(\* Following taken directly from the IEC 61131.3 draft standard \*)

(\*

\* An IEC 61131-3 IL and ST compiler.

\*

\* Based on the

\* FINAL DRAFT - IEC 61131-3, 2nd Ed. (2001-12-10)

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\*)

FUNCTION\_BLOCK PID

VAR\_INPUT

AUTO : BOOL ; (\* 0 - manual , 1 - automatic \*)

PV : REAL ; (\* Process variable \*)

SP : REAL ; (\* Set point \*)

X0 : REAL ; (\* Manual output adjustment - \*)

(\* Typically from transfer station \*)

KP : REAL ; (\* Proportionality constant \*)

TR : REAL ; (\* Reset time \*)

TD : REAL ; (\* Derivative time constant \*)

CYCLE : TIME ; (\* Sampling period \*)

END\_VAR

VAR\_OUTPUT XOUT : REAL; END\_VAR

VAR ERROR : REAL ; (\* PV - SP \*)

ITERM : INTEGRAL ; (\* FB for integral term \*)

DTERM : DERIVATIVE ; (\* FB for derivative term \*)

END\_VAR

ERROR := PV - SP ;

(\*\*\* Adjust ITERM so that XOUT := X0 when AUTO = 0 \*\*\*)

ITERM (RUN := AUTO, R1 := NOT AUTO, XIN := ERROR,

X0 := TR \* (X0 - ERROR), CYCLE := CYCLE) ;

DTERM (RUN := AUTO, XIN := ERROR, CYCLE := CYCLE) ;

XOUT := KP \* (ERROR + ITERM.XOUT/TR + DTERM.XOUT\*TD) ;

END\_FUNCTION\_BLOCK