



# Consolidated Sterilizer Systems

*Designed to Transform Your Laboratory*

## Advantage Series™ Sterilizer Control Suite

Programmable Logic Controllers (PLC)



*Pass-Thru Model PT-SR-24A-ADV-PRO  
Shown with optional stainless steel loading cart  
and interior chamber tracks to simplify loading and unloading.*



Featuring Green Technology  for Energy Savings and Minimal Environmental Impact



**CONSOLIDATED  
STERILIZER SYSTEMS**

CONSOLIDATED MACHINE CORPORATION



# Advantage Series™ Sterilizer Control Suite

## About Consolidated

Consolidated Sterilizer Systems was founded by William A. Barnstead in 1946. For more than 65 years we have enjoyed a reputation for excellence in the field of sterilization and distillation products. Today, Consolidated has a long-standing reputation for high-performance within the sterilization industry and as one of the most reliable sterilizer and water still manufacturers in the world.

Our office and factory are located in Boston, Massachusetts, a city rich with universities, hospitals, research laboratories and biotechnology enterprises. Customers worldwide come to Consolidated because we manufacture a product line with the best price, functionality and predictable quality in the industry. Consolidated markets and sells its products all over the world through qualified sales teams and manufacturer sales representatives. All of our units are **100% manufactured in the USA.**




## The Consolidated Advantage

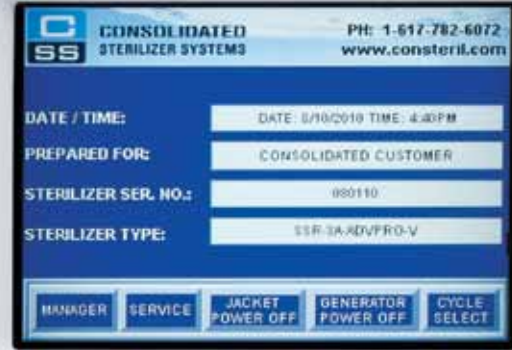
Our reputation for reliability, quality and safety is built into every sterilizer so your operation will enjoy maximum uptime. All Consolidated sterilizers incorporate a solid silicone door gasket that can be easily replaced without tools or adhesives. We also utilize **non-proprietary** valves that are often available from local suppliers. These features, plus Consolidated's industry renowned quality, help our network of local dealers ensure the lowest cost of ownership in the industry while maintaining the highest standards of sterilization.

Consolidated's Advantage Series™ Programmable Logic Controllers are built using proven industry-standard components that provide dependable performance, solid reliability and international parts availability.

- Choose from ADV-PRO™, ADV-PLUS™ or ADV-PB™ controllers
- All Advantage Series™ controllers are based on the proven Allen-Bradley® PLC platform configured specifically for Consolidated Sterilizers
- Intuitive Rockwell touchscreens and real-time operating system
- UL/CSA listed

## Index

Controller Models	Display	Key Features
ADV-PRO™		6" or 10" Color Touchscreen 22+ Cycles Pre-Vac Capability Password Protection BSL-3 Compatible
ADV-PLUS™		6" Monochrome Touchscreen 12 Cycles Pre-Vac Capability
ADV-PB™		3" Monochrome Touchscreen 2 Cycles



The ADV-PRO™ Controller is configured for Consolidated products. It utilizes the proven Allen-Bradley® PLC which is an open source controller with worldwide support.

## ADV-PRO™ Features and Options

Consolidated's ADV-PRO™ sterilizers provide you with our top-of-the-line and most advanced control system. These sterilizers are completely menu driven and allow you to program and monitor sterilizer functions with a degree of sophistication that is unsurpassed. Our ADV-PRO™ sterilizers are an excellent choice for biotechnology, animal and life science, commercial and pharmaceutical applications.

### Industry Standard and Custom Sterilizer Cycles

The ADV-PRO™ controller comes with many pre-programmed common sterilizer cycles, each tuned to best sterilize a specific type of load. Additionally, users may program custom cycles tailored to specific applications. Available factory configured cycles are listed here:

- Gravity
- Liquids
- Vacuum
- Bowie-Dick (daily air removal test)
- Vacuum leak test
- Low temperature (isothermal)
- Air-over-pressure
- Effluent decontamination
- F<sub>0</sub> Cycle
- Rapid cooling (water-spray)
- Rapid cooling (water-jacket)
- Pressure ramping
- Other programmable cycles

## Intuitive Operator Interfaces

The ADV-PRO™ controller features a robust, durable and convenient color touchscreen interface with several mounting options:

- Standard: 6" (15.24 cm) color active matrix TFT touchscreen resolution: 320 × 240 pixels, 18-bit color graphics
- Optional: 10" (25.4 cm) color active matrix TFT touchscreen resolution: 640 × 480 pixels, 18-bit color graphics
- Optional: Available with swing-arm, front and remote panel mounting
- Optional: Dual-control display available for pass-thru models (full control column on operating end, touchscreen interface only on non-operating end)
- Optional: Dual-control remote cycle start switch available for pass-thru models (full control column on one end, remote start and abort buttons on the other end)
- Standard: Chamber process gauges display pressure (psig, kg/cm<sup>2</sup>) and vacuum (inHg and mmHg)
- Controller mounting available on left or right side

## Sterilizer Control and Process Integrity

The ADV-PRO controller consists of an advanced software, and hardware-based monitoring system that allows unattended operation of Consolidated sterilizers without sacrificing reliability. Standard security features prevent inadvertent or unauthorized process changes.

- Touchscreen configurable cycle parameters
- Incorrect or out-of-tolerance parameter rejection
- Two-point software calibration of sensors
- Multi-layered password security for configuration protection
- Cycle start interlock requires sterilizer doors to be closed and locked
- Automatic condensate exhaust management for all sterilizer cycles
- Memory backup preserves configuration in event of power failure/outage
- Optional fully-integrated supervisory control and data acquisition (SteriNET® SCADA) system
- Double door alarm for pass-thru models
- Energy-saving auto-jacket control (sleep mode)
- Optional SteriNET® features (see next page)
- Optional dry contacts connection to building system

## Sterilizer Cycle Quality Reporting

Users can easily view and electronically download all sterilizer operating parameters, cycle progress and cycle data for a single load or batch of loads.

- Data downloadable via Ethernet, RS-232 or RS-485 interfaces
- Ongoing graphical display of cycle progress on touchscreen display
- Hard copy report from thermal or impact printer
- Optional fully-integrated supervisory control and data acquisition (SCADA) system available

## Audible and Visual Alarms

At the end of each cycle or upon the occurrence of abnormal sterilization conditions, the Advantage Series™ controller displays a visual notification, prints a record and sounds an audible alarm. A sampling of sterilizer alarms include:

- Cycle completed
- Recycle alarm; proper sterilization temperature not maintained
- Over temperature alarm; sterilization temperature exceeded limit
- Over pressure alarm; sterilization pressure exceeded limit



*Model SR-24B-ADV-PRO  
Shown with optional swing-out  
controller mounting and optional 10" display.*

## Printed Documentation of Sterilizer Cycles

A printed record of each sterilizer cycle provides nonvolatile documentation demonstrating compliance within specification suitable for process recording and auditing and in compliance with 21 CFR requirements.

- User-defined cycle name
- Start time and date
- Cycle type
- Time, chamber temperature and pressure are printed at cycle start, end, transition points and periodically during cycle phases
- Cycle summary, including sterilize time and exhaust time

9:31:16AM	CYCLE	OVER
9:30:30AM	169F	30inHG
9:29:30AM	163F	29inHG
9:28:30AM	161F	24inHG
9:27:30AM	201F	7inHG
9:26:30AM	234F	11PSI
9:25:16AM	EXHAUSTING/ DRYING	
9:25:30AM	251F	17PSI
9:24:30AM	252F	17PSI
9:23:30AM	251F	17PSI
9:22:30AM	252F	17PSI
9:21:30AM	251F	17PSI
9:20:30AM	252F	18PSI
9:19:30AM	252F	17PSI
9:18:30AM	251F	17PSI

8:58:30AM	237F	21PSI
8:57:30AM	251F	21PSI
8:56:30AM	250F	20PSI
8:56:16AM	STERILIZING	
8:55:30AM	247F	18PSI
8:54:30AM	244F	17PSI
8:53:30AM	237F	14PSI
8:52:30AM	226F	10PSI
8:51:32AM	WAIT FOR CH. TEMP	
8:51:30AM	200F	10PSI
8:50:32AM	CONDITIONING	
DRY TIME	5 MIN	
CYCLE TIME	30 MIN	
CYCLE TEMP	250 F	
CYCLE NAME	GRAVITY 1	
OPERATOR	222	
DATE	6/18/2010 TIME 8:50AM	

Sample print-out from ADV-PRO controller.

## Touchscreen Menu System

The ADV-PRO™ touchscreen layout and menu system is intuitive, easy to use and requires little operator training. In addition, diagnostic and help resources are available throughout the menu structure.

- Intuitive menu trees and screens
- Multi-layered password security for configuration protection
- Built-in service and diagnostic routines
- Optional remote troubleshooting feature available



## SteriNET® Remote Monitoring, Troubleshooting, Supervisory Control and Data Acquisition

Consolidated's Advantage Series™ sterilizer controllers are designed for seamless interface with a suite of state-of-the-art monitoring, troubleshooting, supervisory control and data acquisition solutions required to meet specific laboratory and/or facility requirements.

All ADV-PRO™ and ADV-PLUS™ sterilizer controllers are equipped with a SteriNET® data communications (Ethernet) port for easy data acquisition and downloading to a local laptop or desktop computer.

### ADV Series Controllers and SteriNET® Options

SteriNET® Options	SteriNET® Connex <sup>1</sup>	SteriNET® Apps	SteriNET® Dataport <sup>2</sup>	SteriNET® SCADA
<b>ADV Controller Options</b>				
ADV-PRO™	Optional	Optional	Standard Ethernet; Optional RS-232 or RS-485	Optional
ADV-PLUS™	Optional	Optional	Standard Ethernet; Optional RS-232 or RS-485	
ADV-PB™	Optional	Optional		

### SteriNET® Features

Live factory diagnostics	Yes			
Monitoring from mobile phone		Yes		
Monitoring from local computer			Yes	Yes
Electronic record keeping (data logging)			Yes	Yes
Multiple sterilizer monitoring		Yes		Yes
Supervisory control				Yes

<sup>1</sup> Can be ordered and used with other SteriNET® options.

<sup>2</sup> Data acquisition software required.

## ADV-PLUS™ Features and Options

Consolidated's ADV-PLUS™ sterilizers blend a perfect combination of form and function. The ADV-PLUS™ control system incorporates many of the advanced features and the intuitive graphical interface of the ADV-PRO™, at a lower cost. Like the other control systems in the Advantage-Series Suite, the ADV-PLUS™ is based on the Allen-Bradley® PLC platform configured specifically for Consolidated Sterilizers. Chamber temperature, chamber pressure, and jacket temperature values are all measured and displayed on the touch screen in real time.

- The ADV-PLUS™ includes a 6" monochrome touchscreen display and impact printer for detailed cycle documentation. (A thermal printer is available upon request.)
- Multi-layered password security for configuration protection
- This control system is ideal for BSL-1 and BSL-2 laboratories and facilities that require pre-vacuum operation, as well as other common sterilization cycles (Gravity and Liquids).
- The ADV-PLUS™ can store up to 9 commonly used cycles (3 each for Gravity, Liquids, and Vacuum) and 3 optional cycles (Low-Temperature [Isothermal], Air Removal Test, and Vacuum Leak Test) for a total of 12 cycles.
- A load probe is available for temperature control during a Liquids cycle.
- All control components are contained within the hinged control column for easy servicing using locally available open-source parts.



- A. Allen-Bradley® touchscreen controller
- B. Optional thermal printer



Model SSR-3AV-ADV-PLUS  
Shown with vertical sliding door.

## ADV-PB™ Features and Options

Consolidated's ADV-PB™ sterilizers offer the highest reliability as well as simplicity by design. Ideal for high-volume facilities with multi-tasking scientists and busy graduate students; these sterilizers utilize industry-standard cycles: gravity and liquid (post-vacuum drying optional). All cycles include an initial conditioning or purge phase for air removal.

Consolidated offers state-of-the-art technology to assure dependable and economic performance. As our entry-level control system, the ADV-PB™ is designed for fast-paced, high-volume facilities. Available for all Consolidated sterilizers, the user-friendly ADV-PB™ configuration allows technicians to operate the unit without advanced knowledge of sterilization.

- The ADV-PB™ features the proven Allen-Bradley® MicroLogix™ PLC with push-button controls and a 6" monochrome touchscreen that allows users to easily view cycle status, time remaining and chamber temperature.
- Although cycle parameters can be easily changed through touchscreen data entry, the controller automatically stores the last gravity and liquid cycles, making it easy to run repeat cycles without re-entering parameters.
- An alphanumeric impact printer provides cycle documentation.
- A post-vacuum option is available for enhanced drying.
- All control components are contained within the hinged control column for easy servicing using locally available open-source parts.



- A. *Optional WaterEco™ system (available on all models)*
- B. *Allen-Bradley® touchscreen controller*
- C. *Manual power ON/OFF switch*
- D. *Manual abort cycle button*
- E. *Manual start button*
- F. *Impact printer*



# Consolidated Sterilizer Systems - Advantage Series™ Programmable Logic Controller Options

Catalog Number	ADV-PRO™	ADV-PLUS™	ADV-PB™
Description	Color touchscreen display	Monochrome touchscreen display	Monochrome touchscreen display w/ push buttons

## Operator Interfaces

Display	6" 18 bit color	10" 18 bit color	6" Monochrome	3" Monochrome
Resolution	320 × 240 pixels	640 × 480 pixels	320 × 240 pixels	128 × 64 pixels
Mounting Options	Swing-Arm, Front and Remote Panel		Front and Remote Panel	Front and Remote Panel
Chamber Process Gauges	Pressure (psig, kg/cm <sup>2</sup> ) Vacuum (inHg, mmHg)		Pressure (psig, kg/cm <sup>2</sup> ) Vacuum (inHg, mmHg)	Pressure (psig, kg/cm <sup>2</sup> ) Vacuum (inHg, mmHg)
Dual Control Display for Pass-Thru Models	Optional			
Remote Cycle Start Switch for Pass-Thru Models	Optional		Optional	Optional

## Industry Standard and Custom Sterilizer Cycles

Gravity	Yes		Yes	Yes
Liquids w/Auto Jacket Blowdown	Yes		Yes	Yes
Liquids w/Controlling Load Probe	Optional		Optional	
Pre-Vacuum	Optional		Optional	
Post-Vacuum	Optional		Optional	Optional
Low Temperature (Isothermal)	Optional		Optional	
Bowie-Dick (Air Removal Test)	Optional		Optional	
Vacuum Leak Test	Optional		Optional	
Air-Over-Pressure	Optional			
Effluent Decontamination	Optional			
F <sub>0</sub> w/Controlling Load Probe	Optional			
Total Programmable Cycles	Up to 22		Up to 12	2



## Green Features

Energy Saver Calendar for Scheduled ON/OFF Steam Supply	Standard		Standard	
WaterEco™ System for Reduced Water Consumption	Optional		Optional	Optional

## Sterilizer Control and Process Integrity

Configurable Cycle Parameters	Standard		Standard	Standard
Improper Parameter Rejection	Standard		Standard	Standard
Multi-Layered Password Security for Configuration Protection	Standard		Standard	
Two-Point Calibration of Sensors	Standard		Standard	Standard
Door Interlock to Prevent Inadvertent Cycle Start <sup>1</sup>	Pass-Thru Models Only		Pass-Thru Models Only	Optional Audible Warning Only
Automatic Condensate Exhaust Management for All Cycles	Standard		Standard	Standard
Memory Backup of Configuration	Standard		Standard	Standard

## Sterilizer Cycle Quality Reporting

Graphic Display of Cycle Progress	Standard		Standard	Standard
Thermal Printer (48 characters/line)	Standard		Optional	
Impact Printer (48 characters/line)	Optional		Standard	Standard

## Printed Documentation of Sterilizer Cycles

User Defined Cycle Name	Yes			
Start Time and Date	Yes		Yes	Yes
Cycle Type	Yes		Yes	Yes
Chamber Temperature/Pressures	Yes		Yes	Temperature Only
Cycle Summary	Yes		Yes	Yes

## Audible Alarms (also displayed on touchscreen)

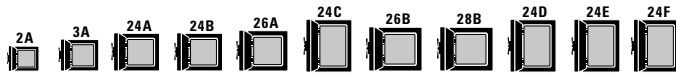
Cycle Completed, Recycle, Over Temperature, Over Pressure, Time Limit, Chamber Drain, Jacket/Chamber Flow Failure	Standard		Standard	Standard
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## SteriNET® Remote Monitoring, Troubleshooting, Supervisory Control and Data Acquisition

SteriNET® Connex	Optional		Optional	Optional
SteriNET® Apps	Optional		Optional	Optional
SteriNET® Dataport	Standard Ethernet, Optional RS-232 or RS-485		Standard Ethernet, Optional RS-232 or RS-485	
SteriNET® SCADA	Optional			

<sup>1</sup> Optional audible warning buzzer available; contact Sales for information.  
For information about controllers required for FDA applications contact Consolidated Sterilizers direct.

# Consolidated Sterilizer Selection Chart



## Single Door Models

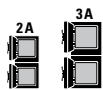
Model	Volume (per chamber)	Interior Dimensions (per chamber) w × h × f-b	Ship Weight (lbs/kg)	Ship Dimensions w × h × f-b
<b>SSR-2A</b>	3.9 cu.ft. 109 liters	16" × 16" × 26" 40.6 × 40.6 × 66 cm	1,150 lbs 523 kg	37" × 77" × 54" 94 × 196.5 × 137.2 cm
<b>SSR-3A</b>	8.8 cu.ft. 249 liters	20" × 20" × 38" 50.8 × 50.8 × 96.5 cm	1,650 lbs 750 kg	37" × 77" × 65" 94 × 196.5 × 165.1 cm
<b>SR-24A</b>	12 cu.ft. 340 liters	24" × 24" × 36" 61 × 61 × 91.4 cm	2,300 lbs 1,045 kg	46" × 77" × 66" 116.8 × 195.6 × 167.6 cm
<b>SR-26A</b>	15.25 cu.ft. 430 liters	26" × 26" × 39" 66 × 66 × 99 cm	2,450 lbs 1,113 kg	46" × 77" × 69" 116.8 × 195.6 × 175.3 cm
<b>SR-24B</b>	16 cu.ft. 453 liters	24" × 24" × 48" 61 × 61 × 122 cm	2,500 lbs 1,136 kg	46" × 78" × 77" 116.8 × 198.1 × 195.6 cm
<b>SR-24C</b>	18 cu.ft. 510 liters	24" × 36" × 36" 61 × 91.4 × 91.4 cm	2,700 lbs 1,228 kg	46" × 78" × 65" 116.8 × 198.1 × 165.1 cm
<b>SR-26B</b>	19.2 cu.ft. 544 liters	26" × 26" × 49" 66 × 66 × 124.5 cm	2,700 lbs 1,228 kg	46" × 77" × 79" 116.8 × 195.6 × 201 cm
<b>SR-28B</b>	21.8 cu.ft. 617 liters	28" × 28" × 48" 71 × 71 × 122 cm	2,980 lbs 1,355 kg	48" × 78" × 78" 122 × 198.1 × 198.1 cm
<b>SR-24D</b>	24 cu.ft. 680 liters	24" × 36" × 48" 61 × 91.4 × 122 cm	3,150 lbs 1,432 kg	46" × 78" × 78" 116.8 × 198.1 × 198.1 cm
<b>SR-24E</b>	30 cu.ft. 850 liters	24" × 36" × 60" 61 × 91.4 × 152 cm	3,600 lbs 1,637 kg	46" × 78" × 89" 116.8 × 198.1 × 226.1 cm
<b>SR-24F</b>	36 cu.ft. 1019 liters	24" × 36" × 72" 61 × 91.4 × 183 cm	4,300 lbs 1,955 kg	46" × 78" × 98" 116.8 × 198.1 × 248.9 cm

## Pass-Thru Models



<b>PT-SSR-2A</b>	3.9 cu.ft. 109 liters	16" × 16" × 26" 40.6 × 40.6 × 66 cm	1,300 lbs 591 kg	37" × 79" × 57" 94 × 200.7 × 144.8 cm
<b>PT-SSR-3A</b>	8.8 cu.ft. 249 liters	20" × 20" × 38" 50.8 × 50.8 × 96.5 cm	1,800 lbs 819 kg	37" × 79" × 68" 94 × 200.7 × 172.8 cm
<b>PT-SR-24A</b>	12 cu.ft. 340 liters	24" × 24" × 36" 61 × 61 × 91.4 cm	2,650 lbs 1,205 kg	44" × 78" × 66" 111.8 × 198.1 × 167.6 cm
<b>PT-SR-26A</b>	15.25 cu.ft. 430 liters	26" × 26" × 39" 66 × 66 × 99 cm	2,800 lbs 1,273 kg	46" × 77" × 69" 116.8 × 195.6 × 175.3 cm
<b>PT-SR-24B</b>	16 cu.ft. 453 liters	24" × 24" × 48" 61 × 61 × 122 cm	2,850 lbs 1,295 kg	44" × 78" × 78" 111.8 × 198.1 × 198.1 cm
<b>PT-SR-24C</b>	18 cu.ft. 510 liters	24" × 36" × 36" 61 × 91.4 × 91.4 cm	3,150 lbs 1,432 kg	46" × 78" × 74" 116.8 × 198.1 × 188 cm
<b>PT-SR-26B</b>	19.2 cu.ft. 544 liters	26" × 26" × 49" 66 × 66 × 124.5 cm	3,050 lbs 1,386 kg	46" × 77" × 79" 116.8 × 195.6 × 201 cm
<b>PT-SR-28B</b>	21.8 cu.ft. 617 liters	28" × 28" × 48" 71 × 71 × 122 cm	3,350 lbs 1,523 kg	48" × 78" × 87" 122 × 198.1 × 221 cm
<b>PT-SR-24D</b>	24 cu.ft. 680 liters	24" × 36" × 48" 61 × 91.4 × 122 cm	3,600 lbs 1,637 kg	48" × 78" × 87" 122 × 198.1 × 221 cm
<b>PT-SR-24E</b>	30 cu.ft. 850 liters	24" × 36" × 60" 61 × 91.4 × 152 cm	4,050 lbs 1,841 kg	48" × 81" × 98" 122 × 205.7 × 248.9 cm
<b>PT-SR-24F</b>	36 cu.ft. 1019 liters	24" × 36" × 72" 61 × 91.4 × 183 cm	4,750 lbs 2,160 kg	48" × 81" × 104" 122 × 205.7 × 264.2 cm

## Exclusive Dual Chamber Tower Models



	Per Chamber		Total	
	Volume	Interior	Ship Weight	Ship Dimensions
<b>2SSR-2A</b>	3.9 cu.ft. 109 liters	16" × 16" × 26" 40.6 × 40.6 × 66 cm	2,250 lbs 1,125 kg	43" × 87" × 61" 109.2 × 221 × 154.9 cm
<b>2SSR-3A</b>	8.8 cu.ft. 249 liters	20" × 20" × 38" 50.8 × 50.8 × 96.5 cm	3,250 lbs 1,477 kg	43" × 87" × 61" 109.2 × 221 × 154.9 cm

## Sliding Door Model



<b>3AV</b>	8.8 cu.ft. 249 liters	20" × 20" × 38" 50.8 × 50.8 × 96.5 cm	1,650 lbs 750 kg	37" × 77" × 65" 94 × 196.5 × 165.1 cm
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All control systems in the Advantage Series™ Suite are available to retrofit your existing autoclave. Please contact Consolidated to upgrade your existing control system with one of Consolidated's state-of-the-art Advantage Series Controllers.