

Operating unit emulator CNC 783/VEKTOR with USB (801141)

The operating unit **Emulator CNC783** is a replacement for the old panel (cabinet version) of a HK CNC783.

The emulator operating unit is based on the hardware of the operating unit VEKTOR. (touch-screen and interfaces for control and peripherals, USB)

The CNC783 functionality is guaranteed by complete software emulation.

In case of upgrading to a new VEKTOR operating unit, the CNC783 emulator is converted to a standard VEKTOR control panel by a software update.

Beside the standard 783 functionality, the unit has extra features, as displaying the serial ports with their settings and current status of the connection(s).

The new emulator CNC 783/VEKTOR has also a USB interface available for saving restoring of NC programs, zero points and tool data.

The USB interface may only be used with the USB flash pen supplied by BWO (FAT32 compatible).

The USB flash pen may only be inserted or removed when the control panel is switched off.

Front and desktop view



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The look of these operating unit in the mirror of time ...

Origin design CNC783



1984 to 2001
BWO-No. e.g. 114953

CNC783/920 emulator



2003 to 2017
800141

CNC783/VEKTOR emulator




from 2018
801141


Control buttons


The control keys are used to start or stop programs or individual data records or to change settings of interface.




Press and hold these control buttons together to change the baud rate.

 move CNC axis manually by +, continuously or in steps

 move CNC axis manually by -, continuously or in steps

 Pressing the key starts the automatic program sequence.

 Pressing the key stops the automatic program sequence.

Graphics

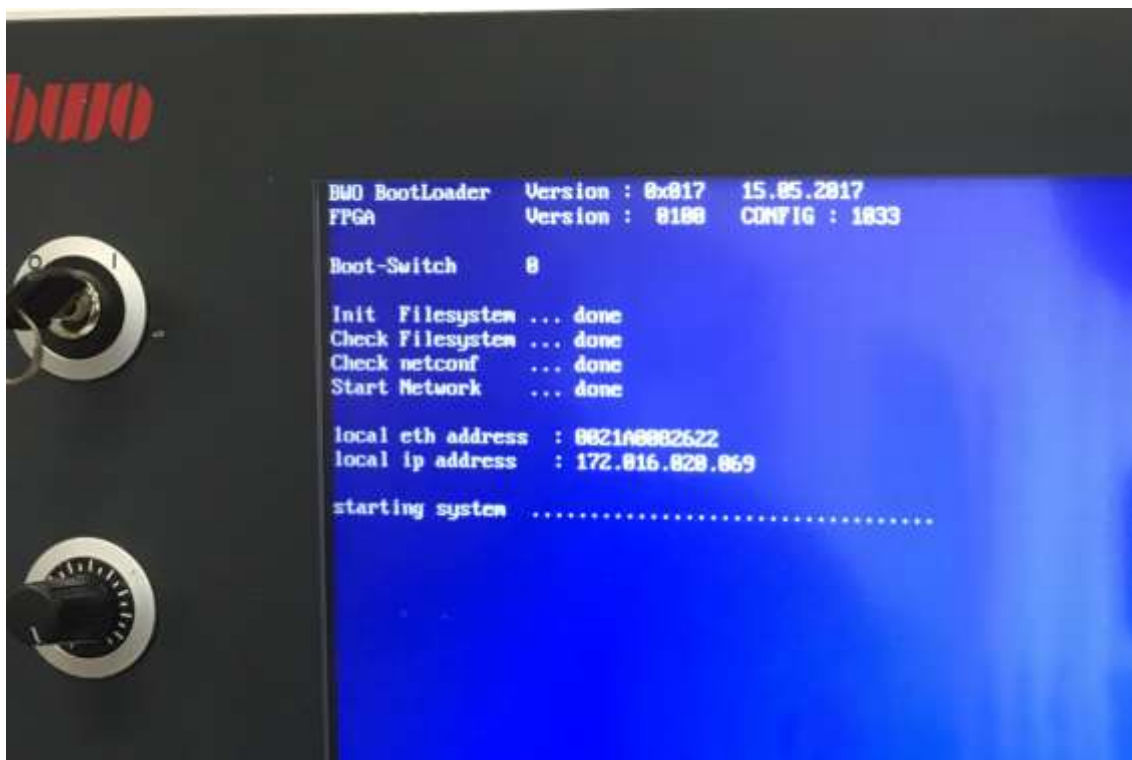
Special graphic features as zooming, blinking or inverse-video are not supported in the emulator.

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The order "boot"

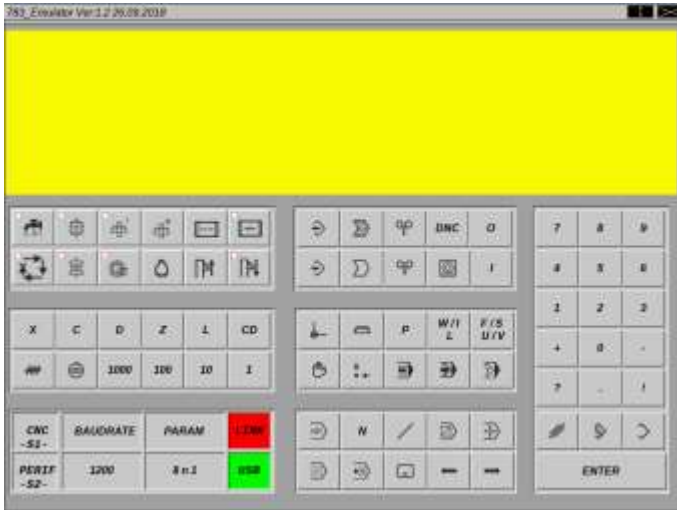
After switching on the control (control cabinet), the operating unit emulator CNC 783 / VEKTOR will go through some internal routines. There is no intervention of the user necessary.

Then follows the actual boot process.



Operating unit emulator CNC 783/VEKTOR with USB (801141)

The order "boot"



The emulator is started.
The connection to the CNC is not yet established.



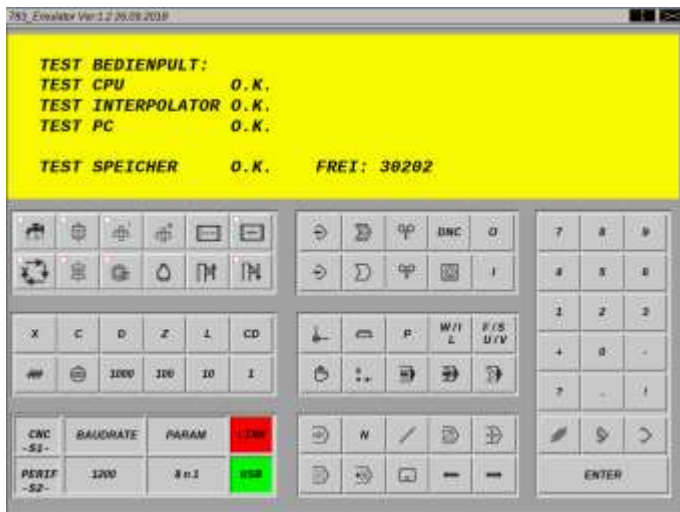
The connection to the CNC is established.
The switch-on checks will be executed and acknowledged with the ENTER key.



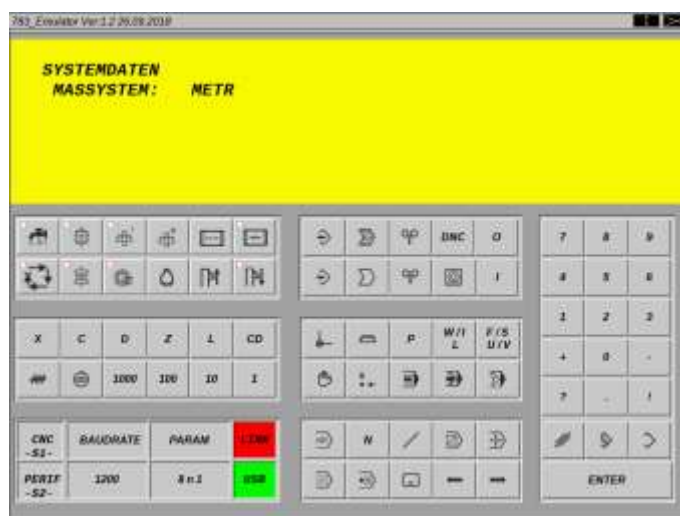
The switch-on tests for the CNC, the interpolator and the PC are completed.
The NC memory can be deleted (Press delete key);
Or continue the switch-on tests by touching the "ENTER" key.

Operating unit emulator CNC 783/VEKTOR with USB (801141)

The order "boot"



The NC memory test has been completed, the switch-on routines have ended.



The setting of the measuring system.



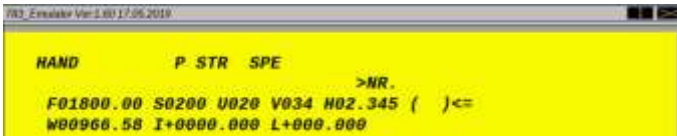
The CNC control change into manual mode.
 Now the axis reference points can be traversed.


BWO ELEKTRONIK GMBH

Operating unit emulator CNC 783/VEKTOR with USB (801141)

Load program from USB flash pen

To load a program, the USB pen must be plugged. Then press the key sequence to copy the program to the controller    .



Clicking the button  opens the root directory with the programs. Activate the relevant program by touch and continue the process by pressing the "OK" button.



The highlighted program will now be loaded into the CNC memory.

Operating unit emulator CNC 783/VEKTOR with USB (801141)

Function description of the keys, from left to right, from top to bottom.



Coolant on/off
 Push spindle fixation: Pushing in the upper part...
 Lifting drive ON
 Lifting drive OFF
 Release tensioning device
 Clamp tensioning device

Stop after processing end
 Push spindle fixation: Pulling in the upper part...
 Sharing automatic charging machine
 Work area lighting
 Counterholder UP
 Counterholder DOWN

X	C	D	Z	L	CD
		1000	100	10	1

- NC axes: X, Y, Z, A, B, C, or according to customer request as here
- manual operation, drive continuously
- manual operation, infinite loop
- manual operation, continuous or in increments of 1000, 100, 10, 1 mm

Operating unit emulator CNC 783/VEKTOR with USB (801141)

Function description of the keys, from left to right, from top to bottom.



read from memory cnc
 read from paper tape
 read from magnetic tape
 DNC operation
 Input / Output: Stop

write to the memory cnc
 write on paper tape
 write on magnetic tape
 printer
 Input / Output: Start



Call and display of the zero points
 Call and display of the tools
 P Display of the parameters
 W/I L, Display of the axes
 F/S U/V, Display of the axes

Manual operation: The axes move with the manual buttons, continuously or in steps

Positioning

Automatic, single sentence
 Automatic, following sentence
 test operation

Operating unit emulator CNC 783/VEKTOR with USB (801141)

Function description of the keys, from left to right, from top to bottom.



CNC program number
 Enter record number
 Sentence skipped: progr.
 Sentence skipped
 setpoint = actual value

Jump to the beginning of the program
 Search record number
 Delete Record Display
 Positioning in the display left
 Positioning in the display right



0 – 9 Numeric keypad
 + - +/- sign and "turn the page",
 vorwärts/rückwärts im
 Programmverzeichnis,
 in NC-Programmen, in den Werkzeugdaten
 sowie in der Diagnose
 ? Display of additional information
 ! Display diagnosis
 // Delete value
 \$ Change value
] Save value
 ENTER = Transfer of program files to the NC
 memory.

- Decimal input field

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Rear of the emulator, connections



Adapter to S1
Art.-no. 801141
9 pol. DSUB plug
20 mA



without function
Network(RJ45)
Network(RJ45)
USB



serial S2
9 pol. DSUB socket
RS232

Feed potentiometer and key switch are internal connected.

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Interfaces

CNC -S1-	BAUDRATE	PARAM	LINK
PERIF -S2-	1200	8 n 1	USB

CNC
-S1-

1st serial interface(S1) for CNC control

PERIF
-S2-

2nd serial interface(S2) to the PC, baud rate, parameters

LINK

Status display for connection to the CNC **green:** connection established

LINK

red: connection is interrupted

USB

Status display to the USB flash pen : **green:** USB pen is plugged in, accepted standard state, transfer of NC programs, zero points and tool data via USB is possible.

USB

Status display to the USB flash pen: **red:** Data transmission from / to USB pen is running, leave the stick untouched!

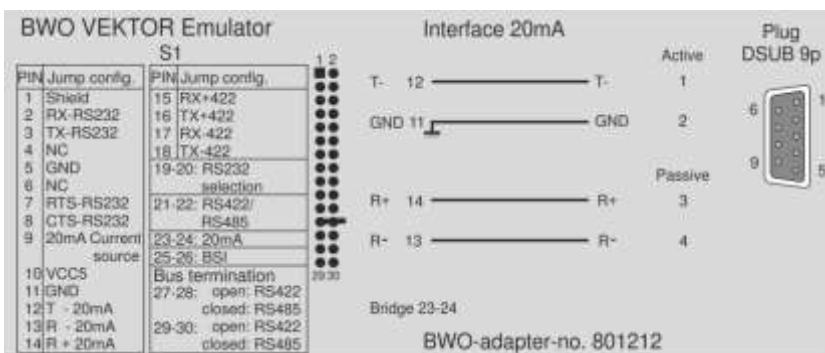
SER

Status display to the USB flash pen: **yellow:** USB flash pen is not plugged - the USB flash pen is missing, it becomes the function SER (serial interface) displayed, the transmission via S2 of NC programs, zero points and tool data is possible

interface S1

The interface S1 is configured as 20mA as soon as the adapter 801212 has been inserted.

The adapter is required when the operating unit is changed/upgraded from an BWO emulator 800141 to BWO emulator 801141.



Adapter VEKTOR 20mA/D-SUB Emulator, BWO-no. 801212 (optional)

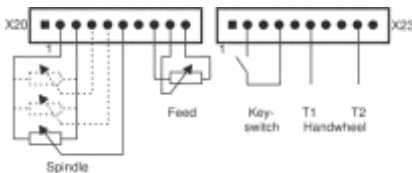


DSUB plug

Operating unit emulator CNC 783/VEKTOR with USB (801141) Connection diagram(on the back of the operating unit)

Power

- 1 +24V
- 2 0V
- 3 shield



The pins of the potentiometer wiper that are not in use have to be connected with GND (Pin 2 or Pin 8)!

1	Shield
2	Spindle GND
3	Spindle 3.3V
4	Addl. poti wiper(free)
5	Addl. poti wiper(free)

1	Shield
2	Key switch GND
3	3.3V
4	Key switch
5	-

VIO	
PIN	
1	CAN-H
2	CAN-L
3	CAN-Ground
4	VIO-Power +24V

CAN	
PIN	
1	Reserved
2	CAN - L
3	CAN - GND
4	Sync - L

A	
PIN	
1	OP
2	ON
3	IP
4	-

E	
PIN	
1	OP
2	ON
3	IP
4	-
5	-
6	IN
7	-
8	-

Ex	
PIN	
1	OP
2	ON
3	IP
4	-
5	-
6	IN
7	-
8	-

S2	
PIN	RS-232
1	NC
2	RX-RS232
3	TX-RS232
4	NC
5	GND
6	NC
7	RTS-RS232
8	CTS-RS232
9	NC

Im Lieferzustand VEKTOR Emulator -- keine Funktion
Delivery status VEKTOR emulator -- no function --

10	Feedrate 3.3V
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10	5V
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9	CAN - V+
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	RJ45 8-poles
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	RJ45 8-poles
--	--------------

	RJ45 8-poles
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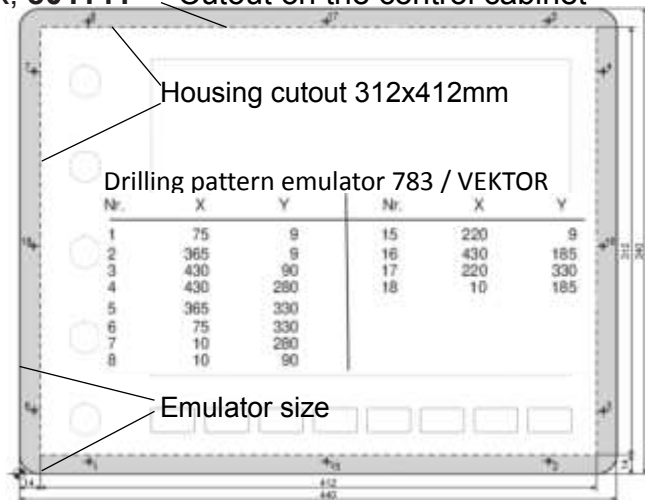
	↓USB Host↓
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Mounting advice

The size of the old control panel CNC 783 is 318 mm x 440 mm.

Operating panel-emulator CNC 783/VEKTOR, **801141** = Cutout on the control cabinet



Further data:

- Battery-free
- Fanless
- Operating temperature: 0 - 55 ° C
- Size: W x H x D: 440 x 340 x 52 mm
- Weight: 4.20 kg