

BECKHOFF



- A Function is a re-useable piece of code that will process the defined inputs and return a **single** result
- AND, OR, SQRT, SIN, COS, GT, LE are all examples of Functions
- The programmer can also create their own Functions that normally involve more complicated tasks, such as converting a temperature value from Celsius to Fahrenheit or scaling an analog input value from 0-32767 to 0-10
- Note: Functions have no memory space and therefore they do not retain any values from one PLC scan (Function call) to the next. Each function starts new each PLC execution (Function call).

Function: FUN

- Called by: Programs, Function Blocks and other Functions
- Calls: Functions

- Local variables: temporary, i.e. the local data are available only for the processing time of the function. Afterwards this data area is used by other functions
- Inputs: 1,2,3,..n VAR_INPUT
- Outputs: precisely 1!, but structure variable possible. The name of the output is the name of the function
- Transfer by reference: 1,2,3,..n VAR_IN_OUT
- Monitoring: In the online mode of the PLC control only “???” are visible for the local variables, since this data area is used by all functions in the cycle and monitoring (debug) takes place only at the cycle limits. Remedy: program development with breakpoints
- Use Examples: algorithms where the result is available after a run. Scaling, comparison, etc.

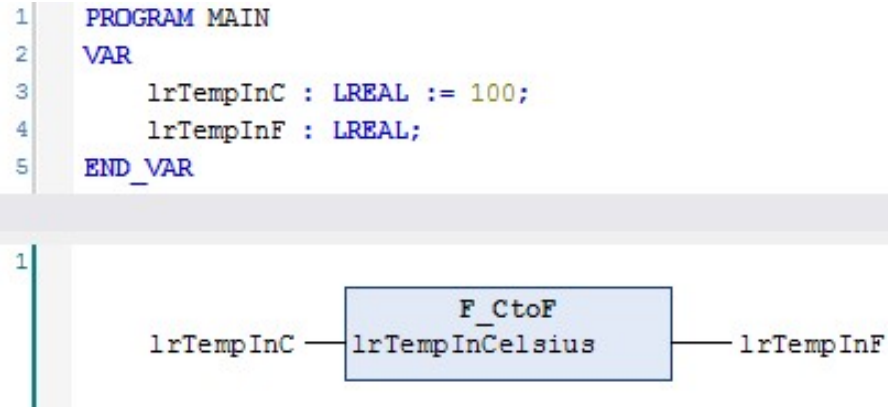
ST

```

1  PROGRAM MAIN
2  VAR
3      lrTempInC : LREAL := 100;
4      lrTempInF : LREAL;
5  END_VAR
6
1  lrTempInF := F_CtoF(lrTempInC);
2

```

FBD



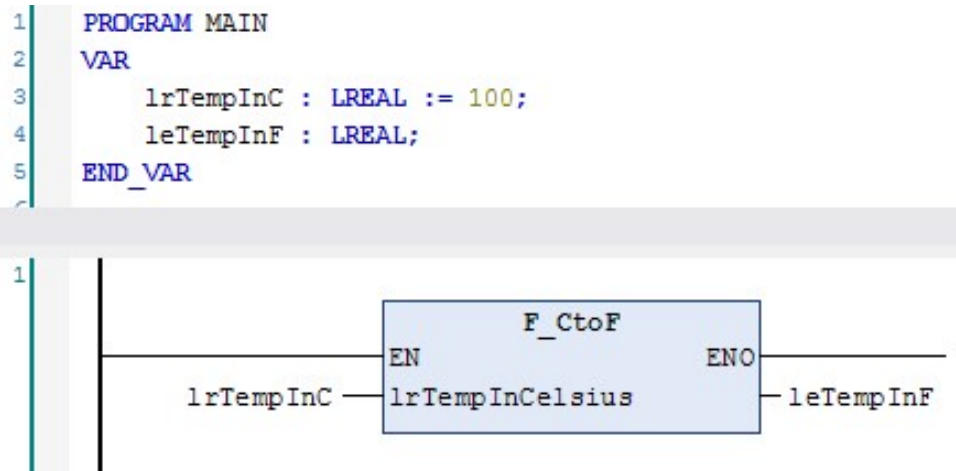
IL

```

1  PROGRAM MAIN
2  VAR
3      lrTempInC : LREAL := 100;
4      lrTempInF : LREAL;
5  END_VAR
6
1  LD      lrTempInC
   F_CtoF(
   )
   ST      lrTempInF

```

LD



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