

KraussMaffei MC4 Ethernet Driver Help

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KraussMaffei MC4 Ethernet Driver Help

Help version 1.007

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Overview

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Error Descriptions

What error messages does the KraussMaffei MC4 Ethernet driver produce?

Overview

The KraussMaffei MC4 Ethernet Driver was designed specifically to be used in conjunction with 32 bit OPC Server products. It is intended for use in communicating with KraussMaffei MC4-Injection Moulding Machines. The driver supports the TCP/IP transport protocol.

Note: Please refer to the OPC Server Help documentation for operating system requirements.

Device Setup

Supported Devices

MC4-Injection Moulding Machine

Note: Simultaneous device connections are not allowed. For more information, refer to Connection Limitations below.

Supported Protocols

TCP/IP only.

Connection Timeout

This parameter specifies the time the driver will wait for a connection to be made with a device. Depending on network load the connect time may vary with each connection attempt. The default setting is 3 seconds. The valid range is 1 to 60 seconds.

Request Timeout

This parameter specifies the time the driver will wait on a response from the device before giving up and going on to the next request. Longer timeouts only affect performance if a device is not responding. The default setting is 1000 milliseconds. The valid range is 100 to 9999 milliseconds.

Retry Attempts

This parameter specifies the number of times the driver will retry a message before giving up and going on to the next message. The default setting is 3 retries. The valid range is 1 to 10.

Device IDs

Up to 255 devices may be defined on a given channel. Each device on the channel must be uniquely identified by its own IP address.

Connection Limitations

MC4-Injection Moulding Machine only supports 1 connection at a time from a host device.

Addressing Options

A parameter object name can be up to 36 characters long. In order to reduce the number of transmission data, the MC4 computer interface has the facility for allocating an identification number (parameter handle) to each parameter object name. These parameter handles consist of 4-figure hexadecimal numbers that carry the '\$' sign as prefix. This means that the parameter object name can be reduced from a maximum 36 down to just 5 characters. For example, "\$0001" or "\$001B".

When **Parameter Handles** is checked, the driver will acquire the parameter handle for each tag and then use it to make the request to the MC4 controller. When the box is left unchecked, the full 3 part parameter object name will be used to make the request to the MC4.

Communications Parameters

Port Number

This parameter specifies the port number the remote device is configured to use. The default port number is 18901.

Protocol

This parameter specifies whether the driver should connect to the remote device using the User Datagram Protocol (UDP) or Transfer Control Protocol (TCP).

Note 1: This driver requires Winsock V1.1 or higher.

Note 2: This driver only supports TCP.

Request Size

Request size refers to the number of parameter objects that may be requested from a MC4 device at one time. To refine the performance of this driver, the request size may be configured to either **Standard Mode** or **Extended Mode**. In Standard Mode, up to 4 parameter objects can be requested from a MC4 device at one time. In Extended Mode, up to 16 parameter objects can be requested from a MC4 device at one time. The default setting is Extended Mode.

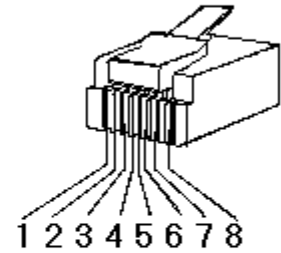
Cable Diagrams

Patch Cable (Straight Through)

TD + 1	OR/WHT	OR/WHT	1	TD +
TD - 2	OR	OR	2	TD -
RD + 3	GRN/WHT	GRN/WHT	3	RD +
4	BLU	BLU	4	
5	BLU/WHT	BLU/WHT	5	
RD - 6	GRN	GRN	6	RD -
7	BRN/WHT	BRN/WHT	7	
8	BRN	BRN	8	

RJ45 RJ45

10 BaseT



Crossover Cable

TD + 1	OR/WHT	GRN/WHT	1	TD +
TD - 2	OR	GRN	2	TD -
RD + 3	GRN/WHT	OR/WHT	3	RD +
4	BLU	BLU	4	
5	BLU/WHT	BLU/WHT	5	
RD - 6	GRN	OR	6	RD -
7	BRN/WHT	BRN/WHT	7	
8	BRN	BRN	8	

RJ45 RJ45

8-pin RJ45

Data Types Description

Data Type	Description
Double	64 bit floating point value. The driver converts the Decimal ASCII string response to a Double.
Float	32 bit floating point value. The driver converts the Decimal ASCII string response to a Float.
String	Null terminated ASCII string

Address Descriptions

Access to data in the MC4 controller is accomplished by the use of named parameter objects. Each parameter object is composed of the following three name sections:

<parameter object name>.<element name>.<value name>

The number of possible elements within an object and the names of these elements are subject to the object type. The possible values of a parameter element on the other hand are a function of the element type.

All functionally related parameters are united in a <parameter object>. For instance, parameter object SCRW1_H_BAR_Z01 contains all parameters that are connected with the barrel heating zone 1 of injection unit 1. A single element of the parameter object is designated <parameter element>. The number of possible parameter elements within an object is subject to its type. In the case of a barrel heating zone:

SET Set-value
ACT Actual-value

With the <parameter value> detail, it is determined that the information of the parameter element is to be read or written. Conventional parameter values are as follows:

VAL current value
MIN minimum value
MAX maximum value
LTXT parameter plain text
DIM Dimension (= physical unit)

If you want to read out the maximum value of the set value of barrel zone 1, the complete parameter name must read as: "SCRW1_H_BAR_Z01.SET.MAX".

The KraussMaffei MC4 Ethernet Device Driver supports the following parameter element types.

1. Set analog value parameter <Objectname>.**SET**.<xxx>

The following values are available with an analog value parameter.

Name	Description	Access	Data Type
VAL	Current value of the parameters	Read/Write	Float or Double
MIN	Lower limiting value of the parameters	Read Only	Float or Double
MAX	Upper limiting value of the parameter	Read Only	Float or Double
DIM	Physical unit in the language of the actual country	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

2. Actual analog value parameter <Objectname>.**ACT**.<xxx>

The following values are available with an analog value parameter.

Name	Description	Access	Data Type
VAL	Current value of the parameters	Read Only	Float or Double
MIN	Lower limiting value of the parameters	Read Only	Float or Double
MAX	Upper limiting value of the parameter	Read Only	Float or Double
DIM	Physical unit in the language of the actual country	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

3. Switching function / status <Objectname>.**SEL**.<xxx>

The following values are available with a switching function:

Name	Description	Access	Data Type
VAL	Current value of the parameter	Read/Write	Float or Double
MAX	Maximum selection function value	Read Only	Float or Double
LTXT	Parameter text in the current country's language	Read Only	String

4. String parameter <Objectname>.**STR**.<xxx>

The following values are available with a string parameter:

Name	Description	Access	Data Type
VAL	Current string of the parameters	Read/Write	String
LEN	Maximum permissible length of the string	Read Only	Float or Double
LTXT	Parameter text in the current country's language	Read Only	String

5. Date/time parameter <Objectname>.**TIM**.<xxx>

The following values are available with a date parameter:

Name	Description	Access	Data Type
VAL	Value as no. of seconds since 01.01.1980	Read/Write	Float or Double
DATE	Date in the format "tt.mm.jj"	Read Only	String
CLOCK	Time in the "hh:mm" format	Read Only	String
CLKSEC	Time as seconds in the "hh:mm:ss" format	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

6. Duration parameter <Objectname>.TIM.<xxx>

The following values are available with a time parameter:

Name	Description	Access	Data Type
VAL	Value as number of seconds	Read/Write	Float or Double
TIME	Duration as "hhh:mm" format	Read Only	String
TIMSEC	Duration in seconds as "hhh:mm:ss" format	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

7. Cycle actual parameter <Objectname>.CYCACT.<xxx>

The following values are available with the parameters:

Name	Description	Access	Data Type
CYCVAL	Cycle value of the parameter of cycle CYCNUM	Read Only	Float or Double
CYCNUM	Cycle number of the cycle parameter	Read Only	Float or Double
CYCFLG	Flags: Bit 0 – Quality control active Bit 1 – +Tolerance fault Bit 2 – - Tolerance fault Bit 3 – Startup scrap cycle Bit 8 – value not guilty	Read Only	Float or Double
DIM	Physical dimension in current country's language	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

8. <Objectname>.CYCCNT.<xxx>

The following values are available with the parameters:

Name	Description	Access	Data Type
VAL	Current value of the parameter	Read Only	Float or Double
CYCNUM	Cycle number of the cycle parameter	Read Only	Float or Double
DATE	Date in the format "tt.mm.jj"	Read Only	String
CLOCK	Time in the "hh:mm" format	Read Only	String
CLKSEC	Time as seconds in the "hh:mm:ss" format	Read Only	String
TIME	Duration as "hhh:mm" format	Read Only	String
TIMSEC	Duration in seconds as "hhh:mm:ss" format	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

9. <Objectname>.CAVSET.<xxx>

The following values are available with the parameters:

Name	Description	Access	Data Type
VAL	Current value of the parameter	Read/Write	Float or Double
MIN	Lower limiting value of the parameters	Read Only	Float or Double
MAX	Upper limiting value of the parameter	Read Only	Float or Double
DIM	Physical unit in the language of the actual country	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

10.<Objectname>.**CAVCNT**.<xxx>

The following values are available with the parameters:

Name	Description	Access	Data Type
VAL	Current value of the parameter	Read Only	Float or Double
MIN	Lower limiting value of the parameters	Read Only	Float or Double
MAX	Upper limiting value of the parameter	Read Only	Float or Double
DIM	Physical unit in the language of the actual country	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

11.<Objectname>.**ALARM**.<xxx>

The following values are available with the parameters.

Name	Description	Access	Data Type
NUM	Alarm number	Read Only	Float or Double
TIME	Time of Occurrence as "tt.mm.jj hh:mm:ss" format*	Read Only	String
LTXT	Parameter text in the current country's language	Read Only	String

*Value of <Objectname>.**ALARM.TIME** can be used to determine if the alarm is Active or Inactive. If the alarm has been acknowledged and is in an Inactive state, the value will be **01/01/80 00:00:00**. If the alarm is Active, the value will be the date and time that the Alarm occurred (such as **05/01/05 03:17:34**).

Caution: Parameter objects that can be written to become effective immediately in the MC4 and will influence the extrusion process if it is running. Thus, any writes must be treated with care and should be avoided when production is running.

Note: A list of parameter objects can be found in the KraussMaffei MC4 document **MC4PL-x.DOC**.

Error Descriptions

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation

[Missing address](#)

[Device address '<address>' contains a syntax error](#)

[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

Device Status Messages

[Device '<device name>' is not responding](#)

[Unable to write to '<address>' on device '<device name>'](#)

Driver Error Messages

[Winsock initialization failed \(OS Error = n\)](#)

[Winsock V1.1 or higher must be installed to use the KraussMaffei MC4 Ethernet device driver](#)

[Device '<device name>' detected a message size error \(Tag '<address>'\)](#)

[Device '<device name>' detected a number of parameters error in message \(Tag '<address>'\)](#)

[Device '<device name>' detected a parameter size error in message \(Tag '<address>'\)](#)

[Device '<device name>' detected a Parameter value that was Too Large \(Tag '<address>'\)](#)

[Device '<device name>' detected a Parameter value that was Too Small \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid data character in message \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid memory address \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid memory address Or address can't be written \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid parameter Handle in message \(Tag '<address>'\)](#)

[Device '<device name>' Failed to convert Decimal response to a Float or Double number \(Tag '<address>'\)](#)

Address Validation

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation

[Missing address](#)

[Device address '<address>' contains a syntax error](#)

[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

Missing address

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically has no length.

Solution:

Re-enter the address in the client application.

Device address '<address>' contains a syntax error

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically contains one or more invalid characters.

Solution:

Re-enter the address in the client application.

Data Type '<type>' is not valid for device address '<address>'

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically has been assigned an invalid data type.

Solution:

Modify the requested data type in the client application.

Device address '<address>' is Read Only

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically has a requested access mode that is not compatible with what the device supports for that address.

Solution:

Change the access mode in the client application.

Device Status Messages

The following error/warning messages may be generated. Click on the link for a description of the message.

Device Status Messages

[Device '<device name>' is not responding](#)

[Unable to write to '<address>' on device '<device name>'](#)

'Device <Device name>' is not responding

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken.
2. The IP address assigned to the device is incorrect.
3. A second connection to the same device was attempted. The MC4 only supports one connection at a time.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the IP address given to the named device matches that of the actual device.

Unable to write to '<address>' on device '<device name>'

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken.
2. The named device may have been assigned an incorrect IP address.

Solution:

1. Verify the cabling between the PC and the PLC device.
2. Verify that the IP address given to the named device matches that of the actual device.

Driver Error Messages

The following error/warning messages may be generated. Click on the link for a description of the message.

Driver Error Messages

[Winsock initialization failed \(OS Error = n\)](#)

[Winsock V1.1 or higher must be installed to use the KraussMaffei MC4 Ethernet device driver](#)

[Device '<device name>' detected a message size error \(Tag '<address>'\)](#)

[Device '<device name>' detected a number of parameters error in message \(Tag '<address>'\)](#)

[Device '<device name>' detected a parameter size error in message \(Tag '<address>'\)](#)

[Device '<device name>' detected a Parameter value that was Too Large \(Tag '<address>'\)](#)

[Device '<device name>' detected a Parameter value that was Too Small \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid data character in message \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid memory address \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid memory address Or address can't be written \(Tag '<address>'\)](#)

[Device '<device name>' detected an invalid parameter Handle in message \(Tag '<address>'\)](#)

[Device '<device name>' Failed to convert Decimal response to a Float or Double number \(Tag '<address>'\)](#)

Winsock initialization failed (OS Error = n)

Error Type:

Fatal

OS Error:	Indication	Possible Solution
10091	Indicates that the underlying network subsystem is not ready for network communication.	Wait a few seconds and restart the driver.
10067	Limit on the number of tasks supported by the Windows Sockets implementation has been reached.	Close one or more applications that may be using Winsock and restart the driver.

Winsock V1.1 or higher must be installed to use the KraussMaffei MC4 Ethernet device driver

Error Type:

Fatal

Possible Cause:

The version number of the Winsock DLL found on the system is less than 1.1.

Solution:

Upgrade Winsock to version 1.1 or higher.

Device '<device name>' detected a message size error (Tag '<address>')

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken or Intermittent.
2. The IP address assigned to the device is incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the IP address given to the named device matches that of the actual device.

Device '<device name>' detected an invalid parameter Handle in message (Tag '<address>')

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken or intermittent.
2. The IP address assigned to the device is incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the IP address given to the named device matches that of the actual device.

Note:

This message is only possible if "Parameter Handles" is checked in Addressing Options.

Device '<device name>' detected an invalid memory address Or address can't be written (Tag '<address>')

Error Type:

Warning

Possible Cause:

1. Tag address specifies a parameter object name that does not exist in the device.
2. The name may be spelled incorrectly.
3. The Write value is incorrect and can not be written.

Solution:

1. Determine the correct name of the parameter object.
2. Determine the correct range of write values.

Device '<device name>' detected an invalid memory address (Tag '<address>')

Error Type:

Warning

Possible Cause:

1. Tag address specifies a parameter object name that does not exist in the device.
2. The name may be spelled incorrectly.

Solution:

Determine the name of the correct parameter object.

Device '<device name>' detected an invalid data character in message (Tag '<address>')

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken or intermittent.
2. The IP address assigned to the device is incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the IP address given to the named device matches that of the actual device.

Device '<device name>' detected a number of parameters error in message (Tag '<address>')

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken or intermittent.
2. The IP address assigned to the device is incorrect.

Solution:

1. Verify the cabling between the PC and the device.

2. Verify that the IP address given to the named device matches that of the actual device.

Device '<device name>' Failed to convert Decimal response to a Float or Double number (Tag '<address>')

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken or intermittent.
2. The IP address assigned to the device is incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the IP address given to the named device matches that of the actual device.

Device '<device name>' detected a parameter size error in message (Tag '<address>')

Error Type:

Serious

Possible Cause:

1. The connection between the device and the host PC is broken or intermittent.
2. The IP address assigned to the device is incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify the IP address given to the named device matches that of the actual device.

Device '<device name>' detected a Parameter value that was Too Large (Tag '<address>')

Error Type:

Warning

Possible Cause:

The value written to the tag is too large. Use the tag's "XXX.XXX.MAX" value to determine the upper limit.

Solution:

Write a value less than or equal to max.

Device '<device name>' detected a Parameter value that was Too Small (Tag '<address>')

Error Type:

Warning

Possible Cause:

The value written to the tag is too small. Use the tag's "XXX.XXX.MIN" value to determine the lower limit.

Solution:

Write a value greater than or equal to min.

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