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AS3 Application Note 2.3.1

Sleep Function (Non-PID control)

How to program and operate AS3 with the sleep function

Estimated Time: 15 Minutes
Level: 2
Prerequisite:
- AS3 Application Note 1.1.0
   Navigating Menus & Parameters

STEP A

Connections

The sleep function on the VFAS3 is used for energy saving and elongating the lifespan of the motor. This function puts the drive to sleep when there is no demand for mass flow, which would decrease the run time for the motor and prolong the lifespan.

Sleep function over a run cycle per respective diagram below.
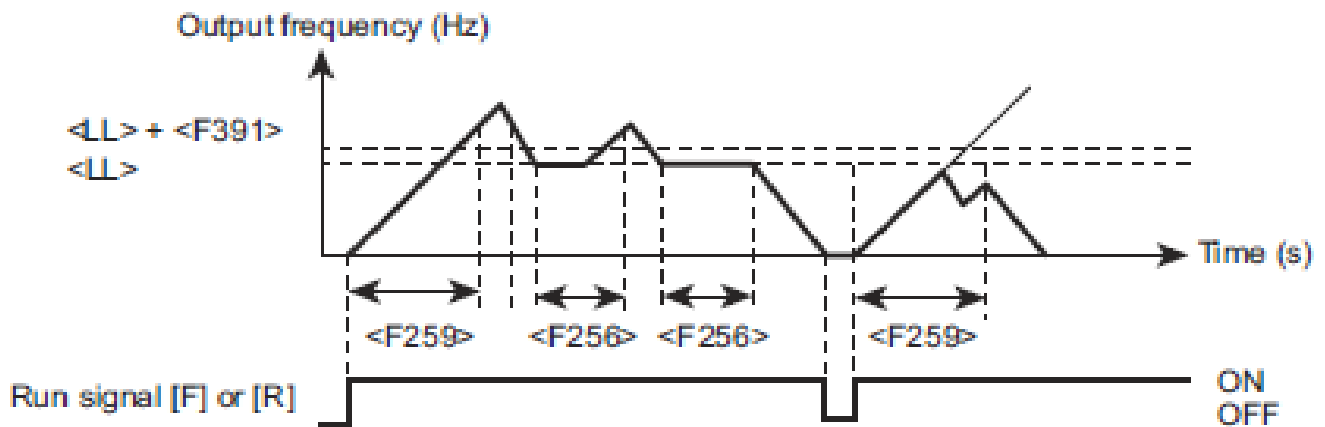
Check Your Work

✓ **Verify VFAS3 operates under normal condition before programming Sleep function.**

Note: **Refer to Section 6.9 in the AS3 Instruction Manual (E6582062) for additional information on the Sleep function.**

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The Sleep function will automatically decelerate and bring the drive to a stop when condition programmed have been met.

The drive's Sleep function begins once the output frequency is at the <LL: Lower Limit frequency> programmed.

The drive must continue to run at the <LL: Lower Limit frequency> for the specified time programmed in the <F256: Run Sleep detection time> parameter prior to the drive's sleep cycle.

Once the drive has met these condition, the screen will display "LStP" during the sleep cycle.

You can also enable a feature with the Sleep function that will automatically stop the drive after a time period programmed in <F259: Run Sleep detection time at start -up> if the output frequency does not increase past the <LL: Lower Limit frequency> due to load error.

This function is cancelled when the frequency command value is over the values of the <LL: Lower Limit frequency> and the <F391: Sleep detection hysteresis> or when the run command is turned OFF.

Check Your Work

✓ **Check your understanding of the condition required to enable or disable the Sleep function.**

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STEP C

Programming

1. Program the Lower Limit Frequency. The lower limit frequency will determine the frequency at which the drive will go to sleep.

Parameter	Description	Default Value	New Value
F013	LL: Lower Limit Frequency	0.0	Choose New LL Value

2. Program the Sleep detection time. The drive will need to run at the lower limit for the set period of time to go into a sleep state.

Parameter	Description	Default Value	New Value
F256	Sleep Detection Time	0.0	Choose New Value

3. (If applicable) Program the Sleep detection hysteresis. This will be the threshold value that will awake the drive from the sleep cycle.

Parameter	Description	Default Value	New Value
F391	Sleep Detection Hysteresis	0.0	Choose New Value

4. (If applicable) Program the Sleep detection time at startup. This will automatically stop the drive upon start-up if there is a load issue preventing the drive to ramp past the lower limit frequency.

Parameter	Description	Default Value	New Value
F259	Sleep Detection Time at Start-up	0.0	Choose New Value

Check Your Work

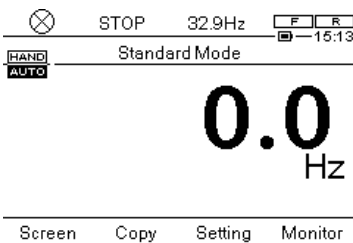✓ **Verify parameter change was made by verifying new value programmed.**

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Program the following below.

Parameter	Description	Default Value	New Value
F013	LL: Lower Limit Frequency	0.0	20.0 Hz

Parameter	Description	Default Value	New Value
F256	Sleep Detection Time	0.0	5.0 s

Parameter	Description	Default Value	New Value
F391	Sleep Detection Hysteresis	0.0	5.0 Hz

Start at the main operation screen below and follow the steps as shown.

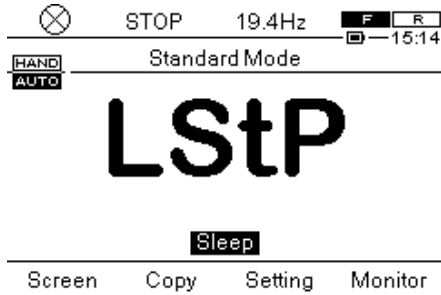Enable a Forward run command. Increase your frequency reference above the lower limit value.
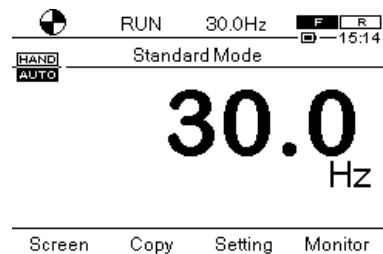
Check Your Work

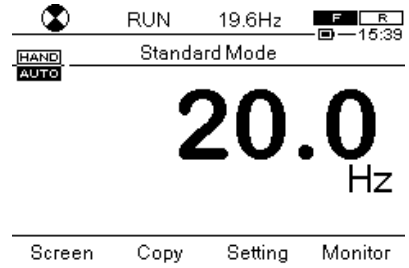✓ **Verify parameter change was made by verifying new value programmed.**
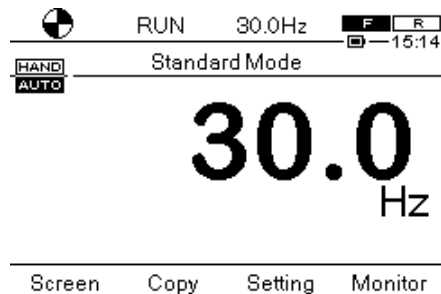
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Verification

Standard mode display will show "LStP" to indicate the sleep function is active.

Reduce your frequency reference to 20Hz or below.

Increase the frequency reference above 25Hz and above to allow the VFD to break from the sleep function

Complete

Check Your Work

✓ **Verify parameter change was made by verifying new value programmed.**