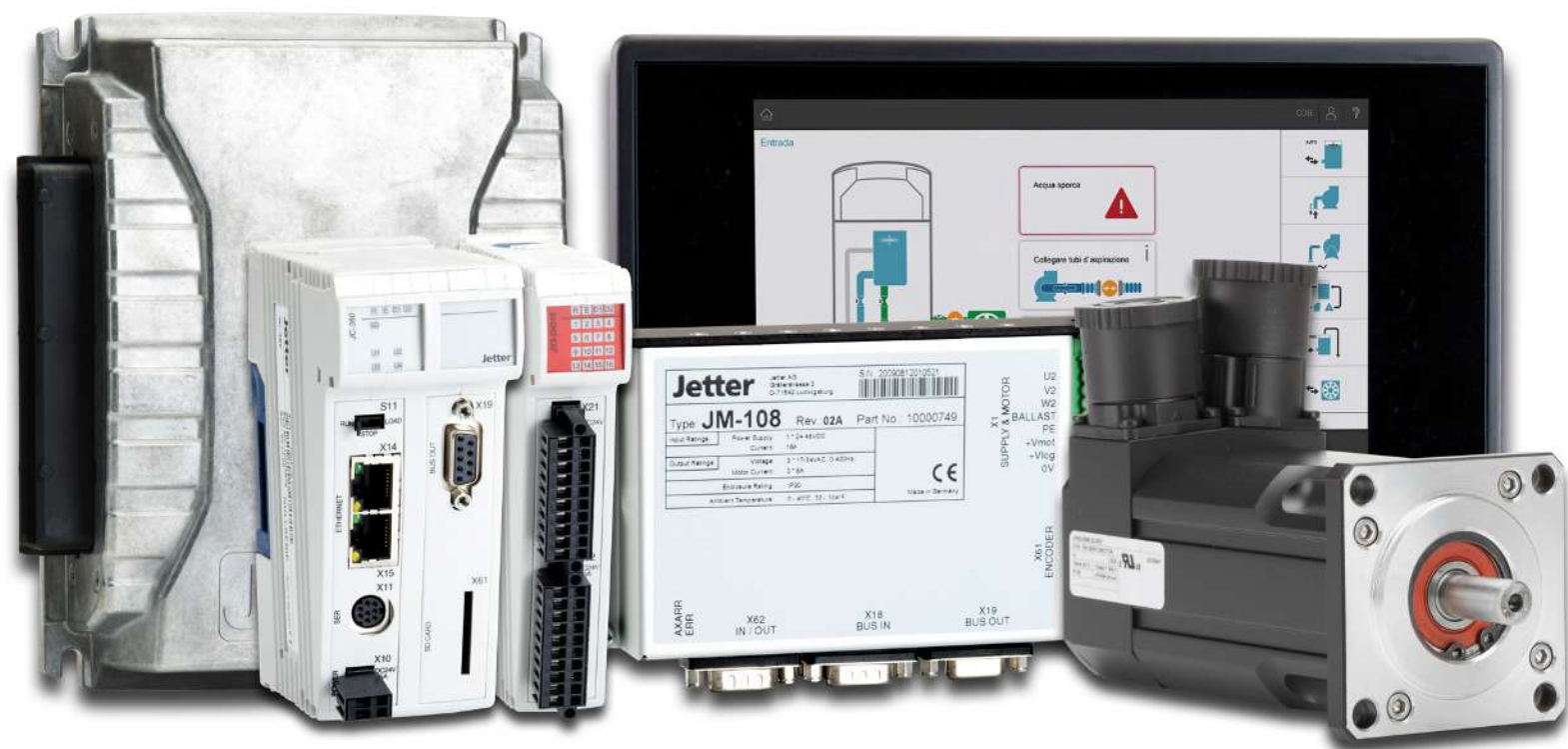


# OS version updates

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as of September 10, 2020

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Translation of the german original User Manual

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# 1 Introduction

This document describes the enhancements and bug fixes made to the following OS versions:

## OS versions per product line:

| Product    | Version   | CAN open | J1939 | MQTT | OPC UA | Ether CAT® | MC/MCX | Type     |
|------------|-----------|----------|-------|------|--------|------------|--------|----------|
| JC-340     | 1.34.0.00 |          |       |      |        |            |        | Industry |
| JC-350     | 1.34.0.00 |          |       |      |        |            |        | Industry |
| JC-365     | 1.34.0.00 | Yes      |       |      |        |            |        | Industry |
| JC-365MC   | 1.34.0.00 | Yes      |       |      |        |            | Yes    | Industry |
| JC-360     | 1.34.0.00 | Yes      |       |      |        |            |        | Industry |
| JC-360MC   | 1.34.0.00 | Yes      |       |      |        |            | Yes    | Industry |
| JC-940MC   | 1.18.0.00 |          |       |      |        |            | Yes    | Industry |
| JC-945MC   | 1.18.0.00 |          |       |      |        | Yes        | Yes    | Industry |
| JC-970MC   | 1.18.0.00 |          |       |      |        |            | Yes    | Industry |
| JC-975MC   | 1.18.0.00 |          |       |      |        | Yes        | Yes    | Industry |
| JC-440MC   | 1.10.0.00 | Yes      |       |      |        | Yes        | Yes    | Industry |
| JC-440EXT  | 1.10.0.00 | Yes      |       | Yes  | Yes    | Yes        | Yes    | Industry |
| JCM-501    | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-511    | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-521    | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-631    | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-104    | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-407B   | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-507B   | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-604B   | 4.12.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JV-1004    | 4.12.0.00 |          |       |      |        |            |        | Industry |
| JV-1005    | 4.12.0.00 |          |       |      |        |            |        | Industry |
| JV-1007    | 4.12.0.00 |          |       |      |        |            |        | Industry |
| JV-1010    | 4.12.0.00 |          |       |      |        |            |        | Industry |
| JC-310-JM  | 1.34.0.00 |          |       |      |        |            |        | Industry |
| JM-200-ETH | 1.34.0.00 |          |       |      |        |            |        | Industry |

Tab. 1: OS versions per product line

## Preconditions

To use the JetSym-dependent enhancements and bug fixes, at least JetSym version 5.6.1. is required.

## 2 New Enhancements

### 2.1 Industrial automation controllers - Enhancements

The enhancements mentioned here affect the following OS versions of the industrial control systems:

| OS version | Product   |
|------------|---|
| 1.34.0.00  | <ul style="list-style-type: none"> <li>– JC-340</li> <li>– JC-350</li> <li>– JC-365 / JC-365MC</li> <li>– JC-360 / JC-360MC</li> <li>– JC-310-JM</li> <li>– JC-200-ETH</li> </ul> |
| 1.18.0.00  | <ul style="list-style-type: none"> <li>– JC-940MC</li> <li>– JC-970MC</li> <li>– JC-945MC</li> <li>– JC-975MC</li> </ul>  |
| 1.10.0.00  | <ul style="list-style-type: none"> <li>– JC-440MC</li> <li>– JC-440EXT</li> </ul>   |

#### 2.1.1 JC-3xx: JetWay slave

As of this OS version, controllers of the JC-3xx series, equipped with an RS-485 interface, can be used as JetWay slaves.

The following requests from a JetWay master are supported:

1. 0x1: N-Hole register
2. 0x2: N-Send register
3. 0x1E: Block read access
4. 0x1F: Block write access



**Info**

Restriction: Access to float values is not possible.

#### Introduction to JetWay

JetWay is a proprietary RS-485-based fieldbus from Bucher Automation. JetWay makes it possible to network controllers (JetWay-H) and remote IOs (JetWay-R). The JetWay has not been implemented in modern controllers of the JetControl (JC-) type. By implementing a JetWay slave stack in the JC-3xx, plant sections, currently controlled by a NANO (JetWay slave), can be replaced e.g. with a JC-340. JC-340 registers as a JetWay slave in the network.

### Configuration registers

| Register          | Designation          | Description   |
|-------------------|----------------------|---|
| 103000            | Error                | See the list of error codes below.                      |
| 103001            | Protocol             | Additional value 4=JetWay slave                         |
| 103002            | Baud rate            | JetWay 115.2 kBaud<br>Alternatively 19.2 kBaud          |
| 103003            | Bits per character   | JetWay: 8   |
| 103004            | Stopbits             | JetWay: 1   |
| 103005            | Parity               | JetWay: 5   |
| 103006            |                      | JetWay: 3 = RS485                                       |
| 103010 ... 103018 | Error counter        |   |
| 103050            | JetWay slave address | JetWay address of the controller<br>Default: 2          |
| 103051            | Register offset      | Offset for JetWay register mapping.<br>Default: 1000000 |

**Tab. 2:** JetWay slave configuration register

### Configuration

The JetWay slave function is configured via the configuration registers mentioned above. If value 4 (= JetWay protocol) is entered into register 103001 (protocol), the required parameters for the JetWay protocol will automatically be entered into configuration registers 103002-103006.

### Error codes (register 103000)

Possible error codes are:

1. Bit 10: Command not supported
2. Bit 11: Command unknown
3. Bit 12: Overflow
4. Bit 13: Parity error
5. Bit 14: Framing error

## 2.2 Enhancements for MCX

The enhancements mentioned here affect the following OS versions of the controllers with MotionControl. As of the OS versions listed below, MCX version 1.20.0.98 is used in the operating system:

| OS version | Product  |
|------------|--|
| 1.34.0.00  | <ul style="list-style-type: none"> <li>– JC-365MC</li> <li>– JC-360MC</li> </ul>   |
| 1.18.0.00  | <ul style="list-style-type: none"> <li>– JC-940MC</li> <li>– JC-970MC</li> <li>– JC-945MC (EtherCAT® controller)</li> <li>– JC-975MC (EtherCAT® controller)</li> </ul> |
| 1.10.0.00  | <ul style="list-style-type: none"> <li>– JC-440MC (EtherCAT® controller)</li> <li>– JC-440EXT (EtherCAT® controller)</li> </ul>  |

### 2.2.1 Important for EtherCAT®-compatible controllers

If the controller OS version is used for JetSym 5.6.1, it is essential to use JetSym version 5.6.1 or a more recent version when using axes. In an already existing project, after updating the controller, the project must be opened in JetSym version 5.6.1. and the following actions must be performed:

- Changing the OS version on the CPU side
- Download the hardware configuration with the help of the "Compare and Download" dialog
- Restart the controller
- Delete the old Motion API from the library and include Motion API 2.0.0.5.
- Recompile and transfer the program.

### 2.2.2 Path orientation can take on negative values

In the kinematics "Cartesian-with-orientation-axes" and "Scara", a negative value can now also be used for the orientation position (previously only 0-360). With an orientation range of 0° to 360°, it could happen that the actual orientation was just in the negative range due to calculation inaccuracies. This caused the error 3002 "3D orientation not in the permissible range" to occur.

### 2.2.3 JC-365MC: Up to eight technology groups

Up to eight technology groups can now be used in one JC-365MC controller. Previously, only six technology groups were possible.



## 2.3 Enhancements for EtherCAT® controllers

The enhancements described here affect the following OS versions of the EtherCAT® controllers:

| OS version | Controllers   |
|------------|---|
| 1.18.0.00  | <ul style="list-style-type: none"> <li>– JC-945MC</li> <li>– JC-975MC</li> </ul>  |
| 1.10.0.00  | <ul style="list-style-type: none"> <li>– JC-440MC</li> <li>– JC-440EXT</li> </ul> |

### 2.3.1 EtherCAT® controllers: Saving the reference shift for absolute encoders

If axes with absolute encoders are used, a permanent offset between the position encoder zero point and the machine zero point must often be observed. This reference shift is now determined via the new instruction `MCAxis.MoveHome.SetAbsEncoderReference(double refPos;)`. In contrast to the instruction `MCAxis.MoveHome.SetReference(double refPos;)`, this instruction saves the determined reference shift in the non-volatile memory of the controller. When the controller is restarted, valid reference shifts in the memory are taken over directly in the corresponding axes and the axes are reported as referenced.

The reference shift can also be saved on a USB stick so that when the control system is replaced, valid reference descriptions can also be used in the new controller. A detailed description with all functions can be found in the document "Doku\_AbsolutEncoder\_RefShift.pdf" which can be requested from Jetter AG.

### 2.3.2 EtherCAT® controllers: Reading out the relevant data for absolute encoders

When using absolute encoders, there is now the new parameter "Max number of absolute revolutions". This parameter, in conjunction with the displayed resolution, can be used to infer the encoder type in the motor.

### 2.3.3 EtherCAT® controllers: Touch probe function possible also in groups and in all movement states

The touch probe function can now be used also with axes which work in an activated group. Furthermore, it can be used in all error-free movement states. No messages are now output in the MC logger when touch probe functions are successfully executed.

### 2.3.4 EtherCAT® controllers: Drive warnings can be read out

The drive warnings can be read out and displayed via the Motion API instructions and the Motion Setup.

### 2.3.5 EtherCAT® controllers: JM-3xxx: I<sup>2</sup>t of motor and devices can be evaluated

The I<sup>2</sup>t functions for monitoring the device temperature can now be used. New instructions are available both in the Motion Setup and in the Motion API to enable parameterization.

### 2.3.6 EtherCAT® controllers: JM-3xxx motor cable test also monitors interruption

Up to now, the motor cable test of the JM-3xxx has monitored only a short circuit of the motor phases. Now, when the axis is released for the first time, an interruption of the motor phases is also detected and an error is triggered.

**2.3.7 EtherCAT® controllers: Connection interruption results in an MCX error message**

Error 8700 is now also output for EtherCAT® axes if the connection to the axes is interrupted. The following error is output: "Synchronous Interface: Internal timing problem (check bus system) / Synchronous Interface: Internal timing problem (check bus connection). The error occurs with the axis which is the first to become inaccessible. This way, it is possible to localize on which axis module the EtherCAT® connection was interrupted. This error means that the controller must be restarted after establishing the EtherCAT® connection.

**2.3.8 EtherCAT® controllers: ANG: Encoder on X410 and X412 can be used as 2nd encoder**

Due to a change in the firmware of the ANG, all encoders on the two connectors can now also be used as first and second encoders. In particular, an incremental encoder on X410 can now also be used as a second encoder (if, for example, an EnData encoder is connected to X412 as the first encoder).

**2.3.9 EtherCAT® controllers: OS update mechanism for JM-3000**

JetSym can now also be used to update the OS of JM-3000.

**2.3.10 EtherCAT® controllers: No support for outdated JM-3xxx firmware**

JM-3xxx with an OS version older than version 2.x. are no longer supported.

**2.4 Mobile automation controllers - Enhancements**

The enhancements mentioned here affect the following OS versions of the mobile control systems:

| OS version | Product    |
|------------|------------|
| 4.12.0.00  | – JCM-501  |
|            | – JCM-511  |
|            | – JCM-521  |
|            | – JCM-631  |
|            | – JVM-104  |
|            | – JVM-407B |
|            | – JVM-507B |
|            | – JVM-604B |

**2.4.1 J1939 SAEJ1939AddTx**

Special treatment must be observed for message TSC1. This includes a counter and a checksum. If you want to transmit this message to the bus, the message must be registered normally. The content of the current value on the bus is not transmitted to the STX variable. The content is not available for the application.

**Example:**

```
stateSAEJ1939Tx.byPriority = 3;
SAEJ1939AddTx (
    1.0x0000.8,1,SAEJ1939_BYTE,1,value,stateSAEJ1939Tx,10,10);
```

## 3 Bug Fixes

### 3.1 General Bug Fixes

The bug fixes mentioned below apply to the OS versions of all products.

#### 3.1.1 FileSeek does not position pointers correctly in large files

FileSeek() calculated the sector and offset incorrectly. This correction is included in tag 1.10.0.12.

#### 3.1.2 Length of the name of a DA file increased.

The permissible length of the name of a DA file has been increased from 32 to 256 characters.

#### 3.1.3 Modified behavior in the handling of system commands

Until now, when an application program was downloaded, the system password register was automatically rewritten; as a result, a system command could not be executed in some situations. From now on, the system password register is only rewritten when all system commands have been processed.

#### 3.1.4 IPPrim Client-Server closes connection before a response was received

In the case of a TCP connection, the FIN flag was set by the server directly after it sent a response, therewith terminating the connection. In this case, if the user application was in debug mode, the response from the server could no longer be received and the return value of ConnectionReceiveData was -1. This means that the connection did not work from the user's point of view.

#### 3.1.5 SNTP client

An SNTP client can now be accessed. To do this, the file /SysConfig/NTP/sntp.ini must be available when the system is started. SNTP provides UTC and does not know the summer or winter time changeover. The correction of the RTC to local time can be set by the user via an offset.

During the boot phase, the SNTP client tries to read the time from the NTP server up to three times. If the RTC cannot be set during the boot phase, BIT 29 of system error register 200009 is set. The server name is "de.pool.ntp.org". The address of the NTP server can be specified as an IP address or name. When using a name, a DNS server must be configured and accessible. The maximum length of the name is 63 characters.

The following commands are available:

##### Command 1: Write 1 to the system register

- Fetches the current time from the STNP server
- Time and date are written to registers 102931 to 102937
- The offsets UTC\_TimeOffsetHours and UTC\_TimeOffsetMinutes are added and therefore the real-time clock is set.

##### Command 2: Write 2 to the system register

- Fetches the time from the NTP server and writes it to the following register array:
  - 102931: Seconds
  - 102932: Minutes
  - 102933: Hours
  - 102935: Day

- 102936: Month
- 102937: Year
- The offsets from UTC\_TimeOffsetHours and UTC\_TimeOffsetMinutes are not taken into account
- The real time clock is not set
- This function is used to align the RTC with the UTC.

### Command 3: Write 3 to the system register

- Re-reads the file "sntp.ini" to update it. The values read from the file can be read in the following registers:
  - 102942: UTC\_TimeOffsetHours
  - 102943: UTC\_TimeOffsetMinutes
  - 102944: Timeout [s]
  - 102945: AutoSynchronizeAtStartup
  - 102948-102949: NTP server name

### Example:

```
[SNTP]
Servername = de.pool.ntp.org
AutoSynchronizeAtStartup = 1
UTC_TimeOffsetHours = 1
UTC_TimeOffsetMinutes = 0
Timeout = 10
```

### Overview of registers:

| Register number | Description  | Access |
|-----------------|--|--------|
| 102931          | UTC time from NTP server seconds   | ro     |
| 102932          | UTC time from NTP server minutes   | ro     |
| 102933          | UTC time from NTP server hours   | ro     |
| 102935          | UTC time from NTP server tag   | ro     |
| 102936          | UTC time from NTP server month   | ro     |
| 102937          | UTC time from NTP server year  | ro     |
| 102940          | Command / Status:<br>1: Set real time clock<br>2: Fetch UTC time<br>3: Read in "sntp.ini"<br><br>The command can be read in the register until the function has been processed. Then the result can be read. | rw     |
| 102942          | Value of "UTC_TimeOffsetHours"   | ro     |
| 102943          | Value of "UTC_TimeOffsetMinutes"   | ro     |
| 102944          | Value of timeout in seconds  | ro     |
| 102945          | Value of "AutoSynchronizeAtStartup"  | ro     |

| Register number | Description                                       | Access |
|-----------------|---|--------|
| 102946          | IP address of the NTP server after DNS resolution | ro     |
| 102947          | Port number of the NTP server                     | ro     |
| 102948-102969   | Name of the NTP server                            | ro     |

## 3.2 Bug Fixes for MCX

The bug fixes mentioned here affect the following OS versions of the controllers with MotionControl. As of the OS versions listed below, MCX version 1.20.0.98 is used in the operating system:

| OS version | Product  |
|------------|--|
| 1.34.0.00  | – -365MC<br>– JC-360MC   |
| 1.18.0.00  | – JC-940MC<br>– JC-970MC<br>– JC-945MC (EtherCAT® controller)<br>– JC-975MC (EtherCAT® controller) |
| 1.10.0.00  | – JC-440MC (EtherCAT® controller)<br>– JC-440EXT (EtherCAT® controller)                            |

### 3.2.1 Crash of the controller after blocking a path group in error state

If a path group was blocked while it was in a path deviation, the controller could crash.

### 3.2.2 MoveVelocity could move an axis beyond the procedure limit

If, in the case of a normal axis (not modulo), the axis was moved beyond the procedure limits with the help of a MoveVelocity instruction, the axis was either positioned further or it stopped abruptly without an error message.

The error message (6201: MoveVelocity: position beyond limits / MoveVelocity: Position beyond limits) is output and the axis is stopped with the programmed ramp. The axis then remains in feedback control.

**Remedy:** Monitoring the procedure limit in the controller program

### 3.2.3 JC-365MC: Crash when trying to start a spline movement without valid configuration

If a spline movement was started without a valid configuration, the controller crashed.

**Remedy:** Specify at least two spline points for the path calculation.

### 3.2.4 Shadow axis does not observe the overrunning of the modulo range when the controller is locked

When the controller of the associated (modulo) data source was locked, the shadow axis did not observe its overflow over the zero point, resulting in an incorrect movement of the follower axis when the controller was released again.

### 3.2.5 Shadow axis has wrong status in a certain configuration

A shadow axis remained in the "Running" status if the data source was a moving follower axis in another technology group. Status queries on this axis have resulted in incorrect information.

### **3.2.6 The actual position of the shadow axis is only updated if the technology group has been activated**

The actual position of a shadow axis was not updated if the technology group, in which the shadow axis was the master axis, was deactivated. If the data source was moved in this case, this was not visible in the actual position of the shadow axis.

### **3.2.7 Follower axis factor too small when activating a cam disk**

If, when activating a cam disk (`MCTechno.Coupling.Cam.Activate(...)`), a `FollowerFactor` was transferred very close to zero, a position jump could occur when activating the subsequent cam disk.

**Remedy:** Use a `FollowerFactor` > 0.1.

### **3.2.8 Trigger in the real-time oscilloscope of the control system inaccurate**

A trigger operation in the integrated oscilloscope of the controller on an MC parameter could result in the trigger reaction being very slow and therefore a recording not being carried out or only very delayed.

### **3.2.9 JC-940MC: Axes on 3rd SBI module cannot be used**

With the JC-940MC, the axes on the JX2 bus of the third SBI module could not be used. Access to the axes on this bus was not forwarded to the axes.

### **3.2.10 Query on ramp status briefly returns wrong value**

The query of the ramp status could sometimes briefly return a value which was not up-to-date.

### **3.2.11 Timeout for Quickstop instruction**

Previously, the MCX generated a timeout error if the quick stop ramp was not completed after 250 times the MCX cycle time. This timeout monitoring has been removed, as it may be useful to use longer quick stop ramps in applications.

### **3.2.12 JC-365MC: Switching instructions with timing drum**

Since MC version 1.20.0.98, the switching of cam disks via the timing drum has responded with delay.

### **3.2.13 JC-365MC: Crash when using technos with drum and virtual master axis at the same time**

If a group with a virtual master axis and at the same time a group with the drum axis was activated as a master axis, the controller crashed.

### **3.2.14 JC-940MC: Axes on 3rd SBI module cannot be used**

With the JC-940MC, the axes on the JX2 bus of the third SBI module could not be used. Access to the axes on this bus was not forwarded to the axes.

### 3.3 Bug fixes for EtherCAT® controllers

The bug fixes described here affect the following OS versions of the EtherCAT® controllers:

| OS version | Controllers   |
|------------|---|
| 1.18.0.00  | <ul style="list-style-type: none"> <li>– JC-945MC</li> <li>– JC-975MC</li> </ul>  |
| 1.10.0.00  | <ul style="list-style-type: none"> <li>– JC-440MC</li> <li>– JC-440EXT</li> </ul> |

#### 3.3.1 EtherCAT® controllers: No temperature display of TH12 modules on a BN-EC

In the previous version, the temperature was not displayed or not correctly displayed when a TH12 module was connected to a BN-EC. This error has now been rectified.

#### 3.3.2 EtherCAT® controllers: No error message when enabling axes not ready for operation

If an axis was enabled which was not ready for operation, the axes remained without torque. However, no error message was issued to indicate this. As of this version, a corresponding error message will be issued.

A non-operational axis may occur in the following cases:

- The STO (Safe-Torque-Off) of the axis is still active.
- The DC link voltage is not present.
- The position encoder configuration is not complete.
- **Remedy:** Check in the controller program before the enable command whether the axis is ready for operation.

#### 3.3.3 EtherCAT® controllers: No error message for STO request with enabled axis

If the STO was requested via the safe inputs on an enabled axis, the axes became torque-free, but no error message was issued and the MCX continued to transmit set-points to the drive. If the STO was activated on several axes of a group at the same time, this group was stuck in an intermediate state. The group could no longer be used and a reboot was required.

**Remedy:** Set the tracking sensor monitoring so that in this case the tracking error triggers after a short time.

#### 3.3.4 EtherCAT® controllers: Technology group with external axis - unknown status in case of drive error

If a drive error was triggered on an axis in a technology group with an external axis, this group was stuck in an intermediate state. The group could no longer be used and a reboot was required.

#### 3.3.5 EtherCAT® controllers: JM-3xxx - Disable command during movement does not result in a standstill

If a disable command (forced) was issued while the axis was moving, the axis did not become torque-free and did not stop.

**Remedy:** Use Quickstop command.

**3.3.6 EtherCAT® controllers: JM-3xxx position of the external axis wrong**

As the position of the external axis was evaluated incorrectly in some OS versions, the value changed considerably, even if the position encoder was rotated only very slowly and in one direction.

**3.3.7 EtherCAT® controllers: JM-3xxx - Time not observed when closing the brake**

The time for closing the brake (hold torque until brake is closed) was not observed. The axis was always locked immediately with the disable command.

**3.3.8 EtherCAT® controllers: Access to encoder information takes a very long time**

Accessing the parameters for the encoder angle and the number of encoder revolutions could take up to 80 ms. The provision of this information has been changed so that access does not take longer than with other parameters.

**3.3.9 EtherCAT® controllers: Fast Coupling with external axis does not work**

If an attempt was made to couple a follower axis in a technology group with the "Fast" coupling type, the coupling was immediate provided the master axis was an external axis.

**3.3.10 EtherCAT® controllers: Axis is on the limit switch during machine referencing**

If machine referencing was started using the limit switches while the limit switch was activated in the machine referencing direction, the controller crashed.

**Remedy:** Before starting the machine referencing, remove the axis from the limit switch.

**3.4 Bug fixes for specific controllers****3.4.1 JC-94x and JC-97x: Deleting error history blocked controller**

When deleting the error history via command 1, it could happen that the controller was blocked for several milliseconds.

**3.4.2 JC-94x: No communication with several interfaces in the same subnet**

If several interfaces were in the same subnet due to a faulty IP configuration, it could happen that it was no longer possible to communicate via any of these interfaces. This error has now been rectified. If there are several interfaces in the same subnet, it is now ensured that communication with the controller can take place at least via interface ETH 1.



## 4 Older version updates

### 4.1 Enhancements as of 10.09.2020

#### 4.1.1 General Enhancements

The enhancements mentioned here affect the following OS versions of all products:

| Product     | Version   | CAN open | J1939 | MQTT | OPC UA | Ether CAT® | MC/MCX | Type     |
|-------------|-----------|----------|-------|------|--------|------------|--------|----------|
| JC-340      | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JC-350      | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JC-365      | 1.32.0.00 | Yes      |       |      |        |            |        | Industry |
| JC-365MC    | 1.32.0.00 | Yes      |       |      |        |            | Yes    | Industry |
| JC-360      | 1.32.0.00 | Yes      |       |      |        |            |        | Industry |
| JC-360MC    | 1.32.0.00 | Yes      |       |      |        |            | Yes    | Industry |
| JC-940MC    | 1.16.0.00 |          |       |      |        |            | Yes    | Industry |
| JC-945MC    | 1.16.0.00 |          |       |      |        | Yes        | Yes    | Industry |
| JC-970MC    | 1.16.0.00 |          |       |      |        |            | Yes    | Industry |
| JC-975MC    | 1.16.0.00 |          |       |      |        | Yes        | Yes    | Industry |
| JC-440MC    | 1.08.0.00 | Yes      |       |      |        | Yes        | Yes    | Industry |
| JC-440EXT   | 1.08.0.00 | Yes      |       | Yes  | Yes    | Yes        | Yes    | Industry |
| JCM-501     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-511     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-521     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-529     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-104     | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-407B    | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-507B    | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-604B    | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JV-1004     | 4.10.00   |          |       |      |        |            |        | Industry |
| JV-1005     | 4.10.00   |          |       |      |        |            |        | Industry |
| JV-1007     | 4.10.00   |          |       |      |        |            |        | Industry |
| JV-1010     | 4.10.00   |          |       |      |        |            |        | Industry |
| JCM-350     | 1.32.0.00 |          |       |      |        |            |        | Mobile   |
| JC-310-JM   | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JM-200-ETH  | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JX3-COM-PND | 1.06.0.00 |          |       |      |        |            |        | Industry |

Tab. 3: OS versions per product line

### More usable data memory for STX variables

Up to now, the STX application program could use a maximum of 16 MB data memory for variables, even if the controller had more than 16 MB RAM. Thanks to an enhancement in the operating system, more than 16 MB can now be used if a corresponding controller is used.

The maximum size can be found in the following table:

| Controller   | Maximum possible memory for APP |
|--------------|---------------------------------|
| JC-310       | 2 + 1 MB                        |
| JC-340       | 2 + 1 MB                        |
| JC-350       | 2 + 1 MB                        |
| JC-360       | 4 + 0.5 MB                      |
| JC-365       | 24 + 1 MB                       |
| JC-440       | 32 + 1 MB                       |
| JC-940MC     | 64 + 1 MB                       |
| JC-970MC     | 64 + 1 MB                       |
| JC-945MC     | 64 + 1 MB                       |
| JC-975MC     | 64 + 1 MB                       |
| JV-1005/7/10 | 15 + 1 MB                       |
| JCM-350      | 4 + 1 MB                        |
| JVM-407B     | 8 + 1 MB                        |
| JVM-507B     | 8 + 1 MB                        |
| JCM-501      | 8 + 1 MB                        |
| JCM-511      | 8 + 1 MB                        |
| JCM-521      | 8 + 1 MB                        |
| JCM-529      | 8 + 1 MB                        |
| JVM-630      | 8 + 1 MB                        |

**Tab. 4:** Use of data memory in STX greater than 16 MB

### 4.1.2 Industrial automation controllers - Enhancements

The enhancements mentioned here apply to the following OS versions of the industrial automation controllers:

| OS version | Product   |
|------------|---|
| 1.32.0.00  | <ul style="list-style-type: none"> <li>– JC-340</li> <li>– JC-350</li> <li>– JC-365/JC-365MC</li> <li>– JC-360/JC-360MC</li> <li>– JC-310-JM</li> <li>– JC-200-ETH</li> </ul> |
| 1.16.0.00  | <ul style="list-style-type: none"> <li>– JC-940MC</li> <li>– JC-970MC</li> <li>– JC-945MC</li> <li>– JC-975MC</li> </ul>  |
| 1.08.0.00  | <ul style="list-style-type: none"> <li>– JC-440MC</li> <li>– JC-440EXT</li> </ul>   |
| 1.06.0.00  | <ul style="list-style-type: none"> <li>– JX3-COM-PND</li> </ul>   |

#### JX3-COM-PND - Revision and new features

1. Up to now it was necessary to enter the name of the device in JetSym under "Configuration → PROFINET IO DEVICE". This is no longer necessary. Names entered are ignored.
2. Under "Diagnostics → PROFINET IO Device Stack" it was so far necessary to set the "4: Bus On" command in the command box. This is no longer necessary and a set command has no effect.
3. Under "Diagnostics → PROFINET IO Device Stack", the lines "Station name X of 10" no longer contain the name assigned in JetSym, but the name assigned by the PROFINET supervisor and saved in the JX3.

#### HTTP types – Enhancement

The following file types are now supported by the HTTP server:

- .map
- .tff
- .woff
- .woff2

#### Timeout before the first publication received

The Jetter Ethernet system bus now has a new register for monitoring the timeout period for receiving a publication for a subscription.

- **Index:** 250005
- **Name:** Start timeout in milliseconds
- **Description:** Timeout for the start of communication

Until now, a subscription had to receive at least one publication before timeout monitoring via register 250x27 became active. If the first publication already exceeded the timeout period, this was not registered as an error.

For this purpose, there is now the additional function "Start-Timeout" via register 250005. This register monitors the receipt of publications for all subscriptions. Detected timeout errors are displayed in the following registers:

- 250000
- 250002
- 254001 through 254003

After the start timeouts have expired, register 250005 is reset to 0. The register can be written to again and again and thus timeout monitoring can be triggered manually.

#### 4.1.3 Enhancements for MCX

The enhancements mentioned here affect the following OS versions of the controllers with MotionControl. As of the OS versions listed below, MCX version 1.20.0.98 is used in the operating system:

| OS version | Product  |
|------------|--|
| 1.32.0.00  | – JC-365MC<br>– JC-360MC   |
| 1.16.0.00  | – JC-940MC<br>– JC-970MC<br>– JC-945MC (EtherCAT® controller)<br>– JC-975MC (EtherCAT® controller) |
| 1.08.0.00  | – JC-440MC (EtherCAT® controller)<br>– JC-440EXT (EtherCAT® controller)                            |

#### Automatic coupling of an electric gearbox can be set

Until now, the follower axis was automatically engaged in a technology group with electronic gearing as soon as the group was activated. As this does not make sense in all applications, it is now possible to specify via the "configGearing" function whether the coupling should be done automatically or not.

To configure an axis so that it is not automatically coupled, the following instruction must be sent to the technology group:

```
AV_Techno.Coupling.Gearing.Configure(
AX_Follower, 1, 1, MCTechnoGearingActivationModes.Decoupled
);
```

To do this, the technology group must be activated once at the beginning of the program.

#### Internal position setpoint can be used in Scope function

For special diagnostics, the internal target position value as well as the current actual position value can now be recorded in the internal scope function of the controller. The target and actual position values are sent cyclically from the controller (MCX) to the servo amplifier.

The target position value is displayed on register 50xxx9230. The actual position value is displayed on register 50xxx9320. The values are transmitted in a 32-bit integer in which the low word represents the angular position and the high word the number of revolutions.

#### **EtherCAT® controllers: Important change**

If the controller OS version is used for JetSym 5.6., it is essential to use JetSym version 5.6.0 (or a more recent version) when using axes. In an already existing project, e.g. created with JetSym V5.5.1, the project must be opened in JetSym 5.6.0 after updating the controller and the following actions must be performed:

- Changing the OS version on the CPU side
- Download the hardware configuration with the help of the "Compare and Download" dialog
- Delete the old Motion API from the library and include Motion API 2.0.0.3
- Recompile and transfer the program

#### **EtherCAT® controllers: Touch probe function**

The controllers JC-440MC, JC-945MC and JC-975MC have a touch probe function as of this version. This function enables the current position of the axis to be recorded very accurately on the basis of the signal at a fast digital input and to be stored temporarily. This function can be used to program compensation procedures or to make accurate length measurements of moving objects.

#### **Features:**

- Depending on inverter type 1 or 2 channels
- Single or continuous recording
- Rising, falling or both edges parameterizable
- Recorded position in user units
- Programming via Motion API functions

#### **i Info**

This function cannot be used in axis groups!

#### **EtherCAT® controllers: Torque shut-off**

For EtherCAT® controllers, there is now a special function called "torque shut-off" which is used primarily in screwdriving applications. The main function is to parameterize from which load torque a fast braking of the drive is to be initiated. This function was integrated in the servo amplifiers of the JetMove 200 series and is used again here in the proven form. The function can be used with the help of Motion API functions.

#### **i Info**

The screwing process cannot be carried out by a controller several times at the same time.

#### **EtherCAT® controllers: JetMove 1008/1005 can be used**

The servo amplifiers JetMove 1008 and JetMove 1005 can now be connected to and used with a compatible controller via EtherCAT®.

**EtherCAT® controllers: String objects readable**

Special CANopen objects of the servo amplifiers can be read and written in EtherCAT® controllers via Motion API access. As of this version, this is possible also for string objects ( visible strings type).

**EtherCAT® controllers: External axis**

"External axes" can now be used with EtherCAT® controllers. An encoder on a second encoder interface of an axis module can be used for this purpose. The position of this encoder can be used in the MCX as a master axis in a technology group. The external axis is created and configured in JetSym in the hardware manager.

**4.1.4 Enhancements for CANopen**

The enhancements mentioned here apply to the following OS versions of the CANopen-compatible controllers:

| OS version | Product  |
|------------|--|
| 1.32.0.00  | – JC-365 /JC-365MC<br>– JC-360 / JC-360MC<br>– JCM-350 |
| 1.08.0.00  | – JC-440EXT<br>– JC-440MC                              |
| 4.08.0.00  | – JCM-501<br>– JCM-511<br>– JCM-521<br>– JCM-529       |
| 4.10.0.00  | – JVM-104<br>– JVM-407B<br>– JVM-507B<br>– JVM-604B    |

**New STX API functions for CANopen**

New functions for bitwise transmission and reception of PDO messages:

```

CanOpenAddPDORxBit (
    CANNNo:int,
    CANID:int,
    BitPos:int,
    BitLength:int,
    dataType:int,
    DataLength:int,
    ref VarAddr,
    EventTime:int:=100,
    InhibitTime:int:=10,
    Paramset:int:=CANOPEN_ASYNC PDO|CANOPEN_NORTR
):int;

```

```

CanOpenAddPDOTxBit (

```

```

    CANNo:int,
    CANID:int,
    BitPos:int,
    BitLength:int,
    dataType:int,
    DataLength:int,
    ref VarAddr,
    EventTime:int:=100,
    InhibitTime:int:=10,
    Paramset:int:=CANOPEN_ASYNC PDO|CANOPEN_NORTR
):int;

```

#### New STX function CanOpenExit(CANNo:int)

This function can be used to close the CAN interface. Then, no more messages are sent or received on the bus. Access by JetSym to the closed interface is also no longer possible.

```
CanOpenExit(CANNo:int):int;
```

#### STX function CanOpenAddObject() enhanced

The data type CANOPEN\_VISIBLE\_STRING can now be used for the object directory.

#### STX function CanOpen\_SetCommand extended

New command for changing the own heartbeat time available:

```
#define CMD_HEARTBEAT_TIME 4
```

**Example:** Changing the heartbeat from can 0 to 2 seconds

```
CanOpenSetCommand(0, CMD_HEARTBEAT_TIME, T#_2s)
```

#### STX access to own object directory via SDO command with own NodeID as target

With the functions `CanOpenUploadSDO()` and `CanOpenDownloadSDO()` the own object directory can now be accessed. For this, the own NodeID must be specified as the target.

#### STX DLC of PDO TX messages shortened to effective length

As of this version, only the actual used/registered length for a CAN message is sent. So far, all PDOs were sent with a DLC of 8.

#### Emergency message if PDO size is smaller than mapped size

When messages are received that are smaller than the mapped size, an emergency message is now sent with the code 0x8210.

```
ManufacturerError[0] = 2
```

```
ManufacturerError[1 - 4] = CAN ID little endian of the affected PDO
```

#### CANopen object types in object table

Object index 1 ... 27 is now supported. The size of the type in bytes is returned as unsigned32.

### CANopen support for node guarding

If the heartbeat time is set to 0 ms, node guarding can be used. Until now, 0 ms was not a valid value.

### New CANopen registers for retrieving the runtime of PDOs

| Register | Description                               |
|----------|---|
| 40×900   | Current runtime of the RX list.           |
| 40×901   | Minimum runtime of the RX list.           |
| 40×902   | Maximum runtime of the RX list.           |
| 40×903   | Number of times the RX list is called up. |
| 40×910   | Current runtime of the TX list.           |
| 40×911   | Minimum runtime of the TX list.           |
| 40×912   | Maximum runtime of the TX list.           |
| 40×913   | Number of times the TX list is called up. |

#### 4.1.5 Mobile automation controllers - Enhancements

The enhancements mentioned here apply to the following OS versions of the mobile automation controllers:

| OS version | Product   |
|------------|---|
| 4.08.0.00  | <ul style="list-style-type: none"> <li>– JCM-501</li> <li>– JCM-511</li> <li>– JCM—521</li> <li>– JCM-529</li> </ul>    |
| 4.10.0.00  | <ul style="list-style-type: none"> <li>– JVM-104</li> <li>– JVM-407B</li> <li>– JVM-507B</li> <li>– JVM-604B</li> </ul> |
| 1.32.0.00  | <ul style="list-style-type: none"> <li>– JCM-350</li> </ul>   |

### J1939 SAEJ1939AddTx

If the PGN, BytePos, BitPos and the variable type are identical, a transferred variable, the RepetitionTime and the InhibitTime can be changed by registering the message again.



### 4.1.6 HMI enhancements

The enhancements mentioned here affect the following OS versions of the user interfaces:

| OS version | Product    |
|------------|------------|
| 4.10.0.00  | – JVM-104  |
|            | – JVM-407B |
|            | – JVM-507B |
|            | – JVM-604B |
|            | – JV-1004  |
|            | – JV-1005  |
|            | – JV-1007  |
|            | – JV-1010  |

#### Windows embedded Compact 2013 (WEC2013) for HMIs of the JV-10xx series

The following devices can also be ordered with the WEC2013 operating system. The order number code is: -B9.

- JV-1005
- JV-1007
- JV-1010

WEC2013 is not available for the JV-1004 user interface.

#### Jv-10xx HMIs - Reading out information about installed expansion modules

The following registers can now be used to read out information about expansion modules on all JV-10xx user interfaces (JV-1004, JV-1005, JV-1007 and JV-1010).

| Register                | Description  |
|-------------------------|--|
| 111xx0 ... 111xx5       | Name of the expansion module   |
| 111xxx+10 ... 111xxx+13 | Bit-coded function of the expansion module:<br>Bit 1: CAN<br>Bit 6: PROFIBUS |

#### Info

xx = number of the expansion module (0 ... 3) \* 50  
→ Name of the expansion module 2 = 111100

#### CANopen modules for JV-10xx

All JV-10xx user interfaces (JV-1004, JV-1005, JV-1007, JV-1010) now support up to 2 CAN modules.

#### PROFIBUS slave module for JV-10xx

The user interfaces JV-1004, JV-1005, JV-1007 and JV-1010 can now be expanded with a maximum of one PROFIBUS module.

| Register | Description  |
|----------|--|
| 135100   | <p><b>Status</b></p> <p>Lower byte (1) is number-coded:</p> <p>0: No errors</p> <p>5: Timeout in PROFIBUS communication</p> <p>7: Communication CPU → PROFIBUS module timeout</p> <p>8: No cable connected, no response</p> <p>9: Bus not in data exchange mode</p> <p>The next byte (1) is bit-coded:</p> <p><b>Bit 8:</b> Status of the consistent input words</p> <p>0 = Basic status or input words are transmitted.</p> <p>1= Input words transmitted completely.</p> <p><b>Bit 9:</b> Status of the consistent output words</p> <p>0 = Basic status or output words are transmitted.</p> <p>1= Output words transmitted completely</p> |
| 135101   | <p><b>Command register</b></p> <p>11: Start cyclical communication</p> <p>15: Transmit consistent inputs</p> <p>16: Consistent outputs received</p>  |
| 135107   | Station address  |
| 135108   | DPID code default: 0x2DC   |
| 135118   | IO length  |
| 135119   | IO length  |
| 135132   | <p><b>Status of the DP state machine</b></p> <p>0 = RESET Chip (bootup state)</p> <p>1 = RESET Chip Wait</p> <p>2 = OFFLINE</p> <p>3 = OFFLINE WAIT</p> <p>4 = WAIT PRM (Parametrization)</p> <p>5 = WAIT CFG</p> <p>6 = DATA EXCHANGE</p>   |
| 135133   | <p><b>Current baud rate</b></p> <p>0000 = 12 MBaud</p> <p>0001 = 6 MBaud</p> <p>0010 = 3 MBaud</p> <p>0011 = 1.5 MBaud</p> <p>0100 = 500 kBaud</p> <p>0101 = 187.5 kBaud</p> <p>0110 = 93.75 kBaud</p>   |

| Register          | Description  |
|-------------------|--|
|                   | 0111 = 45.45 kBaud<br>1000 = 19.2 kBaud<br>1001 = 9.6 kBaud  |
| 135135            | <b>WatchDog status</b><br>00 = 'Baud_Search' state<br>01 = 'Baud_Control' state<br>10 = 'DP_Control' state |
| 135300 ... 135399 | Receiving buffer   |
| 135400 ... 135499 | Transmit buffer  |
| 135500 ... 135599 | Receiving buffer consistent  |
| 135600 ... 135699 | Transmit buffer consistent   |

#### Setting the station address:

The station address register R135107 is written with the station address.

→ Change of status DP state machine R135132 from 0 = RESET Chip to 3 = OFF-LINE WAIT.

### 4.1.7 Enhancements for specific controllers

#### JC-440 EXT: MQTT

As of this version, the JC-440EXT can be used as MQTT client. STX configuration functions are available for this purpose.

#### JC-440 MC/EXT: Integration Gratuitous ARP

As soon as an IP-based interface becomes active, the own IP address is made known to the other bus nodes without being requested. This happens when the node is reset and also when the IP address of the respective node changes. Thus, any bus node that is already active can update its ARP table. An active request for new IP nodes is therefore not necessary. This will speed up initial contact with new nodes if necessary.

## 4.2 Bug fixes as of 10.09.2020

### 4.2.1 General Bug Fixes

The bug fixes mentioned here affect the following OS versions of all products.

| Product  | Version   | CAN open | J1939 | MQTT | OPC UA | Ether CAT® | MC/MCX | Type     |
|----------|-----------|----------|-------|------|--------|------------|--------|----------|
| JC-340   | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JC-350   | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JC-365   | 1.32.0.00 | Yes      |       |      |        |            |        | Industry |
| JC-365MC | 1.32.0.00 | Yes      |       |      |        |            | Yes    | Industry |
| JC-360   | 1.32.0.00 | Yes      |       |      |        |            |        | Industry |
| JC-360MC | 1.32.0.00 | Yes      |       |      |        |            | Yes    | Industry |
| JC-940MC | 1.16.0.00 |          |       |      |        |            | Yes    | Industry |

| Product     | Version   | CAN open | J1939 | MQTT | OPC UA | Ether CAT® | MC/MCX | Type     |
|-------------|-----------|----------|-------|------|--------|------------|--------|----------|
| JC-945MC    | 1.16.0.00 |          |       |      |        | Yes        | Yes    | Industry |
| JC-970MC    | 1.16.0.00 |          |       |      |        |            | Yes    | Industry |
| JC-975MC    | 1.16.0.00 |          |       |      |        | Yes        | Yes    | Industry |
| JC-440MC    | 1.08.0.00 | Yes      |       |      |        | Yes        | Yes    | Industry |
| JC-440EXT   | 1.08.0.00 | Yes      |       | Yes  | Yes    | Yes        | Yes    | Industry |
| JCM-501     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-511     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-521     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JCM-529     | 4.08.0.00 | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-104     | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-407B    | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-507B    | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JVM-604B    | 4.10.00   | Yes      | Yes   |      |        |            |        | Mobile   |
| JV-1004     | 4.10.00   |          |       |      |        |            |        | Industry |
| JV-1005     | 4.10.00   |          |       |      |        |            |        | Industry |
| JV-1007     | 4.10.00   |          |       |      |        |            |        | Industry |
| JV-1010     | 4.10.00   |          |       |      |        |            |        | Industry |
| JCM-350     | 1.32.0.00 |          |       |      |        |            |        | Mobile   |
| JC-310-JM   | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JM-200-ETH  | 1.32.0.00 |          |       |      |        |            |        | Industry |
| JX3-COM-PND | 1.06.0.00 |          |       |      |        |            |        | Industry |

**Tab. 5:** OS versions per product line

#### Try\_catch is not allowed in classes

When calling virtual methods through interfaces in connection with try/catch, the this pointer could be lost in certain cases which could cause the task to stop. This bug has been fixed.

#### Rename() with empty string

If an empty string ("") is entered as the name during renaming using the rename() function, the function now returns a "FALSE" as the return value.

### 4.2.2 Bug Fixes for MCX

The bug fixes mentioned here affect the following OS versions of the controllers with MotionControl. As of the OS versions listed below, MCX version 1.20.0.98 is used in the operating system:

| OS version | Product  |
|------------|--|
| 1.32.0.00  | <ul style="list-style-type: none"> <li>– JC-365 / JC-365MC</li> <li>– JC-360 / JC-360MC</li> </ul>   |
| 1.16.0.00  | <ul style="list-style-type: none"> <li>– JC-940MC</li> <li>– JC-970MC</li> <li>– JC-945MC (EtherCAT® controller)</li> <li>– JC-975MC (EtherCAT® controller)</li> </ul> |
| 1.08.0.00  | <ul style="list-style-type: none"> <li>– JC-440MC (EtherCAT® controller)</li> <li>– JC-440EXT (EtherCAT® controller)</li> </ul>  |

#### Geo group - Interruption and resumption

If one of the following actions was performed in a geo-group with a buffered movement, an MCX error was reported on the third resumption:

- The movement is interrupted
- The axes are mechanically removed from their stopping point
- A resumption is started
- While the mechanism are being moved back to the original path, an interrupt instruction is given again.

The error is fixed to the extent that 25 interruptions (JC-440MC, JC-9xxMC) or 10 interruptions (JC-365MC) are now possible before the error is reported.

#### Offset of the position display of virtual axes

So far, it could happen that the target and actual positions of a virtual axis did not exactly match. Under certain circumstances, this slight offset could also be effective in a follower axis. This bug has been fixed.

#### Incorrect error message 6200

If in a technology group with a shadow axis as the master axis a superpose command for the follower axis was issued, the error "6200: PTP target position outside limits" was output.

This bug has now been fixed. If a real axis is used as the master axis, the superpose command works correctly.

#### MCX with JM-2xx/JM-1xx axes

If the STO (or hardware enable) is frequently requested in conjunction with Clear-Error and Drive-Disable/Drive-Enable instructions from various STX tasks, drive error F15 (hardware enable missing) may no longer be acknowledgeable on the servo amplifier.

**Remedy:** Issue all instructions for controlling an axis only in one STX task.

**JC-945MC and JC-975MC: Initializing more than 27 axes**

On the JC-945MC and JC-975MC controllers, the initialization of more than 27 axes failed. The motion control kernel (MCX) was not initialized properly. This error has now been rectified.

**Configuration of JM-122xx/JM-14xx: PTC motor temperature sensor**

For some motors with PTC as temperature sensors, when connected to the servo amplifiers JM-12xx or JM-14xx, an error could be displayed in the controller which incorrectly signalled a short circuit of the PTC. This error occurred with a resistance of less than 50 Ω. The monitoring is now set to less than 5 Ω, so that a functioning PTC sensor cannot cause an error message.

**EtherCAT® controllers: Download incomplete axis configurations**

If the axis configuration of an incompletely configured shadow axis (source axis not assigned) was transferred to the controller despite a warning, it could no longer be accessed after the restart.

**Remedy:** Before transferring the configuration, check that it is complete. To do this, follow the instructions (yellow triangles) on the axes in the hardware tree and the instructions in the "Compare and Download" dialog.

**4.2.3 Bugfixes for CANopen**

The bug fixes mentioned here apply to the following OS versions of the CANopen-compatible controllers:

| OS version | Product   |
|------------|---|
| 1.32.0.00  | <ul style="list-style-type: none"> <li>– JC-365 /JC-365MC</li> <li>– JC-360 / JC-360MC</li> <li>– JCM-350</li> </ul>    |
| 1.08.0.00  | <ul style="list-style-type: none"> <li>– JC-440EXT</li> <li>– JC-440MC</li> </ul>                                       |
| 4.08.0.00  | <ul style="list-style-type: none"> <li>– JCM-501</li> <li>– JCM-511</li> <li>– JCM-521</li> <li>– JCM-529</li> </ul>    |
| 4.10.0.00  | <ul style="list-style-type: none"> <li>– JVM-104</li> <li>– JVM-407B</li> <li>– JVM-507B</li> <li>– JVM-604B</li> </ul> |

**CANopen – CanOpenDownloadOS()**

The status given is now better calculated when, for example, a JXM-IO-E2 is updated. The remaining controllers are not affected by this (identical to JetEasyDownload console application 1.01.0.00).

**RTR for PDO is not supported**

A query via RTR is not implemented on Jetter controllers. The function therefore now transfers the value -1 (invalid parameter) when called. Until now, this parameter was ignored and the entry was created as CANopen\_ASYNCPDO.

**CANopen – PDOTX blocks controller**

If TX messages were entered with eventTime = 0 and inhibitTime = 0, the controller could no longer be addressed. This bug has been fixed.

**4.2.4 Bug fixes for HMIs**

The bug fixes mentioned here affect the following OS versions of the user interfaces:

| OS version | Product    |
|------------|------------|
| 4.10.0.00  | – JVM-104  |
|            | – JVM-407B |
|            | – JVM-507B |
|            | – JVM-604B |
|            | – JV-1004  |
|            | – JV-1005  |
|            | – JV-1007  |
|            | – JV-1010  |

**New and revised registers**

The following registers have been corrected or added in this OS version:

| Register | Description                                     |
|----------|---|
| 107003   | Free memory on the SD card in MB.               |
| 107004   | Available memory on the SD card in MB.          |
| 107005   | Used memory on the SD card in MB.               |
| 109003   | Free memory on the USB mass storage in MB.      |
| 109004   | Available memory on the USB mass storage in MB. |
| 109005   | Used memory on the USB mass storage in MB.      |

In previous versions, memory sizes over 4 GB were not displayed correctly. This error has now been rectified.

**CANopen initialization without CAN module (JV-10xx)**

In the case of the user interfaces JV-1004, JV-1005, JV-1007 and JV-1010, CANopen initialization could result in a crash if no CAN module was plugged in. This error has now been rectified.

#### 4.2.5 Bug fixes for specific controllers

##### **JX3-COM-PND: Modules with position greater than 9**

So far, the JX3-COM-PND could not be used as a module with a position greater than 9. This bug has been fixed.

##### **JC-340/JC-350: Blocked task when querying the NTP time**

So far, it could happen that the task that performs the query of the NTP time was permanently blocked if the NTP time was already queried during the boot phase. This was due to a bug in the BSD interface of netX which is now fixed.

##### **JC-365MC: Crash when starting the oscilloscope**

If a register on a non-connected drive was used as trigger with OS version 1.30.0.00, the controller crashed when starting the oscilloscope. This error has now been rectified.

##### **JC-365MC: No Ethernet communication after repeated loading of an HTML page**

So far, it could happen that after loading an HTML page several times, the Ethernet communication was disrupted because the transmit packet buffers were used up. This could occur if "send" or "sendto" was called with a length to be sent of "0". In this case, an error message occurred and the function aborted without releasing the transmit packet.

This bug has been fixed.

##### **JC-97X: Cyclical tasks do not maintain cycle**

With JC-970 and JC-975, it could happen that the time slice of a user task was not kept. This could lead to the execution of one or more tasks being aborted too early within a program cycle.

This bug mainly affected cyclic tasks with a short cycle time, which then did not exactly keep their cycle and were possibly even aborted by the time monitoring.

This bug has been fixed.



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