OPERATIONAL
DESCRIPTION

NTS MAGNETIC WATER FILTRATION MACHINE

MODEL: NTS-FM-MS-001
SERIAL: 25001
WEIGHT: 460 Kg
MAXIMUM INLET PRESSURE: 7 Bar
MANUFACTURER: FOODMACH PTY LTD, AUSTRALIA
MANUFACTURE DATE: 01-04-2025
CONTACT: sales@mach.au

SAFETY INSTRUCTIONS

REFER TO OPERATIONAL INSTRUCTION MANUAL FOR THE MACHINE

RAPID RESPONSE. PRECISION TECHNOLOGY.

NTS Magnetic Separation
Filtration System

Serial MS25001 | Model NTS-FM-MS-001
Manufacture Date: 01 April 2025

MACH RAPID RESPONSE.
PRECISION TECHNOLOGY.

Please ensure that all operational and maintenance personnel are fully trained in the safe and efficient use of the equipment, and fully conversant with the contents of this manual.

The following manual pertains to the equipment –

Supplied to your company by:

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And manufactured by:

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EQUIPMENT PROJECT NO:	6087
MODEL NO.:	NTS-FM-MS-001
MANUFACTURED:	2025
SERIAL NO:	MS25001

After Sales, Service and Spares:

SERVICE DEPARTMENT:	Telephone: (+61 3) 5482 4666 (ask for Service) Email: service@foodmach.com.au
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Contents

1. General

1.1 Scope

The aim of this document is to provide an operational description for the line NTS Magnetic Separator filtration system. It includes information on safety, technical specifications, installation and operating instructions, maintenance, spare parts, and compliance certificates.

Machine Overview

- **Machine Name**: Magnetic Water Filtration System – Model NTS-FM-MS-001
- **Manufacturer**: MACH Engineering (Australia)
- **Purpose**: Removal of ferrous and non-ferrous particles from water using magnetic separation technology.
- **Use**: Industrial water treatment.

⚠️ **Authorised Use Only**

This Magnetic Separator has been exclusively designed and manufactured by MACH Engineering (A Division of Foodmach Pty Ltd) for NanoTech Systems Pty Ltd (NTS) under a formal Intellectual Property and Exclusive Manufacturing Agreement. It remains the intellectual property of NTS.

Use of this equipment is strictly limited to applications authorised by NTS. Operation of this unit with non-approved nano materials or without the express written permission of NTS will immediately void all warranties, support obligations, and may result in breach of intellectual property rights.

For approved applications and nano material supply, please contact NTS at nanotechsystems.com.au or via email at support@nanotechsystems.com.au.

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2. Reference Documents

2.1 Document Revisions

Where more than one (1) Operational/Functional Description has been issued to the client, the latest revision has precedent over all previous revisions.

Current Revision			
Rev	**Reason for Revision**	**Date**	**Reference No.**
1.0	Initial Draft	5/7/2025	6087
1.1	Added Troubleshooting Guide	28/8/2025	6087
1.2	Issued Final version	20/11/2015	6087

3. Machine Control Overview

3.1 Introduction
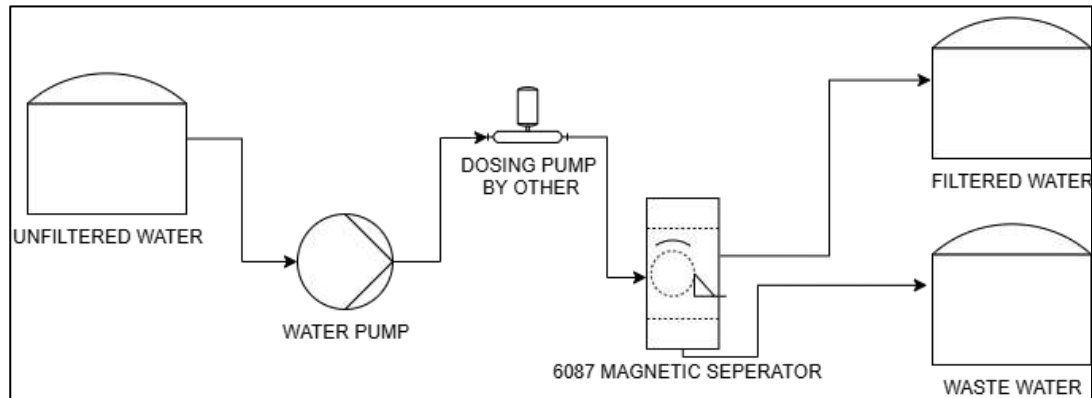
Functionality of the NTS Magnetic Separator

The **magnetic separator** is a device used to extract ferromagnetic and paramagnetic materials from a mixture using magnetic force. It plays a critical role in industrial processes where the removal of metallic contaminants or the recovery of valuable magnetic materials is essential.

Working Principle

The separator operates by generating a magnetic field through permanent magnets. Magnetic particles are attracted and held by the magnetic field, while non-magnetic materials continue to flow unaffected.
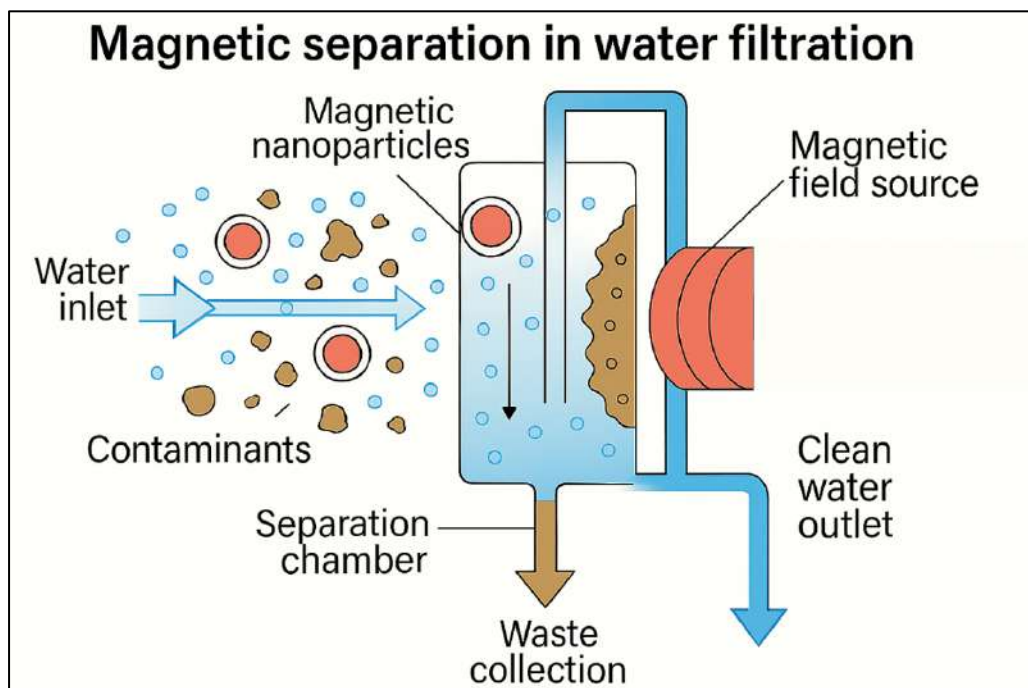
Key Functions

- **Contaminant Removal**: Eliminates Contaminants from liquids to ensure product purity and protects downstream equipment.
- **Material Recovery**: Recovers valuable magnetic materials from waste or mixed material streams, improving resource efficiency.
- **Process Protection**: Prevents damage to downstream filtration systems by removing contaminants.

Applications

- Mining and Mineral Processing
- Food and pharmaceutical industries
- Recycling and waste management
- Chemical and Plastic Manufacturing

3.2 Technical Specifications

Parameter	Specification
Power Supply	230V AC, 50Hz
Maximum Flow Rate	1200 L/Min
Magnetic Strength	11,000 Gauss
Material	Stainless Steel 316/304
Dimensions	L 1.5 x W 0.87m x H 1.7m
Weight	460kg
Maximum Inlet Pressure	7bar

3.3 Operational Process

- **Water Inlet**: Waste stream with nano particles enters the system via the inlet valve.
- **Magnetic Separation**: High-intensity magnets attract and trap metallic particles.
- **Filtration Stage**: The outlet valve closes, and the magnets are wiped clean, and waste exits via waste outlet into waste container
- **Water Outlet**: Clean water exits through the outlet pipe.

3.4 Installation Requirements

- **Site Conditions**: Minimum under cover, preferably purpose-built room. Ie, Container. installation,
- **Ambient Operating Temperature** 5°C–45°C.
- **Utilities Needed**: 230V-240V 50Hz AC Electrical supply, water inlet/outlet plumbing.
- **Safety Measures**: Grounding (Type I earthed 3 pin plug), emergency shut-off, protective casing.

3.5 Compliance & Standards

- **Australian Standards**: AS/NZS 3000; 3820, 60204.1, 61439 series, 12100.

3.6 Maintenance & Support

- **Routine Checks:** Water and air leaks.
- **Service Schedule:** Bi-annual service recommended.
- **Support Contact:** Refer front of manual

⚠️ Special note on the Peerless 240V Air Compressor Daily Maintenance Routine

🕐 **Release water bleeding valves**:
- **Twice daily** (morning and afternoon), open each of the valves at the bottom of the air receiver tank to release accumulated internal moisture.
- This prevents internal corrosion and maintains air quality.

🕐 **Inspect for leaks**: Look for oil or air leaks around fittings and hoses.

🕐 **Visual inspection**: Check for unusual noise, vibration, or loose components.

3.7 Shipping & Handling

- **Packaging:** Export-grade wooden crate with moisture protection.
- **Shipping Method**: To be shipped in a container and using the correct restraining points.

3.8 Safety Protocols

🛡️ General Safety

- **Only trained personnel** should operate or maintain the machine.
- **Always disconnect power** supply before performing any maintenance.
- **Keep the area clean** and free of obstructions.

🧲 Magnetic Safety

- **Maintain distance** from the magnetic core if wearing pacemakers or carrying magnetic-sensitive devices.
- **Disassembly of the main drum is strictly limited to authorised MACH technicians. The drum contains strong magnetic components that pose serious health & safety risks if handled improperly.**

⚡ Electrical Safety

- **Ensure proper grounding** of the machine via a verified earth.
- **Use surge protection** devices to prevent damage from voltage spikes.
- **Inspect cables and connectors** regularly for wear or damage.

💧 Water & Chemical Safety

- **Wear protective gloves and eyewear** when handling water samples or cleaning agents.
- **Ensure water is free** from hazardous chemicals that may react with machine components.

🛠 Maintenance Safety

- **Follow lockout/tagout procedures** during servicing.
- **Use only manufacturer-approved** replacement parts.
- **Document all maintenance** activities in the service check list at the end of this document.

🚨 Emergency Protocols

- **Emergency stop button** must be accessible and clearly labelled.
- **In case of malfunction**, shut down the system and notify technical support.
- **Fire extinguishers and first aid kits** should be available near the installation site.

4. Machine Modes & Start Up

IMPORTANT!

The machine requires two things before operation can be allowed:

1. 230vac, 50Hz single phase supply cable connected to the inlet plug pictured below.
   This supply should be protected by a suitable residual current device (RCD).

2. Water must flow through the magnetic chamber **before** a wipe can be activated.
   Failure to generate water flow before operation of the hydraulic ram may cause damage or failure of the internal wiper seals.

Once electrical power has been connected, the machine can be turned on via the isolation switch located at the inlet plug.

IMPORTANT!
⚡ **Risk of Electric Shock!**
If access to the Motor Control Cabinet (MCC) is require, only an authorised, licenced and qualified Electrical Technician can access this equipment.

Once energized and the system has booted up, the machine can operate in two modes – Automatic or Manual mode.

4.1 Auto Operation

To enter auto operation, press the Auto mode button on the Overview screen.
Refer to section 6 for further details.

4.1.1 Machine Auto Operation

Auto operation is enabled after the machine is stopped and the Auto mode pushbutton is pressed on the Overview page. Once in auto mode, the Start and Stop signals are received from the pushbuttons on the front panel of the MCC. Refer to section 6 for further details.

Auto operation is inhibited or stopped on any safety zone when:

- ➤ Any emergency stops are activated
- ➤ The auto stop pushbutton is pressed

When pressing the stop push button while the system is in operation (but not currently wiping), the machine will stop operation.

When pressing the stop push button while the system is in operation and performing a wipe, the machine will perform a controlled stop operation after a pre-determined amount of time.

The system is equipped with an interface module to provide a "run" command to an external water transfer pump. This can be utilised to start and stop the external water transfer pump through the inlet & outlet pipework in Auto Operation mode. It is the end user's responsibility to ensure this interface wiring is connected for optimal operation of the system, and safe & effective control of the water transfer pump.

Care must be taken when resetting the system from a stopped operation.
If the machine was stopped during a wipe process, a system restart will automatically perform a System Home cycle, which will start the hydraulic motor and move the wiper to the required position.

Care must be taken when resetting the system from an emergency stop operation in auto mode.
During an emergency stop, the system stops immediately, regardless of any operations still in progress.
If the machine was Emergency Stopped during a wipe process, system restart in auto mode will automatically perform a System Home cycle, which will start the hydraulic motor and move the wiper to the required position.

4.2   Manual Operation

To enter Manual operation, press the Manual mode button on the Overview screen.
Refer to section 6 for further details.

4.2.1 Machine Manual Operation

Manual operation is enabled after the unit module is stopped and manual mode pushbutton is pressed on the Overview page. Once in manual mode, select the Manual tab to view the components that can be operated in manual mode. **Manual operation in more depth can be viewed in Clause 7 – Manual Control.**

Manual operation is inhibited or stopped when:

- Any emergency stop is activated
- There are active alarms relevant to that device.
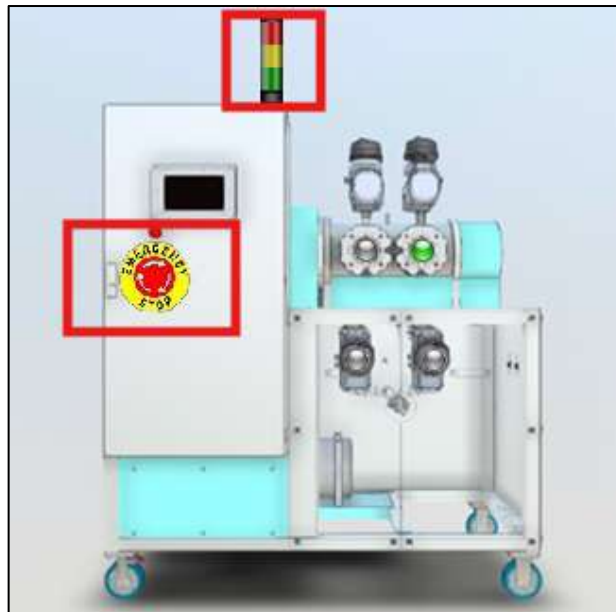
5. Safety Systems

5.1 Emergency Stop

There is emergency stop pushbutton provided on this system. Their contacts control a safety relay, which disconnects power to the PLC outputs and safe stops the motor starters. With this, selected devices are electrically isolated from operating.

The emergency stop can be reset by pressing the reset pushbutton on the MCC's front panel, only after all emergency stop push buttons have been released (twist to release).

They are displayed on the HMI.

1. E/Stops and their status (visible/flashing = tripped)

5.2   Safety Light stack

Red	Static	Internal machine stop reason due to fault. The light indicates that the reason or alarm is still active. A combination of the RED and GREEN lights are invalid.
	Flashing	Machine stop reason due to a safety system issue / trip. Operator must react immediately. The light indicates that the internal reason or alarm is still active. A combination of the RED and GREEN lights are invalid.
Amber	Static	Machine not in operation due to an upstream reason (lack of water flow).
	Flashing	Machine not in operation due to a downstream reason (outlet pipe blocked, pressure too high)
Green	Static	Machine is currently in operation.
	Flashing	Machine is executing a start / restart. No fault reason or alarm is active. During this sequence, an audible alarm will be heard to indicate the starting sequence has commenced.

6. Operator Interface

There is a HMI mounted on the door panel of the MCC. All the screen tabs can be accessed from this HMI.

6.1 Common Screens, Controls & Indications

6.1.1 Motor Control Cabinet (MCC)

The front panel of the MCC is the location of all machine controls, feedback and alarms.

Push button and LED indication lamp descriptions are as follows (as per numbering in image above):

1. Human Machine Interface (HMI)

   The location where the user can log in to operate the machine and view any alarms.
   Refer to Sections 4, 5, 6, 7 & 8 for details.

2. Emergency Stop

   Stops the machine immediately and disables the "pump run" interface command.
   Refer to Section 5 for further Emergency Stop details, and section 4.1.1 for interface details.

3. Hydraulic Pump Running Indication

   LED to indicate that the hydraulic pump is running.

4. System Home Push Button

Used to send the hydraulic wiper to it's home position.

5. Auto Mode Start / Stop Push Button with Cycle Running Indication

When the machine is set to Auto mode, these are the pushbuttons that start and stop the automatic operation. Start push button will sound the system alarm and flash the green beacon for 5 seconds before the system begins to run. This is to provide a visual and audible indication that the system is being started. The Stop push button will put the machine into a stopped state, though safety systems will remain healthy.
Refer to Section 4 for further details.

6. Safety System Reset Push Button

In the event of an Emergency Stop activation, the safety system is activated and the LED indication on the Reset Push Button will illuminate. Once deemed safe to restart the machine, the Emergency Stop button can be released and the Safety System Reset Push Button can be depressed to reset the safety system. Once reset, the LED indication on the Reset Push Button will turn off and the system can be restarted using the Auto Mode Start / Stop push buttons.

7. System Flow Active Indication

LED indication provision for customer connection of an existing site flow meter to provide visual feedback that water flowing through the machine.
Note: An analog flow meter with 4-20mA signal output must be connected and programmed for this to be enabled.
Please contact Mach Engineering After Sales, Service and Spares with the contact details at the beginning of this manual for further information.

8. Wiper Extended Indication

LED to indicate that the hydraulic wiper ram is in the extended position.

9. Wiper Retracted Indication

LED to indicate that the hydraulic wiper ram is in the retracted position.

The following controls & indications are common to all the Process and Unit screens on the HMI.

6.1.2 Unit Bars

The unit bar provides navigation to the following unit screens. It also shows the current state of the areas via the light stacks.
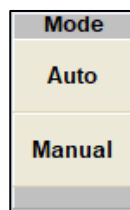

6.1.3 Top Bar

Indications
- Time and date indication
- Username indication
- PLC connection indications

6.1.4 Control Bars

Mode Bar

The machine must be in the stopped state to change modes. The current mode selected will be highlighted in green on the mode bar.

6.1.5 Process Overview Screen

The following controls are provided from the overview screen:
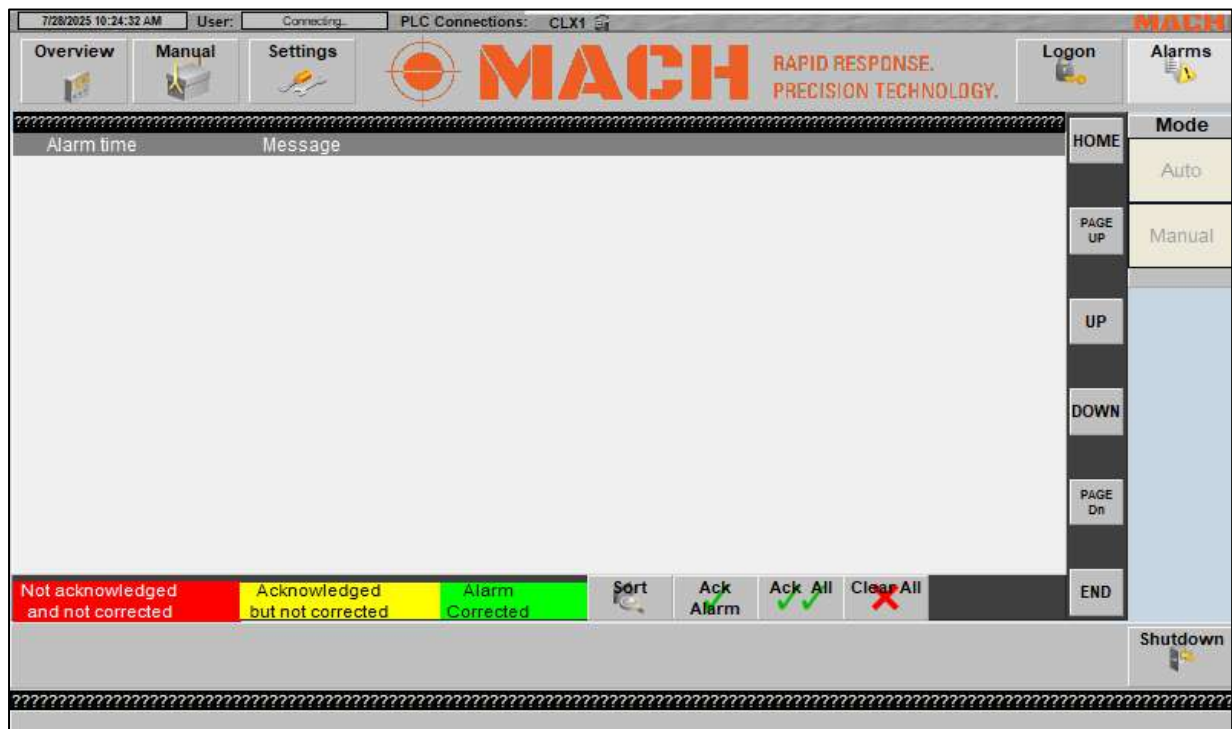
- Navigation to all machine screens (Overview, Manual)
- Mode Select – (Auto, Manual)
- Navigation to Settings screen
- Navigation to Logon screen
- Navigation to Alarms screen

The following indications are provided from the overview screen:

- Current Mode selected - Unit
- Starting/Running status – Unit

6.1.6 Alarms Screen

This screen displays all alarms.

The following is true for the alarm screen.

- This screen shows a history of alarms with time and date that they occurred.
- Red highlight indicates that the alarm is still active.
- Green highlight indicates that the alarm is no longer active.

6.1.7 Login Screen

This screen is accessed by pressing the sign in button at the top of the screen.

You log in by entering the username and password for the selected level of authority.
The default login is Operator. This login does not have a password.

Additional login and passwords can be provided separately as after-sales service.

6.1.8 Settings Screen

This screen is accessed by pressing the menu option that says "Settings" at the top of the screen.
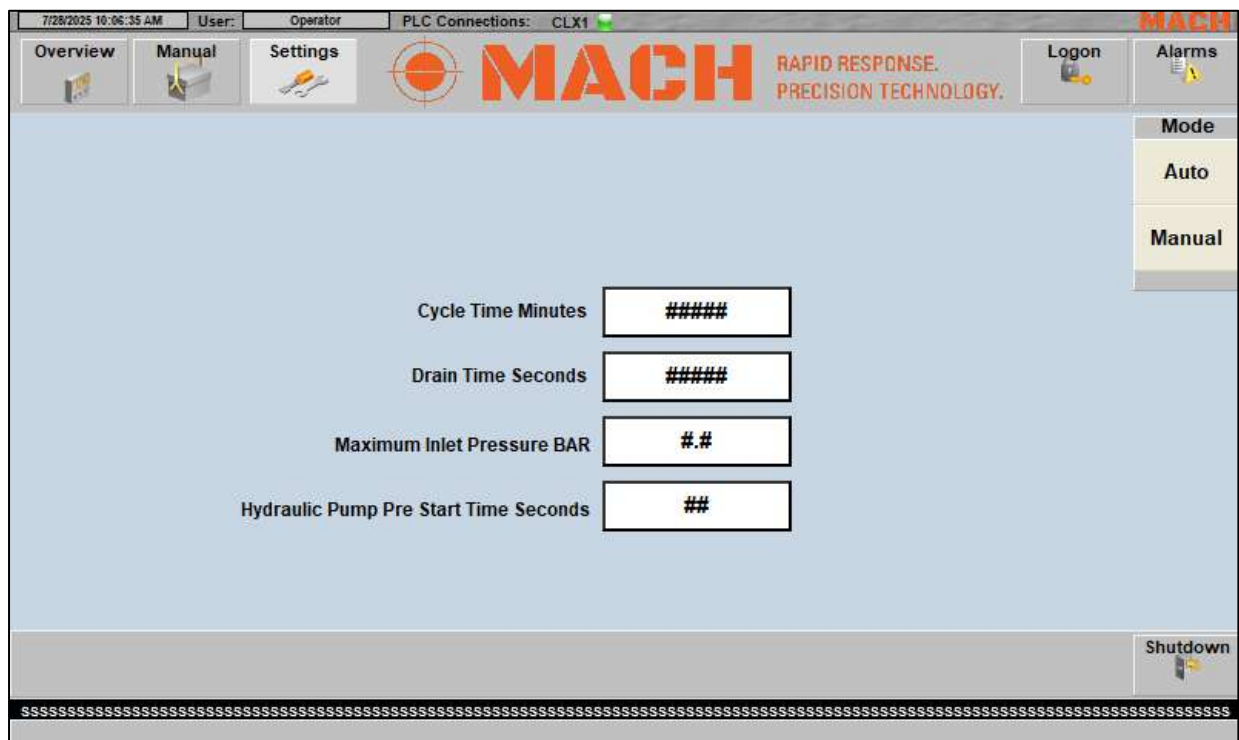
The following controls are available if logged in as anything above operator (Administrator / Manager).

- Cycle time in minutes
- The Set Point drain time in Seconds
- Maximum Inlet Pressure set to Bar
- Hydraulic Pump Pre-Start Time in Seconds.

7. Manual Control

7.1 Overview

7.1.1 Explanation of controls

The manual control popup screens provide access to each device that can be manually controlled. To operate any of the manual controls, the line must be in manual mode and fault reset or the individual control must be in manual. To get to manual mode the line must first be stopped. Pushbuttons for the popup screens are located on the unit module overview screens.

7.1.2 Manual Screen

Here, individual control parts of the machine can be manually actuated for testing, maintenance and These include:

- The inlet valve
- The outlet valve
- Wiper settings
- Extended drain Valve
- Retracted drain Valve

7.1.3 Control Section Menu
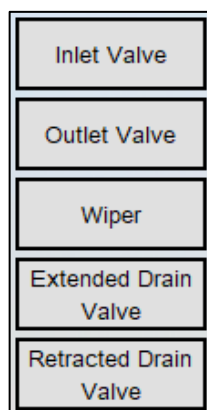
Each of the control section pushbuttons above takes you to the manual control popup for the selected item. These popups are shown in Section 7.1.4.

7.1.4 Basic Manual Popups

Most popup screens indication and functions are designed similarly for the operator to easily identify and use each mode with ease.

Explanation of controls push buttons:

Manual control pushbutton. Output is currently off.

Manual control pushbutton. Output is currently on.

Output on feedback will illuminate in both automatic and manual modes and can be viewed from both the overview and manual screens, and in the manual popup.
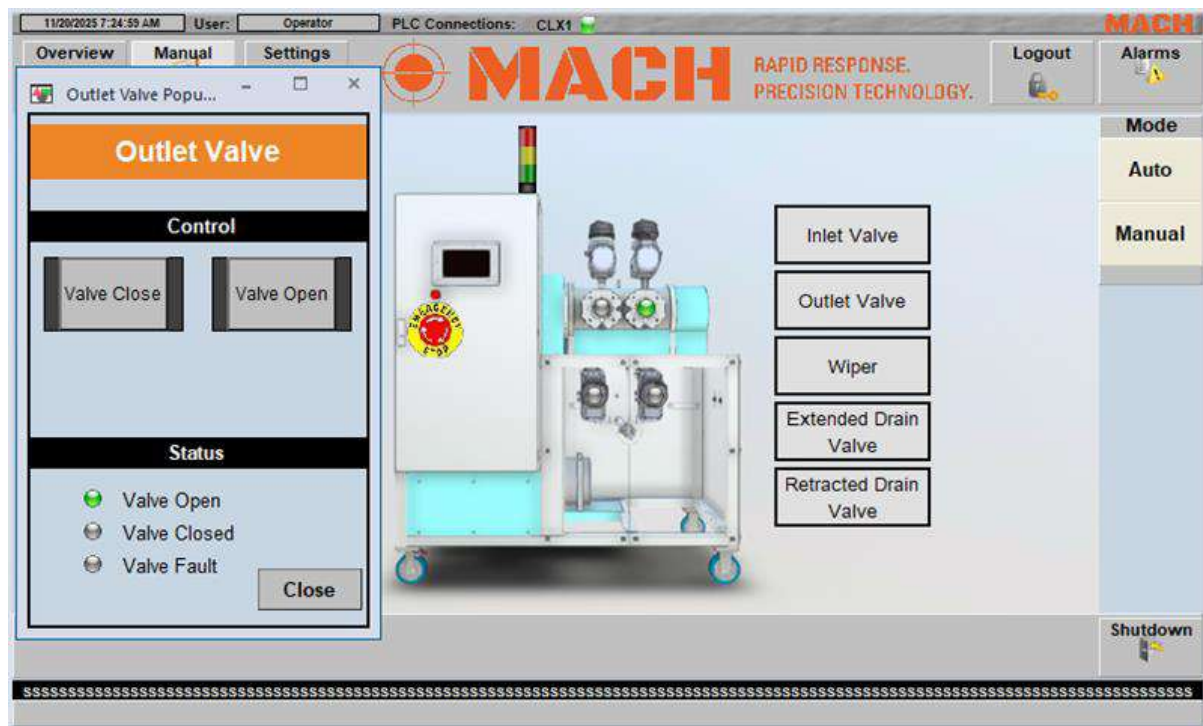
Sensor / Status Inputs.

Sensors and status will have a variety of colours to indicate the current state;

- Grey = Off
- Green = On / Healthy / In position
- Red = Faulted

The wiper extended and retracted proximity switches located on the machine have LED's on the sensor to indicate position:

- Orange = On / Covered

Here is a presentation of 5 available manual control popups.

Inlet Valve

Control

[Valve Close] [Valve Open]

Status
- 🟢 Valve Open
- ⚪ Valve Closed
- ⚪ Valve Fault

[Close]

Outlet Valve

Control

[Valve Close] [Valve Open]

Status
- 🟢 Valve Open
- ⚪ Valve Closed
- ⚪ Valve Fault

[Close]

Extended Drain Valve

Control

[Valve Close] [Valve Open]

Status
- ⚪ Valve Open
- 🟢 Valve Closed
- ⚪ Valve Fault

[Close]

Retracted Drain Valve

Control

[Valve Close] [Valve Open]

Status
- ⚪ Valve Open
- 🟢 Valve Closed
- ⚪ Valve Fault

[Close]

Wiper

Control

[Extend Wiper] [Retract Wiper]

[Hydraulic Motor Start] [Hydraulic Motor Stop]

Status
- ⚪ Wiper Retracted Prox
- 🟢 Wiper Extended Prox

[Close]

8   Alarms

8.1. Machine Alarms

The following Alarm status of the machine and its controls are monitored for functional and safety and control:

No.	Alarm Type	Alarm Description
1	Emergency Stop	Panel Estop Pressed
2	Pressure	MS01 Unit Pressure switch fault
3	Valve	Inlet Valve Open fault
4		Inlet Valve Close fault
5		Inlet Valve Position fault
6	Valve	Outlet Valve Open fault
7		Outlet Valve Close fault
8		Outlet Valve Position fault
9	Valve	Extended Drain Open fault
10		Extended Drain Close fault
11	Valve	Retracted Drain Valve Open fault
12		Retracted Drain Valve Close fault
13		Retracted Drain Valve Position fault
14	Motor	Wipe Motor Extend fault
15		Wipe Motor Retracted fault
16	Motor	Hydraulic Motor / Compressor Motor Overload

9   Remote Machine Access

9.1. Purpose of remote access and monitoring

The magnetic separator is fitted with remote access via a Secomea gateway. Remote access in machines refers to the ability to **connect to, monitor, and control equipment or systems from a remote location**, typically using secure internet-based technologies. This capability is widely used in industrial automation, manufacturing, and facility management.
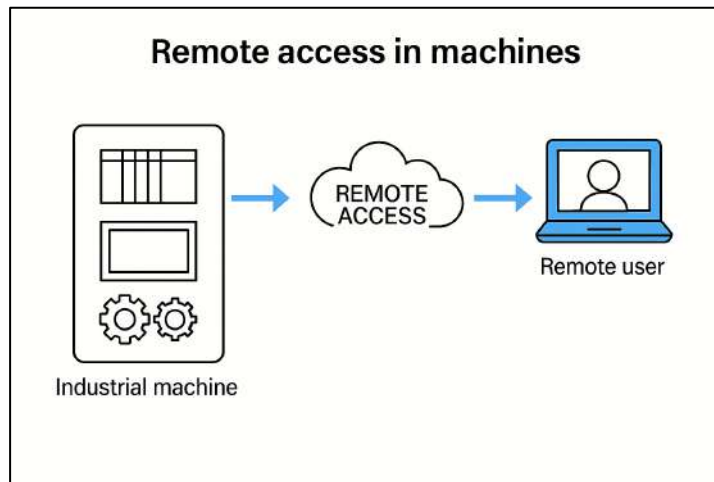
9.1.1 What Remote Access Is Used for in machines

9.1.1.1 Monitoring Machine Performance
- View real-time data such as temperature, pressure, speed, and cycle times.
- Track production metrics and machine health remotely.
- Receive alerts for abnormal conditions or faults.

9.1.1.2 Troubleshooting and Diagnostics
- Engineers can remotely access PLCs, HMIs, or controllers to diagnose issues.
- Reduces downtime by avoiding the need for on-site visits.
- Enables quick resolution of faults through remote configuration or resets.

9.1.1.3 Software Updates and Configuration
- Upload new firmware or control logic to machines.
- Modify parameters or settings without physical access.
- Useful for OEMs managing machines across multiple customer sites.

9.1.1.4 Data Logging and Reporting
- Collect historical data for analysis and compliance.
- Generate reports on machine usage, efficiency, and maintenance needs.
- Integrate with cloud platforms for centralized data management.

9.1.1.5 Predictive Maintenance
- Use sensor data to anticipate failures before they occur.
- Schedule maintenance based on actual usage rather than fixed intervals.
- Extend equipment lifespan and reduce unplanned downtime.

9.1.1.6 Remote Training and Support
- Technicians can guide on-site staff through procedures via remote access.
- Useful for onboarding new operators or troubleshooting complex systems.

9.2 Core Components of the Secomea Remote Access System

Secomea units are designed to provide **secure, efficient, and scalable remote support** for industrial machines and control systems. They enable service technicians, engineers, and OEMs to access equipment remotely for diagnostics, updates, and troubleshooting—without needing to be physically present.
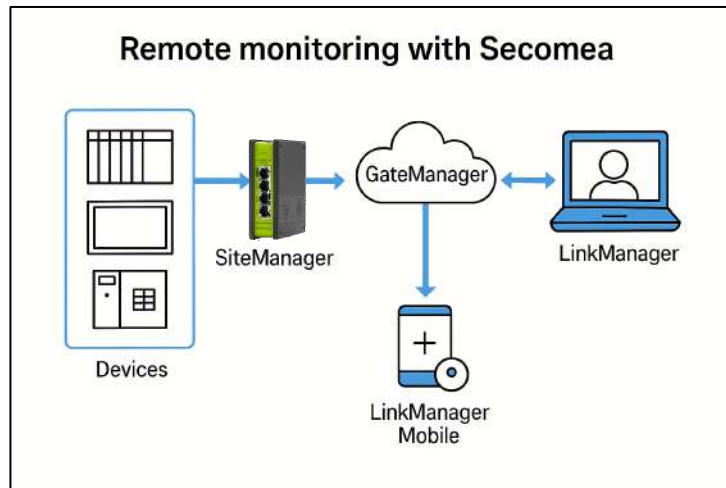
Here is the visual diagram showing how **remote monitoring is done with a Secomea unit**, including the SiteManager, LinkManager, and GateManager components.

Core Components of the Secomea Remote Access System

1. **SiteManager** – The hardware or software gateway installed at the remote site (e.g., factory floor).
2. **LinkManager** – The client software used by technicians to securely connect to remote devices.
3. **GateManager** – The central server that manages users, access rights, and logs all activity.

9.2.1 Key Functions of Remote Support

9.2.1.1 Secure Remote Access to Equipment

- Technicians use LinkManager to connect to machines via the SiteManager gateway installed on-site.
- Access is routed through the GateManager cloud portal, ensuring encrypted and authenticated connections.
- No need to modify firewalls or set up VPNs—Secomea uses outbound-only communication for security.

9.2.1.2 Live Troubleshooting

- Engineers can view and interact with PLCs, HMIs, and other devices in real time.
- Faults can be diagnosed and resolved remotely, minimizing downtime.
- Remote access allows for quick intervention during machine stoppages or alarms.

9.2.1.3 Firmware and Software Updates

- Upload new control logic, firmware, or configuration files directly to the machine.
- Useful for deploying patches or performance improvements across multiple sites.

9.2.1.4 User-Friendly Interface

- The Prime Dashboard shows active sessions, device status, and user activity.
- Support teams can monitor who is connected and what actions are being taken.

9.2.1.5 Audit and Compliance

- All remote sessions are logged, and optional session recording provides video playback of support activities.
- This ensures traceability and compliance with industry standards.

9.2.1.6 Mobile Support

- Technicians can use LinkManager Mobile to access machines from smartphones or tablets.
- Ideal for quick checks or support while on the move.

🔐 **Security Features**

- Role-based access control with granular permissions.
- No need for VPNs or port forwarding.
- All data and sessions are encrypted and logged.
- Vulnerability Hub helps identify outdated firmware or unsupported gateways

10 Troubleshooting

IMPORTANT!

For any troubleshooting on any electrical or electronic devices, it is highly recommended to utilise a licenced and qualified electrical technician.

IMPORTANT!

For any troubleshooting on any mechanical or hydraulic devices, it is highly recommended to utilise a licenced and qualified technician.

Electrical / Control System Components

Component	Possible Issue	Likely Cause	Troubleshooting Steps
Machine	No display / blank screen and no other operation possible	Power not connected	Check power supply cable is connected to the inlet and is energised from the source; check machine isolator is turned on; check all AC / DC circuit breakers inside the MCC are turned on
HMI	No display / blank screen	Power loss, communication failure, backlight issue	Check HMI power supply; verify communication cable; check IP settings; reboot HMI
	Buttons/touch not responding	Calibration issue, software freeze	Cycle power; check for faults
	Alarm on display	PLC fault, field device issue	Access alarm logs; check PLC diagnostics; verify sensor inputs
	No output voltage	Tripped supply circuit breaker, overload, internal failure	Measure output voltage; check input supply; inspect

24DC Power Supply			circuit breakers/fuses; isolate loads
	Low or fluctuating voltage	Overloaded circuits, loose terminals	Tighten terminals; reduce load; test with multimeter
DC Circuit Breakers	Tripping	Short circuit, overload, inrush current, internal fault	Check load wiring; measure current; inspect for damaged cables; reset breaker
	Won't reset	Fault still present or breaker damaged	Disconnect load; test continuity; replace circuit breaker module if necessary
PLC	Not running / in fault mode	Program error, I/O fault, power issue	Perform power cycle; check PLC diagnostics; confirm 24V supply; confirm switch mode; review error logs; check I/O module LEDs
	Inputs not registering	Sensor fault, wiring issue, incorrect addressing, damaged sensors or cabling	Test sensor voltage; check wiring
	Outputs not energizing	Output module failure, interlock active	Check safety interlocks; test output voltage; confirm program logic
Safety PLC	Safety circuit active / won't reset	Open emergency stop circuit, emergency stop fault, wiring break	Inspect safety devices; check continuity of safety loop; verify reset logic
	Unexpected trips	Faulty component, unstable supply	Inspect safety inputs; check grounding; verify electrical circuit
Hydraulic Motor	Motor not starting	No power, solenoid valve fault, low oil pressure, overload tripped	Check safety system is healthy, check control voltage; verify hydraulic pump pressure; check circuit breakers and reset motor overload
	Slow or inconsistent movement	Low flow, clogged filters, incorrect valve operation	Check solenoids and valve function; check oil level; bleed hydraulic lines; verify flow
	Overheating	Excessive load, low oil, pump issue	Check hydraulic oil level; inspect for mechanical binding
	Noise / vibration	Cavitation, worn bearings/seals	Check oil supply; inspect couplings; evaluate pump condition
Air Compressor	Not starting	No power, pressure switch fault, overload tripped	Check power supply; inspect pressure switch; check circuit breakers and reset motor overload
	Low air pressure	Leaks, worn compressor, clogged intake filter	Check for leaks; replace filter; inspect compressor and pneumatic fittings
	Excessive noise	Loose or worn components	Tighten mounts; inspect motor and compressor components
	Overheating	Poor ventilation, dirty cooling fins	Improve airflow; clean fins

11   Service Checklist

11.1 Daily Checks

- Inspect for water leaks around inlet/outlet connections.
- Inspect for air leaks in pneumatic lines.
- Release air compressor water bleeding valves twice daily (morning & afternoon).
- Visual inspection for unusual noise, vibration, or loose components.
- Confirm emergency stop button is functional and accessible.

11.2 Weekly Checks

- Inspect electrical cables and connectors for wear or damage.
- Check hydraulic oil level.
- Verify HMI alarms screen for any active alarms.
- Test manual control functions (valves, wiper settings).
- Visual check of MCC internals are clean and in good condition (ie, no damage, water ingress or condensation).

11.3 Bi-Annual Service

- Full lockout/tagout procedure before servicing.
- Check hydraulic motor and hoses for overload signs or wear and tear.
- Verify PLC and safety system functionality.
- Update remote access firmware (Secomea system).
- Document all actions in a service log.

END OF SECTION

MACH

RAPID RESPONSE. PRECISION TECHNOLOGY.