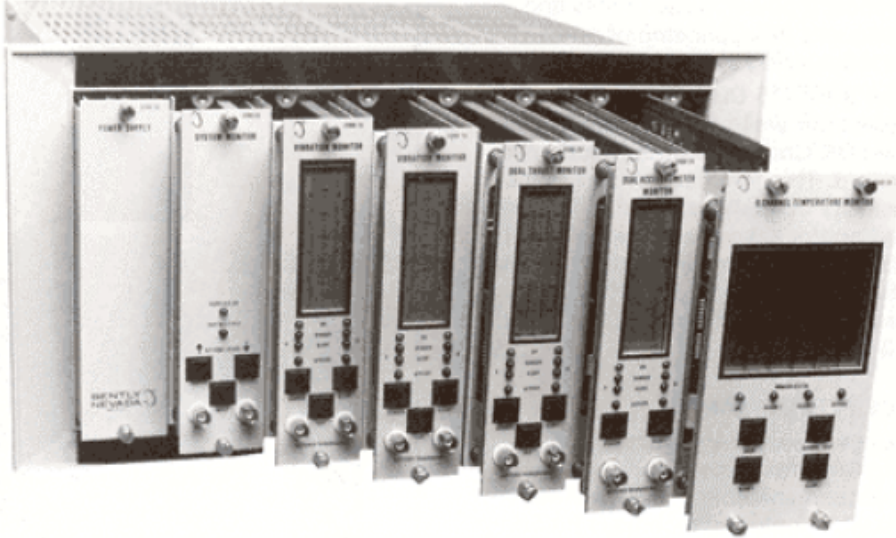


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3300 Upgrade Options

Date : June 1, 2015



So, you have a 3300 rack ... now what?

When the 3300 Monitor was introduced in 1987, the Bently Nevada Catalog made a strong statement:

“Highly reliable machinery information is essential for improved plant performance”

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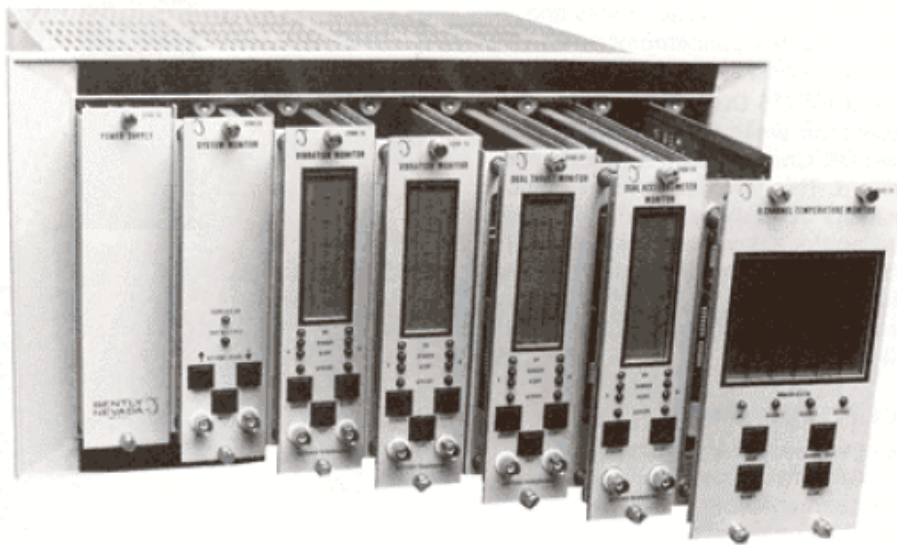
True to the Bently Nevada reputation for quality, most 3300 installations that are still in use today (more than 25 years later) are still functional!

However, as with any electronic device, aging components can put protected equipment at risk of false or missed trips should they fail unexpectedly in operation. Because it was designed & built in 1987, the electronic subcomponents on the 3300 circuit boards are no longer available. As a result, we've been slowly phasing out the 3300:

- mid-2009: the system was moved entirely to spare part support only (Phase 3)
- Feb 2011: status downgraded to "repairs only" (Phase 4)
- March 2014: classified as obsolete, meaning the product has no (or limited) support and is not recommended for continued use in a machinery protection application (Phase 5)

If you're reading this and you have a 3300 in your facility, your next question is likely "**great, so we have some obsolete hardware ... now what?!**". The remainder of this article will explore some options for you to choose from. As always, please [contact your local Bently Nevada representative](#) if you have any questions or would like to explore more options.

Bently Nevada has been your trusted source of *highly reliable machinery information* for the last 25 years – we'll help you continue on for the next 25 years ... and more!



Choosing a Path Forward

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Solution	Features	Advantages	Disadvantages
BN Services	A BN Service representative will ensure that the installed systems are operating to specification	No retrofit necessary. Increased confidence in existing hardware.	Still utilizing obsolete hardware for machinery monitoring and/or protection.
3500	Current & fully supported Protection & CM platform.	Higher channel density, more monitor options available, better connectivity (System 1, DCS, etc)	Minor changes to panel/ cabinet required for a retrofit.
3500 Encore	Current condition monitoring technology, built-in display	Simple retrofit. Local display. Double the channel density (relative to 3300).	Only 1-to-1 replication of original 3300 capabilities. No plans for further monitor types.
3701 ADAPT	Advanced distributed architecture platform technology	State of the art. More powerful processor. Smaller footprint.	Smaller channel count (12 vib + 2 Keyphasor). Limited sensor types (vibration, thrust, speed only).

[Bently Nevada Services](#)



If your 3300 system has been operating for a long time, it may have been a while since you've had it properly checked. If a technology update is not in the immediate future, it is strongly recommended to have a qualified Bently Nevada representative perform an overall health check of your primary monitoring system. Due to the increased risk of component failures with aging instrumentation, our services will verify that your 3300 is in optimum working condition, plus

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verification, removal, and re-installation (as needed) for all related transducer systems.

The health check performed by the Bently Nevada Services team would include actions such as:

Monitoring System(s) Health Check

- Thorough visual inspection of the rack and enclosure
- Verification of communication channels to communication processor and System 1*/DataManager software (if present)
- Comprehensive calibration check
- Relay operation assessment and confirmation that all configured relay logic is operational
- Verification of communication to third party devices e.g. DCS

Transducer Inspection and Replacement Services

- All-inclusive assessment of individual transducers throughout monitoring operation
- Identification/Removal of any faulty transducers
- Re-installation of all required transducers per Bently Nevada's "Best Practice" installation guidelines
- Validation that monitoring loop is fully operational

Once complete, you will receive a comprehensive report detailing the condition of your machinery protection system that includes any recommended actions. It is recommended to perform a Health Check at least once a year on older monitoring systems to ensure that your equipment and your people are protected properly.

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[3500](#)



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The [3500](#) is the result of 30+ years of experience in the condition monitoring & protection field ... [and continues to be improved & built-on to this day!](#) With features like 1X, 2X, not 1X variables, extensive fault tolerant design, RF immunity, ease of configuration, etc – the 3500 is an improvement on the 3300 in almost every way. And with a standardized 19" size and 4-channel cards that are less than an inch wide, the channel density possible in a 3500 is far greater than a 3300. Several application-specific monitors are also available (recip compressor, hydro, aeroderivative gas turbine, etc), making it the best solution for all your condition monitoring & protection needs. And with current & on-going engineering support, new monitors are still being developed for the platform.

The 3500 Series Machinery Monitoring System is also designed to communicate directly with [GE's System 1® software](#) for state-of-the-art machinery condition monitoring & diagnostic capabilities. This ensures that along with industry trusted quality and reliable machinery protection you also have access to effective and accurate machinery condition monitoring tools that provide valuable real machine condition knowledge. Understanding true machine condition allows you to more effectively plan maintenance cycles and optimize planned down time for these critical assets.

If replacing a 3300 mounted in a panel, the cutout will need to be modified slightly. The 3500 is 0.78" taller than the 3300. And because the 3300 was available in 4, 6, 8, 10, 12, 14-position variants, the width opening may need to be enlarged or reduced accordingly. However, if a complete upgrade is being considered, the 3500 rack is designed to fit into a standard 19" cabinet rack-mount. Your local Bently Nevada Services team can assist in any re-designs that may need to be done.

The wiring from the 3300 can be easily transferred from the original 3300 rack to the new 3500 rack's backplane (provided it is still in acceptable condition).

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[3500 Encore](#)



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The [3500 ENCORE](#) is another means of upgrading your existing 3300 monitoring system to the state-of-art condition monitoring technology.

The 3500 ENCORE System upgrade consists of removing the original 3300 and replacing it with a 3500 Encore rack. The resulting system, doubles the channel density of the 3300 (4 channels per card), provides the improved performance of a 3500 Monitoring system, and retains the local display of the 3300 system. All existing transducer, Keyphasor and relay field wiring from the original 3300 system can be re-used.

There is also a 3500 Encore retrofit option available that retains the original 3300 chassis & backplane (reducing wiring changes). However, the aging backplane remains a source of risk in this scenario. As part of the 3500 Encore program, we have committed to continue spares and repairs support (Phase 3) for the 3300 I/O's and backplanes only (the I/O's are the 3300 Power Input Modules, Signal Input Modules, and Signal Input Relay Modules that install at the rear of the 3300 rack and remain in service after a 3500 ENCORE rack upgrade) until 2018 unless they are already in Phase 4 or 5 status communicated in previous notices.

While offering a simple & easy retrofit for a 3300 system, the 3500 Encore was only ever intended as a modernization upgrade. No specialized monitors (recip, hydro, aero, etc.) will be developed for the Encore platform. If you're interested in moving beyond what functionalities the 3300 had to offer, the 3500 is the system to consider.

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[3701 ADAPT](#)

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While not an obvious replacement for a 3300, the [ADAPT platform](#) may prove a viable alternative in the following situations:

- The point count is low
- Complex calculations are required
 - rolling element bearings, gearboxes
- A more distributed architecture is desired
 - Monitor mounted close to the machine, with a single communication cable back

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Conclusion

GE's Bently Nevada has always prided itself on long-term support for all its products. The 3300 is no exception. With a 27 year lifespan, the 3300 has served the market well. However, the reality is that the components are old and irreplaceable. Electrolytic capacitors, electro-mechanical relays, front panel buttons, and Electrically Erasable Programmable Read Only Memory are all wearable components with finite lifespans in the 20-40 year range (highly dependent on operating temperature & environment during that time). Repair & replacement support for the 3300 system has officially come to an end and as such, you need to have a plan for moving forward prior to a component failure event. Updating these systems prior to a failure event can provide substantial savings over having to react to an unplanned critical component failure that cannot be repaired or for which there is no ability to provide a spare module. This type of event may not allow you to operate your machine until a system update is performed leading to substantial unplanned down time.

In the short term, Bently Nevada Services can help you ensure that your existing installation is still functioning properly and providing the value you need it to. And in the long term, your local Bently Nevada Sales team can help you to create a plan for moving forward.



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