



Motion Controller Pendant for Mach3 MVMPG User's Guide



Manuals made at 12th. Aug. 2020

Shenzhen Digital Dream Numerical Technology Co., Ltd.

Add: 507,A Building,Leibo Industry Zone,No. 22 Jinxiu East Road,Kengzi Street,
Pingshan district,Shenzhen City,P.R. of China

Website:www.ddcnc.com Email:info@ddcnc.com

1 MVMPG CNC Control Pendant Introduction

Digital Dream has a 20 years history in the numerical control industry, specializing in the research, development and production of various CNC (Computer Numerical Control) systems. Digital Dream aims to combine high quality and high reliability with affordability. We produce 1 axis to 6 axes CNC system.

MVMPG is a convenient pendant for your CNC control system with screen. The coordinates and some other parameter are displayed on the screen operated by 10 buttons. And user can change axis and rate by the buttons. There are also few other functions e.g. ZERO/ GOTO 0/HOME can be operated by the buttons on the pendant.

The encoder of NVMPG is the same as general MPG. but the choice of axis and rate use USART port instead of general port.

1.1 Specification feature

- 1) 2.2' TFT Screen
- 2) 10 buttons
- 3) Power supply Voltage is 5VDC which can be supplied by the Mach3 controllers;
- 4) 8 wire control line
- 5) 6 axis coordinates, and RESET/FRO/SRO/SJR/SPINDLE are display on the screen

1.2 Product appearance and dimensions

The Figure 1-1 to 1-3.

In order to wire with Digital Dream Mach3 controllers easily, we also make the two difference wiring cable interface. The Figure 1-4 to 1- to show that.



Figure 1-1 Dimension of NVMPG



Figure 1-2 NVMPG appearance 2 -- Left side



Figure 1-3 NVMPG appearance 3 -- Right side



Figure 1-4 RJ45 wiring cable



Figure 1-5 Easily wire with NC200 controller



Figure 1-6 DP15 wiring cable



Figure 1-7 Easily wire with EC500 controller



Figure 1-8 Easily wire with EC300 controller



Figure 1-9 Easily wire with UC300 controller

1.3 Notice and Warnings



Keep away from exposure to moisture or water. This product contains sophisticated electronics and must not get wet.



Operation warning. Please observe all security measures when operating the machine. The ESTOP must be connected and properly labelled. In case of a problem, press the E-stop at once to avoid damage to humans, animals and the equipment.



High voltage danger. The MVMPG is connected to 5V DC. Obey and follow the electricity safety rules of your country when connecting this equipment.

2 Wiring

There are 2 mode of terminal, which are open wire(see Figure 1-8) and RJ45 port(see Figure 1-4).

Here we show the cable definition:



Figure 2-2 NVMPG in RJ45 port mode

No.	Color	Pin Mark	Definition
1	RED	A-	Negative of MPG's A phase
2	BLUE	A+	Positive of MPG's A phase
3	BLACK	B-	Negative of MPG's B phase
4	GREEN	B+	Positive of MPG's B phase
5	WHITE	+5V	5V Power supply Port
6	VIOLET	TXD	Transmission Port (Output port)
7	BROWN	RXD	Receive Port (Input port)
8	YELLOW	GND	Ground

Table 2-1 Cable definitions of RJ45 Port



Figure 2-2 Wire mark of NVMPG in RJ45 port mode

NVMPG can be connected to EC500(EC300/UC300):



MPG Pin Mark and Color		EC500 Wiring Pin	
RED	A-	WHA-	MPG A Phase differential Input Negative
BLUE	A+	WHA+	MPG A Phase differential Input Positive
BLACK	B-	WHB-	MPG B Phase differential Input Negative
GREEN	B+	WHB+	MPG B Phase differential Input Positive
WHITE	+5V	VDD5	Power Supply 5V for MPG.
VIOLET	TXD	TXD	MPG serial communication Output Port For the digital display
BROWN	RXD	RXD	MPG serial communicationinput Port For the digital display
YELLOW	GND	GND	MPG Power supply GND

Table 2-2 Connecting method with EC500/EC300/UC300

3. Configuration & Use

3.1 Configuration

We will supply the DLL for our Mach3 controllers. In order to build the communication with the NVMP-G, we need the setup as following:

First we need to set MPG to valid, see the Figure 3-1.

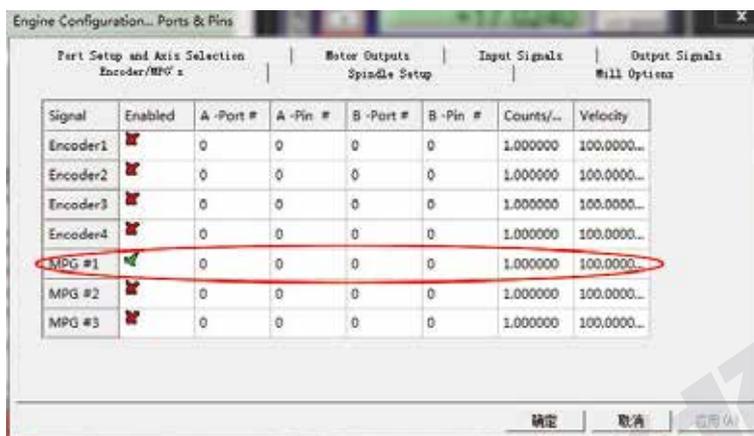


Figure 3-1 Active the MPG in Mach 3

Second, we should check the current operation Mode and change into MPG mode in Mach 3 Software, pls see the Figure 3-2. So now, we already activate our MPG Pendant MVMPG.

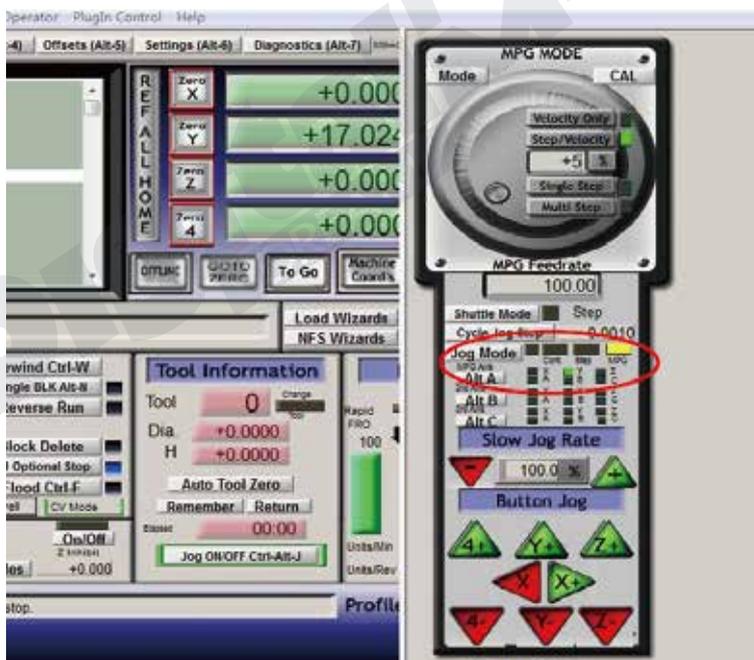


Figure 3-2 Set to MPG mode

If the Mach3 controller is UC300/EC300/EC500, don't forget to switch the MPG mode to NV(MPG) mode on the controller.



Figure 3-3 Switch to NV MPG mode

3.2 The Buttons Definition on NVMPG



Figure 3-4 Buttons of NVMPG

No.	Mark	Definition
1	(Left Side Button)	Start/Run G code
2	AXIS↑	Change activated axis AXIS++
3	AXIS↓	Change activated axis AXIS--
4	SPINDLE	START/STOP spindle
5	X1/X10/X100	Change rate of MPG
6	HOME	Trigger HOME function
7	GOTOZ	Trigger go to 0 function
8	ZERO	Trigger ZERO function
9	1/2	Activate axis' coordinate halve
10	(Right Side Button BUTTON)	RESET/ESTOP

Table 3-1 Definition of the buttons

Button 1(START) : After loading G code, Press the button to run.

Button2(AXIS↑):

Button3(AXIS↓): AXIS↑ and AXIS↓ are 2 buttons for changing the activated axis. When one axis is activated,it shows the yellow color, and invalid axis' block is black on the main page of the screen.

Button4(SPINDLE):Start or Stop the spindle.

Button5(X1/X10/X100):Change the rate of MPG, The rate of MPG is displayed on the screen.

Button6(HOME):Press the button to make machine to find Machine zero position. If we activate one axis, e.g. X, then press the button,the machine will go to find X axis' machine zero position. Or if there is no activated axis, then press the button,the machine just go to find all axes' machine zero position.

Button7(GOTOZ):When press the button,machine will go to workpiece zero position. If we activate one axis, e.g. X, then press the button,the machine will go to find X axis' workpiece zero position. Or if there is no activated axis, then press the button,the machine just go to find all axes' workpiece zero position.

Button8(ZERO):Press the button to find current coordinates to 0. The method refer to button 6&7.

Button9(1/2):Press the button to find current coordinates halve. The method refer to button 6&7.

Button10(RESET): This button is RESET function.

3.3 The Screen Definition on NVMPG

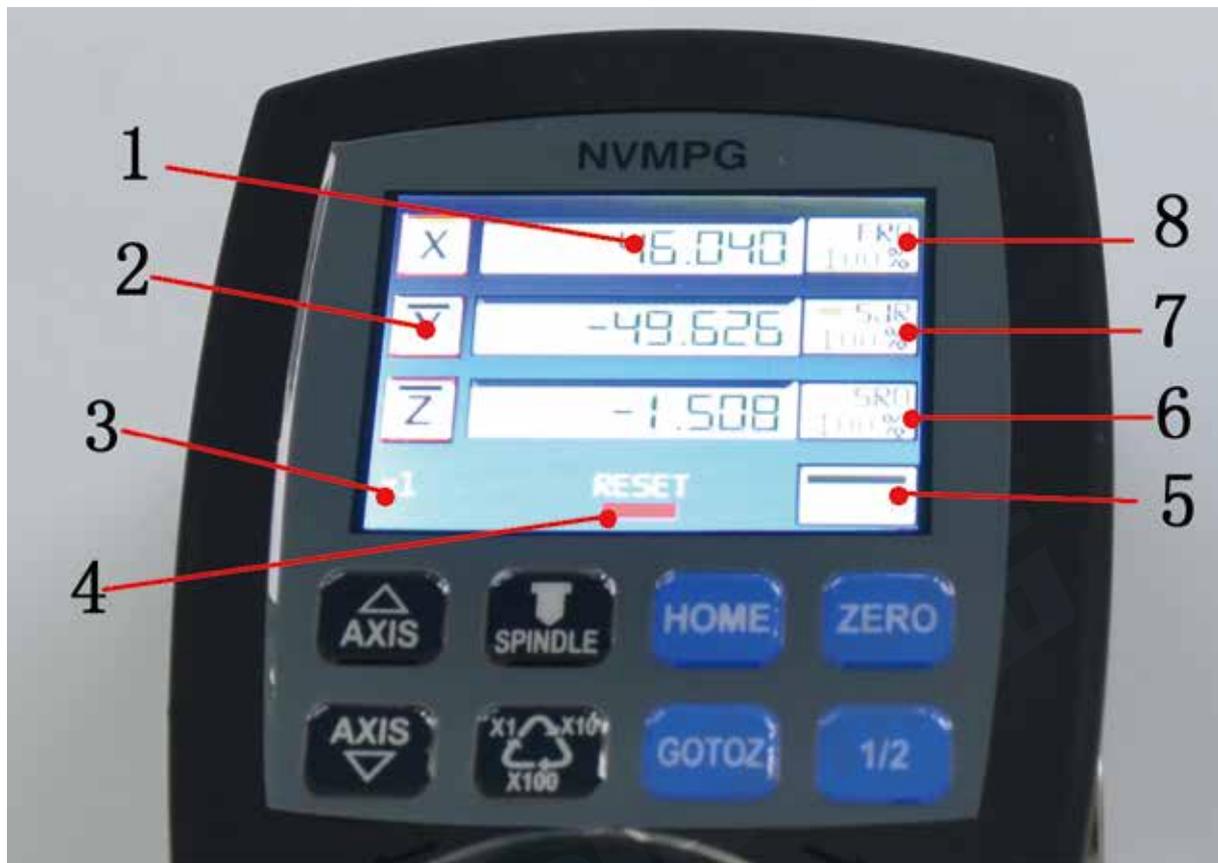


Figure 3-5 NVMPG's screen display

See the above Figure 3-3, It's the display of the screen. Specific description as follows:

- 1: Coordinate value of the 6 axis
- 2: Axis Name
- 3: MPG rate
- 4: Status of the pendant: Start/Reset
- 5: Status and value of the Spindle
- 6: Value of SRO, SRO controls the Spindle Speed
- 7: Value of SJR, SJR controls the jogging of the machine
- 8: Value of FRO, FRO controls the Feed Speed