ORTEC®

SMART-1 and SMART-INTERFACE

- **An Intelligent High Voltage Supply for HPGe Detectors**
- **Provides Detector State-of-Health (SOH) Information**
- **Security Function Allows Use of Authentication Codes**
- **Rugged Housing to Protect Electronics**

The SMART-1 option for ORTEC HPGe detectors is a major enhancement to operational quality assurance and to data and chain-of-custody integrity. It is supported directly through MAESTRO MCA Emulation software which is supplied with the digiDART, digiDART-LF, DSPEC-jr-2.0, DSPEC-LF, DSPEC-Pro, DSPEC-50, and DSPEC-502 digital nuclear multichannel analyzer systems. For other multichannel analyzers, the SMART-INTERFACE provides the same control as the SMART-1.

The SMART-1 HPGe detector includes the high voltage supply, so an external high voltage power supply is not required. The SMART-1 HPGe detector monitors and reports on vital system functions and the SMART-1 identification serial number can be read by the instrument. For more security it can save authentication codes and report the code at a later time.

ORTEC SMART-1 HPGe detectors monitor the following conditions:

- Preamplifier +24 and +12 V values (read-only)
- Detector element temperature (read-only)
- Detector high voltage value (read-only)
- Detector high voltage state (on/off)
- Detector overload state (read-only)
- Detector HV shutdown state (read-only)
- Detector serial number (read-only)
- Detector authentication code (read/write)

These parameters are displayed as required on the LCD of the attached instrument or computer (local or remote).

SMART-1 Physical

The SMART-1 is housed in a rugged ABS molded plastic enclosure. The SMART-1 is permanently attached to the detector endcap via a molded, strain-relieved sealed cable. This eliminates the possibility that the detector will suffer severe damage from moisture leaking into the high voltage connectors. The SMART-1 can be positioned in any convenient place and does not interfere with shielding or other mounting hardware.

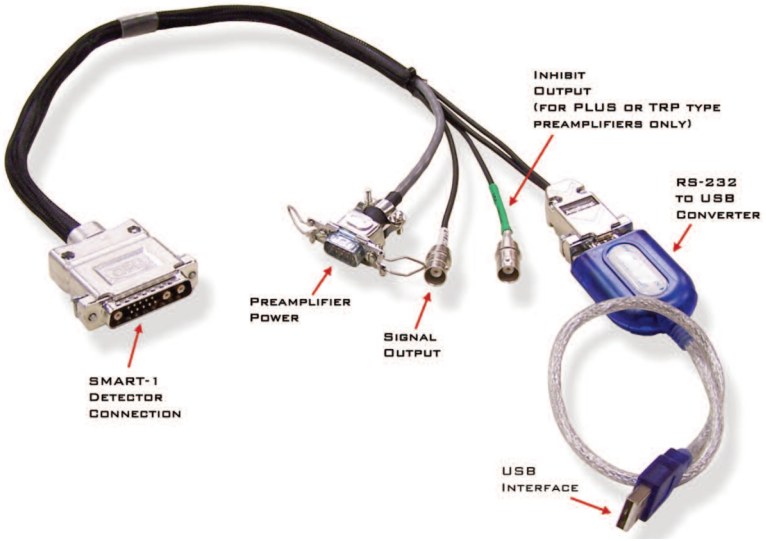
SMART-1 and SMART-INTERFACE

SMART-INTERFACE for Other MCA Types

SMART-INTERFACE allows the SMART-1 detector technology to be used with virtually any MCA — even analog.

SMART-INTERFACE provides communications between the ORTEC SMART-1 detector and an analog amplifier with any MCA or a Digital Signal Processor that cannot directly connect to the SMART-1. Easy to use software is provided to access the SMART-1 detector's State-of-Health (SOH) data and control the high voltage.

The SMART-INTERFACE is supplied with one detector output signal cable, one inhibit output signal cable [for use with -PLUS or Transistor Reset Preamplifiers (TRP)], one preamplifier power cable for an ORTEC preamplifier power supply, one preamplifier power cable to connect to another manufacturer's preamplifier power supply, a USB extension cable for connection to a PC and software to control the high voltage and display the detector SOH data.



SMART-INTERFACE Software

To start the SMART-INTERFACE software, click the Window's Start button, then "ORTEC SMART-INTERFACE." Note, the software is initially minimized to the system tray. To terminate the SMART-INTERFACE software, right click the SMART-INTERFACE icon and click "Shut Down."

To see the SMART-INTERFACE dialogue box, click the SMART-INTERFACE icon in the system tray.

SMART-INTERFACE Dialogue Box

HV On/Set Turns on the bias voltage to the detector and sets the HV to the target voltage. The user enters the target volts in the "Target" box.

Actual Displays the voltage applied to the detector.

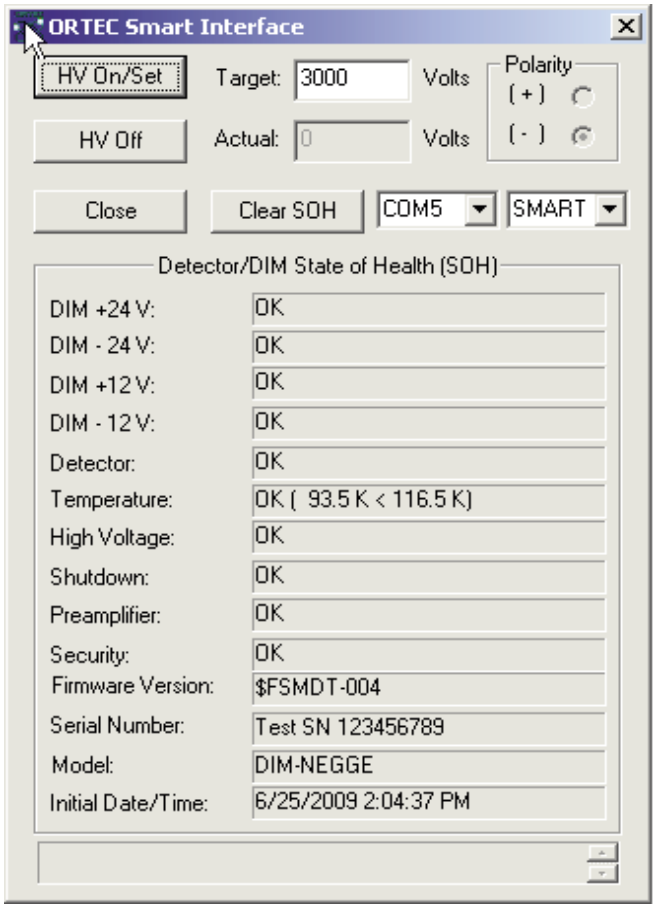
HV Off Turns off bias voltage to the detector.

Close Closes the dialogue box for the SMART-INTERFACE software. Note, this does not cease operations for the SMART-INTERFACE software.

Clear SOH Clears the data from the Detector/DIM State-of-Health (SOH) chart and resets the Initial Date/Time to the current date and time.

Drop-Down Menu (Left) Selects the COM port that will be used to control the SMART-INTERFACE.

Drop-Down Menu (Right) Indicates the bias shutdown logic that is being used. This should always be set to SMART for use with a SMART-1 detector.



SMART-Interface Dialogue Box.

SMART-INTERFACE Controls Menu

Access the SMART-INTERFACE controls menu by clicking on the upper left corner of the SMART-INTERFACE dialogue box. A drop-down menu will appear.

SMART-INTERFACE Controls

Move Moves the dialogue box.

Close (ALT+F4) Closes the dialogue box

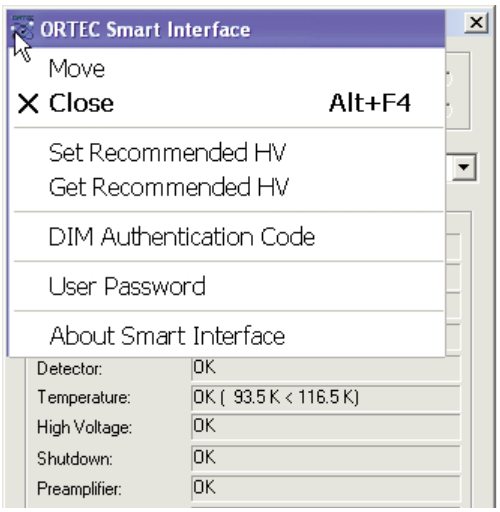
Set Recommended HV Allows the user to enter a value for the bias (normally the recommended value from the SMART-1 detector QAD sheet).

Get Recommended HV Acquires the value entered by the user in the Set Recommended HV step and applies this value to the "Target" box of the SMART-INTERFACE dialogue box.

DIM Authentication Cod e Allows the user to change or delete the authentication code.

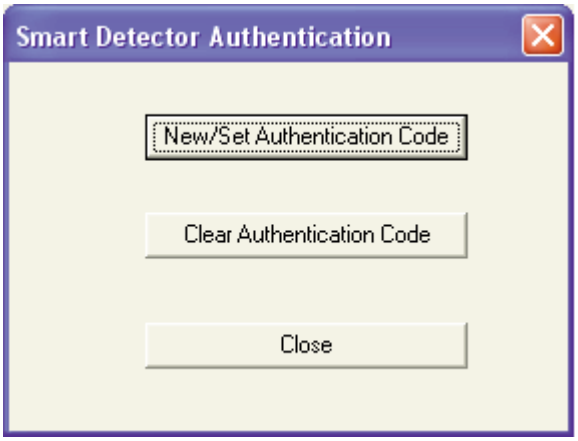
User Password Opens the Manage User Password dialogue box and allows setting or deleting password protection of the HV On/Off function and provides a means of changing the password. Note, the default password is "ortec".

Setting the HV On/Off is password protected by default. If the "HV On/Off without Password" box is not checked in the Manage User Password dialogue box, the HV On/Off Password dialogue box will appear.

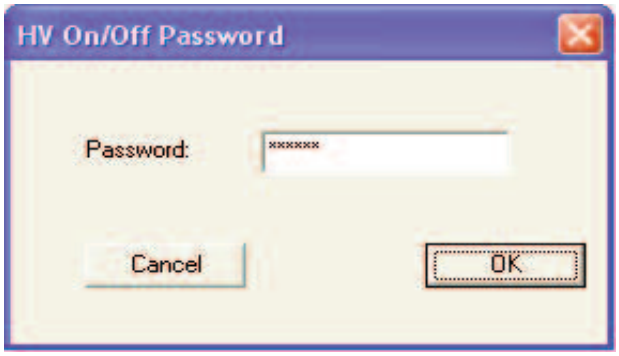


SMART-Interface Controls Menu.

User Password.



DIM Authentication Code.



HV On/Off Password.

SMART-INTERFACE Specifications

Preamplifier Power 9-pin D connector provides ±12 V and ±24 V power to the preamplifier and high voltage supply. Two 12 ft (3.6 m) preamplifier power cables are provided, one for ORTEC connections and one for another manufacturer.

Signal Output Supplies the voltage pulse from the preamplifier suitable for input to a spectroscopy shaping amplifier or a Digital Signal Processor. 100-Ω impedance. A 12 ft (3.6 m) BNC cable is provided.

Inhibit Output A logic signal is provided during the reset time from a -Plus type (Transistor Reset) preamplifier. 1 kΩ impedance. A 12 ft (3.6 m) BNC cable is provided.

USB Interface Converts the RS232 interface to USB and provides a USB connection to a PC. Interface circuit is powered by the USB. A 10 ft (3 m) USB extension cable is provided.

Weight Net 2 lbs. (0.9 kg) Shipping 3 lbs. (1.4 kg)

Ordering Information

Model	Description
-SMP	Positive Bias SMART-1 detector option, add "-SMP" to the detector model number [e.g., GEM75P4-95-SMP or GEM75-95-SMP].
-SMN	Negative Bias SMART-1 detector option, add "-SMN" to the detector model number [e.g., GMX70P4-95-SMN or GMX70-95-SMN].
SMART-INTERFACE	Provides communication between the ORTEC SMART-1 detector and an analog amplifier with MCA or a Digital Signal Processor that cannot directly connect to the SMART-1.

Specifications subject to change
26-0716

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