

Application Note

AN-VTC- 43

Fire Mode Operation

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- ***General:***

The Optidrive VTC is equipped with Fire Mode operation as standard. Fire Mode operation can be activated using one of the digital inputs whereby the drives internal protection is overridden to continue operation for as long as possible until the drive fails due to fire damage. The use of Fire mode can eliminate the need for a bypass contactor in safety evacuation circumstances, ideal for running a fan up to full speed in any direction as required.

The Optidrive VTC can be configured to run in either direction when the fault signal is given, either by controlling its selected speed reference in normal operation or by selecting the preset speed.

By enabling Fire mode, the switching frequency is set to minimum (4kHz) and the following trips are disabled : I.t-trP, OL-br, U-t, O-t, Ph-Ib and P-Loss.

- ***Parameters:***

Configuring the Fire Mode operation is dependant on the primary control method defined in parameter P1-12 (Terminal control, Keypad control, PID control or MODBUS control) and terminal configuration of P2-01=23.

- ***Procedure:***

When Fire mode is enabled (P2-01 = 23) and the connection between pin 1 & 3 is closed, the switching frequency is set to minimum (4kHz) and the following fault trips are disabled in the drive:

Trip message	Explanation
"I.t-trP"	Drive overload trip, occurring when the drive has been delivering >100% rated current (set in P1-08) for a period of time. The display flashes to indicate an overload condition.
"OL-br"	Brake resistor overload. Increase deceleration time, reduce load inertia or add further brake resistors in parallel. Ensure minimum resistance values from ratings tables in section 7.4 are observed.
"O-t"	Over-temperature trip. Check drive cooling and possible enclosure dimensions
"U-t"	Under-temperature trip. Trip occurs if ambient is less than 0 °C. Drive ambient temperature must be raised above zero in order to start the drive.
"P-LOSS"	Drive intended for use with a 3-phase supply has lost one

	phase. Condition must persist for >15s before a trip occurs. Phase loss detection disabled if parameters defaulted (P-dEF) when L3 has been removed.
"Ph-lb"	Phase imbalance. Trips if the phase imbalance exceeds 3%. Condition must persist for >30s before a trip occurs.

Setting the desired operating output frequency of the drive during Fire Mode operation can be configured in 2 ways:

1. Normal Operation – Normal speed control dependant upon the primary control settings in P1-12 (Terminal control, Keypad control, PID control or MODBUS control). Please refer to operating instructions for configuring.
2. Preset Speed Operation - By switching over to Preset Speed 1 defined in parameter P1-11. This is done by closing the connection between Pin 1 and 4 and setting P1-11 to the desired operating frequency (positive or negative).

Note: When in PID control (P1-12=3) Preset Speed operation cannot be selected in Fire Mode

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