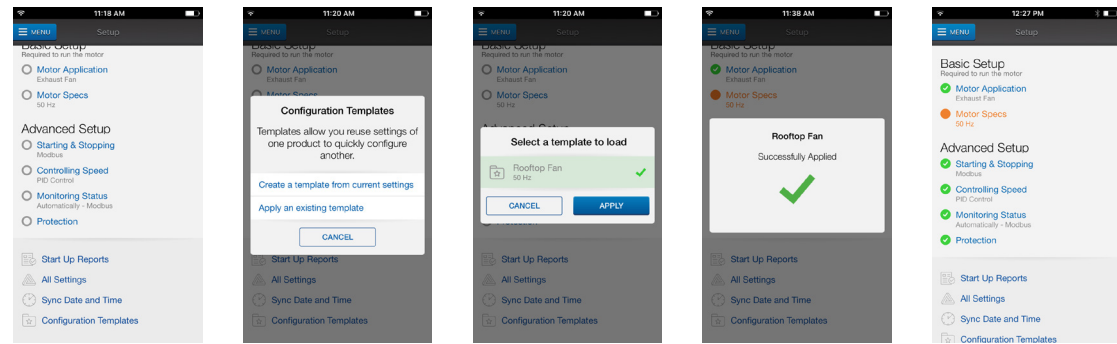


# Configuration Templates

The Q-Link Companion App allows users to build, save, and reuse device parameter settings as startup templates for future use. This allows the user to quickly and easily configure multiple drives for startup operations after connecting to the drive.



**Creating a new template\*:** Access the 'Setup' section of the app and navigate to the bottom of the screen and select 'Configuration Templates.' Select the 'Create a template from current settings' option from the on-screen prompt and name your template as desired.

\*Configuration templates can also be created when not paired with a Q-Link VFD by selecting 'Templates' from the main menu of the app.

**Applying an existing template:** Access the 'Setup' section of the app and navigate to the bottom of the screen and select 'Configuration Templates.' Select the 'Apply an existing template' option from the on-screen prompt and select the desired template. Once the template is applied, 'Motor Specs' will be highlighted in orange and will need to be confirmed before motor start up can begin.

# Factory Programmed Parameters

Parameter	Description	Basic	Supply Fan	Exhaust Fan	Cooling Tower	Centrifugal Pump
9	High Frequency Limit	60.00 [Hz]	60.00 [Hz]	60.00 [Hz]	60.00 [Hz]	60.00 [Hz]
10	Low Frequency Limit	15.00 [Hz]	15.00 [Hz]	15.00 [Hz]	15.00 [Hz]	20.00 [Hz]
11	Carrier Frequency	2.5 [kHz]	2.5 [kHz]	2.5 [kHz]	2.5 [kHz]	2.5 [kHz]
20	Start Mode	2- Flying start	2- Flying start	2- Flying start	2- Flying start	0- Accel
21	DC Start Level	0- Low	1- Medium	1- Medium	1- Medium	0- Low
22	HOA Type	0- Keypad HOA	0- VFD HOA	0- VFD HOA	0- VFD HOA	0- VFD HOA
27	Keypad Frequency	15.00 [Hz]	15.00 [Hz]	15.00 [Hz]	15.00 [Hz]	20.00 [Hz]
34	Acceleration Time	30.0 [sec]	30.0 [sec]	30.0 [sec]	30.0 [sec]	20.0 [sec]
35	Deceleration Time	40.0 [sec]	40.0 [sec]	40.0 [sec]	40.0 [sec]	30.0 [sec]
36	V/F Control Mode	0 (Linear)	1 (Squared)	1 (Squared)	1 (Squared)	0 (Linear)
42	Speed Reference in Auto	(1) 1A Input	(4) PID	(4) PID	(4) PID	(4) PID
43	Reference Loss Condition	(0) Disabled	(1) Half of Min	(1) Half of Min	(1) Half of Min	(1) Half of Min
44	Ref. Loss Action	(0) Fault	(1) Stop	(1) Stop	(2) Hold	(1) Stop
46	PID Mode Select	(0) Direct	(0) Direct	(1) Inverse	(1) Inverse	(0) Direct
49	PID Feedback Unit	(0) PSI	(2) inWC	(2) inWC	(6) °F	(0) PSI
50	PID Feedback Max	100.00 [PSI]	10.00 [inWC]	10.00 [inWC]	150.00 [°F]	100.00 [PSI]
52	PID Set-point value	60.00 [PSI]	1.00 [inWC]	1.00 [inWC]	78.00 [°F]	60.00 [PSI]
55	PID P-Gain	30 [%]	10 [%]	10 [%]	10 [%]	30 [%]
56	PID I-Gain	1.0 [sec]	1.0 [sec]	1.0 [sec]	1.0 [sec]	0.5 [sec]
59	PID Low Frequency Limit	20.00 [Hz]	15.00 [Hz]	15.00 [Hz]	15.00 [Hz]	20.00 [Hz]
22	Preset Setpoint-A	50.0 [PSI]	1.10 [inWC]	1.10 [inWC]	75.5 [°F]	50.0 [PSI]
23	Preset Setpoint-B	55.0 [PSI]	1.20 [inWC]	1.20 [inWC]	76.5 [°F]	55.0 [PSI]
24	Preset Setpoint-AB	65.0 [PSI]	1.30 [inWC]	1.30 [inWC]	77.0 [°F]	65.0 [PSI]

# Bypass Control Module Dipswitch Functions

Switch 1: Enable Bypass Manual Override



Switch 2: Enable Smart-Start® Feature set



The BPC DIP switches can be found on the upper left of the unit. The default position for the switches is OFF. The BPC module functions can be enabled by moving the desired switch inward (right) toward the center of the module.

# HVAC VFD Quickstart Guide

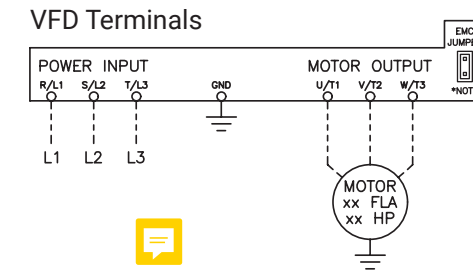


## Power Wiring

Warning: Input, Output and Control wiring must be in separate conduits. Use of 600V for all input circuits required. Note: Remove EMC Jumper for Corner Grounded Delta Systems.

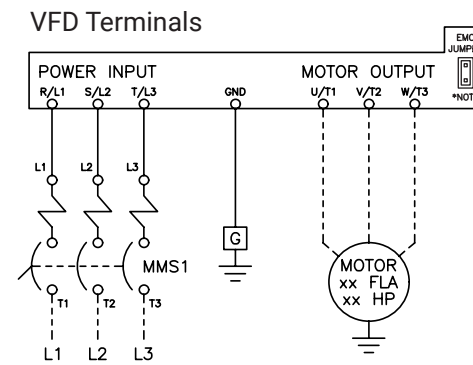
### VFD Only

Verify correct input voltage and wiring to the VFD power and motor terminals. Connect 3-phase input power wires to VFD terminals **R/L1, S/L2, & T/L3**. Connect 3-phase motor wires to VFD terminals **U/T1, V/T2, & W/T3**. Connect power source ground wire and motor ground wire to VFD ground terminal.



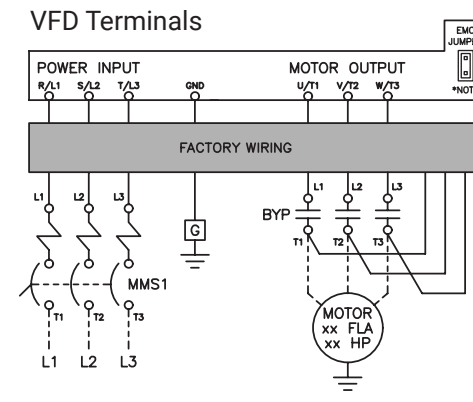
### VFD with Disconnect

Verify correct input voltage and wiring to VFD panel power and motor terminals. Connect 3-phase input power wires to the disconnect terminals **T1, T2, & T3**. Connect 3-phase motor wires to VFD terminals **U/T1, V/T2, & W/T3**. Connect power source ground wire and motor ground wire to VFD ground terminal.



### Smart Bypass VFD

Verify correct input voltage and wiring to enclosed VFD panel power and motor terminals. Connect 3-phase input power wires to the disconnect terminals **T1, T2, & T3**. Connect 3-phase motor wires to bypass contactor terminals **T1, T2, & T3**. Note: Bypass Contactor terminals are used for factory wiring as well as motor wires. DO NOT REMOVE FACTORY WIRES. Connect power source ground wire and motor ground wire to VFD ground terminal.



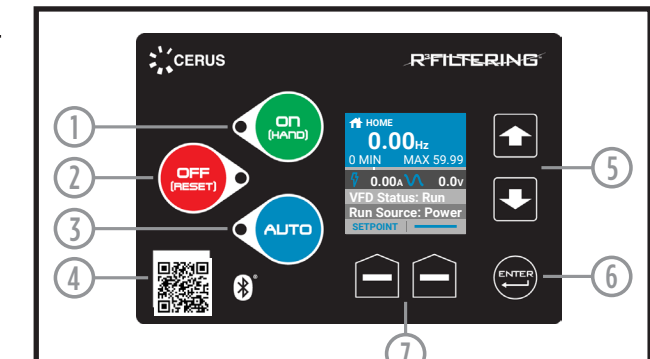
## Control Wiring

Full wiring schematic can be located on the inside of the cover of your Q-Link VFD and under the 'Documentation' section of the Q-Link Companion app. Additional information on transducer and BMS wiring can be found on page 3 of this document.

## I/O Terminal Descriptions

Analog Inputs/Outputs	1A	Input (0-10V / 0-24V / 4-20mA)
	2A	Configurable as a 0-10V Input or a 0-10V or 4-20mA Output
	24	Control Power (24VDC, 50mA max.)
Relay Output	O1/O2	Configurable (NO/NC)
	D1	Configurable (NO/NC)
Dry Inputs	D2	Configurable (NO/NC)
Voltage (Wet) Inputs	V1/V2	Configurable (NO/NC)
	V3/V4	
Multi-Drive RS-485	M+/M-	For Lead-Lag & Alternating Operation
	E1	CAT5 Ethernet for Modbus & BACnet IP
Communications	C+/C-	RS-485 for Modbus RTU & BACnet MS/TP
	A+/A-	24VDC Damper supply, 0.5A max

## Keypad Programming



- On (Hand):** By default VFD will start when ON key is pressed with speed set by keypad.
- Off (Reset):** By default, this button will stop the drive. During a fault condition the button is used to reset and clear a fault by depressing for 3 sec.
- Auto:** In Auto, by default, the VFD run command is set to terminals (remote) and speed reference by analog input or PID depending on a selected application.
- Bluetooth QR Code:** Used to connect drive with Q-Link Smartphone App.
- Up & Down:** Used to navigate through menus and adjust parameters.
- Enter:** Use to enter menu screen and to select or confirm any changes made to parameter settings.
- Soft Keys:** These keys correspond to the bottom left and right corners of the screen and will change according to current menu and function. Beyond the Home Screen the left soft key will typically function as a 'Back Button.' **On Bypass Packages the soft keys are used to switch between 'VFD' and 'Bypass' by selecting the desired mode.**

## Q-Link Companion App

The Q-Link Companion app offers users guided start up and commissioning assistance and ensures VFD firmware is up-to-date.

Other features include:

- Customizable VFD setting templates to assist and expedite in programming drives.
- Document creation for easy documentation of startup functions for commissioning.
- Safely alter settings without needing panel access.



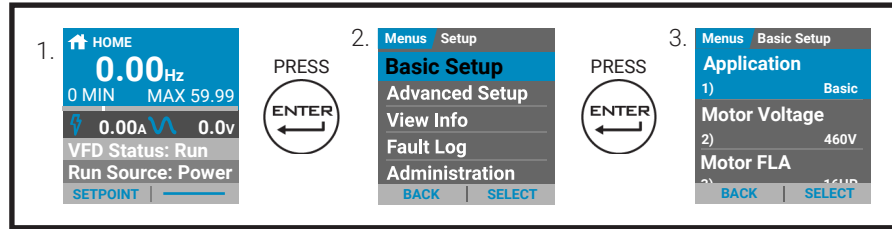
iOS App Store: <http://apple.co/2xdGHZN>  
Google Play Store: <http://bit.ly/2wyZFgj>

Warnings and Considerations for operating the Q-Link VFD can be found on page 3 of this document

## System Initial Start Up

During initial power-up, the VFD will show the message [Initializing VFD] and the HOA will be locked in the OFF position. At minimum, parameters Basic-01 through Basic-09 should be set prior to starting the VFD.

To access the Basic Parameter group from the Home screen press 'Enter' to access 'Menus' and 'Enter' once more to select 'Basic Setup,' see below:



## Basic Startup

The 'Basic Parameter' group can be set by highlighting the parameter you wish to set and depressing the right soft key. This will open the edit screen to allow the parameter to be adjusted to the desired setting.

### Step 1: Select Application [Basic-01]

Select [BASIC] application if VFD is controlled by BMS, or select another application [Exhaust Fan, Supply Fan, Etc] if it is wired to a pressure transducer. Refer to the parameter table at the end of this quick-start for presets.

### Step 4: Enter Rated Motor Current [Basic-04]

Enter the motor FLA (Full Load Amps) rating from the motor nameplate.

### Step 5: Enter Rated Motor RPM [Basic-05]

Enter the rated speed of the motor from the motor nameplate.

### Step 6: Set the High Frequency Limit [Basic-09]

Enter the high frequency limit that the drive will allow during operation.

### Step 2: Enter Rated Motor Voltage [Basic-02]

Enter the rated voltage of the motor from the motor nameplate.

### Step 3: Enter Rated Motor HP [Basic-03]

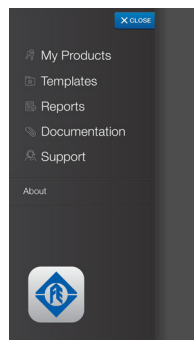
Enter the motor horsepower rating from the motor nameplate.

Basic Parameters 10–22 should be verified and changed if necessary to ensure desired operation. For further detail please consult the User Manual or Q-Link Companion App.

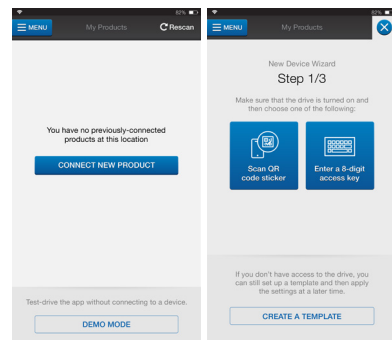
## Companion App Pairing Process

The Q-Link Companion App is the recommended method for drive setup and commissioning as it guides the user through these processes. This ensures the device is correctly programmed and operating with the latest firmware. The process to connect your VFD to the app is detailed below:

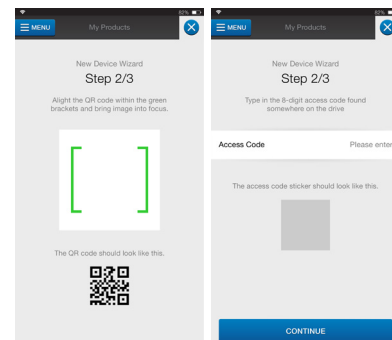
Open the Sidebar Menu and select 'My Products' to begin the pairing process.



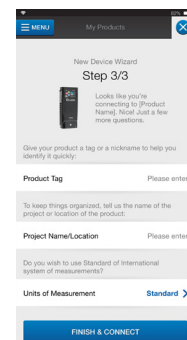
Select the 'Connect New Product' button and choose to connect via QR Code Scan or Bluetooth® Key.



Scan the QR Code located on the front of your device or enter your device's Bluetooth® Key.



Enter Product Tag and Project Name/Location and press 'Finish & Connect'.



Note: Your VFD's Bluetooth® Key can be located by the following menu navigation: Main Menu -> View Info -> Communications -> Bluetooth Key

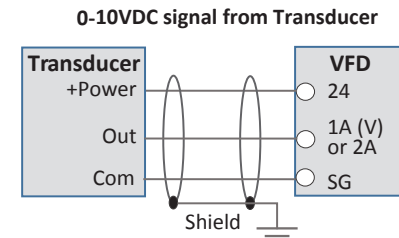
## Synchronizing Date and Time

Setting your Q-Link VFD's date and time can be set by synchronizing the information from the Q-Link Companion App. To do this, open the 'Settings' menu and navigate to the bottom of the screen then Select 'Sync Date & Time'.

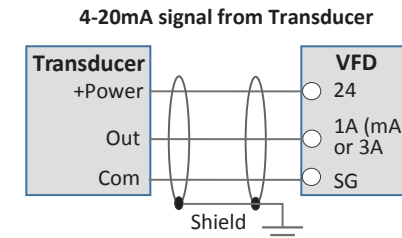
## Signal Wiring

### Transducer Wiring

**0-10VDC Transducer:** Wire from the transducer's positive (Power) wire to the VFD terminal marked **24**. Wire from the transducer's output (Out) to VFD terminal marked **1A** or **2A**. Wire from the transducer's common (Com) to the VFD terminal marked **SG** (Signal Ground). The shield wire should be connected to the ground lug on the VFD conduit plate.

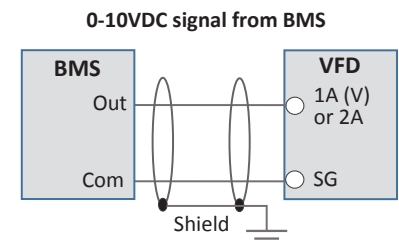


**4-20mA Transducer:** Wire from the transducer's positive (Power) wire to the VFD terminal marked **24**. Wire from the transducer's output (Out) to VFD terminal marked **1A** or **3A**. Wire from the transducer's common (Com) to the VFD terminal marked **SG** (Signal Ground). The shield wire should be connected to the ground lug on the VFD conduit plate.

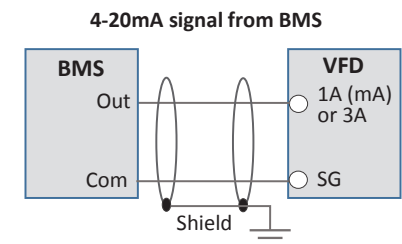


### BMS Control Wiring

**0-10VDC BMS:** Wire from the BMS Output (Out) to the VFD terminal marked **1A** or **2A**. Wire from the BMS Common (Com) to VFD terminal marked **SG** (Signal Ground). The shield wire should be connected to the ground lug on the VFD conduit plate.



**4-20mA BMS:** Wire from the BMS Output (Out) to the VFD terminal marked **1A** or **3A**. Wire from the BMS Common (Com) to VFD terminal marked **SG** (Signal Ground). The shield wire should be connected to the ground lug on the VFD conduit plate.



## Advanced Control Features

Advanced Control settings such as PID Control, Skip Frequencies, and Preset Speeds can be located in the 'Advanced Setup' section of the 'Menus' structure. For guided assistance with these features the Q-Link Companion App is the recommended method.

## Damper Control

The Q-Link VFD features dedicated damper control terminals. The A+ and A- terminals can provide 24VDC, up to 0.5 amps max to a damper actuator. When enabled, before every start (including auto restarts) the VFD will provide 24VDC power to open a damper. This function will operate differently depending on the configuration and use of the optional damper limit switch:

### No Limit Switch

If there is no limit switch (no digital input is set to Damper SW) and start command is received, VFD will provide power to damper motor, and after the Damper Delay (par 7) the motor will start.

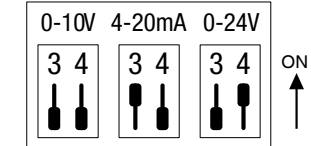
### With Limit Switch:

If any digital input is set to Damper SW and VFD receives run command, VFD provides power to damper motor and after limit switch is closed (DI is activated) the motor will start. If damper switch is not closed within damper time delay, VFD will trip on damper fault. In this configuration the limit switch should be wired to the digital input configured as the limit switch.

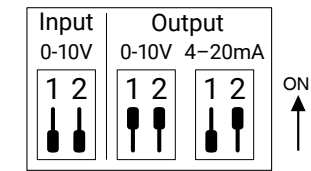
## Analog DIP Switch Configurations

The analog I/O configuration dip switches 1 through 4 can be found to the right of the analog I/O terminals. DIP switches must be configured per the illustrations below to operate as desired.

### 1A - ANALOG INPUT SWITCHES 3 & 4



### 2A - ANALOG INPUT/OUTPUT SWITCHES 1 & 2



## Warnings and Considerations

Maximum Ambient Temperature rating of 50C. De-rating is required under certain circumstances. See full operation manual or consult factory for details.

Solid state motor overload protection is provided at 115% of full load current.

Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the Manufacturer Instructions, National Electrical Code and any additional local codes.

CSA: Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the Canadian Electrical Code, Part I

Suitable for installation in a Pollution Degree 2 Environment

The opening of the branch-circuit protective device may be an indication that a fault current has been interrupted. To reduce the risk of fire or electric shock, current-carrying parts and other components of the controller should be examined and replaced if damaged. If burnout of the current element of an overload relay occurs, the complete overload relay must be replaced.