Field Troubleshooting

Symptoms, Causes and Fixes Across the AERL Range



AERL Product Range

Troubleshooting Guide

REV 1.0.0, 8 NOV 2026

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Foreword

Document

Revision	Effective	Audience	Full reference
1.0.0	**11 / 2026**	**Qualified installers and service technicians**	**Each product's user manual**

Format

A4 · 30 pages

This guide helps installers find and fix the faults most often met in the field on AERL products. It is organised by product, then by symptom. Each table gives what you see, its likely cause, what to check and the fix.

The guide summarises. Each product's user manual is the full reference: where a table names a chapter, it is the chapter of that product's manual. Use the latest manuals and software from aerl.com.au and aerl.com.au/professionals.

Danger — isolate before you work

Only qualified people may test, open or rewire this equipment. Battery and PV circuits stay live when an inverter or controller is switched off, and a DC arc does not self-extinguish. Follow your isolation procedure, prove dead with a meter rated for the system voltage, and wear PPE.

Before You Start

- Note what the product shows before you touch anything: LEDs, display codes, the AERL Link status or the AERL Cloud alert. A restart clears much of this.
- Check the simple things first: breakers and isolators on, cables seated, polarity, supply voltage within range.
- Change one thing at a time, and write down what you changed.
- If the fault is not in this guide, or it comes back after the fix, contact AERL support (Chapter 09).

CoolMax SRX and SRX-R

Status LED, not starting or sleeping

01

The full list of warning and fault codes is in Chapter 13, Troubleshooting, of the CoolMax SRX and SRX-R user manuals. AERL Link (aerl.com.au/professionals) shows the active code in plain text.

1.1 Status LED

LED	Flashing	Solid
Green	Remotely controlled & OK	OK
Blue	Starting up	Sleeping
Orange	Setup required / FW update in progress	N/A
Red	System fault	Hardware fault

When the SRX is first powered on, it runs a self-test and the LED flashes orange until a charge profile is configured. A red fault code is shown as a number of red flashes (Red Flash Codes, below).

1.2 Not Starting or Sleeping

Symptom	Likely cause	Check	Fix
No LED at all	No PV input: the SRX does not power up from the battery terminal	PV isolator on; PV voltage at the SRX terminals	Normal at night. AERL Cloud shows an SRX as **Sleeping** overnight
Solid blue (sleeping), –1153 · –1158 Low input voltage	PV voltage below minimum or below battery voltage	The SRX starts once the PV input is above 60 Vdc and at least 10 Vdc higher than the battery voltage. Normal at sunrise and sunset	Confirm the PV string configuration. Look for damaged or corroded PV connections and loose PV terminals
Flashing blue for about 60 s at start-up	Normal start-up	—	The SRX then begins to charge

Start-up order: connect the battery first, then turn the PV isolator on. Shut down in reverse: PV isolator off first, wait for the LED to go out, then open the battery breaker. Never open the battery breaker under load.

1.3 Orange LED: Setup or Charge Held

Symptom	Likely cause	Check	Fix
Flashing orange, −26 Device not configured	Initial setup not completed; the SRX will not charge	—	Connect and configure the device with AERL Link
Flashing orange, −1160 Configuration out of range	Set-point configuration outside limits for the detected nominal battery voltage	The charge profile against the battery manufacturer's recommendations, and the battery against the nominal battery voltage ranges in the manual's specifications	Set a charge profile appropriate for the battery in AERL Link. On a CAN-controlled system, also check the controller's targets against the BMS limits, then send Enable
Flashing orange, −1303 Waiting for CAN master	CAN-controlled mode, no commands from the master yet; the charger appears disabled	The CAN master is powered and sending commands	If standalone operation is intended, disable CAN control in AERL Link
Flashing orange, −1301 CAN master lost	No setpoint update from the CAN master within the time-out	The RJ45 connection is secure and the master is still active	Restore the master's commands
Flashing orange, −1307 Charge held: battery current limit	Reported by some pre-release firmware	—	Contact AERL support
Flashing orange, 110 Firmware update in progress	A firmware update is being installed over CAN	—	Wait. Do not remove power or the communications cable

1.4 Charging Stopped or 0 W

Symptom	Likely cause	Check	Fix
1 flash red, −360 No output detected	Converter enabled but no output current flowing	—	Power cycle. If it recurs, contact AERL
2 flashes red, −1159 Low output / no battery	No battery detected, or output voltage implausibly low	Battery connected; output breaker closed; BMS has not shut the battery down	Reconnect the battery. To recharge a fully depleted bank from black, enable Blackstart Guard in AERL Link, and disable it once the bank has recovered (Chapter 08)
Flashing blue, −1162 Current flow interrupted	Charge current stopped abruptly: a breaker opened or a cable was disconnected	PV and battery breakers, fuses and terminations	Restarts automatically. If it recurs, contact AERL

Symptom	Likely cause	Check	Fix
3 flashes red, −1305 Battery BMS fault	Fault or alarm received from the battery's BMS over CAN	The battery's own indicators	Follow the battery manufacturer's manual (LiFe²: Chapter 03 of this guide)
Green, 0 W, no code, battery cold	Low-Temperature Charge Cutoff enabled and the battery below its set point	Battery temperature against the cutoff set point in AERL Link	Charging resumes once the battery is above the set point
Green, 0 W, no code, CAN-controlled	The system controller has lowered the current limit, or its Power Targets stopped	The controller (EMS) and its CAN bus	See CAN Systems, below

The SRX does not charge until a charge profile is configured for the connected battery. AERL Link's live status shows the charging power (W) and a plain-text status with any active warning or fault.

1.5 Earth (Ground) Faults

The SRX checks every connected pole for insulation degradation at start-up and trips a ground fault when the insulation resistance of a monitored pole falls below a fixed **50 kΩ** (firmware 2.0.1 and later; earlier firmware offered a Low / Mid / High setting: update the firmware with AERL Link). The chassis must be connected to the same earth as the PV array. Check that 50 kΩ meets your local standards.

Symptom	Likely cause	Check	Fix
Flashing blue, −1400 Possible earth fault	An earth-leakage reading at start-up was outside limits; the SRX re-tests before confirming. Charging continues	Whether the code recurs, or becomes −1401 · −1403	If it does, inspect the wiring insulation
10 flashes red, −1401 · −1402 · −1403 Earth fault detected	Earth fault on the input or output	Isolate the controller and confirm the fault with an insulation resistance tester	Repair the fault before recommissioning
Earth fault on a system with one pole bonded to earth	Ground Fault Mode left on Floating	The system earthing against the Ground Fault Mode in AERL Link	Set Positive Earth or Negative Earth to match the bonded pole. A wrong mode masks a genuine fault or trips on the earthed pole

On a CAN-controlled system, treat an earth fault as a latched critical alarm: the SRX may keep charging, and its flag can clear before the fault is fixed.

1.6 Red Flash Codes

Red LED	Code	Fault	First action
Solid	−1 to −99 (not −26)	Generic hardware fault	Power cycle. If persistent, contact AERL for warranty replacement
Solid	−150	Measurement fault	Power cycle. If persistent, contact AERL
Solid	−350 · −1055 · −1161	Temperature sensor fault	Check the communications wiring and connected devices (a Battery Sense, Chapter 07)
Solid	−365 · −370 · −380 · −390	Startup / precharge fault	Power cycle. Check PV and battery isolators, breakers and wiring
Solid	−367 · −368 · −369 · −371 · −372 · −400 · −401	Critical system fault	Power cycle; check comms wiring and power-supply integrity
Solid	−1050 to −1054	Active cooling fault	Check the fan for blockages, then power cycle
Solid	−1100	Internal temperature critical	Restarts when safe. Ensure clearance and ventilation
Solid	−1163	Current sensor fault	Power cycle. If persistent, contact AERL
1 flash	−360	No output detected	See Charging Stopped or 0 W
2 flashes	−1159	Low output / no battery	See Charging Stopped or 0 W
3 flashes	−1154	High output voltage	Battery may be charged from a secondary source: confirm charge parameters across the system
3 flashes	−1155	High battery voltage	Verify the battery nominal voltage matches the configured profile
3 flashes	−1305	Battery BMS fault	See the battery manufacturer's manual
4 flashes	−1157	High output current	Confirm no short on the output and the load is within the current limit
5 flashes	−1152	High PV voltage	Confirm string Voc at record-low ambient is within the rating
6 flashes	−1156	High PV current	Confirm the string configuration suits the device
8 flashes	−1102	High battery temperature	Increase temperature compensation in AERL Link or reduce ambient
9 flashes	−1103	Low battery temperature	Consider a temperature-controlled battery environment
10 flashes	−1401 · −1402 · −1403	Earth fault detected	See Earth (Ground) Faults

If a fault persists after these actions, contact AERL on 1800 950 865 or support@aerl.com.au.

1.7 CAN Systems: Units Stop With No Code

Most SRX faults clear themselves: the SRX restarts once the condition has cleared, after a hold-off of 10 s to 30 min. If the flags read 0 and the units show output off with no current, work through these checks (SRX CAN Integration Guide, available from AERL on request):

#	Cause	What to do
1	The controller's Power Targets stopped or arrived late (after 34 s without one the SRX returns to default behaviour)	Review the EMS. Units resume when the next target is received
2	A Shutdown was sent, or another unit's fault turned the bus off	Send Enable. If units don't resume, send Reset (Reset restarts every SRX on the bus)
3	The battery BMS is alarming	Clear the BMS alarm, then send Reset if units don't resume
4	Routine self-restart	Normal. Ignore a single short dropout
5	None of the above	Contact AERL with the unit's event log

Throttle charging with the current limit, not the voltage target: a voltage target below the battery voltage raises **High output voltage** (−1154 · −1155).

1.8 Firmware Updates

Update over USB with AERL Link. Keep the SRX connected to its battery and powered, and do not disconnect USB, remove power or open the isolators during the update. If an update fails partway, retry: the SRX keeps its previous valid firmware and runs normally until a complete update is received. On the SRX-R, set the **MPPT 1 / MPPT 2** selector to the module you are updating, and repeat for the other module.

Nexus Gateway

02

Status in AERL Cloud, gateway faults, devices missing or offline

The Nexus is monitored from AERL Cloud, which shows its online status, last-seen time, firmware version and connection history. It needs no user action in normal operation and applies firmware updates when AERL publishes them.

2.1 Status in AERL Cloud

A gateway shows **Online** (it has reported in the last 15 minutes) or **Offline**. The equipment on a gateway shows one of four statuses:

Equipment status	Meaning
Online	The device has reported in the last 15 minutes
Sleeping	An SRX that has not reported for between 15 minutes and 24 hours: normal overnight
Offline	Silent for more than 15 minutes (more than 24 hours for an SRX)
Inactive	Never reported, or silent for more than 30 days

2.2 Gateway Faults

Symptom	Likely cause	Check	Fix
Nexus does not power up	No supply, or a supply out of range	DC input within 12–60 Vdc and polarity correct, or the supplied 5 V USB-C plug fully seated. Use only one input at a time	Correct the supply
Powers up but never appears online	No internet path, or not claimed	The Ethernet cable goes to a port with internet access; outbound HTTPS (port 443) is allowed; the right serial number was claimed	Correct the network or the claim. If it still does not come online, contact AERL support with the Nexus serial number
Online, then goes offline	Network outage or firewall egress rules	The **Last Seen** time in AERL Cloud; the site network or mobile connection	The Nexus retries automatically and uploads its buffered data when it reconnects

Symptom	Likely cause	Check	Fix
Data arrives only every ten minutes	Cellular connection	—	Normal: the Nexus sends data every minute over Ethernet and every ten minutes over cellular
Random comms dropouts	Network, or cabling	The Nexus status, Last Seen time and firmware version in AERL Cloud	Contact AERL support with the Nexus serial number and the times it dropped out

2.3 Devices Missing or Offline

Symptom	Likely cause	Check	Fix
Nexus online, no devices discovered	Wiring, termination or power	CAN devices on CAN 1 or CAN 2; the bus terminated at both ends; every device powered; the device is a supported AERL profile	Correct the wiring or termination
A device shows Offline	Its gateway is offline, or cabling, termination or power	The gateway first; then connections, CAN or RS485 termination and damaged cables; that the device is powered; Modbus address and settings on the gateway	Fix the gateway or wiring. An SRX showing Sleeping at night is normal
A device is missing from the list	Not reported in the last 30 days, wrong location, or access	Choose **Inactive** in the status menu; the gateway is online and at the right location; your user group's locations	Re-assign the gateway's location
Readings are intermittent	Cable quality, shielding or termination	Shielded cable, data cables kept away from power cables, bus termination	Contact AERL support with the serial number and the times data was missing

2.4 CAN Bus and Termination

The Nexus CAN sockets are linked inside the Nexus (one CAN interface, two sockets), and the Nexus has **no built-in termination**. A CAN bus needs 120 Ω at each of its two ends and nothing in between:

- **Nexus mid-bus** (inline, for example battery to CAN 1 and CAN 2 on to the inverter or MPPT): fit no termination plug.
- **Nexus at an end of the bus:** fit a 120 Ω RJ45 termination plug in the unused CAN socket.

2.5 Selectronic SP PRO over RS485

The Nexus has two status LEDs beside its RS485 socket: **Tx** flickers when the Nexus sends a Modbus request, **Rx** when the SP PRO replies.

Nexus LEDs	Check
Tx not flickering	The Nexus is not polling: check it is online in AERL Cloud and that the Modbus device entry exists
Tx flickers, Rx does not	The SP PRO is not replying: cable in Port 1 on the ACC, a straight-through ethernet cable, the ACC power LED on; then the slave address, baud rate and format, Modbus saved as enabled in SP LINK, SP PRO firmware
Both flicker, no data in AERL Cloud	The cloud configuration does not match the SP PRO: slave ID, baud rate and the product profile in Edit Gateway

The Nexus must be the only Modbus master on the SP PRO's RS485 port.

LiFe² 5120S

Battery LEDs, common faults, recovering a flat battery

03

3.1 Battery LEDs

LED	Status	Description
Error	Red on	An error has occurred
Error	Off	There are no active errors
Status	Green on	The battery is active and can be charged and discharged
Status	Flashes slowly	Self-Managed (no comms) mode
Status	Off	The battery is not active
SOC	4 / 3 / 2 / 1 LEDs on	75–100% / 50–75% / 25–50% / 0–25% SOC

Below 5% SOC the first SOC LED flashes quickly (1 Hz). While discharging the last lit LED flashes at 0.5 Hz; while charging it flashes slowly, at 0.25 Hz.

3.2 Common Faults

Symptom	Likely cause	Check	Fix
Error LED on	A battery error	Note the battery state (LEDs, inverter display)	Contact AERL support
Inverter shows no battery communication	Comms cable or pin mapping	The cable is in **COMM** on the master battery, not IN or OUT; only the master connects to the inverter; the cable is undamaged, seated, no longer than 5 m, shielded Cat 5 or better, with the pin mapping for your inverter (battery CAN_H / CAN_L on pins 4 / 5)	Correct the cable; see Inverter Messages, below
Some batteries missing or not working	Link chain	Each **OUT** connects to the next battery's **IN**; the termination plug is in **OUT** of the last battery	Try another link cable
Status LED flashes slowly	Self-Managed mode	The comms cable to the inverter	The battery returns to Managed mode when the cable is connected

Symptom	Likely cause	Check	Fix
SOC shown by the inverter drifts	No recent full charge	When the system last reached 100% SOC	Charge to 100%: at least every 14 days (Self-Managed) or 30 days (Managed), and at first start-up
Battery shut itself down after a long period without charging	Low SOC protection	—	Recharge it within 10 days to restore the SOC
Battery breaker off	Switched off, or tripped by the BMS on a fault (overcurrent, short circuit, overvoltage, over-discharge or an internal fault)	The DC cabling for damage or a short; the Error LED	Clear the cause before switching it on. If it trips again with no external cause, contact AERL support
Still not working	—	—	Restart in order (below)

Restart in order: shut down the inverter; turn off the DC breaker between battery and inverter; hold **ON/OFF** on the master battery for 3 seconds; wait until all LEDs are off, then 3 minutes more; turn the DC breaker on; press **ON/OFF** for 1 second; start the inverter.

3.3 Recovering a Flat Battery

If a battery module reaches 0% SOC and its voltage falls below 40 V (over-discharge), recharge it in one of these ways:

1. If the inverter still operates, charge the battery from the inverter.
2. Connect a module at a higher voltage in parallel: it balances and charges the flat module automatically.
3. If inverter charging is not possible, use a 48 V adjustable constant-current charger set to 54 V and no more than 10 A. Charge for at least 30 minutes.

A battery stored for 6 months or more: if its voltage is above 51.6 V it needs no charge (check it every 3 months); below 51.6 V, charge it at 55 V DC and a constant 10 A for at least 30 minutes. If a battery has been submerged in water, stop using it and contact AERL.

3.4 Inverter Messages (Managed Mode)

Inverter	Message or symptom	Check
Victron	Battery not in the Device List	Type A cable, **CAN-bus BMS** end at the battery, in the BMS-Can port (or a VE.Can port set to CAN-bus BMS LV (500 kbit/s)); the terminator fitted at the GX device. The battery shows as **Pylontech**
Victron	"BMS connection lost", inverter shuts down	Restore the connection, then restart the inverter/charger. A low battery voltage alarm at the same time is caused by the lost communication
Deye	**comm./FXX**; Li-BMS page empty	Cable in the BMS port and in **COMM** on the master battery; Batt Mode **Lithium**; Lithium Mode **00**
Deye	Fault **F58**	Communication lost while BMS_Err_Stop is active: check the cable, then restart the system in order
Selectronic SP PRO	Beeping; CAN bus Comms LED on steadily	The BMS to SP PRO CAN bus cable (pins 1 / 2 at the SP PRO, 4 / 5 at the battery), not a straight-through lead
Selectronic SP PRO	Battery Management values blank	Battery type **AERL LiFe2-5120S** selected and saved; SP PRO firmware 16.11 or later, comms card 5.31 or later; restart the battery DC supply
Selectronic SP PRO	Intermittent communication; multi-phase not reading	Comms card CAN termination DIP switch **ON**; CAN cable to the L1 SP PRO only
Solis	**CAN Fail**	Pins 4 and 5 at both ends; cable in **COMM**; Battery Model **Lithium Battery LV**, not the RS485 variant
Solis	**BatName-FAIL** / **NO-Battery**	Battery Model selection / DC breakers on and the battery on

Full settings: LiFe² 5120S Managed Battery Integration Guide.

Kakadu 120

HMI indicators, common faults

04

Kakadu 120 needs an AERL Nexus Gateway to manage the battery communications. Each cabinet holds two independent strings, each with its own BMS and HMI, so the system keeps operating if one string faults.

4.1 HMI Indicators

Indicator	Normal	Otherwise
Run	Green: power on	Off: power off
Alarm	Off	Orange: a serious fault, such as over-voltage or over-current
Module status 1–4	Off: module working	Number lit orange: that module has failed. Indicators 5–9 are not used
SOC	1–5 bars, 20% each	Last bar flashes 1 Hz discharging, 0.5 Hz charging
Master Unit	Lit on the master string only	Lit on every string by default: press it on each string that is not the master
Last Unit	Lit on the last string only	Lit on every string by default: press it on each of the other strings
Black Start	Off	Green: black start on (off-grid start)

4.2 Common Faults

Symptom	Likely cause	Check	Fix
Alarm orange	A serious fault, such as over-voltage or over-current	The working logs, cell voltages and module temperatures through the Nexus in AERL Cloud	Note the HMI state and contact AERL support
A module number lit orange	That module has failed	—	Contact AERL support with the cabinet and string
Run off	String not started, or shut down	The **MCB** on each BMS is on (shutting down trips it automatically)	Turn on each BMS's MCB, then press its **ON/OFF** button

Symptom	Likely cause	Check	Fix
Inverter does not see the battery, or reports the wrong capacity	Master Unit, Last Unit or the comms chain	**Master Unit** lit on the master string only; **Last Unit** lit on the final string only; **OUT** of each BMS to **IN** of the next; a terminating resistor on **COM2** of the last module of every string; **INV** of the master BMS on the CAN bus	Correct and confirm every string's **Run** is lit and the inverter reports the combined capacity
Selectronic SP PRO shows no Kakadu data	Cable pins or termination	The SP PRO to BMS cable (CAN on pins 4 and 5 at the BMS end; a straight-through patch lead will not work; cables made to the commissioning guide's Rev 1.1.5 or earlier used the wrong pins); the SP PRO CAN termination DIP switch **ON**; every SRX's CANBUS 120 Ω switch **OFF**; no plug at a mid-bus Nexus	Battery type **BMS – SelectCell River Gum** in SP LINK; Data View → Battery Management shows the BMS data
Off-grid system will not start	The inverter needs the battery to start	—	Power up the system, then hold **Black Start** for three seconds

Full procedures: Kakadu 120 Installation and Operating Manual (chapters 5–8) and the Kakadu Commissioning Guide, SP PRO SPLC1202 & CoolMax SRX.

EarthGuard EG-600 and EG-600-SC

05

LEDs and buzzer, common faults, finding an earth fault

5.1 LEDs and Buzzer

EG-600 (two circuits):

Condition	All Clear	Circuit 1 fault	Circuit 2 fault	Buzzer
All Clear (insulation OK)	On	Off	Off	Off
Circuit 1 earth fault (DC+ or DC−)	Off	On	Off	Pulsing
Circuit 2 earth fault (DC+ or DC−)	Off	Off	On	Pulsing

All Clear is green and the Circuit Fault LEDs are red. In a fault the buzzer sounds for about 1.5 s, then is silent for 1.5 s, until the fault clears.

EG-600-SC (one circuit):

All Clear (green)	Fault (red)	Meaning
Solid on	Off	Normal operation
Off	Flashing (2 Hz)	Warning: a possible fault has been measured and is being confirmed. Relay and buzzer not yet active
Off	Solid on	Confirmed earth fault: the buzzer sounds and the alarm relay opens

Both return to All Clear, and close their relays, by themselves once the insulation resistance is back above the trip threshold.

5.2 Common Faults

Symptom	Likely cause	Check	Fix
Fault LED on, buzzer sounding	An earth fault below the trip threshold	Find the fault (below)	Repair it; the unit returns to All Clear
No LED lit	No supply	Supply 12–60 Vdc at the input, from a current-limited power supply, not a battery directly. EG-600-SC: the BATT/PSU jumper fitted only for a 12–15 Vdc supply	Correct the supply. Never fit the BATT/PSU jumper above 15 Vdc

Symptom	Likely cause	Check	Fix
External monitor alarms, EarthGuard shows All Clear	The relay is fail-safe: it opens on an earth fault, a loss of power or a broken cable alike	The relay wiring to the monitor; the EarthGuard's supply	Repair the wiring or supply
Fault on a circuit with one pole bonded to earth (EG-600)	Ground fault mode on Floating	The circuit's ground fault mode in AERL Link	Positive Earth or Negative Earth, only if that pole is deliberately and permanently bonded to earth
Trips at a level you did not expect	Trip threshold	On firmware 2.2.1 the trip threshold is fixed at 30 kΩ; the sensitivity setting applies on later firmware	Check that 30 kΩ meets your local standards; if it does not, contact AERL
AERL Link shows an internal self-test fault (EG-600)	Device fault	—	Contact AERL support

5.3 Finding an Earth Fault

1. **Prepare.** Wear PPE (insulated gloves, safety glasses), follow your isolation procedure and use rated test equipment.
2. **Shut down.** Turn off the inverter and charge controllers, open the battery breakers and PV array isolators, power down the EarthGuard, and confirm zero voltage with a multimeter.
3. **Inspect.** Look for damaged cables (including rodent damage) and degraded PV module back sheets.
4. **Segment and test.** Measure the resistance to earth of the battery conductors, then of the PV array conductors.
5. **Repair and restart.** Fix the fault and restore power.

5.4 Testing the EarthGuard

> **Caution — potential hazard**
> An earth fault can damage power conversion equipment (PCE) and connected components. Ask the PCE manufacturer before you simulate an earth fault. AERL takes no responsibility for damage caused by simulating an earth fault.

With the system isolated and the EarthGuard powered down, fit a 10–12 kΩ resistor (20 kΩ maximum; not supplied) between the + or – terminal of the circuit under test and the Earth terminal. Reconnect the battery, restore power and confirm the fault is reported (EG-600-SC: wait 15 seconds): Fault LED, buzzer, relay open. Power down, remove the resistor and reconnect. If nothing trips, check the EarthGuard is powered (one LED lit) and that you can measure the resistor, then repeat. The full procedure is in Chapter 08 of each user manual.

6.1 Indicators

The **Input Alive** LED lights when the input breakers are closed. The **Output Alive** LED lights when the CoolPro is delivering output. The LCD alternates between the input and output measurements every 5 seconds, each with its voltage, current and the board temperature.

6.2 Common Faults

Symptom	Likely cause	Check	Fix
Input Alive on, Output Alive off	All setpoints at zero	The three front-panel dials	Set the voltage, reference cell and current dials as in the setpoint procedure (Chapter 07)
Input Alive on, Output Alive off	Low-battery cut-out	Battery voltage against the cut-out for the selected nominal voltage (12 V: 11 V / 13 V; 24 V: 22 V / 26 V; 36 V: 33 V / 39 V; 48 V: 44 V / 52 V, cut-out / cut-in) and the battery voltage selector	Recharge the battery; press **Low Batt Reset** to cut back in at any voltage above the cut-out
Input Alive on, Output Alive off	Current interrupt terminals linked	The current interrupt terminals (Link On/Off) and any interrupt sequencer	Linked, the output is off: remove the link
Input Alive off	No input	Input breakers closed; battery voltage and polarity at the terminals	Correct the supply. If the battery is correct at the terminals, contact AERL
Output current below the Current dial setting	Another control mode is limiting: the voltage limit (ground bed resistance rises in dry periods) or the reference cell	Which dial is limiting	Raise that mode's dial until the current control mode limits again
Output breaker trips in storms	Surge currents shunted by the surge protection	Whether an output breaker or fuse is fitted	An output breaker or fuse is not recommended: remove it

Symptom	Likely cause	Check	Fix
Lightning damage on a long pipeline or tall structure	No Surge Buster	Structure longer than 100 m or higher than 10 m	Fit an AERL Surge Buster: it is required there
Readings drift	Calibration	Status flags (below)	Recalibration is a workshop operation: contact AERL

Shut the CoolPro down in this order: turn all three dials fully anti-clockwise, check the LCD shows zero output for 10 seconds (Output Alive turns off), then open the input breakers.

6.3 Modbus Communication

Symptom	Check
No response	Station address 40 and 9600 baud, 8-N-1 (factory defaults); RJ45 pins 3 (A), 6 (B) and 8 (GND) only; 120 Ω termination at both ends of the bus. A changed address or baud rate takes effect after a reset
Register 40003 always reads 0	Normal: it is a write-only command trigger
Setpoints do not change over Modbus	Normal: the meter board is a monitoring path only. Output current, voltage limit and reference-cell setpoint are set on the front panel

Status flags (register 30008): bit 2 input or bit 3 output measurement fault, bit 4 calibration invalid, bit 5 calibration missing, bit 6 temperature sensor fault. Contact AERL if any of these is set; bits 0 (startup) and 1 (daily reset) are normal.

Battery Sense

LEDs, common faults

07

7.1 LEDs

LED	State	Meaning
Green (Active)	Slow heartbeat (brief flash every ~1.5 s)	Device is powered and operating normally
Green (Active)	Off	Device is not powered
Red (Fault)	Solid on	Fault condition detected (e.g. watchdog initialisation failure)
Red (Fault)	Brief 3× flash	Float event acknowledgement
Yellow (CAN activity)	Brief blink	A CAN message has been transmitted or received
Yellow (CAN activity)	Off	No CAN bus activity

At power-on all three LEDs light briefly as a self-test.

7.2 Common Faults

Symptom	Possible causes	Solution
Green LED not flashing	5 V power toggle on the SRX not enabled; poor connection to the SRX; faulty CAT6 cable	Turn the SRX's 5 V power toggle ON; check cable connections; try a different CAT6 cable
Red Fault LED solid on	Internal device fault; voltage sense connection; voltage out of range	Power-cycle the device; check the voltage sense connections; verify the battery is within 18–200 Vdc; contact AERL support
Yellow LED not blinking	No CAN traffic; CAN bus configuration	Check cable connections; verify the 120 Ω termination switch positions; restart the SRX

Symptom	Possible causes	Solution
Temperature not showing in AERL Link	120 Ω termination not enabled; communication issue; device fault	Set the 120 Ω termination switch to ON; check cable connections; verify the green LED is lit
SRX solid red, –350 · –1055 · –1161, or Battery Sense Lost	The SRX has lost the temperature reading	The CAT6 cable and the Battery Sense LEDs (above)
Incorrect voltage reading	Poor voltage sense connection; improperly sized fuse; damaged sense wire	Check the voltage sense connections and fusing; inspect the wiring
Float switch input not working	Improper connection; external voltage applied	Use a normally open, voltage-free switch; apply no voltage; check the switch's continuity
Float indication output not working	Over the 12 V / 2 A rating; blown fuse; connection	Keep the load within rating; check or replace the fuse; verify connections

Solinteg M2HT and All-In-One

Inverter indicators, common inverter faults

08

The M2HT 25–50 inverter, also used in the All-In-One, shows each fault by name on its display; the All-In-One battery shows codes. Status codes (S01, S02 ...) show the inverter's state and are not faults. Full lists: M2HT 25–50 user manual Chapter 08, All-In-One user manual section 7.3.

8.1 Inverter Indicators

Indicator	Colour	State	Meaning
Power and alarm	Blue	Fast flashing / slow flashing / breathing	Self-test / waiting / operating normally
Power and alarm	Orange	Breathing	Low battery: close to the SOC protection limit
Power and alarm	Red	On	Alarm or fault: check the display
Grid	—	Off / slow flashing / on	Grid lost / grid detected, not on-grid / operating on-grid
Communication	Green	On / flashing	Normal / communicating with an EMS or the master inverter
Communication	Orange	On	No communication with the smart meter
Communication	Red	On	No communication with the BMS

8.2 Common Inverter Faults

Message	What to do
Mains Lost	No grid detected: check the grid voltage, AC wiring and AC breaker
Grid Voltage Fault	Check the grid code and AC wiring, and the AC cable size (voltage rise). Widen the limits only with the network service provider's permission
ISO Over Limitation	Low DC insulation resistance to earth: check PV modules, batteries, DC cables and connectors for damage or water. It must be at least 500 kΩ
GFCI Fault	Excessive earth leakage: check PV modules, batteries, DC cables and connectors for damage or water
PV Over Voltage	Reduce the modules per string so the open-circuit voltage is below the inverter's maximum
Over Temperature	Check the ventilation; shut the inverter down to cool, then restart
N-PE Check Fault	Back-up earth loose or poorly connected: check the earth wiring, or turn N-PE Check off if the bond is not needed
Backup Load Fault	Reduce the back-up load; check the battery's discharge capacity

Message	What to do
Meter Comm Fault	Check the meter communication cable and that the meter model is compatible
BMS Comm Fault	Check the battery ID setting, the BMS cable and the battery status
PV Power Low	Check the PV connection and generation, and the battery output
BAT Power Low, BAT Invalid	Check the battery cables, breaker, switch or fuse and any battery alarm; restart the battery

An earth fault on the PV array keeps the power indicator red and shows **ISO Over Limitation** or **GFCI Fault** until it is cleared; the app and portal show an alarm (email alerts can be set). Install the inverter where the indicator will be noticed.

8.3 All-In-One Cabinet and Battery

Cabinet indicators: the audible and visual alarm sounds and flashes when the smoke sensor is triggered; **Power** (white) is on while grid power is present; **Running** (green) while the high-voltage box operates; **Fault** (red) when the cabinet has a fault. Check the alarm details in the monitoring data.

Battery codes starting with **E** are protection faults (the battery stops to protect itself); **I** are alarms and **W** warnings (the system keeps running).

Code	Name	What to do
E400	BMS communication	Check the battery type selected in the inverter, the battery status, and the communication cable and its pinout
E401	Low SOC	Check the battery's communication and power connections, the inverter's PV, grid and generator connections, and whether the load is too large
E403	BMS sleeping	Check that the grid or PV can supply stable power for long enough, and the battery power connection
E416	Insulation fault	Shut down the whole system; check equipment, cables and terminals for damage and short circuits; restart the battery
E417 / I400 / W400	Cell undervoltage	Check the inverter allows forced charging and the external source is running; charge the battery immediately (E417: restart the battery first)

Code	Name	What to do
E421 / I404 / W404	Charge undertemperature	Check the temperature reading is plausible and the sensors; warm the battery (E421: then restart the battery)
E431	Battery voltage abnormal	Check the battery power cables for damage and any battery alarm or protection; clear the problem, then restart the battery
E432	Battery parallel number abnormal	Check the target number of clusters, the communication between clusters and the inverter, and that every cluster is switched on, free of alarms and within 2.5 V of the others; then re-run the paralleling process
E425 / I408 / W408	Charge overcurrent	Check whether the battery's current limit was reduced and the inverter is charging above it; correct the configuration, restart the battery

For any fault that persists after these checks, contact AERL support.

Support and Returns

Before you contact AERL, returning a product, change log

09

9.1 Before You Contact AERL

Have ready:

- the product model and serial number, and the firmware version (AERL Link or AERL Cloud);
- what the product shows: LEDs and their pattern, display or AERL Link codes, AERL Cloud alerts;
- for a CoolMax SRX, the AERL Link status and event log; for a Nexus, its serial number and what its LEDs do; for a battery, the number of modules or cabinets and the inverter model and firmware;
- what you have checked and changed, and photos of the installation.

Contact AERL support on **1800 950 865** or **support@aerl.com.au**.

9.2 Returning a Product

Email the AERL RMA form, with any photos or screenshots, to **support@aerl.com.au** with the serial number as the subject. AERL replies with a Return Materials Authorisation (RMA) number: do not send a product without one. Then send the product, with its RMA number, to AERL, 1/75 Bluestone Circuit, Seventeen Mile Rocks QLD 4073, Australia. For a battery, wait for AERL's shipping instructions before you send it: lithium batteries are dangerous goods. The full process is in the AERL Warranty Claims and Returns Guide.

Warranty terms are in each product's warranty statement, at aerl.com.au. Register a product's warranty at aerl.com.au/warranty-registration.

9.3 Change Log

Revision	Date	Change
1.0.0	11 / 2026	First issue.

Thank You for Choosing AERL

If you have any questions or need support, contact AERL.

Sincerely,

The AERL Team

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