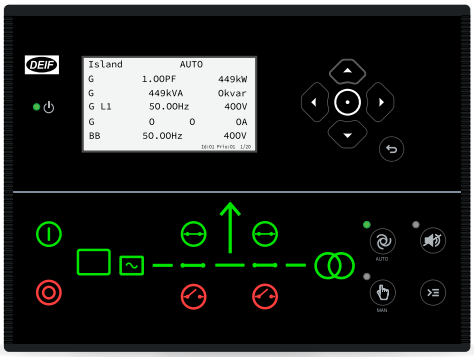
iE 150 Generator



About iE 150 Generator

In the simplest applications, you can use one iE 150 Generator controller to control one genset.

Several iE 150 controllers can work together to make a power management system (PMS). These applications include synchronisation, island operation, and running parallel to mains. The PMS can automatically start and stop gensets, and open and close breakers.

You can also use iE 150 in power management systems with other DEIF controllers.

The iE 150 Generator controller contains all the functions needed to protect and control a genset, and the genset breaker.

Easy and user-friendly display

- Configurable display pages
- Use the display buttons to operate the system
- Configurable shortcuts
- Adjustable mimics
- 20+ configurable graphical screens
- Sunlight-readable LCD screen
- Supports multiple display languages
- Second display unit possible

Emulation for testing and commissioning

- Use the emulation tool to verify and test the functionality of the application.
- Useful for training, customising plant requirements and for testing basic functionality that needs to be set up or verified.

Engine support

Extensive range of supported protocols

- The controller supports many ECUs and engines

Stage V and Tier 4 final support

- iE 150 meets the Tier 4 (Final)/Stage V requirements
- Monitor and control the exhaust after-treatment system from the display

Single controller

- Use a single controller to protect and control a genset, a genset breaker, and a mains breaker
- Useful for **rental** applications
- Requires a mains power measurement to do peak shaving, load take-over and MPE
- Mains support for single controller systems (AMF)

Multilple controller applications

These applications can share the load without using power management. The generators do not automatically start, stop, connect, and disconnect.

- Analogue load sharing with external box
- Digital load sharing (CANshare)
  - Possible to have up to 128 gensets
- Simple power management for large scale applications
  - PMS lite with 256 gensets and/or BTBs

Power management

Power management system

- Automatically starts and stops generators
  - Load-dependent start and stop
- Automatically opens and closes breakers
- Optimises the fuel consumption
  - Asymmetrical load sharing
- Balances the loads in the system
- Uses plant logic
- Makes sure that the system is safe

Energy/power management system

Use iE 150 Generator controllers with iE 150 Mains and iE 150 BTB controllers for power management in a system with iE 150 Battery and iE 150 Solar controllers.

Compatibility

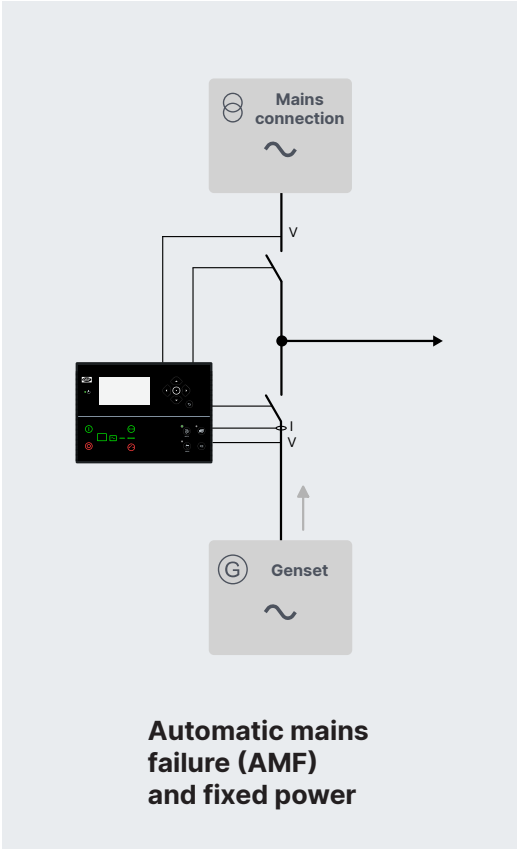
- Power management compatibility with a large range of iE, AGC and ASC controllers
- Compatible with a wide range of equipment
  - For example, input/output expansion modules

Graphical supervision page

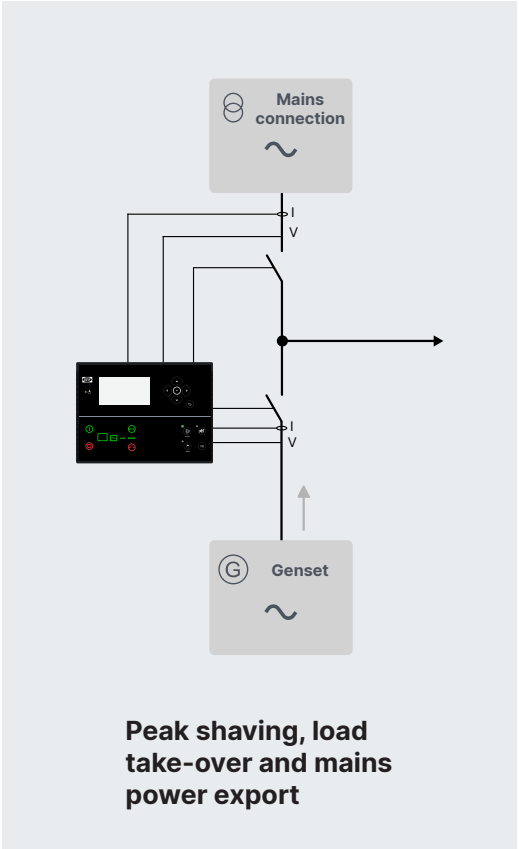
You can monitor the complete power management system from a graphical supervision page in the utility software.

Application examples

Single controller applications



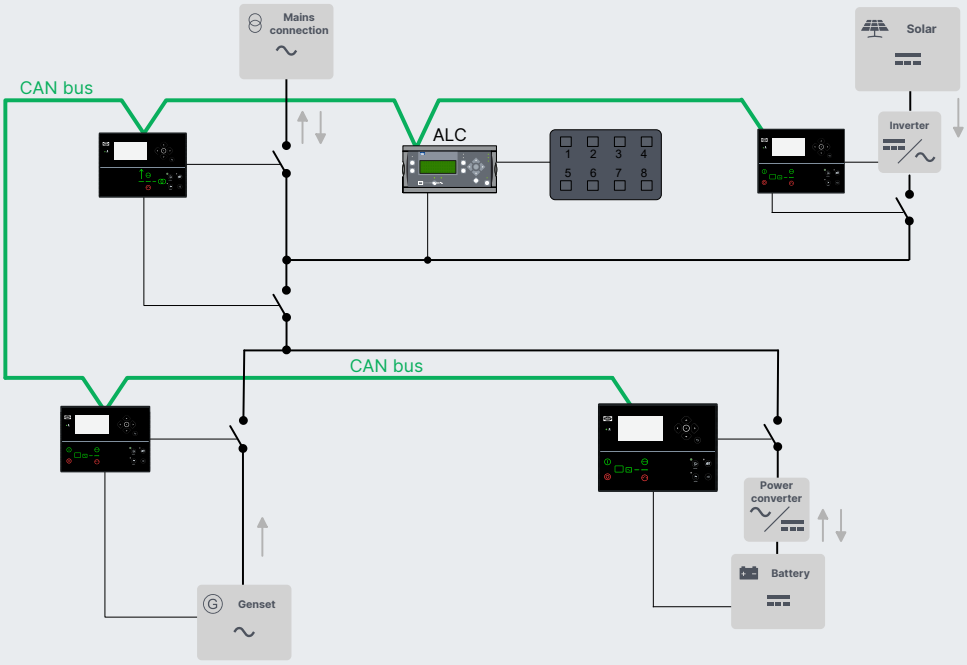
Automatic mains failure (AMF) and fixed power



Peak shaving, load take-over and mains power export

Power management applications

iE 150 in power management with battery and solar controllers



Key functions

Engine

- Engine start sequences
- Configurable run coil and crank for electric engine
- Support for diesel and gas gensets
- Fuel usage monitoring
- Maintenance alarms
- CAN bus Engine Interface Communication (EIC)
  - See ECU measurements
  - Configure SPNs to ignore

Generator

- 3-phase genset and busbar sensing
- Phase compensation for D/Y transformer
- 4 x current sensing inputs
- Synchroscope and sync check
- Support for various digital voltage regulators
- Integrated governor and AVR outputs
- Voltage and frequency matching
- Three synchronisation methods: dynamic, static, and close before excitation
- Dead bus sensing
- Ground relay

Easy to use

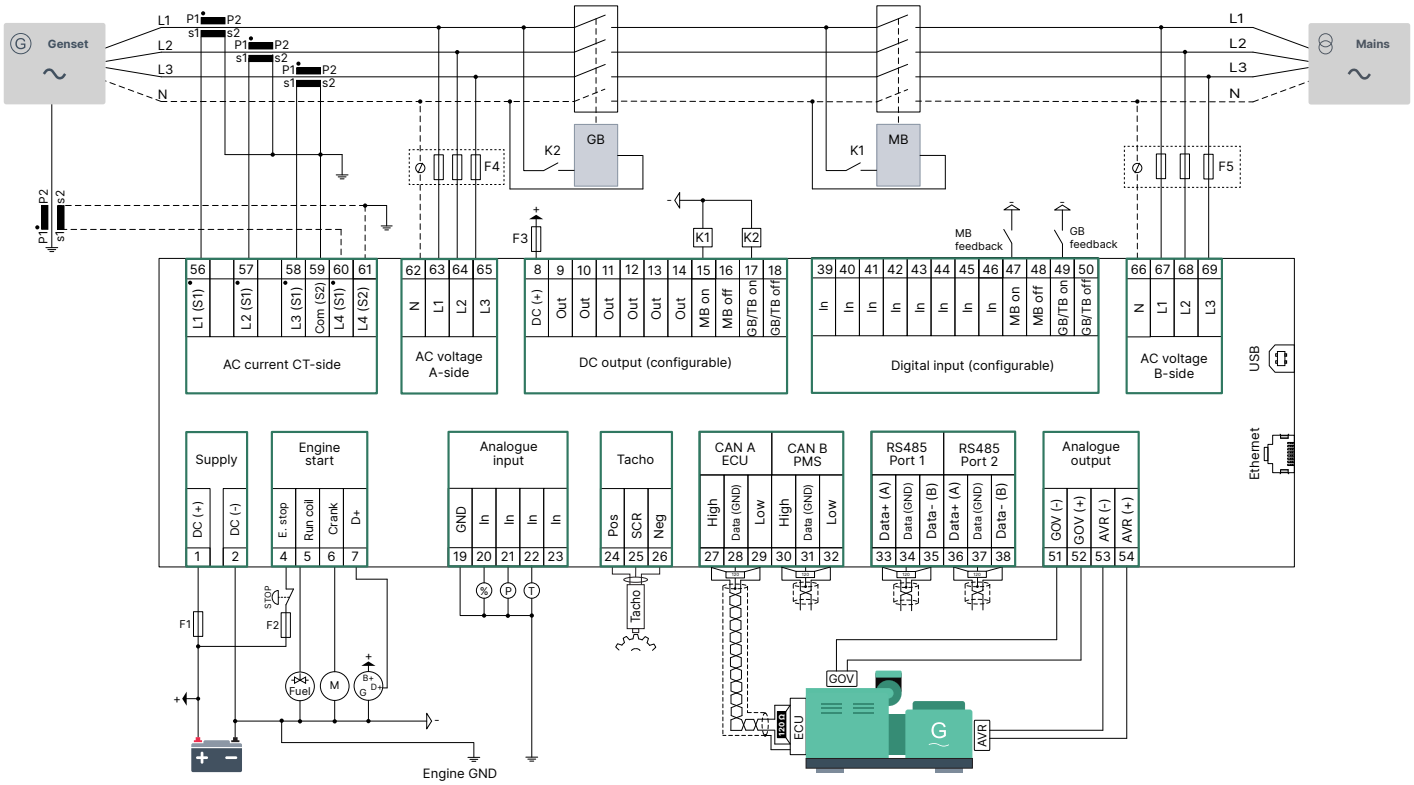
- Controller configuration possible from the display
- PC tool with trending is available
- User-configurable logic (lite PLC)
- Four configurable PID controllers
- CAN flags between controllers
- Event log with 500 entries
- Alarm log with 500 entries
- CAN bus tools
  - Analyse traffic and performance
  - See CAN bus telegram content

Other

- CAN bus based extension I/O modules
- Real-time clock

Typical wiring

Typical wiring for a single generator controller



Technical specifications

Communication

- CAN A
- CAN B
- RS-485 Port 1
- RS-485 Port 2
- RJ45 Ethernet
- USB

AC measuring

- Voltage: 100 to 690 V phase-to-phase (10 to 135 %), ±1 %
- Current: 1 A or 5 A (2 to 300 %), ±1 %
- Frequency: 3.5 to 75 Hz

Power supply

- Nominal voltage: 12/24 V DC
- Operating range: 6.5 to 36 V DC
- Load dump protection: ISO16750-2
- Operating range: 6.5 to 36 V DC

Inputs and outputs

- Digital inputs: 12 x (max. +36 V, min. -24 V)
- Digital outputs:
  - 2 x (15 A inrush, 3 A continuously)
  - 10 x (2 A inrush, 0.5 A continuously)
  - Common: 12/24 V DC
- 4 x analogue inputs
- 2 x analogue outputs

Environmental specifications

- Operating temperature: -40 to +70 °C (-40 to +158 °F)
- Battery temperature: -40 to +85 °C (-40 to +185 °F)
- Altitude: 0 to 4000 m with derating
- Humidity: 20/55 °C at 97 %
- Protection degree: IP65 in panel, IP20 on terminals
- Pollution degree 2
- Self-extinguishing plastic

Approvals

- CE
- UL/cUL Listed to UL/ULC6200:2019, 1. ed. Controllers for Use in Power Production

NOTE Refer to deif.com for the most recent approvals.

Protections

2 x Reverse power ..... ANSI 32R
2 x Fast over-current ..... ANSI 50P
4 x Over-current ..... ANSI 50TD
2 x Over-voltage ..... ANSI 59
3 x Under-voltage ..... ANSI 27P
3 x Over-frequency ..... ANSI 81O
3 x Under-frequency ..... ANSI 81U
1 x Unbalance voltage ..... ANSI 47
1 x Unbalance current ..... ANSI 46
5 x Overload* ..... ANSI 32F
1 x Inverse time earth over-current ..... ANSI 50G
1 x Inverse time neutral over-current ..... ANSI 50N
3 x Busbar/mains over-voltage ..... ANSI 59P
4 x Busbar/mains under-voltage ..... ANSI 27P
3 x Busbar/mains over-frequency ..... ANSI 81O
4 x Busbar/mains under-frequency ..... ANSI 81U
1 x Breaker open failure ..... ANSI 52BF
1 x Breaker close failure ..... ANSI 52BF
1 x Breaker position failure ..... ANSI 52BF
1 x Phase sequence error ..... ANSI 47
1 x Vector shift ..... ANSI 78
1 x ROCOF df/dt ..... ANSI 81R
1 x Directional over-current ..... ANSI 67
1 x Negative sequence voltage ..... ANSI 47
1 x Negative sequence current ..... ANSI $46I_2$
1 x Power-dependent reactive power ..... ANSI 40
1 x IEC/IEEE inverse time over-current ..... ANSI 51
1 x Emergency stop
1 x Generator breaker external trip
1 x Synchronisation failure alarms
1 x De-load error
1 x Hz/V failure
1 x Not in Auto
2 x Under-voltage and reactive power, U and Q

NOTE * You can configure these protections for overload or reverse power.

Scan to learn more about **DEIF**

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