

SOLiVi4

Solar inverters for Asia-Pacific from Delta -
The heart of your PV system





About us	1
Product overview	1
SOLIVIA - Solar inverters for Asia-Pacific	2
String inverters with transformer	2
Modular central inverters	12
Block inverters	16
SOLIVIA Monitor	18
SOLIVIA Accessories	22

About us

Product overview

Delta Electronics Group (founded 1971) is the world leader in manufacturing switch-mode power supplies and a leading supplier of video displays and electronic components for computers, telecommunication, networking and other industrial sectors.

Delta has been steadily growing by 38.39 % each year since 1971 and achieves revenues of \$ 6.6 billion US with more than 80,000 staff all over the world in sales, development and production.

Delta Electronics has been successfully supporting environmental protection and the development of energy-saving technologies for many years. At the center of the company's activities is the designing of new equipment with steadily improving efficiencies, low no-load losses and high reliability. These efforts are further strengthened by investment in renewable energy products such as photovoltaic modules, inverters, and fuel cell converters.

Delta Energy Systems has been investing in the research and development of solar inverter products at its German location since 1999.

The result of this is something to be proud of – reliable solar inverters with high efficiencies and state-of-the-art high-frequency topology.

Our highly motivated and regularly trained solar team is able to offer Delta customers fast service via the Solar Support Hotline set up especially for this purpose.

Do you need detailed information about the solar inverter; No problem! Our Delta Solar Team offers inverter training courses which can be run either on our premises or on your premises on request. Our Solar Team will be pleased to provide you more details about our different training options.

Delta solar inverters are supplied with a standard 5-year guarantee, which, of course, can be extended to 10 years (price on request).

Delta has invested in state-of-the-art, ISO9000/14000, UL, TÜV and CSA certified production facilities in Germany, Slovakia and Thailand to manufacture our high-quality solar inverter product line. Delta has a long history of producing a wide range of cutting-edge power conversion devices at these locations for computer, medical, telecom, industrial, and renewable energy applications.

Maximize the efficiency of your solar installation by using the innovative inverter technologies from Delta!

Product availability by country

COUNTRY	SOLIVIA 2.5 AP G3 TR	SOLIVIA 3.0 AP G3 TR	SOLIVIA 3.3 AP G3 TR	SOLIVIA 5.0 AP G3 TR
Australia				available Q3 2011
China				
India				
Korea				
Taiwan				
Thailand PEA				

SOLIVIA - Solar inverters for Asia-Pacific

String inverters with transformer

Delta, with over 70 years of power electronics experience, presents high efficiency solar inverters designed in Germany. SOLIVIA stands for “SOLar Inverters for Versatile and Intelligent Applications”. The 3rd generation of our solar inverters offers cutting-edge and outstanding SOLIVIA features with output power from 2.5 kW to 250 kW.

Features for SOLIVIA AP string inverters:



One model for all countries

One unit can be used in more than six countries in the Asian-Pacific region (Australia, China, India, Korea, Taiwan and Thailand)

simply by the click of a button! The multi-country models will help our customers to save costs in warehousing and logistics.



Cost benefit

Saving you money with multi-country software! No needless stock anymore - with the Asian-Pacific SOLIVIA series you only have to keep

one type of unit in stock for each performance class and then simply configure it for the country where it is installed.



State-of-the-art display

We improved the usability of our inverters with a new display that is brighter, offers a wider viewing angle and consumes less power.



Efficiency & temperature

The brand new SOLIVIA 2.5 TR, SOLIVIA 3.0 TR and SOLIVIA 3.3 TR have a maximum efficiency of 96.0 %. The SOLIVIA Asian-Pacific solar inverters do not have fans, are dust tight (IP65), and operate over a wide range of temperatures.



Easy handling and installation

Packaged with each inverter is a mounting plate that makes the mounting of the SOLIVIA solar inverters on a wall as easy as 1-2-3.



Versatile applications

The SOLIVIA string inverters can be used with all common photovoltaic module types, even with back-contact and thin-film modules that require positive or negative DC grounding. With the optional grounding kit from Delta, the SOLIVIA inverters are a perfect fit for these applications.



Reference installation: World Stadium Khaosung - Taiwan:
1 MW nominal output power - 8844 solar modules - 279 string inverters.



SOLIVIA 2.5 AP G3 TR



Features

- Transformer with peak efficiency (96.0 %)
- Isolation of primary and secondary circuit
- Wide operating temperature ranges: -25 °C to +70 °C
- Full power up to 55 °C (without derating)
- RS485 (EIA485) communication interfaces
- Intelligent MPP tracking
- Suitable for indoor and outdoor applications (IP65)
- Without fan

Solar Inverter SOLIVIA 2.5 AP G3 TR

The SOLIVIA 2.5 TR solar inverters for the Asian-Pacific region are highly efficient and reliable and use the latest high frequency technology.

The integrated multi-country software makes it possible for you to configure your SOLIVIA solar inverter for the required country (Australia, China, India, Korea and Taiwan) with just a few clicks.

A wide voltage range as well as an operating temperature up to 70 °C allows you to feed power in the national grid even in hot Asian-Pacific countries.

These technical enhancements enable the solar inverter to provide an even more efficient supply while making it more versatile to suit different installation configurations.

The elegant and compact design of the casing and low noise characteristics of the SOLIVIA AP series make these solar inverters from Delta look good even in living areas.

You can of course mount it in protected outside areas as well since the IP65 casing is dust-tight, completely safe to touch and protects the unit from jet water from any direction.

Using the wall bracket supplied, mounting Delta's SOLIVIA 2.5 TR is no problem, even for the non-commercial user. As soon as the wall bracket has been mounted where you want it, you only need to suspend the unit in the guide rail on the wall bracket with a single movement – no other drilling is necessary.

Delta's SOLIVIA 2.5 TR is particularly suitable for users who are looking for smaller to medium-sized solar installations in applications such as single-family homes.

Technical data SOLIVIA 2.5 AP G3 TR

INPUT (DC)	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Max. recommended PV power	3100 W				
Nominal power	2750 W				
Voltage range	125 ... 540 V	125 ... 540 V	125 ... 540 V	125 ... 500 V	125 ... 540 V
Full power MPP range	150 ... 450 V				
Nominal current	9.8 A				
Max. current	18.0 A				
Stand-by power	< 0.2 W				
OUTPUT (AC)	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Max. power	2640 W				
Nominal power	2500 W				
Nominal voltage	230 V	220 V	230 V	220 V	220 V
Voltage range	210.0 ... 264.0 V	187.0 ... 242.0 V	184.0 ... 264.5 V	193.6 ... 242.0	193.6 ... 253.0 V
Nominal current	10.9 A	11.4 A	10.9 A	11.4 A	11.4 A
Max. current	11.9 A	12.9 A	11.9 A	12.9 A	12.9 A
Nominal frequency	50 Hz	50 Hz	50 Hz	60 Hz	60 Hz
Frequency range	48.0 ... 52.0 Hz	49.5 ... 50.5 Hz	47.3 ... 52.7 Hz	59.3 ... 60.5 Hz	58.0 ... 61.0 Hz
Power factor (cos φ)	> 0.99 @ nominal power				
Total harmonic distortion (THD)	< 5 % @ nominal power				
MECHANICAL DESIGN	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Size (L x W x D)	410 x 410 x 180 mm				
Weight	21.5 kg				
Cooling	Free convection				
AC connector	Wieland RST25i3S				
DC connector	4 pairs of Multi-Contact MC4				
Communication interfaces	2 Harting RJ45 / RS485				
Display	LCD; 3 LEDs				
GENERAL SPECIFICATION	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Model name	SOLIVIA 2.5 AP G3 TR				
Part number Delta	EOE45010272				
Max. efficiency	96.0 %				
Efficiency EU	94.8 %				
Operating temperature	-25 ... +70°C				
Storage temperature	-25 ... +80°C				
Humidity	0 ... 98 %				
STANDARDS / DIRECTIVES	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Protection degree	IP65				
Safety class	1				
Overload behavior	Current limitation; power limitation				
Anti-islanding protection	AS 4777.2; AS 4777.3; IEC 60255.5	Yes	VDE 0126-1-1	PV 501; KS C 8540	Yes
EMC	AS 4777.1; AS 4777.2; AS 4777.3; EN 61000-6-2; IEC / EN 61000-6-3	GB / T 17626; GB 17799	IEC / EN 61000-6-2; IEC / EN 61000-6-3	IEC 60725; KS C IEC 61000-4-5; KS C IEC 61000-6-1; KS C IEC 61000-6-2; KS C IEC 61000-6-3; KS C IEC 61000-6-4	IEC / EN 61000-6-2; IEC / EN 61000-6-3
Safety	AS/NZS 60950; AS/NZS 3100; AS 4777.2; AS 4777.3	CGC/GF001:2009	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005	PV 501	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005

SOLIVIA 3.0 AP G3 TR



Features

- Transformer with peak efficiency (96.0 %)
- Isolation of primary and secondary circuit
- Wide operating temperature ranges: -25 °C to +70 °C
- Full power up to 55 °C (without derating)
- RS485 (EIA485) communication interfaces
- Intelligent MPP tracking
- Suitable for indoor and outdoor applications (IP65)
- Without fan

Solar Inverter SOLIVIA 3.0 AP G3 TR

The new SOLIVIA 3.0 TR solar inverters has a nominal output power of 3000 W.

The SOLIVIA string inverters can be used with all common photovoltaic module types, even with back-contact and thin-film modules that require positive or negative DC grounding. With the optional grounding kit from Delta, the SOLIVIA inverters are a perfect fit for these applications.

The SOLIVIA AP models are ready for operation in more than six countries in the Asian-Pacific region (Australia, China, India, Korea and Taiwan). Our international customers can easily change the country settings with the push of a button without the need to open the inverter housing. The multi-country models will help our customers to save costs in warehousing and logistics.

The SOLIVIA 3.0 TR solar inverters have a maximum efficiency of 96.0 %. Compared to transformer-based inverters from our competitors, the SOLIVIA inverters deliver the maximum efficiency over a much wider power range.

Full power up to 55 °C ensures maximum yield for our customers in the warmer climates.

The SOLIVIA inverters have an intelligent MPP tracking that extracts maximum performance from your solar panels under all operating conditions.

Of course, the solar inverters are also fitted with overvoltage protection, heat protection, short circuit protection and overcurrent protection. Delta's SOLIVIA AP series meet all guidelines regarding safety standards, EMC and national requirements.

All SOLIVIA solar inverters are compatible with Meteo-control monitoring systems that allow you to monitor and to record key performance indicators within a day, week, month or year.

Technical data SOLIVIA 3.0 AP G3 TR

INPUT (DC)	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Max. recommended PV power	3650 W				
Nominal power	3300 W				
Voltage range	125 ... 540 V	125 ... 540 V	125 ... 540 V	125 ... 500 V	125 ... 540 V
Full power MPP range	150 ... 450 V				
Nominal current	11.8 A				
Max. current	22.0 A				
Stand-by power	< 0.2 W				
OUTPUT (AC)	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Max. power	3170 W				
Nominal power	3000 W				
Nominal voltage	230 V	220 V	230 V	220 V	220 V
Voltage range	210.0 ... 264.0 V	187.0 ... 242.0 V	184.0 ... 264.5 V	193.6 ... 242.0	193.6 ... 253.0 V
Nominal current	13.0 A	13.7 A	13.0 A	13.7 A	13.7 A
Max. current	14.3 A	15.5 A	14.3 A	15.5 A	15.5 A
Nominal frequency	50 Hz	50 Hz	50 Hz	60 Hz	60 Hz
Frequency range	48.0 ... 52.0 Hz	49.5 ... 50.5 Hz	47.3 ... 52.7 Hz	59.3 ... 60.5 Hz	58.0 ... 61.0 Hz
Power factor (cos φ)	> 0.99 @ nominal power				
Total harmonic distortion (THD)	< 5 % @ nominal power				
MECHANICAL DESIGN	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Size (L x W x D)	410 x 410 x 180 mm				
Weight	21.5 kg				
Cooling	Free convection				
AC connector	Wieland RST25i3S				
DC connector	4 pairs of Multi-Contact MC4				
Communication interfaces	2 Harting RJ45 / RS485				
Display	LCD; 3 LEDs				
GENERAL SPECIFICATION	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Model name	SOLIVIA 3.0 AP G3 TR				
Part number Delta	EOE46010259				
Max. efficiency	96.0 %				
Efficiency EU	94.8 %				
Operating temperature	-25 ... +70°C				
Storage temperature	-25 ... +80°C				
Humidity	0 ... 98 %				
STANDARDS / DIRECTIVES	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Protection degree	IP65				
Safety class	1				
Overload behavior	Current limitation; power limitation				
Anti-islanding protection	AS 4777.2; AS 4777.3; IEC 60255.5	Yes	VDE 0126-1-1	PV 501; KS C 8540	Yes
EMC	AS 4777.1; AS 4777.2; AS 4777.3; EN 61000-6-2; IEC / EN 61000-6-3	GB / T 17626; GB 17799	IEC / EN 61000-6-2; IEC / EN 61000-6-3	IEC 60725; KS C IEC 61000-4-5; KS C IEC 61000-6-1; KS C IEC 61000-6-2; KS C IEC 61000-6-3; KS C IEC 61000-6-4	IEC / EN 61000-6-2; IEC / EN 61000-6-3
Safety	AS/NZS 60950; AS/NZS 3100; AS 4777.2; AS 4777.3	CGC/GF001:2009	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005	PV 501	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005

SOLIVIA 3.3 AP G3 TR



Features

- Transformer with peak efficiency (96.0 %)
- Isolation of primary and secondary circuit
- Wide operating temperature ranges: -25 °C to +70 °C
- Full power up to 55 °C (without derating)
- RS485 (EIA485) communication interfaces
- Intelligent MPP tracking
- Suitable for indoor and outdoor applications (IP65)
- Without fan

Solar Inverter SOLIVIA 3.3 AP G3 TR

SOLIVIA 3.3 TR - the third generation of solar inverters from Delta - offers exciting and innovative SOLIVIA features, that make our customers' lives easier.

The elegant and compact design of the casing and low noise characteristics of the SOLIVIA 3.3 TR makes this solar inverter from Delta look good even in your residence.

All SOLIVIA string inverters can be installed indoor or outdoor (IP65 housing). Due to the wide input voltage range of 125 V up to 540 V, the inverters are suitable for a broad range of photovoltaic installation types.

Highly efficient and reliable, with its intelligent MPP tracking, the SOLIVIA 3.3 TR extracts maximum performance from your solar panels under all operating conditions.

Using the wall bracket supplied, mounting Delta's SOLIVIA 3.3 TR inverters is no problem, even for the non-commercial user.

As soon as the wall bracket has been mounted where you want it, you only need to suspend the unit in the guide rail on the wall bracket with a single movement – no other drilling is necessary.

All the relevant status messages and stored data can be called up effortlessly either directly on the integrated display or via your PC which you have previously connected to the WEB'log from Meteocontrol and the solar inverter via the RS485 interface. Thanks to the self-explanatory menu, you can quickly navigate through the different status messages and select the required data. Because all SOLIVIA inverters are compatible with monitoring products from Meteocontrol, you can keep an eye on the status of your PV installation and the output from anywhere at any time.

The SOLIVIA 3.3 TR from Delta can be used for any size of installation. It is particularly suitable for users who are looking for medium-sized solar installations.

Technical data SOLIVIA 3.3 AP G3 TR

INPUT (DC)	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Max. recommended PV power	4000 W				
Nominal power	3630 W				
Voltage range	125 ... 540 V	125 ... 540 V	125 ... 540 V	125 ... 500 V	125 ... 540 V
Full power MPP range	150 ... 450 V				
Nominal current	13.0 A				
Max. current	24.0 A				
Stand-by power	< 0.2 W				
OUTPUT (AC)	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Max. power	3485 W				
Nominal power	3300 W				
Nominal voltage	230 V	220 V	230 V	220 V	220 V
Voltage range	210.0 ... 264.0 V	187.0 ... 242.0 V	184.0 ... 264.5 V	193.6 ... 242.0	193.6 ... 253.0 V
Nominal current	14.4 A	15.0 A	14.4 A	15.0 A	15.0 A
Max. current	15.7 A	17.0 A	15.7 A	17.0 A	17.0 A
Nominal frequency	50 Hz	50 Hz	50 Hz	60 Hz	60 Hz
Frequency range	48.0 ... 52.0 Hz	49.5 ... 50.5 Hz	47.3 ... 52.7 Hz	59.3 ... 60.5 Hz	58.0 ... 61.0 Hz
Power factor (cos ϕ)	> 0.99 @ nominal power				
Total harmonic distortion (THD)	< 5 % @ nominal power				
MECHANICAL DESIGN	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Size (L x W x D)	410 x 410 x 180 mm				
Weight	21.5 kg				
Cooling	Free convection				
AC connector	Wieland RST25i3S				
DC connector	4 pairs of Multi-Contact MC4				
Communication interfaces	2 Harting RJ45 / RS485				
Display	LCD; 3 LEDs				
GENERAL SPECIFICATION	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Model name	SOLIVIA 3.3 AP G3 TR				
Part number Delta	EOE46010260				
Max. efficiency	96.0 %				
Efficiency EU	94.8 %				
Operating temperature	-25 ... +70°C				
Storage temperature	-25 ... +80°C				
Humidity	0 ... 98 %				
STANDARDS / DIRECTIVES	AUSTRALIA	CHINA	INDIA	KOREA	TAIWAN
Protection degree	IP65				
Safety class	1				
Overload behavior	Current limitation; power limitation				
Anti-islanding protection	AS 4777.2; AS 4777.3; IEC 60255.5	Yes	VDE 0126-1-1	PV 501; KS C 8540	Yes
EMC	AS 4777.1; AS 4777.2; AS 4777.3; EN 61000-6-2; IEC / EN 61000-6-3	GB / T 17626; GB 17799	IEC / EN 61000-6-2; IEC / EN 61000-6-3	IEC 60725; KS C IEC 61000-4-5; KS C IEC 61000-6-1; KS C IEC 61000-6-2; KS C IEC 61000-6-3; KS C IEC 61000-6-4	IEC / EN 61000-6-2; IEC / EN 61000-6-3
Safety	AS/NZS 60950; AS/NZS 3100; AS 4777.2; AS 4777.3	CGC/GF001:2009	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005	PV 501	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005

SOLIVIA 5.0 AP G3 TR



Features

- Transformer with peak efficiency (95.6 %)
- Isolation of primary and secondary circuit
- Wide operating temperature ranges: -25 °C to +60 °C
- RS485 (EIA485) communication interfaces
- Intelligent MPP tracking
- Suitable for indoor and outdoor applications (IP65)
- Without fan
- Simple and direct on-screen data display

Solar Inverter SOLIVIA 5.0 AP G3 TR

The latest high frequency technology used in the SOLIVIA 5.0 TR solar inverters for the Asian-Pacific market enable them to operate at maximum efficiency and guarantee continuous, outstanding energy outputs.

With their IP65 casing, these high-efficiency, grid-connected SOLIVIA inverters can be used both inside and in protected outside areas.

The mounting bracket with which the SOLIVIA 5.0 TR is easily attached to the wall, is identical to the one used for the SOLIVIA 2.5 TR, SOLIVIA 3.0 TR and SOLIVIA 3.3 TR solar inverters from Delta. You can therefore swap units effortlessly.

The user-friendly display makes the unit easy to operate. The relevant status messages and stored data can be easily called up either directly on the illuminated display or via your computer, which is connected to the WEB'log from Meteocontrol and the SOLIVIA 5.0 TR via the RS485 interface.

The SOLIVIA inverters have an intelligent MPP tracking and extract maximum performance from your solar panels under all operating conditions.

Delta's SOLIVIA series meet all guidelines regarding safety standards, EMC and national requirements. Therefore the solar inverters are fitted with overvoltage protection, heat protection, short circuit protection and overcurrent protection.

Because the SOLIVIA 5.0 TR is compatible with monitoring products from Meteocontrol, you can keep an eye on the status of your PV installation and the output from anywhere at any time.

The SOLIVIA 5.0 TR from Delta can be used for any size of installation. It is particularly suitable for users who are looking for a solar inverter for medium-sized to large-scale solar installations.

Technical data SOLIVIA 5.0 AP G3 TR

INPUT (DC)	AUSTRALIA	CHINA	INDIA	THAILAND PEA
Max. recommended PV power	6000 W			
Nominal power	5500 W			
Voltage range	125 ... 540 V	125 ... 540 V	125 ... 540 V	125 ... 540 V
Full power MPP range	150 ... 450 V			
Nominal current	17.2 A			
Max. current	32.0 A			
Stand-by power	< 0.2 W			
OUTPUT (AC)	AUSTRALIA	CHINA	INDIA	THAILAND PEA
Max. power	5240 W			
Nominal power	5000 W			
Nominal voltage	230 V	220 V	230 V	220 V
Voltage range	210.0 ... 264.0 V	187.0 ... 242.0 V	184.0 ... 264.5 V	200.0 ... 240.0 V
Nominal current	22.0 A	23.0 A	22.0 A	23.0 A
Max. current	27.2 A	28.5 A	27.2 A	28.5 A
Nominal frequency	50 Hz			
Frequency range	48.0 ... 52.0 Hz	49.5 ... 50.5 Hz	47.3 ... 52.7 Hz	49.5 ... 50.5 Hz
Power factor (cos φ)	> 0.99 @ nominal power			
Total harmonic distortion (THD)	< 5 % @ nominal power			
MECHANICAL DESIGN	AUSTRALIA	CHINA	INDIA	THAILAND PEA
Size (L x W x D)	510 x 410 x 180 mm			
Weight	32.0 kg			
Cooling	Free convection			
AC connector	Wieland RST25i3S			
DC connector	4 pairs of Multi-Contact MC4			
Communication interfaces	2 Harting RJ45 / RS485			
Display	LCD; 3 LEDs			
GENERAL SPECIFICATION	AUSTRALIA	CHINA	INDIA	THAILAND PEA
Model name	SOLIVIA 5.0 AP G3 TR			
Part number Delta	EOE46010301			
Max. efficiency	95.6 %			
Efficiency EU	94.6 %			
Operating temperature	-25 ... +60°C			
Storage temperature	-25 ... +80°C			
Humidity	0 ... 98 %			
STANDARDS / DIRECTIVES	AUSTRALIA	CHINA	INDIA	THAILAND PEA
Protection degree	IP65			
Safety class	1			
Overload behavior	Current limitation; power limitation			
Anti-islanding protection	AS 4777.2; AS 4777.3; IEC 60255.5	Yes	VDE 0126-1-1	IEC 61727, IEC 62116
EMC	AS 4777.1; AS 4777.2; AS 4777.3; EN 61000-6-2; IEC / EN 61000-6-3	GB / T 17626; GB 17799	IEC / EN 61000-6-2; IEC / EN 61000-6-3	IEC / EN 61000-6-2; IEC / EN 61000-6-3
Safety	AS/NZS 60950; AS/NZS 3100; AS 4777.2; AS 4777.3	CGC/GF001:2009	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005	IEC 62103:2003, EN 50178:1997, IEC 62109-1:2007, IEC 62109-2:2005

SOLIVIA - Modular central inverters



Modular Central Inverters SOLIVIA CS 44, SOLIVIA CS 55 & SOLIVIA CS 66 and
Modular Central Inverters SOLIVIA CM 77, SOLIVIA CM 88 & SOLIVIA CM 100



One model for all countries

One unit can be used in more than six countries in the Asian-Pacific region (Australia, China, India, Korea, Taiwan and Thailand) simply by the click of a button! The multi-country models will help our customers to save costs in warehousing and logistics.



State-of-the-art touch-screen display

The user-friendly menu navigation via the integrated touch-screen display makes the unit easy to operate.



Cost benefit & simple handling

Due to the modular design, the maintenance friendly SOLIVIA CS and SOLIVIA CM systems have a low total cost of ownership. The inverters already start feeding power into the grid at low sun irradiation and maximize your profit!



Fail-safe & ease of maintenance

If any inverter rack fails, a system availability of more than 90 % is guaranteed and the modular system design of the SOLIVIA CS and SOLIVIA CM systems ensure maximum reliability.



Within the central inverter product line, Delta offers two types of cabinet sizes: The smaller cabinet systems, SOLIVIA CS, provide maximum flexibility for a power output of 44.4 kW, 55.5 kW and 66.6 kW, whereas, the larger SOLIVIA CM systems offer output power of 77.7 kW, 88.8 kW and 100 kW.

The modularity of Delta's central inverters guarantees a system availability of approximately 90 % if any individual components fail in one of the inverter racks, and the 'redundant system' design of the SOLIVIA CS and SOLIVIA CM ensures maximum reliability. The concept of the central inverters support the user when expanding the system to increase output, etc..

Due to the modular approach of Delta's central inverters, the start-up behavior of the systems is extremely efficient. With low irradiation conditions the string power will rise slowly, so that rack after rack will power-up, and operate very fast in the optimum range of high efficiency.

An in-house designed software-algorithm controls that the average operating hour of each inverter rack is approximately the same. Unnecessary racks are switched off and optimize the efficiency.

Compared to commercially available central inverters, the SOLIVIA CS and SOLIVIA CM series are smaller and therefore more lightweight, allowing for easy installations. The transportation of the systems is done without any racks inside. Therefore, the cabinet can be easily installed at the place of destination without need of heavy equipment.

The galvanic isolated SOLIVIA CS and SOLIVIA CM inverters consist of 4 to 6 and 7 to 9 high efficiency inverter racks, respectively, DC disconnectors, system controllers, and a robust cabinet. Both modular central inverter systems are suitable for all commonly used solar modules and their IP54 cabinet allows you to install them even in protected outside areas.

With the latest high frequency technology, the electrically isolated SOLIVIA central inverters from Delta achieve peak efficiencies up to 95.6 %.

For power limitation, a monitoring system according to the German EEG is required (we recommend Meteocontrol).

SOLIVIA CS 44, SOLIVIA CS 55 & SOLIVIA CS 66

Technical data SOLIVIA CS AP G3

INPUT (DC)	CS 44	CS 55	CS 66
Max. recommended PV power	54 kW	67 kW	80 kW
Nominal power	47 kW	59 kW	70 kW
Voltage range	400 ... 900 V		
Full power MPP range	450 ... 800 V		
Max. current	105 A	135 A	160 A
Power feed-in from	80 W	100 W	120 W
Max. no. of MPP trackers	1		

STANDARDS / DIRECTIVES	CS 44	CS 55	CS 66
Protection degree	IP54		
Safety class	1		
Configurable trip parameters	Yes		
Insulation monitoring	Yes		
Overload behavior	Current limitation; power limitation		
Anti-islanding protection	VDE 0126-1-1; RD 1663; ENEL G.L. 12/2008; EN 50438		
EMC	EN61000-6-2; EN61000-6-3; EN61000-3-11; EN61000-3-12		
Safety	EN60950-1; EN50178; IEC62103; IEC62109-1 / -2		

GENERAL SPECIFICATION	CS 44	CS 55	CS 66
Model name	SOLIVIA CS 44 AP G3	SOLIVIA CS 55 AP G3	SOLIVIA CS 66 AP G3
Part number Delta	EOE98030256		
Max. efficiency	95.6 %		
Efficiency EU	94.7 %		
Operating temperature	-10 ... +50 °C		
Storage temperature	-25 ... +60 °C		
Humidity	0 ... 95 %		

OUTPUT (AC)	CS 44	CS 55	CS 66
Max. power	44.4 kW	55.5 kW	66.6 kW
Nominal power	44.4 kW	55.5 kW	66.6 kW
Voltage range *	320 ... 460 V		
Nominal current (per phase)	65 A	81 A	97 A
Max. current	80 A	100 A	120 A
Nominal frequency	50 Hz		
Frequency range *	47.5 ... 52.5 Hz		
Power factor (cos ϕ)	> 0.99 @ nominal power		
Total harmonic distortion (THD)	< 3 % @ nominal power		

MECHANICAL DESIGN	CS 44	CS 55	CS 66
Size (H x W x D)	1700 x 1000 x 600 mm (with fan tray)		
Weight (with inverter racks)	350.0 kg	380.0 kg	410.0 kg
Weight (without inverter racks)	232.0 kg		
Cooling	Fan cooling		
AC connector	Terminal connection		
DC connector	Terminal connection		
AC disconnect	Integrated		
DC disconnect	Integrated		
Display	5.7" touch-screen		

* AC voltage and frequency range will be programmed according to the individual country requirements

SOLIVIA CM 77, SOLIVIA CM 88 & SOLIVIA CM 100

Technical data SOLIVIA CM AP G3

INPUT (DC)	CM 77	CM 88	CM 100
Max. recommended PV power	94 kW	106 kW	120 kW
Nominal power	82 kW	93 kW	105 kW
Voltage range	400 ... 900 V		
Full power MPP range	450 ... 800 V		
Max. current	185 A	210 A	235 A
Power feed-in from	140 W	160 W	180 W
Max. no. of MPP trackers	2 (Delivery status: 1 MPP tracker)		

STANDARDS / DIRECTIVES	CM 77	CM 88	CM 100
Protection degree	IP54		
Safety class	1		
Configurable trip parameters	Yes		
Insulation monitoring	Yes		
Overload behavior	Current limitation; power limitation		
Anti-islanding protection	VDE 0126-1-1; RD 1663; ENEL G.L. 12/2008; EN 50438		
EMC	EN61000-6-2; EN61000-6-3; EN61000-3-11; EN61000-3-12		
Safety	EN60950-1; EN50178; IEC62103; IEC62109-1 / -2		

GENERAL SPECIFICATION	CM 77	CM 88	CM 100
Model name	SOLIVIA CM 77 AP G3	SOLIVIA CM 88 AP G3	SOLIVIA CM 100 AP G3
Part number Delta	EOE98030176		
Max. efficiency	95.6 %		
Efficiency EU	95.0 %		
Operating temperature	-10 ... +50 °C		
Storage temperature	-25 ... +60 °C		
Humidity	0 ... 95 %		

OUTPUT (AC)	CM 77	CM 88	CM 100
Max. power	77.7 kW	88.8 kW	100 kW
Nominal power	77.7 kW	88.8 kW	100 kW
Voltage range *	320 ... 460 V		
Nominal current (per phase)	113 A	128 A	145 A
Max. current	140 A	160 A	180 A
Nominal frequency	50 Hz		
Frequency range *	47.5 ... 52.5 Hz		
Power factor (cos ϕ)	> 0.99 @ nominal power		
Total harmonic distortion (THD)	< 3 % @ nominal power		

MECHANICAL DESIGN	CM 77	CM 88	CM 100
Size (H x W x D)	2000 x 1000 x 600 mm (without fan tray)		
Size (H x W x D)	2215 x 1000 x 600 mm (with fan tray)		
Weight (with inverter racks)	510.0 kg	540.0 kg	570.0 kg
Weight (without inverter racks)	301.0 kg		
Cooling	Fan cooling		
AC connector	Terminal connection		
DC connector	Terminal connection		
AC disconnect	Integrated		
DC disconnect	Integrated		
Display	5.7" touch-screen		

* AC voltage and frequency range will be programmed according to the individual country requirements

SOLIVIA - Block inverters



Block Inverter CL 250 AP G4 SM



Inverters based on reliable drive technology

The SOLIVIA block inverters are based on technologically sophisticated drive technology that make them a perfect match for industrial PV environments. Compatible with all types of solar modules.



State-of-the-art touch-screen display

The user-friendly menu navigation via the integrated 15" touch-screen display makes the unit easy to operate.



Efficiency & cost benefit

The SOLIVIA central inverters for the Asian-Pacific market have a maximum efficiency of 98.0 %*.



Easy maintenance

If a fault should occur, the diagnostic function will help you identify the affected module quickly and a convenient design enables quick and easy component replacement.

* Efficiency measured without transformer

Technical data SOLIVIA CL 250 AP G4 SM

INPUT (DC)	
Maximum recommended PV power	282.5 kW _p
Voltage range	450 ... 850 V
Full power MPP range	450 ... 850 V
Nominal current	520 A
Max. current	600 A
Max. no. of MPP trackers	1

STANDARDS / DIRECTIVES	
Protection degree *	IP00
Safety class	1
Configurable trip parameters	Yes
Insulation monitoring	Yes
Anti-islanding protection	Yes
EMC	EN61000-6-2; EN61000-6-4
Safety	EN50178; EN60439-1; EN50274

GENERAL SPECIFICATION	
Model name	SOLIVIA CL 250 AP G4 SM
Part number Delta	
Max. efficiency **	> 98.0 %
Efficiency EU **	> 97.5 %
Operating temperature	-10 ... +40 °C
Storage temperature	-25 ... +70 °C
Humidity	15 ... 85 % RH

OUTPUT (AC)	
Max. power	250 kW
Nominal power	250 kW
Nominal voltage	3 phase 290 V
Nominal frequency	50 / 60 Hz
Power factor (cos φ)	≥ 0.99 @ nominal power
Total harmonic distortion (THD)	< 3 % @ nominal power

MECHANICAL DESIGN	
Size (L x W x D)	1800 x 1000 x 800 mm
Weight	600 kg
Cooling	Water cooling (closed loop system) / air cooling (1100 m³/h)
AC connector	Terminal clamps
DC connector	Cable ring lugs
Communication	Yes
Display	15" Touch screen

* IP00 with collar for exhaust air system. Depending on the connection of the exhaust air system to the collar, a higher protection class is achieved

** Efficiency measured without transformer

The brand new utility-scale SOLIVIA central inverters for Asian-Pacific region have a high efficiency of 98.0 %.

The easily accessible components in the central inverter cabinet make maintenance very easy. If a fault should occur, the diagnostic function will help you identify the affected module quickly and allow a rapid replacement.

A state-of-the art color touch screen makes the unit easy to operate and the user-friendly menu navigation is intuitive. A web visualization tool built in the central inverter allows the user to view the key information on their own PC via a web browser. A datalogger is also provided to allow the user to record key performance data and parameters and download them to their PC as needed.

The SOLIVIA block inverters are based on technologically sophisticated drive technology and make them a perfect match for utility-scale PV plants. The central inverter is compatible with all types of solar modules.

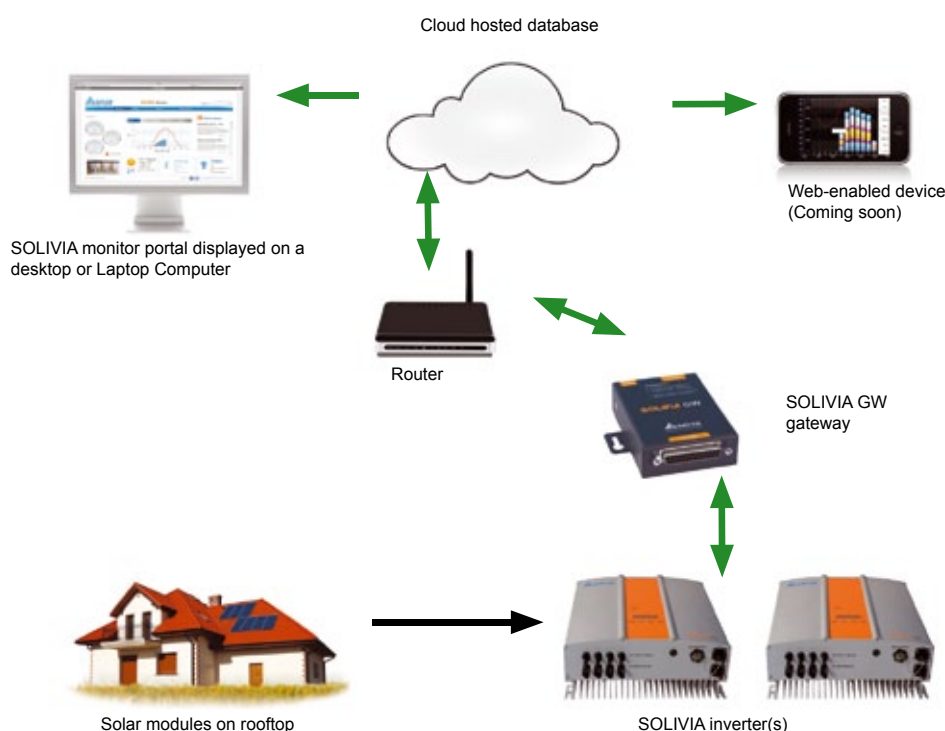
Delta's SOLIVIA CL 250 AP G4 SM is particularly suitable for users who are looking for central inverters for large-scale to utility-scale PV plants.

SOLIVIA Monitor

The SOLIVIA GW Gateway and SOLIVIA Monitor web portal allow continuous monitoring of your PV system from anywhere that you have internet access. The SOLIVIA Monitor system is compatible with SOLIVIA EU, NA and AP string inverters.



Delta presents the SOLIVIA Monitor, a turn-key multiple PV site monitoring system that ensures reliable functioning and maximum yield of your solar system investment. Here is how it works:



Features for SOLIVIA Monitor system:



Simple and secure data reporting

Real-time performance data is gathered from the inverters, sent over the internet, and presented on your computer or web-enabled device with easy to read graphs and reports.



System alerts

Downtime is minimized with automated alerts providing immediate notification of current or potential problems, which increases the return from your solar investment.



Powerful data features

Reports of real-time and historical data are available and can be downloaded to your computer. Also featured are weather conditions, site photos and environmental savings information.

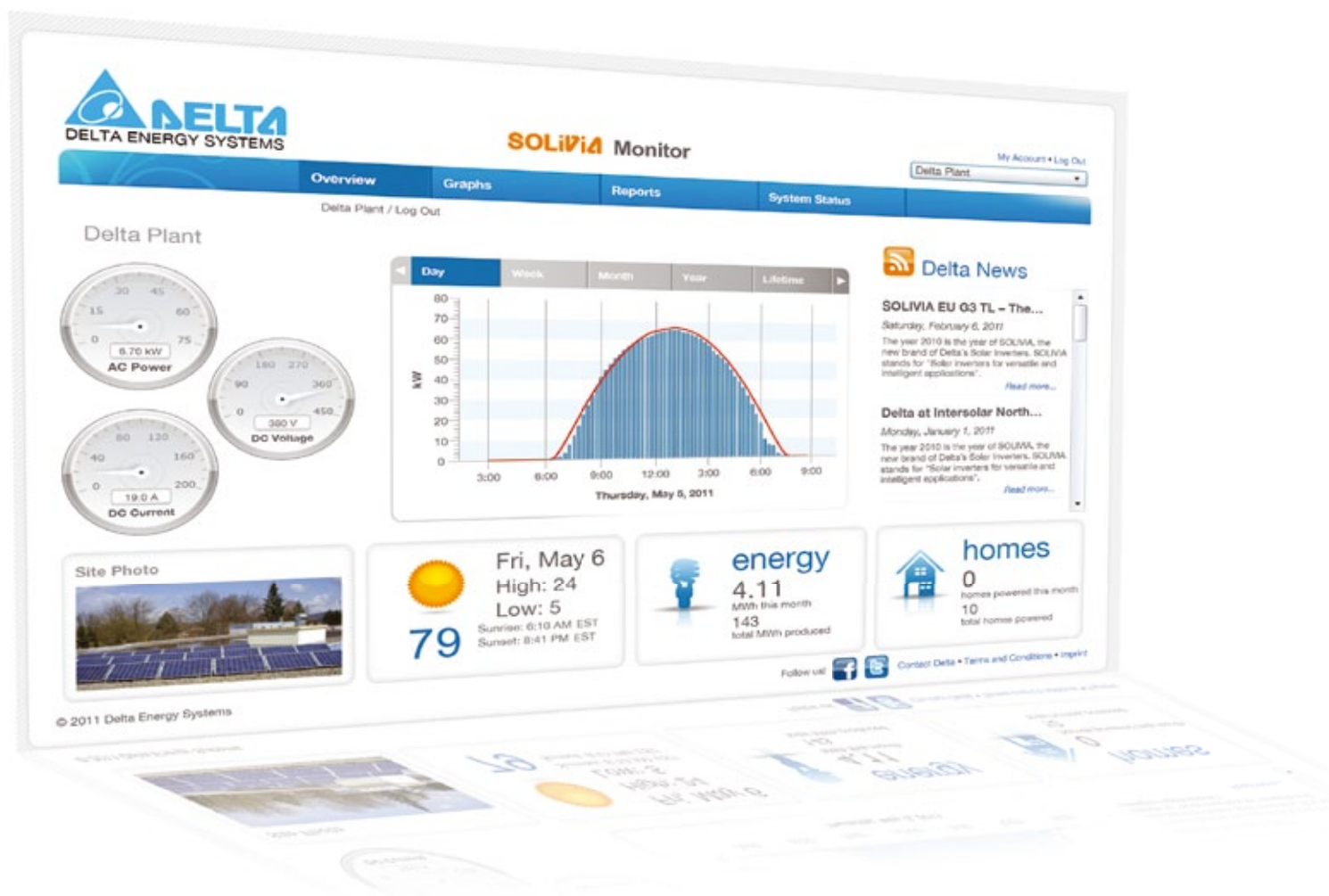


Turn-key monitoring system

The SOLIVIA Monitor system includes the gateway, database, and web application to allow a complete monitoring solution of one or many solar PV systems.

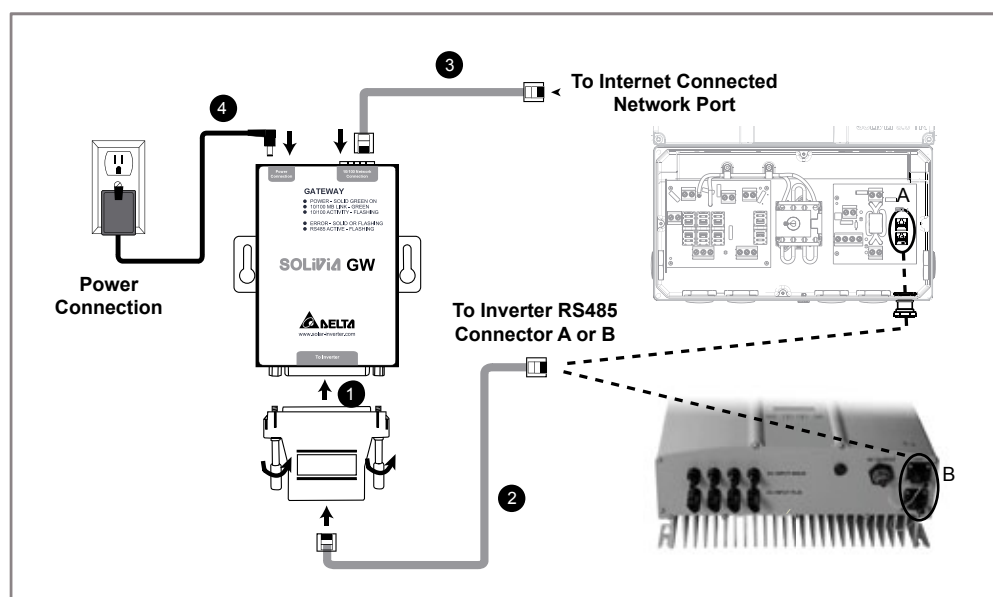
SOLIVIA Monitor

The SOLIVIA Monitor is ideal for monitoring residential PV solar systems due to its user-friendly interface that provides a quick overview of key values, yield data and system status. Easy to understand graphical charts and reports are displayed with a push of a button. Also provided are display of the user's site photos, user's local weather data, and environmental savings. SOLIVIA Monitor allows installers to monitor their customers' plants.



Technical data SOLIVIA Monitor

SYSTEM REQUIREMENTS	
Supported operating systems	Microsoft Windows, Mac OS X
LANGUAGES	
Available languages	English, French, Spanish, Italian, German, Czech, Portuguese, Slovak, Dutch, Simplified Chinese, Traditional Chinese, Korean, Thai
SOFTWARE	
Required plug-in	Microsoft Silverlight 4.0 for Windows and Mac
Supported browsers	Internet Explorer Ver. 6 SP1 or 7 or later, Mozilla Firefox 3.0 or later, Safari (for Mac), Google Chrome
Supported gateway	SOLIVIA GW gateway
VISUALIZATION OF YIELD AND VALUES	
Diagram types	Bar graphs, line charts, tables
Time periods	From 5 minutes to 1 year, various time intervals in between
OVERVIEW PAGE	
Overview page components	Overview page has modules for site photos, environmental savings, weather, and tables
PV SYSTEM INFORMATION	
PV system status	Properties and parameters of your PV system are shown
Year-by-year comparison	Quick yield overview for the lifetime of the PV system
Event summary	View event messages in chronological order
PV SYSTEM MANAGEMENT	
SOLIVIA monitor portal	Log in to view all plants with one password
GRAPHS	
Standard graphs	Standard graphs for performance, yield, and DC V - DC A for each inverter or multiple inverters in the PV system
Data download	Download to a CSV file or copy to the clipboard
REPORTS	
Standard reports	Standard reports for performance, yield, and DC V - DC A for each inverter or multiple inverters in the PV system
Data download	Download to a CSV file or copy to the clipboard
MONITORING	
Inverter monitoring	Continuous monitoring between the SOLIVIA inverter and SOLIVIA GW gateway, alert email when connection is disrupted
Communication monitoring	Continuous monitoring between SOLIVIA Monitor and SOLIVIA GW gateway, alert email when connection is disrupted
PORTAL ACCESS	
User roles	Viewing and configuration rights are controlled by assigning roles of guest, standard user, plant administrator
Security	User accounts are password protected



Plug & Play setup of SOLIVIA Monitor hardware

The SOLIVIA GW gateway is easy to setup. The DB25 to RJ45 adapter pictured comes with the gateway. International power adapter is provided.

SOLIVIA Accessories from Delta

Service Software Kit

The service software is offered within a kit, consisting out of a Delta RS485 cable and a USB to RS485 converter. The software which is necessary to use the kit can be downloaded from our website free of charge. The software enables the installer e.g. to adapt settings, realize firmware upgrades and other updates without any need to open the inverter. The memory from every inverter can be stored and readout with the software in order to facilitate maintenance and on-site service.

PART NUMBER DELTA	SERVICE SOFTWARE KIT
EOE90000220	Kit for all SOLIVIA string inverters and SOLIVIA CM central inverters
	Download: download.solar-inverter.com



Grounding kit

The SOLIVIA string inverters can be used with all common photovoltaic module types, even with back-contact modules and thin-film modules that require positive or negative DC grounding. With the optional grounding kit from Delta, the SOLIVIA inverters are a perfect fit for these applications.

PART NUMBER DELTA	GROUNDING KIT
EOE99000275	Kit for grounding Delta's Asian-Pacific solar inverters SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR



SOLIVIA Accessories from others

Connection cables - Harting

PART NUMBER DELTA	CONNECTION CABLE
3081129500	Connection cable from Delta solar inverter to WEB'Logger from Meteocontrol: - Assembled outdoor cable with Harting RJ45 PushPull and RJ12 plugs, IP65, length of 5 meters - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
3081186300	Connection cable from inverter to inverter: - Harting PushPull system cable RJ45, 8-core for IP65/67 applications, length of 1.5 meters - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
3081186500	Connection cable from inverter to inverter: - Harting PushPull system cable RJ45, 8-core for IP65/67 applications, length of 3.0 meters - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
3081186600	Connection cable from inverter to inverter: - Harting PushPull system cable RJ45, 8-core for IP65/67 applications, length of 5.0 meters - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
3081186200	Connection cable from inverter to inverter: - Harting PushPull system cable RJ45, 8-core for IP65/67 applications, length of 10.0 meters - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
3081186400	Connection cable from inverter to inverter: - Harting push-pull system cable RJ45, 8-core for IP65/67 applications, length of 20.0 meters - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR



DC disconnecter - Santon

The DC disconnecter, which is mandatory for connection to the grid, is not integrated in the Asian-Pacific SOLIVIA inverters yet. For these solar inverters you can buy an external DC disconnecter.

PART NUMBER DELTA	DC DISCONNECTOR
3000183292	Two-pole DC disconnecter, 600V/25A, DC21, IP65 for max. 5 strings, without overvoltage protection.
3000187692	Two-pole DC disconnecter, 600V/25A, DC21, IP65 for max. 4 strings, with overvoltage protection.

DC disconnectors with integrated overvoltage protection are available on request



PV plug connectors - Multi-Contact MC4

PART NUMBER DELTA	PLUG CONNECTORS
	Female cable coupler as individual part (including insulating part) Type: PV-KBT4/2,5I-UR; Ø range of cable gland: 3 – 6 mm - Conductor cross section: 1.5 - 2.5 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Male cable coupler as individual part (including insulating part) Type: PV-KST4/2,5I-UR; Ø range of cable gland: 3 – 6 mm - Conductor cross section: 1.5 - 2.5 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Female cable coupler as individual part (including insulating part) Type: PV-KBT4/2,5II-UR; Ø range of cable gland: 5.5 – 9 mm - Conductor cross section: 1.5 - 2.5 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Male cable coupler as individual part (including insulating part) Type: PV-KST4/2,5II-UR; Ø range of cable gland: 5.5 – 9 mm - Conductor cross section: 1.5 - 2.5 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Female cable coupler as individual part (including insulating part) Type: PV-KBT4/6I-UR; Ø range of cable gland: 3 – 6 mm - Conductor cross section: 4 - 6 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Male cable coupler as individual part (including insulating part) Type: PV-KST4/6I-UR; Ø range of cable gland: 3 – 6 mm - Conductor cross section: 4 - 6 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Female cable coupler as individual part (including insulating part) Type: PV-KBT4/6II-UR; Ø range of cable gland: 5.5 – 9 mm - Conductor cross section: 4 - 6 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR
	Male cable coupler as individual part (including insulating part) Type: PV-KST4/6II-UR; Ø range of cable gland: 5.5 – 9 mm - Conductor cross section: 4 - 6 mm ² - Suitable for Asian-Pacific SOLIVIA 2.5 TR, SOLIVIA 3.0 TR, SOLIVIA 3.3 TR and SOLIVIA 5.0 TR





www.solar-inverter.com

EUROPE

Delta Energy Systems (Germany) GmbH

Tscheulinstrasse 21

79331 Teningen

Germany

Sales Email: sales@solar-inverter.com

Support Email: support@solar-inverter.com

ASIA-PACIFIC

Delta Electronics (Korea) Inc.

Duksoo B/D 7F, 234-9, Nonhyung-dong

Kangnam-gu, Seoul 135-010

Korea

Phone: +82 (2) 515 5303/5

Fax: +82 (2) 515 5302

Sales Email: sales.korea@solar-inverter.com

Support Email: support.korea@solar-inverter.com

Delta Energy Systems (India) Pvt. Ltd.

Ozone Manay Tech Park,

'A' Block, 3rd Floor, Survey No, 56/18 & 55/9,

Hosur Road, Hongasandra Village,

Bangalore – 560068, Karnataka

Phone: +91 (0) 80 67164777 (Extn 5284)

Mobile: +91 9900 001724

Sales Email: sales.india@solar-inverter.com

Support Email: support.india@solar-inverter.com

Delta Electronics (Thailand) Plc.

909 Moo 4, E.P.Z., Bangpoo Industrial Estate

Tambon Prakasa, Amphur Muang Samutprakarn

Samutprakarn 10280

Thailand

Phone: +662 709 2800 (Extn 6352)

Fax: +662 709 2826

Sales Email: sales.thailand@solar-inverter.com

Support Email: support.thailand@solar-inverter.com

Delta Energy Systems (Australia) Pty. Ltd.

Suite 13, Level 4, 150 Albert Road,

South Melbourne, VIC 3205,

Australia

Business inquiry: +61 3 8414 8293

Service support: +61 3 8414 8295

Fax: +61 3 9685 7599

Sales Email: sales.australia@solar-inverter.com

Support Email: support.australia@solar-inverter.com

