# **MPG through binary inputs**

### Main window:

2	SYS PLC CFG ?=	SUPPO	ORT		CFG									P
	CNC Settings			MPG	/Encoder	) through bin.	arv inputs							
10	Axes/Motors Network				Input1	Input2	Slot		Axis	Dimension	Encoder Resolution			
2	Motion Hardware PLC		#0	🗐 In	put 8 🔻	Input 9	r ] [MPG wheel	*	Pendant *		400 🔺			
>	Software PLC		#1	🖻 In	put 10 🔻	Input 11	" MPG wheel	٣	General Purpose 🔻		400 🔺			
	G-codes settings DXF import settings						MPG wheel		Pendant -		65536 🚖			
	Macro List  Macro Wizard		#3	1	Server with	ET10 encod	MPG wheel	•	General Purpose 🔻		400			
2	<ul> <li>Probing Wizard</li> <li>Preferences</li> </ul>			FIPG		put#	Slot		Axis	Dimension	Encoder Resolution			
<u> </u>	▷ Screen		#4	<b></b>			MPG wheel	¥			Resolution			
Ce	Work Offsets Parking Coordinates		#5				MPG wheel	-			100 (*)			
	<ul> <li>Inputs/Outputs/Sensors</li> <li>Alarms</li> </ul>		#6	<b></b>	ET10 E	incoder#0	/ MPG wheel	-	X -		100 *			
	Limits		#7		ET10 E	ncoder#0 *	MPG wheel	*	x -		100 *			
This are	MPG through binary inputs 3													
	Jog through ADC inputs													
	I/O Expand cards mapping ADC Mapping													
_	Connections Technology													
	Camera													
	5 axes RTCP > Panel/Pendant													
	Hardware     Advanced													
	Advanced													
sic	functions:													
0	SYS CFG Select No	SUPPO	RT		CFG	Selection Selection		Seleo PG ty			Set step in «mm» of MPG	00110	solution or for MPG	, W
	CNC Settings	1		MPG/	Encoder	through bin	ary inputs	/					/	/
×ø	Axes/Motors Network	J		1	Input1	Input2	Slot		Axis	Dimension	Resolution			
1	Motion		#0	Inj	put 8 🔻	Input 9	MPG wheel	*	Pendant 👻		400		Sa	ve
>	<ul> <li>Hardware PLC</li> <li>Software PLC</li> </ul>		#1	[]] Inj	put 10 🔻	Input 11 🔻	MPG wheel	*	General Purpose 🔻		400		setti	ings
	G-codes settings	1	#2		put 8 🔻	Input 9	MPG wheel	•	Pendant 🔻		65536 🜩			
	Macro List ACTIVATION		#3		put 10 🔻	Input 11		•	General Purpose 🔻		400 🚔	/		
	Macro Wizard     Probing Wizard			MPG,		ET10 encod					Encoder	/		
1	Preferences     Screen	$\mathbf{k}$				put#	Slot		Axis	Dimension	Resolution			
	Work Offsets		#4			incoder#0 *	MPG wheel	*	X *		100 🐳			
1	Parking Coordinates  Inputs/Outputs/Sensors		#5 #6	1.00		incoder#0 •	MPG wheel		X •		100			
	Alarms			202		incoder#0 "	MPG wheel		×		100 👻			
540h	Limits		#7	1000		ncoder#0 🤊	MPG wheel		14 C		100 ≑			

Select

**MPG type** 

Set step

in «mm»

of MPG

**Set axis** 

for MPG

3

**Select number of** 

encoder for ET10

Triggers/Timers MPG through binary inputs Jog through ADC inputs I/O Expand cards mapping ADC Mapping

Connections Technology

Camera 5 axes RTCP Panel/Pendant Hardware Advanced

C

# Mpg/Encoder throught binary inputs

• To activate the MPG, it is necessary to check the box next to the MPG number:

#### MPG/Encoder through binary inputs

	Input1	Input2	Slot	Axis	Dimension	Encoder Resolution
#0 🔽	Input 8 🔻	Input 9 🔻	MPG wheel	Pendant 🔻		400 🜲
#1 🔳	Input 10 💌	[Input 11 💌	MPG wheel 👻	General Purpose 🔻		400 🛓
#2 🕅	Input 8 💌	[Input 9 💌	MPG wheel 👻	Pendant 💌		65536 🜲
#3 🕅	Input 10 🔻	[Input 11 👻	MPG wheel	General Purpose 🔻		400 *

- MPG designed for manual control of the CNC without resorting to controlling the system from the operator panel. With the help of the control panel, the operator of the CNC machine can change the position of the axes, change the feedrate, adjust the spindle operation, set "0" and perform other operations while in close proximity to the workpiece.
- examples of MPG are presented below:



• After activation, you can select the operating input numbers for the MPG on the controller - input1 and input2

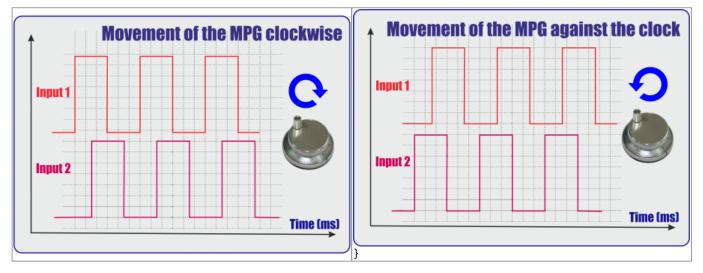
input1:

	Input	1	Input2	2	Slot		Axis		Dimension	Encoder Resolution	
#0 🔽	Input 8	-	Input 9	•	MPG wheel	•	Pendant	•		400	*
#1 🕅	Input 0 Input 1	-	Input 11	*	MPG wheel	*	General Purpose	¥		400	A
#2 🔲	Input 2 Input 3		Input 9	-	MPG wheel	*	Pendant	7		65536	×
#3 🔳	Input 4 Input 5		Input 11		MPG wheel	-	General Purpose	-		400	A
M	Input 6 Input 7		ET10 enco	ode	r inputs						
	Input 8 Input 9	-	ut#		Slot		Axis		Dimension	Encoo Resolu	
#4 🕅	ET	10 Er	ncoder #0	*	MPG wheel	*	X	*		100	A V

### input2:

M	PG/Encod		hrough b		<b>ry inputs</b> Slot		Axis		Dimension	Enco	
-				-						Resolu	0.25
#0 🔽	Input 8	•	Input 9		MPG wheel	•	Pendant	•		400	*
#1 🕅	Input 10	*	Input 0 Input 1	Â	MPG wheel	*	General Purpose	*		400	* *
#2 🕅	Input 8	*	Input 2 Input 3		MPG wheel	*	Pendant	٣		65536	5 1
#3 🕅	Input 10		Input 4 Input 5		MPG wheel	-	General Purpose	-		400	A V
٨	1PG/Enco	Inp	Input /	Ŧ	<i>r inputs</i> Slot		Axis		Dimension	Enco	-
#4 🕅	ET	10 Er	icoder#0	Ŧ	MPG wheel	-	X	*		100	A. V

• Timing diagram for the MPG signals:



• It is also necessary to select the MPG function:

	MP	G/Encod	ler t	hrough b	inar	y inputs							
		Input1		Input2		Slot		Axis		Dimension	Encoo Resolu		
#0		Input 8	•	Input 9	•	MPG wheel	•	Pendant	•		400	*	
#1		Input 10	*	[Input 11	7	MPG wheel THC/Z axis offset		General Purpose	*		400	(A) (V)	
#2		Input 8	-	Input 9	*	Spindle Sync MPG wheel	-	Pendant	*		65536		
#3		Input 10	•	Input 11	*	MPG wheel	-	General Purpose	-		400		
Functions		Discrij	pti	ons									
MPG wheel		Direct	con	trol of t	ne	MPG							
THC/Z axis off	fset	Contro	llin	g the tra	icki	ng (torch heig	ht c	ontrol) while	cut	ting with	the h	elp of a	n MPG
Spindle Sync		Spindle	e co	ontrol, vi	a t	he analog outp	ut	to control the	spi	indle spe	ed.		

• If necessary, select the coordinate axis, which will be controlled by the MPG

	Input1	Input2	Slot	Axis	Dimension	Encoder Resolution
#0 🔽	Input 8 🔻	Input 9 🔻	MPG wheel	<ul> <li>Pendant</li> </ul>		400
#1 🕅	Input 10 🔻	Input 11 👻	MPG wheel	▼ Y		400
#2 🕅	Input 8 💌	Input 9 🔻	MPG wheel	▼ Z		65536 🔹
#3 🕅	Input 10 🔻	Input 11 🔻	MPG wheel	- B C		400
M	IPG/Encoder	ET10 encode	r inputs	V		
	Inp	out#	Slot	W Pendant	- Dimension	Encoder Resolution

• Next we select the length of displacements with the help of an MPG. Number of movements in mm per pulse MPG:

Input1	Input2	Slot	Axis	Dimension	Encoder Resolution
#0 🔽 Input 8 🔻	Input 9 🔻	MPG wheel	▼ Pendant ▼	0.1	400 🌻
#1 I Inout 10 ×	Toput 11 Y	MPC wheel	* General Durnose *	TT T	400

• We set the resolving power of the MPG - the number of pulses per one revolution of MPG



## Mpg/Encoder ET10 throught binary inputs

If you use the ET10 controller https://shop.pv-automation.com/et10/9-mycnc-et10.html, you can utilize not only the MPG function, but also the encoders, to monitor the position of any of the axes.

 To activate the MPG or Encoder, it is necessary to check the box next to required MPG/encoder number:

	Input#		Slot		Axis		Dimension	Encode Resolutio	
#4 🔽	ET 10 Encoder #0	•	MPG wheel	•	x	•		100	×
#5 🕅	ET10 Encoder#0	*	MPG wheel	*	x	Ŧ		100	A V
#6 🕅	ET 10 Encoder #0	*	MPG wheel	*	x			100	Å
#7 🕅	ET 10 Encoder #0	Ŧ	MPG wheel	Ŧ	X	*		100	(A) (V)

• After activation, you can select the encoder number on the controller for to specify which encoder will be operated

MPG/Encoder ET10 encoder inputs

	Input#	Input#			A	Axis		Enco Resolu	
V	ET 10 Encoder #0	•	MPG wheel	•	X	•		100	×
	ET 10 Encoder #0 ET 10 Encoder #1	-	MPG wheel	*	X	<b>T</b>		100	A V
	ET10 Encoder #2 ET10 Encoder #3		MPG wheel	*	X	*		100	×
	ET 10 Encoder #4 ET 10 Encoder #5	Ш	MPG wheel	*	X	*		100	A. 
	ET 10 Encoder #6 ET 10 Encoder #7 ET 10 Encoder #8 ET 10 Encoder #9								

It is also necessary to select the MPG function (MPG wheel/THC/Spindle Sync):
 MPG/Encoder ET10 encoder inputs

	Input#	Slot	Axis	Dimension	Encoo Resolu	
#4 🔽	ET 10 Encoder #0	MPG wheel	x	•	100	
#5 🕅	ET 10 Encoder #0 🔫	IHC/2 axis offset	x	-)	100	(A) (V)
#6 🕅	ET10 Encoder#0	Spindle Sync	X	-	100	-A
#7 🕅	ET 10 Encoder #0	MPG wheel	] [x	-	100	<u>А</u> 

Functions	Discriptions
MPG wheel	Direct control of MPG
THC/Z axis offset	Controlling the tracking (THC) while cutting with the help of an MPG
Spindle Sync	Spindle control, via the analog output to control the spindle speed.

• If necessary, select the coordinate axis, which will be controlled by MPG

	Input#	Slot	Axis		Dimension	Enco Resolu	1000
#4 🔽	ET 10 Encoder #0 🔻	MPG wheel	▼ X	•		100	A V
#5 🦳	ET 10 Encoder #0 🔻	MPG wheel	▼ X Y			100	A V
#6 🕅	ET 10 Encoder #0 🔻	MPG wheel	▼ Z A	E		100	A W
#7 🕅	ET 10 Encoder #0 🔻	MPG wheel	▼ B C			100	A. W

• Next we select the length of displacements with the help of MPG. Number of movements in mm per pulse MPG:

	Input#	Slot		Axis	Dimension	Encoder Resolution
#4 🔽	ET 10 Encoder #0 🔻	MPG wheel	▼] [x	•	D.1	100 🌲
#5 🕅	ET10 Encoder#0 💌	MPG wheel	• ] [x			100
#6 🕅	ET10 Encoder #0 🔻	MPG wheel	▼][X	Ŧ		100 *
#7 🖭	ET 10 Encoder #0 🔻	MPG wheel	- X	-		100

• We set the resolving power of the PGM - the number of pulses per one revolution of PGM

	Input#	Slot		Axis	Dimension	Encoder Resolution
ŧ 🔽	ET 10 Encoder #0 🔻	MPG wheel	▼) [x		0.1	100 🖨
	ET 10 Encoder #0 🔻	MPG wheel	▼ X	-		100 4
	ET 10 Encoder #0 🔻	MPG wheel	*) [X			100 🔹
7 🔳	ET 10 Encoder #0 🔻	MPG wheel	▼ X			100 🖨

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