

# Jetter

Technical Information  
Version Update

**June 25 2002**

**JX6-CON1 / JX6-CON+ Changes  
Version 2.801 through Version 3.000**

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The numbers in parentheses indicate the version numbers.

## 1. Changes / New Functions

### 1.1 Axis Control

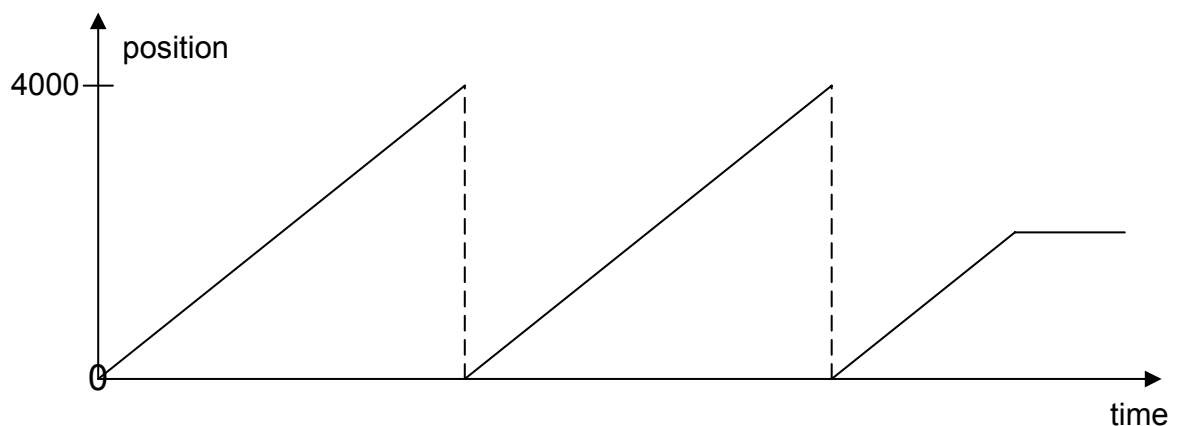
- (2.804) The overflow mode can be activated by command 16:  
In this mode, the overflow register (1xy085) is taken into account for a positioning process and the actual position is set to zero if necessary. The set positions are given as absolute values. The mode is disabled by command 18.

Example program:

```

REGISTER_LOAD (121001, 1)
REGISTER_LOAD (121085, 4000)
REGISTER_LOAD (121001, 3)
;
REGISTER_LOAD (121001, 16)
POS (21, 10000, 500)
WHEN
  AXARR 21
THEN
  REGISTER_LOAD (121001, 18)

```



- (2.900) In table or mixed mode, an intermediate interpolation function for the table elements has been programmed. This helps to improve axis control, especially if there is a greater distance between the table elements. Between two table values, the slave axis will be driven in linear mode.
- (2.900) For circular interpolation, the intermediate interpolation function of the sine table has been improved.

- (2.907) For table or mixed mode, another register has been introduced. This register helps to shift the table related to the master position.

<b>Register 1xy248: Master-Offset</b>	
<b>Function</b>	<b>Comment</b>
Read	present state
Write	illegal
Value range	positive maximum master position * (-1) ... 0
Value after reset	0

$$\text{Table pointer} = (\text{ActualMasterPositon} + \text{MasterOffset}) * \frac{\text{amount Table elements}}{\text{pos Maximum Master Position}}$$

The following formula applies to the table mode:

$$\text{Nominal slave position} = \text{present table element}$$

The following formula applies to the mixed mode:

$$\text{Nominal slave position} = \text{present table element} * \frac{\text{faktor}}{\text{divisor}} + \text{offset}$$

mit

Actual Master Position	= Register 1xy095
Master Offset	= Register 1xy248
Amount Table elements	= Register 1xy055
Positive Maximum Master Position	= Register 1xy058
Table pointer	= Register 1xy148
Faktor	= Register 1xy056
Divisor	= Register 1xy057
Offset	= Register 1xy163

- (2.908) With the help of JetSym, 8 channels can be provided for the osci now. For this function, a JetSym version higher than version 1.50 will be needed.
- (2.914) SV-axes: it is now possible to use print mark mode for both axes simultaneously.
- (3.000) SV-axes: The fast capture mode (capture time 50µs) now works completely for the first two axes. This means the actual position of the own axis or of the other axis can be stored.

## 1.2 PID Controller / Analogue Value Processing

(2.802) From this version onwards, analogue submodules (in addition to the third submodule slot) can be used with the JX6-CON1. Any combinations of JX6-AD8 or JX6-DA4 modules can be plugged into all three submodule slots.

Analogue input module JX6-AD8:

The analogue actual values can be read out of registers 1xy051 through 1xy058. Both the configuring of the analogue input channels (1xy061 through 1xy068) and the mean value generation (1xy151 through 1xy158) remain valid without being changed. Further, the channels to be read in can be selected via register 1xy159. Register 1x3173 (sampling time per channel) will only be effective, if a JX6-AD8 has been plugged into the third submodule slot. If there is no PID controller active, one channel will be read in by each JX6-AD8 module once in a millisecond. This means, that if there are three JX6-AD8 being used, all 24 analogue inputs will have been read in after 8 milliseconds.

Analogue output module JX6-DA4:

In a combination with a PID controller (slot 1: JX6-AD8 and slot 2: JX6-DA4), the analogue outputs of the second submodule slot are addressed via controller registers 1x1017, 1x2017, 1x3017 and 1x4017.

In case of all other combinations or slots, the analogue outputs will be addressed via registers 1xy110 through 1xy113.

Conditions:

If there are more than one JX6-DA4 modules to be used, a 15 W converter must be connected to the JX6-CON1.

In case of three JX6-DA4 modules being used, only 10 current outputs can be used altogether.

## 2. Bugfix

### 2.1 Axis Control

- (2.801) The overflow of the angle function using registers 1xy230 and 1xy231 did not function properly.
- (2.801) From version 2.770 onwards, speed correction (command 150) for linear interpolation with different encoder resolutions would be activated automatically at start-up of the controller. Unfortunately, a change of speed in combination with an interpolation did not function any more then. For this reason, the correction will not be activated automatically any more from this version onwards. Please mind further that, if correction has been activated, any changes of speed in combination with an interpolation will be carried out without a ramp.
- (2.803) When speed correction was active during linear interpolation (command 150), it sometimes occurred that an internal value became too great. Consequently the start ramp was ignored.
- (2.803) Starting from version 2.744, the end of the stop ramp was run with very rough behaviour. The same error occurred during very short positioning runs (interpolations).
- (2.803) The initial value of register 1xy063 (max. print mark correction) was changed to 65535.
- (2.804) Various error corrections with respect to machine referencing without stopping (command 23) for the axis types JX6-SV, JX6-DIMA3 and JX6-DIMA4. In earlier versions, serious tracking errors and position jumps occurred. Machine referencing without taking into account the K0 signal did not run smoothly either.
- (2.804) When activating (command 1) a JX6-DIMA4 axis, a considerable jerk occurred. The reason was that variables of the speed controller had not been initialized.
- (2.804) Command 15 (disabling the search for reference) was extended for the axes JX6-SV, JX6-DIMA3 and JX6-DIMA4.
- (2.804) Monitoring the temperature of the motor is now filtered more in the JX6-CON.
- (2.804) Initialization of the stepper motor axis was corrected. From now on, the initialization of registers 1xy008 and 1xy069 need not be forced anymore.
- (2.806) From the version 2.804 the reference run of the stepper motor didn't work probably.
- (2.807) Since version 2.770, speed pre-control has not been working anymore with respect to the 2D-circle. Speed was only calculated again when reg. 51 was written.
- (2.808) Relative mode did not work anymore in connection with the stepper motor axis. The problem occurred when a positioning run was started using the value of the current actual position.
- (2.809) Since version 2.764, the motor shaft position via register 1xy209 (JX6-DIMA3) has not been working anymore for the second axis.

- (2.810, 2.905) When using a stepper motor axis, registers 17 and 18 always had to be written prior to register 8 when the axes were initialized. Starting from this version, this forced order is eliminated.
- (2.810) Since version 2.764, the master overflow register 1x2096 for the follower function using different slots has not been working.
- (2.811) Up to this version, register 17 was not calculated internally with quadruple evaluation when using SV, SM or virtual master in the third slot. This caused different errors. The problem was eliminated as soon as register 17 was written once.
- (2.812) If, with SV or SM axes, the corresponding digital input has been active before the limit switch was deactivated, the limit switch bits stored in the status register were not deleted. In this case, a subsequent machine referencing was not correct.
- (2.812) For the JX6-CON1 and JX6-CON+ a software filter for the motor thermoswitch with DIMA3 has been activated. This filter inhibits the temperature bit for about 200 milliseconds.
- (2.912) The set speed for SV and SM axes was always calculated incorrectly by 1%. Consequently, the axes moved 1% faster than defined in register 3.
- (2.912) Table mode: Some special values of max. positions and number of table elements (registers 58 and 55) caused a tracking error in case of overflow.
- (2.914) SV axis: The print mark mode did not work when reversal of direction of the axis was set.  
The print mark signal is now ignored when the print mark window is left.
- (3.000) SV axis: The fast capture mode (50µs) did not work when reversal of direction of the axis was set.