

PowerSaver 6 Port Timer

Fire Protection Systems
O&M Manual

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The Leader in Nitrogen Generation Technology

VERSION HISTORY

Rev #	Revised By	Revision Date	Approved By	Approval Date	Reason
00	Kyle Mellott	08/24/18	M. Thomas	8/27/18	Initial Release

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Electrical Schematic Drawing #: ES-A02-QCF-6PST (R01)

Other Documentation(s):

Service or Questions Contact:
 South-Tek Systems Service Department
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 Visit: www.southteksystems.com

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1 INTRODUCTION

1.1 PURPOSE

This operational manual is provided for instructional purposes of the South-Tek Systems Quick-Check™- PowerSaver Timer only. It is intended to provide proper installation and normal operational use of the device. South-Tek Systems is not responsible for damages concerning the use of this device when used in manners not approved by South-Tek Systems. The user(s) of this document should confer any questions with a qualified South-Tek Systems representative with respect to its commissioning and correct operational use.

Please contact South-Tek Systems with any question or concerns at:

South-Tek Systems, LLC
2940 Orville Wright Way Ste 600
Wilmington, NC, 28405

Tel: (888) 526-6284
Email: Info@southteksystems.com
<http://www.southteksystems.com/>

This document is based upon the R&D performed by the South-Tek Systems Engineering Team.

1.2 ABOUT SOUTH-TEK SYSTEMS

South-Tek Systems, founded in 1997, is a nitrogen generator manufacturer, designing and producing nitrogen generating systems for worldwide distribution.

Why not generate nitrogen at your own facility for a fraction of the cost versus endlessly paying for bulk liquid or delivered gas cylinders? We manufacture a full line of nitrogen generating equipment including:

- [The N₂ GEN® Series](#) Nitrogen generators for use in various industrial and lab applications. 50,000 SCFH unit.
- [The BeerBlast™ - Mixed Gas Dispense System](#) Increases profits, eliminates over or under carbonation, and improves all-around taste and draft beer quality.
- [The N₂-Blast® - Corrosion Inhibiting System](#) Effectively arrests electrochemical, galvanic and micro-biologically influenced corrosion (MIC) by introducing 99.9995% pure nitrogen into dry and preaction sprinkler systems.

With purities ranging from 95% up to 99.999%, we provide nitrogen generators that are sure to suit your needs. For more information about our complete nitrogen generator capabilities, please visit www.southteksystems.com.

1.3 AUDIENCE

This manual is intended for Installer/Equipment Operator/Supervisory Staff and should be read in its entirety prior to operation. Please contact South-Tek Systems for any operation and maintenance questions. Please contact your local distributor provider for any operation and maintenance first prior to contacting the manufacturer.

1.4 LIMITS OF LIABILITY

Buyer's exclusive remedy for all claims shall be for damages, and seller's total liability for any and all losses and damages arising out of any cause whatsoever including, without limitation, defects in or defective performance of the system, (whether such claim be based in contract, negligence, strictly liability, other tort or otherwise) shall in no event exceed the purchase price of the system in respect of which such cause arises or, at seller's option, the repair or replacement of such; and in no event shall seller be liable for incidental, consequential or punitive damages resulting from any such cause.

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Seller shall not be liable for, and Buyer assumes all liability for, the suitability and the results of using nitrogen by itself or in any manufacturing or other industrial process or procedure, all personal injury and property damages connected with the possession, operation, maintenance, other use or resale of the System. Transportation charges for the return of the System shall not be paid unless authorized in advance by Seller.

NOTE: Any MODIFICATIONS made by the customer without the written consent of South-Tek Systems will void the product's design specifications.

1.5 SERVICE RETURN POLICY

If the system cannot be repaired at the site, and it is necessary to return a system for service, the following procedures must be followed:

- The owner must obtain a written **Return Material Authorization** number, which references the model and serial number, from South-Tek Systems. No items will be accepted for service or credit unless prior written authorization has been issued by South-Tek Systems.
- All items are to be returned with the original packaging material if possible. Make sure that all items are packaged for safe return to South-Tek Systems. South-Tek Systems will not be responsible for damages, which occur in transit. Any damage that occurs to the system because of failure to adhere to this procedure will be the sole responsibility of the customer. Contact South-Tek Systems for a return shipping address.
- Shipping charges must be prepaid on all returns.

2 SAFETY GUIDELINES

The following section outlines the basic safety considerations regarding installation and operation of the Quick-Check. For additional safety information regarding other equipment used in conjunction with the Quick-Check, such as air compressors, dryers, boosters, etc., please refer to individual manufacturer recommendations and safety guidelines.

2.1 GENERAL SAFETY PRACTICES

Correct use of the Quick-Check PowerSaver Timer is important for your personal safety and for trouble-free functioning. Incorrect use can cause damage to the Quick-Check PowerSaver Timer or can lead to incorrect gas supply.

The Quick-Check purges nitrogen (N₂) at a low flow rate, which quickly dissipates into the air when exhausted. N₂ gas is not poisonous but the gas should not be directly inhaled since in high concentrations it can cause asphyxiation. Ensure the unit is installed within a well-ventilated room.

Read carefully and act accordingly before installing, operating, or repairing the unit.

- Operator must use safe working practices and rules when operating the Quick-Check.
- The owner is responsible for keeping the unit in safe operating condition at all times.
- Always use approved parts when performing maintenance and repairs. Make sure that replacement parts meet or exceed the original parts' specification.
- Only authorized, trained, and competent individuals are allowed to perform installation, operation, maintenance, and repair.
- Completely isolate incoming and outgoing pressures to the generator, and make sure to depressurize the service/repair section prior to performing any mechanical work, including changing the filters. The nitrogen generator's exhaust gas and/or any venting gas must be vented to the outside or to a large, well-ventilated room to avoid suffocation due to lack of oxygen.
- Safety glasses should be worn if the cabinet door is open while the machine is operating.

WARNING: Pressurized gases are contained within the generator, the receiver, and product tanks. Pressurized gases are dangerous and may cause injury or death if handled or used inappropriately.

- Never allow pressurized gas to exhaust from an unsecured hose. An unsecured hose may exhibit a whipping action, which can cause serious injury. If a hose should burst during use, immediately close all isolation valves if it is safe to do so and power down the unit.
- Always make certain that the Quick-Check is disconnected from the supply power prior to performing any electrical work.

2.2 SAFETY INFORMATION

Nitrogen is not poisonous but it should not be directly inhaled, since in high concentrations, it can cause asphyxiation. Ensure that the unit is installed within a well-ventilated room, one that is not sealed off from normal living space air changes.

All personnel involved with installation, operations, and maintenance of the Quick-Check-PowerSaver Timer must follow safe working practices, OSHA, and local health/safety code regulations during the installation, operation, and maintenance of the unit.

Warning:

- This manual must be read in its entirety prior to installing and operating the Quick-Check-PowerSaver Timer to prevent accidents and damage to the equipment.
- Contact your supplier if you detect a problem that you cannot solve with this manual.
- Only use the PowerSaver Timer in accordance with its designed purpose.

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- Only service-engineers, that are qualified to work on electric and pneumatic equipment, can do the installation, maintenance, and repairs. Unqualified people are not allowed to repair the equipment.
- Do not tamper or experiment with the equipment or exceed the technical specifications

3 PRODUCT INSTALLATION

3.1 UNPACKING AND PREPARATION

The Quick-Check PowerSaver Timer 6 Port will arrive in a cardboard box. Identify and verify that all parts listed on the packing list are present and undamaged. Ensure that all parts to connect to the AutoPurge System (APS) are with the unit. South-Tek Systems (STS) is not responsible for damages that have occurred during the shipping and handling of the The Quick-Check PowerSaver Timer 6 Port. Any visual damages should be immediately documented and reported to the shipping company responsible. Contact STS at (888) 526-6284 to assess the damages only after the shipping company has been notified.

Until Installation:

- Store the Quick-Check in a dry and climate controlled (60-80°F) room.
- Always keep Quick-Check in a safe place / or in box as shipped.
- Do not connect power until manual has been read completely and all connections are made as stated within.
- Keep all pipes and APS lines dry so moisture does not enter Quick-Check upon hookup.
- Never place/stack objects on top of the Quick-Check.

3.2 STORAGE INSTRUCTIONS

If the unit is not to be installed until a later date, a safe dry storage location is needed - preferably inside a controlled environment. Place desiccant packets into the electrical cabinet to keep moisture from damaging the electronics. Do not store around moving objects that could fall or damage the unit.

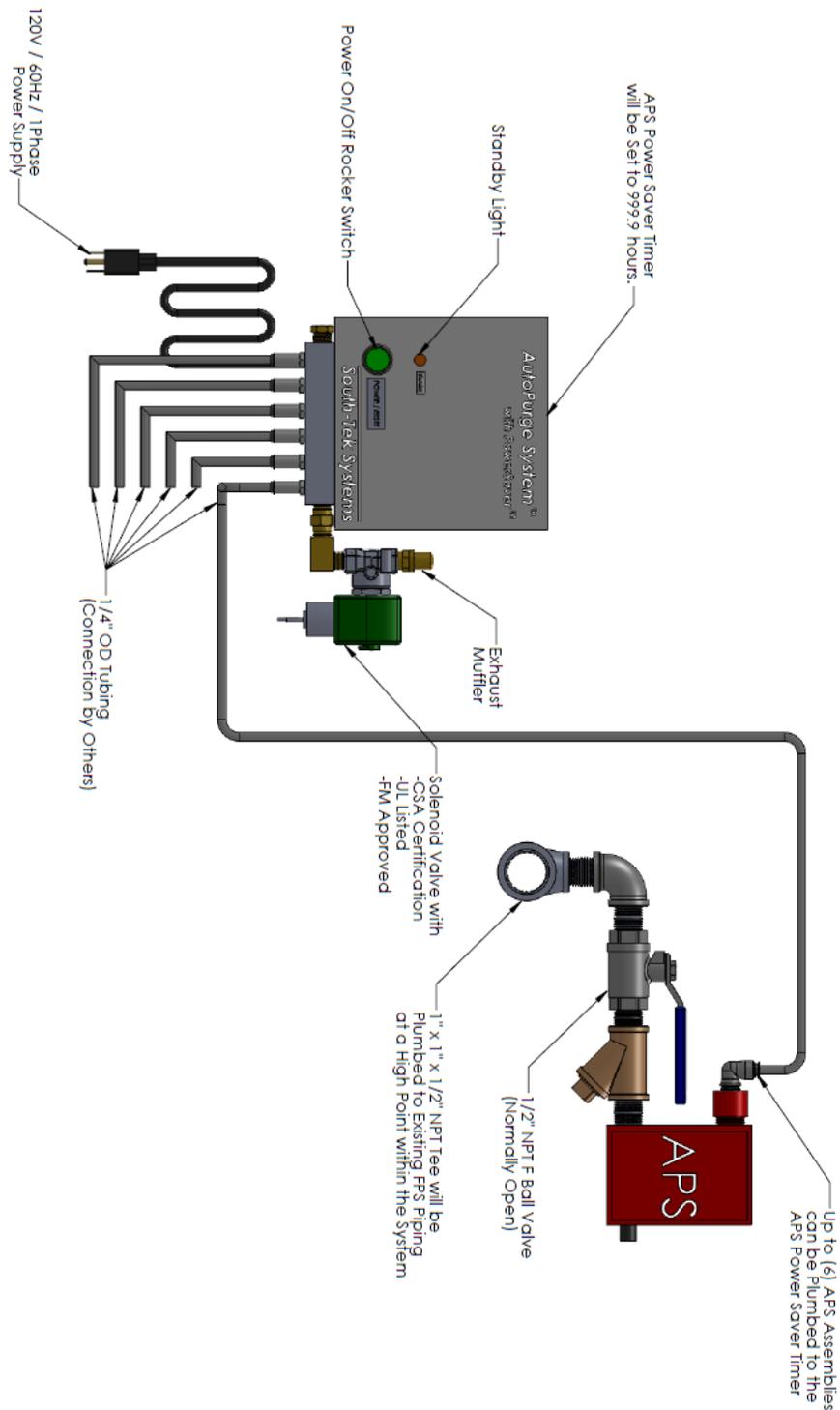
3.3 ELECTRICAL REQUIREMENTS

Power supply must be 110 VAC / 1 ph / 60 Hz as labeled on the unit. Operating amp draw is less than 2 amps. The Quick-Check must be plugged into a standard 120VAC receptacle unless otherwise specified in the customer installation drawings. The internal control panel is a UL 508A Open Industrial Control Panel approved with a 7 Amp time delay fuse. Electronic copy of the electrical schematic is available upon request.

Note: Always obey all local and site codes to finalize power connection to the equipment.

3.4 INSTALLATION

Up to six AutoPurge Systems or APS may be used with the Quick-Check 6 Port PowerSaver Timer. Plumbing connections are made with 1/4" OD tubing to the APS. Mount cabinet to the wall using wall anchors or studs. Always obey



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all local and site codes for mounting and installing the PowerSaver Timer.

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4 SPECIFICATIONS

Quick-Check PowerSaver Timer 6 Port– Specifications	
Installation	Wall Mount
Display	Power Status, Purging Status
Timer Port Connections	¼” PTC straight fittings
Electrical	110V / 60Hz / 1Phase; <2amp
Ambient Temperature	40° to 100°F
Size	8.5" W x 4.5" D x 9.5" H (Cabinet Dimensions)
Weight	~7 lbs

5 SYSTEM CONTROLS

The Quick-Check PowerSaver Timer comes with a valve and a timer to effectively and efficiently purge oxygenated air in Fire Protection Systems. At the end of the purge cycle, the timer closes off the purge valve to reduce the runtime of the nitrogen generator. Unauthorized changes to the system will void all warranties and may cause damages to the system or cause it to malfunction.

Note: Controls for supporting equipment, such as the compressor, dryer, and/or nitrogen generator, are not included in this section. Please consult the original manufacturer’s instructions for further information.

5.1 START-UP

Set and connect all AutoPurge Systems to the Quick-Check PowerSaver Timer according to the installation section of this manual. APS tuning can be found in the next section of this manual. After connecting, plug the PowerSaver Timer in and turn on the unit using the green rocker switch, if power is supplied to the PowerSaver the switch will illuminate showing the unit is purging.

The purge will run for approximately forty-two days; once complete, check the oxygen content of each zone. If any zone displays an oxygen content greater than 2.0%, double-check the APS settings and reset the PowerSaver Timer and allow it to purge for another cycle.

5.2 RESETTING/REPURGING FIRE PROTECTION CORROSION INHIBITING SYSTEM

The PowerSaver Timer must be reset after any of the following events occur:

- Fire protection system is tripped and refilled.
- Compressed air was introduced to the nitrogen system for any period of time.
- Nitrogen purity readings are lower than 98%.
- Repairs are made to the sprinkler piping.

In order to reset the PST, simply toggle the power switch “off”, then “on”.

6 AUTOPURGE SYSTEM TUNING

1. Close each APS ball valve. Make sure each flow control (Figure 3) is turned all the way clockwise.
2. Bring the Fire Protection System up to Supervisory Pressure.
3. Mark each 1/4" APS purge line from all zones so that they can easily be matched to the appropriate zone number on the Quick-Check PowerSaver Timer, then remove all of the 1/4" purge lines from the Quick-Check PowerSaver Timer.
4. Slowly open the ball valve on each APS, then turn the APS flow control knob (A) (Figure 2) counter-clockwise until the center of the float bead reaches required setting.
5. Once the float bead has stabilized, the 1/4" tubing may be re-connected to the appropriate zone port on the Quick-Check PowerSaver Timer.

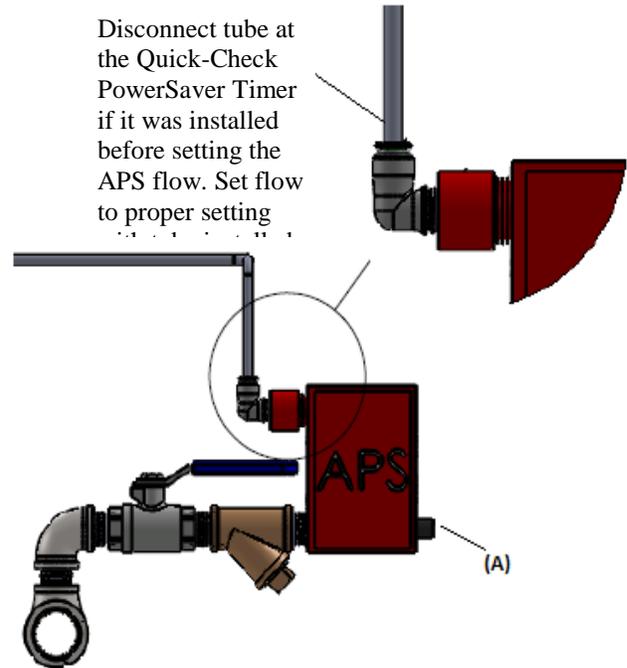


Figure 2: APS Field Installation

Gallons in Zone	APS 2 Flow Setting
50	1/4
100	1/2
150	3/4
200	A
250	A+1/2
300	A+3/4
350	B
400	B+1/4
500	B+1/2
550	B+3/4

Set the APS Flow Setting once the FPS system is at supervisory pressure. Use the bleed screw below to relieve the water check feature if no flow occurs, see manual for instructions.

Warning: AutoPurge Systems should be valved off during all FPS pressure tests. This system allows a controlled purge of the FPS system and should be set to the proper APS Flow Setting only. Other settings may cause the FPS to alarm or malfunction.

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Gallons in Zone	APS 4 Flow Setting
1100-1200	A
1250-1500	A+1/4
1550-1700	A+1/2
1750-1900	A+3/4
1950-2050	B
2100-2300	B+1/4
2350-2550	B+1/2
2600-2750	B+3/4
2800-3050	C
3100-3300	C+1/4
3350-3600	C+1/2
3650-3850	C+3/4
3900-4000	D

Set the APS Flow Setting once the FPS system is at supervisory pressure. Use the bleed screw below to relieve the water check feature if no flow occurs, see manual for instructions.

Warning: AutoPurge Systems should be valved off during all FPS pressure tests. This system allows a controlled purge of the FPS system and should be set to the proper APS Flow Setting only. Other settings may cause the FPS to alarm or malfunction.

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Figure 3: Alphabetical Indicators

7 FAQs

This section enables the operator to determine the cause of operation problems and suggests remedies for the problems. If there are several likely causes, investigate the simpler solutions first. If further assistance is required, contact your local distributor or South-Tek Systems.

Symptoms	Probable Cause	Corrective Action
System Not Powering On	Too Low or Too High Voltage/Amperage	Check Electrical Source
	Fuse Blown	Replace fuse on electrical panel
	System is OFF	Flip the switch to the ON position
	Defective Wiring	Check all wired connections

Figure 4: APS 2 Settings

Figure 5: APS 4 Settings

System not Purging through exhaust	APS is closed	Check APS flow settings and ball valve position
	Leak within system	Check for leaks
	Exhaust port plugged	Check that exhaust tube is not blocked
Purity not in Spec After Timed Purge	O2 analyzer malfunction	Calibrate or Replace O2 analyzer
	APS is closed	Check APS flow settings and ball valve position
	Lines are not connected/broken coming from the AutoPurge System	Replace or reconnect lines
	Valve is not actuating	Check solenoid valve wires/replace valve

8 KEY CONTACTS

For any questions with the performance and/or maintenance of the system, contact:

South-Tek Systems

2940 Orville Wright Way, Wilmington, NC 28409

Phone: 1-(888)-526-6284, Ext. 127

Email: service@southteksystems.com

Visit: www.southteksystems.com

APPENDIX A: WARRANTY

The Quick-Check PowerSaver Timer is warranted against any defects in workmanship and materials for 12 months from the date of shipment from South-Tek Systems. The purchaser has the liability to ensure that the system is fully inspected upon delivery and shall contact the appropriate shipping company to make any claims on damaged goods due to transit within that shipping company's policies. If the system is received with defects that are not due to shipping, a written claim should be submitted to South-Tek Systems within 1 week of receiving the shipment. South-Tek Systems can deny all other claims at their discretion.

All warranty work shall be done at a South-Tek System facility or at a PSA Nitrogen Generator Authorized Service Center. Only factory trained and authorized personnel are covered under warranty. Any part that is returned / repaired / replaced under warranty may be remanufactured or changed to a different specification at the factory's option. Any work performed by an unauthorized person/company or usage of non-factory parts, may void all warranties to the product.

Any item not manufactured by South-Tek may carry its own warranty from its manufacturer and will be warranted under that manufacturer. All parts that need to be returned should be announced. Any item(s) that is returned to South-Tek Systems without an RMA number (return authorization number) may be denied and returned to the sender. Contact the factory for RMA #'s, prior to returning shipment.

South-Tek Systems is not liable for damages caused by normal wear and tear, water, fire, erosion, corrosion, explosion, misuse, oil/gas vapors or unauthorized modifications. South-Tek Systems is also not liable for any losses, damages, or cost of delays, including incidental or consequential damages. There are no warranties or guarantees, expressed or implied, including the warranties of merchantability or fitness for a particular purpose or use, other than those warranties expressed herein.

For Claims, contact South-Tek Systems LLC at:

Phone: (888) 526-6284

Email: info@southteksystems.com

Or write to:

South-Tek Systems, Warranty Claims, 2940 Orville Wright Way, Wilmington, NC, 28409

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