

JX6-SB / JX6-SB-I

Version Update

from V. 2.15 to V. 2.16



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Version Updates - Survey			
Version	Function	upgraded	corrected
	<i>MC Applications</i> Operating system update to intelligent JX2-slave modules		✓
V 2.13	<i>Motion Setup</i>		✓
V 2.12	<i>Fast inputs at JX2-ID8 / JX2-IO16</i> The inputs of the expansion modules JX2-ID8 and JX2-IO16 can be configured as fast inputs	✓	
	<i>Expansion modules JX6-SB(-I)</i> - EX250-SCA1 by SMC	✓	
	<i>Expansion modules JX6-SB-I</i> - Vacon NX frequency converter	✓	
	<i>Remanent values</i> Baud rate, dummy module, etc., can also be stored on the JX6-SB(-I) module as remanent items. This is of special significance for JetControl 800.	✓	
	<i>Error acknowledging and error recognition</i> Error-LED reset and enquiry on the system bus statuses have been optimized.		✓
	<i>JX-SIO</i> After starting the system busses, the values of the analog outputs will be read back. 32-bit register overlay of the digital outputs		✓
V 2.11	<i>Expansion Modules</i> The JX6-SB(-I) submodule now supports the following expansions in the mode master-slave JX6-SB ... - LJX7-CSL-108-ID16 - LJX7-CSL-109-ID16-NPN - LJX7-CSL-107-OD8-2A - LJX7-CSL-113-ID8-OD8 - LJX7-CSL-114-OD16 - Milan Drives	✓	
	<i>Monitoring JX2-I/O Modules</i> The behaviour of the JX6-SB(-I) submodule can be configured	✓	
	<i>JX2-Dummy-Slaves</i> There is no timeout, if JX2-dummy-slaves are applied	✓	
	<i>FESTO CP-FB Modules</i> Parallel mode with JX-SIO is possible	✓	

Version Updates - Survey			
Version	Function	upgraded	corrected
V 2.10	<p><i>JX6-SB Master-Slave Mode</i></p> <p>This has been newly added; it is a special feature of this mode that its IO and register numbers match those of NANO, respectively JC-24X.</p>	✓	
	<p><i>Expansion Modules</i></p> <p>The JX6-SB(-I) submodule now supports the following expansions in the mode master-slave JX6-SB ...</p> <ul style="list-style-type: none"> - JX-SIO - Festo CPV-Direct - Festo CPX-Terminal Unit - SMC SI-Unit - Bürkert Valve Block - Lenze Frequency Converter 	✓	
	<p><i>Master-Master Mode</i></p> <p>A register for direct input of the latest register data number has been added.</p> <p>Now, 32-bit registers can be transferred.</p>	✓	

Important!



While the operating system is being updated, the voltage supply of the controller must not be interrupted.



At an update to operating system version V. 2.16, all remanent values are reset to delivered condition (baud rate, dummy-modules, etc.).

2 Expansions

2.1 WAGO IO System 750

As of this version, modules of the modular WAGO I/O-SYSTEM 750 can be connected by means of the CANopen bus head and be put into operation automatically at the initialization of the system bus. Jetter brand JX2-I/O modules, JX2-Slave expansion modules and Smart I/O JX-SIO connected to the system bus can also be operated simultaneously.



2.1.1 Technical Data

The following technical data have to be taken into account when connecting the WAGO-I/O-SYSTEM 750 to the system bus.

Technical Data	
Maximum number of fieldbus couplers at the system bus	10
Supported fieldbus couplers	750-337 750-338
Module code	68

2.1.2 Module Numbers

For operating the WAGO-I/O-SYSTEM 750 at the Jetter system bus, a module number out of 70 through 79 must be set at the DIP switch of the fieldbus coupler. Via the module number, the register and I/O numbers are set, which are needed for communication between the controller and the WAGO-I/O-SYSTEM 750.

2.1.3 Register Arrays

The register arrays of the WAGO-I/O-SYSTEM 750 correspond to the register arrays of the Jetter JX-SIO modules. In this case, the 'x' needs to be replaced by the respective figures 1 through 9 of the set module number.

Important!



For this chapter, a JX6-SB(-I) submodule placed in a JC-647 is assumed as a basis. In other configurations, the register and I/O numbering changes. In this case, prefixes "3m0", "11m" and "m₁" must be replaced.

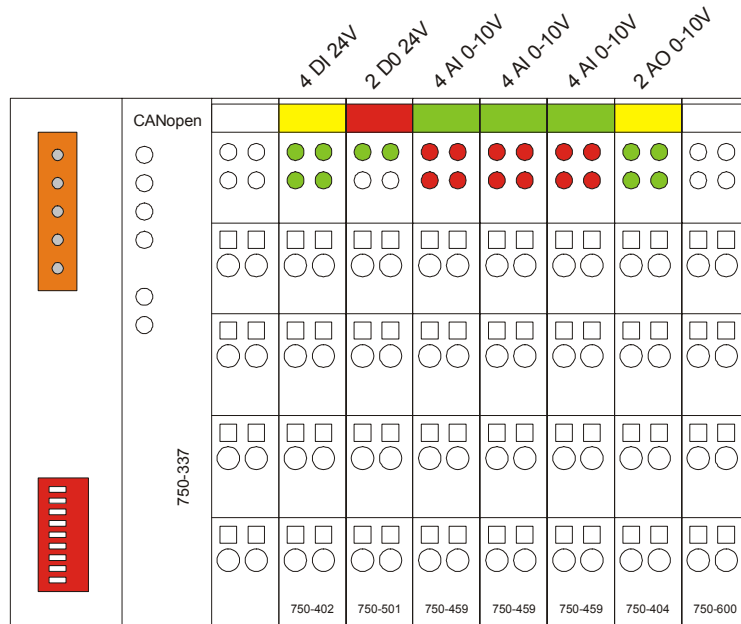
Register Arrays for the WAGO-I/O-SYSTEM 750		
Register Array	Description	Remanent register
3m0 5x00 - 3m0 5x27	Register overlay for digital inputs	-
3m0 5x60 - 3m0 5x71	Analog inputs 16 Bit	-
3m0 6x00 - 3m0 6x27	Register overlay for digital outputs	-
3m0 6x60 - 3m0 6x71	Analog outputs 16 Bit	-
3m0 7x65 - 3m0 7x69	User registers to be configured at will	-
3m0 7x70 - 3m0 7x89	Configuration of error performance	
3m0 7x90 - 3m0 7x99	Diagnostics and administration registers	partially

2.1.4 I/O Area

The numbering of the inputs and outputs at a WAGO-I/O-SYSTEM 750 corresponds to the addresses known from JX-SIO and is carried out as follows:

- The digital inputs have got input numbers IN m₁7x01 through IN m₁7x64. They are numbered from left to right. Terminals without digital inputs are not considered.
- The digital outputs have got output numbers OUT m₁7x01 through OUT m₁7x64. They are numbered from left to right. Terminals without digital outputs are not considered.

Here, the 'x' results from the set module number as well.



In this example, a WAGO-I/O-SYSTEM 750 has been connected to a JX6-SB(-I) submodule in the first submodule socket of a JetControl JC-647. The WAGO-I/O-SYSTEM 750 has got module number 70.

I/O-Numbers			
Module	Type	Input #	Output #
750-337	Coupler		
750-402	4 DI 24 V	IN m ₁ 7001 ... IN m ₁ 7004	
750-501	2 DO 24 V		OUT m ₁ 7001 ... OUT m ₁ 7002
750-459	4 AI 0 - 10 V	REG 3m05060 ... REG 3m05063	
750-459	4 AI 0 - 10 V	REG 3m05064 ... REG 3m05067	
750-459	4 AI 0 - 10 V	REG 3m05068 ... REG 3m05071	
750-404	2 AO 0 - 10 V		REG 3m06060 ... REG 3m06061
750-600	End plate		



For further detailed information on connection and operation of the WAGO-I/O-System 750, please refer to the WAGO user information, which is available at Jetter AG (in German; English translation to be supplied medium-term).

2.2 Resetting the Digital Outputs at Restart

At a restart of the JX6-SB(-I) submodule by means of command 30, all digital output data of the JX2-I/O modules are reset in the process image.

An exception are the JX2-IO16 module as of software version V. 2.01, as well as JX-SIO and third-party modules, such as the Festo CPX terminal. For these modules, the status of the digital and analog outputs can be parameterized in case of a fault condition. When the system bus is parameterized, the controller reads in the actual status of the outputs.

2.3 Timeout Time of the JX2 Slave Register

Important!



For this chapter, a JX6-SB(-I) submodule placed in a JC-647 is assumed as a basis. In other configurations, the register and I/O numbering changes. In this case, prefixes "3m0", "11m" and "m₁" must be replaced.

Register 3m0 2765: Timeout Time of the JX2 Slave Register	
Function	Description
Read	Actual timeout time in milliseconds
Write	New timeout time in milliseconds
Value range	0 - 255
Value after reset	4

Via register 3m02765, the delay time for write and read access to JX2 slave modules can be set. Not before a reply from the JX2-slave module has been transmitted within this time, a timeout error will be displayed.

For setting the timeout time via register 3m02765, make sure the timeout behavior of the controller in connection with the JX6-SB(-I) submodule is taken into consideration.

2.4 Switch-On Delay

Important!



For this chapter, a JX6-SB(-I) submodule placed in a JC-647 is assumed as a basis. In other configurations, the register and I/O numbering changes. In this case, prefixes "3m0", "11m" and "m₁" must be replaced.

At the start of the system bus, a switch-on delay can be activated via special register 3m02032.

The switch-on delay in delivered condition is set by the JX6-SB(-I) submodule depending on the operating mode.

For operation at a JX6-CON-MOVE, the switch-on delay is 0 ms; for operation in master-slave JX6-SB operating mode, the switch-on delay is 2000 ms. The JX6-SB(I) submodule recognizes the operating mode automatically.

Register 3m0 2032: Switch-On Delay	
Function	Description
Read	Actual switch-on delay in steps of 100 ms
Write	New switch-on delay
Value range	0 - 600
Value after reset	on the CAN-MOVE: 0 on the CPU: 20

Register 11m 152: Switch-On Delay of the JX6 CON-MOVE	
Function	Description
Read	Actual switch-on delay for JX6-CON-MOVE in steps of 100 ms.
Write	New switch-on delay
Value range	0 - 600
Value after reset	0

Register 11m 158: Switch-On Delay of the CPU	
Function	Description
Read	Actual switch-on delay for the CPU in steps of 100 ms.
Write	New switch-on delay
Value range	0 - 600
Value after reset	20

Besides via register 3m02032, switch-on delays for the two operating modes can also be read and written via registers 11m152, respectively 11m158.

3 Eliminated Software Bugs

3.1 OS Update – JX2-Slave Module

The update to all possible JX2-slave respectively JetMove-200 modules at the system bus is supported in the Master-Slave JX6-SB operating mode.

3.2 Compatibility with JX6-CON-MOVE

The operating system V. 2.16 of the JX6-SB(-I) submodule is compatible with the operating systems as of V. 3.023 of the JX6-CON-MOVE.

Operating systems V. 2.10 through 2.15, though, were not compatible. If these operating systems are applied, commissioning te connected JetMove might fail.

3.3 Resetting the Output Driver Error

A module number entered in register 3m0 2027 "Error Output Driver" can be set to zero. This way, the error can be reset.

3.4 Storing the Default Values

Storing the default values by means of command 33 could cause resetting of the JX6-SB(-I) submodule in configurations with JX6-CON-MOVE. As of this version, storing functions properly.

3.5 Presentation of Analog Values

As of this version, analog values that are greater than 32767 will not be presented as negative figures any more. This refers to analog values of registers 3m0 5x60 through 3m0 5x71 and 3m0 6x60 through 3m0 6x71 of the JX-SIO and of third-party modules, such as the Festo CPX terminal.

3.6 Busy-Bit / Reading the Status Register

When status register 11m100 of the JX6-SB(-I) submodule was read out immediately after switching on, a timeout between the controller and the JX6-SB(-I) submodule could occur at times. As a result, the controller would then return zero.

At reading the busy-bit directly after issuing a command, zero could shortly be displayed before setting the busy-bit to 1. The following program sequence for initializing the system bus would cause problems:

```
st_JX6_SB.nm_Command := 30;  
WHEN  
    BIT_CLEAR(st_JX6_SB.nm_Status, 13)  
CONTINUE;
```

Picking up the busy-bit immediately after issuing a command functions properly now. When the busy-bit has been picked up according to the above program sequence, the end of initializing the system bus can be waited for.