

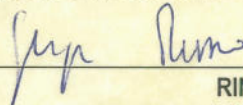


TYPE APPROVAL CERTIFICATE
No. ELE098612XG

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

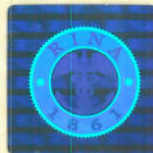
<i>Description</i>	Measuring and protection units for electrical generators
<i>Type</i>	Uni-line generator controls
<i>Applicant</i>	DEIF A/S Skive DENMARK
<i>Manufacturer</i>	DEIF A/S
<i>Place of manufacture</i>	Skive DENMARK
<i>Reference standards</i>	Rules for the classification of ships.- Part C - Machinery, systems and fire protection. - Ch.3, Sect. 6, Table 1.

Issued in **HAMBURG** on **September 3, 2012**. This Certificate is valid until **September 2, 2017**



RINA
Giuseppe Russo

This certificate consists of this page and 1 enclosure



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Uni-line generator controls

Approved Products:

Model	Main features
RMV 112D	3 ph. Under / Overvoltage protection: timer controlled tripping + adjustable hysteresis - 1 min. + 1 max. relay outputs
RMV 122D	3 ph. Overvoltage protection: timer controlled tripping+ adjustable hysteresis - 2 maximum relay outputs
RMV 132D	3 ph. Undervoltage protection: timer controlled tripping + adjustable hysteresis - 2 minimum relay outputs
RMV 142D	1 ph. Under / Overvoltage protection: timer controlled tripping + adjustable hysteresis - 1 min. + 1 max. relay outputs
RMC 111D	3 ph. Short circuit relay: short circuit protection + timer controlled tripping - 1 max. relay output
RMC 121D	3 ph. Short circuit relay: short circuit protection + timer controlled tripping - 1 max. relay output with 2 sets of contacts
RMC 122D	3 ph. Overcurrent and short circuit relay: short circuit / overcurrent prot. + timer controlled tripping - 2 max. relay outputs
RMC 131D	3 ph. Diff. current relay: - short circuit and leakage winding protection + timer controlled tripping - 1 max relay output
RMC 132D	3 phase dual overcurrent relay: Overcurrent protection + timer controlled tripping 2 maximum relay outputs
RMP 111D	3 ph. Overload protection of generator and prime mover + real power relay + timer controlled tripping: 1 max relay output
RMP 112D	3 ph. Overload and reverse power protection + "motoring" prot. + timer controlled tripping - 1 max + 1 min. relay output
RMP 121D	1-3 ph. Reverse power relay: "motoring" prot. of gen. and prime mover + timer controller tripping - 1 min. relay output
RMQ 111D	3 ph. Loss of excitation relay: gen. prot. against lost of excitation +timer controlled tripping - 1 max. relay output
RMQ 121D	3 ph. Overexcitation relay: gen. prot. against overexcitation (over Var) + timer controlled tripping - 1 max. relay output
RMF 112D	1 ph. Frequency relay: comb. underfrequency / overfrequency prot. + timer controlled tripping - 1 min. + 1 max relay out.
LMR 111D	1 ph. Loss of mains relay: detection of vector shift + generator disconnection on mains failure: 2 relay outputs
FAS 113DG	1 ph. Synchronisation of gen. to busbar + C.B. time comp.: 1 relay synch. pulse output + 2 relay freq. control outputs
FAS 115DG	1 ph. Synchronisation of gen. to busbar + C.B. time comp. + voltage matching: 1 +2 +2 relay outputs
FAS 125DG	1 ph. Synchronisation of gen. to busbar + automatic, static synch. + voltage matching: 1+2+2 relay outputs
HAS 111DG	1 ph. Paralleling relay: synchronisation of generator to busbar + setting of phase angle + setting of max. frequency and voltage difference - Synch.pulse relay output
EPN 110DN	Electronic potentiometer: control of electronic governor + setting of integrating time + adjustment of output signal 1 analog output 0... ± 1V / 0... ± 5V
LSU 112DG	1-3 ph. Load Sharing Unit: built-in power freq. transducer + constant power or isochronous mode - 2 speed control relay output
LSU 113DG	1-3 ph. Load Sharing Unit: rev. power prot. and low power detection + built-in power and freq. transd.+ const. power or isochr. mode - 2 speed control relay output + 1 reverse prot. relay output + 1 low power detection relay output
LSU 114DG	1-3 ph. Load Sharing Unit: automatic start / stop outputs + built-in power and freq. transducer + constant power or isochronous mode - 2 control speed relay outputs + 2 start / stop relay outputs
LSU 122DG	1-3 ph. Reactive Load Sharing unit: built- in reactive power transducer + control of AVR + input of external voltage transducer - 2 voltage control relay outputs
RMT 111Q96	3 ph. sequence relays : indication of incorrect connection + indication of phase breakage. - Changeover switch

Test Reports:

DEIF A/S doc. n° IPA0175 Uni line SMD re-test / Explanation of HW changes

DEIF A/S Reference Documents:

Doc n° 4921240130L , 4921240096D, 4921240128D, 4921240102D, 4921240260A, 4921240104F, 4921240148C, 4921240108E, 4921240110E, 4921240106F, 4921240112D, 4921240223B, 4921240114D, 4921240116D, 4921240141D, 4921240144D, 4921240126E, 4921240118D, 4921240120F, 4921240122D, 4921240124D, 4921240131F

This Certificate replace the previous Certificate ELE275607CS

HAMBURG September 3, 2012



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