TYPE APPROVAL CERTIFICATE
No. **ELE060125XP/002**

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

Description	**Power Management System**
Type	**iE 650 PLC Programmable Automation Controller**
Applicant	**DEIF A/S** **Frisenborgvej 33** **7800 Skive** **DENMARK**
Manufacturer *Place of manufacture*	**DEIF A/S** **Frisenborgvej 33** **7800 Skive** **DENMARK**
Reference standards	**Rules for the classification of ships.- Part C - Machinery, systems and fire protection. - Ch.3, Sect. 6, Table 1.**

Issued in **GDAŃSK** on **July 9, 2025.** *This Certificate is valid until* **July 9, 2030**

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TYPE APPROVAL CERTIFICATE
No. **ELE060125XP/002**
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iE 650 PLC Programmable Automation Controller

Product Description:

The iE 650 PLC is a PLC- based programmable automation controller (PAC) suitable for land, marine and wind power control applications. The controller is a flexible, modular PLC and I/O system that is designed for usage across a wide range of industrial applications.
EtherCAT is used as native communication protocol both as the backplane communication and as interconnection between multiple iE 650 PLC racks via electrical or fiber optical connections. Other DEIF EtherCAT I/O modules or third party EtherCAT I/O modules can also be connected.

Programmable Computer Modules:

PCM6.2
Processor: 1.6 quad-core (64 bit)
Applications: C/C++ and CODESYS
Netowrk: 1 Gbps TSN network interface port for power management networks,managed 10/100 Mbps switch with 3 prots for local networks; CAN/CANopen and RS-422/485
Display: DisplayPort

Power Modules
PDM6.1
Power Supply: 30 W power supply, blackout hold-up 10 ms
Voltage: input level 24 V (18-32 V)
EMI Filter: common mode EMI input filter
Isolation: Input galvanic isolated from other potentials,

Digital Input and Output modules
DIO6-1
10 Digital outputs; current: max 0.5 A per channel (UL: Max 0.24A per channel)
Isolation: 10 outputs in one group, isolated from other potentillas 500 V DC
Protecion: Short Circuit protection, Inverse supply voltage protection
16 Digital inputs: Input: low -30V to +5V; High: 13 to 30 V
Isolation: 16 inputs in 2 groups (8+8); Isolated from other potentials, 500 V DC.

DIO6-2
16 Digital outputs; current: max 0.5 A per channel (Max for all outputs: 2A per group)
Isolation: 16 outputs in one group, isolated from other potentillas 500 V DC
Protection: Short Circuit protection, Inverse supply voltage protection
16 Digital inputs: Input: low -30V to +5V; High: 13 to 30 V
Isolation: 16 inputs in 2 groups (8+8); Isolated from other potentials, 500 V DC.

DIM6-1
32 Digital inputs: Input: low -30V to +5V; High: 13 to 30 V
Isolation: 323 inputs in 4 groups (8+8+8+8); Isolated from other potentials, 500 V DC.

DOM6-1
32 Digital outputs; current: max 0.5 A per channel (Max for all outputs: 2A per group)
Isolation: 32 outputs in 4 groups (8+8+8+8), isolated from other potentials 500 V DC
Protection: Short Circuit protection with feedback signal from each group, Inverse supply voltage protection

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Analog Input and Output modules

AIO6-1
2 x analogue output: Current mode: 0 to 20 mA, 4 to 20 mA
Voltage mode: 0 to 10 V or -10 to 10 V. Software selectable
Resolution: 16 bit
16 analogue inputs: Input type -10 to 10 V, 0 to 10 V, -20 to 20 mA, 0 to 20 mA and 4 to 20 mA. Software selectable
Resolution: 16 bit

Analog Input and Ouput modules

AIO6-2
2 x analogue output: Current mode: 0 to 20 mA, 4 to 20 mA
Voltage mode: 0 to 10 V or -10 to 10 V. Software selectable
Resolution: 16 bit
16 analogue inputs: Input type -10 to 10 V, 0 to 10 V, -20 to 20 mA, 0 to 20 mA and 4 to 20 mA. Software selectable
Resolution: 16 bit
AOM6-2
8 analogue outputs: Current mode: 0 to 20 mA; 0 to 24 mA, 4 to 20 mA, -20 to 20 mA
Voltage mode: 0 to 10 V or -10 to 10 V (20% over-range option available on request). Software selectable
Resolution: 16 bit
AIM6-1
16 analogue inputs: Input type -10 to 10 V, 0 to 10 V, -20 to 20 mA, 0 to 20 mA and 4 to 20 mA. Software selectable
Resolution: 16 bit
AIM6-2
8 analogue inputs: Input type -10 to 10 V, 0 to 10 V, -20 to 20 mA, 0 to 20 mA and 4 to 20 mA. Software selectable
Resolution: 16 bit
Temperature input modules
TIM6-1
14(6) Temperature Inputs: -50 to 200 deg C; 14 (2) x Pt100 2 wire connection or 0(6) x Pt 100 3-wire connection
Accuracy: 1 degC at reference temperature, 2.5 degC at operational temperature (2 wire cables < 1m)
Sampling: below 100 ms

Communication interface modules

IFM6-1
Interface: 2x Profibus DP Master with max 5 slaves per master
2x RS-485 shielded twisted copper cable
IFM6-2
Interface: CAN (ISO11989) with termination open/12 Ohm
2x RS-422 shielded twisted copper cable
2x Digital with frequency measurement

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Condition monitoring modules

CMM6-1

2 High frequency analog inputs : Input range
DC mode: -10 to 20, +/-10 to +-5, 2.5, 1.25, 0.62, 0.31, 0.16, 0.08, 0.40, 0.20 (11 steps)
IEPE (AC)- mode: +-10,5,2.5,1.25,0.62,0.31,0.16,0.08, 0.04, 0.2 V (10 steps)
Frequency range:
DC mode: 0.05 to 20.000 Hz (3dB) anti-aliasing filter
DC/AC mode: Low pass 03 dB, 20 kHz butterworth, 3rd order, 77 dB in stop band @>30 kHz
AC-mode (IEPE): High pass in 0.05 hZ
Resolution:
24 bit delta-sigma (including sign)
300 nV (gain 1, range +-2.5Vp)
ENOB-19 @ OSR-256, 29297 sps
Power consumption: max 4W

CMM6-2

2 High frequency analog inputs : Input range
DC mode: -10 to 20, +/-10 to +-5, 2.5, 1.25, 0.62, 0.31, 0.16, 0.08, 0.40, 0.20 (11 steps)
IEPE (AC)- mode: +-10,5,2.5,1.25,0.62,0.31,0.16,0.08, 0.04, 0.2 V (10 steps)
Frequency range:
DC mode: 0.05 to 20.000 Hz (3dB) anti-aliasing filter
DC/AC mode: Low pass 03 dB, 20 kHz butterworth, 3rd order, 77 dB in stop band @>30 kHz
AC-mode (IEPE): High pass in 0.05 hZ
Resolution:
24 bit delta-sigma (including sign)
300 nV (gain 1, range +-2.5Vp)
ENOB-19 @ OSR-256, 29297 sps
Power consumtion: max 6W

Documents:

- iE 650 PLC Programable Data Contoller Data Sheet doc no.: 492140662B
- Test reports: Type Test Certificate doc no.: 4910213100H, Type Test Certificate doc no.: 4910217501R, Type Test Certificate doc no. : 4910217502N

Remarks

- The equipment fulfill the EMC requirements for installation in power distribution zone.
- Drawings of each system configuration is to be sent for approval before installation on board.
- Electrical protection featured by this system may be used in addition to circuit breaker intrinsic protections.
- In case of major software modification detailed information and suitable documents are to be submitted to the Society.

GDAŃSK July 9, 2025

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