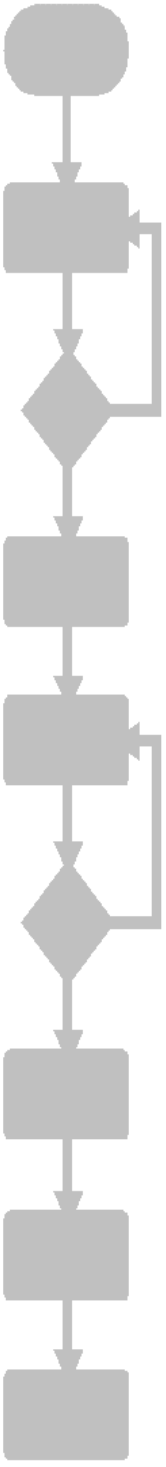

# JetMove 600

# Technical Information

# Version Update

# V1.19 - V1.20

Jetter

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# Table of Contents

# 1 Introduction

| Versions-Update Overview | | | |
|---|---|---|---|
| **Version** | **Function** | **extended** | **correction** |
| V1.20 | Special Limit Switch Function | ✓ | |
| | Register 1x004 "Positioning Mode" | ✓ | ✓ |
| | Register 1x171 "Function Reference Point Shift" | | ✓ |
| | Command 3 "Set Reference" | | ✓ |
| | Register 1x160 "ENCMODE" | ✓ | |
| | Axis Type – Modulo | ✓ | |
| | Register 1x097 "Error2" | ✓ | |
| | Busy-bit for point-to-point positioning start | | ✓ |
| | Register 1x120 "Tracking Error Limit" | ✓ | |
| | Register 1x019 "Table Number" | ✓ | |
| V1.19 | Oszilloscope-Function | ✓ | |
| | Command 100 "Reset Error" | | ✓ |
| V1.18 | New register: 1x000 "Control Register" | ✓ | |
| | Special Limit Switch Function | ✓ | |
| | IN-POS-bit in register 1x100 "Drive Status1" | | ✓ |

# 2 Modifications / New Functions

## 2.1 Special Limit Switch Function

This function is introduced in version 1.18; it has been changed as follows:

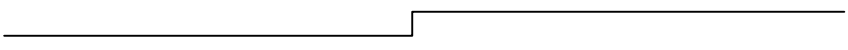
Before, it would only work correctly while point to point positioning or endless positioning was active. Now, it will always be applied to the limit switches, when control register bit 20 is set.

The hardware signal for the reference switch will stay the same, but the signal for the limit switches will be inverted (low active): If either one of the limit switches is active, the signal is low (0); if neither of them is active, the signal is high (1))

Operation range:



Reference signal:



Hardware limit switch signal:

**Function table**

Digital Input 1 = I1 = Reference signal (high active)
Digital Input 2 = I2 = Limit switch signal (low active)
Digital Output 1 = O1 = Positive limit switch signal
Digital Output 2 = O2 = Negative limit switch signal

| I1 | I2 | O1 | O2 | Action |
|---|---|---|---|---|
| L | L | H | L | Negative limit switch is active |
| H | L | L | H | Positive limit switch is active |
| L | H | H | H | No limit switch is active |
| H | H | H | H | No limit switch is active |

H = HIGH voltage level
L = LOW voltage level

Please refer to the update from version 1.17 to version 1.18 to get more information about this function.

## 2.2 Register 1x160 "ENCMODE"

It is possible to control the ENCMODE via the SB-Interface, e.g. for changing the master - slave configuration of a drive during the process.

| Register 1x160 ENCMODE | |
|---|---|
| **Function** | **Description** |
| Read | Actual ENCMODE |
| Write | Set ENCMODE<br>0 = Encoder emulation switched off (Input)<br>1 = EEO (ROD) output<br>2 = SSI output<br>3 = EEO (ROD) interpolation mode |
| Writing Restrictions | - |
| Valid | Immediately |
| Value Range | 0, 1, 2, 3 |
| Unit | - |
| DRIVE | Encoder Emulation (Function Group: Encoder) |
| ASCII | ENCMODE |
| Value after reset | Latest saved value of ENCMODE in the EEPROM of the drive. |

## 2.3 Axis Type - Modulo

For a modulo axis, the user sets a negative position and a positive position. The position (register 1x109 "Actual Position", ASCII parameter PFB) will then be set to the value of the max. positive position – 1 (internal counts), if the axis exceeds the negative position; and it will be set to the value of max. negative position, if the axis exceeds the max. positive position – 1 (internal counts). The modulo function, when selected, is always active (in all opmodes) except during reference run.

Absolute and relative point-to-point positioning: A given absolute setpoint position has to be located between the modulo borders. If this is not the case, the warning n08 will occur. A relative setpoint position will automatically be corrected. This way, the setpoint position will always be located between the modulo borders. As it is the case for point-to-point positioning with other axis types, it is necessary to carry out a reference-run first.

A setpoint position can be approached from negative or positive direction. The user can determine this direction.

To set up this axis type, the following registers must be used:

In register 1x007 "Axis Type" select 2 for modulo axis, see SB-Manual. Then set the borders and the preferred direction using the following new registers:

| Register 1x184 Max. Negative Position | |
|---|---|
| **Function** | **Description** |
| Read | Actual max. negative position |
| Write | Set max. negative position |
| Writing Restrictions | - |
| Valid | Immediately when BUSY-bit has been reset. |
| Value Range | - 8,388,608 … 8,388,607 (the value must be smaller than the value of the max. positive position) |
| Unit | Extern counts (External counts, depending on the value of register 1x006 "Position Resolution”) |
| DRIVE | Modulo start pos. (Function Group: Position Data) |
| ASCII | SRND |
| Value after reset | Latest saved value of SRND in the EEPROM of the drive. (Attention: Internal counts can differ from external counts, depending on the value of register 1x006 "Position Resolution”) |

| Register 1x185 Max. Positive Position | |
|---|---|
| **Function** | **Description** |
| Read | Actual max. positive position |
| Write | Set max. positive position |
| Writing Restrictions | - |
| Valid | Immediately, when BUSY-bit has been reset. |
| Value Range | - 8,388,608 … 8,388,607 (value must be greater than the value of max. negative position) |
| Unit | Extern counts (External counts, depending on the value of register 1x006 "Position Resolution”) |
| DRIVE | Modulo end pos. (Function Group: Position Data) |
| ASCII | ERND |
| Value after reset | Latest saved value of ERND in the EEPROM of the drive. (Attention: Internal counts can differ from External counts, |

| | |
|---|---|
| | depending on the value of register 1x006 "Position Resolution") |

| Register 1x008 Modulo Direction | |
|---|---|
| **Function** | **Description** |
| Read | Actual direction |
| Write | Set direction<br>0 = negative direction<br>1 = positive direction |
| Writing Restrictions | - |
| Valid | Next point-to-point positioning. |
| Value Range | 0, 1 |
| Unit | - |
| DRIVE | - |
| ASCII | DREF |
| Value after reset | 1 |

This register is only used for point-to-point positioning. In endless positioning, the direction is determined by commands 56 and 57.
The positive / negative turning direction of the physical axis is determined by the ASCII parameter DIR (Rotary Direction, Function Group: Speed).

## 2.4 Register 1x097 "Error2"

| Register 1x097 Error2 | |
|---|---|
| **Function** | **Description** |
| Read | Actual error information of errors numbered F25 through F32 |
| Write | Not permitted |
| Value Range | bit-oriented, 24 bit |
| Unit | - |
| DRIVE | Actual Errors (Function Group: Drive Status) |
| ASCII | ERRCODE |
| Value after reset | Actual error information of errors numbered F25 through F32. |

Meaning of the individual bits:

| Bit | Displ. | Reset | Level | Description |
|---|---|---|---|---|
| **00** | F25 | HW | 3,4 | **Commutation Error**<br>Set (1): Run-away of motor<br>Reset (0): Command 100, amplifier reset.<br><br>ASCII Cross-Reference:<br>ERRCODE * Bit 24 |
| **01** | F26 | SW | 2,4 | **Search for Reference / Machine Home Operation: Hardware limit switch error**<br>Set (1): A forbidden hardware limit switch state has occurred during home operation with NREF 1-4<br>Reset (0): Command 100, amplifier reset.<br><br>This bit is mirrored in register 1x100 "Drive Status1".<br>ASCII Cross-Reference:<br>ERRCODE * Bit 25 |
| **02** | F27 | HW | 4 | **AS-Option Error**<br>Set (1): Hardware Enable signal is high; the AS-option is activated.<br>Reset (0): Command 100, amplifier reset.<br><br>ASCII Cross-Reference:<br>ERRCODE * Bit 26 |
| **03** | | | | **RESERVED** |
| **04** | | | | **RESERVED** |
| **05** | | | | **RESERVED** |
| **06** | | | | **RESERVED** |

| | | | | |
|---|---|---|---|---|
| **07** | F32 | HW | 4 | **System Error**<br>Set (1): Either an error has occurred in the system check during the initialization phase, or a watch-dog error has occurred during the working phase.<br>The following reasons are possible:<br>1. Wrong program data in the FLASH (e.g. interrupted program download)<br>2. The Software watch-dog had been activated<br>3. Error regarding the EEPROM (read or write).<br>5. FPGA error (FPGA could not be loaded correctly).<br><br>At switching on the drive, a detailed message will be sent via RS232.<br>Reset (0): Command 100, amplifier reset.<br><br>ASCII Cross-Reference:<br>ERRCODE * Bit 31 |

See user manual under "Register 1x096 'Error1'" for the explanation of individual columns.

# 2.5 Register 1x120 "Tracking Error Limit"

The default value used to be 8,388,607. Now, the default value is the latest saved value of PEMAX in the EEPROM of the drive. (Attention: Internal counts can differ from External counts, depending on the value of register 1x006 "Position Resolution").

# 2.6 Register 1x004 "Positioning Mode"

The following choices are added:

- 10: Table Mode -> Absolute
- 11: Table Mode -> Relative (See Positioning Mode = 1)
- 12: Table Mode -> Relative (See Positioning Mode = 2)
- 13: Table Mode -> Relative (See Positioning Mode = 3)

**Attention:** This table mode is very different from the table mode known of other Jetter products e.g. CAN-DIMA, JX2-SV1 etc. It may be applied by authorized personnel only.

# 2.7 Register 1x019 "Table Number"

Number of stored table which is to use for the table mode (see register 1x004).
**Attention:** This table mode is very different from the table mode known of other Jetter products e.g. CAN-DIMA, JX2-SV1 etc. It may be applied by authorized personnel only.

| Register 1x019 Table Number | |
|---|---|
| **Function** | **Description** |
| Read | Actual table number |
| Write | Set table number |
| Writing Restrictions | - |
| Valid | Immediately |
| Value Range | 0 … 1 |
| Unit | - |
| DRIVE | - |
| ASCII | - |
| Value after reset | 0 |

# 3 Error Correction

## 3.1 Register 1x004 "Positioning Mode"

Although writing new values into 1x004 worked correctly, the register contents could not be reset to the first register value. Especially reset to default value 0 would not work. This has been corrected now.

## 3.2 Register 1x171 "Function Reference Point Shift"

While using register 1x171, the value of register 1x003 "NREF" could be changed. Further, when a value different from 0 had been written into register 1x171, the value in register 1x102 "Setpoint position" would still be set to 0.
This has been corrected now. Register 1x003 is not influenced by writing into register 1x171, and register 1x102 will now always contain the value of register 1x171 after having been written into.

## 3.3 Command 3 "Set Reference"

While using command 3, the value of register 1x003 "NREF" could be changed. This has been corrected now. Register 1x003 is not influenced any more by issuing command 3.

## 3.4 Busy-Bit for Starting Point-to-Point Positioning

If point-to-point positioning is started and another positioning run is to be started shortly after the first one, warning n08 will occur because the amplifier is still busy processing the initialization of the first start while a second positioning arrives. The busy-bit (register 1x100, bit 13) will remain set as long as the amplifier is initializing a positioning start. Users are requested to read the busy-bit before carrying out the next positioning run, if the next positioning is shortly after the first one, and if the AXARR statement is not used in between the two positioning statements.