PROGRAM PLC\_PRG

VAR

RATEL1\_ : RATEL1 ; //instance of Code5

IN1: LREAL;

IN2: LREAL;

IN3: LREAL;

IN4: LREAL;

END\_VAR

IN1 := 50;

IN2 := 50 ;

IN3 := 50 ;

IN4 := 50 ;

RATEL1\_ (In1 := IN1, In2 := IN2 , In3 := IN3, In4 := IN4 );

///Rate Limiter

FUNCTION\_BLOCK RATEL1

VAR\_INPUT

ssMethodType: SINT;

In1: LREAL;

In2: LREAL;

In3: LREAL;

In4: LREAL;

END\_VAR

VAR\_OUTPUT

Out1: LREAL;

END\_VAR

VAR

INPUTSTOINDEX : InputsToIndex; //Instance of function block InputsToIndex

UnitDelay\_DSTATE: LREAL;

rtb\_Add1: LREAL;

c\_rtb\_UpperLimitLowerLimitC: LREAL;

END\_VAR

CASE ssMethodType OF

SS\_INITIALIZE:

(\* SystemInitialize for Atomic SubSystem: '<Root>/RATEL1 (Code 3)'

\*

\* Block description for '<Root>/RATEL1 (Code 3)':

\* Rate Limiter \*)

(\* InitializeConditions for UnitDelay: '<S1>/Unit Delay' \*)

UnitDelay\_DSTATE := 0.0;

(\* End of SystemInitialize for SubSystem: '<Root>/RATEL1 (Code 3)' \*)

SS\_STEP:

(\* Outputs for Atomic SubSystem: '<Root>/RATEL1 (Code 3)'

\*

\* Block description for '<Root>/RATEL1 (Code 3)':

\* Rate Limiter \*)

(\* UnitDelay: '<S1>/Unit Delay' \*)

rtb\_Add1 := UnitDelay\_DSTATE;

(\* Sum: '<S1>/Add' incorporates:

\* Abs: '<S1>/Abs'

\* Gain: '<S1>/Gain1' \*)

Out1 := (0.01 \* ABS(In2)) + rtb\_Add1;

(\* Sum: '<S1>/Add1' incorporates:

\* Abs: '<S1>/Abs1'

\* Gain: '<S1>/Gain' \*)

rtb\_Add1 := rtb\_Add1 - (0.01 \* ABS(In3));

(\* Switch: '<S2>/Upper Limit // Lower Limit Check' incorporates:

\* RelationalOperator: '<S2>/If UL > LL' \*)

INPUTSTOINDEX (Input1 := In1, Input2:= In2, Input3 := In3 , Input4 := In4);

IF Out1 > rtb\_Add1 THEN

c\_rtb\_UpperLimitLowerLimitC := Out1;

Out1 := rtb\_Add1;

ELSE

c\_rtb\_UpperLimitLowerLimitC := rtb\_Add1;

END\_IF;

(\* End of Switch: '<S2>/Upper Limit // Lower Limit Check' \*)

(\* Switch: '<S1>/If Init Then O//p = I//p' incorporates:

\* RelationalOperator: '<S2>/If Input >= LL'

\* Switch: '<S2>/Select Input' \*)

IF In4 > 0.5 THEN

Out1 := In1;

ELSIF In1 >= Out1 THEN

(\* Switch: '<S2>/Select UL' incorporates:

\* RelationalOperator: '<S2>/If UL < Input'

\* Switch: '<S2>/Select Input' \*)

IF c\_rtb\_UpperLimitLowerLimitC < In1 THEN

Out1 := c\_rtb\_UpperLimitLowerLimitC;

ELSE

Out1 := In1;

END\_IF;

(\* End of Switch: '<S2>/Select UL' \*)

END\_IF;

(\* End of Switch: '<S1>/If Init Then O//p = I//p' \*)

(\* Update for UnitDelay: '<S1>/Unit Delay' \*)

UnitDelay\_DSTATE := Out1;

(\* End of Outputs for SubSystem: '<Root>/RATEL1 (Code 3)' \*)

END\_CASE;

FUNCTION\_BLOCK InputsToIndex

VAR\_INPUT

Input1 : LREAL ;

Input2 : LREAL ;

Input3 : LREAL ;

Input4 : LREAL ;

END\_VAR

VAR\_OUTPUT

Array\_ : ARRAY [0..100] OF LREAL ;

END\_VAR

VAR

Index1 : LREAL ;

Index2 : DINT := 0 ; //32 BITS

i : DINT;

END\_VAR

Index1 := ((Input1)\*(Input2)\*(Input3)\*(Input4));

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

FOR i:= 0 TO Index2 DO

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

END\_FOR