

**Doc No.:** AN-250

**Version:** 1.0

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**Subject:** REGIST Command Extensions on MC464

## APPLICATION NOTE

[www.triomotion.com](http://www.triomotion.com)

### 1. Introduction

The REGIST command on the MC464 has been extended in 2 areas from version 2.0077 onwards:

- To support the 8 channel registration function on the first axis of a P874 FLEXAXIS module.
- To make the REGIST command easier to use.
- To support the filtering function of the hardware registration circuit.

### 2. 8 Channel Registration on FLEXAXIS:

The first axis of the P874/P879 FLEXAXIS modules has a facility to support 8 independent hardware registration channels. This is designed for printing machines where multiple “heads” need to register their position relative to a single web. Each of the channels captures the position of the same encoder signal. The other 7 encoder signals (other 3 on P879) each have 2 independent registration channels.

**REGIST(22,channel,source,rise/fall>window)**

channel	= 0..7	This is the registration channel to be used
source	= 0 or 1	0 selects 24v R0..R7 input. 1 selects Z mark.
Rise/fall	= 0 or 1	0 = rising edge, 1 = falling edge
Window	= 0,1 or 2	0 = no windowing 1 = position must be inside OPEN_WIN..CLOSE_WIN 2 = position must be outside OPEN_WIN..CLOSE_WIN

Note that the R input used is the same as the channel number.

The capture state, TRUE (-1) or FALSE (0) can be read using the R\_MARK command:

**R\_MARK(channel)**

After the capture is TRUE the captured position and speed can be read using R\_REGPOS(channel) and R\_REGSPEED(channel). Note that the 8 channels can be used in

parallel with each other using multiple REGIST(22,... commands. The window applies to all the channels.

### 3. REGIST Command Extensions

REGIST mode 20 is used to set the channel A or channel B encoder registration. This can be used instead of REGIST modes 1..4 and 14..17

**REGIST(20,channel,source,rise/fall,window)**

channel	= 0..1	0 selects channel A, 1 selects channel B
source	= 0 or 1	0 selects 24v R0..R7 input. 1 selects Z mark.
Rise/fall	= 0 or 1	0 = rising edge, 1 = falling edge
Window	= 0,1 or 2	0 = no windowing 1 = position must be inside OPEN_WIN..CLOSE_WIN 2 = position must be outside OPEN_WIN..CLOSE_WIN

Note that the R input used for channel A and channel B can be selected with the REG\_INPUTS command.

The results from using REGIST(20,... are reported using MARK, MARKB, REG\_POS and REG\_POSB. The A and B channels work independently of each other.

REGIST mode 21 is used to set the "time" based registration channels of the P871, P872, P873 and P876. This can be used instead of REGIST modes 32..39 and 64..71.

**REGIST(21,channel,source,rise/fall,window)**

channel	= 0..7	This is the registration channel to be used
source	= 0	Has no function
Rise/fall	= 0 or 1	0 = rising edge, 1 = falling edge
Window	= 0,1 or 2	0 = no windowing 1 = position must be inside OPEN_WIN..CLOSE_WIN 2 = position must be outside OPEN_WIN..CLOSE_WIN

Note that the axis for the **REGIST(21,channel,0,rise/fall,window)** comes from the current base axis setting. This can be changed for the command with the AXIS(x) modifier.

The results from using REGIST(21,... are reported using R\_MARK(channel) , R\_REGPOS(channel) and R\_REG\_SPEED(channel).

#### REG\_INPUTS

Used to assign the registration inputs to an axis on the P874/ P879

Bits	Function
3:0	Input select for registration channel A 0000 = Flex Axis Input 0

	0001 = Flex Axis Input 1 0010 = Flex Axis Input 2 0011 = Flex Axis Input 3 0100 = Flex Axis Input 4 0101 = Flex Axis Input 5 0110 = Flex Axis Input 6 0111 = Flex Axis Input 7
7:4	Input select for registration channel B 0000 = Flex Axis Input 0 0001 = Flex Axis Input 1 0010 = Flex Axis Input 2 0011 = Flex Axis Input 3 0100 = Flex Axis Input 4 0101 = Flex Axis Input 5 0110 = Flex Axis Input 6 0111 = Flex Axis Input 7

The default channels assignment is set out as below. Note that P879 has axes 0..3 only.

P874/P879 Axis	Channel A	Channel B
0	0	4
1	1	5
2	2	6
3	3	7
4	4	0
5	5	1
6	6	2
7	7	3

## 4. Registration Filtering

Each axis has a selectable setting for registration inputs. This is axis wide and cannot be changed dynamically but should be set if required before using registration:

**REGIST(23)**                      Sets 2.4 usec minimum pulse width

**REGIST(24)**                      Sets 0.15 usec minimum pulse width (default)