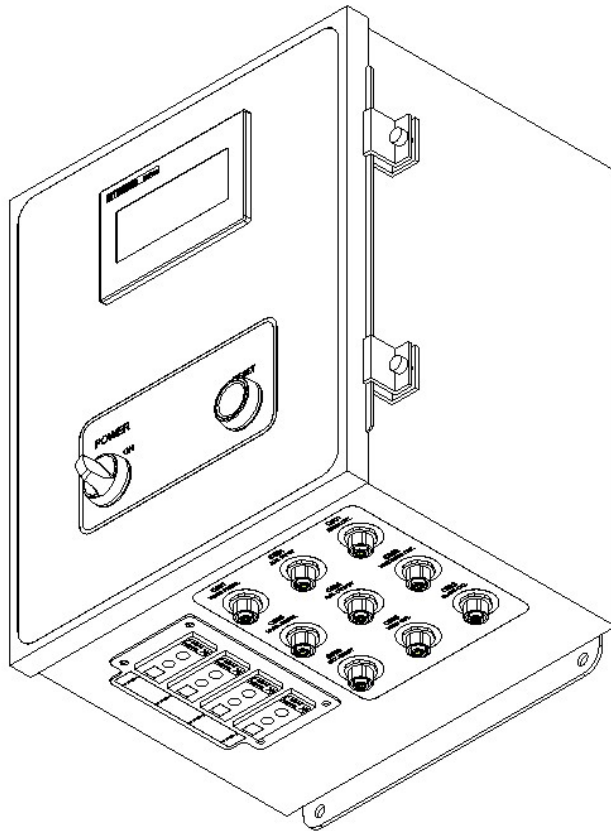


UPMS Ratio Monitor

Component Manual

This manual is applicable to the following models:

- UPMS-3000-3
- UPMS-3000-3C
- UPMS-3000-3T
- UPMS-3000-3CT





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Use of this product confirms that Magnum Venus Products, Inc.'s standard terms and conditions of sale apply.



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Safety & Warning Information

Warnings

Due to the vast number of chemicals that could be used and their varying chemical reactions, the buyer and user of this equipment should determine all factors relating to the fluids used, including any of the potential hazards involved. Particular inquiry and investigation should be made into potential dangers relating to toxic fumes, fires, explosions, reaction times, and exposure of human beings to the individual components or their resultant mixtures. MVP assumes no responsibility for loss, damage, expense or claims for bodily injury or property damage, direct or consequential, arising from the use of such chemical components.

The end user is responsible for ensuring that the end product or system complies with all the relevant laws in the country where it is to be used and that all documentation is adhered to.

Recommended Occupational Safety & Health Act (OSHA) Documentation:

- 1910.94 Pertaining to ventilation
- 1910.106 Pertaining to flammable liquids
- 1910.107 Pertaining to spray finishing operations, particularly paragraph (m), Organic Peroxides and Dual Component Coatings

For Additional information, contact the Occupational Safety and Health Administration (OSHA) at <https://www.osha.gov/about.html>.

Recommended National Fire Protection Association (NFPA) Documentation:

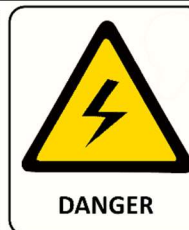
- NFPA No.33 Chapter 14 Organic Peroxides and Dual Component Materials
- NFPA No. 63 Dust Explosion Prevention
- NFPA No. 70 National Electrical Code
- NFPA No. 77 Static Electricity
- NFPA No. 91 Blower and Exhaust System
- NFPA No. 654 Plastics Industry Dust Hazards

Fire Extinguisher – code ABC, rating number 4a60bc using Extinguishing Media –Foam, Carbon Dioxide, Dry Chemical, Water Fog, is recommended for this product and applications.

The following general warnings and guidelines are for the setup, use, grounding, maintenance, and repair of equipment. Additional product-specific warnings may be found throughout this manual as applicable. Please contact your nearest MVP Technical Service Representative if additional information is needed.

Safety Precautions

- Avoid skin contact and inhalation of all chemicals.
- Review Material Safety Data Sheet (MSDS) to promote the safe handling of chemicals in use.
- Restrict the use of all chemicals to designated areas with good ventilation.
- Chemicals are flammable and reactive.
- Noxious fumes released when combusted.
- Operate equipment in a ventilated environment only.
- Uncured liquid resins are highly flammable unless specifically labeled otherwise.
- Cured laminate, accumulations of overspray, and laminate sandings are highly combustible.
- Do not operate or move electrical equipment when flammable fumes are present.
- Ground all equipment.
- If a spark is seen or felt, immediately halt operation. Do not operate the equipment until the issue has been identified and repaired.
- Contaminated catalyst may cause fire or explosion.
- Containers may explode if exposed to fire / heat.
- Use and store chemicals away from heat, flames, and sparks.
- Do not smoke in work areas or near stored chemicals.
- Do not mix Methyl Ethyl Ketone Peroxide (MEKP) with materials other than polyethylene.
- Do not dilute MEKP.
- Keep food and drink away from work area.



Physical Hazards

- Never look directly into the spray gun fluid tip. Serious injury or death can result.
- Never aim the spray gun at or near another person. Serious injury or death can result.
- Chemical compounds can be severely irritating to the eyes and skin.
- Inhalation, ingestion, or injection may damage internal organs and lead to pulmonary disorders, cancers, lymphomas, and other diseases or health conditions.
- Other potential health effects include: irritation of the eyes and upper respiratory tract, headache, light-headedness, dizziness, confusion, drowsiness, nausea, vomiting, and occasionally abdominal pain.
- Eye contact: Immediately flush with water for at least 15 minutes and seek immediate medical attention.
- Skin Contact: Immediately wash with soap and water and seek immediate medical attention.
- Inhalation: Move the person to fresh air and seek immediate medical attention.
- Do not remove shields, covers, or safety features on equipment that is in use.
- Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can shoot liquid through the skin.
- Keep hands and body parts away from any moving equipment or components.
- Do not stand under plunger
- An improperly loaded drum may lead to an imbalance, causing a unit to tip over



Personal Protective Equipment (PPE)

- MVP recommends the use of personal safety equipment with all products in our catalog.
- Wear safety goggles, hearing protection, a respirator, and chemical resistant gloves.
- Wear long sleeve shirts or jackets and pants to minimize skin exposure.
- PPE should be worn by operators and service technicians to reduce the risk of injury.



For Additional information, contact the Occupational Safety and Health Administration (OSHA). <https://www.osha.gov/about.html>

Symbol Definitions



Indicates the risk of contact with chemicals that are hazardous, which may lead to injury or death.



Indicates the risk of contact with voltage / amperage that may lead to serious injury or death



Indicates that the materials being used are susceptible to combustion



Indicates the risk of contact with moving components that may lead to serious injury or death.



Indicates that the system or component should be grounded before proceeding with use or repair.



Indicates the use of lit cigarettes or cigars is prohibited, because the materials being used are susceptible to combustion.



Indicates that the materials and/or the process being performed can lead to ignition and explosion.



A recommendation for the use of Personal Protective Equipment (PPE) before using or repairing the product.

Polymer Matrix Materials: Advanced Composites

Potential health hazards associated with the use of advanced composites can be controlled through the implementation of an effective industrial hygiene and safety program.

https://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_1.html#t_iii:1_1

| Resins | | |
|--------------------------------------|--|---|
| Composite Component | Organ System Target (Possible Target) | Known (Possible) Health Effect |
| Epoxy resins | Skin, lungs, eyes | Contact and allergic dermatitis, conjunctivitis |
| Polyurethane resins | Lungs, skin, eyes | Respiratory sensitization, contact dermatitis, conjunctivitis |
| Phenol formaldehyde | Skin, lungs, eyes | As above (potential carcinogen) |
| Bismaleimides (BMI) | Skin, lungs, eyes | As above (potential carcinogen) |
| Polyamides | Skin, lungs, eyes | As above (potential carcinogen) |
| Reinforcing materials | | |
| Composite Component | Organ System Target (Possible Target) | Known (Possible) Health Effect |
| Aramid fibers | Skin (lungs) | Skin and respiratory irritation, contact dermatitis (chronic interstitial lung disease) |
| Carbon/graphite fibers | Skin (lungs) | As noted for aramid fibers |
| Glass fibers (continuous filament) | Skin (lungs) | As noted for aramid fibers |
| Hardeners and curing agents | | |
| Composite Component | Organ System Target (Possible Target) | Known (Possible) Health Effect |
| Diaminodiphenylsulfone | N/A | No known effects with workplace exposure |
| Methylenedianiline | Liver, skin | Hepatotoxicity, suspect human carcinogen |
| Other aromatic amines | | |
| Composite Component | Organ System Target (Possible Target) | Known (Possible) Health Effect |
| Meta-phenylenediamine (MPDA) | Liver, skin (kidney, bladder) | Hepatitis, contact dermatitis (kidney and bladder cancer) |
| Aliphatic and cyclo-aliphatic amines | Eyes, skin | Severe irritation, contact dermatitis |
| Polyaminoamide | Eyes, skin | Irritation (sensitization) |
| Anhydride | Eyes, lungs, skin | Severe eye and skin irritation, respiratory sensitization, contact dermatitis |

Catalyst - Methyl Ethyl Ketone Peroxide (MEKP)

MEKP is among the more hazardous materials found in commercial channels. The safe handling of the “unstable (reactive)” chemicals presents a definite challenge to the plastics industry. The highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal. MEKP is a single chemical. Various polymeric forms may exist which are more or less hazardous with respect to each other. These differences may arise not only from different molecular structures (all are, nevertheless, called “MEKP”) and from possible trace impurities left from the manufacture of the chemicals, but may also arise by contamination of MEKP with other materials in its storage or use. Even a small amount of contamination with acetone, for instance, may produce an extremely shock-sensitive and explosive compound.



WARNING

Contamination with promoters, materials containing promoters (such as laminate sandings), or with any readily oxidizing material (such as brass or iron) will cause exothermic redox reactions which can be explosive in nature. Heat applied to MEKP or heat buildup from contamination reactions can cause the material to reach its Self-Accelerating Decomposition Temperature (SADT).

Researchers have reported measuring pressure rates-of-rise well over 100,000 psi per second when certain MEKP's reach their SADT. For comparison, the highest-pressure rate-of-rise listed in NFPA Bulletin NO.68, “Explosion Venting”, is 12,000 psi per second for an explosion of 12% acetylene and air. The maximum value listed for a hydrogen explosion is 10,000 psi per second. Some forms of MEKP, if allowed to reach their SADT, will burst even an open topped container. This suggests that it is not possible to design a relief valve to vent this order of magnitude of pressure rate-of-rise. The user should be aware that any closed container, be it a pressure vessel, surge chamber, or pressure accumulator, could explode under certain conditions. There is no engineering substitute for care by the user in handling organic peroxide catalysts. If, at any time, the pressure relieve valve on top of the catalyst tank should vent, the area should be evacuated at once and the fire department called. The venting could be the first indication of a heat, and therefore, pressure build-up that could eventually lead to an explosion. Moreover, if a catalyst tank is sufficiently full when the pressure relief valve vents, some catalyst may spray out, which could cause eye injury. For this reason, and many others, anyone whose job puts them in an area where this vented spray might go, should always wear full eye protection even when laminating operations are not taking place.

Safety in handling MEKP depends to a great extent on employee education, proper safety instructions, and safe use of the chemicals and equipment. Workers should be thoroughly informed of the hazards that may result from improper handling of MEKP, especially regarding contamination, heat, friction and impact. They should be thoroughly instructed regarding the proper action to be taken in the storage, use, and disposal of MEKP and other hazardous materials used in the laminating operation. In addition, users should make every effort to:

- Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.
- Keep MEKP away from heat, sparks, and open flames.
- Prevent contamination or MEKP with other materials, including polyester over spray and sandings, polymerization accelerators and promoters, brass, aluminum, and non-stainless steels.

- Never add MEKP to anything that is hot, since explosive decomposition may result.
- Avoid contact with skin, eyes, and clothing. Protective equipment should be worn at all times. During clean-up of spilled MEKP, personal safety equipment, gloves, and eye protection must be worn. Firefighting equipment should be at hand and ready.
- Avoid spillage, which can heat up to the point of self-ignition.
- Repair any leaks discovered in the catalyst system immediately, and clean-up the leaked catalyst at once in accordance with the catalyst manufacturer's instructions.
- Use only original equipment or equivalent parts from Magnum Venus Products in the catalyst system (i.e.: hoses, fitting, etc.) because a dangerous chemical reaction may result between substituted parts and MEKP.
- Catalyst accumulated from the purging of hoses or the measurement of fluid output deliveries should never be returned to the supply tank, such catalyst should be diluted with copious quantities of clean water and disposed of in accordance with the catalyst manufacturer's instructions.

The extent to which the user is successful in accomplishing these ends and any additional recommendations by the catalyst manufacturer determines largely the safety that will be present in his operation.

Clean-Up Solvents and Resin Diluents



WARNING

A hazardous situation may be present in your pressurized fluid system! Hydro carbon solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.). An explosion could cause serious injury, death, and/or substantial property damage. Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon solvents. Some Magnum Venus Products spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon solvents.

There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.

- | | |
|--|--|
| 1. The presence of HHC solvents. | 1,1,1 – Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up flushing. |
| 2. Aluminum or Galvanized Parts. | Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature. |
| 3. Equipment capable of withstanding pressure. | When HHC solvent contact aluminum or galvanized parts inside a closed container such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions. When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal; any amount of aluminum is too much. |

- The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component or a coating material. There is no known inhibitor that is effective under all circumstances. Mixing HHC solvents with other materials or solvents such as MEKP, alcohol, or toluene may render the inhibitors ineffective.
- The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. The possible presence of water in reclaimed solvents could also feed the reaction.
- Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys to safely prevent the chemical reaction under all circumstances.
- Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many state implementation plans as Volatile Organic Compounds (VOCs), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.



WARNING

Do not use Halogenated Hydrocarbon (HHC) solvents in pressurized fluid systems having aluminum or galvanized wetted parts.

Magnum Venus Products is aware of NO stabilizers available to prevent HHC solvents from reaction under all conditions with aluminum components in closed fluid systems. HHC solvents are dangerous when used with aluminum components in a closed fluid system.

- Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon solvents.
- Magnum Venus Products recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.
- If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.
- Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.
- You should only allow enough solvent for one day's use in your laminating area.
- NO SMOKING signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.
- Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No.91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.
- Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

Catalyst Diluents

Magnum Venus Products spray-up and gel-coat systems currently produced are designed so that catalyst diluents are not required. Magnum Venus Products therefore recommends that diluents not be used to avoid possible contamination which could lead to an explosion due to the handling and mixing of MEKP and diluents. In addition, it eliminates any problems from the diluent being contaminated through rust particles in drums, poor quality control on the part of the diluents suppliers, or any other reason. If diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferably the supplier should premix the catalyst to prevent possible “on the job” contamination while mixing.



WARNING

If diluents are not used, remember that catalyst spillage and gun, hose, and packing leaks are potentially more hazardous since each drop contains a higher concentration of catalyst and will therefore react more quickly with overspray and the leak.

Cured Laminate, Overspray and Laminate Sandings Accumulation

- Remove all accumulations of overspray, Fiberglass Reinforced Plastic (FRP) sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire; in addition, the fire would burn hotter and longer.
- Floor coverings, if used, should be non-combustible.
- Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, oversprayed chop or resin, FRP sandings or any other material with MEKP.

To prevent spillage and leakage, you should:

- | | |
|--|---|
| 1. Maintain your Magnum Venus Products System. | Check the gun several times daily for catalyst and resin packing or valve leaks. REPAIR ALL LEAKS IMMEDIATELY. |
| 2. Never leave the gun hanging over or lying inside the mold. | A catalyst leak in this situation would certainly damage the part, possibly the mold, and may cause a fire. |
| 3. Inspect resin and catalyst hoses daily for wear or stress at the entry and exits of the boom sections and at the hose and fittings. | Replace if wear or weakness is evident or suspected. |
| 4. Arrange the hoses and fiberglass roving guides so that the fiberglass strands DO NOT rub against any of the hoses at any point. | If allowed to rub, the hose will be cut through, causing a hazardous leakage of material which could increase the danger of fire. Also, the material may spew onto personnel in the area. |

Toxicity of Chemicals

- Magnum Venus Products recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No.33, Chapter 14, and NFPA No.91.
- Contact your chemical supplier(s) and determine the toxicity of the various chemicals used as well as the best methods to prevent injury, irritation and danger to personnel.
- Also determine the best methods of first aid treatment for each chemical used in your plant.

Equipment Safety

Magnum Venus Products suggest that personal safety equipment such as EYE GOGGLES, GLOVES, EAR PROTECTION, and RESPIRATORS be worn when servicing or operating this equipment. Ear protection should be worn when operating a fiberglass chopper to protect against hearing loss since noise levels can be as high as 116 dB (decibels). This equipment should only be operated or serviced by technically trained personnel!



CAUTION

Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can cause serious injury by shooting liquid through the skin. NEVER LOOK DIRECTLY INTO THE GUN SPRAY TIP OR POINT THE GUN AT OR NEAR ANOTHER PERSON OR AN ANIMAL.



DANGER

Contaminated catalyst may cause fire or explosion. Before working on the catalyst pump or catalyst accumulator, wash hands and tools thoroughly. Be sure work area is free from dirt, grease, or resin. Clean catalyst system components with clean water daily.



DANGER

Eye, skin, and respiration hazard. The catalyst MEKP may cause blindness, skin irritation, or breathing difficulty. Keep hands away from face. Keep food and drink away from work area.

Treatment of Chemical Injuries



CAUTION

Refer to your catalyst manufacturer's safety information regarding the safe handling and storage of catalyst. Wear appropriate safety equipment as recommended.

Great care should be used in handling the chemicals (resins, catalyst and solvents) used in polyester systems. Such chemicals should be treated as if they hurt your skin and eyes and as if they are poison to your body. For this reason, Magnum Venus Products recommends the use of protective clothing and eye wear in using polyester systems. However, users should be prepared in the event of such an injury.

Precautions include:

1. Know precisely what chemicals you are using and obtain information from your chemical supplier on what to do in the event the chemical gets onto your skin or into the eyes, or if swallowed.
2. Keep this information together and easily available so that it may be used by those administering first aid or treating the injured person.
3. Be sure the information from your chemical supplier includes instructions on how to treat any toxic effects the chemicals have.

**WARNING**

Contact your doctor immediately in the event of an injury. If the product's MSDS includes first aid instructions, administer first aid immediately after contacting a doctor.

Fast treatment of the outer skin and eyes that contact chemicals generally includes immediate and thorough washing of the exposed skin and immediate and continuous flushing of the eyes with lots of clean water for at least 15 minutes or more. These general instructions of first aid treatment may be incorrect for some chemicals; you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

Emergency Stop Procedure

In an emergency, follow these steps to stop a system:

1. The ball valve located where the air enters the power head of the resin pump, should be moved to the “OFF” or closed position.

Note ***The “open” or “on” position is when the ball valve handle is parallel (in line) with the ball valve body. The “closed” or “off” position is when the ball valve handle is perpendicular (across) the ball valve body.***

2. Turn all system regulators to the “OFF” position (counter-clockwise) position.
3. Verify / secure the catalyst relief line, located on the catalyst relief valve.
4. Verify / secure the resin return line, located on the resin filter.
5. Place a container under the resin pump ball valve to catch ejected resin.
6. Locate the ball valve on the resin pump.
7. Rotate the ball valve 90 degrees to the “On” or open position.

Grounding

Grounding an object means providing an adequate path for the flow of the electrical charge from the object to the ground. An adequate path is one that permits charge to flow from the object fast enough that it will not accumulate to the extent that a spark can be formed. It is not possible to define exactly what will be an adequate path under all conditions since it depends on many variables. In any event, the grounding means should have the lowest possible electrical resistance.

Grounding straps should be installed on all loose conductive objects in the spraying area. This includes material containers and equipment. Magnum Venus Products recommends grounding straps be made of AWG No.18 stranded wire as a minimum and the larger wire be used where possible. NFPA Bulletin No77 states that the electrical resistance of such a leakage path should be 1 meg ohm (10^6 ohms) or less.

**CAUTION**

Whenever flammable or combustible liquids are transferred from one container to another, or from one container to the equipment, both containers or container and equipment shall be effectively bonded and grounded to dissipate static electricity. For further information, see National Fire Protection Association (NFPA) 77, titled “Recommended Practice on Static Electrical”. Refer especially to section 7-7 titled “Spray Application of Flammable and Combustible Materials”.

Introduction

The UPMS Ratio Monitor is a stand-alone data monitoring system that can monitor all aspect of a two-component spray, pour, or injection system. The unit includes a 110 decibel alarm and light that can be programmed to activate when any given parameter is out of the pre-programmed specification.

This manual provides information for the operation, maintenance, and simple repair of the MVP UPMS Ratio Monitor. The following procedures are included:

- Step-by-step assembly and disassembly
- Installation instructions
- Step-by-step operation instructions

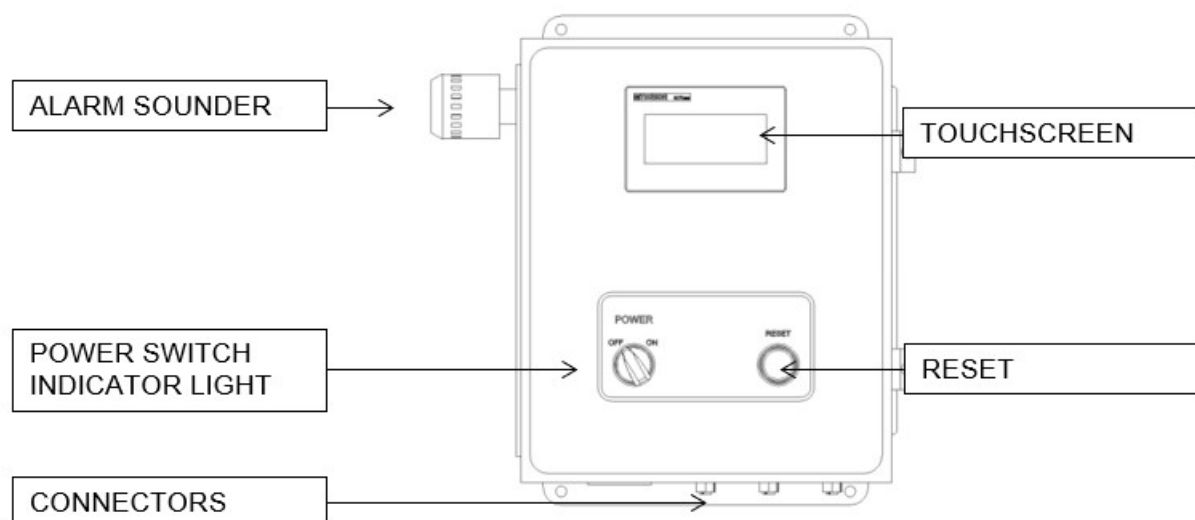


Please read this manual carefully and retain for future reference. Follow the steps in the order given, otherwise you may damage the equipment or injure yourself.

Features

The unit uses an electro-mechanical sensor (either magnetic or proximity) to keep track of fractional outputs. In order to use the ratio option of the program, both fluids must be fitted with a sensor of some type. It can be programmed for settings and options dependent on application. There are options for glass, pressure, and temperature inputs. Data recording is possible via optional communications module software.

The UPMS-3000 uses a first-in-first-out (FIFO) system for consistency of reporting ratios. Each channel averages 10 readings that are stored in memory and updated every 1.5 seconds to ensure that small deviations do not cause the alarms or warnings to be activated constantly.



| | UPMS-3000 | UPMS-3000-3C | UPMS-3000-3T | UPMS-3000-3CT |
|------------------------|-----------|--------------|--------------|---------------|
| 2X HIGH SPEED INPUTS | X | X | X | X |
| EXTERNAL ALARM INPUT | X | X | X | X |
| TRANSDUCER INPUTS | X | X | X | X |
| COMMUNICATIONS | X(2) | X | X(2) | X |
| 4X THERMOCOUPLE INPUTS | | | X | X |
| DATALOGGING | | X(1) | | X(1) |

(1) Only when data-logging software has been purchased separately.

(2) Units can be retrofitted for communication options.

Installing the Unit

The unit comes with hardware to mount it to a 2" column, which is standard on most MVP systems. It will mount to any flat surface that is suitable to support the weight of the unit.

Refer to the label on the panel for proper electrical supply connections. The unit is 24 vdc based system; do not connect any accessory that is not MVP approved.



WARNING

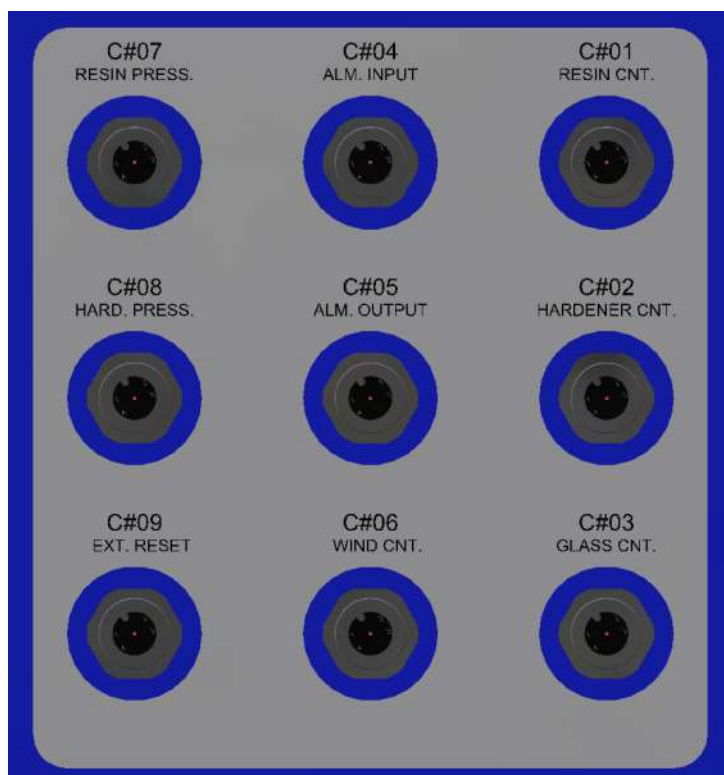
Because of the variety of electrical codes in various parts of the world, MVP does not supply electrical connectors to any of the hoses mentioned in this manual. The electrical connection should be made by a qualified electrician per codes of the local jurisdiction. Additionally, self-regulating hoses must be installed on a GFCI circuit for protection. Failure to do so voids all warranty and liability directed at MVP or its subsidiaries.

The end user is responsible for ensuring that the end product or system complies with all relevant laws in the country where it is to be used and that all documentation is adhered to.

Note *Due to the sensitivity of the sensor cables used on the unit, proper installation of the cables is very important. Cables must be kept as far away from electrical sources (ungrounded conduit, PWM drives, tach generators, etc.) as possible to avoid creating interference with the input signals. In some extreme instances, EMI filters may need to be installed to make the unit work properly.*

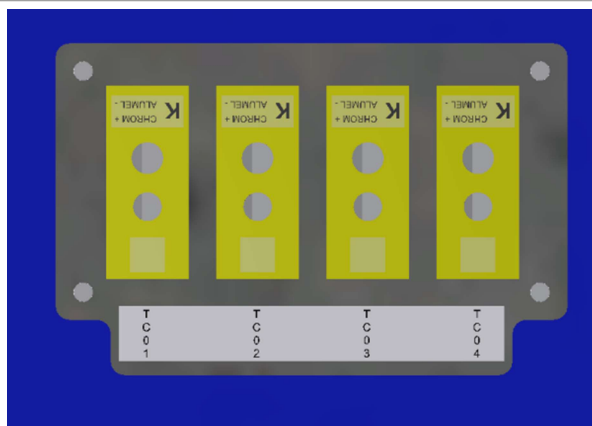
Connections

All connections are made through the bottom of the enclosure with M12 bulkhead connectors and thermocouple jacks. All connections are marked and should be connected to the appropriate accessory. Improper connections could result in damage to the unit or any accessories plugged into the unit.



Electrical Connections

| Connection | Description | Voltage |
|--------------------|--|-----------------|
| C#01 RESIN CNT. | Connection for stroke counter or flow meter | 24 VDC |
| C#02 HARDENER CNT. | Connection for stroke counter or flow meter | 24 VDC |
| C#03 GLASS CNT. | Connection for chop glass counter | 24 VDC |
| C#04 ALM. INPUT | Connection for catalyst sensor | 24 VDC |
| C#05 ALM. OUTPUT | Connection for external accessory dependent on alarm trigger | 24 VDC |
| C#06 WIND CNT. | Connection for wind count sensor | 24 VDC |
| C#07 RESIN PRESS. | Connection for pressure transducer | 0-5 or 0-10 VDC |
| C#08 HARD. PRESS. | Connection for pressure transducer | 0-5 or 0-10 VDC |
| C#09 EXT. RESET | Connection For External Reset Button | CONTACT |



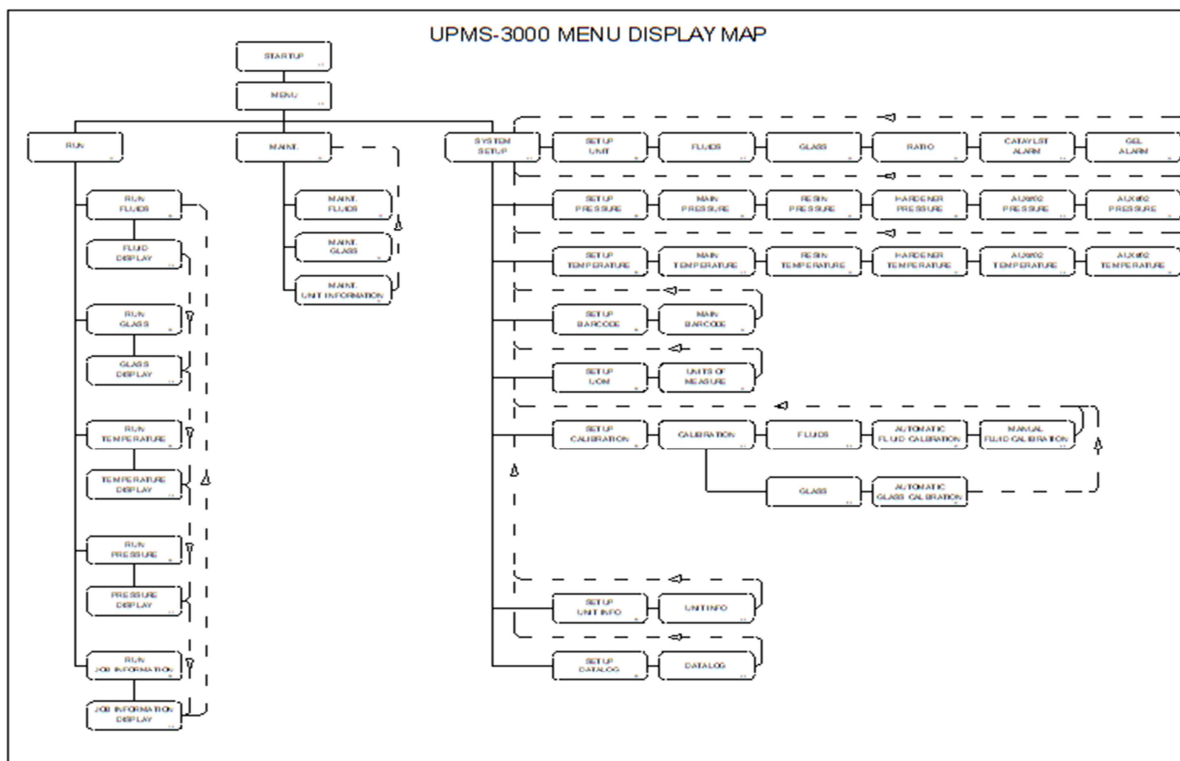
Thermocouple Connections

| Connection | Description | Type |
|------------|--------------------------------------|------|
| TC01 | RESIN Connection for thermocouple | J |
| TC02 | HARDENER Connection for thermocouple | J |
| TC03 | AUX#01 Connection for thermocouple | J |
| TC04 | AUX#02 Connection for thermocouple | J |

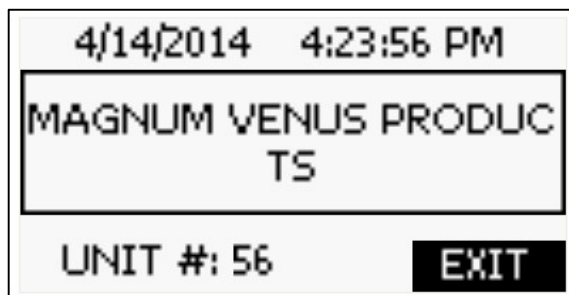
Operating the Unit

The UPMS-3000 is operating via the touchscreen mounted on the front of the unit. Setup the unit by stepping through the touchscreen menus.

The menus are organized into 3 main components: RUN, MAINT, and SETUP. Due to the limitation of screen size, not all screens are labelled on the human-machine interface (HMI).



Start Up Screen



| Control Parameters | |
|--------------------|-----------------------------|
| EXIT | Exits to MENU screen |
| Status Parameters | |
| TIME | Current time |
| DATE | Current date |
| UNIT NUMBER | Number assigned to the unit |

Menu Screen

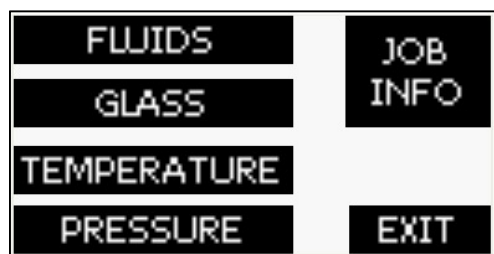


| Control Parameters | |
|--------------------|---------------------------|
| RUN | Opens RUN screen |
| MAINT | Opens MAINTENANCE screen |
| SETUP | Opens SYSTEM SETUP screen |
| Status Parameters | |
| NONE | |

Run Displays

Run Screen

From the RUN screen you can access any of the information screens. Once the information display has been activated you must cycle through to the last screen before exiting back to the RUN screen.



| Control Parameters | |
|--------------------|-------------------------------|
| FLUIDS | Opens FLUID INFORMATION |
| GLASS | Opens GLASS INFORMATION |
| TEMPERATURE | Opens TEMPERATURE INFORMATION |
| PRESSURE | Opens PRESSURE INFORMATION |
| JOB INFO | Opens JOB INFORMATION |
| EXIT | Returns to MENU screen |
| Status Parameters | |
| NONE | |

Fluid Information Display

The Fluid Information screen displays all of the current information on the fluid delivery of the system.

| | | | |
|-------|---------|-----|--------|
| RESIN | 24772.6 | GAL | RESET |
| HARD. | 24772.6 | GAL | UPDATE |
| RATIO | 1.00 | :1 | |
| RATE | 6.79 | | —> |

| Control Parameters | |
|--------------------|---|
| RESET | Resets counter to zero |
| UPDATE | Updates real time info in case of deficiency dispensing; will update to the current info without resetting overall counters |
| Status Parameters | |
| RESIN | Current amount of resin dispensed |
| HARD. | Current amount of hardener dispensed |
| RATIO | Current ratio machine is running at |
| RATE | Current rate machine is running at |

Note *The ratio display is only updated every 1.5 seconds due to the possibility of high resolution flow meters being installed on the system. With the large amounts of counts per unit/second, the system takes a snapshot of the ratio to maintain current information. This eliminates the system reporting a deviation of ratio constantly up a short duration out of ratio event. Due to this function, the display will not always match the actual resin/hardener ratio pumped.*

Glass Information Display

The Glass Information screen displays all of the current information on the glass delivery of the system. It is not currently used by any MVP system.

Temperature Information Display

| | | |
|-------------|---|-----|
| RESIN TEMP. | ■ | 0 C |
| HARD TEMP. | ■ | 0 C |
| AUX#1 TEMP. | ■ | 0 C |
| AUX#2 TEMP. | ■ | 0 C |
| | | —> |

| Control Parameters | |
|--------------------|---|
| NONE | |
| Status Parameters | |
| RESIN TEMP | Current temperature of resin dispensed |
| HARD TEMP | Current temperature of hardener dispensed |
| AUX#1 TEMP | Current temperature of the Aux#1 thermocouple |
| AUX#2 TEMP | Current temperature of the Aux#2 thermocouple |

Note *The indicators in front of the temperature reading for each display will be visible if the temperature is out of the programmed range.*

Pressure information Display

The Pressure Information screen displays all of the current information on pressures of the system.

| | | |
|--------------|---|-------|
| RESIN PRESS. | ■ | 0 BAR |
| HARD PRESS. | ■ | 0 BAR |
| PRESS. DIFF. | ■ | 0 BAR |
| EXIT | | |

| Control Parameters | |
|--------------------|---|
| EXIT | Return to MENU screen |
| Status Parameters | |
| RESIN PRESS | Current pressure of resin |
| HARD PRESS | Current pressure of hardener |
| PRESS DIFF | Pressure differential of resin and hardener |

Note *The indicators in front of the pressure reading for each display will be visible if the temperature is out of the programmed range.*

Job Information Display

The Job Information screen allows the user to input 2 variables for tracking via the data logging system.

| | |
|-------------|----------------------|
| ID#1 | <input type="text"/> |
| ID#2 | <input type="text"/> |
| MEMORY | 0 |
| | 0 |
| EXIT | SET |

| Control Parameters | |
|--------------------|---|
| ID#1 | Current pressure of resin |
| ID#2 | Current pressure of hardener |
| EXIT | Returns to MENU screen |
| SET | Sends data to system for storage |
| Status Parameters | |
| MEMORY | After info is sent via SET button, displays current data stored |

Maintenance Displays

Maintenance Screen

| | |
|-------------|-----------------------|
| FLUIDS | AUDIBLE OFF |
| GLASS | |
| UNIT INFO | |
| EXIT | |

| Control Parameters | |
|--------------------|-----------------------------------|
| FLUIDS | Opens FLUID MAINTENANCE |
| GLASS | Opens GLASS MAINTENANCE |
| UNIT INFO | Opens UNIT INFORMATION |
| AUDIBLE ON/OFF | Activate/deactivate sounder/light |
| EXIT | Exits to MENU screen |
| Status Parameters | |
| NONE | |

Maintenance Fluid Display

| USED LIMIT | | | |
|-------------------|--------------------------------|----------------------|-----|
| FLUID A | <input type="text" value="0"/> | <input type="text"/> | RST |
| FLUID B | <input type="text" value="0"/> | <input type="text"/> | RST |
| SERVICE NEEDED!!! | | | |
| SET | | → | |

Control Parameters

| | |
|---------------|---|
| Fluid A Limit | Sets limit of dispensed material |
| Fluid B Limit | Sets limit of dispensed material |
| Fluid A RST | Resets material usage for fluid section A |
| Fluid B RST | Resets material usage for fluid section B |
| Set | Sets limit to memory |

Status Parameters

| | |
|----------------|---|
| Fluid A Used | Amount of dispensed material since last reset |
| Fluid B Used | Amount of dispensed material since last reset |
| Service Needed | Indicates service is needed on one or both fluid sections |

Maintenance Glass Display

Not currently used on MVP systems.

Maintenance Unit Information Display

| |
|-------------|
| UNIT #: 56 |
| INSTALL: 0 |
| RUN TIME: 0 |
| HMI: .00 |
| PLC: .00 |
| F/W: 01.70 |
| EXIT |

Control Parameters

| | |
|------|----------------------------|
| Exit | Return to MAINTANCE screen |
|------|----------------------------|

Status Parameters

| | |
|----------|------------------------------------|
| Unit # | Unit number assigned in unit setup |
| Install | Installation date |
| Run Time | Time unit has been running |
| HMI | HMI program version |
| PLC | PLC program version |
| F/W | Firmware version of HMI |

Setting Up the Unit

From the System Setup screen you can access any of the unit setup screens. The setup screens are used to turn certain features on or off and setup the operation parameters of the unit.

Note *Once a setup display has been activated you must cycle through to the last screen before exiting back to the SETUP menu.*

Note *Failure to enter correct information will result in faulty display information or faulty operation of the unit.*

System Setup Menu

| | | |
|-------|--------|-------|
| UNIT | PRESS. | TEMP. |
| BCODE | UOM | CAL |
| DLOG | | |
| INFO | EXIT | TEST |

| Control Parameters | |
|--------------------|------------------------------|
| UNIT | Opens SETUP UNIT screen |
| PRESS. | Opens SETUP PRESSURE screen |
| TEMP. | Opens SETUP TEMPERATURE |
| BCODE | Opens SETUP BARCODE screen |
| UOM | Opens SETUP UOM screen |
| CAL | Opens SETUP CALIBRATION |
| INFO | Opens SETUP UNIT INFO screen |
| DLOG | Opens SETUP DIALOG screen |
| TEST | Opens TEST screen |
| EXIT | Exits to MENU screen |
| Status Parameters | |
| None | |

Setup Unit

Note *The Fluids Setup and Glass Setup screens are not used and will show only as disabled. Use the arrow button to cycle through to the next screen.*



Ratio Setup

| | | | |
|--|----------------------|-----|----------------------|
| OPT. | <input type="text"/> | | ALARM |
| | H | L | DELAY |
| WARN. | <input type="text"/> | .00 | <input type="text"/> |
| ALARM | <input type="text"/> | .00 | <input type="text"/> |
| <div> DISABLED SET → </div> | | | |

Once the parameters have been entered into the high and low settings as percentages, pressing the SET button will calculate the high and low ratios allowed and display them as ratio-metric numbers. If the numbers in the displays are percentages instead of actual ratios, the parameters have not been saved and will not be accepted.

The alarm display time is the time between checks for proper ratios being dispensed. If it is set too low, very small deviations that have not been filtered by the FIFO buffers may activate the alarms. If it is set too long, an off ratio situation may not be detected for an extreme amount of time. Normally a 200 millisecond delay is optimal for MVP pumping systems.

| Control Parameters | |
|--------------------|--|
| OPT | Sets the optimal ratio the unit should look for |
| WARN. H | Sets high limit warning % |
| WARN. L | Sets low limit warning % |
| ALARM H | Sets high limit alarm % |
| ALARM L | Sets low limit alarm % |
| ALARM DELAY | Sets time warning/alarm must be active before sounding alarm |
| ENABLE/DISABLE | Turns ratio alarm on or off |
| SET | Sets entered parameters into memory |
| Status Parameters | |
| NONE | |

Note *The Catalyst Alarm and Gel Alarm screens are not used and will only show as disabled. Use the arrow button to cycle through to the next screen.*



Pressure Setup

Pressure transducers must be set up with all parameters to read correctly. Input the transducer manufacturer information into the following screens to calibrate the unit. Transducers must be a 5 or 10 VDC output.

Main Pressure

| | |
|------------|----|
| TD#00 VOLT | 5V |
| TD#01 VOLT | 5V |
| → | |

Control Parameters

| | |
|------------|--|
| TD#00 VOLT | Sets voltage output for resin pressure transducer |
| TD#01 VOLT | Sets voltage output for hardener pressure transducer |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Resin Pressure

| RESIN PRESSURE | |
|----------------|--------|
| LOW LIMIT | ENABLE |
| HIGH LIMIT | SET |
| MAX RNGE | → |

Control Parameters

| | |
|------------|--------------------------------------|
| LOW LIMIT | Low limit alarm threshold |
| HIGH LIMIT | High limit alarm threshold |
| MAX RANGE | Maximum pressure range of transducer |
| ENABLE | Enable transducer |
| SET | Set parameters into memory |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Hardener Pressure

| HARDENER PRESSURE | |
|-------------------|--------|
| DIFF. | ENABLE |
| LOW LIMIT | SET |
| HIGH LIMIT | SET |
| MAX RNGE | EXIT |

Control Parameters

| | |
|------------|--|
| DIFF. | Differential threshold between resin and hardener pressure |
| LOW LIMIT | Low limit alarm threshold |
| HIGH LIMIT | High limit alarm threshold |
| MAX RANGE | Maximum pressure range of transducer |
| ENABLE | Enable transducer |
| SET | Set parameters into memory |
| EXIT | Exits to SYSTEM SETUP |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Temperature Setup

Main Temperature

| | |
|---|--|
| TEMPERATURE | |
| MASTER DISABLED | |
| <div style="text-align: right;">→</div> | |

Control Parameters

| | |
|------------------------------|---|
| MASTER ENABLE/ DISABLE | Enables or disables temperature option |
|------------------------------|---|

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Resin Temperature

| | |
|------------------|--------|
| THERMOCOUPLE #01 | |
| | ENABLE |
| OFFSET | |
| LOW LIMIT | |
| HIGH LIMIT | → |

Control Parameters

| | |
|------------|-----------------------------|
| OFFSET | Thermocouple tuning offset |
| LOW LIMIT | Low limit alarm threshold |
| HIGH LIMIT | High limit alarm threshold |
| ENABLE | Enable thermocouple channel |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Hardener Temperature

| | |
|------------------|--------|
| THERMOCOUPLE #02 | |
| | ENABLE |
| OFFSET | |
| LOW LIMIT | |
| HIGH LIMIT | → |

Control Parameters

| | |
|------------|-----------------------------|
| OFFSET | Thermocouple tuning offset |
| LOW LIMIT | Low limit alarm threshold |
| HIGH LIMIT | High limit alarm threshold |
| ENABLE | Enable thermocouple channel |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

AUX#03 Temperature

| | |
|------------------|--------|
| THERMOCOUPLE #03 | |
| | ENABLE |
| OFFSET | |
| LOW LIMIT | |
| HIGH LIMIT | → |

Control Parameters

| | |
|------------|-----------------------------|
| OFFSET | Thermocouple tuning offset |
| LOW LIMIT | Low limit alarm threshold |
| HIGH LIMIT | High limit alarm threshold |
| ENABLE | Enable thermocouple channel |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

AUX#04 Temperature

| | |
|------------------|--------|
| THERMOCOUPLE #04 | |
| OFFSET | ENABLE |
| LOW LIMIT | |
| HIGH LIMIT | EXIT |

Control Parameters

| | |
|------------|-----------------------------|
| OFFSET | Thermocouple tuning offset |
| LOW LIMIT | Low limit alarm threshold |
| HIGH LIMIT | High limit alarm threshold |
| ENABLE | Enable thermocouple channel |
| EXIT | Exits to SYSTEM SETUP menu |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Barcode Setup

| | | |
|----------|-----|------|
| | | |
| DISABLED | SET | EXIT |

Control Parameters

| | |
|------|----------------------------|
| EXIT | Exits to SYSTEM SETUP menu |
|------|----------------------------|

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Note The barcode screen is not used for MVP systems and is factory disabled.

Units of Measure (UOM) Setup

| | | |
|-----|-------------|------|
| LBS | UOM | |
| C | TEMPERATURE | |
| BAR | PRESSURE | SET |
| | | EXIT |

Control Parameters

| | |
|-------------|----------------------------|
| UOM | Choose unit of measure |
| TEMPERATURE | Choose unit of temperature |
| PRESSURE | Choose unit of pressure |
| SET | Set parameters into memory |
| EXIT | Exits to SYSTEM SETUP |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Unit Info Setup

| | |
|----------|-----|
| UNIT #: | 56 |
| INSTALL: | |
| HMI: | |
| PLC: | |
| UPGRADE | SET |
| EXIT | |

Control Parameters

| | |
|---------|------------------------|
| UNIT # | Unit assignment number |
| INSTALL | Install date |
| HMI | HMI program version |
| PLC | PLC program version |
| UPGRADE | Upgrade HMI via USB |
| SET | Save info to memory |
| EXIT | Exits to SYSTEM SETUP |

Status Parameters

| | |
|------|--|
| NONE | |
|------|--|

Datalog Setup

| | |
|----------------------|----------|
| SLAVE | |
| <input type="text"/> | UNIT # |
| <input type="text"/> | RCD TIME |
| SET | EXIT |

| Control Parameters | |
|--------------------|-------------------------------|
| MASTER/SLAVE | Sets unit for master or slave |
| UNIT # | Unit assignment number |
| RCD TIME | Data record interval |
| SET | Save info into memory |
| EXIT | Exits to SYSTEM SETUP |
| Status Parameters | |
| NONE | |

Datalog Setup Parameters

Using Unit as Slave

- The unit must have an IP address range of 10.0.0.11 to 10.0.0.255
- If the unit is in a network, the RCD TIME should be set to the calculated RCD time of the master
- If the unit is used as a stand-alone recorder, the RCD TIME can be set from 30 to 9999 seconds
- Unit should be set to slave mode if it is the only unit on the network

Using Unit as Master

- The unit must have an IP address of 10.0.0.10
- When using the unit as a master recorder it will retrieve data from other units for recording. When setting the RCD TIME use the following formula:

$$\frac{\text{Interval of Desired Recording Time}}{\text{Number of Units on Network}} = \text{calculated RCD time}$$

Note **The calculated RCD time must never be less than 1 second in any case.**

Example **With 12 units networked together, the user wants to record each unit every 60 seconds. $\frac{60}{12} = 5$ second RCD time. Every 5 seconds the master unit will poll the slave units in numerical order. Since there are 12 units connected, it will take 60 seconds to poll every unit on the network.**

Example **With 45 units networked together, the user wants to poll each unit every 30 seconds. $\frac{30}{45} = 0.67$ seconds. Since the RCD time cannot be less than 1 second, the RCD TIME field should be set to 1 and each unit will be polled every 45 seconds.**

Setup the Test Screen

| | |
|-------|------------|
| CTA 0 | RTEMP 0 C |
| HZA 0 | HTEMP 0 C |
| CTB 0 | A1TEMP 0 C |
| HZB 0 | A2TEMP 0 C |
| TD0 0 | |
| TD1 0 | |
| EXIT | |

| Control Parameters | |
|--------------------|---------------------------------|
| EXIT | Exits to SYSTEM SETUP menu |
| Status Parameters | |
| CTA | Counts, flow meter A (resin) |
| HZA | Hz, Flow meter A (resin) |
| CTB | Counts, flow meter B (hardener) |
| TD0 | Hz, flow meter B (hardener) |
| TD1 | Transducer #0 (hardener) |
| RTEMP | Thermocouple #0 (resin) |
| HTEMP | Thermocouple #1 (hardener) |
| A1TEMP | Thermocouple #2 (spare) |
| A2TEMP | Thermocouple #3 (spare) |

Calibrating the Unit

The UPMS-3000 uses 2 high-speed inputs that are designated for positive displacement flow meters. The flow meters must utilize a 24 vdc output with a frequency of no more than 3600 Hz at max flow.

To calibrate the flow meters, a measurement of counts per unit (CTU) must be known. The unit uses an absolute style count system. Every time a CTU is recorded, one UOM is added to the total. The display will show fractional values until a full CTU has passed.

The following are the basic calculations for calibrating the UPMS in automatic mode:

Volume

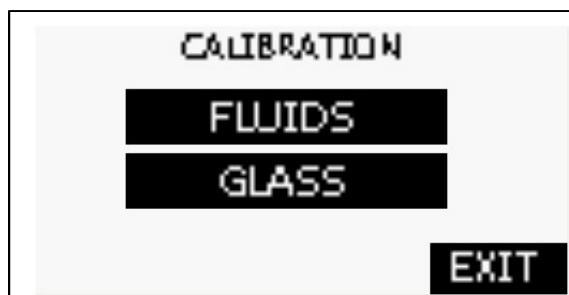
- Measure in Gallons
 - $\frac{\text{Counts of flow meter in gallons}}{1} = \text{CTU}$
- Measure in Ounces
 - $\frac{\text{Counts of flow meter in gallons}}{128} = \text{CTU}$
- Measure in Liters
 - $\frac{\text{Counts of flow meter in gallons}}{3.785} = \text{CTU}$
- Measure in Cubic Centimeters (cc)
 - $\frac{\text{Counts of flow meter in gallons}}{3785.411} = \text{CTU}$

Weight

To find the weight per gallon, multiply the density of the material by 8.345.

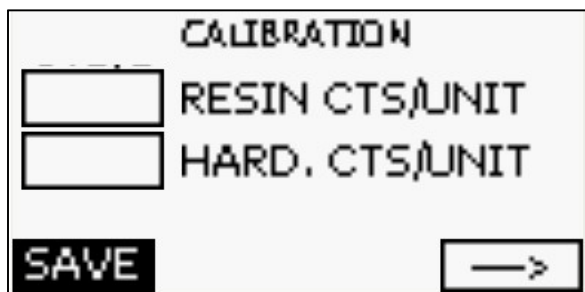
- Measure in Pounds
 - $\frac{\text{Counts of flow meter in gallons}}{\text{XX.XX per gallon}} = \text{CTU}$
- Measure in Kilograms per Gallon
 - $\frac{\text{Counts of flow meter in gallons}}{\text{XX.XX per gallon}} = \text{CTU}$
- Measure in Kilograms per Liter
 - $\left(\frac{\text{Counts of flow meter in gallons}}{3.785}\right) \div \text{XX.XX kg per liter} = \text{CTU}$
- Measure in Grams
 - $\frac{\text{Counts of flow meter in gallons}}{\text{XXXX grams per gallon}} = \text{CTU}$

Setup Calibration



| Control Parameters | |
|--------------------|-------------------------|
| FLUIDS | Opens FLUID CALIBRATION |
| GLASS | Opens GLASS CALIBRATION |
| EXIT | Exits to SYSTEM SETUP |
| Status Parameters | |
| NONE | |

Automatic Fluid Calibration



| Control Parameters | |
|--------------------|-----------------------------|
| RESIN CTS/UNIT | Counts per unit of material |
| HARD. CTS/UNIT | Counts per unit of material |
| SAVE | Set parameters into memory |
| Status Parameters | |
| NONE | |

Manual Fluid Calibration

| | | |
|--------------------------|--------------|--------------------------|
| RESIN | START | HARD |
| <input type="text"/> | FL.WT. | <input type="text"/> |
| <input type="text"/> .00 | CTS/U | <input type="text"/> .00 |
| | RATIO | |
| SAVE | .00 :1 | EXIT |

| Control Parameters | |
|--------------------|--|
| START | Starts manual calibration |
| RESIN FL.WT | Weight or volume of fluid |
| HARD FL.WT | Weight or volume of fluid |
| SAVE | Set parameters to memory |
| EXIT | Exits to SETUP CALIBRATION |
| Status Parameters | |
| RESIN CTS/U | Calculated counts per unit of resin |
| HARD CTS/U | Calculated counts per unit of hardener |
| RATIO | Calculated ratio of dispensed material |

To do a manual calibration, follow these steps:

1. Press the Start button.
2. Pump the materials.
3. Press Save to calculate and save the parameters to memory.

Glass Calibration

Glass calibration is disabled. Glass count is not used with any MVP units.

Interpreting Alarms

If the UPMS-3000 detects an alarm condition, the following will display on the screen:

| | |
|----------------|---|
| RATIO ALARM | G O T O A L A R M |
| TEMP. ALARM | |
| PRESSURE ALARM | |

| Control Parameters | |
|--------------------|-----------------------------|
| GO TO ALARM | Opens RUN FLUIDS section |
| Status Parameters | |
| RATIO ALARM | Indicates ratio alarm |
| TEMP ALARM | Indicates temperature alarm |
| PRESSURE ALARM | Indicates pressure alarm |

Networking

The UPMS-3000 uses standard networking protocols if each unit is fitted with the communications option. Each unit is configured with 2 RJ-45 jacks. The jacks are used to connect to other monitors or a central switch for data retrieval from the units.

Each unit must have a unique IP address assigned statically and must not be duplicated on the same network. Address format is 10.0.0.10 with a subnet of 255.255.255 from the factory. If a

plant side network address is to be used, all units connected together must be changed and reside in the same addressing and subnet.

The unit that is designated as MASTER (IP address 10.0.0.10) will poll each unit connected to it automatically at the set interval, retrieve the data, and report it to the data logging software. This prevents the local PC from having to run retrieval software for each unit and cuts down on network traffic on the system.

Troubleshooting

| Troubleshooting | |
|---|---------------------------------------|
| Symptom | Cause |
| No power when power switch is turned on | Check fuse inside panel |
| No totals on display | Verify proper scale factor |
| | Check for broken sensor cable |
| Remote reset will not work | Check for broken sensor cable |
| Test shots not matching counter | Adjust scale factor |
| | Inspect pumps for wear or feed issues |

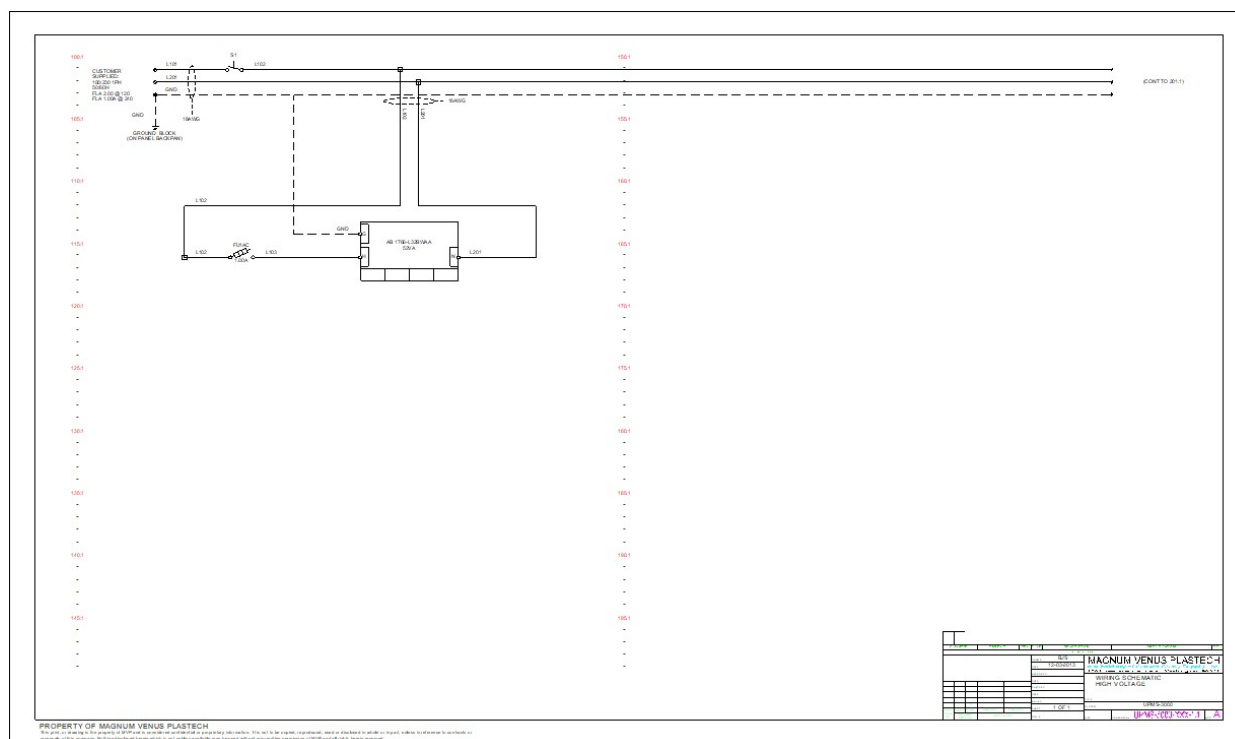
Parts Information

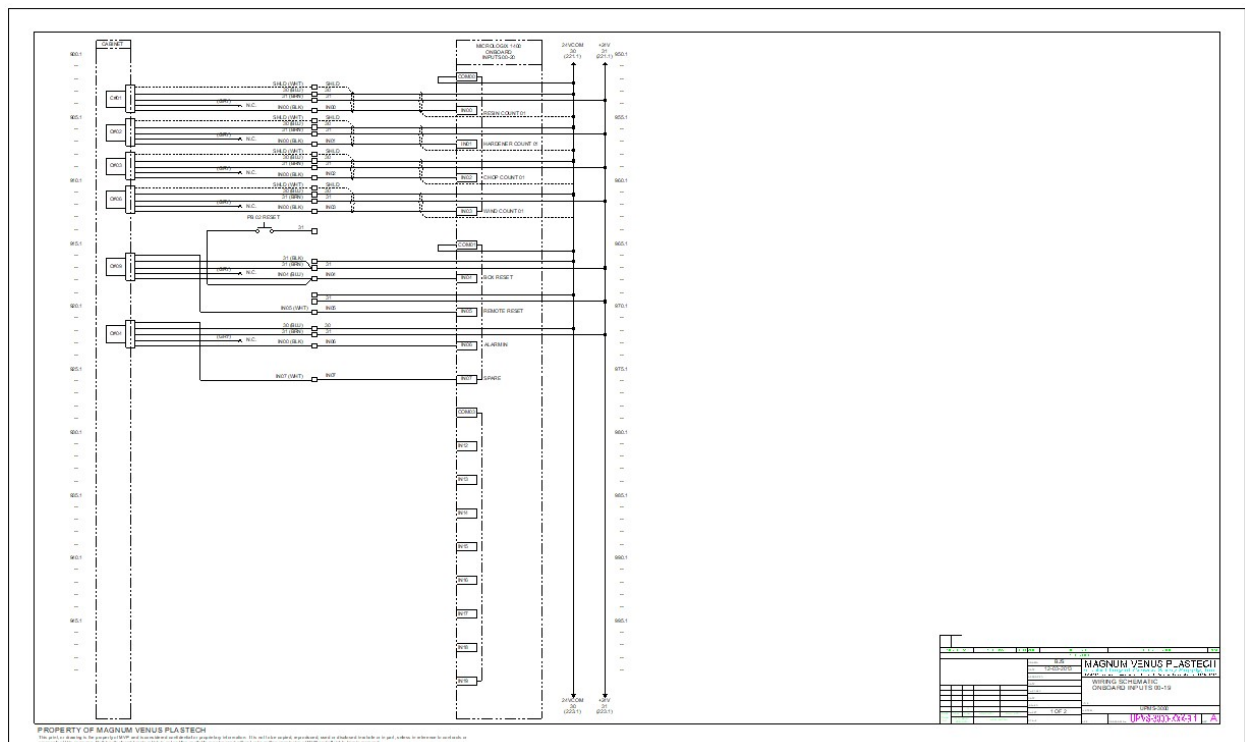
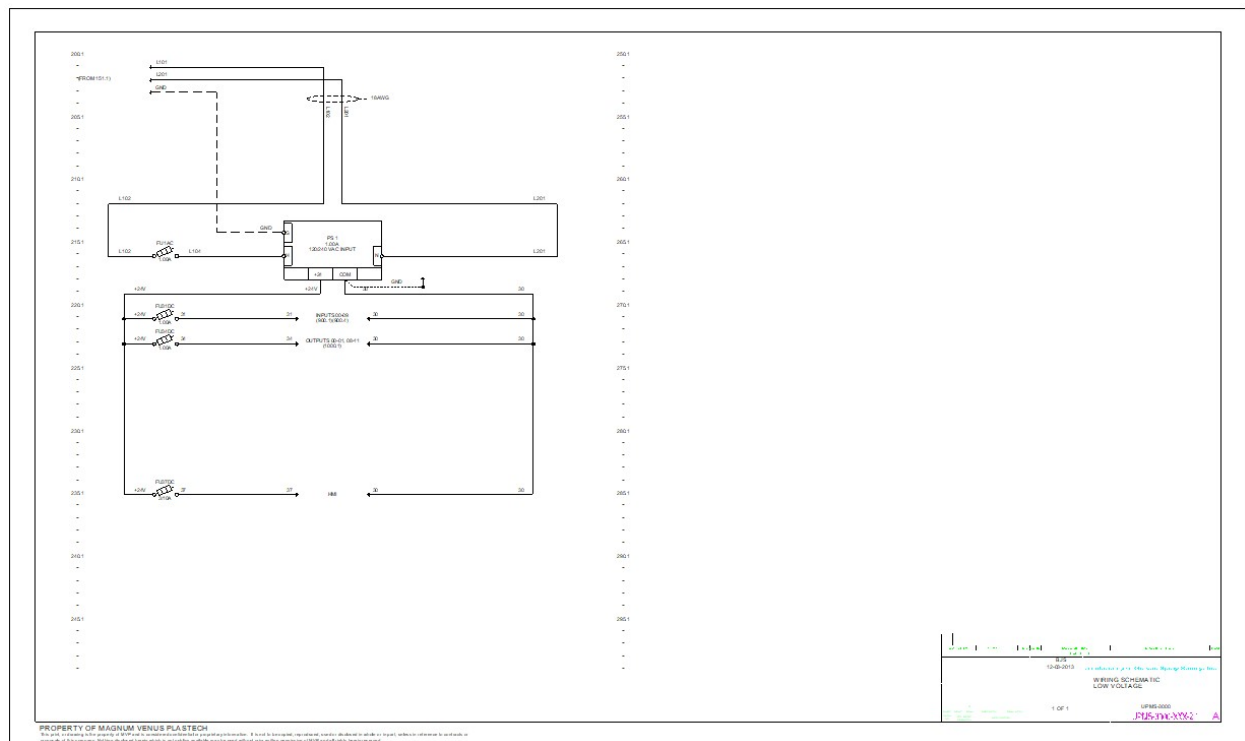
| Units | |
|---------------|--|
| Part Number | Description |
| UPMS-3000-3 | Base unit |
| UPMS-3000-3C | Base unit with communications options for data logging |
| UPMS-3000-3T | Base unit with thermocouple inputs |
| UPMS-3000-3CT | Base unit with communications options for data logging and thermocouple inputs |

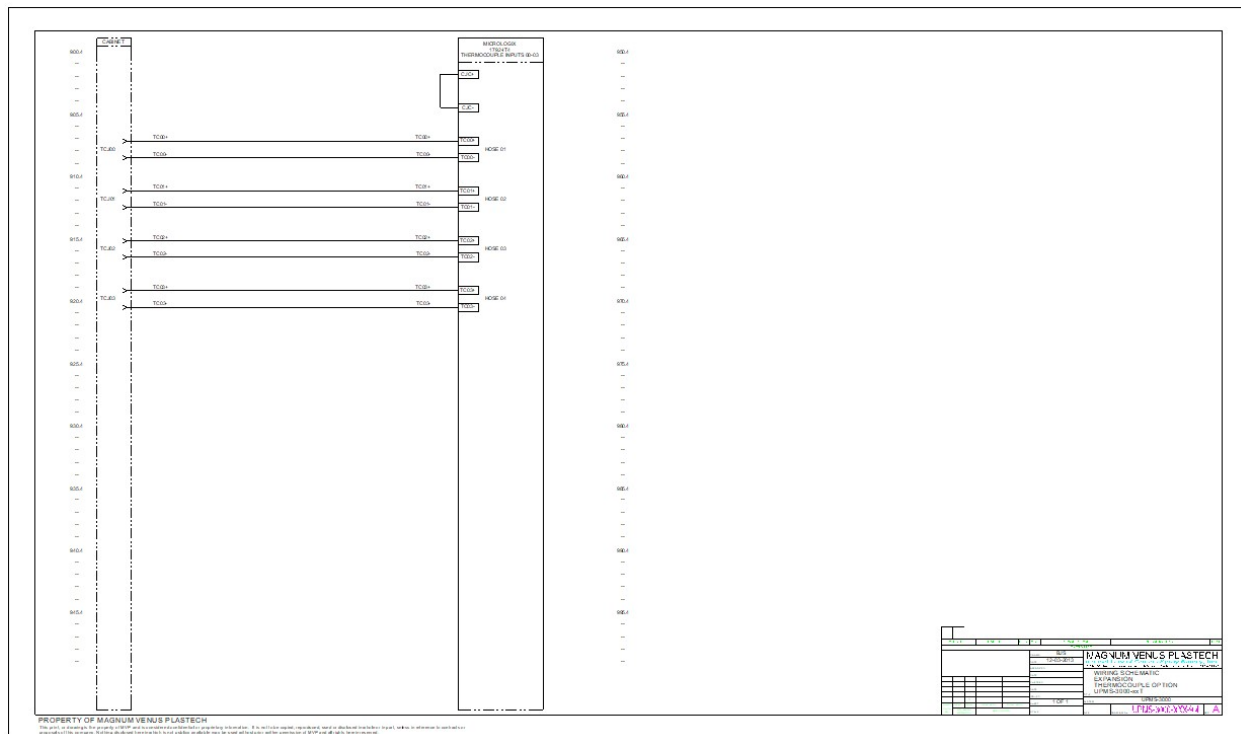
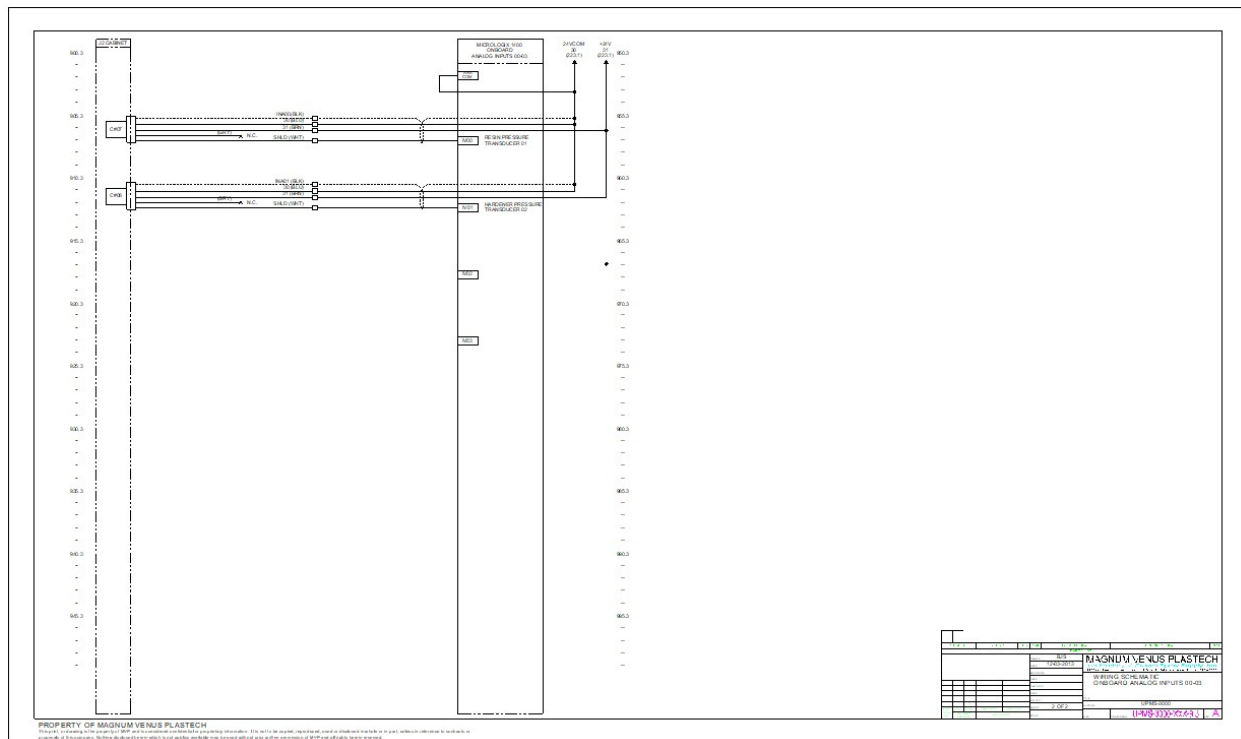
| Options | |
|--------------------|---|
| Part Number | Description |
| UPMS-FLM-09 | SS SRZ-40STAT Flow Meter only |
| UPMS-FLM-09-ASY | SS SRZ-40STAT Flow Meter with fittings and gauge Note Assembly does not come with inlet or outlet hose fittings |
| UPMS-FLM-09-ASY-SS | SS SRZ-40STAT Flow Meter with Stainless fittings and gauge Note Assembly does not come with inlet or outlet hose fittings |
| UPMS-3000-OPTA | Alarm output shutoff – parts and assemblies to install shutoff valve on gun or pump |
| UPMS-3000-OPTB | Pressure transducer input – parts and assemblies to install 1 pressure transducer (1/4" NPT) into fluid line |
| UPMS-3000-OPTC | External reset – parts and assemblies to install remove reset button (25' cable) |

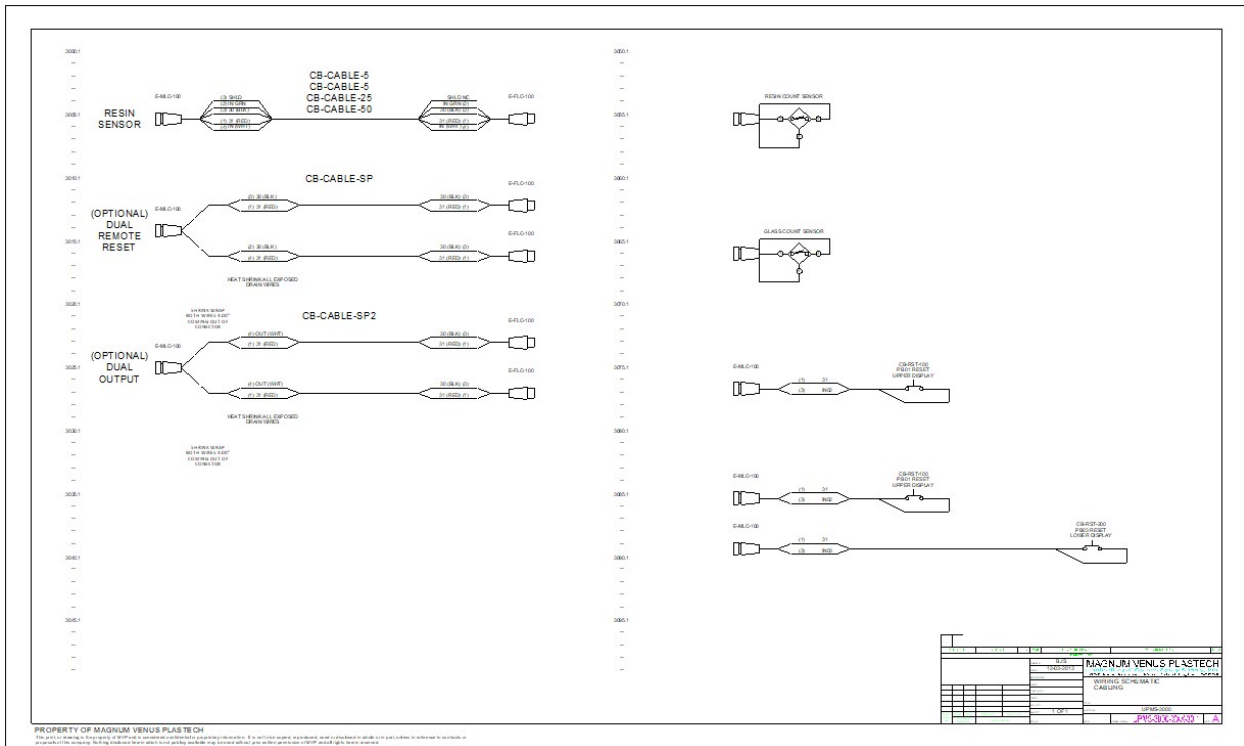
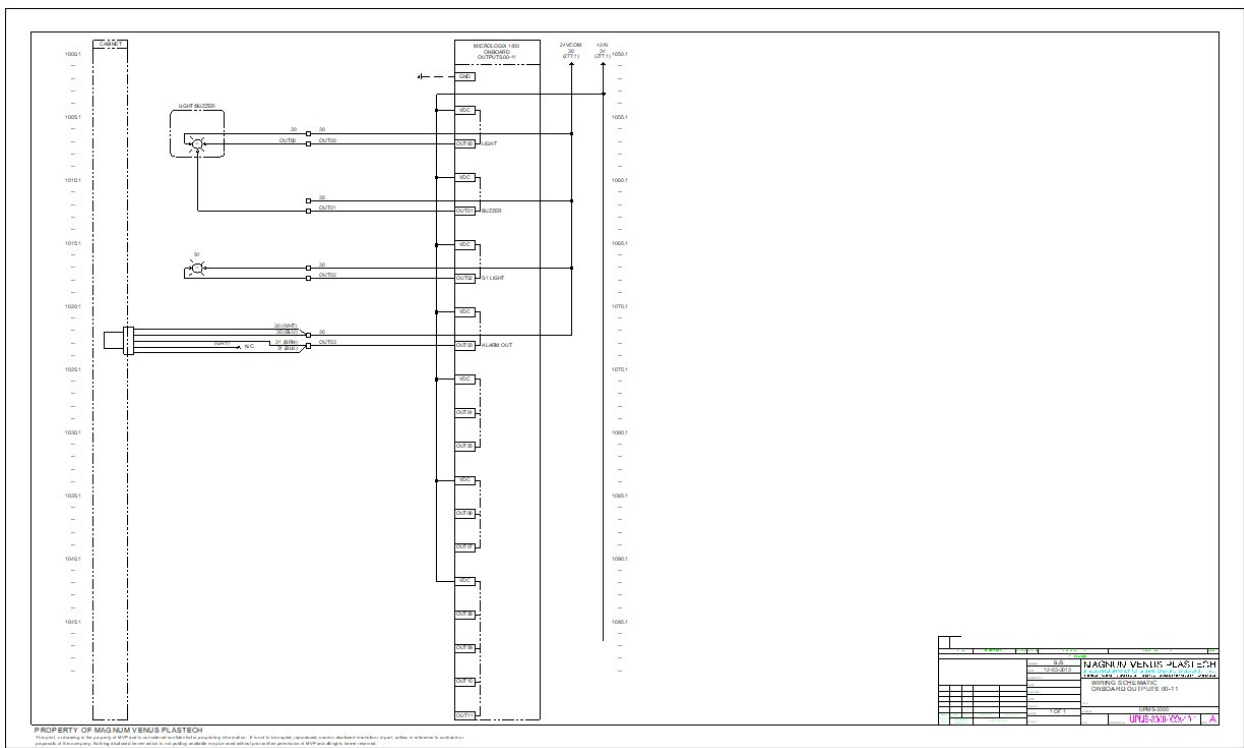
Options

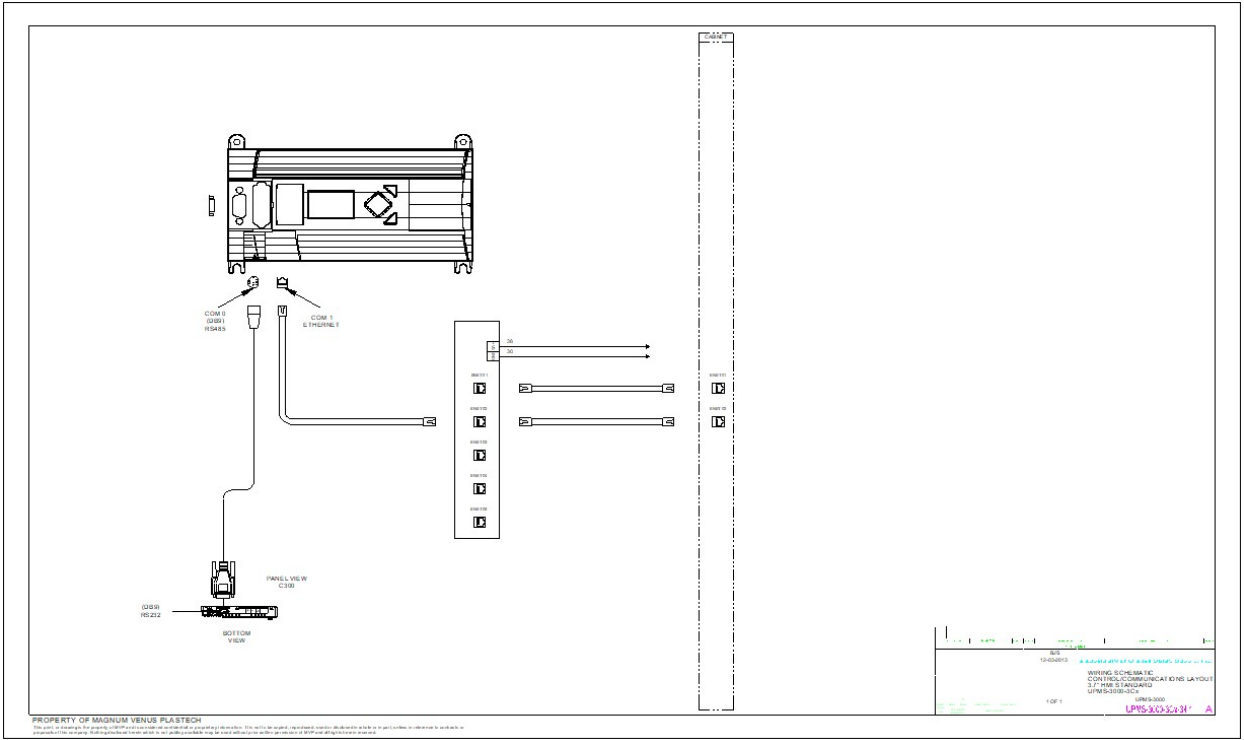
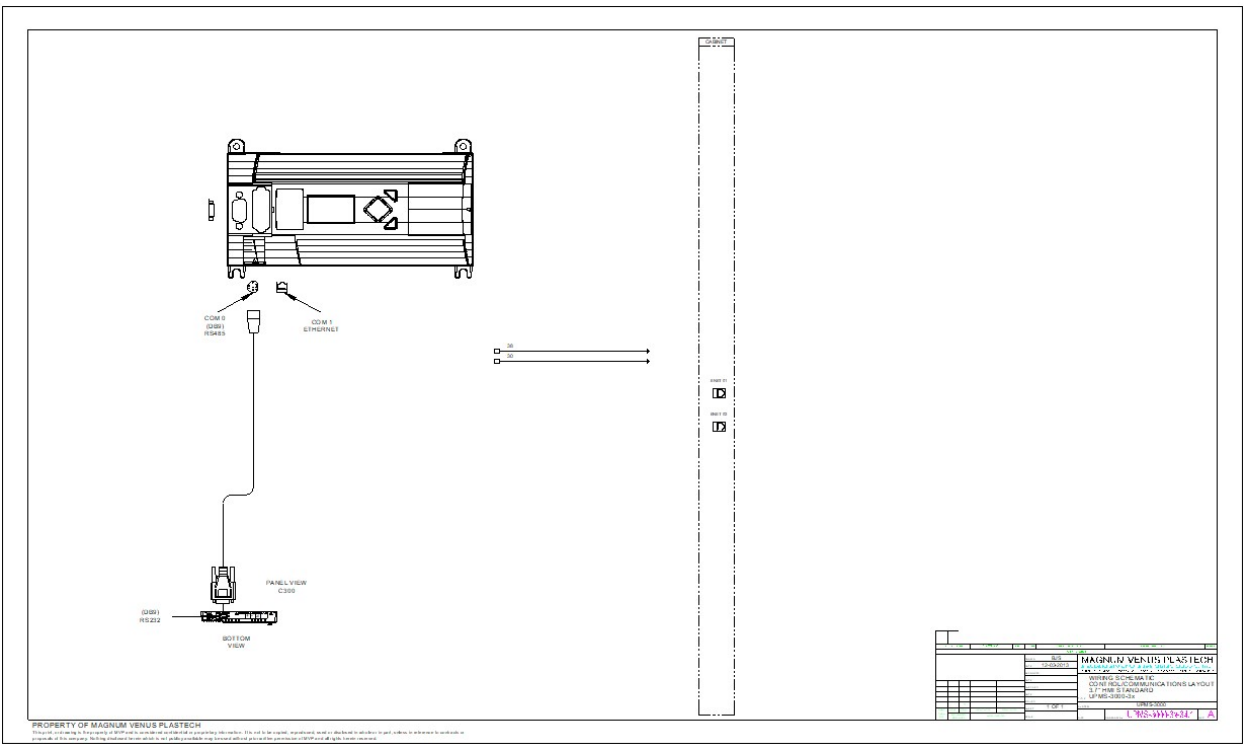
| Part Number | Description |
|----------------|--|
| UPMS-3000-OPTD | Thermocouple input – parts and assemblies to install 1 thermocouple probe (1/4" NPT) into fluid line |
| UPMS-3000-OPTH | Data logging software package – software package for local PC to retrieve data from UPMS-3000 Note Must have MS Access installed |
| E-TSDR-100 | 0-3000 psi, 10 VDC, 1/4" NPT Pressure Transducer |
| CB-CABLE-5 | 5' Extension Cable |
| CB-CABLE-10 | 10' Extension Cable |
| CB-CABLE-25 | 25' Extension Cable |
| CB-CABLE-50 | 50' Extension Cable |











Updating Software

New files can be updated via email. There are 2 files for each upgrade; a disc image file for upgrading firmware along with an autorun program, and a .CHA file for upgrading the firmware in the display itself. Not all terminals will need a firmware upgrade, but the file is always provided. The software filename is indicative of the version and firmware revision it was created with.

Example *UPMS 104_170 would indicate software version 1.04 created with firmware revision 1.70. Software upgrades cannot be used on later revisions than when they were created.*

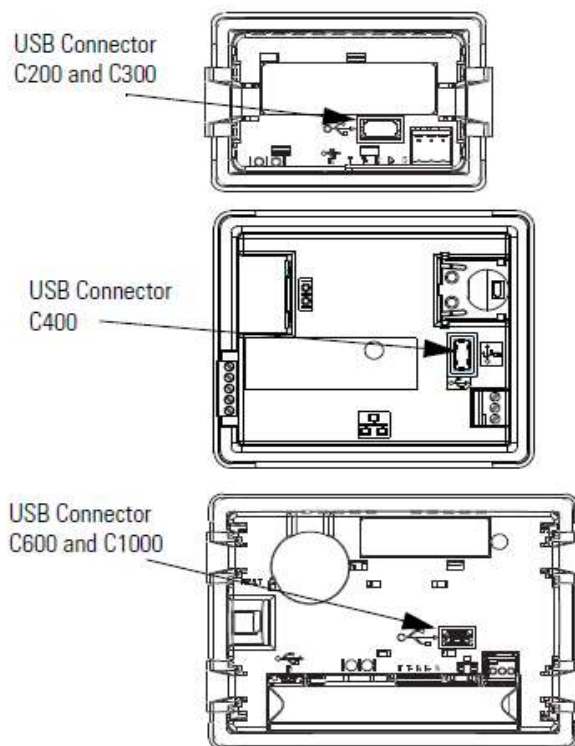
Note *A new USB flash drive is recommended. Once the files have been transferred to the flash drive, seat the drive in the USB port in the back of the HMI. The drive must not hit the back case of the HMI or it will not connect.*

Note *Only upgrade one file at a time. The firmware upgrade depends on an autorun program that will run immediately upon inserting the flash drive or turning the terminal on with the flash drive inserted.*

To install the updates, follow these steps:

1. Copy the disk image file and autorun program to the root folder of the flash drive.
2. Insert the flash drive in the back of the HMI, making sure it fully connects.

The USB flash drive can be inserted in these locations on the terminals.



3. On the HMI, navigate to the SETUP UNIT INFO screen.

UNIT #: 56

INSTALL:

HMI:

PLC:

UPGRADE SET EXIT

4. Press the UPGRADE button to access the terminal settings of the HMI.
5. Select FILE MANAGER and press Enter.
6. Change SOURCE from internal to USB, then press the right arrow.
7. Select the version of the software you wish to install and press the right arrow.
8. Select COPY and press Enter.
9. Select COPY APPLICATION and press Enter.
10. Set destination to INTERNAL and press the right arrow.
11. Press the COPY button.

Once the copy is complete, the terminal will display “2007: OPERATION SUCCEEDED OK (F1).

12. Press the OK button.

Set New Software as Startup Program

13. When the file manager screen returns, press the left arrow.
14. Change the source back to INTERNAL.
15. Select the file you copied to the terminal in step 7.

Note **Multiple files will be listed.**

16. Use the down arrow to navigate to SET AS STARTUP and press Enter.
17. Press the EXIT button.

Return to RUN Mode

18. Select FILE MANAGER and press Enter.
19. Confirm source is set to INTERNAL and press the right arrow.
20. Select the correct file and press the right arrow.
21. Using the down arrow, select RUN and press Enter.

The unit returns to the UNIT INFO page and runs the new software.

Update Firmware

Note ***Before upgrading the firmware check the version that is currently installed on the Maintenance Unit Information display. If the firmware version matches the file name of the new software there is no need to update.***

22. If you need to update the firmware and installation does not start automatically when you insert the USB drive, power cycle the unit.



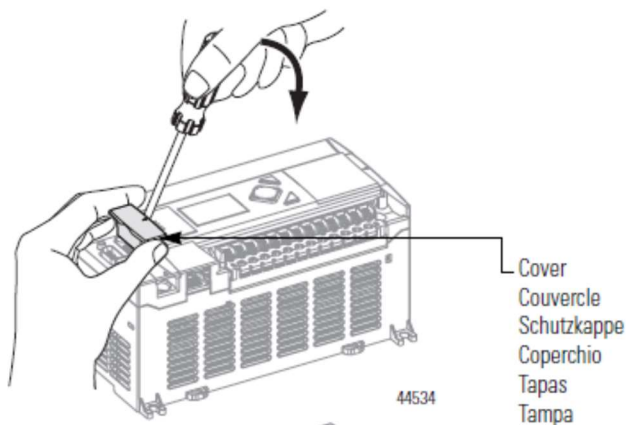
CAUTION

Do not interrupt the firmware update process by removing the flash drive or removing power to the unit. This will cause the terminal to become non-operational.

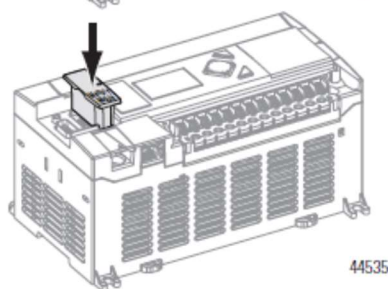
PLC Ladder Logic Upgrade

1. Power down the UPMS-3000.
2. Install the internal memory module as shown below.

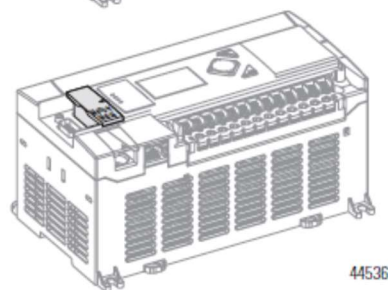
1



2



3



3. Power up the UPMS-3000.
4. On the LED display on the front of the PLC, push ESC.
5. Navigate to ADVANCED SET.
6. Push Enter.
7. Select LOAD FROM MM.
8. Push Enter.
9. Once the display has cleared, cycle power on the unit.
10. If the RUN light is not illuminated green on the front of the PLC, place the unit back in run mode by pushing ESC, going to MODE SWITCH, selecting REMOTE, and then pressing OK.



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