ECON1XX

EtherCAT NCT-ISA ADAPTER CARD

PROVIDING COMMUNICATION WITH THE NCT104 CONTROL

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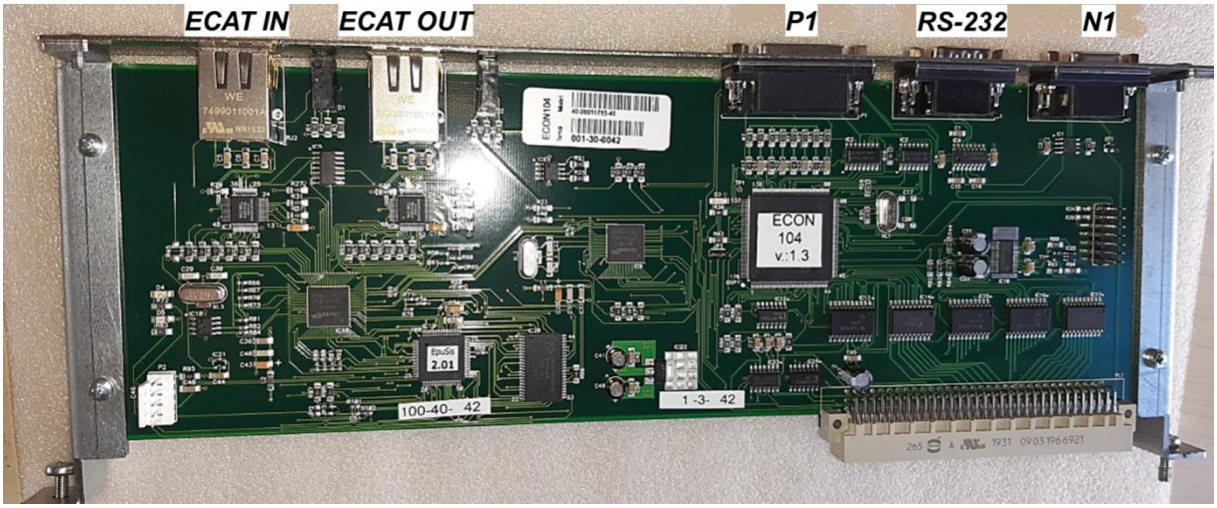
INTRODUCTION

The ECON1XX is a card that connects NCT104 peripherals to an EtherCAT network. It replaces the CPU card in the NCT104 control rack, thereby taking over the function of the CPU card and connecting the peripherals to the NCT304 central unit (EHU304).

The touch probes connected to the NCT104 CPU board and the keyboard and handwheel units connected to the CAN bus can be connected to the ECON1XX with full compatibility.

The ECON1XX card also includes the integrated EtherCAT Software Integrity Slave (ESIS), so there is no need to connect a separate EPU-SIS module to the EtherCAT network.



IDENTIFICATION

Module type marking:	ECON1XX
Nominal values:	5 VDC, 500 mA
	±15 VDC, 5 mA
Overall dimensions:	300×120×30 mm
Weight:	310 g

1 PORT ASSIGNMENT

ECAT IN: Input port to the EtherCAT network

ECAT OUT: Output port to other devices of the EtherCAT network

N1: CAN port to the NCT104 keyboard (NCT104 compatible)

RS-232: Serial port for the purpose of firmware programming

P1: Port for the probe electronics (NCT104 compatible)

The LEDs on the card and their function are the following:

Link/Act In : EtherCAT input port is in operation

Link/Act Out: EtherCAT input port is out of operation

Run: It does not give light: the unit is in INIT status

It flashes: the unit is in PRE-OPERATIONAL status

It flares up: the unit is in SAFE-OPERATIONAL status

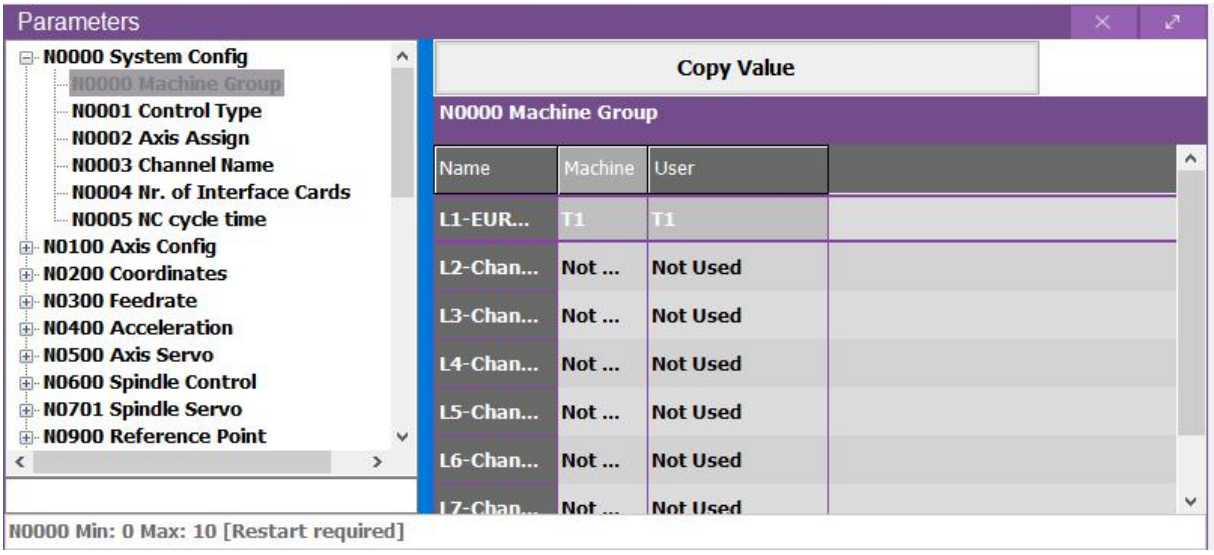
It gives light: the unit is in OPERATIONAL status

2 SETTINGS

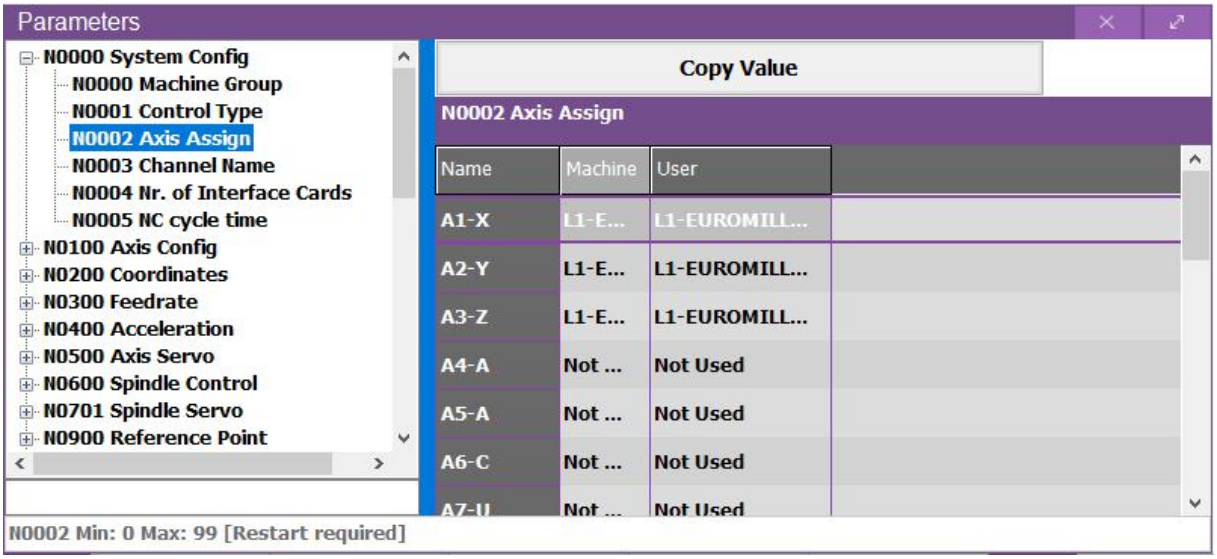
After turning the control on, the first step is to import or manually adjust the NC parameters.

The important parameters for setting the ECON1XX are the following:

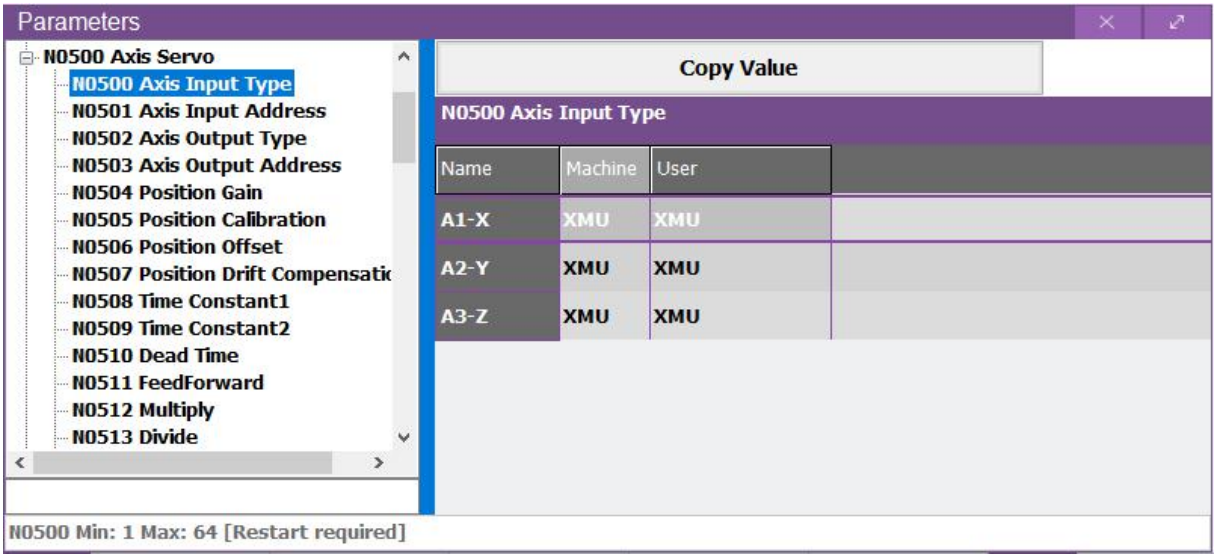
N0000 Machine Group: Set the active channels in this parameter.



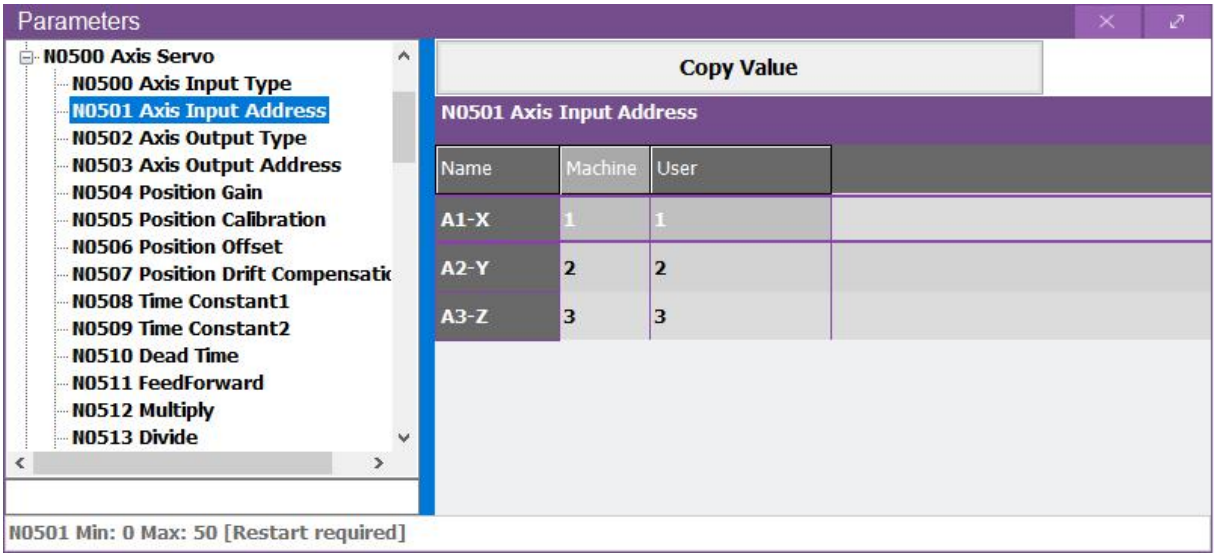
N0002 Axis Assign: In this parameter, assign the axes used on the machine to the appropriate channels. The channels that can be selected are those set in the **N0000 Machine Group** parameter, and their names are set in the **N0003 Channel Name** parameter.



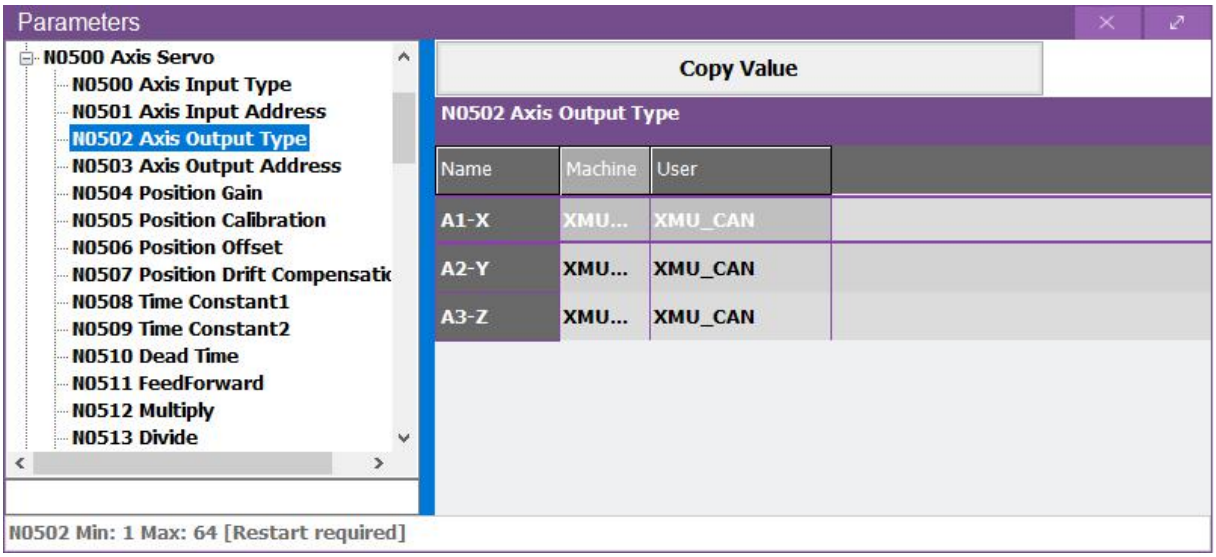
N0500 Axis Input Type: Those of the axes used on the machine, the encoder inputs of which are received by the measuring system cards connected to the NCT104 motherboard, should be set here as **XMU**-type ones.



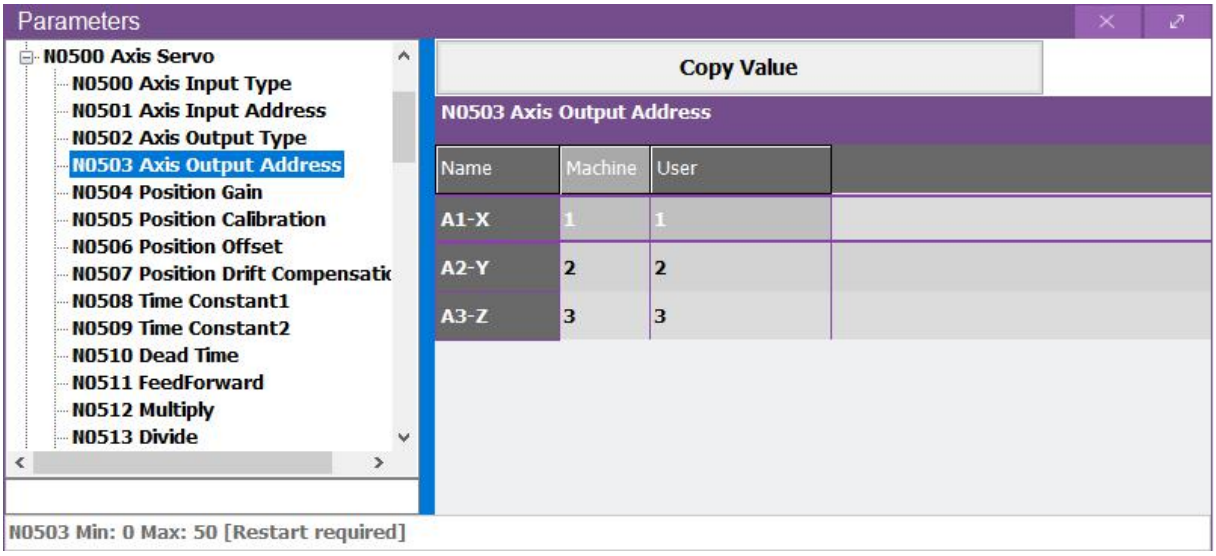
N0501 Axis Input Address: Set the peripheral address of the unit belonging to the encoder input of the axes in this parameter. If you are unsure about the **CAN bus addresses** of the axes, they can be read out from the parameter of the appropriate drive.



N0502 Axis Output Type: Set the fields of the axes driven by CAN servoamplifier as **XMU_CAN** type ones. Set the fields of those axes, the drive of which is analog, as **XMU_Analog** type ones.

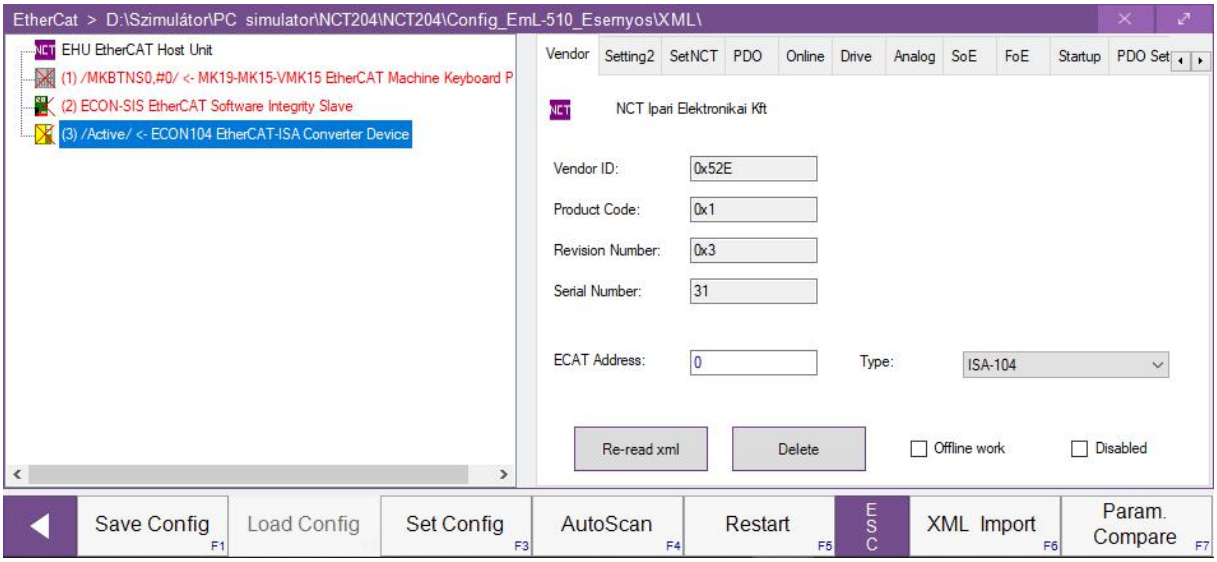


N0503 Axis Output Address: Set the peripheral address of the unit belonging to the encoder output of the axes in this parameter.

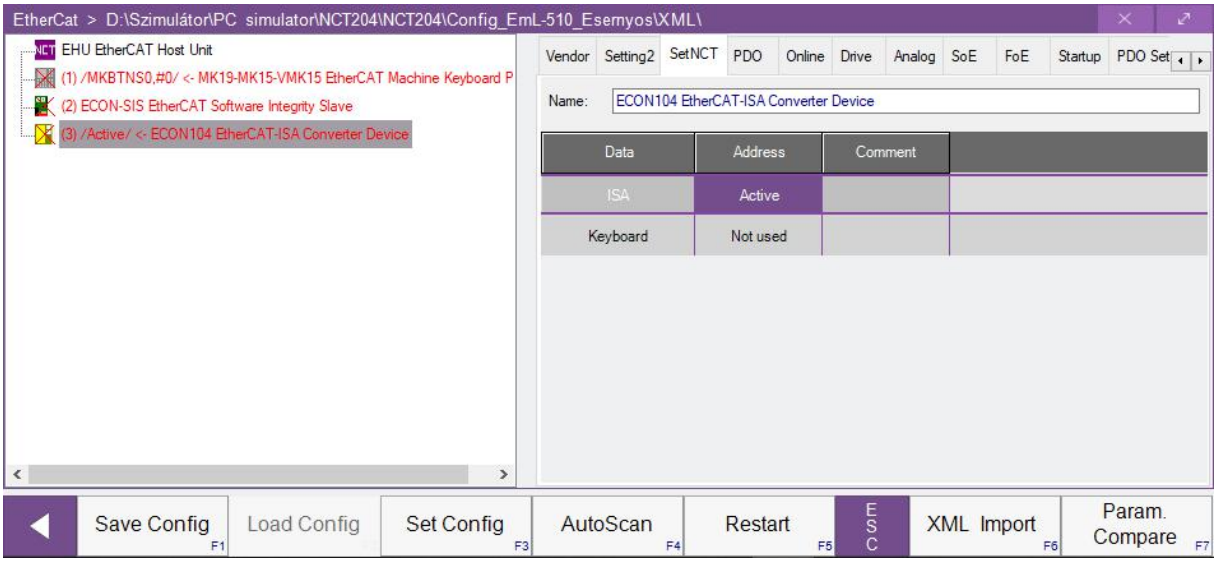


After setting the NC parameters, **restart the control**. The parameters set before will be updated only after restarting the control.

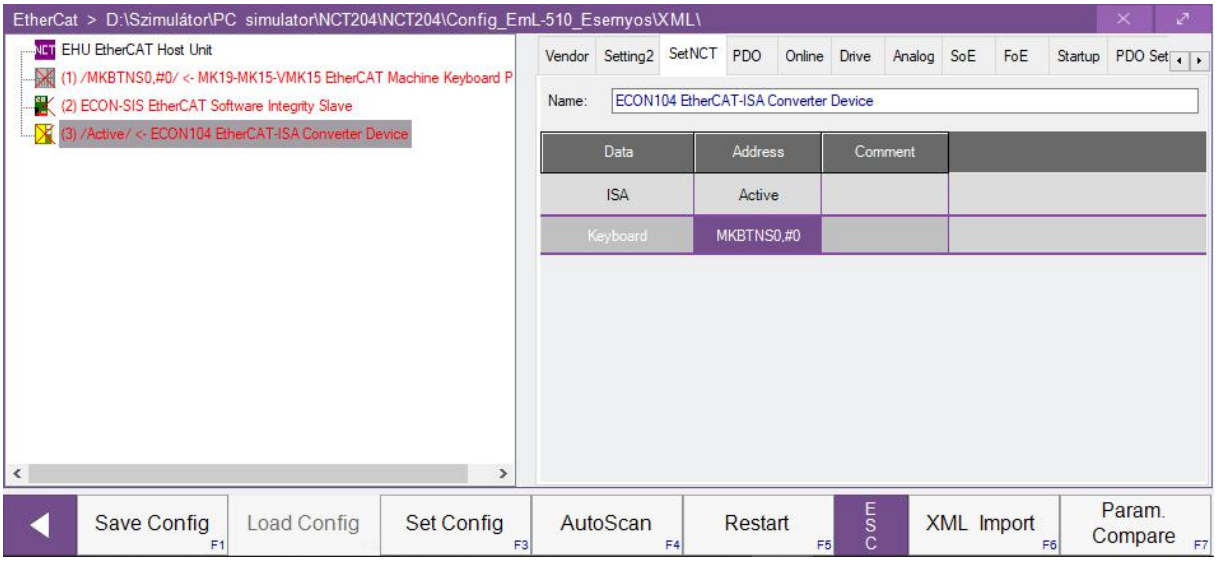
Then, in the **Service ---> ECAT Setting** window, select the **ECON1XX EtherCAT-ISA** adapter element.



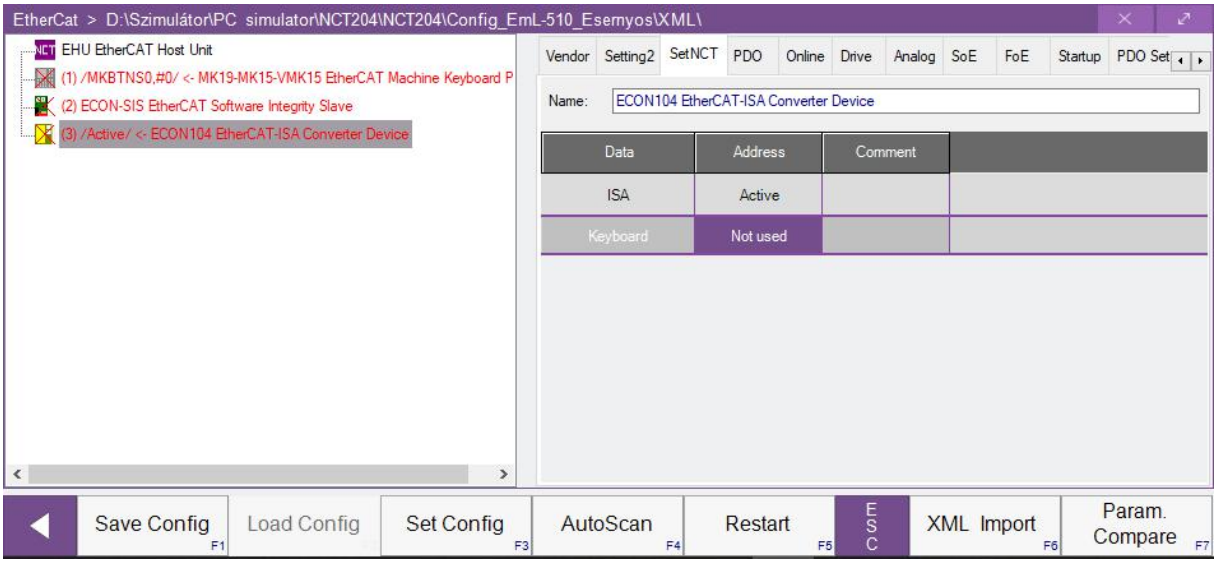
Then, on the Set**NCT** tab, switch the status of the card from Not used to **Active**.



If you kept the old control together with the keyboard and monitor for yourself, set the **Keyboard** field to **MKBTNS0,#0**.



Click on the **Set Configuration** button and then, when the process is finished, save the settings using the **Save configuration** button.



With this, setting the ECON1XX EtherCAT-ISA adapter unit is completed.

3 ETHERCAT PDO DATA

3.1 TIMESLICE (OUT)

Data type: UINT32

The cycle time of the NCT control in ns

3.2 IFCCARDUSED (OUT)

Data type: UINT32

It designates the interface cards (INT100, INT2000) used currently. Each bit corresponds to a given card.

For example, in the case of two INT100, the value is 0x00000003

3.3 AXESUSED (OUT)

Data type: UINT32

It designates the currently used axes or spindles on the measuring system cards. Each bit corresponds to a given axis.

For example, in the case of five axes or spindles, the value is 0x0000001F

3.4 CPUCOMMAND (OUT)

Data type: UINT32

bit 0: NC Ready

bit 1: Machine On

bit 2: System Reset

bit 3: Watchdog Trigger

bit 4: Touch probe Mask 1

bit 5: Touch probe Mask 2

bit 6: Touch probe Mask 3

bit 7: Touch probe Mask 4

3.5 IFC (OUT)

Data type: ARRAY[0..7] OF UINT16

Outputs of the interface cards (INT100, INT2000)

3.6 AXES (OUT)

Data type: ARRAY[0..15] OF NCTMUOUT

Axis outputs (authorization, analog output, CAN output data)

3.7 LEDS (OUT)

Data type: ULINT64

NCT104 machine keyboard LED outputs

3.8 KEYBCONTROL (OUT)

Data type: UINT32

NCT104 keyboard typematic rate, beep on/off

3.9 DRVSTATUS (IN)

Data type: UINT32

ECON1XX software status

3.10 CPUSTATUS (IN)

Data type: UINT32

bit 0: POD

bit 1: PS Ready

bit 2: NC Ready Status

bit 3: Output Short Circuit Error

bit 4: Touch probe signal 1

bit 5: Touch probe signal 2

bit 6: Touch probe signal 3

bit 7: Touch probe signal 4

bit 8: KLAV error

3.11 IFC (IN)

Data type: ARRAY[0..15] OF UINT16

Inputs of the interface cards (INT100, INT2000)

3.12 AXES (IN)

Data type: ARRAY[0..15] OF NCTMUIN

Measuring system inputs (travel, reference point, touch point)

3.13 AD (IN)

Data type: ARRAY[0..15] OF UINT16

Analog inputs (INT100, INT2000)

3.14 MACHINEPUSHBUTTONS (IN)

Data type: ULINT64

Status of the NCT104 machine control panel pushbuttons

3.15 PNPCODE (IN)

Data type: UCHAR

Identification code of the NCT104 alphanumerical keyboard

3.16 YAXLEY (IN)

Data type: UCHAR

Status of the Override switch (0..15)

3.17 MAINSPINDLE (IN)

Data type: UCHAR

Value of the spindle reference signal (0..10)

3.18 HWMOVELOW (IN)

Data type: UCHAR

Value of the built-in handwheel movement in increment (low byte)

3.19 HWMOVEHIGH (IN)

Data type: UCHAR

Value of the built-in handwheel movement in increment (high byte)

3.20 SCANCODES (IN)

Data type: UINT24

Scan codes of the alphanumerical keyboard

3.21 HANDWHEELMOVE0 (IN)

Data type: UCHAR

Value of the CAN (0) handwheel movement in increment

3.22 HANDWHEELMOVE1 (IN)

Data type: UCHAR

Value of the CAN (1) handwheel movement in increment

3.23 HANDWHEELMOVE2 (IN)

Data type: UCHAR

Value of the CAN (2) handwheel movement in increment

3.24 HANDWHEELMOVE3 (IN)

Data type: UCHAR

Value of the CAN (3) handwheel movement in increment

3.25 HANDWHEELAXIS0 (IN)

Data type: UCHAR

CAN (0) handwheel axis selection

3.26 HANDWHEELAXIS1 (IN)

Data type: UCHAR

CAN (1) handwheel axis selection

3.27 HANDWHEELAXIS2 (IN)

Data type: UCHAR

CAN (2) handwheel axis selection

3.28 HANDWHEELAXIS3 (IN)

Data type: UCHAR

CAN (3) handwheel axis selection

3.29 HANDWHEELINCR0 (IN)

Data type: UCHAR

CAN (0) handwheel increment selection

3.30 HANDWHEELINCR1 (IN)

Data type: UCHAR

CAN (1) handwheel increment selection

3.31 HANDWHEELINCR2 (IN)

Data type: UCHAR

CAN (2) handwheel increment selection

3.32 HANDWHEELINCR3 (IN)

Data type: UCHAR

CAN (3) handwheel increment selection

3.33 DUMMY0 (IN)

Data type: UCHAR

Not in use

3.34 DUMMY1 (IN)

Data type: UCHAR

Not in use

3.35 DUMMY2 (IN)

Data type: UCHAR

Not in use

3.36 DUMMY3 (IN)

Data type: UCHAR

Not in use