

## APS-Q-Series

Outdoor STATCOM systems, with output power range from 1250 kvar up to 5000 kvar.

The APS-Series outdoor STATCOM system is the most cost-effective solution for supplying and/or absorbing reactive power.

The APS is a turnkey solution made for the most demanding environments.



- ✓ **IP65 outdoor cabinet** – Hermetically sealed against heavy dust, sand and rain.
- ✓ **Two redundant cooling systems** ensuring energy production up to 60 °C ambient.
- ✓ **Low maintenance heat exchangers** – Easy to clean air-to-air heat exchanger with no filter mats.
- ✓ Internal maintenance free **patented air dehumidifier** to avoid condensation.
- ✓ **AC circuit breaker** built-in.
- ✓ **Modbus TCP or optional Real-time Ethernet** communication interfaces.
- ✓ **Configurable hybrid system** for solar, storage applications (connect PV or batteries to different inverter modules) and STATCOM function.



## APS-Q-Series – 690 V<sub>AC</sub>

1250 ... 5000 kvar

### DATASHEET - INTRODUCTION

Models	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5
Cabinet options				
Number of Apparent Power Units (APU)	1	2	3	4
Nominal grid voltage ( $U_{AC, nom}$ )	690 V			
Max. AC power ( $Q_{max}$ ) options	1250 & 2500 kvar		3750 & 5000 kvar	

## APS-Q-Series – 690 V<sub>AC</sub>

1250 ... 5000 kvar

### (I) TECHNICAL DATA

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
<b>GRID SIDE</b>					
<b>Nominal &amp; Max. AC power (<math>Q_{max}</math>)</b>	1250 kvar	2500 kvar	3750 kvar	5000 kvar	At nominal grid voltage
<b>Number of Apparent Power Units (APU)</b>	1	2	3	4	
<b>Number of independent grids</b>	1		2		For 3/4 APUs connected on one grid with option "One common grid for all APUs"
<b>Nominal grid voltage (<math>U_{AC, nom}</math>)</b>	690 V				3~, phase to phase
<b>Grid voltage range</b>	+/- 10% of $U_{AC, nom}$				
<b>Nominal grid frequency (<math>f_{nom}</math>)</b>	50 Hz				60 Hz option available
<b>Network configuration</b>	IT system				
<b>Max. AC current per APU (<math>I_{AC, max (APU)}</math>)</b>	1050 A				
<b>Max. AC current – APS (<math>I_{AC, max (APS)}</math>)</b>	1050 A	2 x 1050 A	3 x 1050 A	4 x 1050 A	
<b>Max. short circuit level (<math>I_{AC, SC (APS)}</math>)</b>	42 kA				
<b>Short circuit contribution (<math>I'_{K}</math>)</b>	1060 A	2 x 1060 A	3 x 1060 A	4 x 1060 A	Max. RMS value
<b>Short circuit contribution (<math>I''_{K}</math>)</b>	1060 A	2 x 1060 A	3 x 1060 A	4 x 1060 A	Max. RMS value
<b>Short circuit contribution (<math>I_p</math>)</b>	1560 A	2 x 1560 A	3 x 1560 A	4 x 1560 A	Max. Peak value
<b>Power factor (cos <math>\phi</math>)</b>	0 ind ... 1 ... 0 cap				Adjustable

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### (II) TECHNICAL DATA

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
<b>AUXILIARY SUPPLY (EXTERNAL)</b>					
Nominal grid voltage ( $U_{AC, nom (aux)}$ )	400 V				3~, phase to phase
Grid voltage range	+/- 10% of $U_{AC, nom (aux)}$				
Nominal grid frequency ( $f_{nom (aux)}$ )	50 Hz				
Network configuration	TN-S system				
Max. AC current ( $I_{AC, (aux)}$ )	3 x C13A				
Max. short circuit level ( $I_{AC, SC (APS)}$ )	6 kA				
Internal buffer time	4.0 s				Only for control supply available
<b>GENERAL</b>					
Control strategy	STATCOM				
Feed-in starting at ( $P_{DC, th}$ )	200 W	200 W	400 W	400 W	
Standby losses	80 W	90 W	140 W	150 W	
Max. losses	20 kW	40 kW	60 kW	80 kW	Without transformer
Nominal relative losses	16 kW/Mvar				Without transformer
Max. auxiliary power	< 3500 W		< 7000 W		Excluding optional heating

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### (I) GENERAL DATA

	APS1250-Q-1-690-1	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
Ambient working temperature	From -10°C up to 60°C (From 14°F up to 140°F)				Others on request
Ambient storage temperature	From -40°C up to 60°C (From -40°F up to 140°F)				
Storage relative humidity	< 80%				Non-condensing
Maximum altitude	1500 m above sea level				Without power derating
Cooling type	Forced air and water cooling				
Protection class	IP65				Only when AC connection cover is installed with IP54
Dimensions (L × W × H)	2120 × 1170 × 3760		3690 × 1170 × 3760		Dimensions in millimeters
Weight	< 1525 kg	< 2150 kg	< 3275 kg	< 3900 kg	
Shelter surface	Painted				
Corrosivity category	C4-high				Others on request
Colour	RAL7035				Others on request

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### (II) GENERAL DATA

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
<b>EMC and security standards</b>	IEC 61000-6-2, IEC 61000-6-4 + AMD1, IEC 62109-1, IEC 62109-2.				
<b>CE-conformity</b>	Complies				
<b>Grid connection standards</b>	IEC 62116, BDEW (Germany), VDE-AR-N-4110 (Germany), VDE-AR-N-4120 (Germany), PEA & MEA (Thailand), EN 50549-2 (Turkey), NEPRA (Pakistan), PO 12.3 (Spain), C10/11 (Belgium), Order 30/2013 (Romania), South African Grid Code, Chilean Grid Code, G59-3 (UK), Egyptian Grid Code, DEWA (Dubai), NEPCO (Jordan), Malaysian Grid Code, Arrêté 23-2008 (France), Italian Grid Code, CRE-3025 (Mexico), ABNT NBR 16149/16150 + NDU-015 (Brazil), Saudi Arabian Grid Code.				
<b>Efficiency standard</b>	IEC 61683				
<b>UL / CSA standards</b>	UL 1741 2nd edition (including IEEE 1547, IEEE 1547.1, SA), California Rule 21, CSA C22.2 No.107.1				To be ordered as an option
<b>Seismic standards</b>	IEEE 693-2005, EN60068-3-3:1993, EN 60068-2-6:2008, EN 60068-2-47:2005				To be ordered as an option

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### (I) FEATURES & OPTIONS – APS - STATCOM APPLICATION

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
IP65* outdoor cabinet made for desert installations			F		* except exterior cooling unit
Insulation monitor			F		
Monitored surge arresters on AC side			F		
Status display on the shelter			O		
Air dehumidifier inside the shelter			F		
External heat exchanger for dusty/moist ambient and extreme climatic conditions			F		
Low-Voltage Ride Through (LVRT) handling			F		
Modbus TCP communication interface			F		
Powerlink communication interface (Real-time Ethernet)			O		
Internal data logger			F		
Service access via VNC			F		
FTP server for log data			F		

(O) – Optional (F) – Feature

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### (II) FEATURES & OPTIONS – APS - STATCOM APPLICATION

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
Network Interface			F *)		Network socket
			O *)		Fiber optic multi-mode
			O *)		Fiber optic single-mode
Heating			O		
Alternative grid voltage range (+/- xx %)			O		Only with external control voltage supply
Grid frequency 60 Hz			O		
Power limitation [kVA]			O		
Area for customer's installations (H x W X D) 400 x 500 x 200 mm			F		Including: 1-phase, 230 V, TN, 1000 VA, network connection
UL certified			O		
Seismic IEEE 693			O		
Additional auxiliary output			F *)		None
			O *)		<u>No transformer:</u> fuse-protected output at APU 3/4 with 63 A (3~, PE)
			O *)		<u>With transformer:</u> with internal 8 kVA transformer (3~, N, PE)

(O) – Optional (F) – Feature (\*) – Only one option possible



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### (III) FEATURES & OPTIONS – APS - STATCOM APPLICATION

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
One common grid for all APUs			O		
AC short circuit level 60 kA			-		
MV transformer cooling interface			O		
Additional overvoltage protection			F		None (only at output of the internal auxiliary transformer)
			O		At control interface
			O		At heating interface
Water connection			F		Hose connection
			O		Non-spill connection

(O) – Optional (F) – Feature

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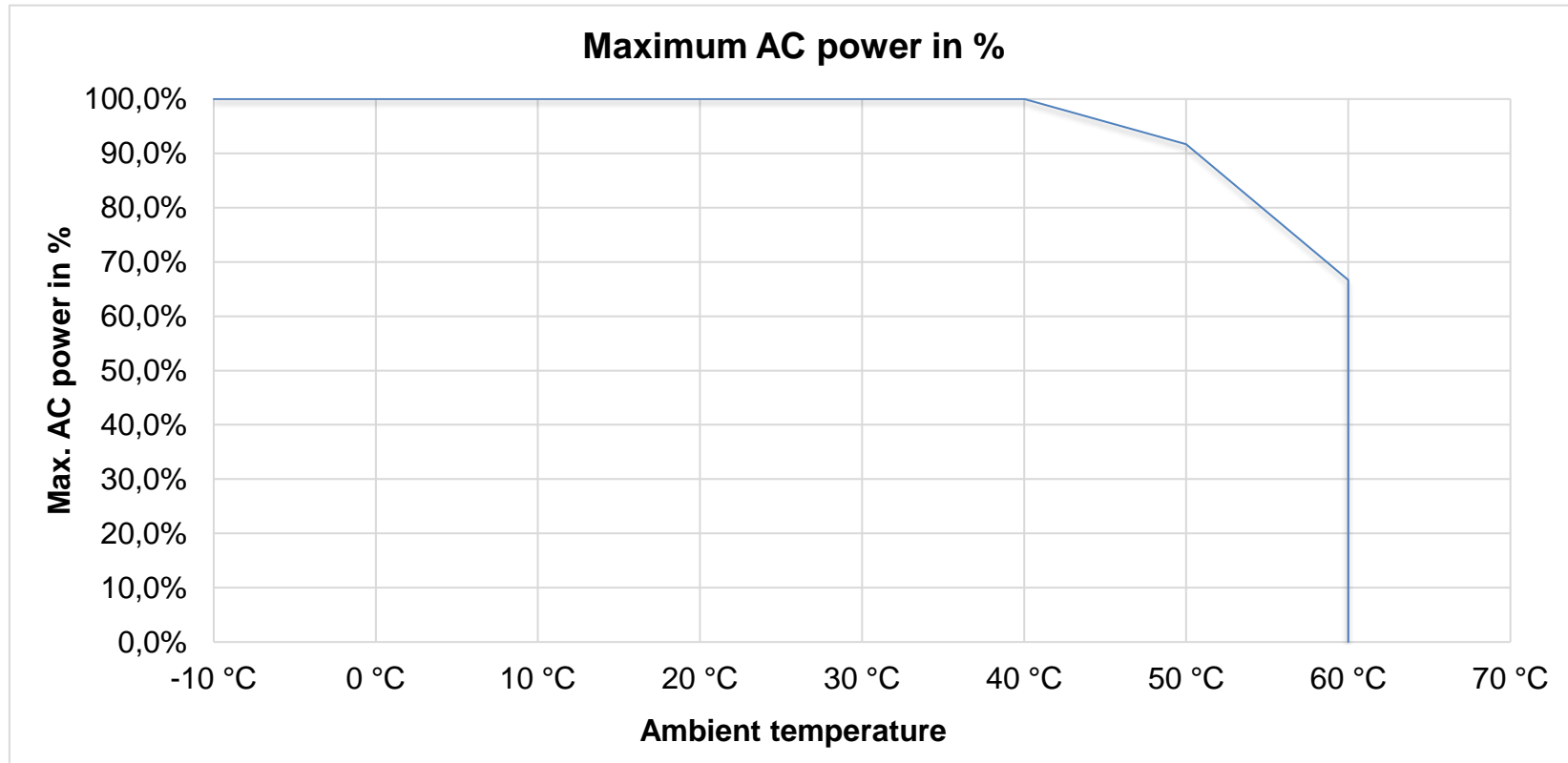
1250 ... 5000 kvar

### FEATURES & OPTIONS – APU - STATCOM APPLICATION

	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5	COMMENTS
AC precharge circuit			F		
Operating mode STATCOM			F		
AC circuit breaker			F		
Insulation monitoring			O *)		None
			F *)		Internal
			O *)		External
			O *)		Positive grounding; Short-circuit level: 5 kA
			O *)		Negative grounding; Short-circuit level: 5 kA

(O) – Optional    (F) – Feature    (\*\*) – Only one option possible

### POWER DERATING



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### MECHANICAL DRAWINGS

Models	APS1250-Q-1-690-5	APS2500-Q-2-690-5	APS3750-Q-3-690-5	APS5000-Q-4-690-5



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