

### Static var generators (SVG)

Static var generators (SVG), also known as active power factor compensators (APFC) are the ultimate answer to power quality problems and grid code requirements for a wide range of segments and applications. They are a high performance, flexible, compact, modular and cost-effective type of active power filters (APF) that provide an instantaneous and effective response in low or high voltage electric power systems. They enable longer equipment lifetime, higher process reliability, improved power system capacity and stability, and reduced energy losses, complying with most demanding power quality standards and grid codes.



SVG module rated 400 V 50/60 Hz +/-83 kvar

SVGs deliver real-time inductive and capacitive reactive current providing accurate power factor correction, mitigating flicker and reducing voltage variations without the drawbacks of conventional solutions like capacitor banks or shunt reactor banks. They can also take care of several other power quality problems and grid ancillary services by combining different functions in a single device.

Power quality	Solution	
Waveform	Harmonics	None
distortions	Interharmonics	None
	Notching	None
Short	Voltage sags	Primary
duration	Voltage swells	Primary
variations	Interruptions	None
Long	Undervoltages	Secondary
duration	Overvoltages	Secondary
variations	Sustained interruptions	None
Transients	Impulsive transients	None
	Oscillatory transients	None
Other power	Voltage unbalances	Primary
quality	Voltage fluctuations (flicker)	Primary
problems	Power frequency variations	None
	Low power factor (lag. or lead.)	Primary
Grid ancillary	services	Solution
Voltage	Voltage control	None
support	Reactive power control	Primary
	Power factor control	Primary
	Fast reactive current injection	Secondary
	Low voltage ride through (LVRT)	None
	High voltage ride through (HVRT)	None

#### **Highlights**

- Specifications from +/-17 kvar to +/-152 kvar (200-690 V) in 3- and 4-wire systems can be covered by a single module. Unlimited amount of SVG modules can be connected in parallel.
- Simple connection to high voltage systems.
- 3-level NPC inverter topology reduces losses, noise, size and extends module's lifetime.
- Overall response time <100 microseconds.
- Instantaneous, precise & stepless power factor correction of inductive and capacitive loads.
- Not possible to over or under compensate the system and no risk of harmonic resonance.
- Suitable for networks with harmonic distortion.
- Capability of switching contactors or thyristor switches of detuned filter capacitor bank steps.
- Compact and modular design optimized for installation, commissioning and maintenance.
- Remote monitoring & analysis capability / IIoT.

#### **Typical segments**

SVGs can be applied to small, medium or large applications in a wide range of segments.

Markets	Segments	Applications
Smart grid	Renewable generation	Primary
	Non-renewable generation	Secondary
	Transmission & distribution	Secondary
	Microgrids	Secondary
Raw material	Mining	Primary
extraction &	Oil & gas	Secondary
processing	Minerals & cement	Primary
	Steel & metals	Primary
Manufacturing	Conventional manufacturing	Primary
&	Critical process industries	Primary
infrastructure	Transport	Primary
	Water & wastewater	Secondary
Green	Healthcare facilities	Primary
buildings &	Critical process facilities	Primary
smart cities	Industrial & office facilities	Secondary
	Retail & leisure facilities	Secondary

### **Typical applications**

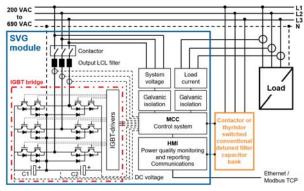
SVGs have many low and high voltage potential applications where their use offers many benefits.

- Installations with fast changing reactive power demand like electric arc furnaces (EAF), ladle furnaces (LF) and ball mills.
- Highly dynamic loads (power factor fluctuates rapidly or in big steps) like rolling mills, cranes, hoists, winders, crushers, shredders, presses, arc welders, conveyors and head & band saws.
- Medical devices: MRI scanners, CT scanners, X-rays machines and linear accelerators.
- Correction of leading power factor, e.g., in data centers allowing back-up generators operation.
- Off-line, on-line & line-interactive UPS systems.
- Solar inverters and wind turbine generators.
- Railway electrification systems (trains & trams).
- Loads with low power factor: Motors, cables, lightly loaded transformers, lighting, etc.



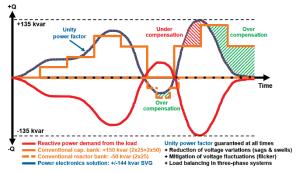
#### Design and operating principle

An SVG is a power electronics-based device connected in parallel with the load. The SVG works as a controlled current source providing any kind of current waveform in real time.



Typical design of an SVG for direct low voltage connection

When the load generates inductive or capacitive current, it makes load current lagging or leading the voltage. An SVG detects the phase angle difference and injects in real time leading or lagging current into the electric power system, bringing fundamental power factor to unity.



SVG operating principle compared to conventional solutions

# Comparison with conventional solutions

#### Benefits

The main benefits of SVGs are:

- Capability to deliver instantaneous capacitive and inductive reactive power compensation.
- Only inject in the system the reactive power that is required by the load at each instant.
- Optimal for highly dynamic applications where capacitor/reactor banks are unable to perform.
- Allow compensation of loads fed by generators without risk of overcompensation.
- No need for over dimensioning, compensation capacity equals the installed capacity.
- Unaffected by voltage drop. Can provide full reactive current at reduced network voltage.
- Simple dimensioning and installation.
- Compliance with the strictest power quality standards and grid codes.



SVG rated 415 V 50/60 Hz +/-288 kvar

	Capacitor banks & shunt reactor banks	Static var generators
Response time	Contactor switched solutions take 30 s to 40 s to mitigate the problem and thyristor switched solutions 20 ms to 30 ms.	Real-time mitigation of power quality problems as the overall response time is less than 100 $\mu$ s.
Output	Depends on step sizes, cannot match load demand in real time. Depends on grid voltage as capacitor units & reactors are used.	Instantaneous, continuous, stepless and seamless. Grid voltage fluctuation has no influence on the output.
Power factor correction	Capacitor banks needed for inductive loads and shunt reactor banks for capacitive loads (problems in mixed loads' systems). Not possible to guarantee unity power factor as they have steps, system will be having continuous over and undercompensation.	Corrects simultaneously from -1 to +1 power factor of lagging (inductive) and leading (capacitive) loads. Guaranteed unity power factor at all times without any over or undercompensation (stepless output).
Sags, swells & flicker	Do not correct sags or swells. Thyristor switched capacitor banks can mitigate flicker with certain limitations.	Reduction of voltage variations & mitigation of voltage fluctuations via instantaneous reactive power injection.
Unbalance	Do not correct load unbalance.	Can correct by selecting the amount of load balancing.
Design & sizing	Reactive power studies needed to size the proper solution. Usually oversized to better adjust to changing load demands. Need to be designed considering system harmonics. Custom-built for specific load and network conditions.	Not required extensive studies as it is adjustable. Mitigation capacity can be exactly what load demands. Unaffected by harmonic distortion in the system. Can adapt to load and network conditions & changes.
Resonance	Parallel or series resonance can amplify currents in the system.	No risk of harmonic resonance with the network.
Transients	Created if switching not synchronised with the system waveform	Transient free switching.
Overloading	Possible due to slow response and/or variation of loads.	Not possible as current limited to max. RMS current.
Footprint & installation	Medium to large footprint, especially if several harmonic orders. Not simple installation, especially if loads upgraded frequently.	Small footprint and simple installation as modules are compact in size. Existing switchgear can be used.
Expansion	Limited and depends on load conditions and network topology.	Simple (and not dependant) by adding modules.
Maintenance & lifetime	Using components that need extensive maintenance like fuses, circuit breakers, contactors, reactors and capacitor units. Switching, transients and resonance reduce lifetime.	Simple maintenance and service life up to 15 years as there is no electro-mechanical switching and no risk of transients or resonance.



# Technical specifications – 200-480 VAC devices

LOOSE MODULES	A2-50	A2-60	A2-75	A2-100	A2-120	A2-150	A2-200
Rated voltage	200-48	$0 VAC \pm 10\%$ (aut	o sensing) Connec	Electrical ratings	es through suitab	le Yy0 step-up trans	former
Rated frequency	200-40	0 VAC 1/-10/0 (aut		60 Hz (auto sensing			sionner.
Reactive power output at 200 V	-17 to +17 kvar	-21 to +21 kvar	-26 to +26 kvar	-35 to +35 kvar	-42 to +42 kvar	-52 to +52 kvar	-69 to +69 kvar
Reactive power output at 220 V	-19 to +19 kvar	-23 to +23 kvar	-29 to +29 kvar	-38 to +38 kvar	-46 to +46 kvar	-57 to +57 kvar	-76 to +76 kvar
Reactive power output at 380 V	-33 to +33 kvar	-39 to +39 kvar	-49 to +49 kvar	-66 to +66 kvar	-79 to +79 kvar		-132 to +132 kvar
Reactive power output at 400 V	-35 to +35 kvar	-42 to +42 kvar	-52 to +52 kvar -54 to +54 kvar	-69 to +69 kvar -72 to +72 kvar	-83 to +83 kvar		-139 to +139 kvar
Reactive power output at 415 V Reactive power output at 440 V	-36 to +36 kvar -38 to +38 kvar	-43 to +43 kvar -46 to +46 kvar	-54 to +54 kvar	-72 to +72 kvar	-86 to +86 kvar -91 to +91 kvar		-144 to +144 kvar -152 to +152 kvar
Reactive power output at high	-36 to +36 kvar	-43 to +43 kvar	-54 to +54 kvar	-72 to +72 kvar	-86 to +86 kvar		-144 to +144 kvar
voltage (>1 kV) with step-up		lo lo lo lital	or to or that	12 10 12 1114			
transformer (415 V secondary)							
		50 1		Electrical features	1 (1 1 1		
Reaction / response time	Reaction time •					ycle if working in sel	ectable mode).
Electrical system compatibility Earthing systems			ase 3-wire (200-480 -C, TN-S, TN-C-S,				
Inverter features	3-level I					Switching frequency	20 kHz.
Controller / redundancy						Is, the rest will contin	
Protection functions			overvoltage, underv				
Stand-by & AutoStart	Stand-by stops th	e IGBTs if required				automatic start after	a network failure.
Remote discrete control			Remot	e stand-by, start and Functions	a stop.		
Power factor correction	Ontimized	stepless and conti	nuously adjustable		tion leading (cap	acitive) and lagging	(inductive)
Voltage support						cker) via reactive po	
Load balancing	Load balancing	between phases a	ind between phases	& neutral (program	mable from 0% to	o 100% of module's	output current).
	Negative se	equence current inj				cts displacement po	wer factor).
Operation	Dodiostad dist			steps control (HP		datupad filter as	itor bank stone
Operation Number of steps and size						detuned filter capac ween 10 kvar to 200	
ממוושבו טו פובשי מווע פובש	o capa	aonor bank steps p		Connections	n a siep raieu bei		
Digital inputs	5 potential 1	ree inputs 15-48 V	DC or up to 277 VA		programmed as tr	igger for stand-by, ti	ip or alarm.
Digital outputs						or all used for capa	
Current transformers (CT)						or better (0.5 preferre	
CT location						onnections possible ad current polarity i	
CT polarity Number of CTs required						nnection of several r	
Connection of parallel modules						e HMI. Unlimited an	
		· · ·	, v	Interfaces	•		
HMI / display			en multilingual graph				
Monitoring and reporting	On-site and rem	iote monitoring cap		aveforms & spectru power quality events		d and supply sides, a	and diagnostics.
Communications	Eth	ernet USB port ar				rnet or USB flash dri	ve
		·····, •·		echanical features			
			1.	echanical leatures			
Mounting arrangement	Loose modu	le ready for cubicle	e or wall installation.	Designed for pollut	ion degree 2 with	conformal coating c	on all PCBAs
Enclosure features			e or wall installation. Compact IP20 galv	Designed for pollut anized steel enclos	ion degree 2 with ure in black colou	r.	
Enclosure features Cooling method			e or wall installation. Compact IP20 galv	Designed for pollut anized steel enclose trolled DC cooling fa	ion degree 2 with ure in black colou		
Enclosure features Cooling method Losses (at full load)	Forced a	ir by easy to servic	or wall installation. Compact IP20 galv e automatically con	Designed for pollut anized steel enclose trolled DC cooling fa <2.3%	ion degree 2 with ure in black colou ans adjusted by m	r. nodule temperature v	via PWM.
Enclosure features Cooling method	Forced a	ir by easy to servic 60 dB	e or wall installation. Compact IP20 galv e automatically con 64 dB	Designed for pollut anized steel enclose trolled DC cooling fa <2.3% 64 dB	ion degree 2 with ure in black colou ans adjusted by m 65 dB	r.	via PWM. 68 dB
Enclosure features Cooling method Losses (at full load) Noise level (at full load)	Forced a	ir by easy to servic 60 dB	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg	Designed for pollut anized steel encloss trolled DC cooling fa <2.3% 64 dB 225x850x500mm 70 kg	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg	r. nodule temperature v 67 dB	via PWM. 68 dB
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight	Forced a 60 dB 225x850x500mm	ir by easy to servic 60 dB 225x850x500mm	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg	Designed for pollut anized steel enclose trolled DC cooling fa <2.3% 64 dB 225x850x500mm 70 kg allation and operat	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg	r. nodule temperature v 67 dB 1 225x1150x500mm	via PWM. 68 dB 225x1150x500mm
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating)	Forced a 60 dB 225x850x500mm 70 kg	ir by easy to servic 60 dB 225x850x500mm 70 kg	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst	Designed for pollut anized steel encloss trolled DC cooling fa <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg tion	r. nodule temperature v 67 dB 225x1150x500mm 110 kg	/ia PWM. 68 dB 225x1150x500mm 110 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity	Forced a 60 dB 225x850x500mm 70 kg	ir by easy to servic 60 dB 225x850x500mm 70 kg	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst	Designed for pollut anized steel encloss trolled DC cooling for <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°d	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg tion	r. nodule temperature v 67 dB 1 225x1150x500mm	/ia PWM. 68 dB 225x1150x500mm 110 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating)	Forced a 60 dB 225x850x500mm 70 kg	ir by easy to servic 60 dB 225x850x500mm 70 kg	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst	Designed for pollut anized steel encloss trolled DC cooling fa <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg tion	r. nodule temperature v 67 dB 225x1150x500mm 110 kg	/ia PWM. 68 dB 225x1150x500mm 110 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar	Designed for pollut anized steel encloss trolled DC cooling fa <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m³/h ad above the module	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v	r. oodule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden- 750 m³/h ventilation.	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00)	Forced a 60 dB 225x850x500mm 70 kg Maxin	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h	Designed for pollut anized steel encloss trolled DC cooling for <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m³/h dd above the moduli gL/gG 125 A	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h	r. 1000 100 100 100 100 100 100 100 100 10	/ia PWM. 68 dB 225x1150x500mm 110 kg sing).
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Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications	Forced a 60 dB 225x850x500mm 70 kg Maxii 350 m³/h gL/gG 63 A	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissis EMC 2014/30/EU,	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg <b>allation and operat</b> +5°C to +40°C. Temperature +50°( Up to 1000 m. 450 m³/h ad above the module gL/gG 125 A Top or bottom. <b>ards and certifica</b> 50178, UL 508 and ons EN/IEC 61000-1 RoHS 2011/65/EU, CE, UL, RoHS.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 5-4 and immunity WEEE 2012/19/E	r. odule temperature v 67 dB 225x1150x500mm 110 kg % RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2.	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives	Forced a 60 dB 225x850x500mm 70 kg Maxii 350 m³/h gL/gG 63 A	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissis EMC 2014/30/EU,	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m³/h d above the moduli gL/gG 125 A Top or bottom. lards and certificat 50178, UL 508 and ons EN/IEC 61000-R RoHS 2011/65/EU, CE, UL, RoHS.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles	r. odule temperature v 67 dB 225x1150x500mm 110 kg % RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2.	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES	Forced a 60 dB 225x850x500mm 70 kg Maxii 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu	Designed for pollut anized steel encloss trolled DC cooling for <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m³/h dd above the modulu gL/gG 125 A Top or bottom. ands and certifical 50178, UL 508 and ons EN/IEC 61000- RoHS 2011/65/EU, CE, UL, RoHS.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air n gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage	Forced a 60 dB 225x850x500mm 70 kg Maxii 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A E Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connect	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m°/h d above the module gL/gG 125 A Top or bottom. ards and certificat 50178, UL 508 and ons EN/IEC 61000-I RoHS 2011/65/EU, CE, UL, RoHS.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v gL/gG 160 A tions CSA C22.2 No/ 6-4 and immunity WEEE 2012/19/E picles ges through suitab	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h rentilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES	Forced a 60 dB 225x850x500mm 70 kg Maxii 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A E Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below at gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec possible. Unlimited p	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m°/h d above the module gL/gG 125 A Top or bottom. ards and certificat 50178, UL 508 and ons EN/IEC 61000-I RoHS 2011/65/EU, CE, UL, RoHS.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v gL/gG 160 A tions CSA C22.2 No 5-4 and immunity WEEE 2012/19/E picles es through suitat any rating combin	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h rentilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test	Forced a 60 dB 225x850x500mm 70 kg Maxii 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A E Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below at gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec possible. Unlimited p	Designed for pollut anized steel encloss trolled DC cooling for <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°d Up to 1000 m. 450 m³/h ad above the moduli gL/gG 125 A Top or bottom. lards and certificat 50178, UL 508 and ons EN/IEC 61000- RoHS 2011/65/EU, CE, UL, RoHS.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E picles es through suitat any rating combin	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h rentilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A E Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connecto possible. Unlimited p Electo	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg <b>allation and operat</b> +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m°/h dabove the module gL/gG 125 A Top or bottom. <b>ards and certificat</b> 50178, UL 508 and ons EN/IEC 61000-I RoHS 2011/65/EU, CE, UL, RoHS. <b>les installed in cut</b> <b>Electrical ratings</b> tion to higher voltag arallel operation of a <b>rical features</b> (cut 2.5 kV/1 min 6 kV	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v gL/gG 160 A tions CSA C22.2 No/ 6-4 and immunity WEEE 2012/19/E picles ges through suitat any rating combin icle)	r. nodule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules.	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p use-switch. General	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec ossible. Unlimited p Elec	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg <b>allation and operat</b> +5°C to +40°C. Temperature +50° Up to 1000 m. 450 m³/h ad above the module gL/gG 125 A Top or bottom. <b>ards and certifica</b> 50178, UL 508 and ons EN/IEC 61000-1 RoHS 2011/65/EU, CE, UL, RoHS. <b>Isstalled in cut</b> <b>Electrical ratings</b> tion to higher voltag arallel operation of a <b>rical features (cut</b> 2.5 kV/1 min 6 kV elect the protection	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 5-4 and immunity WEEE 2012/19/E picles ues through suitat any rating combin icle) level 1.3 times th	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p use-switch. General	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec possible. Unlimited p Elect al design rule is to s local regulations, 1	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m <sup>3</sup> /h td above the moduli gL/gG 125 A Top or bottom. lards and certifical 50178, UL 508 and ons EN/IEC 61000-/ RoHS 2011/65/EU, CE, UL, RoHS. les installed in cul Electrical ratings tion to higher voltage arallel operation of a trical features (cub 2.5 kV/1 min 6 kV elect the protection 5 mm <sup>2</sup> Cu conducto	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles ues through suitat any rating combin nicle) level 1.3 times th r is the minimum	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is puse-switch. General According to	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec possible. Unlimited p Elect al design rule is to s local regulations, 1	Designed for pollut anized steel encloss trolled DC cooling for <2.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m³/h ad above the moduli gL/gG 125 A Top or bottom. lards and certificat 50178, UL 508 and ons EN/IEC 61000-1 RoHS 2011/65/EU, CE, UL, RoHS. les installed in cut Electrical ratings tion to higher voltag arallel operation of a rical features (cut 2.5 kV/1 min 6 kV elect the protection anical features (cut	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m <sup>3</sup> /h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles level 1.3 times th f is the minimum bicle)	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden: 750 m³/h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ole Yy0 step-up trans ation of modules. e nominal current of recommended.	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p use-switch. General According to Free IP20 to IP42 for i	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec ossible. Unlimited p Elec al design rule is to s local regulations, 1 <u>Mech</u> estanding cubicle (c	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg <b>allation and operat</b> +5°C to +40°C. Temperature +50° Up to 1000 m. 450 m³/h ad above the module gL/gG 125 A Top or bottom. <b>ards and certifica</b> 50178, UL 508 and ons EN/IEC 61000-1 RoHS 2011/65/EU, CE, UL, RoHS. <b>Iss installed in cut</b> <b>Electrical ratings</b> tion to higher voltag arallel operation of a <b>rical features (cut</b> 2.5 kV/1 min 6 kV elect the protection 5 mm <sup>2</sup> Cu conducto anical features (cut ontainerized and m ther classes or outd	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 5-4 and immunity WEEE 2012/19/E picles level 1.3 times that is the minimum bicle) bile options avail loor installation cc	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden- 750 m <sup>3</sup> /h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of recommended. lable). blcles on request).	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class Enclosure material and colour	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p use-switch. General According to Free IP20 to IP42 for i	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN compatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connec ossible. Unlimited p Sossible. Unlimited p Elect al design rule is to s local regulations, 1 Mech e-standing cubicle (c ndoor installation (c ed steel, light grey F	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m?/h td above the moduli gL/gG 125 A Top or bottom. Iards and certificat 50178, UL 508 and ons EN/IEC 61000- RoHS 2011/65/EU, CE, UL, RoHS. Is installed in cul Electrical ratings tion to higher voltage arallel operation of arallel operation of crical features (cub 2.5 kV/1 min 6 kV elect the protection 5 mm² Cu conducto anical features (cub 2.5 kV/2 min 6 kV	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles ges through suitat any rating combin icle) level 1.3 times th r is the minimum bicle) obile options avail loor installation cu	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden- 750 m <sup>3</sup> /h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of recommended. lable). blcles on request).	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class Enclosure material and colour Panel thickness and treatment	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p use-switch. General According to Free IP20 to IP42 for i	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connect ossible. Unlimited p Election al design rule is to s local regulations, 1 biocal regulations, 1 mech estanding cubicle (condoor installation (co ed steel, light grey F	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg allation and operat +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m³/h d above the moduli gL/gG 125 A Top or bottom. lards and certificat 50178, UL 508 and ons EN/IEC 61000-1 RoHS 2011/65/EU, CE, UL, RoHS. les installed in cut Electrical ratings tion to higher voltag arallel operation of a rical features (cut 2.5 kV/1 min 6 kV elect the protection 5 mm² Cu conducto anical features (cut ontainerized and m ther classes or outo ALT035 (other mat . Epoxy powder coa	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles pes through suitat any rating combin icle) bicle options avail loor installation cu erials or colours of ating.	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden- 750 m <sup>3</sup> /h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of recommended. lable). blcles on request).	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class Enclosure IP class	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EMI/ 0 VAC +/-10% (aut Any output is p use-switch. General According to Free IP20 to IP42 for i	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connect ossible. Unlimited p Election al design rule is to s local regulations, 1 biocal regulations, 1 mech estanding cubicle (condoor installation (co ed steel, light grey F	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg <b>allation and operat</b> +5°C to +40°C. Temperature +50°C Up to 1000 m. 450 m°/h dabove the module gL/gG 125 A Top or bottom. <b>ards and certifica</b> 50178, UL 508 and ons EN/IEC 61000-I RoHS 2011/65/EU, CE, UL, RoHS. <b>Ises installed in cut</b> <b>Electrical ratings</b> tion to higher voltag arallel operation of a <b>rical features (cut</b> 2.5 kV/1 min 6 kV elect the protection, B mm <sup>2</sup> Cu conducto <b>anical features (cut</b> cAL7035 (other mat . Epoxy powder co d air or heat excha	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 6-4 and immunity WEEE 2012/19/E bicles pes through suitat any rating combin icle) bicle options avail loor installation cu erials or colours of ating.	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden- 750 m <sup>3</sup> /h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of recommended. lable). blcles on request).	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class Enclosure material and colour Panel thickness and treatment	Forced a 60 dB 225x850x500mm 70 kg Maxin 350 m³/h gL/gG 63 A Low voltage	ir by easy to servic 60 dB 225x850x500mm 70 kg mum ambient ratin 350 m³/h 300 mm gL/gG 80 A Electromagnetic c 2014/35/EU, EM/ 0 VAC +/-10% (au Any output is p use-switch. Genera According to Free IP20 to IP42 for i Galvanize	e or wall installation. Compact IP20 galv e automatically con 64 dB 225x850x500mm 70 kg Inst gs during operation 400 m³/h free space below ar gL/gG 100 A Stanc Electrical safety: EN ompatibility: Emissi EMC 2014/30/EU, Modu to sensing). Connect ossible. Unlimited p Election al design rule is to s local regulations, 1 biocal regulations, 1 mech estanding cubicle (condoor installation (co ed steel, light grey F	Designed for pollut anized steel encloss trolled DC cooling fa <22.3% 64 dB 225x850x500mm 70 kg <b>allation and operat</b> +5°C to +40°C. Temperature +50° Up to 1000 m. 450 m³/h ad above the module gL/gG 125 A Top or bottom. <b>ards and certifica</b> 50178, UL 508 and ons EN/IEC 61000-1 RoHS 2011/65/EU, CE, UL, RoHS. <b>CE, UL, RoHS.</b> <b>Iss installed in cut</b> <b>Electrical ratings</b> tion to higher voltag arallel operation of a <b>rical features (cut</b> 2.5 kV/1 min 6 kV elect the protection 5 mm² Cu conducto anical features (cut 2.5 kV/1 min 6 kV elect the protection 5 mm² Cu conducto anical features (cut 2.5 kV/1 min ther classes or out AL7035 (other mat . Epoxy powder coa ad air or heat excha Top or bottom.	ion degree 2 with ure in black colou ans adjusted by m 65 dB 225x850x500mm 70 kg ion C and humidity 85 500 m³/h e required for air v gL/gG 160 A tions CSA C22.2 No 5-4 and immunity WEEE 2012/19/E picles level 1.3 times the r is the minimum bicle) level 1.3 times the r is the minimum bicle, nger.	r. odule temperature v 67 dB 225x1150x500mm 110 kg 5% RH (non-conden- 750 m <sup>3</sup> /h ventilation. gL/gG 200 A 14. EN/IEC 61000-6-2. U and Ecodesign 20 ble Yy0 step-up trans ation of modules. e nominal current of recommended. lable). blcles on request). on request).	/ia PWM. 68 dB 225x1150x500mm 110 kg sing). 1000 m³/h gL/gG 250 A 009/125/EC. sformer.



# Technical specifications – 480-690 VAC devices

LOOSE MODULES	A2-50-E	A2-60-E	A2-75-E	A2-100-E	A2-120-E
			Electrical ratings		
Rated voltage	480-690 VAC	+/-10% (auto sensing). Cor		through suitable Yy0 step-	up transformer.
Rated frequency			50/60 Hz (auto sensing).		
Reactive power output at 480 V	-42 to +42 kvar	-50 to +50 kvar	-62 to +62 kvar	-83 to +83 kvar	-100 to +100 kvar
Reactive power output at 500 V	-43 to +43 kvar	-52 to +52 kvar	-65 to +65 kvar	-87 to +87 kvar	-104 to +104 kvar
Reactive power output at 600 V	-52 to +52 kvar	-62 to +62 kvar	-78 to +78 kvar	-104 to +104 kvar	-125 to +125 kvar
Reactive power output at 660 V	-57 to +57 kvar	-69 to +69 kvar	-86 to +86 kvar	-114 to +114 kvar	-137 to +137 kvar
Reactive power output at 690 V	-60 to +60 kvar	-72 to +72 kvar	-90 to +90 kvar	-120 to +120 kvar	-143 to +143 kvar
Reactive power output at high	-60 to +60 kvar	-72 to +72 kvar	-90 to +90 kvar	-120 to +120 kvar	-143 to +143 kvar
voltage (>1 kV) with step-up transformer (690 V secondary)					
Reaction / response time	Departies times (50 mis		Electrical features	le (d. metruente evele if wentin	an in a de stable mede)
Electrical system compatibility	Reaction time < 50 mic		-690 VAC) and 3-phase 4-	Is (1 network cycle if workir wire (480-525 VAC)	ig in selectable mode).
Earthing systems			C-S, corner ground, centre-		
Inverter features	3-level NPC inv			c capacitors). Switching fre	equency 20 kHz
Controller / redundancy				any module fails, the rest w	
Protection functions				re and ripple circuit overloa	
Stand-by & AutoStart				toStart allows automatic st	
Remote discrete control			mote stand-by, start and s		
	I		Functions		
Power factor correction	Optimized, steples	ss and continuously adjusta	able power factor correction	n, leading (capacitive) and I	lagging (inductive).
Voltage support				luctuations (flicker) via read	
Load balancing				able from 0% to 100% of m	
5				ent (also corrects displace	
	5		ank steps control (HPQ f		
Operation	Dedicated digital output			of conventional detuned filte	er capacitor bank steps.
Number of steps and size				step rated between 10 kva	
			Connections		
Digital inputs	5 potential free inp	uts 15-48 VDC or up to 27	7 VAC. 3 inputs can be pro	grammed as trigger for sta	nd-by, trip or alarm.
Digital outputs	6 potential free outputs	DC or up to 277 VAC. 4 ca	in be used for trip, alarm, ru	unning & force, or all used t	for capacitor bank steps
Current transformers (CT)				ss 1 accuracy or better (0.5	
CT location				supply side) connections p	
CT polarity				o change the load current p	
Number of CTs required				Closed loop connection of s	
Connection of parallel modules				nodules per one HMI. Unlir	
bonnection of parallel modules	Offinitine Scalability.	ratalier operation of any ra	Interfaces	nodules per one rivin. Orim	filled amount of Films.
HMI / display	7"	touch screen multilingual c		es can be added on reque	est)
Monitoring and reporting				from both load and supply	
			a of power quality events u		olabo, alla alagitoottoo.
Communications	Ethernet,			ssible via Ethernet or USB	flash drive.
			Mechanical features		
Mounting organs		مالعهمين المنتبع مامنطنيه المساه			
wounting arrangement	Loose module read	y for cubicle of wall installa	tion. Designed for pollution	degree 2 with conformal c	oating on all PCBAs
	Loose module read		tion. Designed for pollution galvanized steel enclosure		oating on all PCBAs
Enclosure features Cooling method		Compact IP20	galvanized steel enclosure controlled DC cooling fans		*
Enclosure features Cooling method Losses (at full load)	Forced air by ea	Compact IP20 sy to service automatically	galvanized steel enclosure controlled DC cooling fans <2.8%	in black colour. adjusted by module tempe	erature via PWM.
Enclosure features Cooling method Losses (at full load) Noise level (at full load)	Forced air by ea	Compact IP20 sy to service automatically 67 dB	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB	in black colour. adjusted by module tempe 67 dB	erature via PWM. 68 dB
Enclosure features Cooling method Losses (at full load) Noise level (at full load)	Forced air by ea	Compact IP20 sy to service automatically	galvanized steel enclosure controlled DC cooling fans <2.8%	in black colour. adjusted by module tempe	erature via PWM.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD)	Forced air by ea	Compact IP20 sy to service automatically 67 dB	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB	in black colour. adjusted by module tempe 67 dB	erature via PWM. 68 dB
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD)	Forced air by ea 67 dB 225x1150x500mm	Compact IP20 sy to service automatically 67 dB 225x1150x500mm	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg	erature via PWM. 68 dB 225x1150x500mm
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight	Forced air by ea 67 dB 225x1150x500mm 120 kg	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C.	in Ďlack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg	erature via PWM. 68 dB 225x1150x500mm 120 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating)	Forced air by ea 67 dB 225x1150x500mm 120 kg	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C.	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg	erature via PWM. 68 dB 225x1150x500mm 120 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity	Forced air by ea 67 dB 225x1150x500mm 120 kg	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C.	in Ďlack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg	erature via PWM. 68 dB 225x1150x500mm 120 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating)	Forced air by ea 67 dB 225x1150x500mm 120 kg	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operatiod +5°C to +40°C. ttion: Temperature +50°C a	in Ďlack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg	erature via PWM. 68 dB 225x1150x500mm 120 kg
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m.	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg 1 ind humidity 85% RH (non- 450 m³/h	68 dB 225x1150x500mm 120 kg condensing).
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m³/h	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg 1 ind humidity 85% RH (non- 450 m³/h	68 dB 225x1150x500mm 120 kg condensing).
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00)	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m <sup>3</sup> /h w and above the module rn gL/gG 100 A Top or bottom.	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m <sup>9</sup> /h equired for air ventilation. gL/gG 125 A	68 dB 225x1150x500mm 120 kg condensing). 500 m³/h
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00)	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module re gL/gG 100 A	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m <sup>9</sup> /h equired for air ventilation. gL/gG 125 A	68 dB 225x1150x500mm 120 kg condensing). 500 m³/h
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m <sup>3</sup> /h w and above the module rn gL/gG 100 A Top or bottom.	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A	68 dB 225x1150x500mm 120 kg condensing). 500 m³/h
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety:	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m³/h w and above the module ru gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C	in black colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module re gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and Cf nissions EN/IEC 61000-6-4	in Dlack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg 1 ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14.	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m <sup>3</sup> /h gL/gG 160 A 00-6-2.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module re gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and Cf nissions EN/IEC 61000-6-4	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m <sup>3</sup> /h gL/gG 160 A 00-6-2.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operatiol +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m <sup>3</sup> /h w and above the module ro gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C3 inssions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m <sup>3</sup> /h gL/gG 160 A 00-6-2.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m <sup>3</sup> /h 300 mm free space belo gL/gG 80 A Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/l	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module rn gL/gG 100 A Top or bottom. tandards and certification EN 50178, UL 508 and CS nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS.	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m <sup>3</sup> /h gL/gG 160 A 00-6-2.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m <sup>3</sup> /h 300 mm free space belo gL/gG 80 A Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/l	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module rr gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS.	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m <sup>3</sup> /h gL/gG 160 A 00-6-2.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Attitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m <sup>3</sup> /h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operatiod +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m <sup>9</sup> /h w and above the module re gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C3 inssions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS.	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m <sup>3</sup> /h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/l	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m <sup>3</sup> /h w and above the module ro gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C3 inssions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS.	in Dlack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n ind humidity 85% RH (non- 450 m <sup>3</sup> /h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EEE 2012/19/EU and Ecod es through suitable Yy0 step-	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I % +/-10% (auto sensing). Cor output is possible. Unlimite	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m³/h w and above the module ru gL/gG 100 A Top or bottom. tandards and certification EN 50178, UL 508 and CC nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WH CE, UL, RoHS. odules installed in cubic Electrical ratings and cortigages ed parallel operation of any	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I % +/-10% (auto sensing). Cor output is possible. Unlimite	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module rr gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings meetion to higher voltages ad paralle operation of any Electrical features (cubic)	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Femperature (without derating) Max. temperature & humidity Attitude (without derating) Max. temperature & humidity Attitude (without derating) Veeded airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I % +/-10% (auto sensing). Cor output is possible. Unlimite	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m³/h w and above the module re gL/gG 100 A Top or bottom. tandards and certification EN 50178, UL 508 and Cf nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS.	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test mpulse withstand voltage	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m <sup>9</sup> /h 300 mm free space belo gL/gG 80 A S Electrical safety: pmagnetic compatibility: En 35/EU, EMI/EMC 2014/30/l wh +/-10% (auto sensing). Cor output is possible. Unlimite E	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m <sup>9</sup> /h w and above the module re gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and CG inssions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings anection to higher voltages ad parallel operation of any Electrical features (cubic) 2.5 kV/1 min 6 kV	in black colour. adjusted by module temper 67 dB 225x1150x500mm 120 kg 1 10 humidity 85% RH (non- 450 m <sup>3</sup> /h equired for air ventilation. gL/gG 125 A ns 6A C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod e)	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC Any MCCB or fuse-swi	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: magnetic compatibility: En 35/EU, EMI/EMC 2014/30/I st/-10% (auto sensing). Cor output is possible. Unlimite tch. General design rule is	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m³/h w and above the module ru gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and CC nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings and parallel operation of any Electrical features (cubicl 2.5 kV/1 min 6 kV to select the protection lev	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod e) el 1.3 times the nominal cu	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC Any MCCB or fuse-swi	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: omagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I % +/-10% (auto sensing). Cor output is possible. Unlimite tch. General design rule is ccording to local regulation	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module rr gL/gG 100 A Top or bottom. tandards and certification EN 50178, UL 508 and C nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings nection to higher voltages de paralle loperation of any Electrical features (cubicl 2.5 kV/1 min 6 kV to select the protection lev s, 16 mm² Cu conductor is	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod e) el 1.3 times the nominal cu the minimum recommende	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules. rrent of the device.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Attitude (without derating) Max. temperature & humidity Attitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC Any MCCB or fuse-swi	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: omagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I M +/-10% (auto sensing). Cor output is possible. Unlimite Encoding to local regulation M	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m³/h w and above the module re gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and Ct nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings nection to higher voltages ad parallel operation of any Electrical features (cubic) 2.5 kV/1 min 6 kV to select the protection lev s, 16 mm <sup>2</sup> Cu conductor is echanical features (cubic)	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg 1 ind humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecode es through suitable Yy0 step- rating combination of mod e) el 1.3 times the nominal cu the minimum recommende le)	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules. rrent of the device.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC Any MCCB or fuse-swi A	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg nbient ratings during opera 350 m <sup>3</sup> /h 300 mm free space belo gL/gG 80 A S Electrical safety: omagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I w +/-10% (auto sensing). Cor output is possible. Unlimite tch. General design rule is ccording to local regulation M Free-standing cubic	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tion: Temperature +50°C a Up to 1000 m. 400 m <sup>9</sup> /h w and above the module re gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and CG nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings anection to higher voltages ad parallel operation of any Electrical features (cubic 2.5 kV/1 min 6 kV to select the protection lev s, 16 mm <sup>2</sup> Cu conductor is le (containerized and mobi	in Diack colour. adjusted by module temper 67 dB 225x1150x500mm 120 kg 1 ind humidity 85% RH (non- 450 m <sup>3</sup> /h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecodo es through suitable Yy0 step- rating combination of mod e) el 1.3 times the nominal cu the minimum recommende le) le options available).	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules. rrrent of the device. ed.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC Any MCCB or fuse-swi A	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: magnetic compatibility: En 35/EU, EMI/EMC 2014/30/I w +/-10% (auto sensing). Cor output is possible. Unlimite tch. General design rule is ccording to local regulation M Free-standing cubic o IP42 for indoor installatic	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m³/h w and above the module ru gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and CC nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings and parallel operation of any Electrical features (cubicl 2.5 kV/1 min 6 kV to select the protection lev s, 16 mm² Cu conductor is echanical features (cubicl le (containerized and mobi in (other classes or outdoo	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod e) el 1.3 times the nominal cu the minimum recommende le options available). i installation cubicles on rec	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules. rrrent of the device. ed.
Enclosure features Cooling method Losses (at full load) Noise level (at full load) Dimensions (WxHxD) Weight Temperature (without derating) Max. temperature & humidity Altitude (without derating) Needed airflow for the module Ventilation requirements External fuses (NH00) Cable entry Design standards Compliance directives Certifications ASSEMBLED MODULES Rated voltage Reactive power output Power frequency voltage test Impulse withstand voltage Power circuit protection Earthing Mounting arrangement Enclosure IP class Enclosure material and colour	Forced air by ea 67 dB 225x1150x500mm 120 kg Maximum ar 350 m³/h gL/gG 63 A Electro Low voltage 2014/3 480-690 VAC Any MCCB or fuse-swi A	Compact IP20 sy to service automatically 67 dB 225x1150x500mm 120 kg mbient ratings during opera 350 m³/h 300 mm free space belo gL/gG 80 A S Electrical safety: omagnetic compatibility: En 35/EU, EMI/EMC 2014/30/I % +/-10% (auto sensing). Cor output is possible. Unlimite tch. General design rule is ccording to local regulation M Free-standing cubic Galvanized steel, light gr	galvanized steel enclosure controlled DC cooling fans <2.8% 67 dB 225x1150x500mm 120 kg Installation and operation +5°C to +40°C. tition: Temperature +50°C a Up to 1000 m. 400 m²/h w and above the module rr gL/gG 100 A Top or bottom. tandards and certificatio EN 50178, UL 508 and C nissions EN/IEC 61000-6-4 EU, RoHS 2011/65/EU, WE CE, UL, RoHS. odules installed in cubic Electrical ratings nection to higher voltages do paralle operation of any Electrical features (cubic) 2.5 kV/1 min 6 kV to select the protection lev s, 16 mm² Cu conductor is echanical features (cubic) le (containerized and mobi n (other classes or outdoo ey RAL7035 (other materia	in Diack colour. adjusted by module tempe 67 dB 225x1150x500mm 120 kg n nd humidity 85% RH (non- 450 m³/h equired for air ventilation. gL/gG 125 A ns SA C22.2 No. 14. and immunity EN/IEC 610 EE 2012/19/EU and Ecod es through suitable Yy0 step- rating combination of mod e) el 1.3 times the nominal cu the minimum recommende le) le options available). r installation cubicles on request).	erature via PWM. 68 dB 225x1150x500mm 120 kg condensing). 500 m³/h gL/gG 160 A 00-6-2. esign 2009/125/EC. up transformer. ules. rrrent of the device. ed.
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