

Maxum II Modular Oven Automatic Purge Control Unit
Product Update
PU-002

Revision History

Issue	Date	Reason
001	6/15/2016	Initial Issue
002	11/17/2016	Correct relay labels

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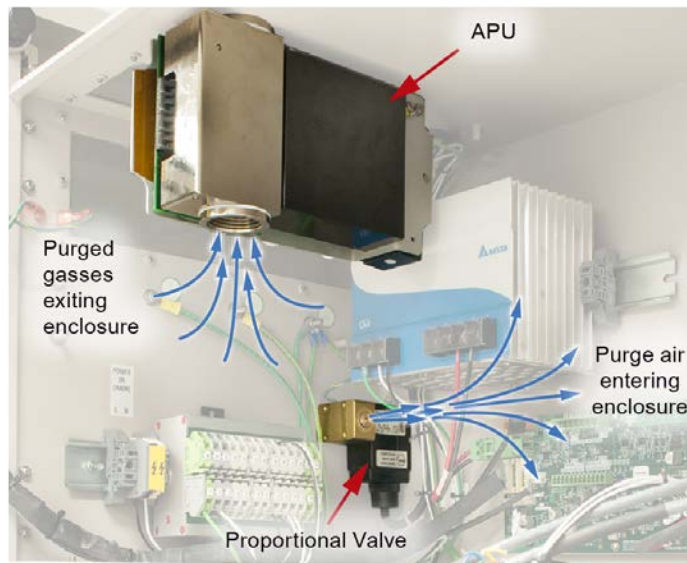
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1.0 Description

This document describes the new options and mounting locations for automatic purge control (px purge) in the Maxum II Modular Oven model (MMO). This option was previously only available with the Maxum II Airless/Airbath Oven (MAA) model.

1.1 APU Overview

The Automatic Purge Unit (APU) is optional and used in locations where it is desired to supply power to the system only when the electronics enclosure is properly purged. Power and all other external wiring that enters the Maxum II is disconnected from the analyzer by the APU whenever purge is lost. This is known as purging with Type X pressurization (px). The general airflow is shown in the photo at right. The APU purging system components are shown in Figure 1 and described in following sections.



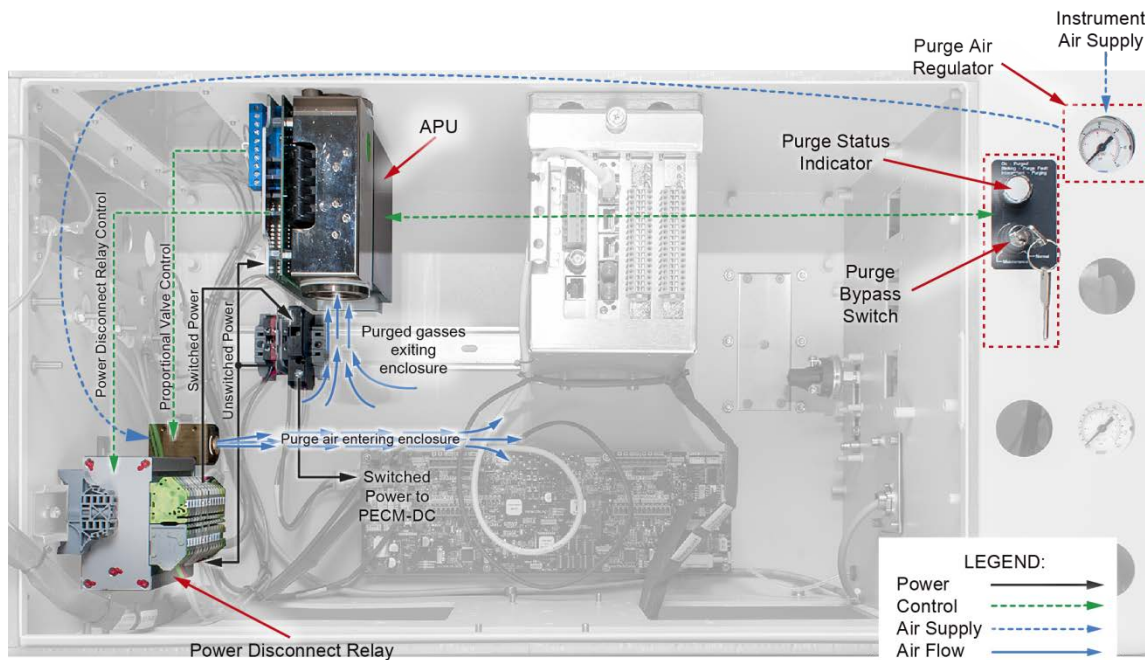


Figure 1. APU Components in MMO Electronics Enclosure

1.2 Purge Air Inlet and Regulator

This is a pressure regulator connected to an instrument-air supply. The regulator is necessary to maintain the input pressure below acceptable values and to prevent excessive pressure from damaging other components in the purging system. The air is connected to the electronics enclosure at the reduced pressure. All instrument air must be clean (free of particulates and flammable vapors) and dry.

1.3 Proportional Valve

This valve provides proportional control of the input air flow. This means that air flow is dependent on the pressure difference between the air inside the electronics enclosure and the ambient outside air (lower pressure difference results in greater flow). Operation of the proportional valve is controlled by the Automatic Purge Unit (APU) which is described below. The proportional valve is located in the left, rear, lower section of the electronics enclosure as shown in Figure 1.

1.4 Automatic Purge Control Unit

This component is designed to control the purge system of the Maxum II analyzer. The APU monitors the internal and external pressures and adjusts flow accordingly via the proportional valve. It also detects when purge pressure is lost and, using the power disconnect relay, disable power to the analyzer. An external signal disconnect relay disconnects external wiring to the analyzer.

The APU also controls the process by which power can be reconnected to the analyzer. If power has been turned off on the analyzer, purge pressure must be restored to the electronics zone and it must be flushed with fresh instrument air for about 8 minutes. This is to ensure that a large volume of air has passed through the sealed analyzer before power is connected. This dilutes and flushes possible flammable gases and vapors from the analyzer before power up.

The APU is mounted inside the electronics enclosure.

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The APU is available configured for one of the following supply voltages:

- A5E34166663 Controller, Purge, 27mBar, 24VDC, -20 to 70°C
- A5E34166673 Controller, Purge, 27mBar, 115VAC, -20 to 70°C
- A5E34166697 Controller, Purge, 27mBar, 230VAC, -20 to 70°C

1.5 Maintenance Switch

This device allows a user to override the power cutoff function of the APU for maintenance purposes. This is only allowed when it has been determined that the ambient atmosphere is safe with no flammable gases or vapors. Because operation of the analyzer without proper purge is a potentially dangerous operation, this switch can be operated only by using a key. The maintenance switch allows power to the analyzer to remain connected without purge pressure. This allows qualified personnel to perform applicable maintenance operations which require the electronics enclosure door to be open. The maintenance switch should be set to "normal" at all times unless applicable maintenance is being conducted.

The maintenance switch is equipped with an LED that indicates whether the enclosure is properly purged (LED on), in the process of purging (LED flashing intermittently), or whether there is a purge fault (LED flashing).

 WARNING
Potential ignition source
The maintenance switch should not be set to "maintenance" unless it has been determined that conditions are safe and flammable gases or vapors are NOT present. The maintenance switch should be set back to "normal" as soon as maintenance operations are complete. Failure to observe these precautions could lead to severe injury or death.

1.6 Exhaust Diffuser and Atmospheric Reference Vent

In a properly purged system, all holes including all tubing and wiring entry points are normally sealed closed with metal fittings or silicone sealants. The electronics enclosure door is also normally closed and sealed with gaskets. The primary exit path for excess pressure is through the APU to the exhaust diffuser on top of the analyzer, shown at right.

Near the exhaust diffuser is a hollow retaining screw that stabilizes the APU and functions as a vent for the atmospheric reference in the APU.



1.7 Signal Disconnect Relay

The signal disconnect relay is mounted externally to the Maxum II and is designed to cut off all external wiring except for power into the Maxum II whenever the control voltage of the disconnect relay is low. The APU uses a power relay mounted inside the electronics enclosure to disconnect power to the analyzer. Both relays are controlled by the APU which sets the control voltage to low when purge pressure is lost.

More than one disconnect relay may be installed, depending on configuration.

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2.0 Custom Application Drawing Package

The Custom Drawing Package delivered with the equipment shows what parts were installed by the factory. If no replacements have been made from installation, then the Custom Drawing Package will provide the user with the part numbers of the items in the unit. If changes have been made, this may still provide information on the type of parts that are currently installed.

Included with your analyzer is a custom application drawing package that provides drawings and information pertinent only to your analyzer. Because the drawing package has specific information concerning the specific Maxum II, you should have this package readily available during installation.

Typical documents included in this package may include:

- System Block and Utility Requirements
- System Outline and Dimensional Drawings
- Sampling System – Plumbing and Spare Parts List
- Sampling System Dimensional Diagram
- Sampling Probe
- Electronic Controller – Internal Layout
- Applicable Wiring Diagrams
- Oven Plumbing Diagram – Sensor Near Electronics
- Recommended Spare Parts - Analyzer
- Manufacturing Test Charts
- Stream Composition Data
- Data Base Information Files