

Appendix A

Converting a Control Block Task to the Most Current Version

DCS 5000 to AutoMax Version 1

You can easily convert a DCS 5000 Control Block task to AutoMax Version 1. If the application task in question does not incorporate the PID block, simply recompile the task using the AutoMax Executive software. Then, load the recompiled task into the AutoMax Processor module, again using the AutoMax Executive software.

If your DCS 5000 application task (s) incorporate the PID block, you will need to modify the source code to reflect the new format of the PID block. The example below lists the parameter keywords you need to change. The example also shows a DCS 5000 PID block and the equivalent AutoMax PID block. See chapter 42 for a detailed description of the AutoMax PID block.

Note that the AutoMax PID block requires a new keyword: LOOP_TIME. This parameter must be programmed as a numeric literal and should be set equal to the scan time of the task in seconds. For example, if you are using the default tick rate and TICKS = 10, then LOOP_TIME would be set to 0.055 (seconds).

Keyword Changes in the PID Block in AutoMax Version 1

1. RESET becomes MANUAL.
2. P_GAIN becomes KP.
3. I_GAIN becomes KI.
4. D_GAIN becomes KD.
5. LOOP_TIME is added.

Sample DCS 5000 Version 4 PID Block

```
2030 CALL PID(  RESET          =  LP_1_RESET@,    &
                P_GAIN         =  LP_1_PGAIN,     &
                I_GAIN         =  LP_1_IGAIN,     &
                D_GAIN         =  LP_1_DGAIN,     &
                INITIAL_VALUE  =  LP_1_IVALUE%,   &
                INPUT          =  LP_1_SETPT%,    &
                FEEDBACK       =  LP_1_FDBK%,    &
                OUTPUT         =  LP_1_OUTPUT% )
```

Equivalent AutoMax Version 1 PID Block

```
2030 CALL PID(  MANUAL         =  LP_1_RESET@,    &
                KP              =  LP_1_PGAIN,     &
                KI              =  LP_1_IGAIN,     &
                KD              =  LP_1_DGAIN,     &
                INITIAL_VALUE  =  LP_1_IVALUE%,   &
                INPUT          =  LP_1_SETPT%,    &
                FEEDBACK       =  LP_1_FDBK%,    &
                OUTPUT         =  LP_1_OUTPUT%   &
                LOOP_TIME      =  0.055
```

AutoMax Version 1 to AutoMax Version 2

Control Block tasks written for AutoMax Version 1 will run in a Version 2 system if they are edited as follows: decimal points are added to any real literal values that do not already have them. Blocks that allow real literal values include the following: DIFF_LAG, INTEGRATE, LAG, LEAD_LAG, PROP_INT, and PID.

After adding decimal points where appropriate, the task must be re-compiled using AutoMax Version 2.

AutoMax Version 2 to AutoMax Version 3

Control Block tasks written for AutoMax Version 2 will run in an AutoMax Version 3 system. Simply re-compile the task using Version 3 of the AutoMax Executive software.

AutoMax Version 3.0 to AutoMax Version 4

Control Block tasks written for AutoMax Version 3 will run in an AutoMax Version 4 system. Simply re-compile the task using Version 4 of the AutoMax Executive Software.

If variables are used that have the same name but different types (% , ! , @ , real), they must be made unique or the compiler will log an error.