

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Frequency Converter**with type designation(s)
AccuSine PCS+ and AccuSine PFV+,

Issued to

**Schneider Electric Inc.
Salem OR, United States**is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Harmonic filter. Range: 60 A to 300 A 208 - 480 VAC supply.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2022-07-12**.Issued at **Høvik** on **2017-07-25**DNV GL local station: **Seattle**Approval Engineer: **Marta Alonso Pontes**for **DNV GL**

**Andreas Kristoffersen
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.

Job Id: **262.1-021815-1**
Certificate No: **TAE00001Z1**
Revision No: **2**

Product description

Low Voltage Active Harmonic Filter

208-240V models

Reference number	RMS Current rating (A)	Frequency (Hz)	Ingress Protection*
PCSP060D2IP00 EVCP060D2 IP00	60	50/60	IP00, IP20**
PCSP120D2IP00 EVCP120D2IP00	120	50/60	IP00, IP20**
PCSP200D2IP00 EVCP200D2IP00	200	50/60	IP00, IP20**
PCSP300D2IP00 EVCP300D2IP00	300	50/60	IP00, IP20**

380-480V models

Reference number	RMS Current rating (A)	Frequency (Hz)	Ingress Protection*
PCSP060D5IP00 EVCP060D5IP00	60	50/60	IP00, IP20**
PCSP120D5IP00 EVCP120D5IP00	120	50/60	IP00, IP20**
PCSP200D5IP00 EVCP200D5IP00	200	50/60	IP00, IP20**
PCSP300D5IP00 EVCP300D5IP00	300	50/60	IP00, IP20**

* See Application /limitation.

** IP20 is achieved using the AccuSine IP00 chassis + the wall mount kit, commercial ref. *PCSPWMKITxxxA*.

AccuSine PCS+ commercial reference: PCSPxxx

AccuSine PFV+ commercial reference: EVCPxxx

Refer to Schneider Electric installation manual for installation guidelines of IP20 wall mount kit.

Application/Limitation

Supply voltage range:	208 - 480 V, 50/60 Hz
Voltage variation:	+ 10 % - 15 %
Frequency variation:	± 5 %
Temperature range in operation:	0 - 45 °C, 45 - 55°C with current derating.
Temperature class:	A
Vibration class:	A
Humidity class:	A
Enclosure protection:	IP00, IP20 or higher*
EMC class:	IEC 61800-3, To be used on EMC A levels only

The AccuSine PCS+ / PFV+ must be regarded as a component. The actual installation to be designed according to Schneider Electric Inc. installation and user manual and according to the applicable DNV Rules for the actual application.

* Higher IP rating can be achieved using the AccuSine IP00/IP20 unit installed in an external enclosure.

A DNV GL Product Certificate is required. A copy of the type approval certificate is to be submitted for each certification.

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Converters with conducted and radiated emission above the DNV required limits may be installed in "special distribution zone" and "general power distribution zone", in accordance with IEC 60533 provided precautions are taken to attenuate these effects on the distribution system, so the safe operation is assured. Planned EMC precautions shall be submitted for approval prior to installation onboard.

The EMC precautions should be derived from an EMC analysis and plan in accordance with IEC 60533 Annex B and /or IEC 61800-3 Annex E.

To be installed in temperature controlled areas.

Type Approval documentation

Technical info:

"Harmonic compensation offer AccuSine PCS+" technical information from Schneider Electric Inc. undated.

"AccuSine PCS+ LV active harmonic filter" Schneider Electric presentation dated 2016-02-03.

Test reports:

Schneider Electric Performance test of Schneider Electric Active Harmonic Filter doc. No. # A0364636-T3 dated 2017-02-20. Schneider Electric Dry Heat, Damp Heat and Cold test of Schneider Electric Active Harmonic Filter doc. No. # A0364636-T789 dated 2017-02-03.

Electrical power supply failure and Power variation testing of Schneider Electric Active Harmonic Filter dated 2017-01-06.

DCL Vibration Testing of Schneider Electric Active Harmonic Filter doc. No. # 58000-1601 dated 2016-11-29.

North West EMC laboratory EMC tests: Work Order: SCHN0013 (immunity) dated 2013-09-24/26. SCH0016/18/24 dated 2014-02-17, 2015-09-10 & 2014-10-14.

UL test report no. E207434 dated 2013-10-16

Tests carried out

Visual inspection, Performance/temperature rise in accordance with UI 508C, Power supply failure, Power supply variations, Voltage/frequency variation, Vibration, Dry heat, Damp heat, Insulation resistance, High voltage.

EMC: The following tests are in accordance with the IEC 601800-3: Electrical fast transient (Burst), electrical slow transient (Surge), conducted disturbances, electric discharge (ESD), radiated and conducted emission.

Marking of product

AccuSine PCS+ or AccuSine PFV+ – Type designation – Power – Voltage

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 Routine tests (RT) checked (if not available, tests according 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.

Assessment to be performed at 2, 3.5 year and at renewal.

END OF CERTIFICATE