PROGRAM PLC\_PRG

VAR

CODE : Code ; //instance of Code

IN1 : LREAL ;

SETPOINT : LREAL ;

END\_VAR

IN1 := 100 ;

SETPOINT := 100 ;

CODE (Input := IN1 , Setpoint := SETPOINT);

FUNCTION\_BLOCK Code

VAR\_INPUT

ssMethodType: SINT;

Setpoint: LREAL;

Input: LREAL;

END\_VAR

VAR\_OUTPUT

Output: LREAL;

END\_VAR

VAR

INPUTSTOINDEX : InputToIndex; //instance of InputsToIndex3

Filter\_DSTATE: LREAL;

Integrator\_DSTATE: LREAL;

rtb\_FilterCoefficient: LREAL;

Output\_tmp: LREAL;

END\_VAR

CASE ssMethodType OF

SS\_INITIALIZE:

(\* SystemInitialize for Atomic SubSystem: '<Root>/Code 2' \*)

(\* InitializeConditions for DiscreteIntegrator: '<S31>/Filter' \*)

Filter\_DSTATE := 0.0;

(\* InitializeConditions for DiscreteIntegrator: '<S36>/Integrator' \*)

Integrator\_DSTATE := 0.0;

(\* End of SystemInitialize for SubSystem: '<Root>/Code 2' \*)

SS\_STEP:

INPUTSTOINDEX(Input1:= Input, Input2 := Setpoint);

(\* Outputs for Atomic SubSystem: '<Root>/Code 2' \*)

(\* Gain: '<S39>/Filter Coefficient' incorporates:

\* DiscreteIntegrator: '<S31>/Filter'

\* Gain: '<S30>/Derivative Gain'

\* Sum: '<S31>/SumD' \*)

rtb\_FilterCoefficient := (0.0 - Filter\_DSTATE) \* 100.0;

(\* Sum: '<S2>/Sum1' incorporates:

\* Sum: '<S2>/Sum2' \*)

Output\_tmp := Setpoint - Input;

(\* Outport: '<Root>/Output' incorporates:

\* DiscreteIntegrator: '<S36>/Integrator'

\* Gain: '<S41>/Proportional Gain'

\* Sum: '<S2>/Sum1'

\* Sum: '<S45>/Sum' \*)

Output := ((Output\_tmp \* 50.0) + Integrator\_DSTATE) + rtb\_FilterCoefficient;

(\* Update for DiscreteIntegrator: '<S31>/Filter' \*)

Filter\_DSTATE := (0.2 \* rtb\_FilterCoefficient) + Filter\_DSTATE;

(\* Update for DiscreteIntegrator: '<S36>/Integrator' incorporates:

\* Gain: '<S33>/Integral Gain' \*)

Integrator\_DSTATE := ((Output\_tmp \* 10.0) \* 0.2) + Integrator\_DSTATE;

(\* End of Outputs for SubSystem: '<Root>/Code 2' \*)

END\_CASE;

FUNCTION\_BLOCK InputToIndex

VAR\_INPUT

Input1 : LREAL ;

Input2 : LREAL ;

END\_VAR

VAR\_OUTPUT

Array\_ : ARRAY [1..100] OF LREAL ;

END\_VAR

VAR

Index1 : LREAL ;

Index2 : DINT ;

i : DINT;

END\_VAR

Index1 := SQRT((Input1)\*(Input2));

Index2 := LREAL\_TO\_DINT (Index1);

FOR i:= 0 TO Index2 DO

Array\_[i] := Index2 + i ;

END\_FOR