



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE00001HB
Revision No:
2

This is to certify:
that the Monitoring Relay

with type designation(s)
IM9 & IM9-OL, IM10 & IM10H, IM15H, IM20 & IM20H, IM20-1700, IM400 & IM400C, IM400L & IM400THR & IM400LTHR, IM400-1700 & IM400-1700C

issued to
Schneider Electric Private Limited
Bangalore, Karnataka, India

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:
Insulation Monitoring device for use in IT systems for installation in enclosures onboard ship and offshore units

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2024-10-22**

This Certificate is valid until **2029-09-22**.

for **DNV**

DNV local unit: **Mumbai NB & CMC**

Approval Engineer: **Uwe Supke**

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 USD 300 000.



Name and place of manufacturer

Schneider Electric India Pvt Ltd,
 #12A, Attibele Industrial Area
 Hosur Main Road Neralur Post
 Bangalore 562107 India

Product description

Insulation Monitoring Device:

Model number	Commercial reference number	Use
IM9	IMD9-IM9	Insulation monitor for low voltage AC, IT power systems
IM9-OL	IMD-IM9-OL	Insulation monitor for Motor off-line (measure the insulation resistance between stator and ground when motor is not energized)

Model number	Commercial reference number	Use
IM10 / IM10H	IMD-IM10 & IMD-IM10-H	Insulation monitor for low voltage IT power systems, AC, DC, ACDC
IM20 / IM20H	IMD-IM20 & IMD-IM20-H	Insulation monitor for low voltage IT power systems, AC, DC, ACDC w/ Modbus serial line communication, Injection inhibition input & Logging of events
IM20-1700	IMD-IM20-1700	Voltage adaptor accessory for IM20 insulation monitor.
IM15H	IMDIM15H	Insulation monitor for low voltage IT power systems, AC, DC, ACDC without Modbus serial line communication. (port disabled)

Model number	Commercial reference number	Use
IM400 / IM400C	IMD-IM400 & IMD-IM400C	Insulation monitor for low voltage IT power systems AC, DC, ACDC w/ Modbus serial line communication, Injection inhibition input & Logging of events. IM400C is conformally coated
IM400THR	IMDIM400THR	Insulation monitor for medium voltage IT power systems AC, DC, ACDC w/ Modbus serial line communication, Injection inhibition input & Logging of events. (injection signal is DC, Network Leakage Capacitance measurement not possible)
IM400L	IMDIM400L	Insulation monitor for low voltage IT power systems AC, DC, ACDC w/ Modbus serial line communication, Injection inhibition input & Logging of events. (injection signal is low frequency AC, Network Leakage Capacitance measurement not possible)
IM400LTHR	IMDIM400LTHR	Insulation monitor for medium voltage IT power systems AC, DC, ACDC w/ Modbus serial line communication, Injection inhibition input & Logging of events. (injection signal is DC, Network Leakage Capacitance measurement not possible)
IM400-1700 / IM400-1700C	IMD-IM400-1700 & IMD-IM400-1700C	Voltage adaptor accessory for IM400 insulation monitor. IM400-1700C is conformally coated

Technical data / characteristics:

Relay type	IM9	IM9-OL
Type of installation to be monitored	IT Power system - if connected to neutral < 600 V, L-L - if connected to phase < 480 V, L-L	IT/TT/TN AC Networks U< 690 V, 50< f <400Hz. DC networks: U<690V

Relay type	IM9	IM9-OL
Auxiliary power supply	50/60/400 Hz - 115/415 V AC $\pm 15\%$ DC - 125/250 V DC $\pm 15\%$	50/60/400 Hz - 115/415 V AC $\pm 15\%$ DC - 125/250 V DC $\pm 15\%$
Relay	Alarm: Min 12 V DC 10mA, max. 250V AC / 24 V DC 6A	Pre-alarm & Motor no start: Min 12 V DC 10mA, max. 250V AC / 24 V DC 6A
Operating temperature	$\div 25$ to $+ 55$ °C	$\div 25$ to $+ 55$ °C
Measurement accuracy	5%	5%
Degree of protection	IP40 on front face, IP20 at rear of casting	IP40 on front face, IP20 at rear of casting

Relay type	IM10 / IM20	IM10-H / IM20-H / IM15H
Type of installation to be monitored	Phase to phase maximum voltage with IM connected to phase: 480V AC, 340V DC. Phase to phase maximum voltage with IM connected to neutral: 600V AC	Dedicated to Medical premises according to IEC 61364-7-710 Phase to phase maximum voltage with IM connected to phase: 230V AC, 230V DC
Auxiliary power supply	50/60/400 Hz 110 to 415V AC $\pm 15\%$ DC 125/250 V DC $\pm 15\%$	50/60/400 Hz 110 to 230 V AC $\pm 15\%$ DC 125/250 V DC $\pm 15\%$
Alarm relay	Min 12 V DC 100mA, max. 250V AC / 24 V DC 6A	IM20-H : 48V DC, 50mA
Injection inhibition (IM20 only)	IM20: Contact min. ≤ 24 VDC 5 mA, length ≤ 10 m	---
Transformer Monitoring	---	IM20-H only: minimum load 5mA
Operating temperature	$\div 25$ to $+ 55$ °C	$\div 25$ to $+ 55$ °C
Measurement accuracy	5%	5%
Degree of protection	IP52 on front face, IP20 at rear of casting	IP52 on front face, IP20 at rear of casting

Relay Type	IM400 / IM400C	IM400-1700 / IM400-1700C
Monitored power system	Maximum rated phase to phase voltage, with IM400 connected to phase: 480VAC Maximum rated phase to phase voltage, with IM400 connected to Neutral: 830VAC. Maximum rated DC voltage: 480VDC Maximum voltage : 480 V DC	Maximum rated phase to phase voltage, with IM400 connected to phase: 1000VAC Maximum rated phase to phase voltage, with IM400 connected to Neutral: 1700VAC
Auxiliary power supply	100 - 440 VAC / 100 - 440 VDC	---
Two alarm relay	AC 250 V 3A DC 48 V 1A, 3 mA min. load	---
Operating temperature	- 25 to $+ 55$ °C ($+65$ °C when used with IM400-1700 and powered by 230V max)	---
Measurement range	10 Ω - 10 M Ω	---
Measurement accuracy	5% typical	---
Maximum power system capacitance	0.1 μ F to 500 μ F (up to 6000 μ F for photovoltaic application with use of voltage adaptors)	---
Degree of protection	IP54 on front face, IP20 at rear case	---

Relay Type	IM400L	IM400THR / IM400LTHR
Monitored power system	Maximum rated phase to phase voltage, connected to phase: 480VAC Maximum rated phase to phase voltage, connected to Neutral: 830VAC. Maximum rated DC voltage: 480VDC	Maximum rated phase to phase voltage, connected to phase: 480VAC Maximum rated phase to phase voltage, connected to Neutral: 830VAC.
Auxiliary power supply	24-48 V DC	IM400THR: 100 - 440 VAC / 100 - 440 VDC IM400LTHR: 24-48 V DC
Two alarm relay	AC 250 V 6A DC 48 V 1A, 10 mA min. load	AC 250 V 3A DC 48 V 1A, 3 mA min. load
Operating temperature	- 25 to + 55 °C	- 25 to + 55 °C
Measurement range	10 Ω - 10 MΩ	10 Ω - 10 MΩ
Measurement accuracy	5% typical	5% typical
Maximum power system capacitance	0.1 μF to 500 μF (up to 6000 μF for photovoltaic application with use of voltage adaptors)	---
Degree of protection	IP54 on front face, IP20 at rear case	IP54 on front face, IP20 at rear case

Application / limitation

For installation inside switchboards / enclosures onboard ships and offshore units.
 Operating instructions of the manufacturer are to be observed.

Type Approval documentation

Tests carried out

Applicable tests according to Class Guideline DNV-CG-0339, August 2021.
 Type tests in accordance with IEC 61557-1 & 8 and / or IEC 60664-1 & IEC61010-1.

Marking of product

Manufacturer – Type designation – Serial number - Power ratings.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are 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 Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE