JX3-DMS2

Version update

from V. 1.03 to V. 2.00

Version Update

Jetter

Version 1.11
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1 Introduction

Introduction

This chapter shows the history of OS versions.

Operating system update - why?

An operating system offers you the following opportunities:

- Adding new functions to your device
- Fixing software bugs
- Transmitting an OS of a certain state, e. g. a new OS release

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Operating system update

OS file for an operating system update

For an OS update, you will need the following file:

OS file	Description
JX3-DMS2_2.00.0.00.os	OS file for JX3-DMS2 with version 2.00.0.00.

Downloading the OS file

Jetter AG provides OS files for operating system download on our **homepage http://www.jetter.de**. OS files can be found in the support area. Another option is to follow the quick link on the JX3-DMS2 page.

OS update by means of JetSym

To update the OS, proceed as follows:

Step	Action
1	Download the OS file from www.jetter.de.
2	Establish a connection between PC and controller.
3	Execute the menu item Build > Operating System Update in JetSym.
4	Select the OS file.
5	Depending on the controller and on the module, the following items have to be specified: ■ Module number ■ Submodule position ■ Slave number ■ I/O module number
6	Start the operating system update by clicking OK.
7	**Result:** Following Power OFF/Power ON the new OS is launched.

JX3-DMS2 version update - Overview

V. 2.00.0.00

The following table gives an overview of newly added features and fixed software bugs in operating system version 2.00.0.00:

Description	New	Fixed
Unipolar mode:		
Unipolar mode can be activated to increase the resolution of measurements.	✓	
Commands:		
MR 1y01: Commands 300, 301 and 302 let you configure unipolar mode.	✓	
MR 1y01: Commands 112 and 113 let you enable and disable a channel.	✓	
Error detection:		
Scaling error	✓	
LEDs D1 and D2:		
LEDs D1 and D2 indicate an error of the corresponding channel.	✓	

2 New features

Introduction

Jetter AG are continuously striving to add new features and functions to the module JX3-DMS2. By updating your OS you are given the possibility to take advantage of the new functionality. To do so, you need the following ...

- an OS file
- the software tool JetSym
- a connection between PC and controller

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Unipolar mode

Introduction

Unipolar mode lets you limit the measuring range. Thus, the full A/D converter resolution is "concentrated" to a smaller analog value range.

Depending on selection, either positive or negative input signals can be processed.

MR 1y01

New commands for analog input y

Implementation of unipolar mode adds the following three new commands:

Commands	
300	Disable unipolar mode
301	Enable unipolar mode for positive range
302	Enable unipolar mode for negative range

MR 1y00

New status indication for analog input y

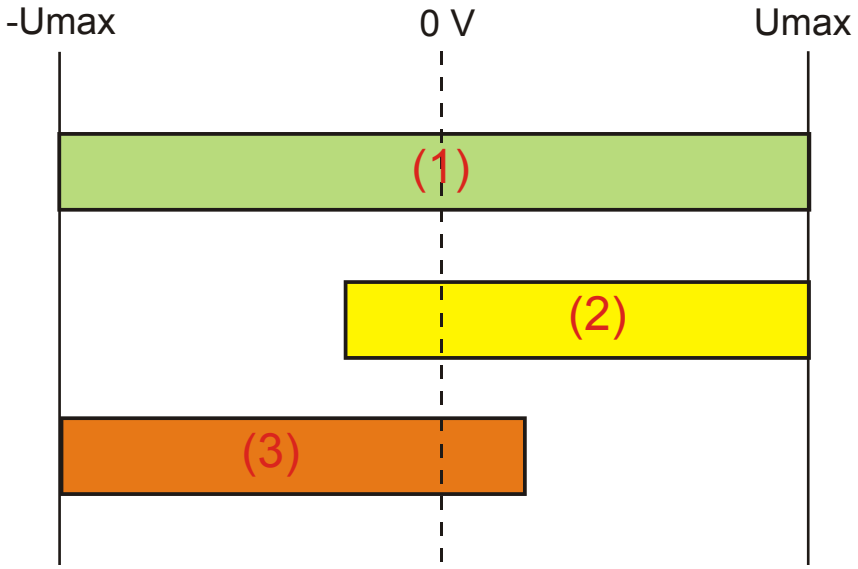
If bit 2 in status register 1y00 is set, unipolar mode has been enabled through command 301, or 302.

Meaning of the individual bits	
Bit 2	**Unipolar mode enabled or disabled**
	1 = Unipolar mode has been enabled through command 301, or 302.

Module register properties	
Type of access	Read access
Value after reset	Depending on state and error messages of the module

Permissible measuring range

The illustration below shows the permissible measuring range depending on the mode.



Element	Description
(1)	Normal mode
(2)	Unipolar mode for positive range
(3)	Unipolar mode for negative range

The value U_{max} is calculated by the following formula:

$$U\,\mathrm{max} = \frac{2{,}5V}{Set\ gain}$$

If the expected measured value is mostly within the positive range (2), command 301 lets you increase the resolution by narrowing the measuring range to about 70 %. Use command 302 if the measured value is mostly within the negative range (3).

Requirements

To be able to use unipolar mode, the following requirements must be met:

- The analog signal to be expected must not swing into the "other" range by more than 15 % of U_{max}. Example: A mostly positive measured value may swing into the negative range by 15 % without causing an error.
- The selected sensitivity must be higher than 2 mV/V. This corresponds to a gain of less than 500.
  To spread the signal to a wider range, command 301 or 302 lets you increase the gain internally. The maximum gain of JX3-DMS2 is 1058.

Calibration procedure

Consider the following: We proceed from the assumption that sensor sensitivity has been set in MR 1y11.

Enable or disable unipolar mode **first**. Then calibrate the zero point. Otherwise, absolute values may offset.

Also, set ADC rate using commands 103 through 107 before you start zero point calibration.

Enter the commands in the following order:

Command	Description
301	Enable unipolar mode
210	Calibrate zero point
220	Calibrate second measuring point

Enabling/disabling a channel

Introduction

Disabling one of the channels lets you reduce the time required for conversion. In "ultra fast mode" the time "< 4 ms" is reduced by 1 ms.

MR 1y01

New commands for analog input y

The new commands below let you enable or disable channel y:

Commands	
112	Disable channel y
113	Enable channel y

New LED features

LEDs on the module

The JX3-DMS2 module is equipped with four LEDs to display statuses and errors.

R	E	D1	D2	State
ON	OFF	OFF	OFF	No error, communication is active
ON	-	ON	-	Short circuit/overload - channel 1
ON	-	-	ON	Short circuit/overload - channel 2
ON	-	1Hz	-	Internal scaling error - channel 1
ON	-	-	1Hz	Internal scaling error - channel 2

Modified short-circuit indication

In version 1.x.x.x, LED D2 was permanently lit in the case of a short-circuit, irrespective of the short-circuited channel.

Starting from version 2.x.x.x the LED assigned to the short-circuited channel is lit (see illustration above).

To reset the error, de-energize the system and fix the short circuit.

Then, reset the collective bit by entering command 6 into MR 1y01.

New: Internal scaling error

If the measured values for command 210 and 220 have been set to the same value, the module is not able to perform user-defined scaling.

If this is the case, bit 1 in MR 1y00 is zero which indicates an internal scaling error.

If an internal scaling error has occured, the LED assigned to the corresponding channel is flashing at a rate of 1 Hz (see illustration above).

To reset this error, reconfigure the user-defined scaling by entering a minimum and maximum measured value.