

MODBUS interface description

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General description

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Introduction

This document describes the protocol used by the MODBUS server of the module. The OPEN MODBUS protocol is based on the widely known MODBUS protocol. OPEN MODBUS is an open protocol and is not manufacturer dependent. It is mainly used to connect PLC and I/O devices.

Why a MODBUS Server on the MSX-E modules?

Thanks to the MODBUS server, it is possible to manage an MSX-E module with e.g.: a Siemens S7 PLC. The S7 PLC can start acquisitions and read data from the MSX-E module!

Technical details

Please note that only MODBUS over TCP is standardized. Nonetheless in this present version the server implements OPEN MODBUS/TCP class 0 and one function of the class 2 even on UDP sockets.

The MODBUS/TCP class 0 defines two types of query: FC3 and FC16.

- **FC3 functions** read register content from the memory of the remote system
- **FC16 functions** write new register content on the memory of the remote system

The MODBUS/TCP server implement the following query of the class 2 : FC23.

- **FC23 functions** read/write registers content from/to the memory of the remote system

The MODBUS server offer a virtual memory organisation: registers (functions) are mapped to be equivalent to SOAP functions.

Characteristics of this communication channel as the standardisation document describes it are:

- The default port used by the server is **512** in both UDP/IP and TCP/IP. You can change this via the web server.
- Data are sent in network order, i.e. **big endian (Motorola formata)**. Use the standard C functions `atons/atohl` and `ntohs/ntohl` to convert values bigger than 1 bytes.
- Datastructures used to describe parameters that are embedded in on-wire frames **must** be packed. How to do that is compiler-dependant.

The ADDI-DATA MSX-E Modbus server offers the following extension to the standard:

- It is possible to configure the server to accept data sent in **little endian (Intel format)** (native order)
- In this case, the default port used is **215**. You can change this via the web server.

MODBUS interface description

As answer to query a client may receive an acknowledgement (named *standard response* onward) or an exception.

If an exception or an error occurred, you can use the GetLastCommandStatus command to get the real error number (from the remote server).

Real error numbers are described for each command in the "Returns" field.

The chapter below describes the available functions and their parameters.

It also contains the precise description of all frames implied in a given action.

FC3 (read multiple register) Functions

Top

Functions in this group are used to read values on the module.

• <u>GetLastCommandStatus</u>	Register: 0
• <u>GetLastCommandStatusEx</u>	Register: 10000
• <u>MXCommon_GetModuleType</u>	Register: 1
• <u>MXCommon_GetModuleTypeEx</u>	Register: 10200
• <u>MXCommon_GetTime</u>	Register: 2
• <u>MXCommon_GetTimeEx</u>	Register: 10500
• <u>MXCommon_TestCustomerID</u>	Register: 3
• <u>MXCommon_TestCustomerIDEx</u>	Register: 10550
• <u>MX351x_getNumberOfChannels</u>	Register: 100
• <u>MX351x_getNumberOfChannelsEx</u>	Register: 1000
• <u>MX351x_GetAnalogOutputConfig0</u>	Register: 101
• <u>MX351x_GetAnalogOutputConfig0Ex</u>	Register: 1050
• <u>MX351x_GetAnalogOutputConfig1</u>	Register: 102
• <u>MX351x_GetAnalogOutputConfig1Ex</u>	Register: 1100
• <u>MX351x_GetAnalogOutputConfig2</u>	Register: 103
• <u>MX351x_GetAnalogOutputConfig2Ex</u>	Register: 1150
• <u>MX351x_GetAnalogOutputConfig3</u>	Register: 104
• <u>MX351x_GetAnalogOutputConfig3Ex</u>	Register: 1200
• <u>MX351x_GetAnalogOutputConfig4</u>	Register: 105
• <u>MX351x_GetAnalogOutputConfig4Ex</u>	Register: 1250

MODBUS interface description

- MX351x_GetAnalogOutputConfig5 Register: **106**
- MX351x_GetAnalogOutputConfig5Ex Register: **1300**
- MX351x_GetAnalogOutputConfig6 Register: **107**
- MX351x_GetAnalogOutputConfig6Ex Register: **1350**
- MX351x_GetAnalogOutputConfig7 Register: **108**
- MX351x_GetAnalogOutputConfig7Ex Register: **1400**
- MX351x_AnalogOutputGetStatus Register: **109**
- MX351x_AnalogOutputGetStatusEx Register: **1450**

Function GetLastCommandStatus

For new application(s) or automate communication it is recommended to use the function **GetLastCommandStatusEx**.

Description

Return the result of the last remote function call

Parameters:

[Response frame layout] **ReturnValue:** The return value of the remote function.

- ◆ 0 Always means success
- ◆ -100 means you should check Syserrno;
- ◆ for other values, check the documentation of the function

[Response frame layout] **Syserrno:** the value of the libc errno after the call to the remote function

[Response frame layout] **Errstr:** A nul-terminated string describing the error code Syserrno

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually	0x0000	0x0000

MODBUS interface description

			0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	0	0x0000	0x0000
word count	2	16-bit integer	54	0x3600	0x0036

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	112	0x7000	0x0070
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	108	0x6C00	0x006C
Return Value	4	32-bit integer	See the description above	0x????????	0x????????
Syserrno	4	32-bit integer	See the description above	0x????????	0x????????
Errstr	100	8-bit integer array	See the description above	0x??[100]	0x??[100]

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function GetLastCommandStatusEx

Description

Return the result of the last remote function call

Parameters:

[Response frame layout] **ReturnValue:** The return value of the remote function.

- ◆ 0 Always means success
- ◆ -100 means you should check Syserrno;
- ◆ for other values, check the documentation of the function

[Response frame layout] **Syserrno:** the value of the libc errno after the call to the remote function

[Response frame layout] **Errstr:** A nul-terminated string describing the error code Syserrno

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by	0x0000	0x0000

MODBUS interface description

			server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	10000	0x1027	0x2710
word count	2	16-bit integer	54	0x3600	0x0036

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	111	0x6F00	0x006F
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	108	0x6C	0x6C
ReturnValue	4	32-bit integer	See the description above	0x????????	0x????????
Syserrno	4	32-bit integer	See the description above	0x????????	0x????????
Errstr	100	8-bit integer array	See the description above	0x??[100]	0x??[100]

Query frame layout

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MXCommon__GetModuleType

For new application(s) or automate communication it is recommended to use the function MXCommon__GetModuleTypeEx.

Description

Returns the type of the MSX-E Module

Parameters:

[Response frame layout] **str**: A 200-characters string

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1	0x0100	0x0001
word count	2	16-bit integer	100	0x6400	0x0064

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	204	0xCC00	0x00CC
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	200	0xC800	0x00C8
str	200	8-bit integer array	See the description above	0x??[200]	0x??[200]

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

Query frame layout

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MXCommon__GetModuleTypeEx

Description

Returns the type of the MSX-E Module

Parameters:

[Response frame layout] **str**: A 200-characters string

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	10200	0xD827	0x27D8
word count	2		100	0x6400	0x0064

Exception frame layout

MODBUS interface description

		16-bit integer			
--	--	----------------	--	--	--

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	203	0xCB00	0x00CB
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	200	0xC8	0xC8
str	200	8-bit integer array	See the description above	0x??[200]	0x??[200]

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MXCommon__GetTime

For new application(s) or automate communication it is recommended to use the function MXCommon__GetTimeEx.

Description

Get the time on the module

Parameters:

[Response frame layout] **tv_sec**: Number of seconds since the Epoch

[Response frame layout] **tv_usec**: Number of microseconds since the begin of the second

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	2	0x0200	0x0002
word count	2	16-bit integer	4	0x0400	0x0004

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined -	0x0000	0x0000

MODBUS interface description

			copied by server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	12	0x0C00	0x000C
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	8	0x0800	0x0008
tv_sec	4	32-bit integer	See the description above	0x????????	0x????????
tv_usec	4	32-bit integer	See the description above	0x????????	0x????????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MXCommon__GetTimeEx

Description

Get the time on the module

Response frame layout

MODBUS interface description

Parameters:

[Response frame layout] **tv_sec**: Number of seconds since the Epoch

[Response frame layout] **tv_usec**: Number of microseconds since the begin of the second

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	10500	0x0429	0x2904
word count	2	16-bit integer	4	0x0400	0x0004

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	11	0x0B00	0x000B
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
	1		0x03	0x03	0x03

MODBUS interface description

MODBUS Function code		8-bit integer			
Byte count	1	8-bit integer	8	0x08	0x08
tv_sec	4	32-bit integer	See the description above	0x????????	0x????????
tv_usec	4	32-bit integer	See the description above	0x????????	0x????????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MXCommon__TestCustomerID

For new application(s) or automate communication it is recommended to use the function MXCommon__TestCustomerIDEx.

Description

Permit to test the Customer ID (if the module has the right customer Key)

Parameters:

[Response frame layout] **bValueArray**: non crypted value array [16 bytes of random data]

[Response frame layout] **bCryptedValueArray**: Crypted value array [16 bytes of the crypted random data]

Response frame layout

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	3	0x0300	0x0003
word count	2	16-bit integer	16	0x1000	0x0010

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	36	0x2400	0x0024
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	32	0x2000	0x0020
bValueArray	16	8-bit integer	See the description	0x??[16]	0x??[16]

MODBUS interface description

		array	above		
bCryptedValueArray	16	8-bit integer array	See the description above	0x??[16]	0x??[16]

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MXCommon__TestCustomerIDEx

Description

Permit to test the Customer ID (if the module has the right customer Key)

Parameters:

[Response frame layout] **bValueArray:** non crypted value array [16 bytes of random data]

[Response frame layout] **bCryptedValueArray:** Crypted value array [16 bytes of the crypted random data]

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by	0x0000	0x0000

Response frame layout

MODBUS interface description

			server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	10550	0x3629	0x2936
word count	2	16-bit integer	16	0x1000	0x0010

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	35	0x2300	0x0023
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	32	0x20	0x20
bValueArray	16	8-bit integer array	See the description above	0x??[16]	0x??[16]
bCryptedValueArray	16	8-bit integer array	See the description above	0x??[16]	0x??[16]

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
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MODBUS interface description

transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__getNumberOfChannels

For new application(s) or automate communication it is recommended to use the function MX351x__getNumberOfChannelsEx.

Description

Return the number of channels on the module (8)

Parameters:

[Response frame layout] **ChannelNumber**: Number of channels

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01

Exception frame layout

MODBUS interface description

MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	100	0x6400	0x0064
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
ChannelNumber	4	32-bit integer	See the description above	0x????????	0x????????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function	1	8-bit integer	0x83	0x83	0x83

Query frame layout

MODBUS interface description

code					
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__getNumberOfChannelsEx

Description

Return the number of channels on the module (8)

Parameters:

[Response frame layout] **ChannelNumber**: Number of channels

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1000	0xE803	0x03E8
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined -	0x0000	0x0000

Exception frame layout

MODBUS interface description

			copied by server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
ChannelNumber	4	32-bit integer	See the description above	0x????????	0x????????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig0

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig0Ex.

Description

Return current parameter for channel 0

Parameters:

Response frame layout

MODBUS interface description

[Response frame layout] **OutputType**: output type (0 for Voltage, 1 for Current, 2 system default)

[Response frame layout] **Polarity**: output polarity (0 for unipolar, 1 for bipolar)

[Response frame layout] **Value**: output channel actual value [Response frame layout]

• **Possible return value on the remote system (read them with GetLastCommandStatus):**

• **iReturnValue** :

♦ 0: remote function performed OK

♦ 1: Wrong channel selection

• **syserrno** : system-error code (the value of the libc "errno" code)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	101	0x6500	0x0065
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig0Ex

Description

Return current parameter for channel 0

MODBUS interface description

Parameters:

[Response frame layout] **OutputType:** output type (0 for Voltage, 1 for Current, 2 system default)

[Response frame layout] **Polarity:** output polarity (0 for unipolar, 1 for bipolar)

[Response frame layout] **Value:** output channel actual value [Response frame layout]

• **Possible return value on the remote system (read them with GetLastCommandStatusEx): :**

- **iReturnValue :**

- ◆ 0: remote function performed OK

- ◆ 1: Wrong channel selection

- **syserrno :** system-error code (the value of the libc "errno" code)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1050	0x1A04	0x041A
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server -	0x0000	0x0000

MODBUS interface description

			usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig1

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig1Ex.

Description

Return current parameter for channel 1

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	102	0x6600	0x0066
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

For new application(s) or automate communication it is recommended to use the function MX351x27GetAna

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig1Ex

Description

Return current parameter for channel 1

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1100	0x4C04	0x044C
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03

MODBUS interface description

Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig2

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig2Ex.

Description

Return current parameter for channel 0

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	103	0x6700	0x0067
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit	See the	0x??	0x??

MODBUS interface description

		integer	description above		
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig2Ex

Description

Return current parameter for channel 0

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied	0x0000	0x0000

MODBUS interface description

			by server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1150	0x7E04	0x047E
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig3

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig3Ex.

Description

Return current parameter for channel 3

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	104	0x6800	0x0068
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian	big endian (Motorola)
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MODBUS interface description

				(Intel)	
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig3Ex

Description

Return current parameter for channel 3

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function	1	8-bit integer	0x03	0x03	0x03

Exception frame layout

MODBUS interface description

code					
Reference number (=register)	2	16-bit integer	1200	0xB004	0x04B0
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2		3	0x0300	0x0003

MODBUS interface description

		16-bit integer			
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig4

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig4Ex.

Description

Return current parameter for channel 4

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	105	0x6900	0x0069

MODBUS interface description

word count	2	16-bit integer	2	0x0200	0x0002
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Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
	1		0x83	0x83	0x83

MODBUS interface description

MODBUS Function code		8-bit integer			
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig4Ex

Description

Return current parameter for channel 4

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1250	0xE204	0x04E2
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
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MODBUS interface description

transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig5

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig5Ex.

Description

Return current parameter for channel 5

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	106	0x6A00	0x006A
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server -	0x0000	0x0000

MODBUS interface description

			usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig5Ex

Description

Return current parameter for channel 5

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1300	0x1405	0x0514
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007

MODBUS interface description

unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig6

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig6Ex.

Description

Return current parameter for channel 6

Parameters:

Response frame layout

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	107	0x6B00	0x006B
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004

MODBUS interface description

OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig6Ex

Description

Return current parameter for channel 6

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined	0x0000	0x0000

Response frame layout

MODBUS interface description

			- copied by server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1350	0x4605	0x0546
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig7

For new application(s) or automate communication it is recommended to use the function MX351x__GetAnalogOutputConfig7Ex.

Description

Return current parameter for channel 0

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	108	0x6C00	0x006C
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	8	0x0800	0x0008
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	4	0x0400	0x0004
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian	big endian (Motorola)
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MODBUS interface description

				(Intel)	
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__GetAnalogOutputConfig7Ex

Description

Return current parameter for channel 0

Parameters:

See MX351x__GetAnalogOutputConfig0

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function	1	8-bit integer	0x03	0x03	0x03

Exception frame layout

MODBUS interface description

code					
Reference number (=register)	2	16-bit integer	1400	0x7805	0x0578
word count	2	16-bit integer	2	0x0200	0x0002

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	7	0x0700	0x0007
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	4	0x04	0x04
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
Value	2	16-bit integer	See the description above	0x????	0x????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2		3	0x0300	0x0003

MODBUS interface description

		16-bit integer			
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__AnalogOutputGetStatus

For new application(s) or automate communication it is recommended to use the function MX351x__AnalogOutputGetStatusEx.

Description

Return current parameter for channel 0

Parameters:

[Response frame layout] **Option:** Reserved

[Response frame layout] **Status:** Status information

- 0 : Ready to receive a new value
- 1 : Waiting for a trigger
- 2 : Output not available (diagnose problem or other conditions hindering normal functions)

[Response frame layout] **Info:** Reserved

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006

Exception frame layout

MODBUS interface description

unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	109	0x6D00	0x006D
word count	2	16-bit integer	6	0x0600	0x0006

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	16	0x1000	0x0010
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	2	16-bit integer	12	0x0C00	0x000C
Option	4	32-bit integer	See the description above	0x???????	0x???????
Status	4	32-bit integer	See the description above	0x???????	0x???????
Info	4	32-bit integer	See the description above	0x???????	0x???????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server -	0x0000	0x0000

Query frame layout

MODBUS interface description

			usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

Function MX351x__AnalogOutputGetStatusEx

Description

Return current parameter for channel 0

Parameters:

[Response frame layout] **Option:** Reserved

[Response frame layout] **Status:** Status information

- 0 : Ready to receive a new value
- 1 : Waiting for a trigger
- 2 : Output not available (diagnose problem or other conditions hindering normal functions)

[Response frame layout] **Info:** Reserved

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006

Exception frame layout

MODBUS interface description

unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Reference number (=register)	2	16-bit integer	1450	0xAA05	0x05AA
word count	2	16-bit integer	6	0x0600	0x0006

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	15	0x0F00	0x000F
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x03	0x03	0x03
Byte count	1	8-bit integer	12	0x0C	0x0C
Option	4	32-bit integer	See the description above	0x???????	0x???????
Status	4	32-bit integer	See the description above	0x???????	0x???????
Info	4	32-bit integer	See the description above	0x???????	0x???????

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server -	0x0000	0x0000

Query frame layout

MODBUS interface description

			usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x83	0x83	0x83
Exception code	1	8-bit integer	See corresponding chapter	??	??

FC16 (write multiple register) Functions

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Functions in this group are used to set value on the module.

- | | |
|--|------------------------|
| • <u>MXCommon_SetHardwareTriggerFilterTime</u> | Register: 100 |
| • <u>MXCommon_SetHardwareTriggerFilterTimeEx</u> | Register: 11000 |
| • <u>MXCommon_InitAndStartSynchroTimer</u> | Register: 101 |
| • <u>MXCommon_InitAndStartSynchroTimerEx</u> | Register: 11050 |
| • <u>MXCommon_StopAndReleaseSynchroTimer</u> | Register: 102 |
| • <u>MXCommon_StopAndReleaseSynchroTimerEx</u> | Register: 11100 |
| • <u>MXCommon_Reboot</u> | Register: 103 |
| • <u>MXCommon_RebootEx</u> | Register: 11150 |
| • <u>MXCommon_SetCustomerKey</u> | Register: 104 |
| • <u>MXCommon_SetCustomerKeyEx</u> | Register: 11200 |
| • <u>MXCommon_SetFilterChannels</u> | Register: 105 |
| • <u>MXCommon_SetFilterChannelsEx</u> | Register: 11250 |
| • <u>MSXE351x_AnalogOutputWrite1Value</u> | Register: 1 |
| • <u>MSXE351x_AnalogOutputWrite1ValueEx</u> | Register: 1900 |
| • <u>MSXE351x_AnalogOutputWriteMoreValues</u> | Register: 2 |
| • <u>MSXE351x_AnalogOutputWriteMoreValuesEx</u> | Register: 1950 |

Function **MXCommon__SetHardwareTriggerFilterTime**

For new application(s) or automate communication it is recommended to use the function MXCommon__SetHardwareTriggerFilterTimeEx.

Description

Sets the filter time for the hardware trigger input in **250ns** step (max value : 65535).

On the MSX-E3011 system, the step of the hardware trigger filter is **622ns**.

Parameters

- [Query frame layout] **ulFilterTime** Filter time for the hardware trigger input in 250ns step (max value : 65535).
 - ◆ **0**: disable the filter
 - ◆ **1**: filter of 250ns
 - ◆ **2**: filter of 500ns
 - ◆ ...
 - ◆ **65535**: filter of 16ms
- [Query frame layout] **ulOption** Reserved. Set to 0

Returns

Possible return value on the remote system (read them with GetLastCommandStatus).

- **0** The remote function performed OK
- **-1** Internal system error occurred. See value of syserrno

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	16	0x1000	0x0010
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	100	0x6400	0x0064
word count	2	16-bit integer	4	0x0400	0x0004
byte count	2		8	0x0800	0x0008

MODBUS interface description

		16-bit integer			
ulFilterTime	4	32-bit integer	See the description above	0x????????	0x????????
Reserved	4	32-bit integer	See the description above	0x????????	0x????????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	100	0x6400	0x0064
word count	2	16-bit integer	4	0x0400	0x0004

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit	1	8-bit	0 or 1	0x00 or	0x00 or

Query frame layout

MODBUS interface description

identifier		integer		0x01	0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__SetHardwareTriggerFilterTimeEx

Description

Sets the filter time for the hardware trigger input in **250ns** step (max value : 65535).

On the MSX-E3011 system, the step of the hardware trigger filter is **622ns**.

Parameters

- [Query frame layout] **ulFilterTime** Filter time for the hardware trigger input in 250ns step (max value : 65535).
 - ◆ **0**: disable the filter
 - ◆ **1**: filter of 250ns
 - ◆ **2**: filter of 500ns
 - ◆ ...
 - ◆ **65535**: filter of 16ms
- [Query frame layout] **ulOption** Reserved. Set to 0

Returns

Possible return value on the remote system (read them with GetLastCommandStatusEx).

- **0** The remote function performed OK
- **-1** Internal system error occurred. See value of syserrno

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	15	0x0F00	0x000F
	1		0 or 1		

Exception frame layout

MODBUS interface description

unit identifier		8-bit integer		0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11000	0xF82A	0x2AF8
word count	2	16-bit integer	4	0x0400	0x0004
byte count	1	8-bit integer	8	0x08	0x08
ulFilterTime	4	32-bit integer	See the description above	0x????????	0x????????
Reserved	4	32-bit integer	See the description above	0x????????	0x????????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11000	0xF82A	0x2AF8
word count	2	16-bit integer	4	0x0400	0x0004

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian	big endian (Motorola)
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Query frame layout

MODBUS interface description

				(Intel)	
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__InitAndStartSynchroTimer

For new application(s) or automate communication it is recommended to use the function MXCommon__InitAndStartSynchroTimerEx.

Description

Init and start the synchronisation timer of the module (not already available on all module)

Parameters:

[Query frame layout] **ulTimeBase:** Time base of the timer (0 for us, 1 for ms, 2 for s)

[Query frame layout] **ulReloadValue:** Timer reload value (0 to 0xFFFF), minimum reload time is 5 us

[Query frame layout] **ulNbrOfCycle:** Number of timer cycle

- ◆ 0: continuous
- ◆ > 0: defined number of cycle

[Query frame layout] **ulGenerateTriggerMode:**

- ◆ 0: Wait the time overflow to set the synchronisation trigger
- ◆ 1: Set the synchronisation trigger by the start of the timer and after each time overflow

[Query frame layout] **ulOption01:** Define the source of the trigger

- ◆ 0 : Trigger disabled
- ◆ 1 : Enable the hardware figital input trigger

[Query frame layout] **ulOption02:** Define the edge of the hardware trigger who generates a trigger action

MODBUS interface description

- ◆ 1 : rising edge (Only if hardware trigger selected)
- ◆ 2 : falling edge (Only if hardware trigger selected)
- ◆ 3 : Both front (Only if hardware trigger selected)

[Query frame layout] **ulOption03**: Define the number of trigger events before the action occur

- ◆ 1 : all trigger event start the action
- ◆ max value : 65535

[Query frame layout] **ulOption04**: Reserved

Returns:

Possible return value on the remote system (read them with GetLastCommandStatus)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occurred
- ◆ -2: not available time base
- ◆ -3: timer reload value can not be greater than 65535
- ◆ -4: minimum time reload is 5 us
- ◆ -5: Number of cycle can not be greater than 65535
- ◆ -6: Generate trigger mode error
- ◆ -100: Init timer error
- ◆ -101: Start timer error

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	40	0x2800	0x0028
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	101	0x6500	0x0065
word count	2	16-bit integer	16	0x1000	0x0010
byte count	2	16-bit integer	32	0x2000	0x0020
ulTimeBase	4	32-bit integer	See the description	0x????????	0x????????

MODBUS interface description

			above		
ulReloadValue	4	32-bit integer	See the description above	0x????????	0x????????
ulNbrOfCycle	4	32-bit integer	See the description above	0x????????	0x????????
ulGenerateTriggerMode	4	32-bit integer	See the description above	0x????????	0x????????
ulOption01	4	32-bit integer	See the description above	0x????????	0x????????
ulOption02	4	32-bit integer	See the description above	0x????????	0x????????
ulOption03	4	32-bit integer	See the description above	0x????????	0x????????
ulOption04	4	32-bit integer	See the description above	0x????????	0x????????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	101	0x6500	0x0065
word count	2	16-bit integer	16	0x1000	0x0010

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__InitAndStartSynchroTimerEx

Description

Init and start the synchronisation timer of the module (not already available on all module)

Parameters:

[Query frame layout] **ulTimeBase:** Time base of the timer (0 for us, 1 for ms, 2 for s)

[Query frame layout] **ulReloadValue:** Timer reload value (0 to 0xFFFF), minimum reload time is 5 us

[Query frame layout] **ulNbrOfCycle:** Number of timer cycle

- ◆ 0: continuous
- ◆ > 0: defined number of cycle

[Query frame layout] **ulGenerateTriggerMode:**

- ◆ 0: Wait the time overflow to set the synchronisation trigger
- ◆ 1: Set the synchronisation trigger by the start of the timer and after each time overflow

[Query frame layout] **ulOption01:** Define the source of the trigger

- ◆ 0 : Trigger disabled
- ◆ 1 : Enable the hardware figital input trigger

[Query frame layout] **ulOption02:** Define the edge of the hardware trigger who generates a trigger action

MODBUS interface description

- ◆ 1 : rising edge (Only if hardware trigger selected)
- ◆ 2 : falling edge (Only if hardware trigger selected)
- ◆ 3 : Both front (Only if hardware trigger selected)

[Query frame layout] **ulOption03**: Define the number of trigger events before the action occur

- ◆ 1 : all trigger event start the action
- ◆ max value : 65535

[Query frame layout] **ulOption04**: Reserved

Returns:

Possible return value on the remote system (read them with GetLastCommandStatusEx)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occurred
- ◆ -2: not available time base
- ◆ -3: timer reload value can not be greater than 65535
- ◆ -4: minimum time reload is 5 us
- ◆ -5: Number of cycle can not be greater than 65535
- ◆ -6: Generate trigger mode error
- ◆ -100: Init timer error
- ◆ -101: Start timer error

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	39	0x2700	0x0027
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11050	0x2A2B	0x2B2A
word count	2	16-bit integer	16	0x1000	0x0010
byte count	1	8-bit integer	32	0x20	0x20
ulTimeBase	4	32-bit integer	See the description	0x????????	0x????????

MODBUS interface description

			above		
ulReloadValue	4	32-bit integer	See the description above	0x????????	0x????????
ulNbrOfCycle	4	32-bit integer	See the description above	0x????????	0x????????
ulGenerateTriggerMode	4	32-bit integer	See the description above	0x????????	0x????????
ulOption01	4	32-bit integer	See the description above	0x????????	0x????????
ulOption02	4	32-bit integer	See the description above	0x????????	0x????????
ulOption03	4	32-bit integer	See the description above	0x????????	0x????????
ulOption04	4	32-bit integer	See the description above	0x????????	0x????????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11050	0x2A2B	0x2B2A
word count	2	16-bit integer	16	0x1000	0x0010

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__StopAndReleaseSynchroTimer

For new application(s) or automate communication it is recommended to use the function MXCommon__StopAndReleaseSynchroTimerEx.

Description

stop the synchronisation timer (not already available on all module)

Parameters:

[Query frame layout] ***ulOption01*** : Reserved

Returns:

Possible return value on the remote system (read them with GetLastCommandStatus)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occurred
- ◆ -100: Start/Stop timer error

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
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MODBUS interface description

transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	12	0x0C00	0x000C
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	102	0x6600	0x0066
word count	2	16-bit integer	2	0x0200	0x0002
byte count	2	16-bit integer	4	0x0400	0x0004
ulOption01	4	32-bit integer	See the description above	0x???????	0x???????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	102	0x6600	0x0066
word count	2		2	0x0200	0x0002

Query frame layout

MODBUS interface description

		16-bit integer			
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Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__StopAndReleaseSynchroTimerEx

Description

stop the synchronisation timer (not already available on all module)

Parameters:

[Query frame layout] ***ulOption01*** : Reserved

Returns:

Possible return value on the remote system (read them with GetLastCommandStatusEx)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occurred
- ◆ -100: Start/Stop timer error

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
	2			0x0000	0x0000

Response frame layout

MODBUS interface description

transaction identifier		16-bit integer	User defined - copied by server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	11	0x0B00	0x000B
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11100	0x5C2B	0x2B5C
word count	2	16-bit integer	2	0x0200	0x0002
byte count	1	8-bit integer	4	0x04	0x04
ulOption01	4	32-bit integer	See the description above	0x???????	0x???????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11100	0x5C2B	0x2B5C
word count	2		2	0x0200	0x0002

Query frame layout

		16-bit integer			
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Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__Reboot

For new application(s) or automate communication it is recommended to use the function MXCommon__RebootEx.

Description

Ask the MSX-E module to reboot

Parameters:

[Query frame layout] **Dummy** : Reserved

Returns:

Possible return value on the remote system (read them with GetLastCommandStatus)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occurred (probably EPERM)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian	big endian (Motorola)
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Response frame layout

MODBUS interface description

				(Intel)	
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	12	0x0C00	0x000C
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	103	0x6700	0x0067
word count	2	16-bit integer	2	0x0200	0x0002
byte count	2	16-bit integer	4	0x0400	0x0004
Dummy	4	32-bit integer	See the description above	0x????????	0x????????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	103	0x6700	0x0067

Query frame layout

MODBUS interface description

word count	2	16-bit integer	2	0x0200	0x0002
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Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__RebootEx

Description

Ask the MSX-E module to reboot

Parameters:

[Query frame layout] **Dummy** : Reserved

Returns:

Possible return value on the remote system (read them with GetLastCommandStatusEx)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occurred (probably EPERM)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined -	0x0000	0x0000

Response frame layout

MODBUS interface description

			copied by server - usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	11	0x0B00	0x000B
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11150	0x8E2B	0x2B8E
word count	2	16-bit integer	2	0x0200	0x0002
byte count	1	8-bit integer	4	0x04	0x04
Dummy	4	32-bit integer	See the description above	0x????????	0x????????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11150	0x8E2B	0x2B8E
word count	2	16-bit integer	2	0x0200	0x0002

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__SetCustomerKey

For new application(s) or automate communication it is recommended to use the function MXCommon__SetCustomerKeyEx.

Description

Permit to set the Customer key

Parameters:

[Query frame layout] **bKey** : Customer key (only writable on the module) [32 bytes containing a AES key]

[Query frame layout] **bPublicKey** : IV (Initialisation vector) for the AES cryptography [16 bytes containing a AES key]

Returns:

Possible return value on the remote system (read them with GetLastCommandStatus)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occured (probably EPERM)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	56	0x3800	0x0038
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	104	0x6800	0x0068
word count	2	16-bit integer	24	0x1800	0x0018
byte count	2	16-bit integer	48	0x3000	0x0030
bKey	32	8-bit integer array	See the description above	0x??[32]	0x??[32]
bPublicKey	16	8-bit integer array	See the description above	0x??[16]	0x??[16]

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006

MODBUS interface description

unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	104	0x6800	0x0068
word count	2	16-bit integer	24	0x1800	0x0018

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__SetCustomerKeyEx

Description

Permit to set the Customer key

Parameters:

[Query frame layout] **bKey** : Customer key (only writable on the module) [32 bytes containing a AES key]

[Query frame layout] **bPublicKey** : IV (Initialisation vector) for the AES cryptography [16 bytes containing a AES key]

Returns:

Response frame layout

MODBUS interface description

Possible return value on the remote system (read them with GetLastCommandStatusEx)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means an system error occured (probably EPERM)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	55	0x3700	0x0037
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11200	0xC02B	0x2BC0
word count	2	16-bit integer	24	0x1800	0x0018
byte count	1	8-bit integer	48	0x30	0x30
bKey	32	8-bit integer array	See the description above	0x??[32]	0x??[32]
bPublicKey	16	8-bit integer array	See the description above	0x??[16]	0x??[16]

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000

MODBUS interface description

protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11200	0xC02B	0x2BC0
word count	2	16-bit integer	24	0x1800	0x0018

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__SetFilterChannels

For new application(s) or automate communication it is recommended to use the function MXCommon__SetFilterChannelsEx.

Description

Permit to set a filter per channel

Parameters:

MODBUS interface description

[Query frame layout] **ChannelList** : Each index of the array is representing a channel. To set a filter on a channel, enter the filter ID. By default the value is 0 (No filter).

Returns:

Possible return value on the remote system (read them with `GetLastCommandStatus`)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means a system error occurred (probably EPERM)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	24	0x1800	0x0018
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	105	0x6900	0x0069
word count	2	16-bit integer	8	0x0800	0x0008
byte count	2	16-bit integer	16	0x1000	0x0010
ChannelList	16	8-bit integer array	See the description above	0x??[16]	0x??[16]

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server -	0x0000	0x0000

MODBUS interface description

			usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	105	0x6900	0x0069
word count	2	16-bit integer	8	0x0800	0x0008

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MXCommon__SetFilterChannelsEx

Description

Permit to set a filter per channel

Parameters:

[Query frame layout] **ChannelList**: Each index of the array is representing a channel. To set a filter on a channel, enter the filter ID. By default the value is 0 (No filter).

Response frame layout

Returns:

Possible return value on the remote system (read them with `GetLastCommandStatusEx`)

- ◆ 0 : means the remote function performed OK
- ◆ -1: means a system error occurred (probably EPERM)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	23	0x1700	0x0017
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11250	0xF22B	0x2BF2
word count	2	16-bit integer	8	0x0800	0x0008
byte count	1	8-bit integer	16	0x10	0x10
ChannelList	16	8-bit integer array	See the description above	0x??[16]	0x??[16]

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
	2		0	0x0000	0x0000

MODBUS interface description

protocol identifier		16-bit integer			
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	11250	0xF22B	0x2BF2
word count	2	16-bit integer	8	0x0800	0x0008

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MSXE351x__AnalogOutputWrite1Value

For new application(s) or automate communication it is recommended to use the function MSXE351x__AnalogOutputWrite1ValueEx.

Description

Write a value to an analog output

[Query frame layout]

- **Channel** : Index of the analog output (0 to 7) [Query frame layout]
- **OutputType** : output type (0 for Voltage, 1 for Current, 2 system default) [Query frame layout]

Response frame layout

MODBUS interface description

- **Polarity** : output polarity (0 for unipolar, 1 for bipolar) [Query frame layout]
- **TriggerMask** : output trigger (0 for no trigger used, D0 for trigger input, D1 for synchro input)
Trigger input and Synchro input can not be used at the same time [Query frame layout]
- **TriggerEdgeSelection** : not used for the synchro input
 - ◆ 01 : rising front (Only if trigger input selected)
 - ◆ 10 : falling front (Only if trigger input selected)
 - ◆ 11 : Both front (Only if trigger input selected)
 [Query frame layout]
- **TriggerCount** : not used for the synchro input Define the number of trigger events before the action occur
 - ◆ 1 : all trigger event start the action
 - ◆ max value : 65535
 [Query frame layout]
- **Value** : output value
 - ◆ bipolar : (0 to 0xFFFF)
 - ◆ unipolar : (0 to 0x7FFF)
 [Response frame layout]
- **Possible return value on the remote system (read them with GetLastCommandStatus):** :
 - ◆ **iReturnValue** :
 - ◇ 0: remote function performed OK
 - ◇ -1: an system error occured
 - ◇ -2: channel selection error
 - ◇ -3: output type selection error
 - ◇ -4: polarity selection error
 - ◇ -5: trigger mask selection error
 - ◇ -6: Trigger edge selection error
 - ◇ -7: Trigger count selection error
 - ◇ -8: channel value selection error
 - ◇ -100: Write one analog output value kernel function error
 - ◆ **syserrno** : system-error code (the value of the libc "errno" code)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	17	0x1100	0x0011
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
	2		1	0x0100	0x0001

MODBUS interface description

Reference number (=register)		16-bit integer			
word count	2	16-bit integer	5	0x0500	0x0005
byte count	2	16-bit integer	9	0x0900	0x0009
Channel	1	8-bit integer	See the description above	0x??	0x??
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1	8-bit integer	See the description above	0x??	0x??
TriggerMask	1	8-bit integer	See the description above	0x??	0x??
TriggerEdgeSelection	1	8-bit integer	See the description above	0x??	0x??
TriggerCount	2	16-bit integer	See the description above	0x????	0x????
Value	2	16-bit integer	See the description above	0x????	0x????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
	2		1	0x0100	0x0001

Query frame layout

MODBUS interface description

Reference number (=register)		16-bit integer			
word count	2	16-bit integer	5	0x0500	0x0005

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MSXE351x__AnalogOutputWrite1ValueEx

Description

Write a value to an analog output

[Query frame layout]

- **Channel** : Index of the analog output (0 to 7) [Query frame layout]
 - **OutputType** : output type (0 for Voltage, 1 for Current, 2 system default) [Query frame layout]
 - **Polarity** : output polarity (0 for unipolar, 1 for bipolar) [Query frame layout]
 - **TriggerMask** : output trigger (0 for no trigger used, D0 for trigger input, D1 for synchro input)
Trigger input and Synchro input can not be used at the same time [Query frame layout]
 - **TriggerEdgeSelection** : not used for the synchro input
 - ◆ 01 : rising front (Only if trigger input selected)
 - ◆ 10 : falling front (Only if trigger input selected)
 - ◆ 11 : Both front (Only if trigger input selected)
- [Query frame layout]
- **TriggerCount** : not used for the synchro input Define the number of trigger events before the action occur
 - ◆ 1 : all trigger event start the action
 - ◆ max value : 65535
- [Query frame layout]

Response frame layout

MODBUS interface description

- **Value** : output value

- ◆ bipolar : (0 to 0xFFFF)
- ◆ unipolar : (0 to 0x7FFF)

[Response frame layout]

- **Possible return value on the remote system (read them with `GetLastCommandStatusEx`): :**

- ◆ ***iReturnValue*** :

- ◇ 0: remote function performed OK
- ◇ -1: an system error occurred
- ◇ -2: channel selection error
- ◇ -3: output type selection error
- ◇ -4: polarity selection error
- ◇ -5: trigger mask selection error
- ◇ -6: Trigger edge selection error
- ◇ -7: Trigger count selection error
- ◇ -8: channel value selection error
- ◇ -100: Write one analog output value kernel function error

- ◆ ***syserrno*** : system-error code (the value of the libc "errno" code)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	16	0x1000	0x0010
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	1900	0x6C07	0x076C
word count	2	16-bit integer	5	0x0500	0x0005
byte count	1	8-bit integer	9	0x09	0x09
Channel	1	8-bit integer	See the description above	0x??	0x??
OutputType	1	8-bit integer	See the description above	0x??	0x??
Polarity	1			0x??	0x??

MODBUS interface description

		8-bit integer	See the description above		
TriggerMask	1	8-bit integer	See the description above	0x??	0x??
TriggerEdgeSelection	1	8-bit integer	See the description above	0x??	0x??
TriggerCount	2	16-bit integer	See the description above	0x????	0x????
Value	2	16-bit integer	See the description above	0x????	0x????

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	1900	0x6C07	0x076C
word count	2	16-bit integer	5	0x0500	0x0005

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server -	0x0000	0x0000

Query frame layout

MODBUS interface description

			usually 0		
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MSXE351x__AnalogOutputWriteMoreValues

For new application(s) or automate communication it is recommended to use the function MSXE351x__AnalogOutputWriteMoreValuesEx.

Description

Write more value to analog outputs

[Query frame layout]

- **ChannelMask** : Mask of the channel to write (1 bit = 1 Channel) [Query frame layout]
- **OutputType** : array of output type (0 for Voltage, 1 for Current, 2 system default) for each channels [Query frame layout]
- **Polarity** : array of output polarity (0 for unipolar, 1 for bipolar) for each channels [Query frame layout]
- **TriggerMask** : output trigger (0 for no trigger used, D0 for trigger input, D1 for synchro input) [Query frame layout]
- **TriggerEdgeSelection** : not used for the synchro input
 - ◆ 01 : rising front (Only if trigger input selected)
 - ◆ 10 : falling front (Only if trigger input selected)
 - ◆ 11 : Both front (Only if trigger input selected)
- [Query frame layout]
- **TriggerCount** : not used for the synchro input Define the number of trigger events before the action occur 1 : all trigger event start the action max value : 65535 [Query frame layout]
- **Value** : array of output value (0 to 0xFFFF) for each channels [Response frame layout]
- **Possible return value on the remote system (read them with GetLastCommandStatus): :**

◆ *iReturnValue* :

- ◇ 0: remote function performed OK
- ◇ -1: an system error occured
- ◇ -2: channel selection error
- ◇ -3: output type selection error
- ◇ -4: polarity selection error
- ◇ -5: trigger mask selection error
- ◇ -6: Trigger edge selection error
- ◇ -7: Trigger count selection error

Exception frame layout

MODBUS interface description

◇ -8: channel value selection error

◇ -100: Write more analog output value kernel function error

◆ **syserrno** : system-error code (the value of the libc "errno" code)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	78	0x4E00	0x004E
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	2	0x0200	0x0002
word count	2	16-bit integer	35	0x2300	0x0023
byte count	2	16-bit integer	70	0x4600	0x0046
ChannelMask	2	16-bit integer	See the description above	0x????	0x????
TriggerMask	1	8-bit integer	See the description above	0x??	0x??
TriggerEdgeSelection	1	8-bit integer	See the description above	0x??	0x??
TriggerCount	2	16-bit integer	See the description above	0x????	0x????
OutputType	16	8-bit integer array	See the description above	0x??[16]	0x??[16]
Polarity	16	8-bit integer array	See the description above	0x??[16]	0x??[16]
Value	32	16-bit integer array	See the description above	0x????[16]	0x????[16]

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	2	0x0200	0x0002
word count	2	16-bit integer	35	0x2300	0x0023

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

Function MSXE351x__AnalogOutputWriteMoreValuesEx

Description

Write more value to analog outputs

[Query frame layout]

- **ChannelMask** : Mask of the channel to write (1 bit = 1 Channel) [Query frame layout]
 - **OutputType** : array of output type (0 for Voltage, 1 for Current, 2 system default) for each channels [Query frame layout]
 - **Polarity** : array of output polarity (0 for unipolar, 1 for bipolar) for each channels [Query frame layout]
 - **TriggerMask** : output trigger (0 for no trigger used, D0 for trigger input, D1 for synchro input) [Query frame layout]
 - **TriggerEdgeSelection** : not used for the synchro input
 - ◆ 01 : rising front (Only if trigger input selected)
 - ◆ 10 : falling front (Only if trigger input selected)
 - ◆ 11 : Both front (Only if trigger input selected)
- [Query frame layout]
- **TriggerCount** : not used for the synchro input Define the number of trigger events before the action occur 1 : all trigger event start the action max value : 65535 [Query frame layout]
 - **Value** : array of output value (0 to 0xFFFF) for each channels [Response frame layout]
 - **Possible return value on the remote system (read them with GetLastCommandStatusEx): :**
 - ◆ **iReturnValue** :
 - ◇ 0: remote function performed OK
 - ◇ -1: an system error occured
 - ◇ -2: channel selection error
 - ◇ -3: output type selection error
 - ◇ -4: polarity selection error
 - ◇ -5: trigger mask selection error
 - ◇ -6: Trigger edge selection error
 - ◇ -7: Trigger count selection error
 - ◇ -8: channel value selection error
 - ◇ -100: Write more analog output value kernel function error
 - ◆ **syserrno** : system-error code (the value of the libc "errno" code)

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2		77	0x4D00	0x004D

MODBUS interface description

		16-bit integer			
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	1950	0x9E07	0x079E
word count	2	16-bit integer	35	0x2300	0x0023
byte count	1	8-bit integer	70	0x46	0x46
ChannelMask	2	16-bit integer	See the description above	0x????	0x????
TriggerMask	1	8-bit integer	See the description above	0x??	0x??
TriggerEdgeSelection	1	8-bit integer	See the description above	0x??	0x??
TriggerCount	2	16-bit integer	See the description above	0x????	0x????
OutputType	16	8-bit integer array	See the description above	0x??[16]	0x??[16]
Polarity	16	8-bit integer array	See the description above	0x??[16]	0x??[16]
Value	32	16-bit integer array	See the description above	0x????[16]	0x????[16]

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	6	0x0600	0x0006

Query frame layout

MODBUS interface description

unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x10	0x10	0x10
Reference number (=register)	2	16-bit integer	1950	0x9E07	0x079E
word count	2	16-bit integer	35	0x2300	0x0023

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Intel)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x90	0x90	0x90
Exception code	1	8-bit integer	See corresponding chapter	0x??	0x??

FC23 (read/write registers) Functions

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Functions in this group are used to read/write values on the module.

This functions permits to call a write (FC16) and then a read(FC3) function in one command.

Query frame layout

Field	Size (Bytes)	Type	Value	little endian (Motorola)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	Depends to the FC16 function called	?	?
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x17	0x17	0x17
Reference number for read (=register)	2	16-bit integer	FC3 reference	?	?
Word count for read	2	16-bit integer	See the corresponding FC3 function	?	?
Reference number for write (=register)	2	16-bit integer	FC16 reference	?	?
Word count for write	2	16-bit integer	See the corresponding FC16 function	?	?
Byte count	1	8-bit integer	(= 2xWord count for write)	?	?
Register values	?	?	See the corresponding FC16 function	?	?

Response frame layout

Field	Size (Bytes)	Type	Value	little endian (Motorola)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	Depends to the FC3 function called	?	?
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x17	0x17	0x17
Byte count	1	8-bit integer	(= 2x word count for read)	?	?
Register values	?	?	See the corresponding FC3 function	?	?

Exception frame layout

Field	Size (Bytes)	Type	Value	little endian (Motorola)	big endian (Motorola)
transaction identifier	2	16-bit integer	User defined - copied by server - usually 0	0x0000	0x0000
protocol identifier	2	16-bit integer	0	0x0000	0x0000
length	2	16-bit integer	3	0x0300	0x0003
unit identifier	1	8-bit integer	0 or 1	0x00 or 0x01	0x00 or 0x01
MODBUS Function code	1	8-bit integer	0x97	0x97	0x97
Exception code	1	8-bit integer	See corresponding chapter	??	??

Exception code description

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Name	Value	Description
MODBUS_ILLEGAL_FUNCTION	0x1	function code is not allowable action for the slave
MODBUS_ILLEGAL_DATA_ADDRESS	0x2	data address received in query is not allowable
MODBUS_ILLEGAL_DATA_VALUE	0x3	incorrect value in the query data field or the length is incorrect
MODBUS_ILLEGAL_DATA_RESPONSE_LENGTH	0x4	the request as framed would generate a response whose size exceeds the available MODBUS datasize.
MODBUS_ACKNOWLEDGE	0x5	specialized use in conjunction with programming commands
MODBUS_DSLAVE_DEVICE_BUSY	0x6	specialized use in conjunction with programming commands
MODBUS_NEGATIVE_ACKNOWLEDGE	0x07	specialized use in conjunction with programming commands
MODBUS_MEMORY_PARITY_ERROR	0x08	the extended file area failed to pass a consistency check
MODBUS_REMOTE_EXECUTION_ERROR	0x09	the remote function performed incorrectly (use function GetLastCommandStatus to know why)
MODBUS_GATEWAY_PATH_UNAVAILABLE	0x0A	used with modbus plus gateway
MODBUS_GATEWAY_TARGET_DEVICE_FAILED_TO_RESPOND	0x0B	used with modbus plus gateway

Siemens Step 7 compatibility information (AWL/SDF code)

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Due to limitations of the S7 platform, some names of function and parameter have been shortened in the AWL and S7 code. This table summarizes the changes against the standard version as described above.

Function/Parameter	Renamed as
MXCommon__GetModuleType	GetModuleType
MXCommon__GetTime	GetTime
MXCommon__TestCustomerID	TestCustomerID
MX351x__getNumberOfChannels	351x_getNbrOfChannels
MX351x__GetAnalogOutputConfig0	351x_GetAOConfig0
MX351x__GetAnalogOutputConfig1	351x_GetAOConfig1
MX351x__GetAnalogOutputConfig2	351x_GetAOConfig2
MX351x__GetAnalogOutputConfig3	351x_GetAOConfig3
MX351x__GetAnalogOutputConfig4	351x_GetAOConfig4
MX351x__GetAnalogOutputConfig5	351x_GetAOConfig5
MX351x__GetAnalogOutputConfig6	351x_GetAOConfig6
MX351x__GetAnalogOutputConfig7	351x_GetAOConfig7
MX351x__AnalogOutputGetStatus	351x_AOGetStatus
MXCommon__SetHardwareTriggerFilterTime	SetHwTrigFiltTime
MXCommon__InitAndStartSynchroTimer	InitStartSyncTimer
MXCommon__StopAndReleaseSynchroTimer	StopRelSyncTimer
MXCommon__Reboot	Reboot
MXCommon__SetCustomerKey	SetCustomerKey
MXCommon__SetFilterChannels	SetFilterChannels
MSXE351x__AnalogOutputWrite1Value	351x_AOWriteVal
MSXE351x__AnalogOutputWriteMoreValues	351x_AOWriteMoreVal