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### This document pertains to the Unidrive SP

**Problem:** The drive will not run when the command to do so is given

### DIGITAL INPUTS

The Unidrive SP can be enabled to run in several ways. The drive can use digital inputs, keypad, or a field buss networks to give the OK to run. The drive will display inh, rdy, or run depending on the given commands. The drive can be configured to use positive or negative logic. The logic type is set up at #8.29 in the Unidrive SP. The Unidrive SP defaults to positive logic. When the drive is in positive logic you will need to inject +24VDC to activate the digital inputs. The +24VDC can be supplied by the drive or externally. **When the drive is in terminal mode the following sequence occurs under default conditions.**

#### **Unidrive SP:**

**Inh = Drive disabled = Connect pins 22-31 drive should go to rdy**

**Rdy = Drive enabled = Connect pins 22-26 drive should go to run**

**Run = Drive is enabled and ready to run when a speed reference is applied**

Parameter #0.05 sets up the Reference Select. This will tell the drive where to look for run commands and speed references. If it is set to Pad you will only need to close the enable signal. You can then use the keypad to control the drive and set the speed reference. If you choose a terminal mode the speed reference will come in on an analog input. The enable, run, and preset selections will be selected by the digital inputs. If the digital inputs are activated correctly the drive should operate as seen above.

### DRIVE SEQUENCER

There are some additional parameters in menu 6 that can be assessed to see why the drive is not running. If these parameters are not going to a 1 with the corresponding commands then the digital inputs (Menu 8) could be configured wrong or inactive. Check the following parameters:

## **DRIVE SEQUENCER CONTINUED**

#6.15 = 1 = Drive enabled  
#6.43 = 1 = Control word disabled, Set to 1 for Field Buss Control  
#6.29 = 1 = Hardware Enable (Pin 31 is activated)  
#6.30 = 1 = Run Forward  
#6.31 = 1 = Jog  
#6.32 = 1 = Run Reverse  
#6.33 = 1 = Forward/Reverse  
#6.34 = 1 = Run  
#6.37 = 1 = Jog Reverse  
#6.39 = 1 = Not Stop

Pr 6.04	T25	T26	T27	Pr 6.40
0	Pr 6.29	Pr 6.30 Run Forward	Pr 6.32 Run Reverse	0 (non latching)
1	Pr 6.39 Not stop	Pr 6.30 Run Forward	Pr 6.32 Run Reverse	1 (latching)
2	Pr 6.29	Pr 6.34 Run	Pr 6.33 Fwd /Rev	0 (non latching)
3	Pr 6.39 Not stop	Pr 6.34 Run	Pr 6.33 Fwd/Rev	1 (latching)
4	User prog	User prog	User prog	User prog

If the parameters in menu 6 are not changing state accordingly then measure the voltage on the corresponding digital inputs. When a command is given the DC voltage should change between 0VDC and 24VDC. If menu 6 is not changing and the voltage is changing than check the digital input configuration in menu 8.

## **CONTROL WORD**

The drive does not have to use the digital inputs to control the start/stop functions. When #6.43 = 1 the control word is enabled. The drive will now accept a decimal value from 0 to 32767 at #6.42. This decimal value can be converted to a binary value. You can reference the binary value to the chart below to see the function that will be carried out.

Bit	Function	Equivalent parameter
0	Drive enable	Pr 6.15
1*	Run forward	Pr 6.30
2*	Jog	Pr 6.31
3*	Run reverse	Pr 6.32
4*	Forward/reverse	Pr 6.33
5*	Run	Pr 6.34
6*	Not stop	Pr 6.39
7	Auto/manual	
8*	Analogue/Preset reference	Pr 1.42
9*	Jog reverse	Pr 6.37
10	Reserved	
11	Reserved	
12	Trip drive	
13	Reset drive	Pr 10.33
14	Keypad watchdog	

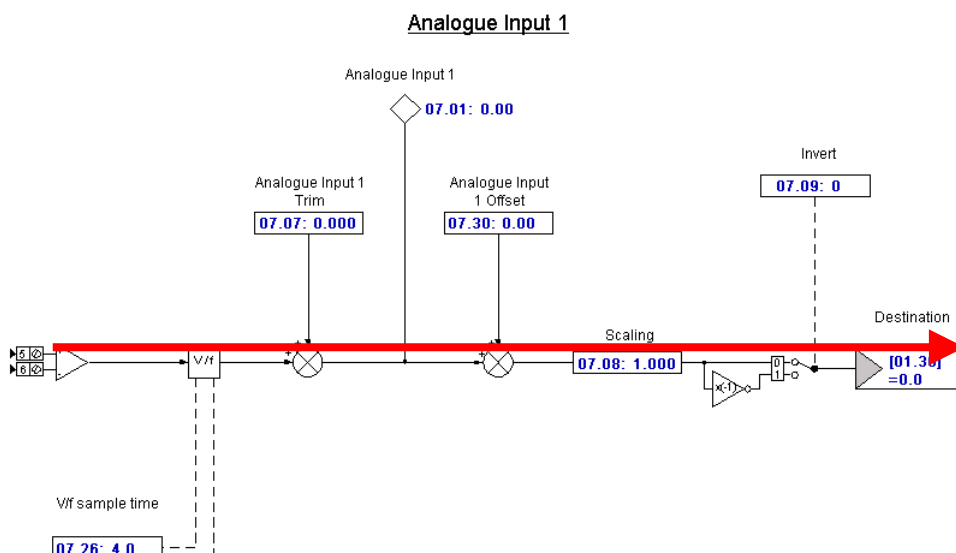
## Speed Reference

The digital inputs and the drive sequencer could be working correctly and the drive still may not run. If the display shows Run but the motor is not turning there could be a problem with the speed reference to the drive. The speed reference can be applied in different methods. You can use an analog input (voltage or current), preset speeds, and a field buss reference. The example we will use is the most common and is a 0-10VDC signal on analog input #1.

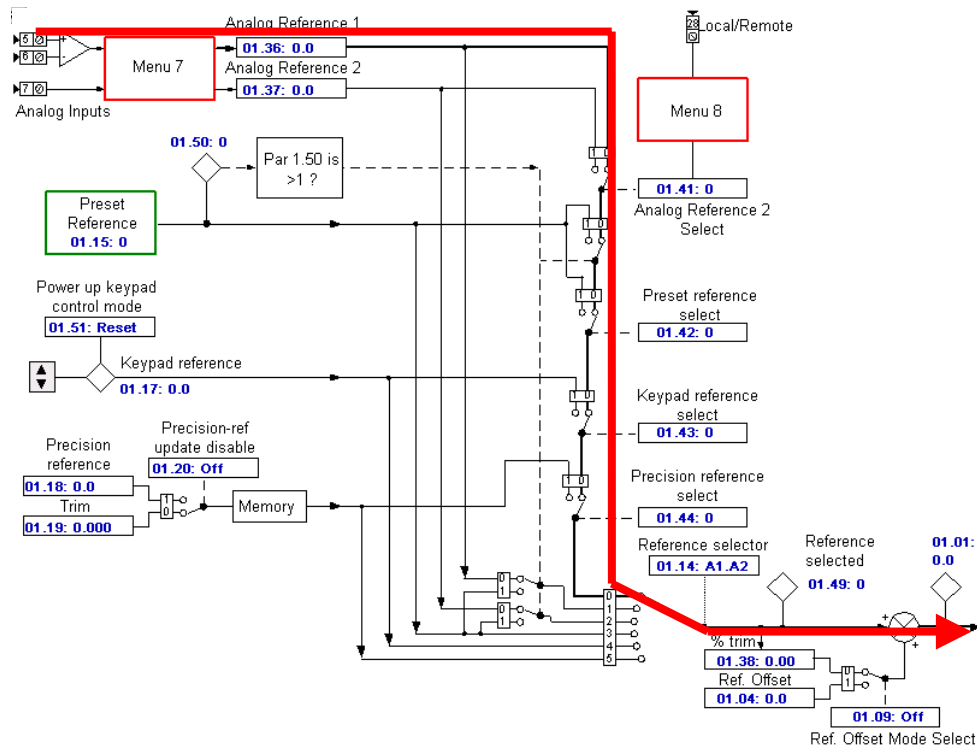
Parameter #3.01 is the final speed demand. If the digital inputs and drive sequencer are operating properly the speed reference should be displayed here. If the reference is not getting to this point check menu 1 and 2 to see where it is stopping.

The drive can also run in torque mode. If this is the case the torque reference will come in on parameter #4.08 under default conditions. #4.08 can be linked to an analog input or be written to via a field buss network.

## Speed Reference



Once the signal has been confirmed at the terminal you should look at #7.01 to see if it changes with the change in reference at terminal5. #7.01 goes from +/-0%-100%. If it looks good check the destination of the speed reference at #7.10. Follow it to the destination and confirm the speed reference value is getting there and then through to #3.01.



Once the Drive Sequencer, Digital Inputs, and Speed Reference have all been confirmed and the drive will still not run contact the Americas' Service Center.

