

# TYPE APPROVAL CERTIFICATE

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**This is to certify:**

**That the Insulation Monitoring Device**

with type designation(s)

**IM9 & IM9-OL, IM10 & IM10H, IM20 & IM20H, IM400 & IM400C, IM400-1700 & IM400-1700C**

Issued to

**Schneider Electric Industries SAS  
GRENOBLE, France**

is found to comply with

**DNV GL 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 GL.**

This Certificate is valid until **2020-12-31**.

Issued at **Høvik** on **2016-12-05**

DNV GL local station: **Marseille**

Approval Engineer: **Nicolay Horn**

for **DNV GL**

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**Andreas Kristoffersen  
Head of Section**

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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.

Job Id: **262.1-010636-4**  
 Certificate No: **TAE00001HB**

## Name and place of manufacturer

Schneider Electric France-ZI  
 Carros-8ième rue -06516 Carros Cedex  
 France

## Product description

Insulation Monitoring Device:

Type designation	Part 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)

Type designation	Part number	Use
IM10 / IM10H	IMD-IM10 & IMD-IM10-H	Insulation monitor for low voltage IT power systems,
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

Type designation	Part number	Use
IM 400 / 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
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
Auxilliary power supply	50/60/400 Hz - 115/415 V AC ±15 %	50/60/400 Hz - 115/415 V AC ±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	÷ 25 to + 55 °C	÷ 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
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
Auxilliary power supply	50/60/400 Hz 110 to 415V AC ±15 %	50/60/400 Hz 110 to 230 V AC ±15 %

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Relay type	IM10 / IM20	IM10-H / IM20-H
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. $\leq$ 24 VDC 5 mA, length $\leq$ 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 rated phase to phase voltage, with IM400 connected to phase: 1000VAC Maximum rated phase to phase voltage, with IM400 connected to Neutral: 1700VAC
Auxilliary power supply	100 - 440 VAC / 100 - 440 VDC	---
Two alarm relay	AC 250 V 6 A DC 48 V 1 A, 10 mA min. load	---
Operating temperature	- 25 to + 55 °C (+65°C when used with IM400-1700 and powered by 230V max)	---
Measurement range	10 $\Omega$ - 10 M $\Omega$	---
Measurement accuracy	5% typical	---
Maximum power system capacitance	0.1 $\mu$ F to 500 $\mu$ F (up to 6000 $\mu$ F for photovoltaic application with use of voltage adaptors)	---
Degree of protection	IP54 on front face, IP20 at rear case	---

## Application / limitation

For installation inside switchboards / enclosures onboard ships and offshore units.

## Type Approval documentation

### Technical info:

Datasheet Vigilohm IM9 doc no. S1A3176401-01.

Datasheet Vigilohm IM9-OL doc no. S1A3176601-00.

Datasheet Vigilohm IM10 doc no. BBV3544001-00 & Datasheet Vigilohm IM20 doc no. BBV3547501-00.

Datasheet Vigilohm IM10-H doc no. S1A4044001DP-00 & Datasheet Vigilohm IM20-H doc no. S1A4044201DP-00.

Datasheet "IM400 Product architecture".

### Test reports:

Schneider Electric test reports nos.S1A1221000, S1A4328100, S1A4328200 & S1A4329200 & S1A4329300 undated, 501507i issued 2010-03-03, T501698aM1 & T501698bM1 issued 2010-04-06, T502533a & T502533b issued 2010-09-27, 201006529\_001 & 201006842\_001 issued 2011-03-01, 201102090\_001 & 2011-02091\_001 issued 2011-06-01, 201006532\_001 issued 2010-12-08, 201006819\_001, issued 2010-12-13, T502939aM1 & T502939bM1, issued 2010-12-14.

AEMC Lab test report no. R1002069C3-E-C issued 2010-07-22. Schneider Electric test reports nos.201004302\_001 issued 2011-06-09, 201004190 issued 2010-07-10, 201101953\_001 issued 2011-

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07-06, T501845a issued 2010-05-07(?), BBV4078300 rev. 02, "IM10 and IM20 Functional Validation Report – Ohmega Project" rev.00, and "Ohmega Project – IM20 and IM10 Insulation Measurement Accuracy Validation Report", rev 10 doc no. BBVxxxxxxx rev. 10 issued 2010-11-05.

AEMC Lab test report no. R1204154C3-E-C issued 2012-10-28. EMITECH test report no. RL12 104956\_A issued 2012-12-07. Volta test report no. 20133000012\_001 issued 2013-91-22, Schneider Electric test reports nos .201206414\_001 issued 2012-08-28, 201207387 001 issued 2012-09-03, RI\_201206470\_001 issued 2012-09-14, Genesis 988742 undated, Genesis 966663 undated, Genesis 781335 undated , Genesis 781459 ,IM400 Dysfunctional Validation Report – Ohmega Project" rev.00 doc no. BBVXXXXXX, IM400 Validation Report Genesis 97260, Conformety report doc. No Genesis, IM400 internal impedance and resistance test report doc. No. Genesis 988882, IM400 PR Compability with existing subassemblies, doc. No Genesis 956144 dated 2013-02-12. IM400 responsi time test report doc. No Genesis 988825, undated, Variation of leakage capacitance doc. No Genesis 982244 rev 10, Vigliohm IM 400 Modbus over serial line interoperability test report issued 2013-03-22.

## Tests carried out

Type tests in accordance with IEC 61557-1 & 8 and / or IEC 60664-1 & IEC61010-1. Environmental tests in accordance with IACS E10 (vibration, EMC, dry heat, damp heat & cold) .

## Marking of product

Type designation - Manufacturer

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type examination 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 examination documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Examination Certificate.

Assessment to be performed at least every second year.

END OF CERTIFICATE