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CONSULTING & TECHNOLOGY

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Abstract

The document describes the technical specifications and conditions of an MV Power Station, manufactured by SMA Solar Technology AG, which is ready for sale, never used, and currently stored by the manufacturer. The MV Power Station is an advanced solution designed for the next generation of 1500 VDC photovoltaic power plants, offering higher power density due to the new Sunny Central UP and Sunny Central Storage UP central inverters. This integrated unit, housed in a 20-foot container, ensures easy transportation, rapid installation, and commissioning. The MV Power Station and all its components have undergone rigorous testing to ensure maximum plant safety, optimal energy yields, and minimized operational risks. The system is designed to operate under various environmental conditions and can be delivered as a turnkey solution for installations worldwide. Additionally, the MV Power Station is ready for DC connections, making it ideal for modern photovoltaic power plant needs.



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1. Introduction

MV Power Station **4200** available for sale, this document describes the various characteristics and its current status. The subject of the opportunity is as follows:

General Data			
Ochicial Data	1		
OEM	SMA Solar Technology AG		
Model	4200-S2		
Quantity	17		
Available from	November 2024		
Country	Spain		

Technical Data			
Condition	New		
Year of construction	2024		
Imput voltage	1500 V CC		
Output power	4200 KVA CA		
Rated frequency	50 Hz		

2. Description of Supply

2.1 MV Power Station 4200

The SMA Medium Voltage Power Station offers the highest power density in a plug & play design, which is suitable for global use. Rely on the most robust, technically advanced and internationally certified hardware for power conversion in any climate. As one of the first truly global systems, it is the ideal choice for next generation PV power plants operating at 1500 VDC.

Delivered pre-configured within a 20' HC shipping container that easily converts into an installation-ready platform, the system is simple to transport and quick to assemble and commission. The SMA Medium Voltage Power Station combines the highest plant safety with maximum energy yield and minimized logistical and operating risk for large scale PV power plant projects.

2.2 Technical data

Parameter	Value	
Model	MVPS 4200-S2	
Manufacturer	SMA	
Application	Solar power plant	
Sunny central up		
Model	SC 4200 UP	
DC side		
MPP voltage range VDC (at 25 °C / at 50 °C)	921 to 1325 V / 1050 V	
Min. DC voltage VDC, min / Start voltage VDC, Start	891 V / 1071 V	
Max. DC voltage VDC, max	1500 V	
Max. DC current IDC, max	4750 A	
Max. short-circuit current IDC, SC	8400 A	
Number of DC inputs	Busbar with 26 connections per terminal, 24 double pole fused (32 single pole fused)	
Number of DC inputs with optional DC coupled storage18 double pole fused (36 single pole fused) for double pole fused for batteries		
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm2	
Available PV fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A	
Available battery fuse size (per input)	750 A	
AC Side		
Nominal AC power at $\cos \varphi = 1$ (at 35°C / at 50°C)	4200 kVA	
Nominal AC power at $\cos \varphi = 0.8$ (at 35°C / at 50°C)	3360 kW	
Nominal AC current IAC, nom (at 35°C / at 50°C)	3850 A	
Max. total harmonic distortion	< 3% at nominal power	
Nominal AC voltage / nominal AC voltage range	630 V / 504 V to 756 V	
AC power frequency / range	50 Hz / 47 Hz to 53 Hz	
Min. short-circuit ratio at the AC terminals	>2	
Power factor at rated power / displacement power factor adjustable	1 / 0.8 overexcited to 0.8 underexcited	
Efficency		

Max. efficiency / European efficiency / CEC efficiency	98.8% / 98.7% / 98.5%	
Protective Devices		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I & II	
AC overvoltage protection (optional)	Surge arrester, class I & II	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP54 / IP34 / IP34	
Features		
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Enclosure / roof color	RAL 9016 / RAL 7004	
tandards and directives complied with	CE, IEC / EN 62109-1, IEC / EN 62109-2, AR-N 4110, IEEE1547, UL 840 Cat. IV, Arrêté du 23/04/08	
EMC standards	IEC 55011, IEC 61000-6-2, FCC Part 15 Class A	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
Transformer Output (AC) on the medium-voltage	ge side	
Rated power at SC UP (at -25°C to + 35°C / 40°C optional 50°C)1)	4200 kVA	
Rated power at SCS UP (at -25°C bis +25°C / 40°C optional 50°C)1)	3620 kVA	
Charging power at SCS UP-XT (at -25°C bis +25°C / 40°C optional 50°C)1)	3770 kVA	
Discharging power at SCS UP-XT (at -25°C bis +25°C / 40°C optional 50°C)1)	4200 kVA	
Typical nominal AC voltages	10 kV to 35 kV	
AC power frequency	50 Hz	
Transformer vector group	Dy11	
Transformer cooling methods	KNAN	
Transformer no-load losses	Standard	
Transformer short-circuit losses	Standard	
Max. total harmonic distortion	< 3%	
Reactive power feed-in (up to 60% of nominal power)	0	

Power factor at rated power / displacement power factor adjustable	1 / 0.8 overexcited to 0.8 underexcited		
Protective devices			
Input-side disconnection point	DC load-break switch		
Output-side disconnection point	Medium-voltage vacuum circuit breaker		
DC overvoltage protection	Surge arrester type I		
Galvanic isolation	Yes		
Internal arc classification medium-voltage control room (according to IEC 62271-202)	IAC A 20 kA 1 s		
General Data			
Dimensions (W / H / D)	6058 mm / 2896 mm / 2438 mm		
Weight	< 18 t		
Self-consumption (max. / partial load / average)1)	< 8.1 kW / < 1.8 kW / < 2.0 kW		
Self-consumption (stand-by)1)	< 370 W		
-25°C to +45°C	-25°C to +45°C		
Degree of protection according to IEC 60529	Control rooms IP23D, inverter electronics IP54		
Environment:	Standard		
Degree of protection according to	IEC 60721-3-4 (4C1, 4S2)		
Maximum permissible value for relative humidity	95% (for 2 months/year)		
Max. operating altitude above mean sea level	1000 m		
Fresh air consumption of inverter	6500 m3/h		
Features			
DC terminal	Terminal lug		
AC connection	Outer-cone angle plug		
Tap changer for MV-transformer:	without		
Shield winding for MV-Transformer:	without		
Station enclosure color	RAL 7004		
Transformer for external loads:	without		
Industry standards (for other standards see the inverter datasheet)	IEC 60076, IEC 62271-200, IEC 62271-202, EN50588- 1, CSC Certificate		

3. Contractual Guarantees Overview

3.1 **Performance bond**

A Performance Bond is provided for 10% of the contract value, valid until product delivery. After delivery, the bond can be reduced to 5% of the contract value until commissioning is completed, but no later than 18 months from the delivery date. The reduction is subject to the activation of an additional 18-month warranty extension.

3.2 Warranty bond

A Warranty Bond is set at 5% of the contract value with a total duration of 5 years, divided into periods of 2+2+1 years. This guarantee covers any manufacturing defects or non-conforming performance for the entire contractual period.

3.3 **Product warranty**

The product is covered by a 63-month warranty starting from the delivery date. This warranty covers any defects related to the product itself and is effective from the date of receipt at the destination.

4. Scope of Supply

Position	Quantity	Description	
1000	17	MV Power Station 4200 KVA	

Table 1: scope of supply.

4.1 Exclusions

Scope not explicitly listed in the Scope of Supply (Table 1) is excluded. The following items are explicitly excluded:

Mechanical		
Modification of any existing systems not explicitly cited.		
Missing parts and components.		
Electrical		
Modification of existing systems not explicitly cited.		
Civil		
Land preparation		
Temporary accesses and final accessing roads		
Security plan and hardware.		
Temporary accommodation		
Finishing and fencing		
First aid station and ambulances		
Waste disposal facility		

 Table 2: exclusions from the Scope of Supply.

Project Management

Attainability of installation, commissioning and operation permits, or any other permit.

Assessment and acceptance of safety relevant issues.

Any study, engineering, documentation, or other service.

Additional works resulting from changes in laws or any other reasons, for which EECC is not responsible.

Building of Site Facilities of any kind (lights, water supply and treatment, heating, power supply, etc.).

Custom duties and taxes.

Engineering

Design and detailed engineering of existing equipment.

 Table 3: exclusions from scope of Services.

4.2 Technical documentation

Following documents are part of the technical documentation (list is preliminary):

Pos.	Document	Available
1	General	
1.1	Document & drawing list	yes
1.2	Technical data sheet	yes
1.3	Component manuals	yes
1.4	Quality documentation	yes

Table 4: technical documentation