

Type ME23

ProfiNet

Ethernet IP

Modbus TCP

Digital Communications

Digitale Kommunikation

Communications numériques



Supplement to Operating Instructions

Ergänzung zur Betriebsanleitung

Supplément aux instructions de service

We reserve the right to make technical changes without notice.

Technische Änderungen vorbehalten.

Sous réserve de modifications techniques.

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Operating Instructions 1706/0H_ÖWEÖp_00i F€l Fí / Original DE

Type ME23

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1 GENERAL INFORMATION

1.1 Contact address

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International

Contact addresses can be found on the final pages of the printed operating instructions.

And also on the Internet at:

www.burkert.com

1.2 Information on the Internet

The operating instructions and data sheets for device types can be found on the Internet at:

www.burkert.com

2 SYMBOLS

▶ designates instructions for risk prevention.

→ designates a procedure which you must carry out.

✓ indicates a result.

NOTE!

Warns of damage to property.

- Failure to observe the warning may result in damage to the device or other equipment.



Indicates important additional information, tips and recommendations.



Refers to information in these operating instructions or in other documentation.

3 GATEWAY CONTROL MODES

The Gateway offers different control modes to meet the various requirements of automation technology. The Control Mode object is used to define the operating mode and thus the Gateway's behavior. The Control Word object is used to control the Gateway during runtime. Both objects are accessible via the PLC. Control Mode and Control Word are transferred in a non-cyclical and cyclical process respectively.

3.1 Gateway Control Mode

Control Mode enables the non-cyclic transfer of the Gateway's behavior when establishing a connection to the controller. The behavior of the Namur LED can also be changed. Control Mode can be described.

Byte	Description	Bit	Action, if bit is set
Byte 0	Gateway start condition	Bit 0	Auto start
		Bit 1	Start when connection to controller is correct
Byte 1	reserved		
Byte 2	Behavior when connection to the controller is broken (PLC)	Bit 0	Switch off communication LEDs
		Bit 1	Switch off Namur LED & Emergency msg
Byte 3	reserved		

Table 1: 0x3C32 Sub 1

Example of composition of the Control Mode value:

	Byte 3	Byte 2	Byte 1	Byte 0	Description
				01	Connection behavior 0 = operating state also without controller 1 = wait until connected to controller
			00		reserved
		02			The LED status can be changed permanently here Bit 0 = Switch LED Bit 0 must be set to ensure the color of a connected Switch LED does not change after loss of connection to the controller. Bit 1 = Namur LED Bit 1 must be set to ensure the color of a connected Namur LED does not change after loss of connection to the controller.
	00				reserved
0x	00	02	00	01	Write the value in Control Mode.

Table 2: Example of a Control Mode value

3.2 Gateway Control Word

Control Word is used to write a CANopen standard command for the bÜS network during ongoing operation. This ensures individual devices or the entire network can be addressed.

Byte	Description	Value	Action, if bit is set
Byte 0	Target device	0x00	Gateway
		0x01-0x7f	Address of the bÜS device in the network
Byte 1	Network management for the subnetwork /bÜS network (commands according to CANopen standard)	0x01	operational
		0x02	stop
		0x80	pre operational
		0x81	node reset
		0x82	communication reset
Byte 2	reserved		
Byte 3	communication status	0x01	RUN
		0x01-0xFF	STOP

Table 3: 0x3C32 Sub 1

Change the device behavior as follows:

→ Use Control Word to change device behavior according to CANopen specifications.

✔ You have changed the device behavior.

Individual devices or also the entire system can, e.g., be started or stopped. It is also possible to simulate the connection to the controller here.

Example of composition of the Control Word value:

	Byte 3	Byte 2	Byte 1	Byte 0	Description
				00	Address 0=Gateway 0xFF all devices 1-127 bÜS NodeID
			01		CANopen specifications 0x01 operational 0x02 Stop 0x80 pre operational 0x81 node reset 0x82 communication reset
		00			reserved
	01				When 1 = COM run (no controller required) Connection okay, Greater than 1 = COM stop (wait for controller) Connection to controller required
0x	01	00	01	00	Write the value in Control Word.

Table 4: Example of a Control Word value

4 OBJECT ROUTE FUNCTION

The Object Route Function (ORF) is a function that enables access to individual objects in the bus network. The interface described below is used for this purpose. This process lasts at least 150 milliseconds.

Object Route Function			Profinet			EtherNet/IP			Modbus
Index	Subindex	Function	Slot	Subslot	Index	Class	Instance	Attribute	Address
0x3C31	0x01	Index/Subindex/NodeID	0	1	1	C7	1	3	1000
	0x02	Data length for write access	0	1	2	C7	2	3	1002
	0x03	Value UINT32	0	1	3	C7	3	3	1004
	0x04	Value string	0	1	4	C7	4	3	1006
	0x05	result	0	1	5	C7	5	3	1016
	0x06	call/cancel	0	1	6	C7	6	3	1018

Table 5: Object Route Function

Index/Subindex/NodeID:
Data type: UINT32

Target object:
Writing Index and Subindex of the object.
NodeID of the device is additionally specified. Index and Subindex are stored in the device description/EDS.
For write access + 0x00000080

Example of composition of Index/Subindex/NodeID:

0x	Index	Subindex	NodeID	Index/Subindex/NodeID	Access
0x	XXXX	ZZ	YY Device address + 0x80 for write access	0xXXXXZZYY	
0x	2001 Device Communication Object	04 Device reset	0xA0 Device address: 32	0x2001040A0	Write access
			32 = 0x20 + 0x80 (write) = 0xA0		
0x	2000 Device Descript Object	07 Serial number	0x12 Device address: 18 18 = 0x12	0x200007012	Read access

Table 6: Composition of Index/Subindex/NodeID

Data length for write access: Data type: UINT32	Data length of write command in bytes, number of valid bytes is not specified for reading.
Value UINT32: Data type: UINT32	The value to be written is specified here or the read value is output.
Value string: Data type: STRING	Is used to read and write texts, data greater than 4 bytes.
Result: Data type: UINT32	Process result: 0 command executed successfully, 0 < : error occurred during execution, 0xFFFFFFFF: read and write process not yet completed
call/cancel: Data type: UINT8	Call command: 1 call 0 cancel

4.1 PROFINET

→ Plan Profinet controller with the Gateway.

4.1.1 Profinet write access

Write Profinet Index/Subindex/NodeID

Write Index/Subindex/NodeID as follows:

- Select **Slot** 0.
- Select **Subslot** 1.
- Select **Index** 1.
- Write Index and Subindex of the object to be described and corresponding NodeID of the device.

✓ You have written Index, Subindex, and NodeID.

Example:

Function	Written value
Index/Subindex/NodeID	0x200104A0

Write Profinet Data length for write access

Write Data length for write access as follows:

- Select **Slot** 0.
- Select **Subslot** 1.
- Select **Index** 2.
- Specify the byte length of the object that is to be written on.

✓ You have written Data length for write access.

Example:

Function	Written value
Data length of the object	1

Write Profinet Value UINT32 or Value string

Value UINT32 is written for a value equal to 4 bytes.
Value string is written for a value greater than 4 bytes.

Write Value UINT32 or Value string as follows:

→ Select **Slot** 0.

→ Select **Subslot** 1.

→ Select **Index** 3 or 4.

→ Specify the value that is to be written.

You have written Value UINT32 or Value string.

Example:

Function	Written value
Device reset	2

Write Profinet call/cancel**Write call/cancel as follows:**

→ Select **Slot** 0.

→ Select **Subslot** 1.

→ Select **Index** 3.

→ Call the command with a 1.

You have written with the ORF.

Example:

Function	Written value
Call command	1

4.1.2 Profinet read access

Write Profinet Index/Subindex/NodeID

Write Index/Subindex/NodeID as follows:

- Select **Slot** 0.
- Select **Subslot** 1.
- Select **Index** 1.
- Write Index and Subindex of the object to be read and corresponding NodeID of the device.

✔ You have written Index, Subindex, and NodeID.

Example:

Function	Written value
Index/Subindex/NodeID	0x20000712

Write Profinet call/cancel

Write call/cancel as follows:

- Select **Slot** 0.
- Select **Subslot** 1.
- Select **Index** 6.
- Call the command with a 1.

✔ You have written call/cancel.

Example:

Function	Written value
Call command	1

Read Profinet Value UINT32 or Value string



Value UINT32 is read for a value equal to 4 bytes.
Value string is read for a value greater than 4 bytes.

Read Value UINT32 or Value string as follows:

- Select **Slot** 0.
- Select **Subslot** 1.
- Select **Index** 3 or 4.
- The read value is output.

✔ You have read with the ORF.

Example :

Function	Read value
Read the value from Index 3	1234

4.2 EtherNet/IP

→ Plan EtherNet/IP controller with the Gateway.

4.2.1 EtherNet/IP write access

Write EtherNet/IP Index/Subindex/NodeID

Write Index/Subindex/NodeID as follows:

→ Select **Class** C7.

→ Select **Instance** 1.

→ Select **Attribute** 3.

→ Write Index and Subindex of the object to be described and corresponding NodeID of the device.

✔ You have written Index, Subindex, and NodeID.

Example:

Function	Written value
Index/Subindex/NodeID	0x200104A0

Write EtherNet/IP Data length for write access

Write Data length for write access as follows:

→ Select **Class** C7.

→ Select **Instance** 2.

→ Select **Attribute** 3.

→ Specify the byte length of the object that is to be written on.

✔ You have written Data length for write access.

Example:

Function	Written value
Data length of the object	1

Write EtherNet/IP Value UINT32 or Value string



Value UINT32 is written for a value equal to 4 bytes.
Value string is written for a value greater than 4 bytes.

Write Value UINT32 or Value string as follows:

→ Select **Class** C7.

→ Select **Instance** 3 or 4.

→ Select **Attribute** 3.

→ Specify the value that is to be written.

✔ You have written Data length for write access.

Example:

Function	Written value
Device reset	1

Write EtherNet/IP call/cancel

Write call/cancel as follows:

- Select **Class** C7.
- Select **Instance** 6.
- Select **Attribute** 3.
- Call the command with a 1.

You have written with the ORF.

Example:

Function	Written value
Call command	1

4.2.2 EtherNet/IP read access

Write EtherNet/IP Index/Subindex/NodeID

Write Index/Subindex/NodeID as follows:

- Select **Class** C7.
- Select **Instance** 1.
- Select **Attribute** 3.
- Write Index and Subindex of the object to be read and corresponding NodeID of the device.

You have written Index, Subindex, and NodeID.

Example:

Function	Written value
Index/Subindex/NodeID	0x20000712

Write EtherNet/IP call/cancel

Write call/cancel as follows:


- Select **Class** C7.
- Select **Instance** 6.
- Select **Attribute** 3.
- Call the command with a 1.

You have written call/cancel.


Example:

Function	Written value
Call command	1

Read EtherNet/IP Value UINT32 or Value string

 Value UINT32 is read for a value equal to 4 bytes.
Value string is read for a value greater than 4 bytes.

Read Value UINT32 or Value string as follows:

- Select **Class** C7.
- Select **Instance** 3 or 4.
- Select **Attribute** 3.
- The read value is output.
-  You have read with the ORF.

Example:

Function	Read value
Read the value from Index 3	1234

4.3 Modbus

→ Plan Modbus controller with the Gateway.

4.3.1 Modbus write access

Write Modbus Index/Subindex/NodeID

Write Index/Subindex/NodeID as follows:

→ Select **Address** 1000.

→ Write Index and Subindex of the object to be described and corresponding NodeID of the device.

You have written Index, Subindex, and NodeID.

Example:

Function	Written value
Index/Subindex/NodeID	0x200104A0

Write Modbus Data length for write access

Write Data length for write access as follows:

→ Select **Address** 1002.

→ Specify the byte length of the object that is to be written on.

You have written Data length for write access.

Example:

Function	Written value
Write data length of the object	1

Write Modbus Value UINT32 or Value string



Value UINT32 is written for a value equal to 4 bytes.
Value string is written for a value greater than 4 bytes.

Write Value UINT32 or Value string as follows:

→ Select **Address** 1004 or 1006.

→ Specify the value that is to be written.

You have written Data length for write access.

Example:

Function	Written value
Device reset	2

Modbus call/cancel

Write call/cancel as follows:

→ Select **Address** 1018.

→ Call the command with a 1.

✔ You have written with the ORF.

Example:

Function	Written value
Call command	1

4.3.2 Modbus read access

Write Modbus Index/Subindex/NodeID

Write Index/Subindex/NodeID as follows:

→ Select **Address** 1000.

→ Write Index and Subindex of the object to be read and corresponding NodeID of the device.

✔ You have written Index, Subindex, and NodeID.

Example:

Function	Written value
Index/Subindex/NodeID	0x20000712

Write Modbus call/cancel

Write call/cancel as follows:

→ Select **Address** 1018.

→ Call the command with a 1.

✔ You have written call/cancel.

Example:

Function	Written value
Call command	1

Read Modbus Value UINT32 or Value string



Value UINT32 is read for a value equal to 4 bytes.
Value string is read for a value greater than 4 bytes.

Read Value UINT32 or Value string as follows:

→ Select **Address** 1004 or 1006.

→ The read value is output.

✓ You have read with the ORF.

Example:

Function	Read value
Read the value from Index 3.	1234

