

## A new generation AGC



Thoroughly tried and tested prior to this month's release, we're not afraid to name DEIF's new generation Automatic Genset Controller, the AGC-4, the most comprehensive and flexible power management and protection unit on the market today. No other genset controller offers as many standard sequences, or is as easy to customize and operate.

Suitable for an extensive range of applications from rental gensets to critical and prime power, the AGC-4's standard sequences include effective back-up power, start/stop, synchronisation, and fuel-optimising load sharing strategies.

The new controller is simple to incorporate into both new and existing designs: the M-Logic

tools enable you to customize the application to fit your exact needs, for instance dedicating specific functions or logic conditions to different inputs and outputs.

Using DEIF's ground-breaking emulation software, Multi-line 2 utility software v.3, you are able to test and verify your plant design and setup (Factory Acceptance Test, FAT), prior to building your switchboard. The advantages in terms of man hours saved and time-efficient installation for existing and critical setups are obvious.

Technologically sophisticated, the AGC-4 is 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 Listing. A further development of DEIF's AGC-3 with faster Ethernet and extra memory, the new generation controller is fully compatible with its predecessor and has been designed to allow for intuitive and smooth switch-overs for those looking to upgrade.

Visit [www.deif.com](http://www.deif.com) for further information or contact Senior Department Manager Peter Fröhlich at [pkf@deif.com](mailto:pkf@deif.com).

- Integrated power management & fuel optimization
- Applications include rental plants, critical & prime power
- Hardware and software customization

### Dear Partner.

The winter edition of DEIF's biannual Newsletter focuses on a series of important new product releases, including a new generation Automatic Genset Controller, the AGC-4, and upgraded utility software for our multi-line 2 products.

You'll also find a case story on a seismic research vessel, and an introduction to a powerful and compact multi-output transducer, the MTR-3.

DEIF has opened new offices in Loveland, Colorado, Mexico City and Pune. You'll find the details on the last page of this letter.

And, as always, we're pleased to announce the exhibitions and trade shows we'll be attending over the coming months and in 2012.

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# New ways in power control: AGC-4 Plant Management Solutions



Innovation and customer partnerships have been at the heart of DEIF's business operations since 1933.

In our experience it's often when the two meet that significant technological advances are made.

Responding to a growing market demand for temporary and emergency plants, over the past three years DEIF has dedicated significant R&D resources to optimize power management for these types of setups at sites across South America, Africa, and Asia.

As always, DEIF's guiding principle in exploring new ways in power control has been to create innovative, cost-effective, and CO<sub>2</sub>-friendly solutions.

## Ground-breaking format

A case in point is the comprehensive and sophisticated AGC-4 Plant Management system DEIF Power & Control Technology delivered for the vast emergency

grid set up to supply the Hitachinaka area of Fukushima region following the breakdown of the Fukushima I Nuclear Power Plant.

Drawing on resources and competences across the board, engineers and developers created a ground-breaking AGC-4 Plant Management solution based on earlier mega plant projects, pushing the system's maximum capacity: with 64 gensets producing 130MW, the Hitachinaka plant can potentially supply an average of 300,000 households annually.

To our knowledge, a central plant solution this size has never been seen before, yet the beauty of AGC-4 Plant Management lies in the simplicity of its basic principle: lifting genset control from single units to plant level, enabling advanced control and protection for large setups from one central point of intelligence.

AGC-4 Plant Management incorporates plant power factor

control at connection points, scaling, load profile priorities routines, and uses fan control to reduce fuel costs.

The system uses the plant's generators to black start large step-up transformers with the push of a button. The solution has a proven ratio of up to 1:27 between the generator and the transformer, cost-optimizing black starts in both island and fixed power mode by limiting the need for high voltage breakers.

With a dedicated plant communication structure, SCADA systems are kept separate from the control system. As a result, the system's performance is not compromised and on-site installation can be reduced to a minimum.

## Fast response – even in fixed power mode

When operating in fixed power mode, the AGC-4 Plant Management system assigns generators their most fuel-efficient power setpoint. If a generator trips or fails to deliver the required amount of power, the other generators automatically depart from their optimum setpoints to fill the production dip until a new generator starts up. With the new generator properly synchronized, the generators return to their original fuel-optimized setpoint.

## Utilizing the spinning reserve

In island mode, the system introduces a new dynamic and asymmetrical load sharing design. Unlike traditional setups where all gensets run at the

same effort level, this principle activates generators in a cascade: as one generator reaches its fuel-optimized setpoint, the next generator starts up and begins to take load. If and when needed, the load sharing generators can draw on the system's spinning reserve, enabling the majority of generators to stay at their optimum setpoint without losing the ability to react to significant load fluctuations.

The Plant Management system at Hitachinaka handles up to 16 grid connection points, eight bus tie breakers, and 256 generator breakers.

Developed not just with an eye for safety but for fuel saving and optimized maintenance intervals as well, the strategy for a set of 64 generators, for instance, could reduce fuel consumption by as much as 18,000 liters of diesel a day on a continuous use basis.

## Future applications

The above features are standard in the DEIF AGC-4 Plant Management Solution that is now commercially available to provide support at rental or emergency plants in cases of seasonal demand, for remote locations with limited access to distribution, or disaster relief.

To learn more about AGC-4 Plant Management, visit [www.deif.com](http://www.deif.com) or contact Senior Department Manager Peter Fröhlich at [pkf@deif.com](mailto:pkf@deif.com) for further information.

# The size of a portable hard drive

Powerful, fast, and compact, DEIF's MTR-3 multi-output transducer range has been designed to measure and monitor on single-phase or three-phase networks. The transducer comes with up to four analogue outputs, is easy to programme and configure via USB interface with free, user-friendly utility software from DEIF and needs no external power supply during programming.

The size of a portable hard drive, the MTR-3 is slight in size but offers performance equal to that of four standard transducers, measuring and calculating AC

voltage, AC current, active/reactive/apparent power, power factor, frequency, kWh, kVAR, THD, dynamic and maximum demands.

The MTR-3 range has a standard response time of less than 200 ms, with the MTR-3F offering ultra-fast response at just  $\leq 50$  ms. Modbus data refresh time is also just 50 ms with transfer data up to 115,200 bit/s. The accuracy class is 0.5 for analogue data and 0.3 for Modbus data.

With configurable outputs for more than 50 parameters and a universal power supply (19-300V DC, 40-276V AC), it is

possible to stock the MTR-3 with future installations and reconfiguration for almost any application in view.

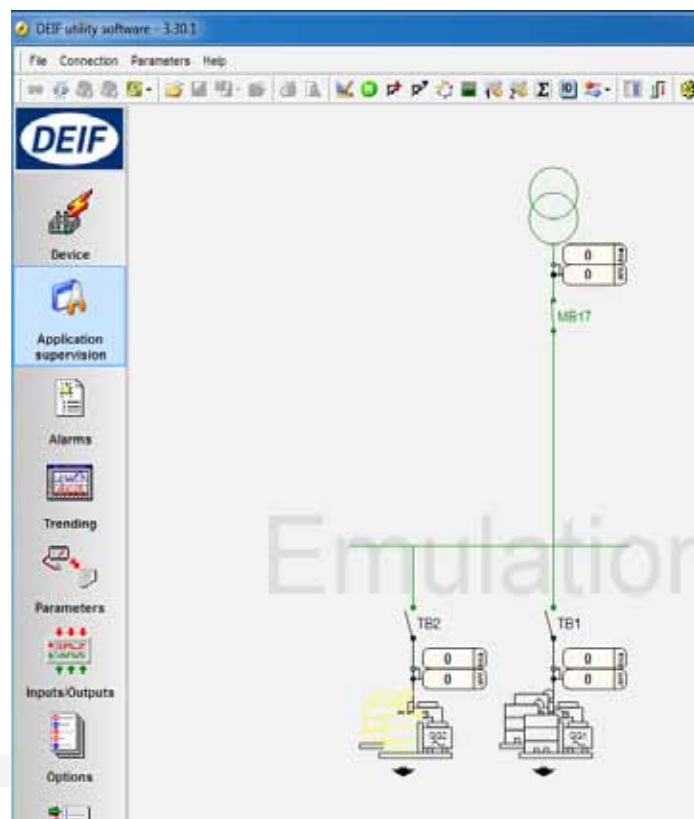
The MTR-3 is available in four standard versions. Utility

software is free and can be downloaded at [www.deif.com](http://www.deif.com).

Visit [www.deif.com](http://www.deif.com) for further information or contact Product Manager Claus Wendelin Jensen at [cjn@deif.com](mailto:cjn@deif.com).



# Multi-line 2: utility software v.3



DEIF's upgraded Multi-line 2: utility software v.3 (USW-3) is now available for free download from [www.deif.com](http://www.deif.com).

Easy to install, the USW-3 uses Ethernet or USB cable communication for configuration, commissioning, and supervision of both single gensets and plants of up to 256 units.

The utility tool is compatible with a range of DEIF controllers; it adjusts easily to the capabilities of the connected devices and has been designed with versatility in view.

M-Logic allows complex logic customization with configuration and evaluation of up to 40 logic expressions, including for instance configuration of user level access, and features innovative pre-installation configuration and emulation of plant design.

Incorporating extensive functionalities including overviews of alarms, coolant temperatures, plant values, and fuel consumption, the USW-3 is also an intuitive, easy-to-use tool for end-users to operate on a day-to-day basis.

### Compatibility

- AGC-3, AGC-3 GAS, AGC-4
- GPU-3
- AGC 200
- PPM-3
- APU-3, APU 264
- PPU-3
- GC-1F, GC-1F/2
- GPC-3

Multi-line 2: utility software v.3 is available for free download at [www.deif.com](http://www.deif.com).

For further information also visit [www.deif.com](http://www.deif.com) or contact Product Manager Mogens F. Fyhn at [mff@deif.com](mailto:mff@deif.com).

# Multiple purpose measuring unit

The MIQ96-3 multi-instrument is an accurate and user-friendly measuring unit ideally suited for monitoring and analysis.

Equipped with configurable display, no fewer than 13 language options, serial RS485 Modbus communication, and relays for either pulse output for kWh and kVArh or alarm, the MIQ96-3 measures all 1- or 3-phase AC measurements, true RMS, programmable CT, and VT ratios in more than 60

parameters (V, A, kW, kVA, kVAR, kWh, PF, fz, MD, THD etc.).

The unit can be applied both as a normal instrument and as a remote value-reading unit, where all measured values are transmitted via the serial RS485 Modbus output. MIQ96-3 replaces the MIQ96-2 and comes with free utility software.

Visit [www.deif.com](http://www.deif.com) for further information or contact Product Manager Claus Wendelin Jensen at [cjn@deif.com](mailto:cjn@deif.com).



# DEIF controllers to be phased out

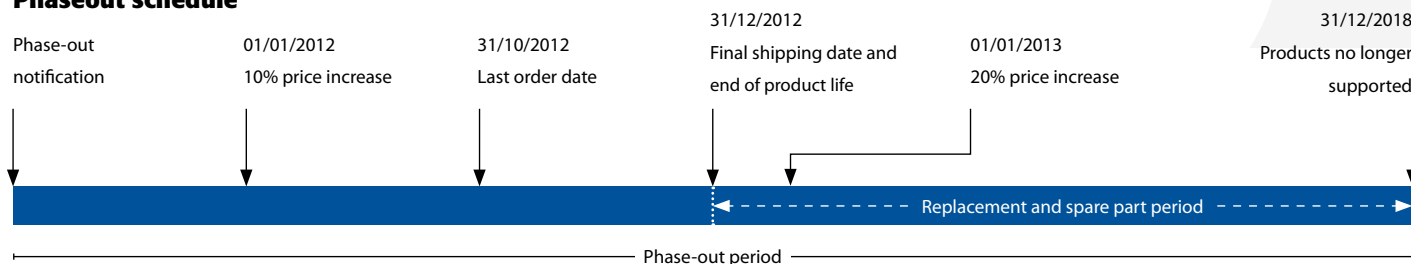


In connection with continued R&D and product development, DEIF is phasing out its Generator Protection Unit GPU-2, and Paralleling and Protection Unit PPU-2 with milestones as outlined below.

Visit [www.deif.com](http://www.deif.com) for further information or contact Product Manager Jesper Abildgaard at [jab@deif.com](mailto:jab@deif.com).

To be phased out	Recommended replacement
GPU-2 (ver. 1.7 and ver. 2.x)	GPU-3
GPU-2 (ver. 1.7 and ver. 2.x)	PPU-3

## Phaseout schedule



### 31st October 2012

Last call. New orders for GPU-2 and PPU-2 must be placed before this date.

### 31st December 2012

Final shipping date – beyond this date only orders for replacements and spare parts will be processed and only until end 2015.

### 1st January 2013

General price increase of 20% on both GPU-2 and PPU-2.

### 31st December 2015

Last opportunity to order spare part units.

# Moving forward, steadily



In September, DEIF Marine & Offshore System Solutions commissioned a Delomatic 4 Power Management System (PMS) for a seismic research vessel built at Sekwang Heavy Industries in South Korea.

The Rolls Royce NVC-830CD design has a towing capacity of 12 streamers 8,000m long with 100m streamer separation.

For seismic vessels, it is essential to keep a steady forward thrust when the streamers are in the water: if the propulsion power is lost, the streamers risk getting entangled causing major operational setbacks. Worst case scenarios mean a return to base and damage to equipment worth millions of USD.

Integrating DEIF's Delomatic 4 Power Management System (PMS) as part of the vessel's control systems secures safe and reliable operation at the engine level.

The redundancy in the propulsion on this vessel is obtained with several different Power-Take-In (PTI) emergency modes supported by the Delomatic 4. When the vessel is in transit both main engines are running and connected to each individual propeller. Either one of the shaft generators can be connected to the switchboard.

During seismic operation the main engines are only supplying mechanical power to the propellers. The main diesel

generators are connected to the switchboard and are supplying the electrical load from the big seismic compressors.

In case of mechanical failure on one of the main engines during seismic operation, it is possible to use one of two available emergency modes. In these modes, it is possible run both propellers, one mechanically driven and one electrically driven by the PTI.

The emergency modes are activated and controlled through extensive interface between the propulsion control system, pony motor drive and Delomatic 4.

In Emergency I mode one shaftgen is used as Power Take-

Out and connected directly via PTI bustie to the other shaftgen in PTI mode. In Emergency II mode the PTI is supplied from diesel generators via shaftgen breaker.

Delomatic 4 also features automatic sequences for control of the pony motor for the PTI. Visit [www.deif.com](http://www.deif.com) for further information or contact Project Manager Jesper R. Larsen at [jrl@deif.com](mailto:jrl@deif.com).

## DEIF Inc. relocates

DEIF Inc. has moved to bigger, better premises to both satisfy company growth and demand for improved training facilities.

DEIF Inc.'s new contact details are:

DEIF Inc.  
3855 Precision Drive, #180, Loveland, CO 80538, USA

Office: +1 970-530-2261  
Toll free number: 888-265-7897 (not available from outside the US)

## New India office

As part of its continued expansion DEIF India has opened its fourth India office in Pune, Maharashtra, 150 kms from Mumbai:

DEIF India Pvt. Ltd.  
Office No. 107, 1st Floor, Mohite Paradise,  
Sinhagad Road, Pune – 411051  
Contact Person : Mr. Ajay Nair

Mobile No.+91 9769 68 9116

## DEIF de México

In line with DEIF's strategy to be a locally anchored, global knowledge group in power technology we are pleased to announce the opening of new company offices in Mexico City.

DEIF de México offers sales and support and stocks a product line relevant to the growing Mexican market. Formally, DEIF de México is part of DEIF Inc. in Loveland, CO, which has extended training and simulation facilities.

The Mexico office will be headed by Juan F. Illades, a capacity in the generator business area well prepared to direct the new company and assist new and existing DEIF customers.

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## Upcoming exhibitions

Date	Industry	Exhibition	Country
29 November-2 December	Marine & Offshore Technology	Marintec China	China
30 November-2 December	Marine & Offshore Technology	The International Workboat Show 2011	USA
13-15 December	Power & Control Technology	Power-Gen International	USA
18-22 January	Power & Control Technology	Elecrama	India
7-9 February	Power & Control Technology	Middle East Electricity 2012	Dubai
18-19 April	Power & Control Technology	Electrex 2012	UK
19-21 April	Power & Control Technology	Power-Gen India & Central Asia	India
4-7 June	Power & Control Technology	Eliaden 2012	Norway
28-31 August	Power & Control Technology	ONS 2012	Norway
4-7 September	Marine & Offshore Technology	SMM 2012	Germany