CNC 8055

Educational

Ref. 1107

FAGOR

FAGOR AUTOMATION

1 Introduction to the educational model

The educational CNC has a keyboard specially designed for milling and turning applications.

The following material is supplied with the CNC:

- KeyCF memory configured to work in mill or lathe mode.

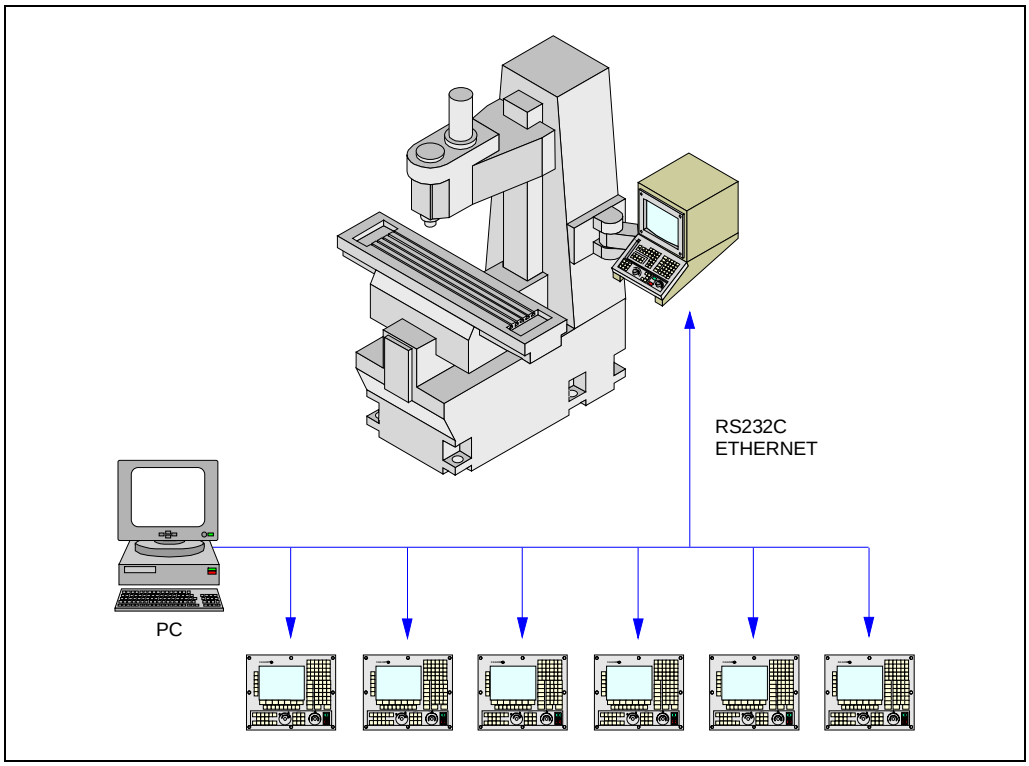
  The KeyCF must be configured with the following folders

  - Vers: Contains the latest software version for mill and lathe.
  - backup mill-fresa: Contains all the parameters, tables, programs, etc. of the mill model.
  - backup lathe-torno: Contains all the parameters, tables, programs, etc. of the lathe model.
- CAN - Ethernet communications board.
- Universal 24 V DC power supply and cable for connecting to the CNC.
- Educational CNC support.
- A CD-ROM containing the manuals for the Mill and Lathe models.

With the educational CNC, it is possible to edit, program and simulate all the CNC features, but the axes cannot be moved physically.

The educational CNC can communicate with another Fagor CNC through the RS232 serial line or Ethernet for transferring part-programs. This way, a program generated and simulated at the educational CNC may be executed on a machine that has a Fagor CNC.

Via Ethernet, it is also possible to communicate one or several educational CNC-s with a PC and with a Fagor CNC so, from the PC and using WinDNC it is possible to control or display all the educational CNC's.



Educational CNC support

The Educational CNC has a tree-piece support for putting it on the table. These parts are supplied in a separate box with the power supply and they must be assembled. See *"6 CNC support assembling sequence"* on page 10.

2 Connectors and connection

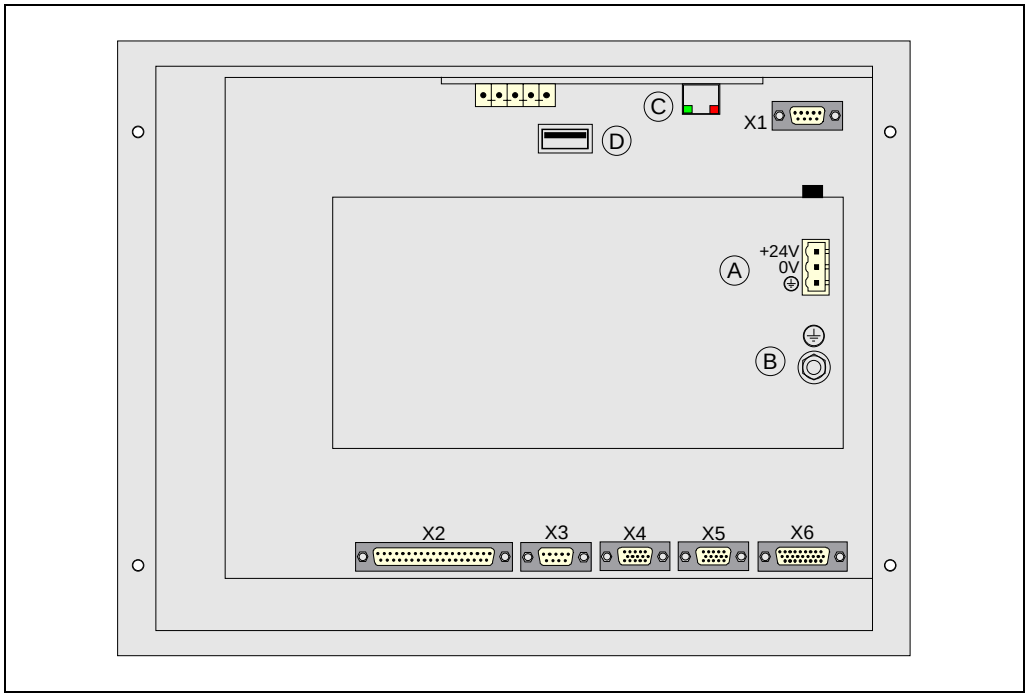
Power supply

A universal 24 V DC power supply is provided together with these support pieces.

This power supply is attached to the side support of the CNC. Once the three pieces of the CNC support have been assembled, connect the supply cable of the power supply to the CNC.

Connectors

The rear panel has:

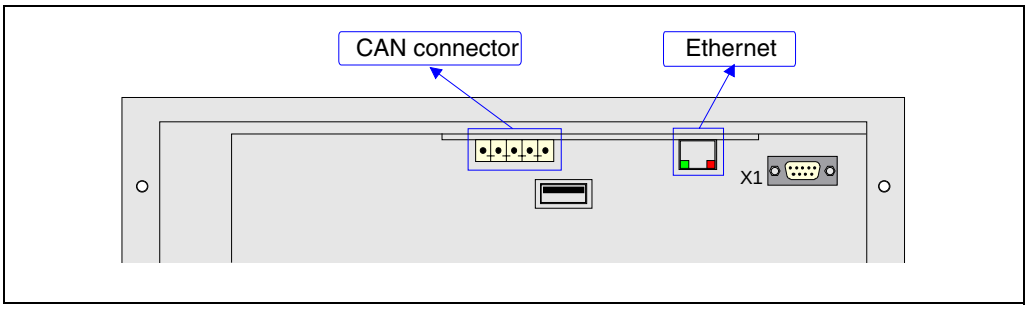


(A)	Power supply.
(B)	Ground connection.
(C)	Communications board
(D)	To connect the pendrive or an USB extension cable.
X1	For RS232 serial line connection.
X2	For digital I/O connection (I1 through I16 and O1 through O8).
X3	For probe connection.
X4	For analog spindle connection.
X5	For electronic handwheel connection.
X6	For Operator Panel connection.

The installation manual describes all these connectors.

By executing PLC programs, it is possible to use the 16 digital inputs and 8 digital outputs (of 500 mA) of connector X2.

Communications board



Ethernet

Ethernet connection to integrate the CNC into the computer network. The Ethernet card has an RJ-45 connector and two LED's that inform on the status of the connection.

Red LED	Blinks while transmitting data.
Green LED	On while connected to the network.

Use a standard shielded 10BASE-T cable for this connection. It must not be longer than 100 meters.

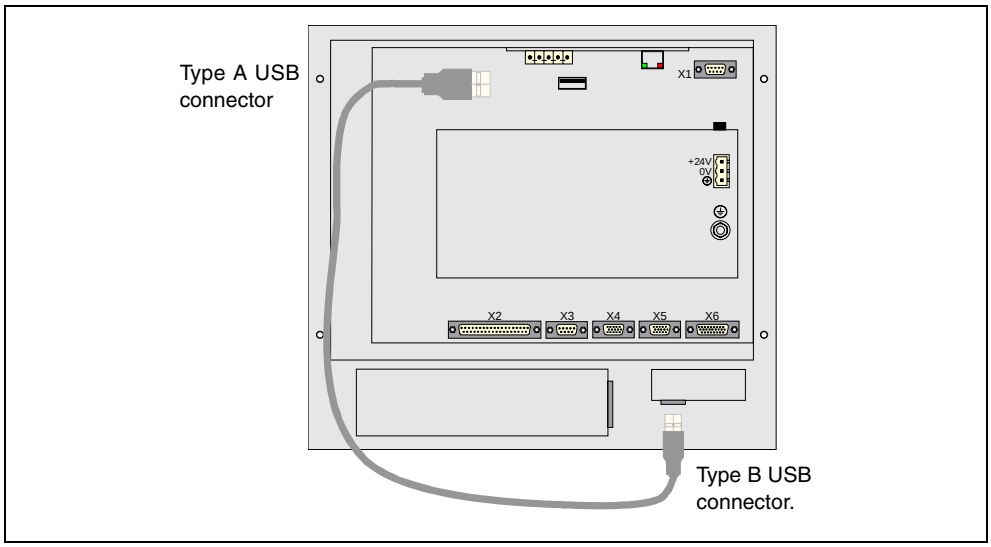
CAN connector

Not being used.

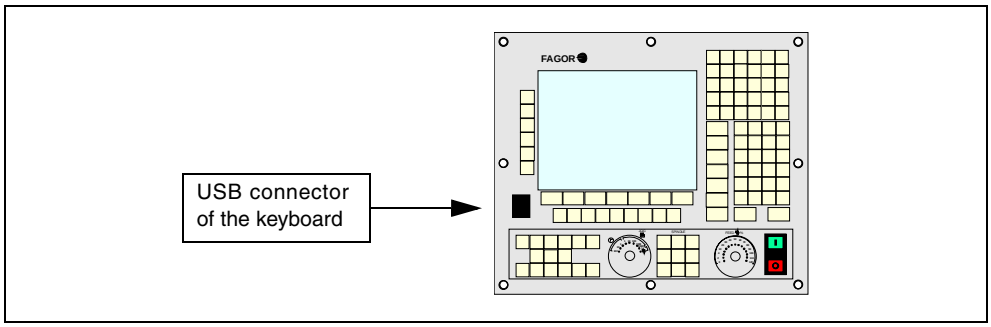
Connection of the USB extension cable supplied by Fagor

The USB extension cable with the CNC.

1. Connect the extension cable as shown in the figure while the CNC is off.



2. Once the extension cable has been connected, you may use the USB of on the front of the keyboard while the CNC is ON.



3 CNC setup

Every time the CNC is turned on, it does an automatic Restore. The CNC does a Restore depending on the software version installed (mill or lathe); i.e. either from either the "backup mill-fresa" folder or from the "backup lathe-torno" folder.

3.1 Updating the milling software

To change the software (from lathe to mill) at the CNC, proceed as follows:

- Press the "M" key for 3 seconds.

  When pressing the "M" key, the CNC sets variable MODEL = 0 and does a SHIFT-RESET. Then, it does a Restore from the "Backup mill-fresa" folder so the mill mode is properly set up (programs, parameters, tables, etc.).



The software updating process may be carried out from a PC using WinDnc (writing MODEL = 0 and generating a SHIFT-RESET). This makes it possible to update the software in several CNC's at the same time.

3.2 Updating the lathe software

To change the software (from mill to lathe) at the CNC, proceed as follows:

- Press the "L" key for 3 seconds.

  When pressing the "L" key, the CNC sets variable MODEL = 1 and does a SHIFT-RESET. Then, it does a Restore from the "Backup lathe-torno" folder so the lathe mode is properly set up (programs, parameters, tables, etc.).



The software updating process may be carried out from a PC using WinDnc (writing MODEL = 1 and generating a SHIFT-RESET). This makes it possible to update the software in several CNC's at the same time.

4 Safety backup. Backup - Restore

Backup configuration

To do a backup in any folder of the hard disk or in a pendrive, follow these steps:

- Access the "Status" mode and select the "CNC / Backup" option.
- Select the folder for the backup.
- Select the desired options:
  - OEM data: Programs
    Parameters and tables
    Screens (pages) and symbols
    Servo drive parameters
  - User data: Programs
- Press the "Begin Backup" softkey.

When saving any parameter from any particular table onto the hard disk, it is saved in the "backup mill-fresa" folder or "backup lathe-torno" folder

Restore configuration

To do a Restore, follow these steps:

- Access the "Status" mode and select the "CNC / Restore" option.
- Use the explorer to select the desired folder.
- Select the desired options:
  - OEM data: Programs
    Parameters and tables
    Screens (pages) and symbols
    Servo drive parameters
  - User data: Programs
- Press the "Begin Restore" softkey.

If you change the CNC configuration or add new part-programs, you will have to do a backup in the same folder if you wish to use the latest configuration the next time you do a restore.

For these changes to be maintained at very CNC power-up, the backup must be done in the "backup mill-fresa" or "backup lathe-torno" folder.

5 Configure the CNC inside an Ethernet network

The Ethernet option permits configuring the CNC as another node within the local area network. This makes it possible to communicate with other PC's through WindDNC, for example to transfer files.

It is configured at the CNC through the machine parameters for Ethernet.

Connection to a PC through WinDNC.

The PC operative system must be Windows® and it must have the WinDNC software (V5.02 or newer). The possible connections are:

- Connection from a PC:

  The connection may be initiated at any PC and addressed to any CNC. Two PC's cannot be connected to each other.

  To establish the connection, the WinDNC allows the user to enter the CNC's IP address to be used for the connection.

- Connection from a CNC:

  The connection is always addressed to the DNC server. The DNC server is defined in the machine parameter "IPWDNC".

Several PC's and CNC's may be network connected simultaneously using WinDNC. If several WinDNC initiate an operation accessing a CNC, the commands are processed one by one while the rest of the WinDNC's wait.



The WinDNC version that supports Ethernet is V5.02 or newer.

Machine parameters for configuring the CNC as another node of the network

DNCEACT (P22)

DNC number to be used by Ethernet.

Possible values:

0	There is no active DNC associated with Ethernet.
1	DNC 1 associated with Ethernet.
2	DNC 2 associated with Ethernet. The RS-232 serial line is disabled.

By default: 1

IPTYPE (P23)

Reserved. It must be set to "0".

DIRIP (P24)

CNC's IP address.

Possible values:	*Four numbers between 0 and 255 separated by dots.*
By default:	*0.0.0.0 (the network is not activated).*

It requires [SHIFT]+[RESET] to validate the parameter.

NETMASK (P25)

Network mask.

Possible values:	*Four numbers between 0 and 255 separated by dots.*
By default:	*0.0.0.0*

It requires [SHIFT]+[RESET] to validate the parameter.

IPWDNC (P27)

WinDNC server's IP address. The WinDNC server is the external device to connect with via DNC. This device may be a CNC, or a PC with WinDNC.

Defining it as 0.0.0.0 does not allow transferring from the CNC, but it is possible from the PC.

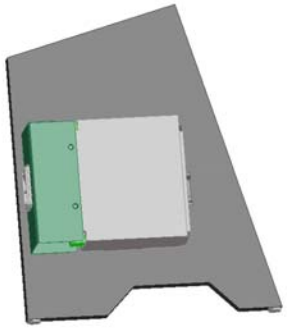
Possible values:	*Four numbers between 0 and 255 separated by dots.*
By default:	*0.0.0.0*

It requires [SHIFT]+[RESET] to validate the parameter.

6 CNC support assembling sequence

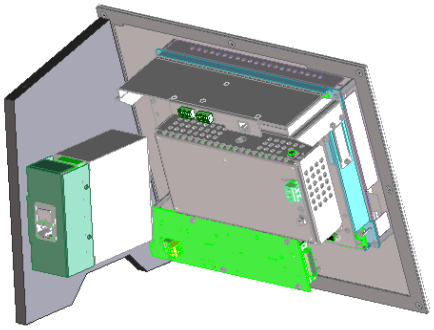
It is important to follow the mounting sequence.

1. Fasten the power supply is attached to the right support.

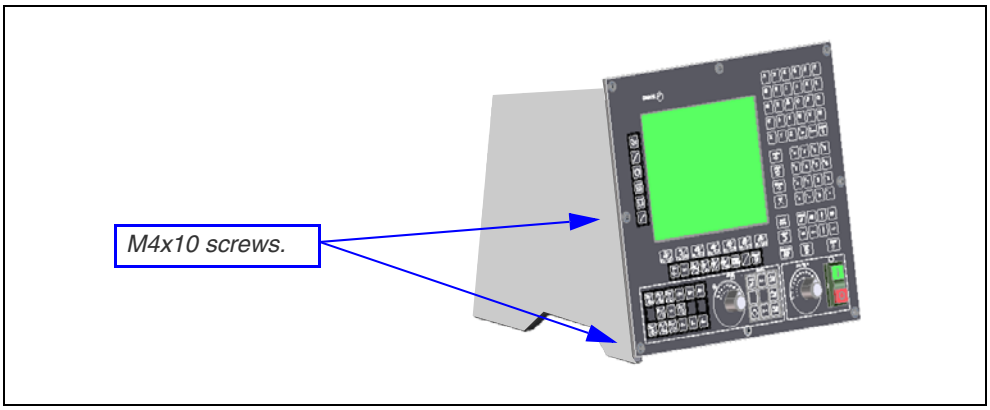


2. Fasten the right CNC support with two M4x10 screws and two washers.

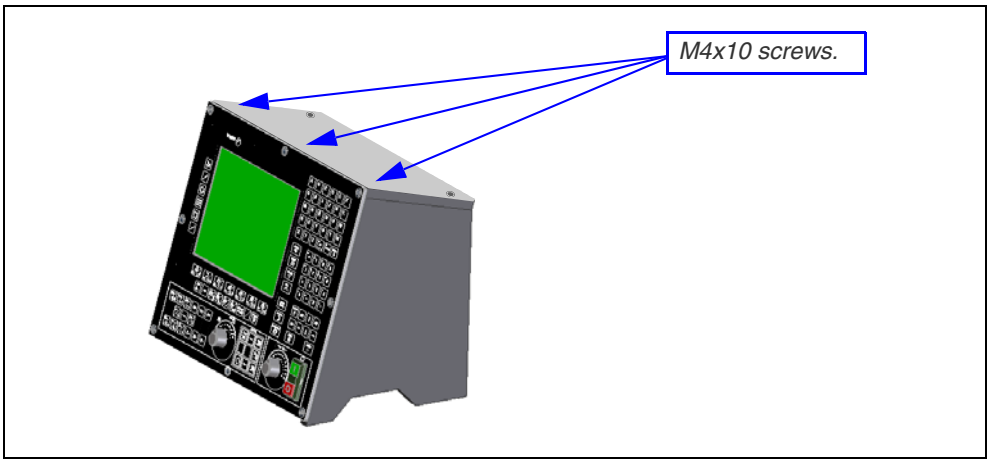




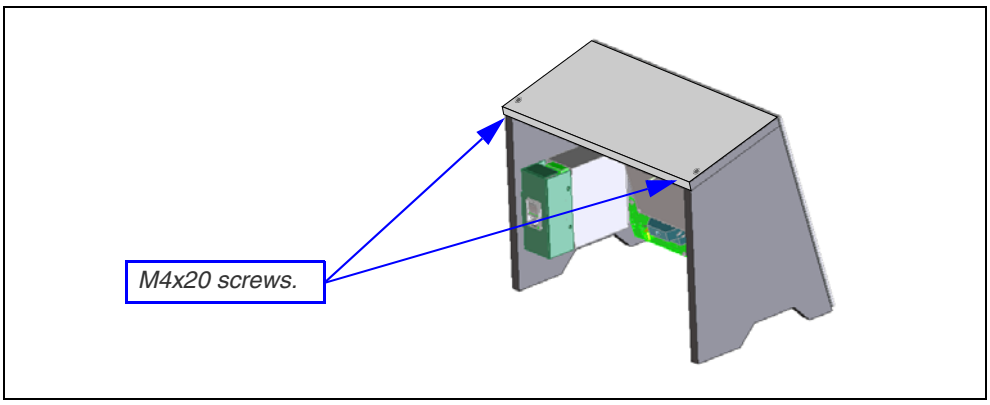
3. Fasten the left CNC support with two M4x10 screws and two washers.



4. Fasten the top lid to the CNC support with three M4x10 screws and three washers.



5. Fasten the top lid to the side supports with two M4x20 screws and two washers.



6. Power supply connection.

