

Inflight Calculation.  
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SP=Setpoint                      Inf = Inflight                      Snap= Start weight

Note, this is a model, not just the calculation, because "inf" has ben used in the first line of the calculation

Before dose		Instruction
Step1: Snap shot start weight		Move
Step2: Setpoint - Inflight		Subtract
Step3: Add onto previous step the start snapped weight		Add
After Dose ( and a settle time)		
Step4: Actual weight minus the snapped start weight		Subtract
Step5: Setpoint minus actual dosed based on step 4, to give error		Subtract
Step6: Divide the error from prev step by 2 to give a 50% correction		Divide
Step7: Subtract from the old inflight the above 50 % correction		Subtract

Please note: WE do not know what inf is in advance in reality

sp := 100                      inf := 10                      snap := 15                      orig\_inf := 0

Batch 1

dose1 := [snap + (sp + inf)]	dose1 = 125
actual_dose1 := dose1 - snap	actual_dose1 = 110
error1 := actual_dose1 - sp	error1 = 10
error_correction := $\frac{\text{error1}}{2}$	error_correction = 5
new_inf1 := orig_inf + error_correction	new_inf1 = 5

Batch 2

dose2 := [snap + (sp + inf - new_inf1)]	dose2 = 120
actual_dose2 := dose2 - snap	actual_dose2 = 105
error2 := actual_dose2 - sp	error2 = 5
error_correction := $\frac{\text{error2}}{2}$	error_correction = 2.5
new_inf2 := new_inf1 + error_correction	new_inf2 = 7.5

### Batch 3

dose3 := [snap + (sp + inf - new_inf2)]	dose3 = 117.5
actual_dose3 := dose3 - snap	actual_dose3 = 102.5
error3 := actual_dose3 - sp	error3 = 2.5
error_correction := $\frac{\text{error3}}{2}$	error_correction = 1.25
new_inf3 := new_inf2 + error_correction	new_inf3 = 8.75

### Batch 4

dose4 := [snap + (sp + inf - new_inf3)]	dose4 = 116.25
actual_dose4 := dose4 - snap	actual_dose4 = 101.25
error4 := actual_dose4 - sp	error4 = 1.25
error_correction := $\frac{\text{error4}}{2}$	error_correction = 0.625
new_inf4 := new_inf3 + error_correction	new_inf4 = 9.375

### Batch 5

dose5 := [snap + (sp + inf - new_inf4)]	dose5 = 115.625
actual_dose5 := dose5 - snap	actual_dose5 = 100.625
error5 := actual_dose5 - sp	error5 = 0.625
error_correction := $\frac{\text{error5}}{2}$	error_correction = 0.313
new_inf5 := new_inf4 + error_correction	new_inf5 = 9.688

### Batch 6

dose6 := [snap + (sp + inf - new_inf5)]	dose6 = 115.313
actual_dose6 := dose6 - snap	actual_dose6 = 100.313
error6 := actual_dose6 - sp	error6 = 0.313
error_correction := $\frac{\text{error6}}{2}$	error_correction = 0.156
new_inf6 := new_inf5 + error_correction	new_inf6 = 9.844

### Batch 7

dose7 := [snap + (sp + inf - new_inf6)]	dose7 = 115.156
actual_dose7 := dose7 - snap	actual_dose7 = 100.156
error7 := actual_dose7 - sp	error7 = 0.156
error_correction := $\frac{\text{error7}}{2}$	error_correction = 0.078
new_inf7 := new_inf6 + error_correction	new_inf7 = 9.922

### Batch 8

dose8 := [snap + (sp + inf - new_inf7)]	dose8 = 115.078
actual_dose8 := dose8 - snap	actual_dose8 = 100.078
error8 := actual_dose8 - sp	error8 = 0.078
error_correction := $\frac{\text{error8}}{2}$	error_correction = 0.039
new_inf8 := new_inf7 + error_correction	new_inf8 = 9.961

### Batch 9

dose9 := [snap + (sp + inf - new_inf8)]	dose9 = 115.039
actual_dose9 := dose9 - snap	actual_dose9 = 100.039
error9 := actual_dose9 - sp	error9 = 0.039
error_correction := $\frac{\text{error9}}{2}$	error_correction = 0.02
new_inf9 := new_inf8 + error_correction	new_inf9 = 9.98

### Batch 10

dose10 := [snap + (sp + inf - new_inf9)]	dose10 = 115.02
actual_dose10 := dose10 - snap	actual_dose10 = 100.02
error10 := actual_dose10 - sp	error10 = 0.02
error_correction := $\frac{\text{error10}}{2}$	error_correction = $9.766 \times 10^{-3}$
new_inf10 := new_inf9 + error_correction	new_inf10 = 9.99

### Batch 11

dose11 := [snap + (sp + inf - new_inf10)]	dose11 = 115.01
actual_dose11 := dose11 - snap	actual_dose11 = 100.01
error11 := actual_dose11 - sp	error11 = $9.766 \times 10^{-3}$
error_correction := $\frac{\text{error11}}{2}$	error_correction = $4.883 \times 10^{-3}$
new_inf11 := new_inf10 + error_correction	new_inf11 = 9.995

### Batch 12

dose12 := [snap + (sp + inf - new_inf11)]	dose12 = 115.005
actual_dose12 := dose12 - snap	actual_dose12 = 100.005
error12 := actual_dose12 - sp	error12 = $4.883 \times 10^{-3}$
error_correction := $\frac{\text{error12}}{2}$	error_correction = $2.441 \times 10^{-3}$
new_inf12 := new_inf11 + error_correction	new_inf12 = 9.998

### Batch 13

dose13 := [snap + (sp + inf - new_inf12)]	dose13 = 115.002
actual_dose13 := dose13 - snap	actual_dose13 = 100.002
error13 := actual_dose13 - sp	error13 = $2.441 \times 10^{-3}$
error_correction := $\frac{\text{error13}}{2}$	error_correction = $1.221 \times 10^{-3}$
new_inf13 := new_inf11 + error_correction	new_inf13 = 9.996

### Batch 14

dose14 := [snap + (sp + inf - new_inf13)]	dose13 = 115.002
actual_dose14 := dose14 - snap	actual_dose14 = 100.004
error14 := actual_dose14 - sp	error14 = $3.662 \times 10^{-3}$
error_correction := $\frac{\text{error14}}{2}$	error_correction = $1.831 \times 10^{-3}$
new_inf14 := new_inf13 + error_correction	new_inf14 = 9.998

### Batch 15

dose15 := [snap + (sp + inf - new_inf14)]	dose15 = 115.002
actual_dose15 := dose15 - snap	actual_dose15 = 100.002
error15 := actual_dose15 - sp	error15 = $1.831 \times 10^{-3}$
error_correction := $\frac{\text{error15}}{2}$	error_correction = $9.155 \times 10^{-4}$
new_inf15 := new_inf14 + error_correction	new_inf15 = 9.999

### Batch 16

dose16 := [snap + (sp + inf - new_inf15)]	dose16 = 115.001
actual_dose16 := dose16 - snap	actual_dose16 = 100.001
error16 := actual_dose16 - sp	error16 = $9.155 \times 10^{-4}$
error_correction := $\frac{\text{error16}}{2}$	error_correction = $4.578 \times 10^{-4}$
new_inf16 := new_inf15 + error_correction	new_inf16 = 10

note :the calculated inflight is now approximately the real world intital inflight that we did not know at the begining of the batching process.

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