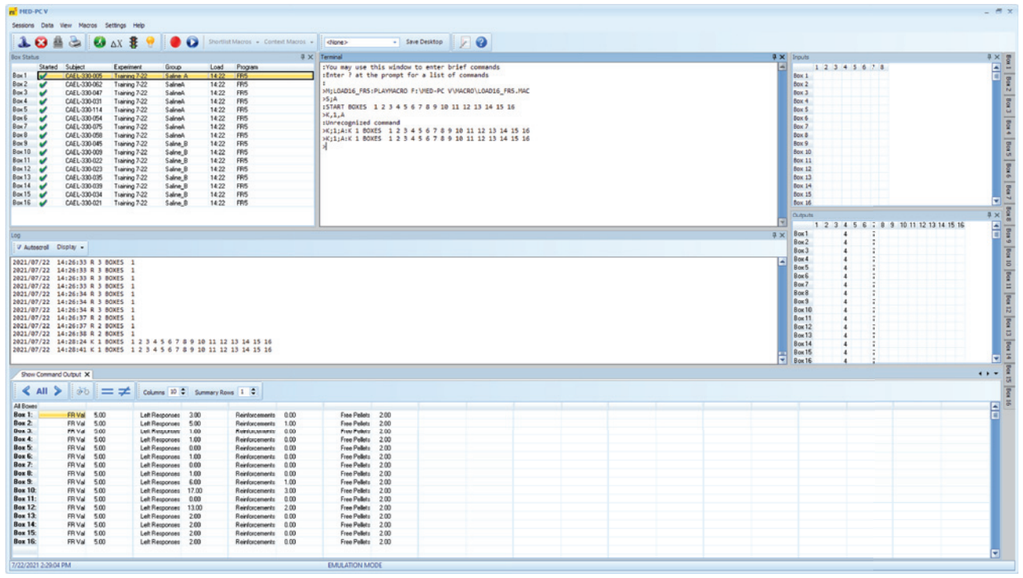
med associates inc

Instrumentation and Software for Research

POWER & CONTROL INTERFACE SYSTEMS

Med-PC V Behavioral Control Software Suite (SOF-736) controlling and gathering input & output data from devices, using a fixed ratio protocol



IT'S ALL ABOUT INPUTS AND OUTPUTS. Devices with input lines send response data *to* the computer, while output lines are for signals sent *from* the computer that cause the device to operate.

To send and receive these signals, the computer is connected to a decode card housed in an interface cabinet. In this interface cabinet, there are slots for housing input/output cards, which are wired to connection panels. These panels are paired with a chamber that has devices installed.

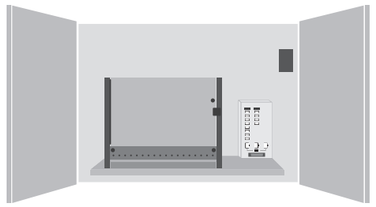
For an illustration of a basic setup, see page 10.

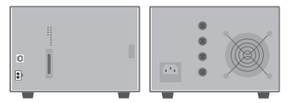
OUTPUTS

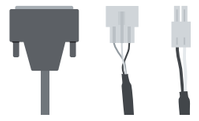
- Aversive Stimulators
- Clickers
- Fans
- House Lights
- Liquid Sippers + Dippers
- Pellet Dispensers
- Retractable Levers (Retraction)
- Stimulus Lights
- Sonalerts
- Syringe Pumps
- Tone Generators
- White Noise Generators

INPUTS

- Ceiling Rods
- IR Detectors
- Levers
- Lickometers
- Nose Pokes
- Response Wheels
- Retractable Levers (Presses)







STEP 1: CHOOSE A TEST CHAMBER OR PACKAGE

- Operant Conditioning & General Behavior
- Self-administration
- Shuttle Box
- Activity Wheel
- Five & Nine Hole Nose Poke
- Olfactory
- Modular Mazes
- Specialty Mazes *(Barnes, Water, Zero, Elevated Plus)*

...and more! *Visit our website for our full catalog.*

STEP 2: CHOOSE AN INTERFACE CABINET

- Standalone Interface (USB) *page 5*
- Tabletop Interface Cabinet (USB) *page 6*
- Rack Mount Interface Cabinet (USB) *page 7*

STEP 3: CHOOSE AN EXPERIMENTAL CONTROL SOFTWARE

- Med-PC V Behavioral Software Suite
- Schedule Manager

...or other specialized software, *see our "Software" brochure.*

STEP 4: CHOOSE A POWER SUPPLY

- Tabletop Power Supply (built-in) *page 6*
- Standalone Power Supply *page 8*
- Rack Mount Power Supply *page 8*

STEP 5: CHOOSE YOUR WIRING

- For the wires you need to connect everything together, contact our sales team. We will work with you to get the cables and adapters you need for your setup. *A sampling of wires are listed on pages 19-22.*

STEP 6: CHOOSE A COMPUTER

- Your own computer*
  - *As long as it meets the minimum requirements, contact our sales team to confirm*
- Our computer package *(COM-106)* or NUC *(COM-201/-202) page 23*

...YOUR SYSTEM IS COMPLETE!

LET'S GET STARTED

The packages on the next page are typically all you'll need for a basic sytem, but can also act as a great starting point. We offer many components that can be combined in a multitude of ways, cables of various lengths, modules of different capabilities, etc.

This brochure is intended to provide an overview to aid in your understanding of how these components fit together. Due to the complex nature, we recommend contacting our Sales team, who will ensure you will get everything you need to accomplish your research and data acquisition goals.

USB OPERATING PACKAGE

MED-SYST-8-USB 8 CHAMBER | 32 or 64-bit
MED-SYST-16-USB 16 CHAMBER | 32 or 64-bit

- Run up to four USB decode cards *(DIG-705)* to operate up to 16 chambers from one computer
  - Use a desktop or laptop computer *(32 or 64-bit)*

SUMMARY OF CONTENTS

- USB Decode Card links the computer to the interface cabinet
- Small (8 slot) or large (16 slot) tabletop interface cabinet
- SoftCR software to display and/or print cumulative records from IRT or ASCII data files
- Med-PC V behavioral control software suite *(64-bit)*
- Med-PC To Excel Data Transfer Utility for analysis of your results in Microsoft Excel
- MedLab 8 Protocol Package* *(SOF-700LA-1)*
- USB + power cables

**NOTE: or other protocol code of your choice, refer to our software brochure, or contact sales for more info*

USB INTERFACE PACKAGE

DIG-700P3-USB 32 or 64-bit

Converts an existing interface cabinet from PCI to USB by replacing the decode card.

SUMMARY OF CONTENTS

- USB Decode Card links the computer to the interface cabinet
- USB + power cables

DIG-705

USB OPERATING PACKAGE
STANDALONE

DIG-706 8IN - 16OUT

Plug into your computer's USB port, plug into an AC outlet, and to a connection panel, and you're ready to control a single test station.

NOTE: Unlike our standard interface packages, a DC power supply is not required.

- Combines the functionality of a USB Interface with the I/O capabilites of our SmartCtrl™ cards
- Economical, portable, and easy-to-use design is ideal for student labs, training systems, or demonstrations

SG-7308 + DIG-705

m5 MPC2XL SOFTCR

Med-PC V (SOF-736), SoftCR (SOF-721), and Med-PC to Excel (SOF-731)

PACKAGE CONTENTS

A = MED-SYST-8-USB **B** = MED-SYST-16-USB

#	SKU	DESCRIPTION	A	B
1	CAB-USB-AM-BM-10	USB Cable, Type A-B, M/M, 10' *(3.05 m)*	A	B
1	DIG-705	USB Interface Decode Card	A	B
1	SG-210CP-2	Power Cable, 2' *(61 cm)*	A	B
1	SG-7308	Small Tabletop Interface Cabinet + Power Supply	A	
1	SG-7316	Large Tabletop Interface Cabinet + Power Supply		B
1	SOF-721	SoftCR for Windows, Single License	A	B
1	SOF-731	Med-PC to Excel Data Transfer Utility	A	B
1	SOF-736	Med-PC V Software, Lab License *(64-bit)*	A	B

	OVERALL (W×H×D)
SG-7308	9.25″ x 6.1″ x 15″ *(23.46 x 15.49 x 38.1 cm)*
SG-7316	19″ x 6.1″ x 15″ *(48.26 x 15.49 x 38.1 cm)*

Small Interface Cabinet + Power Supply (SG-7308) shown with Decode Card (DIG-705) and SmartCtrl™ Card (DIG-716)

	OVERALL* (W×H×D)
SG-6500	19.5″ x 5.5″ x 15″ *(23.46 x 15.49 x 38.1 cm)*
SG-6501	19.5″ x 11″ x 15″ *(48.26 x 15.49 x 38.1 cm)*
SG-6502	19.5″ x 16.5″ x 15″ *(48.26 x 15.49 x 38.1 cm)*

**measurements are approximate*

(back)

Double Rack Mount Enclosure (SG-6501) shown with Power Supply, 3A (SG-500), Interface Cabinet (SG-6010) USB Decode Card (DIG-705), 3 SmartCtrl™ Cards (DIG-716B), and 4 Superport™ TTL Output Cards (DIG-726TTL-G)

The interface cabinet is the heart of our interface system. It has remained consistent for over thirty years, and has withstood several software and component upgrades without becoming obsolete.

The control computer connects to the decode card in the interface cabinet via USB. From a single unit, multiple chambers can draw from its 28V power source, and channel all of their data into it. See page 10 for a an illustration of a basic setup.

FEATURES

- Thermal shutdown
- Built-in electromagnetic interference (EMI) filter
- Short circuit protection
- Compatible with our SmartCtrl™, SuperPort™, or standard I/O cards
- Each cabinet has a maximum amount of modules, and it should be noted that some optional modules may limit the total number of chambers supported
- 28V power is accessed via the back panel using M12 connectors
  - Requires an adapter *(SG-210CP-M12-4M)* when used with DIG-716 SmartCtrl™ Modules

SMALL INTERFACE CABINET + POWER SUPPLY TABLETOP

SG-7308 120/230 V | 10 A

- Nine (9) single width slots
  - One slot needed for decode card
- Ideal cabinet for labs that will not exceed eight (8) chambers

LARGE INTERFACE CABINET + POWER SUPPLY TABLETOP

SG-7316 120/230 V | 20 A

- Eighteen (18) single width slots
  - One slot needed for decode card
- Our largest capacity cabinet for maximum expansion capability

INTERFACE CABINET RACK MOUNT

SG-6010 120 V

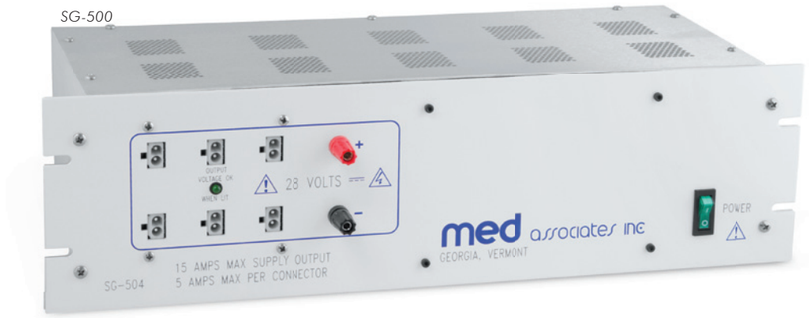
- Eighteen (18) single width slots
  - One slot needed for decode card
- 28V power supply sold separately *(see pages 8-9)*
  - *NOTE: A double or triple rack mount enclosure (SG-6501/-6502) is recommended*

RACK MOUNT ENCLOSURE

SG-6500 SINGLE
SG-6501 DOUBLE
SG-6502 TRIPLE

- Heavy duty metal enclosure accommodates any of our rack mount chassis modules or power supplies
- Elevates the unit for easier monitoring controls, meters, connectors, and LED indicators

SG-500



SG-500T

28V DC POWER SUPPLY RACK MOUNT

SG-500 120/230 V | 3A
SG-502 120/230 V | 7.1A
SG-503 120/230 V | 10.7A
SG-504 120/230 V | 21.4A

- Easily add a power supply to your rack mounted interface cabinet *(SG-6010)*
- Six (6) 2-pin Molex® ports and one (1) banana plug port
- Maximum system safety, with:
  - Output current fold back protection
  - Externally fused power lines
  - Short circuit protection

28V DC POWER SUPPLY STANDALONE

SG-500T 120/230 V | 3A

Compact unit is ideal for standalone interfaces connected to a single chamber, and when current requirements are minimal.

- Four (4) 2-pin Molex® ports
- Includes two individually switched outputs and two unswitched outputs:
  - **Switched outputs** control accessories that need to be independently turned on and off
  - **Unswitched outputs** power accessories that are always on, like cubicle lights and fans

SG-501

28V DC POWER SUPPLY STANDALONE

SG-501 120/230 V | 1A

Used to provide power for up to two 28V output devices feeding to a TTL source.

- Provides one 28V power port, using either 2-pin Molex® or banana plug connections

DIG-725

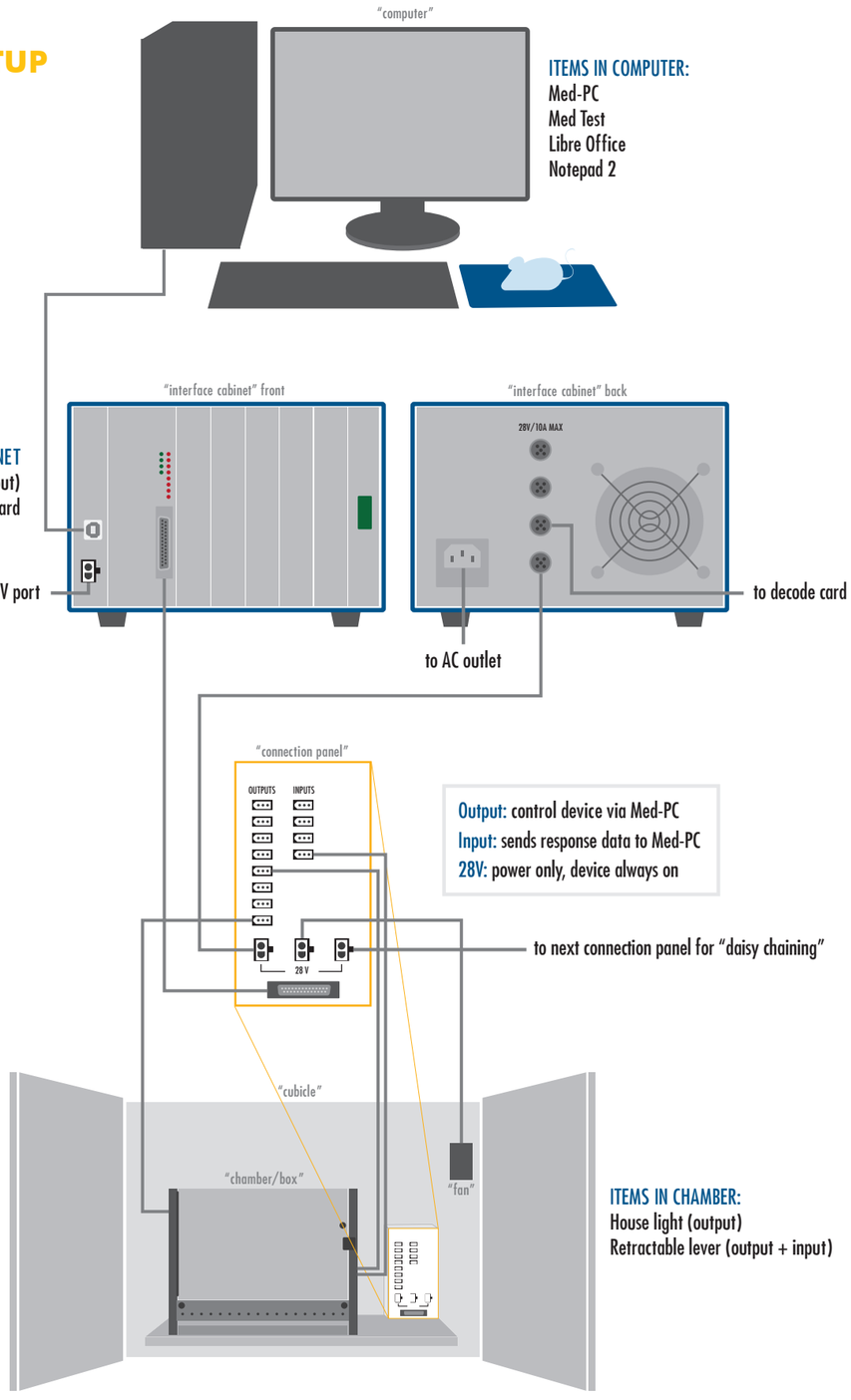
DUAL AC OUTLET

DIG-725 120V AC | 10A

- Connects to a standard 28V DC output to control a 115V AC device with Med-PC
  - Control with a SmartCtrl™, Standard, or SuperPort™ output module with Med-PC via a connection panel and 3-pin Molex® cable
  - Each outlet can be switched on or off by independent control lines, each with a green LED indicator light
- Consists of an enclosure with two noise-free zero crossover AC relays connected to a standard duplex outlet
- Standard power cord is provided to connect to a grounded 115V AC/60 Hz outlet

NOTE: Order two 3-pin Molex® extension cables (SG-216A-10) to connect to a connection panel

SMARTCTRL™
EXAMPLE SETUP



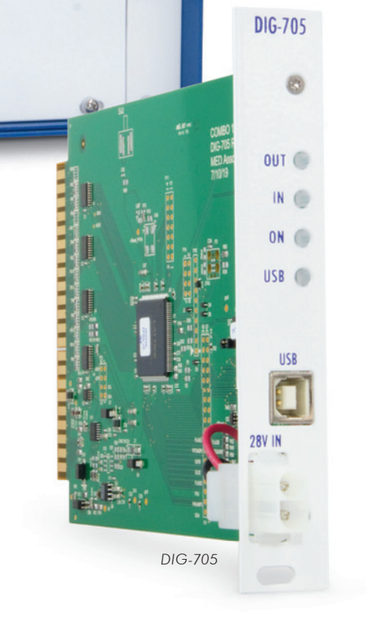
Small Interface Cabinet + Power Supply (SG-7308) shown with Decode Card (DIG-705) and SmartCtrl™ Card (DIG-716)

USB DECODE CARD

DIG-705

- Single-width module
- Connects the computer to the interface cabinet via USB cable
- Front panel indicator LEDs to easily monitor the status of the output, input, its power, and USB connection

NOTE: Requires one USB Type A-B cable (CAB-USB-AM-BM-10) to connect the card to the computer, and a 2-pin Molex® cable (SG-210CP-2) to power the card



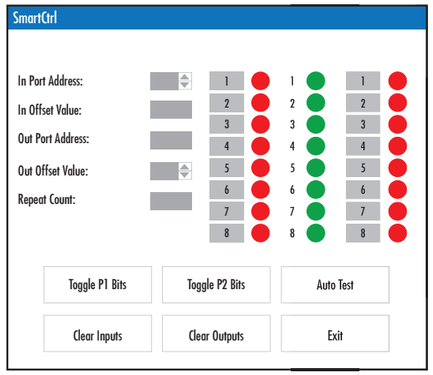
DIG-705

PACKAGE CONTENTS

A = DIG-716P1 **B** = DIG-716P2

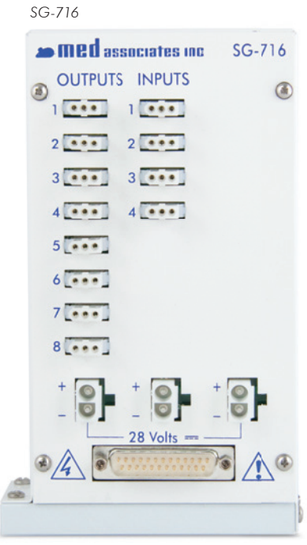
#	SKU	DESCRIPTION	A	B
1	DIG-716	SmartCtrl™ Interface Module (4 In/8 Out)	A	
1	DIG-716B	SmartCtrl™ Interface Module (8 In/16 Out)		B
1	SG-210CB	SmartCtrl™ Cable, DB25, M/F , 25' (7.6m)	A	B
1	SG-716	SmartCtrl™ Connection Panel (4 In/8 Out)	A	
1	SG-716B	SmartCtrl™ Connection Panel (8 In/16 Out)		B

Med Test screen



DIG-716

SG-716



SMARTCTRL™ SUMMARY

Enables Med-PC to respond to the:

- State of inputs
- Number of inputs
- Duration of inputs
- Time between inputs

- Input sensitivity can be set to:
  - **LEVEL** to directly reflect the state of the input
  - **TOGGLE** to reflect the change of the input
- Inputs can also be inverted to:
  - Accommodate NO or NC switches
  - Adjust for active low or active high devices
- 3-pin Molex® cables are used for both inputs and outputs, each identified by the I/O number assigned in Med-PC® *(SOF-736, sold separately)*.
  - *NOTE: Refer to the manual for more details*

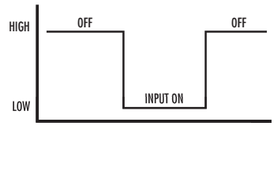
SMARTCTRL™ PACKAGES

DIG-716P1 4 IN - 8 OUT
DIG-716P2 8 IN - 16 OUT

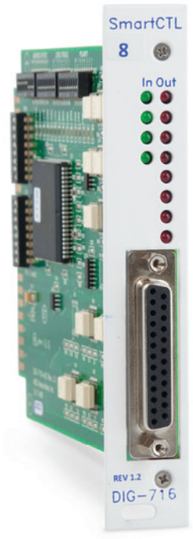
The most convenient, expandable, and economical interface module for most chamber systems.

- Both inputs and outputs on a single width module
- Use up to 16 modules in an interface cabinet to control 16 independent chambers
- Data from devices is collected by the SmartCtrl™ module and communicated through a single computer interface
- Modular design for easy addition of chambers to an existing system

NOTE: Power cables ordered separately



DIG-716



SMARTCTRL™ INTERFACE MODULES

DIG-716 4 IN - 8 OUT
DIG-716B 8 IN - 16 OUT

- Single-width module
- Optically isolated inputs and outputs
- Each unit has front panel indicator LEDs to easily monitor the status of each control line, both inputs (green) and outputs (red)
- Outputs operate in level mode only, however, pulsed outputs are easily generated in the software

NOTE: Requires one DB25 cable (SG-210CB/-210CB-50) to connect the card to the connection panel (SG-716/-716B) which also requires a power cable (SG-210CP-X)

SG-716

SG-716B

SMARTCTRL™ CONNECTION PANELS

SG-716 4 IN/8 OUT
SG-716B 8 IN/16 OUT

- Use with SmartCtrl™ interface modules
- 3-pin Molex® ports for both inputs and outputs, to one DB25 port
- 28V Power supplied via three (3) 2-pin Molex® ports
- Use with interface cables *(SG-210CB)*

SUPERPORT™ SUMMARY

SuperPorts serve the same purpose as SmartCtrl™ cards: sending and receiving signals from devices in the chamber to the computer. They function similarly, except each card can only function for inputs or outputs (not both) and only work with passive connection panels.

- Connect to a passive panel using a DB25 cable
- Signals are transmitted based on the jumper settings of the card *(see manual for more info)*

SUPERPORT™ INPUT MODULE

DIG-712 16 IN

SUPERPORT™ INPUT MODULE
10 MS TIME CONSTANT

DIG-712F 16 IN

Receive signals from devices in the chamber to the computer (via Med-PC for example.)

- Single-width module
- Sixteen (16) optically isolated input lines
- Input sensitivity can be set to:
  - **LEVEL** to directly reflect the state of the input
  - **TOGGLE** to reflect the change of the input
- Inputs can also be inverted to:
  - Accommodate normally open (NO) or normally closed (NC) switches
  - Adjust for active low or active high devices

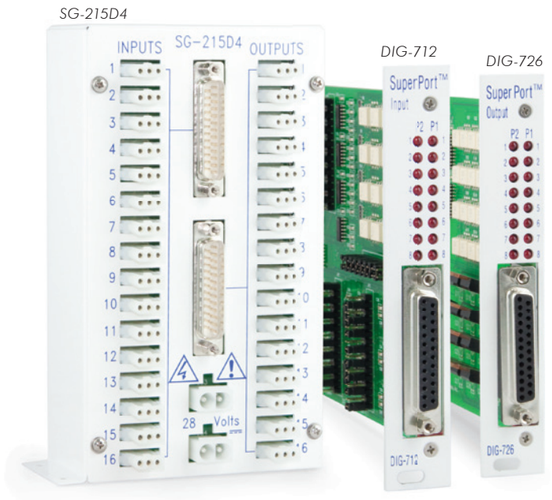
SUPERPORT™ OUTPUT MODULE

DIG-726 16 OUT

Send signals from the computer to devices in the chamber (via Med-PC for example.)

- Single-width module
- Sixteen (16) optically isolated output lines

SG-215D4



- Use with Standard or SuperPort™ Interface modules
- Use with universal and interface cables *(SG-210CB/-211F/-210A)* and power cables *(SG-210CP-25/-210CP-8)*

PASSIVE CONNECTION PANELS

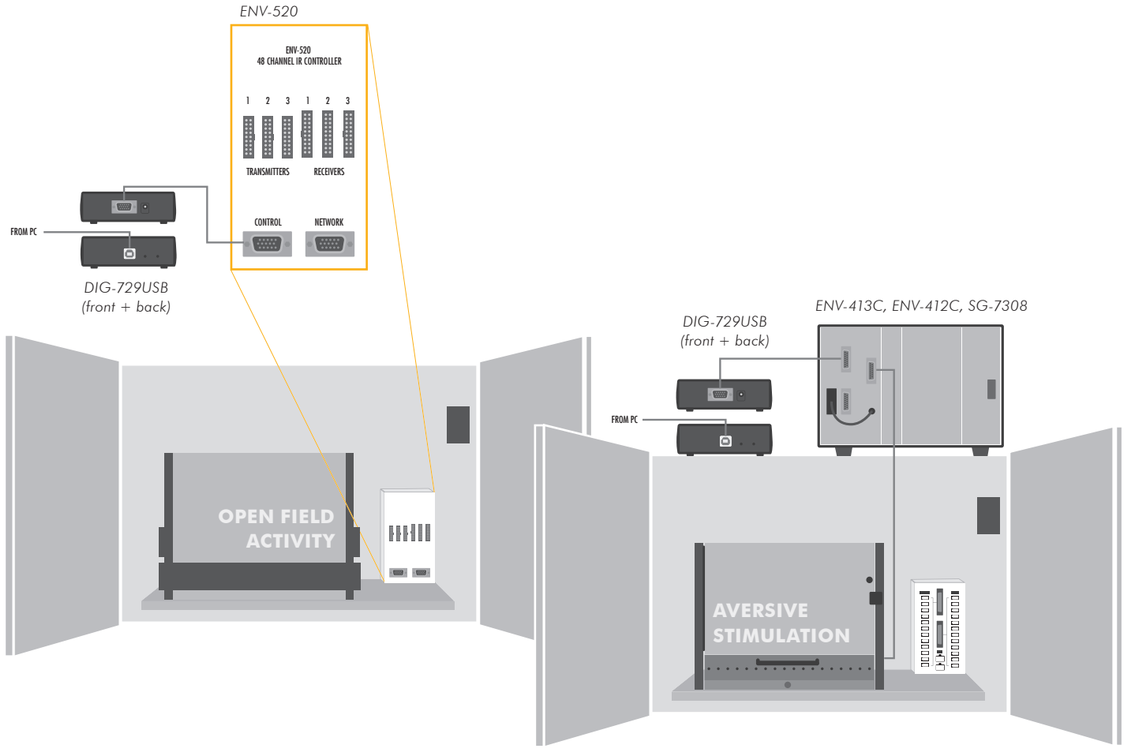
SG-215D3 8 IN/OUT

- Eight (8) 3-pin Molex® to one DB25 port

SG-215D4 16 IN - 16 OUT

- Sixteen (16) inputs and sixteen (16) outputs via 3-pin Molex® each to their own DB25 port
- Typically used with one SuperPort™ 16 input module and one SuperPort™ 16 output module

ENV-520



(back)

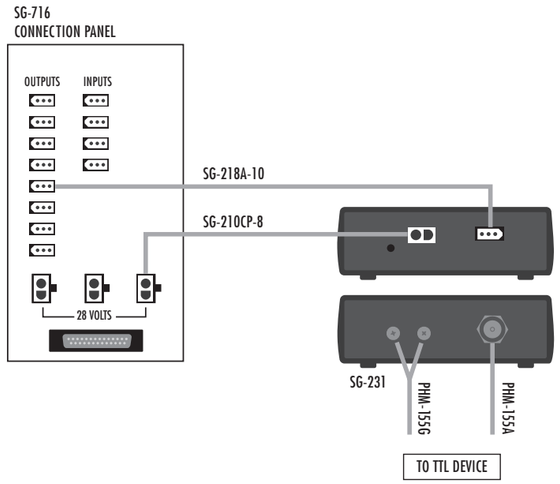
DIG-729USB (front)

HIGH SPEED SERIAL MICROCONTROLLER USB

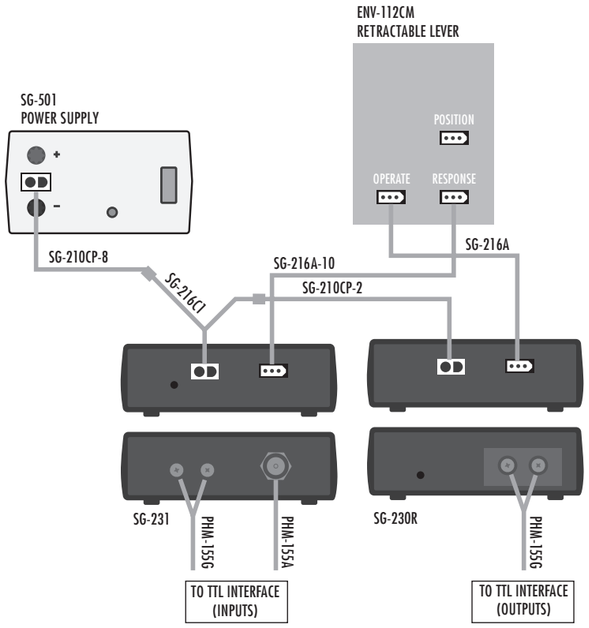
DIG-729USB

- Easy to install USB design can be used with either a desktop or laptop PC
- Requires a DB15 cable: *(sold separately)*
  - SG-219C for legacy open field activity *(ENV-520)*
  - SG-219D for aversive stimulation and ICSS
- Can be programmed to control equipment with Med-PC, such as:
  - Aversive stimulation modules
  - ICSS stimulator
  - Open field activity (legacy models)

A



B



28V DC TO TTL ADAPTER EXAMPLE SETUPS

A) For sending TTL inputs to a third party device such as an optogenetics laser for electro physiology data acquisition.

B) For controlling our devices with a third party TTL interface.

	TTL OUTPUT CONNECTION
SG-230R	Terminal strip
SG-230RC	BNC
SG-231	Terminal strip or BNC

SG-233-48 (back)

SG-233-48 (front)

SG-231

(back)

TTL → 28V DC POWER INVERTER

SG-230R

TTL → 28V DC ADAPTER

SG-230RC

28V DC → TTL ADAPTER

SG-231

- Use to control:
  - 28V device (e.g. pellet dispenser) from a 5V TTL output
  - 5V TTL device (e.g. optogentics laser) from a 28V Med output
- Internal jumper for user-selection of:
  - **Active high** = turn on the device when the TTL signal transitions from 0 to 5V *(default)*
  - **Active low** = turn on the device when the TTL signal transitions from 5 to 0V
- Inputs use 2-pin Molex®, outputs use 3-pin

NOTE: Some applications will require a 28V power supply, contact sales for recommended power supply.

TTL → 28V I/O ADAPTER

SG-233 2 IN - 2 OUT
SG-233-48 24 IN - 24 OUT

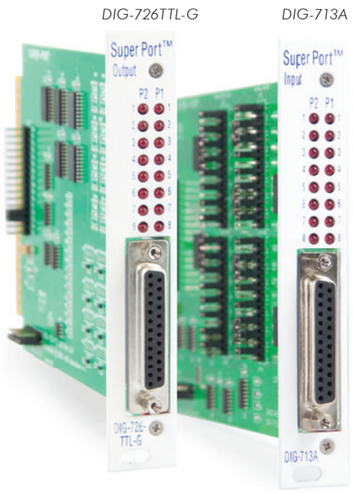
Two standard 28V outputs and inputs (3-pin Mini-Molex®), to a standard Noldus RJ-45 connection.

An additional 28V output (2-pin Molex®) can provide power to an additional adapter or any other Med Associates device via "daisy chaining".

- TTL expansion port for connecting a Noldus Mini-USB I/O box via ribbon cable *(SG-233-48 only)*

NOTE: SG-233 requires 28V power source, see page 8.

DIG-726TTL-G DIG-713A



SUPERPORT™ TTL INPUT MODULE

DIG-713A 16 IN

Receive signals from third party devices using our interface and software. Commonly used with optogenetics or physiological equipment.

- Single-width module
- Sixteen (16) TTL logic inputs

SUPERPORT™ TTL OUTPUT MODULE

DIG-726TTL-G 16 OUT

Send signals from the computer to third party devices using our interface and software.

- Single-width module
- Sixteen (16) TTL logic outputs

NOTE: This module functions in level mode only.

(side)

SG-726-TTL (top)

TTL PASSIVE CONNECTION PANEL 16 OUT

SG-726-TTL 16 OUT

Sixteen (16) BNC port breakout box connects to the digital acquisition channels on third party devices. It functions similarly to the passive connection panel *(SG-215D4)*, except it uses BNC ports instead of 3-pin Molex, and is for outputs only.

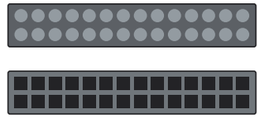
- Reduces the need for custom cable adapters or complicated wiring
- Commonly used with laser or LED light controllers for optogenetics and electrophysiology systems
- Male DB-25 port connects to the SuperPort™ TTL Output Module *(DIG-726-TTL)* installed in the interface cabinet

DB25 → 34 PIN TTL ADAPTER M/M

SG-244B

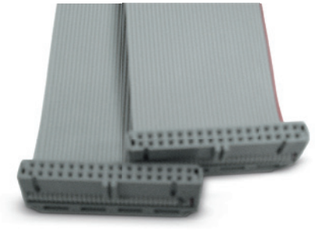
Use to go from the DB25 port on our SuperPort™ TTL Output Module *(DIG-726TTL-G)* to the 34 pin TTL I/O Port connection on a Neuralynx Digital Lynx SX card.

- Use with:
  - DB25 Cable M/F *(SG-210TTL-20)*
  - 34 Conductor Ribbon Cable F/F *(SG-244B-C)*



RIBBON CABLES

Transmits parallel data.



34 PIN RIBBON CABLE F/F

SG-244B-C 2 FT

Use to go from the DB25 to 34 pin Adapter *(SG-244B)* to a Neuralynx Digital Lynx SX card.

BNC CABLES

Shielded coaxial signal cable used to transmit high or low signals to be read as data.

BNC → BNC OUTPUT CABLE M/M

PHM-155A 5 FT
PHM-155B 10 FT

Use with:

- TTL Connection Panel *(SG-726-TTL)*
- 28V DC to TTL Adapter *(SG-231)*
- TTL to 28V DC Adapter *(SG-230RC)*

BNC → FORK LUG OUTPUT CABLE M/FORK LUG

PHM-155G 5 FT

Use the fork lug end to go from the terminal strip on the SG-230R or SG-231 to a BNC device.

2-PIN MOLEX® CABLES

Provides power to devices (no data).

SG-210CP-8

MOLEX® POWER CABLE F/F

SG-210CP-2 2-PIN | 2 FT
SG-210CP-8 2-PIN | 8 FT
SG-210CP-25 2-PIN | 25 FT
SG-210CP-50 2-PIN | 50 FT

- Meets the current demands of all chamber accessories and provides 28V DC power to the connection panels
- Longer cables are generally used for the first test station, while the shorter ones are best suited for daisy chaining stations

SG-235DC-6

MOLEX® DAISY CHAIN POWER CABLE FF/M

SG-235DC 2-PIN | 8 INCH
SG-235DC-3 2-PIN | 3 FT
SG-235DC-6 2-PIN | 6 FT

Typically used in conjunction with a standalone 28V DC Power Supply *(SG-500T)* or other power supplies.

- Used to power both TTL to 28V and 28V to TTL converters from a power supply

SG-222

MINI MOLEX® → MICRO FIT M/F

SG-222 3-PIN | 30 IN
SG-222-6 3-PIN | 6 FT

Commonly used with many of our syringe pumps, liquid dippers, response keys w/LCD stimulus displays, receptacle lights, house lights, stimulus lights, pellet dispensers, retractable sippers, auto doors... and more.

NOTE: Included with applicable product. Order to either replace a broken cable or have extra on hand.

3-PIN MOLEX® CABLES

Provides both power and data to and from devices.

SG-216C

MINI-MOLEX® Y CABLE FF/M

SG-216C1 3-PIN | 3 IN

- Connects one device to two inputs
- Typical applications:
  - Connecting a response device (such as a lever or nose poke) to two inputs for measuring the duration of the input
  - Connecting two photobeam inputs together in systems looking at broad movements

MINI-MOLEX® Y CABLE MM/F

SG-216C 3-PIN | 3 IN

- Connects two devices to one output
- Typical applications:
  - Stimulus devices that are always used simultaneously *(house light & fan, stimulus light & retractable lever, etc.)*
  - Manually operate a device when used with a hand-held push button or foot switch for reward shaping with a pellet dispenser

SG-216A-6

MINI-MOLEX® EXTENSION CABLE M/F

SG-216A 3-PIN | 18 IN
SG-216A-2 3-PIN | 2 FT
SG-216A-3 3-PIN | 3 FT
SG-216A-6 3-PIN | 6 FT
SG-216A-10 3-PIN | 10 FT
SG-216A-20 3-PIN | 20 FT

- Extends the length of a 3-pin mini-Molex® cable
  - *NOTE: Most accessories have a 30" L (76.2 cm) cable*
- Typically useful in systems that share one connection panel between multiple chambers

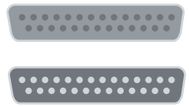
SG-218A

MINI-MOLEX® EXTENSION CABLE M/M

SG-218A 3-PIN | 18 IN
SG-218A-10 3-PIN | 10 FT
SG-218A-6 3-PIN | 6 FT

Use with:

- 28V DC to TTL Adapter *(SG-231)*
- TTL to 28V DC Adapter *(SG-230RC)*



D-SUB CONNECTOR CABLES

Connects an interface module in an interface cabinet with a connection panel.

SG-219C-15

DB15 CONTROL CABLE M/F

SG-219C-6 15-PIN | 6 FT
SG-219C-15 15-PIN | 15 FT
SG-219D 15-PIN | 12 FT
SG-219D-10 15-PIN | 10 FT

Use to connect the USB High Speed Serial Microcontroller *(DIG-729USB)* to specific equipment.

- Use the:
  - SG-219C for Open Field Activity
  - SG-219D for Aversive Stimulation and ICSS

SG-210CB

DB25 INTERFACE CABLE M/F

SG-210CB 25-PIN | 25 FT
SG-210CB-50 25-PIN | 50 FT

Use to connect a SmartCtrl™ or Superport™ interface module and either a passive or SmartCtrl™ connection panel.

SG-210TTL-20

DB25 TTL CABLE M/F

SG-210TTL-5 25-PIN | 5 FT
SG-210TTL-20 25-PIN | 20 FT

Use to connect a TTL input or output module to a TTL Passive Connection Panel.

- Shielded power leads

COM-106

Complete your system with a computer that's ready out of the box. We will install all necessary software and hardware to simplify the setup process.

COMPUTER PACKAGE DESKTOP

COM-106

Our custom-built computer ideal for most setups. Contact our sales team for the most up-to-date components.

SPECIFICATIONS

- Windows 11 *(64-bit)*
- DVD RW Drive
- USB 3.0 *(x4)* / USB 2.0 *(x2)* / HDMI *(x1)* / VGA *(x1)* / DisplayPort *(x2)*
- Widescreen monitor
- Wired keyboard and mouse
- 1 PCI slot *(full height)*
- 2 PCIe x1 slots *(full height)*
- 1 PCIe x16 slot *(full height)*

COM-202 shown mounted on monitor, can also operate freestanding

COMPUTER PACKAGE NUC

COM-201

Recommended over our desktop computer if a USB interface is being used and if space is at a premium.

NOTE: This computer does not have a CD/DVD Drive.

SPECIFICATIONS

Intel NUC NUC8I3CYSM Mini PC

- Windows 11 (64-bit)
- USB 3.0 *(x4)* / SD Card Port / HDMI *(x2)*
- Widescreen monitor
- Wireless keyboard and mouse

COMPUTER PACKAGE NUC

COM-202

Recommended over our desktop computer if a USB interface is being used and if space is at a premium.

NOTE: This computer does not have a CD/DVD Drive.

SPECIFICATIONS

AMD Ruby Ryzen R8 CBM1r8RB

- Windows 11 *(64-bit)*
- USB 3.0 *(x4)* / HDMI *(x1)* / DisplayPort *(x2)*
- Widescreen monitor
- Wireless keyboard and mouse

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