

# Analytic Process Control Training System



Model: 605-000

Process control systems maintain precise control of liquid and gas variables, such as liquid level, flow rate, pressure, temperature, and pH level. These multifaceted systems are a critical part of major industries like refineries, chemical manufacturing, pharmaceuticals, and food processing and bottling.

DAC Worldwide's Analytic Process Control Training System (605-000) provides hands-on training in the study, measurement, and control of variables relating to water chemistry. For example, the system allows for sensor calibration, basic control loop setup and tuning, and the measurement, monitoring, and control of process variables using industrial-quality sensors and controllers.

Water chemistry variables monitored include pH, conductivity, ORP, and dissolved oxygen. pH is used in combination with conductivity to increase the salt load while maintaining neutrality by the introduction of diluted HCL and NaOH. ORP is used to measure the change in redox potential of the batch during the addition of a diluted iodine solution. On/off control of aeration changes the oxygen content.

The system can also be connected to other DAC Worldwide process control training systems via quick-disconnects, allowing learners to train on more complex process systems. A clear acrylic mixing tank allows for batch process water treatment. A recirculating system facilitates continuous monitoring of pH, conductivity, ORP, and dissolved oxygen in the mixing tank using standard, user-supplied, or user-specified instruments. The system requires

#605-001 Standard Instrument and Control Package.

## **Industry-Standard Components Provide Realistic, Hands-On Training**

Technical training is most effective when learners can gain hands-on practice with industry-standard components they'll encounter on the job. The Analytic Process Control Training System features a wide variety of common, industrial-quality components to provide learners with a realistic training experience that will build skills that translate easily to the workplace.

The Analytic Process Control Training System is a sturdy unit with a welded, tubular steel frame and an integral instrument mounting rack. It features clear PVC piping throughout, as well as a clear acrylic mixing tank and primary reservoir and product tanks. The Analytic Process Control Training System's courseware consists of a user's guide that can be used as part of either an instructor-led course or self-directed study.

Some of the industrial-quality components learners will find on the trainer include: vertical centrifugal circulating pump; three metering pumps; three chemical holding tanks; a recirculation system with a mag drive pump and pH, ORP, and dissolved oxygen sensors; power distribution panel with power switch, GFCI, fuses, and 12 electric "free line" connections to front panel; front operator control panel with switches and pilot lights for pumps, solenoid valve, provision for external control connections, and 24 VDC power supply terminals; service air regulator with gauge; master instrument air supply regulator; quick-disconnect fittings; variable-area flow meter; stanchion pipe; red and black patch cords; and instrument tubing connectors.

## **Expand Training Capabilities with Custom Options**

The Analytic Process Control Training System can be customized with available options to create a training system that matches a particular industry's or user's specific needs. For example, the trainer can be expanded to include available options, such as: a quiet air supply system, a handheld process loop calibrator, a storage lockbox, and a standard instrument and control package.

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## **FEATURES & SPECIFICATIONS**

- Service requirements: Electric - 100-240VAC/50-60Hz/1-phase.
- One-piece, welded, 1/8" wall, tubular steel frame.
- Four 4" diameter casters, two with locks.
- Overall size of 48"W x 33.5"D x 76"H.
- Integral, 19" x 70" high, instrument mounting rack.
- Clear, 1/2"-diameter PVC piping components throughout.
- Clear acrylic mixing tank, 2 gallon capacity, with provision for attaching user-supplied oxygen or air source.
- Primary reservoir, 12 gallon capacity.
- Product tank, 12 gallon capacity.
- Vertical centrifugal circulating pump, 1/20 HP.

- GFI circuit protection.
- Three industrial quality metering pumps.
- Three chemical holding tanks.
- Recirculation system including mag drive pump, pH, ORP, and dissolved oxygen sensors.
- Power distribution panel mounted in instrument rack, including: on/off power switch, GFCI, fuses for all circuits, and 12 electric "free line" connections to front panel.
- Front operator control panel, including: switches and pilot lights for pumps; solenoid valve; provision for external control connections; and 24 VDC power supply terminals.
- Service air regulator with gauge controlling a 0-60 psi air supply with associated fittings and a second instrument air gauge with associated fittings.
- Master instrument air supply regulator.
- Quick-disconnect hose fittings allowing for connection to other process trainers.
- Miniature quick disconnect fittings located throughout, allowing for attachment of instruments.
- Variable-area flow meter.
- Stanchion pipe, allowing for attachment of optional pressure switch or pressure transmitter.
- Ten 34" red patch cords.
- Ten 24" black patch cords.
- Seven ¼"-diameter instrument tubing connectors.
- Use Guide.
- Crating for shipment via motor freight.

## **PRODUCT DIMENSIONS**

- **Product Dimensions**  
(L x W x H)  
33.5in. x 48in. x 76in. (850 x 1219 x 1930 mm)  
375lbs. (170kg)
- **Shipping Dimensions**  
715lbs. (324kg)

## **OPTIONS**

- #605-001 - Standard Instrument and Control Package (required)

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