

If the ground fault cannot be eliminated, contact AE Solar Energy Technical Support.

Related Links

- [“System Startup Procedure” on page 5-1](#)

INVERTER FAULT CODES

The inverter display screen provides fault information. In addition, the inverter firmware utilizes a Modbus variable to indicate a fault condition. Each bit in this fault variable represents a fault type, the same fault type displayed on the screen. The Modbus information for the bit assignments and specific fault variables for the fault categories are as follows:

Table 8-2. Fault categories

Description	Screen Display Category	Bit Number	Hex Value	Decimal Value
Modbus register number = 42102				
Drive fault	DRV	0	1	1
Voltage fault	VLT	1	2	2
Grid fault	GRD	2	4	4
Temperature fault	TMP	3	8	8
System fault	SYS	4	10	16
Latching fault		15	8000	32768

For each fault category, another fault variable provides detailed information on which fault has occurred within this category. The following tables list the possible faults within each category and related information:

- Hexidecimal value: Value displayed following the category
- Screen display text: Text displayed on the second screen
- Description: Describes the fault
- Action: Necessary steps to resolve the fault

Drive Faults

The following table lists the drive protection faults.

Contact AE Solar Energy Technical Support for assistance with resolving a drive fault.

Table 8-3. Drive (DRV) faults

Display Screen Hexadecimal Value	Display Screen Text	Description
0001	DRIVE A LOW	Drive protection fault, phase A low
0002	DRIVE A HIGH	Drive protection fault, phase A high
0004	DRIVE B LOW	Drive protection fault, phase B low
0008	DRIVE B HIGH	Drive protection fault, phase B high
0010	DRIVE C LOW	Drive protection fault, phase C low
0020	DRIVE C HIGH	Drive protection fault, phase C high
0040	HW OVERCURRENT A	Peak over-current, phase A
0080	HW OVERCURRENT B	Peak over-current, phase B
0100	HW OVERCURRENT C	Peak over-current, phase C
0200	RMS OVERCURRENT A	RMS over-current, phase A
0400	RMS OVERCURRENT B	RMS over-current, phase B
0800	RMS OVERCURRENT C	RMS over-current, phase C
1000	DC OVERVOLTAGE	DC volts over range
2000	DC UNDERVOLTAGE	DC volts under range

Voltage Faults

The following table lists the voltage faults, including VAC sense, VDC, and the power supply.

Contact AE Solar Energy Technical Support for assistance in resolving a voltage fault.

Table 8-4. Voltage (VLT) faults

Display Screen Hexadecimal Value	Display Screen Text	Description
0001	VAC OVER PEAK A	Peak AC voltage high, phase A
0002	VAC OVER PEAK B	Peak AC voltage high, phase B
0004	VAC OVER PEAK C	Peak AC voltage high, phase C
0008	PLL FAULT	Control PLL fault
0010	AC UNBALANCED FAULT	AC voltages unbalanced
0020	DC OVER VOLTAGE	DC voltage high
0040	POWER SUPPLY P5	5 V power supply fault
0080	POWER SUPPLY P15	15 V power supply fault

Table 8-4. Voltage (VLT) faults (Continued)

Display Screen Hexadecimal Value	Display Screen Text	Description
0100	POWER SUPPLY M15	-15 V power supply fault
0200	POWER SUPPLY 10	10 V power supply fault
0400	POWER SUPPLY 24	24 V power supply fault
0800	POWER SUPPLY 48	48 V power supply fault
1000	DC PRECHARGE	DC precharge fault
2000	PV-DC DELTA	PV input and DC bus voltage delta

Grid Faults

The grid faults in the following table include grid interactive voltage and frequency faults.

For all grid faults, the action is to wait for the grid to stabilize. The inverter cannot operate correctly when the grid voltage is out of range limitations or is unstable.

Table 8-5. Grid (GRD) faults

Display Screen Hexadecimal Value	Display Screen Text	Description
0001	AC FAST UNDERVOLT A	Fast AC voltage low, phase A
0002	AC FAST UNDERVOLT B	Fast AC voltage low, phase B
0004	AC FAST UNDERVOLT C	Fast AC voltage low, phase C
0008	AC SLOW UNDERVOLT A	Slow AC voltage low, phase A
0010	AC SLOW UNDERVOLT B	Slow AC voltage low, phase B
0020	AC SLOW UNDERVOLT C	Slow AC voltage low, phase C
0040	AC FAST OVERVOLT A	Fast AC voltage high, phase A
0080	AC FAST OVERVOLT B	Fast AC voltage high, phase B
0100	AC FAST OVERVOLT C	Fast AC voltage high, phase C
0200	AC SLOW OVERVOLT A	Slow AC voltage high, phase A
0400	AC SLOW OVERVOLT B	Slow AC voltage high, phase B
0800	AC SLOW OVERVOLT C	Slow AC voltage high, phase C
1000	AC UNDER FREQ	Low frequency fault
2000	AC OVER FREQ	High frequency fault

Temperature Faults

The following table lists the temperature faults.

All temperature faults may be resolved by:

- Cleaning all the filters
- Make sure air vents aren't blocked and sufficient space is provided around all air vents.

If the filters are clean and air flow is insufficient, contact AE Solar Energy Technical Support.

Table 8-6. Temperature (TMP) faults

Display Screen Hexadecimal Value	Display Screen Text	Description
0001	HEATSINK TEMP A1	Module heat-sink A1 temperature high
0002	HEATSINK TEMP A2	Module heat-sink A2 temperature high
0004	HEATSINK TEMP B1	Module heat-sink B1 temperature high
0008	HEATSINK TEMP B2	Module heat-sink B2 temperature high
0010	HEATSINK TEMP C1	Module heat-sink C1 temperature high
0020	HEATSINK TEMP C2	Module heat-sink C2 temperature high
0040	BOARD TEMP HI	Control board temperature high
0080	DRIVE TEMP LOW	Drive temperature low
0100	MAGNETICS TEMP HI	Magnetics temperature high
0200	AMBIENT TEMP LOW	Ambient temperature low
0400	MAG TEMP LOW	Magnetics temperature low
0800	IPM TEMP HIGH	IPM temperature high
1000	INDUCTOR TEMP HIGH	Inductor temperature high

System Faults

The following table lists the system faults.

Table 8-7. System (SYS) faults

Display Screen Hex Value	Display Screen Text	Description	Action
0001	GROUND FAULT	Ground fault	Check the PV array field wiring.

Table 8-7. System (SYS) faults (Continued)

Display Screen Hex Value	Display Screen Text	Description	Action
0002	AC CONTACTOR	AC contactor fault	Contact AE Solar Energy Technical Support for service.
0004	DC CONTACTOR	DC contactor fault	
0008	WD TIMER	Watchdog fault	
0010	CPU LOAD	CPU load fault	
0020	RESTART LIMIT	Too many fault restarts	
0040	CONFIGURATION	Configuration fault	
0080	CURRENT IMBALANCE	AC current imbalance	
0100	AC VOLTAGE SENSE	No AC voltage detected	
0400	THERMAL SWITCH OPEN	Thermal switch open	
0800	DISCONNECT OPEN	Disconnect open	Check the DC wiring.
1000	DC MISWIRE	DC mis-wired for configured grounding	

PCB STATUS LEDs

The AE commercial inverter includes status LEDs to help troubleshoot system operation. The status LEDs are located on the following PCBs:

- Controller PCB
- Communications PCB

Controller PCB Status LEDs

There are two LEDs on the front of the controller PCB: one green and one red.

Table 8-8. Controller PCB LEDs

LED Color	Flash Code	LED Sequence / Unit Status	Action
Green	Solid	Inverter is on and ready to produce power.	None