

## JC-350

Version Update from V. 1.22 to V. 1.24

We automate your success.

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# 1 Introduction

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## Introduction

This chapter shows the history of OS versions.

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## OS update - Why?

An OS update lets you enhance the functionality of your device by

- adding new functions
  - fixing software bugs
  - installing an OS of a specific version after its 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
JC-350_1.24.0.00.os	OS file for JC-350 with version 1.24

### OS file download

Jetter AG make OS files available for download from their **homepage <http://www.jetter.de>**. OS files can be found in the support area and on the page of the JC-350 controller via quicklink.

### OS update by means of JetSym

To update the OS, proceed as follows:

Step	Action
1	Download the OS file from <a href="http://www.jetter.de">www.jetter.de</a> .
2	Establish a connection between PC and controller.
3	In JetSym: Select menu item "Build -> Update OS" or Click on the button "OS Update" in the CPU window of the Hardware Manager.
4	Select the OS file.
5	Start the OS update by clicking OK.
6	<b>Result:</b> Following Power OFF/Power ON the new OS is launched.

### Minimum requirements

For programming a JC-350 with version 1.24, JetSym 5.0.0 or higher is required.

## JC-350 version update - Overview

### V. 1.04

The following table gives an overview of newly added features and fixed software bugs in OS version 1.04:

Function	New	Fixed
<b>JX2 system bus:</b>		
Register overlaying for digital inputs/outputs	✓	
Support of JX-SIO modules and third-party CANopen® devices	✓	
<b>JX3 system bus:</b>		
Register overlaying for digital inputs/outputs	✓	
System bus special registers for status and control	✓	
<b>OS update:</b>		
Via FTP: On completion notification the OS has actually been stored.		✓
Updating a JX2 slave module while registers are being accessed blocks communication.		✓
<b>Application program:</b>		
Task switch could fail to happen.		✓
Error signal in case of invalid file <b>\\App\\start.ini</b>		✓
<b>Display commands:</b>		
Redirection to JX2-SER1 works only if JX2-PRN1 has been configured, too.		✓

### V. 1.05

The following table gives an overview of newly added features and fixed software bugs in OS version 1.05:

Function	New	Fixed
<b>JX2 system bus: V. 1.05.0.00</b>		
AS interface gateway BWU1821 is supported.	✓	
Frequency inverter 8200 vector is supported.	✓	
JetMove 1xx is not detected during boot process.		✓
Automatic baud rate recognition does not work reliably for some of the baud rates and configurations of IP67 modules.		✓
Repetition counter does not work when polling I/O modules.		✓
<b>AutoCopy function:</b>		
Copying controller data automatically		
<b>Application program:</b>	✓	
Pending cyclic tasks are started immediately after Taskunlock.	✓	
For function pow(x,y) a floating point number can be entered as exponent.	✓	

Function	New	Fixed
Cyclic tasks can be debugged.	✓	
Length of project and program names > 39 characters.		✓
Restart of an elapsed timer		✓
The value returned by DateTimeDecode() was always 1 day short of the actual day.		✓
DateTimeEncode and -IsValid might return the value TRUE irrespective of an invalid date.		✓
<b>Application registers:</b>		
The register type can be set up without having to start the application program.	✓	
<b>Displays and HMIs:</b>		
A floating point value can be used as default for UserInput.	✓	
The default value for UserInput is not displayed correctly.		✓
It is not possible to enter LED register numbers.		✓

**V. 1.08**

The following table gives an overview of newly added features and fixed software bugs in OS version 1.08:

Function	New	Fixed
<b>System configuration:</b>		
System rights for configuration file	✓	
<b>JX2 system bus: V. 1.11.0.00</b>		
Timeout after CAN-PRIM message		✓
Registers of LJX7-CSL modules		✓
Write access to analog outputs of CANopen® modules		✓
State of digital inputs when the controller is powered on		✓
Digital outputs on JX-SIO or CANopen® modules		✓
Input/output 64 on JX-SIO or CANopen® modules		✓
User-programmable CAN interface		✓
<b>Application program:</b>		
NetCopyList functions	✓	
StrCopy()		✓
Crash in the case of "invalid" application program		✓
NetCopyVarFromReg()		✓
<b>JX3 system bus:</b>		
Module registers for digital I/Os	✓	
<b>Displays and HMIs:</b>		
UserInput()		✓

**V. 1.09**

The following table gives an overview of newly added features and fixed software bugs in OS version 1.09:

Function	New	Fixed
<b>System:</b>		
System command register	✓	
<b>JX2 system bus: V. 1.13.0.00</b>		
Status change of inputs on JX2-ID8		✓
Status change of fast inputs		✓
<b>Application program:</b>		
FTP client	✓	
Axis instructions		✓
Taskrestart in the case of Delay()		✓
Crash in the case of missing library		✓
Floating-point number registers in data files		✓
NetCopyVarToReg with floating-point number registers		✓
<b>JX3 system bus:</b>		
Dummy modules	✓	
<b>AutoCopy:</b>		
FTP commands	✓	
<b>Serial interface:</b>		
Initialization after booting		✓

**V. 1.10**

The following table gives an overview of newly added features and fixed software bugs in OS version 1.10:

Function	New	Fixed
<b>System:</b>		
LED registers		✓
SD card		✓
<b>JX2 system bus: V. 1.17.0.00</b>		
Further modules	✓	
CAN-PRIM	✓	
<b>Application program:</b>		
Task instructions using variable parameters	✓	
UserInput()		✓
NetCopyListSend()		✓
Task status register		✓



Function	New	Fixed
<b>Real-time clock:</b>		
Additional register for milliseconds	✓	
<b>User-programmable IP interface:</b>		
More connections	✓	

**V. 1.12**

The following table gives an overview of newly added features and fixed software bugs in OS version 1.12:

Function	New	Fixed
<b>System:</b>		
System command register	✓	
<b>JX2 system bus: V. 1.21.0.00</b>		
Initialization		✓
CAN-PRIM		✓
CANopen® SYNC interval		✓
CANopen® application registers		✓
CANopen® type "String"		✓
Set CANopen® output		✓
CANopen® version number		✓
WAGO 750		✓
<b>JX3 system bus:</b>		
Register accesses		✓
<b>Application program:</b>		
Program control	✓	✓
Assigning structures	✓	
Sorting data	✓	
Displaying variables in JetSym		✓
<b>HTTP server:</b>		
New file type	✓	
<b>Serial interface:</b>		
Error detection		✓

# 1 Introduction

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## V. 1.14

The following table gives an overview of newly added features and fixed software bugs in OS version 1.14:

Function	New	Fixed
<b>JX2 system bus: V. 1.22.0.00</b>		
OS update		✓
<b>Application program:</b>		
New instructions	✓	

---

## V. 1.16

The following table gives an overview of newly added features and fixed software bugs in OS version 1.16:

Function	New	Fixed
<b>JX2 system bus: V. 1.23.0.00</b>		
CANopen® registers		✓
<b>Application program:</b>		
New data types	✓	
New functions	✓	
Memory protection	✓	
Cyclic tasks		✓
NetCopyVarToReg		✓
Cycle time register		✓

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## V. 1.18

The following table gives an overview of newly added features and fixed software bugs in OS version 1.18:

Function	New	Fixed
<b>Application program:</b>		
Debugging	✓	
Memory protection	✓	✓
Partial download		✓
StrFormat()		✓
Exceptions		✓
<b>Ethernet system bus:</b>		
Enhanced diagnostic functions	✓	
Module support		✓
<b>JX3 system bus:</b>		
Register	✓	
Initialization		✓
OS update		✓

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Function	New	Fixed
<b>STX debug server:</b>		
TCP connection management	✓	

**V. 1.22**

The following table gives an overview of newly added features and fixed software bugs in OS version 1.22:

Function	New	Fixed
<b>Application program:</b>		
Debugging	✓	
New functions	✓	
Tasklock	✓	
Initializing of variables	✓	
Partial download		✓
Exceptions		✓
<b>Ethernet system bus:</b>		
IP address setting	✓	
JetSync blockage	✓	
<b>JX2 system bus:</b>		
Error counter/error bits	✓	
CAN-PRIM	✓	
Error indication		✓
Register for overlaying of outputs		✓
<b>DNS client:</b>		
IP address of DNS server	✓	
Diagnostic functions	✓	

## 1 Introduction

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### V. 1.24

The following table gives an overview of newly added features and fixed software bugs in OS version 1.24:

Function	New	Fixed
<b>Application program:</b>		
Task processing (System command 170/171)	✓	
Taskcontinue	✓	
<b>Ethernet system bus:</b>		
NetConsistency	✓	
<b>System:</b>		
Start delay	✓	
IP configuration	✓	

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## 2 Enhancements

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### Introduction

Jetter AG are continuously striving to add new features and functions to the controller JC-350. By updating your OS you are given the possibility to enhance the functionality of your controller. To do so, you need the following:

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

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## 2.1 Various new features and modifications

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### Introduction

This chapter covers the new features and modifications

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## Setting the IP address via registers to be non-volatile

### Introduction

The IP interface is initialized by the settings in the configuration memory during the boot process.

The following remanent settings can also be change via register:

- IP address of the controller
- Subnet mask
- IP address of default gateway
- IP address of DNS server
- Host name and suffix type
- Port numbers for JetIP and the JetSym debugger
- Name for AutoCopy command file

### Registers - Overview

Overview over the configuration memory registers:

Register	Description
101200	IP address
101201	Subnet mask
101202	IP address of default gateway
101203	IP address of DNS server
101232	Host name suffix type
101233 through 101251	Host name
101264	Port number for JetIP
101265	Port number for STX debugger
101280 bis 101298	Name for AutoCopy command file
101299	Saving the settings (0x77566152)

### Setting the configuration values to be non-volatile

To change the configuration values to become non-volatile, proceed as follows:

Step	Action
1	Enter the desired configuration into one or several registers within the range from 101200 to 101298.
2	To have the controller take over the values, you must enter a password. For this, write value 2002149714 (0x77566152) to register 101299.
3	Wait for the controller to write value 0 into MR 101299. The save process is now completed.
4	Boot the controller JC-350.

**Result:** The settings are completed. Communication is possible again.

## 2 Enhancements

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### Consequences

Write to register 101299 to have the controller take the following steps:

- The controller creates a configuration file out of the values.
  - It saves the configuration file to the JX3 backplane as **/System/config.ini**.
  - If you have entered comments and formatting details into this file, the comments and formatting details will get lost during this process.
- 

### Related topics

- The configuration memory
  - Setting the IP address during runtime
  - Setting the IP address via configuration file
  - Setting the IP address via configuration file and DIP switch
-



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## Taskcontinue launches an application task

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<b>Introduction</b>	The instructions <code>Taskcontinue</code> and <code>TaskContinueById()</code> continue an application task, which has been stopped by <code>Taskbreak</code> or <code>TaskBreakById()</code> .
<b>Obsolete function</b>	A task which has not been running yet since program launch (no <code>Autorun</code> attribute), cannot be started by <code>Taskcontinue</code> or <code>TaskContinueById()</code> .
<b>New function</b>	A task which has not been running yet since program launch, can be started by <code>Taskcontinue</code> or <code>TaskContinueById()</code> .
<b>Why this change was made:</b>	As regards the range of functions of this feature, it is to be adjusted to the other controller series.

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## 2.2 System command registers

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### Introduction

The system command register can be used to influence the OS performance of the JC-350 controller.

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### Procedure

To issue a system command proceed as follows:

Step	Action
1	Enter the correct value into the system password register.
2	Enter the required command value into the system command register.
3	Check the corresponding bits in the system status register, where applicable.
⇒	<b>Result:</b> The controller sets the system password register and the system command register to 0.

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## Description of system command registers with JetSync blockage

### Registers - Overview

The following registers are described in this manual:

Register	Description
R 202960	System password register
R 202961	System command register
R 202962	System status register

### R 202960

#### System password register

Enter system password 1112502132 (0x424F6F74) into this register. Then enter the required command value into the system command register. Now, the controller sets the value of this register to 0.

#### Register properties

Value	1112502132 (0x424F6F74)
-------	-------------------------

### R 202961

#### System command register

Enter the system commands into this register. Then the controller executes the command. Then, it sets the value of this register to 0.

#### Commands

102	Restart the controller
-----	------------------------

104	Reset remanent parameters
-----	---------------------------

122	Wait for communication - OFF
-----	------------------------------

123	Wait for communication - ON
-----	-----------------------------

160	Task switch on I/O access - OFF
-----	---------------------------------

161	Task switch on I/O access - ON
-----	--------------------------------

170	Deactivate - Resume task time slot
-----	------------------------------------

## 2 Enhancements

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### Commands

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**171      Activate - Resume task time slot**

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**310      Load configuration files**

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**311      Load module configuration**

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**312      Load process data configuration for Ethernet system bus**

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**313      Stop process data communication for Ethernet system bus**

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**330      Disable JetIPScan client**

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**331      Enable JetIPScan client**

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**410      Disable JetSync blockage**

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**411      Enable JetSync blockage for all ports**

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**412      Enable JetSync blockage for port X15**

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### Register properties

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Access                      System password register contains the correct password

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**R 202962****System status register**

The system status register lets you evaluate the system conditions.

**Meaning of the individual bits****Bit 0 Task switch on I/O access**

0 = No task switching in the application program on I/O access

1 = Task switching is carried out in the application program on I/O access

**Bit 1 Wait for communication**

0 = The controller waits for communication requests for a short time

1 = The controller does not wait for communication requests

**Bit 2 JetIPScan client**

0 = JetIPScan client is not active

1 = JetIPScan client is active

**Bit 8 JetSync blockage**

0 = JetSync blockage is not active

1 = JetSync blockage is active

**Register properties**

Access Read

## Description of system commands

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### System command 102

#### Restart the controller

**Effect:**

The controller is restarting. The effect is the same as when you switch the power supply off and on again.

**Purpose:**

Use this command, for example, if you have made changes to system registers or system files which become active only when the controller is rebooted.

---

### System command 104

#### Reset remanent parameters

**Effect:**

The controller will reset remanent parameters to their default values (factory settings).

Register number	Description	Factory settings
100002023	JX3 system bus: I/O dummy modules	65535
100002034	JX3 system bus: Number of retries	1
200002023	JX2 system bus: I/O dummy modules	-1
200002024	JX2 system bus: Slave dummy modules	255
200002029	JX2 system bus: Baud rate	7
200002032	JX2 system bus: Switch-on delay	60
200002077	JX2 system bus: Special functions	0

**Application:**

Use this command, if you want to undo changes to remanent parameters.

---

### System command 122

#### Deactivate - Wait for communication

**Effect:**

Not before there are definite requests, the controller will communicate with external communication partners.

**Advantage:**

The controller executes the application program faster.

**Disadvantage:**

On average, external communication partners have to wait longer for a response from the controller.

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<b>System command 123</b>	<b>Activate - Wait for communication</b>
	<p><b>Effect:</b> The controller cyclically checks for communication requests from external partners for 1 to 2 ms.</p> <p><b>Advantage:</b> External communication partners get a faster reply from the controller.</p> <p><b>Disadvantage:</b> Application program processing takes slightly longer.</p>
<b>System command 160</b>	<b>Deactivate - Task switch on I/O access</b>
	<p><b>Effect:</b> While the controller is accessing modules on the JX2 or JX3 system bus, other tasks of the application program are not processed.</p> <p><b>Advantage:</b> The controller executes I/O accesses as fast as possible.</p> <p><b>Disadvantage:</b> As certain I/O accesses are significantly slower than access to internal variables, response time of other tasks may increase.</p>
<b>System command 161</b>	<b>Activate - Task switch on I/O access</b>
	<p><b>Effect:</b> While the controller is accessing modules on the JX2 or JX3 system bus, it processes the other tasks of the application program.</p> <p><b>Advantage:</b> The execution time of certain I/O accesses which may be relatively long does not affect the response time of other tasks.</p> <p><b>Disadvantage:</b> The run time of the other tasks influences the execution time of several I/O accesses.</p>
<b>System command 170</b>	<b>Deactivate - Resume task time slot</b>
	<p><b>Effect:</b> When a normal application task has been interrupted by a cyclic task or the Ethernet system bus publisher, processing the following application task is resumed. The remaining time of the time slot of the interrupted task lapses for one cycle.</p>

---

**Advantage:**

The total cycle time for processing all tasks is not influenced so much by the cyclic events.

**Disadvantage:**

This way, the interrupted task is assigned less runtime.

---

**System command 171****Activate - Resume task time slot****Effect:**

When a normal application task has been interrupted by a cyclic task or the Ethernet system bus publisher, processing the interrupted application task is resumed. This way, the interrupted task is processed for the remaining time of its time slot.

**Advantage:**

The interrupted task is assigned its total runtime.

**Disadvantage:**

The total cycle time for processing all tasks is influenced by the cyclic events to a greater extent.

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**System command 310****Load configuration files****Effect:**

The controller loads the module configuration file (ModConfig.da) and the configuration files for process data communication on the Jetter Ethernet system bus (Publisher.pub, Subscriber.sub) from the file system. This corresponds to a combination of commands 311 and 312.

**Purpose:**

Once the transfer of these files into the controller's file system is completed, system command 310 enables their contents.

---

**System command 311****Load module configuration****Effect:**

The controller loads the module configuration file (ModConfig.da) from the file system.

**Purpose:**

Once the transfer of this file into the controller's file system is completed, system command 311 enables its contents.

---

**System command 312****Load process data configuration for Ethernet system bus****Effect:**

The controller loads the configuration files for process data communication on the Jetter Ethernet system bus (Publisher.pub, Subscriber.sub) from the file system.

---



---

	<b>Purpose:</b> Once the transfer of these files into the controller's file system is completed, system command 312 enables their contents.
<b>System command 313</b>	<b>Stop process data communication for Ethernet system bus</b> <b>Effect:</b> Process data communication on the Jetter Ethernet system bus stops. <b>Purpose:</b> Transfer the configuration files for process data communication on the Jetter Ethernet system bus into the controller's file system. Then, stop process data communication by issuing system command 313. Finally, enable the contents of the new files.
<b>System command 330</b>	<b>Disable JetIPScan client</b> <b>Effect:</b> This command lets you disable the JetIPScan client. The server, however, remains enabled. <b>Purpose:</b> For testing purposes
<b>System command 331</b>	<b>Enable JetIPScan client</b> <b>Effect:</b> This command lets you enable the JetIPScan client. <b>Purpose:</b> This command lets you enable the JetIPScan client which has been disabled for testing purposes.
<b>System command 410</b>	<b>Disable JetSync blockage</b> <b>Effect:</b> <ul style="list-style-type: none"><li>▪ The JetSync blockage is disabled for all ports. Bit 8 in R 202962 is reset.</li><li>▪ The Jetter Ethernet system bus multicast frames are transmitted to all ports (X14, X15 and CPU).</li></ul> <b>Purpose:</b> The JetSync blockage enabled by system command 411 or 412 is disabled. Forwarding the Jetter Ethernet system bus multicast frames to all ports again corresponds to the on-state of the controller.
<b>System command 411</b>	<b>Enable JetSync blockage for all ports</b> <b>Effect:</b> <ul style="list-style-type: none"><li>▪ The JetSync blockage is enabled for all ports (X14, X15, and CPU). Bit 8 in R 202962 is set.</li></ul>

---

- Jetter Ethernet system bus multicast frames which are received on a port are not forwarded to any of the other ports.
- All other Ethernet frames are forwarded as usual.

**Purpose:**

This command lets you prevent forwarding Jetter Ethernet system bus multicast frames to the CPU and the other ports. This way, networks are split and thus data traffic - e.g. from the machine network to higher-level networks - is reduced.

**Address space**

Splitting is carried out on Ethernet level via the multicast address range of the Jetter Ethernet system bus.

0x01 00 5E 40 00 00 ... 0x01 00 5E 40 00 FF

---

**System command 412**

**Enable JetSync blockage for port X15**

**Effect:**

- The JetSync blockage is enabled for port X15 only. Bit 8 in R 202962 is set.
- Jetter Ethernet system bus multicast frames of the CPU are forwarded to port X14 only.
- Jetter Ethernet system bus multicast frames of port X14 are forwarded to the CPU only.
- Jetter Ethernet system bus multicast frames of port X15 are forwarded to the CPU and to port X14.
- All other Ethernet frames are forwarded as usual.

**Purpose:**

This command lets you prevent forwarding Jetter Ethernet system bus multicast frames to port X15. This way, networks are split and thus data traffic - e.g. from the machine network to higher-level networks - is reduced.

**Address space**

Splitting is carried out on Ethernet level via the multicast address range of the Jetter Ethernet system bus.

0x01 00 5E 40 00 00 ... 0x01 00 5E 40 00 FF

---



### Setting the startup delay

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#### Introduction

If other devices connected to the bus have got a longer startup time, the boot process must be delayed.

---

#### Set delay time

To set the delay time, proceed as follows:

Step	Action
1	Switch on the device JC-350.
2	Enter the password. For this, write value 1112502132 (0x424f6f74) to R 202970.
3	Enter the desired delay time in steps of 100 ms into register 202971.

**Result:** The next boot process will be delayed by the set startup delay time before initializing the JX2 and JX3 system bus.

---

#### R 202970

##### Password register

Enter 1112502132 (0x424F6F74) into this register. Then enter the desired value into the startup delay time register. Now, the controller sets the value of this register to 0.

---

##### Register properties

Value	1112502132 (0x424F6F74)
-------	-------------------------

---

#### R 202971

##### Startup delay time

Write into this register the delay time in multiples of 100 milliseconds.

---

##### Register properties

Values	0 (OFF) ... 3,000 (300 seconds)
Value after reset	As described above (remanent)

---

#### Procedure

- The controller only executes start delay, when switch S11 is in *RUN* position.
  - Start delay is terminated by leaving the *RUN* position.
- 

#### Display

- LED **D1** flashing slowly during the first half of the start delay time (approx. 1 Hz).
  - LED **D1** flashing fast during the second half of the start delay time (approx. 4 Hz).
-

## 2.4 Jetter Ethernet system bus

### Introduction

The Jetter Ethernet system bus has been designed for data exchange between the following devices via standard Ethernet.

- Programming device
- Controllers
- Bus nodes
- Communication modules

### Data interchange

The Jetter Ethernet system bus makes a difference between the cyclic and acyclic data interchange between communication participants. Both kinds of data interchange can be executed simultaneously within a network.

Data exchange	Properties
Cyclic	<ul style="list-style-type: none"> <li>▪ <b>Architecture:</b> Publish/subscribe</li> <li>▪ <b>Participants:</b> Controllers, bus nodes and communication modules</li> <li>▪ <b>Access:</b> Automatically by OS</li> <li>▪ <b>Access time:</b> Fast, deterministic</li> <li>▪ <b>Data:</b> Registers, inputs/outputs</li> <li>▪ <b>Configuration:</b> Hardware Manager in JetSym</li> <li>▪ <b>Reach:</b> Subnet</li> </ul>
Acyclic	<ul style="list-style-type: none"> <li>▪ <b>Architecture:</b> Client server</li> <li>▪ <b>Client:</b> PC and controllers</li> <li>▪ <b>Server:</b> PC, controllers, bus nodes and communication modules</li> <li>▪ <b>Data:</b> e.g. registers, inputs/outputs, STX variables, application program</li> <li>▪ <b>Access:</b> PC or application program</li> <li>▪ <b>Access time:</b> Depending on the reaction time of the server</li> <li>▪ <b>Configuration:</b> Only when using network registers</li> <li>▪ <b>Reach:</b> International</li> </ul>

## 2 Enhancements

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### Minimum requirements

The device is operated in a system consisting of various components by Jetter AG. In order to ensure proper interaction of these components, the operating system used and the programming tool JetSym must have at least the release numbers listed below.

Component	As of version
JC-340	V. 1.22.0.00
JC-350	V 1.22.0.00
JC-360	V 1.22.0.00
JC-360MC	V 1.22.0.00
JC-940MC	V 1.06.0.20
JX3-BN-ETH	V 1.18.0.02
JX3-COM-EIPA	V 1.01.0.00
JetSym	V 5.1.2

---

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---

## 2.4.1 NetConsistency function

---

<b>Target</b>	The goal of NetConsistency is automated comparison of actual system properties with the set system properties. If the actual system properties are not in accordance with the set system properties, the respective issues are automatically replaced within the system by the set system properties.
<b>Application</b>	<p>The user can take the following actions by applying NetConsistency:</p> <ul style="list-style-type: none"><li>▪ Exchanging a defective system component, a network node by simply adjusting it to the new system component within an engineered plant. The JetControl, which is the NetConsistency master, automatically configures the new system component by all kinds of information given in the former system component.</li><li>▪ Easily updating an already existing plant: Download of the new system properties to the NetConsistency master JetControl, is required. JetControl automatically recognizes the difference between the former and the actual system configuration. It assigns the new system properties to the respective places.</li></ul>
<b>System properties</b>	<p>Possible system properties are:</p> <ul style="list-style-type: none"><li>▪ Network parameters (IP address, port number, subnet mask, default gateway)</li><li>▪ Parameter data</li><li>▪ Configuration data</li></ul>
<b>Configuration data</b>	The JetSym Hardware Manager generates the configuration and parameter data. The Hardware Manager transfers the data to JetControl through the feature <b>Compare program/Download</b> .
<b>The NetConsistency master</b>	The NetConsistency feature supplies a NetConsistency master defined in the system. Only a JetControl can be a NetConsistency master.

---

## 2 Enhancements

---

### Availability

NetConsistency is available for the following product versions:

Product	As of version
JetSym	V 5.1.0
JC-940MC	V 1.05.0.08
JC-945MC	V 1.01.0.00
JC-340, JC-350	V 1.23.0.04
Ethernet axis JM-xxx (JM-2xx-OEM)	V 2.07.0.37
Ethernet axis MC-JM-xxx (JM-2xx-OEM)	V 2.07.0.37
JX3-BN-ETH	V 1.18.0.02
JX3-COM-EIPA	V 1.01.0.00

---

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## NetConsistency function

### Restrictions

- NetConsistency is only available for the Jetter Ethernet system bus.
- The network nodes have to be connected to the same subnet.
- Only if JetIPScan is active, NetConsistency will be executed.
- JetControl executes NetConsistency only once at booting the JetControl, which is the master of NetConsistency.

### Function

The NetConsistency feature in its actual version comprises the system property *Network parameters*:

- IP address
- Subnet mask
- Default gateway

For this, NetConsistency uses JetIPScan. One of the JetIPScan features is to assign network parameters to bus nodes via GNN.

The controller assigns the network parameters to those bus nodes which you have configured in Hardware Manager.

The controller assigns the IP address to those bus nodes which you have configured in Hardware Manager.

As subnet mask, the controller assigns its own subnet mask to the bus node.

As default gateway, the controller assigns its own IP address or its own default gateway to the bus node:

Product	Assigned default gateway
JC-940MC and JC-945MC, if only ETH1 has been configured	Default gateway of the controller
JC-940MC and JC-945MC, if ETH2 and/or ETH3 have been configured	IP address of ETH1 of the controller
JC-340, JC-350	Default gateway of the controller

### System launch of the bus nodes

At system launch, the bus nodes use the GNN set via their own DIP switch sliders 1 to 8. This applies, until the network parameters configured in the Hardware Manager via JetControl - which is the NetConsistency master - are assigned to the bus node.

Remanent storing via NetConsistency of the network parameters assigned last is not implemented.

We recommend: When configuring the bus nodes in the Hardware Manager, use the GNN as least significant byte of the IP address.

### System launch of the JX3-BN-ETH

The network parameters assigned by NetConsistency are saved to the remanent store in the **config.ini** file of the JX3-BN-ETH, when the DIP switch sliders 9 through 12 of the JX3-BN-ETH are in the position listed below.

DIP switch	Position
9	ON
10	OFF
11	OFF
12	OFF

The GNN of the JX3-BN-ETH is configured via DIP switch sliders 1 through 8. The coding is binary, which means that, for example, switch 3 in position ON means GNN = 4.

At system launch, the JX3-BN-ETH applies the network parameters which are stored in **/System/config.ini**. Immediately after this, the network parameters configured in the Hardware Manager via JetControl - which is the NetConsistency master - are assigned to the JX3-BN-ETH. If NetConsistency has already assigned the network parameters configured in Hardware Manager to the JX3-BN-ETH, the JX3-BN-ETH uses these for system launch. The JX3-BN-ETH stores the assigned network parameters in the file **/System/config.ini** in the file system. In this case, the already existing file **/System/config.ini** is overwritten.

The GNN set by the DIP switch of the JX3-BN-ETH is for identifying the JX3-BN-ETH within the system in order to assign the network parameters configured in Hardware Manager.

---

## Assigning the network parameters dependent on the GNN

### Introduction

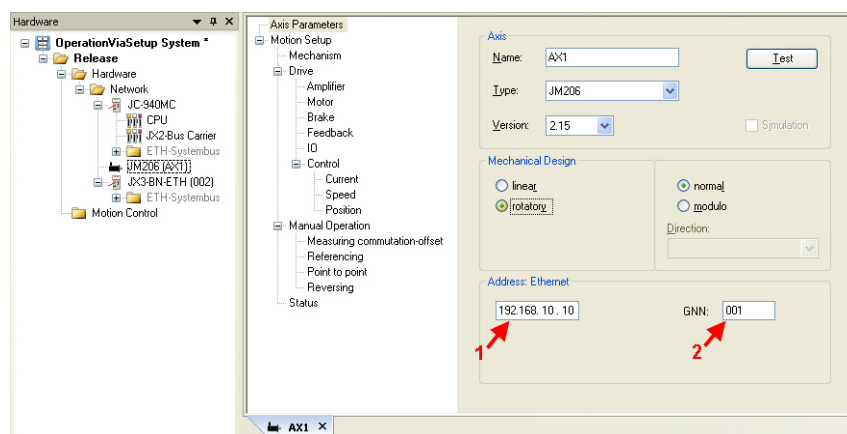
Via JetIPScan, NetConsistency sets the network parameters automatically for the following devices:

- Ethernet axes JM-xxx (JM-2xx-OEM)
- Ethernet axes MC-JM-xxx (JM-2xx-OEM)
- JX3-BN-ETH
- JX3-COM-EIPA

*Automatically* means that when exchanging a network node, you **only** have to take over the GNN (Global Node Number) which has got the same function as the settings of the DIP switch belonging to the former network node.

Any further settings are transmitted to the network node by the JetControl. Via JetIPScan, NetConsistency assigns the network parameters as set in Hardware Manager for the respective network nodes.

### Network parameter assignment for MC-JM-xxx or JM-xxx



Step	Action
1	Set the GNN at the DIP switch (DIP switch sliders 1 through 8) of the MC-JM-xxx or JM-xxx.
2	Launch JetSym.
3	Select the device MC-JM-xxx or JM-xxx in Hardware Manager.
4	Select the tab <b>Axis Parameters</b> .
5	As an address for <b>Ethernet Networks (1)</b> , enter the IP address. <b>A special hint:</b> Use the GNN as least significant byte of the IP address.
6	As <b>GNN (2)</b> , enter the Global Node Number of the device. The number has to match the settings of the DIP switch at the device.

**Result:** IP address and GNN have been assigned to the device.

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### Setting the DIP switch at the MC-JM-xxx or JM-xxx

The MC-JM-xxx or JM-xxx uses the settings of the DIP switch sliders 1 through 8 as GNN. The coding is binary.

#### Examples

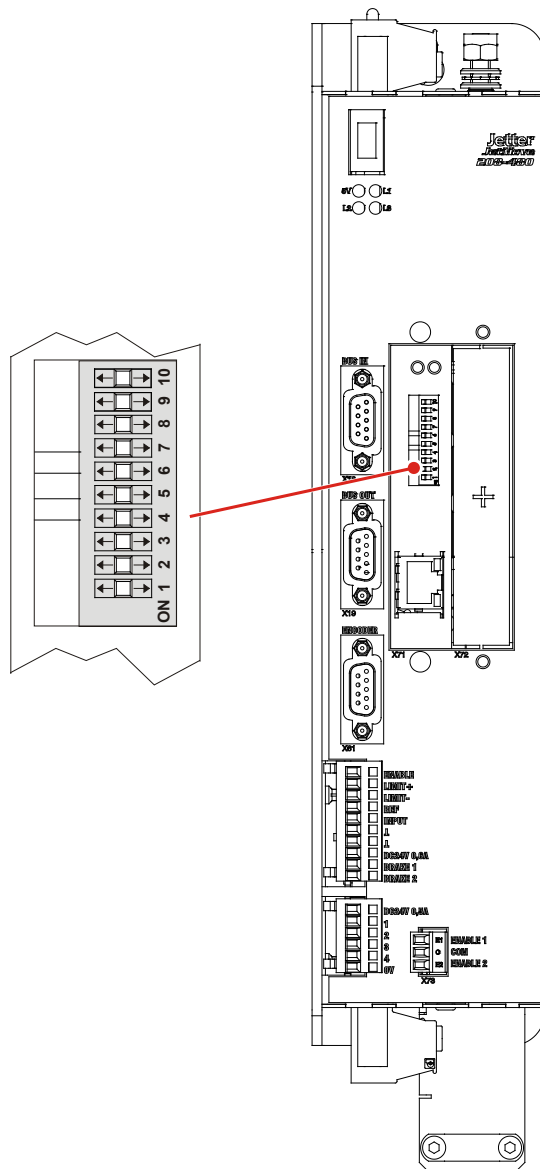
GNN = 4: Switch 3 is set to ON. All other DIP switch sliders are set to OFF.

GNN = 5: DIP switch sliders 1 and 3 are set to ON. All other DIP switch sliders are set to OFF.

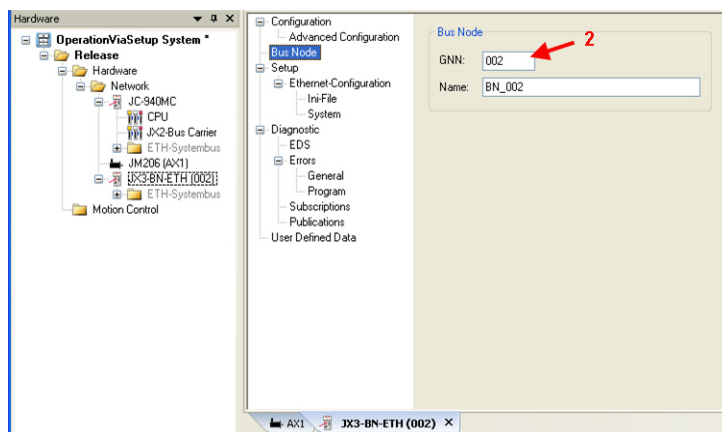
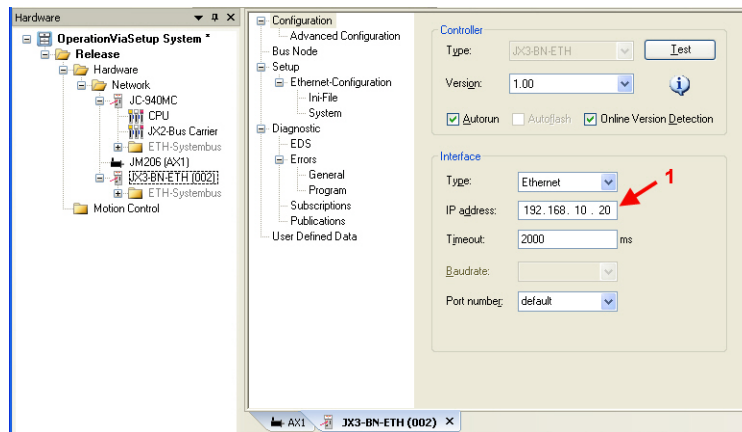
GNN = 8: Switch 4 is set to ON. All other DIP switch sliders are set to OFF.

### Position of the DIP switch sliders at the MC-JM-xxx or JM-xxx

If at the digital servo amplifier an Ethernet port is integrated, there is a 10-pin DIP switch available. The illustration below shows the position of the DIP switch sliders.



**Assignment at the JX3-BN-ETH**



Step	Action
1	Set the GNN at the DIP switch (DIP switch sliders 1 through 8) of the JX3-BN-ETH.
2	Set the operating mode GNN at the DIP switch (DIP switch sliders 9 through 12) of the JX3-BN-ETH.
3	Launch JetSym.
4	Select the device JX3-BN-ETH in Hardware Manager.
5	Select the tab <b>Configuration</b> .
6	As <b>IP Address (1)</b> , enter the IP address.
7	Select the tab <b>Bus Node</b> .
8	As <b>GNN (2)</b> , enter the Global Node Number of the device. The number has to match the settings of the DIP switch at the device.

**Result:** IP address and GNN have been assigned to the device.

### Setting the DIP switch sliders at the JX3-BN-ETH

The settings of DIP switch sliders 9 through 12 activate remanent storage of the assigned network parameters in the **config.ini file**.

Set DIP switch slider 9 to ON and DIP switch sliders 10 through 12 to OFF.

The settings of DIP switch sliders 1 through 8 are for configuring the IP address. The coding is binary.

#### Examples

GNN = 4: Switch 3 is set to ON. All other DIP switch sliders are set to OFF.

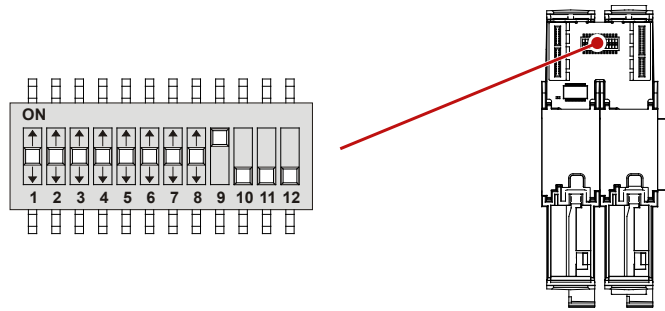
GNN = 5: DIP switch sliders 1 and 3 are set to ON. All other DIP switch sliders are set to OFF.

GNN = 8: Switch 4 is set to ON. All other DIP switch sliders are set to OFF.

---

### Position of the DIP switch sliders at the JX3-BN-ETH

The illustration below shows the position of the DIP switch sliders.



### Compare program/Download

When you have set all parameters in Hardware-Manager, transfer the settings to the system parameters via **Compare program/Download**.

This is done by the following instruction in Hardware Manager:

- Compare and download (right mouse button on **Release**)
- 

### Assigned network parameters

At system launch, the controller assigns the following network parameters to the connected network nodes:

- IP address
- Subnet mask
- Default gateway

#### IP address

The controller assigns the IP address that has been set in Hardware Manager.

#### Subnet mask

The controller assigns its own subnet mask.

**Default gateway**

The assigned default gateway depends on the controller type:

Product	Assigned default gateway	
JC-340, JC-350	Default gateway of the controller	
JC-940MC	<b>If ...</b>	<b>... then ...</b>
	... neither with ETH2 nor with ETH3 network parameters have been configured,	... the controller assigns the default gateway of ETH1.
	... with ETH2 or with ETH3 network parameters have been configured,	... the controller assigns the IP address of ETH1 as the default gateway.
JC-945MC	<b>If ...</b>	<b>... then ...</b>
	... with ETH3 no network parameters have been configured,	... the controller assigns the default gateway of ETH1.
	... with ETH3 network parameters have been configured,	... the controller assigns the IP address of ETH1 as the default gateway.

### Activating and deactivating JetIPScan in JetControl

---

#### Introduction

You have to enable JetIPScan by making an entry into the system command register. The settings are remanent.

---

#### Enable JetIPScan

To enable JetIPScan, proceed as follows:

Step	Action
1	Switch the device ON.
2	Write value 1112502132 (0x424f6f74) to password register 202960.
3	Enter value 331 into system command register 202961.
⇒	Bit 2 of register 202962 is set and JetIPScan is enabled.

---

#### Disable JetIPScan

To disable JetIPScan, proceed as follows:

Step	Action
1	Switch the device ON.
2	Write value 1112502132 (0x424f6f74) to password register 202960.
3	Enter value 330 into system command register 202961.
⇒	Bit 2 of register 202962 is cleared and JetIPScan is disabled.

---



---

## Program run at system launch

---

### Program run at system launch

The following table shows the program run at system launch:

Step	Description
1	During the boot process, each network node, except for JetControl and JX3-BN-ETH, uses the settings of the DIP switch as a fixed IP address.
2	During the boot process of the JetControl, each network node is assigned a network configuration (IP address, subnet mask, gateway address) via JetIPScan at executing the NetConsistency function.
3	After the boot process of the JetControl, and thus, after executing the NetConsistency function, the network nodes can be reached by the network configurations set in the Hardware Manager.

### Program run at NetConsistency

NetConsistency passes the following states of the JetControl boot process.

Step	Description
1	The basic driver is initialized.
2	An instance is initialized.
3	The functions of NetConsistency is executed.

---

## Register description - NetConsistency basic driver

### Registers - Overview

Register	Description
<b>470000 ... 470008</b>	Cookie
<b>470009</b>	Version number
<b>470010</b>	Status
<b>470011</b>	Command
<b>470020</b>	Maximum possible amount of instances
<b>470021</b>	Number of instances ready for operation
<b>470030 ... 470035</b>	Restrictions
<b>470040 ... 470157</b>	Locating faults

### R 470000 ... R 470008

#### Cookie

This register shows the beginning of the NetConsistency registers. This way, orientation is simplified.

#### Module register properties

Type of access	Read
Value after reset	NetConsistency
Data type	RegString

### R 470009

#### Version of NetConsistency

R 470009 shows the version of NetConsistency.

#### Module register properties

Values	IP#0.00.0.00 ... IP#9.99.9.99
Type of access	Read
Value after reset	Version of NetConsistency

### R 470010

#### Status register

R 470010 shows the status of the NetConsistency basic driver.

#### Meaning of the individual bits

Bit 0	Error
0 =	No error
1 =	Error

Bit 2	Status of initialization
0 =	Basic driver not initialized
1 =	Basic driver initialized

**Module register properties**

Type of access	Read
Value after reset	0x00000004

**R 470011**

**Command register**

The value is 0, as there are no commands.

**R 470020**

**Maximum possible number of instances**

R 470020 shows the maximum possible number of NetConsistency instances. The actual value is always 1.

**Module register properties**

Values	1
Type of access	Read
Value after reset	1

**R 470021**

**Number of instances ready for operation**

R 470021 shows the number of NetConsistency instances.

**Module register properties**

Values	0 ... 1
Type of access	Read
Value after reset	1

### R 470030

#### Maximum number of error messages for the logger

R 470030 sets the maximum number of error messages which are transferred to the logger by NetConsistency.

---

#### Module register properties

---

Values	10
Type of access	Read
Value after reset	10

---

### R 470031

#### Number of error messages transmitted to the logger

R 470031 displays the number of error messages transmitted to the logger by NetConsistency.

---

#### Module register properties

---

Values	0 ... 10
Type of access	Read

---

### R 470032

#### Maximum number of warnings for the logger

R 470032 sets the maximum number of warnings forwarded to the logger by NetConsistency.

---

#### Module register properties

---

Values	10
Type of access	Read
Value after reset	10

---

### R 470033

#### Number of warnings forwarded to the logger

R 470033 displays the number of warnings transmitted to the logger by NetConsistency.

---

#### Module register properties

---

Values	0 ... 10
Type of access	Read

---

**R 470034**

**Maximum possible number of error history entries**

R 470034 defines the maximum possible number of error history entries.

**Module register properties**

Values	10
Type of access	Read
Value after reset	10

**R 470035**

**Number of entries in the error history**

R 470035 displays the number of error messages entered into the error history by NetConsistency.

**Module register properties**

Values	0 ... 30
Type of access	Read

**R 470040**

**Error numbers**

R 470040 shows the error numbers.

Error name	Error number
NoError	0
GroupFunction	-1
GroupCStandard	-2
GroupJetterFileSystem	-3
GroupJetterLogger	-4
GroupJetterOS	-5
GroupJetterParserXml	-6
GroupJetterPcom	-7
GroupUtility	-8
GroupJetlpScan	-9
Api	-100
Manager	-110
ManagerInit	-111
ManagerDeinit	-112
ManagerMultipleInit	-113
Instance	-120
InstanceInit	-121

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---

<b>Error name</b>	<b>Error number</b>
InstanceDeinit	-122
StateMachine	-140
StateMachineInit	-141
StateMachineDeinit	-142
Error	-150
ErrorInit	-151
ErrorDeinit	-152
Warning	-160
WarningInit	-161
WarningDeinit	-162
Register	-170
RegisterInit	-171
RegisterDeinit	-172
Xml	-180
XmlInit	-181
XmlDeinit	-182
XmlInvalidGnn	-183
XmlInvalidIpAddress	-184
XmlTagNetConsistencyAttrVersion	-185
XmlTagNetNodesAttrCount	-186
XmlTagNetNodeAttrName	-187
XmlTagNetNodeAttrType	-188
XmlTagNetNodeAttrGnn	-189
XmlTagPcomAttrName	-190
XmlTagPcomAttrCommand	-191
XmlTagPcomAttrModuleId	-192
XmlTagPcomAttrTypeId	-193
XmlTagIpAddress	-194
XmlTagJetIPAttrPort	-195
XmlTagJx3SystembusAttrCrcEdsModuleCount	-196
XmlTagFilesAttrCount	-197
XmlTagFilesAttrCrc	-198
XmlTagFileAttrCrc	-199
XmlTagFileAttrPath	-200
XmlTagFileAttrName	-201
JetModuleReadReg	-300
JetModuleWriteReg	-301

Error name	Error number
Utility	-310
JetIPScan	-320
JetIPScanInit	-321
JetIPScanDeinit	-322
Processing	-330
ProcessingInit	-331
ProcessingDeinit	-332

**Module register properties**

Values  $-2^{16} \dots 0$

Type of access Read

**R 470041**

**Time of the error in milliseconds**

R 470041 displays the time of the error in milliseconds. When JetControl has been activated for 50 days, an overflow occurs.

**Module register properties**

Values  $0 \dots 2^{32} \text{ ms} = 0 \dots 50 \text{ days}$

Type of access Read

**R 470042**

**Instance, at which the error occurred**

R 470042 displays the instance, at which the error occurred. In fact, only one instance is possible.

**Module register properties**

Values 0: First instance

Type of access Read

**R 470043**

**Number of error parameters**

R 470043 shows the number of error parameters.

**Module register properties**

Values  $0 \dots 5$

Type of access Read

### R 470044

#### Error parameter 1

R 470044 shows error parameter 1. The value is only valid, if  $R\ 470043 \geq 1$ .

#### Module register properties

Values	$0 \dots 2^{32}$
--------	------------------

Type of access	Read
----------------	------

---

### R 470045

#### Error parameter 2

R 470045 shows error parameter 2. The value is only valid, if  $R\ 470043 \geq 2$ .

#### Module register properties

Values	$0 \dots 2^{32}$
--------	------------------

Type of access	Read
----------------	------

---

### R 470046

#### Error parameter 3

R 470046 shows error parameter 3. The value is only valid, if  $R\ 470043 \geq 3$ .

#### Module register properties

Values	$0 \dots 2^{32}$
--------	------------------

Type of access	Read
----------------	------

---

### R 470047

#### Error parameter 4

R 470047 shows error parameter 4. The value is only valid, if  $R\ 470043 \geq 4$ .

#### Module register properties

Values	$0 \dots 2^{32}$
--------	------------------

Type of access	Read
----------------	------

---

### R 470048

#### Error parameter 5

R 470048 shows error parameter 5. The value is only valid, if  $R\ 470043 = 5$ .

#### Module register properties

Values	$0 \dots 2^{32}$
--------	------------------

Type of access	Read
----------------	------

---



**R 470049****Number of characters of the error message**

R 470049 shows the number of characters of the error message. The error message has been stored to registers 470050 ... 470157.

**Module register properties**

Values	0 ... 300
Type of access	Read

**R 470050 ... R 470157****Text of the error message**

These registers contain the text of the error message.

**Module register properties**

Type of access	Read
Value after reset	""
Data type	RegString

## Register description of the NetConsistency instance

---

### Register overview

Register	Description
471010	Status
471011	Command

### R 471010

#### Status register

R 470010 shows the status of the first NetConsistency instance.

#### Meaning of the individual bits

##### Bit 0 Error

- 0 = No error
- 1 = Error

##### Bit 2 Status of initialization

- 0 = The first instance has not been initialized
- 1 = The first instance has been initialized

##### Bit 3 Status of execution

- 0 = No execution
- 1 = Execution in process

#### Module register properties

Type of access	Read
Value after reset	0x00000004

### R 471011

#### Command register

The value is 0, as there are no commands.

---

---

## Error evaluation at NetConsistency

---

### Possibilities of error output

There are the following possibilities of error output:

- Via the logger of NetConsistency and JetIPScan
- Via the enhanced error register R 200009
- Via error number register R 200051 of JetIPScan
- Via error number register R 200061 of NetConsistency

### R 200009

---

#### Enhanced error register

R 200009 is a bit-coded register.

---

#### Meaning of the individual bits

##### Bit 12 Error message by JetIPScan

- 0 = No error
- 1 = JetIPScan has reported an error.  
The error number is contained in R 200051.

---

##### Bit 16 Error message by NetConsistency

- 0 = No error
- 1 = NetConsistency has reported an error.  
The error number is contained in R 200061 and R 470040.

---

#### Module register properties

Type of access	Read
----------------	------

---

### R 200051

#### Error numbers of JetIPScan

R 200051 shows the error numbers of JetIPScan. The content of this register is identical with JetIPScan MR 13.

#### Module register properties

Values	0	No error or warning
	5	The user has terminated the function
	1001	The first received response does not match response 2 and 3 (see MR 101x)
	1002	The second received response does not match response 1 and 3 (see MR 102x)
	1003	The third received response does not match response 1 and 2 (see MR 103x)
	-1	All 3 responses are dissimilar (see MR 100x)
	-2	The IP settings of at least one node could not be changed (see MR 140x)
	-3	The JetIPScan function has been invoked, although it is active already
	-10	The length of the set value list is < 1 or > 255, or the pointer to the list is invalid
	-11	A GNN of the set value list is < 1 or > 255, or it is a multiple GNN
	-20 ... -40	Internal error
	-1001 ... -1199	The node has reported the wrong CtrlID or CtrlIDopt (see MR 110x)
	-2001 ... -2199	The node has not called (see MR 120x)
	-3001 ... -3199	Several nodes of the same GNN have called (see MR 130x)
Type of access	Read	

### R 200061

#### Error numbers of NetConsistency

R 200061 shows the error numbers of NetConsistency, see R 470040.

#### Related topics

- **Register description - NetConsistency basic driver** (see page 42)
- **Register description - JetIPScan** (see page 53)

---

## 2.4.2 JetIPScan - Register description

---

**Introduction**

This chapter describes the registers of the JC-350 from which the status information of the JetIPScan feature can be read out. You can use these registers for debugging or diagnostics. Further features, such as, for example, checking the network configuration, cannot be triggered this way.

---

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### Register numbers

---

#### Introduction

Status information is displayed within the registers of a coherent register block. The basic register number of this block is dependent on the controller.

#### Register numbers

---

Device	Basic register number	Register numbers
JC-350	520000	520000 ... 522999

---

#### Determining the register number

In this chapter, only the last four figures of a register number are specified. e.g. MR 1499. Add to this module register number the basic register number of the corresponding device to determine the complete register number, for example 521499.

#### Registers - Overview

---

Register	Description
MR 0 ... MR 13	Global status
MR 1000 ... MR 1499	Warnings and errors
MR 2000 ... MR 2399	SET and ACTUAL configurations

---

## Global status - Register description

### Introduction

The current I/O size can be read from this register.

### MR 0

#### State of the total

In MR 0, the controller signals a summary of status messages in bit-coded mode.

#### Meaning of the individual bits

##### Bit 0 Function enable

This bit corresponds to bit 2 of the system status register 202962.

0 = JetIPScan client - OFF

1 = JetIPScan client - ON

##### Bit 1 Collective error message

1 = Reg 13 contains value 0

#### Module register properties

Type of access	Read
----------------	------

Value after reset	Bit 0: Depends on release status. Bit 1: 0
-------------------	---

### MR 10

#### State of execution

Corresponds to the feedback value *State*.

#### Module register properties

Values	0	The function is not active. Function terminated.
	1	Waiting for response from network nodes
	2	Send an inquiry telegram
	3	Check the replies sent by the nodes
	4	Write the configurations of the nodes

Type of access	Read
----------------	------

### MR 11

#### Number of cycles

Corresponds to the feedback value *Count*.

---

#### Module register properties

Values	0 ... 3	Number of cycles
Type of access	Read	

### MR 12

#### Number of changes

Corresponds to the feedback value *Changed*.

---

#### Module register properties

Values	0 ... 199	Number of changed network nodes
Type of access	Read	

### MR 13

#### Result of the function

Corresponds to the feedback value *Result* and the register content of the global error number 2000051. This register indicates the value of the latest error or warning. Values greater than zero indicate warnings. Values smaller than zero are error messages.

#### Module register properties

Values	0	No error or warning
	5	The user has terminated the function
	1001	The first received response does not match response 2 and 3 (see MR 101x)
	1002	The second received response does not match response 1 and 3 (see MR 102x)
	1003	The third received response does not match response 1 and 2 (see MR 103x)
	-1	All 3 responses are dissimilar (see MR 100x)
	-2	The IP settings of at least one node could not be changed (see MR 140x)
	-3	The JetIPScan function has been invoked, although it is active already
	-10	The length of the set value list is < 1 or > 255, or the pointer to the list is invalid
	-11	A GNN of the set value list is < 1 or > 255, or it is a multiple GNN
Values	-20 ... -40	Internal error



---

**Module register properties**

- 1001 ... -1199 The node has reported the wrong CtrlID or CtrlIDopt (see MR 110x)
- 2001 ... -2199 The node has not called (see MR 120x)
- 3001 ... -3199 Several nodes of the same GNN have called (see MR 130x)

---

Type of access	Read
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---

## Warnings and errors - Register description

### Introduction

Detailed diagnostics of the warnings and errors which have occurred can be carried out by means of these registers.

If, during checking and setting the IP address of all nodes a warning or an error occurs, the controller sets the corresponding bit in the registers described below. In this case, the bit corresponds to the GNN of the node.

The GNN of the node and the bit number relate as follows:

$$\text{Bit number} = \text{GNN} - 1$$

As a register contains 32 bit, individual groups of 7 subsequent registers each are created (see table).

Register bit	GNN
Register.0	1
Register.31	32
(Register + 1).0	33
(Register + 1).31	64
(Register + 2).0	65
(Register + 2).31	96
(Register + 3).0	97
(Register + 3).31	128
(Register + 4).0	129
(Register + 4).31	160
(Register + 5).0	161
(Register + 5).31	192
(Register + 6).0	193
(Register + 6).6	199

### MR 1000 ... 1006

#### All 3 responses are dissimilar

The controller scans the network configuration three times and compares the three replies. If all three replies are dissimilar, the controller sets the respective bit in these registers.

#### Meaning of the individual bits

Bit = 0 No error

Bit = 1 Error

#### Module register properties

Bit number                      GNN - 1

Type of access	Read
----------------	------

**MR 1010 ... 1016**

**Reply no. 1 is not the same as replies 2 and 3**

The controller scans the network configuration three times and compares the three replies. If replies 2 and 3 are the same, yet reply 1 is different, the controller sets the respective bit in these registers.

**Meaning of the individual bits**

Bit = 0 No warning

Bit = 1 Warning

**Module register properties**

Bit number GNN - 1

Type of access Read

**MR 1020 ... 1026**

**Reply no. 2 is not the same as replies 2 and 3**

The controller scans the network configuration three times and compares the three replies. If replies 1 and 3 are the same, yet reply 2 is different, the controller sets the respective bit in these registers.

**Meaning of the individual bits**

Bit = 0 No warning

Bit = 1 Warning

**Module register properties**

Bit number GNN - 1

Type of access Read

### MR 1030 ... 1036

#### Reply no. 3 is not the same as replies 2 and 3

The controller scans the network configuration three times and compares the three replies. If replies 1 and 2 are the same, yet reply 3 is different, the controller sets the respective bit in these registers.

---

#### Meaning of the individual bits

Bit = 0 No warning

Bit = 1 Warning

---

#### Module register properties

Bit number GNN - 1

Type of access Read

---

### MR 1100 ... 1106

#### Wrong CtrlID or CtrlIDopt

A node having got the required GNN has called, yet, the CtrlID or CTRLIDopt do not agree with it.

---

#### Meaning of the individual bits

Bit = 0 No error

Bit = 1 Error

---

#### Module register properties

Bit number GNN - 1

Type of access Read

---

### MR 1200 ... 1206

#### The node has not called

The node having got the required GNN has not called.

---

#### Meaning of the individual bits

Bit = 0 No error

Bit = 1 Error

---

#### Module register properties

Bit number GNN - 1

Type of access Read

---

**MR 1300 ... 1306**

**Multiple call**

Several nodes using the same GNN have called. Yet, each node must have a unique GNN.

**Meaning of the individual bits**

Bit = 0 No error

Bit = 1 Error

**Module register properties**

Bit number GNN - 1

Type of access Read

**MR 1400 ... 1406**

**The IP settings could not be changed**

When the IP settings of a node have been changed, the controller checks whether the node has taken over these changes.

If the node has not taken over these changes, the controller sets the respective bit in these registers.

**Meaning of the individual bits**

Bit = 0 No error

Bit = 1 Error

**Module register properties**

Bit number GNN - 1

Type of access Read

## Configuration - Register description

### Introduction

These registers can be used to check the SET configuration and the three received ACTUAL configurations. When you have entered the GNN in MR 2000, the controller transfers the values to the 4 register arrays.

### MR 2000

#### GNN

Enter the GNN here.

#### Module register properties

Values 1 ... 199

Value after reset 1

### MR 2010 ... 2015

#### SET configuration

These registers let you read the default SET configuration.

Register	Command line parameter
2010	NodeID (GNN)
2011	CtrlID
2012	CtrlIDopt
2013	IpAddr
2014	IpMask
2015	Gateway

### MR 2110 ... 2123

#### ACTUAL configuration 1

These registers let you read the first received ACTUAL configuration.

Register	Command line parameter
2110	NodeID (GNN)
2111	CtrlID
2112	CtrlIDopt
2113	IpAddr
2114	IpMask
2115	Gateway
2120	Quantity
2121	MAC address high
2122	MAC address low

Register	Command line parameter
2123	Sent IP address

**MR 2210 ... 2223**

**ACTUAL configuration 2**

These registers let you read the second received ACTUAL configuration.

Register	Command line parameter
2210	NodeID (GNN)
2211	CtrlID
2212	CtrlIDopt
2213	IpAddr
2214	IpMask
2215	Gateway
2220	Quantity
2221	MAC address high
2222	MAC address low
2223	Sent IP address

**MR 2310 ... 2323**

**ACTUAL configuration 3**

These registers let you read the third received ACTUAL configuration.

Register	Command line parameter
2310	NodeID (GNN)
2311	CtrlID
2312	CtrlIDopt
2313	IpAddr
2314	IpMask
2315	Gateway
2320	Quantity
2321	MAC address high
2322	MAC address low
2323	Sent IP address

## 3 Fixed software bugs

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### Introduction

This chapter describes the software bugs which have been fixed in the new OS version.

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## Setting/clearing bits in setup network registers

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**Symptoms**

In the JetSym setup, individual network register bits cannot be set or cleared.

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**Affected versions/revisions**

The following versions/revisions are affected by this bug:

OS version	JC-340/350	< 1.24.0.00
	JC-360(MC)	< 1.22.0.00
Hardware revision	Not relevant	
Configuration or operating mode	Not relevant	

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**Remedy/workaround**

Enter a value into the setup network register.

---

**Remedy**

Starting from the following versions/revisions this bug has been fixed:

OS version	JC-340/350	1.24.0.00
	JC-360(MC)	1.22.0.00
Hardware revision	Not relevant	
Configuration or operating mode	Not relevant	

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