Matrix II

MICROPROCESSOR™ CONTROL PANEL

Member of iiar
International Institute of Ammonia Refrigeration
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RETA

IARW International Association of Refrigerated Warehouses

UL

cUL

RVS Corporation, Bryan, TX.

The RVS Matrix II Microprocessor™ Control Panel (MMP) is now faster and more powerful than ever before and uses the latest technology to provide a total control solution for Liquid Recirculator Packages. RVS was the first in the industry to integrate all of the recirculator functions into a single microprocessor control panel and has raised the bar of performance and capability with the new MATRIX II!

Standard features include vessel level controls and safeties, pump controls, pump and motor safeties, data collection, trouble shooting screens, communications, and the patented minimum pump flow control (US Patent No. 7,437,880). The Matrix II can be packaged as a stand-alone panel without integrated motor starters or as a complete panel with starters, disconnect and optional VFD controls. All Matrix II panels are UL/cUL listed in a NEMA-4 enclosure.

The Matrix II is easy to use and includes Factory Set Points based on the actual conditions of service. The large color graphic touch screen display provides easy operator interface into mode screens. Set point entry and calibration require only a few basic touch tabs to navigate.

Factory packaging and wiring assures a fully tested and functional unit, ready-to-go, without expensive field wiring and complicated PLC logic.

Matrix II Improved Features

- Faster Processor
- Controls More Pumps, Higher Total Horsepower
- Integrated Pump Bearing Wear Monitor
- Large, Color, Touch Screen Display
- Optional Internally Mounted VFD's

Matrix II Microprocessor Enclosure Options

MMP-A (Alpha): Stand-alone panel without starters or disconnect – electronics only, one or two I/O boards available, with color graphic HMI touch screen display mounted in the enclosure door, 20”W x 24”H x 10”D enclosure dimensions.

MMP-B (Bravo): Small standard enclosure panel for two pumps maximum with starters and disconnect, one I/O board, with color graphic HMI touch screen display mounted in the enclosure door, 24”W x 24”H x 10”D enclosure dimensions.

MMP-C (Charlie): Medium standard enclosure panel for up to three pumps plus one transfer pump maximum with starters and disconnect, one I/O board, with color graphic HMI touch screen display mounted in the enclosure door, 24”W x 36”H x 10”D enclosure dimensions.

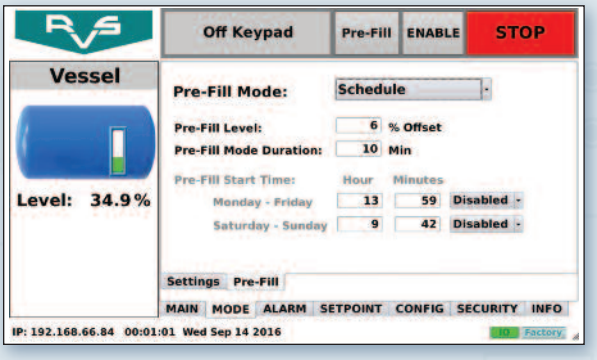
MMP-D (Delta): Large standard enclosure panel for up to six pumps plus one transfer pump maximum with starters and disconnect, one or two I/O boards available, with color graphic HMI touch screen display mounted in the enclosure door, 24”W x 48”H x 10”D enclosure dimensions.

Total Control Solution for Liquid Recirculato

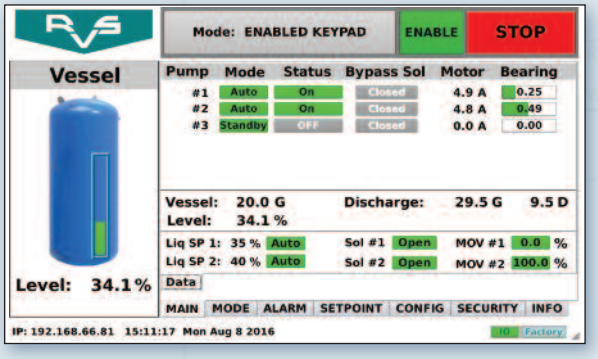
Matrix II Microprocessor Control Features

Vessel Liquid Level Control

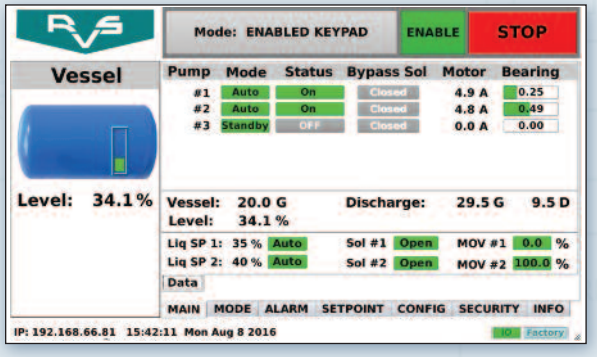
- Accepts 4-20 mA Signal From Level Probe
- Low Level Alarms and Failures
- Operating Level Set Points
- Pre-fill Set Point for Blast Freezers
- High Level Alarms and Failures
- Controls Two Different Liquid Feed Assemblies
- Motorized Valve Dynamic Proportional Control
- Vertical and Horizontal Vessel Color Graphic Images



Pre-fill Set Point



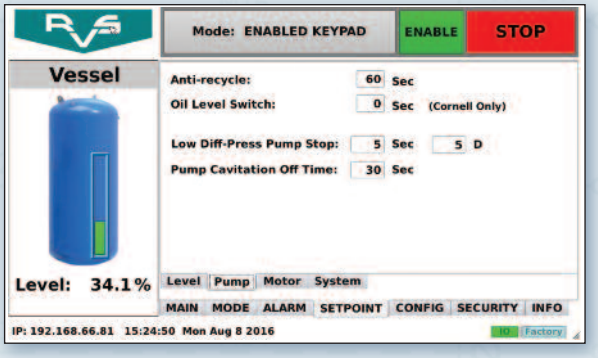
Vertical Vessel Image



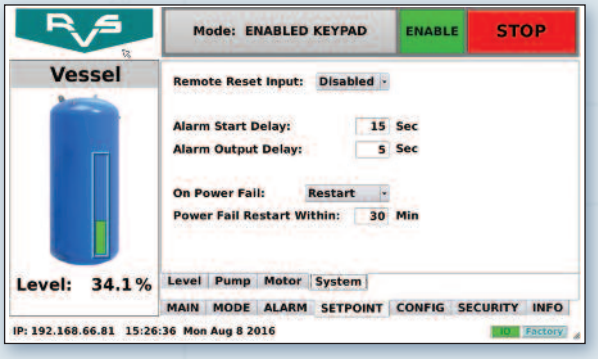
Horizontal Vessel Image

Integrated Pump Control

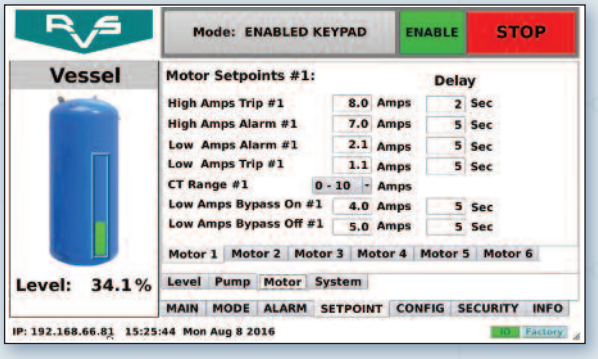
- **NEW!** VFD Control Option
- Low Flow Alarms and Failures
- Cavitation Control and Shutdown
- High Flow Alarms and Failures
- Minimum Flow Bypass Control (US Patent No. 7,437,880)
- Available With or Without Starters



Pump Setpoints



System Alarm Setpoints



Motor Setpoints

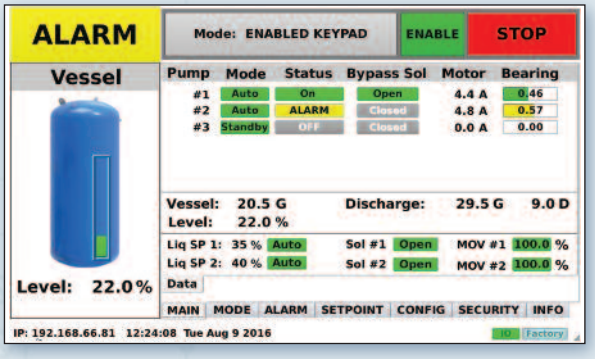
or Packages

NEW Pump Feature!

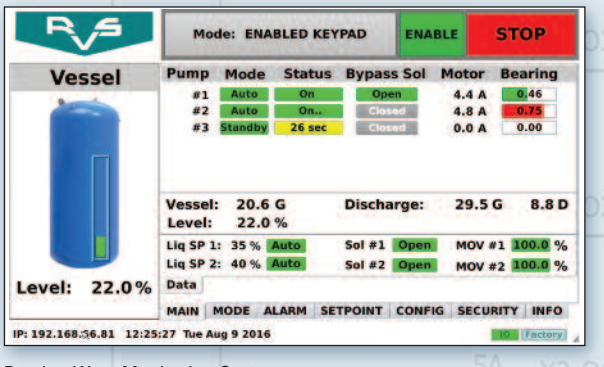
Matrix II Bearing Wear Monitoring System

- Matrix II Panel Displays Bearing Wear on Screen
- Indicates Rotational Direction
- Works in Parallel With Teikoku Pump Bearing Meter (shown at right)
- Alarms and Failures

Teikoku Bearing Meter



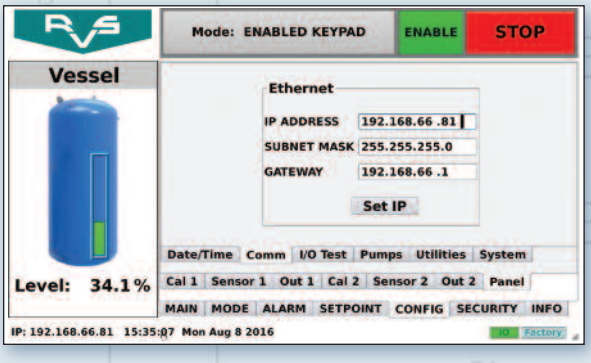
Alarm Annunciator Screen



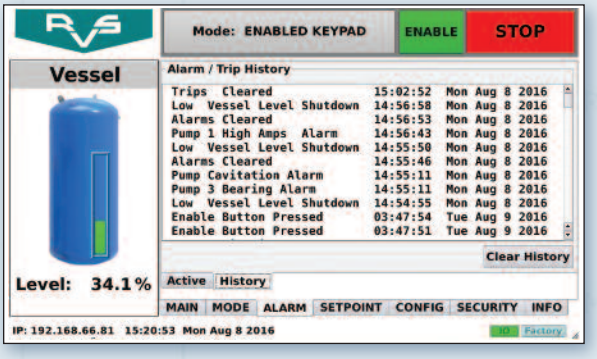
Bearing Wear Monitoring System

Communications and Data Logging

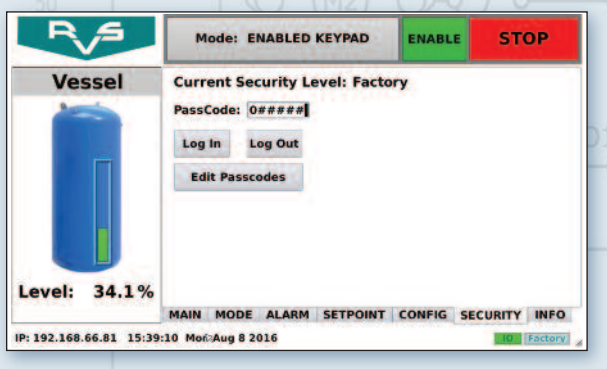
- Ethernet IP
- Ethernet - MODBUS TCP
- RS-485 - MODBUS RTU
- USB
- Communication with All Protocols
- Alarm and Failure History Logs
- Secure Passcode Entry



Ethernet Communications



Alarm History



Secure Passcode Entry

Matrix II Microprocessor Hardware Specifications

Input Power

• 88-125 VAC	47-63 Hz

Environmental

• Operating Temperature	-20°F to 140°F (-29°C to 60°C)
• Storage Temperature	-40°F to 185°F (-40°C to 70°C)

Display

• Size	10.1” Diagonal – Wide Format
• Dot Format	1280 x 800 WVGA
• Backlight	LED
• Touchscreen	5-Wire Resistive

CPU

• Type	ARM Processor, Running Linux

Certifications

• Agency Approvals	UL 508A, cUL

Digital Output Modules

• Continuous Operating Current	3 Amps Maximum
• Voltage	12 to 140 VAC

Digital Input Modules

• Voltage	90 to 140 VAC

Analog Inputs

• Type	0-5 VDC, 0-10 VDC, 4-20 mA, ICTD, RTD

Analog Outputs

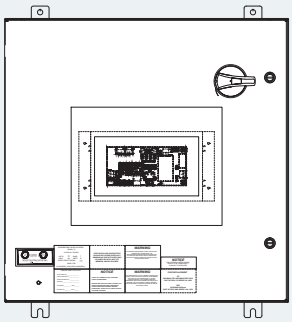
• Type	4-20 mA

Motor Current Sensor

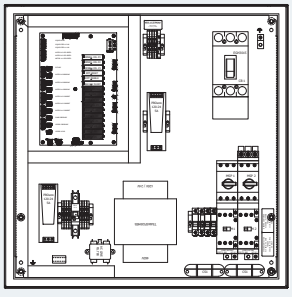
• Technology	4-20 mA Transmitter

External Communications Ports

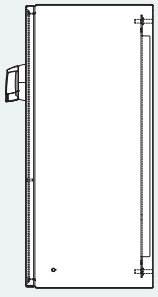
• Ethernet IP	
• Ethernet	10/100 Mb/s
Protocol	MODBUS TCP
• RS-485	9.6 K to 115K Baud
Protocol	MODBUS RTU
• USB	USB-2.0 Compliant



FRONT VIEW



SUBPLATE VIEW



RIGHT SIDE VIEW

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