

Program Block Control with FA-M3 Automation Platform CPU's

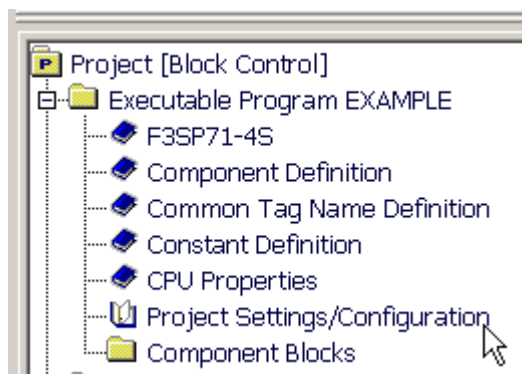
***This document assumes the user is familiar with the FA-M3 Widefield 3 software

The FA-M3 series of CPU's allows for the creation of up to 128 different program blocks within a project. In most cases, all program blocks are not required to run 100% of the time depending on the current application conditions. Program blocks can be selectively started and stopped by the use of the "Activate Block" and "Deactivate Block" application instructions.

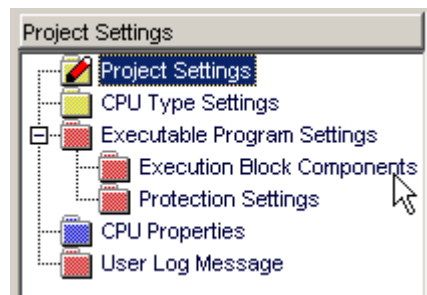
By default, all programs created in a Project are set to run all the time in the order that they are placed into the "Component Definition" section of the Project. To selectively activate/deactivate programs, changes are required in the "Project Settings" area.

In this example, the project contains three (3) program blocks (Main, Pumps, and Tanks). The Main program will run 100% of the time with the Pumps and Tanks programs be selectively started and stopped.

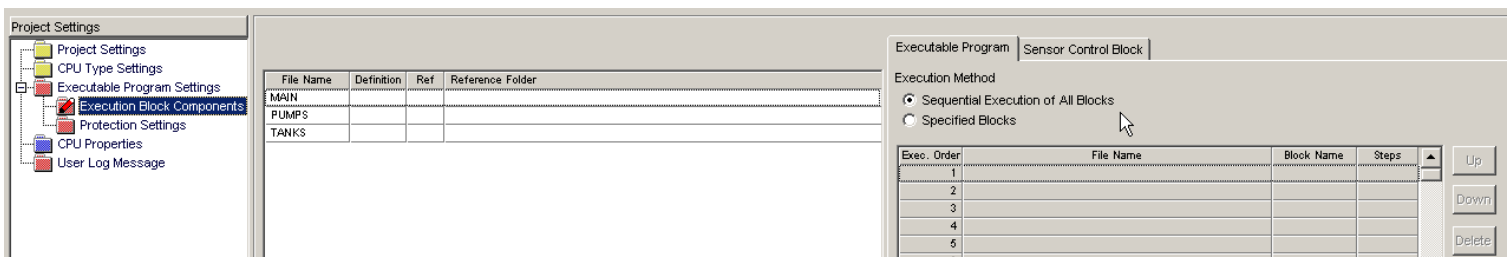
1. To configure the project to allow starting/stopping of individual program blocks, select "Project Settings/Configuration" from the main project window...



2. Select "Execution Block Components"...



3. With the "Execution Block Components" dialog open, under the "Executable Program" tab, by default the "Execution Method" is set to "Sequential Execution of All Blocks".



4. Select "Specified Blocks"...

Executable Program | Sensor Control Block

Execution Method

☐ Sequential Execution of All Blocks

☒ Specified Blocks

Exec. Order	File Name
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5. Program blocks are now added to the scan list. When "Specified Blocks" is selected, the first block (in this case, "MAIN") is always executed with other blocks executing only when activated.

Executable Program | Sensor Control Block

Execution Method

☐ Sequential Execution of All Blocks

☒ Specified Blocks

Exec. Order	File Name	Block Name	Steps
1	MAIN	MAIN	31
2	PUMPS	PUMPS	87
3	TANKS	TANKS	85
4			
5			
6			

6. Select "OK" at the bottom right of the "Project Settings" window...

Project Settings

- Project Settings
- CPU Type Settings
- Executable Program Settings
- Execution Block Components
- Protection Settings
- CPU Properties
- User Log Message

Configuration

- Run Operation Setup
- Input/Output Setup
- Device Setup
 - Device Area Setup
 - Latch Range Setup at Power
- Script Setup
- Interrupt Setup
- Built-in Functions Setup
- Error Handling Setup
- Initial Data Setup
- Inter-CPU Shared Memory Setup
- FA Link Setup
- Sampling Trace Setup

File Name	Definition	Ref	Reference Folder
MAIN	[1]		
PUMPS	[2]		
TANKS	[3]		

Executable Program | Sensor Control Block

Execution Method

☐ Sequential Execution of All Blocks

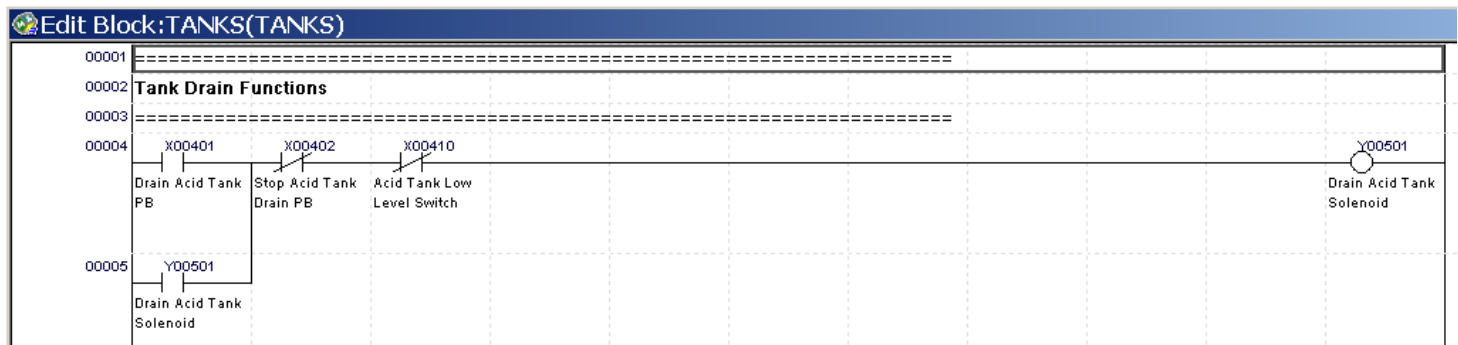
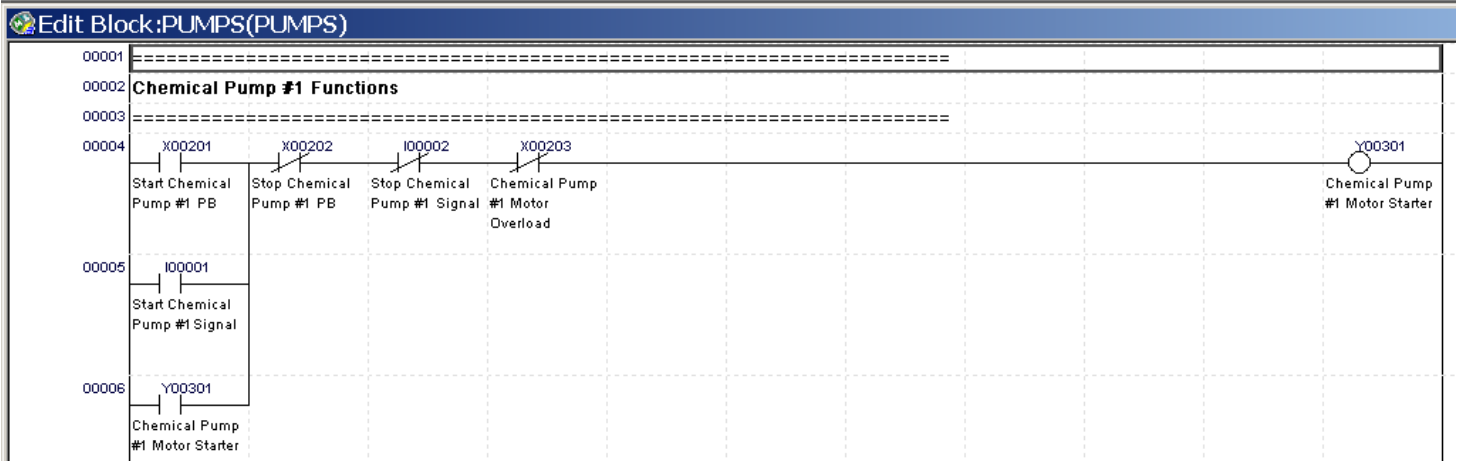
☒ Specified Blocks

Exec. Order	File Name	Block Name	Steps
1	MAIN	MAIN	31
2	PUMPS	PUMPS	87
3	TANKS	TANKS	85
4			
5			
6			
7			
8			
9			
10			
11			
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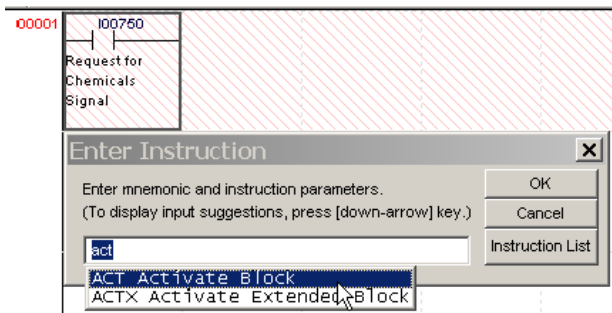
Details/Setup Refresh Step Count

OK Cancel Default Help

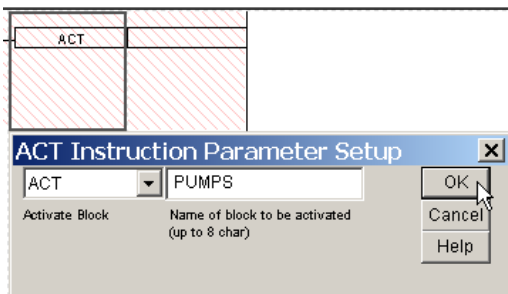
7. In this example, program blocks “Pumps” and “Tanks” have already been created including the program steps as shown below...



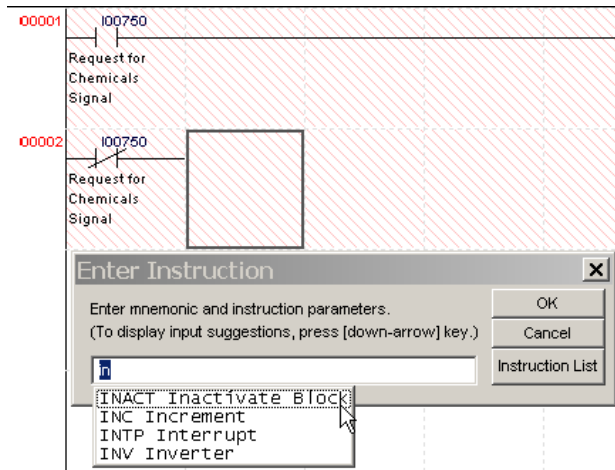
8. Steps will now be added to the “Main” program block to control the execution of the “Pumps” and “Tanks” program blocks. A “Request for Chemicals” signal is received. Based on that, the “Pumps” program block will be started. With the “Request for Chemicals” input already in the rung, we will add an “Activate Block” application instruction...



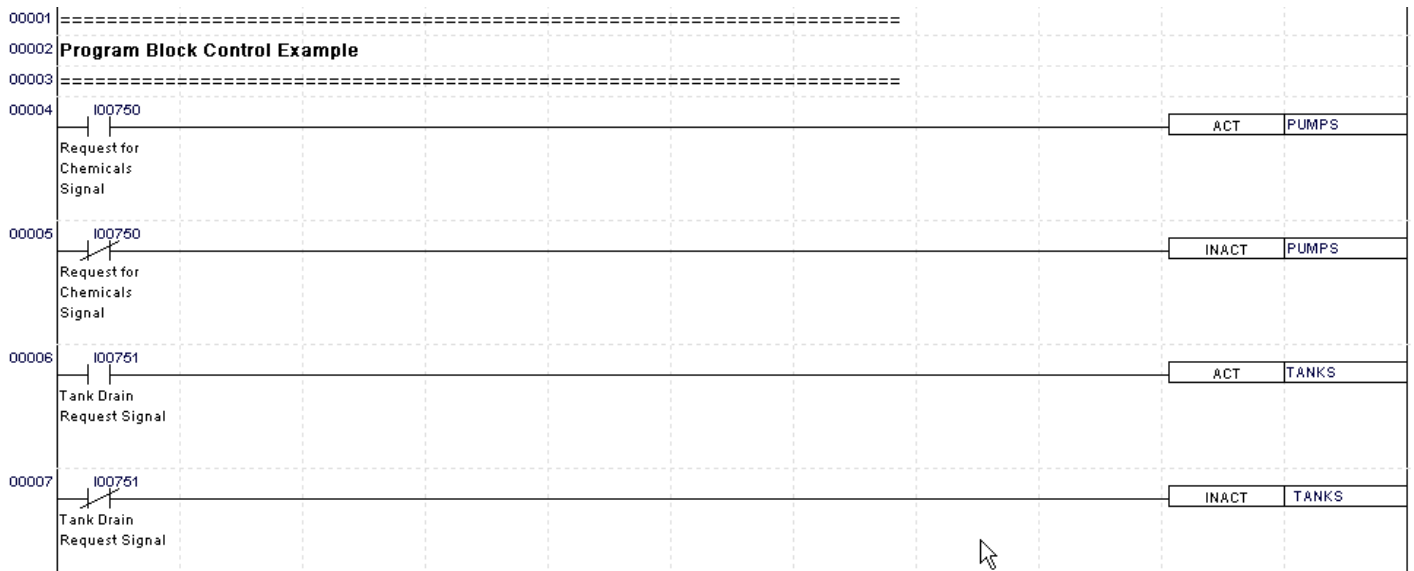
9. Enter “PUMPS” for the “Name of block to be activated” field. Then select “OK”



10. To allow for deactivation of the “Pumps” program block, another rung is added and the “NOT” condition of the “Request for Chemicals” signal is inserted at the beginning of the run and an “Inactive Block” application instruction is added to the rung...



11. The process is repeated for the “Drain” program block...



It is important to note that deactivating a block turns off all of the outputs in the block and for critical applications, due diligence should be exercised in the decision process concerning deactivating blocks.

Refer to the “**IM 34M06Q16-02E FA-M3 Programming Tool WideField3**” information manual for detailed information on program block control.

For further information, contact Yokogawa Technical Support at 770-254-0400 Ext. 4250