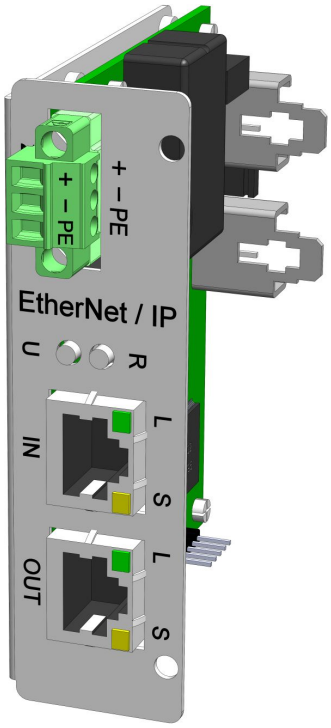



# REOVIB

## Control Equipment for the Vibratory Feeder Industry

## MFS 368
## Frequency Converter for Vibratory Feeders

## Annex: EtherNet-IP V02 - programming

MFS_368_EtherNetIP_V02_Anhang_rev00.en.doc
30.11.2020

## Safety notice for the user

This description contains the required information for the intended usage of the products described herein. They are intended for use by technically qualified personnel.

Qualified personnel are those persons who, due to their training, experience and instruction, as well as their knowledge of the relevant standards, requirements, accident prevention regulations and operational conditions, are authorized by those responsible for the safety of the system to carry out their respective duties, and to recognize possible dangers and prevent them (Definition for experts according to IEC 364).

### Danger warnings

The following notices serve to protect the personnel safety of the operators and the safety of the described products as well as the devices connected to them.

**Warning!**
Dangerous Voltage.
Inattention can lead to death, serious injuries or damage to equipment.

- Turn off the supply power before assembly or disassembly work and when fuses are changed, or equipment modifications are undertaken.
- Observe the applicable accident prevention and safety regulations for the respective application.
- Before placing the equipment in operation, check whether the rated voltage of the device is in agreement with the supply voltage.
- **Emergency OFF equipment must remain effective in all operating modes. Unlocking the emergency OFF equipment must not cause an uncontrolled startup of equipment.**
- **The electrical connections must be covered!**
- **The ground lead connections must be inspected after mounting to insure that they function perfectly!**

### Usage according to the regulations

The devices described herein are electrical operational equipment for application in industrial systems. They are constructed for the regulation of vibratory feeder equipment.

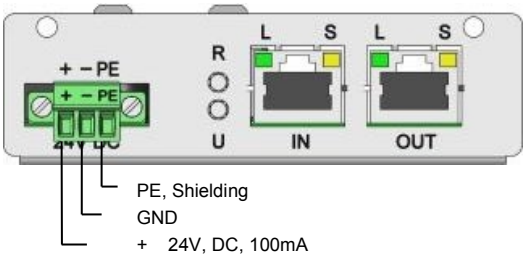
## Contents

## 1.0 General

The frequency converter for vibratory feeders REOVIB MFS 368 series can be operated with a EtherNet-IP interface. In "normal mode" the setpoint value for the conveying capacity is transmitted from the PLC to the controller and the device status (ready for operation / fault) is reported back. In a further parameter mode, the device can be fully configured via EtherNet-IP.
For the interface an external voltage supply of 24 V DC is required.

Delivery of the equipment belongs a corresponding EDS-File.

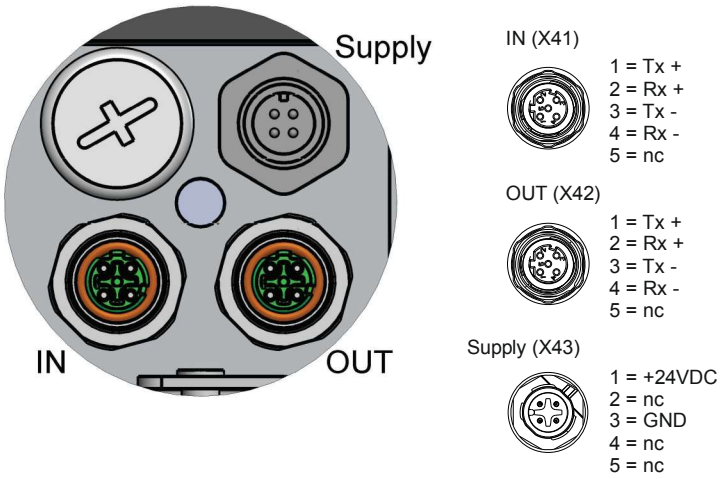
**Interface module (IP20)**




R = continuous light: Communication externally active
blinking or Off: Communication disturbed externally

U = blinking: Operating voltage available

**Interface connection (IP54)**




The interface enables communication with the frequency converter, using 4 data words (i.e. 16 Bits). The four 16 Bit words are transmitted and acknowledged every bus cycle.

**! Important – Data consistence is required to operate with EtherNet-IP!**

***Note:*** **Please refer to the respective manufacturer documentation for information on specifications and procedures for ensuring data consistency for the PLC model you are using.**

Units are factory set prior to delivery and so are configured for bus operation. If the unit is required for manual control then the parameter “Bus operation“ in menu “Interface” should be deactivated. You get back to bus operation, if you activate this parameter again.

## 2.0 Interface operation (EtherNet-IP)

| | |
|---|---|
| Bus Power Supply | 24 V, DC, 250 mA |
| Bus connector | 2 x RJ-45 |
| Internal interface | CAN-Bus |
| Supported baud rates | 1000 kBaud |
| Communication | Data consistency required |
| Protocol | EtherNet-IP |

## 3.0 Activate interface

To activate interface operation, the "Bus operation" parameter must be activated in the "Interface" menu. If the unit is to be operated manually, this parameter must be deactivated.
**Important: The "Bus address" parameter must remain set to "1" and the "Bit rate" parameter to 1Mbit/s.**

| No. | Menu / Parameter | Meaning | Adjustment |
|---|---|---|---|
| 5 | **Interface** | | |
| 5.1 | Bus operation | Interface activate / deactivate | ☑/☐ |
| 5.2 | Bus address | Internal bus address (do not change) | 1…16 |
| 5.3 | Bit rate | Internal bus bitrate (do not change) | 1Mbit/s / 500kbit/s |
| 5.4 | CAN Proto | Interface protocol (do not change) | V1.i / V2.f |

## 4.0 EDS-File

Following EDS File is required for the operation with the EtherNet-IP interface:

| **EDS File name:** | **reogate.eds** |
|---|---|

The EDS-file is supplied on a CD with each new unit or alternatively, visit www.reo.de to download the file from the website.

## 5.0 Bus operating modes

Two fundamental operating modes can be chosen for bus communication.

### 5.0.1 Normal Operation

Control of the frequency controller in production, in which case the Set point and ON/OFF control signals are transmitted.

### 5.0.2 Parameter Operation

Set the working unit to the desired operating modes and limit values.
In a special mode, parameter addresses and the parameters themselves are transferred to the working unit and received again as confirmation.

Parameter operation mode is not suitable for continuously setting of values as it releases write operations in the internal retentive memory while the latter enables only a limited number of memory processes.

**Control-words** and **Status-words** functionally are composed of 16 individual Bits (Control-word) or resp. 1 Byte and 8 Bits (Status-word). Depending on the possibilities of the PLC used, there are several procedures to create the Control-word as desired. If this is composed of smaller blocks (Byte/Bit), it must be observed in which order the PLC used maps high- and low byte in the storage area.
With limited number of possible combinations these can be predefined as a constant for example and then transmitted into the word to perform the function (0000H, 0004H, 8000H and 8004H. Please consider that the unit will keep running only with a set enable bit.)

The Status-word includes the Status-Code as a Byte value as well as additional Status-Indications in Bit form. As in the Bit-area there are various un-defined Status-Bits (these are provided only for internal production tests and may be modified in their function any time), the Status-word cannot be meaningfully evaluated with a simple comparative operation.
Prior to its comparison the value of the Status-code must be extracted. Same applies to an individual Status-Bit. Depending on PLC used, for ex-ample there are options such as Variable Overlay, Mask Out by means of linking functions (and/or in case of need also push operations and type conversion) or Slice access. With trouble-free running unit it is possible to recognize from the returned value A5H, in which order the PLC is storing High- and Low-Byte in memory.

The internal processing cycle for bus communication is at about 32 msec. The data transmitted to the unit are not internally buffered, and therefore it is necessary that the parameter command remains unchanged until the associated feedback has not acknowledged its receipt.

## 5.1 Programming for the Bus operation

In normal operation the set point for Amplitude (throughout/feed rate) and the digital control signals, such as enable are set across the interface. The actual voltage/current values and unit status (ready or fault) are fed back. All data words are within the range 0…65535. Please note that these are unsigned data values which, depending on the possibilities of the PLC used, may have to be converted between different data formats (e.g. if the PLC only supports data formats with signs during processing). In order to be able to detect overruns in the actual values, the value range 0...65535 is designed for 0...200 %.

### 5.1.1 Send to controller

| H-Byte | | | | | | | | L-Byte | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | **Word 1**<br>0000 H (reserve) |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 2** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Set point 1, 16-Bit 100 % = FFFF H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 3** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Reserved |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 4** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| 0 **Mode bit** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 Enable | 0 | 0 | Control - word<br>Bit = „1“ = Function ON<br>All unused bits MUST be set to `0` |
| | Control information (unit specific) | | | | | | | | | | | | | | | |

0 = Normal operation
1 = Parameter operation

Enable-bit

### 5.1.2 Reply from controller

| H-Byte | | | | | | | | L-Byte | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | **Word 1**<br>xxxx H (undefined) |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 2 (only in regulation mode)** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Feedback actual acceleration<br>16 Bit 100% = 8000H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 3** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Feedback actual output current,<br>16 Bit 100% = 8000H (in % of I-nominal) |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 4** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| Status - Code<br>ERROR - Code | | | | | | | | X | X | X | OFF | X | X | X | X | Status - Word<br>X = not defined<br>Bit = „1“ = Function ON |
| | | | | | | | | Status information<br>Unit specific | | | | | | | | |

| | |
|---|---|
| 00 | Unit not responding |
| A5 (H) | Unit ready |
| 47 (H) | ERROR Peak I |
| 58 (H) | ERROR OC |
| 02 (H) | ERROR OL |
| 0C (H) | ERROR ACC |
| 37 (H) | ERROR OU DC-link |
| C0 (H) | Feedback Parameter mode |

OFF - Bit
Feedback

Status, actual acceleration and actual output current are received.

## 5.2 Parameter Operation

In parameter operation, the specific unit parameters can be monitored and adjusted.
A `write` enable must be transmitted before parameters can be altered. On closing, the `write` enable must be cancelled.

A `read` request must be sent before data can be read.

Word 4 in the acknowledge is always `C0DE H`. This indicates that the controller is in parameter mode.

After a command, has been sent, it is inadmissible to await the associated positive response before the next command is sent!

### 5.2.1 Creating parameter addresses and values

In parameter operation the most significant bit (msb) in Word 1 is defined as a read or write bit (R/W), where 1 = write and 0 = read, this should be accompanied by the corresponding parameter address.

The mode bit (msb in Word 4) is used to select normal or parameter operation, 0 = Normal or 1 = parameter operation.

| | | |
|---|---|---|
| **Word 1:** | **reserved** | **0000 H** |
| **Word 2:** | **R / W – Bit + Address** | **e.g. 8000 H + 1009 H => 9009 H** |
| **Word 3:** | **Value of the parameter** | **e.g. 7FFF H** |
| **Word 4:** | **Mode bit = 1 + Control bit's** | **e.g. 8000 H + 0004 H => 9004 H** |

**For bit, orientated parameters, ONLY those bits relating to the required function may be changed, all other bits MUST remain unaltered, otherwise factory specific settings may be inadvertently altered!**

**Procedure for changing bit parameters:**
1. Select parameter value
2. Change only the required bit (s) in the selected parameter
3. Send `write` enable
4. Send the changed parameters back to the same address
5. Close the `write` enable

**Alternative proposal:**
1. Switch on write enable first.
2. Then read out the current value immediately before writing.
3. Modify immediately and write back immediately.
4. Do not reset the write enable until all parameterization options have been terminated.

### 5.2.2 Send write enable

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 1** |
| **00** | | | | | | | | **00** | | | | | | | | 0000 H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 2** |
| **C0** | | | | | | | | **DE** | | | | | | | | Write Enable Address =C0DE H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 3** |
| **B5** | | | | | | | | **E7** | | | | | | | | Write Enable =B5E7 H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 4** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Control - Word + 8000 H |
| **1 Mode bit** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Mode Bit must be set to `1`!!<br>All unused bits <u>must</u> be set to `0`<br>Bit = „1" = Function ON |
| | Control information (unit specific) | | | | | | | | | | | | | | | |

### 5.2.3 Recive, Acknowledge Write Enable

| H-Byte | L-Byte | **Word 1** |
|---|---|---|
| **00** | **00** | xxxx H |
| H-Byte | L-Byte | **Word 2** |
| **C0** | **DE** | C0DE H |
| H-Byte | L-Byte | **Word 3** |
| **B5** | **E7** | B5E7 H |
| H-Byte | L-Byte | **Word 4** |
| **C0** | **DE** | C0DE H |

The parameters can be sent after receipt of the acknowledge.

### 5.2.4 Send Parameter

| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 1** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **00** | | | | | | | | **00** | | | | | | | | 0000 H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 2** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| **R / W** | *Parameter address* | | | | | | | | | | | | | | | Parameter address + R / W – Bit (16-Bit) **=** 0...FFFF H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 3** |
| ***XX*** | | | | | | | | **XX** | | | | | | | | Parameter value (16-Bit) = 0...FFFF H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 4** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| **1 Mode bit** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Control - Word + 8000H<br>Mode must be set to `1`!!<br>All unused bits must be set to `0`<br>Bit = „1“ = Function ON |
| | Control information (unit specific) | | | | | | | | | | | | | | | |

### 5.2.5 Received acknowledge

| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 1** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **00** | | | | | | | | **00** | | | | | | | | xxxx H |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 2** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| **R / W** | *Parameter address* | | | | | | | | | | | | | | | Confirmation of the sent address. + R / W - Bit |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 3** |
| ***xx*** | | | | | | | | ***xx*** | | | | | | | | Confirmation parameter value. |
| H-Byte | | | | | | | | L-Byte | | | | | | | | **Word 4** |
| **C0** | | | | | | | | **DE** | | | | | | | | Confirmation parameter mode. (always „C0DE“ H) |

### 5.2.6 Close write enable

| H-Byte | L-Byte | |
|---|---|---|
| **00** | **00** | **Word 1**<br>0000 H |
| H-Byte | L-Byte | **Word 2**<br>Write Enable Address =C0DE H |
| **C0** | **DE** | |
| H-Byte | L-Byte | **Word 3**<br>Enable value 0000 |
| **00** | **00** | |
| H-Byte | L-Byte | **Word 4**<br><br>Control - Word + 8000 H<br><br>Mode bit must be set to `1`!!<br><br>All unused bits must be set to `0`<br><br>Bit = „1“ = Function ON |

| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mode bit** | | | | | | | | | | | | | | | |
| **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | |
|---|---|---|
| | Control information (unit specific) | |

### 5.2.7 Parameter read (send)

| H-Byte | L-Byte | |
|---|---|---|
| **00** | **00** | **Word 1**<br>xxxx H |
| H-Byte | L-Byte | **Word 2** |

| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R / W** | *Parameter address* | | | | | | | | | | | | | | |

Parameter address + R / W - Bit

| H-Byte | L-Byte | |
|---|---|---|
| **00** | **00** | **Word 3**<br>Read enable value = 0000 |
| H-Byte | L-Byte | **Word 4** |
| **80** | **00** | Mode bit = 1 + Control bits |

### 5.2.8 Received parameter

| H-Byte | L-Byte | |
|---|---|---|
| **00** | **00** | **Word 1**<br>xxxx H |
| H-Byte | L-Byte | **Word 2** |

| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R / W** | *Parameter address* | | | | | | | | | | | | | | |

Confirmation
Parameter address + R / W - Bit

| H-Byte | L-Byte | |
|---|---|---|
| **XX** | **XX** | **Word 3**<br>Parameter value |
| H-Byte | L-Byte | **Word 4** |
| **C0** | **DE** | Confirmation parameter mode |

## 6.0 Parameters table

Non listed addresses cannot be altered!

| Parameter: | Adjustment | Display-Code | Factory Setting: | Parameter address HEX (.bit) | Value HEX |
|---|---|---|---|---|---|
| **Vibratory feeder** | | | | | |
| • Amplitude (throughput) | 0...100 % | Feeder | 0 % | 0x100C | 0x0000...0xFFFF |
| • Second set point / coarse - fine | 0…100 % | 2. | 0 % | 0x1006 | 0x0000...0xFFFF |
| • Maximum control limit ($U_{max}$) | 5...100 % | Max. | 90 % | 0x1009 | 0x0CCC...0xFFFF |
| • Vibrating frequency (according to limit value) | 3,33...333 Hz | Frequency | 100 Hz | 0x1005 | 01F4...7530 H 500...30000 dec. (FL.)...(FH.) |
| • Soft start ramp up | 0...60 sec. | Soft start | 0,1 sec. | 0x1013 | 0x0000...0xFFFF |
| • Soft stop ramp down | 0...60 sec. | Soft stop | 0,1 sec. | 0x1012 | 0x0000...0xFFFF |
| • Switch to external set point | ☑/☐ | External setpoint | ☐ | 0x5800 | 0x0000 / 0x FFFF |
| • Setpoint 0(4)...20 mA | ☑/☐ | Setpoint | ☐ | 0x5801 | 0x0000 / 0x FFFF |
| • Coarse / Fine control | ☑/☐ | Coarse / Fine | ☐ | 0x580C | 0x0000 / 0x FFFF |
| • Invert enable | ☑/☐ | Invert. Enable | ☐ | 0x5811 | 0x0000 / 0x FFFF |
| **Regulation (with sensor)** | | | | | |
| • Switch to regulation | ☑/☐ | Acc. Regulator | ☐ | 0x5808 | 0x0000 / 0x FFFF |
| • P characteristic | 0...100 | Proportional | 40 | 0x100F | 0x0000...0xFFFF |
| • I characteristic | 0...100 | Integral | 100 | 0x1014 | 0x0000...0xFFFF |
| • Automatic frequency control | ☑/☐ | Auto. Freq. | ☐ | 0x5809 | 0x0000 / 0x FFFF |
| **Track control** | | | | | |
| • Switch on time delay | 0...60 sec. | T-ON | 1 sec. | 0x1003 | 0x0000...0xFFFF |
| • Switch off time delay | 0...60 sec. | T-OFF | 1 sec. | 0x1002 | 0x0000...0xFFFF |
| • Invert sensor | ☑/☐ | Invert. Input | ☐ | 0x580A | 0x0000 / 0x FFFF |
| **Sensor control** | | | | | |
| • Sensor Time-out | ☑/☐ | Timeout on | ☐ | 0x580B | 0x0000 / 0x FFFF |
| • Sense time delay (Sensor Time-out) | 1...240 sec. | Timeout | 180 sec. | 0x1004 | 0x0000...0xFFFF |
| **Interface (option)** | | | | | |
| • Interface OFF / ON | ☑/☐ | Bus operation | ☑ | 0x5854 | 0x0000 / 0x FFFF |
| **Service** | | | | | |
| • ERROR Reset | Reset | ERROR Reset | | 0x1400 | 0xC009 |
| • Hide programming menus | ☑/☐ | Hd.C. | | 0x5804 | 0x0000 / 0x FFFF |
| • Choose user parameter menu No. 0...3 | 0...3 | Parameter set | 0 | | [2] |
| • Save user settings | | Parameter set loading | | | [2] |
| • Recall factory settings | | Load factory settings | | | [2] |
| • Choose user parameter menu No. 0...3 | 0...3 | U.S.I. | 0 | | [2] |
| • Recall user parameter | | Saving Parameter | | | [2] |

| Parameter: | Adjustment | Display-Code | Factory Setting: | Parameter address HEX (.bit) | Value HEX |
|---|---|---|---|---|---|
| **Service limits** | | | | | |
| • Enable service menu | ☑/☐ | Service | ☐ | 0x5834 | 0x0000 / 0x FFFF |
| • Show output current (0... 100 %) | | Ist-Strom | | 0x200A | 0x0000...0x8000 H |
| • Current limit | 0...100 % | Current limit | 100 | 0x1016 | 0x0000...0xFFFF |
| • Current regulator P-part | 1…100 | Prop | 20 | 0x100D | 0x0000...0xFFFF |
| • Current regulator I-part | 1…100 | Integral | 40 | 0x1032 | 0x0000...0xFFFF |
| • Min frequency limit | 5…150 Hz | Min. Freq. | 35 | 0x1020 | 0x01F4…0x7530 500…30000 dec. |
| • Max frequency limit | 5…150 Hz | Max. Freq. | 140 | 0x1021 | 0x01F4…0x7530 500…30000 dec. |

1) Not available IP20 Version
2) Not for fieldbus operation

## 7.0 Example of bus communication with Frequency controller

Variable values are shown in *italics*.

## 7.1 Normal mode

(Set point to 70 %)

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Send Set point | 1 | 0000 H | | 0000 H | |
| | 2 | B332 H | **Set point = 70 %** | --- | --- |
| | 3 | | | | |
| | 4 | *0004 H* | Enable ON | *A5xx H* | Ready |

Enable ON, Stop controller (with enable)

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Send set point | 1 | 0000 H | | 0000 H | |
| | 2 | B332 H | **Set point = 70 %** | --- | --- |
| | 3 | | | | |
| | 4 | *0000 H* | Enable OFF | *A5xx H* | Ready |

## 7.2 Parameter mode

(e.g. set frequency to 50 Hz and soft start to 2 second)

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Open write enable | 1 | 0000 H | | 0000 H | |
| | 2 | C0DE H | Write enable address | C0DE H | Acknowledge |
| | 3 | B5E7 H | Write enable value | B5E7 H | Acknowledge |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

| | | | | | |
|---|---|---|---|---|---|
| Write parameter | 1 | 0000 H | | 0000 H | |
| | 2 | 9005 H | Parameter address Vibrating frequency + R / W - Bit | 9005 H | Acknowledge |
| | 3 | *1388H* | **Frequency 50 Hz** | *1388 H* | Acknowledge 50 Hz |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

| | | | | | |
|---|---|---|---|---|---|
| Write parameter | 1 | 0000 H | | 0000 H | |
| | 2 | *9013 H* | Parameter address Soft start + R / W - Bit | *9013 H* | Acknowledge |
| | 3 | *3333 H* | **Soft start 2 sec.** | *3333 H* | Acknowledge 2 seconds |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Close write enable | 1 | 0000 H | | 0000 H | |
| | 2 | C0DE H | Write enable address | C0DE H | Acknowledge |
| | 3 | 0000 H | Write enable value | 0000 H | Acknowledge |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

Example of switch parameter change

**Enable invert**

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Open write enable | 1 | 0000 H | | 0000 H | |
| | 2 | C0DE H | Write enable address | C0DE H | Acknowledge |
| | 3 | B5E7 H | Write enable value | B5E7 H | Acknowledge |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

| | | | | | |
|---|---|---|---|---|---|
| Write parame-ter | 1 | 0000 H | | 0000 H | |
| | 2 | *D811 H* | Parameter address | *D811 H* | Acknowledge |
| | 3 | *FFFF H* | New parameter | *FFFF H* | Acknowledge |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Close write enable | 1 | 0000 H | | 0000 H | |
| | 2 | C0DE H | Write enable address | C0DE H | Acknowledge |
| | 3 | 0000 H | Write enable value | 0000 H | Acknowledge |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

(Read only the parameter)

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Read | 1 | 0000 H | | 0000 H | |
| | 2 | *1013 H* | Parameter address Soft start | 1013 H | Acknowledge |
| | 3 | 0000 H | Read parameter | *8000 H* | Parameter value ( => 5 seconds) |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge Parameter mode |

## 7.3 RESET Controller

| | Word | Code | **send** | Code | **Received** |
|---|---|---|---|---|---|
| Open write enable | 1 | 0000 H | | 0000 H | |
| | 1 | C0DE H | Write enable address | C0DE H | Acknowledge |
| | 2 | B5C9 H | Write enable value | B5C9 H | Acknowledge |
| | 3 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | Acknowledge |

| | | | | | |
|---|---|---|---|---|---|
| Write parameter | 1 | 0000 H | | 0000 H | |
| | 2 | *9400 H* | Parameter address Reset + R / W - Bit | *0000 H* | Acknowledge |
| | 3 | *C009 H* | **RESET.** | *0000 H* | |
| | 4 | 8000 H + Control bits | Set mode bit = 1 | C0DE H | |

Allow approximately 0.5 sec. for RESET

## 8.0 Methods for setting the IP address

1. BOOTP-DHCP Server Version 3.01.00 (Rockwell Automation)
2. RSLinx Classic 4.11.00

## 8.1 Set IP address, BOOTP-DHCP Server

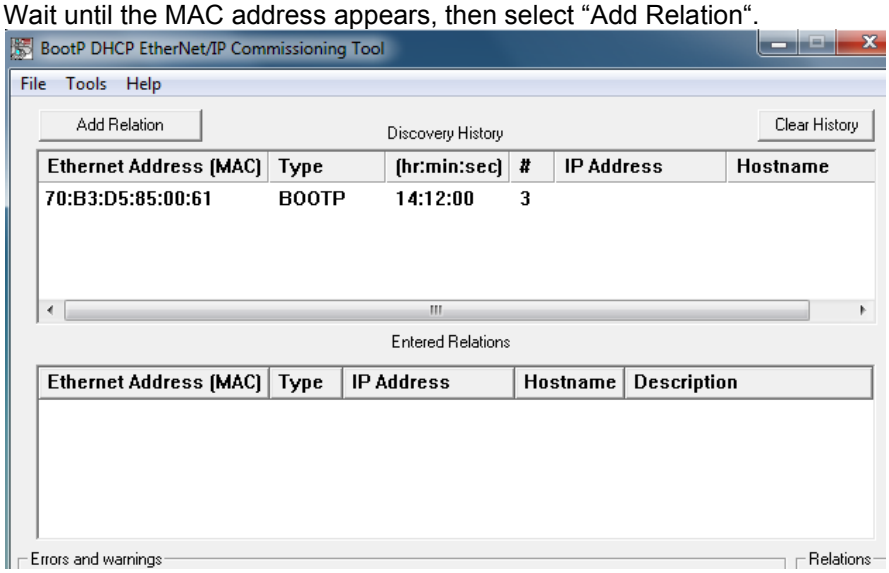
1. Please download BOOTP-DHCP Server Version 3.01.00 (Rockwell Automation)

   The software can be downloaded with the following link (registration is required):
   https://rockwellautomation.custhelp.com/app/answers/detail/a_id/19793

**Important:** Before the BOOTP-DHCP server is started, the MAC address of the card must be noted.

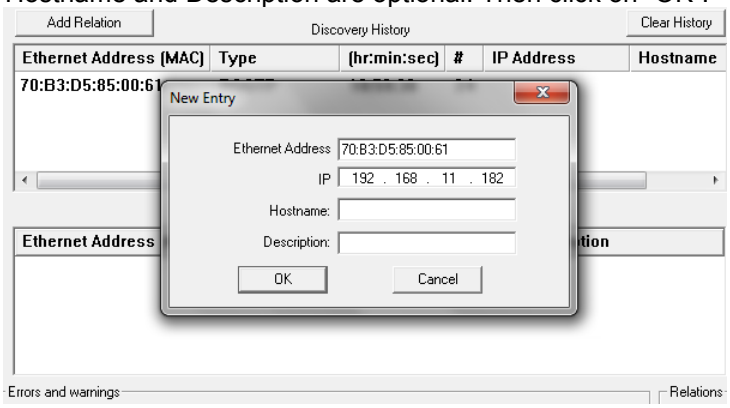
2. Start the BOOTP-DHCP software and configure the network first. Select “Network Settings“ in the “Tools“ menu.

3. Wait until the MAC address appears, then select “Add Relation“.

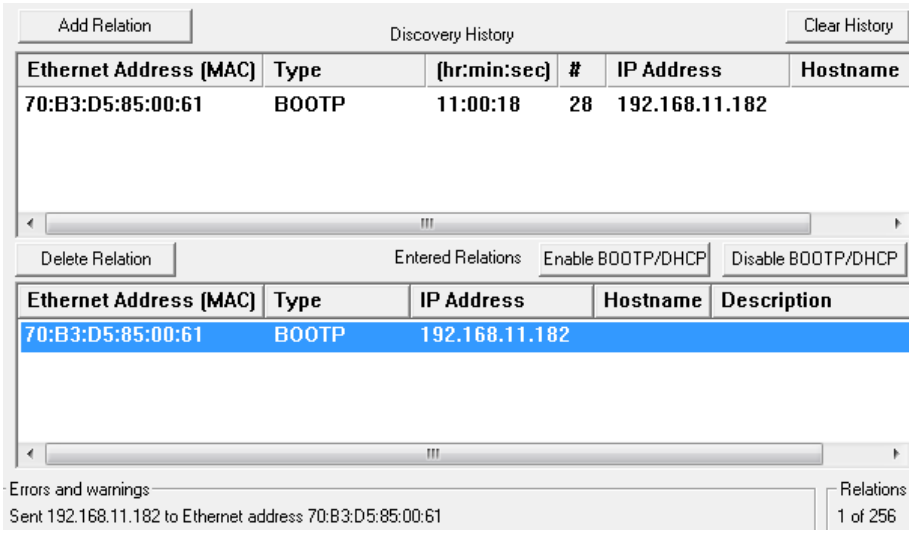



If the MAC address is not displayed, there may be the following reasons:
- The firewall blocks the BOOTP-DHCP server
- The card already has a configured IP address
- Network configuration (the card is not directly accessible)
- Wiring (Ethernet cable is defective or not connected, no supply voltage, etc.)

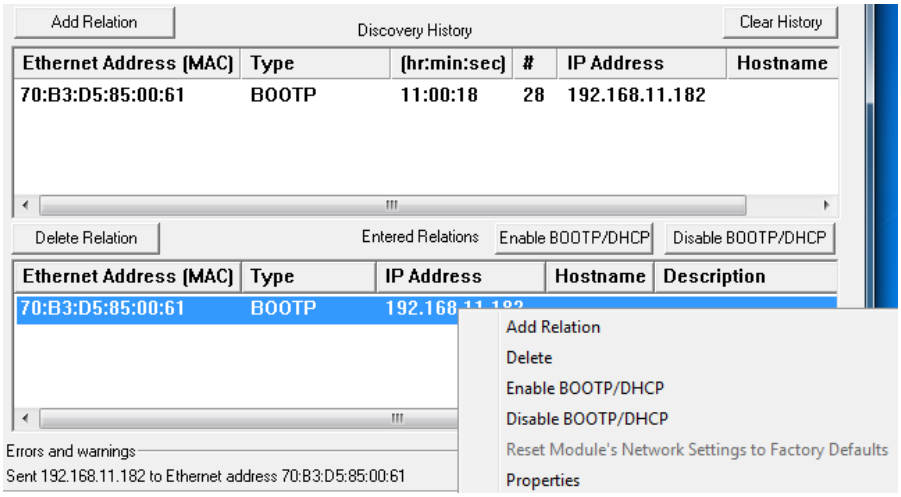
4. After clicking “Add Relation“, a “New Entry“ window appears and an IP address must be entered. Hostname and Description are optional. Then click on “OK“.



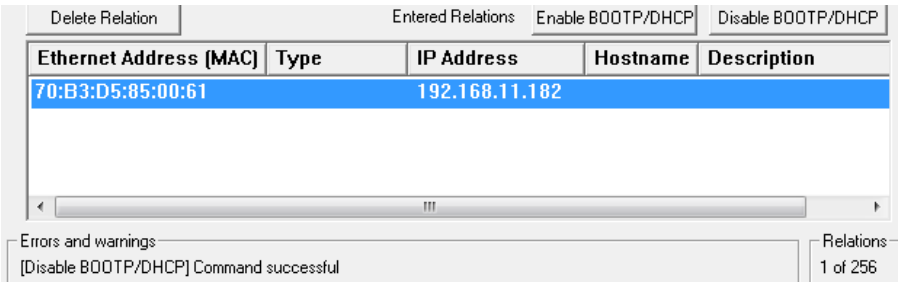
5. The card appears in the “Relation List“.




6. Now it is important to right click on the entry and select “Disable BOOTP/DHCP“ from here. (The “Enable or Disable BOOTP/DHCP” button does not work reliably)




7. If “Command successful“ appears below, the conficuration was successfull.



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