SS-MPPT

Bit		Array Fault	LED Indication: Charging Status	LED Indication: Battery Status	Description	Causes	Solutions
0	1	Overcurrent	Blink R		The charge current exceeds the controller's rating	PV Array is too large	Consult the documentation for maximum current ratings
1	2	FETs shorted	Solid R		MOSFET(s) damaged - short circuited	The current sense circuitry is malfunctioning A power MOSFET is damaged (short circuited) An external short has occurred	Contact distributor for service Contact distributor for service Be sure the positive power terminals are not wired together externally
2	3	Software bug	Solid R		A software error has occurred in the processor	This is an internal software problem	Update to latest firmware from the Morningstar website
3	4	Battery HVD	Blink R		Battery voltage exceeds high voltage disconnect threshold - halt in charging	Another charging source in the system is over-charging the battery	Remove the other charging source, check its operation and charging voltage. Keep the charging voltage at or below the SSMPPT charging voltage.
4	5	Array HVD	Blink R		PV input voltage above safe operating limit	Power MOSFETs may be shorted Array input voltage exceeds operational ratings	Contact distributor for service Consult documentation for maximum array voltage. Keep array voltage below maximum rating. Be sure to take into account temperature effects on the array Voc.
5	6	EEPROM setting edit (reset required)	Blink R	R - Y - G	EEPROM settings edited while running	A set point was changed via custom programing	Restart/power cycle to reset. MSView Coil Reset command may also be used.
6	7	RTS shorted	Blink R	R/Y - G/Y	Short circuit detected in Remote Temp Sensor	The RTS cable has been pinched or otherwise shorted The RTS terminal connections have collected dust/moisture and are causing an erroneous reading	Inspect RTS cable and connection Inspect RTS terminals for dust/dirt/moisture and clean with alcohol if necessary
7	8	RTS disconnected	Blink R	R/Y - G/Y	Remote Temp Sensor has been disconnected (was properly connected)	The RTS is no longer detected. Previously a valid RTS signal was present.	Inspect the RTS connection for loose wires. Inspect the RTS cable for breaks.
8	9	Local Temp. Sensor Failed	Solid R		Damaged local (ambient) temp sensor	Local Temp. Sensor has been damaged	Contact distributor for service
9-15	10-16	unused					
		Load Fault					
0	17	External Short Circuit		R/G - Y	External wiring short circuit	A short occurred on a power cable A system miswire	Inspect the system wiring for shorts, damaged insulation, etc. Be sure the positive power terminals are not wired together externally
1	18	Load Over-current		R/Y - G	Load current draw exceeds the controllers rating	Damaged load causing excessive current draw Load draws more than SSMPPT rated current	Inspect and test load for proper operation Reduce loads connected to SSMPPT load terminals. Connect these loads directly to battery instead.
2	19	Load MOSFETs damaged		R - Y - G	Load MOSFETs shorted	Damaged load causing excessive current draw Voltage on the Load terminals An external short has occurred A power MOSFET is damaged (short circuited)	Inspect and test load for proper operation Verify there are no other power sources connected to the load output circuit Be sure the positive power terminals are not wired together externally Contact distributor for service
3	20	Software bug		R - Y - G	A software error has occurred in the processor	This is an internal software problem	Update to latest firmware from the Morningstar website
4	21	Load HVD		R - G	Battery voltage exceeds load high voltage disconnect threshold	Another charging source in the system is over-charging the battery	Remove the other charging source, check its operation and charging voltage. Keep the charging voltage at or below the SSMPPT charging voltage.
5	22	High Temp. Disconnect		R - Y	Heatsink temperature exceeds safe operating limits - load disconnected	Poor airflow around controller Excessive ambient temperature	Ensure controller is mounted in a position with enough clearance on all sides. See manual for more information. Check ambient temperature at the controller location. Ensure temperature is below maximum temp rating of SSMPPT. See manual for more information.
6	23	EEPROM setting edit (reset required)		R - Y - G	EEPROM settings edited while running	A set point was changed via custom programing	Restart/power cycle to reset. MSView Coil Reset command may also be used.
7	24	unused					
Bit		**Alarm**					
0	1	RTS open			Remote Temp Sensor Disconnected (always set if no RTS connected)	RTS not connected	RTS not required for operation, RTS can be connected if desired for more accurate temperature compensated charging
1	2	RTS shorted		R/Y - G/Y	Short circuit detected in Remote Temp Sensor	See **Array Fault: RTS shorted** above.	See **Array Fault: RTS shorted** above.
2	3	RTS disconnected		R/Y - G/Y	Remote Temp Sensor has been disconnected (was properly connected)	See **Array Fault: RTS disconnected** above.	See **Array Fault: RTS disconnected** above.

Bit		Array Fault	Charging Status	Battery Status	Description	Causes	Solutions
3	4	Ths open			Heatsink Temp. Sensor Open	Damage to heatsink temperature sensor	Without accurate temperature sensor, controller cannot prevent the heatsink temperature from exceeding safe levels. Contact distributor for service.
4	5	Ths shorted			Heatsink Temp. Sensor Shorted	Damage to heatsink temperature sensor	Without accurate temperature sensor, controller cannot prevent the heatsink temperature from exceeding safe levels. Contact distributor for service.
5	6	SSMPPT hot			Heatsink High Temperature Warning, reduction of charging current	Poor airflow around controller Excessive ambient temperature	Ensure controller is mounted in a position with enough clearance on all sides. See manual for more information. Check ambient temperature at the controller location. Ensure temperature is below maximum temp rating of SSMPPT. See manual for more information.
6	7	Current limit			Active limiting of charging current	Input power exceeds controller rating	No action required, controller will operate at full rated output.
7	8	Current offset			Erroneous current reading when there should be zero current, could lead to inaccurate load and/or array current measurements	Failed current offset routine Damage to current measurement circuit	Reboot controller and allow sweep of array input. Check if Alarm returns Contact distributor for service
8-9	9-10	unused					
10	11	Uncalibrated			Factory calibration was not performed, inaccurate current and/or voltage readings may result	Calibration of measurement circuits not performed at factory	Contact distributor for service.
11	12	RTS miswire		R/Y - G/Y	Remote Temp Sensor wired incorrectly		
12-13	13-14	unused					
14	15	miswire			External system wiring error	Wiring installation error	Check all wiring for correct connections, check for short circuits and unconnected wires.
15	16	FET open			MOSFET(s) damaged - open circuit	Hardware failure	Contact distributor for service
16	17	P12			P12 Internal power supply out-of-range. Unit should still operate correctly, but this is an indication of a potential hardware failure.	Internal hardware problem	Contact distributor for service
17	18	high Va current limit			PV input voltage too high, current limiting to protect hardware	Array input voltage too high for safe operation	Consult documentation for maximum array voltage. Keep array voltage below maximum rating. Be sure to take into account temperature effects on the array Voc.
18	19	Alarm 19 (Power On Reset)			A power down reset has occurred	Controller has lost power	None required
19	20	Alarm 20 (LVD Condition)			Low Voltage Disconnect (load) condition has occurred and the load was disconnected	Battery voltage has dropped below the load low voltage disconnect threshold	None required – condition will recover when battery bank charges up to a higher level
20	21	Alarm 21 (Log Timeout)			24hrs since last log entry write	Controller has not detected a complete sunrise/sunset cycle in the last 24hrs.	Could indicate excessively low array voltage, high ambient light conditions at night, or miswiring of the solar array. Check all of these factors.
21-23	22-24	unused					