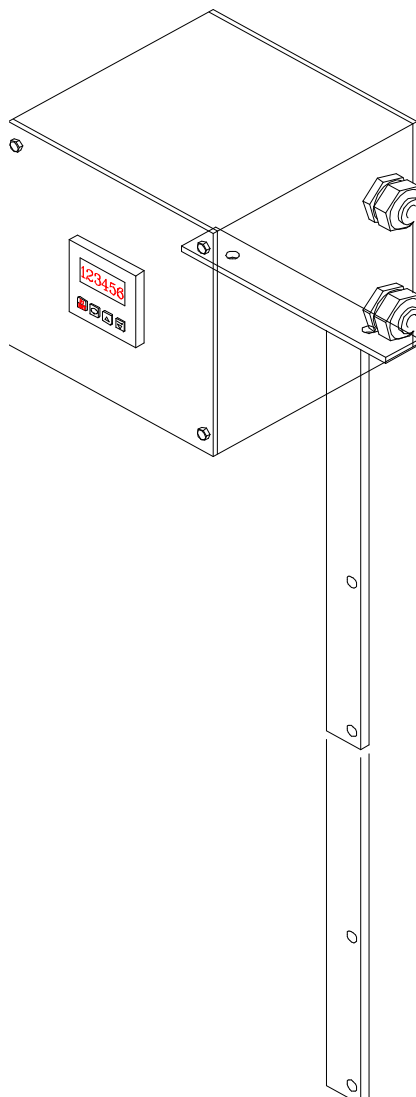


# Mini Resin Meter

## Operations Manual

This manual is applicable to the following models:

- 79301-1
- 79301-3
- 79301-5
- 79301-7



Rev. March 2019



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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:**

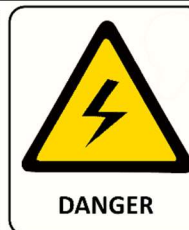
- NFPA No.33 Chapter 14                      Organic Peroxides and Dual Component Materials
- NFPA No. 63                                    Dust Explosion Prevention
- NFPA No. 70                                    National Electrical Code
- NFPA No. 77                                    Static Electricity
- 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.

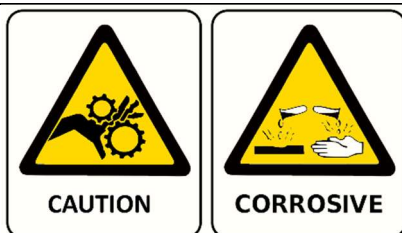
## Safety Precautions

- 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](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 may be as low as 1 meg ohm (10 ohms) but that resistance as high as 10,000 meg ohms will produce an adequate leakage path in some cases.

**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 Mini Resin Meter is designed to display the resin total and to count the number of strokes (pump movement in one direction) made. A sensor assembly send signals to the control box from the resin pump. The meter converts these signals to produce the resin total.

The monitor is designed to be modular, so that if one part becomes inoperative the rest of the system continues to operate and the damaged component can be easily replaced. It can be configured for use on multiple pump systems.

After a simple calibration procedure, the monitor will accurately display resin totals. After being calibrated, the system only needs to be checked periodically for quality control. The monitor may need to be fine-tuned if a different resin is used or if the pumping system becomes worn or less efficient.

This manual provides information for the operation, maintenance, and simple repair of the MVP Mini Resin Meter. The following procedures are included:

- Step-by-step start-up and calibration instructions
- Troubleshooting guidance



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.

*Some of the information in this manual is taken from Red Lion Controls "Model C48C Instruction Manual".*

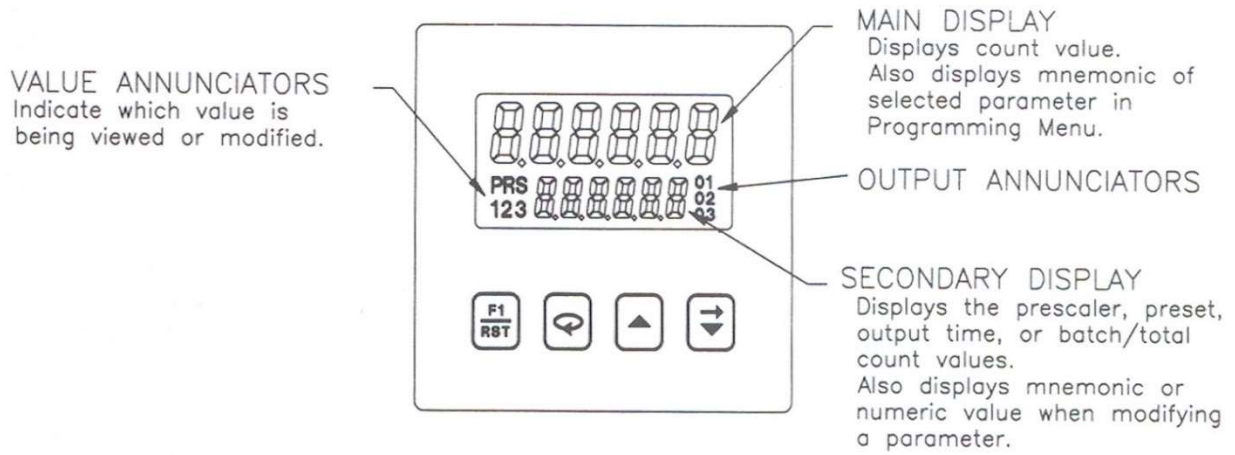
## Unit Overview

### Front Panel

The front panel bezel material is flame and scratch resistant textured plastic with a clear viewing window that meets NEMA 4X/IP65 requirements when properly installed. Continuous exposure

to direct sunlight may accelerate the aging process of the plastic used in the bezel. Only use a soft cloth and neutral soap products to clean the bezel. DO NOT use solvent.

There are up to seventeen annunciators available in the lower display that illuminate to inform the operator of the counter and output status, as shown below.



## Keypad

Four front panel keys are used to access different modes and parameters. Following is a description of each key.

**Note** *Do not use tools of any kind (screwdrivers, pens, pencils, etc.) to operate the keypad of this unit.*



User programmable key. When the key is pressed, the unit performs the function programmed. The RST is used as a quick reference for if the key is set as a reset function.



Used to access programming, enter changes to data values, and scroll through the available parameters in any mode.




Selects the next available mode during programming. When programming a numerical value in digit entry mode, increments the selected digit position. In auto-scrolling entry mode, increments the value. In operating mode, allows changing of data value viewed in the secondary display.




When programming a numerical value in digit entry mode, accesses the value and selects the digit to the right. In auto-scrolling entry mode, decrements the value. In operating mode, allows changing of the data value viewed in the secondary display.



## Programming Meter

Programming the counter is done through the front panel keypad. English language prompts, flashing parameter values, and the front panel keypad aid in programming. Although the meter was programmed at MVP, there may be occasion when the unit needs to be reprogrammed. To reprogram, follow these steps:






1. Press and hold  for two seconds to enter the programming menu.



- Use the  key to sequence forward through the list of programming parameters.

**Note**      **To move backward through the programming menu, hold  and press and release  for each item you want to move back.**




## Program Option Values



- When the parameter you wish to set is highlighted, press either  or  once to enter parameter change mode.
- Press and release  until the desired option is reached.
- Press  to set the highlighted option and return to the programming menu.
- Exit programming mode by pressing and holding  for two seconds.


The display momentarily shows Prog SAVE while the parameter values are saved in non-volatile memory. The unit then returns to the indication display last viewed.

## Program Numeric Data Values

The presets, pre-scaler, and output time values are accessible when the unit is in normal operating mode, provided that the Program Disable input is not activated.

- Press  to sequence the secondary display through the available presets, pre-scaler, and output time values.
- When the numeric value you wish to change is visible on the secondary display, press  or  to change the value.

**Note**      **If the data entry method is set to digit entry, the least significant digit will blink. Pressing  multiple times will select other digits, while  will increment the blinking digit.**

- Save the data value by pressing .

**Note**      **The old value will be retained if you do not press a key for 10 seconds.**

## Calibrating Meter

### Determine Your Preset Count

The preset count allows greater control over the amount of resin used for jobs. The meter will shut off the pump when the preset count is reached and return the display to zero to prepare for the next job.

## Method 1 – Matching Previous Job Count

1. Set the counter at the maximum setting or very high for the first operation.
2. Complete a job as normal, allowing the meter to keep count.
3. Once you have filled your part with the desired amount of material, note the number on the display to determine where your preset count should be set.




## Method 2 – Resin Volume Sample

1. Cycle the resin pump 10 full up and down strokes then note the number that appears on the display.
2. Weigh the resin sample that was discharged from the pump.
3. Divide the desired amount of resin (by weight) required to produce the part by the weight of the resin sample discharged in 10 cycles.



$$\frac{\text{Desired Weight}}{\text{Sample Weight}} = X$$

4. Multiply the number from the display in step 1 by the answer to the equation from step 3.
5. Set the answer as your preset count.

## Set Preset Count

6. Turn the power to the mini resin meter on.
7. Press  or  once.
8. Press  to select the column you wish to set.




**Note**      ***You must set each column (ones, tens, hundreds) separately.***

9. Use the  key to increase that column to the desired number.
10. When you have finished entering the desired number, press  once to store the number.

**Note**      ***If you need to reset the count to zero, press .***

## Troubleshooting

The majority of problems with the Mini Resin Meter can be traced to improper connections or incorrect setup parameters. Be sure all connections are clean and tight, the correct output board is fitted, the setup parameters are correct, and make sure that the DIP switch settings and User Input Plug Jumper position are correct for the particular application. If none of these are the cause, follow the guidelines in the table below to resolve the issue.

System Troubleshooting		
Symptom	Possible Cause	Remedy
No display	Power off	Verify unit is plugged in and turned on
	Loose connection or improperly wired	Check connections and wiring
	Brown out condition	Verify power reading
	Bezel assembly not fully seated into rear of unit	Check installation and adjust as needed
	If powered by +12 VDC source, not enough current	Verify current rating of source
Err 1 displayed at power up	Data error in count values detected by processor	Press 
		Check signal lines for possible noise sources
Err 2 displayed at power up	Data error in preset, pre-scaler, or output time values	Press  , then check presets, pre-scaler, and output time values and correct as needed
		Check signal lines for possible noise sources
Err 3 displayed at power up	Data error in programming parameters detected by processor	Press  , then check all programming parameters
		Check signal lines for possible noise sources
Does not count	No input signal	Check sensor connections and verify power to sensor
	Type of input signal incorrectly selected	Check DIP switch settings
	Count inhibited	Disable count inhibit
	Pre-scaler value too small	Check pre-scaler value
Counts incorrectly	Input signal type incorrectly selected	Check DIP switches; set HI/LO FRQ switch to LO for count speed less than 50Hz
	Inputs improperly connected	Check sensor input connections
	Electrical noise interference	Check power source for noise
		Check signal wire routing
	Incorrect counting mode	Verify and correct count input mode
	Pre-scaler incorrect	Verify and correct pre-scaler
Cannot enter programming	Front panel disabled	Only change settings that are accessible with program disable
Process, batch, or total values will not resent when manual reset is performed	User input not properly programmed	Verify programming of access parameters
	User input Snk/Src jumper configured improperly	Configure Snk/Src jumper
Pre-scaler, presets, or output time values can be viewed but not changed	Front panel disabled	Verify programming of access parameters
		Only change settings that are accessible with program disable

System Troubleshooting		
Symptom	Possible Cause	Remedy
Unit counts while reset is activated	User input reset mode set for momentary reset	Program user input to a maintained reset
Output will not reset	User input not properly programmed	Verify programming of user input parameters
Outputs not working	Output board not installed	Install output board
	Improperly wired	Check wiring
	Incorrect output board	Check output board
	Defective output board	Check or replace output board

## Factory Settings

### MVP Factory Settings

The following settings are entered by Magnum Venus Products to make the electronics work for this unit in this application. They differ from the electronics manufacturer's settings.

EntrY	Numeric value entry method	<b>digit</b>
<b>Prescaler</b>		
Ac PSc	Access prescaler value	<b>-L</b>
PscALr	Prescaler value	<b>1.00000</b>
<b>Counter</b>		
dEc Pt	Decimal point position	<b>-----</b>
Cnt In	Count mode	<b>CI-USr</b>
OPEr (1)	Counter (1) operating mode	<b>5</b>
<b>Presets</b>		
Ac Pr5	Access preset values	<b>-y-y-y</b>
PrESEt	Preset 1 value	<b>20</b>
<b>Outputs</b>		
AC Out	Access output time values	<b>-L-L-L</b>
OutrE5	Output resolution	<b>0.01 SEC</b>
OutPut	Output 1 time	<b>0.10</b>
rEUOut	Reverse relay/output logic	<b>-n-n-n</b>
rEURnu	Reverse annunciator logic	<b>-n-n-n</b>
OutPuP	Output power-up state	<b>-F-F-F</b>

User Inputs		
Usr In1	User Input 1	rSt. -L
Usr In2	User Input 2	rSt. -L
Usr Inb	User Input B	rSt. -L
Usr F1	User F1 Key	rSt. -L
Other		
CodE	Programming Code Value	0
ScroLL	Scroll Display	no

## Dip Switch Settings

The dip switch settings are set at MVP and should not have to be changed. The dip switches are mounted inside the unit and are only shown here for reference in case you need to make sure they are set correctly.



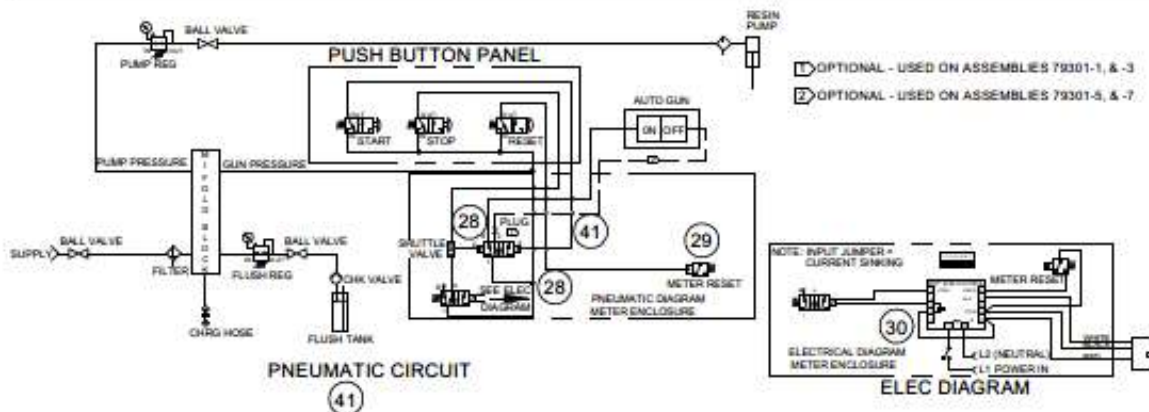
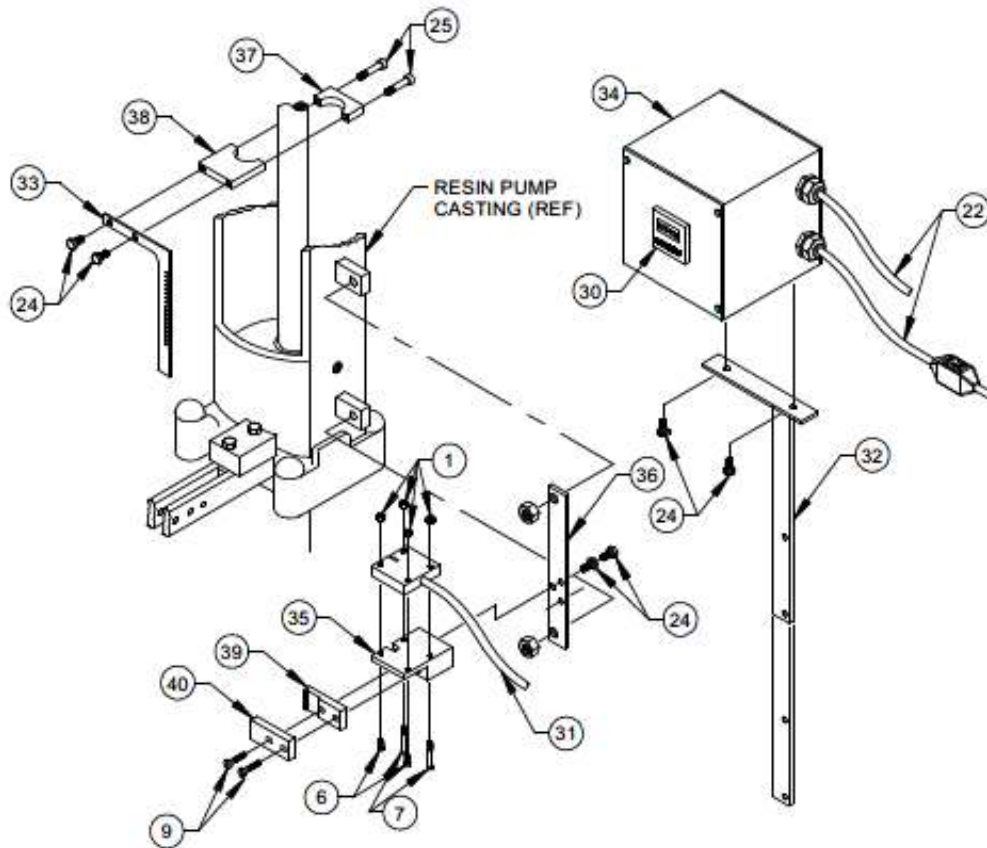
## Manufacturer Factory Settings

FAcSEt	This parameter is used to reset all parameters to the manufacturer defaults. <b>The manufacturer settings are different from those set by MVP noted in the last section</b>	no
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**Note** *When this setting is set to 'no' it is telling the unit not to reset the parameters. When it is changed to 'YES' all programming parameters will be returned to the out of the box factory settings. All settings that MVP made to make the unit suitable to the application will be erased.*

## Parts Drawings

Parts Drawings	
Part Number	Description
79301-X	MINI RESIN METER
CSD-1000-APS	SENSOR ASSEMBLY – APS UNITS
CSD-1000-DHV	SENSOR ASSEMBLY – DUAL HV UNITS
CSD-1000-HV	SENSOR ASSEMBLY – HV UPS UNITS
CSD-1000-UPS	SENSOR ASSEMBLY – UPS UNITS
PAT-SENS-100	SENSOR ASSEMBLY – PATRIOT UNITS



## MAGNUM VENUS PRODUCTS

ASSY - MINI RESIN METER 220 V	79301-1
ASSY - MINI RESIN METER 110 V	79301-3
ASSY - MINI RESIN METER 110 V - PRO GUN	79301-5
ASSY - MINI RESIN METER 220 V - PRO GUN	79301-7

REV. B UPDATED B/M & ADDED SCHEMATIC DWG 7-30-02 JEM  
REV. C DELETED 08757, ADDED 07254 3-7-03 LWS

7/11/01



ASSY - MINI RESIN METER 220 V	79301-1
ASSY - MINI RESIN METER 110 V	79301-3
ASSY MINI RESIN METER 110 V - PRO GUN	79301-5
ASSY - MINI RESIN METER 220 V - PRO GUN	79301-7

**PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	00158	4	HEX NUT
2	00430	6	FITTING UNION
3	01707	2	KEP NUT
4	01709	2	KEP NUT
5	02802-5	2	MACHINE SCREW (NOT SHOWN)
6	02804-6	2	MACHINE SCREW
7	02804-14	2	MACHINE SCREW
8	02805-6	2	MACHINE SCREW (NOT SHOWN)
9	02807-8	2	MACHINE SCREW
11	08131	1	PANEL PLUG (NOT SHOWN)
12	07254	1	4-WAY SOLENOID VALVE
13	08801	4	STRAIGHT CONNECTOR FITTING (NOT SHOWN)
14	08805	1	TEE FITTING (NOT SHOWN)
15	08807	1	ADJUSTABLE TEE FITTING (NOT SHOWN)
16	08810	2FT	1/8" CLEAR URETHANE TUBE (NOT SHOWN)
17	09068	1	ANGLE BRACKET (NOT SHOWN)
18	09073	8FT	1/4" CLEAR URETHANE TUBE (NOT SHOWN)
19	09187	1	4-WAY DUAL PILOT VALVE
20	09504	1	1/2" STRAIN RELIEF (NOT SHOWN)
21	09575	1	FITTING - 1/2" STRAIN RELIEF (NOT SHOWN)
22	09613	1	CORD SET
23	09750	1	SHUTTLE VALVE
24	7101-1-6	2	HEX CAP SCREW
25	7102-2-20	2	SOCKET HEAD CAP SCREW
26	7701-4-6	1	HEX HEAD PLUG (NOT SHOWN)
27	7701-6-7	6	FITTING (NOT SHOWN)
28	9807-1-1	3	PILOT OPERATOR
29	9807-2-1	1	PRESSURE SWITCH
30	9811-1-1	1	PRESET COUNTER - 110/220 V
31	66601-1	1	ASSY - CABE W/ RESIN SENSOR
32	66610-1	1	MTG BRKT - DIGITAL COUNTER
33	66620-1	1	COMB - OPTICAL SIGHT
34	75951-1	1	ENCLOSURE
35	79520-1	1	MOUNTING BLOCK
36	79530-1	1	MTG BRKT - RESIN SENSOR
37	79570-1	1	MTG CLAMP - OPTICAL SIGHT
38	79570-3	1	MTG CLAMP - OPTICAL SIGHT
39	87370-1	1	GUIDE BLOCK W / SLOT
40	87370-2	1	GUIDE BLOCK
41	55060-1	1	PNEUMATIC CIRCUIT DWG.

**ASSEMBLIES 79301-1 AND 79301-3**

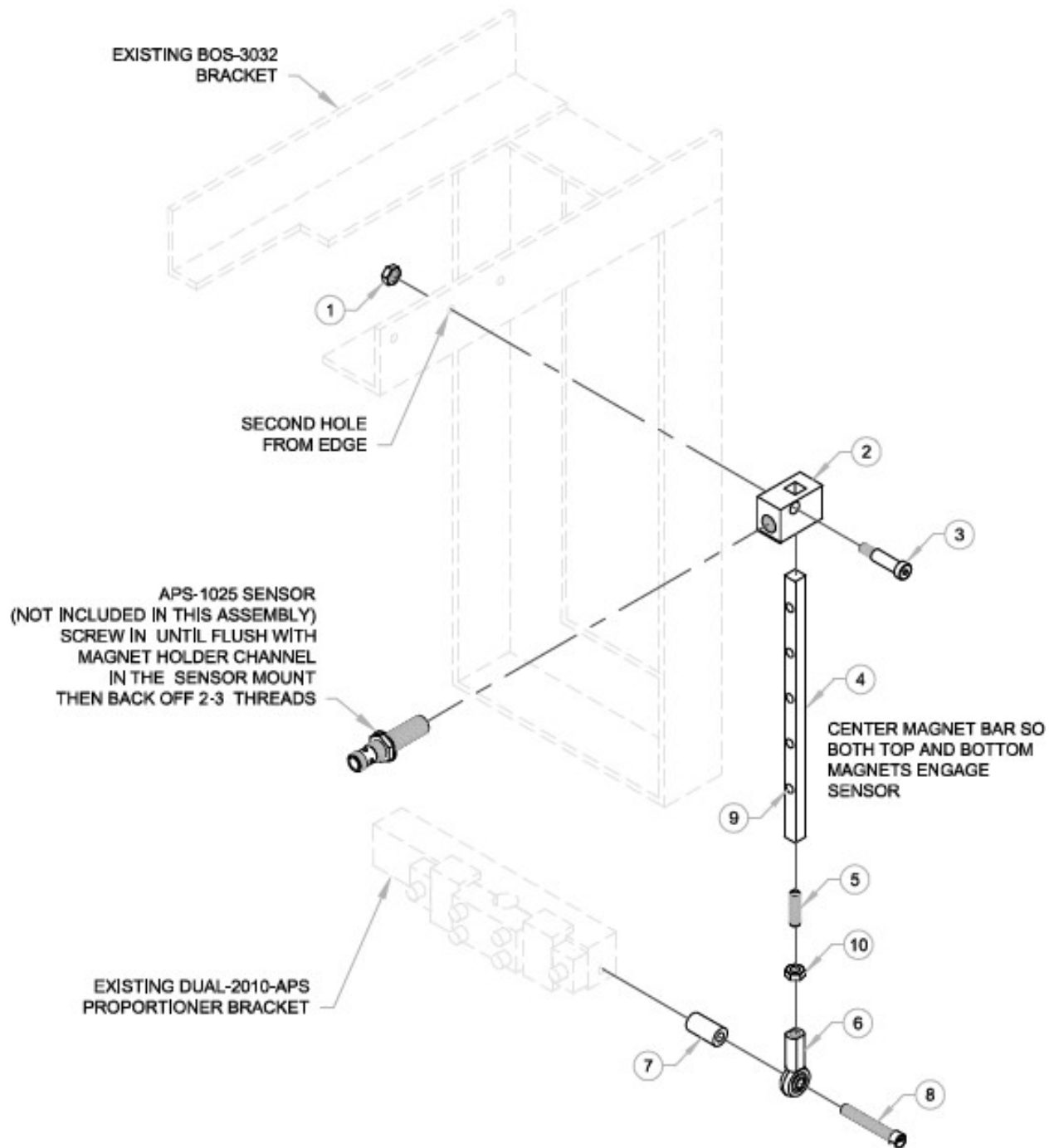
ITEM	PART NO.	QTY	DESCRIPTION
42	7701-4-2	1	1/8"-NPT FLUSH PLUG

**ASSEMBLIES 79301-5 AND 79301-7**

ITEM	PART NO.	QTY	DESCRIPTION
43	01417	28 FT	1/4" POLY TUBE

**NOTE:**

ADDITIONAL PARTS ON THIS DRAWING SHOWN FOR REFERENCE.  
ITEMS DESCRIBED AS (NOT SHOWN) ARE USED IN ITEM 34 ENCLOSURE



## MAGNUM VENUS PLASTECH

### Hardware Kit - APS Resin Sensor

CSD-1000-APS

REV. 06-25-06 BT2  
REV. A - ITEM 1 WAS QTY. 2, ADDED ITEM 10 04-24-07 BT2  
REV. C - ADDED BUBBLE I.D. FOR ITEM 9 12-09-09 BT2  
REV. D - ADDED APS-1025 AND NOTE TO ILLUSTRATION, ITEM 3 WAS F-SB-05-14 02-07-13 BT2



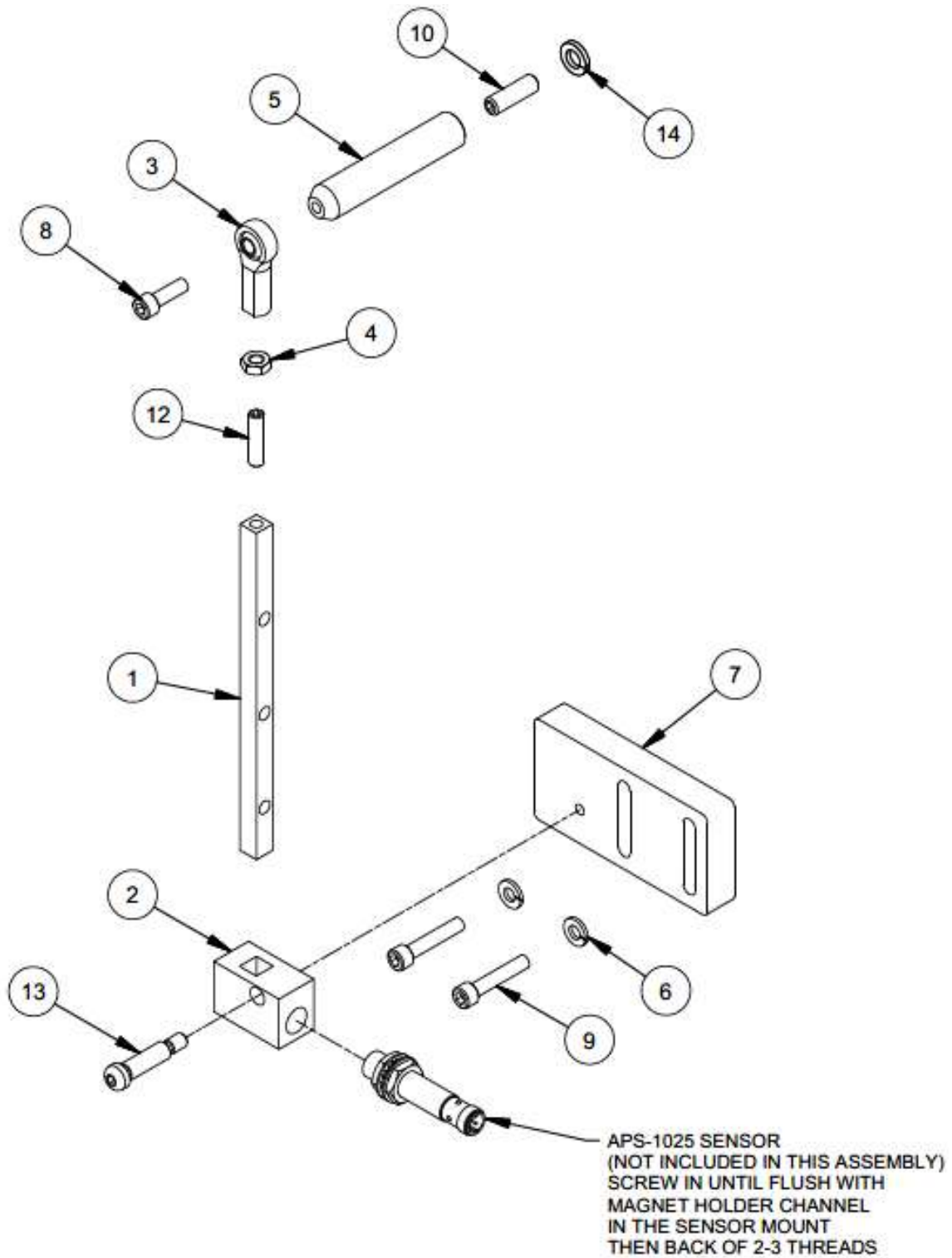
---

**Hardware Kit - APS Resin Sensor CSD-1000-APS****PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	F-JN-04C-SS	1	JAM NUT
2	CSD-1005-M12	1	SENSOR MOUNT
3	F-SB-05-14	1	SHOULDER BOLT
4	CSD-1002-APS	1	MAGNET HOLDER
5	7102-15-16	1	SET SCREW
6	CSD-1008	1	ROD END
7	CSD-1010	1	SPACER
8	F-CS-04C-28	1	CAP SCREW
10	F-HN-04F-SS	1	HEX NUT

**OPTIONAL PARTS AND ASSEMBLIES**

ITEM	PART NO.	QTY	DESCRIPTION
9	CSD-1007	5	MAGNET
	APS-1025		PROXIMITY SENSOR



## MAGNUM VENUS PLASTECH

HARDWARE KIT

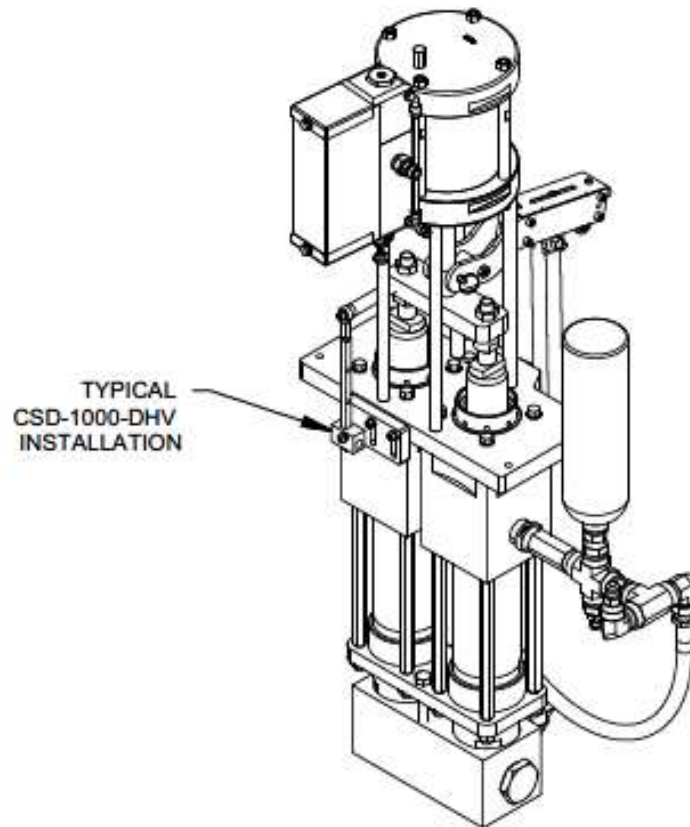
CSD-1000-DHV

REV:

SHEET 1 / 2

4/10/2015

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	CSD-1002	1	MAGNET HOLDER
2	CSD-1005-M12	1	SENSOR MOUNT
3	CSD-1008	1	ROD END
4	F-HN-04F	1	HEX NUT
5	CSD-1003-UPS	1	CONNECTING ROD
6	F-SW-04	2	LOCK WASHER
7	CSD-1012	1	DHV SPACER
8	F-CS-04C-12	1	CAP SCREW
9	F-CS-04C-20	2	CAP SCREW
10	F-SS-05C-16	1	SET SCREW
12	F-SS-04F-16	1	SET SCREW
13	02670-8	1	SHOULDER BOLT, 5/16" X 1"
14	F-SW-05	1	LOCK WASHER



## MAGNUM VENUS PLASTECH

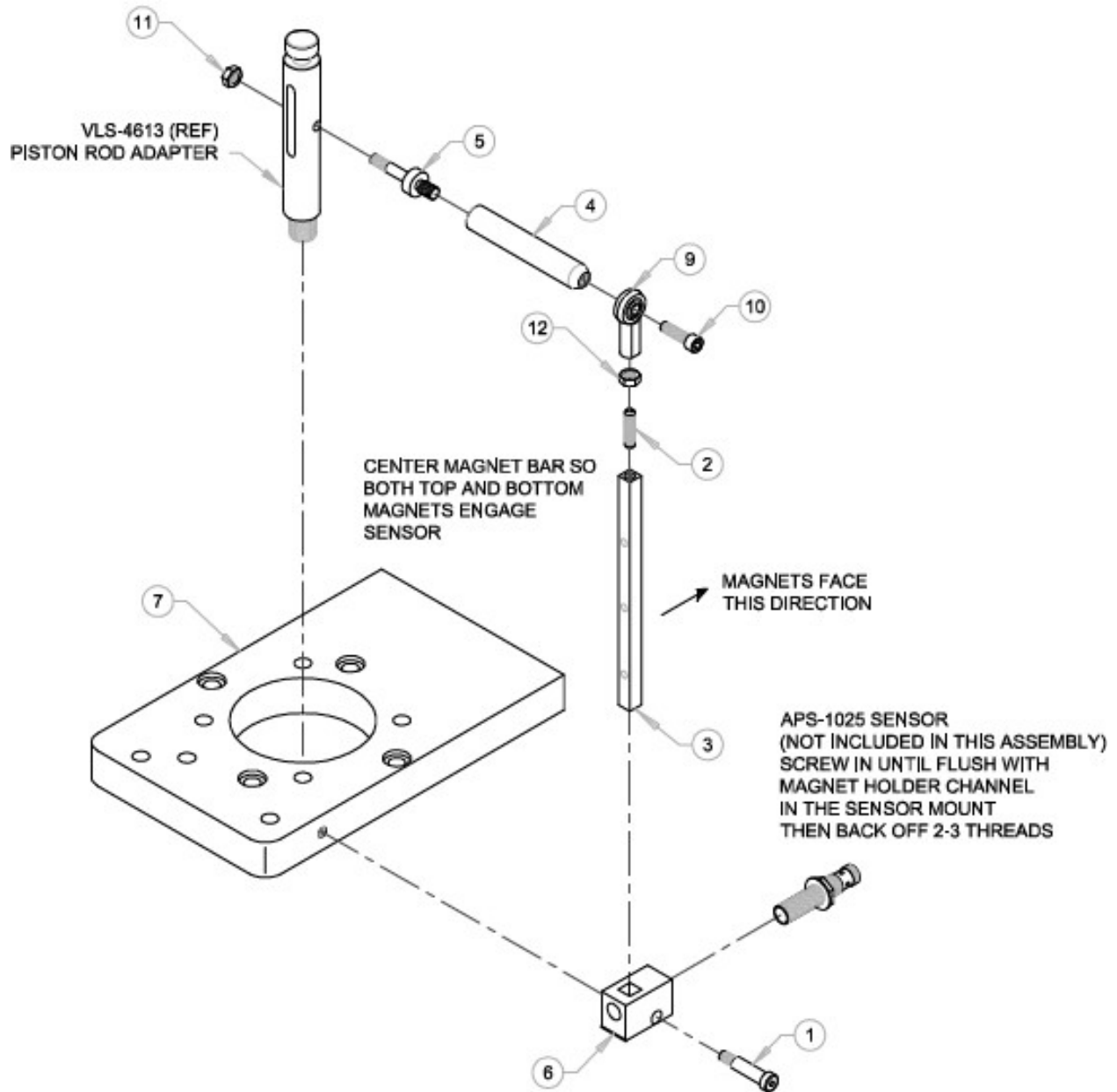
HARDWARE KIT

CSD-1000-DHV

REV:

SHEET 2 / 2

4/10/2015



## MAGNUM VENUS PLASTECH

Hardware Kit - HVLS Resin Sensor

CSD-1000-HV

REV. 09-18-07 BT2  
REV. A - ADDED APS-1025 AND NOTE TO ILLUSTRATION 02-07-13 BT2

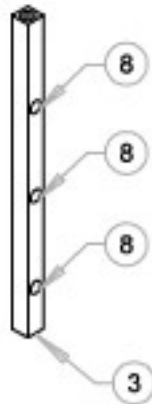
## Hardware Kit - HVLS Resin Sensor CSD-1000-HV

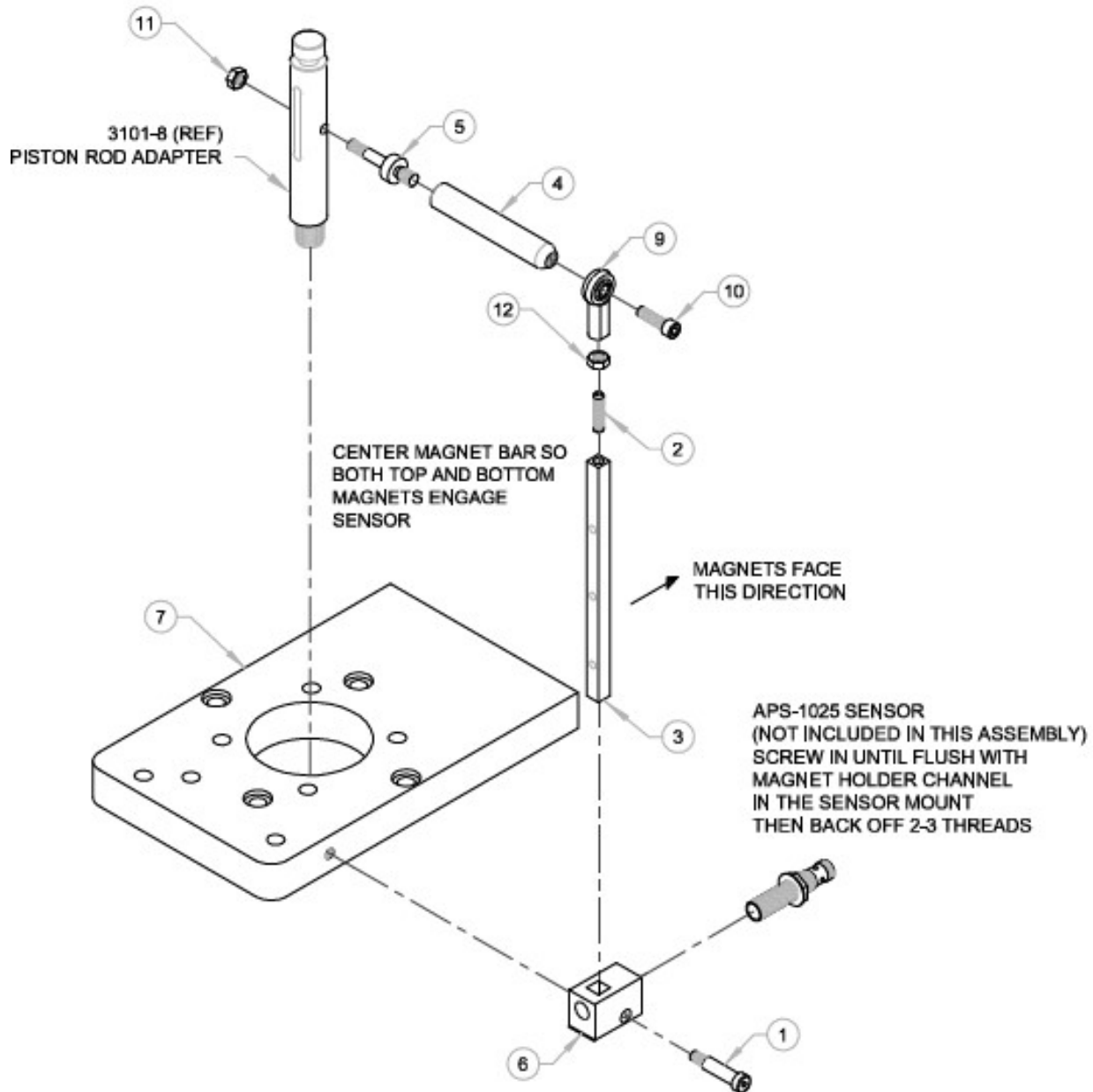
## PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02670-8	1	SHOULDER BOLT
2	7102-15-16	1	SET SCREW
3	CSD-1002	1	ASSY - MAGNET HOLDER
4	CSD-1003-UPS	1	CONNECTING ROD
5	CSD-1004-UPS	1	PIN - CAT SENSOR MNT
6	CSD-1005-M12	1	SENSOR MOUNT
7	HVLS-1002-CSD	1	MODIFIED PUMP PLATE
9	CSD-1008	1	ROD END
10	F-CS-04C-12	1	SOCKET HEAD CAP SCREW
11	F-HN-04C	1	HEX NUT
12	F-HN-04F	1	HEX NUT

## OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
6A	CSD-1005-M8	1	SENSOR MOUNT
8	CSD-1007	3	MAGNET
	APS-1025		PROXIMITY SENSOR





## MAGNUM VENUS PLASTECH

Hardware Kit - UPS Resin Sensor

CSD-1000-UPS

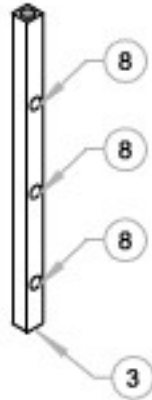
REV. A - UPDATED KIT DESCRIPTION 06-21-08 BT2  
REV. B - ADDED ITEM 8 TO ITEM 3, MOVED ITEM 8 TO OPTIONAL PARTS 06-29-06 JEM  
REV. C - ADDED APS-1025 AND NOTE TO ILLUSTRATION 02-07-13 BT2

**Hardware Kit - UPS Resin Sensor CSD-1000-UPS****PARTS LIST**

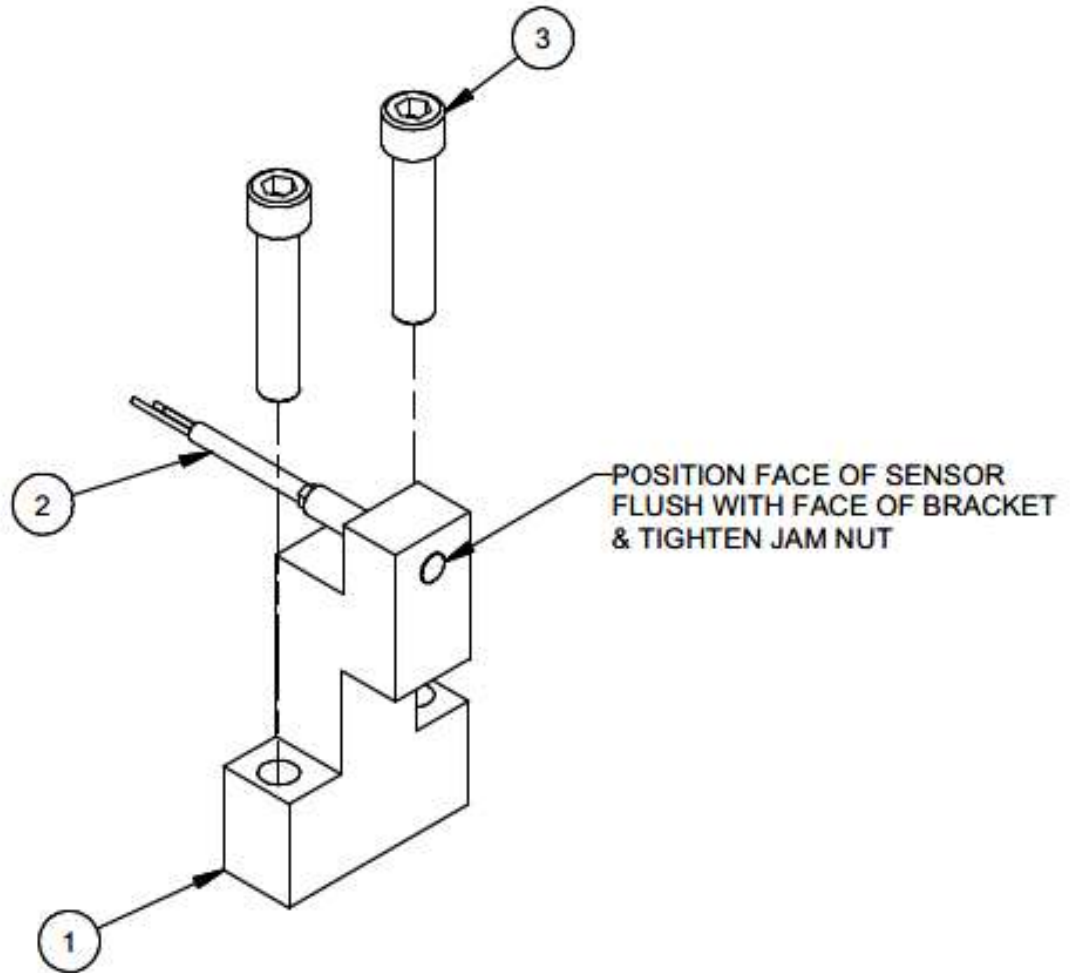
ITEM	PART NO.	QTY	DESCRIPTION
1	02670-8	1	SHOULDER BOLT
2	7102-15-16	1	SET SCREW
3	CSD-1002	1	ASSY - MAGNET HOLDER
4	CSD-1003-UPS	1	CONNECTING ROD
5	CSD-1004-UPS	1	PIN - CAT SENSOR MNT
6	CSD-1005-M12	1	SENSOR MOUNT
7	CSD-1006	1	MODIFIED PUMP PLATE
9	CSD-1008	1	ROD END
10	F-CS-04C-12	1	SOCKET HEAD CAP SCREW
11	F-HN-04C	1	HEX NUT
12	F-HN-04F	1	HEX NUT

**OPTIONAL PARTS AND ASSEMBLIES**

ITEM	PART NO.	QTY	DESCRIPTION
6A	CSD-1005-M8	1	SENSOR MOUNT
8	CSD-1007	3	MAGNET







3	F-CS-04C-20	2	SOCKET HEAD CAP SCREW
2	E-SEN-102	1	PROX. SENSOR
1	PAT-BRKT-SM	1	SENSOR BRACKET

## MAGNUM VENUS PRODUCTS

SENSOR ASSY.

PAT-SENS-100

REV:



REVISIONS

REV	ZONE	DESCRIPTION	DATE	BY
A		ADDED OPT NOTES & ITEMS 22, 23	7/9/01	JEM
B		ITEM 7 WAS OMMITTED, ITEM 22 WAS OMITTED	7/23/02	JEM

① OPTIONAL - USED ON ASSEMBLES 7930-S & -7  
 ② OPTIONAL - USED ON ASSEMBLES 7930-L & -3

The schematic illustrates the pneumatic circuit for a resin meter. Key components include:

- Pump Pressure:** Supply line starting at point 5, passing through valve 8.
- GAIN PRESSURE:** Line leading to the GAIN section.
- FLUSH PRESSURE:** Line leading to valve 13.
- PUSH BUTTON PANEL:** Contains three solenoid valves labeled IN START, STOP, and RESET, each with points 15 and 16.
- AUTO GAIN:** A control unit with an ON/OFF switch (point 11).
- ELECTRICAL DIAGRAM METER ENCLOSURE:** Shows internal wiring for DP switches, current sinking, and power input (POWER IN, WHITE, BLACK, RED). Points 17, 18, 19, and 20 are indicated.
- PNEUMATIC DIAGRAM METER ENCLOSURE:** Shows the main pneumatic connections, including a note about a NEUT JUMPER = CURRENT SINKING.
- RESIN PUMP:** The final output component at point 9.

QUANTITY	PART NO.	ITEM ZONE	DESCRIPTION	SPECIFICATION	REV
1	55060-1		PNEUMATIC CIRCUIT AUTOCAST HYDRALECTOR		
1	9811-1-1	21	PRESET COUNTER 110/220 VAC		
1	09750	20	SHUTTLE VALVE		
1	9807-2-1	19	SWITCH		
3	9807-1-1	18	PILOT OPERATOR		
1	07254	17	4-WAY VALVE		
1	09187	16	4-WAY DUAL PILOT VALVE		
1	09169	15	3-WAY VALVE		
1	66601-1	14	SENSOR & CABLE ASSY		
1	8703-1-1	13	CHECK VALVE - FLUSH TANK		
1	55209-1	12	FLUSH TANK ASSY		
1	58753-1	11	AUTO PRO GAIN ASSEMBLY		
1	6302-1-1	10	MANIFOLD BLOCK		
1	06997	9	OILER		
1	8404-1-1	8	FILTER		
1	7701-4-2	7	1/8-NPT FLUSH PLUG		
1	7701-7-1	6	QUICK DISCONNECT - ACCUM. CHARGE PUMP		
1	7702-2-2	5	LOCK OUT BALL VALVE		
2	05819	4	BALL VALVE		
2	8702-2-1	3	GAUGE		
1	09218	2	1/4 REGULATOR		
1	8405-2-1	1	MINI REGULATOR		

### TOLERANCES UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS ARE TO BE HOUNDED UNLESS OTHERWISE SPECIFIED  
 1/16"-1/8" FRACTIONAL  
 .001" DECIMAL  
 .0005" THICKNESS

DO NOT SCALE DRAWING - WORK TO DIMENSIONS

WARRANTY: 1 YEAR FULL WARRANTY  
 1 YEAR PARTS WARRANTY

APPLICATION: 1/1"

SCALE: 1/1"

### MAGNUM VENUS PRODUCTS

PNEUMATIC CIRCUIT - MINI RESIN METER

HIS LIMITS

DATE: 550601

REV: B

DRAWN BY: 550601

DESIGNER: 550601



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