



Certificate No:
TAE00004GX

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Frequency Converter

with type designation(s)
ACS880-11/31 and ACS880-14/34

Issued to

ABB Oy, Drives
Helsinki, Finland

is found to comply with

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

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-07-07**

This Certificate is valid until **2027-07-06**.

for **DNV**

DNV local station: **Finland CMC**

Approval Engineer: **Nicolay Horn**

Marta Alonso Pontes
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

The ACS880-11 is a four-quadrant drive for controlling asynchronous AC induction motors, AC induction servomotors, permanent magnet motors and synchronous reluctance motors. The ACS880-31 is an ultra-harmonic drive for controlling asynchronous AC induction motors, AC induction servomotors, permanent magnet motors and synchronous reluctance motors. Both drives include a line-side converter and a motor-side converter. The parameters and signals for both converters are combined into one primary user program. The line-side converter rectifies three phase AC current to direct current for the intermediate DC link of the drive. The intermediate DC link further supplies the motor-side converter that runs the motor. Both converters consist of six insulated gate bipolar transistors (IGBT) with freewheeling diodes. The content of AC voltage and current harmonics is low. The LCL filter suppresses the harmonics further.

Type code designation +C132 for marine applications.

Voltage:	400V – 690V
Voltage tolerance:	Steady state $\pm 10\%$, transient state -15% to +20% of nominal AC voltage
Frequency:	50/60 Hz
Frequency tolerance:	Steady state $\pm 5\%$, transient state $\pm 10\%$
Ambient temperature:	0-45°C
Humidity:	0-95%, no condensation
Vibration class:	A
EMC class:	IEC 61800-3 / DNV-CG-0339 August 2021
Protection degree ACS880-11/-31:	IP21 (standard), IP20 (option + P940, IP55 (option + B056)
Protection degree ACS880-14/-34:	IP20 (standard, IP00 (option + 0B051)

The nominal ratings for marine type-approved ACS880-11 frame R8 and ACS880-31 frame R8 drives with 50 Hz and 60 Hz supply at an ambient temperature of 45 °C

IEC RATINGS – ACS880-11...and ACS880-31...+C132									
ACS880-11/31-...	Frame size	Input rating	Max. current	Output ratings					
				Nominal use		Light-overload use		Heavy-duty use	
				I_1	I_{max}	I_2	P_n	I_{Ld}	P_{Ld}
		A	A	A	kW	A	kW	A	kW
$U_n = 400\text{ V}$									
105A-3	R8	83.6	148	99.8	55	95	55	82.7	45
145A-3	R8	114	178	13.8	75	131.1	75	99.8	55
169A-3	R8	136.8	247	160.6	90	153	90	137.8	75
206A-3	R8	162.8	287	190.6	110	176.7	110	156.1	90
$U_n = 500\text{ V}$									
101A-5	R8	67.5	148	96.0	55	86,5	55	73.2	45
124A-5	R8	91.2	178	117.8	75	112,1	75	91.2	55
156A-5	R8	109.3	247	148.2	90	140,6	90	117.8	75
180A-5	R8	130.4	287	166.5	110	158,2	110	144.3	90

IEC RATINGS – ACS880-14/34...+C132									
ACS880-14/34-	Frame size	Input rating	Max. current	Output ratings					
				Nominal use		Light-duty use		Heavy-duty use	
				I_1	I_{max}	I_2	P_n	I_{Ld}	P_{Ld}
		A	A	A	kW	A	kW	A	kW
$U_n = 400\text{ V}$									
246A-3	R11	201	333	234	125	222	125	196	105
293A-3	R11	244	397	278	152	264	152	234	125
363A-3	R11	305	473	345	190	328	190	278	152
442A-3	R11	381	590	420	238	399	238	345	190
505A-3	R11	381	599	480	238	456	238	345	190
585A-3	R11	480	713	556	299	528	299	420	238
650A-3	R11	541	816	618	337	587	337	480	238

$U_n = 500 \text{ V}$									
240A-5	R11	161	333	228	125	217	125	171	105
260A-5	R11	195	397	247	152	235	152	228	125
361A-5	R11	244	515	343	190	326	190	247	152
414A-5	R11	305	583	393	238	373	238	343	190
460A-5	R11	384	627	437	299	428	299	393	238
503A-5	R11	433	689	478	337	467	337	437	299
$U_n = 690 \text{ V}$									
142A-7	R11	117	250	135	125	128	125	113	105
174A-7	R11	142	274	165	152	157	152	135	125
210A-7	R11	177	384	200	190	190	190	165	152
271A-7	R11	220	411	257	238	244	238	200	190
330A-7	R11	278	480	314	299	304	299	257	238
370A-7	R11	314	520	352	337	342	337	314	299
430A-7	R11	356	555	409	380	399	380	352	337

Application/Limitation

Electro Magnetic Compatibility:

- EMC filter option E200, E202 to be used in TN-system.
- EMC filter option E201 to be used in IT-system.

Pollution degree:

To be installed in an enclosure with an IP degree in accordance with DNV Rules w.r.t. location. IP 20 and 21 versions are limited to be used in pollution protected rooms (maximum pollution degree II).

Product certification:

Frequency converters larger than 100kW serving important or essential equipment are subjected for additional case by case based product certification. Documents for the actual application are to be submitted for approval in each case in accordance with DNV Rules Pt.4, Ch.8, Sec.1, Table 2, including reference to this type approval certificate and confirmation that the correct marine options and power ratings are used.

Type Approval documentation

Tests carried out

General type tests in accordance with IEC 61800-1 and 61800-5-1 including Full Current Test and Heat run test. Environmental tests including Power Supply Variation, Power Supply Failure, Dielectric, EMC (immunity and emission), Vibration, Low temperature and Damp heat.

Marking of product

ABB Oy – Type designation – Output – Input – IP degree

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 periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routines (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 to be performed at 2 and 3.5 year and at renewal.

END OF CERTIFICATE