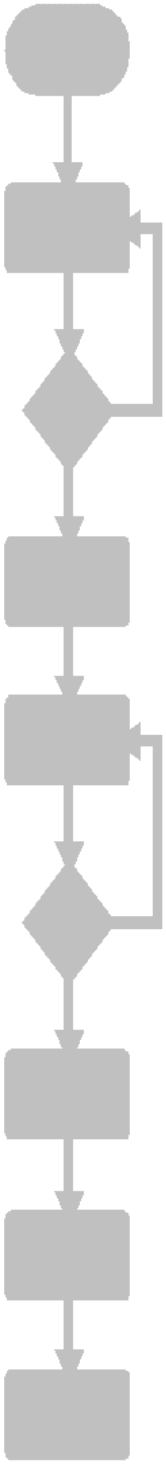

JetMove D203
Version Update
from V2.11 to V2.13

Jetter

Rev. 1.01

16.02.2011/ Printed in Germany

JETTER AG reserve the right to make alterations to their products in the interest of technical progress. These alterations will not necessarily be documented in every single case.

This manual and the information contained herein have been compiled with due diligence. However, JETTER AG assume no liability for printing or other errors or damages arising from such errors.

Table of contents

1 Introduction

Version Update - Overview			
Version	**Feature**	**New**	**Fixed**
V2.13.0.0	New Hiperface encoder types available	✓	
	3-phase space vector modulation	✓	
	Deactivation of modulation type adaption	✓	
	Evaluation at the end of torque-controlled shut-off	✓	
	Time-controlled positioning	✓	
	Step change when switching into the same table		✓
	Monitoring of software limit switches during machine referencing		✓
	Emergency stop within a deceleration ramp		✓
	Emergency stop within an acceleration ramp		✓
	New target position during acceleration		✓
	Encoder initialization		✓
	Step change in the case of "MotionStop" at a modulo break		✓
	Controller enable/disable with current pre-control activated		✓

2 New Features

2.1 New Hiperface encoder types available

(# 1001) As of version 2.11.0.01 Hiperface encoder types SEK52 and SEK37 (R577 encoder type = 17), as well as SEL52 and SEL37 (R577 encoder type = 18) are supported.

2.2 Sine modulation replaced by 3-phase space vector modulation

(# 1389) As of version 2.12.0.03 sine modulation (R227 = 1) has been replaced by 3-phase space vector modulation. That is, its major disadvantage - an output voltage which was 15 % lower - has been eliminated.

2.3 Defined deactivation of modulation type adaption

(# 1126) As of version 2.11.0.02 the modulation type is reset to its default value (register R228 = 0) when adaption for pulse-width modulation is deactivated (register R227 = 0 2-phase space vector modulation). This will prevent a currently active 3-phase space vector modulation from remaining active.

2.4 Evaluation at the end of torque-controlled shut-off

(# 1056) When the speed-controlled shut-off threshold is reached, dwell time starts. This dwell time is controlled by the application program. During dwell time additional evaluations can be carried out. First, a delay is programmed to translate the stopping process into dwell. Then, the mean and peak values of motor current, and RPM peak value are evaluated. Evaluation may take a maximum of 4 seconds. Command 29 is issued to terminate evaluation.

This feature is available as of version 2.11.0.02.

Register 660: Delay until evaluation	
Function	**Description**
Read	Present delay time
Write	New delay time
Type/unit	Integer/[ms]
Value range	0 ... 65535 [ms]
Value after reset	10 [ms]

When the speed-controlled shut-off threshold is reached, the program waits for the delay time until additional evaluation starts.

Register 661: Evaluation: Motor current mean value	
Function	**Description**
Read	After evaluation, this register contains the motor current mean value during dwell time.
Write	Illegal
Type/unit	Float / [A_{rms}]
Value after reset	0 [A_{rms}]

Register 662: Evaluation: Motor current peak value	
Function	**Description**
Read	After evaluation, this register contains the motor current peak value during dwell time.
Write	Illegal
Type/unit	Float / [A_{rms}]
Value after reset	0 [A_{rms}]

Register 663: Evaluation: RPM peak value	
Function	**Description**
Read	After evaluation, this register contains the RPM peak value during dwell time.
Write	Illegal
Type/unit	Float / [RPM]
Value after reset	0 [RPM]

2.5 Time-controlled positioning in triangular mode

(# 1452) As of version 2.12.0.03, command 21 "Time-controlled absolute positioning in triangular mode" is available for command register R101.
For this command the following new registers have been added:

Register 226: Ratio of ramps	
Function	**Description**
Read	Actual ratio of ramps
Write	New ratio of ramps
Type/unit	Float/[%]
Value range	0.001 ... 99.999 [%]
Value after reset	50.0 [%]

Ratio of ramps defines the acceleration/deceleration ratio of a positioning motion. A ratio of 50 % means that acceleration and deceleration times are the same.

Description:
Command 21 triggers a positioning motion in triangular mode. The motion consists of acceleration and deceleration only. In triangular mode there is no constant velocity.

Before command 21 is executed parameters must be entered into the following registers:
- R102 Target position
- R104 Positioning time
- R226 Ratio of ramps

Once value 21 has been entered into command register R101, the following registers are calculated:
- R103 Set speed
- R105 Acceleration
- R106 Deceleration

Note: The results of these calculations will not be verified. It's the user's responsibility to choose input parameters such that the resulting positioning motion does not exceed any of the maximum values specified during axis definition (Reg 184 Max. speed, Reg 180 Max. acceleration, Reg 181 Max. jerk).

After these settings have been made, a normal absolute positioning will be started, just as entering command 10 into R101.

The following calculations will be carried out:

Taccel = R104 Positioning time * R226 Ratio of ramps / 100.0
Tdecel = R104 Positioning time – Taccel
S = abs(R102 Targe position – R130 Set position)
R103 Set speed = 2 * S / R104 Positioning time
R105 Acceleration = pi * R103 Set speed / (2 * Taccel)
R106 Deceleration = 2 * R103 Set speed / Tdecel

3 Corrections

3.1 Step change when switching into the same table

(# 1000) If the drive was operated at a master axis speed of R189 > 0 and the same table was activated by means of command 46, the value in register R434 PosDiff.Slave changed, so far. This change was as great as the product of speed R189 * table gradient at the coupling point * scan time Ts (= 2 ms).

As of version 2.11.0.01 this problem has been resolved.

3.2 Monitoring of software limit switches

(# 1002) During machine referencing monitoring of software limit switches was disabled by JetMove. Nevertheless, it could happen that error 17 was issued if the axis exited the range of the software limit switches during referencing.

As of version 2.11.0.01 this problem has been resolved.

3.3 Emergency stop within a deceleration ramp

(# 1043) The deceleration ramp of a non-linear positioning movement can only be exited by starting a new linear positioning.

So far, for modulo axes this limitation resulted in the following effect:
If the braking distance is not sufficient, JetMove aborts the movement with constant deceleration. The axis is then located in front of or behind the target position. Therefore, the JetMove moves the axis to the original target position.

This behavior is not accepable for emergency stop applications and has been changed as of version 2.11.0.02 as follows:

Depending on the required or available braking distance the setpoint generator adds further modulo turns in the direction of movement. This way, the axis comes to a halt exactly at the target position.

3.4 Emergency stop within an acceleration ramp

(# 1183) The acceleration ramp of a non-linear positioning movement can only be exited by starting a new positioning movement.

So far, for modulo axes this limitation resulted in the following effect:
If the braking distance is not sufficient to reach the new target position, JetMove aborts the movement with constant deceleration. The axis is then located in front of or behind the target position. Therefore, the JetMove moves the axis to the original target position.

This behavior is not accepable for emergency stop applications and has been changed as of version 2.11.0.02 as follows:

Depending on the required or available braking distance the setpoint generator adds further modulo turns in the direction of movement. This way, the axis comes to a halt exactly at the target position.

3.5 New target position during acceleration

(# 1286) If during an acceleration a new, significantly shorter target position is set, it can happen that the velocity reduces to very low values and the axis crawls to the target position extremely slowly.

As of version 2.11.0.02 this problem has been resolved.

3.6 Encoder initialization

(# 1396) The JetMove automatically recognizes resolvers and Hiperface encoders when it is powered on. If another type of encoder is used, JetMove fails to reliably initialize it along with the motion commands "MotionClearError" and "MotionLoadParameter".

As of version 2.12.0.03 this problem has been resolved.

3.7 Step change in the case of "MotionStop" at a modulo break

(# 1454) So far, for modulo axes the following phenomenon could occur:
If in operating mode "electronic gearbox" a "MotionStop" command is issued exactly at the modulo break, a step change occurs which may cause the tracking error monitoring system to disable the axis.

As of version 2.12.0.03 this problem has been resolved.

3.8 Controller enable/disable with current pre-control activated

(# 1532) So far, under the condition that current pre-control is activated and the command is issued while the axis is moving, controller enable/disable could cause the axis to move stepwise.

As of version 2.11.0.04 this problem has been resolved.