

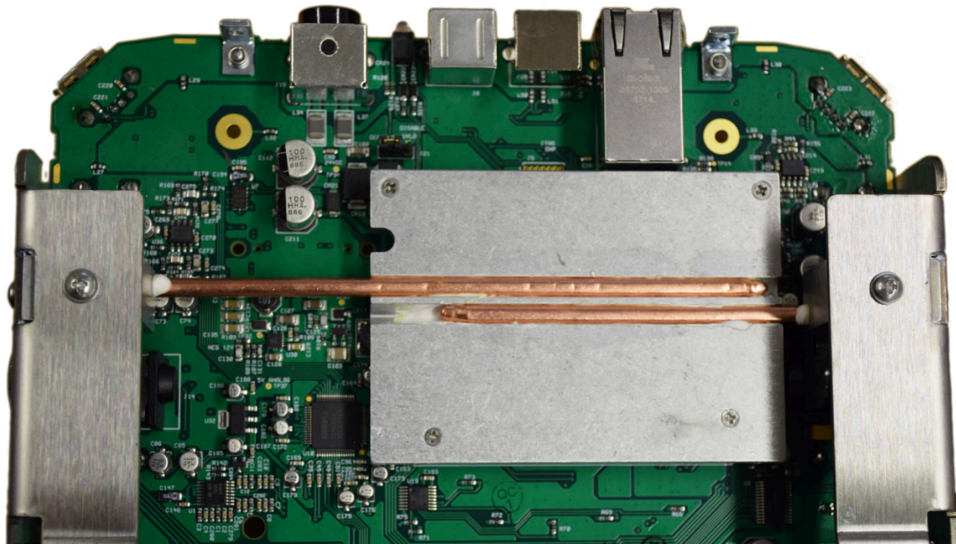
COMREX TECHNICAL BULLETIN:

YES, **ACCESS NX** GETS WARM

THE HEAT IS BY DESIGN

In order to provide enough horsepower for future upgrades, ACCESS NX uses a 1.2 GHz quad-core processor with graphics acceleration. Unless they are throttled back to lower speeds, this class of processor creates heat and needs to be cooled.

When engineering ACCESS NX, Comrex made the decision that the product needed to use only passive cooling and avoid the need for noisy fans that move dirt into the chassis. The trick to engineering a solution like this requires moving the CPU heat to a surface exposed to the outside of the chassis. That's what we did, with a rather elaborate heat-spreader element along with some heat-piping tech designed to move heat away from a source.



The metal plates on the sides of the unit are the natural place to vent this heat. The design is quite effective, keeping the CPU temperature below its throttling threshold even in the presence of 50°C (122°F) ambient temperature.

The side plates are in a location not normally subjected to long term touch. Our testing shows they can typically reach a temperature which can be uncomfortable to touch for long periods but is not considered dangerous. And despite this heat being generated, the NX battery is capable of powering the system for five hours on a full charge.

As with all electronics, Comrex recommends keeping the ACCESS NX out of direct sunlight on hot days and away from other major heat sources while in operation to allow its passive cooling mechanic to function optimally. It is also beneficial to keep your codec up-to-date with the latest firmware releases (www.comrex.com/support/access-nx/#firmware) to allow for all our latest optimizations and efficiency upgrades that keep the hardware happy and healthy.

Put Comrex On The Line.

COMREX

Toll Free in USA: 800-237-1776 • www.comrex.com
e-mail: info@comrex.com
19 Pine Road, Devens, MA 01434 USA
Tel: +1-978-784-1776 • Fax: +1-978-784-1717

SUPPORT CONCERNS

Throughout our history of manufacturing and supporting the ACCESS NX, we've become aware of a growing concern among users in the field regarding operational stability in relation to the heat naturally generated by the ACCESS NX. Rumors seem to be circulating depicting heat-related issues, and our repair department has received equipment over the years with a similar line of reasoning in the *Reported Symptom* field. In simplest terms, they tend to revolve around: "Something went wrong, it seems like it overheated." It is worth noting that while we take all of these concerns seriously, we have yet to receive a unit for repair that exhibited any operational concerns related to heat when tested here at our headquarters.

Analysis of our repair history shows a few notable outcomes for units reporting "overheating" issues. The most common outcome by far is the dreaded "No Faults Found", and in such cases we offer our ongoing support helping track the unit's continuing operation once it is back in the field. Fortunately, the rate of issues resurfacing when following up on these units is almost zero. Another common outcome is more related to power input, where power supply failure can result in an ACCESS NX powering down after it heats up simply because that's when the internal battery ends up running dry. In such cases, a new power supply—or verifying the power supply is plugged in fully—will resolve the issue. And in rarer cases, we have seen internal component failure in some older ACCESS NX units which does not align with any heat concerns. But all this to say, we never want to simply "wash our hands" of an issue that is on our customers' minds, so we've set out with an open mind to run a new round of tests for this symptom under extreme conditions.

WE JUST CAN'T SEEM TO COOK THIS THING

In our recent round of testing, we subjected older ACCESS NX units to a temperature-regulated heat chamber while performing what we call a "Burn-in" test at a constant ambient temperature beyond that which most customers will ever experience on an active job site. Repair customers may be familiar with this term, but we should mention that a *Burn-in* test does not typically happen at such elevated temperatures. *Burn-in* tests involve maintaining an active connection, sending and receiving audio over a local network for hours at a time. These tests are performed as a standard procedure following any repair work, to ensure network and audio performance remain steady with any new parts or modifications.

This particular *Burn-in* test was performed in our in-house heat chamber, with a constant temperature of ~50°C (122°F) for 5 hours, while monitoring the active CPU core temperature.



Transmitted audio was monitored in-person continually for 5 hours, receive stats on web interface monitored without issues. User event log (which records significant network/hardware impairments that affect audio) showed no issues. And the internal CPU temperature peaked at 69°C. For reference, the CPU will start throttling its performance at 85°C. Throughout the test, the units passed all audio, network and power functionality tests.

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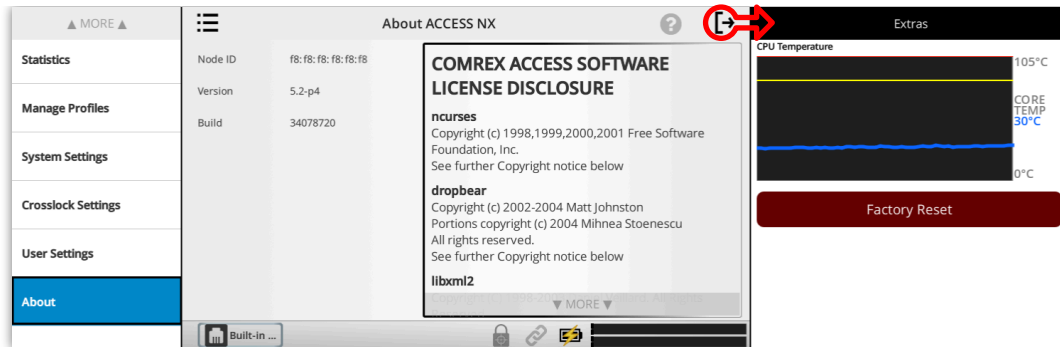
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WHAT TO LOOK FOR

As mentioned already, the vast majority of equipment sent to us for repair with heat-related concerns end up having no issues with the ACCESS NX itself; so with that in mind, what should you do if you suspect your unit is overheating?

1. Check your CPU core temperature using the built-in interface. The ACCESS NX measures this in real time and displays a helpful diagnostic graph in the right-side options drawer of the **"About"** menu, as shown below. The system uses this data in the background to throttle video processing before core temperatures approach any harmful levels. In simple terms, if the blue line gets too high, the screen may appear less responsive; however, audio encoding/decoding and transmission should remain consistent even if the display is throttled.



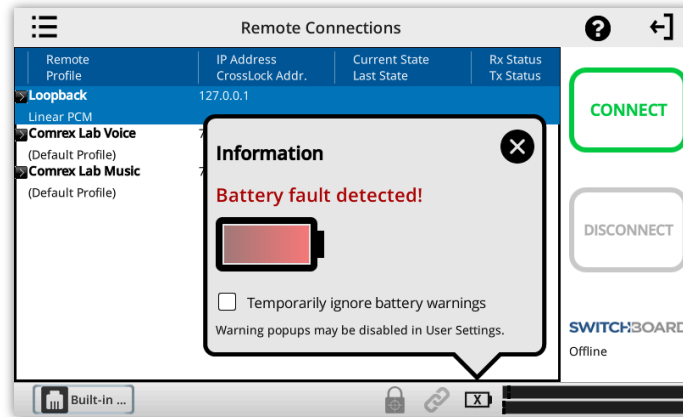
2. Verify the equipment is receiving power properly. It sounds simple, and this step generally is. Verify that the power supply is fully plugged in with the correct orientation. On the ACCESS NX, the flat side of the power supply plug should face "downward", toward the rear side of the ACCESS NX, and should be inserted enough to fully hide the metal cylinder, as shown below.



3. Inspect power supplies regularly for any signs of wear or damage. Any exposed wires or crimps in the cable can cause intermittent power failure, and the ACCESS NX will shut down when the internal battery is depleted. This can be unexpected given the assumption that it is plugged in. The type of power supply you use also matters. Although the pinning of our power supplies is unique, the ACCESS NX shares its power jack design with several other products in our fleet (e.g., BRIC-Link III, VH2 & FieldLink). Some older versions of this 4-pin power supply ran on 24V, compared to the recommended 15V that should be used with the ACCESS NX. Check the printed text on your power supply to ensure it is the 15V version.



4. Monitor the health of your internal battery. Although the ACCESS NX can detect certain battery faults and display them on-screen, overall lifespan of the battery is best evaluated throughout usage. Overall charge capacity will decrease over time, but this decrease can vary widely depending on usage and charging habits. Users can recognize when their codec's battery is not holding a much of a charge far more accurately than any lifespan estimation we can give. For best results, replace the internal battery when you are not confident it can last for your intended production, or if the ACCESS NX displays a persistent battery fault message.



5. Give us a call! In this—and any other case—we are always happy to help troubleshoot and offer our best advice. Our tech support is available to help isolate the problem and get you back up and running as quickly as possible. Call us at **978-784-1776** or email us at techies@comrex.com.