral of Accelerating Power (IEEE PSS2A/2B)   | Yes          | Yes       |
| Dual-Settings Groups   | No           | Yes       |
| <b>Analog Output to Firing Circuit</b>   | No           | Yes (2)   |
| <b>Fiber Optics Communication for Rectifier Bridge Firing</b>  | Yes          | Yes       |
| <b>Max Number of Digital Inputs/Outputs</b>  | 48 / 32      | 48 / 32   |
| <b>Communications - Modbus™, RS 485</b>  | Yes          | Yes (3)   |
| <b>Communications - RS 232</b>   | Yes          | Yes       |
| <b>Ethernet Port (Modbus™)</b>   | 1            | 2         |
| <b>Two (2) USB ports</b>   |              |           |
| BESTCOMS™ Pro Settings and Data Communication  | No           | Yes       |
| Downloading of Events, Alarms, and Data Logs   | No           | Yes       |
| <b>Generator Simulation Mode</b>   | Yes          | Yes       |
| <b>Integrated Auto-Synchronizing (optional)</b>  | No           | Yes       |
| <b>Equipment Setup - Basler Interface Software; Password Protected</b>   | Yes          | Yes       |
| <b>Programmable Logic and Configuration Provisions</b>   | Yes          | Yes       |
| <b>Redundant Controller Option</b>   |              |           |
| Independent Power Supplies for each Controller   | Yes          | Yes       |
| <b>Supervisory Channel for Enhanced System Reliability</b>   | Yes          | Yes       |
| <b>Autotracking between controllers</b>  | Yes          | Yes       |
| <b>Independent Power Sources for Microprocessor and I/O boards provide constant 24 Vdc power supply</b>          | Yes          | Yes       |

| CERTIFICATIONS/ENVIRONMENTAL COMPLIANCE   | Model Number  |                    |
|---|---------------|--------------------|
|   | ECS2100       | DECS-2100          |
| CE Compliant  | No            | Yes*               |
| Meets ANSI C37.90.1 for Surge Withstand and Fast Transient  | No            | Yes <sup>^</sup> * |
| RFI (Radio Frequency Interference), Conducted, and Radiated Noise per IEC 61000-4-2 through 61000-4-6 | No            | Yes <sup>^</sup> * |
| Operating Temperature Range   | -40° to 50°C* | -40° to 60°C*      |

<sup>^</sup> Designed with intent to meet applicable standards

\* Controller only