



## JetMove 1xx

Version update from V. 2.14 to V. 2.15

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Version 1.00

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# 1 Version update - Overview

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## Overview - Version 2.15.0.00

The following table gives an overview of newly added or enhanced features and fixed software bugs:

Function	New	Enhanced	Fixed
Incremental encoder resolution up to 65535		✓	
PID controller - Displaying the integral-action component both in a register and by the oscilloscope		✓	
Displaying further registers by the oscilloscope		✓	
Indicating the error number by an LED		✓	
CAN diagnostics	✓		
Tracking error after switching the mechanical gear ratio (R194 and R195)			✓
Write access to R219: Control deviation of PID controller			✓
First positioning after power enable			✓

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## 2 Enhanced features

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### 2.1 Incremental encoder resolution

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#### Increased incremental encoder resolution value

#### Incremental encoder resolution value increased to 65535 increments/revolution

(#650) From version 2.14.0.01 onwards, the incremental encoder resolution can be increased up to 65535 increments per revolution.

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### 2.2 PID controller

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#### Availability within the oscilloscope

#### PID controller - Displaying the integral-action component both in a register and by the oscilloscope

(#3576) From version 2.15.0.00 onwards, the integral-action component can be read out of register R259 of the PID controller.

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### 2.3 Displaying further registers by the oscilloscope

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#### PID controller

#### (# 3578 and #3576) From version 2.15.0.00 onwards, the following additional registers are available in the oscilloscope:

- R259: Integral-action component of the PID controller
  - R249: Encoder2 – Position, angle
  - R250: Encoder2 – Position, revolutions
  - R251: Encoder2 – Speed in rpm
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### 2.4 Error number

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#### Indicated by LED

#### (#3715) From version 2.15.0.00 onwards, all error numbers can be indicated via LEDMode by the red LED:

From version 2.15.0.00 onwards, the display can be switched via LEDMode (register 1x541 = 4) so that the red LED indicates all error numbers.

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## 2.5 CAN diagnostics

### CAN

From version 2.15.0.00 onwards, the user can read the CAN status out of the following registers:

Register 1x470 – CAN error and status register (read only):

Bit no.	Message	Bit state	Description
8	FE		Form error flag
		1	A form error occurred on the bus. This means that one or more of the fixed-form bit fields had the wrong level on the bus.
		0	No form error detected; the CAN module was able to send and receive correctly.
7	BE		Bit error flag
		1	The received bit does not match the transmitted bit outside of the arbitration field or during transmission of the arbitration field. A dominant bit was sent but a recessive bit was received.
		0	No bit error detected.
6	SA1		Stuck at dominant error. The SA1 bit is always at 1 after a hardware reset, a software reset, or a <i>Bus Off</i> condition. This bit is cleared when a recessive bit is detected on the bus.
		1	The CAN module has not detected a recessive bit.
		0	The CAN module has detected a recessive bit.
5	CRCE		CRC error
		1	The CAN module has received a wrong CRC.
		0	The CAN module has not received a wrong CRC.
4	SE		Stuff error
		1	A stuff bit error occurred.
		0	No stuff bit error occurred.
3	ACKE		Acknowledge error
		1	The CAN module received no acknowledge.
		0	All messages have been correctly acknowledged.
2	BO		See 2): <i>Bus Off</i> state. The CAN module is in <i>Bus Off</i> state.
		1	There is an abnormal rate of errors on the CAN bus. This condition occurs when the transmit error counter (CANTEC) has reached the limit of 256.

Bit no.	Message	Bit state	Description
			During <i>Bus Off</i> , no messages can be received or transmitted. The <i>Bus Off</i> state can be exited by setting the <i>Auto Bus On (ABO)</i> (CANMC.7) bit and after 128 * 11 receive bits have been received. After leaving <i>Bus Off</i> , the error counters are cleared.
		0	Normal operation
1	EP		Error-passive state
		1	See 1): The CAN module is in error-passive mode. CANTEC has reached 128.
		0	The CAN module is in error-active mode.
0	EW		See 3): Warning state
		1	One of the two error counters (CANREC or CANTEC) has reached the warning level of 96.
		0	Values of both error counters (CANREC and CANTEC) are less than 96.

**Register 1x471 – CAN transmit error register (read only): 0...255**

**Register 1x472 – CAN receive error register (read only): 0...255**

**New errors, new warning:**

**F44 CAN error passive state**

**F44 CAN *Bus OFF* state**

**W10 CAN Warning state**

## 3 Fixed

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### 3.1 Tracking error

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**Mechanical gear ratio**

**Tracking error after switching the mechanical gear ratio**

(#2761) In earlier versions, tracking error monitoring could be provoked by setting specific gear ratios (R194: Motor revolutions, R195: Load revolutions, R196: Lead screw pitch).

From version 2.14.0.01 onwards, this behavior does not occur any more.

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### 3.2 PID controller - Control deviation

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**R219**

**Write access to R219: Control deviation of PID controller**

(#3575) In earlier versions, the manipulated variable of the PID controller (R225) could be set by write access to R219: Control deviation of the PID controller.

From version 2.15.0.00 onwards, this behavior does not occur any more.

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### 3.3 First motion after power enable

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**Absolute and relative positioning**

**Relative positioning after power enable is possible as well**

(#3623) In earlier versions, only absolute positioning was allowed to be carried out after power enable. Relative positioning was not reliable.

From version 2.15.0.00 onwards, relative positioning can also be the first motion after power enable.

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