FUNCTION\_BLOCK DIFFEQ

VAR\_INPUT

RUN : BOOL ; (\* 1 = run, 0 = reset \*)

XIN : REAL ;

A : ARRAY[1..] OF REAL ; (\* Input coefficients \*)

M : INT ; (\* Length of input history \*)

B : ARRAY[0..] OF REAL ; (\* Output coefficients \*)

N : INT ; (\* Length of output history \*)

END\_VAR

VAR\_OUTPUT XOUT : REAL := 0.0 ; END\_VAR

VAR (\* NOTE : Manufacturer may specify other array sizes \*)

XI : ARRAY [0..128] OF REAL ; (\* Input history \*)

XO : ARRAY [0..128] OF REAL ; (\* Output history \*)

I : INT ;

END\_VAR

XO[0] := XOUT ; XI[0] := XIN ;

XOUT := B[0] \* XIN ;

IF RUN THEN

FOR I := M TO 1 BY -1 DO

XOUT := XOUT + A[I] \* XO[I] ; XO[I] := XO[I-1];

END\_FOR;

FOR I := N TO 1 BY -1 DO

XOUT := XOUT + B[I] \* XI[I] ; XI[I] := XI[I-1];

END\_FOR;

ELSE

FOR I := 1 TO M DO XO[I] := 0.0; END\_FOR;

FOR I := 1 TO N DO XI[I] := 0.0; END\_FOR;

END\_IF ;

END\_FUNCTION\_BLOCK