# Measuring from protection systems with an SKF Microlog Analyzer GX Series

*By Marcel de Boer • SKF*

One of SKF Service's key strengths is their ability to gather live data and use that information to provide early diagnosis of potential machine problems. Often this data is collected with a SKF Microlog Analyzer and supporting software, such as SKF @ptitude Analyst. In many cases, a consultant follows a route and collects data using a magnetically mounted accelerometer placed on the operating machinery. One disadvantage of using this method is that the magnet creates a buffer between the sensor and the machinery, which limits the frequency band in comparison to a permanently mounted sensor. Additionally, there is the potential for uncertainty as to the exact spot where the magnet/sensor should be placed.

Another commonly overlooked data collection possibility that resolves these issues is to use permanently installed sensors that are providing input for several types of on-line systems along with the SKF Microlog data collector. Often the SKF Microlog can be connected directly to these on-line systems, affording the ability to derive the raw data, or processed data, that is generated by the sensor.

- **On-line systems** are measuring devices capable of taking continuous data (protection systems) or scheduled data (condition monitoring systems) without human interference.
- **Raw data** is the original signal generated by the sensor. This is often a combined AC and DC voltage-based signal. (In rare cases a current-based signal can also be found.)
- **Processed data** is the signal after it has been processed by the on-line system, such as integrating from displacement to velocity.


## Buffered outputs

If there are permanently installed sensors present on a machine, it is often possible to use the raw data output from the on-line system. The majority of the on-line systems have a front panel connector that can be used as a raw data supply for the SKF Microlog. Often a BNC (Bayonet Neill Concelman) connector has been provided for this raw data output. This raw data can be buffered or not, depending upon the monitor manufacturer.

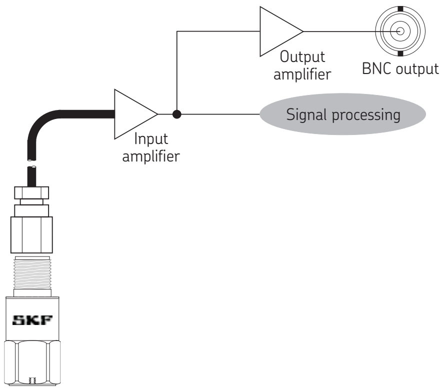



*Figure 1. Monitor signal path for buffered outputs.*

Buffered raw data ensures that an external power source that has been accidentally connected to the output will not influence the monitor signal. This is especially important with a protection system as a signal disturbance could trigger a false trip signal, and hence, an unexpected machine shutdown.

## Setup

Prior to connecting the SKF Microlog to an on-line system, the data collector setup must be verified. It is important to note that the on-line system, not the data collector, powers the sensor, which results in some settings being taken from the on-line system rather than from the SKF Microlog settings. The proper sensitivity, measuring units, and frequency range must also be verified.

The example in **Figure 2**, the SKF Microlog GX has three options for the coupling: ICP, DC and AC. The coupling type should be selected carefully.

- **ICP** – a 4 mA power supply is provided to the BNC. This can influence the measured signal.
- More importantly, if the BNC is not buffered, it could result in an unexpected machine shutdown.
- **DC** – only the DC component of the signal is processed, and there is no sensor power supply.
- **AC** – only the AC component of the signal is processed, and there is no sensor power supply.

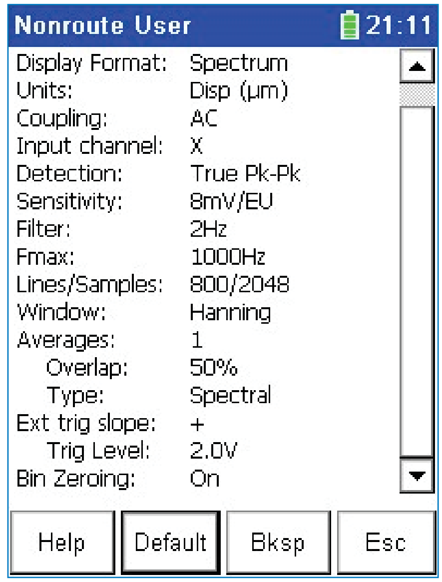



*Figure 2. SKF Microlog GX Series setup for buffered output of a radial displacement channel.*

When a buffered BNC output is supplied, it's easy to connect the SKF Microlog data collector. First, connect the cable with the BNC adapter to the SKF Microlog GX data collector, then connect the other end of the cable to the proper BNC output.

Once these steps are completed, you are ready to collect measurements.

## Monitor examples

There is a large diversity in on-line systems, each with a different system setup. Following are specifics on some common systems.

The BNC output is not always a buffered output on some older competitive systems. This must be checked before connecting the data collector; alternatively, make sure the monitor is bypassed for shutdown.

If the SKF M800A is not equipped with individual BNC's, use the CMMA 852 signal access module. Use the Select AC key on the display module to select the desired buffered output.

The SKF VM600 system, **Figure 5**, has individual BNC connectors with buffered outputs.

Always consult the monitor manual if you have any questions.

*Figure 3. SKF Microlog GX Series collecting measurements from a protection system.*

*Figure 4. SKF M800A.*

*Figure 5. SKF VM600.*

**Note:**

- Buffered outputs are sometimes programmed to be processed outputs, for example, when integration is performed in the monitor.
- Often, a keyphasor is available on the monitor system and can be used as a phase reference input to the SKF Microlog. Sometimes this is not a raw signal, but a TTL signal, as in the SKF VM600.

## Sensor type – setup examples

### Accelerometer settings

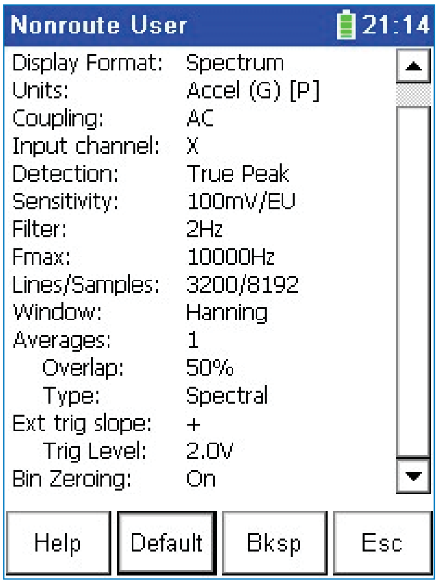



*Figure 6. Accelerometer settings (100 mV/g).*

### Velocity Sensor settings

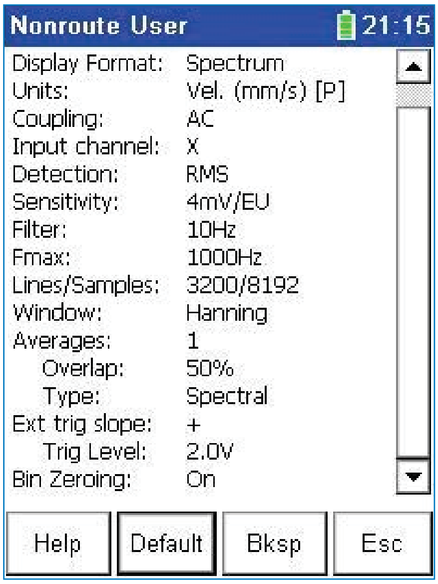



*Figure 7. Velocity Sensor settings (100 mV/ips).*

### Eddy Current Probe settings

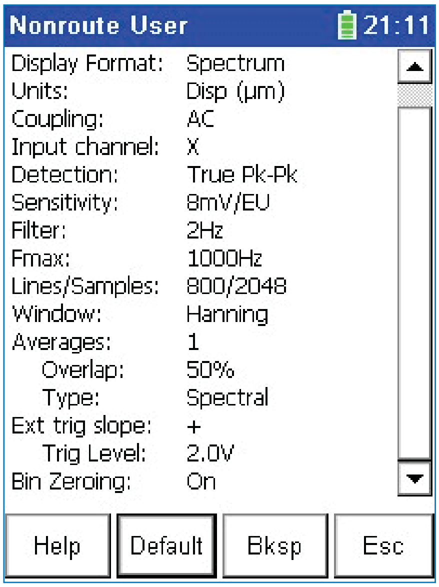
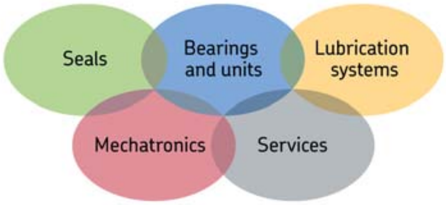



*Figure 8. Eddy Current Probe settings (200 mV/mil).*

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