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1. INTRODUCTION

This section describes the purpose of the Mustang Composite Sampling System (MCSS®), an explanation of the theory of operation, and a glossary of terms.

1.1 DESCRIPTION OF MANUAL

This technical manual consists of Specifications and General Data, Installation, Operations, and Maintenance procedures. This manual includes a description of the system functions and capabilities, contingencies and alternate modes of operation, and step-by-step procedures for system access and use. Use graphics where possible throughout this manual.

1.2 SYSTEM DESCRIPTION

- Analytically Accurate® Technology
- Conforms to ISO 8943
- SoftView® Composite HMI Software for remote control of the Mustang® Composite Sampling System
- Grab Sample Capability

1.3 THEORY OF OPERATION

The Mustang Composite Sampling System (MCSS®) provides an accurate, high quality gas sample, obtaining a representative average of the gas composition, by taking small bite size samples over a period of time.

1.4 GLOSSARY

- MAOP—Maximum Allowable Operating Pressure
- LNG—Liquid Natural Gas
- BTU—British Thermal Unit
- MCSS—Mustang Composite Sampling System
- CAL—Calibration
- P.S.—Power Supply
2. SPECIFICATIONS AND GENERAL DATA

2.1 MARKING
The marking of the equipment shall include the following:
- Suitable for Class I, Division I, and Zone I Areas
- THIS IS A HEATED CABINET. PLEASE KEEP DOOR CLOSED.

2.2 STANDARDS
- ASME B31.3-2008 Process piping
- ASME Section VIII, Division 1 (Accumulator Vessel)
- NEC: 2014
- ISO 8943

2.3 DESIGN RATED & NORMAL OPERATING CONDITIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Allowable Working Pressure</td>
<td>800 psig (55 bar)</td>
</tr>
<tr>
<td>Proportional Temperature Control Range</td>
<td>0°F to 280°F (-18°C to 138°C)</td>
</tr>
<tr>
<td>Adjustable Composite Sample Volume</td>
<td>0.5 to 3 cc every 2 seconds</td>
</tr>
<tr>
<td>Vacuum Purge</td>
<td>Less than 1 psia</td>
</tr>
<tr>
<td>Electrical Classifications</td>
<td>Class 1, Division 1 &amp; 2, Groups C, D, T3 (CE Ex II 2 G Ex d II B T3 Gb Zones 1 &amp; 2)</td>
</tr>
<tr>
<td>Port Sizes</td>
<td>1/4” Tube Fitting Sample Inlet</td>
</tr>
<tr>
<td>Port Sizes</td>
<td>1/2” Tube Fitting Sample Return</td>
</tr>
<tr>
<td>Conduit Connection</td>
<td>3/4” female NPT</td>
</tr>
<tr>
<td>Wetted Materials</td>
<td>Machined Parts: 316 SS/NACE Compliant</td>
</tr>
<tr>
<td>Wetted Materials</td>
<td>All other metal parts: SS/NACE Compliant (other materials available upon request)</td>
</tr>
<tr>
<td>Input Supply Voltage Options</td>
<td><strong>120</strong> VAC, 1200 Watts, 50/60 Hz, ± 10%</td>
</tr>
<tr>
<td>Input Supply Voltage Options</td>
<td><strong>240</strong> VAC, 1200 Watts, 50/60 Hz, ± 10%</td>
</tr>
<tr>
<td>Evacuation Options (Vacuum Purge Pump)</td>
<td><strong>230</strong> VAC, 1200 Watts, 50/60 Hz, ± 10%</td>
</tr>
<tr>
<td>Evacuation Options (Vacuum Purge Pump)</td>
<td><strong>VACuum</strong> Purge Pump (Standard Design)</td>
</tr>
<tr>
<td>Evacuation Options (Vacuum Purge Pump)</td>
<td><strong>VENturi</strong> Vacuum Pump (N₂ supply required)</td>
</tr>
</tbody>
</table>

2.4 WEIGHTS OF MAJOR COMPONENTS
- Approximate Unit Crated Weight: 1500 lbs.
- Approximate Unit Weight: 1000 lbs.
2.5 GENERAL ARRANGEMENT DRAWINGS

2.5.1 MCSS® COMPOSITE SAMPLING SYSTEM

Figure 1

2.6 UTILITIES

- One dedicated 20 amp AC circuit at the unit’s specified voltage is required for proper operation.
- Plant Air Supply: 50 psi Min to 150 psi Max; 8 LPM Flow Rate.
3. DESCRIPTION OF EQUIPMENT

3.1 PRINCIPLE OF OPERATION

1. Field Controls Interface Hardware
   a. Pushbuttons will be used to switch between control modes in the field.
   b. Status lights (2 for each control mode) will be used to indicate mode status in the field. LED’s are preferred.

2. DCS/Local Panel Interface
   a. All Control Modes and Control Functionalities will be represented both in the DCS and in the Field.
   b. DCS switches and local panel switches will not need to be manually aligned with each other (in the same position) to change modes or functions of field devices. They will automatically align.
   c. The local panel status lights and DCS status indicators should mimic each other at all times.
   d. A local/remote DCS hand switch should be used to select the location from which the composite sampler will be controlled. A data bit for the selected mode will be communicated to the composite sampler controller.
   e. All local panel control buttons switches except for the “Halt/Stop” mode switch should be disabled when the DCS control mode switch is in Remote.
   f. All DCS hand-switches except for the “Halt/Stop” mode switch should be disabled when the DCS control mode switch is in Local.

3. Modes of Operation
   a. System Run/Stop
      i. Stop: System is halted. All solenoid valves are closed.
      ii. Operational Mode is set to Composite Sampling
      iii. Run: System is unhalted. Enables Pump Selection outputs. “Enables Pump selection outputs” may not be intuitive to operations personnel. It would be better to say “Selected pumps will start when Composite Sampling Mode is on.” SV-5 will open when begin
      iv. Operational Mode and Pump Selection may be changed while in Stop Mode
      v. Reset (Purge/Start) may be initialized while in Stop Mode, which will effectively bring the controller out of Halt, initial the purge sequence, then switch to Run mode.
   b. Operational Mode
      i. Switches between Composite Sampling (SV-5 closed) or Sample Cylinder Fill (SV-5 open)
   c. Sample Pump 1 Active/Non-Active
      i. Permissive to run (SV-1 & SV-3 open) when System Run/Stop is selected to Run.
   d. Sample Pump 2 Active/Non Active
      i. Permissive to run (SV-2 & SV-4 open) when System Run/Stop is selected to Run.
   e. System Start (Reset)
      i. Initializes only if System Run/Stop is set to Stop
      ii. Sequence upon initialization
         1. Operational Mode switches to Composite Sampling
         2. SV-6 Opens, SV-7 Closes
         3. Vacuum pump Starts
         4. Pre-determined time elapses (PT-01 pressure setting optional)
         5. Vacuum pump shuts down
         6. SV-6 closes
         7. Logic switches to Run/Mode
         8. SV-1/SV-3 opens and/or SV-2/SV-4 opens to begin Composite Sampling (dependent on current Sample Pump Setting)

4. Sequence of Operation for ship loading (Local Control)
   a. DCS Local/Remote hand switch will be set to Local
   b. System Mode in Stop
   c. Reset function will put the system into purge cycle. This will evacuate all cylinders and tanks. Once completed the system will then be ready for composite sampling.
d. Operational Mode in Composite Sampling

e. Sample Pump 1 and/or Sample Pump 2 Selected. Normal operation is for selection of both pumps to prolong the life of the pump and provide sufficient pressure and volume.

f. Cylinders are attached to sample header

g. At the appropriate time after ramp up, System Run/Stop is set to RUN to begin sampling

h. At the appropriate time before ramp down, System Run/Stop is set to STOP to halt sampling

i. Operator sets Operational Mode to SYSTEM FILL then System Run/Stop is set to RUN. Equalization can be verified by a visual inspection on the pressure gauge (PI-05) as shown on PFD drawing in section 3.2

j. Once pressure equalization of the sample cylinders and accumulator is complete, the operator sets System Run/Stop to STOP

k. Operator then removes cylinders for shipment to the lab and replaces with new sample cylinders for the next loading

NOTE: Please reference section 3.3 under Description of Controls.

3.2 PFD
3.3 LOCAL PANEL - DESCRIPTION OF CONTROLS

Panel descriptions

- Local / Remote Control Mode Indication – If the Local indicator is illuminated. The system can only be controlled manually in the field from the panel. If the Remote indicator is lit then the system can only be controlled by the DCS operator. Switching between control modes must be performed when the sampler system is halted (Stop mode).
- Run / Stop – The Run indicator (GREEN) will be lit if the sampler system is running, and the Stop indicator (RED) will be lit if the system is halted. The momentary push-button is used to switch between Run & Stop.
- Pump 1 & Pump 2 – The indicator for each will be lit if the corresponding pump is enabled. Each pump can be enabled/disabled by depressing the corresponding momentary push button. Enabling/Disabling pumps must be performed when the sampler system is halted (Stop mode).
- Composite Sample / Cylinder Fill SV5 – There are two modes of operation. The momentary push button is used to switch between the two modes. Composite sampling: the system will take bite size samples with the active pumps and store them in the accumulator when the system is “Run”. Cylinder Fill SV5: The solenoid SV5 will open and equalize the accumulator to the sample cylinders when the system is in “Run” mode. Switching between Operational modes must be performed when the sampler system is halted (Stop mode).
- Reset On – The indicator will be lit if the system reset has been activated by depressing the momentary push button. This will start the system purge routine once the system is in “Run” mode. After the purge routine is complete the system is automatically set to “Composite Sampling” mode and begins sampling.
3.4 ELECTRICAL

3.4.1 COMPOSITE SAMPLER SERIAL COMMUNICATIONS

Embeded Serial Port
[Rockwell Automation Publication 2080-UM004D-EN-E March 2018]

Plugin Serial Port
[Rockwell Automation Publication 2080-UM002I-EN-E November 2016]
3.4.2 AC/DC LINE DRAWING

120VAC

Gnd

SWITCH

15A FUSE

SURGE PROTECTOR

T-STAT

5A FUSE

CABINET HEATER

24VDC POWER SUPPLY

T-STAT

5A FUSE

PLC

VACUUM PUMP

RELAY

15A FUSE
3.4.3 LOW VOLTAGE CONNECTIONS
Pressure Transmitter

![Diagram of a pressure transmitter system](image-url)
4. INSTALLATION

4.1 UNPACKING AND ASSEMBLY

- Unpack the analyzer cabinet using standard hand tools. There is no assembly of the unit required.

4.2 STORAGE

- It is recommended to secure the unit in a low traffic area to avoid accidental damage. Since the unit is designed for outdoor use, environmental factors should be of no concern.

4.3 CLEANING

- No cleaning of the unit should be necessary. Use common non-abrasive and non-toxic cleansers when cleaning the stainless steel enclosure.

4.4 FOUNDATION PREPARATION

- The analyzer cabinet should be installed on a solid, level surface, preferably concrete or metal. Proper support to prevent the pad from moving up and down due to temperature changes should be taken into consideration. Accessibility to all four sides should be taken into consideration.

4.5 PLACEMENT ON FOUNDATION AND GROUTING

- Ensure ample room is available in front of the cabinet for opening the door and accessing the internal components. Adequate securing of the unit to the foundation, by grouting or mechanical fasteners must be determined by the customer on an as need basis.

4.6 ALIGNMENT

- Orient the cabinet to best locate conduit and tubing input locations, and to allow easy access to the enclosure.

4.7 ELECTRICAL CONNECTION

- Perform the electrical hook up with de-energized conductors.
- Verify the unit you are hooking up matches voltages with the supplied power that you are connecting. Damage to the unit can occur if the wrong source of power is applied.
- A seal fitting is required for power input connection to the main power enclosure or switch to maintain the electrical classification rating.
- Once power is terminated properly, the conductors can then be powered up and the switch be turned on to the MCSS®.
4.8 EXTERNAL PIPING & INSTRUMENTATION

The MCSS® requires 1 RS485 communication hook ups. The best location for entry of the heat trace tubing should be determined by a qualified installer or factory representative. To penetrate the enclosure, use the supplied heat shrinkable boots, and follow the manufactures instructions for installation and shrinking. There is no external instrumentation hook-up required.

4.9 LINE CLEANING REQUIREMENTS

- No cleaning of lines is required prior to installation.

4.10 SPECIAL INSTRUCTIONS, TOOLS

- Standard Hand Tools
- Battery Powered Impact Wrench
- Electricians toolkit with multi-meter
- Pry bar
- Lifting equipment and/or machinery
- Stainless steel tubing installation tools

4.11 PRECAUTIONS

- Select a mounting location so that the enclosure will not be subjected to impact by heavy objects. Impacts can damage enclosed devices.
- All unused conduit openings must be plugged. Plugs must be a minimum of 1/8” thick and engage a minimum of 5 full threads.
- Use care to prevent dirt, grit, or other foreign material from lodging on threads. If any such material settles on these threads, clean them with an approved solvent (to avoid the possibility of an explosion, oxidation, and corrosion, do not use gasoline or similar solvent), then re-lubricate with an approved thread lubricant.
- Do not use Teflon® tape or pipe dope on conduit connection to the hazardous area rated enclosures.

4.12 RECOMMENDATION FOR PRESERVATION UNTIL OPERATION

- Care must be taken not to damage the MCSS or any of its components. Proper methods should be used when lifting, pushing, or pulling the unit. Only authorized and properly trained personnel should have any direct contact involving the MCSS.
4.13 SOFTWARE INSTALLATION

The MCSS® Control Center is a Windows® based program for remotely controlling the Mustang® Composite Sampling System. The basic version of this software is provided free and is fully functional. The protocol mode is Modbus RTU. A USB to RS485 converter can be provided. The accompanying thumb drive contains manuals, drivers, data sheets, and instructions for installing the serial device on different operating systems.

Installing the MCSS Control Center

1. Locate and open the folder “MCSS Control Center” on the thumb drive.
2. Double click the “setup” file
3. Click the “Install” button to complete installation (see below)
Note: The software will install a shortcut on the desktop and load.

Connecting Remotely

Step:
1. Select the menu item “CommPort” to open the port selection dialog box.
2. Use the dropdown box to select the communications port. (Note: The USB to RS485 converter should have been installed and the user knows the computer port it occupies. The software will show all available com ports)
3. Make sure the selection is shown in the box and click “Ok”.
4. Click the “File” menu item and select the “Connect” from the submenu dropdown.
5. If connection to the PLC is successful, the bottom left status will turn green and say “Connected”. If it remains red and says “Unsuccessful Connection”, then check the following: * Com port selection, * MCSS is powered up, * troubleshoot RS485 network/connections.
6. Click the “File” menu item and select “Disconnect” to disconnect from the system. The program will return to the initial startup page. Note: If the software is closed out completely, the communication port will need to be selected again at startup.
5. OPERATION

5.1 PRE-START REQUIREMENTS AND PRECAUTIONS

- Start-up and commissioning of the unit should be done under the direct supervision of a qualified factory representative. The area should be thoroughly inspected by qualified personnel for any safety hazards. A hazardous work permit will be required during start-up.
- Electrical power must be “OFF” before and during installation and maintenance or personal injury may result.
- Do not exceed any equipment pressure ratings.
- Cabinet heater surface temperature will approach temperature limit specified in technical specifications.
- The hazardous location information specifying class and group listing of each instrument enclosure is marked on the nameplate of each enclosure.

5.2 START-UP PROCEDURE

- Open all enclosures to do a pre start-up inspection of the system.
- Check for proper electrical termination and tubing connection.
- Supply main power to the power entry/termination enclosure and check for proper voltage.
- Turn power to the composite sample system on and check for proper voltages.
- Turn power to the cabinet heater check for proper voltages.

5.3 INITIAL OPERATION

- From the operators console, start SoftView® software and follow proper procedures for setup and operation.
- From the operators console, start SoftView HMI software and follow proper procedures for setup and operation.

5.3.1. REMOTE - SOFTWARE CONTROL
INTERFACE:
The user interface will load and show the current state of the system. The above example shows the system is paused. All buttons are enabled when the system is paused, so the user can make system changes in this state. If the start button is clicked, the system will resume its current mode and the buttons will be disabled and not allow system changes (with the exception of the start button whose caption would have changed to “Stop”).

STAR/STOP:
This button toggles between “Start” & “Stop” and runs or halts the system. The text box above the button also gives the current state of the system.

MODE SELECT:
There are 2 modes of operation:
1. Composite Sampling – The system will sample the incoming stream for collection into the accumulator once the start button is clicked.
2. Cylinder Fill – The system will open the pathway to the sample cylinders for manual collection of the composite sample.
3. The indicator box is “Green” if active and “Red” if not active.

PUMP SELECT:
1. Select one or both pumps for operation. The indicator box is “Green” if active and “Red” if not active.

RESET:
When the “Reset” button is clicked, the pump picture will appear above it, and the indicator boxes in the MODE SELECT group will turn yellow. Once the “Start” button is clicked, a progress bar will appear above it, and the system will begin the evacuation of the accumulator. Once complete, the system will begin composite sampling and the software will show it accordingly.
5.3.2 LOCAL - PANEL CONTROL

Operating the system from the control panel

Note:

• To operate the sample system from the local control panel, the “Local” control indicator must be lit. The DCS operator determines whether the system is in “Local” or “Remote” via DCS hand switch
• Changes can only be made when the system is halted -“Stop”

The following is a basic procedure for initializing and running the system from the control panel.

1. Confirm the system is in Stop mode (halted). Confirm that the “Composite Sample” mode is selected.
2. Select desired Pump(s) to be enabled. Note: Normal operation is for both pumps to be selected.
3. Verify that composited sample cylinders have been installed with the following valve alignment in place:
   a. Valves V-14, V-15, V-16, V-17 are open (vertical)
   b. The top Cylinder valves are open (vertical)
   c. The bottom cylinder valves are closed (horizontal)
   d. The valves V-18, V-19, V-20, V-21 are closed (Horizontal)
4. At the appropriate time in the ship loading operation as directed by the PIC, perform a sampler system reset by depressing the “Reset” pushbutton. The “Reset” indicator should be lit.
5. Place the Sampler in “Run” mode by depressing the Run/Stop pushbutton.
6. The system will begin the purge routine. Once the routine is completed, the “Reset” indicator will turn off. The system will begin the composite sampling routine.
7. Monitor the accumulator pressure during ship loading operations to insure that all systems are working OK, and that there are no leaks on the sampler system. For local operations – monitor PI-07.
8. At the appropriate time in the ship loading operation as directed by the PIC, stop the composite sampler system reset by depressing the “Stop/Run” push button.
9. Use the Operational Mode pushbutton to switch from Composite Sampler to “Cylinder Fill – SV5” mode.
10. Place the Sampler in “Run” mode by depressing the Run/Stop pushbutton. This opens solenoid valve SV5 to fill the “Composite Sample Cylinders”
11. Once the sample is transferred to the sample cylinders (pressure at PI-07 reaches equilibrium), Place the Sampler in “Stop” mode by depressing the Run/Stop pushbutton. SV5 will go closed.
12. Remove the composite sample cylinders and replace for the next composite sampling event (see procedure for changing the composite sample cylinders).

5.4 VIBRATION LIMITS AND MEASURING TECHNIQUES

• Use good engineering practices to minimize vibration as this can damage tubing connections, loosen mounting brackets, and possibly compromise the system.
• No vibration measuring techniques are recommended. Use visual inspection to determine if vibration suppression is needed.

5.5 TEMPERATURE LIMITATIONS

• Ambient temperature is not a concern.
• Internal temperatures are controlled by the system.
• Refer to section 2.2 for system temperature ratings.

5.6 GENERAL OPERATING PRECAUTIONS

• Only trained qualified people should operate or make any adjustments to the system.
5.7 GRAB (SPOT) SAMPLING

NOTE: This is an example of one method for taking grab samples for analysis. It is the customer’s responsibility to develop their own procedures and take the necessary safety precautions.

1. Open the black sample cylinder supply valves V-5, V-6, V-7, and V-8
2. Open the black sample cylinder exhaust valves V-9, V-10, V-11, and V-12
3. Open the black 4 top cylinder valves (1) (figure 3)
4. Monitor PI-12 till the pressure gauge reaches equilibrium
5. Close the black 4 top cylinder valves (1) (figure 3)
6. Open black the 4 bottom cylinder valves (2) (figure 3)
7. Open the flow indicator FIC-04
8. Monitor FIC-04 until there is no flow
9. Close the black 4 bottom cylinder valves
10. Steps 3 thru 9 constitute 1 complete purge cycle. Repeat this purge cycle 8 times
11. Open the black 4 top cylinder valves (1) (figure 3)
12. Monitor PI-12 till the pressure gauge reaches equilibrium
13. Close the black 4 top cylinder valves (1) (figure 3)
14. Close the black sample cylinder supply valves V-5, V-6, V-7, V-8
15. Close the black sample cylinder exhaust valves V-9, V-10, V-11, V-12
16. Remove the sample cylinders and place in an insulated container
17. Replace these with new cylinders

Figure 3
Based on API Chapter 14 Section 12.8
Fill & Empty Method
5.8 SHUT DOWN AND RESTART PROCEDURES

The shutdown procedure should be performed by qualified personnel.
1. From the operators console or Field Panel, pause the composite sampling system.
2. From the main power connection SW1, shut off the power to the composite sampling system.

The start-up procedure should be performed by qualified personnel.
1. First, do a complete system check and verify the system is safe for operation.
2. From the main power connection SW1, turn on the power.
6. MAINTENANCE

6.1 GENERAL MAINTENANCE RECOMMENDATIONS

Online Recommendations
• The operator should be familiar with the normal operating parameters of the composite sampling system. Any deviation from such parameters should be reported. These parameters are site specific and will be determined during commissioning of the unit.
• Periodic inspections should be made to the system and any abnormalities reported to the responsible person.

Offline Recommendations
• Periodic physical inspections should be made to the system during power off conditions.
• Check to see that proper shut down procedures have been followed.
• A thorough inspection of the complete system should be made and any abnormalities reported to the responsible person.

6.2 DETAILED ASSEMBLY AND DISASSEMBLY INSTRUCTIONS

• The Analyzer cabinet with gas chromatograph and composite sampling system are a complete assembly with only minimal electrical and piping hook-ups required.
• Refer to component specific manuals for instructions provided by the manufacturer of that component.

6.3 PARTS LIST FOR MAINTENANCE SUPPLIES

• The analyzer cabinet with composite sampling system is maintenance free and requires no maintenance supplies.

6.4 RECOMMENDED SPARE PARTS

• Refer to Appendix 7.3 for a list of recommended spare parts.
7. APPENDIX

7.1 ASSEMBLY INSTRUCTIONS

The Analyzer cabinet with composite sampling system is a complete assembly with only minimal electrical and piping hook-ups required.

7.2 SPECIAL TOOLS REQUIRED AND SUPPLIED WITH THE EQUIPMENT

Only common hand tools and electrician tools are required for installation and normal maintenance, therefore no special tools are supplied with the unit.

7.3 LIST OF SPARES

Mustang® Composite Sampling System 2-Year Spare Parts

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Quantity</th>
</tr>
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<td>Pump for Composite Sampler</td>
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<td>PLC for Composite Sampler</td>
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<td>200260</td>
<td>2-Way Exp. Proof Solenoid Valve</td>
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<td>27391</td>
<td>3-Way Exp. Proof Solenoid Valve</td>
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<tr>
<td>14521</td>
<td>Exp. Proof Cabinet Heater</td>
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<td>200322</td>
<td>120/240 VAC to 24 VDC</td>
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<tr>
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<td>Sample Collection Valve Status</td>
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</table>
7.4 CERTIFICATIONS

7.4.1 ISO 9001

Certificate of Registration

The following organization’s quality management system has been assessed and registered by Intertek Testing Services NA, Inc. as conforming to the requirements of:

ISO 9001:2008

Organization:
Valtronics, Inc.
Main Site: 43 Ritmore Drive, Murrysville, West Virginia, 26164, USA

The Quality Management System is applicable to:
Manufacture of sampling Conditioning systems, and fabrication of Metal analyzer/meier Buildings and fabrication of Gas Custody transfer metering systems.

In the issuance of this certificate, Intertek assumes no liability to any party other than to the client, and then only in accordance with the agreed upon Certification Agreement.

Intertek Testing Services NA, Inc. - Boxborough, MA, USA
## 7.5 MODBUS REGISTERS

<table>
<thead>
<tr>
<th>Tag #</th>
<th>Description</th>
<th>Register</th>
<th>Type</th>
<th>Read/Write</th>
<th>Read Only</th>
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<td>Common Fault Alarm (Major Error Hault)</td>
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<td>Integer (0=Pump #1 Not Active; ≥1 = Pump #1 Active)</td>
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<td>SV4</td>
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<td>Vacuum Pump Status</td>
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NOTE: Register addresses may change to customer specified
About Mustang Sampling
Mustang Sampling, LLC is the innovator of Analytically Accurate® solutions within sample conditioning systems. We provide custom solutions of products and services globally to the Natural Gas, Natural Gas Liquids (NGL), and Liquefied Natural Gas (LNG) industries. Mustang Sampling continues to pioneer integrated control systems, allowing our customers to maintain phase stability from sample extraction at the source through sample analysis. Our products are continuously improved and subjected to the highest quality standards which provides our customers with the best sample conditioning solutions.

About Valtronics Solutions
Valtronics Solutions is a diverse manufacturing and services company within the natural gas, liquefied natural gas, natural gas liquids, petroleum and chemical industries. We provide skids including gas measurement and control systems, monitoring equipment, automation, cabinets and complete analyzer buildings. Our service technicians are fully trained in equipment diagnostics and troubleshooting are capable of rebuilding valves in the field. With over 250 years of skilled experience, our company is dedicated to exceeding customer expectations when fulfilling their needs. Our dedicated staff has driven sustained growth with thousands of customers depending on Valtronics’ products and services globally.

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U.S. Patent 9,562,833

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