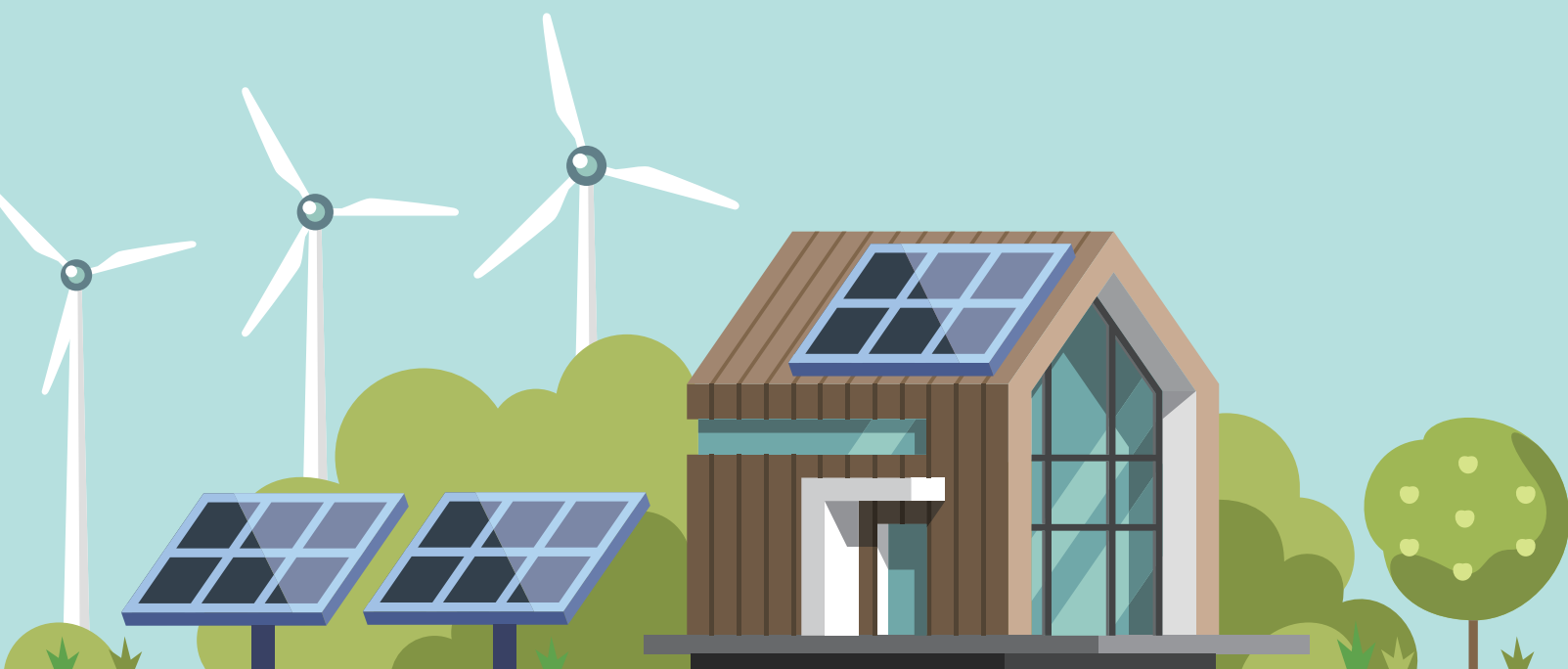
JDA 日煬科技有限公司
JD Auspice Co., Ltd.

綜合型錄
Products Brochure
PV BOS



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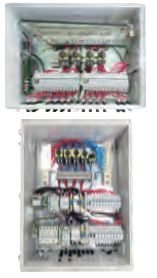
太陽能發電用直流平衡系統組件供應商

環境監測系列
Environmental sensors

sunOrbit®
iMorePV®
追日控制器
Tracker controller

阻抗偵測
Insulation monitoring

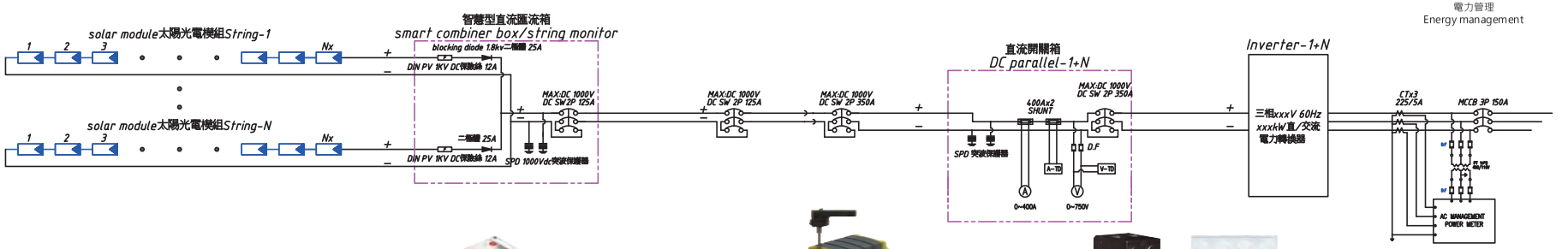


智慧型直流開關箱 pvBos®
Smart Combiner Box

stringMoni®
智慧型直流匯流箱/網頁伺服器
Smart combiner box , string monitor/ Monitoring Web-server

太陽能變流器
PV Inverter

電力管理
Energy management



太陽能電纜線
PV Cable

太陽能快速接頭
PV connector

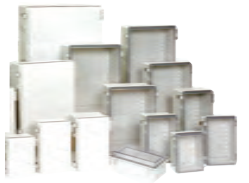
mppGuard®
太陽能優化器

太陽能消防安全開關,直流開關,直流故障電弧斷路器
FFS Safety Switch , DC Switch , DC arc fault interrupter

交流突波保護吸收器
Surge protective device AC

直流突波保護吸收器
Surge protective device DC

直流保險絲及座
PV Fuse link and holder



IP67 防水箱
IP67 Enclosure

組串式逆變器
String Inverter

Pyranometer
日照計 LP 03/03AC/Pyrsi-03 矽晶日照計
日照計

Typical sensitivity : 10MV/(W/m2), output : 4-20mA, Measuring range : 0 ~ 2000W/m2,for Pyrsi-03,0-1500w/m^2 ,Operating temperature: -40℃ ~ 60℃, Fully comply with
ISO 9060 second class standards.
全天空輻射計：ISO 9060 等級II，量測範圍0-2000W/M2，輸出4-20mA，
操作溫度-40~+60℃，反應<30秒。

Portable pyranometer
攜帶型日照計 LP 471 + Pyra 03.5

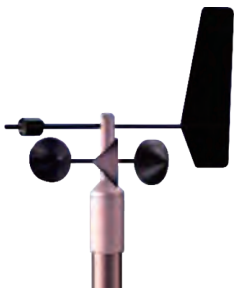
Type : LP 471 PYRA 03.5 + HD2302, Typical sensitivity : 10MV/(W/m2), Spectral field : 305nm ~ 2800nm, Measuring range : 0 ~ 2000W/m2, Viewing field : 2πsr, Operating temperature : -40℃ ~ 80℃, Fully comply with ISO 9060 second class standards.
靈敏度：10uA/(W/m2)，光譜範圍：305nm ~ 2800nm，量測範圍：0 ~ 2000W/m2, 監測角度：2πsr，工作溫度：-40℃ ~ 80℃，符合ISO9060 second class 標準。

SolmoTemp / Solar module surface temperature sensor
薄片型溫度感測器 TS-01系列
表面温度センサー

PT100 3 wire surface temperature sensor for solar module temperature sensing.
厚度3mm × 長50mm × 寬50mm，線長 1.5~3米(長度另可客製)，量測範圍：20℃ ~ 150℃，輸入型式3 wire PT100。

Data Network Protector for high-frequency signal transmission
戶外型溫溼度信號傳送器TH-3200
温湿度トランスミッター

Measuring range : 0~100%RH, -40~+100℃, output : 4-20mA two wire, power : 12-36VDC > 150mA, ingress protection : IP65.
測量範圍：0~100%RH, -40~+100℃，訊號輸出：4-20mA two wire，電壓供給：12-36VDC > 150mA，防護等級：ABS 耐候外殼 IP65。



Wind speed and Direction
風速風向計 WS 420
風速計

Wind speed : 0-60m/s, Wind direction : 0-360˚.
風速計：0-60m/s，風向計：0-360˚。

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PYRANOMETER

Class II ISO 9060

LP PYRA 03/03AC/03AV

Typical sensitivity:10M/(W/m²),output:4-20mA,

Measuring range:0～2000W/m2,

Operating temperature:-40°C～60°C,

Fully comply with ISO 9060 second class standards

型號 Model	LP PYRA 03	LP PYRA 03 AC	LP PYRA 03 AV
電源 Power	10...30Vdc	10...30Vdc	10...30Vdc,15...30Vdc 輸出 0...10Vdc
輸出信號 Output signal	10μv=1W/m² 2000W/m²=0.02V	4...20mA 4mA=0 W/m² 20mA=2000W/m²	0...1Vdc,0...5Vdc,0...10Vdc 0Vdc=0W/m² 1/5/10Vdc=2000W/m²
靈敏度 Typical sensitivity	10μV/(W/m²)	10μV/(W/m²)	10μV/(W/m²)
阻抗 Impedance	33Ω ... 45Ω	33Ω ... 45Ω	33Ω ... 45Ω
測量範圍 Measuring range	0...2000W/m²	0...2000W/m²	0...2000W/m²
視場 Viewing field	2πsr	2πsr	2πsr
光譜範圍 Spectral field	305nm...2800nm(50%)	305nm...2800nm(50%)	305nm...2800nm(50%)
操作溫度 Operating temperature	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
響應時間(95%) Response time (95%)	<30 sec	<30 sec	<30 sec
熱輻射響應(200Wm²) Response to thermal radiation (200Wm-2)	25W/m	25W/m	25W/m
溫度變化的響應5K/h Response to temperature change 5K/h	<I±6 I W/m²	<I±6 I W/m²	<I±6 I W/m²
一年後非穩定性 Non stability over 1 year	<I±2.5 I %	<I±2.5 I %	<I±2.5 I %
非線性 Non linearity	<I±2 I %	<I±2 I %	<I±2 I %
餘弦響應 Spectral selectivity	<I±22 I W/m²	<I±22 I W/m²	<I±22 I W/m²
光譜選擇 Respone with regard to temperature	<I±7 I %	<I±7 I %	<I±7 I %
溫度響應 Tilt-response	<8%	<8%	<8%
Tilt響應 Risposta in funzione del Tilt	<I±4 I %	<I±4 I %	<I±4 I %
連接線 Cable	CP AA1.5(5m)/CP AA1.10(10m)	CP AA1.5(5m)/CP AA1.10(10m)	CP AA1.5(5m)/CP AA1.10(10m)

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環境監測系列 Environmental sensors 環境センサー

表面溫度貼片 Solmo Temp 高精度超導 TS-01 系列

TS-01S

TS-01A

適用：各種金屬、塑膠和不規則表面測溫及半導體面板、太陽能板、氣象觀測等。

Applications : Variety of metals, Plastics, Irregularly surface, Semiconductor, Panel, Solar panels, Meteorological observations.

- 使用溫度範圍：-40~+250℃。
  (可訂製更高溫型)
  Measurement Range: -40~+250℃
  (Higher temperature model can be customized)
- 精確度：DIN IEC751 A Class。
  Accuracy: DIN IEC751 A Class
- 超導測溫反應快速、精確度高。
  Fast Response, High Accuracy
- 易於安裝，耐惡劣環境及化學物。
  Easy to Installation
  Resistance to Harsh Environments and Chemicals

主要規格 Specifications

外　　型：TS-01A 貼附式 / TS-01S 螺絲固定式
TS-01A (Attachble type) / TS-01S (Screws mounting type)

感 溫 元 件：PT100Ω class A；亦可訂購各式測溫體或熱電偶型式
PT100Ω Class A (thermocouple type optioned)

貼 片 尺 寸：TS-01A型：10 × 16mm，t =1mm / TS-01S型：19 × 22mm，t =1.5mm
TS-01A : 10 ×16mm, t=1.0mm / TS-01S : 19×22mm, t=1.5mm

反 應 速 度：約15秒 ※ 表面完全密貼狀況下
Approx. 15 sec. ※ Surface completely fit circumstances

導 熱 係 數：低於100℃，≧0.8W/mk，高於120℃， > 1.5w/mk ASTM D5470
Lower than 100℃, ≧ 0.8W/mk , Higher than 120℃, > 1.5W/mk

延 伸 信 號 線：耐候型鐵氟龍線；亦可訂製信號線材質、長度
Climate-bearable for outdoor use (The length can be customized)

選購方式 Option Accessories

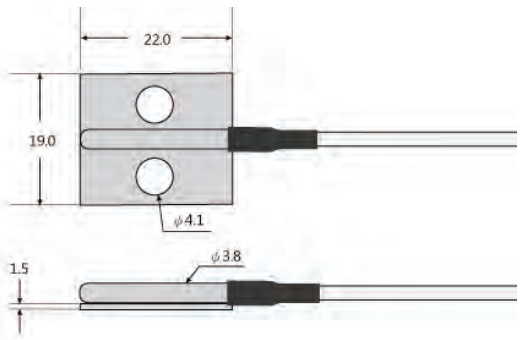
測溫元件種類：
A、白金 PT100Ω/50Ω/1000Ω DIN-Class A
Platinum PT100Ω/50Ω/1000Ω DIN - Class A
B、熱電偶K、J、E、T、N
Thermocouple K、J、E、T、N Type

導 線 種 類：(長度可指定)
1、PVC導線 PVC cable　2、矽膠導線 Silicone cable　3、鐵氟龍導線 Teflon cable

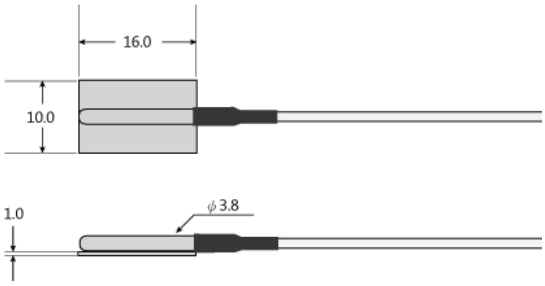
安裝方式 Installation

a.耐溫超強背膠 Heat-Resistant Adhesive
b.白鐵固定夾 Galvanized Iron Retainer Clip
c.高溫鋁膠帶 High-Temperature Aluminum Tape
d.螺絲固定孔 Screw Retainer Hole

TS-01S



TS-01A



Unit:mm

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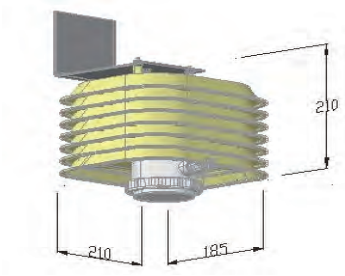
環境監測系列 Environmental sensors 環境センサー

溫溼度信號傳送器 戶外型 TH-3200 series

適用戶外環境監控、溫室、農業、船運、氣象資料收集、氣候實驗及工業應用之程序控制等。

TRH-3200 series is specially designed to prevent various difficult climates, ensure rapid response and long-term use since it takes advantage of remarkably convection structure of radiation multi-wing and outdoor climate-bear design. At aspects of installation, disassembly, wiring and adjustment, it's more convenient and speedy than other brands.

- 多翼型對流板、防雨、耐候、防止輻射熱。
- 反應迅速、高精度、信號穩定。
- 可選購電流輸出型或電壓輸出型。
- 設計精巧、美觀，容易安裝。



測量範圍 Measurement Range	0 ~ 100 %RH 0 ~ 100℃，-20 ~ +80℃，0 ~ 50℃，-40 ~ +60℃，或者其它規格可訂製。
精確度 Accuracy (At 25℃)	±2 %RH，±0.3℃
穩定條件 Long-term stability	一年內漂移小於 1% RH，(正常使用於安定、無污染環境中)
溫度補償 Temp. Compensation	±0.008 %RH /℃ (Effect @ 0% RH)
反應時間 Response	15秒內 (90% at + 25℃ in moving air>0.5 M/S)
感測器 Sensors	濕度: Thin-film capacitor 溫度: RTD Pt 100Ω DIN, IEC 751
訊號輸出 Output	電流輸出型(A Type) 溫度: 4 ~ 20 mA Two wire 濕度: 4 ~ 20 mA Two wire 電壓輸出型(V Type) 可選購 0 to 1 V，0 to 2V，0 to 5 V， 0 to 10 V或1 to 5V 輸出
電壓供給 Power Supply	12 ~ 3 6 V DC> 150mA
感測器保護 Housing / Protection	裝置於戶外用多翼輻射耐候盒，內置防塵、防干擾過濾罩。
主器外殼 Internal transmitter	ABS耐候外殼，防護等級 IP65。
結線器 Cable gland	防水型快速結線器及端子座，適用結線外徑：φ5 ~ 10 mm。
主器周圍環境溫度 Ambient Temperature	– 40 ~ +85℃，(- 40 ~ +185)°F
重量 Weight	約 1500公克
外型及尺寸 Dimensions (不含固定座)	210 (L)× 185 (W)× 210 (H) mm 基座具固定孔

訂購說明 [例] TH-3203A：溫、濕度傳送器，電流輸出型。

機 型 代 號		功 能 內 容
TH-3201		Temperature Transmitter 溫度信號傳送器
TH-3202		Humidity Transmitter 濕度信號傳送器
TH-3203		Temp ./ Humi Transmitter 溫、濕度信號傳送器
輸 出	A	Current Output 電流輸出型
	V	Voltage Output 電壓輸出型

※以上規格內容之修改、變更，將不另行通知。

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Combined Wind speed and Direction sensors

Combined wind speed and wind direction sensor. Direct signal output for wind speed (Hz) and wind direction (0÷1 Vdc). This sensor range includes, in a single apparatus, transducers for both wind speed and wind direction measurement. Its use simplifies installation requirements, other than being smaller, lighter and cheaper than the general 2-sensor kit. Model WS122#S is equipped with a potentiometer and its wind direction output is in Ω, with very low power consumption and it can be used in applications with limited energy availability. Data output of the WS921 model is RS485 using Modbus RTU®or TTY-ASCII protocols.

Order numb.	WS833.01	WS833.2000	WS420	WS05	WS485
Wind speed output	0÷833 Hz		4÷20 mA	0÷5 Vdc	RS485
Wind speed measuring range	0÷75 m/s (demage limit)		0÷60 m/s		
Wind Direction output	0÷1 Vdc	0÷2000 Ω	4÷20 mA	0÷5 Vdc	RS485
Protocol	-	-	-	-	Modbus RTU® TTY-ASCII
WS Programmable output	-	-	-	-	Instant, max., min., ave. (1÷3600 sec)
WD programmable output	-	-	-	-	Instant, Prevalent sector (1÷3600 sec)
Configuration	-	-	-	-	Hyperterminal
Protection	Tranzorb		Tranzorb e Emifilters		
RS485 protection	-	-	-	-	Galvanic insulation (3 kV, UL1577)
RS485 speed	-	-	-	-	1200÷115 kbps
Power supply	12 Vdc		10÷30 Vac/dc		
Power consumption	30 mA	2 mA	0,5 W		
Wind direction principle	Hall effect system	2 kΩ potentiom.	Hall effect system		
Data logger compatibility	M-Log (ELO007-008) R-Log (ELR515) E/X-Log (all models)		-	-	-

Common features		
Wind speed	Principle	N.32 step optoelectronic disk
	Accuracy	0÷3 m/s=1,5%, >3 m/s= 1%
	Threshold	0,26 m/s
	Delay distance	4,8 m (@ 10 m/s) According to VDI3786 and ASTM 5096-96
	Resolution	0,07 m/s

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Fuse holder 1000Vdc / 1500Vdc
直流保險絲座 FH-01
DC ヒューズホルダー

直流熔絲座：1000~1500Vdc 30A, 操作度-20 ~ +70C, IEC60947-1/3
適用直流保險絲：900Vdc (900Vdc, Tested 1000Vdc) 1,2,4,6,8,10,12,16, 20,25,30A 10x38mm。

gPV fuse link
直流保險絲
gPV ヒューズ

直流保險絲：1000~1500Vdc tested 1000Vdc：1,2,4,6,8,10,12,16,20,25,30A, 10 x 38mm
1000Vdc：1,2,4,6,8,10,12,16,20,25A, 10 x 38mm.
1000Vdc：1,2,4,6,10,16,20,25,32,40,50, 22 x 127 mm.
IEC60269-6。

DC arc fault interrupter
太陽能直流電弧偵測
DCアーク検出器

DC arc fault interrupter, in according to NEC690, Detects fast current changes within the solar power plant, as they are caused by arcs and generates an electrical signal. The electrical signal can be individually processed, message, siren motor-switch or relay contact (active fire safety). Combinable with other products. DIN rail mount in combiner box, or PCB box.
測試標準依據UL1699B(DC專用為UL1699B,(非AC的UL1699, 二者不同)偵測同極串聯、二個反極性之間、同極併聯或對地之間的併聯電弧故障。與消防安全開關內置電弧偵測或與直流系統絕緣監測器或模組短路開關一起配置。長期監測因接線未牢固，風壓震動導致接觸鬆動，或電纜絕緣老化產生電弧而發生火災。

DC Switch disconnect
直流開關 XA type / XB type
DCスイッチ

16~2000Amp, 600-1000Vdc,Passed UL.IEC.KEMA.CE.BC.CSA.CC safety standard.
16~2000Amp，600-1000Vdc，通過UL、IEC、KEMA、CE、BC、CSA、CCC認證，雙軸非同步儲能驅動，雙刀圓盤接點橋，無伸張電弧，可安全的直接電壓下使用，自我清潔接點，高速氣流冷卻技術，符合國際環保規定，不含鉛鎘，體積小，多種安裝選擇。

DC MCCB / DC Switch
直流斷路器
DC遮斷機

DC MCCB：500~1000V, 16~2000A, DC Switch：500~1000V, 16~2000A，TUV
直流斷路器：500~1000V, 16~2000A。

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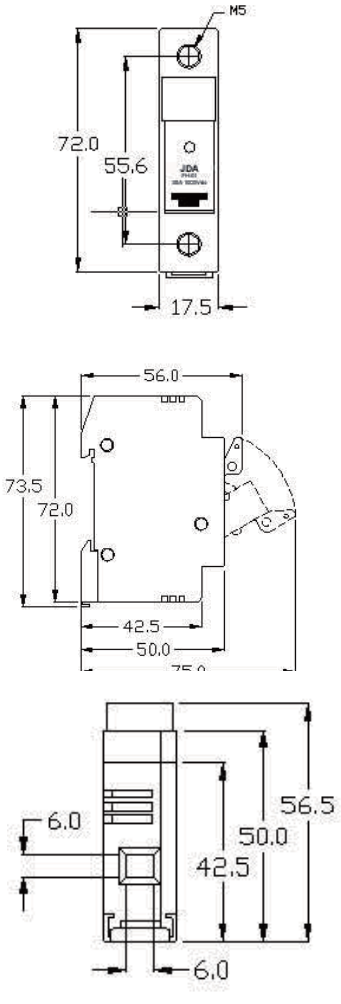
SOLAR PV FUSE HOLDER
FOR CYLINDRICAL FUSE-LINKS SIZE 10×38, DC DESIGN

TÜVRheinland

- Fuse disconnectors FH are intended for cylindrical fuse-links size 10x38.
- Fuse disconnectors FH can be sealed in the closed state.
- The devices are designed as modular for 45 mm cut out in the switchboard.

Dimensions

FH01 /Din rail mounting



Part No	I_n[A]	Rate Voltage	Number of poles	Package[pcs]
FH-01	30	1000Vdc	1	12
FH-01L	30	1000Vdc	1	12

Note: FH-01-L with status light, without status light FH-01

Parameters		
Rated operating current	I_e	30 A
Rated operating voltage	U_e	1000 V d.c.
Utilization category		DC-20B
Rated insulation voltage	U_i	1000 V d.c.(1)
Rated pulse withstand voltage	U_{imp}	4KV
Fuse-link	Diameter x length	10x38
Max. rated current of the fuse-link		30A
Max. power losses of the fuse-link		3W
Rated short-time withstand current	I_{cw} 1s	1.6KA
Electrical endurance (operating cycles)		300
Mechanical endurance (operating cycles)		1700
Degree of protection, cover closed		IP20
Degree of protection, cover opened		IP20
Connection cross-section		Cu/0.5÷25mm²(2x16mm²)
Torque		2 Nm
Operating ambient temperature	t	-25÷+55℃
Max. sea level		2000m
Material body and handle	thermoplastic high resistance to the temperature,PBT	
Flammability	UL 94 - V0	
Glow Wire Test	IEC 60695 , 960 ºC	
Colour	Ral 7035	
Material of contacts	electrolytic silver plated copper or Phosphor bronze.	
Standards	IEC 60947-1,-3 ; EN 60947-1,-3	

Note: (1) also suitable for 695Vac. application

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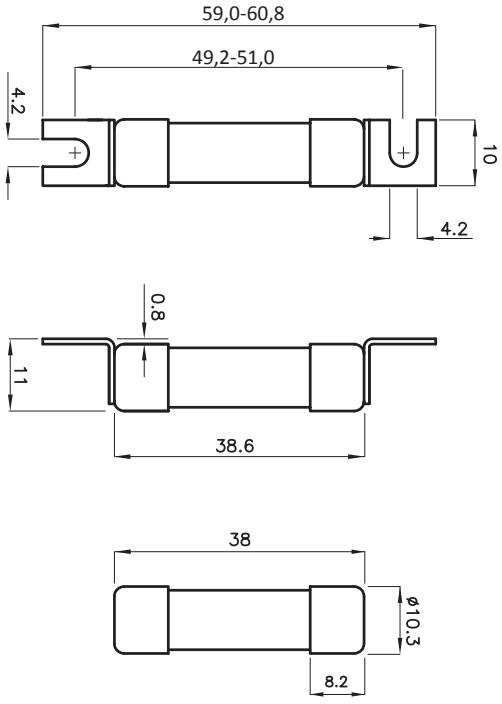
CH 10 gPV - Fuse - links

General characteristics	UL file: E347771
Rated voltage	1000V d.c. L/R=2ms
Breaking capacity	10kA d.c. /30kA d.c.
Standards	UL 2579, UL 248-1
Application	For protection of photovoltaic modules.

CH 10x38 gPV

Size	I_n [A]	Code No. "standard contacts" 10kA UL	Code No. "standard contacts" 30kA IEC	Code No. "type SU contacts" 30kA IEC	Pre-arcing Joule integral [A^2s] L/R=2ms	Operating Joule integral [A^2s] L/R=2ms	Power dissipation [0,7 x I_n] P_d [W]	Power dissipation [I_n] P_d [W]	Weight [g]	Packaging [pcs]
10 x 38	0,5		002625134	002625131	0,016	0,068	0,2	0,52	10/12	10/500 SU:10/380
	1		002625138	002625129	1,5	3	0,42	1,0		
	2	002625101	002625065	002625115	1,7	2,3	0,47	1,12		
	3	002625100	002625067	002625113	2,8	5,4	0,65	1,6		
	3,5	002625135	002625068	002625127	2,5	7	0,57	1,4		
	4	002625102	002625069	002625116	3,9	11,7	0,52	1,25		
	5	002625111	002625070	002625124	8	21	0,63	1,49		
	6	002625103	002625071	002625117	10,6	34,6	0,73	1,75		
	7	002625110	002625072	002625114	16	60	0,74	1,74		
	8	002625104	002625073	002625118	17	65	0,8	1,9		
	10	002625105	002625075	002625119	8,3	33	0,97	2,4		
	12	002625106	002625077	002625120	22	73	0,8	1,9		
	13	002625137	002625078	002625128	21	70	1,0	2,3		
	14	002625136	002625079	002625126	28	92	1,3	3,0		
	15	002625112	002625080	002625125	49	145	1,0	2,2		
	16	002625107	002625081	002625121	48	147	1,1	2,6		
	20	002625108	002625085	002625122	86	245	1,3	3,2		
	25*		002625109	002625123	125	289	1,65	4,1		
	25		002625139	002625140	110	470	1,65	4,1		




Standard Contacts


Type SU Contacts

IEC60947 額定開關

電壓（伏）DC21 IEC 60947 *1	電流	路数 *2	H *3	產品型號			
					單孔安裝		
				底部安裝 B	面板安裝 P	面板反安裝 R	雙側安裝 D
600	16	2	2	X60.16B2	X60.16P2	X60.16R2	X60.16D2
600	16	4	4	X60.16B4	X60.16P4	X60.16R4	X60.16D4
600	16	6	6	X60.16B6	X60.16P6	X60.16R6	X60.16D6
600	16	8	8	X60.16B8	X60.16P8	X60.16R8	X60.16D8
850	16	2	2	X85.16B2	X85.16P2	X85.16R2	X85.16D2
850	16	4	4	X85.16B4	X85.16P4	X85.16R4	X85.16D4
850	16	6	6	X85.16B6	X85.16P6	X85.16R6	X85.16D6
850	16	8	8	X85.16B8	X85.16P8	X85.16R8	X85.16D8
1000	16	2	3	X100.16B2	X100.16P2	X100.16R2	X100.16D2
1000	16	4	6	X100.16B4	X100.16P4	X100.16R4	X100.16D4
1000	16	6	9	X100.16B6	X100.16P6	X100.16R6	X100.16D6
600	25	2	2	X60.25B2	X60.25P2	X60.25R2	X60.25D2
600	25	4	4	X60.25B4	X60.25P4	X60.25R4	X60.25D4
600	25	6	6	X60.25B6	X60.25P6	X60.25R6	X60.25D6
600	25	8	8	X60.25B8	X60.25P8	X60.25R8	X60.25D8
750	25	2	2	X75.25B2	X75.25P2	X75.25R2	X75.25D2
750	25	4	4	X75.25B4	X75.25P4	X75.25R4	X75.25D4
750	25	6	6	X75.25B6	X75.25P6	X75.25R6	X75.25D6
750	25	8	8	X75.25B8	X75.25P8	X75.25R8	X75.25D8
1000	25	2	3	X100.25B2	X100.25P2	X100.25R2	X100.25D2
1000	25	4	6	X100.25B4	X100.25P4	X100.25R4	X100.25D4
1000	25	6	9	X100.25B6	X100.25P6	X100.25R6	X100.25D6
600	32	2	2	X60.32B2	X60.32P2	X60.32R2	X60.32D2
600	32	4	4	X60.32B4	X60.32P4	X60.32R4	X60.32D4
600	32	6	6	X60.32B6	X60.32P6	X60.32R6	X60.32D6
1000	32	2	3	X100.32B2	X100.32P2	X100.32R2	X100.32D2
1000	32	4	6	X100.32B4	X100.32P4	X100.32R4	X100.32D4
1000	40	2~8P	3	X100.40B2~8	P2~8	R2~8	P2~8
1500	50	2~8P	6	XC(50.50B)2~8	P2~8	R2~8	P2~8

UL508 RATED SWITCHES (cCSAus)

電壓（伏）UL508	電流（安）極點	H *3	極點 雙 開關	底部安裝 *4 B	面板安裝 *4 極點 P	極點 單 開關	底部安裝 *4 B	面板安裝 *4 P
600	16	2	2	X60.16BK2	X60.16PK2	1	X60.16BKS1	X60.16PKS1
600	16	4	4	X60.16BK4	X60.16PK4	2	X60.16BKS2	X60.16PKS2
600	16	6	6	X60.16BK6	X60.16PK6	3	X60.16BKS3	X60.16PKS3
600	16	8	8	X60.16BK8	X60.16PK8	4	X60.16BKS4	X60.16PKS4
600	25	2	2	X60.25BK2	X60.25PK2	1	X60.25BKS1	X60.25PKS1
600	25	4	4	X60.25BK4	X60.25PK4	2	X60.25BKS2	X60.25PKS2
600	25	6	6	X60.25BK6	X60.25PK6	3	X60.25BKS3	X60.25PKS3
600	25	8	8	X60.25BK8	X60.25PK8	4	X60.25BKS4	X60.25PKS4
600	32	2	2	X60.32BK2	X60.32PK2	1	X60.32BKS1	X60.32PKS1
600	32	4	4	X60.32BK4	X60.32PK4	2	X60.32BKS2	X60.32PKS2
600	32	6	6	X60.32BK6	X60.32PK6	3	X60.32BKS3	X60.32PKS3
600	32	8	8	X60.32BK8	X60.32PK8	4	X60.32BKS4	X60.32PKS4

*1 提供組合交直流極點開關

*2 無輔助觸點的主極點數。

*3 開關總高度可根據 “H” 層的數量決定。安裝B和D類型需要增加一層。見第6頁示意圖。

*4 “R” 和 “D” 兩種安裝方法（見第6頁）也已獲得認證。

*5 CSA認證為32安培，UL認證為30安培

輔助觸點

輔助觸點可用於位置指示器或電機驅動開關。輔助觸點額定工作條件為250伏交流和直流電壓，16安。為每一輔助觸點增加額外層以決定開關高度。

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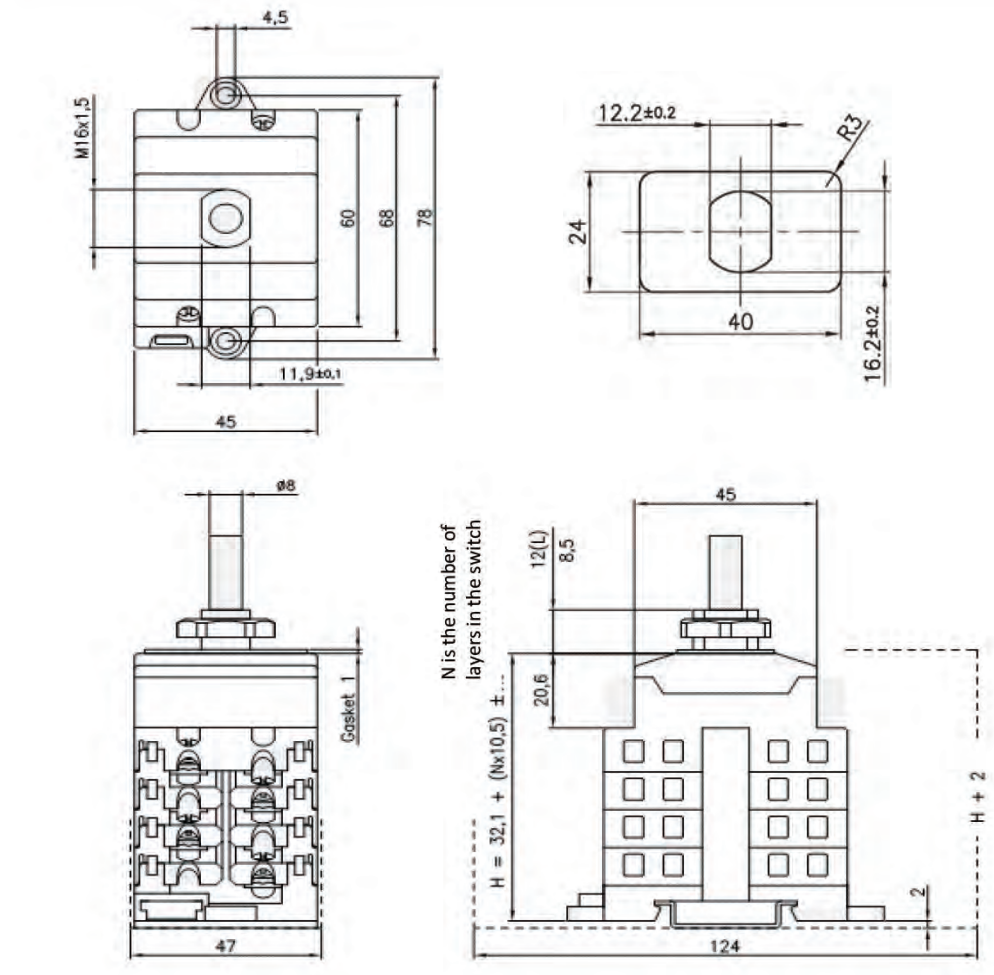


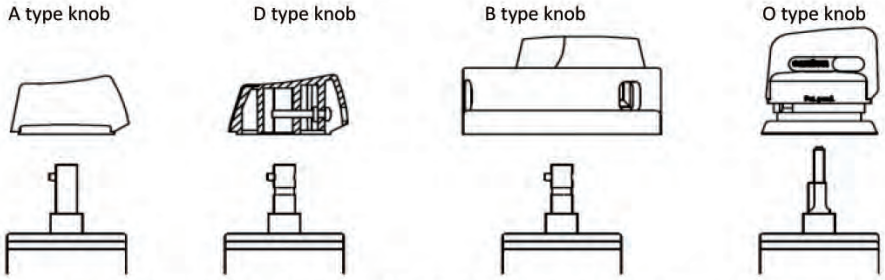
Mounting instructions

In the application all ratings have to be respected. When building the switch in an enclosure, the space envelope must be res pected according to the applicable standards. The terminals, without interconnection can take copper wires up to 6 mm2. The recomme nded Spade Tongue Terminals may have a maximum width of 9 mm. For CSA and UL applications, registered Spade Tongue Terminals must be used. The registration numbers are UL: E13288 and CSA: LR7189 (for instance type 165015 from Tyco). After mounting, the wi ring must be checked and the switch must operate smoothly.

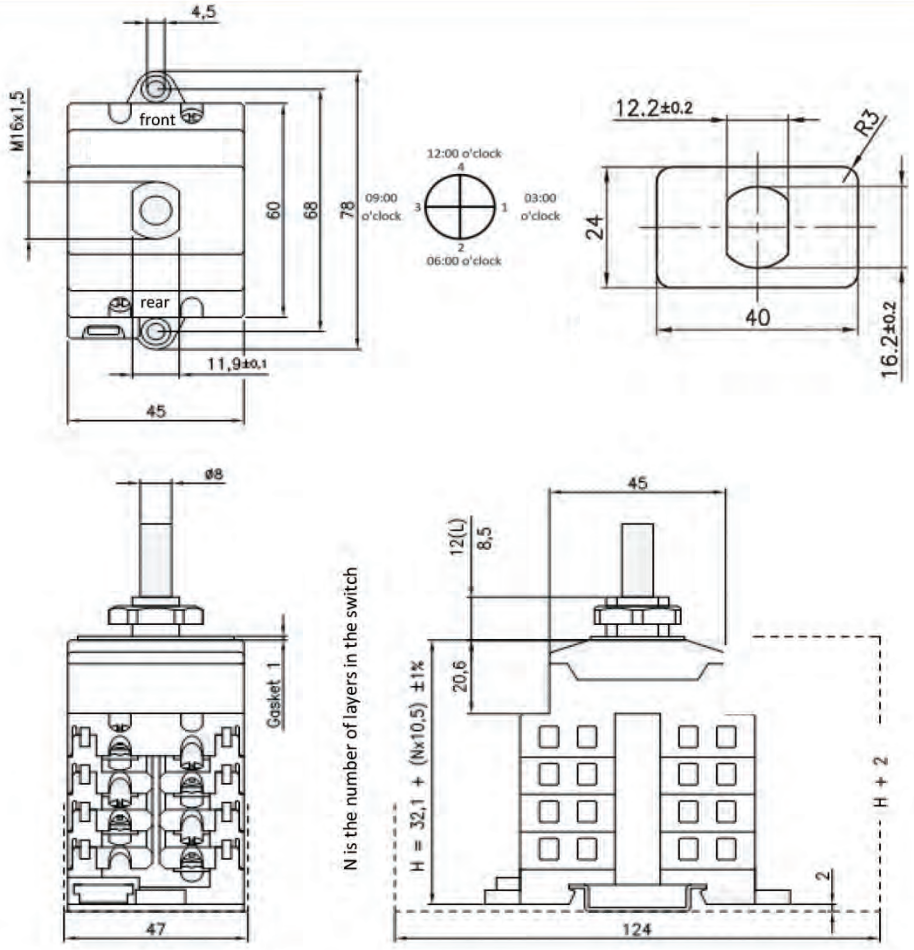
Maintenance

The X type switches are designed for a very long life but it is advised to do some simple yearly maintenance.

- Check the installation for signs of overload or overheating. The terminals may not exceed the limit of 85 °C under full load.
- By operating the switch a few times (5x) the contacts will clean themselves and the switch will have a longer life.



Dimensions, specifications and data shown could be subject to change without notice.



Mounting instructions

In the application all ratings according to the datasheet have to be respected. After mounting, the wiring must be checkedand the switch must operate smoothly. When building the switch in an enclosure, the space envelope must be respected according to the applicable standards.

Maintenance

The X type switches are designed for a very long life but it is advised to do some simple yearly maintenance.

- Check the installation for signs of overload or overheating. The terminals may not exceed the limit of 85 °C under full load.
- By operating the switch a few times (5x) the contacts will clean themselves and the switch will have a longer life.

Connection details

Description	Symbol	Values				Unit
Rated operational current (DC poles)	Ie	16	20	25	32	A dc
Required fine wire cross-section (minimal): IEC60947-1, table 9	A	2,5	4	4	6	mm²
max power dissipation	P	1,9	3,0	4,8	7,8	W

The terminals, without interconnection can take copper wires up to 6 mm2.

The recommended Spade Tongue Terminals may have a maximum width of 9 mm.

For CSA and UL applications, registered Spade Tongue Terminals must be used.

The registration numbers are UL: E13288 and CSA: LR7189 (for instance type 165015 from Tyco).

Registerd Spade Tongue Terminals

Recommend Manufacturer	Type number	Wire size (AWG)	Wire size (mm²)	Color
JST	FVD2-YS4A	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
TE connectivity	C-165012	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
Vogt	3635c	AWG 16 – AWG 14	1,5 – 2,5 mm²	Blue
TE connectivity	C-165015	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Vogt	3652c / 3653c	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Santon (JST)	52A1256.35	AWG 8 - AWG 10	10,5mm²-16mm² *1	*2

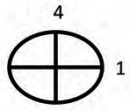
*1 16mm² only with fine stranded wire or two 6mm² is also possible

*2 Optional: A yellow finger safe sleeve for the Spade Tongue Terminal (Santon 52A1256.35) can be ordered under item number 52A1564.00

Data Sheet

Santon X-Type switch XA100.16DL6E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)



Empty for better insulation
N = number of contact layer

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
7	-3		—/—	+3		X			
6		+3	—/—		+3	X			
5	+2		—/—	+2		X			
4		-2	—/—		-2	X			
3	-1		—/—	-1		X			
2		+1	—/—		+1	X			
1			empty						

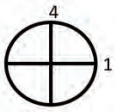
Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		16	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		850	V dc
rated operational current (second rating DC poles, if requested)	Ie		20	A dc
rated operational voltage (third rating DC poles, if requested)	Ue		800	V dc
rated operational current (third rating DC poles, if requested)	Ie		25	A dc
method of mounting	both bottom and single hole mounting [D]		long gland	
number of DC poles			6	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		25	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
max power dissipation			2,6	W
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H*			124 x 47 x 105,5	mm
* see the drawing for the height of the switch. The number of layers N is:			7	
Enclosure depth from inside bottom to outside top, required for the switch and knob			138,5	mm
knob operation force		max.	1,4	Nm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
minimum required fine wire cross-section: IEC60947-1, table 9			4	mm2
ambient temperature allowed between			- 20 to + 70 °C	°C
storage temperature allowed between			- 40 to + 80 °C	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			315	g
accessories:				

Data Sheet

Santon X-Type switch XA100.16DL8E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)



Empty for better insulation
N = number of contact layer

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
9	+4		—/—	+4		X			
8		-4	—/—		-4	X			
7	-3		—/—	-3		X			
6		+3	—/—		+3	X			
5	+2		—/—	+2		X			
4		-2	—/—		-2	X			
3	-1		—/—	-1		X			
2		+1	—/—		+1	X			
1			Empty						

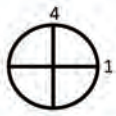
Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		16	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		850	V dc
rated operational current (second rating DC poles, if requested)	Ie		20	A dc
rated operational voltage (third rating DC poles, if requested)	Ue		800	V dc
rated operational current (third rating DC poles, if requested)	Ie		25	A dc
rated operational voltage (fourth rating DC poles, if requested)	Ue		650	V dc
rated operational current (fourth rating DC poles, if requested)	Ie		32	A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			8	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		25	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) {space envelope}			124 x 47 x 126,6	mm
* see the drawing for the height of the switch. The number of layers N is:			9	
knob operation force		max.	1,4	Nm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
ambient temperature allowed between			- 25 to + 70	˚C
storage temperature allowed between			- 40 to + 80	˚C
maximum relative humidity, without condensation at 20˚C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			384	g

Data Sheet

Santon X-Type switch XA100.16DL10E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)



Empty for better insulation
N = number of contact layer

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
11	-5		—/—	-5		X			
10		+5	—/—		+5	X			
9	+4		—/—	+4		X			
8		-4	—/—		-4	X			
7	-3		—/—	-3		X			
6		+3	—/—		+3	X			
5	+2		—/—	+2		X			
4		-2	—/—		-2	X			
3	-1		—/—	-1		X			
2		+1	—/—		+1	X			
1			empty						

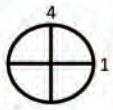
Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		16	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		850	V dc
rated operational current (second rating DC poles, if requested)	Ie		20	A dc
rated operational voltage (third rating DC poles, if requested)	Ue		800	V dc
rated operational current (third rating DC poles, if requested)	Ie		25	A dc
rated operational voltage (fourth rating DC poles, if requested)	Ue		650	V dc
rated operational current (fourth rating DC poles, if requested)	Ie		32	A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			10	
utilization category DC				
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		25	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) (space envelope)			124 x 47 x 147,6	mm
* see the drawing for the height of the switch. The number of layers N is:			11	
knob operation force		max.	1,4	Nm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
ambient temperature allowed between			- 40 to + 70	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			453	g

Data Sheet

Santon X-Type switch XA100.16DL12E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)



Empty for better insulation
N = number of contact layer

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
13	+6		—/—	+6		X			
12		-6	—/—		-6	X			
11	-5		—/—	-5		X			
10		+5	—/—		+5	X			
9	+4		—/—	+4		X			
8		-4	—/—		-4	X			
7	-3		—/—	-3		X			
6		+3	—/—		+3	X			
5	+2		—/—	+2		X			
4		-2	—/—		-2	X			
3	-1		—/—	-1		X			
2		+1	—/—		+1	X			
1			empty						

Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		16	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		850	V dc
rated operational current (second rating DC poles, if requested)	Ie		20	A dc
rated operational voltage (third rating DC poles, if requested)	Ue		800	V dc
rated operational current (third rating DC poles, if requested)	Ie		25	A dc
rated operational voltage (fourth rating DC poles, if requested)	Ue		650	V dc
rated operational current (fourth rating DC poles, if requested)	Ie		32	A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			12	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		25	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm)			124 x 47 x 168,6	mm
* see the drawing for the height of the switch. The number of layers N is:			13	
knob operation force		max.	1,4	Nm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
ambient temperature allowed between			- 40 to + 70	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			522	g
accessories:				

Data Sheet

Santon X-Type switch XA100.25DL2E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA)

Empty for better insulation
N = number of contact layer

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
4		-1			-1				X
3				+1					X
2					+1				X
1			empty						

Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		25	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		0	V dc
rated operational current (second rating DC poles, if requested)	Ie		0	A dc
rated operational voltage (third rating DC poles, if requested)	Ue		0	V dc
rated operational current (third rating DC poles, if requested)	Ie		0	A dc
method of mounting	both bottom and single hole mounting [D]		long gland	
number of DC poles			2	
utilization category DC	DC-21B			
actuator	ordered without a knob			
positions	OFF at 9 hr, ON at 12 hr [H]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		25	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
resistance per contact			0,5	mΩ
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H*			124 x 47 x 74	mm
* see the drawing for the height of the switch. The number of layers N is:			4	
Shaft length				mm
Enclosure depth from inside bottom to outside top, required for the switch and knob			107	mm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
minimum required fine wire cross-section: IEC60947-1, table 9			4	mm2
ambient temperature allowed between			- 20 to + 70 °C	°C
storage temperature allowed between			- 40 to + 80 °C	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles				
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			221	g
accessories:	-			

Data Sheet

Santon X-Type switch XA100.25DL4E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)

Empty for better insulation
N = number of contact layer

Terminals Scheme

Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
7				+2		X			
6					+2	X			
5	-2			-2		X			
4		-1			-1	X			
3				+1		X			
2					+1	X			
1			empty						

Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		25	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		850	V dc
rated operational current (second rating DC poles, if requested)	Ie		20	A dc
rated operational voltage (third rating DC poles, if requested)	Ue		800	V dc
rated operational current (third rating DC poles, if requested)	Ie		25	A dc
rated operational voltage (fourth rating DC poles, if requested)	Ue		650	V dc
rated operational current (fourth rating DC poles, if requested)	Ie		32	A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			4	
utilization category DC				
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		25	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) (space envelope)			124 x 47 x 105,6	mm
* see the drawing for the height of the switch. The number of layers N is:			7	
knob operation force		max.	1,4	Nm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
ambient temperature allowed between			- 25 to + 70	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			315	g
accessories:	-			
	-			

Data Sheet

Santon X-Type switch X100.40DL2E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)

Empty for better insulation
N = number of contact layer

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
4		-1			-1	X			
3				+1		X			
2					+1	X			
1			empty						

Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		40	A dc
rated operational voltage (second rating DC poles, if requested)	Ue			V dc
rated operational current (second rating DC poles, if requested)	Ie			A dc
rated operational voltage (third rating DC poles, if requested)	Ue			V dc
rated operational current (third rating DC poles, if requested)	Ie			A dc
rated operational voltage (fourth rating DC poles, if requested)	Ue			V dc
rated operational current (fourth rating DC poles, if requested)	Ie			A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			2	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		40	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1.4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) (space envelope)			124 x 47 x 74.1	mm
* see the drawing for the height of the switch. The number of layers N is:			4	
knob operation force		max.	1.4	Nm
tightening torque terminal screws M4 , min. - max.		1.5	1.7	Nm
tightening torque panel mounting nut, min. - max.		2.0	2.5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0.5	0.7	Nm
ambient temperature allowed between			- 40 to + 70	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			221	g
accessories:	-			
	-			

Data Sheet

Santon X-Type switch X100.40DL4E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)

Empty for better insulation
N = number of contact layer

Terminals Scheme

Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
7				+2		X			
6					+2	X			
5	-2			-2		X			
4		-1			-1	X			
3				+1		X			
2					+1	X			
1			empty						

Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1000	V dc
rated operational current (DC poles)	Ie		40	A dc
rated operational voltage (second rating DC poles, if requested)	Ue			V dc
rated operational current (second rating DC poles, if requested)	Ie			A dc
rated operational voltage (third rating DC poles, if requested)	Ue			V dc
rated operational current (third rating DC poles, if requested)	Ie			A dc
rated operational voltage (fourth rating DC poles, if requested)	Ue			V dc
rated operational current (fourth rating DC poles, if requested)	Ie			A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			4	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1000	V
rated thermal current uninterrupted duty	Iu		40	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1.4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) (space envelope)			124 x 47 x 105.6	mm
* see the drawing for the height of the switch. The number of layers N is:			7	
knob operation force		max.	1.4	Nm
tightening torque terminal screws M4 , min. - max.		1.5	1.7	Nm
tightening torque panel mounting nut, min. - max.		2.0	2.5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0.5	0.7	Nm
ambient temperature allowed between			- 40 to + 70	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			315	g
accessories:	-			
	-			

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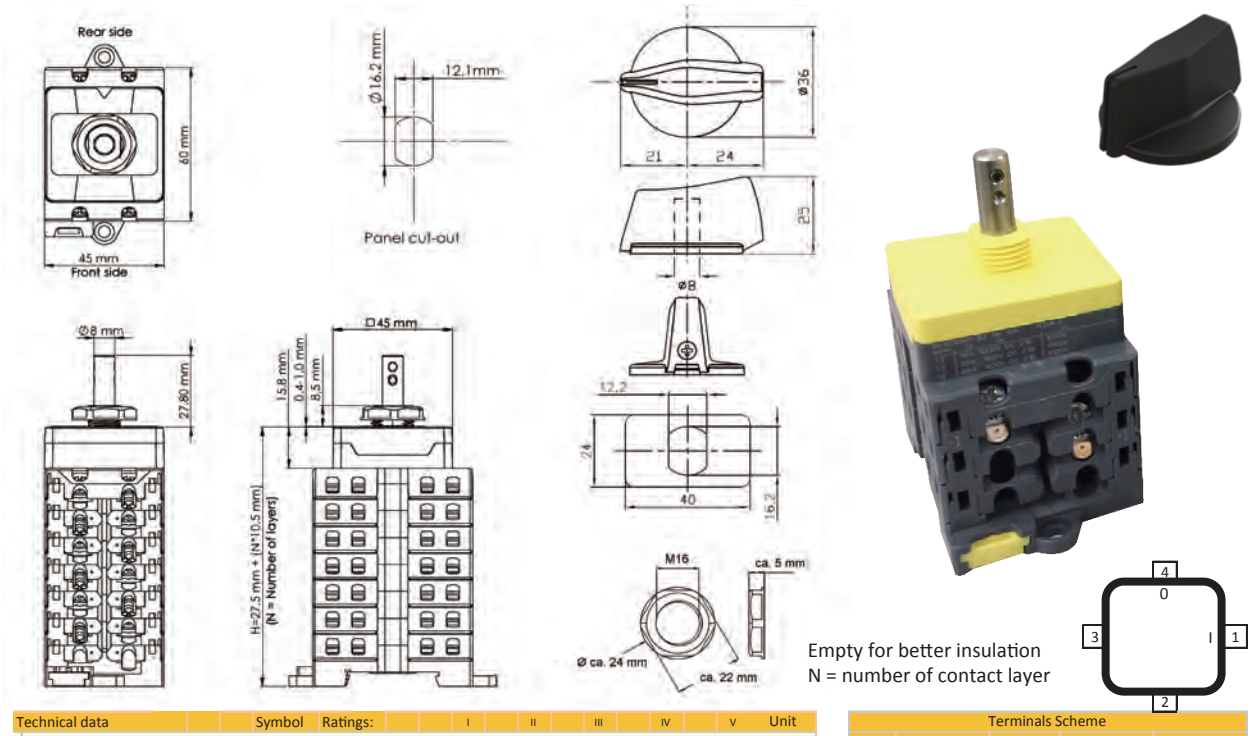
Data Sheet XB0210/2

Certified for IEC 60947 1&3
DC21B and CCC (CQC)



Technical data	Symbol	Ratings: I	II	III	IV	V	Unit
Rated operational voltage	Ue	1000	850	800	650	400	V dc
Rated operational current	Ie	16	20	25	30	45	A dc
Required fine wire cross-section (minimal)*:		2,5	4,0	4,0	6,0	10,0	mm²
*IEC60947-1, table 9							
Number of DC poles						2	
Utilization category DC						DC-21B	
Pollution degree						2	
IP rating terminals						IP20	
Tightening torque terminal screws M4 (min. - max.)					1,5 –	1,7	Nm
Method of mounting							
IP rating of the shaft in case of single hole and four hole panel mounting						IP65	
Positions		12 (OFF) and 3 o'clock (ON)					
Actuator		Standard A knob with long screw to fix in shaft					
Method of operation		Independent manual operation					
Actuator operation force (max.)						1,4	Nm
Tightening torque M3 screw in the actuator (min. - max.)					0,2 –	0,4	Nm
Rated impulse withstand voltage	Uimp					8	kV
Insulation voltage	Ui					850	V
Rated thermal current uninterrupted duty	Iu					45	A
Rated short-time withstand current (1s)	Icw					700	A
Rated short-circuit making capacity	Icm					1,4	kA
Rated conditional short-circuit current	Isc					5	kA
Minimum required dimensions of enclosures L x W x D* {space envelope}				124 x	47 x	50	mm
* see the drawing for the height of the switch. The number of layers N is:						2	
Weight						ca. 149	g
Allowed ambient temperature (min. - max.)	$T_{ambient}$				-40 –	70	˚C
Allowed storage temperature (min. - max.)	$T_{storage}$				-40 –	85	˚C
Relative humidity (max.), without condensation at 20˚C	RH					90	%

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	Positions 1	2	3	4
7									
6									
5									
4									
3	-1			-1		I			0
2		+1			+1	I			0
1			Empty						

(I = Contact is closed, O = Contact is open)

Mounting instructions
In the application all ratings according to the datasheet have to be respected. After mounting, the wiring must be checked and the switch must operate smoothly. When building the switch in an enclosure, the space envelope must be respected according to the applicable standards.

Maintenance
The X type switches are designed for a very long life but it is advised to do some simple yearly maintenance.
- Check the installation for signs of overload or overheating. The terminals may not exceed the limit of 85oC under full load.
- By operating the switch a few times (5x) the contacts will clean themselves and the switch will have a longer life.

Connection
The terminals, can take copper wires up to 6 mm2.
The recommended Spade Tongue Terminals may have a maximum width of 9 mm (see table for recommendations)

Recommend Manufacturer	Type number	Wire size (AWG)	Wire size (mm²)	Color
JST	FVD2-YS4A	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
TE connectivity	C-165012	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
Vogt	3635c	AWG 16 – AWG 14	1,5 – 2,5 mm²	Blue
TE connectivity	C-165015	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Vogt	3652c / 3653c	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Santon (JST)	52A1256.35	AWG 8 - AWG 10	10,5mm²-16mm² *1	*2

*1 16mm² only with fine stranded wire (or two times 6mm²)

*2 Optional: A yellow finger safe sleeve for the Spade Tongue Terminal (Santon 52A1256.35) can be ordered under item number 52A1564.00

Superior Switch Solutions

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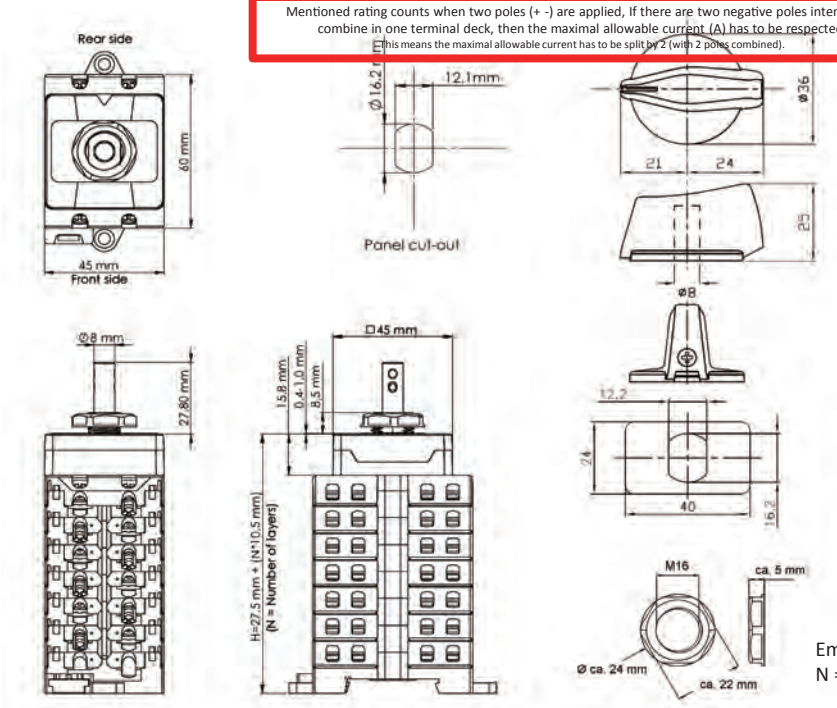
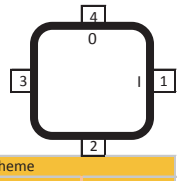
Data Sheet XB0310/2

Certified for IEC 60947 1&3
DC21B and CCC (CQC)

Mentioned rating counts when two poles (+ -) are applied, If there are two negative poles intended to combine in one terminal deck, then the maximal allowable current (A) has to be respected.
This means the maximal allowable current has to be split by 2 (with 2 poles combined).





Empty for better insulation
N = number of contact layer

Technical data	Symbol	Ratings: I	II	III	IV	V	Unit
Rated operational voltage	Ue	1000	850	800	650	400	V dc
Rated operational current	Ie	16	20	25	30	45	A dc
Required fine wire cross-section (minimal)*:		2,5	4,0	4,0	6,0	10,0	mm²
*IEC60947-1, table 9							
Number of DC poles						3	
Utilization category DC						DC-21B	
Pollution degree						2	
IP rating terminals						IP20	
Tightening torque terminal screws M4 (min. - max.)					1,5 –	1,7	Nm
Method of mounting							
IP rating of the shaft in case of single hole and four hole panel mounting						IP65	
Positions		12 (OFF) and 3 o'clock (ON)					
Actuator		Standard A knob with long screw to fix in shaft					
Method of operation		Independent manual operation					
Actuator operation force (max.)						1,4	Nm
Tightening torque M3 screw in the actuator (min. - max.)					0,2 –	0,4	Nm
Rated impulse withstand voltage	Uimp					8	kV
Insulation voltage	Ui					850	V
Rated thermal current uninterrupted duty	Iu					45	A
Rated short-time withstand current (1s)	Icw					700	A
Rated short-circuit making capacity	Icm					1,4	kA
Rated conditional short-circuit current	Isc					5	kA
Minimum required dimensions of enclosures L x W x D* {space envelope}				124 x	47 x	60	mm
* see the drawing for the height of the switch. The number of layers N is:						3	
Weight						ca. 180	g
Allowed ambient temperature (min. - max.)	$T_{ambient}$				-40 –	70	˚C
Allowed storage temperature (min. - max.)	$T_{storage}$				-40 –	85	˚C
Relative humidity (max.), without condensation at 20˚C	RH					90	%

Terminals Scheme

Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	Positions 1	2	3	4
7									
6									
5									
4		+2			+2	I			0
3	–			–		I			0
2		+1			+1	I			0
1			Empty						

(I = Contact is closed, O = Contact is open)

Mounting instructions
In the application all ratings according to the datasheet have to be respected. After mounting, the wiring must be checked and the switch must operate smoothly. When building the switch in an enclosure, the space envelope must be respected according to the applicable standards.

Maintenance
The X type switches are designed for a very long life but it is advised to do some simple yearly maintenance.
- Check the installation for signs of overload or overheating. The terminals may not exceed the limit of 85oC under full load.
- By operating the switch a few times (5x) the contacts will clean themselves and the switch will have a longer life.

Connection
The terminals, can take copper wires up to 6 mm2.
The recommended Spade Tongue Terminals may have a maximum width of 9 mm (see table for recommendations)

Recommend Manufacturer	Type number	Wire size (AWG)	Wire size (mm²)	Color
JST	FVD2-YS4A	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
TE connectivity	C-165012	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
Vogt	3635c	AWG 16 – AWG 14	1,5 – 2,5 mm²	Blue
TE connectivity	C-165015	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Vogt	3652c / 3653c	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Santon (JST)	52A1256.35	AWG 8 - AWG 10	10,5mm²-16mm² *1	*2

*1 16mm² only with fine stranded wire (or two times 6mm²)

*2 Optional: A yellow finger safe sleeve for the Spade Tongue Terminal (Santon 52A1256.35) can be ordered under item number 52A1564.00

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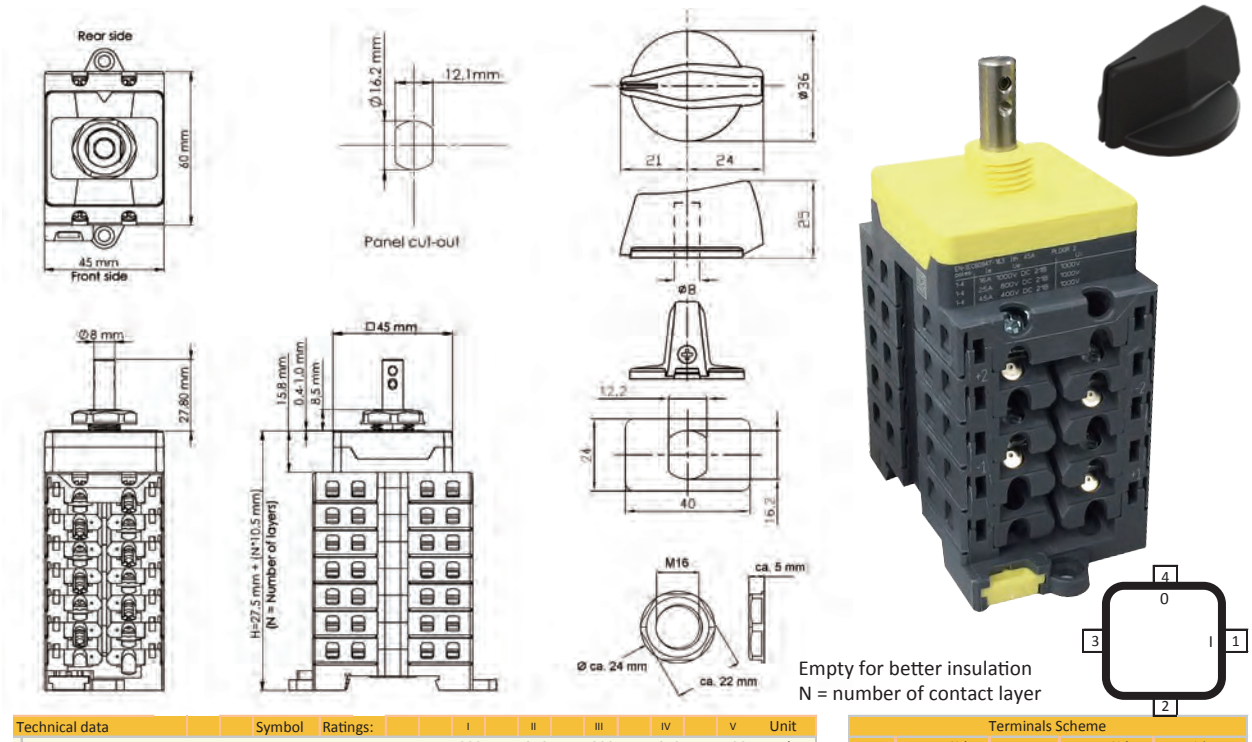
Data Sheet XB0410/2

Certified for IEC 60947 1&3
DC21B and CCC (CQC)



Empty for better insulation
N = number of contact layer

Technical data	Symbol	Ratings:	I	II	III	IV	V	Unit
Rated operational voltage	Ue		1000	850	800	650	400	V dc
Rated operational current	Ie		16	20	25	30	45	A dc
Required fine wire cross-section (minimal)*:			2,5	4,0	4,0	6,0	10,0	mm²
*IEC60947-1, table 9								
Number of DC poles							4	
Utilization category DC							DC-21B	
Pollution degree							2	
IP rating terminals							IP20	
Tightening torque terminal screws M4 (min. - max.)						1,5 –	1,7	Nm
Method of mounting								
IP rating of the shaft in case of single hole and four hole panel mounting							IP65	
Positions		12 (OFF) and 3 o'clock (ON)						
Actuator		Standard A knob with long screw to fix in shaft						
Method of operation		Independent manual operation						
Actuator operation force (max.)							1,4	Nm
Tightening torque M3 screw in the actuator (min. - max.)						0,2 –	0,4	Nm
Rated impulse withstand voltage		Uimp					8	kV
Insulation voltage		Ui					850	V
Rated thermal current uninterrupted duty		Iu					45	A
Rated short-time withstand current (1s)		Icw					700	A
Rated short-circuit making capacity		Icm					1,4	kA
Rated conditional short-circuit current		Isc					5	kA
Minimum required dimensions of enclosures L x W x D* {space envelope}					124 x	47 x	71	mm
* see the drawing for the height of the switch. The number of layers N is:							4	
Weight							ca. 211	g
Allowed ambient temperature (min. - max.)		$T_{ambient}$				-40 –	70	°C
Allowed storage temperature (min. - max.)		$T_{storage}$				-40 –	85	°C
Relative humidity (max.), without condensation at 20°C		RH					90	%

Terminals Scheme

Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	Positions 1	2	3	4
7									
6									
5	+2			+2		I			0
4		-2			-2	I			0
3	-1			-1		I			0
2		+1			+1	I			0
1			Empty						

(I = Contact is closed, O = Contact is open)

Mounting instructions
In the application all ratings according to the datasheet have to be respected. After mounting, the wiring must be checked and the switch must operate smoothly. When building the switch in an enclosure, the space envelope must be respected according to the applicable standards.

Maintenance
The X type switches are designed for a very long life but it is advised to do some simple yearly maintenance.
- Check the installation for signs of overload or overheating. The terminals may not exceed the limit of 85oC under full load.
- By operating the switch a few times (5x) the contacts will clean themselves and the switch will have a longer life.

Connection
The terminals, can take copper wires up to 6 mm2.
The recommended Spade Tongue Terminals may have a maximum width of 9 mm (see table for recommendations)

Recommend Manufacturer	Type number	Wire size (AWG)	Wire size (mm²)	Color
JST	FVD2-YS4A	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
TE connectivity	C-165012	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
Vogt	3635c	AWG 16 – AWG 14	1,5 – 2,5 mm²	Blue
TE connectivity	C-165015	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Vogt	3652c / 3653c	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Santon (JST)	52A1256.35	AWG 8 - AWG 10	10,5mm²-16mm² *1	*2

*1 16mm² only with fine stranded wire (or two times 6mm²)

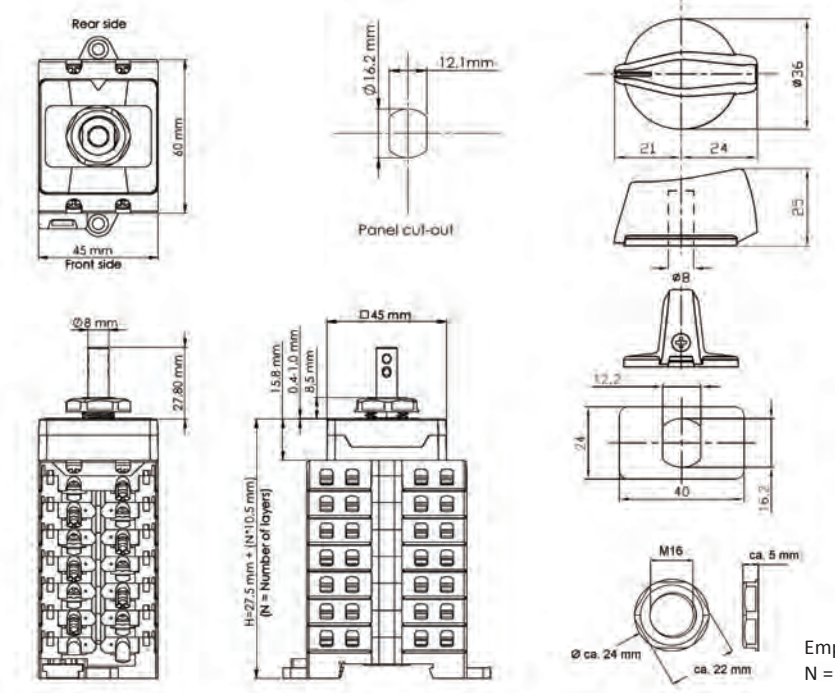
*2 Optional: A yellow finger safe sleeve for the Spade Tongue Terminal (Santon 52A1256.35) can be ordered under item number 52A1564.00

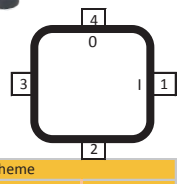
Superior Switch Solutions

JD Auspice Co.,Ltd. TEL: 886-2-2595-9780 FAX: 886-2-2595-9412 service@jdauspice.com www.jdauspice.com

Data Sheet XB0610/2

Certified for IEC 60947 1&3
DC21B and CCC (CQC)





Empty for better insulation
N = number of contact layer

Technical data	Symbol	Ratings: I	II	III	IV	V	Unit
Rated operational voltage	Ue	1000	850	800	650	400	V dc
Rated operational current	Ie	16	20	25	30	45	A dc
Required fine wire cross-section (minimal)*:		2,5	4,0	4,0	6,0	10,0	mm²
*IEC60947-1, table 9							
Number of DC poles						6	
Utilization category DC						DC-21B	
Pollution degree						2	
IP rating terminals						IP20	
Tightening torque terminal screws M4 (min. - max.)					1,5 –	1,7	Nm
Method of mounting							
IP rating of the shaft in case of single hole and four hole panel mounting						IP65	
Positions		12 (OFF) and 3 o'clock (ON)					
Actuator		Standard A knob with long screw to fix in shaft					
Method of operation		Independent manual operation					
Actuator operation force (max.)						1,4	Nm
Tightening torque M3 screw in the actuator (min. - max.)					0,2 –	0,4	Nm
Rated impulse withstand voltage		Uimp				8	kV
Insulation voltage		Ui				850	V
Rated thermal current uninterrupted duty		Iu				45	A
Rated short-time withstand current (1s)		Icw				700	A
Rated short-circuit making capacity		Icm				1,4	kA
Rated conditional short-circuit current		Isc				5	kA
Minimum required dimensions of enclosures L x W x D* {space envelope}				124 x	47 x	92	mm
* see the drawing for the height of the switch. The number of layers N is:						6	
Weight						ca. 274	g
Allowed ambient temperature (min. - max.)		$T_{ambient}$			-40 –	70	˚C
Allowed storage temperature (min. - max.)		$T_{storage}$			-40 –	85	˚C
Relative humidity (max.), without condensation at 20˚C		RH				90	%

Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	Positions 1	2	3	4
7	-3			-3		I			0
6		+3			+3	I			0
5	+2			+2		I			0
4		-2			-2	I			0
3	-1			-1		I			0
2		+1			+1	I			0
1			Empty						

(I = Contact is closed, O = Contact is open)

Mounting instructions
In the application all ratings according to the datasheet have to be respected. After mounting, the wiring must be checked and the switch must operate smoothly. When building the switch in an enclosure, the space envelope must be respected according to the applicable standards.

Maintenance
The X type switches are designed for a very long life but it is advised to do some simple yearly maintenance.
- Check the installation for signs of overload or overheating. The terminals may not exceed the limit of 85oC under full load.
- By operating the switch a few times (5x) the contacts will clean themselves and the switch will have a longer life.

Connection
The terminals, can take copper wires up to 6 mm2.
The recommended Spade Tongue Terminals may have a maximum width of 9 mm (see table for recommendations)

Recommend Manufacturer	Type number	Wire size (AWG)	Wire size (mm²)	Color
JST	FVD2-YS4A	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
TE connectivity	C-165012	AWG 16 – AWG 14	1,0 – 2,5 mm²	Blue
Vogt	3635c	AWG 16 – AWG 14	1,5 – 2,5 mm²	Blue
TE connectivity	C-165015	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Vogt	3652c / 3653c	AWG 12 - AWG 10	3,0 - 6,0 mm²	Yellow
Santon (JST)	52A1256.35	AWG 8 - AWG 10	10,5mm²-16mm² *1	*2

*1 16mm² only with fine stranded wire (or two times 6mm²)

*2 Optional: A yellow finger safe sleeve for the Spade Tongue Terminal (Santon 52A1256.35) can be ordered under item number 52A1564.00

Superior Switch Solutions

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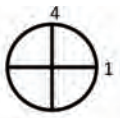
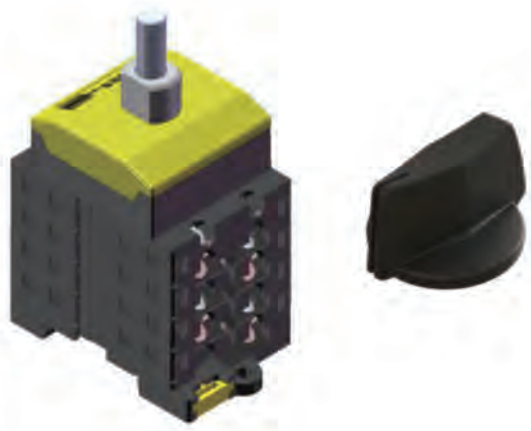
Data Sheet

Santon X-Type switch XC150.20DL2E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA)





Terminals Scheme

Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
3	-1		—/—	-1		X			
2		+1	—/—		+1	X			
1			empty						

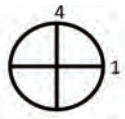
Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1500	V dc
rated operational current (DC poles)	Ie		20	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		1000	V dc
rated operational current (second rating DC poles, if requested)	Ie		50	A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			2	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1500	V
rated thermal current uninterrupted duty	Iu		50	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1,4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) {space envelope}			124 x 47 x 84,6	mm
* see the drawing for the height of the switch. The number of layers N is:			5	
knob operation force		max.	1,4	Nm
tightening torque terminal screws M4 , min. - max.		1,5	1,7	Nm
tightening torque panel mounting nut, min. - max.		2,0	2,5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0,5	0,7	Nm
ambient temperature allowed between			- 40 to + 80	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			254	g
accessories:	-			
	-			

Data Sheet

Santon X-Type switch XC150.20DL4E-A

Switch disconnector for solar application according to IEC 60947-1&3 by Dekra (KEMA) and CCC (CQC)

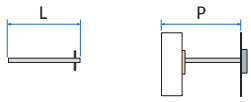


Terminals Scheme									
Layer No.	Front Side Left	Front Side Right	Symbol	Rear Side Left	Rear Side Right	On Positions 1	2	3	4
5	+2		—/—	+2		X			
4		-2	—/—		-2	X			
3	-1		—/—	-1		X			
2		+1	—/—		+1	X			
1			empty						

Contacts are made in "X" marked position.
Symbols for interconnection: [

Technical data	Symbol	Merit		Unit
rated operational voltage (DC poles)	Ue		1500	V dc
rated operational current (DC poles)	Ie		20	A dc
rated operational voltage (second rating DC poles, if requested)	Ue		1000	V dc
rated operational current (second rating DC poles, if requested)	Ie		50	A dc
method of mounting	both bottom and single hole mounting [D]			
number of DC poles			4	
utilization category DC	DC-21B			
actuator	standard black [A]			
positions	OFF at 12 hr, ON at 3 hr [E]			
rated impulse withstand voltage	Uimp		8	kV
insulation voltage	Ui		1500	V
rated thermal current uninterrupted duty	Iu		50	A
rated short-time withstand current (1s)	Icw		750	A
rated short-circuit making capacity	Icm		1.4	kA
rated conditional short-circuit current			5	kA
method of operation	independent manual operation			
minimum required dimensions of enclosures L x W x H* (on DIN-rail H = +2mm) {space envelope}			124 x 47 x 84.6	mm
* see the drawing for the height of the switch. The number of layers N is:			5	
knob operation force		max.	1.4	Nm
tightening torque terminal screws M4 , min. - max.		1.5	1.7	Nm
tightening torque panel mounting nut, min. - max.		2.0	2.5	Nm
tightening torque M3 screw in the standard black knob, min. - max.		0.5	0.7	Nm
ambient temperature allowed between			- 40 to + 80	°C
storage temperature allowed between			- 40 to + 80	°C
maximum relative humidity, without condensation at 20°C			90	%
pollution degree			2	
IP rating terminals			IP20	
IP rating gland of the shaft in case of single hole panel mounting			IP65	
rated operational voltage (AC poles)	Ue			V ac
rated operational current (AC poles)	Ie			A ac
number of AC poles (for general use)				
minimum required fine wire cross-section: IEC60947-1, table 9				mm2
auxiliary contact(s), AC15			No auxiliary contact	
auxiliary contact ratings				
weight			254	g
accessories:	-			
	-			

Model S5000 1000V DC21B

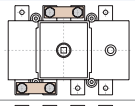
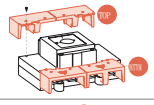
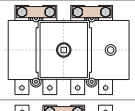
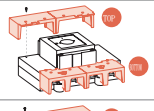
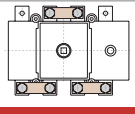
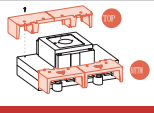


S5000 DC 1000 V				開關 O - I On-Off switch	直接手柄 directo Direct handle	外部手柄 External handle			軸外伸部 Shaft extensions					
				4P *(1)	藍色/Blue	藍色/Blue			型號 1/Type 1			型號 2/Type 2		
Ue (Vdc)		安培 Amps	規格 Size	連接 Connection	型號 Code	型號 Code	型號 Code	L (mm)	P (mm)	型號 Code	L (mm)	P (mm)	型號 Code	L (mm)	P (mm)
900	DC21B	40	0		S5-01604PB0	DS-SI01	DS-SA01	177	85... 195,5	DS-EP04	250	90... 263	DS-EP05	347	90... 400
		40	0		S5-01604PS0	DS-SI01	DS-SA01	177	85... 195,5	DS-EP04	250	90... 263	DS-EP05	347	90... 400
		100	1		S5-01254PR0	DS-SI11	DS-SA11	227	103... 256	DS-EP14	376	108... 400	DS-EP15	536	108... 560
		160	1		S5-02004PR0	DS-SI11	DS-SA11	227	103... 256	DS-EP14	376	108... 400	DS-EP15	536	108... 560
		250	1		S5-03154PR0	DS-SI11	DS-SA11	227	103... 256	DS-EP14	376	108... 400	DS-EP15	536	108... 560
		400	1		S5-04004PC0	DS-SI11	DS-SA11	227	103... 256	DS-EP14	376	108... 400	DS-EP15	536	108... 560
1000	DC21B	500	2		S5-06304PR0	DS-LI21	DS-LA21	195	134... 240	DS-EP24	345	139... 400	DS-EP24	535	139... 560
		630	2		S5-08004PC0	DS-LI21	DS-LA21	195	134... 240	DS-EP24	345	139... 400	DS-EP24	535	139... 560
		850	3		S5-12504PC0	DS-LI31	DS-LA31	186	145... 242	DS-EP32	336	150... 400	DS-EP24	535	150... 600
		1250	4		S5-18004PS0	DS-LI41	DS-LA41	239	235... 400	DS-EP44	204	240... 440	DS-EP45	635	240... 836

*(1) 4級同時斷開。

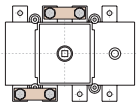
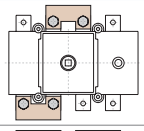
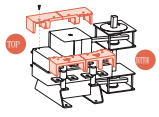
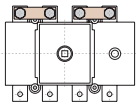
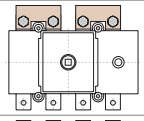
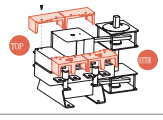
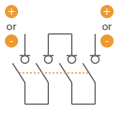
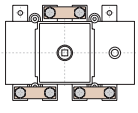
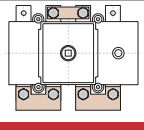
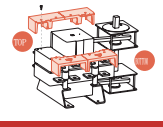
*(1) 4 poles simultaneous breaking.

S5000 DC 4P

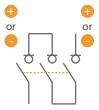
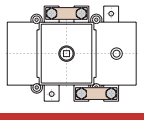
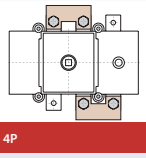
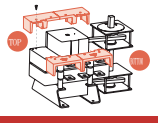
	接線圖 Connection diagram	橋式連接 / Bridging links	端子罩 / Terminal shrouds
A			
B			
C			

橋式鏈與端子罩 Bridging links & terminal shrouds	接線圖 Connection diagram
如左	

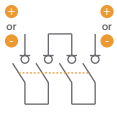
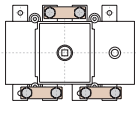
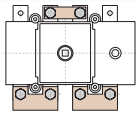
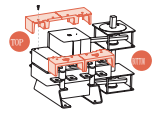
S5000 DC 8P (多極)

	接線圖 Connection diagram	橋式連接 / Bridging links 正面開關 Frontal switch	橋式連接 / Bridging links 後部開關 Rear switch	端子罩 / Terminal shrouds (正面開關) (on frontal switch only)
A				
B				
C D				

S5000 DC 3P + 3P

	接線圖 Connection diagram	橋式連接 / Bridging links 正面開關 Frontal switch	橋式連接 / Bridging links 後部開關 Rear switch	端子罩 / Terminal shrouds (正面開關) (on frontal switch only)
E F				

S5000 DC 4P + 4P

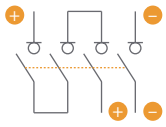
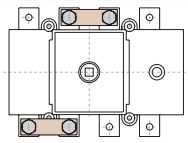
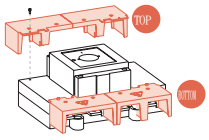
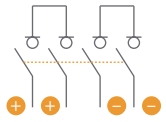
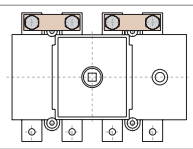
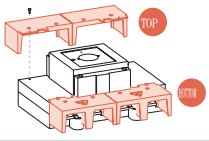
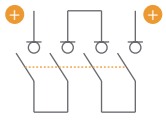
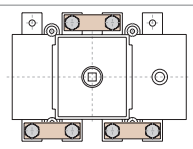
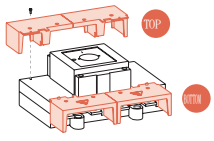
	接線圖 Connection diagram	橋式連接 / Bridging links 正面開關 Frontal switch	橋式連接 / Bridging links 後部開關 Rear switch	端子罩 / Terminal shrouds (正面開關) (on frontal switch only)
C D				

TÜVRheinland CERTIFIED Management System ISO 9001:2008 ISO 14001:2004

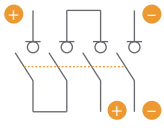
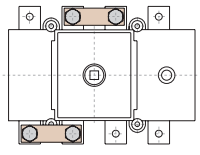
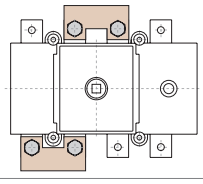
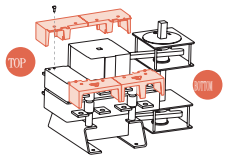
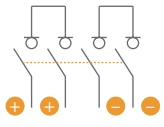
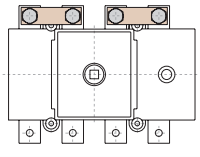
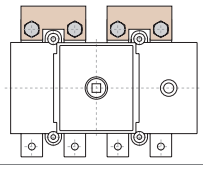
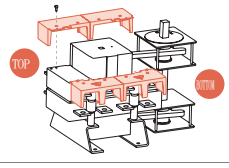
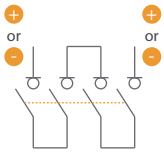
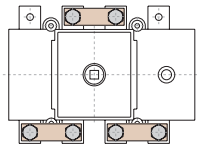
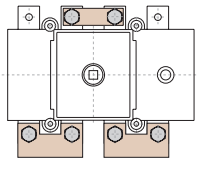
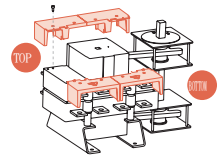
CE RoHS

Model S5000 1000V DC21B 接線圖

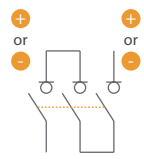
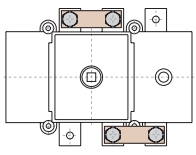
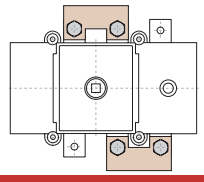
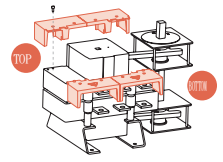
S5000 DC 4P

	接線圖 Connection diagram	橋式連接 /Bridging links	端子罩 /Terminal shrouds
A			
B			
C			

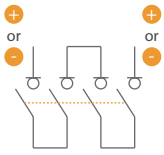
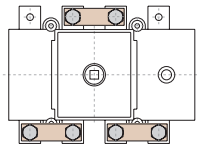
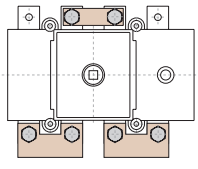
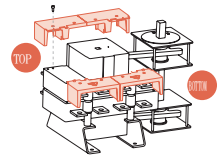
S5000 DC 8P(多極)

	接線圖 Connection diagram	橋式連接 /Bridging links		端子罩/ Terminal shrouds (正面開關) (on frontal switch only)
		正面開關 Frontal switch	後部開關 Rear switch	
A				
B				
C D				

S5000 DC 3P + 3P

	接線圖 Connection diagram	橋式連接 /Bridging links		端子罩/ Terminal shrouds (正面開關) (on frontal switch only)
		正面開關 Frontal switch	後部開關 Rear switch	
E F				

S5000 DC 4P + 4P

	接線圖 Connection diagram	橋式連接 /Bridging links		端子罩/ Terminal shrouds (正面開關) (on frontal switch only)
		正面開關 Frontal switch	後部開關 Rear switch	
C D				

JD Auspice Co.,Ltd. TEL: 886-2-2595-9780 FAX: 886-2-2595-9412 service@jdauspice.com www.jdauspice.com

Model S5000 1000V DC21B 配件




ETL產品型號+OU
ETL product code adding 0U:
DS-CU__**0U**

防護板 *Shield protection*	接線端護板(兩片) */ Terminal shrouds (2 pieces) **									
規格 0 */ Size 0*	規格 1 */ Size 1 **		規格 2 */ Size 2*		規格 3 */ Size 3*		規格 4 */ Size 4*			
接線圖 *Diagram*	接線圖 *Diagram*		接線圖 *Diagram*		接線圖 *Diagram*		接線圖 *Diagram*			
A - B	A	B	A	B	A	B	A	B	A	B
IEC產品型號 *IEC product code* TOP	DS-CU01	DS-CU18	DS-CU10	DS-CU28	DS-CU20	DS-CU38	DS-CU30	DS-CU48	DS-CU40	
IEC產品型號 *IEC product code* BOTTOM	DS-CU01	DS-CU19	DS-CU11	DS-CU29	DS-CU21	DS-CU39	DS-CU31	DS-CU49	DS-CU41	
C - D	C - D		C - D		C - D		C - D			
IEC產品型號 *IEC product code* TOP	DS-CU01	DS-CU18		DS-CU28		DS-CU38		DS-CU48		
IEC產品型號 *IEC product code* BOTTOM	DS-CU01	DS-CU10		DS-CU20		DS-CU30		DS-CU40		
E - F	E - F		E - F		E - F		E - F			
IEC產品型號 *IEC product code* TOP	-	DS-CU18		DS-CU28		DS-CU38		DS-CU48		
IEC產品型號 *IEC product code* BOTTOM	-	DS-CU10		DS-CU20		DS-CU30		DS-CU40		

*3P+3P, 4P+4P, 8P的端子罩僅適用於正面安裝的負荷開關 ** For the switches 3P+3P, 4P+4P & 8P the shrouds can only be fitted in the frontal switch.*

*(1) 連接請洽詢 **(1) Please consult for connection.*


橋式連接(兩片) */ Bridging links (2 pieces)*							
規格 */ Size 0*		規格 */ Size 1*		規格 */ Size 2*	規格 */ Size 3*	規格 */ Size 4*	
接線圖 *Diagram*		接線圖 *Diagram*		接線圖 *Diagram*	接線圖 *Diagram*	接線圖 *Diagram*	
A - B	A - B	A - B	A - B	A - B	A - B	A - B	
S5000 DC 4P 型號 *Code*	DS-PI05	DS-PI01	DS-PI11	DS-PI14	DS-PI21	DS-PI31	DS-PI41

橋式連接(兩片或三片) */ Bridging links (2/ 3 pieces)*								
規格 */ Size 1*		規格 */ Size 2*		規格 */ Size 3*		規格 */ Size 4*	
接線圖 */ Diagram*		接線圖 */ Diagram*		接線圖 */ Diagram*		接線圖 */ Diagram*	
A - B	C	A - B	B	A - B	B	A - B	B
S5000 DC 4P UL CSA 型號 *Code*	DS-PI120U	DS-PI130U	DS-PI220U	DS-PI230U	DS-PI320U	DS-PI330U	DS-PI420U	DS-PI430U
A - B	C - D	A - B	C - D	A - B	C - D	A - B	C - D
S5000 DC 8P (multi-string) 型號 *Code*	DS-PI120U	DS-PI130U	DS-PI220U	DS-PI230U	DS-PI320U	DS-PI330U	DS-PI420U	DS-PI430U
	DS-PI170U	DS-PI160U	DS-PI270U	DS-PI260U	DS-PI370U	DS-PI360U	DS-PI470U	DS-PI460U
E - F		E - F		E - F		E - F	
S5000 DC 3P+3P 型號 *Code*	DS-PI120U	洽詢 *Consult*	DS-PI220U		DS-PI320U		DS-PI420U	
	DS-PI170U	洽詢 *Consult*	DS-PI270U		DS-PI370U		DS-PI470U	
C - D		C - D		C - D		C - D	
S5000 DC 4P+4P 型號 *Code*	DS-PI130U	洽詢 *Consult*	DS-PI230U		DS-PI330U		DS-PI430U	
	DS-PI160U	洽詢 *Consult*	DS-PI260U		DS-PI360U		DS-PI460U	

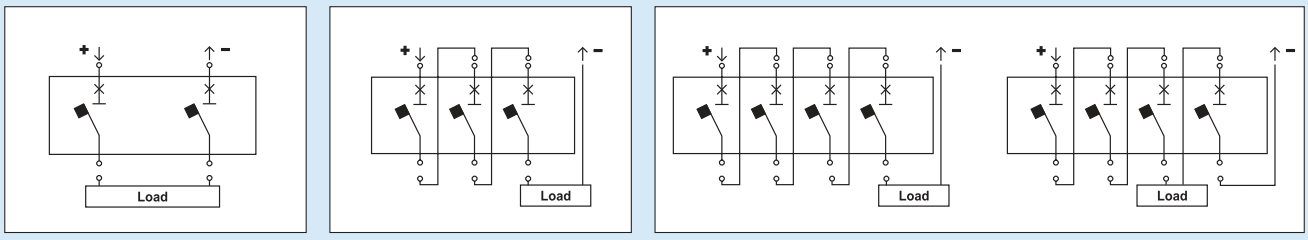
JDA 日煬科技有限公司 JD Auspice Co., Ltd.

直流斷路器 MCCB for DC Application
DC遮斷機

- MCCB is sutable for DC application such as Photovoltaic Circuit Breaker, UPS and datacenter
- DC short circuit test tested by VDE
- Higher nominal voltage range up to 1000 VDC
- Rated Current : 16A~800A
- No of Pole: 2/3/4Pole
- Available for AC/DC application

		TD100			TD160			TS100			TS160			TS250			TS400			TS630			TS800		
Frame size	(AF)	100			160			100			160			250			400			630			800		
Rated current, In (A)		16, 20, 25, 32, 40, 50, 63, 80, 100			100, 125, 160			40, 50, 63, 80, 100			100, 125, 160			125, 160 200, 250			300, 400			500, 630			700, 800		
No. of Poles	(Pole)	2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4		
Rating (DC)	1000V	4P			4P			4P			4P			4P			4P			4P			4P		
	750V	3P 3P						3P			3P			3P			3P			3P			3P		
	500V	2P			2P			2P			2P			2P			2P			2P			2P		
Rated service breaking (DC)	Type	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L
	1000V (4P)	42	65	100	42	65	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
	750V (3P)	42	65	100	42	65	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
	500V (2P)	42	65	100	42	65	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
Trip unit																									
FTU (fixed-thermal, fixed-magnetic)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FMU (adjustable-thermal, fixed-magnetic)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ATU (adjustable-thermal, adjustable-magnetic)		--		-	-	-	-	--		-	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Exemplary circuit diagrams



DC500V (2P) DC750V (3P) DC1000V (4P)

Derating Table for AF

The following tables are based on the following assumptions;

- Maximum permissible temperature of busbars are 100
- T : Temperature around the circuit breaker and its connections

Note) 1. The values presented in the tables are the result of trials and theoretical calculations on the basis of the assumption mentioned above.
2. These tables are intended as an aid in designing connection, however, the actual values must be confirmed by tests on the installation.

AF	Rated current(A)	Derating(A)	Short Busbar
TD100	16	16	TD160 3t Short Busbar
	20	20	
	25	25	
	32	32	
	40	40	
	50	50	
	63	63	TD160 4t Short Busbar
	80	80	
	100	100	
TD160	100	100	
	125	125	
	160	135	TD160 5t Short Busbar
TS100	40	40	TS250 4t Short Busbar
	50	50	
	63	63	
	80	80	
	100	100	
TS160	100	100	
	125	125	
	160	135	
TS250	125	125	
	160	160	TS250 5t Short Busbar
	200	180	
	250	180	
TS400	300	300	TS630 Lower & Upper Short Busbar
	400	400	
TS630	500	500	
	630	500	
TS800	700 *	700	TS800 Lower & Upper Short Busbar
	800	700	

Note) 1. * Only available for TS800FTU
2. Dimension on the short busbar refer to A-6-47~52.
3. Short busbar for PV application is not provided by LSIS.

Trip unit identification

太陽能發電監測系列 PV farm monitoring system
PVストリングモニタリングシステム

VIM-M master unit
RS 485資料傳輸單元

Master communication capability. RS485 communication port (Modbus). Local communication bus management up to 15 mixed VIM-S, VIM-P and VIM-O unit. Two digital inputs.
Two temperature inputs: PT100 or PT1000. Single virtual or real alarm set-point connectable to any available variable. Data and event stamping system Display readout: 6 DGTs.
12 to 28 VDC power supply. IP40, DIN module.
RS485資料傳輸單元：可接15個介面，2個數位輸入，2個溫測輸入Pt100 or 1000，-50~+200℃，3 wire，01℃/0.1˚F，±0.5%RDG，六位數顯示個別單串之電流、電壓、功率，加總由RS485輸出，RS485 multi-drop雙向，2 wire 1000M，247位置選擇，自動位址、擷取VIM-S, VIM-P, VIM-O 訊息如：防盜、保險絲熔斷、PV接線問題，PV逆向電壓暨極性、電流、電壓、功率、日照、風速、開關或避雷狀態、自動清洗或遙控，IP40 DIN rail mount。

VIM-S string unit 1000Vdc
串列量測單元

Direct DC voltage measurement up to 1000V, Energy measurements：kWh. Direct DC current measurement up to 16A or up to 30A without fuse. Instantaneous variables data format：4 DGTs.Energies data format：6 DGTInstantaneous variables：V, A, W.Accuracy：Class 1 (kWh) ±0.5 RDG (current/voltage)Auxiliary power supply from VIM-M unit String alarm management by means of VIM-M unit only. Fuse blow detection by means of VIM-M unit only. PV module connection control by means of VIM-M unit only.Integrated 10.3x38mm fuse holder for string protection. IP40, DIN module.
串列即時量測單元：KWH, V, A, W保險絲熔斷、PV接線問題，PV逆向電壓暨極性，電壓等級DC1000V、直測DC直流16A或30A，Continuous overload 1100 Vdc,for 500ms 1600Vdc, to earth 800Vdc, 內置10.3*38mm fuse座，IEC60269-1，不含fuse。IP40 DIN rail mount.。

VIM-P measuring unit
溫度、日照、風速量測單元

Measurements：PV module temperature, air temperature, sun irradiation, wind speed.
Two temperature inputs：Pt100 or Pt1000.One 120mV or 20mA DC input with scaling capability for irradiation measurement. One pulse input for wind speed measurement.
Auxiliary communication bus to VIM-M unit.Auxiliary power supply from VIM-M unit.IP40, DIN module.
溫度、日照、風速量測單元：溫度 one module Temp. input, one air Temp. input, Pt 100 or 1000, -50~+200℃，3 wire，01℃/0.1˚F，±0.5%RDG，日照一個輸入，解析1W/M²，0~120mvVDC±0.2%，風速一個輸入，誤差±0.02%，0-1000HZ，IP40 DIN rail mount。

VIM-O input / output unit
輸出入單元

Expansion I/O module (digital inputs and outputs). Two relay outputs managed by the VIM-M module. Two digital inputs managed by the VIM-M module. Auxiliary power supply from VIM-M module.IP40, DIN module.
輸出入單元：由VIM-M主控二個relay輸出警報，光伏模板效率改變時內建時鐘定時或遙控驅動清洗模板，二個數位輸入，偵測開關開路、閉路、避雷保護狀態經RS485傳送。

VIM-C
VIM-C 網路伺服器

Four RS485 ports, three USB 2.0 ports, one ethernet ports, 100 to 240VAC power supply, Wall/DIN-rail mounting type. Plant information, plant map for failure localization, webcam management, Real-time display with alarm indication, Graphical and analytical yield trends, Alarm and events logging.
四個RS485資料傳輸埠，三個 USB2.0埠，一個乙太網路埠，電源100~240VAC，壁掛式、DIN導軌安裝，電廠信息，電廠圖示故障位址，網路攝影管理，即時顯示警告指示，圖形分析收益趨勢圖、警報和事件記錄。

PSU18W, 30W, 60W
電源供應卡

PSU24181,PSU24031,PSU24061 input AC 90~265Vac DC 120~370Vdc, output 24VDC 18W Din-rail power supply.

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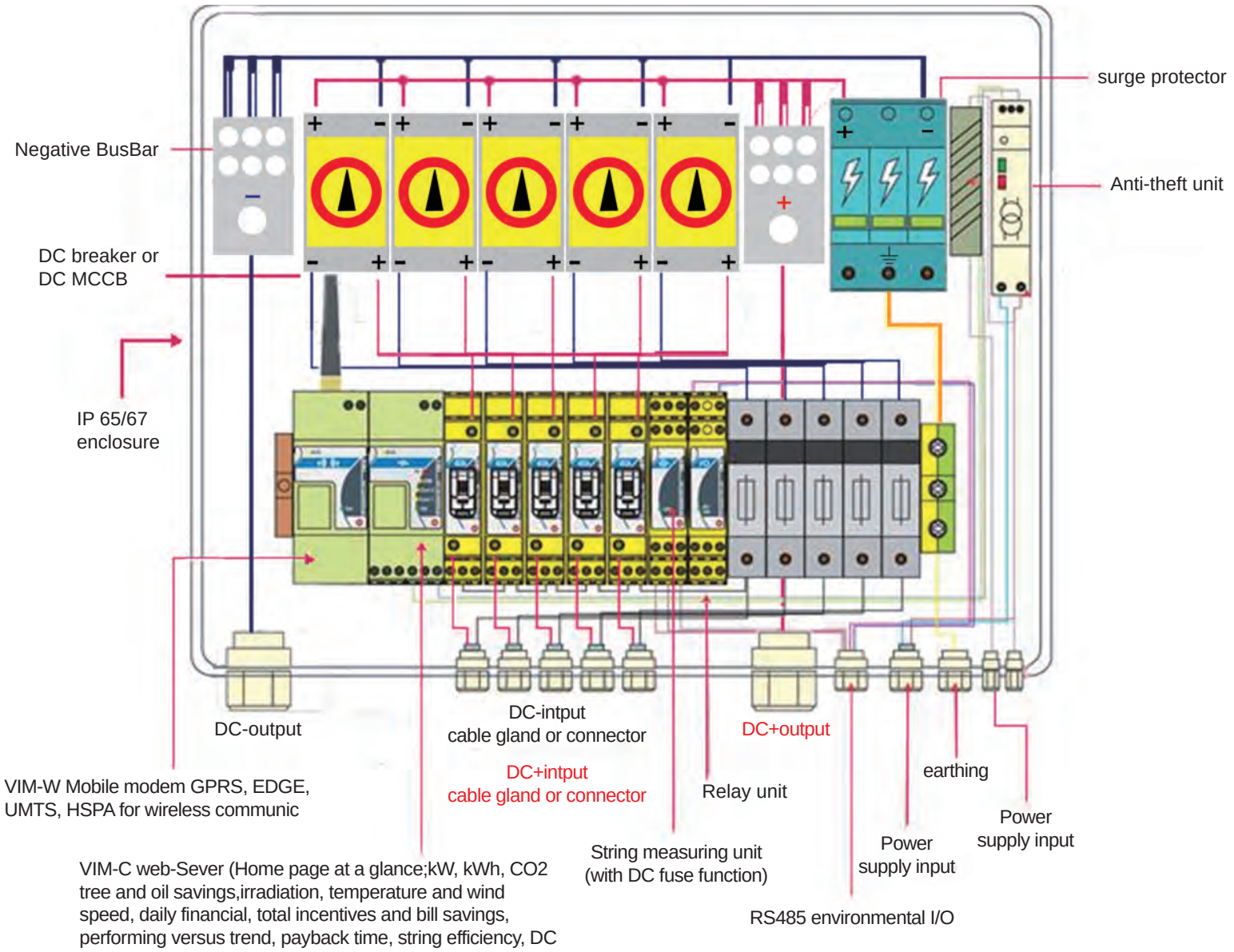
太陽能串列監測 stringMoni® String monitoring System
スマート監視付き直流接続箱配置図

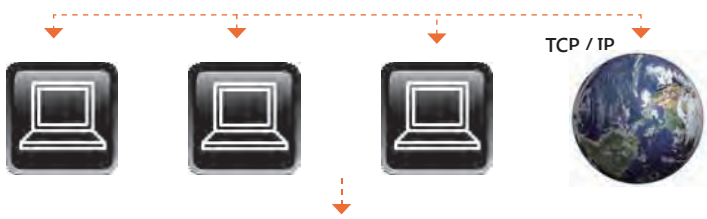
OPC FOUNDATION

內建30家以上協定持續增加
適合屋頂型、小 / 中 / 大型 太陽能系統專用
內建免費 OPC 伺服軟體、可整合符合 SCADA 的驅動程式、提供所有 SCADA 系統整合廠商監測資料訊息平台。

stringMoni®
監 測 每 一 串 狀 態



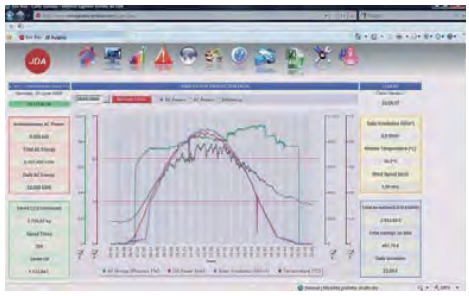
VIM-C web-Sever (Home page at a glance;kW, kWh, CO2 tree and oil savings,irradiation, temperature and wind speed, daily financial, total incentives and bill savings, performing versus trend, payback time, string efficiency, DC power,pvBos ™ & string address.)



產品優勢

- **易安裝**：VIM-S 直接取代直流匯流箱正極保險絲，兼具保護及監測功能，不需更改原有箱體。
- **模組化**：透過連接埠擴充模組，不需增加配線。
- **萬筆記錄**：可透過 RS485 資料收集，及位址化。
- 量測每一串太陽能發電量，即時發現問題。
- 長期可節省成本、提早回收投資報酬率。

※ 電腦監控畫面，即時掌握發電狀況 ※



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SunOrbit®

Professional
Human-Machine Interface: By providing information, alerts,
commands and other tools, an HMI connects the user with the process being controlled.

Flexible
Data interface is a widely accepted protocol due to its ease of use and reliability.

Technology
Easily installation, high reliability

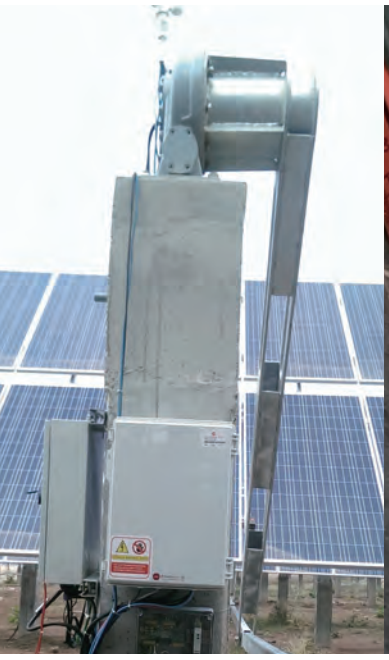
iMorePV®

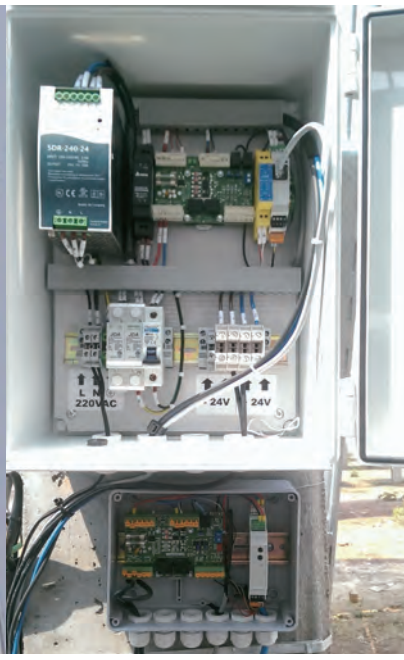
Professional
Drive and positioning of Dual(or 2 Single) Axis Solar Trackers.

Flexible
Data interface is a widely accepted protocol due to its ease of use and reliability.

Reliable
Direct communication with the sunOrbit Solar Server via RS485 Service Interface.
According to grid safety management, the product meets the requirements of the
EU Medium-Voltage Directive.

Technology
Easily installation, high reliability





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DC Surge protection device
直流突波吸收器 600VDC

Nominal voltage 600Vdc, In 20-40KA, Imax 25-50KA, IEC61643-11:2005, UL1449 ed. 3, EN505839 with aux. relay output.
PV 40/600 直流突波吸收器：600Vdc, In 10-70KA, Imax 25-150KA, IEC61643-11:2005, UL1449 ed.3。

DC Surge protection device
直流突波吸收器 1000VDC

Nominal voltage 1000Vdc, In 20-40KA, Imax 40-80KA, IEC61643-11:2005, UL1449 ed. 3, EN505839 with aux. relay output.
PV 40/1000 直流突波吸收器：1000Vdc, In 20-40KA, Imax 40-80KA, IEC61643-11:2005, UL1449 ed.3。

AC Surge protective devices
交流突波吸收器 D1-50/***-2MV-R

直流交流單相突波保護器：最大連續使用電壓75~800Vdc，最大放電電流40KA，突波保護等級0.3~2.0KV，無洩漏電流，DIN導軌安裝模組化設計，模塊插拔更換，熱保護脫扣設計，內建滅弧裝置，紅色落牌故障警示，常開長閉故障信控輔助接點。
Single phase power supply system, max.discharge current 40KA, MCOV from 75 to 800Vdc, Inbuilt Arc-extinguishing device, Im 40KA, Up 0.3 to 2.0KV, no leakage current, DIN rail mounting, modular design, red sign fault indication, remote aux. relay 1NO 1 NC.

AC Surge protective devices
交流突波吸收器 D3-50/***-4MV-R

直流交流單相突波保護器：複合型變阻與氣體放電管技術，最大連續使用電MCOV150~800Vac/dc，高放電能量class I /12.5KA class II /50KA，適合戶外一級雷及戶內二級雷應用，突波保護等級0.5~1.6 KV/3KA，無洩漏電流，DIN導軌安裝模組化設計，模塊插拔更換，熱保護脫扣設計，內建滅弧裝置，紅色落牌故障警示，常開長閉故障信控輔助接點。
Single phase power supply system, AC and DC application 150 to 800V, max. discharge current 50KA class II,12.5KA class I, Inbuilt Arc-extinguishing device, high energy MOV and GTD hybrid unit inside Imax 100KA, Vp up 0.5 to 1.6KV at 3KA, no leakage current, DIN rail mounting, modular design, red sign fault indication, remote aux. relay 1NO 1 NC.

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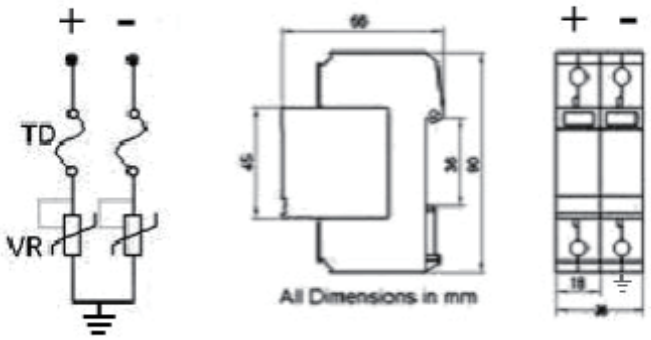
直流突波吸收器 DC Surge protection device
PVヒューズ＆ホルダー



Common mode DC Surge arrester for Photovoltaic protection against surges at the boundaries from lightning protection zone 0B-1 and higher.

◎ Class II (C) DC arrester in according with IEC61643-11 and UL1449-3rd.
◎ Two part design consisting of base and plug-in protection module.
◎ Common protection mode.
◎ High energy MOV (Metal Oxide Varistor) inside.
◎ Reliable supervision due to disconnection device.
◎ Fault indication by red indication flag in window.
◎ Fast response.
◎ With remote alarm terminal optional.

Type		PV 50/600-MVCR
In accordance with		IEC61643 -11; UL1449 ed. 3
Category IEC/VDE		II / C
Protection Mode		C ommon mode
Nominal voltage		600VDC
Max. continuous operating voltage (DC)		670V DC
Nominal discharge current (8/20) In		20KA
Max. discharge current(8/20) Imax	Per IEC61643	40KA
	Per UL1449	50KA
Voltage protection level@In per IEC61643		2.2K V
VPR at 6KV/3KA per UL1449		<1.6KV
Response time		≤ 25 ns
Backup fuse(only required if not already provided in mains)		125A gR/gPV
Operating temperature range		- 40ºC + 80 ºC
Cross-section of connecton wire		Single-strand 35mm²; multi-strand 25mm²
Mounting		35mm DIN -rail in accordance with EN 50022/DIN46277-3
Enclosure material		thermoplastic; extinguishing degree UL94 V-0
Degree of protection		IP20
Installation width		2 modules, DIN 43880
Thermal disconnector		Internal green– normal red- failure
Remote alarm contact		Yes
Additional data for Remote Alarm Contacts		
Remote alarm contact type		floating changeover contact
Switching capability U_N/I_N		AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A
Cross-section of connection wire		Max. 1.5mm²

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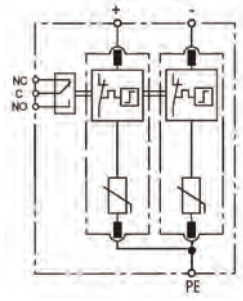
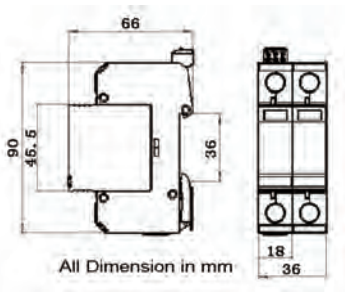
直流突波吸收器 DC Surge protection device
PVヒューズ＆ホルダー

CE

Basic circuit diagram



Dimension drawing



Type 2 SPD designed for low voltage system protection against surges at the boundaries from lightning protection zone 1-2 and higher.

◎ Class II surge protector for Photovoltaic system
◎ In accordance with EN50539, IEC61643-11
◎ Type 2, common mode surge protection, 40kA surge arrester
◎ Pluggable design SPD, easy replacement
◎ Reliable supervision due to disconnection device
◎ Fault indication by red indication flag in window
◎ With remote alarm terminal optional

Type		PV40-1000-MVCR
		1000
In accordance with		EN50539, IEC61643-11
Category IEC/VDE		II/ C
Protection Mode		Common mode
Nominal voltage (Vdc)	Un	1000
Max. continuous operating voltage (Vdc)	Ucpv	1060
Nominal discharge current(8/20)	In	20kA
Max. discharge current(8/20)	Imax	40kA
Voltage protection rating	Up	<3.6kV
	VPR	<3.0kV
Short-circuit current rating(Iscpv)		1000A
Response time		≤ 25ns
Follow current		No
Backup fuse(only required if not already provided in mains)		125A gR/gPV
Operating temperature range		- 40ºC ~ + 80ºC
Cross-section of connection wire		Single-strand 35mm^2; multi-strand 25mm^2
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3
Enclosure material		thermoplastic; extinguishing degree UL94 V-0
Degree of protection		IP20
Installation width		2 modules, DIN 43880
Thermal disconnector		Internal green – normal ; red - failure
Remote alarm contact		Optional
Approvals, Certifications		CE
Remote alarm contact type		Isolated Form C
Switching capability Un/In		AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A
Max. Size of connecting wire		Max. 1.5mm^2(or # 16AWG)

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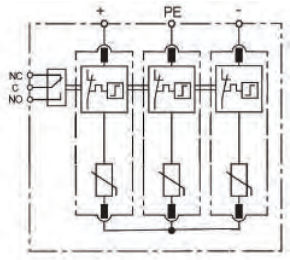
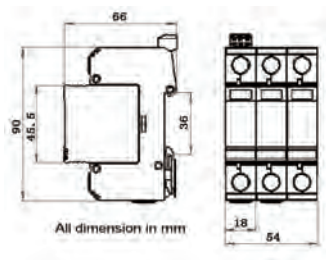
直流突波吸收器 DC Surge protection device
PVヒューズ＆ホルダー

Basic circuit diagram



Dimension drawing



Common mode & Differential mode DC Surge arrester for PV/DC system protection against surges at the boundaries from lightning protection zone 1-2 and higher.

- In accordance with IEC61643-11 compliance;
- Common Mode and Differential protection;
- Remote signaling contact;
- Pluggable mounting;
- Very low Up protection level

Type		PV50/1000-MVCDR	
		1000	
In accordance with		IEC61643-11:2011; UL1449 3rd	
Category IEC/VDE		II/ C	
Protection Mode		Common mode & Differential mode	
Nominal voltage (Vdc)	Un	1000	
Max. continuous operating voltage (Vdc)	Uc	1120	
Nominal discharge current(8/20)	In	20kA	
Max. discharge current(8/20)	Imax	Per IEC61643 (1 pulse)	40kA
		Per UL1449 (1 pulse)	50kA
Voltage protection rating	Up	Per IEC61643	<3.6kV
	VPR	Per UL1449	<2.8kV
Response time		≤25 ns	
Follow current		No	
Backup fuse(only required if not already provided in mains)		125A gR/gPV	
Operating temperature range		- 40ºC ~ + 80ºC	
Cross-section of connection wire		Single-strand 35mm^2; multi-strand 25mm^2	
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3	
Enclosure material		thermoplastic; extinguishing degree UL94 V-0	
Degree of protection		IP20	
Installation width		3 modules, DIN 43880	
Thermal disconnector		Internal green – normal ; red - failure	
Remote alarm contact		Yes	
Approvals, Certifications		CE/ETL	
Remote alarm contact type		Isolated Form C	
Switching capability Un/In		AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A	
Max. Size of connecting wire		Max. 1.5mm^2(or # 16AWG)	

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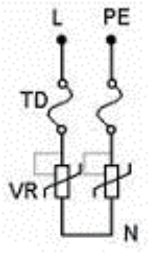
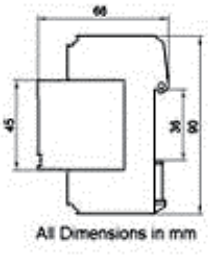
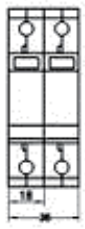
交流突波吸收器 AC Surge protection device
PVヒューズ＆ホルダー







Surge arrester for low-voltage power supply system protection against surges at the boundaries from lightning protection zone 0B-1 and higher.

◎ Class II (C) arrester in according with IEC61643-11.
◎ Two part design consisting of base and plug-in module.
◎ High energy MOV (Metal Oxide Varistor) inside.
◎ Reliable supervision due to disconnection device.
◎ Fault indication by red indication flag in window.
◎ Fast response.
◎ With remote alarm terminal.

Type		D1-50/275-2MV-R
		275
In accordance with		IEC61643 -11， UL1449 3rd
Category IEC/VDE		Class II/C
Max. continuous operating voltage (AC/DC)		275/300
Nominal discharge current(8/20) In	L –N	20KA
	N-PE	20KA
Max. discharge current(8/20) Imax	L -N	50KA
	N-PE	50KA
Voltage protection level@In		1.3kV
Voltage protection rating @6KV/3KA		1.0KV
Response time		≤25 ns
Backup fuse(only required if not already provided in mains)		125A gL/gG
Operating temperature range		- 40ºC ~ + 80ºC
Cross-section of connection wire		Single-strand 35mm^2; multi-strand 25mm^2
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3
Enclosure material		thermoplastic; extinguishing degree UL94 V-0
Degree of protection		IP20
Installation width		2 modules, DIN 43880
Thermal disconnector		Internal green– normal red- failure
Remote alarm contact		Yes
Additional data for Remote Alarm Contacts		
Remote alarm contact type		floating changeover contact
Switching capability UN/IN		AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A
Cross-section of connection wire		Max. 1.5mm^2

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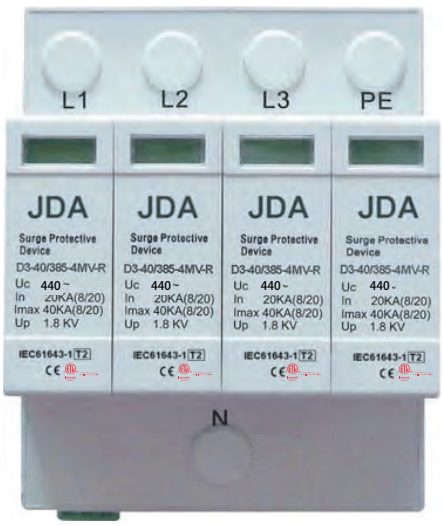
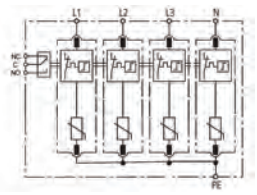
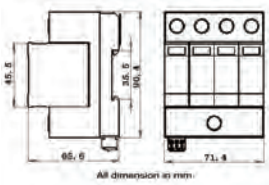
交流突波吸收器 AC Surge protection device
PVヒューズ＆ホルダー



Basic circuit diagram



Dimension drawing



Surge arrester for low-voltage power supply system protection against surges at the boundaries from lightning protection zone 1-2 and higher.

◎ Class II (C) arrester in according with IEC61643-11, UL1449 3rd.
◎ Two part design consisting of base and plug-in protection
◎ module, very easy for maintenance.
◎ Reliable supervision due to disconnection device.
◎ Fault indication by red indication flag in window.
◎ Fast response.
◎ With remote alarm terminal optional.

Type		D3-40/440-4MV-R
		440
In accordance with		IEC61643-11:2011; UL1449 3rd
Category IEC/VDE		II/ C
Max. continuous operating voltage (AC/DC)		440/5585
Nominal discharge current(8/20) In		20kA
Max. discharge current(8/20) Imax		40kA
Voltage protection level	@In	<2.0kV
	@VPR	<1.5kV
Response time		≤25 ns
Follow current		No
Backup fuse(only required if not already provided in mains)		125A gL/gG
Operating temperature range		- 40ºC ~ + 80ºC
Cross-section of connection wire		Single-strand 35mm²; multi-strand 25mm²
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3
Enclosure material		thermoplastic; extinguishing degree UL94 V-0
Degree of protection		IP20
Installation width		4 modules, DIN 43880
Thermal disconnector		Internal green – normal ; red - failure
Remote alarm contact		Yes
Approvals, Certifications		CE
Additional data for Remote Alarm Contacts		
Remote alarm contact type		Isolated Form C
Switching capability Un/In		AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A
Max. Size of connecting wire		Max. 1.5mm²(or # 16AWG)

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Data Network Protector for high-frequency signal transmission
訊號突波保護器DN-&&/XXXX-**

插拔模塊，DIN rail安裝，8/20us電流波In.5KA，箝制電壓(保護水平) 25V,-95V,，溫域-40~+80℃，阻燃UL94-V0，另有指示燈規格可選。。
Signal transmission, surge protective devices with plug-in protection modules for high-frequency signal transmission systems against surges at the boundaries from lightning protection zone 0B>2, Signal transmission is not interrupted when exchanging modules, max. discharge current 10KA, 35 mm DIN-rail mounting design.

Data Network Protector for high-frequency signal transmission
訊號突波保護器DN-&&/xxxxx-2G

插拔模塊，DIN rail安裝，8/20us電流波In.10KA，箝制電壓(保護水平) 25V,-95V,，溫域-40~+80℃，阻燃UL94-V0。
Signal transmission, surge protective devices with plug-in protection modules for high-frequency signal transmission systems against surges at the boundaries from lightning protection zone 0B>2, max. discharge current 20KA, 35 mm DIN-rail mounting design.

Data Network Protector for analogue telecommunication
訊號突波保護器DN-xxxAT

指示燈，插拔模塊，DIN rail安裝，組合波8/20us，In.5KA，組合波10/350US 10KA，箝制電壓(保護水平) Line-Line ≦700V-1000V，溫域-40~+80℃，阻燃UL94-V0。
Data network protector in according with IEC61643-11：21,Two parts design, surge protection modules to be exchanged easily, Signal transmission is not interrupted when exchanging modules, Limit the transients with gas discharge tubes and varistors, Two-stage protection circuit, For universal analogue tele -communication protection, 35 mm DIN-rail mounting design.

Model No.	DN-05/RS485-2G-B	DN-24/0420-2G
Appliance	xxxxx:RS232,RS422,RS423,RS485,0/4-20mA,0-5V,0-10V	
Configuration	twisted pair + shield	
Nominal line voltage (Un)	5V	
Max line voltage	8V	
Max line current	300mA	
Nominal Discharge Current（8/20μs,KA）In 10 times	10kA	
Total Max. Discharge Current（8/20μs,KA）Imax 1 time	20kA	
Impulse current (limp) (10/350us KA) impulse 2 times	5kA	
Nominal Current (A) I_L	0.5A	
Protection level(Up) 8/20us impulse-5KA	35V	
Series impedance per line (Ohm)	2.2 Ohm	
Insertion loss at 10MHz (dB)	≤3.0	
Degree of protection	IP20	
Mounting on	35 mm DIN-rail	
Enclosure Material	UL94 V0	
Environment Temperature (℃)	- 40~+80	
Cat.B(@3KA)		≤ 75V

直流開關箱 pvBos® PV string combiner box
スマート監視付き直流接続箱

PV string combiner box stringMoni®
智慧型直流匯流箱

IP65/67，500, 800, 1000Vdc，1, 2, 3, 4, 6, 8, 12, 16, 24串列組合。VDE 0100 and IEC 60364-7-712,IEC 62109-4。
stringMoni IP 65/67, 500-1000Vdc, 1. 1,2,3,4,6,8,12,16,24 strings, Monitoring and protect each string, solve problems immediately. All the most significant data are trasnsmitted via RS 485.

PV string string combiner box with surgeCon
串列匯流箱附雷擊計數器

二串輸出，配置IP67防水箱，4P 1000Vdc直流開關1個或2P二個，直流保險絲及座4個(正負極各2個)，突波保護器1個，適用二只追蹤器之逆變器，1個雷擊計數器，4~6KW用或依開關電流額定適用10~25KW。
Two strings combiner box with surge counter SurgeCon for 2MPPT tracker. Configurate with IP67 enclosure, 4 pole1000Vdc DC disconnectors or 2pcs 2 pole 1000Vdc DC disconnector, PV fuse 4pcs, DC surge protector 2 pcs, SurgeCon 1pc, for 4~6KW PV system or for 10~25KW in according with rated current of DC disconnect switch,IEC 62109-4.

PV string combiner box with surgeCon
串列匯流箱附雷擊計數器

三串輸出，配置IP67防水箱，6P 1000Vdc直流開關 1 個或2P三個,
直流保險絲及座 6個(正負極各3個), 突波保護器 3個，
適用三只追蹤器之逆變器，1個雷計數器 ，6~10KW用或依開關電流額定適用10~25KW。
Three strings combiner box for 3MPPT tracker. Configurated with IP67 enclosure,
6 pole 1000Vdc DC disconnect or 3pcs 2poles 1000Vdc DC disconnect,
PV fuse 6pcs, DC surge protector 3 pcs, SurgeCon 1pc,for 6~10KW PV system or for 10~25KW in according with rated current of DC disconnect switch.

AC Box
AC交流開關箱

交流開關箱：多數歐盟國家規定必須裝置交流斷路器、漏電斷路器、突波(過壓)保護器，箱體配置歐式端子並予結線，現場安裝節省成本與時間，除了歐規還有美規以及接受客製。
AC Combiner box with MCCB, AC surge protector.

Energy meter
單相瓦時表 WHM10-DIN

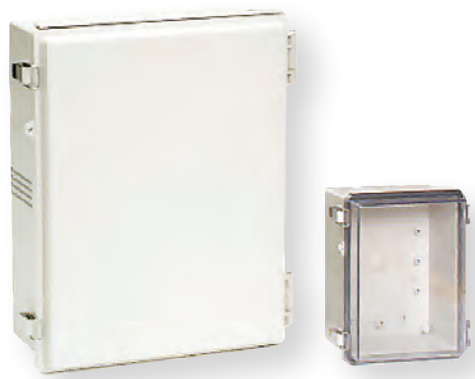
單相瓦時表，DIN導軌安裝，IP40保護，免電源，32A，5位數LCD，一個脈衝輸出。
One-phase energy meter with LCD data displaying, indicated for active energy metering. Housing for DIN-rail mounting, IP40 (front) protection degree. Direct connection up to 32A.

JD Auspice Co.,Ltd. TEL: 886-2-2595-9780 FAX: 886-2-2595-9412 service@jdauspice.com www.jdauspice.com

產品規格Product Characteristics

防水防塵等級 Ingress Protection Water, dust-proof grade IP66/67, Degree of strength IK07/08
材質Material quality：A:ABS , C:PC , P:PC/ABS
耐溫Critical temperature：ABS : -40℃ -+85℃ ; PC: -40℃-+120℃
耐熱Burn poorly：PC/ABS : 0-5VA ; ABS : 94-V-0
型號Products Type：P series / H series / S,M series / D series

P series : Hinge type



H series : stainless hinge type

S/M series : screw type

D series : All-in-one-Dual door

Accessories


Steel back panel (zinc plating)

plastic mounting plates (ABS)


Lock catch (K40)


Locker (SK)


plastic locker (PK)


JDA-PSK


JDA-PSK


Vent (V60, V80)


Plastic bracket (PB20, 25)

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Growatt 1-3K-S
組串型逆變器

Double MPPT Tracker, MPPT tracking accuracy more than 99.5%Max. Efficiency 97.9%, European Efficiency 97.4%Integrated DC switch for added safety protection
最高效率97.9%，寬電壓輸入範圍，內置直流開關，GT拓撲結構設計，無變壓器，無風扇設計，多路MPPT技術，多路並聯組串，IP65設計，聲控LCD，安裝簡單。

Growatt 2.5-5K MTL-S
組串型逆變器

Double MPPT Tracker, MPPT tracking accuracy more than 99.5%Max. Efficiency 97.9%, European Efficiency 97.4%Integrated DC switch for added safety protection
最高效率97.9%，寬電壓輸入範圍，內置直流開關，GT拓撲結構設計，無變壓器，無風扇設計，多路MPPT技術，多路並聯組串，IP65設計，聲控LCD，安裝簡單。

Growatt 10-20K UE
組串型逆變器

DC input voltage up to 1000V Maximum efficiency of 98% Internal DC switch Transformerless Compact design Multi MPP controller MTL-string Bluetooth/ RF technology/ Zigbee/ Wi-Fi Sound control and Easy installation
高達1000V的直流輸入電壓，最高效率98%， 寬電壓輸入範圍，內置直流開關，GT拓撲結構設計，無變壓器設計，多路MPP技術，多路並聯組串，IP65設計，聲控LCD，安裝簡單直流防雷模塊選件，交流開關選件。

Growatt 30-40K TL3
組串型逆變器

Maximum effciency of 99% Compact design Sound control Multi MPP controller Maximum effciency of 99% Compact design Sound control Multi MPP controller MTL stringInteranl, DC switch Optional AC switch.
該系列產品擁有99%的轉換效率和業界最高的防雷等級，聲控LCD，多路併聯組串，多個追蹤器控制裝置完善的保護功能，廣泛適用於分佈式光伏電站/大型地面電站/漁光互補/農光互補等電站類型。

Growatt 30-50K TL3-S
組串型逆變器

Maximum effciency of 99%, Compact design, Sound control Multi MPP controller Maximum effciency of 99% Compact design Sound control Multi MPP controller MTL string, Interanl DC switch and Optional AC switch.
該系列產品擁有99%的轉換效率和業界最高的防雷等級
完善的保護功能，廣泛適用於分佈式光伏電站/大型地面電站/漁光互補/農光互補等電站類型。

JDA 日煬科技有限公司 JD Auspice Co., Ltd

太陽能變流器系列 PV inverter PVパワーコンディショナー

		Growatt 1000-S	Growatt 1500-S	Growatt 2000-S	Growatt 3000-S
輸入數據(直流)	**Input Data**				
最大直流輸入功率	Max. recommended PV power (for module STC)	1300W	1900W	2300W	3400W
最大直流輸入電壓	Max. DC voltage	450V	450V	450V	550V
啟動電壓	Start voltage	80V	80V	80V	80V
直流輸入電壓範圍	PV voltage range	70V-450V	70V-450V	70V-450V	70V-550V
MPPT 工作電壓範圍/額定輸入電壓	MPP work voltage range/ nominal voltage	70V-450V/180V	70V-450V/250V	70V-450V/250V	70V-550V/360V
滿載DC工作電壓範圍	Full load dc voltage range	110V-400V	175V-400V	200V-400V	250V-440V
最大直流輸入電流	Max. input current	10A	10A	11A	13A
各组串最大直流輸入電流	Max. input current per string	10A	10A	11A	13A
MPP 追踪器數量/各追踪器最大併聯組串數	Number of independent MPP trackers /strings per MPP tracker	1/1	1/1	1/1	1/1
輸出數據(交流)	**Output (AC)**				
額定交流輸出功率	Rated AC output power	1000W	1600W	2000W	3000W
最大交流輸出功率	Max. AC power	1000W	1650W	2000W	3000W
最大交流輸出電流	Max. output current	4.7A	7.8A	9.5A	14.3A
額定输出電壓；範圍	AC nominal voltage; range	220,230,240V 180Vac-280Vac	220,230,240V 180Vac-280Vac	220,230,240V 180Vac-280Vac	220,230,240V 180Vac-280Vac
電網頻率；範圍	AC grid frequency; range	50,60 Hz;±5 Hz	50,60 Hz;±5 Hz	50,60 Hz;±5 Hz	50,60 Hz;±5 Hz
功率因數	Power factor	1	1	1	1
THDI	THDI	<3%	<3%	<3%	<3%
交流連接類型	AC connection	Single phase	Single phase	Single phase	Single phase
效率	**Efficiency**				
最大效率	Max. efficiency	97%	97%	97%	97%
歐洲加權效率	Euro weighted efficiency	95.5%	96.5%	96.5%	96.5%
MPPT效率	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
設備保護	**Protection Devices**				
直流極性反接保護	DC reverse polarity protection	yes	yes	yes	yes
直流輸入開關	DC switch rating for each MPPT	yes	yes	yes	yes
交流輸出過壓保護	Output over current protection	yes	yes	yes	yes
交流輸出過壓保護-壓敏电阻	Output over voltage protection -varistor	yes	yes	yes	yes
接地故障監測	Ground fault monitoring	yes	yes	yes	yes
電網監測	Grid monitoring	yes	yes	yes	yes
內建全極性感應電流監測	Integrated all - pole sensitive leakage current monitoring unit	yes	yes	yes	yes
常規數據	**General Data**				
尺寸（寬/高/深）	Dimensions (W / H / D) in mm	271*267*127	271*267*127	271*267*127	320*261*142
重量	Weight	5. 5KG	5. 5KG	5. 5KG	6.6KG
運行溫度範圍	Operating temperature range	– 25°C ... +60°C with derating above 45°C	– 25°C ... +60°C with derating above 45°C	– 25°C ... +60°C with derating above 45°C	– 25°C ... +60°C with derating above 45°C
噪音指數（通常）	Noise emission (typical)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)
海拔高度	Altitude	2000m(6560ft) without derating	2000m(6560ft) without derating	2000m(6560ft) without derating	2000m(6560ft) without derating
夜間自耗電	Self-Consumption night	<0.5 W	<0.5 W	<0.5 W	<0.5 W
拓撲結構	Topology	Transformerless	Transformerless	Transformerless	Transformerless
冷卻方式	Cooling concept	Natural	Natural	Natural	Natural
防護等级	Environmental Protection Rating	IP65	IP65	IP65	IP65
相對濕度	Relative humidity	100%	100%	100%	100%
特點	**Features**				
直流鏈接方式	DC connection	H4	H4	H4	H4
交流鏈接方式	AC connection	Connector	Connector	Connector	Connector
顯示	Display	LCD	LCD	LCD	LCD
通訊接口	Interfaces: RS232/ RF/ Wi-Fi/ Ethernet	yes /opt/opt/opt	yes /opt/opt/opt	yes /opt/opt/opt	yes /opt/opt/opt
質保期：5年/10年	Warranty: 5 years / 10 years	yes /opt	yes /opt	yes /opt	yes /opt
認證許可	**Certificates and Approvals**	CE, VDE 0126-1-1 , IEC 62109 , G83, AS4777, AS/NZS 3100, CEI0-21, VDE-AR-N4105, EN0438, CQC			

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	Growatt 2500MTL-S	Growatt 3000MTL-S	Growatt 3600MTL-S	Growatt 4200MTL-S	Growatt 5000MTL-S	Growatt 5500MTL-S
輸入數據(直流) Input Data						
最大直流輸入功率 Max. recommended PV power (for module STC)	2900W	3500W	4100W	4800W	5300W	5750W
最大直流輸入電壓 Max. DC voltage	500V	500V	550V	550V	550V	550V
啟動電壓 Start voltage	100V	100V	100V	100V	100V	100V
直流輸入電壓範圍 PV voltage range	70V-550V	70V-550V	70V-550V	70V-550V	70V-550V	70V-550V
追蹤器工作範圍/正常電壓 MPP work voltage range /nominal voltage	80V-550V/360V	80V-550V/360V	80V-550V/360V	80V-550V/360V	80V-550V/360V	80V-550V/360V
滿載DC電壓範圍 Full load dc voltage range	130V-450V	160V-450V	190V-500V	150V-500V	160V-500V	175V-500V
追蹤器最大輸入電流A/B Max. input current of tracker A /tracker B	10A/10A	10A/10A	10A/10A	15A/15A	15A/15A	15A/15A
最大串電流A/B Max. input current per string of tracker A/tracker B	10A/10A	10A/10A	10A/10A	15A/15A	15A/15A	15A/15A
追蹤器數/每追蹤器併數 Number of independent MPP trackers / strings per MPP tracker	2/1	2/1	2/1	2/1	2/1	2/1
最大直流比,依電壓電流 Max.DC ratio, depending on V,A	1.1~1.2	1.1~1.5	1.1~1.3	1.1~1.3	1.1~1.3	1.1~1.2
輸出數據(交流) Output (AC)						
額定交流輸出功率 Rated AC output power	2500W	3000W	3600W	4200W	4600W	5000W
最大交流視在功率 Max. AC apparent power	2500VA	3000VA	3600VA	4200VA	4600VA	5000VA
最大交流輸出電流 Max. output current	11.3A	13.6A	16.3A	19A	20.9A	22.7A
正常交流輸出電壓/範圍 AC nominal voltage/range	220V/230V/240V; 180Vac - 280Vac	220V/230V/240V; 180Vac - 280Vac	220V/230V/240V; 180Vac - 280Vac	220V/230V/240V; 180Vac - 280Vac	220V/230V/240V; 180Vac - 280Vac	220V/230V/240V; 180Vac - 280Vac
電網頻率/範圍 AC grid frequency/range	50Hz,60Hz /±5 Hz	50Hz,60Hz /± 5Hz	50Hz,60Hz /± 5Hz	50Hz,60Hz /± 5Hz	50Hz,60Hz /± 5Hz	50Hz,60Hz /± 5Hz
額定功率因數 Power factor at rated power	1	1	1	1	1	1
可配置位移功率因數 Displacement power factor, configurable	0.8leading... 0.95lagging	0.8leading... 0.95lagging	0.8leading... 0.95lagging	0.8leading... 0.95lagging	0.8leading... 0.95lagging	0.8leading... 0.95lagging
諧波 THDI	<3%	<3%	<3%	<3%	<3%	<3%
交流連接類型 AC connection	Single phase	Single phase	Single phase	Single phase	Single phase	Single phase
效率 Efficiency						
最大效率 Max.efficiency	97.6%	97.6%	97.9%	97.9%	97.9%	97.9%
歐洲加權效率 Euo weighted efrficiency	97%	97%	97. 4%	97. 4%	97. 4%	97. 4%
追蹤器效率 MPPT efficiency	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%
設備保護 Protection Devices						
直流極性反接保護 DC reverse polarity protection	yes	yes	yes	yes	yes	yes
直流輸入開關 DC switch rating for each MPPT	yes	yes	yes	yes	yes	yes
輸出過流保護 Output over current protection	yes	yes	yes	yes	yes	yes
輸出過壓保護 Output over voltage protection-varistor	yes	yes	yes	yes	yes	yes
接地故障檢測 Ground fault monitoring	yes	yes	yes	yes	yes	yes
電網監測 Grid monitoring	yes	yes	yes	yes	yes	yes
內建全極性感應漏電流檢測裝置 Integrated all - pole sensitive leakage current monitoring unit	yes	yes	yes	yes	yes	yes
常規數據 General Data						
尺寸(寬/高/深) Dimensions (W / H / D) in mm	355*419*138	355*419*138	355*419*138	355*419*138	355*374*158	355*374*158
重量 Weight	14KG	14KG	14KG	14KG	14.5KG	14.5KG
運行溫度範圍 Operating temperature range	– 25°C … +60℃	– 25°C … +60°C	– 25°C … +60°C	– 25°C … +60°C	– 25°C … +60°C	– 25°C … +60°C
噪聲指數(典型) Noise emission (typical)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)
海拔高度 Altitude	2000m without derating	2000m without derating	2000m without derating	2000m without derating	2000m without derating	2000m without derating
夜間自耗電 Self-Consumption night	< 0.5 W	< 0.5 W	< 0.5 W	< 0.5 W	< 0.5 W	< 0.5 W
拓撲結構 Topology	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless
冷卻方式 Cooling concept	Natural	Natural	Natural	Natural	Natural	Natural
防護等級 Environmental Protection Rating	IP 65	IP 65	IP 65	IP 65	IP 65	IP 65
相對濕度 Relative humidity	100%	100%	100%	100%	100%	100%
特點 Features						
直流鏈接方式 DC connection	H4/MC4(opt)	H4/MC4(opt)	H4/MC4(opt)	H4/MC4(opt)	H4/MC4(opt)	H4/MC4(opt)
交流鏈接方式 AC connection	Connector	Connector	Connector	Connector	Connector	Connector
顯示 Display	LCD	LCD	LCD	LCD	LCD	LCD
通訊接口 Interfaces: RS232/RF/Wi-Fi/Ethernet	yes /opt / opt / opt	yes / opt / opt / opt	yes / opt / opt / opt	yes / opt / opt / opt	yes / opt / opt / opt	yes / opt / opt / opt
質保期：5年/10年 Warranty: 5 years / 10 years	yes / opt	yes / opt	yes / opt	yes / opt	yes / opt	yes / opt

認證許可 Certificates and Approvals CE, IEC62109, G83, VDE0126-1-1, G59, AS4777, AS/NZS 3100, CEI0-21, VDE-AR-N4105, EN50438, CQC

Note: Subject to change without any notice.

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太陽能變流器系列 PV inverter
PVパワーコンディショナー

輸入數據(直流) Input Data		Growatt 10000UE	Growatt 12000UE	Growatt 18000UE	Growatt 20000UE
最大直流輸入功率	Max recommended PV power	11000W	13200W	19800W	22000W
最大直流輸入電壓	Max DC voltage	1000V	1000V	1000V	1000V
啟動電壓	Start Voltage	350V	350V	350V	350V
直流輸入電壓範圍	PV voltage range	180V - 1000V	180V - 1000V	180V - 1000V	180V - 1000V
追蹤器工作範圍 /正常電壓	MPP voltage range / nominal voltage	300V - 1000V / 600V	300V - 1000V / 600V	300V - 1000V / 600V	300V - 1000V / 600V
滿載DC電壓範圍	Full load DC voltage range	400V - 800V	400V - 800V	400V - 800V	400V - 800V
追蹤器數量/ 每追蹤器併數	Number of MPP trackers/ strings per MPP tracker	2/2	2/2	2/3	2/3
最大輸入電流	Max. input current	15A / 15A	17A / 17A	23A / 23A	26A / 26A
每串最大輸入電流	Max. input current per string	20A	20A	20A	20A
最大直流比,依電壓電流	Max.DC ratio, depending on V,A	1.05~1.3	1.05~1.3	1.05~1.3	1.05~1.3
輸出數據(交流) Output (AC)					
額定交流輸出功率	Rated AC output power	10KW	12KW	18KW	20KW
最大交流視在功率	Max. AC apparent power	10KVA	12KVA	18KVA	20KVA
最大交流輸出電流	Max. output current	16A	19A	28.6A	32A
額定交流輸出電壓 /範圍	AC nominal voltage /range	230V/400V 184 - 275V	230V/400V 184 - 275V	230V/400V 184 - 275V	230V/400V 184 - 275V
電網頻率/範圍	AC grid frequency /range	50-60Hz; 44-55Hz/54-65Hz	50-60Hz; 44-55Hz/54-65Hz	50-60Hz; 44-55Hz/54-65Hz	50-60Hz; 44-55Hz/54-65Hz
額定功率因數	Power factor at rated power	1	1	1	1
可配置位移功率因數	Displacement power factor configurable	0~0.8leading - 0~0.8lagging	0~0.8leading - 0~0.8lagging	0~1leading -0~1lagging	0~1leading - 0~1lagging
諧波	THDI	<3%	<3%	<3%	<3%
交流連接類型	AC connection	3/N/PE, 3W+PE(Opt)	3/N/PE, 3W+PE(Opt)	3/N/PE, 3W+PE(Opt)	3/N/PE 3W+PE(Opt)
效率 Efficiency					
最大效率	Max.efficiency	98%	98%	98%	98%
歐洲加權效率	Euro - eta	97.5%	97.5%	97.5%	97.5%
MPPT效率	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
設備保護 Protection Devices					
直流極性反接保護	DC reverse polarity protection	yes	yes	yes	yes
直流輸入開關	DC switch for each MPPT	yes	yes	yes	yes
交流輸出過流保護	Output AC overcurrent protection	yes	yes	yes	yes
交流輸出過壓保護 -壓敏電阻	Output AC overvoltage protection - varistor	yes	yes	yes	yes
接地故障檢測	Ground fault monitoring	yes	yes	yes	yes
電網監測	Grid monitoring	yes	yes	yes	yes
內建全極性感應 漏電流檢測裝置	Integrated all-pole sensitive leakage current monitoring unit	yes	yes	yes	yes
常規數據 General Data					
尺寸(寬/高/深)	Dimensions (W / H / D)	490/740/235 mm	490/740/235 mm	570/740/235 mm	570/740/235 mm
重量	Weight	41kg	41kg	60kg	60kg
運行溫度範圍	Operating temperature range	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)
噪聲指數(典型)	Noise emission (typical)	≤ 55 dB(A)	≤ 55 dB(A)	≤ 55 dB(A)	≤ 55 dB(A)
夜間自耗電	Self-Consumption (night)	<0.5W	<0.5W	<0.5W	<0.5W
待機耗電	Standby consumption	12W	12W	12W	12W
拓撲結構	Topology	Transformerless 無變壓器	Transformerless 無變壓器	Transformerless 無變壓器	Transformerless 無變壓器
冷卻方式	Cooling concept	Smart cooling 智能冷卻	Smart cooling 智能冷卻	Smart cooling 智能冷卻	Smart cooling 智能冷卻
防護等級	Environmental Protection Rating	IP 65	IP 65	IP 65	IP 65
海拔高度	Altitude	2000m without derating	2000m without derating	2000m without derating	2000m without derating
相對濕度	Relative Humidity	0~100% 無冷凝	0~100%	0~100% 無冷凝	0~100% 無冷凝
特點 Features					
直流連接方式	DC connection	H4/MC4(opt)	H4/MC4(opt)	H4/MC4(opt)	H4/MC4(opt)
交流連接方式	AC connection	Screw terminal	Screw terminal	Screw terminal	Screw terminal
顯示	Display	LCD	LCD	LCD	LCD
通訊接口	Interfaces: RS232/R485/ Ethernet/RF/WiFi	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt
質保期：5年/10年	Warranty:5 years / 10 years	yes / opt	yes / opt	yes / opt	yes / opt

認證許可 Certificates and Approvals

VDE-AR-N4105, CEI 0-21, CEI 0-16, CE, VDE 0126-1-1, IEC 62109, RD 1663, G59, C-tick, AS4777, AS/NZS 3100, IEC61727, IEC62116, BDEW(For 18-20k), IEC 61683, NRS 097-2-1, PEA, MEA, G59, EN50438

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輸入數據(直流) Input Data		Growatt 30000TL3	Growatt 33000TL3	Growatt 40000TL3
最大直流輸入功率	Max recommended PV Power (for module STC)	37500W	41250W	50000W
最大直流輸入電壓	Max DC voltage	1000V	1000V	1000V
啟動電壓	Start Voltage	250V	250V	250V
直流輸入電壓範圍	PV voltage range	200V - 1000V	200V - 1000V	200V - 1000V
正常電壓	Nominal voltage	580V	580V	695V
滿載MPP電壓範圍	Full load MPP voltage range	450V - 800V	450V - 800V	550V - 800V
最大輸入電流	Max. input current	34A/34A	38A / 38A	38A / 38A
每串最大輸入電流	Max. input current per string	12A	12A	12A
追蹤器數量/每追蹤器併數	Number of MPP trackers / strings per MPP tracker	2/4	2/4	2/4
最大直流比,依電壓電流	Max.DC ratio, depending on V,A	1.1~1.3	1.1~1.3	1.1~1.25
輸出數據(交流) Output (AC)				
額定交流輸出功率	Rated AC output power	30KW	33KW	40KW
最大交流視在功率	Max. AC apparent power	30KVA	33KVA	40KVA
最大交流輸出電流	Max. output current	44A	48A	48A
額定交流輸出電壓	AC nominal voltage	230V/400V	230V/400V	277V/480V
電網頻率	AC grid frequency	50/60Hz	50/60Hz	50/60Hz
功率因數	Power factor	0.8 leading - 0.8 lagging	0.8 leading - 0.8 lagging	0.8 leading - 0.8 lagging
諧波	THDI	<3%	<3%	<3%
交流電網連接類型	AC grid connection type	3W+N+PE	3W+N+PE	3W+PE
效率 Efficiency				
最大效率	Max.efficiency	98.9%	98.9%	99%
歐洲加權效率	Euro - eta	98.4%	98.4%	98.5%
追蹤器效率	MPPT efficiency	99.5%	99.5%	99.5%
設備保護 Protection Devices				
直流極性反接保護	DC reverse polarity protection	yes	yes	yes
直流輸入開關	DC Switch for each MPPT	yes	yes	yes
直流突波保護	DC Surge protection	Class II	Class II	Class II
接地故障檢測	Ground fault monitoring	yes	yes	yes
短路輸出保護	Output short circuit protection	yes	yes	yes
交流突波保護	AC Surge protection	Class II	Class II	Class II
常規數據 General Data				
尺寸(寬/高/深)	Dimensions (W / H / D)	440/660/270 mm	440/660/270 mm	440/660/270 mm
重量	Weight	46kg	46kg	46kg
運行溫度範圍	Operating temperature range	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)
噪聲指數(典型)	Noise emission (typical)	≤ 40 dB(A)	≤ 40 dB(A)	≤ 40 dB(A)
夜間自耗電	Self-Consumption (night)	<1W	<1W	<1W
拓撲結構	Topology	Transformerless	Transformerless	Transformerless
冷卻方式	Cooling concept	Smart cooling	Smart cooling	Smart cooling
防護等級	Environmental Protection Rating	IP65	IP65	IP65
海拔高度	Altitude	2000m without derating	2000m without derating	2000m without derating
相對濕度	Relative Humidity	0~100%	0~100%	0~100%
特點 Features				
顯示	Display	Graphic LCD	Graphic LCD	Graphic LCD
通訊接口	Interfaces: RS232/R485/WiFi/LAN/GPRS	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt
質保期：5年/10年	Warranty: 5 years / 10 years	yes / opt	yes / opt	yes / opt
認證許可 Certificates and Approvals		IEC 62109, CE, G59, VDE 0126-1-1, CQC		

輸入數據(直流) Input Data		Growatt 30000TL3-S	Growatt 33000TL3-S	Growatt 40000TL3-NS	Growatt 50000TL3-S
最大直流輸入功率（用於模塊STC）	Max recommended PV Power (for module STC)	37500W	41250W	50000W	60000W
最大直流輸入電壓	Max DC voltage	1000V	1000V	1000V	1000V
啟動電壓	Start Voltage	250V	250V	250V	250V
直流輸入電壓範圍	PV voltage range	200V - 1000V	200V - 1000V	200V - 1000V	200V - 1000V
正常電壓	Nominal voltage	580V	580V	580V	695V
滿載MPP電壓範圍	Full load MPP voltage range	450V - 800V	450V - 800V	540V - 800V	645V - 850V
最大輸入電流	Max. input current	34A/34A	38A / 38A	38A / 38A	38A / 38A
每串最大輸入電流	Max. input current per string	12A	12A	12A	12A
追蹤器數量/每追蹤器組串數量	Number of MPP trackers / strings per MPP tracker	2/4	2/4	2/4	2/4
輸出數據(交流) Output (AC)					
額定交流輸出功率	Rated AC output power	30kW	33kW	40kW	48kW
最大交流視在功率	Max. AC apparent power	33.3 kVA	36.6 kVA	44.4 kVA	53.3 kVA
最大交流輸出電流	Max. output current	48.3A	53A	64.5A	64.5A
額定交流輸出電壓	AC nominal voltage	230V/400V	230V/400V	230V/400V	277V/480V
電網頻率	AC grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
功率因數	Power factor	0.8 leading - 0.8 lagging	0.8 leading - 0.8 lagging	0.8 leading - 0.8 lagging	0.8 leading - 0.8 lagging
諧波	THDi	<3%	<3%	<3%	<3%
交流電網連接類型	AC grid connection type	3W+N+PE	3W+N+PE	3W+N+PE	3W+N+PE/3W+PE
效率 Efficiency					
最大效率	Max.efficiency	98.9%	98.9%	98.9%	99%
歐洲加權效率	Euro - eta	98.4%	98.4%	98.5%	98.5%
MPPT效率	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
設備保護 Protection Devices					
直流反極性保護	DC reverse-polarity protection	yes	yes	yes	yes
每個MPP追蹤器直流開關	DC Switch for each MPPT	yes	yes	yes	yes
交流開關	AC Swictch	opt	opt	opt	opt
直流突波保護	DC Surge protection	Class II	Class II	Class II	Class II
接地故障監控	Ground fault monitoring	yes	yes	yes	yes
短入輸出保護	Output short circuit protection	yes	yes	yes	yes
交流突波保護	AC Surge protection	Class II	Class II	Class II	Class II
保險絲串保護	String Fuse protection	yes	yes	yes	yes
串列故障監測	String fault monitoring	yes	yes	yes	yes
抗PID保護	Anti-PID protection	yes	yes	yes	yes
AFCI(選項)	AFCI protection	opt	opt	opt	opt
常規數據 General Data					
尺寸(寬/高/深)	Dimensions (W / H / D)	470/754/270 mm	470/754/270 mm	470/754/270 mm	470/754/270 mm
重量	Weight	48kg	48kg	48kg	48kg
運行溫度範圍	Operating temperature range	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)	-25 °C ... +60 °C (with derating above45°C)
噪聲指數(典型)	Noise emission (typical)	≤50 dB(A)	≤50 dB(A)	≤50 dB(A)	≤50 dB(A)
夜間自耗電	Self-Consumption (night)	<1W	<1W	<1W	<1W
拓撲結構	Topology	Transformerless	Transformerless	Transformerless	Transformerless
冷卻方式	Cooling concept	Smart cooling	Smart cooling	Smart cooling	Smart cooling
防護等級	Environmental Protection Rating	IP65	IP65	IP65	IP65
海拔高度	Altitude	2000m without derating	2000m without derating	2000m without derating	2000m without derating
相對濕度	Relative Humidity	0~100%	0~100%	0~100%	0~100%
特點 Features					
顯示	Display	Graphic LCD	Graphic LCD	Graphic LCD	Graphic LCD
通訊接口	Interfaces: RS232/R485/WiFi/LAN/GPRS	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt	yes / yes / opt / opt / opt
質保期：5年/10年	Warranty:5 years / 10 years	yes / opt	yes / opt	yes / opt	yes / opt
認證許可 Certificates and Approvals		CE, IEC 61727, IEC 62116, VDE 0126-1-1, Greece, VFR 2014, CEI 0-21, CEI 0-16, N4105, AS 4777, G59/3, PEA, MEA, IEC 60529, IEC 60068, IEC 61683,EN50438 (Turkey, Ireland, Poland, Switzerland, Norway, Sweden, Denmark)			

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mppGuard®

distributed string optimizer for centralized PV system

集中式變流器專用智慧型發電機接線箱

The intelligent generator junction box for a central inverter

セントラルパワコン向けのスマート発電接続箱

智慧型發電機接線箱 mppGuard® 連接太陽能面板及太陽能變流器，高效結合應用於大型光伏發電系統的集中式變流器與分散型功率優化器的優點。嶄新的技術讓光伏電站設計更具彈性、達到最佳效率。

The mppGuard® is an intelligent generator junction box, which connects the solar panels and solar inverters. The mppGuard® combines the advantages of the central inverter concept for large systems with a decentralized MPP tracking. This novel technology allows thus a flexible plant design with optimized efficiency.

ソーラーパネルとパワーコンディショナを接続するスマート発電接続箱 mppGuard® が大規模な太陽光発電所 (以下メガソーラー) 用のセントラルパワコンと分散型最大電力点追従装置の長所を取り入れ、物新しい技術でメガソーラーの設計をよりフレキシブル、効率の最適化にすることが可能となります。

有效降低系統功耗 強化系統運作效能

Minimized system losses, optimal working range

電力損失を最小限に抑え、システム運用効率を大幅に向上。

傳統的大型光伏發電系統由於系統操作點不兼容導致不斷的損失，不兼容係發生於模組生產不集中、不同的溫度與方位。全新mppGuard®的智慧設計使每串迴路的功率達到最大化，系統運作契合操作點，有效降低不兼容引起的損失。

At large photovoltaic systems of conventional design constantly losses are caused by mismatches at the operating point of the system. Mismatching occurs through the production scattering of the modules as well as through the various temperatures and orientations in large systems. Through the completely new concept of the mppGuard® MPP-tracking on string level, the system always operates at the operating point. Mismatching losses are reliably minimized.

従来のメガソーラーはシステムの動作点の交換効率が低く、モジュールの発電量が左右され、温度と方位が不均一となるため、電力損失を抑えられなかった。斬新な mppGuard® のスマート設計が各ストリングの効率、システム動作点の交換効率を最適化にし、電力損失を効率よく低減します。

系統設計彈性化

Flexible System design

システム設計をフレキシブルに対応。

mppGuard®兼併最大功率追蹤功能及集中式變流器設計，首次實現大型光伏發電系統設計彈性化。

Through the integrated MPP-Tracking in the mppGuard® is it first time possible, to flexible design large photovoltaic systems with the central inverter concept. Your advantages at the design - operating on a Central Inverter:

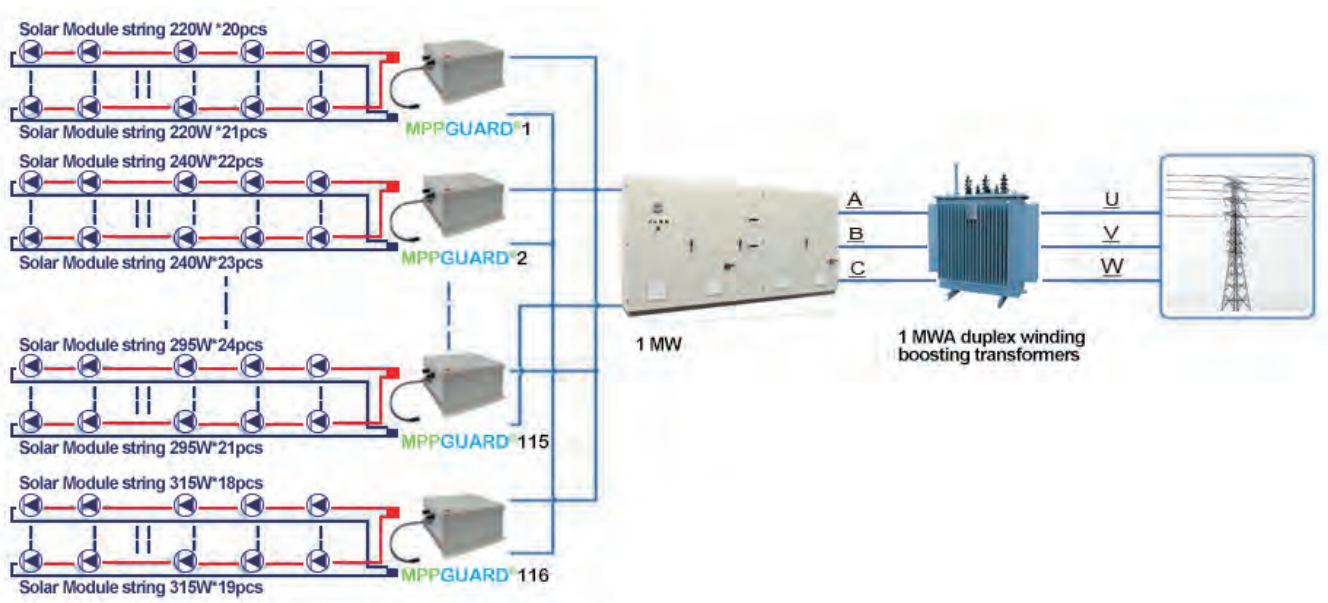
mppGuard® はセントラルパワコンと最大電力点追従装置の機能を同時に取り入れ、メガソーラのフレキシブルなシステム設計を初実現しました。

mppGuard®內建串列監測，即時監測包括最大功率電壓、輸出電壓、直流電流及位址等參數值。

In the mppGuard® a string surveillance is already integrated, all parameters will be measured such as Umpp, Uout, Adc, Temperature, ID etc.

mppGuard® にはストリングモニタリング、公称最大動作電圧、出力電圧、直流電流及びストリングアドレス等の数値をリアルタイムで監視。

- ☑ (> 99 %)高效能
  high efficiency
  (> 99 %)高効率
- ☑ IP65防水外殼
  weatherproof housing, protection class IP65
  IP65防水キャビネット
- ☑ 每箱配有一個最大功率追蹤器
  one MPP-Tracking in one housing*
  各箱に最大電力点追従装置を一個設置
- ☑ 連結最大功率串電流可達20A
  Connection of strings up to max. 20A (Impp)
  ストリング最大出力動作電流(Impp) が20Aまで対応
- ☑ 可搭載兩組多晶串迴路，每兩迴路可配備一個 mppGuard®
  can work with 2 polycrystalline strings per unit, maximum 1 mppGuard® per 2 strings.
  多結晶ストリングを2回路まで搭載可能、更に各2回路ユニットに一個の mppGuard® を搭載可能。



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集中式變流器專用智慧型發電機接線箱

The intelligent generator junction box for a central inverter

セントラルパワコン向けのスマート発電接続箱

★★★ 集中式變流器設計、操作的優勢:
advantages at the design - operating on a Central Inverter:
セントラルパワコンを設計に取り入れる強み

★★★ 兼容各種各樣、不同類型、廠牌的模組
various modules, different types and manufactures
各メーカー、タイプのモジュールに対応

★★★ 多樣不同的模組串數長度
various lengths of strings
モジュールストリングの長さの多様な組み合わせが可能

★★★ 不同方位的系統組件(傾斜角度及朝陽暴露)
different orientated system parts
(inclination angle and southern exposure)
太陽の方向に向ける電子部品を採用(傾斜角及び南向き)

技術資料 / technical data / テクニカルデータ			
靜止狀態下最大輸入電壓 max. input voltage in idle state 休止状態最大入力電圧	950Voc DC	接線盒模組 junction modules 接続箱モジュール	插頭連結器/插座(MC4或兼容) plug connector/ plug socket (MC4 or compatible) コネクタプラグ/コンセント (MC4と互換性ある部品)
最大功率工作電壓範圍 Working area MPP-Voltage 最大電力点電圧の可動範囲	300 V – 800 V DC	接線箱直流輸出 junction DC-output 接続箱直流出力	插頭連結器/插座(MC4或兼容) plug connector/ plug socket (MC4 or compatible) コネクタプラグ/コンセント (MC4と互換性ある部品)
最大輸入電流/一迴路 max. input current/string 最大入力電流 (各ストリングあたり)	2 x 10 A DC Input power	接線傳輸/監測 junction communication / monitoring 接続箱のデータ転送・モニタリング	RS-485
輸入功率 Input power Input power	15 kWp	冷卻 cooling 冷却	被動式冷卻(自由對流) 可雲端控制 passive (free convection) web portal Control 受動性ウェブ管理 (自然対流)
最大輸出電壓(中間電路) max. output voltage (Intermediate circuit) 最大出力電圧 (中間回路)	800 V DC	效能監視 performance monitoring 効率監視	決定模組最優操作點使全系統收益最佳化 determination of the optimal operating point of the modules allows a yield optimization of the system モジュールの最適動作点を決め、太陽光発電システムの収益性を最適化へ。
最小輸出電壓(中間電路) min. output voltage (Intermediate circuit) 最低出力電圧 (中間回路)	590 V DC (20 V DC over input voltage)	最大功率追蹤任務 task of the MPP-Tracking 最大電力点追従	

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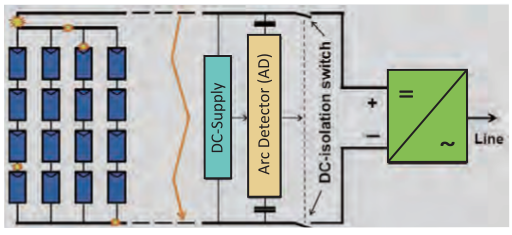
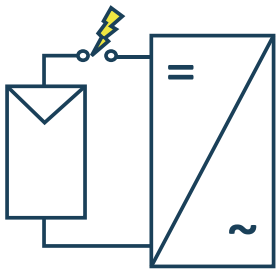
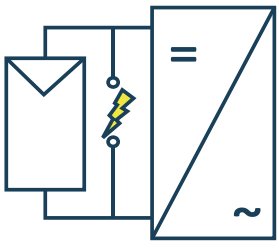
電弧故障偵測器(ADU)可提高任何太陽能系統的安全性、效率和便利性。
這款專為代陽能系統開發的電子設備可檢測到接線中的電弧故障，並在出現電時提供視覺和聲音訊號。



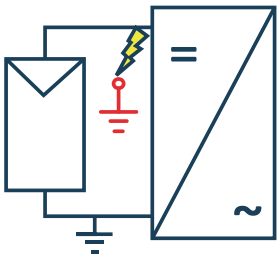
3 Types of Arc-Faults in PV Systems



Series Arc-Fault:
NEC 690.11



Parallel Arc-Fault:
Not in the NEC



Ground Arc-Fault:
NEC 690.5

故障電弧

當鬆脫會被腐蝕的連接間歇性接觸並在連接之間產生火花或電弧時會發生電弧故障。這會轉化為熱量,會導致電線絕緣層開裂,很多形況會引發電器火災。通過檢測電弧故障並在早期解決故障原因可避免火災以及嚴重的損失。

檢測每條接線

ADU 不僅可檢測电弧，還可以指示檢測到出現电弧的具體接線。這樣可確保高效的進行維護，而無需耗费寶貴的時間来尋找出現店弧故障的位置。定期檢查 ADU 設備可確保裝置没有电弧故障，安裝運行，不會出現由于電線故障造成的損失。

安全復位

一旦造成电弧故障的問題解决後，ADU 需要進行復位。如果问題尚未得到正確解決，則电弧故障將繼續存在，电弧故障指示器將立刻再次亮起。

便於安裝(及使用)

一旦造成电弧故障的問題解决後，ADU 需要進行復位。如果问題尚未得到正確解決，則电弧故障將繼續存在，电弧故障指示器將立刻再次亮起。

與外部安全系統集成

一旦造成电弧故障的問題解决後，ADU 需要進行復位。如果问題尚未得到正確解決，則电弧故障將繼續存在，电弧故障指示器將立刻再次亮起。

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IM 1885


IMS 1885

IM 1885, IMS 1885
阻抗偵測

According to IEC/EN 61 557-8, for DC voltage systems up to 12~280 V, wide voltage range of measuring input UN DC 12 ... 280 V (on request DC 24 ... 500 V with separate auxiliary supply, Measuring range 20 ... 500 kΩ)
與IEC / EN 61 557-8相符，適用於高達12~280 V的直流電壓系統，寬電壓範圍的測量輸入 UN DC 12~280 V (根據要求DC 24~500 V，帶輔助電源，測量範圍20~500kΩ)

RCM 3885
阻抗偵測

According to IEC/EN 62 020, VDE 0663 ,for AC and DC systems Type B, according to IEC/TR 60755 ,to detect earth faults in grounded voltage systems ,4 Setting Ranges from 10 mA to 3 A.
與IEC / EN 62 020，VDE 0663相符，符合IEC / TR 60755標準的B型交流和直流系統，檢測接地電壓系統中的接地故障，四種設置範圍為10 mA至3A。


IMSAN 7985/010


IMP 8985

IMSAN 7985/010　IMP 8985
阻抗偵測

Preventive fire and system protection,detection of symmetric and asymmetric insulation faults, quick fault localisation through selective earth fault detection to L+ and L- ,universal application in non-earthed AC, DC, AC/DC networks with up to 300V nominal voltage.
預防火災和系統保護，並檢測對稱和不對稱絕緣故障，在非接地交流和直流通過選擇性接地故障檢測快速故障定位到L +和L-，交流/直流網絡中的通用應用，具有高達300V的額定電壓。

IFM 6885
阻抗偵測

Insulation coordination according to IEC 60664-1 ,external control via insulation monitor possible, positive and negative test current to monitor DC networks and networks with simultaneous alternating current and direct current portions present.
符合IEC 60664-1，可通過絕緣監控進行外部控制，可正負測試電流，用於監控直流網絡和具有交流和直流同時存在的部分網絡。

IFM 7885
阻抗偵測

Insulation troubleshooting in DC, AC and mixed IT systems in connection with the locating current injector IFM 6885 according to DIN EN 61557-9 (VDE 0413-9): 2009 and DIN EN 61557-1 (VDE 0413-1), insulation coordination according to IEC 60664-1, connection of max. 4 or 8 differential current transformers depending on the design.
直交流和混合IT系統中的絕緣故障排除，注入器IFM 6885的連接電流定位
DIN EN 61557-9（VDE 0413-9）：2009和DIN EN 61557-1（VDE 0413-1）
符合IEC 60664-1，4或8個差分電流互感器最大連接數。

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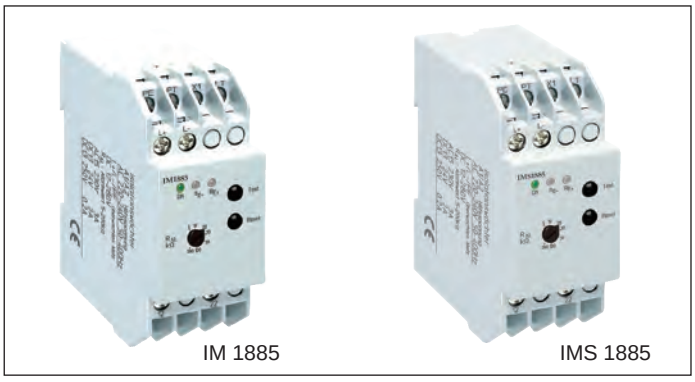
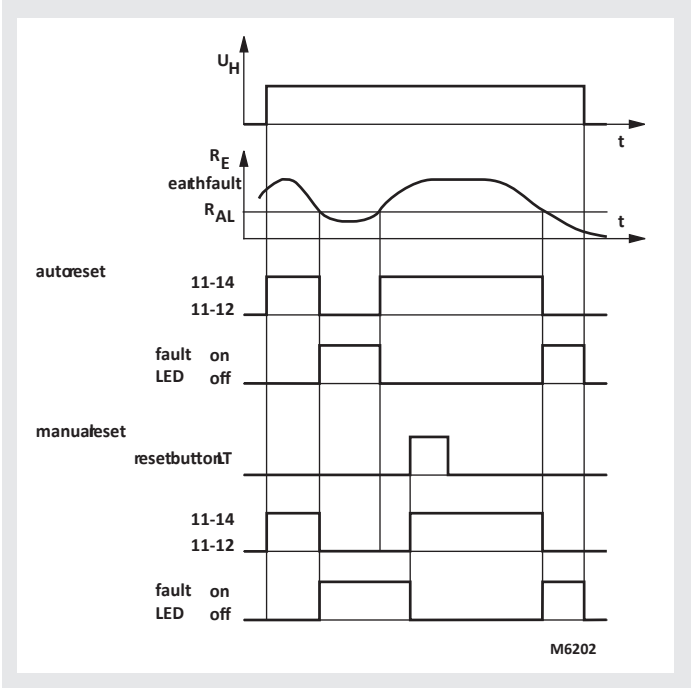
IM 1885, IMS 1885

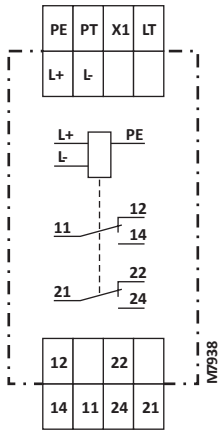

IM 1885 IMS 1885

Function Diagram

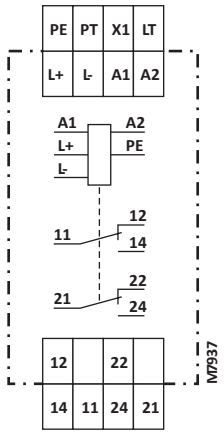


IM 1885/100, IMS 1885/100; IM 1885, IMS 1885

Circuit Diagram



IM 1885.12/100



IM 1885.12

- According to IEC/EN 61 557-8
- For DC voltage systems up to 12 ... 280 V
- Wide voltage range of measuring input U_N DC 12 ... 280 V (on request DC 24 ... 500 V with separate auxiliary supply, Measuring range 20 ... 500 kΩ)
- Adjustable tripping value R_{AL} of 5 ... 200 kΩ
- Selective ground fault indication for L+ and L- allows fast fault finding
- Without auxiliary supply
- De-energized on trip
- 2 changeover contacts
- Automatic or manual reset, programmable
- With test and reset buttons
- Connection for external test and reset button possible
- galvanic separated AC or DC auxiliary supply available as option
- adjustable time delay as option
- 2 models available:
  IM 1885: 61 mm deep with terminals near to the bottom to be mounted in consumer units or industrial distribution systems according to DIN 43 880
  IMS 1885: 98 mm deep with terminals near to the top to be mounted in cabinets with mounting plate and cable ducts
- 35 mm width

Approvals and Marking

CE

Application

Monitoring of insulation resistance of ungrounded DC-voltage systems to earth.

Function

If the insulation resistance R_E between L+ or L- to ground drops below the adjusted alarm value R_{AL} (insulation failure) the corresponding red LED goes on and the output relay switches off (de-energized on trip). If the unit is on auto reset (bridge between LT-X1) and the insulation resistance gets better (R_E rises), the insulation monitor switches on again with a certain hysteresis and the red LED goes off.
Without the bridge between LT-X1 the insulation monitor remains in faulty state even if the insulation resistance is back to normal. The location of the fault on L+ or L- is indicated on the corresponding LED (selective fault indication).
The reset is done by pressing the internal or external reset button or by disconnecting the auxiliary supply.
By activating the "Test" button internal or external an insulation failure can be simulated to test the function of the unit.

Indicators

Green LED "ON": On, when supply voltage connected
Red LED "RE+": On, when insulation fault detected ($R_{E+} < R_{AL}$) on L+
Red LED "RE-": On, when insulation fault detected ($R_{E-} < R_{AL}$) on L-

RCM 3885

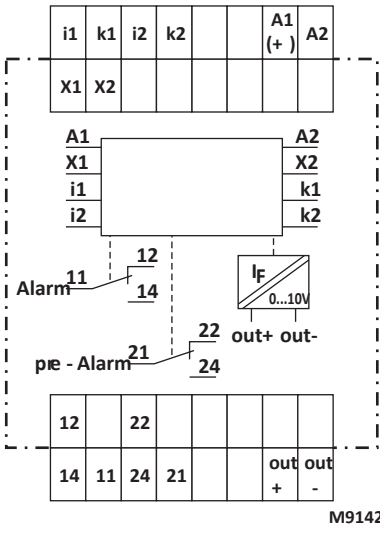

RCM 3885


HS 8105/530


HS 8105/030

- According to IEC/EN 62 020, VDE 0663
- For AC and DC systems Type B, according to IEC/TR 60755
- To detect earth faults in grounded voltage systems
- 4 Setting Ranges from 10 mA to 3 A
- Manual reset, with pre-warning
- As option pre warning without auto reset
- With adjustable pre-warning
- With adjustable switching delay
- Energized or de-energized on trip
- LED indicator for operation, prewarning and alarm
- LED-chain indicates fault current
- Analogue output
- With test function
- Broken wire detection
- Removable cover
- 70 mm width

Circuit Diagram



Approvals and Marking

CE PCT AE68

Application

The differential current monitor type B is designed to monitor DC systems and AC systems up to 250 Hz.

Indication

Green LED "ON":	On, when auxiliary supply connected
Red LED "pre alarm":	flashes during time delay, on, when pre-alarm active
Red LED "alarm":	flashes during time delay, on, when alarm active
Both red LEDs:	flashing on broken wire or extremely high input signal
Yellow LEDs:	LED chain indicates fault current in % of adjusted alarm value

Function

The function is similar to an RCD tripping device. The voltage system is monitored to detect a fault current to ground. It does not disconnect the voltage, it only indicates the fault. The Measuring circuit includes an external differental current transformer. All conductors of a voltage system are fed through the transformer except the ground wire. In a healthy system the sum of all flowing currents is zero, so that no voltage is induced in the CT. If an earth fault occurs, sourcing a current flowing to ground, the current difference induces a current in the CT that is detected by the RCM 3885.

On broken sensor wires and broken CT coils the unit goes into alarm state and the 2 red LEDs flash. The unit has 2 changeover output contacts. One for alarm (11,12, 14) and one for pre-warning (21, 22, 24). The prewarning can be set to 20, 40, 60, 80 and 100 % of the alarm with or without 1 s time delay.

4 Setting Ranges can be slected from 10 mA to 3 A. An adjustable time delay up to 1 or 10 s is possible. The fine adjustment of the measuring value and the time delay is made via 2 potentiometers with setting ratio 1:10.

The different CT sizes require a correct adaption of the differential current monitor. 3 models are available:

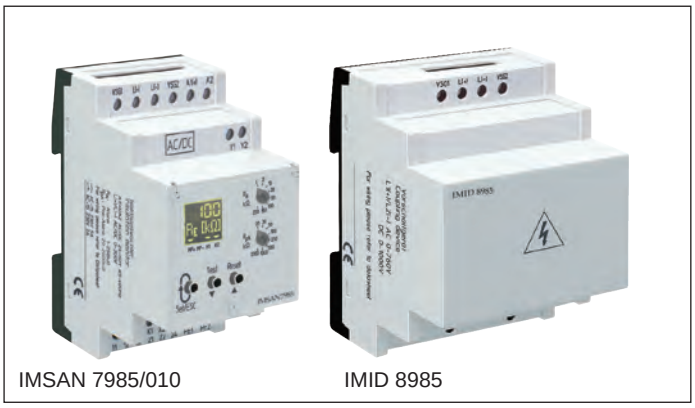
Type	Frequeny range	Suitable current transformer
RCM 3885	DC + AC up to 250 Hz	HS 8105/030 HS 8105/035
RCM 3885/070	DC + AC up to 180 Hz	HS 8105/070
RCM 3885/140	DC + AC up to 60 Hz	HS 8105/105 HS 8105/140 HS 8105/210

An external link on X1-X2 allows the change between energized and de-energized on trip. With inserted link the unit de-energises on trip.
A change of the function will only be valid after interruption of the supply voltage.

If an adjusted value is reached on the measuring input (alarm or pre-warning) the signal is stored. Reset is made by pressing the button "Test/Reset" for < 3 s s or by disconnecting the auxiliary supply (approx. 30 s).

If the "Test/Reset" button is pressed for > 3 s, a test of the unit is made. The time delays run, the pre-warning and alarm is activated.
An LED chain shows the fault current between 10 and 100 % of the adjusted alarm value. An analogue output 0 - 10 V indicates also the fault current. 10 V corresponds to 100 % of the adjusted alarm value.

IMSAN 7985/010

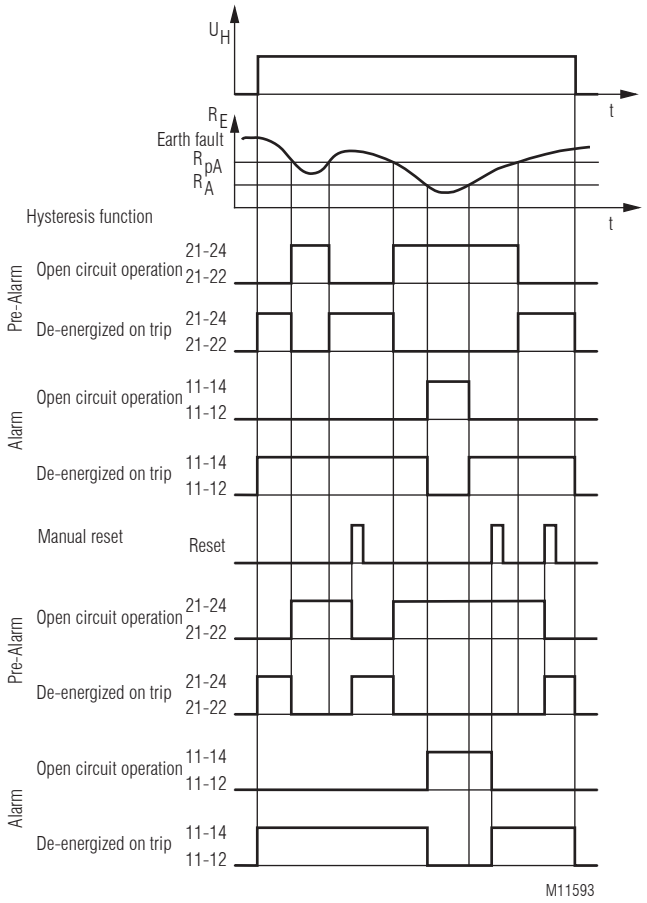


IMSAN 7985/010 IMID 8985

Product Description

The insulation monitor IMSAN 7985/010 of the IMID family pro - vides best and up to date insulation monitoring of modern IT systems in an optimum and state of the art way fulfilling the relevant standards. The device can be used in the most flexible way for AC, DC and AC/DC systems even with large leakage capacity to earth (PE). The adjustment of the setting values is simple and user friendly done on 2 rotary switches on the front of the device. Via display and LEDs the measured value, device parameters and device status are indicated easy to read. With a sealable transparent cover the device is protectet against manipulation.

Function Diagram



Your Advantages

- Preventive fire and system protection
- Detection of symmetric and asymmetric insulation faults
- Quick fault localisation through selective earth fault detection to L+ and L-
- Universal application in non-earthed AC, DC, AC/DC networks with up to 300 V nominal voltage
- Easy adjustment of response values and setting parameter via rotational switch and menu display
- Suitable for large leakage capacitances up to 1000 µF
- Optimised reaction time for large leakage capacitances
- Monitoring also with voltage-free mains
- Measuring circuit L(+)/L(-) with broken wire detection (can be switched off)
- Protective conductor PE1/PE2 with broken wire detection (can't be switched off)

Features

- Insulation monitoring according to IEC/EN 61557-8
- With connection facility of an external coupling device RP 5898 for voltages up to 1000 V
- Trigger output for insulation fault locating system
- 2 separate adjustable response thresholds (using e.g. for pre-Alarm and Alarm)
- Setting range of 1st response value (Pre-Alarm): 20 kΩ … 2 MΩ
- Setting range of 2nd response value (Alarm): 1 kΩ … 250 kΩ
- 2 changeover contacts für insulation failures-Pre-Alarm and -Alarm
- Energized or de-energized on trip can be selected for indicator relay
- Display for indication of measured value, device parameters and device status
- Setting the maximum leakage capacitance to shorten the response time
- Automatic and manual device self-test
- Alarm storage selectable
- Protection against manipulation by sealable transparent cover
- External control input for combined Test-/Reset-button
- 3 wide voltage input for auxiliary voltage
- Width 52.5 mm

Approvals and Markings

CE AC/DC

Applications

Insulation monitoring of:

- Non-earthed AC, DC, AC/DC networks
- UPS systems
- Networks with frequency inverters
- Battery networks
- Networks with direct current drives
- Hybrid and battery-powered vehicles
- Mobile generator sets

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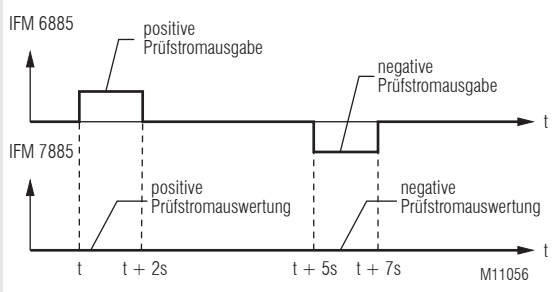
IFM 6885

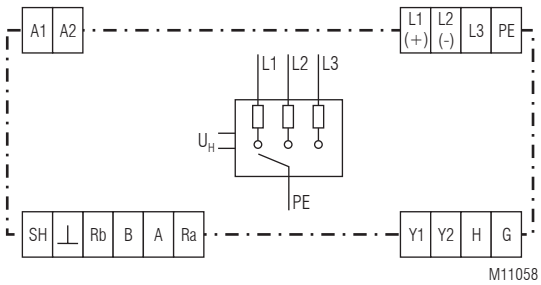
Product description

The locating current injector IFM 6885 in connection with the insulation fault locator IFM 7885 monitors and localises insulation faults in complex AC/DC networks (IT systems). The external current transformers work independently of each other, calibrate themselves and are simply connected to the measuring channels of the insulation fault locator IFM 7885. The number of measuring channels is increased by combining several insulation fault locators via a RS-485 bus connection. The search for insulation faults in extensive networks can be refined in this manner. Two different alarm levels facilitate the timely detection of a dangerous insulation state. The devices are operated easily and intuitively thanks to automatic balancing and a clear layout of the setting elements. The early detection and localisation of insulations faults permits their quick and targeted correction. As user you will benefit from the operating reliability and high availability of your system.

Function Diagram



Circuit Diagram



Your Advantages

- Quick correction of insulation faults in complex power networks
- Universal auxiliary voltage range AC/DC 85 ... 265 V

Features

- Insulation troubleshooting in DC, AC and mixed IT systems in connection with the insulation fault locator IIM 7885 according to DIN EN 61557-9 (VDE 0413-9):2009 and DIN EN 61557-1 (VDE 0413-1)
- Insulation coordination according to IEC 60664-1
- External control via insulation monitor possible
- Positive and negative test current to monitor DC networks and networks with simultaneous alternating current and direct current portions present
- RS-485 bus connection to synchronise the test current analysis and optionally for the connection to the EDS measuring bus
- Control via insulation monitor via RS-485 bus or external control input possible
- Pushbutton for manual test current output
- Terminal connection for automatic test current output
- Status output of insulation fault detection via external switching output
- Width: 105 mm

Approvals and Markings

CE

Application

- Insulation fault detection in complex AC/DC networks
- Industry, shipbuilding, plant engineering, PV systems
- Quick fault correction of insulation faults in medical facilities

Indication

green LED "ON":	on, when supply connected
yellow LED „ ⎍ “:	Indicates the output of the positive test current pulse
yellow LED „ ⎍ “:	Indicates the output of the negative test current pulse
yellow LED „RS485“:	Indicates RS-485 bus activity and test current output

Connection Terminals

Terminal designation	Signal designation
A1(+), A2	Auxiliary voltage AC or DC
L1(+), L2(-), L3, PE	IT network voltage connections DC/ AC/3AC
SH, GND, Rb, B, A, Ra	RS-485 Bus (galvanic separation)
Y1, Y2	Switching input Test current output to control
G, H	Status switching output Test current output

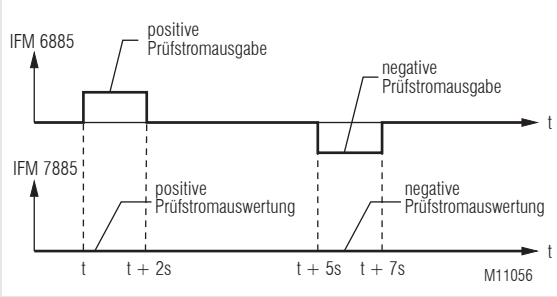
IFM 7885


4-channel design

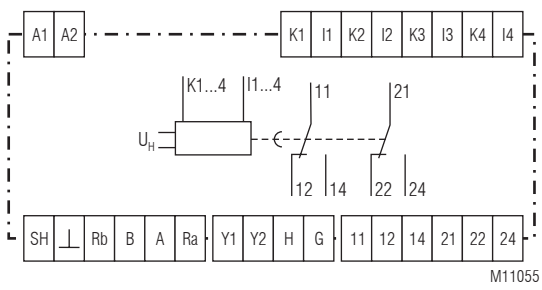
Product Description

The locating current generator IFM 6885 in connection with the insulation fault locator IFM 7885 monitors and localises insulation faults in complex AC/DC networks (IT systems). The external current transformers work independently of each other, calibrate themselves and are simply connected to the measuring channels of the insulation fault locator IFM 7885. The number of measuring channels is increased by combining several insulation fault locators via a RS-485 bus connection. The search for insulation faults in extensive networks can be refined in this manner. Two different alarm levels facilitate the timely detection of a dangerous insulation state. The devices are operated easily and intuitively thanks to automatic balancing and a clear layout of the setting elements. The early detection and localisation of insulations faults permits their quick and targeted correction. As user you will benefit from the operating reliability and high availability of your system.

Function Diagram



Circuit Diagram



Your Advantages

- Quick correction of insulation faults in complex power networks
- Universal auxiliary voltage range AC/DC 85 ... 265 V
- Easy operation

Features

- Insulation troubleshooting in DC, AC and mixed IT systems in connection with the locating current injector IFM 6885 according to DIN EN 61557-9 (VDE 0413-9):2009 and DIN EN 61557-1 (VDE 0413-1)
- Insulation coordination according to IEC 60664-1
- Connection of max. 4 or 8 differential current transformers depending on the design
- RS-485 bus connection to synchronise the test current output and optionally for the connection to the EDS measuring bus for reading insulation fault currents
- Status output of insulation fault detection via external switching output
- Memory characteristics adjustable via bridge Y1-Y2
- Collective signalling relay to output preliminary warning and alarm states
- Pushbutton for manual reset of alarm states as well as testing of differential current transformers and their calibration
- Terminal connection for the storage of alarm states
- Width: 105 mm

Approvals and Markings

CE

Application

- Insulation fault detection in complex AC/DC networks
- Industry, shipbuilding, plant engineering, PV systems
- Quick fault correction of insulation faults in medical facilities

Indication

green LED "ON":	On, when supply connected
yellow LED Kanal 1..4:	Pre-warning: Display of an insulation fault current > 1 mA in the corresponding channel
red LED Kanal 1..4:	Alarm: Display of an insulation fault current > 5 mA in the corresponding channel
yellow LED „RS-485“:	Indicates RS-485 bus activity and active insulation fault detection

Connection Terminals

Terminal designation	Signal designation
A1(+), A2	Auxiliary voltage AC or DC
K1..K4/ I1..I4	Current transformer measur. channel
SH, GND, Rb, B, A, Ra	RS-485 Bus (galvanic separation)
Y1, Y2	Switching input Alarm storage
G, H	Status switching output Insulation fault detection
11, 12, 14	Indicator relay prewarning (changeover contact)
21, 22, 24	Indicator relay alarm (changeover contact)

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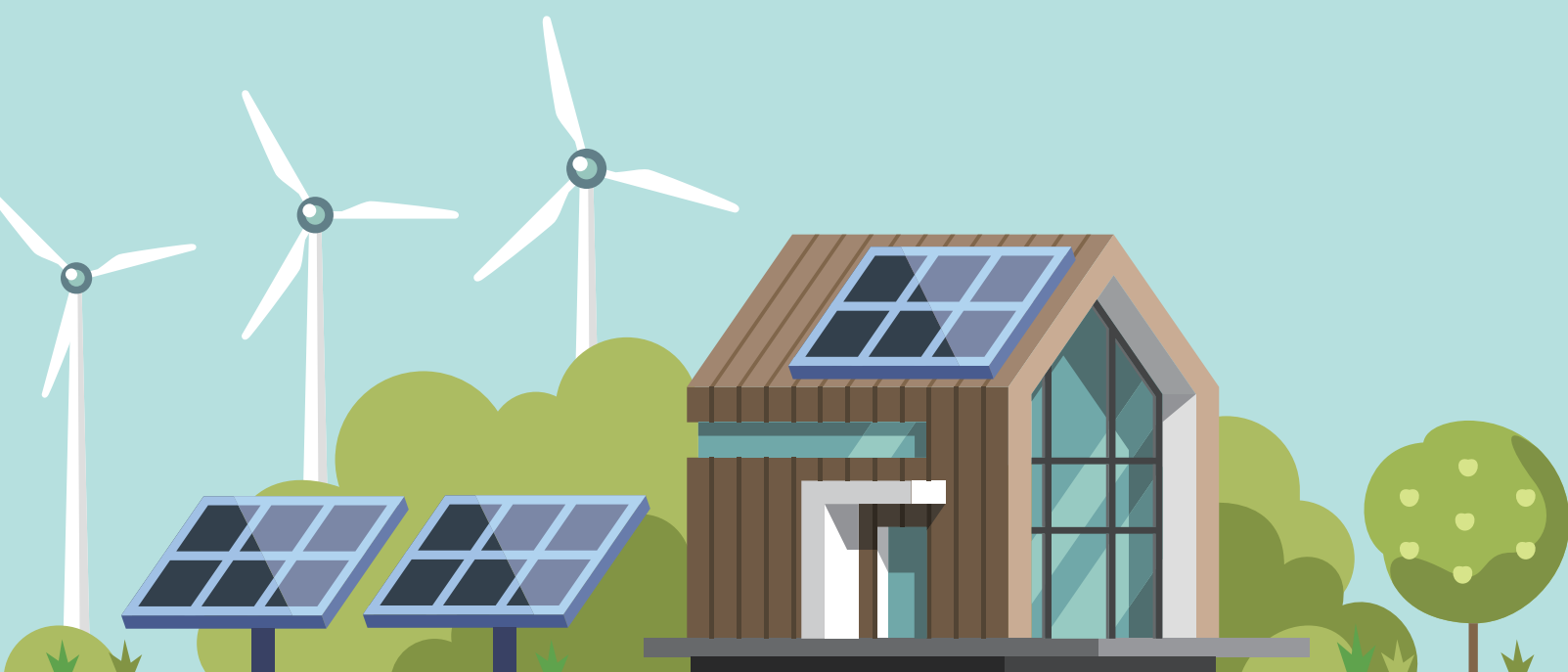

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