

TRUEADVANCEDPURGE



MODEL TAP-G3 WITH ADC™ USER GUIDE

Serial Number _____

Date of Installation _____ Date of Commissioning _____

UNITED Fire Systems

Division of UNITED Fire Protection Corporation

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SAFETY INFORMATION

This manual contains safety information that is important to know and understand. This information is provided for the safety of installers, operators, and users of the **UNITED Fire Systems TRUE ADVANCED PURGE Model TAP-G3** with **ADC™** device. Carefully read, understand, and follow instructions identified by these symbols.



The use of the word “DANGER” identifies an immediate hazard with a likelihood of death or serious personal injury if instructions, including recommended precautions, are not followed.



The use of the word “WARNING” identifies the presence of hazards or unsafe practices that could result in death, personal injury, or serious property damage if instructions, including recommended precautions, are not followed.



The use of the word “CAUTION” identifies possible hazards or unsafe practices that could result in personal injury or property damage if instructions, including recommended precautions, are not followed.



The use of the word “IMPORTANT” identifies special instructions, not related to hazards that should be followed.

FOREWORD

This manual is written for those who are responsible for the use of the Model **TAP-G3** device. This manual **MUST** be read thoroughly and understood completely before use of the device.

IMPORTANT NOTICES TO USERS

When using this equipment, personnel must employ safe engineering practices and observe all related local regulations, health, and safety procedures, and legal requirements for safety.

Nitrogen is not a poisonous gas. However, in a concentrated form, there is a risk of asphyxiation. The exhaust from the Model **TAP-G3** device contains nitrogen which quickly disperses in the atmosphere. **DO NOT** directly inhale the output gas from the exhaust mufflers.

The Model **TAP-G3** device is classified as non-hazardous for transportation purposes and as non-flammable for fire regulations. This equipment is for indoor use only. Do not operate outdoors.

Installation, commissioning, and maintenance of the Model **TAP-G3** device must be conducted **ONLY** by trained, qualified personnel, in accordance with the instructions in the **UNITED Fire Systems** P/N 33-TG3ICM-000 Installation, Commissioning, and Maintenance Manual.



IMPORTANT

UNITED Fire Systems assumes no responsibility for the installation, operation, maintenance, or use of any equipment other than that addressed in this manual. The data contained in this manual is for information purposes only. **UNITED Fire Systems** believes this data to be accurate at the time of publication, but the data is published and presented without any guarantee or warranty whatsoever. **UNITED Fire Systems** disclaims any liability for any use that may be made of the data and information contained in this manual by any and all parties.



IMPORTANT

The Model **TAP-G3** device is meant for use with **UNITED Fire Systems NITROGEN-PAC™** sprinkler corrosion inhibiting systems. As such, the device is a vital part of the fire protection of any facility where the unit is installed. Life safety and property protection depends on continuing proper operation of this unit. The owner of the **NITROGEN-PAC™** system equipment is responsible for its condition and continued proper operation. **UNITED Fire Systems** strongly recommends that all owners of Model **TAP-G3** devices and **NITROGEN-PAC™** systems engage the services of qualified, trained fire protection professionals to design, install, commission, and maintain the equipment.

UNITED Fire Systems NITROGEN-PAC™ sprinkler corrosion inhibiting systems are to be installed, commissioned, and maintained by qualified, trained personnel in accordance with:

- The applicable **UNITED Fire Systems** Installation, Commissioning, and Maintenance Manuals.
- National Fire Protection Association No. 13, “Standard for the Installation of Sprinkler Systems.”
- National Fire Protection Association No. 25, “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.”
- National Fire Protection Association No. 70, “National Electrical Code®”.

Any questions on the information in this manual should be addressed to:

UNITED Fire Systems
Division of United Fire Protection Corporation
1 Mark Road
Kenilworth, NJ USA 07033
908-688-0300
www.unitedfiresystems.com



LIMITED WARRANTY TRUE ADVANCED PURGE™



What Does This Warranty Cover?

This Limited Warranty covers all manufacturing defects in material and workmanship by **UNITED Fire Systems** new **TRUE ADVANCED PURGE** equipment.

How Long Does The Coverage Last?

This warranty lasts for eighteen (18) months from the date of shipment to the original purchaser.

What Will **UNITED Fire Systems** Do?

UNITED Fire Systems will repair, replace, or refund the purchase price of, at its option, any defective **TRUE ADVANCED PURGE** equipment at no charge.

What Does This Warranty Not Cover?

- Equipment that is not supplied by **UNITED Fire Systems** is not covered.
- Equipment that has not been installed, commissioned, operated, and maintained per the instructions in the applicable **UNITED Fire Systems** instruction manual is not covered.
- Equipment that has been repaired, modified, or otherwise tampered with not in accordance with the applicable **UNITED Fire Systems** instruction manual is not covered.
- Any problem that is caused by abuse, misuse, or an act of God (such as a flood) is not covered.
- Transportation and shipping charges to return equipment to **UNITED Fire Systems** or for **UNITED Fire Systems** to return repaired or replacement equipment are not covered.
- Consequential and incidental damages are not covered. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion may not apply.

What Are The Customer's Responsibilities?

- Ensuring that the **UNITED Fire Systems** equipment is installed, commissioned, operated, and maintained per the instructions in the applicable **UNITED Fire Systems** instruction manual.
- Where applicable, ensuring that checklists supplied by **UNITED Fire Systems** are properly used and completed at the time of installation, commissioning, operation, and maintenance, and such checklists are retained as records of proper completion.
- Noting and recording the serial number(s) of **UNITED Fire Systems** equipment.
- Notifying **UNITED Fire Systems** or a trained distributor of the need for service under this Limited Warranty.

How Is Warranty Service Obtained?

If something goes wrong with **UNITED Fire Systems** equipment, contact:

UNITED Fire Systems

Division of UNITED Fire Protection Corporation

1 Mark Road
Kenilworth, NJ USA 07033
908-688-0300

www.unitedfiresystems.com

= OR =

Your
Trained
Distributor

Be prepared to supply the serial number(s) of the equipment requiring service, and copies of the installation, commissioning, and maintenance checklists, as applicable.

Is This Limited Warranty Transferable?

If the **TRUE ADVANCED PURGE** equipment is moved from one to another installation during the time period of Limited Warranty coverage, the **TRUE ADVANCED PURGE** equipment must be re-commissioned by **UNITED Fire Systems** or a trained distributor to be eligible for continuing coverage. There will be a quoted charge for this re-commissioning.

Is This The Entire Warranty?

This Limited Warranty is the entire warranty given by **UNITED Fire Systems** to the purchaser of new **TRUE ADVANCED PURGE** equipment. Component warranties supplied by component manufacturers to **UNITED Fire Systems** that are valid for a longer period of time than the **UNITED Fire Systems** Limited Warranty may apply. Contact **UNITED Fire Systems** for more information. There are no other warranties expressed or implied, beyond those required by law.

How Do State and Federal Laws Apply?

This Limited Warranty grants specific legal rights per Federal law. There may also be other rights which vary from state to state.

1. GENERAL INFORMATION

- 1.1. **GLOSSARY.** All glossary terms are defined in reference to their use in this manual. Refer to this glossary for definitions of unfamiliar terms encountered when reading and using this manual.
- 1.1.1. **Air.** Air is the naturally occurring gas making up Earth's atmosphere. Air consists of a mixture of gases, of which two predominate (see the glossary terms Nitrogen and Oxygen).
- 1.1.2. **Dried Compressed Air.** Dried compressed air refers to the output of the **NITROGEN-PAC™** refrigerated dryer. This compressed air has been conditioned for entry into the nitrogen generator cabinet.
- 1.1.3. **Microbiologically Influenced Corrosion (MIC).** Microbiologically influenced corrosion (also known as MIC) occurs inside steel dry and preaction sprinkler pipes in the presence of certain microbes. This form of corrosion causes thinning of pipe walls, possibly leading to failure under water pressure. Pinhole leaks can occur, leading to water damage. Roughening of the internal pipe surface leads to unpredictable hydraulics, impairing the effectiveness of the sprinkler system. The tubercles formed by the microbes can loosen, clogging sprinkler heads and impairing or preventing the discharge of water onto a fire. MIC microbes can be aerobic, growing in the presence of oxygen, or anaerobic, not needing oxygen but growing in the presence of water. Prevention of MIC results in longer life and better functionality of the sprinkler system. MIC can be inhibited by using nitrogen to displace oxygen and dry out the inside of the pipe.
- 1.1.4. **Nitrogen (N₂).** Nitrogen is a naturally occurring diatomic gas present in Earth's atmosphere at a concentration of approximately 78% (v/v). All references to "nitrogen" in this manual are the output from the nitrogen outlet of the SC Series assembly. This outlet delivers gas that is at least 98 percent (v/v) nitrogen, at a pressure dew point of approximately -40°F. The pressure dew point of nitrogen is much lower than of compressed air, making nitrogen much more effective at drying out the inside of a sprinkler pipe.
- 1.1.5. **Oxidation Corrosion.** Oxidation corrosion (also known as rust) occurs inside steel dry and preaction sprinkler pipes in the presence of oxygen and water. This form of corrosion causes thinning of pipe walls, possibly leading to failure under water pressure. Pinhole leaks can occur, leading to water damage. Roughening of the internal pipe surface leads to unpredictable hydraulics, impairing the effectiveness of the sprinkler system. Loose rust particles can clog sprinkler heads, impairing or preventing the discharge of water onto a fire. Prevention of oxidation corrosion results in longer life and better functionality of the sprinkler system. Oxidation corrosion can be inhibited by using nitrogen to displace oxygen and dry out the inside of the pipe.
- 1.1.6. **Oxygen (O₂).** Oxygen is a naturally occurring diatomic gas present in Earth's atmosphere at a concentration of approximately 21% (v/v). Oxygen is discharged from the nitrogen generator cabinet after being separated from dried compressed air by the separator membrane.
- 1.1.7. **Purging.** Because of its low dew point, the nitrogen introduced into the sprinkler piping by the **NITROGEN-PAC™** system absorbs liquid water. To ensure complete drying of the pipe interior, saturated nitrogen within the pipe must be replaced by dry nitrogen. Purging ensures that this process occurs.
- 1.2. **DEVICE PURPOSE.** The **UNITED Fire Systems TRUE ADVANCED PURGE Model TAP-G3** with **ADC™** is designed to automatically purge air from within dry-pipe or preaction fire sprinkler system piping and replace the air with 98% nitrogen from a **NITROGEN-PAC™** sprinkler corrosion inhibiting system. The device also automatically samples, analyzes, and displays the percentage of nitrogen in the pipe.

Advanced Sensor Technology

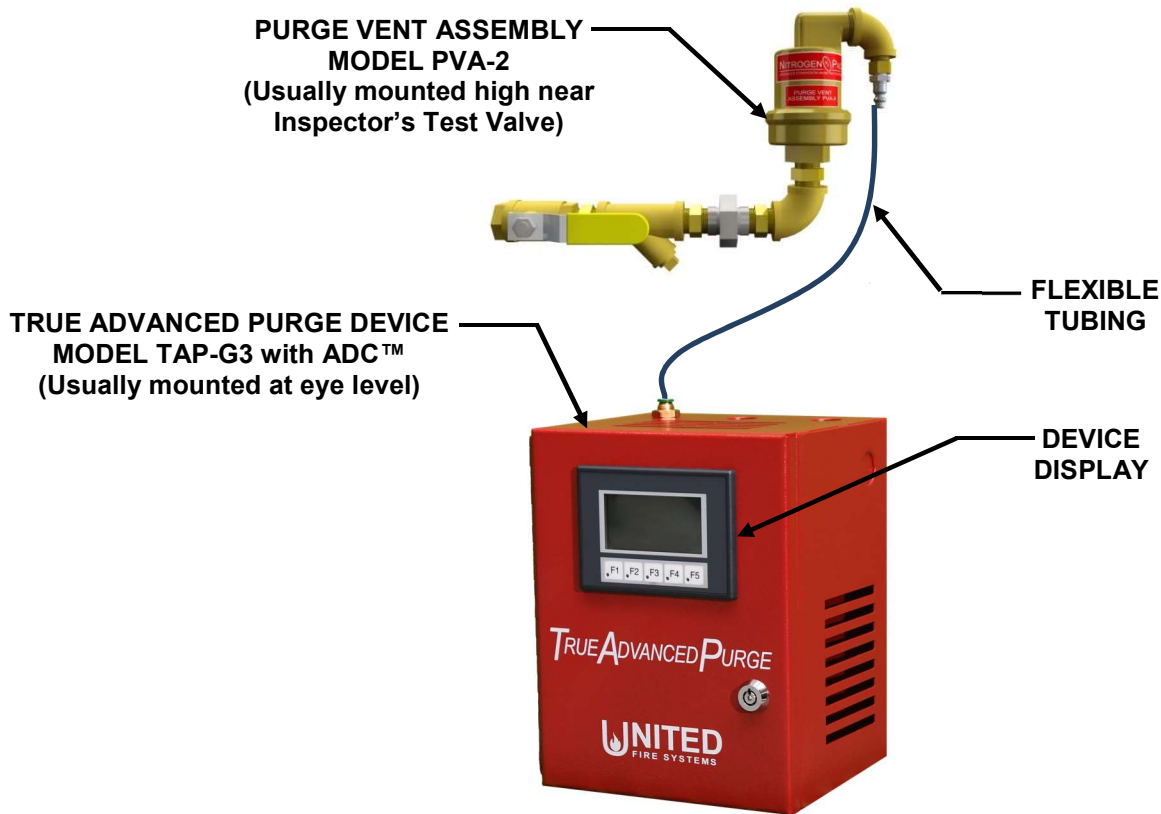
The Model **TAP-G3** device uses the most advanced zirconium dioxide technology available today, overcoming many of the limitations of other sensor types. The result is stable nitrogen purity readings and long sensor life, without the need for manual intervention to adjust or calibrate device readings.

Active Drift Control

The Model **TAP-G3** device features Active Drift Control, an automatic analysis of sensor drift and application of correlation and gain offsets to maintain device accuracy regardless of sensor status. This analysis and drift control is routinely performed by algorithms built into the device control system every time the TAP-G3 automatically measures the nitrogen purity in the piping. No user involvement or special reference gas is required, and no other similar device available today offers this active method of controlling the accuracy of the displayed nitrogen value.


1.3. FUNCTIONAL DESCRIPTION. Refer to Figure 1.

Figure 1
Functional Description and General Arrangement




- A. The Model PVA-2 Purge Vent Assembly is connected to the preaction or dry-pipe fire sprinkler piping, usually at the end of a branch line near the Inspector's Test valve. A float valve allows air or nitrogen pressure through, but a float will block the outlet when water fills the pipe.
- B. Plenum-rated flexible tubing connects the outlet of the Model PVA-2 to the inlet of the Model **TAP-G3** device. The tubing permits mounting of the Model **TAP-G3** device at any convenient location.
- C. The display on the front of the Model **TAP-G3** device allows visual monitoring of the nitrogen concentration in the fire sprinkler piping and the device status. The display also includes five (5) pushbutton switches for device control.

1.4 MAIN Screen. See Figure 2. The **MAIN** screen is the primary display for users of the **TRUE ADVANCED PURGE Model TAP-G3** device.



WARNING

The Model **TAP-G3** device contains **NO** user-serviceable adjustments or parts inside the enclosure. Users should **NOT** open the enclosure door at any time. Only factory-qualified technicians should use the factory-supplied keys to open the enclosure door. Read and observe the **DANGER** message below.

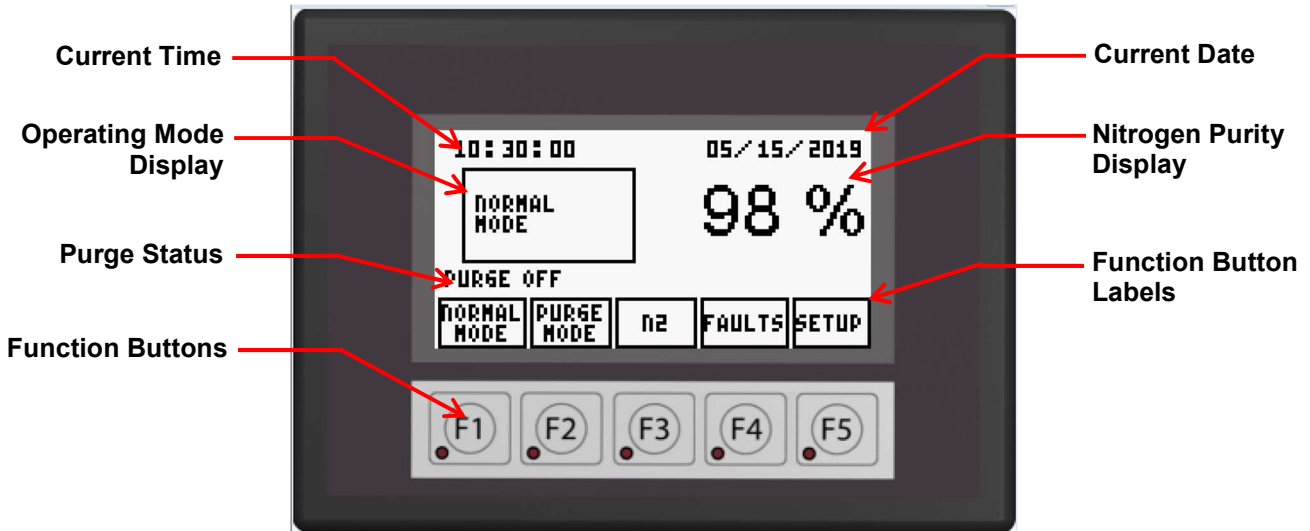


DANGER

RISK OF ELECTROCUTION

Voltages and currents associated with the Model **TAP-G3** device are **LETHAL**. Follow all instructions provided. Work involving power **MUST** be performed **ONLY** by qualified individuals. All required precautions to prevent contact with live electrical conductors and equipment **MUST** be taken. Failure to comply with these instructions is an immediate hazard with a likelihood of death or serious personal injury!

Figure 2
Model TAP-G3 MAIN Screen



1.4.1 Current Time. Displays the current time programmed into the Model **TAP-G3** device. The programmed time cannot be changed by the user (including standard-to-daylight and daylight-to-standard time). The displayed time is either the local time (if factory-set or programmed by a qualified technician at the time of commissioning) or Coordinated Universal Time (UTC). See Table 1 for conversions from UTC to USA time zones.

Table 1
Conversions From Coordinated Universal Time (UTC) To USA Local Time Zones

TIME ZONE	STANDARD TIME	DAYLIGHT TIME
EASTERN	UTC MINUS 5 HOURS	UTC MINUS 4 HOURS
CENTRAL	UTC MINUS 6 HOURS	UTC MINUS 5 HOURS
MOUNTAIN	UTC MINUS 7 HOURS	UTC MINUS 6 HOURS
PACIFIC	UTC MINUS 8 HOURS	UTC MINUS 7 HOURS
ALASKA	UTC MINUS 9 HOURS	UTC MINUS 8 HOURS
HAWAII	UTC MINUS 10 HOURS	N / A

- 1.4.2 Current Date.** The current date is displayed in MM / DD / YYYY format.
- 1.4.3 Operating Mode Display.** The Operating Mode Display indicates the current operating mode of the TAP-G3 device. See 2.2 for explanations of each operating mode.
- 1.4.4 Nitrogen Purity Display.** The Nitrogen Purity Display indicates the purity of nitrogen present in the fire sprinkler pipe, as of the last measurement made by the TAP-G3 device. Normal air is approximately 78% nitrogen, so no reading less than 78% is expected. Maximum reading is 100%.
- 1.4.5 Purge Status.** This area indicates the current Purge Mode status of the device. See 2.2.2 for an explanation of Purge Mode.
- 1.4.6 Function Buttons.** Five (5) function buttons are provided to select various functions, depending on the screen being displayed.
- 1.4.7 Function Button Labels.** Five (5) function button labels appear above the function keys. These labels indicate the function of the button immediately below the label.
- 1.4.7.1 (F1) NORMAL MODE** Button – Operating this button places the Model **TAP-G3** device into NORMAL mode. See 2.1.
- 1.4.7.2 (F2) PURGE MODE** Button – Operating this button places the Model **TAP-G3** device into PURGE mode. Placing the device into PURGE mode is part of system commissioning, and the time when PURGE mode begins is chosen as part of the commissioning process.



IMPORTANT

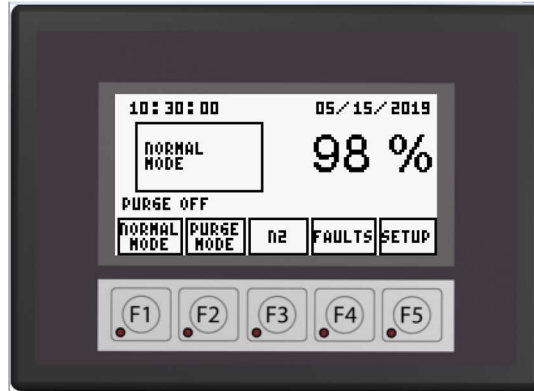
When multiple **TAP-G3** devices are associated with a single **NITROGEN-PAC™** system, no more than one (1) PURGE mode should be initiated at the same time. Refer to Model **TAP-G3** device Installation, Commissioning, and Maintenance Manual P/N 33-TG3ICM-000 for additional information on PURGE sequencing.

- 1.4.7.3 (F3) N2** Button – Operating this button initiates the NITROGEN PURITY SAMPLING sequence. See 2.4 C. The duration of NITROGEN PURITY SAMPLING during manual sampling is factory-set at five (5) minutes, but can be changed at commissioning, if necessary.
- 1.4.7.4 (F4) FAULTS** Button – Operating this button changes the display from the MAIN screen to the FAULTS screen. See Section 3 for more information on FAULTS, the FAULTS Screen, and the function buttons that appear with the FAULTS screen.
- 1.4.7.5 (F5) SETUP** Button – Operating this button changes the display to the PASSWORD REQUIRED FOR SETUP screen. Proceeding beyond this screen is necessary ONLY during system commissioning, or if any parameters require adjustment. Normal use of the Model **TAP-G3** device does NOT require proceeding beyond the PASSWORD REQUIRED FOR SETUP screen, and does NOT require a password. If the PASSWORD REQUIRED FOR SETUP screen is reached, operate function button (F1) to return to the MAIN screen.

2. OPERATING MODES

2.1 NORMAL Mode. The Model **TAP-G3** device will be in NORMAL mode most of the time after 98% nitrogen purity is established in the piping. The device defaults to NORMAL mode upon power-up, and will automatically enter ACTIVE DRIFT CONTROL and NITROGEN PURITY SAMPLING mode at the programmed time each day. See 2.3 for more information on ACTIVE DRIFT CONTROL mode.

Figure 3
Typical NORMAL Mode MAIN Screen



2.2 PURGE Mode. PURGE mode purges pressurized air from the sprinkler system piping, allowing the **NITROGEN-PAC™** sprinkler corrosion inhibiting system to replace the air in the sprinkler system piping with 98% nitrogen. PURGE mode is manually activated with function button F2 on the MAIN screen. The PURGE mode sequence is:

2.2.1 The Model **TAP-G3** device purges for a pre-determined time period. The factory-default period is 1435 minutes (23 hours 55 minutes). The MAIN screen displays PURGE ON, and also displays a countdown timer from the pre-determined time period to zero.

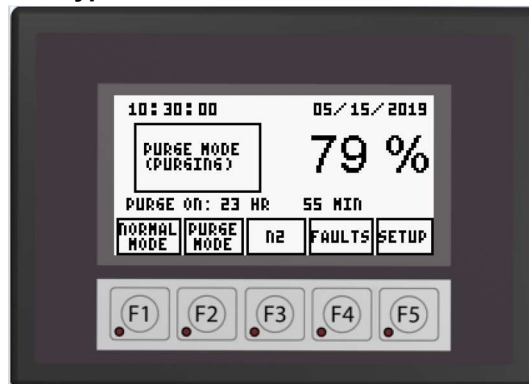
2.2.2 After this time period, the Model **TAP-G3** device automatically enters NITROGEN PURITY SAMPLING mode for five (5) minutes, and then updates the MAIN screen nitrogen purity display.

2.2.3 If the displayed Nitrogen Purity value is LESS than the pre-determined Nitrogen Purity Threshold (factory-default of 98%), the device re-enters PURGE mode per 2.2.1.

2.2.4 If the displayed Nitrogen Purity value is GREATER THAN or EQUAL TO the pre-determined Nitrogen Purity Threshold (factory-default of 98%), the device enters NORMAL Mode (see 2.1).

2.2.5 If the cycle described in 2.2.1 through 2.2.3 repeats for 21 days and the displayed Nitrogen Purity value is still LESS than the pre-determined Nitrogen Purity Threshold (factory-default of 98%), the device shows a NITROGEN PURITY NOT MET fault. The display begins flashing red. See 3.2 for more information on this fault.

Figure 4
Typical PURGE Mode MAIN Screen





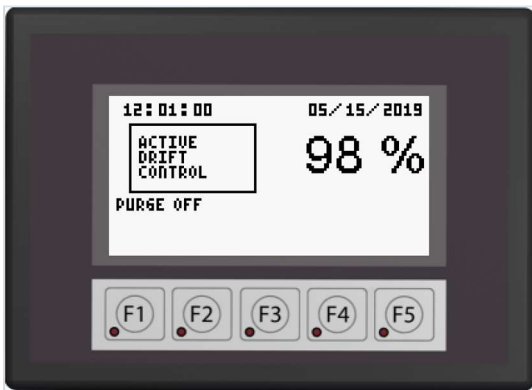
IMPORTANT

When multiple Model **TAP-G3** devices are associated with a single **NITROGEN-PAC™** system, no more than one (1) PURGE mode should be initiated at the same time. Refer to Model **TAP-G3** device Installation, Commissioning, and Maintenance Manual P/N 33-TG3ICM-000 for additional information on PURGE sequencing.

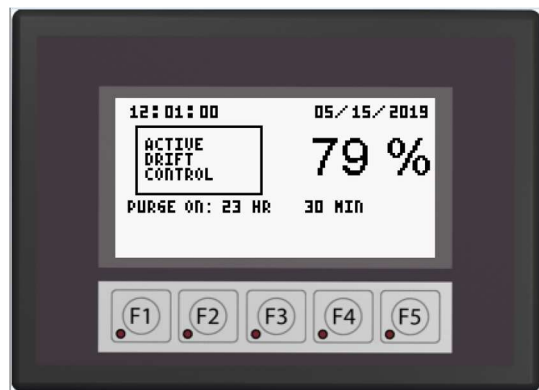
2.3 ACTIVE DRIFT CONTROL Mode. This mode occurs automatically once per day whether the Model **TAP-G3** device is in NORMAL or PURGE mode. No user intervention is required to initiate ACTIVE DRIFT CONTROL, and user intervention is prevented during this mode's sequence. The ACTIVE DRIFT CONTROL sequence is:

2.3.1 See **Figure 5**. At 12:00 midnight displayed Current Time, the Model **TAP-G3** device enters ACTIVE DRIFT CONTROL mode. Note that all function button labels are blanked, indicating that the mode cannot be changed while ACTIVE DRIFT CONTROL is ongoing. Depending upon the previous mode, the screen display will be:

Figure 5
ACTIVE DRIFT CONTROL Screens – 12:00 Midnight



Previous Mode - NORMAL



Previous Mode - PURGE

2.3.2 See **Figure 6**. At 12:50AM displayed Current Time, the Nitrogen Purity Display blanks, indicating the Model **TAP-G3** device is completing the ACTIVE DRIFT CONTROL process. All function button labels remain blanked.

Figure 6
ACTIVE DRIFT CONTROL Screens – 12:50 AM



Previous Mode - NORMAL



Previous Mode - PURGE

2.3.3 See **Figure 7**. At 1:00AM displayed Current Time, the Model **TAP-G3** device enters NITROGEN PURITY SAMPLING mode, indicating the device is making a new measurement of the nitrogen purity in the sprinkler piping.

Figure 7
NITROGEN PURITY SAMPLING Screens – 1:00 AM



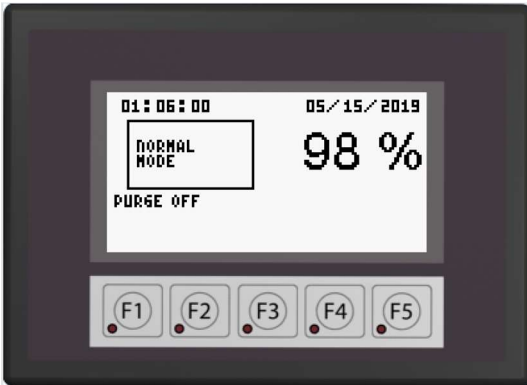
Previous Mode - NORMAL



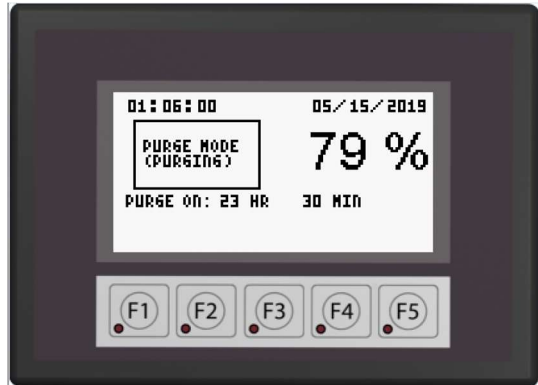
Previous Mode - PURGE

2.3.4 See **Figure 8**. At 1:05AM displayed Current Time, the Model **TAP-G3** device returns to the previous mode. To prevent all possible conflicts with other modes, the function button labels remain blanked for a short period.

Figure 8
Previous MODE Screens – 1:05 AM



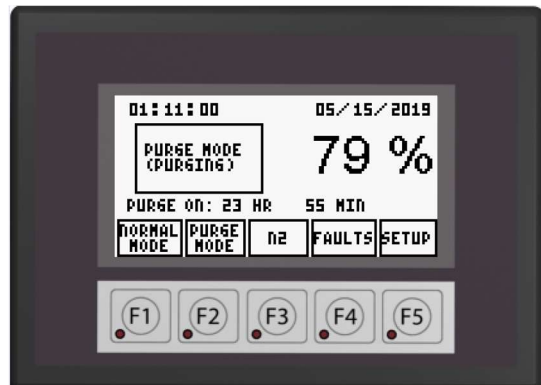
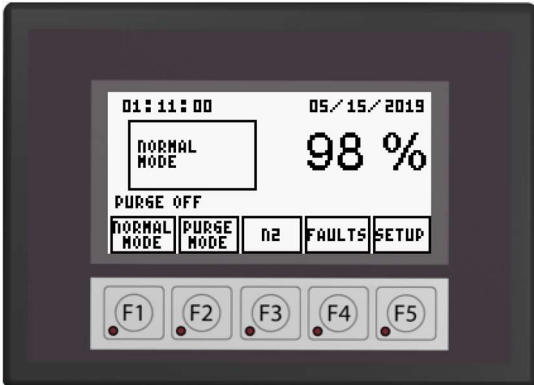
Previous Mode - NORMAL



Previous Mode - PURGE

2.3.5 See **Figure 9**. At 1:10AM, all functionality of the previous mode returns.

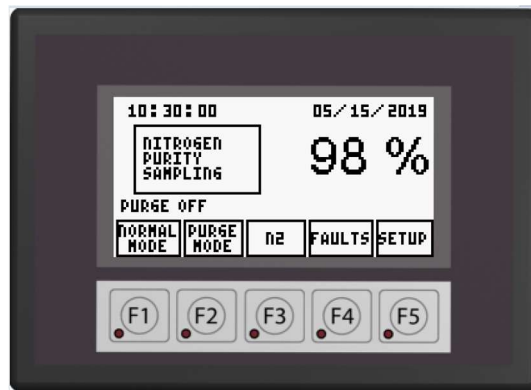
Figure 9
Previous MODE Screens – 1:10 AM



2.4 NITROGEN PURITY SAMPLING Mode. See **Figure 10**. This mode initiates when:

- A. The Current Time is 1:00 AM. This is part of the ACTIVE DRIFT CONTROL sequence, and occurs automatically. See 2.3.3 and **Figure 7**. The duration of NITROGEN PURITY SAMPLING as part of ACTIVE DRIFT CONTROL is fixed at five (5) minutes.
- B. The Model **TAP-G3** device is in PURGE mode, and the pre-determined purge time period (as shown on the MAIN screen) reaches zero. This sampling occurs automatically while in PURGE mode. See 2.2.2. The duration of NITROGEN PURITY SAMPLING during the PURGE sequence is factory-set at five (5) minutes, but can be changed at commissioning, if necessary.
- C. The “N2” function button (F3) is operated manually. The duration of NITROGEN PURITY SAMPLING during manual sampling is factory-set at five (5) minutes, but can be changed at commissioning, if necessary.

Figure 10
NITROGEN PURITY SAMPLING Screen



3. FAULTS. The **TRUE ADVANCED PURGE** Model **TAP-G3** device monitors for four (4) different faults that can affect proper operation of the system, and provides a visual signal plus a relay contact operation to alert users that attention is required. The four faults are:

3.1 LOW PRESSURE Fault. This fault occurs when a pressure switch in the Model **TAP-G3** device enclosure does not receive a minimum value of air or nitrogen pressure from the sprinkler system. Typical reasons for this fault are:

- A. A break or clog in the flexible tubing between the sprinkler system and the inlet port of the Model **TAP-G3** device.
- B. An accumulation of water at a low point in the tubing or at the Model PVA-2 purge vent assembly.
- C. Failure at the pressure source (**NITROGEN-PAC™** system). This will typically be accompanied by a low pressure signal from the preaction sprinkler system valve itself, or tripping of a dry-pipe sprinkler system.

Any of these is a reason for service by a qualified technician who can diagnose and eliminate the reason for the fault.

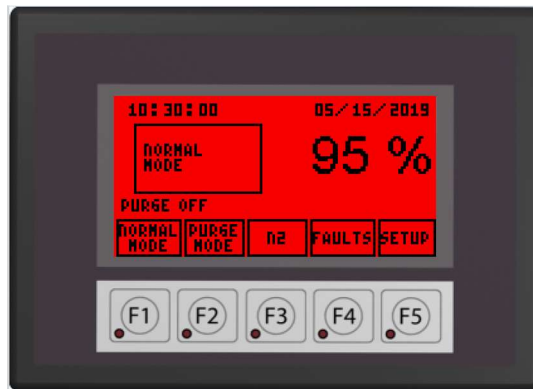
3.2 NITROGEN PURITY NOT MET Fault. This fault occurs when the Model **TAP-G3** device completes a 21-day long cycle in **PURGE** mode and the displayed Nitrogen Purity value is less than the pre-determined Nitrogen Purity Threshold (factory-default of 98%). This fault is a reason for service by a qualified technician who can diagnose and eliminate the reason for the fault. See 2.2 for more information on **PURGE** mode.

3.3 SENSOR COMM FAILURE Fault. This fault occurs when the programmable logic controller (PLC) loses communication with the gas sensor in the Model **TAP-G3** device. This fault is a reason for service by a qualified technician who can diagnose and eliminate the reason for the fault.

3.4 LOW NITROGEN PURITY Fault. This fault occurs if the displayed Nitrogen Purity value in the sprinkler system piping falls below the pre-determined Nitrogen Purity Threshold (factory-default of 96% in **NORMAL** mode.). The appearance of this fault switches the device to **NORMAL** mode. This fault is a reason for service by a qualified technician who can diagnose and eliminate the reason for the fault.

3.5 Local Signaling. All faults cause the display background to flash **RED** on and off, regardless of the screen currently being displayed

Figure 11
Example of MAIN Screen with
LOW NITROGEN PURITY Fault
RED Background Flashes ON and OFF



3.6 Remote Signaling through Contact Operation. The Model **TAP-G3** device contains two (2) single-pole double-throw (SPDT) volt-free contacts for remote signaling of faults.

3.6.1 Contact K1. The volt-free SPDT contacts labeled K1 will transfer on any of three (3) faults:

- A. The **LOW PRESSURE** fault – see 3.1.
- B. The **NITROGEN PURITY NOT MET** fault – see 3.2.
- C. The **SENSOR COMM FAILURE** fault – see 3.3.

3.6.2 Contact K2. The volt-free SPDT contacts labeled K2 will transfer on LOW NITROGEN PURITY fault – see 3.4.



IMPORTANT

When the **Model TAP-G3** device is in **ACTIVE DRIFT CONTROL** mode (see 2.3), screen flashing (see 3.5) and volt-free contact operation (see 3.6) are inhibited.

3.7 FAULTS Screen. The **FAULTS** screen displays the current status of each fault described in 3.1 through 3.4, and is equipped with a **CLEAR** function button.

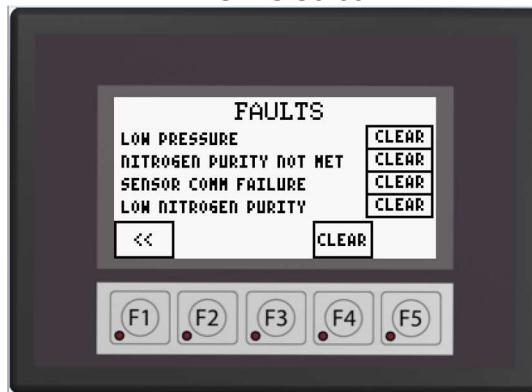
3.7.1 Accessing The FAULTS Screen. See Figure 11. To access the **FAULTS** screen, operate function button **F4** (labeled **FAULTS**) on the **MAIN** screen. The **FAULTS** screen (see **Figure 12**) will appear.



IMPORTANT

Faults cause the HMI display screen to flash **RED**. If allowed to continue for an extended period, this flashing can cause “burn-in” of the display, turning the background pink. To avoid this phenomenon, clear all faults as promptly as possible.

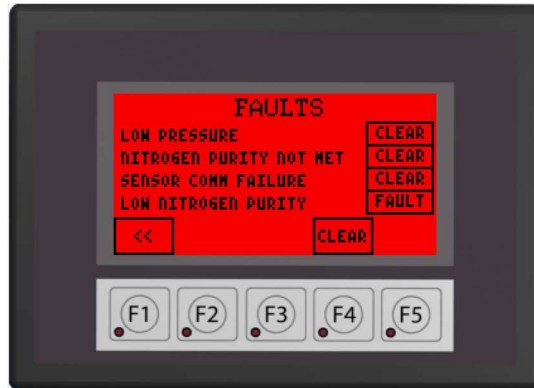
**Figure 12
FAULTS Screen**



3.7.2 Clearing FAULTS. All faults remain active until manually cleared. To clear a fault:

- A. Ensure that the reason for the fault has been properly diagnosed and eliminated by a qualified technician.
- B. See Figure 13. Operate function button **F4** (labeled **CLEAR**). The appearance of the display should return to that shown in Figure 12.

Figure 13
FAULTS Screen Displaying Fault
RED Background Flashes ON and OFF



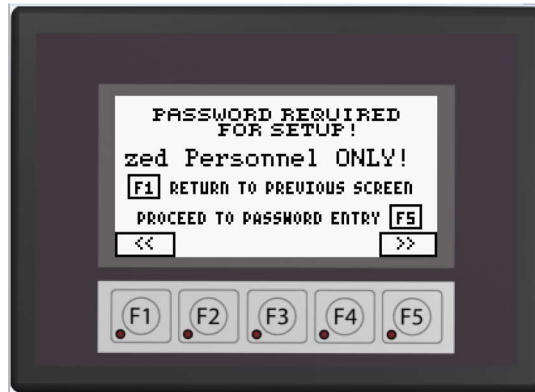
3.7.3 Returning To The MAIN Screen. See Figures 12 or 13. From either display, operate function button **F1** (labeled <<). The screen will return to the **MAIN** screen.

4. SETUP. The **MAIN** screen of the **TRUE ADVANCED PURGE** Model **TAP-G3** device permits access by authorized personnel to the screens needed for setup and commissioning of the device. The purpose of this manual section is to guide users who inadvertently enter the pre-password **SETUP** screens.

Use of the Model **TAP-G3** device does **NOT** require access to the **SETUP** screens. Access to **SETUP** screens is only permitted after entry of a password. No password is required to use the Model **TAP-G3** device once setup and commissioning is complete.

4.1 PASSWORD REQUIRED FOR SETUP Screen. See Figure 14. This screen displays the identification header **PASSWORD REQUIRED FOR SETUP**, and a scrolling reminder reading **Authorized Personnel ONLY!** In the event this screen is inadvertently accessed, operate function button **F1** (labeled <<) to return to the **MAIN** screen.

Figure 14
PASSWORD REQUIRED FOR SETUP Screen



4.2 PASSWORD Screen. See Figure 15. In the event this screen is inadvertently accessed, operate function button **F1** (labeled **ESC**), followed by operating function button **F1** (now labeled << on the **PASSWORD REQUIRED FOR SETUP** screen) to return to the **MAIN** screen.

Figure 15
PASSWORD Screen



5. OPERATING PARAMETERS. See Table 2. This table indicates the standard factory-default operating parameters of the Model **TAP-G3** device, and also indicates which of these parameters may be changed by a qualified technician during setup and commissioning. In the event any of the parameters are in fact changed, the new values should be recorded in the column indicated.

**Table 2
 Operating Parameters**

MODE	PARAMETER	FACTORY DEFAULT	IS PARAMETER ADJUSTABLE?	PARAMETER CHANGED TO	NOTES
PURGE	PURGE DURATION	1435 MINUTES	YES		1
	SAMPLE DURATION	5 MINUTES	YES		
	PURGE THRESHOLD	98%	YES		
	PURGE CYCLES	21	NO	N / A	
NITROGEN PURITY (MANUAL)	SAMPLE DURATION	5 MINUTES	YES		
	FAULT THRESHOLD	96%	YES		2
LOW PRESSURE	DELAY	5 MINUTES	YES		3
	FAULT ACTIVE DURATION	5 SECONDS	YES		4
	MINIMUM PRESSURE THRESHOLD	5 PSIG	NO	N / A	5
ACTIVE DRIFT CONTROL	OCCURS AT:	12:00 MIDNIGHT	NO	N / A	6
	CHAMBER OPEN DURATION	50 MINUTES	NO	N / A	
	CHAMBER SAMPLE DURATION	10 MINUTES	NO	N / A	
	SPRINKLER SYSTEM SAMPLE DURATION	5 MINUTES	NO	N / A	

NOTE 1 – 1435 minutes = 23 hours 55 minutes

NOTE 2 – 96% chosen as factory-default to prevent unwarranted fault signals from minor variations in nitrogen concentration mainly due to temperature fluctuations.

NOTE 3 – The TAP-G3 device waits for factory-set 5 minutes after beginning pressure sensing to allow measured pressure to stabilize.

NOTE 4 – The pressure must remain at or below the minimum pressure threshold for the chosen duration for the FAULT signal to be activated.

NOTE 5 – Normal supervisory pressure in preaction and dry-pipe sprinkler systems can be from 13 to 40 PSIG. Model TAP-G3 setting avoids unwarranted fault signals from normal pressure fluctuation.

NOTE 6 – Parameters chosen for optimum ACTIVE DRIFT CONTROL performance.

For additional information on operating parameters, refer to **TRUE ADVANCED PURGE** Model **TAP-G3** device Installation, Commissioning and Maintenance Manual P/N 33-TG3MAN-000.

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