

smartIAQ Hub-4 Pro - Troubleshooting Guide

Product: smartIAQ Hub-4 Pro

Document Number: GPS-050-59-R20-H4TS

Revision: 2026.09.12.2

Applies to: Firmware 1.1.0 and later

This guide helps installers, service technicians, and support staff diagnose a Hub-4 Pro in the field. Start with the LEDs, then use the symptom that matches what you see.

LED Quick Reference

The Hub-4 Pro has five LEDs on it's main internal PCBA.

LED	Normal behavior	Meaning
LED1	Blinks at 1 Hz	Heartbeat. If LED1 does not blink, the processor is halted.
LED2	Varies by port state	Port 1 status. Solid ON = device active. One short flash every 2 s = no device, probing. Fast blink = discovery or recovery. Three short flashes every 2 s = device lost.
LED3	Varies by port state	Port 2 status. Same patterns as LED2.
LED4	Varies by port state	Port 3 status. Same patterns as LED2.
LED5	Varies by port state	Port 4 status. Same patterns as LED2.

Boot Sequence

1. **All 5 LEDs ON** for 500 ms. This confirms that the power is good.
2. **LED5 blinks 3 times rapidly** (100 ms on and off). This happens only if the previous session ended with a processor fault. It is safe to continue.
3. **Self-test indicators** hold for 1 second, then turn off. LED2 ON means that the data model self-test passed. LED4 ON means that the JSON parser self-test passed. LED3 or LED5 ON during this phase means that a self-test **failed**. Contact engineering.
4. **LED1 blinks to show the mode.** 2 blinks = BACnet mode. 3 blinks = Bus Manager console. 4 blinks = BTL test mode, which is a factory test setting and not for field use.
5. **All 5 LEDs blink 3 times slowly** (400 ms on and off). This happens only when the Hub-4 Pro runs on factory defaults, and not in BTL test mode. Commission the Hub-4 Pro before handoff.
6. **LED1 starts the 1 Hz heartbeat.**

Fault Indication

All 5 LEDs flash together at about 5 Hz: the processor hit a fault. The watchdog resets the HUB-4 after about 2 seconds. At the next boot, LED5 flashes 3 times to report the fault. If the fast flash returns after every reset, contact engineering.

Board Jumpers

The BN and MB service jumpers select the Bus Manager console (see the Installation and Commissioning Guide, section 4). The 120R jumper enables the onboard MS/TP termination. Normal installation and troubleshooting do not use any other jumper.

Do not install or remove a jumper while the Hub-4 Pro is powered on. A jumper change on a powered Hub-4 Pro can cause permanent damage. The Hub-4 Pro reads the jumpers only at power-up.

Symptom-Based Troubleshooting

Gateway not visible on the BACnet bus

Check	What to look for
LED1 blinking?	If LED1 does not blink, the processor is halted. Power cycle the Hub-4 Pro. If all 5 LEDs blink rapidly, see Fault Indication above.
Baud rate match	The gateway default is 38400 . Your BACnet client or BMS must use the same baud rate.
MAC address conflict	The gateway default MAC is 1 . Every node on the MS/TP segment needs a unique MAC. The gateway accepts 1 to 127 .
Max_Master	Max_Master on the BMS must be at least the MAC of the gateway. Max_Master on the gateway (AV:3) must be at least the MAC of the BMS and of your commissioning tool. Both default to 127. If AV:3 is below the MAC of the tool, the tool cannot get the token and Who-Is fails. Move the MAC of the tool inside the range, then raise AV:3.
RS-485 wiring	Connect A to A, B to B, and GND to GND. If discovery fails, swap A and B. Polarity varies by adapter. Install 120 Ω termination at each end of the bus. If the Hub-4 Pro is at one end, enable its onboard 120R jumper.
Device instance	The gateway default instance is 1000 . If another node uses 1000, change one of them.

MAC, baud, or Max_Master write accepted but nothing changed after reboot

- **Written on the Network Port object?** Those writes are staged in RAM. A `ReinitializeDevice` WARMSTART or ACTIVATE_CHANGES with the correct password writes them to flash. A power cycle before that discards them. A `ReinitializeDevice` with a wrong password also discards them.
- **Use the gateway settings points instead.** Write `Present_Value` on AV:1 (Gateway MS/TP MAC), AV:2 (Gateway MS/TP Baud), or AV:3 (Gateway Max_Master). These save immediately. Any

reboot, including a power cycle, applies them. Firmware before 1.2.0 has no such points. Those units need the Bus Manager console. See the Installation and Commissioning Guide, section 2.3.

- **Read it back.** The three points return the saved value. If the read shows the new value, the Hub-4 Pro uses it after the next reboot.
- **value-out-of-range on AV:1 or AV:3?** The MAC must be at or below Max_Master. Lower the MAC first, then Max_Master. The gateway also rejects a fraction and any baud other than the six supported rates.
- **Tool cannot edit the Network Port MAC_Address ?** It is an octet string, which many tools cannot edit. AV:1 is a plain number and works in any tool.

Gateway visible but no sensor data (all values zero or stale)

Check	What to look for
Port LEDs	See the LED Quick Reference. A port LED that stays OFF is not a normal state. Power cycle the HUB-4.
Device Online point	Read BI:x060 for the port. Inactive means that the gateway cannot reach the device. Check the wiring between the Hub-4 Pro and the device.
Reliability property	Read the Reliability of a sensor AI. <code>COMMUNICATION_FAILURE</code> means that the device stopped responding. <code>NO_SENSOR</code> means that the device does not have that sensor. <code>UNRELIABLE_OTHER</code> means that the sensor exists but has sent invalid or missing data for longer than the stale-data window of 3 seconds.
Correct port?	A device on physical Port 1 appears as instances 1001 to 1061. Port 2 appears as 2001 to 2061. Make sure that the wiring matches the instance range that you read.

Port LED changed from solid ON to three short flashes (device lost)

The gateway polls an active device every second by default. After **5 consecutive timeouts** of 500 ms each, the port enters FAILED and the LED shows three short flashes every 2 seconds. Common causes:

- The device lost power or was unplugged.
- A wiring fault, such as an intermittent connection or a broken crimp.
- The device firmware crashed. If the device has its own status LED, check it.

Recovery is automatic. When the device responds again, the gateway discovers it again and the LED turns back ON within about 5 seconds. If the device stays silent for about 10 more seconds, the gateway deletes the objects of that port and creates them again at the next discovery.

BACnet writes not taking effect on the device

Check	What to look for
Object type	Only AV, BV, and MSV objects accept writes. See Writable Objects in the BACnet Points List. A write to an AI or BI returns <code>write-access-denied</code> .
Correct instance?	Fan CFM Setpoint on Port 1 is AV: 1034 , on Port 2 it is AV: 2034 , and so on.

Check	What to look for
Fan mode	A valid Fan CFM Setpoint write switches the device to manual mode. To return to automatic control, write 1 (Auto) to Fan Mode Command (MSV:x036).
Null writes	These objects are not commandable . A NULL write returns <code>invalid-data-type</code> .
Priority	The gateway accepts a priority on the wire, but the priority has no effect. There is no Priority_Array and no Relinquish_Default. A write at any priority overwrites the value.
Out_Of_Service	If Out_Of_Service is TRUE, a Present_Value write updates the object but does not reach the device. Set Out_Of_Service back to FALSE to resume normal control.

ReinitializeDevice or DCC rejected with "password-failure"

A management password is set on this Hub-4 Pro. The ReinitializeDevice or DeviceCommunicationControl (DCC) request must include the password.

- **Unknown password:** Check the commissioning record of the site.
- **Lost password:** Recover with a factory reset from the Bus Manager console (see the Installation and Commissioning Guide, section 4.5). This clears all settings. If the Bus Manager is not usable, contact engineering.
- **Password change:** Send WriteProperty to Device property **512** (Gridset_Password) with the value `currentpassword:newpassword`. See the the Installation and Commissioning Guide, section 3.3.
- **Password longer than 20 characters:** ReinitializeDevice rejects it with `parameter-out-of-range`. Rotate to a shorter password through property 512, or use the Bus Manager.

Sensor values seem wrong or delayed

Symptom	Likely cause
Values update about every second but lag real conditions	This is normal. The poll interval is 1 second by default. The sensor response time can add more lag.
Values frozen (same reading, no COV notifications)	Check the Reliability property. See the Reliability row above.
Temperature or humidity reads plausible but offset	This is a calibration issue on the device, not on the Hub-4 Pro. The gateway passes sensor values through without adjustment.
PM2.5 reads zero	Read the Reliability of the PM2.5 AI. <code>NO_SENSOR</code> means that the device did not report a particulate sensor. Some sensors need a warm-up period after power-on.

Configuration Defaults

These defaults apply on first boot or after a factory reset. The values that you can change over BACnet can also be set from the Bus Manager console (see the Installation and Commissioning Guide, section 4).

Parameter	Default	How to change
Baud rate	38400	AV:2 Gateway MS/TP Baud, then reboot
MAC address	1	AV:1 Gateway MS/TP MAC, then reboot
Max_Master	127	AV:3 Gateway Max_Master, then reboot
Device instance	1000	Device object, live
Device name	"GridSet Gateway"	Device object, live
Poll interval	1000 ms	Fixed in firmware
Probe interval	5000 ms	Fixed in firmware
Response timeout	500 ms	Fixed in firmware
Max consecutive timeouts	5	Fixed in firmware
Stale-data window	3 s	Fixed in firmware
Management password	<i>(blank, no authentication)</i>	Device property 512

BACnet Error Code Reference

These errors can appear in BACnet client or BMS logs when a request to the gateway fails.

Error	Code	When it occurs
write-access-denied	40	A write to a read-only property, for example Protocol_Revision or any AI Present_Value.
unknown-property	32	A read or write of a property that does not exist on this object.
unknown-object	31	A read or write of an object instance that does not exist, for example AI:9999.
value-out-of-range	37	A write outside the valid range: Max_Master above 127, a fraction or out-of-range value on AV:1 to AV:3, a MAC above Max_Master, an unsupported baud, a bad password character, or NaN.
invalid-data-type	9	A write with the wrong data type, for example a string where a number is expected, or a NULL to a non-commandable object.
password-failure	26	A ReinitializeDevice or DCC without the correct password, or a bad password rotation on property 512.
parameter-out-of-range	80	A ReinitializeDevice with a password longer than 20 characters.
operational-problem	25	The flash write failed after a valid write to AV:1 to AV:3, Object_Identifier, Object_Name, Location, or Description. Retry. If it repeats, contact engineering.
property-is-not-an-array	50	A read or write with an array index on a property that is not an array. Remove the index.

Error	Code	When it occurs
character-set-not-supported	41	A Location, Description, or Object_Name write that is not an ANSI X3.4 string.

When to Contact Engineering

- All 5 LEDs blink rapidly and do not recover after a power cycle.
- The self-test LEDs (LED3 or LED5) light during boot.
- LED5 blinks 3 times on every boot. This shows a repeating fault.
- The management password is lost and the Bus Manager console is not usable.
- Sensor values are clearly incorrect even with a known-good device.