

# Bluetooth Operation Manual

for

## EasyStart™ Soft-Starters



# MICRO-AIR

# EasyStart Bluetooth Diagnostic Manual



# **MICRO-AIR**



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# EasyStart Bluetooth Diagnostic Manual



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## WARNING



Bluetooth operation with EasyStart is designed to provide diagnostic feedback when troubleshooting an A/C system. It should be used only by qualified HVAC technicians and HVAC engineers with a good understanding of the system. Changing fault detection, limits, and values in the Bluetooth application for EasyStart can damage the connected compressor or EasyStart under some circumstances. Please use our *EasyStart Knowledge Bank* or contact us using the *Micro-Air Contact Us Page* for more assistance.

## Introduction

This document provides instruction on how to operate the Bluetooth interface of Bluetooth EasyStart models. Bluetooth operation is a diagnostic aid to monitor and modify EasyStart and does not control your A/C like a thermostat. Ideally, the Bluetooth interface will not be needed, however there are some circumstances for its use. It only communicates with a smart device through the official EasyStart App.

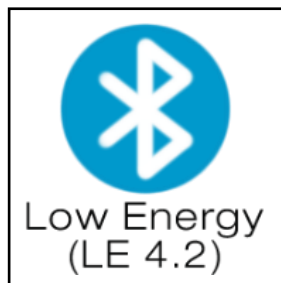
These instructions are only valid for Bluetooth capable models. Non-Bluetooth models cannot be upgraded in the field or at the factory to Bluetooth models.

**Warning:** *The Bluetooth interface means there is no need at any point for any reason to remove the EasyStart lid for these models. Doing so without instruction may void the warranty.*

## Is my EasyStart a Bluetooth Model?

There are a few ways to identify if an EasyStart is a Bluetooth model.

- Model numbers with a *-BLUE* suffix are Bluetooth models, for example: *ASY-368-X48-BLUE*
- Inspect the lid of EasyStart and there should be a Bluetooth sticker as shown below
- Models with opaque lids are not Bluetooth models
- Inspect the long edges of the EasyStart circuit board for the Bluetooth chip as shown below. It may be obscured by the large black start capacitor in the box



Bluetooth Sticker



Bluetooth Chip

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## Connecting to EasyStart

A smart device with the EasyStart app downloaded to it is required to use EasyStart's Bluetooth interface. EasyStart itself must be powered to establish a connection. Typically, this is when a cooling or heating cycle is called for by the thermostat. **Note:** Some A/C systems will shut down if a fault occurs and remove power. You must move the EasyStart black and white wires to the input side of power so that you can connect to EasyStart if needed in these circumstances.

## Download the App

The app can be downloaded from the App Store or the Google Play Store. It is called "EasyStart" by CseaTec LLC. Allow any permissions asked for by the app so that the app has access to the smart device's Bluetooth functionality.



EasyStart App Icon

### Android users

Some versions of Android have Bluetooth permissions as a subset of location services permissions. These versions of Android mean that **location services** must be allowed for the app to function. If you have difficulty connecting, please verify this permission in:

**Settings->Apps->EasyStart->Permissions**

Permissions should be set for "When using the app".

## Prepare EasyStart for a Connection

EasyStart must be powered to communicate with it. Determine if EasyStart is powered by looking for the green POWER LED located near the wire entry to the box. This LED is easily visible through the clear cover when lit.

## Open the App and Connect

When the app opens it will start on the Connect tab, shown in *Figure 1*. This page is used to establish the connection to the EasyStart. The other tabs will become available once a successful connection is made.

Enter the full unique Bluetooth ID of your EasyStart into the appropriate field. You can also scan for the EasyStart by entering "EasyStart\_" into the field. This is shown in *Figure 1*. Tap the "Connect to EasyStart" button to attempt a connection. If you are scanning and have more than one EasyStart then ensure only the one you want to connect to is powered.

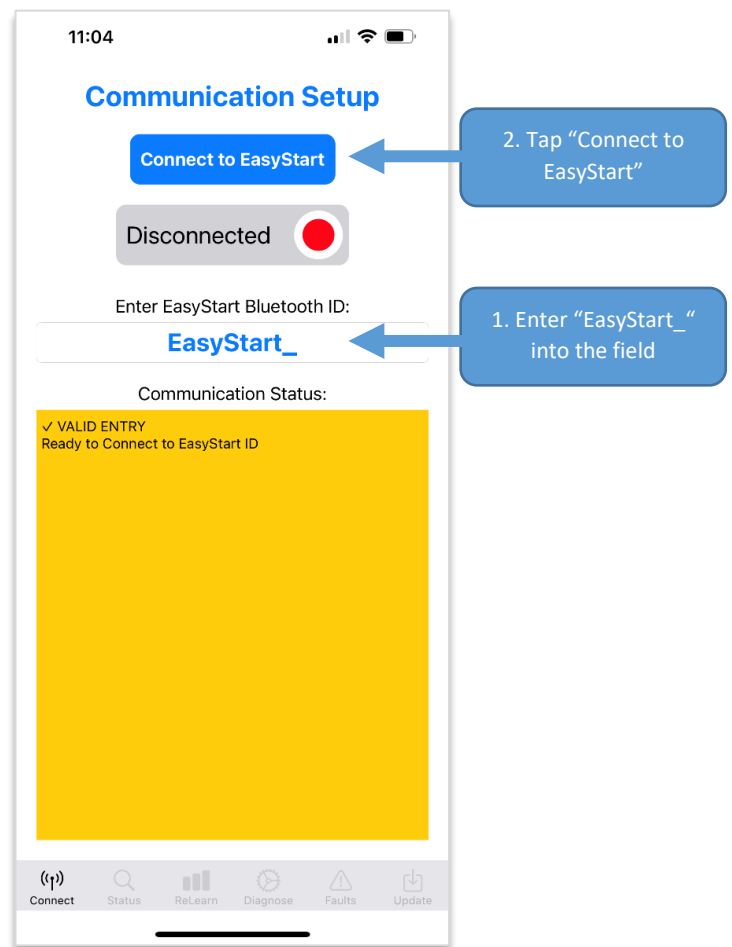


Figure 1 - Connect Tab

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A successful connection is shown in *Figure 2*. “Connected” is shown in the status box with a green circle and the other tabs along the bottom become available.

If you used the scanning feature, the Bluetooth ID field will be updated with the full unique Bluetooth ID for the EasyStart it is connected to. Future connections can use this ID instead of scanning. The ID should be noted and used if more than one local EasyStart can be powered at one time.

Tap the “Disconnect from EasyStart” button to terminate the connection and prepare for a new one. Closing the app will also close the connection. Only one EasyStart connection at a time.

## Connection Troubleshooting

### *Is my EasyStart Bluetooth?*

See section *Is my EasyStart a Bluetooth Model?* to verify.

### *Is the EasyStart Powered?*

Ensure that the POWER LED is solid green on the EasyStart circuit board. If it is off then EasyStart is not powered. Verify that line voltage is across the EasyStart white and black wires.

### *Is the Correct App Installed?*

Micro-Air has a few apps for our products. Use the *Download the App* section and other app screenshots for reference to ensure you have the correct one.

### *Is the Bluetooth ID Field Entry Formatted Correctly?*

All Bluetooth ID field entries are case sensitive. When scanning, “EasyStart\_” must be used as shown in *Figure 1*. When using a unique EasyStart ID, it has a capitalized 4-character suffix. *Figure 2* shows the example “EasyStart\_CFFA”.

### *Are the Required Permissions Given to the App? Is Bluetooth Turned-On in General?*

The app requires Bluetooth permissions from the smart device to use Bluetooth. This is done slightly differently between Android and iOS, then can differ further across their own versions. This is typically done from the main phone settings for all downloaded apps. Android users can see the *Download the App* section for some additional potential changes.

Ensure that Bluetooth is enabled from the main Bluetooth settings of the smart device.

Android users can the system’s built-in Bluetooth scanner to see if the EasyStart is broadcasting. If you see the EasyStart’s Bluetooth ID in the list of devices the scanner can hear, but the EasyStart app does not find it, then it is likely a permission issue after checking the other recommendations. If it is not in the list then EasyStart may not be powered. iOS does not natively allow viewing these connections.

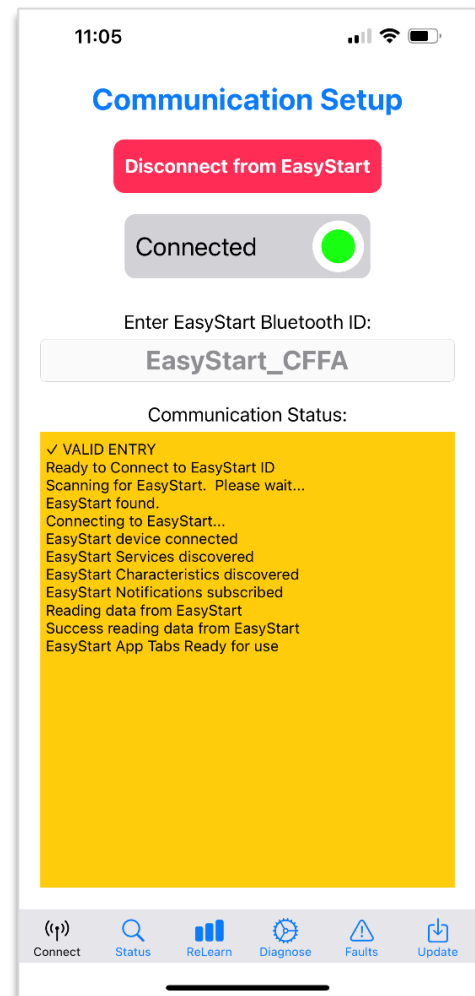


Figure 2 - Connect Tab with a Successful Connection

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## Status Tab

Once connected, tap the status tab along the bottom to switch to the Status & Live Data page, shown in *Figure 3*. This page will show the current state of EasyStart and some basic diagnostic information.

### Status

This shows the current status of the EasyStart. These mirror the LED code shown on the EasyStart circuit board. Visit our *EasyStart Knowledge Bank* for the latest information on what these statuses mean, as well as troubleshooting steps to take.

### Live Current

This is a measurement of the amperage passing through EasyStart's white wire, moment to moment. Measurements below 2 amps are effectively no current. EasyStart is very accurate in its operating range.

This is the bulk of a system's current draw but you must use other techniques if you want to know the total draw of the system, for example the motor start winding, fans, and pumps.

### Last Start Peak

This is a measurement of the instantaneous peak current seen during the last start. This can vary over the learning starts and should not be considered "final" until 5 *Learned Starts* are completed. You can see this just under the *Last Start Peak* measurement. Even then it may be normal to shift over time.

This is not the measurement to use when attempting to size a generator or determine generator compatibility. Please visit our *EasyStart Knowledge Bank* for the latest information on sizing a generator with EasyStart.

**Note:** Large variances in *Last Start Peak* current is typically not an issue. It is natural for this number to shift up and down as characteristics of the motor and environmental factors change over time. We always recommend to first try the system on your intended power source before using *Last Start Peak* as a troubleshooting tool. Even then, using the information in the *Status* or *Diagnose Tab* sections are best.

### SCPT Delay

SCPT stands for Short-Cycle Prevention Timer. Power to EasyStart and the compressor will be regularly cycled during normal operation. This delay is (typically) set to 3 minutes when a cycle terminates and counts down to 0, where only then is a new cycle allowed to start if called for by the thermostat. The time left for this delay is shown here. EasyStart does not need to be actively powered for this logic to operate.

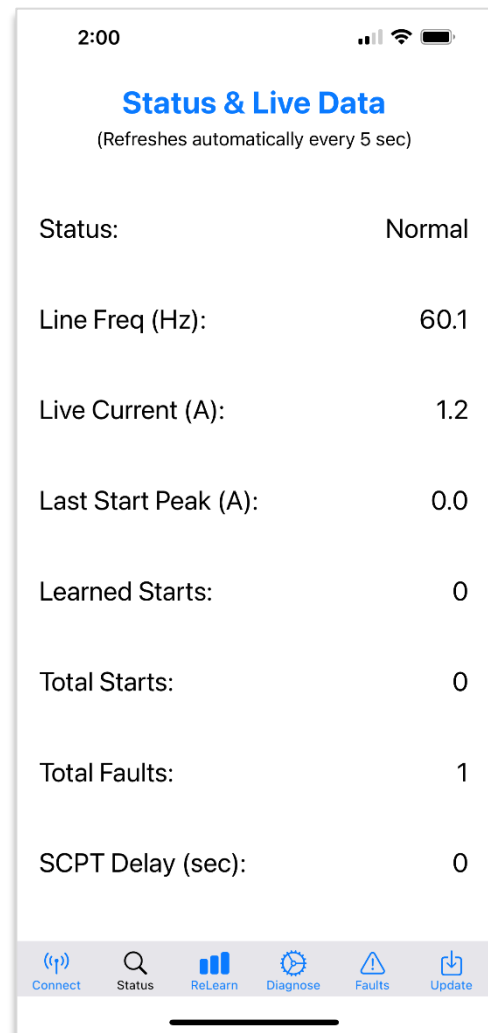


Figure 3 - Status Tab

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## Re-learn Tab

Once connected, tap the Re-learn tab along the bottom to switch to the Re-learn / Power-Up page, shown in *Figure 4*. This page allows for modifying EasyStart behavior for certain situations that call for it. Tap “Refresh Data from EasyStart” at the top to get the latest settings stored in the connected EasyStart. If you make a change, tap “Send Settings to EasyStart” at the bottom to save the new settings to the connected EasyStart.

### Normal Operation

This is the switch set to let EasyStart operate as advertised. If not yet learned (just installed), it will go through its 5 learning starts and use that information to deliver the most current reduction possible for every subsequent start.

### ReLearn

This switch is used to Re-learn (Factory Reset) the device and erase and previously learned data. See section *Re-Learn (Factory Reset) Procedure* for details on how and when to appropriately use this switch.

### Use Default Ramp

This switch should only be used as a diagnostic tool, as it bypasses any learned data and applies fixed settings to start the motor every time. This could be useful to rule out bad learned data or just see the compressor start. Even then, it is best to not use this setting unless otherwise directed by Micro-Air.

### No Pwr-Up Delay

This switch is used to bypass EasyStart’s fan delay. See section *Setting No Power Up Delay* for details on how and when to appropriately use this switch. The default setting of off is appropriate for most applications. This switch is enabled/disabled independently from the other switches.

### SCPT (minutes)

This field allows modifying the length of the SCPT. The default time is 3 minutes and ranges are valid between 1 and 10 minutes. See section *SCPT Delay* for more information on what SCPT is.

**Note:** This may be increased in some circumstances as described in the *Status Tab* section. It should never be less than 3 minutes unless your application requires it. See section *Setting No Power Up Delay* for more details on appropriate use.

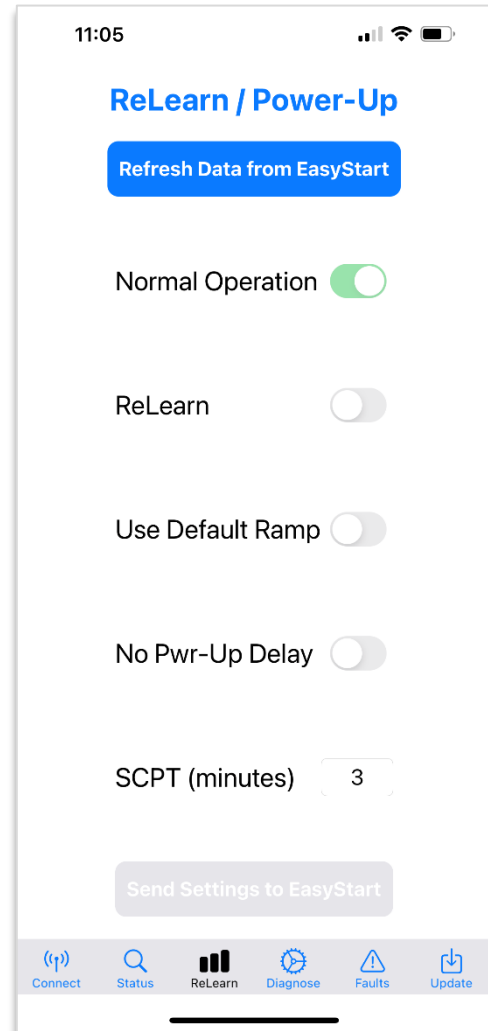


Figure 4 - ReLearn Tab

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## Diagnose Tab

Once connected, tap the Diagnose tab along the bottom to switch to the Diagnose and Upload page, shown in *Figure 5*. Using this page will upload data from memory inside EasyStart to Micro-Air for evaluation. An internet connection on the smart device is required for this feature. The upload should be followed up with a report using the *Micro-Air Contact Us Page* on our website if you are not already working with a Micro-Air service technician. It should describe any issues you are having and what you have done so far.

Fill out the fields appropriately to enable sending the data. Wait until the unit has run (or been stopped on a fault) for a minute or so. Tap the “Refresh Data from EasyStart” button to put the latest information into the app. Tap “Send Data to Micro-Air” to upload the data, then follow-up as described above.

## Faults Tab

Once connected, tap the Faults tab along the bottom to switch to the Fault Control page, shown in *Figure 6*. A green switch means the fault detection for that fault is active. These faults should **never** be disabled unless expressly directed to by a Micro-Air service technician. Disabling these faults can damage the connected motor or EasyStart under some circumstances.

The screenshot shows the 'Diagnose & Upload' screen. At the top, there's a blue header with the title 'Diagnose & Upload'. Below it is a blue button labeled 'Refresh Data fom EasyStart'. Underneath are three text input fields: 'Name (first & last):', 'Contact Email Address:', and 'Contact Phone Number:'. At the bottom of the form area, there's a note '(Fill out all of the above to enable upload)' and a grey button labeled 'Send Data to Micro-Air'. The bottom navigation bar has icons for Connect, Status, ReLearn, Diagnose (which is highlighted), Faults, and Update.

Figure 5 - Diagnose Tab

The screenshot shows the 'Fault Control' screen. At the top, there's a blue header with the title 'Fault Control'. Below it is a blue button labeled 'Refresh Data from EasyStart'. Underneath are seven toggle switches, each with a label: 'Unexpctd Current', 'Pwr Interruption', 'Compressor Stall', 'Start H/W Failed', 'Open Overload', 'Overcurrent', and 'Wiring Issue'. All switches are currently turned on (green). At the bottom of the form area, there's a grey button labeled 'Send Settings to EasyStart'. The bottom navigation bar has icons for Connect, Status, ReLearn, Diagnose, Faults (which is highlighted), and Update.

Figure 6 - Faults Tab

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## Update Tab

Once connected, tap the Update tab along the bottom to switch to the Firmware Update page, shown in *Figure 7*. This page is used to get any updates that may become available over time. Tap the “Check for Updates” button at the top and follow the prompts to see if your EasyStart is the latest revision or to update EasyStart.

EasyStart is a mature product so there will not be many updates. Updates that may become available will likely be small tweaks really intended for newly produced units. Should any updates be recommended or required they will be posted to our social media and website pages, or as a notification within the app. Minor updates will not have public release notes associated with them.

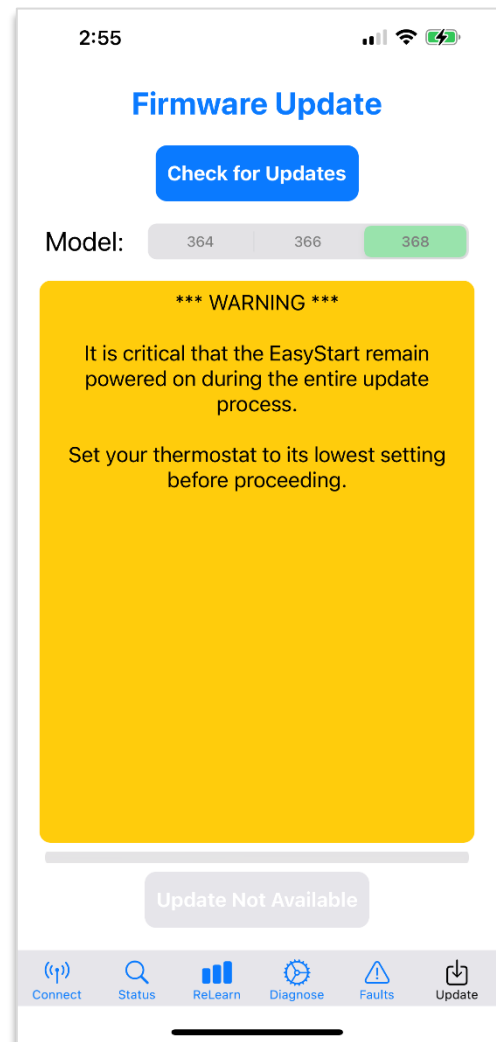


Figure 7 - Update Tab

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## Re-Learn (Factory Reset) Procedure

EasyStart is ready to learn out of the box and is completed on the first 5 successful cycles after installation. The learned data is then locked in for the life of EasyStart. Typically, there is no reason to re-learn (factory reset) this data, however some circumstances will call for it. This section provides step-by-step instructions on how to perform a re-learn on your EasyStart.

### Mandatory cause for a re-learn

- Compressor run capacitor has been replaced
- EasyStart is going to be connected to a different motor than originally learned on
- EasyStart was at one-point mis-wired, then fixed, and is now throwing faults
- Initial learning was done on a power source that could not provide a good learning environment
- Contact Micro-Air if you are not sure using the *Micro-Air Contact Us Page*

**Warning:** *There is no need at any point for any reason to remove the EasyStart lid for Bluetooth models. Doing so without instruction may void the warranty. If your system is non-Bluetooth, then you should navigate to the non-Bluetooth re-learn instructions in our EasyStart Knowledge Bank.*

### Apply the Re-Learn Setting

First, apply power to EasyStart and connect to it using the app. Use section *Connecting to EasyStart* to do so if you are not familiar with this process. Heat pump or cooling operation can be used to learn but the same operation should be used throughout the process.

Next, navigate to the *Re-learn Tab*. Tap the “ReLearn” switch to green. Tap the “Send Settings to EasyStart” button. A successful change is shown in *Figure 8*. You can then disconnect from EasyStart or close the app.

### Complete the 5 Learning Starts

**NOTE:** We recommend learning be done on shore or utility power with a circuit that would normally run the compressor without EasyStart. A generator or inverter may be used if that is all that is available. Be sure any generator economy mode is off during learning.

Power down the system after saving the change. The next power cycle will be the first learning start. Restore power and let the compressor run (not just the fan!) for at least 30 seconds. This learning cycle is then complete.

Power the unit down and repeat this process four more times to complete the learning process. EasyStart is then ready for your limited power source.

If the first learning start is successful then very likely the rest will be as well. After the first start it is fine to walk away and let the unit cycle on and off naturally to complete learning. A fault in the first 15 seconds will discard the learning data for that start and not increment the *Learned Starts* counter.

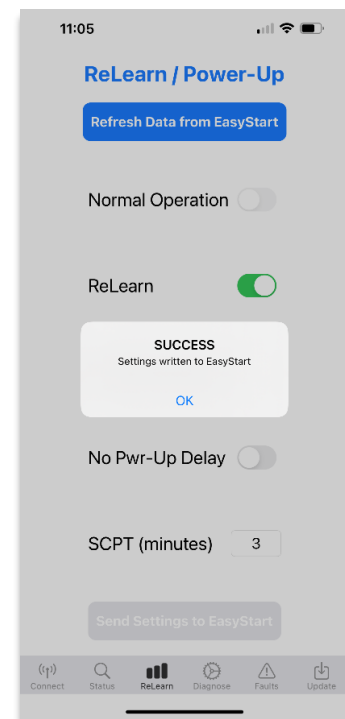


Figure 8 - Successful Re-Learn Saved

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## Setting No Power Up Delay

EasyStart delays the start for several reasons, including faults and pressure equalization. However, some applications need to have the compressor immediately start so EasyStart can be integrated into the system. These systems must manage the start and fault delays if the EasyStart delays are disabled. This section provides step-by-step instructions for bypassing the EasyStart start delays.

### Compressor Monitoring Systems (CMS)

Some home A/C units may have a compressor monitoring system (**CMS**). A CMS is part of the A/C control system and wants to see that the compressor immediately starts when told to. EasyStart interferes with this operation and so both EasyStart timers should be bypassed for CMS integration as described below.

**NOTE:** Part of CMS operation is that the A/C will shut down as a fault when it detects the EasyStart delays, removing power to EasyStart. This is typically not enough time to establish an EasyStart connection and make the changes. You will have to temporarily connect the EasyStart black and white wires to active line voltage so you can make these changes. This document does not describe other considerations such as identifying a CMS or special CMS wiring instructions during installation. These are described in our *EasyStart Generic Home Installation Guide* on our *EasyStart Knowledge Bank*.

### Apply the Timer Bypass Settings

**Warning:** *These changes should never be performed unless required to do so by your application. Removing these delays inappropriately can damage the motor or EasyStart. Use the EasyStart Generic Home Installation Guide or Micro-Air Contact Us Page to be sure.*

First, apply power to EasyStart and connect to it using the app. Use section *Connecting to EasyStart* to do so if you are not familiar.

### Setting to Bypass the Fan Delay

EasyStart will have a 5 second or so delay between when it is powered and when it starts the compressor to allow a fan to power up first. Navigate to the *Re-learn Tab*. Tap the “No-Pwr-Up Delay” switch to green. This will start the compressor as soon as EasyStart is powered.

### Setting to Bypass the Short-Cycle Timer Delay

EasyStart will not allow a new cycle to occur for the entered number of minutes after a previous cycle has ended. Tap the SCPT (minutes) field and modify it to the number “1”. This is as short as allowed a delay but is short enough to prevent interference.

### Save the Changes to EasyStart

Tap the “Send Settings to EasyStart” button. A successful change is shown in *Figure 9*. EasyStart will use these settings for each new cycle.

If you had to make temporary wiring changes to power EasyStart, return them now to the appropriate permanent wiring configuration.

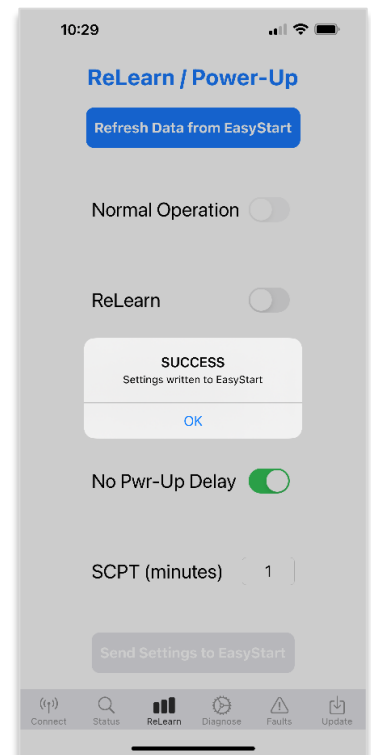


Figure 9 - Timers Successfully Defeated

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## Appendix A: Additional Resources

This document references various other Micro-Air resources and are listed here.

### EasyStart Knowledge Bank

Where all EasyStart resources are saved, including FAQs, articles, procedures, and troubleshooting guides.

[http://www.micro-air.com/kb\\_easystart.cfm](http://www.micro-air.com/kb_easystart.cfm)

### EasyStart Generic Home Installation Guide

A guide for installing in any home system with notes on adapting to a compressor monitoring system.

[http://www.micro-air.com/kb-easystart/articles\\_installation/easystart\\_Home\\_AC\\_Wiring\\_Guide.cfm](http://www.micro-air.com/kb-easystart/articles_installation/easystart_Home_AC_Wiring_Guide.cfm)

### Micro-Air Contact Us Page

Use this page for sending specific inquiries about any of our products

[https://www.micro-air.com/contact\\_microair.cfm](https://www.micro-air.com/contact_microair.cfm)

### Micro-Air Main Website

<https://micro-air.com/>

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Follow proper safety practices. If in doubt, consult a professional RV technician.