



# Matrix 3 Troubleshooting & How-To Guide

## Matrix Operating Frequency

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### General Overview

Matrix 3 is a software-based Fluid Management System that runs on one or more of your facilities computers (PC's). This guide only applies to the Graco Matrix 3 Fluid Management System and walks you through issues and the solutions to remedy them.

Throughout this guide, there will be colored text entries, they are:

Links – These are links to other support resources that may be needed to accomplish the task you are working on.

Green Text – These are navigational commands directing you to skip to or reference another section in the guide. If the command is underlined, clicking it will direct you to the location it describes.

Red Text – These are STOP points where you will need assistance from IT, Graco or your Graco distributor.

Specific troubleshooting topics can be found in the instruction manuals below. This guide will provide more theory of operation and detail on addressing specific issues. Click the links or type the numbers into the [Graco.com](http://Graco.com) search box.

[313046](#) - Meters

[313008](#) - Transceivers

[312964](#) - Tank Level Monitors

[312417](#) - Pump Air Controls

[313013](#) - Matrix 3 Oil Bars

[313104](#) - Basic Software

[313106](#) - Professional Software (includes 3rd Party Interface capability)

[313108](#) - Premier Software (includes 3rd Party Interface capability)

[313112](#) - Premier Software with CDK Interface

[313114](#) - Premier Software with Reynolds & Reynolds Interface

[334786](#) - Premier Software with Procede/Excede Interface

[3A4999](#) - Premier Software with DealerTrack Interface (As an addendum to the Premier Software Manual)

### Notes:

- All PC related references used in this guide are based on the Microsoft Windows 10 Operating System conventions, other versions of Windows operating systems may vary.
- Troubleshooting efforts may require help from your IT/IS staff or vendor. Having them available is highly recommended.
- If you need Matrix software, contact Graco and they will get you a direct download link. All PC's must be running the same version of Matrix software, delete or discard any different versions you have.
- Check for new and updated content by visiting [graco.com/matrixsupport](http://graco.com/matrixsupport), scroll down to the "Guides" section.
- If you find you still need help, contact a Graco Tech Assistance Agent by using the information found at the bottom of each page of this guide.



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## Overview

Matrix 3 runs in the wireless frequency range of 2.4 GHz (known as “RF” - for radio frequency), it has 8 channels (Network IDs) to choose from. With so many new devices on the market all competing for airspace today, it is getting more difficult to find an “open/clean” area for Matrix to communicate in. WiFi is the most prominent offender although other factors must be considered.

While WiFi and Matrix run on two different standard protocols (802.11 vs 802.15.4) and do not use the same language, there is still potential interference seen as “noise” since they are still in the same RF range. To compound that, newer “Smart” WiFi router technologies have the ability to listen to the local RF environment and then choose the best channel or hop around from channel to channel to avoid this “noise” from other nearby RF sources, Matrix does NOT have this ability and a fixed channel must be chosen.

The chart at the bottom of the document shows the relationship between WiFi and Matrix. For North American WiFi systems, channels 1-11 can be used, European systems can use channels 1-14. Matrix channels (Network ID #1-8) are different bandwidths, but since they overlap WiFi channels, they can still be a source of interference with Matrix.

There are many other *potential* offending sources of RF interference besides WiFi, some are listed below for consideration if you are having difficulty getting good consistent communication.

- Bluetooth
- Automotive diagnostic equipment
- Some alignment racks (Hawkeye and Hunter during remote option operation)
- Some older microwave ovens
- Some cordless phones
- Programmable outdoor signs
- Wireless security equipment or cameras
- Close proximity to airports or cellular phone towers outside the structure
- Any other RF device should be investigated if found

## Notes:

1. If items above are suspect, further investigation of their operating frequency and if it can be adjusted may be warranted.
2. Automotive wireless tire pressure sensor systems do NOT use 2.4GHz, you can disregard them.
3. Physical interference (line of sight) must also be considered as a source of the problem, grounded metal presents the highest level of physical interference to RF communication.
4. Strong electrical sources such as transformers, large motors or welders may also be suspect.
5. It is also recommended to note if signal loss events coincide with other equipment operation events to determine if there is any sort of pattern to the interference.

## Recommendations

When choosing a Matrix 3 system RF channel, it is good practice to see if there are **any** known RF issues at the facility. It is also good to identify/locate where WiFi devices are placed and what frequency or channel they operate on, you may need to contact IT for this information. Try to avoid placing Matrix Transceivers close to these WiFi devices whenever possible.

Graco recommends setting ALL Matrix systems up with Network ID #8 to start with, #3 is also a good choice. If you are experiencing communication problems, a simple effort is to try a different Network ID and test. Obviously, other channels can be tried to obtain the best operating relationship among all devices.

**Contact Graco LED Tech Assistance at [800-533-9655](tel:800-533-9655), option 2 or [LEDtech@graco.com](mailto:LEDtech@graco.com)**



### WiFi Frequency vs. Matrix Frequency Chart

