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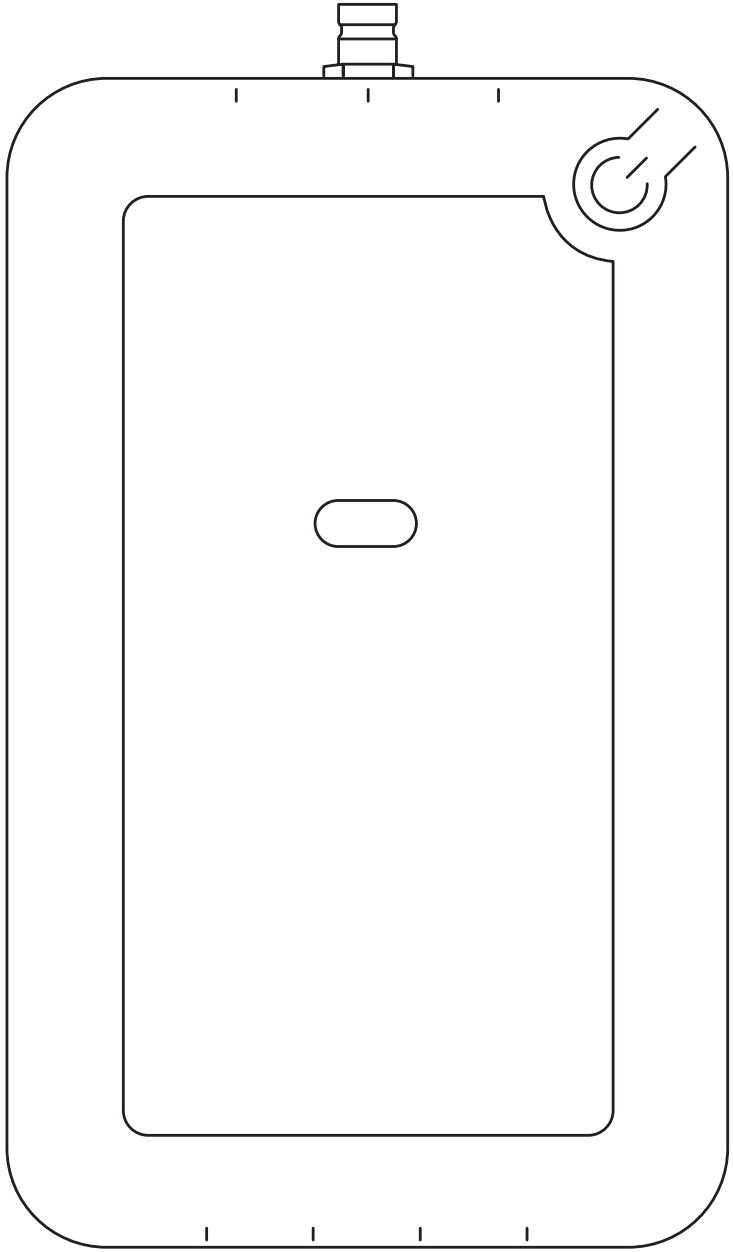


3M™ Adhesive Mix Monitor

Owner's Manual

Contents:

For more information, visit 3m.com/adhesivemixmonitor

Important safety information

Warning
To reduce the risks associated with chemical exposure hazard which, if not avoided, could result in serious injury or death:
- Always use personal protective equipment per chemical's SDS recommendations.

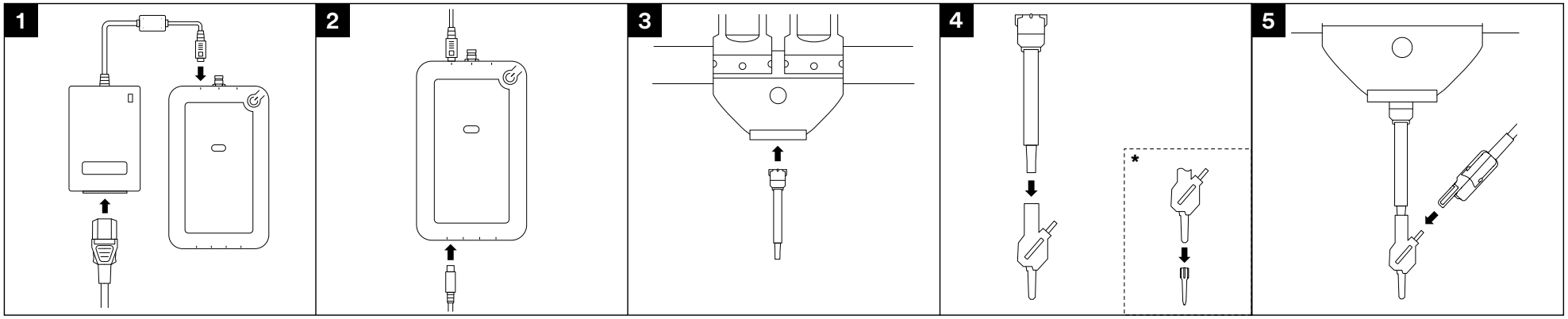
Warning
To reduce the risks associated with hazardous voltage and fire which, if not avoided, could result in serious injury or death:
- Do not use a damaged power supply.
- Do not use a power cord that is frayed or otherwise damaged.
- Do not use damaged components.
- Do not use this product with an unapproved power supply.
- Do not use this product with an unapproved power cord.
- Do not use this product with non-conforming replacement part(s).

Notice
To avoid property damage:
- Secure all Adhesive Mix Reader / Amplifier and Adhesive Mix Processing Unit cables.
- Discard disposable Adhesive Mix Sensor when changing out the static mixer. Never reuse disposable Adhesive Mix Sensor.
- Only use 3M approved USB cables.
- Device should only be used indoors in a dry location.
- Device should be used with adhesive temperature between 15°C (59°F) - 35°C (95°F).
- Do not plug any device other than the Monitor Reader / Amplifier into the Processing Unit's USB-C ports.
- Do not plug the Reader / Amplifier into any device other than the Processing Unit.

General information
This manual provides installation, operation procedures, part numbers and trouble shooting information for the 3M™ Adhesive Mix Monitor System.
The 3M™ Adhesive Mix Monitor is a system that can provide real-time feedback on mix quality for 2-part adhesives at the point of dispense.

Explanation of signal word consequences	
⚠ Warning	Indicates a hazardous situation which, if not avoided could result in serious injury or death.
⚠ Caution	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and/or property damages.
Notice	Indicates a hazardous situation which, if not avoided, could result in property damage.

Installation and assembly



1. Attach the power supply to the 3M™ Adhesive Mix Monitor Processing Unit. Attach the power cord to the power supply. Connect this assembly to a power outlet.

2. Plug the 3M™ Adhesive Mix Monitor Reader / Amplifier into the Processing Unit in Port labeled 1/2.

3. Connect the static mix tip into the adhesive dispenser.

4. Attach the sensor to the static mixer by screwing it in until snug. If connection is not tight, adhesive may leak.

*Optional: on the other side of the sensor you can connect a dispense tip.

5. Plug the reader into the side of the sensor. Ensure the connection is completely seated.

Scan to Log in:

Initial configuration

To ensure proper system operation, user MUST set up the system with the appropriate mix model. This MUST be done prior to system operation.

1. Attach one end of the supplied USB cable to the port labeled “PC” on the Processing Unit and the other end to the USB input on your computer.
2. Log onto 3M.com/adhesivemixmonitor.
3. Download the appropriate adhesive mix model for the adhesive you are going to use.
4. From the downloaded files open the System Manager. Once opened, ensure that the message on the System Manager home page indicates “Processing Unit Connected.”
5. Click on the “Update Firmware and Model” and follow on-screen instructions to update your firmware and model.
6. Once updated, return to the home page and confirm the appropriate model has been installed.

Operating features

Data collection

Note:

- *Adhesive Mix Model must be loaded onto the Processing Unit for proper operation.*
- *Ensure Processing Unit is powered prior to attaching sensor.*

1. After securely attaching the sensor to the processing unit, the auto-calibration will occur lasting 10-15 seconds. When the auto-calibration step is complete, the light on the processing unit will blink green twice and then illuminate white indicating the system is ready to use. If the light on the processing unit blinks magenta, there is likely an issue with this sensor and it should be replaced with a fresh one.
2. Once the system is calibrated, purge the material until the light turns green on the Processing Unit, indicating proper mix quality.

   Note: If the light changes to blinking red at any point during the dispensing process, this is an indication that mix quality is out of tolerance. Take corrective action to adjust your dispensing process.
3. Install a new sensor whenever a new static mixer is installed. With each new sensor, auto-calibration will occur and the light on the processing unit will blink green twice and then illuminate white. Purge adhesive until the light on the processing unit turns green.
4. Discard used sensors, static mixer, and tips according to local regulations.

System manager

How to update an Adhesive Mix Model

1. Attach one end of the supplied USB cable to the port labeled “PC” on the Processing Unit and the other end to the USB input on your computer.
2. Download the appropriate mix model for the adhesive you are going to use via 3M.com/adhesivemixmonitor.
3. From the downloaded files open the System Manager. Once opened, ensure that the message on the System Manager home page indicates “Processing Unit Connected.”
4. Click on “Update Firmware and Model” and follow the on-screen instructions to update your firmware and model. Once updated, return to the home page and confirm that the appropriate model has been installed on your Processing Unit.

   Note: There may be an occasional need to update the Adhesive Mix Model on your processing unit. If a model update is needed, anyone who has downloaded a model will be notified via the email address that was used during registration on the 3M Digital Materials Hub.

How to change model dispense zone limits

The dispense zone is the range of sensor response values used to determine when the LED indicator on the processing unit blinks red and an alert is sent in the data stream. If the sensor response is between the upper and lower limits of the dispense zone, then your LED indicator will be green. If it’s outside then it will blink red. 3M provides default upper and lower limits for the dispense zone with each model. Users can adjust those limits if needed to fit their process requirements.

1. Attach one end of the supplied USB cable to the port labeled “PC” on the Processing Unit and the other end to the USB input on your computer.
2. Open the System Manager. Once opened, ensure that the message on the System Manager home page indicates “Processing Unit Connected.”
3. Click on “Change Model Limits”.
4. The upper and lower limits can be manually changed by clicking the (+) and (–) buttons.
5. Click “Save” when you have completed your selections.

Note: There are many factors including factors outside of 3M’s control that can influence the performance of an adhesive in a specific application. While the pre-determined limits are based on testing of material properties that 3M believes is reliable, the accuracy and completeness of these limits are not guaranteed. Additional factors including application-specific information that is not known to 3M may require different limits. Before using, the user must determine the suitability of the limits for their intended application and assume all risk and liability associated with the limit selection.

Processing Unit indicator light guide

Note: Only the light on the Processing Unit will change depending on the system status. The light on the Reader / Amplifier should remain illuminated green throughout normal operation.

Status	Color	Description
Sensor Response – Good (Inside Dispense Zone)	Green - Solid	The sensor response is within the specified model dispense zone limits.
Sensor Response – Poor (Outside Dispense Zone)	Red - Blinking	The sensor response is outside of the specified model dispense zone limits. Take corrective action. Corrective actions may include purging, checking dispense equipment, verify dispense zone and model loaded onto processing unit.
Sensor Required	Blue - Pulsing	This status will appear when the processing unit is first started. Insert sensor to start calibration process.
Calibration In-Progress	White - Pulsing	The system has detected that a new sensor is attached and is performing a calibration process. This may take several seconds. Wait for the system ready status before proceeding.
System Ready	Two green blinks followed by White - Solid	The system is ready to start collecting data.
Calibration Failed / Replace Sensor	Magenta - 2 blinks and 1 pulse	The system has detected an error with the sensor. Do not use this sensor to collect data. Insert a new sensor.
Model Error	Alternating Red & Yellow Pulses	A model needs to be loaded on your processing unit. Follow instructions in “How to Update an Adhesive Mix Model”.
Electrical interference	Yellow - Pulsing	The system has detected electrical interference. Contact 3M for troubleshooting help.

Streaming data off the processing unit

Data from the 3M™ Adhesive Mix Monitor can be streamed from the processing unit either using a USB connection or an SDCI connection (Per IEC 61131-9). Refer to the readme file that is downloaded with your material model for details on the data stream format.

Note: The numeric sensor response being streamed is an estimation of mix ratio and cure. For freshly mixed adhesive, this specifically estimates the mix ratio. If the adhesive is allowed to cure in the sensor, the sensor will respond to that change as well.

Troubleshooting

Problem	Possible cause	Corrective action
Sensor Calibration Failed / Processing Unit shows magenta in a 2 blink and 1 pulse pattern	The sensor is not seated properly into the reader	Make sure you have applied enough pressure to seat the sensor correctly into the reader.
	The Reader / Amplifier is contaminated	Ensure that the reader does not have adhesive or any other debris in the connection port.
	Faulty sensor	Replace with a fresh sensor.
No data is streaming	Reader / Amplifier plugged into the wrong port	Make sure the USB is plugged into the 1/2 port on the processing unit.
Processing unit light does not turn on	No power to unit	Ensure that power supply is attached to the processing unit. Ensure that the power cord is attached to the power supply and plugged into a wall outlet. Ensure there is power to the wall outlet.
Blinking red light is on but adhesive is believed to be at correct mix ratio	Limits indicated in system manager do not include the “correct” mix ratio.	Connect the processing unit to your computer via USB connection. Open System Manager and confirm/change limits as needed.
	Incorrect model loaded onto Processing Unit	Connect the processing unit to computer via USB connection. Open System Manager. Confirm the model on the System Manager is the correct model.
	Adhesive is out of shelf-life.	The system will only work with adhesive within its shelf-life. Replace adhesive with a lot within the shelf-life.
	Adhesive has not been stored properly.	The system will only work with adhesive that has been properly stored. Replace adhesive with material that has been properly stored.
	Unstable dispensing.	Ensure that the dispensing system is providing consistent dispensing.
	Electrical interference from nearby equipment turned on during the dispensing process.	Unplug sensor and plug in a new empty sensor to recheck the system, if the processing unit pulses yellow electrical interference has been detected.

Problem	Possible cause	Corrective action
System Manager does not show “Processing Unit Connnected”.	Loose connection.	Ensure USB cable is firmly connected to both computer and processing unit. Disconnect and reconnect the processing unit to power. Close and reopen System Manager application.
Excess back pressure during dispensing.	Accumulation of cured adhesive in static mixer or sensor.	Change out static mixer and sensor.
Processing unit light is alternating red and yellow pulses.	Model error.	Connect processing unit to computer via USB connection. Open System Manager Confirm that an adhesive model is loaded on to the processing unit.
Processing unit light is a yellow pulsing pattern.	The device is detecting electrical interference.	If the problem persists, please contact 3M for product support.
Adhesive is leaking from the static mixer / sensor connection point.	The sensor was not properly attached to the static mixer.	Make sure the reader is not contaminated and replace the sensor.
	The sensor was not properly seated into the reader.	Make sure there is a firm connection between the reader and the sensor. If adhesive has leaked onto the reader and it cannot be removed, the reader must be replaced.
Data is not streaming off the device.	Connecting cable is loose or not plugged in.	Connect cable.

Avoiding problems

- Ensure the adhesive is between 15°C (59°F) - 35°C (95°F).
- Verify the adhesive model you have uploaded on the processing unit matches the adhesive you are dispensing.
- Always change your sensor at the same time as your static mixer. Do NOT reuse sensors.
- Use only static mixing nozzles compatible with your sensor.

3M™ Scotch-Weld™ EPX Mixing Nozzle	Compatible sensors
Square Green 48.5mL/50mL 7100104991	LV Sensor
Helical White 48.5mL/50mL 7100148766	LV Sensor
Square Orange 45mL 7100007806	LV Sensor
Square Gold 200mL and 400mL 7100247630	Standard Sensor
Helical White 200mL and 400mL 7000046633	Standard Sensor
Helical Orange 490mL 7100015959	Standard Sensor
Square Green 490mL 7100066351	Standard Sensor

System operation and maintenance considerations:

- Use system at temperatures between 15°C (59°F) - 35°C (95°F) and relative humidities between 5% - 85%.
- Keep system components dry and free of contamination.
- Do not expose electrical leads directly to water, solvents, or other chemicals.
- Before each use of the system, inspect all parts to ensure that there are no frayed wires. If wires are frayed, do not use.
- If adhesive or other contaminants are found on the surface, it is recommended to wipe clean with a dry, lint free cloth.
- If contaminants are on the electrical contacts (i.e. reader / amplifier) and cannot be removed, it is recommended that the part be replaced.

System requirements

A power outlet within 2.0 meters of your dispensing station.

A computer with Windows and an Internet connection is required to download the System Manager and Adhesive Mix Model. The Adhesive Mix Model is loaded onto the processing unit using the System Manager and included USB cable. No Internet connection is required to load the model or use the system.

All components of the 3M™ Adhesive Mix Monitor system:

- Processing Unit
- Reader / Amplifier
- Disposable Sensor (Low Volume or Standard Volume)
- If streaming data, USB-B cable included with the processing unit or cable for SDCI communication per IEC 61131-9 (not included)

Power Supply

Input: 100-240 VAC, 50-60Hz

Output: 28.1W max, +5V, 2.5A; +12.0V, 1.0A; -12.0V, 0.3A

Intended Use:
Detect the quality of mixing for two-part structural adhesives. Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the 3M product is suitable and appropriate for the user's specific application, including user conducting an appropriate risk assessment and evaluating the 3M product in the user's application.

Restrictions on Use:
3M advises against the use of these 3M products in any application other than the stated intended use(s), since other applications have not been evaluated by 3M and may result in an unsafe or unintended condition.

Part numbers

Part	3M Part Number
3M™ Adhesive Mix Monitor Processing Unit (1 EACH/Case)	7100376039
3M™ Adhesive Mix Amplifier / Reader Unit (1 EACH/Case)	7100375858
3M™ Adhesive Mix Monitor Power Cord, 120V Type B (1 EACH / Case)	7100376125
3M™ Adhesive Mix Monitor Power Cord, 220V Type A (1 EACH / Case)	7100375948
3M™ Adhesive Mix Monitor Power Cord, 250V Type C (1 EACH / Case)	7100376126
3M™ Adhesive Mix Monitor Power Cord, 230V Type G (1 EACH / Case)	7100376127
3M™ Adhesive Mix Monitor Power Cord, 100V Type B (1 EACH / Case)	7100376165
3M™ Adhesive Mix Monitor Power Cord, 220V Type C (1 EACH / Case)	7100376191
3M™ Adhesive Mix Sensor LV (72/case)	7100325904
3M™ Adhesive Mix Sensor Standard (72/case)	7100325926

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Recommended disposal
This product contains electrical and electronic components and must not be disposed of using standard refuse collection. Please consult local directives for disposal of electrical and electronic components.

Technical information
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Product selection and use
Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

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