

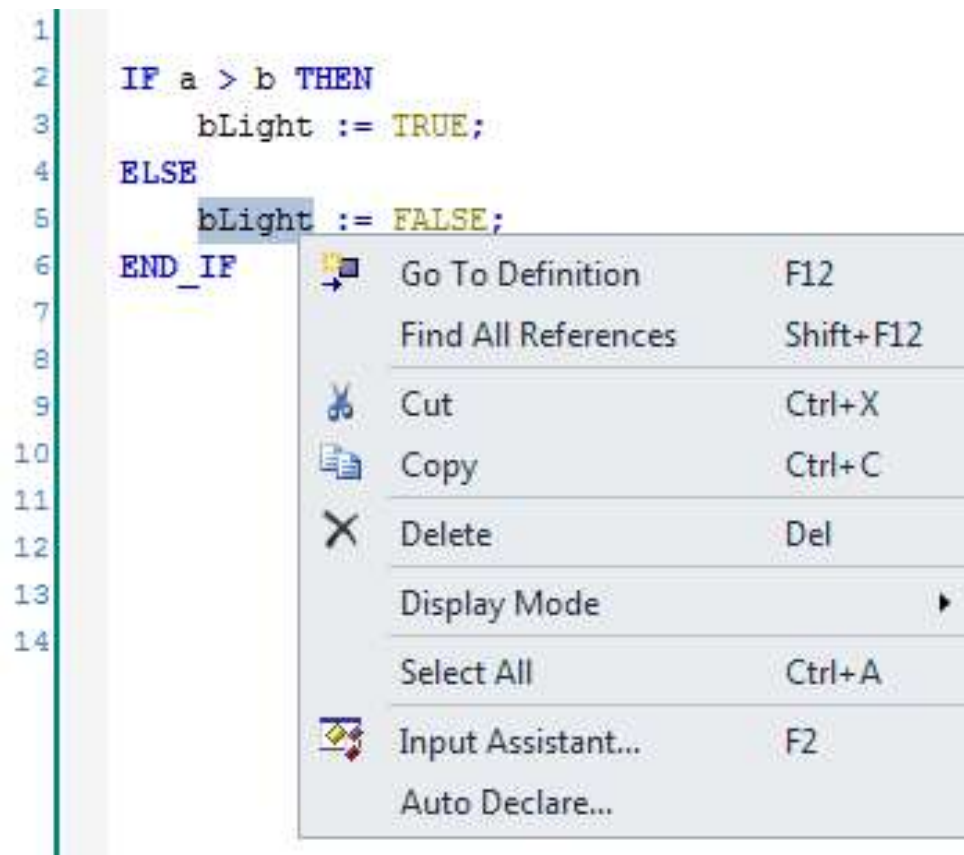
BECKHOFF



- Go To Definition
- Find All References
- Find

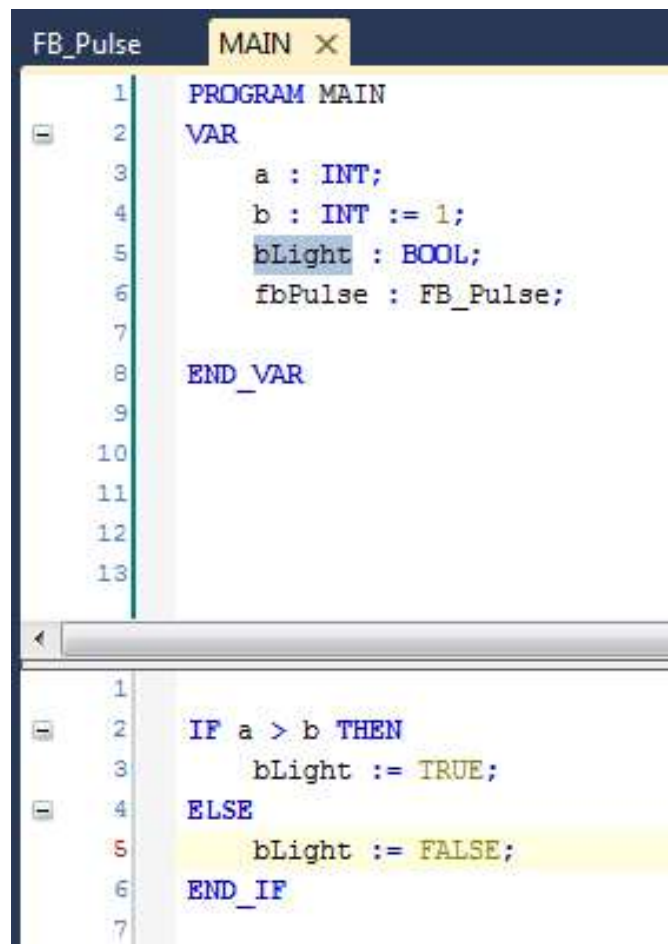
Go To Definition

- To find the Declaration of a Variable, Highlight the text, then Right-Click
- Select 'Go To Definition' from the context menu



Go To Definition

- This will open the file where the declaration is and Highlight the Variable
- If a Variable is defined in more than one location, the search tool will find the correct definition based on the use of the variable



The screenshot displays a Beckhoff LAD editor with two tabs: 'FB_Pulse' and 'MAIN'. The 'MAIN' tab is active, showing a ladder logic program. The first part of the program is a variable declaration block (VAR) containing the following code:

```
1 PROGRAM MAIN
2 VAR
3     a : INT;
4     b : INT := 1;
5     bLight : BOOL;
6     fbPulse : FB_Pulse;
7
8 END_VAR
```

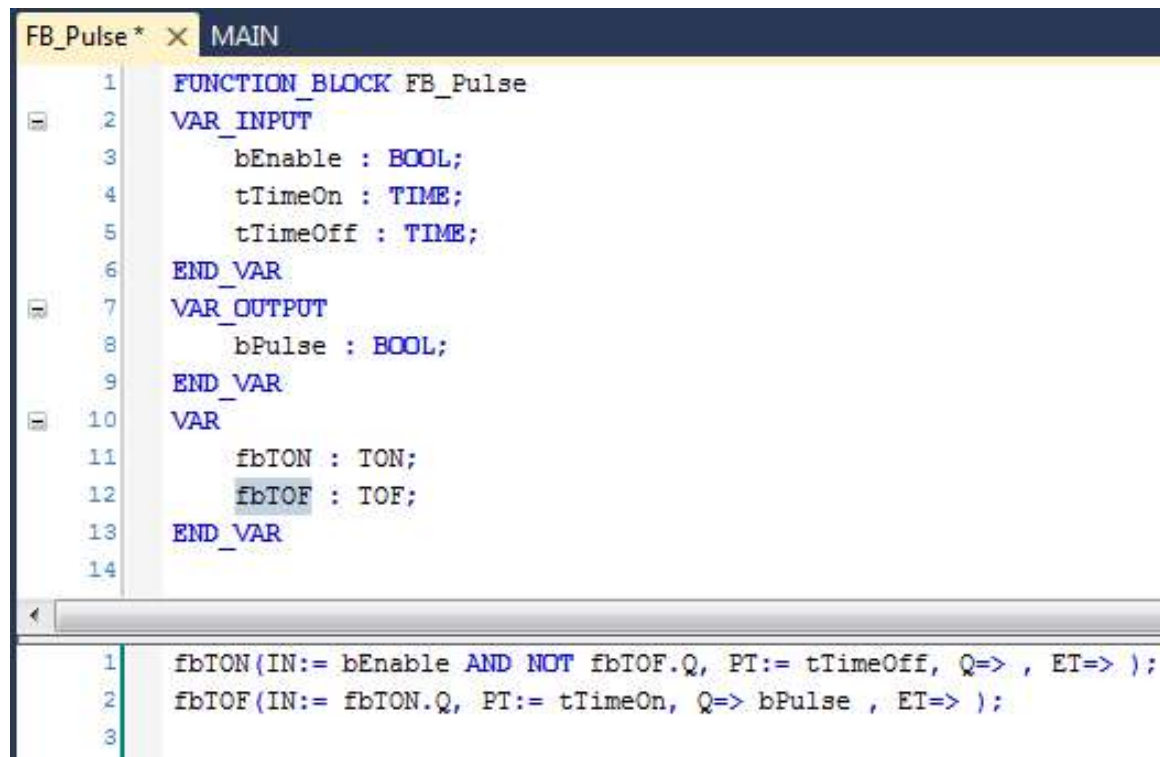
The second part of the program is a conditional execution block (IF-THEN-ELSE-IF) that updates the 'bLight' variable based on the value of 'a' and 'b'.

```
1
2 IF a > b THEN
3     bLight := TRUE;
4 ELSE
5     bLight := FALSE;
6 END_IF
7
```

The variable 'bLight' is highlighted in blue in the first part of the code, indicating it is the variable being searched for. The second part of the code shows the variable being used in an assignment statement, which is highlighted in yellow.

Go To Definition

- This can also be used on the instance and/or the implementation of a Function Block
- The Definition of fbTOF in the Code window is on Line 12 in the local declaration window.



```
FB_Pulse * x MAIN
1 FUNCTION_BLOCK FB_Pulse
2 VAR_INPUT
3     bEnable : BOOL;
4     tTimeOn : TIME;
5     tTimeOff : TIME;
6 END_VAR
7 VAR_OUTPUT
8     bPulse : BOOL;
9 END_VAR
10 VAR
11     fbTON : TON;
12     fbTOF : TOF;
13 END_VAR
14

1 fbTON(IN:= bEnable AND NOT fbTOF.Q, PT:= tTimeOff, Q=> , ET=> );
2 fbTOF(IN:= fbTON.Q, PT:= tTimeOn, Q=> bPulse , ET=> );
3
```

- The definition of TOF is found in the Library Manager

Library Manager X FB_Pulse * MAIN			
Name		Namespace	Effective version
+ 1.0 Tc2_Standard, *	(Beckhoff Automation GmbH)	Tc2_Standard	3.2.0.0
+ 1.0 Tc2_System, *	(Beckhoff Automation GmbH)	Tc2_System	3.2.0.0
+ 1.0 Tc3_Interfaces, *	(Beckhoff Automation GmbH)	Tc3_Interfaces	3.2.0.0
+ 1.0 Tc3_Module, *	(Beckhoff Automation GmbH)	Tc3_Module	3.2.0.0

Go To Definition

- Using 'Go To Definition' on the declaration of an instance will open the implementation of a user defined Function Block

The screenshot shows two windows from the Beckhoff LAD editor. The left window, titled 'MAIN', contains the following code:

```
1 PROGRAM MAIN
2 VAR
3     a : INT;
4     b : INT := 1;
5     bLight : BOOL;
6     fbPulse : FB_Pulse;
7
8 END_VAR
```

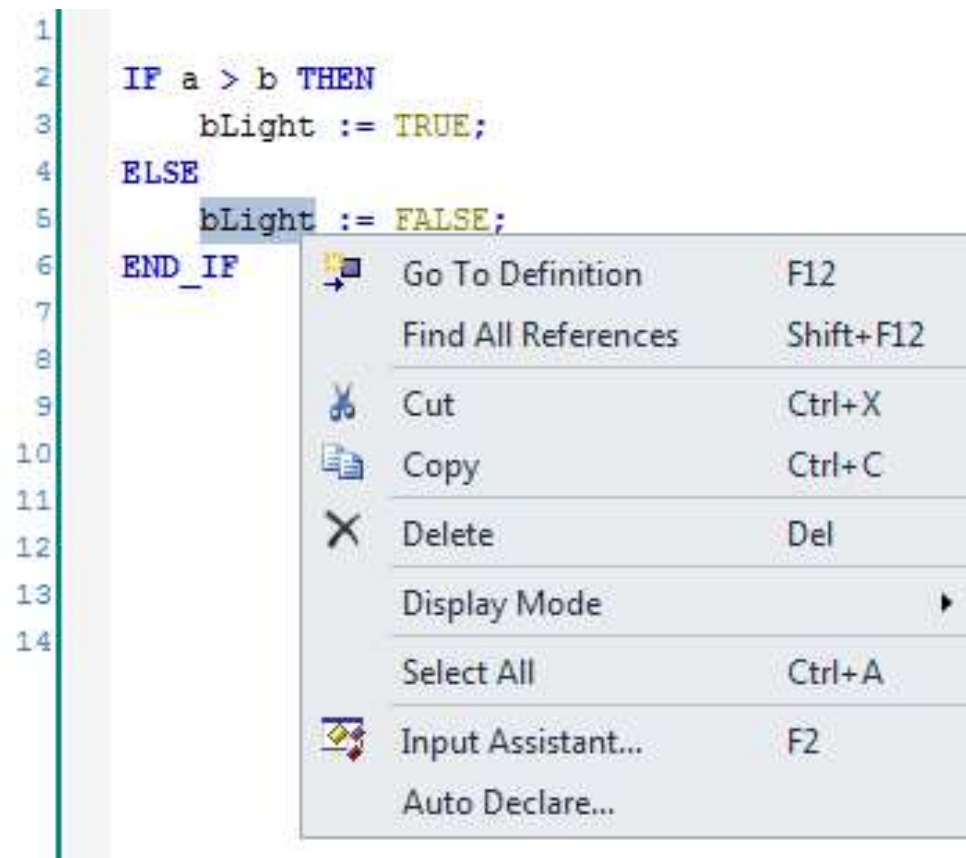
A context menu is open over line 6, with the 'Go To Definition' option selected. The right window, titled 'FB_Pulse *', shows the definition of the function block:

```
1 FUNCTION_BLOCK FB_Pulse
2 VAR_INPUT
3     bEnable : BOOL;
4     tTimeOn : TIME;
5     tTimeOff : TIME;
6
7 END_VAR
8 VAR_OUTPUT
9     bPulse : BOOL;
10
11 END_VAR
12 VAR
13     fbTON : TON;
14     fbTOF : TOF;
15
16 END_VAR
```

Below the function block definition, the implementation of the internal function blocks is shown:

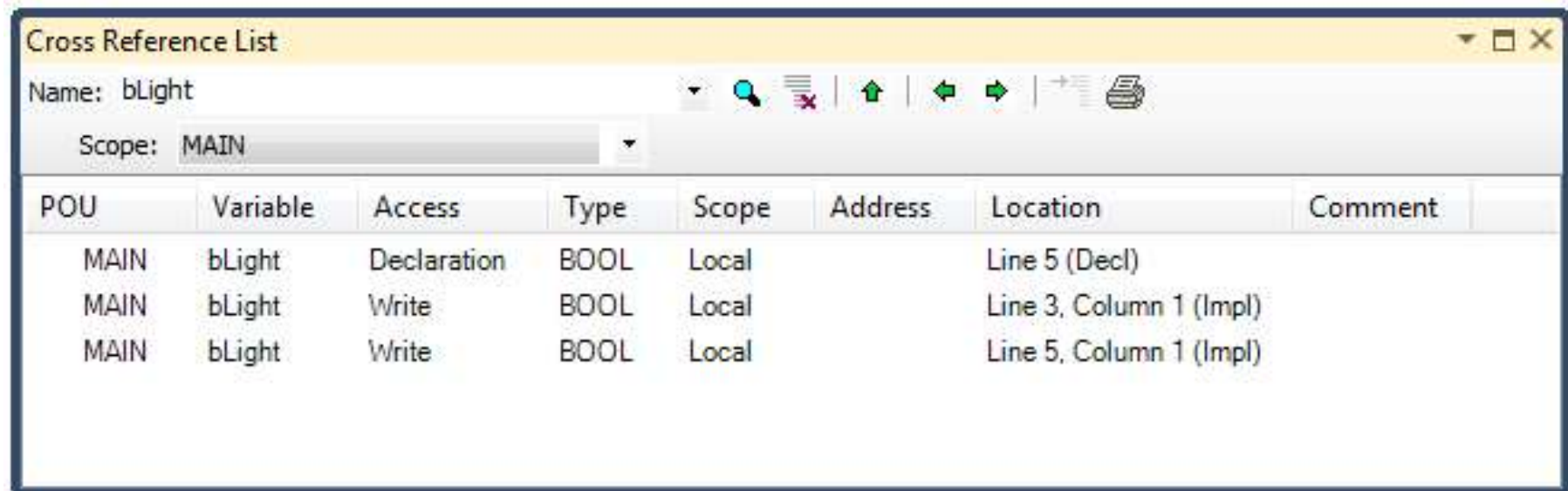
```
1 fbTON(IN:= bEnable AND NOT fbTOF.Q, PT:= tTimeOff, Q=> , ET=> );
2 fbTOF(IN:= fbTON.Q, PT:= tTimeOn, Q=> bPulse , ET=> );
3
```

- Using 'Find All References' will open a new window displaying the search results



Find All References

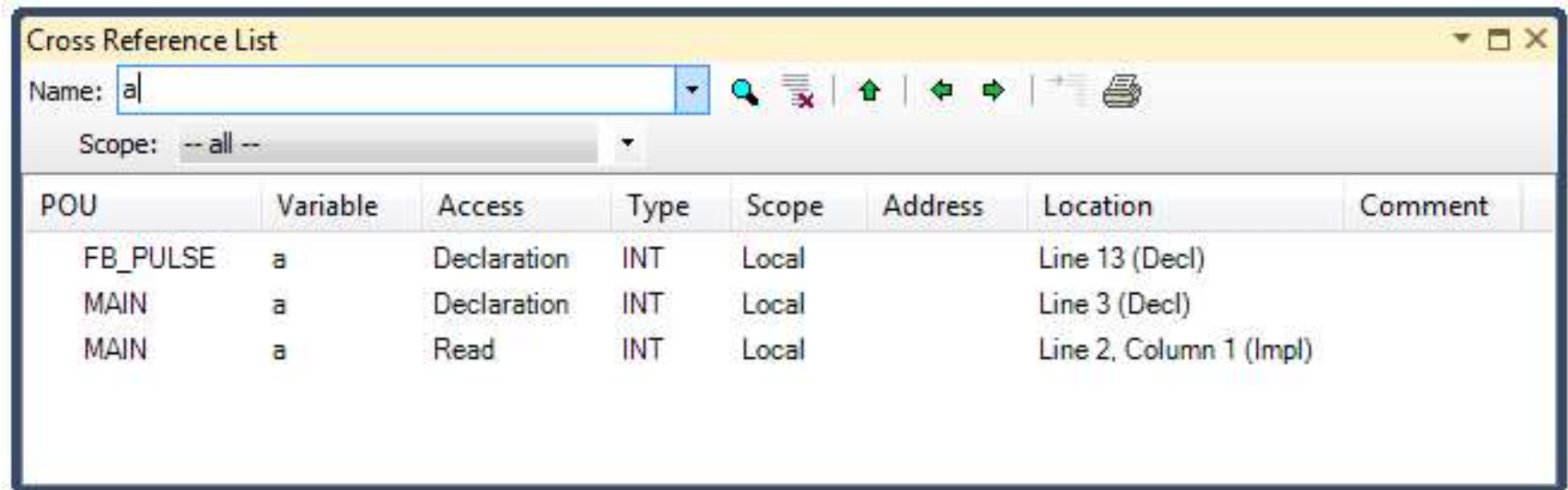
- Using 'Find All References' will open a new window displaying the search results
- This window will display the declaration of the variable and also where the variable is read and written in the program



Cross Reference List							
Name: bLight							
Scope: MAIN							
POU	Variable	Access	Type	Scope	Address	Location	Comment
MAIN	bLight	Declaration	BOOL	Local		Line 5 (Decl)	
MAIN	bLight	Write	BOOL	Local		Line 3, Column 1 (Impl)	
MAIN	bLight	Write	BOOL	Local		Line 5, Column 1 (Impl)	

Find All References

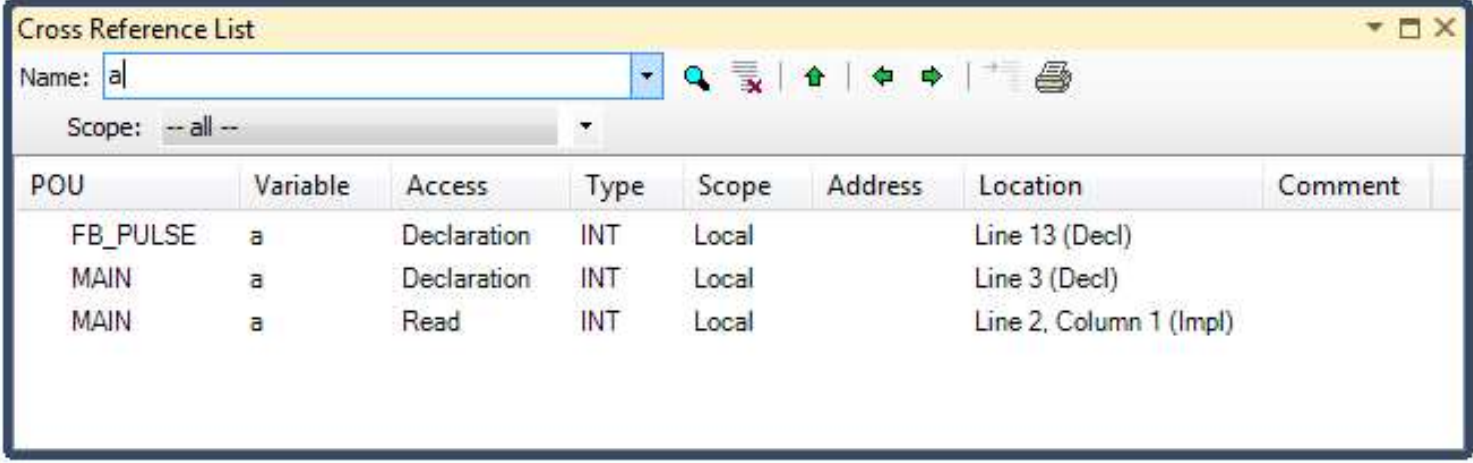
- This search will find multiple declarations if they exist.



POU	Variable	Access	Type	Scope	Address	Location	Comment
FB_PULSE	a	Declaration	INT	Local		Line 13 (Decl)	
MAIN	a	Declaration	INT	Local		Line 3 (Decl)	
MAIN	a	Read	INT	Local		Line 2, Column 1 (Impl)	

Find All References

- This search will find multiple declarations if they exist



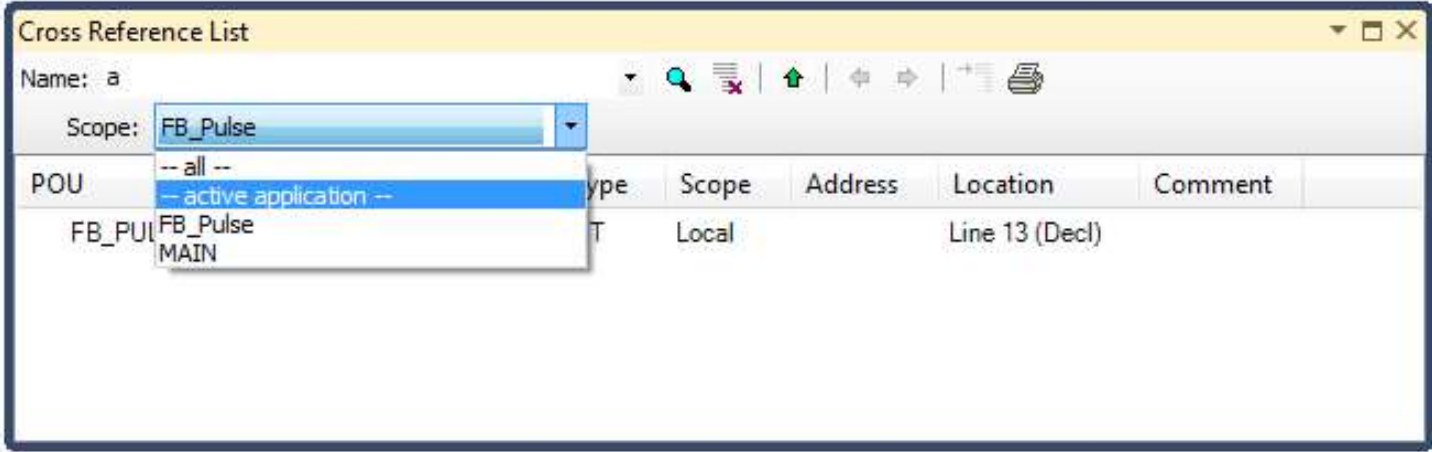
Cross Reference List

Name: a

Scope: -- all --

POU	Variable	Access	Type	Scope	Address	Location	Comment
FB_PULSE	a	Declaration	INT	Local		Line 13 (Decl)	
MAIN	a	Declaration	INT	Local		Line 3 (Decl)	
MAIN	a	Read	INT	Local		Line 2, Column 1 (Impl)	

- The results can be filtered using the 'Scope' drop down list



Cross Reference List

Name: a

Scope: FB_Pulse

POU	Variable	Access	Type	Scope	Address	Location	Comment
FB_PULSE	a	Declaration	INT	Local		Line 13 (Decl)	

Find All References

- Double-Clicking on a result in the 'Cross Reference List' will open the code and Highlight the text

```
1  
2 IF a > b THEN  
3   bLight := TRUE;  
4 ELSE  
5   bLight := FALSE;  
6 END_IF  
7  
8  
9  
10  
11  
12  
13  
14
```

Cross Reference List							
Name: bLight							
Scope: MAIN							
POU	Variable	Access	Type	Scope	Address	Location	Comment
MAIN	bLight	Declaration	BOOL	Local		Line 5 (Decl)	
➡ MAIN	bLight	Write	BOOL	Local		Line 3, Column 1 (Impl)	
MAIN	bLight	Write	BOOL	Local		Line 5, Column 1 (Impl)	

- Find is part of the 'Standard Tool Bar'



Find

- You can type in part of a variable name and press the 'Enter' key
- Each time you press the 'Enter' key the next result will be Highlighted



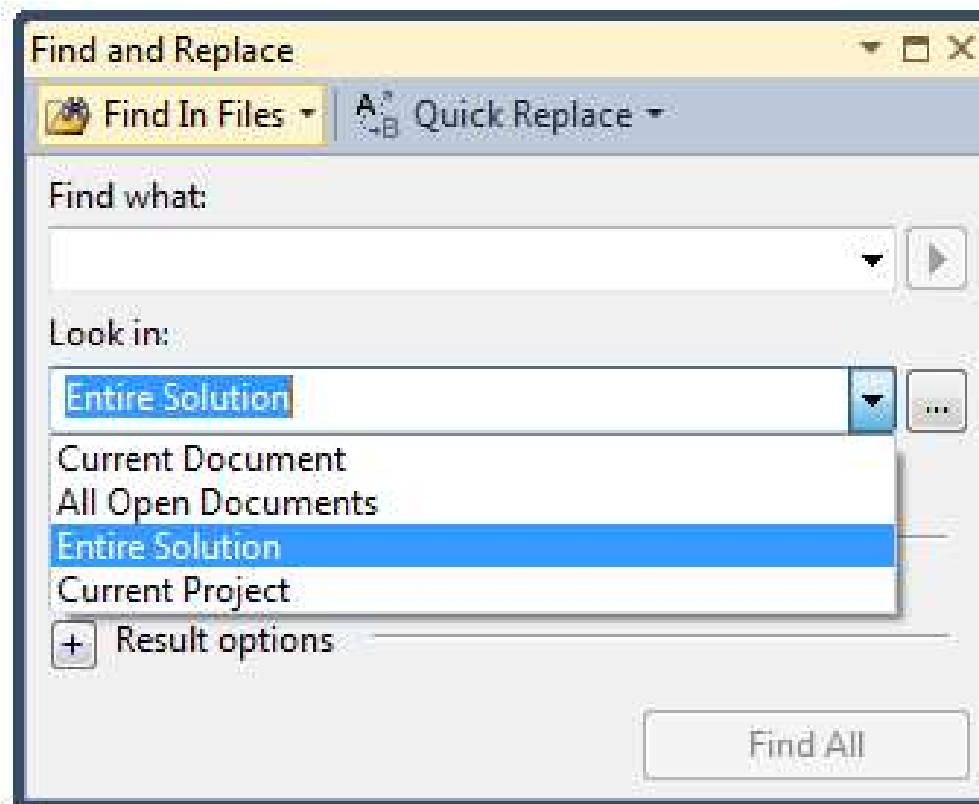
```
IF a > b THEN
  bLight := TRUE;
ELSE
  bLight := FALSE;
END_IF
```

- Using the Find tool in this manner will only search the current file

- Using the Icon will open the 'Find and Replace' window



- Using the Icon will open the 'Find and Replace' window
- The 'Look in:' drop down list will allow for searching of more than just the current file



Beckhoff Automation GmbH & Co. KG

Headquarters
Huelshorstweg 20
33415 Verl
Germany

Phone: +49 5246 963-0
Fax: +49 5246 963-198
E-Mail: info@beckhoff.com
Web: www.beckhoff.com

© Beckhoff Automation GmbH & Co. KG

All images are protected by copyright. The use and transfer to third parties is not permitted.

Beckhoff®, TwinCAT®, EtherCAT®, Safety over EtherCAT®, TwinSAFE®, XFC® and XTS® are registered trademarks of and licensed by Beckhoff Automation GmbH. Other designations used in this presentation may be trademarks whose use by third parties for their own purposes could violate the rights of the owners.

The information provided in this presentation contains merely general descriptions or characteristics of performance which in case of actual application do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

Beckhoff Automation GmbH & Co. KG

Unternehmenszentrale
Hülshorstweg 20
33415 Verl
Deutschland

Telefon: +49 5246 963-0
Fax: +49 5246 963-198
E-Mail: info@beckhoff.de
Web: www.beckhoff.de

© Beckhoff Automation GmbH & Co. KG

Alle Bilder sind urheberrechtlich geschützt. Die Weitergabe und Nutzung durch Dritte ist nicht gestattet.

Beckhoff®, TwinCAT®, EtherCAT®, Safety over EtherCAT®, TwinSAFE®, XFC® und XTS® sind eingetragene und lizenzierte Marken der Beckhoff Automation GmbH. Die Verwendung anderer in dieser Präsentation enthaltenen Marken oder Kennzeichen durch Dritte kann zu einer Verletzung von Rechten der Inhaber der entsprechenden Kennzeichen führen.

Die Informationen in dieser Präsentation enthalten lediglich allgemeine Beschreibungen bzw. Leistungsmerkmale, welche im konkreten Anwendungsfall nicht immer in der beschriebenen Form zutreffen bzw. welche sich durch Weiterentwicklung der Produkte ändern können. Die gewünschten Leistungsmerkmale sind nur dann verbindlich, wenn sie bei Vertragsabschluss ausdrücklich vereinbart werden.