

Product Application Note

MotionWorks IEC Pro: Password Protecting Projects and User Libraries

Applicable Product: MotionWorks IEC Pro

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
Title: MotionWorks IEC Pro: Password Protecting Projects and User Libraries		

Application Overview

This document describes how projects and user libraries created in MotionWorks IEC Pro can be password protected. One of the main highlights of using MotionWorks IEC with MP2000iec controllers is the ability to create portable projects/user libraries that can be used as pre-canned building blocks for project development. Project managers may want to secure user libraries and/or certain custom function blocks. Security can be ensured by password protecting the POU's or function blocks in MotionWorks IEC Pro. The developer has the ability to manage the password so that it can be edited at a later stage or even unlocked for certain customers if desired.

Application Highlights:

Industry:	MotionWorks IEC Pro users
Major Features:	Ability to manage password protection of POU's and/or user created function blocks in MotionWorks IEC Pro

Note: The password protection feature is **not** available with MotionWorks IEC Express. Password protection is a feature enabled with MotionWorks IEC Professional (Pro)

Products Used:

Component	Product and Model Number
Controller	MP2000iec
Software	MotionWorksIEC Pro

Application Solution and Benefits:

Reusable code in the form of pre compiled function blocks can be used as foundations for large projects. Reusable custom function blocks in user libraries help machine builders by reducing time and effort they need to invest in project development cycles. Such custom function blocks and libraries can be intellectual property that should be secured. This can be achieved through password protecting code or parts of code in MotionWorks IEC Pro. The developer can decide how open the code should be when it is implemented at a customer. The security can be edited by the developer to allow easier access if and when required.

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Implementation Method of Core Operation

In this document an example of how to create a password protected user function block will be seen. In this example, a user function block myFb is created in a project my_lib which will be used as a user library in another project called my_main. The security on myFB will be managed throughout this document.

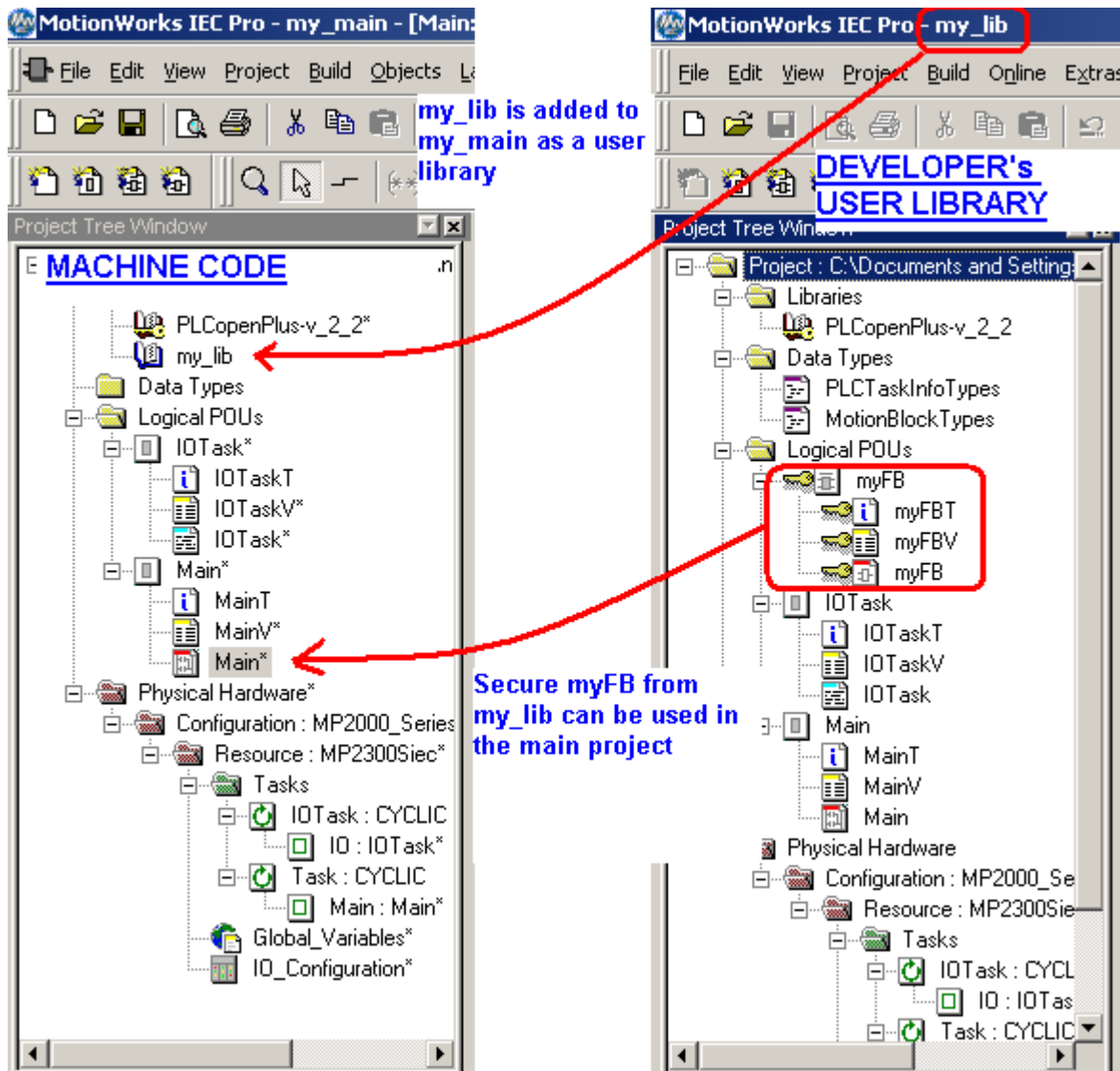


Figure 1: Overview of secure function blocks from user libraries

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
Title: MotionWorks IEC Pro: Password Protecting Projects and User Libraries		

1. Setting a password on a user function block

A project my_lib was created in which the user function block is generated. The user created function block is named myFB. The logic is a combination of a MUL block and an ADD block as shown in Figure 2.

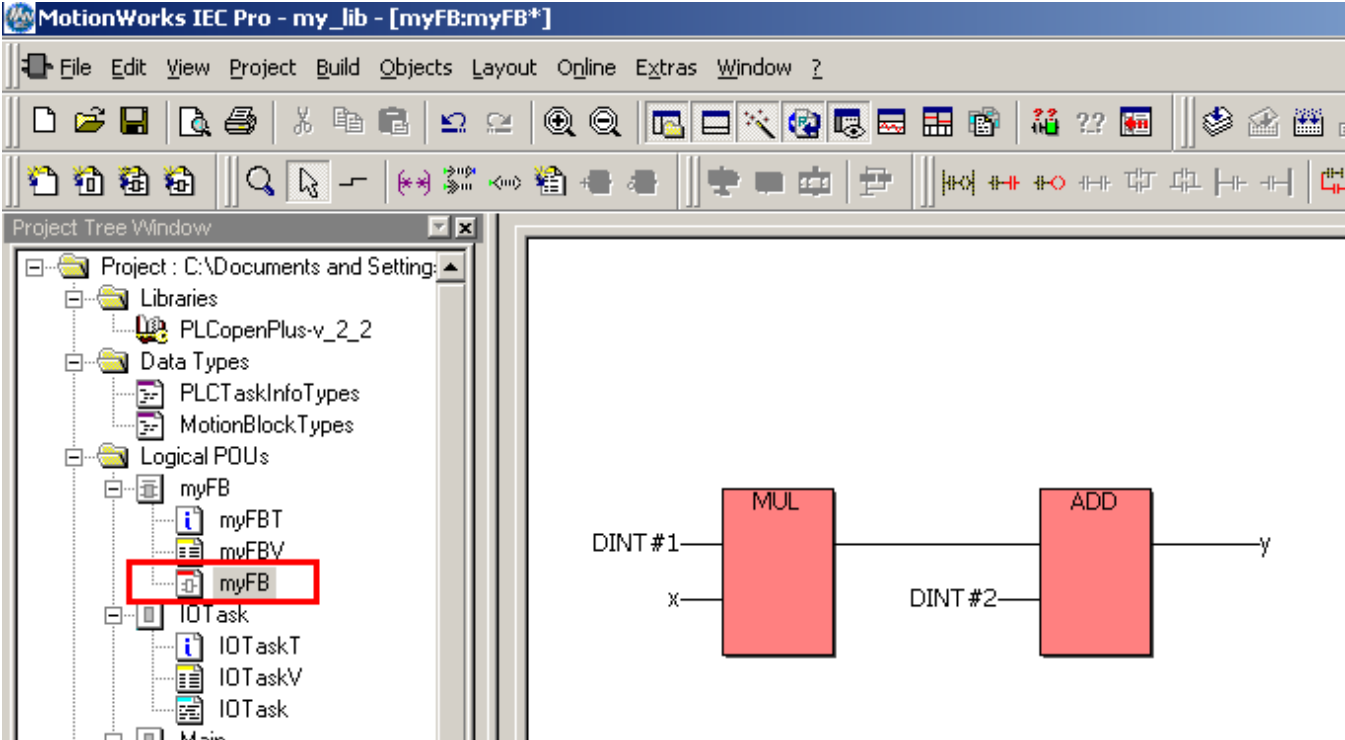


Figure 2: Logic of myFB

The function block myFB, when inserted into the main POU of the same project is as shown in figure 3 below.

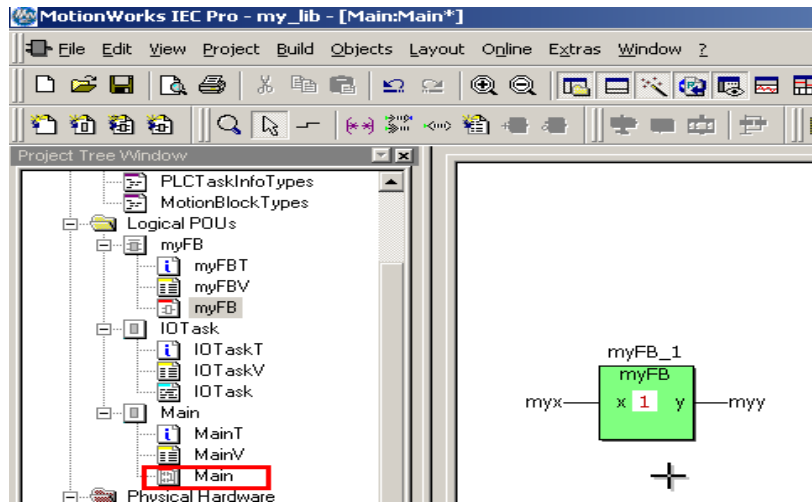


Figure 3: myFB inserted in the Main POU

To enable security levels for the function block myFB, select the POU and right click. Go to the properties tab as shown below in Figure 4.

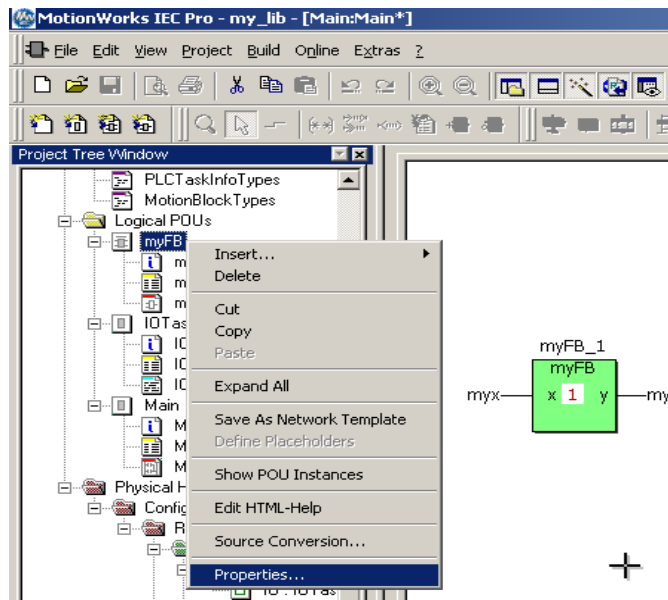


Figure 4: Properties of the FB

Under Security, select the level of security desired (figure 5). Click apply and OK.

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
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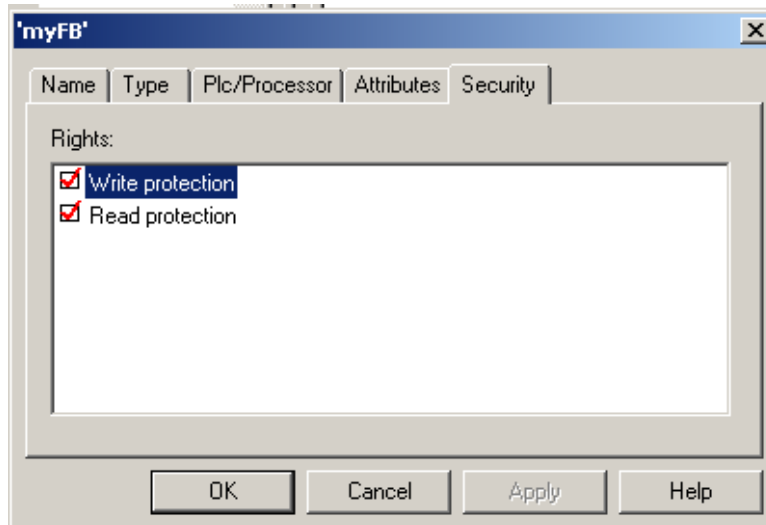


Figure 5: Security settings for myFB

In order to set the password for this particular function block, go to File > Enter Password. In the password window, select the desired password. Click Activate password.

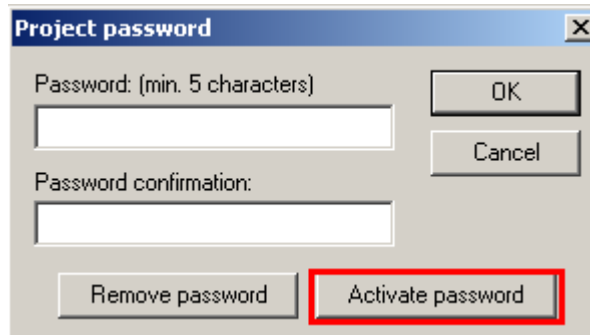


Figure 6: Password window.

The function block will now have a key symbol beside it in the project tree.

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
Title: MotionWorks IEC Pro: Password Protecting Projects and User Libraries		

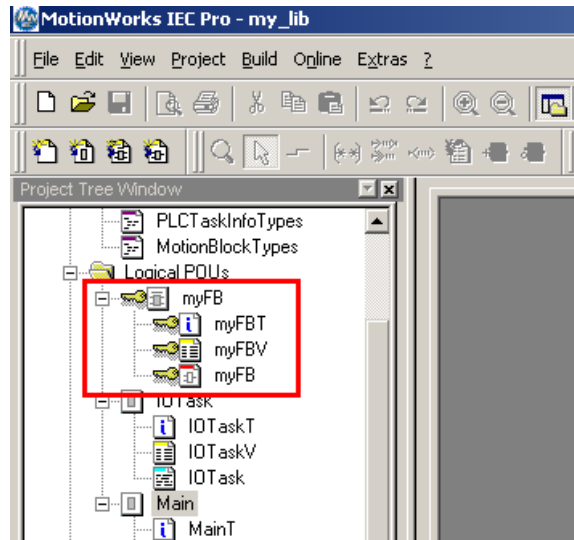


Figure 7: Password protected FB

Compile the project and save it.

Open a new project my_main where my_lib will be added as a user library. This can be done by right clicking on libraries and inserting a user library. Choose my_lib to be inserted.

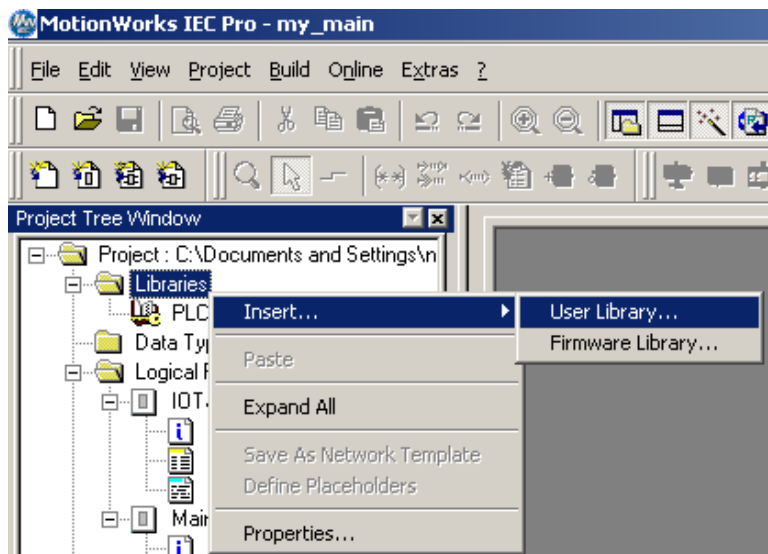


Figure 8: inserting my_lib which contains myFB

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
Title: MotionWorks IEC Pro: Password Protecting Projects and User Libraries		

Make sure that the files under the data types folder of the main project are deleted. The data types files in my_lib which was newly inserted will be sufficient for my_main.

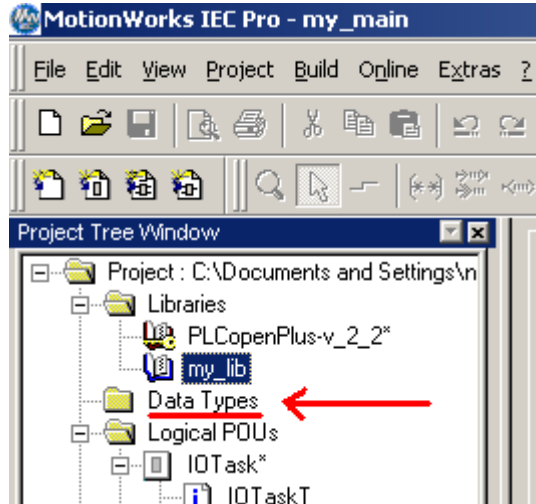


Figure 9: Delete files under data types folder of my_main to avoid redundancy

Select the group my_lib (which is the added user library) from the edit wizard. myFB can be chosen to be included in the main POU of my_main project now.

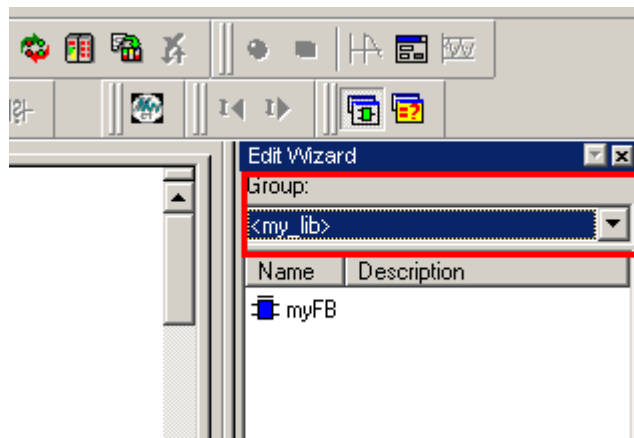


Figure 10: Choose the function block myFB to be used in the Main POU of my_Main

Attach variables to the function block and compile. Download and cold start the controller. To check if the

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
Title: MotionWorks IEC Pro: Password Protecting Projects and User Libraries		

function block is secure. Double click on the function block. If the block were not password protected, the user would have been able to see the code behind myFB on double clicking on it from my_main.

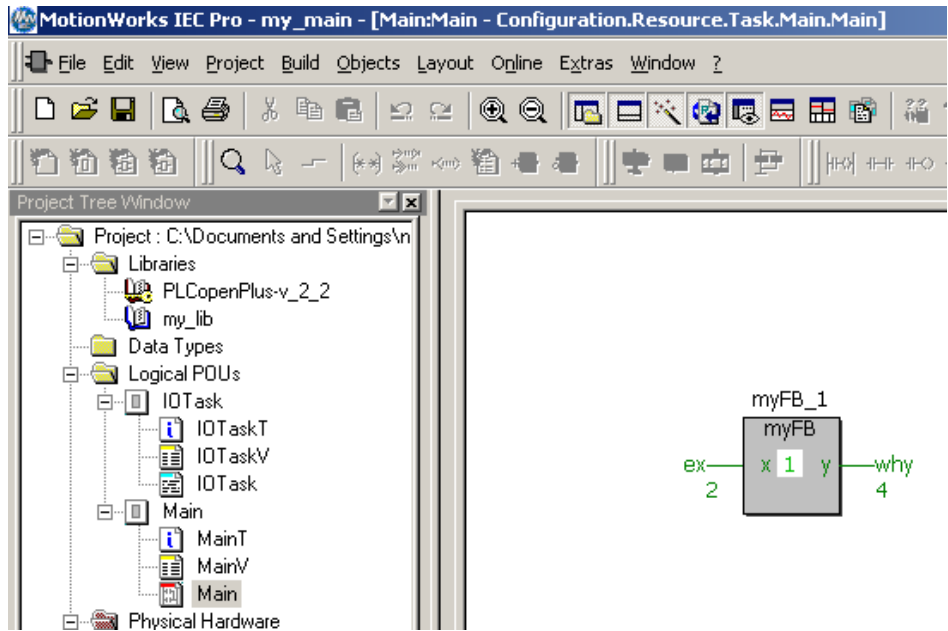


Figure 11: myFB in the main project

2. Removing a password on a user function block

In order to remove the password from the function block, open my_lib (this is the project with the function block myFB). Go to File > Enter password. Type in the password in the required field and click on edit password as shown in Figure 12.

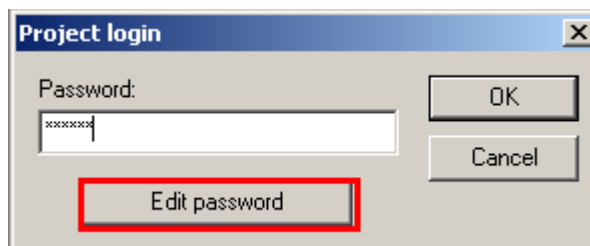


Figure 12: Edit password screen

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
Title: MotionWorks IEC Pro: Password Protecting Projects and User Libraries		

Type in the password on the next screen and confirm it. Click on remove password. Click OK. The password should be now removed from the my_lib project. The key icon beside myFB in the project tree should disappear.

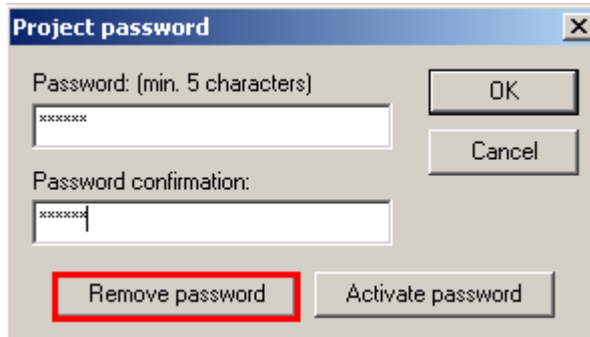


Figure 13: Remove password

Compile the project and save it.

Open my_main. Compile, and download this project. In debug mode, double click on myFB function block in the main POU of my_main. This will open up the code behind myFB from my_lib as shown in figure 14.

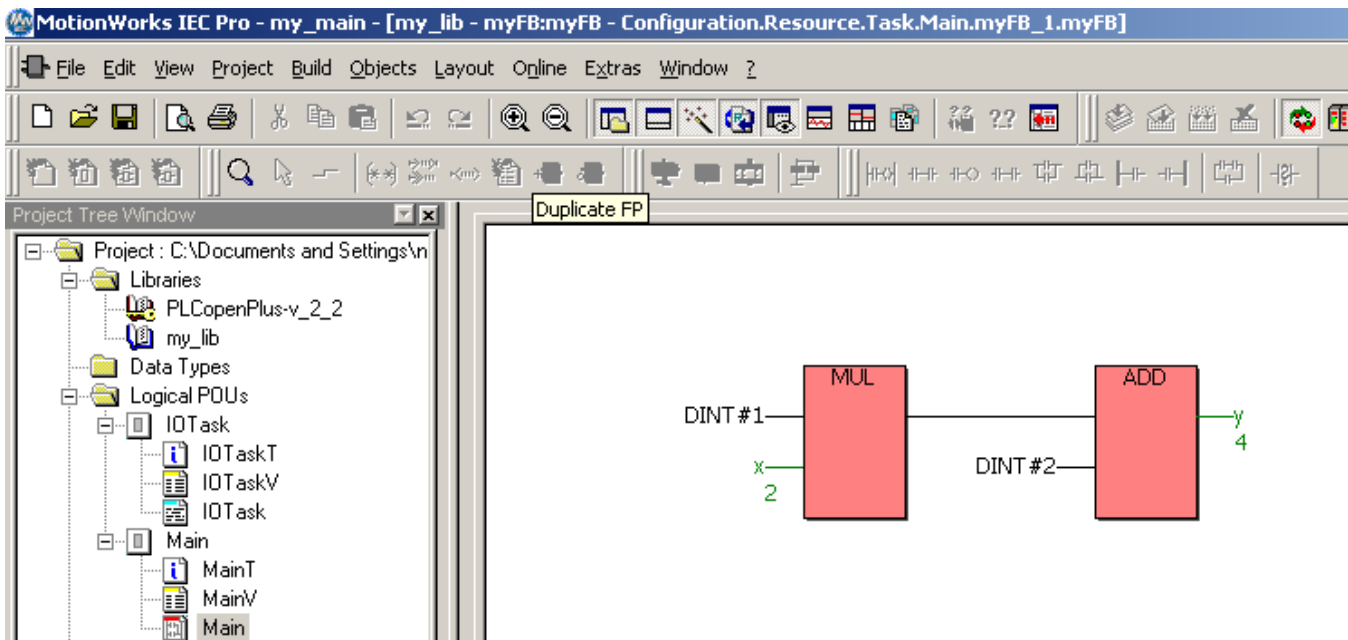


Figure 14: Able to see code behind unsecure function block from user library.

Subject: Application Note	Product: MotionWorks IEC Pro	Doc#: AN.MCD.09.070
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3. Changing access rights of a password protected function block

In order to edit the access rights of a function block that is already password protected, login through File > Enter password and login using the password (as shown in figure 12).

Once logged in, change the security levels of the POU/function block that needs editing (as shown in figure 5).

Go to file > enter password. Enter and confirm the password. Activate the password. Compile and save the user library project. Now the new security settings will take effect when the library is used in the main project.