

NOLDUS I/O INTERFACE

SG-233

USER'S MANUAL

DOC-238

Rev. 1.1

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CHAPTER 1 | INTRODUCTION

The SG-233 Noldus I/O Interface allows the interoperability of Med Associates Inc. and Noldus Information Technology devices. The Interface provides two Med Associates Standard 28V outputs and two Med Associates Standard 28V inputs, which are linked to a Noldus standard RJ-45 connection.

The SG-233 may be powered by a Med Associates power supply (e.g. SG-501) via a two-pin 28V Molex connection, or a 28V DC power supply (e.g. SG-508). A two-pin Molex 28V output is also included to provide power to additional SG-233 or any other Med Associates device using a daisy chain configuration.

Figure 1.1 - SG-233 Front Panel

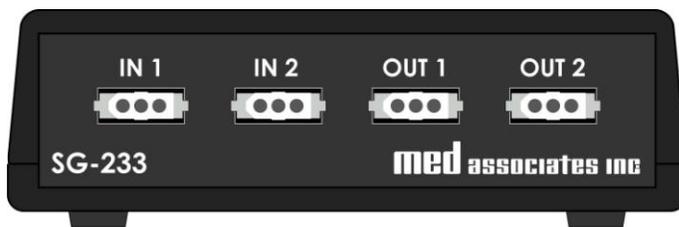
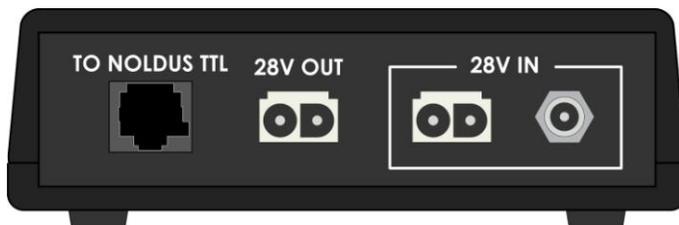


Figure 2.2 - SG-233 Back Panel



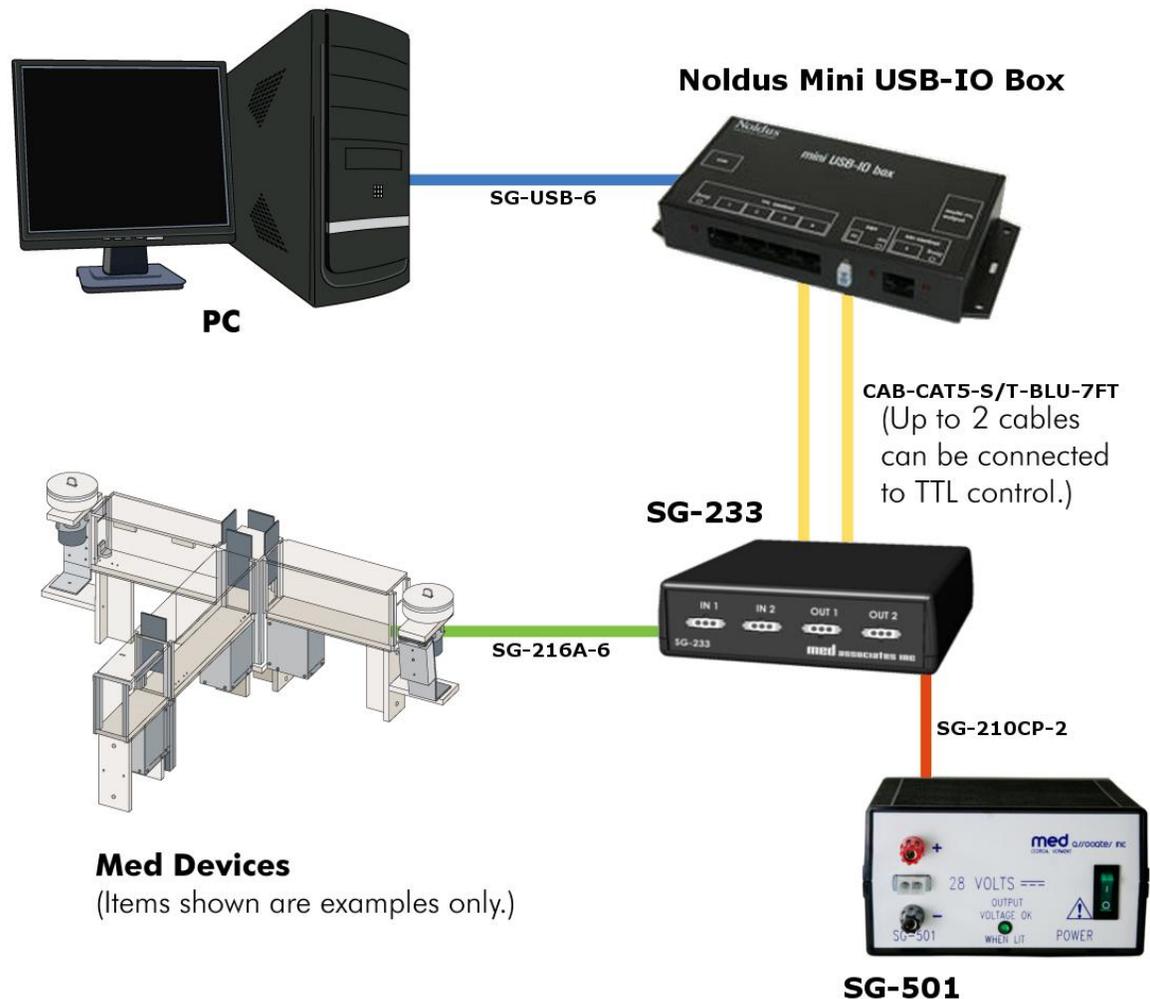
Specifications

Power Requirements:	28V DC
Maximum Pass-through Current:	16 Amps
Dimensions:	5.1" L x 5.1" W x 1.5" H

CHAPTER 2 | WIRING INSTRUCTIONS

1. Connect a standard Ethernet cable from the connector labeled **To Noldus TTL** on the SG-233 to any of the **TTL control** connectors on the front panel of the Noldus USB-I/O Box.
2. Connect the **IN1**, **IN2**, **OUT1** and **OUT2** connectors on the SG-233 to desired Med Associates devices. Figure 2.1 illustrates a typical wiring setup.
3. Apply power to the SG-233 in one of two ways:
 - a. Using a 28V DC power supply (e.g. SG-508), connect the **28V IN** jack input on the SG-233 to a standard wall outlet.
 - b. Using an SG-210CP 2-pin Molex cable, connect the **28V IN** 2-pin Molex connector on the SG-233 to a Med Associates Power Supply (e.g. SG-501).
4. Control the SG-233's outputs or monitor its inputs using Noldus' Ethovision XT software.

Figure 2.1 - SG-233 Interface Wiring Diagram



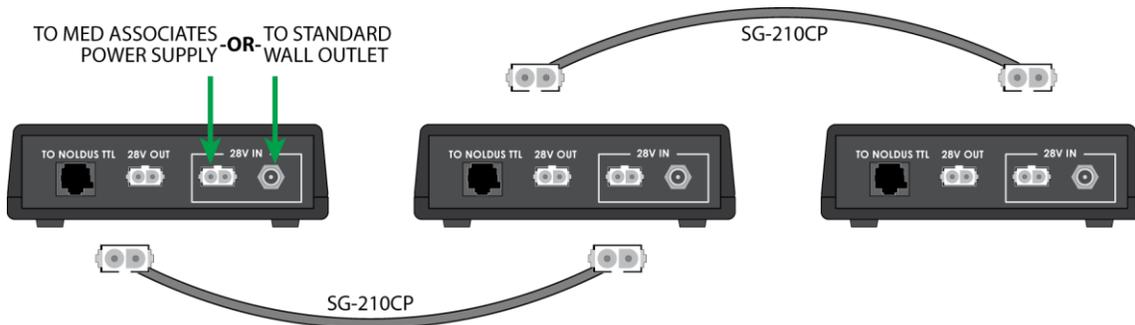
Powering Other Devices Using the SG-233

Additional Med Associates devices can be powered using the **28V OUT** connector on the SG-233, including multiple SG-233 interfaces.

Figure 2.2 illustrates three SG-233s that are daisy-chained, however the procedure is the same for any Med Associates device. The procedure is described below:

1. Apply power to the SG-233 in either of the ways described in Step 3 of the Wiring Instructions, above.
2. Using an SG-210CP, connect the **28V OUT** connector on the SG-233 to the **28V IN** connector on the next Med Associates device.

Figure 2.2 – Daisy-Chaining SG-233 Interfaces



CHAPTER 3 | CHANGING THE OUTPUT CONFIGURATION

Most Med Associates equipment will activate when a “low” signal is received from an output such as those on the SG-233. The outputs on the SG-233 can operate in one of two ways, Normal or Invert mode. In Normal mode, an output of the SG-233 will be high when the corresponding TTL port is set high, and the output will be low when the corresponding TTL port is set low. In Invert mode, an output of the SG-233 will be high when the corresponding TTL port is set low, and the output will be low when the corresponding TTL port is set high. The output settings can be changed by adjusting the position of dip switches inside the SG-233. The default setting is Normal mode.

Med Associates equipment (custom hardware) is managed in the *Arena Settings* section of Noldus’ Ethovision XT software. Figure 3.1 shows four custom hardware devices, two Med Associates pellet dispensers and two Med Associates chamber house lights.

Figure 3.1 – Noldus Ethovision XT Arena Settings Custom Hardware Mapping

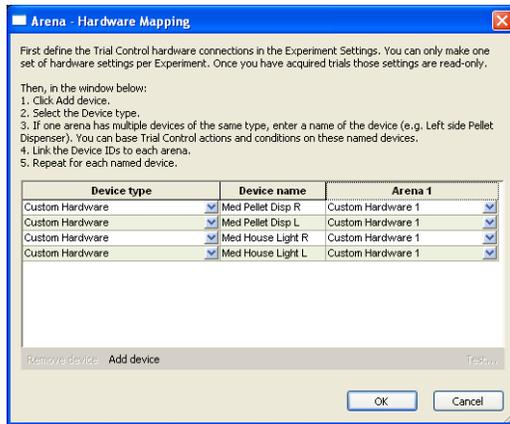
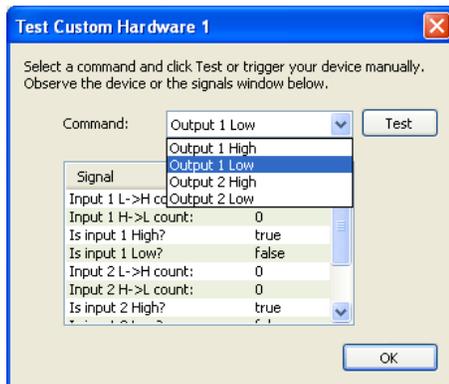


Figure 3.2 displays the custom hardware test screen. Each device can be tested for functionality and “low” or “high” operability from this test screen prior to initiating an experiment.

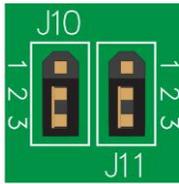
Figure 3.2 – Noldus Ethovision XT Arena Settings Custom Hardware Mapping



In order to change the outputs to invert mode, complete the following steps.

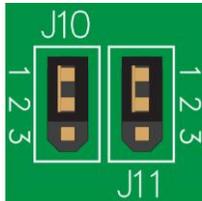
1. Disconnect all cables from the SG-233.
2. Turn the SG-233 over and remove the two screws from bottom of case; set aside.
3. Remove top of case by sliding it off in upward direction.
4. Locate header pins labeled J10 and J11. Jumper J10 corresponds to Output 1 on the SG-233 and jumper J11 corresponds to Output 2.
5. To place an output in Normal mode, place the jumper across Pins 2 and 3, as shown in Figure 3.3. This is the default jumper position.

Figure 3.3 - Jumpers J10 and J11 in Normal Mode



6. To place an output in Invert mode, place the jumper across Pins 1 and 2, as shown in Figure 3.4.

Figure 3.4 - Jumpers J10 and J11 in Invert Mode



7. When done, replace top cover and secure the screws.

APPENDIX A | CONTACT INFORMATION

Please contact Med Associates, Inc. for information regarding any of our products.

Visit our website at www.med-associates.com for contact information.

For technical questions, email support@med-associates.com.