

MSIM/HSCT 3500 SOFTWARE AND SYSTEM 1

Which versions of 3500 Configuration Software are Compatible with MSIM?

3500 Configuration Software v5.0 is compatible with MSIM. All previous versions are incompatible.

Which versions of System 1 is Compatible with 3500/82 MSIM?

The MSIM system is compatible with all System 1 versions 6.5+.

What MSIM data is available in System 1?

Currently static variables are available in System 1 using the “Custom Monitor” option. This is sufficient as the trended values are of most interest in this application. See the list of variables above under “New Features”

Can I set Alert and Danger Setpoints for MSIM values in the 3500 System?

Yes, all variables in the MSIM monitor are treated like any other proportional values (PPLs) in the 3500 system. Alert and Danger setpoints are configurable. Alert and Danger time delays are configurable.

Alert and Danger Latching are available. Not OK Latching is also available.

Is the MSIM System Compatible with MODBUS?

Yes, all of the Proportional values (PPLs), alarm values, and statuses that are provided with the 3500/82 MSIM monitor are available and fully configurable in the 3500/92 Communications Gateway module. Users can use the 3500 configuration software and the 3500/92 to configure a standard Modbus map or a “condensed” or “custom” Modbus map which includes all of the 3500/82 (MSIM) proportional values, status, etc.

How should I use MSIM with System 1?

All MSIM variables are available in System 1. Software alarms should be set in System 1 to alert users of changes in Leakage Current. Email notification can also be configured in System 1 to alert users of changes.

What Alert and Danger Setpoints Should be used for MSIM?

Actual alarm setpoints will vary depending on many factors. Typically these values will have to be determined by consultation with the end customer, the OEM, and input from Bently Nevada.

What new software do I need for MSIM?

MSIM uses the 3500 software for configuration and System 1 for viewing data and for diagnostics. The 3500 software is typically supplied with every 3500 system. If your plant already uses System 1 then you already have all of the software that you need. For example, if electrical engineers at the facility want to view the MSIM data, all that is needed is to install the System 1 Display client on their machine (assuming System 1 is available on their corporate network). So there is no need to invest in any additional software or training to view the MSIM data. Leakage current, C&DF, Dissipation Factor, resistance, and capacitance can all be viewed and trended in System 1.

MSIM/HSCT SYSTEM PRICE

What is the cost of the MSIM system?

The price of the MSIM system is comparable to other online motor insulation testing systems such as Partial Discharge.

How much will the services cost for MSIM installation and configuration?

There are two parts to the services for an MSIM installation. The first part is the high voltage electrical installation of the HSCT current transformers, HVS high voltage sensors inside the motor connection box, and associated instrumentation and field wiring. This part must be completed by qualified electricians. Bently Nevada site project managers can offer project management services to hire qualified electrical contractors or alternatively the site can handle the high voltage electrical part of the installation with their own plant electricians or by partnering with a local electrical contractor to perform the work. The cost of the high voltage electrical installation will vary greatly depending upon whether the installation occurs at a motor OEM shop which would be very cost-effective, or by a contractor at a customer site during a machine shutdown or outage. Reference the HSCT Installation Case Studies document which details 3 field installations and includes photos. This document can be provided to electrical sub-contractors to help with the bidding process. Consult your Bently Nevada sales representative for details.

The second part of the installation is the MSIM 3500 and System 1 configuration and must be performed by Bently Nevada services organization. If multiple motors are involved, less time per motor should be required. These services can be bundled into a complete 3500 and System 1 installation or upgrade project. Consult your Bently Nevada sales representative for details.

MSIM/HSCT INSTALLATION

What is the Maximum Distance from the Motor or Interface Modules to the 3500 Monitor?



Typical maximum field wiring lengths apply to the HSCT and HVS sensors and interface modules. The maximum distance from the motor to the 3500 rack is 330 meters (1,000 feet).

Are there any special requirements for HSCT and HVS installation inside a motor connection box (MCB)?

Unlike Partial Discharge Analysis (PDA) technology which uses RF current transformers, and PD couplers, there are no special installations or complicated routing requirements for HSCT or HVS cabling beyond standard instrumentation cable best practices, such as those employed for Proximity sensors, temperature sensors, etc. Installation and routing of instrumentation cable

however should always follow sound practice and local codes and standards. For reference see the HSCT Installation Case Studies Document.

Partial Discharge Analysis technology requires that more stringent precautions be taken in the installation of the instrument cabling. Noise from power leads for example can be easily coupled on to the PD instrument cabling causing difficulty interpreting results. The MSIM System does not suffer from these disadvantages.

Where Can the HSCT and HVS Interface Modules be Located?

The HSCT and HVS both have Interface Modules to condition the raw signals so they can be incorporated into the 3500/82 monitor (HSCT Interface Module shown on left). These Interface modules are visually similar to our standard Bently Nevada 3300XL Proximity. However, the HSCT and HVS Interface Modules have different connections that prevent miss-wire with a 3300XL and with each other. The interface modules use an industry standard Lemo connector that is incompatible with the 3300XL Click-Loc connection. Also the Lemo connector for the HVS interface module is a 3-pin MIL-SPEC connector and the Lemo connector for the HSCT is a 2-pin Mil-Spec connector so that they can never be miss-wired.

The HSCT and HVS interface modules have the exact same footprint and configuration as our Bently Nevada 3300XL Proximitors and can be mounted with the same DIN-rail hardware, or 4-hole (old style) Proximitors mount. As such the same junction box layout can be used for the HSCT and HVS interface modules as is used for the 3300XL junction box. Typically this interface junction box will be located on or very near the motor where the HSCT and HVS are installed.

Does The MSIM System Require an External Power Supply?

Yes, a 24-volt external power supply is required and provided for each MSIM 3500/82 monitor (photo shown below). The power supply is required to drive all of the instrumentation.



What Does the Cabling Look Like for the HSCT/HVS Sensors/Interface Modules?

The HSCT sensor uses a standard MIL-SPEC connector on the sensor end and a Lemo connector on the Interface Module end (see photo below). The HVS cable is manufactured integral to the HVS sensor with a Lemo connector on the Interface Module end (see photo below).



The HSCT cable is 5 meters (16.4 ft.) in length.

The HVS integral cable is 4.5 meters (14.7 ft.) in length.

Why does the HSCT have a metal case vs. a plastic or insulated case like most CTs?

The HSCT sensor has gain and signal to noise ratio that is a full order of magnitude higher than a typical CT. To maintain the sensitivity and accuracy of the HSCT it is important to maintain the dimensional stability of the CT. The CT was designed into the aluminum housing to maintain that stability.

Can the HSCT sensors be installed in the Motor Control Center (MCC)?

No, the HSCT sensors must encircle both the phase and neutral lines. Those are typically only available in the motor connection box (MCB).

Does orientation of the HSCT sensor matter? Does it matter how I route the cables through the HSCT?

Yes, the power coming from supply must enter the HSCT from the label side and exit on the cover side. Neutral lines coming from the motor must pass from the cover side and exit on the label side where they are connected at the star point.

Do the conductors need to pass through the exact center of the HSCT?

No, the HSCT is not sensitive to conductor placement location as long as each phase and neutral pass through the HSCT opening. However best practice installation for all CTs including HSCT is to put the conductors as close as feasible to the center of the HSCT opening and keep them away from the edges which could abrade or dent the cable insulation.

