Power Electrics
Generator Training Catalogue
Power Electrics is home to Europe’s only accredited FG Wilson training centre. When booking a training course with us you can be sure that your product and service support needs don’t end at the sale. We take the long term view and aim to provide assistance throughout the life cycle of your Generator requirements.

Our new facilities now incorporate a dedicated training centre, classroom and test cell, enabling you to familiarise with your generator product, develop best practice and deal with compliance issues.

Power Electrics offer a range of courses which contain both theory and practical content and are designed to meet your needs. There are three different levels of technical training:

- **FOUNDATION**
  - Foundation level is suitable for new staff, generating set operators, basic technicians, counter staff, management and administrators.

- **INTERMEDIATE**
  - Intermediate level is suitable for personnel with medium level experience involved with Installation, Commissioning, Service and Repair.

- **BITE SIZE**
  - The Bite Size training focuses on one specific area, providing detailed training but only taking up part of your day.

We hope you enjoy reading this training catalogue and that you feel the content will inform you about the options available to enhancing your generator knowledge.

If you have any questions regarding course dates or the options that are available to you please feel free to contact us on the details on the back page of the training catalogue.

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<table>
<thead>
<tr>
<th>Training Facilities</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booking Information</td>
<td>5</td>
</tr>
<tr>
<td><strong>FOUNDATION</strong></td>
<td></td>
</tr>
<tr>
<td>Generating Set Familiarisation and Component Identification</td>
<td>6</td>
</tr>
<tr>
<td>Introduction to Generating Set And Basic Operation</td>
<td>7</td>
</tr>
<tr>
<td><strong>INTERMEDIATE</strong></td>
<td></td>
</tr>
<tr>
<td>Product Technical Training Intermediate Panel</td>
<td>8</td>
</tr>
<tr>
<td>Product Technical Training Intermediate Engine</td>
<td>9</td>
</tr>
<tr>
<td>Customised FG Wilson Set Training</td>
<td>10</td>
</tr>
<tr>
<td>Customised Generating Set Training</td>
<td>11</td>
</tr>
<tr>
<td><strong>BITE SIZE</strong></td>
<td></td>
</tr>
<tr>
<td>Diesel Engines</td>
<td>12</td>
</tr>
<tr>
<td>Control and Load Transfer Panels</td>
<td>13</td>
</tr>
<tr>
<td>Alternators and AVR’s</td>
<td>14</td>
</tr>
</tbody>
</table>
Britian’s Best Generator Training Facility

Our History

Power Electrics was founded in 1963 and is still run by the same family and continue to grow on the solid foundations and values established nearly 50 years ago.

The company now has 250 employees throughout the UK, offering significant professional expertise and support.

At Power Electrics we take pride in telling our customers that we are generator specialists.

Our Bristol Headquarter

The Power Electrics Headquarter facility in Bristol incorporates a dedicated training centre within the 7 acre site.

As well as a training centre the Bristol Facility includes a PDI Centre with fully equipped service bays, test bays with loadbanks, generator parts storage and fabrication and paint facilities.

Facilities included within the training centre include multiple classrooms along with test cells, enabling you to familiarise yourself with the products, develop best practice and deal with compliance issues.

Classrooms

Join us in one of our multiple classrooms designed to create an interactive learning environment.

Location

Power Electrics is ideally located just outside of Bristol with excellent transport networks around the county.

Travel By

Car: Located just off the Bristol Ring Road (A4171) which is connected to both the M4 and M5. Our facility has multiple parking spaces for delegates.

Rail: We are located 6 miles away from Bristol Temple Meads station and 8 miles from Bristol Parkway.

Fly: Bristol International Airport is located only 14 miles away from our headquarters.

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**Booking Information**

**How to book**

Complete the form on the back of the leaflet and send to:
   Training,
   Power Electrics,
   St Ivel Way,
   Warmley,
   Bristol,
   BS30 8TY
or email training@powerelectrics.com

If you have any questions about a course or you want to enquire about a bespoke course, you can contact a member of the training team on 0370 850 0858 or by email on training@powerelectrics.com

**Cancellation Policy**

Power Electrics reserve the right to cancel the course due to unforeseen circumstances and do not accept responsibility for any financial loss. Once you have secured your booking the following are the terms and conditions of the cancellation policy:

1. Cancelled booking 8 weeks prior to date of course - 50% of training cost will be charged.

2. Course cancelled 4 weeks prior to date of course - 100% of training cost will be charged.

**Dress Code**

Delegates should wear appropriate clothing and will be expected to wear personal protective equipment.

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**GENERATING SET FAMILIARISATION AND COMPONENT IDENTIFICATION**

**Duration**

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Day</td>
<td>£100 per person</td>
</tr>
<tr>
<td></td>
<td>Min. 10 delegates</td>
</tr>
</tbody>
</table>

**Course Overview**

An introduction to diesel generating sets. Understanding basic electrical circuitry and controls. This course has been designed to provide people new to the Power Generation business with an overview of how generators are designed and how they work.

**Objective**

Focusing on familiarisation of the generator range. Delegates will learn to identify and understand the function of the key components of the generating set. This will be structured into specific areas including the Engine, Alternator, Control System, Base Frame and Enclosure.

**Suitability**

This course is suitable for new recruits, generating set operators and semi-skilled technicians. It will also be a good starting point for those personnel who are required to operate, maintain and make minor adjustments to a generating set, but are not expected to have the breadth of knowledge required to find and fix major faults.

**Topics**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Alternator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description and explanation of 4 stroke combustion cycle. Fuel systems in use with Perkins engine range.</td>
<td>Understanding basic electrical AC and DC power and electrical terminology.</td>
</tr>
<tr>
<td>Control System</td>
<td>Cooling Package</td>
</tr>
<tr>
<td>Explanation of basic analogue and digital control system functions.</td>
<td>Explanation of different cooling package designs and their functions.</td>
</tr>
<tr>
<td>Base Frame / Enclouser</td>
<td></td>
</tr>
<tr>
<td>Overview and explanation of different designs.</td>
<td></td>
</tr>
</tbody>
</table>
INTRODUCTION TO GENERATING SETS AND BASIC OPERATION

Duration      Cost
Two Days      £200 per person
Min. 10 delegates

Course Overview
A more detailed introduction to Diesel generating sets. Understanding basic electrical circuitry and alternator principles. Ideal for learners wishing to grow their knowledge enabling them to advance to the Intermediate courses.

Objective
To focus on familiarisation of the generator range. Delegates will learn to identify and understand the functions of the key components of the generating set. This will be structured into specific areas - the Engine, Alternator, Control System and Cooling Package. The course will also be a good refresher to personnel who have not attended a course for some time.

Suitability
Generating set operators, semi-skilled technicians or personnel with limited electrical knowledge, who will be required to operate, maintain and make minor adjustments to a generating set. Persons wishing to attend this course will need to have an understanding of diesel engines and a basic understanding of electrics.

Topics
- Engine
  Identification and explanation of the function of key components. Description of engine fuel systems and governing.
- Alternator
  Explanation of alternator principles and wiring configurations.
- Control System
  Explanation of analogue and digital control panel features.
- Cooling Package
  Explanation of analogue and digital control panel features. Introduction to AC and DC wiring using basic electrical schematics.

PRODUCT TECHNICAL TRAINING INTERMEDIATE PANEL

Duration      Cost
Three Days      £375 per person
Min. 10 delegates

Course Overview
An introduction to current and existing FG Wilson generating sets. Ideal for personnel wishing to grow their knowledge.

Objective
This specially designed course will concentrate on the FG Wilson control systems and their key functions, with a particular focus on installation, commissioning, and fault diagnosis. The programme includes both classroom lecture and practical hands-on exercises.

Suitability
Skilled Service Engineers with a minimum of six months relevant experience.

Topics
- Analogue Control Systems
  Explanation of EIM and Magnetic pickup functions. Explanation of 1002T electrical schematics. Control systems applications. Commissioning and adjustment of control systems including EIM and magnetic pickup.
- Alternators
  Excitation types, methods of operation and fault diagnostics. AVR types, functions and adjustments. Output configuration and set-up.
- PowerWizard Control System
- ATI / CTI Transfer Panel
  Digital controls operation and function. Transfer systems installation and set-up.
- 6000 Series Control System
  Modes of operation. Explanation of status menus.
PRODUCT TECHNICAL TRAINING INTERMEDIATE ENGINE

Duration
Three Days

Cost
£375 per person
Min. 10 delegates

Course Overview
An introduction to Electronically Controlled Engines, building confidence in the technology used in controlling modern diesel engine.

Objective
This specially designed course will focus on generating set installation, commissioning and fault diagnosis. Delegates will learn to identify and understand the function of key components of the engines. The programme includes both classroom lecture and practical hands-on exercises.

Suitability
Skilled Service Engineers with a minimum of six months relevant experience.

Topics
2x06 Series Electronic Engines

1100 Series Electronic Engines
Fuel system function and operation. Electronic Control Module management system. Control system interface, methods of operation and adjustments. Electronic Service Tool operation and functions.

1300 Series Electronic Engines
HEUI fuel and oil system function and operation. ECM management system. Explanation of electrical wiring diagrams. Control system interface and methods of operation. EDi Service Tool operation and functions.

CUSTOMISED FG WILSON SET TRAINING

Duration
As Required

Cost
POA

Course Overview
This course is designed to be flexible to suit your requirements and can be adapted to include the full range of intermediate topics applicable to your needs. A course with its agenda set by you to match the equipment that is operated or serviced by you.

Objective
This course will be based on the topics selected by yourself, providing training focused on installation, commissioning, and fault diagnosis.

Suitability
This course is suitable for all personnel depending on the topics selected.

Topics
Foundation Course
Generating Sets Familiarisation and Component Identification (Page 6)

Intermediate Courses
Analogue Control Systems (One Day)
6000 Series Control Systems (One Day)
PowerWizard Control Systems (One Day)
ATI / CTI Transfer Panel (Half Day)
Alternators (Half Day)

Intermediate Courses
400 Series Electronic Engines (One Day)
1100 Series Electronic Engines (One Day)
1300 Series Electronic Engines (One Day)
2x60 Series Electronic Engines (One Day)

L-Series Engine Governing (Half Day)
ProAct Governing (Half Day)
Heinzmann Pandoras Governing (Half Day)
LCS Engine Governing (Half Day)
CUSTOMISED GENERATOR SET TRAINING

Duration  | Cost
---|---
As Required  | POA

Course Overview
This course is designed to be flexible to suit your requirements and can be adapted to include the full range of intermediate topics applicable to your requirements. A course with its agenda set by you to match the equipment that is operated or serviced by you.

Objective
This course will be based on the topics selected by the dealer, providing training focused on installation, commissioning, and fault diagnosis.

Suitability
This course is suitable for all personnel depending on the topics selected.

Topics
Foundation Course
Generating Sets Familiarisation
And Component Identification
(Page 6)
Introduction to Generating Sets and Basic Operation
(Page 7)

Intermediate Courses
Analogue Control Systems
Digital Control Systems
Engine Governors

DIESEL ENGINES

Duration  | Cost
---|---
3 hours  | £65 per person

Min. 10 delegates

Course Overview
This 3 hour training session explores the inner working of diesel engines used within generating sets. This course involves bringing the technical data sheet information to life through understanding the theory behind combustion and how the various components of the engine work together in a practical sense.

Objective
To understand engine technical data sheets and how the engine works. You will learn common engine components and terms used when describing diesel engines and explore the engine system including cooling, induction and electrical.

Suitability
This introductory course is suitable for all personnel who need to boost their understanding of how diesel engines work and the fundamentals of their operation, maintenance and repair.

Topics
Introduction to engine technical data sheets
Explanation of engine model designations

How engines work. Exploring:
The basic elements require for combustion;
How energy is transmitted by reciprocating and rotary motion;
The four stoke combustion process

Common engine components and terms used when describing diesel engines

Exploration of engine systems. Including:
Cooling, Induction and Electrical
CONTROL AND LOAD TRANSFER PANELS

Duration: 3 hours
Cost: £65 per person
Min. 10 delegates

Course Overview
This course explores analogue and digital control panels along with associated Load Transfer Panels for diesel generators. Show and tell with product parts is used through the training presentation along with practical time for participants to use live panels.

Objective
To understand the control method of both analogue and digital control panels for diesel generators.

Suitability
This course is suitable for anyone needing to increase their awareness of analogue and digital control systems.

Topics
Product line
Standard panel options and optional upgrades

Features of PowerWizard control panels.
Including: Analogue and programmable inputs and outputs, Product features including AC Power Metering, data links, remote monitoring and display languages.

Load Transfer Panels
Explores ATIs, CTIS and TIs

ALTERNATORS AND AVR’S

Duration: 3 hours
Cost: £65 per person
Min. 10 delegates

Course Overview
This training course aims to give participants an understanding of how alternators and AVR’s work, the process behind excitation and provides a discussion of components and terms used when describing alternator and AVR systems. Visual aids including show and tell with alternator and AVR parts are used alongside animation to help reinforce knowledge.

Objective
To understand and provide a technical base of knowledge allowing a greater understanding of how alternators and AVR’s are selected or specified for customer application.

Suitability
Suitable for all staff working with or needing to increase their awareness of alternator and AVR products.

Topics
Introduction to alternator technical data sheets
Explanation of alternator model designations

Alternator physical and operating data.
Including; Insulated class, Winding pitch and connection, IP Ratings and Telephone Interference Factor (TIF) & Total Harmonic Factor (THF).

Alternator excitation system and AVR models

Alternator main components
How alternator and AVR’s work
Including a discussion of: Magnetic fields, 2 and 4 pole alternators, frequency and Stator and Rotor

Configuration of voltage option
Terms used to describe alternators

AVR features
Including; Single and Three Phase sensing, LAM and Synchronisation
Found everything you are looking for?
If there is a course or subject area that you would like to have a course on and did not find it in this brochure please feel free to contact us and talk about your requirements.

Don’t take our word for it:

Course met my requirements fully - took the veil of mystery surrounding generators away

The pace and delivery of the course were superb. Many thanks to all - the course was very informative and have given me a very good overall view of the subject.

I would certainly recommend. Thank you for your help, the staff are friendly, very knowledgeable and experienced.

Very impressed by Neil’s knowledge and commitment to the customer. Had a good weeks training course and I certainly feel more confident of the principles of generation power.

BOOKING FORM

YOUR CONTACT DETAILS

Name:  
Company Name:  
Company Address 1:  
Company Address 2:  
City:  
Country:  
Postcode:  
Telephone:  
Email:  

TRAINING COURSE DETAILS

Name of Course/Courses:  
Date Requested:  
Number of Attendees:  
Name of Attendees:  
Order Number:  

I wish to book on the course/courses detailed above. I have read and accept the booking terms and conditions stated.

Signed:     Date: