

Title: Functions with EN and ENO inputs

Product(s): MotionWorks IEC

Doc. No. MTN-7PCQK4

Overview

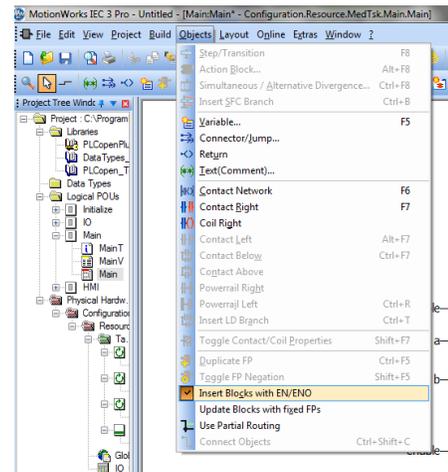
Many basic logic and math functions in MotionWorks IEC programming environment have EN (enable) and ENO (enable output) connections. These connections can be used to selectively determine when a function operates. EN/ENO functionality is available for all functions (not function blocks). Their use is optional.

The EN input to a function is used to enable the evaluation of the function. If there is no connection to the EN input, or if the EN input is not visible, then the function will always evaluate.

Enabling the EN/ENO Function

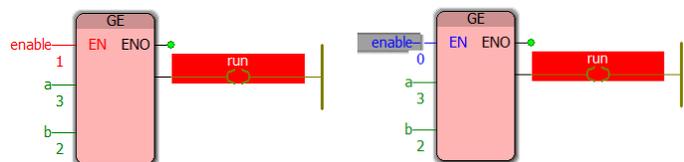
When inserting a new function, MotionWorks IEC will include the EN/ENO connections based on a setting in the *Objects* menu. This setting is called *Insert Blocks with EN/ENO* and is enabled by default.

To insert functions without the EN/ENO connections (meaning that they will always execute), uncheck this menu option. All newly inserted blocks will have no EN/ENO connections. All existing blocks will remain as they were, but can be changed to the new setting by right-clicking on the block and choosing the *Update FB/FU* option.



Behavior when EN becomes false

When the EN/ENO feature is used, a TRUE signal on EN causes the function to evaluate. When EN subsequently becomes FALSE, the function stops evaluating and *the output is frozen in that state* regardless of function inputs. If not handled properly, this can cause unexpected results.



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Using ENO for validity checking

The ENO output can be used to determine if the block is currently evaluating. This allows for validity checking of the function and corresponding ENO output is to provide means for a validity check on the block output.

The following example shows a way to ensure that the output of the GE block so that the run coil properly evaluates when the enable input is TRUE, and returns a FALSE when the enable signal becomes FALSE.

