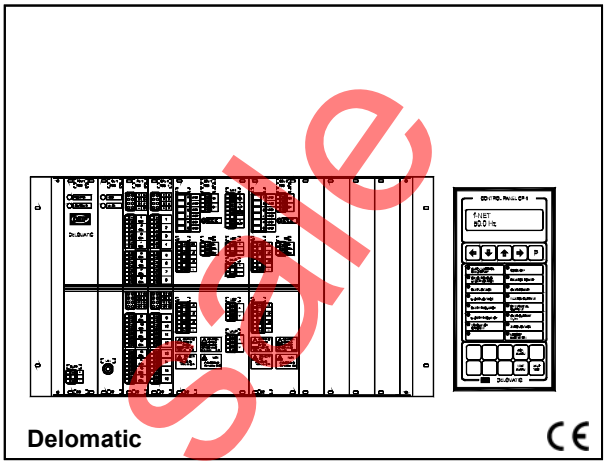
Delomatic

Multi-function System

4921240164E

Type Delomatic

- ***Power management system***
- ***Built-in 3-phase measurements of U, I, P etc.***
- ***All necessary generator protections***
- ***User configurable setpoints and timers***
- ***Synchronising and load sharing***
- ***Shaft generator / mains breaker / tie breaker control***



Application

The multi-function system Delomatic has been designed for control and protection of up to 8 parallel running generators and can also carry out engine control and protection. The system can perform a wide variety of the functions normally needed on board a ship or in a power station.

System Components

The system consists of a DEIF generator unit (DGU) per generator and a number of control panels (CPs). Basically, there is one control panel per DGU, but up to 3 CPs can be connected per DGU, enabling user interface to be placed in separate places for each generator (e.g. in the engine room and on the bridge).

DGUs are 19" dual-height racks with a number of plug-in modules. The module configuration is made according to the specific task.

CPs are panel front mounted unit panels (1 per generator) with display, pushbuttons and LED status and alarm indicators. Via the CP, the user can see all values, statuses and alarms, and setpoints and timers can be configured. The configuration is password protected.

DGUs and CPs communicate via a coaxial line (ARC net).

Delomatic Modules

Power supply module PSM-1
Supplies power to the other modules.

Control module CM-2
Microprocessor and memory (PROM) of the DGU.
ARC net communication port.
CM-2 is available with the communication modules RS232, RS422, RS485 or without communication module.

Synchronising and control module SCM-1
3-phase AC measurement, generator voltage/current.
3-phase AC measurement busbar voltage.
Synchroniser.
Relay or analog output(s) for speed and voltage.

Synchronising and control module SCM-2
Shaft generator breaker / tie breaker / mains breaker synchronising and control module.
3-phase AC measurement, busbar 1/shaft generator / mains voltage/current.
3-phase AC measurement busbar (2) voltage.
Synchroniser.

Current relay module CRM-1
3-phase AC measurement, generator current. The module can be configured as short circuit protection or differential current protection module.

Binary / analog input module IPM-1
16 input channels freely selectable binary/analog.

Binary output module
16 relay output channels.

Analog output module AOM-1
8 analog outputs.

Power Management

Delomatic measures the actual power of each running generator. Based on this and the nominal power of the generators, the system will start and stop generators according to the power demand. Start priority can be selected by the user or can be based on the internal running hour counters.

Control of bus tie breaker(s) can be carried out with synchronisation and load ramping before opening.

Shaft generators linked directly to the main engine (no speed control) can be monitored. And a synchronisation to running generator(s) can be carried out with short time parallelling and load transfer.

Mains breaker(s) can be controlled with synchronisation and load control during parallelling. Peak lopping (peak shaving) is also a possibility.

Type Delomatic Multi-function System

Technical specifications

Meas. range (U_n): Max. 690 VAC direct.
Other ranges via voltage transformer ../100 or ../110V AC
Burden: Max. 0.5VA/phase
Overload: 2 x U_n for 10 s.
External fuse: Max. 2A slow-blow

Meas. range (I_n): Current transformer ../1 or ../5A AC
Burden: Max. 0.4VA/phase
Overload: 10A cont.
< 75A for 10 s.
< 300A for 1 s.

Meas. range (f_n): 40....70Hz

Accuracy: Class 1 acc. to IEC 688.

Harmonics: Up to 500Hz are measured.

Galvanic separation AC inputs: 2.5kV / 2.0kV / 1.0kV according to GL, LR and DNV.

Binary inputs: Galvanically separated contacts.
ON detection max. resistance 250Ω

Cable supervision, binary inputs: 6.9kΩ resistor across contacts.

Analog inputs: 0(2)...10V DC
Impedance 15kΩ

0(4)…20 mA
Impedance 50.0Ω

Accuracy, analog inputs: Class 1 according to IEC688

Binary outputs: Relay. Contact rating 250V, 5A (AC)/ 1A (DC).

Galvanic separation, analog/binary inputs: 1.0kV - 50Hz - 1 min. according to GL, LR and DNV.

Analog outputs (AOM-1 module): +/- 20mA
+/- 10V DC
0(4)...20mA
0(2)...10V DC

Galvanic separation, analog outputs: 2.0kV - 50Hz - 1 min. according to GL, LR and DNV.

Analog outputs, control panel: 16 x 0...1mA pulse width modulated, multiplexed.

Galvanic separation, control panel: 1.0/2.0kV - 50Hz - 1 min. according to GL, LR and DNV.

Power supply: 24V DC +30%, -25% incl. peak-peak ripple, max. 32V DC.
Power consumption dependent on DGU configuration.

External fuse max. 6A slow-blow.

Galvanic separation, power supply: 1kV – 50Hz – 1 min. according to GL, LR and DNV.

Flamability All plastic parts are self-extinguishing according to UL94-VO

Temperature: Reference: +15...+30°C
Nominal: -10...+50°C
Operational: -25...+70°C
Storage: -40...+70°C

Climate: Class HSE according to DIN40040.

Protection: IP20, modules mounted in a DGU rack and CP rear.
IP52, CP front.

Type approval: The system, both hard-ware and soft-ware, is approved by the major classification societies. For current approvals see www.deif.com or contact DEIF A/S.

Due to our continous development we reserve the right to supply equipment which may vary from the described.

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