

# VarioString

## VS-120

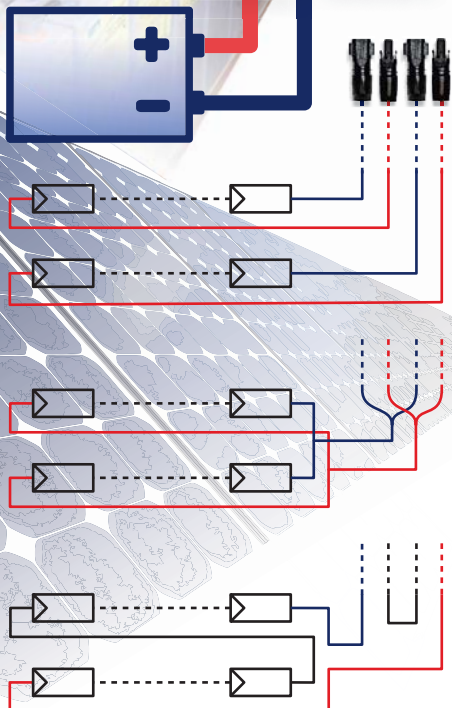
Dual MPPT solar charge controller 120A/48V

Fully isolated dual MPPT inputs up to 600V<sub>(Voc)</sub> (2x3.5kWp) or up to 900V<sub>(Voc)</sub> (7kWp) with MPPT inputs in series

- **Reduces Balance of System costs** (Eliminates expensive wiring for parallel strings, saving wires, connectors, junction boxes, fuses, space, time, etc)
- **Safe, simple and trouble free connection** with SUNCLIX™ (Phoenix Contact “tool free”) PV connector
- **Fully protected** against incorrect wiring
- **Simplified safety rules** by full isolation between PV and battery and between MPPT inputs
- Any grounding strategy applicable thanks to isolated MPPT inputs. **Grounding system fault detection**
- Fast, precise, best in class tracking algorithm brings **MPPT efficiency >99%**
- World champion for efficiency in isolated converter with **>98 % conversion efficiency**
- **7kW** per unit and up to 15 units in parallel: **105kW**
- Low self-consumption : **< 1,2W in night mode**
- **4 step charger** fully programmable for longer battery life
- **9 LEDs** to monitor status and current
- Optimal usage in an **Xtender system** with synchronized battery management
- Web access through **Xcom-LAN** or **Xcom-GSM** (opt.)



Comprehensive display, programming and data logging features with RCC-02/-03 (opt.)



SUNCLIX™ (Phoenix Contact “tool free”) 2 pairs supplied with unit

**Two independent MPPT inputs each with 200 - 600Voc (2 x 3.5kWp)**  
Two MPPT inputs allow independent tracking of 2 different PV strings, Voc, and/or power, which brings optimized efficiency and greater flexibility for building integration.

**Two MPPT inputs in parallel each with 200 - 600Voc (2 x 3.5kWp)**  
Parallel wiring allows simplified wiring with lower voltage when strings are same size, power and orientation.

**Two MPPT inputs in series with 400 - 900Voc (7kWp)**  
Serial wiring allows the greatest flexibility and simplest wiring with any PV module on the market.

**...Flexibility without compromise!**



**VS - 120**

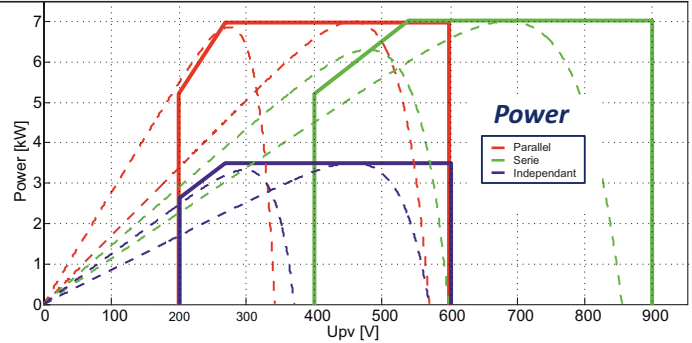
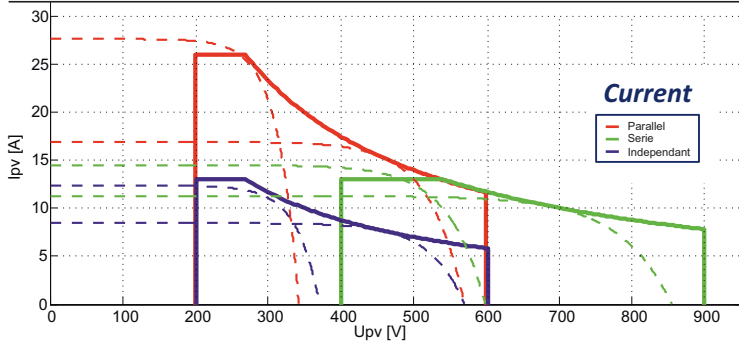


### Technical Specifications

Performance of the device				
Galvanic isolation	✓			
Maximum conversion efficiency	>98%			
MPPT efficiency	>99%			
PV grounding possibility	PV +, PV -, floating			
Ground fault detection	Programmable			
Charging stages	4 stages: Bulk, Absorption, Float, Equalization			
Battery temperature compensation (available with accessory BTS-01)	-3mV/°C/cell default value adjustable -8 to 0mV/°C			
Stand-by self-consumption (night)	25mA (1,25W)			
Electrical characteristics PV array side				
	MPPT 1	MPPT 2	1 + 2 in parallel	1 + 2 in series
Maximum solar power recommended (@STC)	3500W	3500W	7000W	7000W
Maximum current (Isc)	13A	13A	26A	13A
Maximum open circuit voltage (Voc)	600V	600V	600V	900V
Minimum functional circuit voltage	200V	200V	200V	400V
Recommended MPPT voltage	250-500V	250-500V	250-500V	500-750V
Electrical Characteristics battery side				
Maximum output current	120A (60A per MPPT)			
Nominal battery voltage	48V			
Operating voltage range	38-68V			
Remote temperature sensor (opt.)	BTS-01 or BSP 500/1200			
Battery grounding possibility	Batt +, Batt -, floating			
Electronic protections				
PV reverse polarity	✓			
Over temperature	✓			
Reverse current at night	✓			

Environment	
Operating ambient temperature range	-20 to +55°C
Humidity	maximum 95%, non-condensing
Ingress protection of enclosure	IP20
Mounting location	Indoor
General Data	
Warranty	5 years
Weight	7.5kg
Dimensions h/w/l [mm]	133/322/466
Solar generator connection (6mm <sup>2</sup> )	SUNCLIX™ (Tool free) 2 pairs supplied with unit
Max wire size (battery)	70mm <sup>2</sup>
Glands (battery)	2xPG21
Communication	
Network cabling	Studer communication bus
Remote control and display	RCC-02/03 / Xcom-232i / Xcom-LAN / Xcom-GSM
Menu languages	English/French/German/Spanish
Data logging	With RCC-02/03 on SD card * One point every minute
Accordance to standards	
CE compliant	EMC 2004/108/CE * LV 2006/95/CE * RoHS 2002/95/CE
Safety	IEC/EN 62109-1:2010
EMC (Electro Magnetic Compatibility)	IEC/EN 61000-6-3:11 * IEC/EN 61000-6-12005

### Operating range



### VarioString + Xtender: an optimal solution for hybrid systems

