AFE DATASHEET

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CurrentCDS

SYSTEMS™ by Schneider Electric

About

Active Front End (AFE) bidirectional AC/DC converter for DC microgrids applications. It combines electrical power with a grid interactive system for load-supply balancing. A unique solution of DC Systems based on Current OS protocol, which makes it the first innovation in the field of DC applications. By adding communication to the system, the behaviour of each device can be individually controlled and regulated, from the Current OS system.

Applications

- Component Integration
- AC Main Point of Connection

Features

- Isolated DC output for 350V or 700V Systems
- Bidirectional power flow
- Suitable for PV applications and DC loads
- 700V or 350V grids with COS compatibility
- Current OS Protocol compliant
- Ease of maintenance
- Communication ports
    - RS485 MODBUS AC Side for AC parameters and grid operator functionality.
    - RS485 MODBUS DC Side for DC parameters and Current/OS functionality
- Can be combined with:
    - FG-SPO-xxx PV solar micro converters for 350V systems
    - AMPT PV string optimizer for 700V systems
    - Solid-state Current Routers
    - Hybrid Current Routers
    - DC/DC Battery converters

Version history

Version	Description	Date
V1.0	Added versioning	19-12-2024

AFE 350V-50kW

Logistics Data

Specification item	Value
Product Reference	AFEF-350V-50kW-3-400V-IAC2EIWISA1R1

Absolute limit values

Specification item	Value	Unit	Condition
Input voltage	440	V ac	3 phase Line to Line 4 Cond. No Neutral
DC voltage	380	V dc	Droop Curve

Electrical input data

Specification item	Value	Unit	Condition
Nominal input voltage	400	V ac	Between phases
Maximal input voltage	440	V ac	Nominal working
Min. input voltage	360	V ac	Nominal working
Max. input current	180	A ac	RMS
Efficiency	>93	%	100% output

Electrical output data

Specification item	Value	Unit	Condition
Nominal output voltage	350	V dc	No Load
Nominal output current	157	A dc	Droop Curves
Max output voltage	380	V dc	Droop Curves
Min output voltage	320	V dc	Droop Curves

Electrical connections

Specification item	Value	Unit	Condition
Incoming cable minimum cross section.	35	mm^2	4 Cond. No neutral
Recommended DC output connection cross sectional area.	70	mm^2	Individual cable

Cooling

Specification item	Value	Unit	
Volumetric Flow	650	m^3/h	The Converter is active cooled by a long-life low-noise centrifugal fan with ball bearings. The design is optimized for efficient cooling.

Physical data

Specification item	Value	Unit
Height	2000	mm
Width	650	mm
Depth	600	mm
Weight	750	Kg
IP rating enclosure	IP2XD	

Environmental Conditions

Specification item	Value	Unit	Condition
Max ambient temperature	50	°C	@50kW
Max ambient temperature 100%	35	°C	Full power w/o derating
Min ambient temperature	-5	°C	Standby
Case temperature (T-Life)	35	°C	
Maximal case temperature	60	°C	
Storage temperature	-10 to 60	°C	
Humidity operation	90	%	Non-condensing
Humidity storage	80	%	

AFE 700V-100kW

Logistics data

Specification item	Value
Product reference	AFEF-700V-100kW-3-400V-IAC2EIWISA1R1

Absolute limit values

Specification item	Value	Unit	Condition
Input voltage	440	V ac	3 phase Line to Line 4 Cond. No Neutral
DC voltage	780	V dc	Droop Curve

Electrical input data

Specification item	Value	Unit	Condition
Nominal input voltage	400	V ac	Between phases
Max. input voltage	440	V ac	Nominal working
Min. input voltage	360	V ac	Nominal working
Max. input current	180	A ac	RMS
Efficiency	>96	%	100% output

Electrical output data

Specification item	Value	Unit	Condition
Nominal output voltage	700	V dc	No Load
Nominal output current	157	A dc	Droop Curves
Max output voltage	760	V dc	Droop Curves
Min output voltage	640	V dc	Droop Curves

Electrical connections

Specification item	Value	Unit	Condition
Incoming cable minimum cross section.	35	mm^2	4 Cond. No neutral
Recommended DC output connection cross sectional area.	70	mm^2	Individual cable

Cooling

Specification item	Value	Unit	Condition
Volumetric Flow	650	m^3/h	The Converter is active cooled by a long-life low-noise centrifugal fan with ball bearings. The design is optimized for efficient cooling.

Physical Data

Specification item	Value	Unit
Height	2000	mm
Width	650	mm
Depth	600	mm
Weight	750	Kg
IP rating enclosure	IP2XD	

Environmental Conditions

Specification item	Value	Unit	Condition
Max ambient temperature	50	°C	@50kW
Max ambient temperature 100%	35	°C	Full power w/o derating
Min ambient temperature	-5	°C	Standby
Case temperature (T-Life)	35	°C	
Maximal case temperature	60	°C	
Storage temperature	-10 to 60	°C	
Humidity operation	90	%	Non-condensing
Humidity storage	80	%	

For more information, visit
www.dc.systems/applications/products

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