



Troubleshooting SolarEdge Systems, Addendum (Europe & APAC)

This addendum is a supplement to the *SolarEdge Installation Guide versions 3.0 and above* (P/N MAN-01-00057-3.0 and above; <http://www.solaredge.com/sites/default/files/se-inverter-installation-guide.pdf>). This document describes error codes and how to troubleshoot them.

Error Codes

The error messages include an error number (in firmware version 3.18xx and before) or a code (in firmware version 3.19xx and later, including 4.x) and a description:

```
Error Code XXX
(3xD2)
Error Code 3xD2
```

```
<Line 1>
<Line 2>
```

XXX: The error number (firmware version 3.18xx and before).

(#-X#): A code indicating the source of error and the error information (firmware version 3.19xx and later, including 4.x).

Line 1-2: Error description

The error numbers/ codes may differ depending on the inverter type (single phase or three phase) as described in the table below. For troubleshooting errors that are not listed, contact SolarEdge support.

Make sure to have this information at hand when contacting SolarEdge Support for advanced troubleshooting.



WARNING!

All warnings and cautions in this manual should be adhered to while troubleshooting an error.

Error # Single Phase Inverter		Error # Three Phase Inverter		Error Message	Cause and Troubleshooting
CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
4, 5, 6, 8, 11, 12, 18, 22, 42, 45, 48	2x13, 2x15, 2x16, 3x2, 2x2D, 3xC, 3xF	45, 48, 94, 107-111, 113, 132-134, 140	3x2, 3xC, 3xF, 8x11 - 8x13, 8x3D, 8x4A - 8x4E, 8x50	SW Error	Contact SolarEdge Support.
N/A		112	8x4F	Wrong AC connection	Switch between L1 and L2 or L2 and L3 connections
9, 13, 111-113	2x9, 2xD 18x6F/70/71	N/A		AC Current Surge Vac surge	Ground current surge. - Check the AC connection to the inverter - Check with the grid operator if a large surge source or irregular load exists near the site. - If the grid does not have problems contact SolarEdge support.

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CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
10, 37, 38	2xA, 2x25, 2x26	76, 77, 90	8x2B, 8x2C, 8x39	Ground Current - RCD	Ground faults may occur due to insufficient insulation to the ground. WARNING!  ELECTRICAL SHOCK HAZARD. Do not touch uninsulated wires when the inverter cover is removed. Only a qualified technician should handle this problem, and only after taking proper precautions. 1. Turn the inverter ON/OFF switch to OFF. 2. Wait five minutes for the input capacitors to discharge. 3. Disconnect the AC breaker. 4. Disconnect the DC inputs. 5. Connect each DC string separately, turn the AC and the inverter ON/OFF switch to ON, until the error appears for the faulty string. • Do not connect strings with a grounding fault to the inverter. A certified installer must fix the faulty string before connecting it to the inverter • For further documentation, contact SolarEdge Support.
14	2xE	58/59/60	8x19/ 8x1A/ 8x1B	AC Voltage Too High (Line 1/2/3)	AC voltage surge. If the fault persists: • Check the AC connection to inverter. • Verify that the inverter is set to the correct country. • Check with the grid operator if a large surge source or irregular load exists near the site. • Verify that the output wire size matches the distance between the inverter and the location of the grid connection. • Use a larger gauge wire for the AC output. • Refer to the <i>AC Wiring Application Note</i> at: http://www.solaredge.com/files/pdfs/application-note-recommended-wiring.pdf 
15	2xF	85, 86, 88,	8x34, 8x35, 8x37	DC Voltage Too High (surge)	The SolarEdge system normally eliminates DC overvoltage errors. If the fault persists: • Turn OFF the inverter ON/OFF switch. If after five minutes, the LCD panel does not show a low safety voltage (1V per optimizer), check which string is malfunctioning and recheck its connections to the inverter. • Proceed according to the <i>Power Optimizer Troubleshooting</i> section of the installation guide. • Re-commission all inverters in the site, as described in <i>Commissioning the Installation</i>.

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CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
16, 149, 153, 181, 166-168, 170	2x10, 2x95, 2x59, 2xB5, 18xA6-A8, 18xAA	95, 106, 125, 126, 161, 162, 166, 172-175	8x3E, 8x49, 8x5C, 8x5D, 8x75-79, 8x7A-7F, 8x80-83	Hardware Error	Contact SolarEdge Support.
17, 117	2x11, 18x75, 2xB6	104, 163-165	8x47, 8x77-79	Temperature Too High	Over temperature - Verify proper inverter clearances. - Make sure the heat-sink fins are clean and unobstructed.
24	2x18	120	8x57	Faulty Temp. Sensor	Broken or unconnected temperature sensor. Contact SolarEdge Support.
	2xC5			RSD Error	Rapid Shutdown hardware error. Contact SolarEdge support.
25, 134	2x19, 18x86	121	8x58	Isolation Fault	PV solar array is not properly isolated from ground earth. - Check the PV installation for isolation problems and ground leakage. - Only a certified PV installer may fix the faulty string before connecting it to the inverter. - Refer to: www.solaredge.com/files/pdfs/application_note_isolation_fault_troubleshooting.pdf 
26	2x1A	122	8x59	Faulty AC Relay	Contact SolarEdge support.
28	2x1C	124	8x5B	RCD Sensor Error	
29, 30	2x1D, 2x1E	N/A		Phase Balance Error	- Check the grid connection. - Check the GND connection. - Check the L1, L2 and Neutral connections. - Verify symmetric load between L1, and L2 . - Consult the local grid authority.
31, 33	2x1F, 2x21	64/65/66	8x1F/ 8x20/ 8x21	AC Voltage Too High (Line 1/2/3)	Grid voltage is above the country limit. - Verify that the inverter is set to the correct country. - Turn OFF the inverters in the site and verify AC grid voltage. - If the inverter is located far from the connection point to the grid, use a larger gauge AC wire. - Consult the grid operator. - If permitted by local authorities, change the grid protection values.
32, 41	2x20, 2x29	61/62/63, 67/68/69	8x1C/ 8x1D/ 8x1E 8x22/8x23/8x24	AC Voltage Too Low	Verify that the inverter is set to the correct country.
34, 64-66	2x22, 18x40-59/A-F	79/80/81	8x2E/8x2F/8x30, 8x87-8x89	AC Freq Too High (Line 1/2/3)	- Consult the grid operator. - If permitted by local authorities, change the grid protection values.
35, 67-69	2x23, 18x40-59/A-F	82/83/84	8x31/8x32/8x33, 8x8A-8x8C	AC Freq Too Low (Line 1/2/3)	
36	2x24	72/74/75	8x27/8x29/8x2A	DC Injection (Line 1/2/3)	Contact SolarEdge support.

Error # Single Phase Inverter		Error # Three Phase Inverter		Error Message	Cause and Troubleshooting
CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
40	2x28	N/A		Islanding	Grid is down. When AC grid voltage returns the inverter will restart after the reconnection time. If the problem persists, consult with the grid operator.
44	2x2C	44	3xB	No Country Selected	Select the country, as described in the <i>Country and Grid</i> section of the installation guide.
46	3xA	46	3xA	Phase Unbalance	Select Power Control → Phase Balance → Disable .
N/A		70	8x25	VLL Max	Voltage too high - Verify that the inverter is set to the correct country. - Consult the grid operator. - If permitted by local authorities, change the grid protection values.
N/A		71	8x26	VLL Min	- Verify that the inverter is set to the correct country. - Consult the grid operator. - If permitted by local authorities, change the grid protection values.
N/A		78	8x2D	Grid Sync Error	Check grid voltage and frequency stability.
18x69, 18x6A-18x6E		91/92/93, 96/97/98	8x3A/8x3B/ 8x3C 8x3F/ 8x40/ 8x41	AC Over Current Line 1/2/3	Contact SolarEdge support.
N/A		49	8x10	Communication Error	Contact SolarEdge support.
N/A		99-101	8x42, 8x43, 8x44	AC Voltage Too High Line 1/2/3	- Verify that the inverter is set to the correct country. - Consult the grid operator. - If permitted by local authorities, change the grid protection values.
118 18x76		105	8x48	Temperature Too Low	Make sure the inverter is installed in a location with ambient temperatures within the range specified in the datasheet.
N/A		114	8x51	RCD Current Surge	- Refer to: www.solaredge.com/files/pdfs/application_note_isolation_fault_troubleshooting.pdf - Contact SolarEdge support.
N/A		115	8x52	Unbalanced DC Voltage	Contact SolarEdge support.
N/A		116	8x53	Common Voltage Too High	Contact SolarEdge support.
N/A		123	8x5A	Measurement Error	Contact SolarEdge support.
N/A		124	8x5B	Ground Current – RCD	Contact SolarEdge support.
N/A		87	8x36	Islanding - Active	AC grid voltage malfunction. When AC voltage returns the inverter should restart after the reconnection time. If the problem persists, consult with the grid operator.
144	2x90	89	8x38	Islanding - Passive	AC grid voltage malfunction. When AC voltage returns the inverter should restart after the reconnection time. If the problem persists, consult with the grid operator.



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145	2x91	102	8x45	UDC Max	Contact SolarEdge support.
146	2x92	103	8x46	UDC Min	Contact SolarEdge support.
147, 150, 151, 12	3x11, 2x96, 2x97, 18xC, 18x8E	147, 150, 151	3x11, 2x96, 2xC6, 2x97, 8xC	Arc Fault Detected	Refer to http://www.solaredge.com/sites/default/files/arc_fault_detection_application_note.pdf
152	2x98	152		Arc detector self-test failed	
178	3x6D		3x6D	Internal RGM Error	Check, the Energy Meter CTs wiring.
185	3x6E		3x6E	Energy Meter Comm. Error	Refer to the Energy Meter troubleshooting at: https://www.solaredge.com/sites/default/files/se-energy-meter-with-modbus-installation-guide.pdf
	18x98, 18x99	1-4, 6-7	8x66 - 8x69 8x6A - 8x6F	Fan # Failure	Clean or replace the fan
13	18xD			ARC_PWR_DETECT	Refer to: https://www.solaredge.com/sites/default/files/arc_fault_detection_application_note.pdf
55	18x37			V-Line Max	AC voltage too high - Verify that the inverter is set to the correct country. - Turn OFF the inverters in the site and verify AC grid voltage. - If the inverter is located far from the connection point to the grid, use a larger gauge AC wire. - Consult the grid operator. - If permitted by local authorities, change the grid protection values. Refer to: http://www.solaredge.com/files/pdfs/viewing_grid_protection_values.pdf
56	18x38			V-Line Min	AC voltage too low - Verify that the inverter is set to the correct country. - Consult the grid operator. - If permitted by local authorities, change the grid protection values. Refer to: http://www.solaredge.com/files/pdfs/viewing_grid_protection_values.pdf
57, 59, 60	18x39/3B/3C			I-ACDC L1/L2/L3	AC overcurrent. Contact SolarEdge support.
61	18x3D			I-RCD STEP	Ground Current – RCD. Contact SolarEdge support.
100-102	18x64-66			TZ L1/L2/L3	AC overcurrent. Contact SolarEdge support.

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CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
158	18x9C-18x9E			Controller 3/12/34 Err	Contact SolarEdge support.
199	18xC7,			RSD Error	Rapid Shutdown hardware error. Contact SolarEdge support.
	2xC5			Rapid shutdown test failed	Check safe VDC voltage and if doesn't drop below 30V, check string voltage. Set rapid shutdown functionality. Check the inverter for internal damage.
			8xB8	Pairing Error	Contact support.
127	18x7F			IRCDMax	RCD current surge. Ground faults may occur due to insufficient insulation to the ground. WARNING!  ELECTRICAL SHOCK HAZARD. Do not touch uninsulated wires when the inverter cover is removed. Only a qualified technician should handle this problem, and only after taking proper precautions. 1. Turn the inverter ON/OFF switch to OFF. 2. Wait five minutes for the input capacitors to discharge. 3. Disconnect the AC breaker. 4. Disconnect the DC inputs. 5. Connect each DC string separately, turn the AC and the inverter ON/OFF switch to ON, until the error appears for the faulty string. - Do not connect strings with a grounding fault to the inverter. A certified installer must fix the faulty string before connecting it to the inverter - For further documentation, contact SolarEdge Support.
169	18xA9			RCD Error	RCD Sensor Error. Contact SolarEdge support.
133	18x85			Temp Sensor fault	Broken or unconnected temperature sensor. Contact SolarEdge Support.
123	18x7B			MainError	Grid measurements are out of range. Contact the grid operator.
96,98	18x60/18x62			Islanding Trip1/2	AC grid voltage malfunction. When AC voltage returns the inverter should restart after the reconnection time. If the problem persists, consult with the grid operator.
62	18x3E			I-RCD MAX	
171	18xAB			Over voltage Vin	Over voltage in DC input of the inverter. Check the strings' voltage.
163	18xA3-5			Tz Over current 1/2/3	Contact SolarEdge support.

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CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
166-168	18xA6-8			Tz Over voltage cap1/2/3	- Verify that the inverter is set to the correct country. - Turn OFF the inverters in the site and verify AC grid voltage. - If the inverter is located far from the connection point to the grid, use a larger gauge AC wire. - Consult the grid operator. - If permitted by local authorities, change the grid protection values. Refer to: http://www.solaredge.com/files/pdfs/viewing_grid_protection_values.pdf 
169	18xA9			Tz Over current Rcd	Contact SolarEdge support.
178-180	18xB2-4			Vf1/2/3 surge	Ground current surge. - Check the AC connection to the inverter. - Check with the grid operator if a large surge source or irregular load exists near the site. - If the grid does not have problems contact SolarEdge support.
137	18x89			RCD Test	Contact SolarEdge support.
96,98	18x60/18x62			Islanding Trip1/2	AC grid voltage malfunction. When AC voltage returns the inverter should restart after the reconnection time. If the problem persists, consult with the grid operator.
			8x85, 8x86	SPD AC / SPD DC	Contact SolarEdge support.
	18x18			Pwr Boot error	Contact SolarEdge support.
	2xB8			Storage module over temp	Contact SolarEdge support.
	18x17		8x17	Main Capacitor error	Contact SolarEdge support.
	2x86			DSP1- DSP2 VDC difference max	Contact SolarEdge support.
	18xD2			Tz Boost Over current	Contact SolarEdge support.
	18xD3			Tz Boost Over Volatge	Contact SolarEdge support.
	18xB1			Tz Global	Contact SolarEdge support.
	18x67			TZ ITO	Contact SolarEdge support.
	18x68			TZ Misc	Contact SolarEdge support.
	18xAC			Tz Mngr Driver Dis	Update the firmware to the latest version. Re-select the country code.
	18xB0			Tz NC	Contact SolarEdge support.

Error # Single Phase Inverter		Error # Three Phase Inverter		Error Message	Cause and Troubleshooting
CPU v3.18xx and before	CPU v3.19xx and later, including 4.x	CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
	18xAE			Tz OnOff switch dis	Update the firmware to the latest version. Re-select the country code. Perform an AC reset. Check ON/OFF Switch wiring.
	18xCC			Tz OV AC Surge	Contact SolarEdge support.
	18xAA			Tz Over voltage bridge cap	Check isolation and electrical voltage. Update the firmware to the latest version. Re-select the country code
	18xAB			Tz Over voltage Vin Buck	Update the firmware to the latest version. Re-select the country code.
	18xAD			Tz Pwr Driver Dis	Update the firmware to the latest version. Re-select the country code.
	18x63			TZ RCD	Contact SolarEdge support.
	18xAF			Tz RSD	Contact SolarEdge support.

System Warnings

Warnings are displayed in the initial status screen with the format: <Warning X>. For example:

```
Vac[V] Vdc[V] Pac[W]
1.0    0.5    0.0
P_OK: XXX/YYY <S_OK>
Warning 8      ON
```

The warning is a status screen. To view the warning description, press the LCD button.

The following is a list of system warnings:

Warning #		LCD text	Comments and troubleshooting
CPU v3.18xx and before	CPU v3.19xx and later, including 4.x		
5		Turn Switch Off to Configure	Appears when trying to access the Setup menus during production