



-power in control



POWER & CONTROL TECHNOLOGY: RENTAL

Done With The Push Of A Button

We know how vital it is that gensets can be moved fast from one site to the next, including the ability to run them in different types of applications without losing time on the setup.

DEIF controllers are plug & play solutions that eliminate the need for wiring and the need to change controllers when changing applications: it's all done and dusted with the push of a button. With password protection and locks, installation is so safe and simple you can trust your driver to setup your rental equipment.

DEIF is one of the world's biggest suppliers of control systems on the rental genset market with DEIF standards applied widely across almost all major rental companies.

Our dominant market position and the wide use of DEIF's reliable solutions means that rental companies and third party users often benefit from a flexible and compatible global fleet of gensets, allowing for rapid projecting and commissioning of projects worldwide.

If you want to save time as part of your efforts to maximise the returns on your investment, DEIF's integrated Automatic Genset Controller, AGC-4, is the innovative choice.

AGC-4 equals rapid projecting and commissioning of projects worldwide.



Henrik Binderup
Product Manager
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Flexibility

- ✓ Compatible with all genset designs
- ✓ Applicable for both sync and non-sync
- ✓ 1 controller range, 1 user interface for sites from kW to MW
- ✓ 1 PC tool for all controllers

Setting The Standard For The Rental Market

Benefit From A Flexible & Compatible Global Genset Fleet

Construction



Events



Utility Support



Oil & Gas Exploration



Fast Setup

- ✓ Set and lock parameters to protect your equipment
- ✓ Truck driver can set up installation without risk to equipment
- ✓ Remote Gateway – monitors equipment in the field

Support

- ✓ DEIF Emulation – system test before design & production
- ✓ Project-specific design and engineering support
- ✓ 24/7 support availability



Power in Control

The following pages feature a case study for an application that successfully runs DEIF units and solutions.

DEIF has become a preferred control solution supplier to some of the biggest operators in the market, not just because of our innovative, safe and reliable technology but because of our commitment in guiding you through all phases of your project, from specification to installation or configuration. DEIF's flexible product platform covers the full range of application possibilities.

Most customers are able to install and commission our standard products working from data sheets only. But in cases of doubt, DEIF's far-reaching network of sales and competence centres, distributors, customer care teams, and technical support teams is available to assist you and ensure you invest in and implement the best controller for your application.

DEIF realises how space is always in demand. Saving you time and cost, our standard controllers require limited room for mounting and installation in switchboard cabinets.

Basic installation information can be found in the product quick start guide, and application setup is made easy with DEIF's Utility Software.

For greater detail, we refer you to the product installation instructions, just as you are invited to attend training courses on how to install and operate DEIF's standard controllers.

We know how vital it is that gensets can be moved from one site to the next, fast...

Recognising the important potential of the growing power generation needs and infrastructure developments of the booming BRIC economies, over the past decade DEIF has been a keen partner in bringing greener and more reliable power solutions to distant sites and areas undergoing rapid urbanisation or industrialisation.

In Brazil, DEIF has formed a long-standing partnership with A Geradora, a top 100 rental company that supplies power for projects like the construction of the main access road to the FIFA 2014 World Cup Arena Pernambuco at Recife. Apart from a bus rapid transport corridor, the project will come to include two lanes for public transport, six for private vehicles, as well as bike paths, sidewalks, a bridge and a viaduct on the subway.



“We have come to believe so firmly in DEIF’s solutions that we now have approximately 500 gensets and transfer switches equipped with DEIF modules, part of a process that will see us standardise our whole fleet with DEIF solutions, including DEIF’s most recent technology,” says A Geradora Chief Engineer, Sergio Alvarez.

“We know how vital it is that gensets can be moved from one site to the next, fast” DEIF Product Manager Henrik Binderup explains, “including the ability to run them in different types of applications without losing time on the setup. If you want to save time as part of your efforts to maximise the returns on your investment, DEIF’s integrated Automatic Genset Controller, AGC-4, is the innovative choice.”

Featuring all standard rental applications and enabled for customisation by making simple display selections, defining buttons and LEDs on the AOP, the AGC-4 is the most comprehensive controller on the market today. With an easy-to-use interface for managing the plant during operation, the controller not only reduces costs for commissioning, maintenance and operation for standard size projects; it also handles fully automated large scale applications of up to 256 gensets in one application.

Naturally, the AGC-4 interfaces to all types of engine brands. Because it can be built on top of an engine controller and has an analogue load sharing line interfacing other controllers, introducing AGC-4s gradually as part of a retrofit plan for your fleet is also possible.

Refitting an existing control system with a DEIF solution can make good financial sense and be a green advantage with significant and tangible gains in the form of immediate improved engine performance and reduced emissions. The refitting has a short to medium term return on investment time, and in the longer perspective improved engine performance and a reduced need for servicing means a longer operation life for the generator.

A Geradora: Recife, Brazil

A Long-standing Partnership With a Top 100 Rental Company

Data

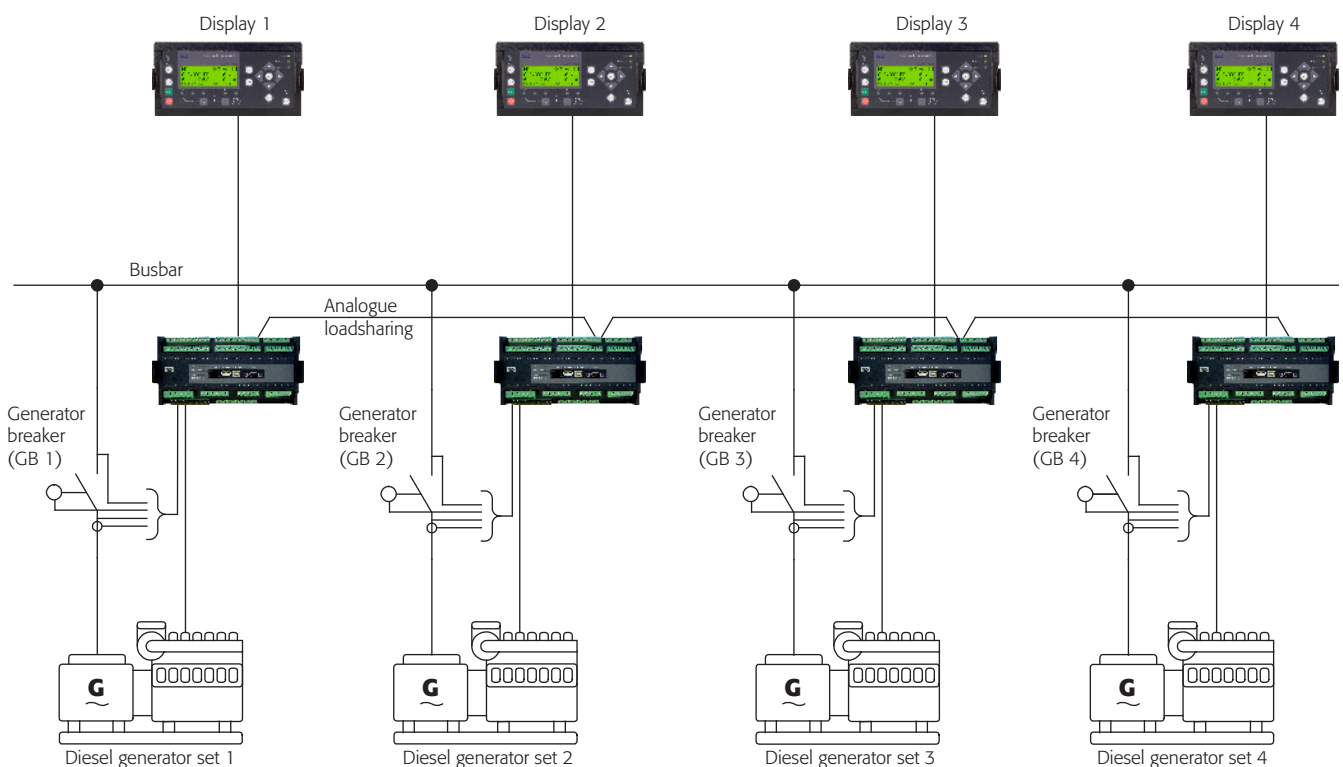
- ✓ Approx. 500 A Geradora gensets equipped with DEIF modules
- ✓ Reduces fuel consumption and maintenance intervals
- ✓ Seamless and fast switch from one site to the next
- ✓ Interfaces to all engine brands
- ✓ Highly suitable for fleet retrofitting

Product



Automatic Genset Controller, AGC-4

Diagram From Case



Rental Controllers

Intro



DEIF Diesel Control Technology's award-winning and innovative controllers are some of the most comprehensive on the market today, ranging from cost-effective single and advanced multi-function controller platforms to units suitable for innovative, engineered Power Management System solutions.

As a rule, DEIF's control concepts eliminate the need for external controllers and are user-friendly alternatives to standard controllers.

Working with DEIF, you benefit from the advantages of collaborating with one qualified supplier.

We also offer outstanding product quality, expert support engineers for standard support, consultant application engineers to check specifications, and project managers ready to assume responsibility for turnkey power management solutions.

Automatic Genset Controller, AGC 100

Designed for Backup & Emergency Power Applications



Developed for applications where safe and reliable power supplies are critical, DEIF has released a series of non-sync controllers with a powerful processor and significant memory capacity.

Cost-efficient and intelligent, the versatile AGC 100 series features CANbus power management for handling non-synchronised mains and Power Management System applications where multiple gensets supply load.

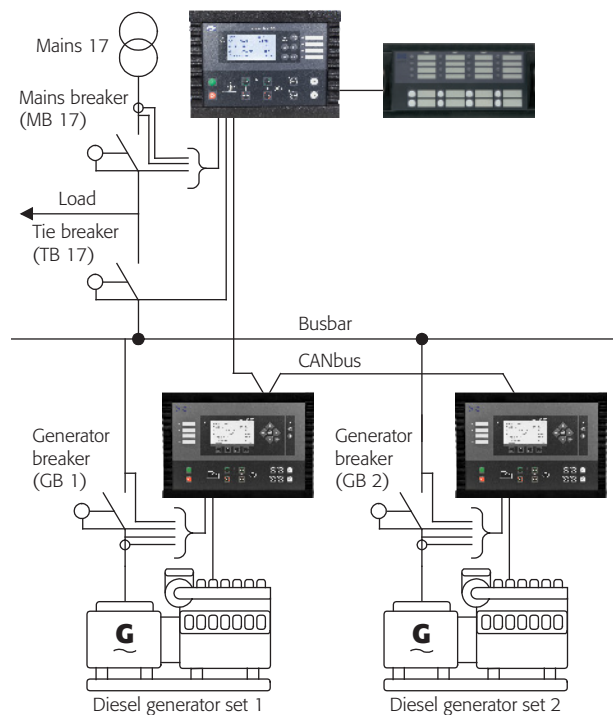
AGC 100 Options

- AGC 110: engine control
- AGC 111: island control
- AGC 112: island control with generator breaker
- AGC 113: automatic mains failure (AMF)
- AGC 145: non-sync power management
- AGC 146: non-sync power management with tie breaker

AGC 100 Features

- ✓ Auto Start or Automatic Mains Failure Applications
- ✓ Monitoring of Electronic or Non-electronic Engines (J1939)
- ✓ Genset/Busbar Control & Protection
- ✓ 8 Digital Inputs, 3 Multi-Inputs (digital or analogue) and 8 Relay Outputs
- ✓ Modbus Communication RS485
- ✓ Configurable with DEIF Utility Software
- ✓ Graphical Display (Multi-language)
- ✓ Programmable Logic (M-Logic)
- ✓ Additional Operator Panel (AOP-2)
- ✓ External I/O (option)
- ✓ Display Parameter setup (Multi-language)
- ✓ Non-sync power management
- ✓ Emulation for fast training and I/O test

AGC 100 Application Example



AGC 100 Type Approvals



Generator Protection Unit, GPU-3

Controller for PLC-based Power Management System



Easy to operate and configure, DEIF's Generator Protection Unit GPU-3 is an ideal controller for PLC-based power management systems.

The GPU-3 offers comprehensive generator protection and synchronisation. Serial communication enables easy interfacing with PLCs, SCADA systems and more, and the unit features all necessary 3-phase measuring circuits and displays all values and alarms on a quality LCD screen.

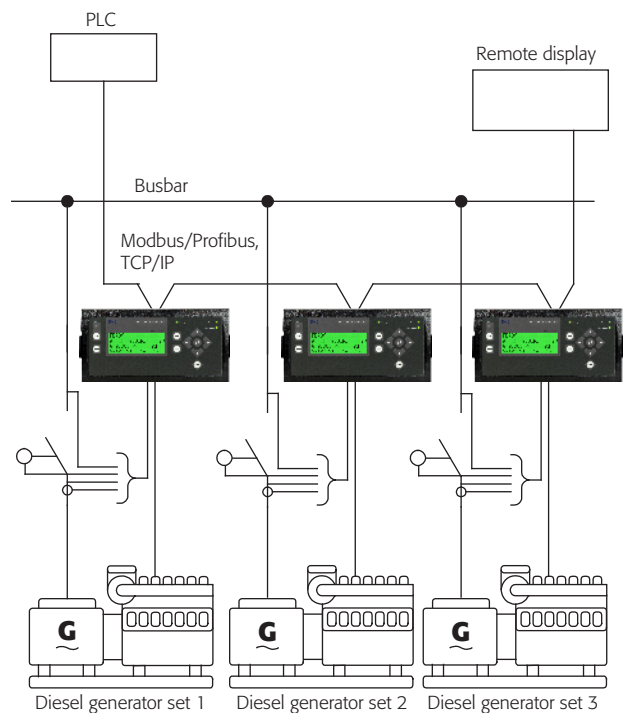
Turning the GPU-3 into an engine control unit featuring start/stop and protection functionalities, the optional engine interface card also has a separate power supply and an independent microprocessor. In cases of GPU-3 processor break-downs, the engine interface card will enter into back-up mode and ensure uninterrupted engine supervision. In cases of shutdown alarms, the engine shuts down automatically, making it a reliable solution for control and supervision of gensets.

With free software download and upgrade at www.deif.com, it is possible to customise the application to suit your needs exactly: dedicate specific functions or logic conditions to different inputs and outputs and tune all sequences according to your requirements.

GPU-3 Features

- ✓ Generator/busbar protection
- ✓ Synchronisation
- ✓ Multiple display units and operator panels possible
- ✓ Engine protection with back-up on shut-down channels
- ✓ Engine control and communication

GPU-3 Application Example



GPU-3 Type Approvals



Generator Paralleling Controller, GPC-3

Versatile Unit For Application Programming In PLC



The GPC-3 is a highly versatile and compact generator paralleling controller designed for engineers who prefer to carry out application programming in a PLC.

A multi-function component, the GPC-3 features protection, measurements, engine control and engine protection and communicates with all PLC and SCADA systems. Values and alarms are displayed on a large LCD screen.

Its simplicity and logic makes it the ideal controller for PLC-based power management systems.

The M-Logic configuration tool makes it possible to customise the application and dedicate specific functions or logic conditions to different inputs and outputs.

GPC-3 is easily compatible with additional display units and Additional Operator Panels (AOPs) for remote control, supervision and status indication.

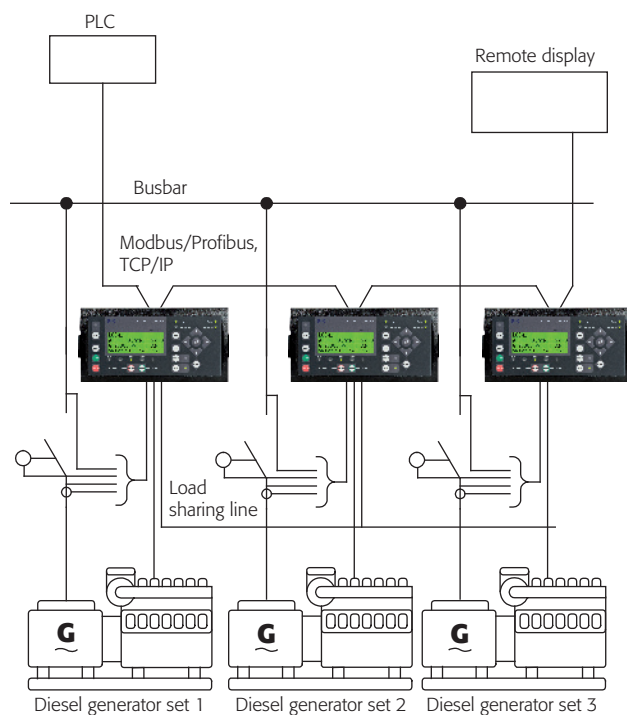
GPC-3 Features

- ✓ Synchronisation/Load Sharing
- ✓ Mains/Generator/Engine Protection
- ✓ Programmable Logic (M-Logic)
- ✓ Engine Protection With Back-up on Shut-down Channels
- ✓ Governor and AVR Control
- ✓ J1939 Engine Com/Mirrored Modbus/Profibus/TCP/IP
- ✓ Multiple Display Units
- ✓ Additional Operator Panels
- ✓ Genset & Busbar Control & Protection

GPC-3 Regulation Modes

- ✓ Load sharing
- ✓ Fixed frequency
- ✓ Fixed power
- ✓ Frequency droop

GPC-3 Application Example



GPC-3 Type Approvals



Advanced Genset Controller, AGC 200

New features include Hot Standby redundancy, communication to digital AVR D510c from Leroy Somer, and droop mode.

DEIF has released a new version of its acclaimed Advanced Genset Controller, AGC 200, to meet and surpass OEM needs for synchronisation. A cost-effective, compact, scalable and all-in-one product, the AGC 200 comes in several variants.



The advanced controller series integrates all necessary functions for superior genset protection and control and stands out for its reliability and operator-friendliness and features patent-pending DEIF Emulation to speed up design, testing and commissioning, saving you man hours and costs.

Applying asymmetric load sharing to ensure optimal load on the genset, the AGC 200 also cuts operating costs and reduces harmful emissions.

With temperature-dependent cooling, the AGC 200 arrests cooling at pre-programmed cool-down temperatures and features automatic priority selection, setting the optimum combination of gensets for optimised fuel consumption.

AGC 200 Options

- AGC 212: single genset in island operation
- AGC 213: single genset for automatic mains failure operation
- AGC 232: multiple genset in island applications with digital load sharing
- AGC 233: single genset for automatic mains failure, peak shaving, load take over and mains power export operation
- AGC 242: multiple genset with advanced power management in plants up to 16 generators
- AGC 243: control of single or multiple gensets
- AGC 244: bus tie breaker
- AGC 245: mains breaker control
- AGC 246: mains and tie breaker
- IOM 200: analogue interface for AGC 200 family

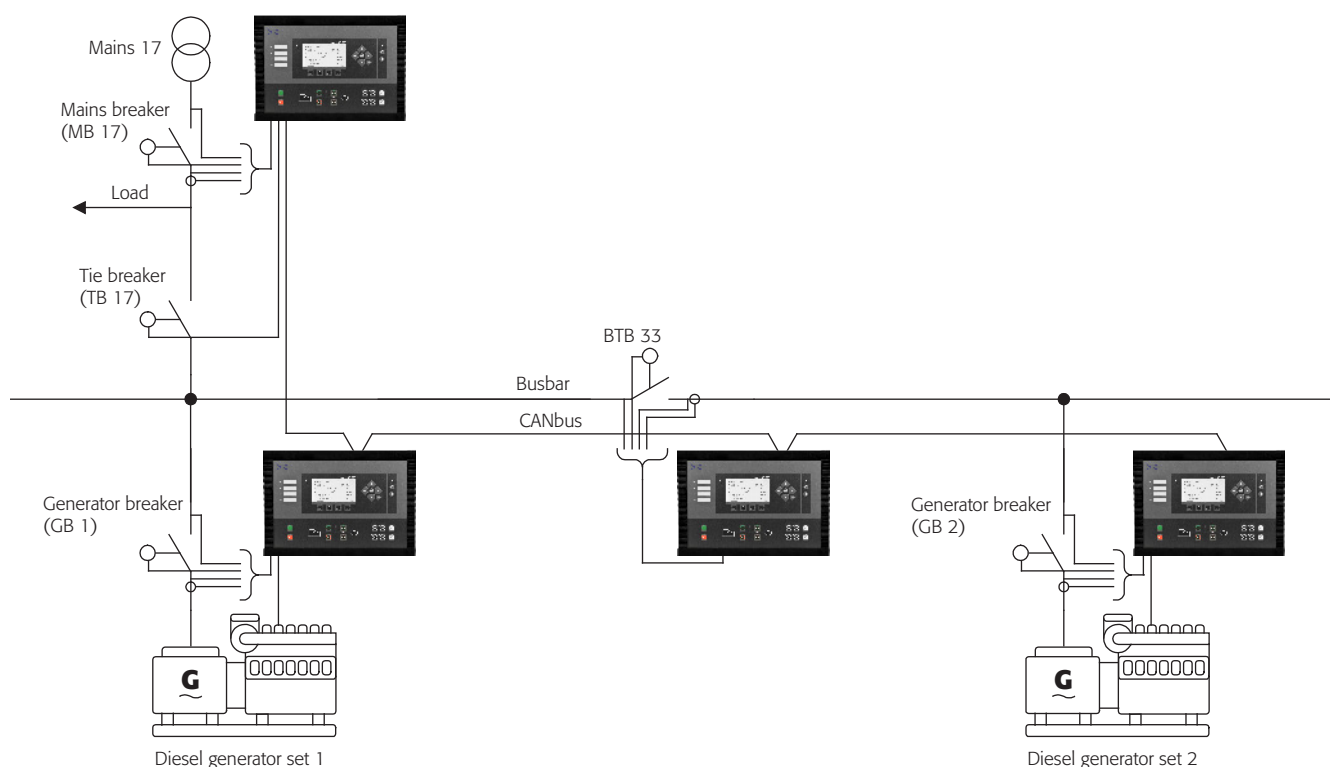
AGC 200 Type Approvals



AGC 200 Features

- ✓ Multiple operating modes in one software
- ✓ Synchronisation of up to 56 breakers in one plant
- ✓ Multi-master power management
- ✓ Load-dependent start and stop
- ✓ Load management
- ✓ Priority selection (manual, relative running hours, absolute running hours, fuel optimisation)
- ✓ Compatible with your existing AGC-3 and AGC-4 gensets
- ✓ User-programmable logic (M-Logic)
- ✓ Configurable inputs/outputs
- ✓ Engine, generator and load protection
- ✓ Voltage measuring range: 50 to 690V AC (UL/cUL Listed 50 to 600V AC)
- ✓ J1939 engine communication, supporting 11 different engine brands with the ability to easily handle other engine brands
- ✓ Readout of engine diagnostics in clear text
- ✓ Remote control via high speed TCP/IP, RS485 Modbus or GSM modem
- ✓ High speed USB connection
- ✓ Multi-language interface
- ✓ -40°C operation temperature
- ✓ IP66 protection
- ✓ Lifetime logging stored on SD card

AGC 200 Application Example



Automatic Genset Controller, AGC-4

AGC-4 offers remote communication and tests your setup prior to commissioning.



DEIF's Automatic Genset Controller (AGC-4) is the most comprehensive and flexible power management and protection unit on the market today. A further development of DEIF's AGC-3, the new generation controller is fully compatible with its predecessor and has been designed to allow for easy, intuitive, and smooth switch-overs for those looking to upgrade.

Suitable for a wide range of applications, the AGC-4's standard sequences include back-up power, start/stop, synchronisation, and load sharing.

The AGC-4 is simple to incorporate into both new and existing designs, customising the application to fit your needs, for instance dedicating specific functions or logic conditions to different inputs and outputs.

Technologically sophisticated, the AGC-4 is also the world's most robust power management controller, successfully tested to maintain reliability and durability in extreme weather and hazardous conditions. Approvals include TÜV and UL.

Patent-pending Emulation

A standard in the Automatic Genset Controller, AGC-4, using DEIF's Emulation Solution, all you need to do to perform a complete test of your Power Management Systems is turn on your controller and connect communications.

The Emulations Solution's focus on exact reproduction of behaviour improves your planning, commissioning and training. It is all done in a safe environment without the costly and excessive need of gensets and switchgear and without the risk of equipment damage and human injury. The innovative solution gives you a critical market advantage and guarantees your customers a cutting-edge, finished result.

Remote Communication and Control

The AGC-4 supports serial communication protocols including Modbus (RS 485, USB, and TCP/IP) and Profibus. This feature allows you to supervise and control your genset/plant from a remote location and minimise downtime or take immediate action on genset alarms or warnings.

AGC-4 Type Approvals



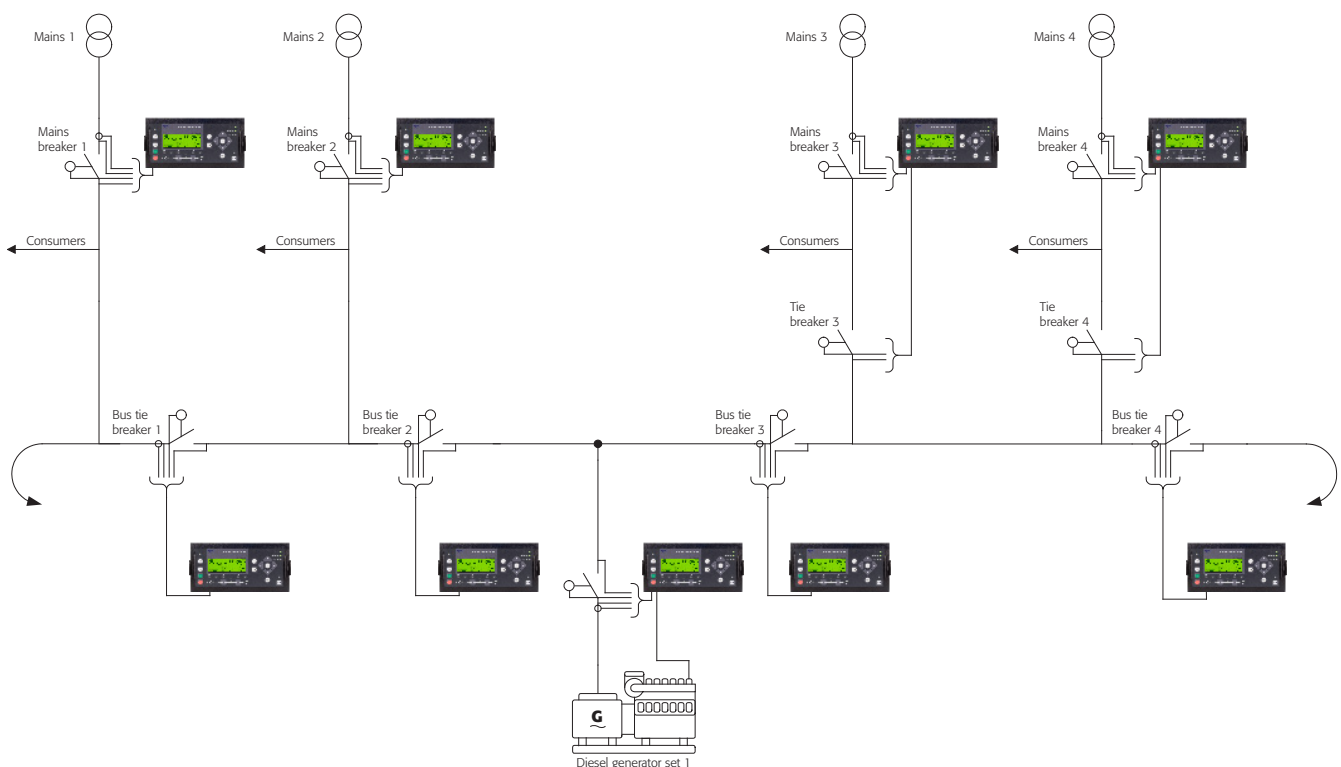
Automatic Genset Controller, AGC-4

The World's Most Comprehensive and Robust Genset Controller

AGC-4 Features

- ✓ Multiple operating modes in one software
- ✓ Synchronisation of up to 56 breakers in one plant
- ✓ Multi-master power management
- ✓ Load-dependent start and stop
- ✓ Load management
- ✓ Emulation for Fast Training & I/O test
- ✓ Hot Standby – Change to backup genset controller on the fly
- ✓ Close Before Excitation – Synchronisation in less than 10 sec

AGC-4 Application Example



DEIF is a market leader with a proven record of more than 80 years of technological achievement and innovation in engine & genset controls, marine bridge instrumentation, switchboard instrumentation and renewable energy controls.

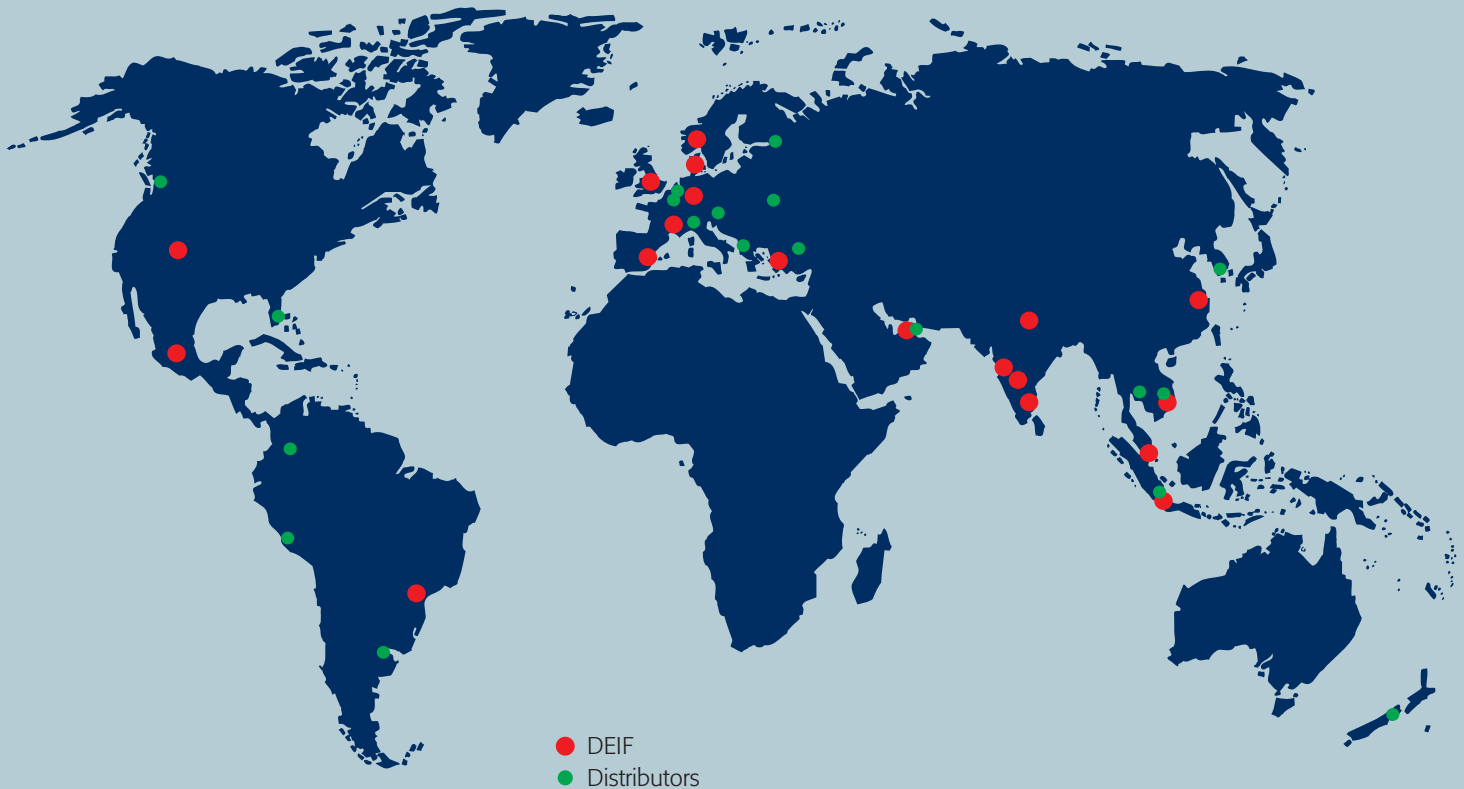
Our goal is to always bring a competitive edge to our customers' businesses by providing green, safe and reliable product lines with flexible features and first class service and support.

The DEIF Group is committed to maintaining and expanding its position as a trusted global supplier of quality solutions.



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