

Enhanced PID

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V7 Software

CIMR-V7AMXXX-039

1.0 Outline

Unit Size	Base Software	Software Number
Low HP (0.4~4.0kW)	VSP010025	VSP018191
High HP (5.5,7.5kW)	VSP010104	VSP018201

A. PID algorithm changes:

- Add the function of PID set point separate from reference.
- Add the function of PID feedback level detection to multifunction digital outputs.
- Add the function of PID sleep.

B. Improve the resolution of the Pulse Input Gain (n149).

C. Improve the resolution of the PID Output Gain (n163).

1.1 Revision History^{<2>}

0.4~4.0kW version:

Software Number	Modification	Date
VSP018190	First release	
VSP018191	Change resolution of n163 from 0.1 to 0.01	6/6/02

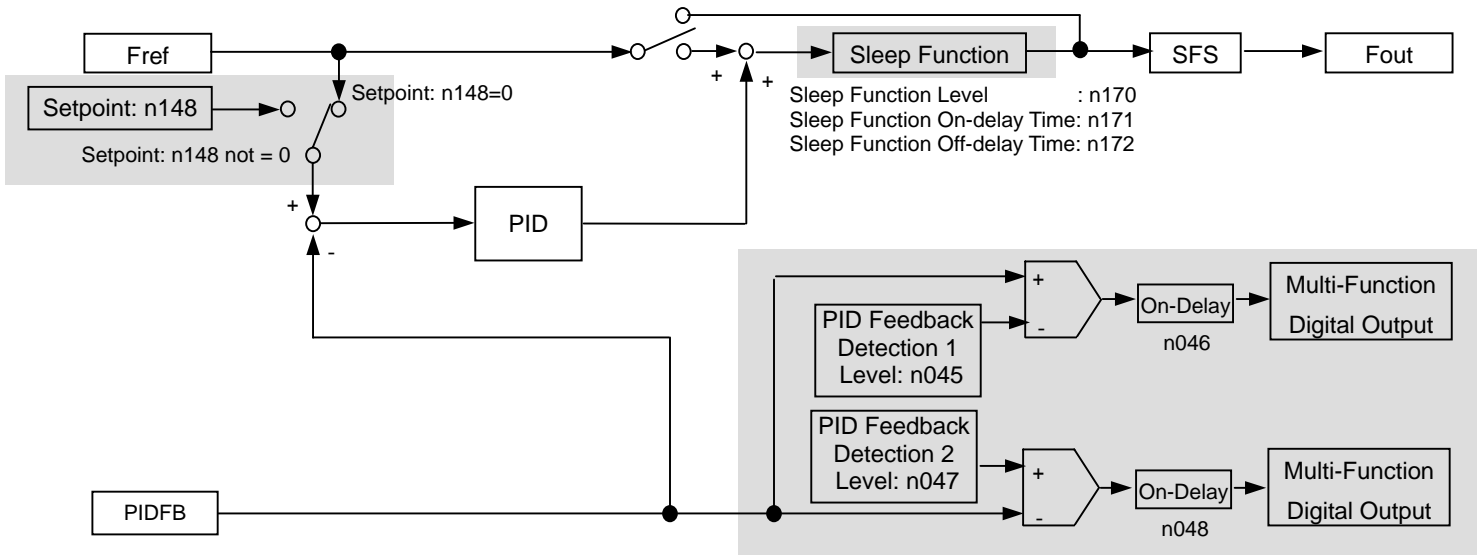
5.5,7.5kW version:

Software Number	Modification	Date
VSP018200	First release	
VSP018201	Change resolution of n163 from 0.1 to 0.01	6/6/02

Enhanced PID

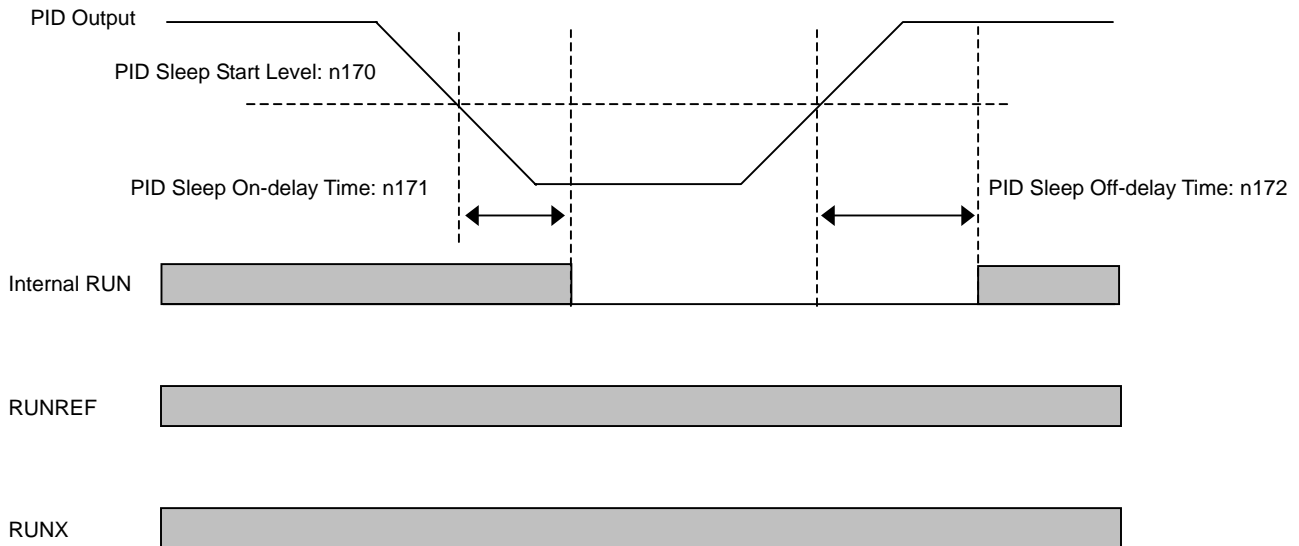
2.0 New Software Functions

2.1 PID Flowchart



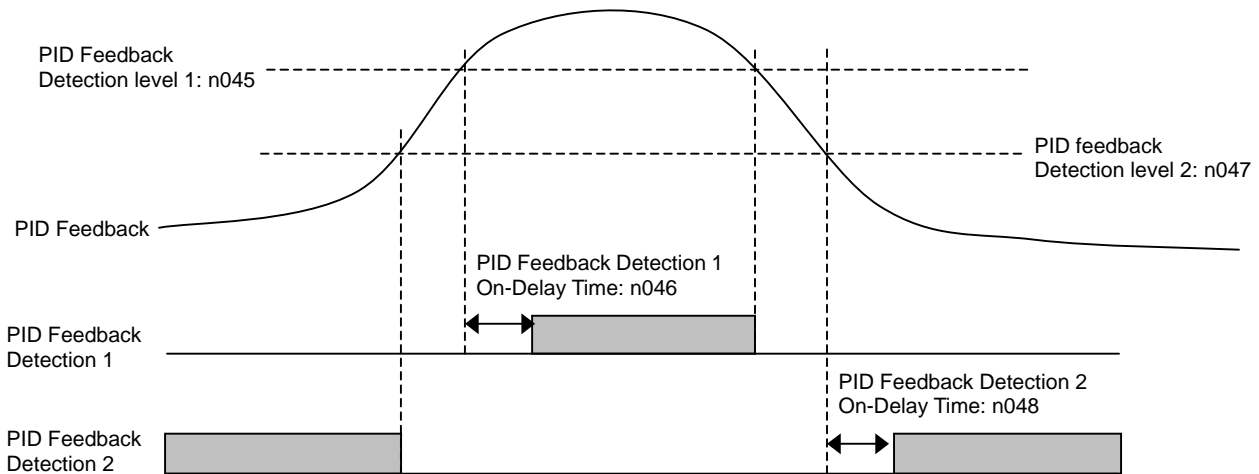
Shaded areas are new functions.

2.3 Sleep Function



Enhanced PID

2.4 PID Feedback Detection



2.5 Additional & Modified Parameters

No	Name	Setting Unit	Setting Range	Default
n045	PID Feedback Detection Level 1	1%	0 ~ 100%	0%
n046	PID Feedback Detection Time 1	1 Sec	0 ~ 999 Sec ^{<1>}	0 Sec
n047	PID Feedback Detection Level 2	1%	0 ~ 100%	0%
n048	PID Feedback Detection Time 2	1 Sec	0 ~ 999 Sec ^{<1>}	0 Sec
n148	PID Set Point	0.01 Hz *1	0.0 ~ 400.0 Hz *2	0.0 Hz *3
n149	Pulse Input Scaling Gain	10 Hz/1 → 1 Hz	100~3000x10 Hz → 45~1000 Hz	2500 Hz → 50 Hz
n163	PID Output Gain	0.01 ^{<2>}	0.00 ~ 25.00	1.00
n170	Sleep Function Start Level	0.01 Hz *1	0.0 ~ 400.0 Hz *2	0.00 Hz
n171	Sleep Function On-delay Time	1 Sec	0 ~ 999 Sec ^{<1>}	0 Sec
n172	Sleep Function Off-delay Time	1 Sec	0 ~ 999 Sec ^{<1>}	0 Sec

*1. The unit is 0.01Hz for less than 99.99 Hz, 0.1Hz for 100.0 Hz and above.

*2. Maximum range is the smaller of either 400 Hz or Fmin (n011).

*3. If set "0.0 Hz", then this parameter has no function and set point is not separated from the speed reference.

2.6 Additional Multi-function Outputs

No	Name	Function
n057	Multi-Function Digital Output 1	22: PID Feedback Detection 1 Open: n045 > PIDfb, Close: n045 ≤ PIDfb. 23: PID Feedback Detection 2 Open: n047 ≤ PIDfb, Close: n047 > PIDfb.
n058	" 2	Same as n057
n059	" 3	Same as N057

Enhanced PID

3.0 Detailed Block Diagram

