CNC

8060
8065

Part-program translator

(Ref: 1402)

FAGOR

FAGOR AUTOMATION

MACHINE SAFETY

It is up to the machine manufacturer to make sure that the safety of the machine is enabled in order to prevent personal injury and damage to the CNC or to the products connected to it. On start-up and while validating CNC parameters, it checks the status of the following safety elements. If any of them is disabled, the CNC shows a warning message.

- Feedback alarm for analog axes.
- Software limits for analog and sercos linear axes.
- Following error monitoring for analog and sercos axes (except the spindle) both at the CNC and at the drives.
- Tendency test on analog axes.

FAGOR AUTOMATION shall not be held responsible for any personal injuries or physical damage caused or suffered by the CNC resulting from any of the safety elements being disabled.

HARDWARE EXPANSIONS

FAGOR AUTOMATION shall not be held responsible for any personal injuries or physical damage caused or suffered by the CNC resulting from any hardware manipulation by personnel unauthorized by Fagor Automation.

If the CNC hardware is modified by personnel unauthorized by Fagor Automation, it will no longer be under warranty.

COMPUTER VIRUSES

FAGOR AUTOMATION guarantees that the software installed contains no computer viruses. It is up to the user to keep the unit virus free in order to guarantee its proper operation.

Computer viruses at the CNC may cause it to malfunction. An antivirus software is highly recommended if the CNC is connected directly to another PC, it is part of a computer network or floppy disks or other computer media is used to transmit data.

FAGOR AUTOMATION shall not be held responsible for any personal injuries or physical damage caused or suffered by the CNC due a computer virus in the system.

If a computer virus is found in the system, the unit will no longer be under warranty.

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The information described in this manual may be changed due to technical modifications. Fagor Automation reserves the right to make any changes to the contents of this manual without prior notice.

All the trade marks appearing in the manual belong to the corresponding owners. The use of these marks by third parties for their own purpose could violate the rights of the owners.

It is possible that CNC can execute more functions than those described in its associated documentation; however, Fagor Automation does not guarantee the validity of those applications. Therefore, except under the express permission from Fagor Automation, any CNC application that is not described in the documentation must be considered as "impossible". In any case, Fagor Automation shall not be held responsible for any personal injuries or physical damage caused or suffered by the CNC if it is used in any way other than as explained in the related documentation.

The content of this manual and its validity for the product described here has been verified. Even so, involuntary errors are possible, thus no absolute match is guaranteed. Anyway, the contents of the manual is periodically checked making and including the necessary corrections in a future edition. We appreciate your suggestions for improvement.

The examples described in this manual are for learning purposes. Before using them in industrial applications, they must be properly adapted making sure that the safety regulations are fully met.

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1 INTRODUCTION.

The program translator may be used to convert programs written in other languages into Fagor ISO codes. Currently, the program translator is available for the Selca® language.

Fagor does not guarantee the perfect translation of all the programs. The translated program must always be tested and simulated before executing it.

Translating Selca® programs

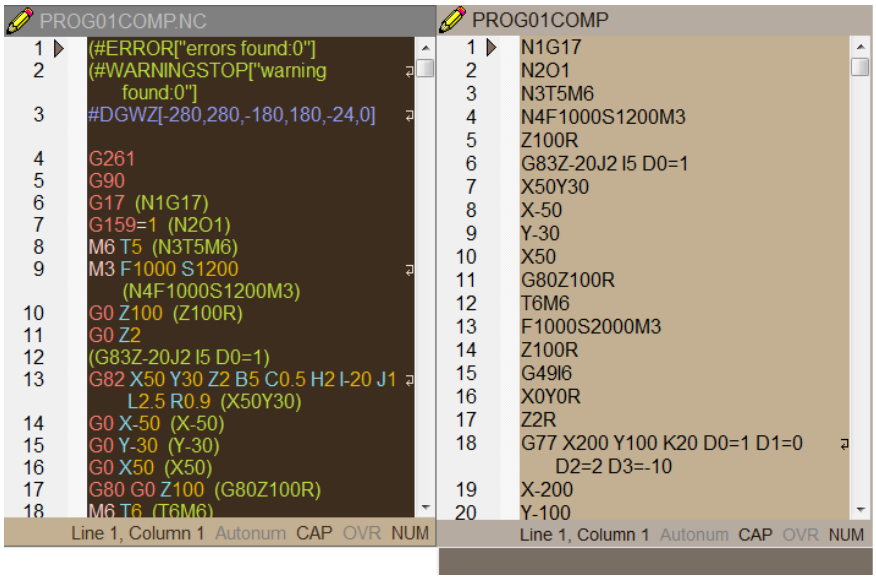
The program translator can translate compiled Selca® programs of models S1000, S3000 and S4000. The translator converts any program generated in a Selca® CNC into ISO code (through the Selca® programs compiling procedure that comes in the S1200, S3000 and S4000 models) as well as many other functions of Selca®'s own language.

Selca® is a registered mark of SELCA S.p.A

2 HMI AND TRANSLATING A PROGRAM.

The translator is available on the last page of the EDISIMU mode. The page shows two editors; the one on the right shows the original program and the one on the left shows the translated Fagor program. The softkeys of the horizontal menu will act upon the editor where the focus is. To select one editor or the other, use the mouse or the [FOCUS] key.

The translated program is, to all purposes, in Fagor ISO coded language and may be executed or simulated in any execution/simulation environment.



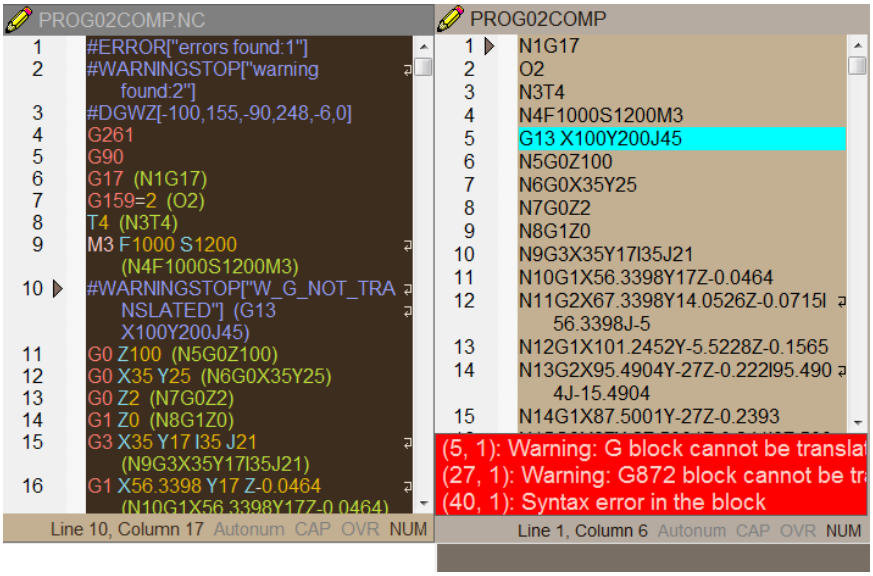
Translating a program into Fagor ISO language.

Place the focus in the editor on the right and open a program. Then, press the "Translate" softkey of the vertical menu and the translated program will automatically open on the left editor. The original program may have any extension (except .nc which is the one of the translated program) or none at all. The translated program is located in the same folder as the original program with the same name but with the extension .NC.

All translated programs have a header that shows any errors or warnings generated in the translation process. If no errors are generated during compilation, the header is placed as comment and indicates that no errors or warnings occurred. If there are errors or warnings, they will be translated with #ERROR or #WARNINGSTOP so the program cannot be simulated or executed until the user corrects it.

During translation, a line is added to the header with a #DGWZ calculated according to the program coordinates so when simulated in graphics, the part is sized automatically.

Errors and warnings in the translation process.



If there are errors or warnings in the translation process, a #WARNINGSTOP or a #ERROR is added to the program lines where they have been detected depending on the reason for the error.

The errors and warnings are displayed at the bottom of the corresponding editor (original program or translated program). Selecting the error line, the editor shows the corresponding line that may be edited and translated as often as needed.

3 EDITING THE ORIGINAL AND THE TRANSLATED PROGRAM.

In the same translation window, it is possible to edit the original program (right editor) and the translated program (left editor). The softkeys of the horizontal menu will act upon the editor where the focus is. To select one editor or the other, use the mouse or the [FOCUS] key.

To change the configuration of any of the two editors (for example, request confirmation every time one wihes to edit a a program already saved), select it by using the softkeys Customize->General Options.

Editing the original program (right editor).

The user can modify the original program and the translation will use the modified program.

Editing the translated program (left editor).

Once translated, the user can modify the translated program. In this case, the program used in simulation or execution will be the modified one.

The changes made to the translated program may get lost in the next translation of the same original program.

4 TRANSLATOR CONFIGURATION TABLE.

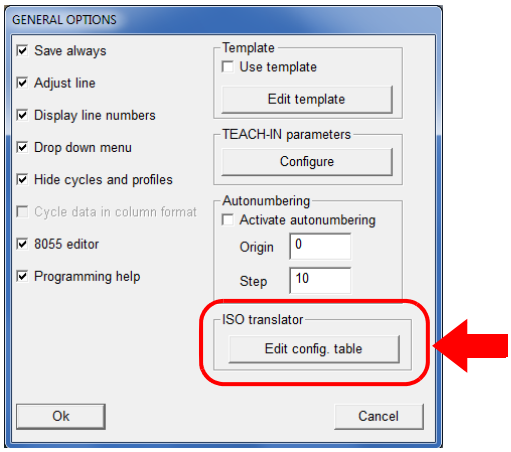
The M function table is used for translating each M function and with its parameters H, I, J, K, Q (original program) into another M function, another function, nothing or an error (translated program). The table for translating M functions is located in one of the following paths.

- C:\CNC8070\USERS\SESSION\TEMPLATES\Translator.cfg (if it has been customized).
- C:\CNC8070\FAGOR\TEMPLATES\Translator.cfg (by default).

It is an ASCII table with a fixed length and it has the following format.

NumM	M	H	I	J	K	Q
*						
0	M0	#WST	#WST	#WST	#WST	#WST
1	M1	#WST	#WST	#WST	#WST	#WST
2	M2	#WST	#WST	#WST	#WST	#WST
3	M3	#WST	#WST	#WST	#WST	#WST
4	M4	#WST	#WST	#WST	#WST	#WST
5	M5	#WST	#WST	#WST	#WST	#WST
6	M6	#WST	#WST	#WST	#WST	#WST
7	#WST	#WST	#WST	#WST	#WST	#WST
8	#WST	#WST	#WST	#WST	#WST	#WST
9	#WST	#WST	#WST	#WST	#WST	#WST
10	#WST	#WST	#WST	#WST	#WST	#WST
11	#WST	#WST	#WST	#WST	#WST	#WST
12	#WST	#WST	#WST	#WST	#WST	#WST
13	#WST	#WST	#WST	#WST	#WST	#WST
14	#WST	#WST	#WST	#WST	#WST	#WST
17	#WST	#WST	#WST	#WST	#WST	#WST
19	M19	S	S	S	#WST	#WST
29	#WST	#WST	#WST	#WST	#WST	#WST
30	M30	#WST	#WST	#WST	#WST	#WST
41	M41	#WST	#WST	#WST	#WST	#WST
42	M42	#WST	#WST	#WST	#WST	#WST
43	M43	#WST	#WST	#WST	#WST	#WST
44	M44	#WST	#WST	#WST	#WST	#WST
45	#WST	#WST	#WST	#WST	#WST	#WST
46	#WST	#WST	#WST	#WST	#WST	#WST
48	#WST	#WST	#WST	#WST	#WST	#WST
49	#WST	#WST	#WST	#WST	#WST	#WST

The table may be modified from the option Customize-> General options of the editor.



The first two lines of the table cannot be modified. The third line indicates how to translate the M functions that are not in the table.

- Column 1 (NumM): Represents the M to be translated.
- Column 2 (M): Indicates the function that will replace the M or display a #WARNINGSTOP.
- Column 3 (H): Indicates the name of the function that will be used to replace H parameter of the analyzed M block. If left blank, it will ignore the parameter H of the original M. If a #WST is written, the translation of the M code will generate a #WARNINGSTOP.
- Column 4 (I): Indicates the name of the function that will be used to replace I parameter of the analyzed M block. The same considerations made for the H function indicated in column 3 are applicable here.
- Column 5 (J): Indicates the name of the function that will be used to replace J parameter of the analyzed M block. The same considerations made for the H function indicated in column 3 are applicable here.
- Column 6 (K): Indicates the name of the function that will be used to replace K parameter of the analyzed M block. The same considerations made for the H function indicated in column 3 are applicable here.
- Column 7 (Q): Indicates the name of the function that will be used to replace Q parameter of the analyzed M block. The same considerations made for the H function indicated in column 3 are applicable here.

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