

Service Training

Course Catalogue





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About Cummins Generator Technologies

Cummins Generator Technologies manufactures the world's broadest range of AC Generators from 4 to 11,200 kVA under the STAMFORD and AvK brands. Internationally renowned for built-in quality, our AC generators set the standard for ruggedness, reliability and versatility.

For nearly a century, our experience and knowledge gathered from a large and diverse number of applications of synchronous generator installations help our customers operate with greater efficiency, making it possible for them to compete more successfully throughout the world.

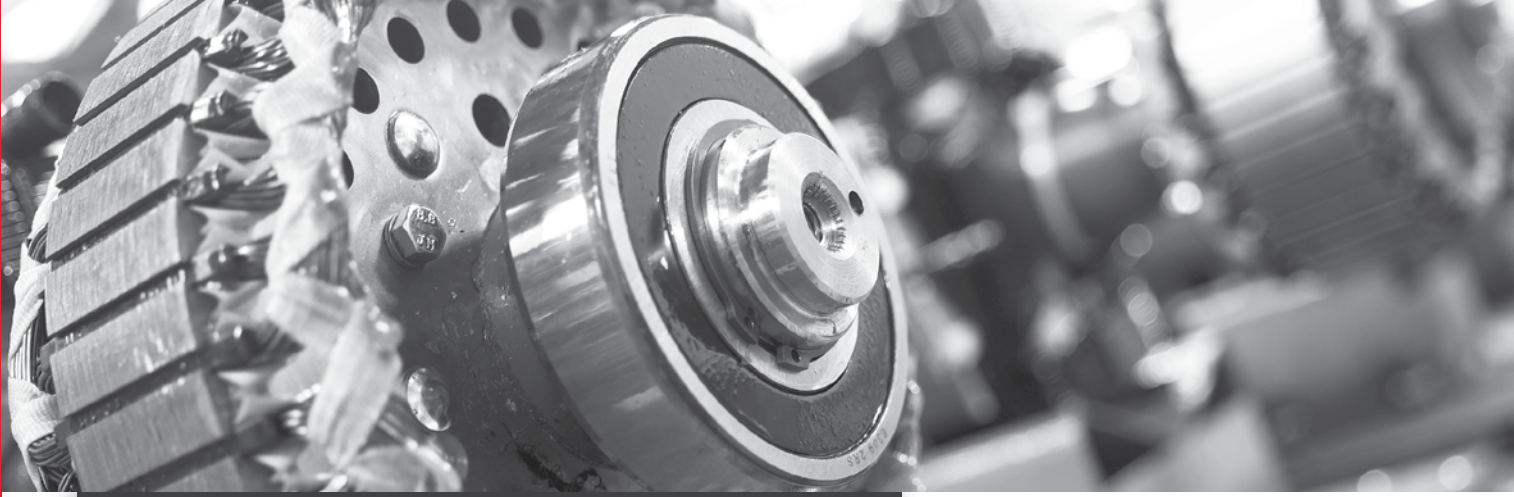
To best support our customers, Cummins Generator Technologies strives to develop and maintain the highest level of service capability possible. Continuous education, available through cutting-edge instruction, helps to make this possible.

For registration information on any of the courses shown here, please contact our Service Training department at:

stamford-avkservicetraining@cummins.com

Cummins Generator Technologies:

There for you™



Basics of AC Generators

Course Description

This course is intended for service technicians seeking qualification for the Cummins Generator Technologies brand family of AC Generators. Completion of this course satisfies one of the Pre-requisites for attending Fundamentals of alternators classroom training. Participants who successfully complete this training will have a basic understanding and knowledge of the construction and operation of alternators.



Timing & Delivery

4 hours
Online or Classroom



Pre-requisite Knowledge

None



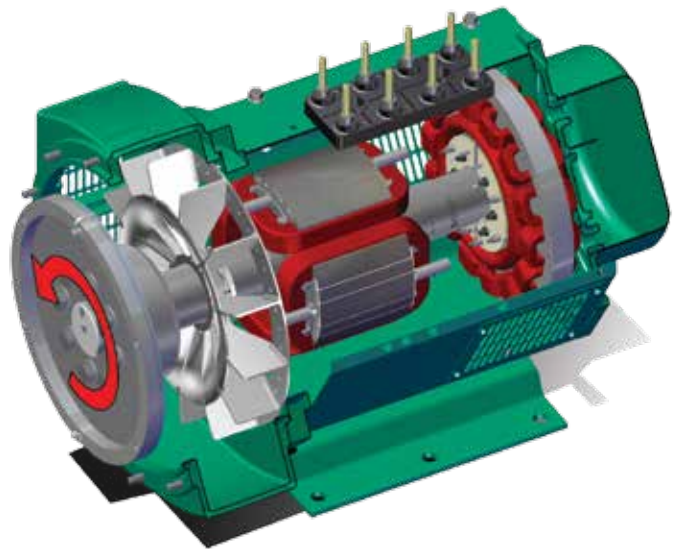
Products Covered

Basic AC Generator Theory



Topics

- Background and Overview
- Generator Construction
- Component Features
- Operation and Excitation
- Generator Output



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



Fundamentals of AC Generators

Course Description

The Fundamentals of AC Generators training course is a comprehensive introduction to the inner workings of alternators manufactured by Cummins Generator Technologies. The course material expands on basic AC electricity and magnetism theory to provide a complete understanding of alternator operation. Topics include alternator design and build, theory of operation, excitation processes, troubleshooting, and components testing.



Timing & Delivery

4 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators



Products Covered

STAMFORD and **AvK**; All Frames Basic Theory



Topics

- Generator Overview
- Generator Build
- Main Alternator – Rotor and Stator
- Excitation Systems
- AVR Systems
- Wiring and Reconnections
- Accessory Components
- Operation
- 5-Step Troubleshooting Approach
- Troubleshooting Exercises
- Bearings



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



Bearings I

Course Description

STAMFORD product ranges from HC6 to P80 and **AvK** ranges from DSG 62-125 and DIG 110-156 are offered with differing bearing types. The Bearings I course covers antifriction bearing theory, regreasing procedures and bearing maintenance. It also covers a basic understanding of fault analysis and service procedures focusing on bearing removal and installation. Ball bearing and roller bearing types are covered, excluding special configurations for DIG 142 machines which are covered in Bearings II.



Timing & Delivery

3 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators



Products Covered

HC6 to P80, DSG 62-125, and DIG 110-156



Topics

- Identification and Operation
- Regreasable Bearing Maintenance
- Bearing Removal
- Bearing Failures
- Troubleshooting
- Bearing Installation



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



Bearings II

Course Description

AvK model DIG 142 machines are manufactured with a clamped ball and roller bearing design. The Bearings II course covers the justification for a clamped bearing arrangement, maintenance procedures focusing on regreasing procedures, and service procedures focusing on bearing removal and installation. The unique bearing arrangement and specialised tools used for installation make this an advanced course for experienced technicians.



Timing & Delivery

4 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of Alternators
Bearings I



Products Covered

AvK DIG 142



Topics

- Identification and Operation
- Regreasable Bearing Maintenance
- Bearing Removal
- Bearing Installation
- Bearing Failures and Troubleshooting



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



Sleeve Bearings

Course Description

This course provides theory of operation of sleeve bearings along with maintenance, troubleshooting, servicing procedures and techniques to provide the participant adequate knowledge to service sleeve bearings used on machines manufactured by Cummins Generator Technologies. Course instruction includes inspection, cleaning and sealing techniques along with complete disassembly and assembly of a sleeve bearing.



Timing & Delivery

3 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators



Products Covered

DSG and DIG Generators



Topics

- Theory of Operation
- Troubleshooting
- Lubrication Systems
- Assembly
- Disassembly
- Maintenance
- Construction



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



AVR Adjustments

Course Description

This course is intended to be a pre-requisite for service technicians seeking qualification on any **STAMFORD**, Basler, or ABB Unitrol Automatic Voltage Regulator courses. AVR Adjustments course will cover the theory of analog AVR's, their adjustments and trim settings, and effects of adjustments. All AVR qualification courses will build upon this course.



Timing & Delivery

2-4 hours
Online or Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators



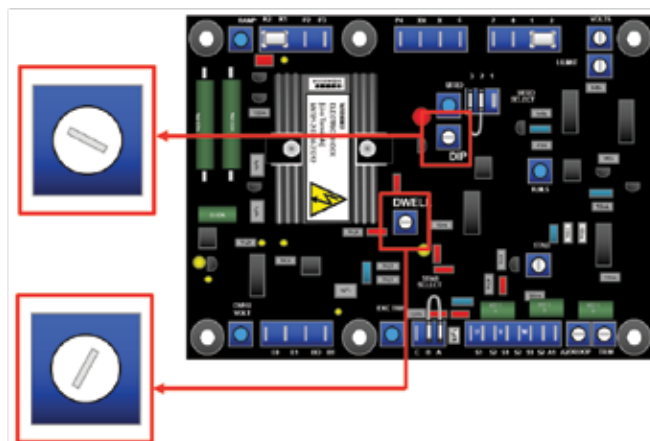
Products Covered

All principle voltage regulator settings.

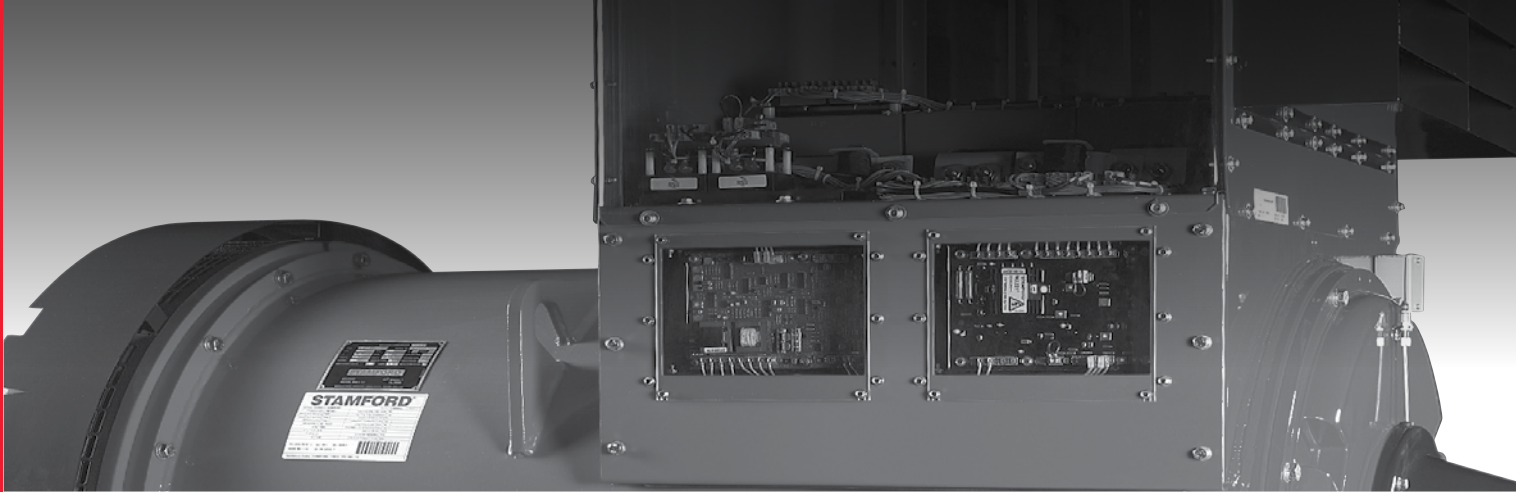


Topics

- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



STAMFORD Analogue AVR

Course Description

This course provides technical and practical understanding of the **STAMFORD** family of analog AVR models. The course material identifies the various connecting terminals and adjustment potentiometers, then provides hands-on experience with connecting and tuning the AVR.



Timing & Delivery

2 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments



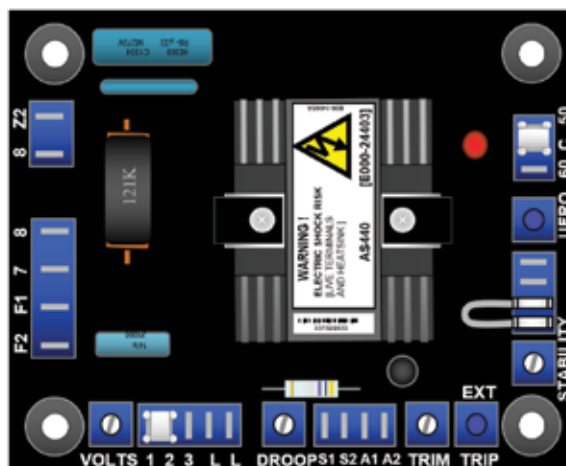
Products Covered

MX321, SX460, AS440, AS480, SX421, MX341, MA330, MVR



Topics:

- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



AVR Paralleling

Course Description

This course trains paralleling theory at the most fundamental level. The course material expands on a prior knowledge of AC electrical and alternator excitation theory. Course topics include synchronization, the droop circuit, power factor, power sharing, and reactive load sharing. Demonstrations of synchronisation, setting of a droop circuit, and live paralleling using **STAMFORD** AVR's are included.



Timing & Delivery

2 days
Classroom course at limited global venues.
Course to be placed online in the future.



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments



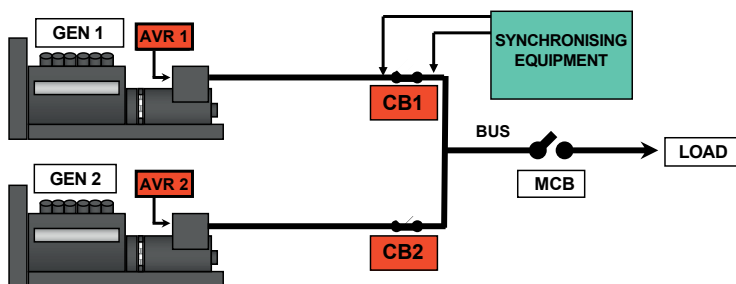
Products Covered

Paralleling Theory

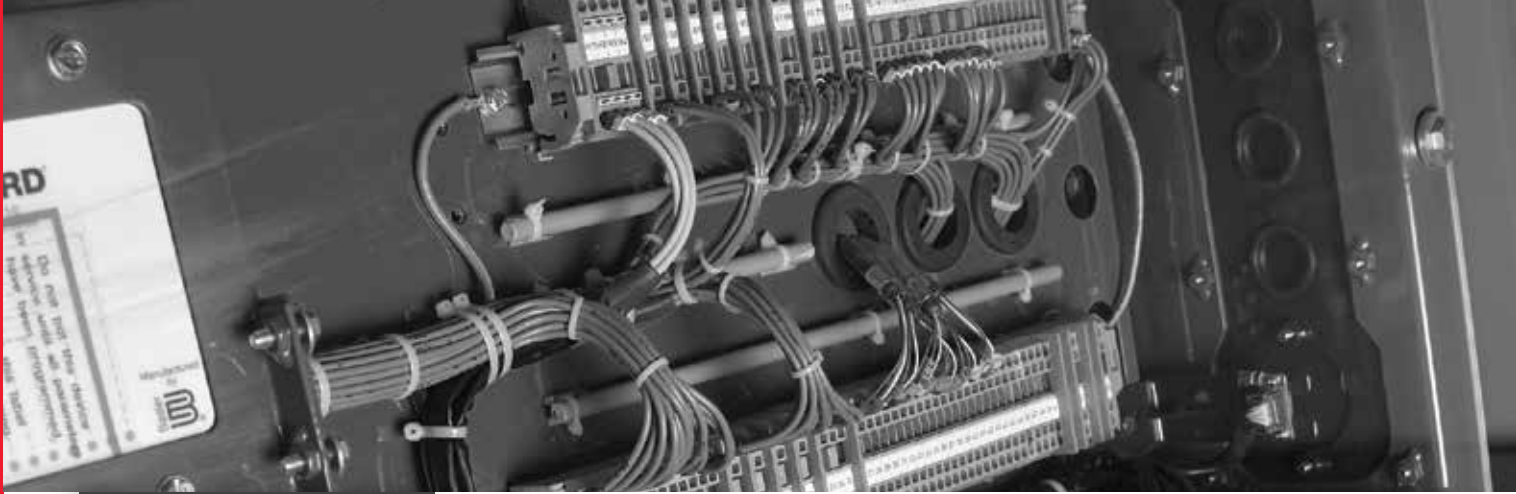


Topics:

- Parallel Operation
- Synchronization of Alternators
- Load Sharing
- Droop
- Reverse Power
- Parallel Operation with Utility
- Troubleshooting



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



Basler AVR

Course Description

This course provides a fundamental understanding of the Basler DECS 100, 200 and newer DECS 150, 250 digital AVR models as well as covering the **STAMFORD** DM110 digital AVR. The course material provides exposure to the digital interface software for AVR Set-up and monitoring in addition to hands-on practice with connecting and troubleshooting these digital AVR models.



Timing & Delivery

3 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments



Products Covered

DECS 100, 200 150, 250 and DM110



Topics

- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



ABB Unitrol AVR

Course Description

This course provides technical understanding of the ABB Unitrol 1010 and 1020 digital AVR models. The course material provides exposure to the digital interface software for AVR Set-up and monitoring in addition to hands-on practice with connecting and troubleshooting these digital AVR models.



Timing & Delivery

3 days
Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments



Products Covered

ABB Unitrol 1010 and 1020

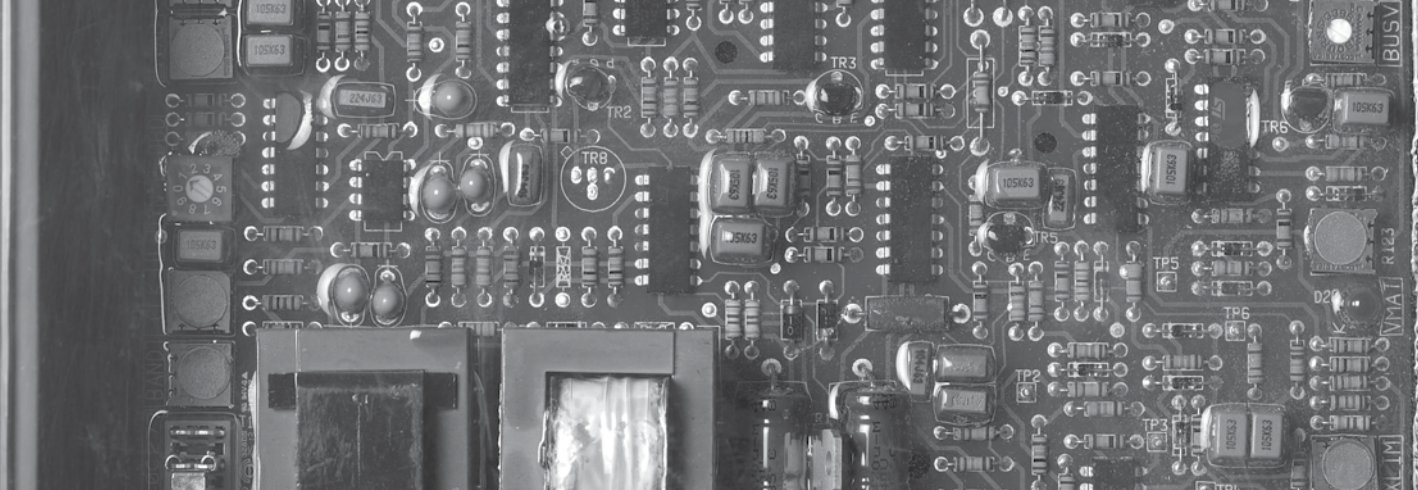


Topics

- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



PFC3 Power Factor Controller

Course Description

This course covers the purpose of using a power factor controller, followed by the layout, function, and interconnection of the STAMFORD PFC3 with other support equipment. Topics include operating theory, PFC3 connections, interaction with the AVR, remote control interface, voltage matching, and excitation loss module.



Timing & Delivery

2-4 hours
Online or Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments
Paralleling



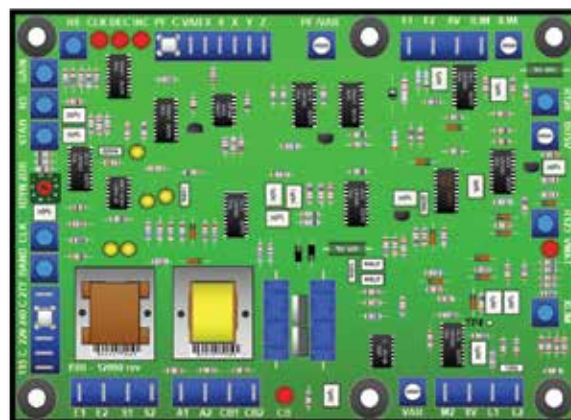
Products Covered

DECS 100, 200, and DM110

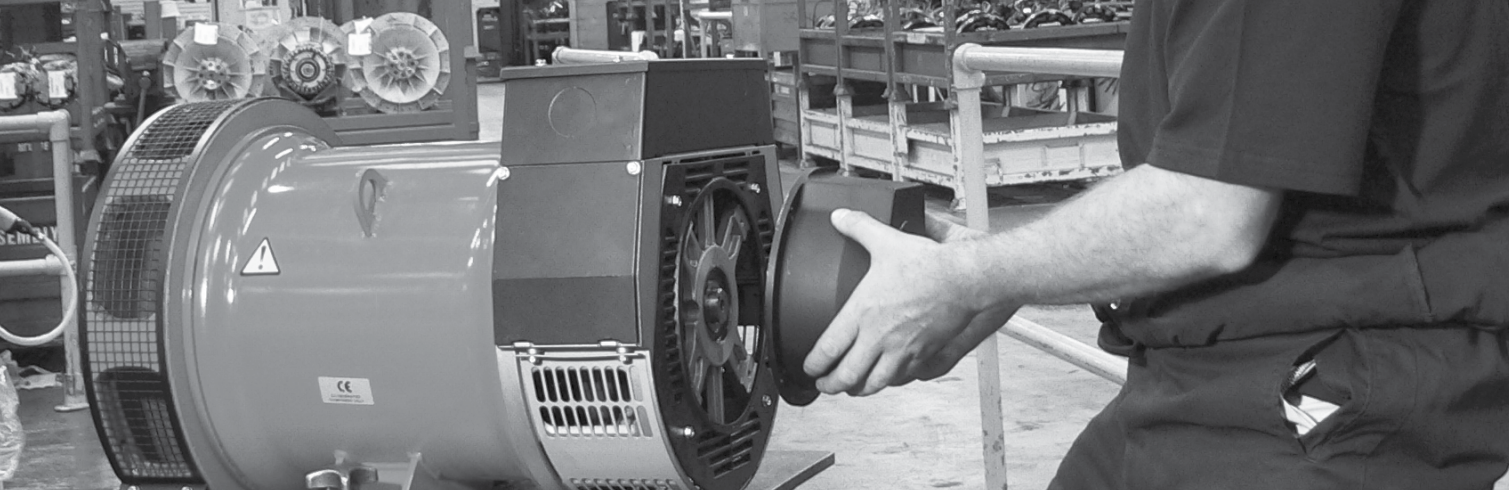


Topics

- Background and Configurations
- Protection Systems
- Basic Systems
- PFC3 Features



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com



Excitation Boost System

Course Description

This course is a familiarisation training course meant to give the participant a clear understanding of how the Excitation Boost System works and how to troubleshoot it. This course is designed for service technicians seeking qualification on the P0/P1 range of **STAMFORD** AC Generators.



Timing & Delivery

1 hour
Online or Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators



Products Covered

STAMFORD P0/P1



Topics

- Background and Theory
- Troubleshooting



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com

Grid Code Compliance (Europe)

Course Description

This course will offer an awareness of Grid Code Compliance and give participants a greater knowledge of how alternators produced specifically for grid applications differ from the standard equipment.



Timing & Delivery

1-2 hours
Online or Classroom



Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators



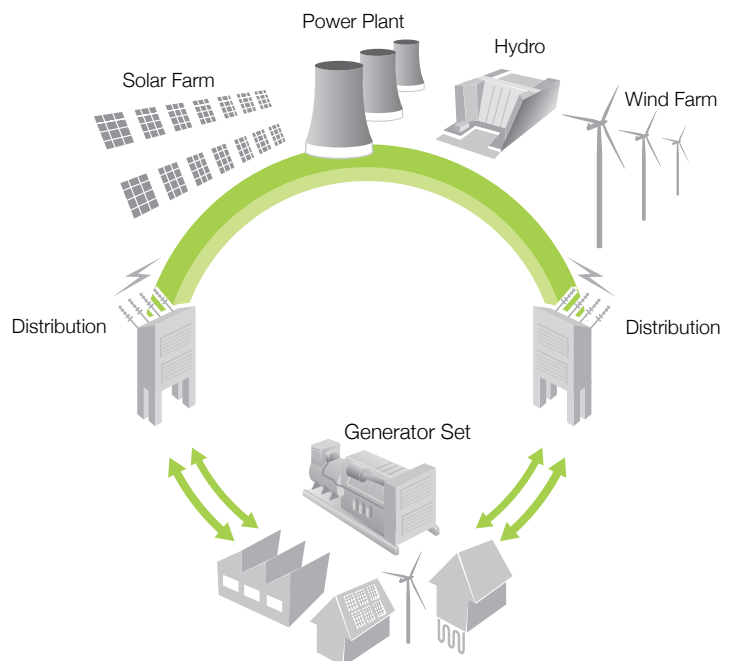
Products Covered

STAMFORD and **AvK** All Frames



Topics

- Introduction
- Grid Codes
- Product Changes



For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com

Application Training

Cummins Generator Technologies offers a wide range of alternator application training courses to help our customers in the design and operation of our products. Training is personally delivered by our own Application Engineering team members who have a wealth of alternator application and design experience, and training can be customised to meet your needs.

Some of the training courses offered include:*

- Electrical Principles
- Alternator fundamentals
- STAMFORD products
- AvK Products
- Automatic Voltage Regulators (AVRs)
- Alternator Ratings & Duty
- Alternator Performance Data
- Parallel Operation
- Mechanical Design
- Environmental
- Alternator Sizing
- Alternator Protection
- Alternator Testing
- Codes & Standards
- Marine Applications
- Grid Code Compliance

Email: applications@cummins.com

**Application Engineering Training Courses are not a qualification.*

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