



TriStar MPPT 60 Advantages Comparison Chart

Morningstar TriStar MPPT 60 Advantage	TriStar MPPT TS-MPPT-60	OutBack FLEXmax 60/80	Schneider XW 60 150
Highest Efficiency for all conditions = Highest MPPT boost. Multiple Power Stages: Superior Low Power Performance during sunrise & low solar levels provides more charging for critical time periods (several days of cloudy weather). It's like having gears on a bike to make it up hills.* see note	Peak Efficiency = 99% Multi-Stage power >+3% higher efficiency at lower power. Highest efficiency for all conditions	Peak Efficiency = 98.1 > 2% efficiency drop at full high power levels. >3% less efficient than TS-MPPT at low power.	Not published but tested at lower efficiency under all conditions and >3% less efficient than TS-MPPT at low power.
Lowest Self Consumption. No fans.	1.7W +1W with Ethernet No fan.	9 Watts max. Fan uses power.	4 Watts max. No fan. Highest idle power usage.
Highest Reliability due to best environmental protections and fewer components prone to failure. Less maintenance and remote site visits. Quieter Operation – No Fans or mechanical relays.	Epoxy encapsulated Inductors. Conformally Coated Circuit Boards. No fans, no mechanical relays.	Noisy Fans and mechanical relays prone to failure.	Mechanical relays prone to failure. Relays make irritating clicking noise.
Widest ambient temperature rating at full power	-40°C to +45°C	-40°C to +40°C	-20°C to +45°C
Best MPPT Tracking- Most Accurate and highest efficiency. More energy harvest due to more time operating on the maximum power point.	¼ - ½ second sweep Adjusts frequency of sweeps for conditions	Losses power due to very slow tracking 30-60 sec. sweep	Can get stuck on non-maximum power point.
Built-in PC or Remote Communication Capabilities. No need to buy expensive auxiliary equipment. More communications options at lower cost.	Ethernet, RS-232 or RJ-485 Open Industry-Standard MODBUS protocol	Mate/Mate 2- RS-232 only Costly Mate 3- Ethernet (Non-Industry standard)	XWCT- PC connection only configuration/ firmware only
Voltage Sensor- obtains accurate battery voltage level so there is no undercharging due to voltage drop.	Voltage sensor 16 to 24 AWG terminal	Operator must measure V battery & calibrate.	No Voltage Sensor or calibration option.
Smallest footprint and overall form factor at this power level (inches/ Lbs.)	11.4 x 5.1 x 5.6 9.2 Lbs.	13.75/16.25 x 5.75 x 4.5; 11.65 Lbs./12.2 Lbs.	14.5 x 5.75 x 5.5; 40% larger by volume; 10.75Lbs
Radio Frequency Radiation Interference FCC Class B Part 15 Compliance	FCC Class B Part 15 Compliant	No FCC Compliancy	FCC Class B Part 15 Compliant
17 years with same ownership, management and strategy	17 years with same ownership; Stable; Long term employees	Taken over by larger Corp. New president & large turnover of employees. Manufacturing in China	Taken over by large Corp. Degraded return policy; Major turnover in management.
Morningstar Corporation experience and reputation. Leading supplier of solar controllers	250,000 controllers per year	Inverter supplier primarily	Electrical distribution and inverter supplier primarily

* - Multiple Power Stages allow the controller to run at 1 of 3 power levels to maximize efficiency relative to need.