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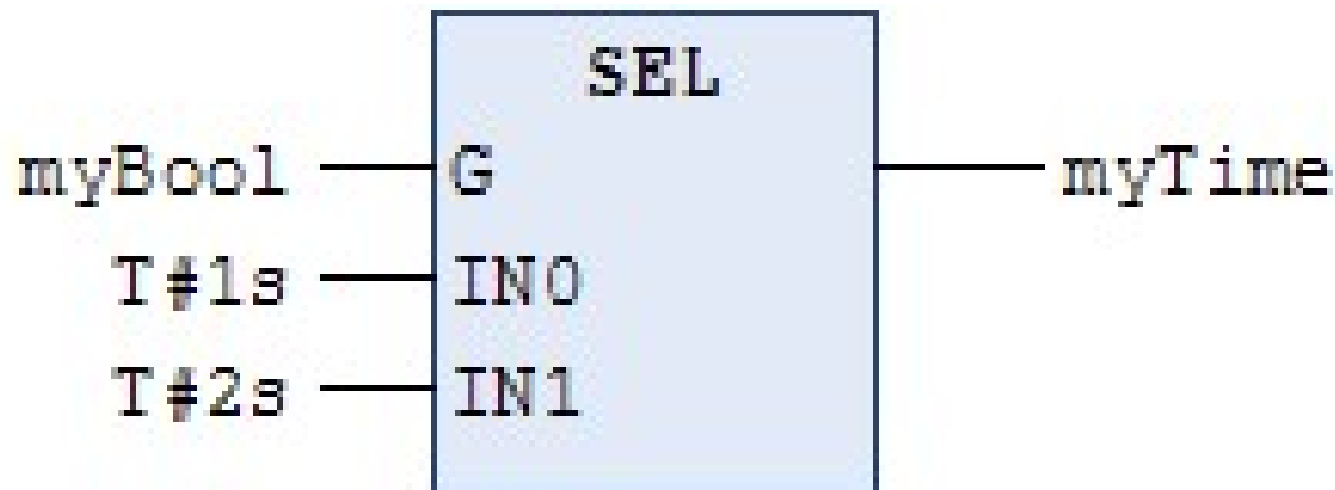


Boolean Selection with SEL and IF Instructions

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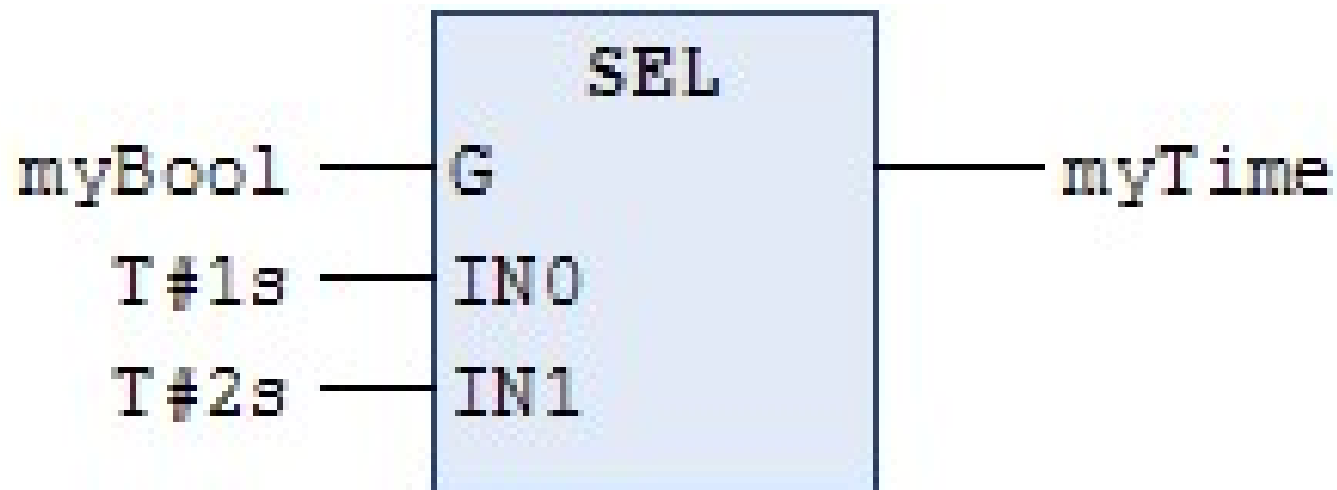
- Function Block Diagram provides a SEL (Select) Function to allow for the selection of two items based on a Boolean value.



Boolean Selection with SEL and IF Instructions

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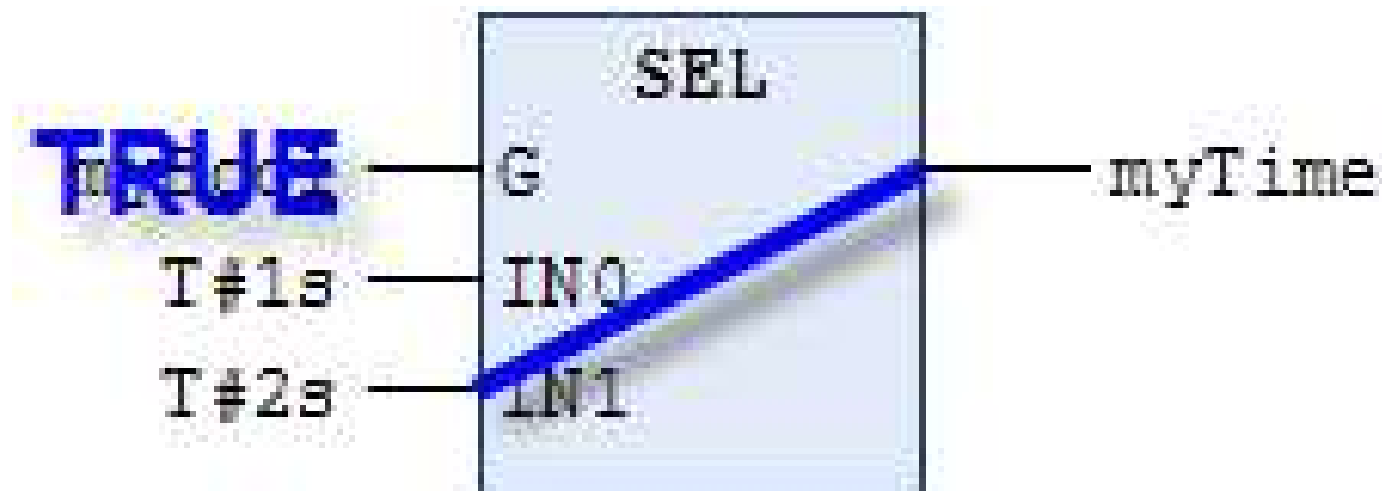
- The Input 'G' will either be TRUE or False



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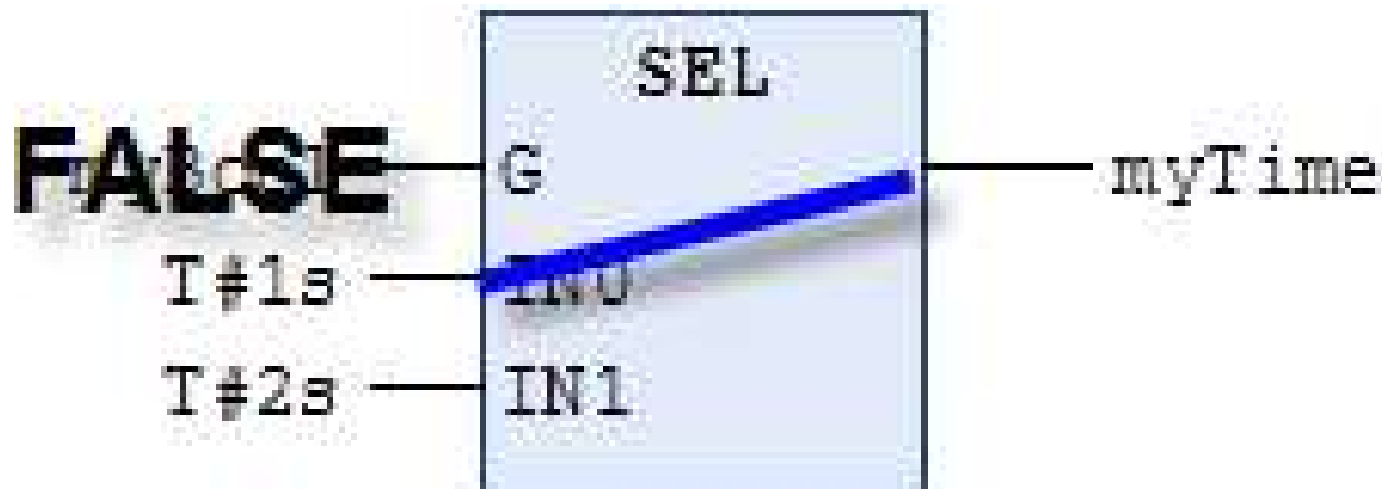
- When 'G' is TRUE, the value at 'IN1' will be passed to the output



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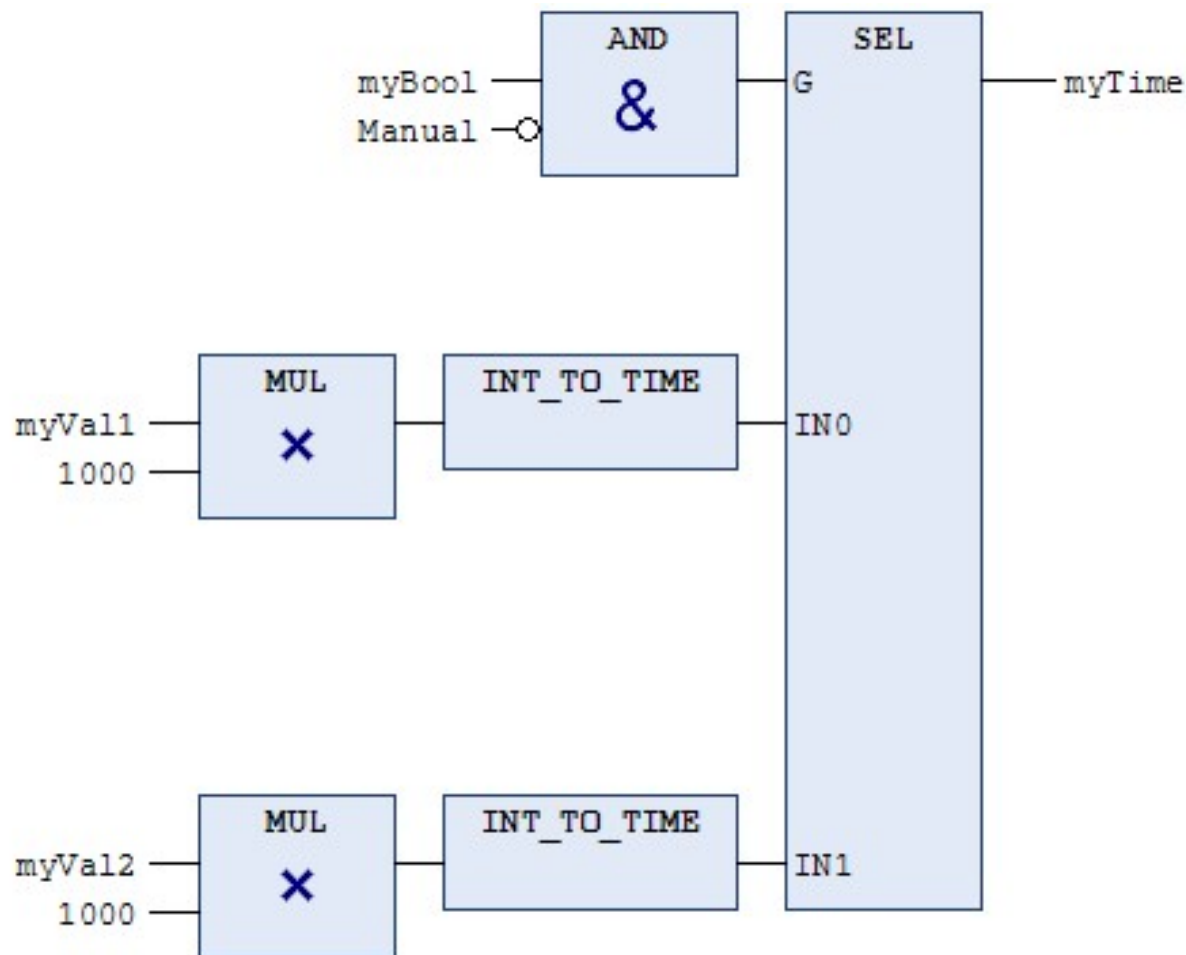
- When 'G' is FALSE, the value at 'IN0' will be passed to the output



Boolean Selection with SEL and IF Instructions

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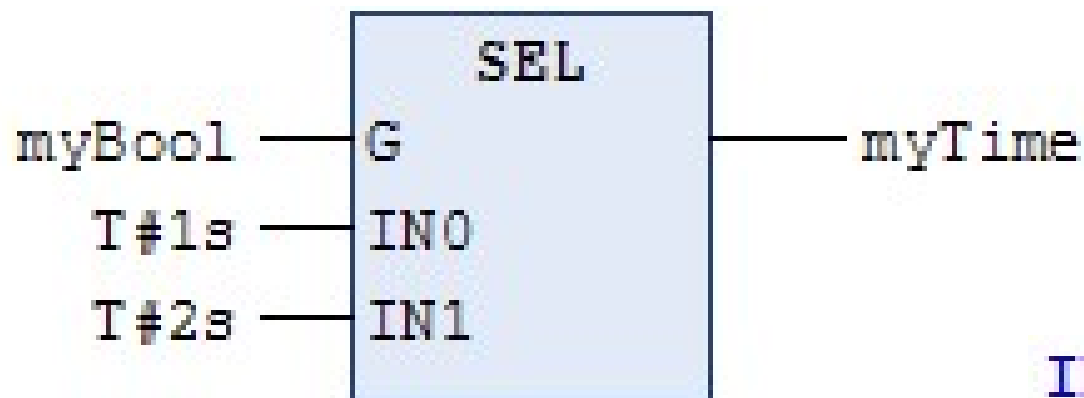
- It is also possible to place expressions on the inputs on the SEL block



Boolean Selection with SEL and IF Instructions

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- Structured Text provides the same functionality with the IF Instruction



```
IF myBool THEN
    myTime := T#2S;
ELSE
    myTime := T#1S;
END_IF
```

- The code between 'IF' and 'THEN' must result in a Boolean value, either TRUE or FALSE

```
IF myBool THEN
    myTime := T#2S;
ELSE
    myTime := T#1S;
END_IF
```

Boolean Selection with SEL and IF Instructions

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- If myBool is TRUE then the variable myTime will be assigned a value of T#2s

```
IF myBool THEN
    myTime := T#2S;
ELSE
    myTime := T#1S;
END_IF
```

- Else the variable myTime will be assigned a value of T#1s

```
IF myBool THEN
    myTime := T#2S;
ELSE
    myTime := T#1S;
END_IF
```

- The expression that is evaluated by the IF instruction can be any expression that results in a Boolean value

```
IF (a > b) OR myBool THEN  
    myTime := T#1S;  
END_IF
```

- The use of the 'ELSIF' instruction allows for the evaluation of another expression when the first expression returns FALSE.

```
IF (a > b) OR myBool THEN
    myTime := T#1S;
ELSIF (a < b) THEN
    myTime := T#2S;
END_IF
```

- It is also possible to use multiple 'ELSIF' instructions

```
IF (a > b) OR myBool THEN
    myTime := T#1S;
ELSIF (a < b) THEN
    myTime := T#2S;
ELSIF (b > c) THEN
    myTime := T#3S;
END_IF
```

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