



EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRE000001F

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to

Eaton Electrical Ltd.
Suzhou,, Jiangsu,, China

for

Circuit Breakers

with type designation(s)

Type B (IZM97N, IZM97H, IZM97B)

The product is found to comply with

EU RO Mutual Recognition Technical Requirements for Circuit Breakers

Intended service

Circuit breaker for installation in enclosures onboard ship and mobile offshore units.

Rated Voltage (V) 440/690
Rated Current (A) 800-4000
Frequency (Hz) 50/60

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2029-12-18**.

Issued at **Høvik** on **2024-12-19**

DNV local unit: **Shanghai**

for **DNV**

Approval Engineer: **Qiang William Guo**

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Frederik Tore Elter
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Type		IZM97N, IZM97H, IZM97B (see Type explanation for the full name)	
Utilization category		Type B	
Rated voltage(V)		AC440V	AC690V
Rated current(A)		800A,1000A,1250A,1600A,2000A,2500A,3000A,3200A,4000A	
Rated freq.(Hz)		50/60Hz	
Breaking capacity Ics/Icu(kA)	Ue	AC440V	AC690V
	B	66kA	66kA
	N	85kA	85kA
	H	100kA	85kA
withstand current: Icw(kA/s)		66 kA/1s(IZM97B), 85 kA/1s(IZM97N, IZM97H)	
Number of Poles		3P,4P	
Method of installation		Fixed, withdrawable	
Type of releases		Electronic	
Degree of Protection		IP20	
Ui(V)		1000V	
Uimp (kV)		12kV	

Type Explanation:

$\frac{IZM}{I}$ $\frac{97}{II}$ $\frac{H}{III}$ $\frac{4C}{IV}$ - $\frac{V}{V}$ $\frac{32}{VI}$ $\frac{W}{VII}$

- I - IZM = Air Circuit Breaker
- II - Frame Size
- III - Breaking capacity: B - 66 kA , N - 85 kA, H - 100kA
- IV - Poles: 3C: 3 poles; 4C: 4 poles
- V - PXR trip unit
 - V: System and Selective Protection- Current measurement
 - U: System and Selective Protection- Power/Energy measurement
- VI - Rated current:
 - 08 = 800A; 10 = 1000A; 12 = 1250A; 16 = 1600A; 20 = 2000A; 25 = 2500A; 30 = 3000A; 32 = 3200A; 40 = 4000A
- VII - W: draw-out version
 - F: fixed version
 - CW: draw-out version 220v configuration
 - CF: fixed version 220v configuration

Manufactured by

Eaton Electrical Ltd
 2# Lou Yang Road, SIP Suzhou Jiangsu 215121, P.R. China

Application/Limitation

With Uimp = 6 kV the max. rated voltage is 600 V when used in a IT (ship) net. It can be used in applications with directly earthed systems with rated voltage of 400/690 V.

Type Approval documentation

Marking of product

EATON Electric – Type designation with Manufacture name/ Factory code (Seq. code)

Other Conditions

Electrical test according to IEC 60947-2 : 2016,AMD1:2019, Environmental test according to IACS E10 Rev.9 Aug. 2023 (insulation resistance ,conducted low frequency, radiated emission, conducted emission, dry heat, damp heat, cold, vibration, Inclination, salt mist, high voltage test)

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable).
- Results from Routines (RT) checked (if not available tests RT to be carried out).
- Review of type approval documentation.
- Review of possible change in design, materials and performance.
- Ensure traceability between manufacturer's product marking and the DNV EU MR Type Approval Certificate.

Assessment to be performed annually and at renewal.

Generic Statement for EU RO MR Type Approval Certificate

When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

In accordance with Article 10 of Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 "on common rules and standards for ship inspection and survey organizations", the following organizations, recognized by the EU on this date, have agreed on the technical and procedural conditions under which they will mutually recognize this certificate:

- American Bureau of Shipping (ABS);
- Bureau Veritas (BV);
- China Classification Society (CCS);
- Croatian Register of Shipping (CRS);
- DNV;
- Indian Register of Shipping (IRS);
- Korean Register (KR);
- Lloyd's Register Group Ltd. (LR);
- Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);
- Polish Register of Shipping (PRS);
- RINA Services S.p.A. (RINA);
- Russian Maritime Register of Shipping (RS).

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).