Optidrive Applications Support Library

Application Note	AN-ODV-2-012
Title	Using Standby Mode
Related Products	Optidrive HVAC
Level **1**	1 – Fundamental - No previous experience necessary 2 – Basic – Some Basic drives knowledge recommended 3 – Advanced – Some Basic drives knowledge required 4 – Expert – Good experience in topic of subject matter recommended

Overview

Optidrive HVAC drives features a built in "Standby Mode" function. This function disables the output of the inverter automatically when not required, and automatically enables it when required again. This can be used to save energy, and prevent damage to the connected motor.

This document describes how to use this Standby function.

Standby Mode Parameters

P2-27 Standby Mode Time

This parameter determines the time for which the drive will operate before entering Standby Mode. The time period is set in seconds to one decimal place. Factory setting of this parameter is 20.0 Seconds.

P3-13 PID Error Wake Up Level

This parameter is active only in PID Control Mode (P1-12 = 3), and defines the PID error required (Difference between the Feedback and Setpoint) before the drive will restart after entering Standby Mode. This parameter is set in % to one decimal place, as a % of the PID feedback transducer range.

P3-14 Standby Activation Speed

This parameter defines the output frequency / speed at which the Standby Mode Time is triggered. The output frequency / speed of the drive must remain at or below this level to allow the drive to enter Standby Mode.

Note that if P3-14 < P1-02, the drive will never enter Standby Mode.

When operating in PID Control, P1-12 = 3, when in Standby Mode, the drive will not restart from Standby until the output frequency demand exceeds this value.

Standby Mode Operation

Optidrive HVAC Standby Mode operates as follows :-

- When operating in any Control Mode except PID Control (P1-12 = 0, 1, 2, 4, 5 or 6)
  - Standby Mode can be enabled by setting parameter P2-27 > 0.0 seconds
  - The drive will switch to Standby when the output frequency remains at or below the Standby Mode Activation Frequency / Speed (P3-14) for a time period equal to or greater than the time set in P2-27.
  - The drive will restart normal operation immediately when the frequency setpoint rises above the Standby Mode Activation Speed.
  - When operating in PI Control Mode (P1-12 = 3)
  - Standby Mode can be enabled by setting parameter P2-27 > 0.0 seconds
  - The drive will switch to Standby when the output frequency remains at Standby Mode Activation Frequency / Speed (P3-14) for a time period equal to or greater than the time set in P2-27.
  - When the drive enters Standby Mode, the Output of the PID Controller is set to zero.
  - The PID Controller will restart when the PID error (difference between the Setpoint and Feedback) exceeds the threshold level set in parameter P3-13 PID Control Error Wake Up Level.
  - The drive will restart the motor when the output of the PID controller exceeds the Standby Mode Activation Frequency / Speed (P3-14)
  - For optimum response, it is advisable to set the PID Output Low Limit P3-08 to a value slightly below the minimum speed, e.g
    - P3-08 = (P1-02 / P1-01)% - 1
    - Hence if P1-01 = 50.0Hz, P1-02 = 20.0Hz, P3-08 = (20 / 50)% - 1.0 = 39.0%
  - When the PID error level is exceeded, the output of the PID controller will immediately switch to this level.

Appendix