

- 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 display 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.

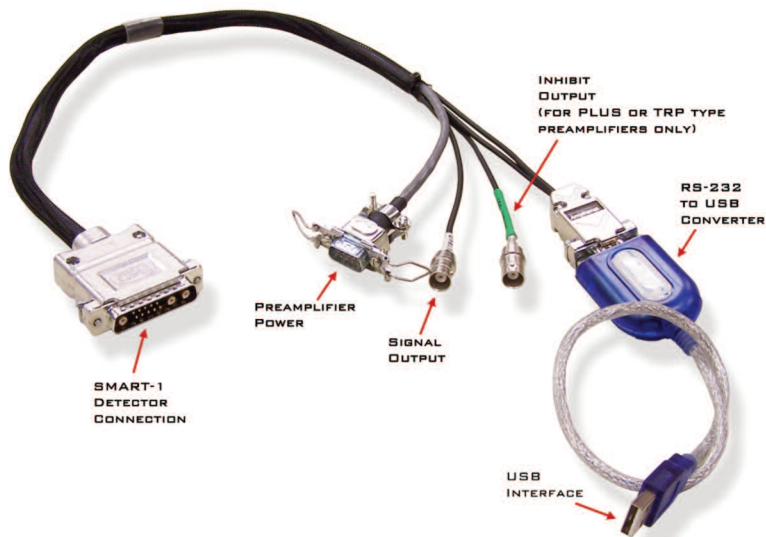
# SMART-1 and SMART-INTERFACE

## 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.

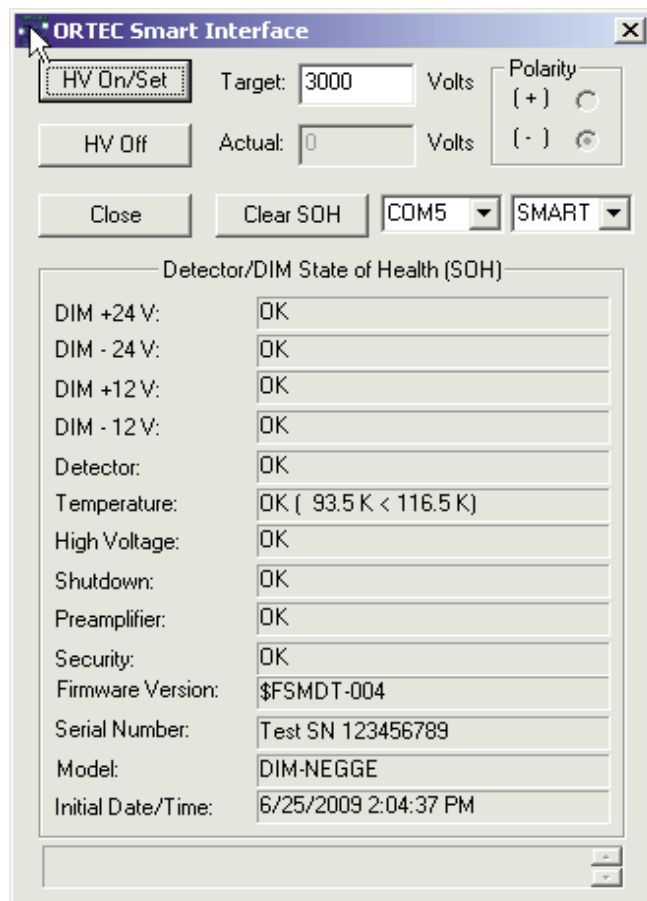
**HV Off** Turns off bias voltage to the detector.

**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-1 and SMART-INTERFACE

## 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

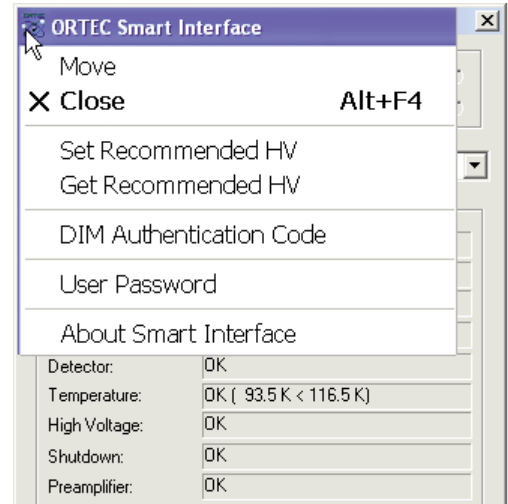
**Set Recommended HV** Allows the user to enter a value for the bias (normally the recommended value from the SMART-1 detector QAD sheet).

**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 Code** 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".

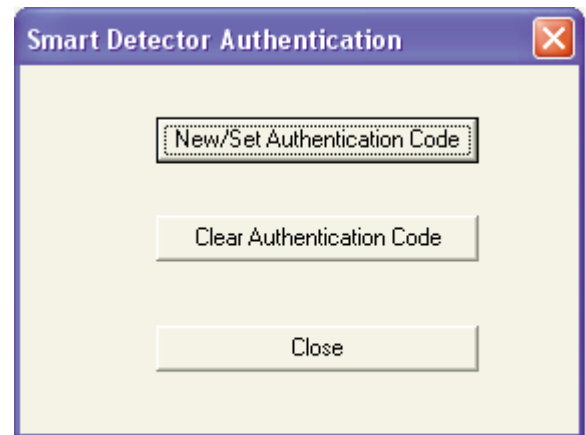
Setting the HV On/Off is password protected by default. If the "HV On/Off without Password" box is not checked in the Manage User Password dialogue box, the HV On/Off Password dialogue box will appear.



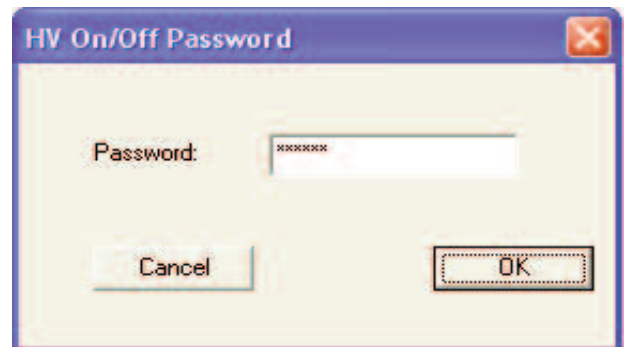
SMART-Interface Controls Menu.



User Password.



DIM Authentication Code.



HV On/Off Password.

# SMART-1 and SMART-INTERFACE

## SMART-INTERFACE Specifications

**Preamplifier Power** 9-pin D connector provides  $\pm 12$  V and  $\pm 24$  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- $\Omega$  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 k $\Omega$  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  
090517

**ORTEC**<sup>®</sup>

[www.ortec-online.com](http://www.ortec-online.com)

Tel. (865) 482-4411 • Fax (865) 483-0396 • [ortec.info@ametek.com](mailto:ortec.info@ametek.com)  
801 South Illinois Ave., Oak Ridge, TN 37830 U.S.A.  
For International Office Locations, Visit Our Website

**AMETEK**<sup>®</sup>