

ESS[®]

HOME / INDOOR Energy Storage System





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HOME / INDOOR Energy Storage System

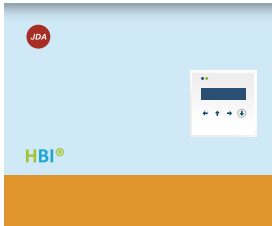
a turnkey home indoor power solution

Amita's advance technologies in planning, designing and engineering, for a safe and available power solution.





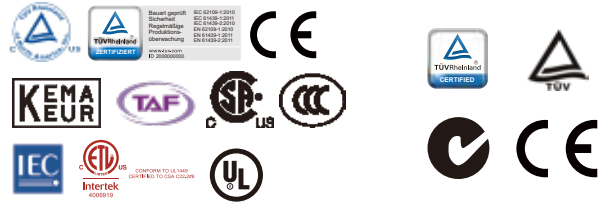
VDE0126
IEC62109-1-2
EN61000-6-2(EMC)





KEY POINTS

- ✓ SOLAR OPTIMIZING
- ✓ GRID INTERACTIVE
- ✓ PRICE RESPONSIVE
- ✓ DEMAND RESPONSIVE



Brief Specification

- Battery Energy (kWh) : 4.9 / 9.8 / 14.7/19.6
- PV Inverter : 3/5 (kW)

Renewable Value Enhancement

- Amita's ATESS provides a number of different features. Its peak shaving function allows the user to save electricity expenses by utilizing stored energy at peak times. The functionality which allows the integration with various renewable energy sources is one of the key advantages.

Application

- Peak Load Shaving : Programmable energy control plans to optimizes peak load reduction.
- Off-Grid ESS: Stand-alone type in islanded micro-grids
- Demand Response : Targeted energy dispatch upon demand response signals.
- Voltage Support : Grid and critical load voltage support in response to low-voltage events.

General Characteristics

- The next generation, Li-Polymer battery technology has a cycle life of > 4,000 cycles (@ 85% DOD, RT). Integrated with a highly efficient power conversion system (PCS) includes a charger, inverter, solar inverter, battery pack, and an Energy Management Software (EMS).

Reliability

- The BMS is designed to ensure the safety by managing the operation modes in the most effective way.

Software

- Control of ATESS units in real-time including the ability to execute algorithms that automatically operate each ATESS as a fleet according to utility's preferences.

System Technical Data

Battery	Cell type	JD44E
	Chemistry	NMC / (Optional in LFP or LTO)
	Voltage	39.2 Vdc to 58.8Vdc
	Energy (@0.2C Discharge, 25 °C)	4.9 kWh
	Amita Battery Module Type	JMP-2
	Stackble	UP TO 6 units

Cabinet Solution

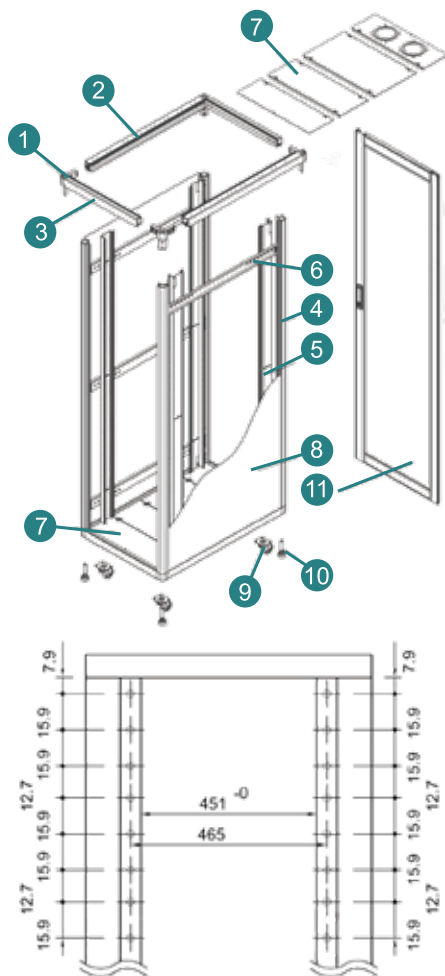
General Properties & Dimension



Test	Norm	Unit	
Young's modulus	DIN EN 527-4	GPa	12
Tensile strength	DIN EN 527-4	MPa	62
Flex strength	ISO 14125	MPa	150
Flex modulus	ISO 14125	GPa	10
Imput strength	ISO 179	kl/m ²	>68
Volume resistivity	IEC 60093	Ohm/cm	1.00e+15
Surface resistivity	IEC 60093	Ohm	1.00e+13
Tracking index	IEC 60112	Stufe	CTI600
Dielectric Strength	IEC 60243.1	kV/cm	240
Dielectric constant	IEC 60250	4	
Dissipation factor	IEC 60250	Tan Delta	0.01
Water absorption	ISO 62	mg/4d	45
Surface resistance	IEC 60093	Ohm	>10 12
Stability by light	IEC 60243)	kV/mm	>18
	Din EN ISO 877	7 - 8	
Tropical and moisture resistance	IEC 60068-2-5 ed. 69		without any degradation Stability of shape
Stability of shape	ISO 75(equiv.DIN 53462)		>200°C
Temperature resistance continuously		°C	-50 -+ 150 Flame resistance
Flame resistance	UL 94 V0	mm	4

Rack Solution

General Properties & Dimension



ANSI/EIA-RS-310-D 1U=1.75inches=44.45mm

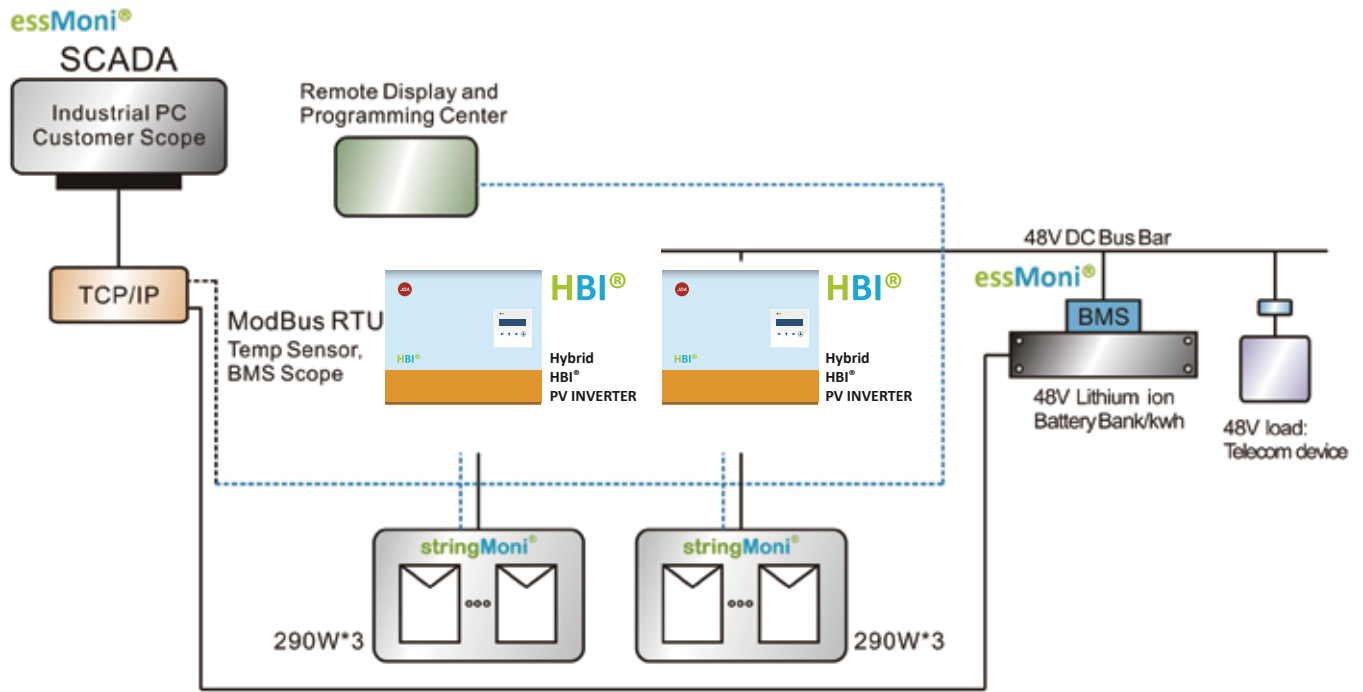
標準配備 Accessories of stander model		(Unit:mm)	
項次 No.	品名規格 Item	材質 Material	數量 Q.ty.
01	三向接頭 3D -die-casting corner	鋁合金 AL.(ADC 12)No.	8
02	框結構鋁柱 Frame member(A)	鋁合金 AL.(A6063 T5)	4
03	框結構鋁柱 Frame member(B)	鋁合金 AL.(A6063 T5)	4
04	主鋁柱 Main post	鋁合金 AL.(A6063 T5)	4
05	活動柱 Moceable mouting post	SPHC/SPCC ,t=2.0mm	4
06	定位軌 Horizontal Strut	SPHC/SPCC ,t=2.0mm	4/6
07	上(下) 蓋板 Top (Bottom) Plate	SPHC/SPCC ,t=1.6mm	配滿 (Filled)
08	固定式側板 Fixd Side Panel	SPHC/SPCC ,t=1.2mm	2
09	2.5c活動輪 Swivel Caster	P.U & Steel	4
10	地平螺絲 Floor Standa	Steel	4
11	後門組 Rear Door	鋁合金AL(A6063 T5) + SPCC,t=1.2mm	1

(Unit:mm)						
型號 MODEL No.	內部可用高度 Usable height	外部總高 (含輪子) Exremal Height	外部總高 (不含輪子) Exremal Height	深度 Deqth	外部寬度 External width	U 數 U
R-156060-19	669	842	765	600	600	15
R-157560-19	669	842	765	750	600	15
R-159060-19	669	842	765	900	600	15
R-1510060-19	669	842	765	1000	600	15
R-1511060-19	669	842	765	1100	600	15
R-206060-19	892	1065	987	900	600	20
R-207560-19	892	1065	987	750	600	20
R-209060-19	892	1065	987	900	600	20
R-2010060-19	892	1065	987	1000	600	20
R-2011060-19	892	1065	987	1100	600	20
R-306060-19	1336	1509	1432	600	600	30
R-307560-19	1336	1509	1432	750	600	30
R-309060-19	1336	1509	1432	900	600	30
R-3010060-19	1336	1509	1432	1000	600	30
R-356060-19	1558	1731	1654	600	600	35
R-357560-19	1558	1731	1654	750	600	35
R-359060-19	1558	1731	1654	900	600	35
R-3510060-19	1558	1731	1654	1000	600	35
R-3511060-19	1558	1731	1654	1100	600	35
R-416060-19	1825	1998	1921	600	600	41
R-417560-19	1825	1998	1921	750	600	41
R-419060-19	1825	1998	1921	900	600	41
R-4110060-19	1825	1998	1921	1000	600	41
R-4111060-19	1825	1998	1921	1100	600	41
R-4112060-19	1825	1998	1921	1200	600	41
R-427560-19	1869	2042	1965	750	600	42
R-429060-19	1869	2042	1965	900	600	42
R-4210060-19	1869	2042	1965	1000	600	42
R-4211060-19	1869	2042	1965	1100	600	42
R-4212060-19	1869	2042	1965	1200	600	42

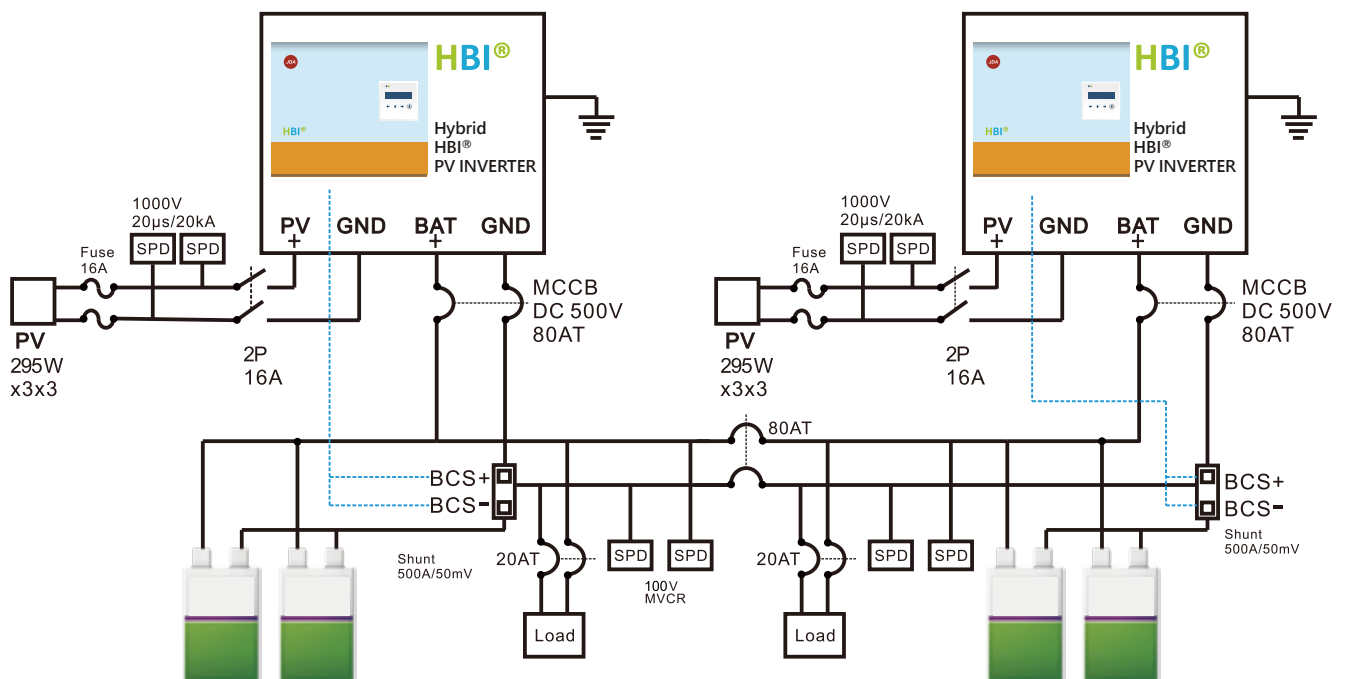
● 有標準庫存 ● 接單生產 ● 顏色：冷灰色/黑色 ● 可接受其他尺寸訂製

Scheme & Single diagram

Scheme Diagram



Single Diagram



PV Inverter Specifications

Model		HBI-3000-E-xx*	HBI-5000-E-xx*	HBI-5500-E-xx*
Input (PV)		Unit		
Max. PV Power	W P	3000	5000	5500
MPPT Range ¹	V	150~450	150~450	120~450
Max. DC Voltage	V	500	500	500
Max. Current	A	10	20	2/2*13
Input (AC)		Unit		
Nominal Voltage,Frequency	V/Hz	230,50/60		
Maximum Current	A	15	25	23.9
Battery				
Nominal Voltage	V	48	48	48
Max. Charging I Current	A	40	40	40
Output (AC)				
Nomonal Power	W/VA	2400/3000	4000/5000	4000/5500
Nominal Voltage, Frequency	V/Hz	230,50/60		
Over-Load Capacity	%	200		
Waveform		Pure Sinusoidal		
Regulation (Linear Load)	%	±2		
General				
Temperature Range ²	°C	-20~55		
Environment		Indoor		
Cooling		Forced Air - Coolinh		
Humidity	%	0~95,non-condensing		
Battery Type		VRLA or LiFePO 4		
UPS Function		Yes.Transfer time <4mS 3		
Parallel Operation		No	Yes	No
Interface & Mecchanical				
Display		16 x 2 Test Display		

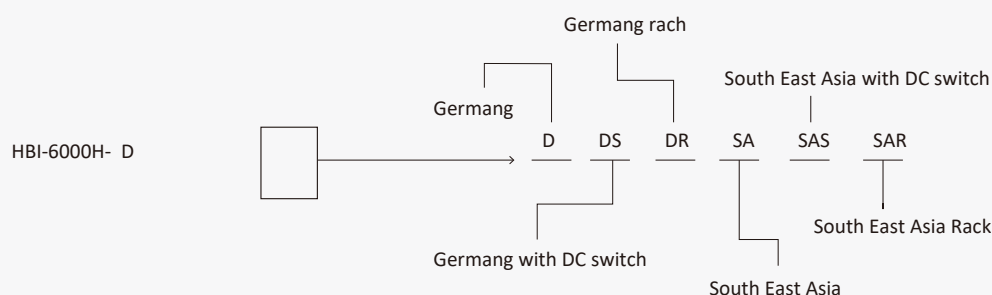
Note : 1. Input power maybe reduced for VPV <265V 2.AC power may need to be reduced for T>40°C
3.Valid for single unit operation 4.Design to meet 5. Specifications are subject to change without prior notice
*stanealone - SA.
Optional 1 : 80A, Optional 2 : 120A

Specifications

Item	Model ²	Unit	HBI-3600H	HBI-5000H	HBI-6000H
Input (Mains, AC)					
Nominal Voltage	V			230	
Voltage Range	V			190 ~ 300	
Nominal Frequency	Hz			50/60	
Power Factor				0.99	
Maximum Current	A	15		25	25
Inrush Current	A/μS			100/200	
Max. Power	VA	3300		5500	5500
Input (PV, DC)					
Maximum Power	W	3600		5000	6000
Maximum Voltage	V	550		500	500
MPPT Range ³	V	100~500		100~450	100~450
Start-up Voltage	V	150		150	150
Maximum Current	A	10		20	10x2
Absolute Max. Current (Isc)	A	15		30	15
MPP tracker No.		1		1	2
Max. Backfeed Current	mA	1.6		1.6	1.6
Battery I/O (DC)					
Nominal Voltage	V			48	
Voltage Range	V			40~59	
Nominal Current	A	70		116	116
Maximum Current	A	90		150	150
Max. Charge Current ⁴	A	60		20	100
Max. Leakage	mA			1	
Output (Load, AC)					
Nom. Power	VA	3000		5000	5000
Max. Power	W	3000		5000	5000
Inrush Current	A/μS	100/200		100/200	100/200
Max. Fault Current	A	50		79	79
Max. Protection Over-current	A	50		79	79
Nominal Voltage	V			230	
Nom. Frequency	Hz			50/60	
THDV	%			5	
Voltage Regulation	%			2	
DC injection	mV			±100	
Overload Capacity			600 seconds for 100% ≤ load ≤ 110% 30 seconds for 110% < load ≤ 150% 10 seconds for 150% < load ≤ 200%		
General					
Temp. Range	°C		-20 ~ 55 ⁵		
Max. Eff. (PV/AC)	%	96		96.5	96.5
Max. Eff. (BAT/AC)	%	92		92	92
Protection			IP20		
Humidity	%		0~95, non condensing		
Cooling			Forced Air-cooling Variable fan speed control		
Protection Class			I		
Environment Cat.			Pollution Degree III		
Overvoltage Cat.			DC input: II, AC input: III		
Amplitude	m		<2000		
Reconnect Time ⁶	S		300		
Features					
LCD			2-line 16 characters text		
Interface			USB, RS485 & CANbus for multiple-unit operations		
RS485			2 wires, half-duplex		
Date Logging			Yes		
Parallel Operation		Yes		No	Yes
Max. Units for Parallel Operation		6		NA	6
Max. Units for 3-phase connection		9, 3 units in each phase		NA	9, 3 units in each phase

Specifications

Item \ Model ²	Unit	HBI-3600H	HBI-5000H	HBI-6000H
Mechanical				
W x H x D	mm	580 x 408 x 168, wall mount models 490 x 165 x 580, rack mount models		
Weight	kg	22	23.8	24.2
DC switch		Optional ⁷		
Compliance				
Grid Monitoring ⁸		VDE0126-1-1/A1 IEEE 519 CEA (2013), IEC 61727, IEC 62116		
Safety		IEC 62109-1, 62109-2		
EMC Emission		EN61000-3-2, EN61000-3-3	EN61000-6-4,	
EMC Immunity			EN61000-3-11, EN61000-3-12	
Battery				
Capacity		100Ah/12V x 4 per bank		
Official Type		Refer to table below		
Coding rule				

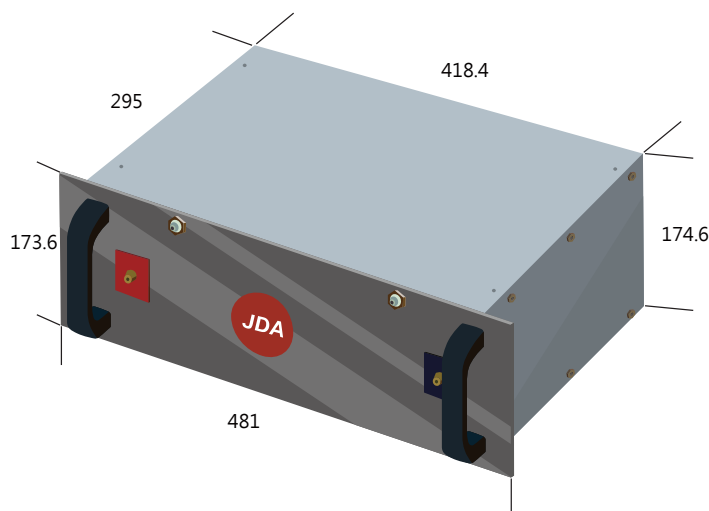


Note:

1. Specifications are subject to change without prior notice
2. There are some variations for each model. Models with suffix "-SA" are off-grid; with "-D" are hybrid models with grid connection capability
3. The input power may be reduced for voltage lower than 250V
4. Charge current will adjusted according to battery configuration
5. Output power may be reduced for temperature > 40°C
6. Only for on-grid mode
7. For models with "/S" appended to normal model names
8. For -D models

Battery Bank

Specification



Battery Specification

Model	JMP-2
Energy [kWh]	4.9
Nominal Voltage [V]	51.1
Voltage Range [V]	39.2~58.8
Nominal Capacity [Ah]	96
Max Discharge Current [Amp]	48
Discharge Current [Amp]	48
Charge Voltage [V] Max	58.8
Cell Type	Pouch
Chemistry	LiCoxNiyMnzO
Dimensions (LWH)) [mm/inch]	482(L) x 175(W) x 339(H)mm (±3mm)
Weight [kg]	36.3

Performance

Cycle (0.2 charge and 0.2C discharge)	>4000 cycle 85%DOD,Temp 25~35°C
End of Life	80% SOC of 4000 cycle 85% DOD
Self-Discharge	TBD
Round Trip Efficiency	98.50%

Operation Environments

Operating Temperture	0~50°C
Storage Temperture	-20~55°C
Humidity	RH45~85%

Fornt Panel

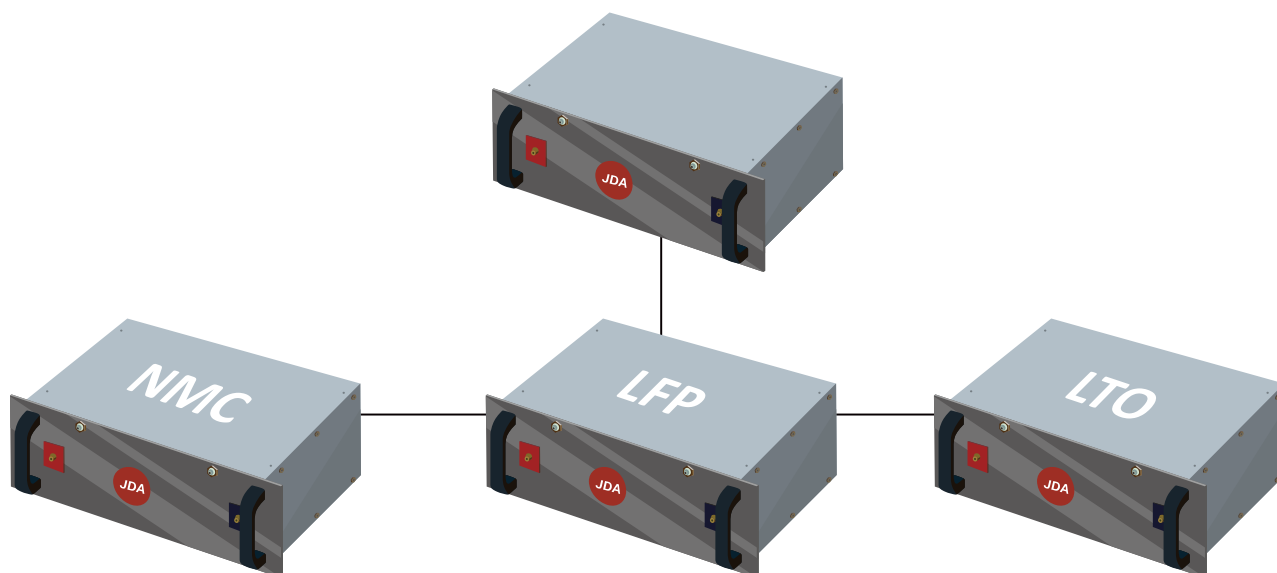
Status Indicators	NA
SOC / ALM / RUN	NA
Protocol	RS485
Communication Ports	WP-04GF2-44 Waterproof Connector 4PIN(F)
Communicationin Parallel	Up to 6 trays

Certification

IEC62133

Battery Cell

Specification



Cell Specification

Model	JD44E
Capacity	Typical 50Ah / Minimum 48Ah
Chemistry	NMC (Optional : LFP / LTO)
Cell Voltage	Nomonal 3.65V
	Charge 4.2V / Discharge 2.8V
Charge Current	Standard 10A / Maximum 100A
Charge Time Standard	4.5hrs
Discharge Current	Standard 10A / Maximum* 100A
Internal Resistance	Ac (1KHz) < 1.0mΩ
Operating Temperature Charge	Charge 0°C~55°C / Discharge -20°C ~ 55°C
Energy Density	Volumetric ~ 417Wh/l
	Gravimetric ~ 207Wh/kg
Certification	UN38.3 / IEC62133

Material	Description	Chemical Formula
NMC	Lithium Nickel Manganese Cobalt Oxide	LiNixMnyCozO2
LFP	Lithium Iron Phosphate	LiFePO4
LTO	Lithium Titanate Oxide	Li4Ti5O12

stringMoni[®]

太陽能發電 智慧監測系統 雲端網頁管理

PV String Monitoring System & Web-server

太陽光發電スマート遠隔監視システム・ウェブサーバ



屋頂型、小／中／大型 太陽能系統專用網頁伺服器
For the Rooftop, big to small PV plants Web Server solution
屋上型、小／中／大型、太陽光發電系統遠隔監視ウェブサーバ



内建免費OPC伺服器軟體、整合SCADA驅動程式、提供所有SCADA系統整合廠商監測資料訊息平台。
The new freeware OPC server is available for driver-less integration to SCADA
最新無料OPC通信用サーバが内蔵され、全てのSCADAドライバ、システムに統合対応でき、監視データを簡単に入手。

A

VIM-C產品規格介紹

VIM-C Functions and features · VIM-C 機能と特徴

- ◎ 雲端管理
Cloud management
クラウド管理
- ◎ 可擴充100台VIM-C, 1KW~1.4MW
Each VIM-C can manage up to 100 VIM-C 1KW-1.4MW
VIM-C100台まで接続可能、1KW-1.4MWに対応
- ◎ 監測可透過有線或無線
Integrated Wired or Wireless Web-Service solution
有線或るは無線で監視可能
- ◎ 監測模組選擇彈性
Comprehensive monitoring Solution
監視ソリューションの多様な選択肢
- ◎ a.AC端+INVERTER+DC串列+自動控制設定模組+環境量測模組+防盜裝置
a.AC+ INVERTER + DC strings + VIM-O (I/O unit)+VIM-P+VIM-AT
a.交流+パワーコンディショナー+直流ストリング+自動制御入出力ユニット+環境計測ユニット+防犯装置
- ◎ b.AC端+INVERTER+環境量測模組
b.AC+INVERTER + environment variable unit
b.交流+パワーコンディショナー+環境計測ユニット
- ◎ 與30廠牌以上的inverter內建通訊協定
Compatibility to more than 30 different inverter
30種類以上のパワーコンディショナーの通信プロトコルに対応。
- ◎ 同Micro PC with Web server ,Web service功能
Micro PC with Web server and Web service capability
マイクロPCウェブサーバ、ウェブサービスとして兼用。
- ◎ 顯示DC端串列資料:伏特、安培、千瓦、千瓦時
DC part managed information: V, A, kW, kWh
DC ストリング稼働状態を表示: 電圧、電流、電力、電力量の数値
- ◎ 顯示AC端串列資料:伏特、安培、千瓦、千瓦時
AC part managed information: V, A, kW, kWh from energy meter
AC ストリング稼働状態を表示: 電圧、電流、電力、電力量の数値



VIM-C



屋頂型、小／中／大型 太陽能系統專用網頁伺服器
For the Rooftop, big to small PV plants Web Server solution
屋上型、小／中／大型、太陽光発電システム遠隔監視ウェブサーバ



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A

VIM-C產品規格介紹

VIM-C Functions and features · VIM-C 機能と特徴

- ◎ 顯示環境測量值:日照，模組溫度，大氣溫度，風速
Environment variables: sun-irradiation, cell-temperature, air-temperature and wind speed
環境データ表示:日射度、セルの温度、大気温度、風速
- ◎ 可透過e-mail及SMS自動管理警示控制
Alarms control with automatic e-mailing and SMS management
異常通知のSMS(メール)送信を設定可能
- ◎ 變流器警示及錯誤功能
Inverters: Vac(Vdc with VIM-S), ac(Adc with VIM-S), kWac(kWdc with VIM-S) and alarm and error messages
パワーコンディショナー直交流電力交換時: Vac(Vdc with VIM-S), ac(Adc with VIM-S), kWac(kWdc with VIM-S)の異常エラーメッセージ表示と通知機能付き。
- ◎ 串列，系統組件(BOS)，效率比PR(KWH/KWP)三種效率的計算與控制
Efficiency calculation and control on three different levels: String, BOS and PR (kWh/kWp performance ratio)
ストリング、出力向上システム部品(BOS)、性能比(kWh/kWp)の効率計算及び管理機能付き
- ◎ CSV格式輸出
CSV All data exports on CSV format
CSV形式のデータに変換可能
- ◎ 使用8GB SD記憶卡(選購品)，可儲存20年資料
Data storage up to 20 years in a up to 8GB micro SD memory (option)
SDメモリーカード8GBを搭載可能、最大20年間の計測データを保存可能。(オプション品)
- ◎ 輸出入埠RS-485*2、USB2.0*2
Communication ports RS-485x2, USB 2.0 x 2
通信ポート:RS-485x2, USB 2.0 x 2
- ◎ 乙太網路*1 電源供應12~28Vdc
Ethernet port x1 , power supply 12 to 28Vdc
イーサネットポートx 1, 12 -28Vdcに対応
- ◎ 軌道安裝,保護等級(正面):IP40
2-DIN modules, Protection degree (front): IP40
DINモジュール(2本)、表面部保護レベル:IP40



B

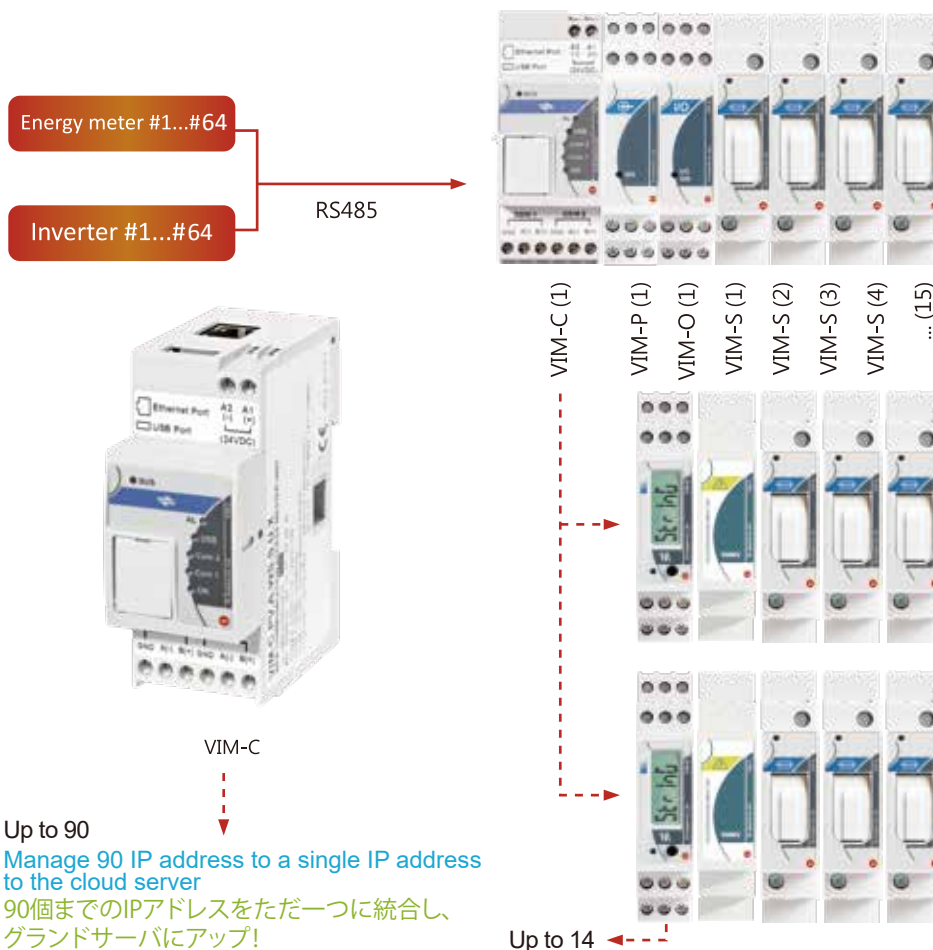
單一VIM-C可擴充每串監測stringMoni®監測模組數量

Each VIM-C can manage up to: ・ VIM-C 1ユニットあたり搭載可能なソリューション:

- ☑ 變流器x64台
Inverter x 64 pcs
パワーコンディショナーx64台まで
- ☑ 電表x64台
Energy meter x 64 pcs
電力計x64台まで
- ☑ VIM-M資料傳輸主模組x14台
VIM-M Master module and Data logger x 14 pcs
VIM-Mマスターモジュール及&データ収集ユニットx14台まで
- ☑ VIM-S串列監測模組x15台
VIM-S String measuring unit x 15 pcs
VIM-Sストリング計測ユニットx15台まで
- ☑ VIM-P溫度日照風速量測模組x1台
VIM-P Environment variable unit x 1 pc
VIM-P溫度、日照、風速計測ユニットx 1台
- ☑ VIM-O自動控制設定模組x1台
VIM-O Inputs/Outputs unit x 1 pc
VIM-O自動制御入出力ユニットx 1台
- ☑ VIM-1隔離卡
VIM-1 Isolation enhancement unit x 1 pc
VIM-1アイソレーションユニットx 1台



擴充示意圖例 Exceeding map 擴充例



stringMoni® # 1

VIM-C (1)
VIM-P (1)
VIM-O (1)
VIM-S (1 ... 15)

stringMoni® # 2

VIM-M (1)
VIM-S (1 ... 15)

stringMoni® # 3

VIM-M (1)
VIM-S (1 ... 15)

essMoni[®] Monitoring

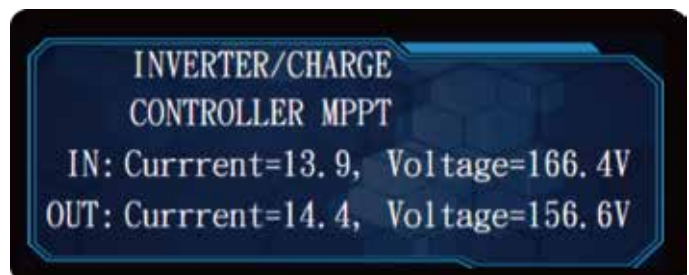
Monitoring System



Solar Panel Input String Monitoring



INV monitoring integrated with stringMoni[®]



**Detect INV DC IN DCV DCA
DC OUT DCV DCA**

Monitoring

PV Input, Output V, Output A, Today Amp Hour (Low/High record),
Today Watt Hour (Low/High record) Real Time Charge Status, MPPT Temp., NET Mode, Battery SOC, Battery Status (including V, A, Amp Hour, Temp.), Shunt Connect Status, Voltage sensor Connect Status Local Server 20 years memory, 2 ModBus, 1 EtherNet, web page.



Error Code



Charge Controller



It can detect DC IN DCA DCV
Control battery charge and discharge

BMS integrated with essMoni[®]



ModBus access

- | | |
|---------------------------------|----------------------------------|
| 1.Input Voltage (PV Input) | 11.MPPT Temperature |
| 2.Input Current (PV Input) | 12.NET Mode |
| 3.Output Voltage | 13.Battery SOC |
| 4.Output Current | 14.Battery Voltage |
| 5.Today Amp Hour (Low 16bits) | 15.Battery Current |
| 6.Today Amp Hour (High 16bits) | 16.Battery Amp Hour |
| 7.Today Watt Hour (Low 16bits) | 17.Battery Temperature |
| 8.Today Watt Hour (High 16bits) | 18.Shunt Connect Status |
| 9.Today FloatTime | 19.Voltage sensor Connect Status |
| 10.Real time Charge State | |

TCP/IP connection for different country, please specify

SNMP NAT VPN Firewall
Wireless 4G network card

