

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Frequency Converter

with type designation(s)

ATV6A0xxxx4, ATV6A0xxxx6, ATV9A0xxxx4, ATV9A0xxxx6, ATV6B0xxxx4, ATV6B0xxxx6, ATV9B0xxxx4, ATV9B0xxxx6, MODBUOxxxx4APM, MODBUOxxxx6APM

Issued to

Schneider Electric Power Drives (SEPD) GmbH
Wien, Austria

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Issued at **Hamburg** on **2019-11-27**

This Certificate is valid until **2024-11-26**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Thomas Hartmann**

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Arne Schaarmann
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.



Product description

The APM (Altivar Process Modular) is a modular, scalable single drives assembly, for cabinet integration by Schneider Electric qualified panel builder.

The APM-series covers a voltage range of 400V up to 690V and a power range of 75 kW up to 1200kW. It consists of the following main components:

- a) Standard Diode-Front-End (DFE) variable speed drives with ATV600 or ATV900 control unit
- b) Active-Front-End (AFE), low-harmonic variable speed drives with ATV600 or ATV900 control unit
- c) Optional braking unit for 400V up 690V DFE and AFE variable speed drive converters.

Common technical data all Modules ATV6A0, ATV9A0, ATV6B0 and ATV9B0

Degree of protection IP	00
Pollution degree ¹⁾	2
Overvoltage Category	III
Nominal Input frequency	50/60 Hz
Max. Prospective short-circuit current ²⁾	50 kA, 100 msec
ATV6A0 - output frequency	0...500 Hz
ATV9A0 - output frequency	0...599 Hz

¹⁾ The air channel of the power modules is designed for use in pollution degree 3 environment. Cabinet integration in IP54 required.

²⁾ Upstream protection gG fuse or circuit breaker as per Schneider Electric "Altivar Process APM Modules - DIA2ED2180301EN"

DFE-Modules (Standard)

400-440V			
Drive Modules type designation	ATV6A0CxxQ4 ATV9A0CxxQ4	ATV6A0CxxR4 ATV9A0CxxR4	
Nominal Voltage	400	440	V
Input current	198...1335	183...1216	A
Max. continuous output current ³⁾	211...1420	211...1420	A
Nominal Output Power ³⁾	110...800	110...800	kW
500-690V			
Drive Modules type designation	ATV6A0CxxN6 ATV6A0MxxN6 ATV9A0CxxN6 ATV9A0MxxN6	ATV6A0CxxQ6 ATV6A0MxxQ6 ATV9A0CxxQ6 ATV9A0MxxQ6	
Nominal Voltage ⁴⁾	500	690	V
Input current	110...1070	118...1161	A
Max. continuous output current ³⁾	125...1230	125...1230	A
Nominal Output Power ³⁾	75...800	110...1200	kW

AFE-Modules (Low Harmonics/ Power Regeneration)

400-480V			
Drive Modules type designation	ATV6B0CxxQ4 ATV9B0CxxQ4	ATV6B0CxxR4 ATV9B0CxxR4	
Nominal Voltage	400	440	V
Input current	175...1227	159...1116	A
Max. continuous output current ³⁾	211...1420	211...1420	A
Nominal Output Power ³⁾	110...800	110...800	kW
500-690V			
Drive Modules type designation	ATV6B0CxxN6 ATV6B0MxxN6 ATV9B0CxxN6 ATV9B0MxxN6	ATV6B0CxxQ6 ATV6B0MxxQ6 ATV9B0CxxQ6 ATV9B0MxxQ6	
Nominal Voltage	500	690	V
Input current	175...1227	148...1049	A
Max. continuous output current ³⁾	211...1420	211...1420	A
Nominal Output Power ³⁾	110...800	110...820	kW

Braking Unit

Control voltage supply to braking units 24Vdc SELV

400-480V		
Drive Modules type designation	MODBUOC16x4APM; MODBUOC31x4APM; MODBUOC50x4APM; MODBUOC63x4APM; MODBUO C80x4APM	
Braking voltage	780	Vdc
Max DC link voltage	820	Vdc
Max. continuous braking current ³⁾	69...198	A
Max. continuous braking power ³⁾	75...355	kW
500-690V		
Drive Modules type designation	MODBUOC20x6APM; MODBUOC40x6APM; MODBUOC63x6APM; MODBUOC80x6APM; MODBUOM10x6APM; MODBUOM12x6APM	
Braking voltage	1130	Vdc
Max DC link voltage	1250	Vdc
Max. continuous braking current ³⁾	58...172	A
Max. continuous braking power ³⁾	85...550	kW

³⁾Derating at ambient greater than 40 °C see manufacturer's technical Datasheet

⁴⁾ Input voltage variation for ATVxxxxxQ6 at 690V ± 10%

Cabinet integration

As per Schneider Electric Integration Manuals

Degree of protection	IP21/ IP54
Vibration dampers	required
Anti-Condensation heating	Yes, or installation at locations where special precautions to avoid condensation are taken

Application/Limitation

Location classes according to CG-0339:	
Temperature class	A
Vibration class	A
Humidity class	A
EMC class ⁵⁾	A

⁵⁾ Converters with conducted and radiated emission above the DNV GL required limits can be installed in "special power distribution zone" and "general power distribution zone", in accordance with IEC 60533 provided measures are taken to attenuate these effects on the distribution system, so the safe operation is assured. Planned EMC measures shall be submitted for approval prior to installation onboard.

Guidance Note:

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

End of Guidance note

For each delivery the following documents shall be submitted for approval:

- Reference to this Type Approval Certificate
- Functional description for the intended use, configuration and interface (e.g. alarms, monitoring and auxiliary power supplies)
- Test program for routine tests and functional tests
- If additional components to the type approved frequency converter are delivered, documentation according to DNV GL rules Pt.4 Ch.8 Sec.1 table 2 shall be submitted for review.

Type Approval documentation

Tests carried out

Electrical and performance tests (IEC 61800-5-1, IEC 60146-1-1), Environmental, EMC and vibration tests (DNV GL CP-0395 ed.2015-12)

Marking of product

APM - Type designation - Power – Voltage

Place of Production

Schneider Electric Power Drive (SEPD) GmbH
Ruthergasse 1
1210 Vienna
AUSTRIA

Schneider (Suzhou) Drives Co., Ltd.
SIP Suzhou, Jiangsu, 215121,
No.555 Fengting Avenue

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.



Job Id: **262.1-027636-1**
Certificate No: **TAE00003ND**

END OF CERTIFICATE