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SDS200-SYS SCENT DELIVERY SYSTEM

Versatile Scent Delivery

Olfactory Stimulus Delivery Integrated with Acq*Knowledge*

The SDS200-SYS is a complete system that allows researchers to deliver olfactory stimulation manually or automatically in their experiments. The system integrates seamlessly with *AcqKnowledge* data acquisition and analysis software for use in a wide range of physiological and psychophysiological research. Dry scent packets (sold separately) provide researchers with hundreds of possible aromas for delivery to study participants. The system can also use third-party essential oils.

SDS200-SYS System Components

- SDS200 scent delivery module(s)
  - Controller unit with dispersal fan and diffuser
  - 2 Clips for dry scent packets (removable)
  - Clear acrylic base/reservoir
  - AC power connector
  - CBL102 connector cable
- SDS200FILTER Scent extraction and carbon air filtration system
  - SDS200FILTER scent extraction pump and filter unit
  - Scent extractor hood with ¼ inch connector mount
  - Dust collection hose 4" x 50' clear PVC
  - Scent extractor control unit (manual control) with AC power
  - Tripod stand for extractor hood
- OUT8 solid state relay driver with 8 BNC connectors
  - connects to scent modules and STP100C/D
- SDS200ACC accessories
  - AFT12 ribbed tubing (1.8 m x 20 mm)
  - Manifold with ¼ inch mount and five (5) inlets (stackable)
  - Stand for manifold and tubing (boom arm and ¼ inch mounting bracket)

System Requirements (sold separately)

- MP160/MP150 Data Acquisition Unit with Acq*Knowledge*—no separate license required
- Full features including stimulus presentation control for pairing images/video with scents requires AcqKnowledge version 5.0.7 or later with stimulus presentation license
- Scent options (SCENT packets or essential oils)
- STP100C or STP100D module
  - Interface with CBL110A 37-pin connector cable (included with OUT8)
- Computer running Microsoft Windows 10, 64-bit

SDS200 Scent Delivery Modules

SDS200 Scent Delivery Modules include a controller/fan unit and diffuser for dispersal of diluted essential oils as well as mounting dry scent packets. Each controller/fan unit includes an air intake and output for attaching an AFT12 22 mm ribbed scent delivery tube. The diffuser unit includes slots for mounting two (2) clips to hold a single dry scent packet. The diffuser unit is also equipped with a mushroom-shaped water level sensor and diffuser and sits in the bottom of the acrylic base/reservoir.

SDS200 module

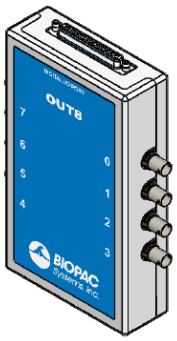
SDS200 module components (L-R): reservoir/base, controller/fan, diffuser

Diffuser unit with water level sensor

Each control module fits on top of the acrylic base/reservoir. Control units are equipped with a tongue (right side) and groove (left side) attachment for chaining together multiple scent modules. Modules can be chained together by hooking tongue (right) edge of control unit onto the groove (left) edge of the next scent module (going left to right).

Accepts BIOPAC's SCENT dry scent packets.

OUT8 Solid State Relay Driver



The OUT8 is an eight-channel solid state relay driver that interfaces with the SDS200 Scent Delivery Modules and the MP160 data acquisition system via the STP100C/D 37 pin connector. This allows a user to run up to eight (8) SDS200 Scent Delivery Modules or seven (7) while also using the SDSFILTER system. The SDS200 Modules connect to the OUT8 via a CBL102 BNC to 3.5 mm cable (included with SDS200). The OUT8 interfaces with the STP100C/D, via a 37 pin CBL110A (included with OUT8). The OUT8 features eight (8) BNC female connectors for interfacing with SDS200 modules and the SDSFILTER. The module can also be used to drive other solid-state relays from the MP160 system.

SDS200FILTER Extraction and Filtration System

Scent extractor hood with dust collection hose

SDS200FILTER

The SDS200FILTER is an activated carbon air filter system that removes scents from the air when using the SDS200-SYS Scent Delivery System. The SDS200FILTER is ideal for labs with poor ventilation systems and no outside windows. The SDS200FILTER is controlled via the OUT8 for automatic control or an attached switch when in manual mode. When used with the OUT8, the filter can be controlled through the MP160 via Acq*Knowledge*, stimulus presentation software, or a VR system. In manual mode, the fan operates continuously and frees up one of the 8 lines on the OUT8, permitting the use of an additional SDS200 Scent Delivery Module. The system includes a 7.62 m extraction tube and carbon filter. Extraction fan speed can be adjusted to optimize performance and control noise levels. The fan is located at the filter end of the tubing to minimize noise. The unit can be placed in the same room as the test participant or outside a door or window to dampen noise and aid in scent extraction. The system includes a mounting clamp and tripod to optimize extraction hood positioning. The SDS200FILTER connects to the OUT8 via a CBL102 BNC to 3.5 mm cable (included with SDS200FILTER).

Manifold and Tripod Base

Manifolds are supported by a tripod base and stand, allowing the dispersion of scent from multiple scent modules in a single controlled area. Each manifold includes a ¼ inch mount for attaching the tripod base and five inlets. Inlets can be attached to up to five AFT12 20 mm tubes, connecting an equal number of scent modules. Manifolds can also be stacked by attaching the central intake to a second manifold, allowing additional scent units to be attached. Manifold intakes feature a cap to close it when not in use. Each tripod base includes a tripod, stand, boom arm, and manifold mounting bracket.

Manifold with tubes attached

Manifolds stacked

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Setup

1. **Prepare MP160:** Ensure MP160 is connected to a power source. Attach the STP100C or STP100D 37 pin connector to the MP160 system.
2. **Connect OUT8**: Attach one end of the CBL110A to STP100C/STP100D. Use mini gender changer to connect the other end of CBL110A to the 8-channel solid state driver.
3. **Connect the SDS200FILTER:** If the user prefers the fan to run through the entire experiment, they do not need to connect the SDS200FILTER to the OUT8. The user can control the unit from the manual switch on the base without needing the BNC or CBL102 cable. When the SDS200FILTER is not connected to the OUT8, the user can connect up to eight (8) SDS200 units to the driver. If the user prefers to control the filter fan automatically, plug the BNC cable into OUT8 and connect the other end to CBL102 cable. Plug the CBL102 into the connector on the carbon filter base unit. When the filter is connected to the OUT8, the user can only connect seven (7) SDS200 units to the system. The carbon filter can be placed outside of the room. The fan is located at the filter end of the tubing. The collection hose and extractor hood can be mounted for optimal lab setup using the mounting clamp and tripod. The optimal position for the extractor hood is directly behind the head of a seated participant. Plug the power supply into an outlet.
4. **Connect the SDS200 modules:** Plug the BNC side of the CBL102 cable into OUT8 and connect the 3.5 mm side of the cable to the chamber of the module. Connect the power supply cable to the chamber and plug it into a power source. Connect the 1.8 m AFT12 tubing to the exit of the chamber module.
    a. If the tube length needs to be 3.6 meters, add another AFT12 tube using an AFT11B connector.
5. **Activate Scent:** For wet scent (essential oils), fill the chamber with water up to the height of the mushroom. Add approximately 3-5 drops of essential oil and replace the top (controller/fan unit). For dry scent, fit a dry scent pouch between the two clamps and replace the controller fan unit.
6. **Connect the SDSACC:** Attach the tubes from the SDS200 module to a manifold. Users can link two (2) or more manifolds to allow for additional scent modules to be used simultaneously. The SDS200-SYS allows for up to 8 scent modules (7 if the SDSFILTER is in auto mode). Connect the manifolds to the tripod and place the tripod in the desired location to allow the manifold to disperse scent to the participant (approximately .5-.75 meters from the face).

Cleaning and Maintenance

Dry Scent Packets:

General: It is recommended that certain tubes be designated for specific scents to avoid mixing different dry scents in the same tube. In general, parts should require less frequent cleaning and maintenance when using dry scent packets. Dry scent packets should be disposed of once they lose their strength.

Cleaning: Wash chambers, manifolds, and tubes with unscented soap and water when needed. Dry all components thoroughly before use.

Essential Oils (Wet):

General: It is recommended that users designate certain tubes for specific scents and to not mix different scents in the same tube.

Cleaning: Parts (tubes, chambers, manifolds) should be cleaned after every use. Empty the chambers of water. Wash and dry the chambers with a mild, unscented detergent to remove any lingering smell. AFT12 tubing should be thoroughly dried after washing and use to prevent mold and other contamination within the tubing.

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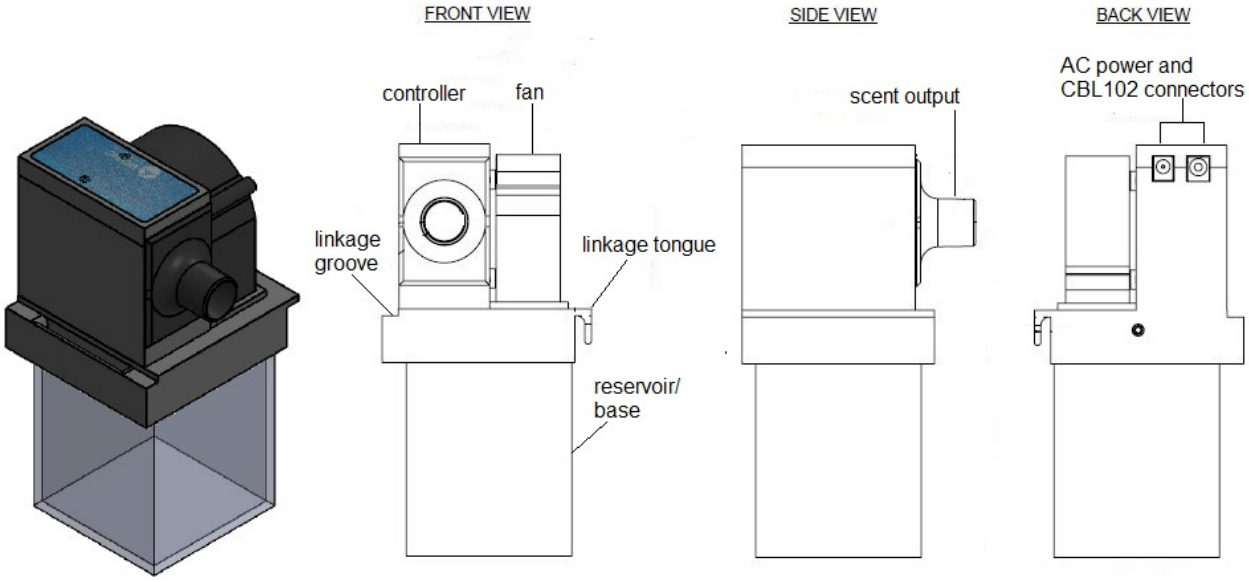
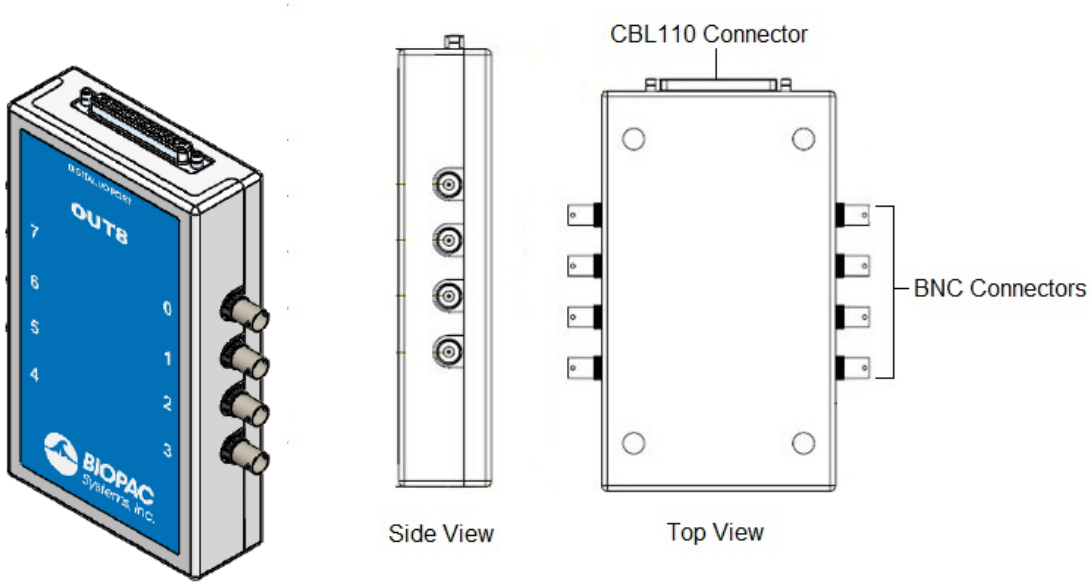
Specifications

SDS200 Module



Dimensions: height 19 cm, depth (front to back) 10.8 cm, width 9.7cm
Weight: 491 g
Power: 24 V 3 A (will not work with 12-volt power supplies)

OUT8 Unit



Dimensions: width 14.18 cm, length 19.38 cm, thickness 4 cm
Weight: 360 g
BNC voltage: 0–5 volts

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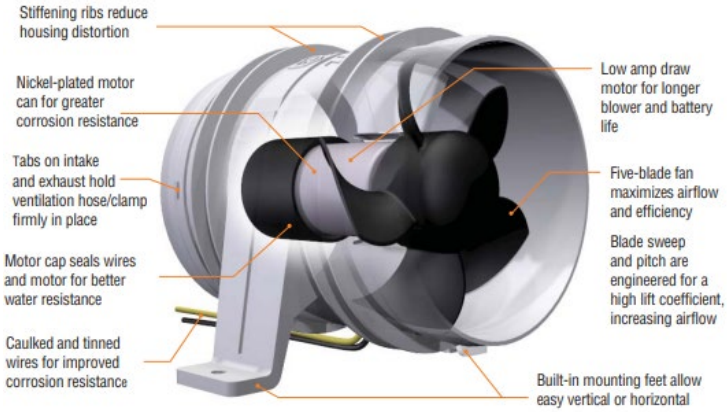
SDS200FILTER

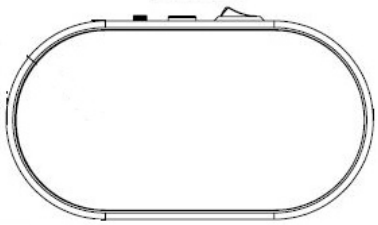
Fan Cross Section

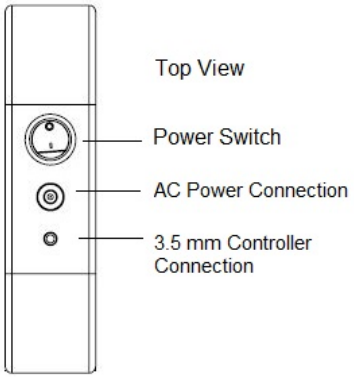


Filter (end and side view)

SDS Filter Controller

Side View





Dimensions:
Filter Cylinder: 40 cm x 19 cm
Fan: Length 12.18 cm, Fan Tube Diameter 10.16 cm
Controller: Length 16.67 cm, Width 9 cm, Thickness 4.08 cm
Weight:
Fan and Controller: 858 g
Filter: 3,800 g