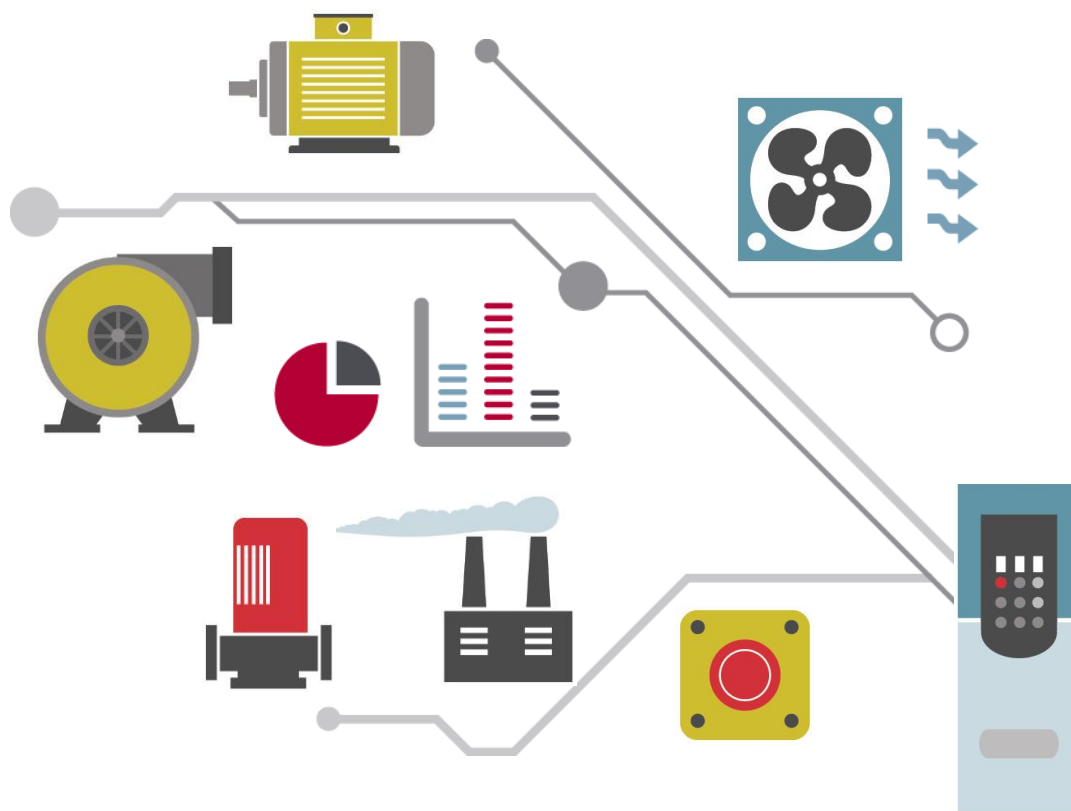


FIRE MODE IN VARIABLE FREQUENCY DRIVE

A MyAir Technical Guide



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Made by MyAir UK
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This guide represents the views of the MyAir Variable Frequency Drives Group on Fire Mode. However, it has no legal force, and readers are advised to consult relevant legislation and standards as well as any manufacturer product manuals and support material.

1. The aim of this Guide

This Guide is to provide a reference for Variable Frequency Drive (VFD) manufacturers and users to establish criteria by which Fire Mode in VFD should be defined. This is to enable a common understanding of what Fire Mode is and clear communication of how any specific product operates.

2. Purpose of Fire Mode

The aim of Fire Mode in a VFD is to maximise availability of the smoke control system used in a building for smoke ventilation in the event of a fire. This extends continuity of service and recovery through intelligent control during transient conditions. As well as energy saving in normal operation, the VFD can make the control system more flexible and more robust during adverse conditions. Fire Mode further enhances this robustness.

3. Definition of Fire Mode

Fire Mode is a special operating mode of the VFD that is activated by a signal from the building's fire alarm system that specifically indicates a fire condition. Once operating in Fire Mode, the VFD will ignore or reset faults in order to maintain availability.

Fire Mode cannot be triggered by any other signal or manual option. Once the VFD enters Fire Mode, it cannot exit this mode until the fire condition signal is reset.

4. Continuous Operation Conditions

Once operating in Fire Mode the VFD will ignore all programmable trip or fault conditions normally incorporated into the VFD for its protection and that of the motor driven equipment. However there are several conditions under which it cannot maintain operation, and in these conditions the VFD will continuously and indefinitely perform a reset and re-start within a manufacturer defined reset time from a fault condition.

Condition	Definition	Action
Under-Frequency	When the input power (single or three phase) supply is removed or voltage falls below operating range.	VFD is ready to re-start if input frequency recovers to within operating range.
Over-Current	Where the current (amps) drawn by the driven equipment is greater than the maximum continuous rating of the VFD.	VFD resets and attempts to re-start indefinitely.

5. Information

Fire Mode (as all operational modes) in VFD is only designed to function on motors that are correctly rated to operate under VFD control.

The VFD manufacturer should declare how warranties are affected should the VFD operate in Fire Mode.

System designers should consider how Fire Mode impacts or is impacted by any other safety systems (such as the STO function in the VFD).

6. About MyAir

MyAir Ventilation Group design and manufacture ventilation equipment and fans by consideration to the environment. Our products have long life spans and environmentally safe. MyAir ventilation group efficient and reliable products and systems for ventilation are part of industrial, commercial, public and residential buildings. The land based applications and markets are the focal point of our business. For these markets we develop and implement high efficient ventilation fans which require minimal resources to run and reduce the discharge of harmful substances. The world is constantly changing and through new challenges from the environment, our customers and the business environment call for innovative solutions. These challenges fuel our desire to create the next generation of ventilation products.

With thanks to the Smoke Control Association for their input and endorsement of this guide



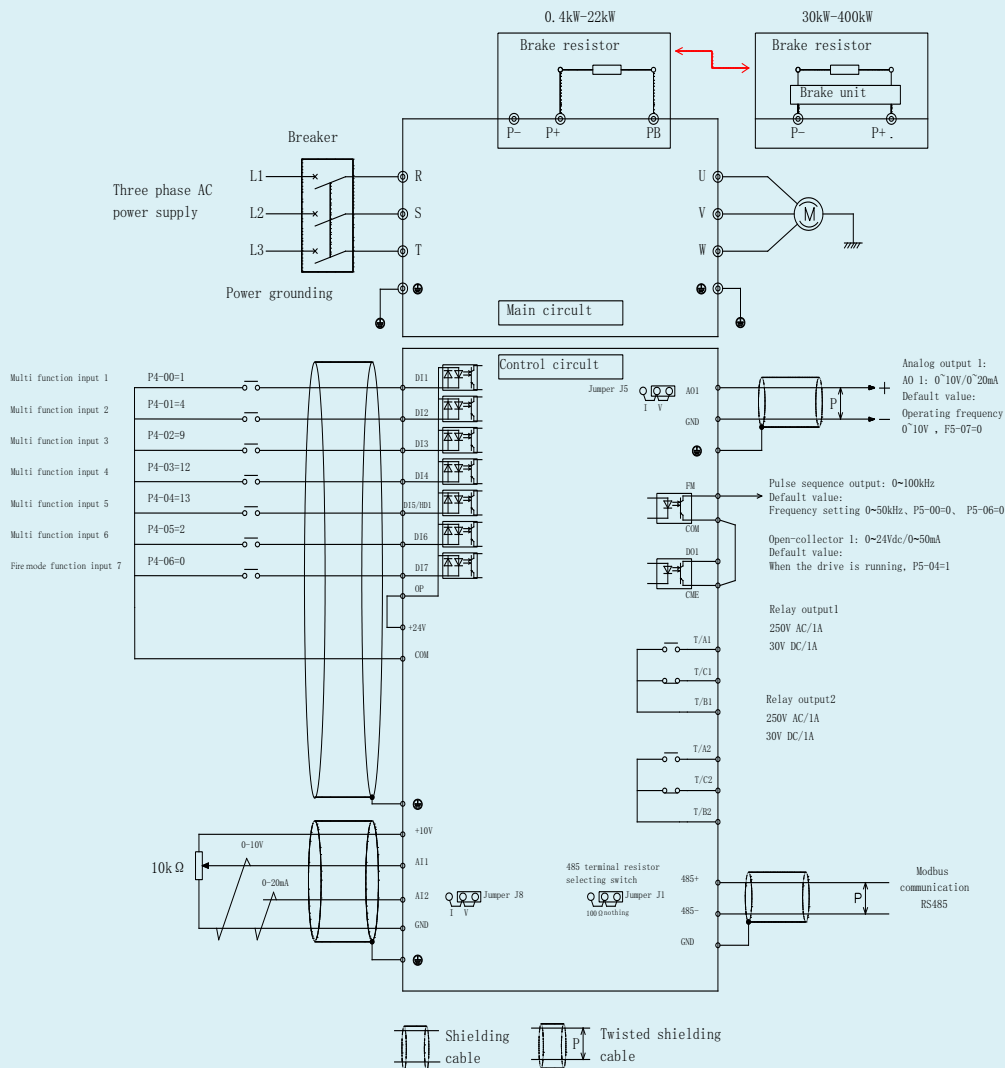
DFM Series fire mode function

Introduction

Fire mode is used in applications where the VFD maintaining operation is critical to safety. Fire Mode is used in applications such as stairwell pressurization and Tunnel exhaust fans. Fire Mode is activated with a digital input and when activated the DFM series VFD will follow a programmable Fire Mode Speed. Fire Mode disables all interlocks, enable signals and faults and runs the Motor at the programmed Fire mode Speed.

Configuration

The DFM Series VFD is configured out of the box for fire mode operation. Digital Input 5 is assigned to the Fire mode function and the Drive will run at the preset Fire mode Frequency of 50Hz when Digital in-put 5 is on. See wiring diagram Below.



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