

KNX Modbus Gateway with 250 data points **KNX Modbus RTU Gateway 886**

Operation and installation manual



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Content

1	Application	3
2 2.1 2.2	Installation and connection KNX programming mode Manual operation and status display	4
3	Reset to factory default settings	5
4	Wiring scheme	
4.1	Pluggable screw terminals	
4.2	Pin assignment	
5	ETS database	
5.1	Description	7
5.2	General settings	8
5.3	Modbus settings	9
5.4	Datapoints N – M1	
5.5	Channel function "DPT 01 – binary – 1 bit" 1	
5.6	Channel function "DPT 03 – dimming – 4 bit"2	
5.7	Channel function "DPT 05 – percent – 1 byte" 2	4
5.8	Channel function "DPT 05 – configured – 1 byte" 2	
5.9	Channel function "DPT 05 – unsigned – 1 byte"	2
5.10	Channel function "DPT 06 – signed – 1 byte"	3
5.11	Channel function "DPT 07 – configured – 2 bytes" 3	4
5.12	Channel function "DPT 07 – unsigned – 2 bytes" 4	1
5.13	Channel function "DPT 08 – signed – 2 bytes" 4	2
5.14	Channel Function "DPT 09 – float – 2 bytes" 4	3
5.15	Channel Function "DPT 14 – float – 4 bytes" 4	4
5.16	General information4	8

1 Application

The KNX Modbus RTU Gateway 886 is a compact gateway between KNX TP and Modbus RTU with 250 free configurable channels.

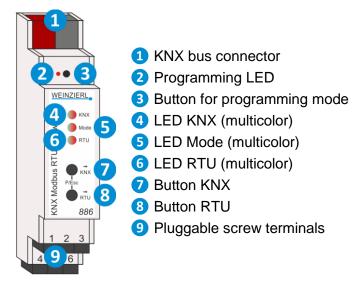
The device enables an easy integration of Modbus devices that support the RTU protocol via RS-485 and can act as Modbus master or slave. The device can be used as a master for up to 25 slave devices.

The assignment between KNX objects and Modbus registers can be configured via parameters in the ETS. No additional software is required. The KNX Bus and Modbus have a galvanic isolation from each other.

Two push buttons and three LEDs enable a local operation and a visualization of the device status.

2 Installation and connection

The KNX Modbus RTU Gateway 886 is designed for installation on a DIN rail (35 mm) with a width of 1 unit (18 mm). An installation friendly design with pluggable screw terminals helps to reduce the cost of commissioning. It features the following controls and displays:



The device has galvanic isolation between Modbus and KNX. The Modbus side must be connected with 12...24 V=. The unchoked output voltage from the KNX power supply must not be used for this purpose.



If the bus voltage is missing, the device is without function.



2.1 KNX programming mode

The KNX programming mode is activated/deactivated either by pressing the flushed KNX programming button (3) or by simultaneously pressing the buttons (7) and (8). The operation of the programming mode at the front can be activated/deactivated in the ETS® with Prog. mode on device front.

When the programming mode is active, the programming LED **2** and the LED Mode **5** light up red.

2.2 Manual operation and status display

The LED KNX ④ lights up or flashes when KNX bus voltage is present.

The LED Mode **5** lights up or flashes when KNX bus voltage is present.

The LED RTU 6 lights up or flashes when supply voltage is present.

The synchronization of the KNX objects is triggered by pressing the button KNX 7 for a long time. This is indicated by the LED Mode 5 lighting up in orange.

Pressing the button RTU (8) for a long time triggers the synchronization of the Modbus registers. This is indicated by the LED Mode (5) lighting up in orange.

The LED KNX ④ is used to indicate the status of KNX communication. It flashes when sending and receiving telegrams.

The LED RTU 6 indicates the status of the Modbus communication. It flashes when sending and receiving telegrams.

Summary of the states of the LED Mode 5:

LED Status	Meaning
LED lights green	The unit operates in normal operating mode.
LED lights red	The programming mode is active.
LED lights orange	The programming mode is not active. Synchronization is active.
LED flashes red	The programming mode is not active. Synchronization is not active. The device is not loaded correctly, e.g. after aborting a download.
LED flashes green	The device is currently loaded by the ETS.

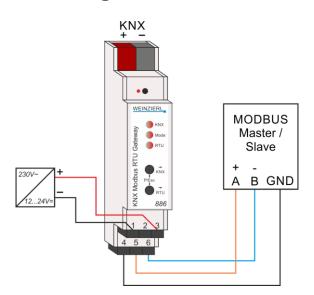


3 Reset to factory default settings

It is possible to reset the device to the factory default settings:

- Disconnect the KNX Bus connector 1 from the device.
- Press the KNX programming button 3 and keep it pressed down.
- Reconnect the KNX Bus connector 1 to the device.
- Keep the KNX programming button 3 pressed for at least another 6 seconds.
- A short flashing of all LEDs (2456) visualizes the successful reset of the device to factory default settings.

In the factory default settings, the device has the physical address 15.15.255 and no group addresses are connected.



4 Wiring scheme

4.1 Pluggable screw terminals

The upper terminal is used to connect the supply voltage 12 \dots 24 V=, the lower terminal to connect the Modbus:

-	-	+
-	А	В



4.2 Pin assignment

Connection	lcon	Description
1	-	Ground connection for supply voltage
2	-	Ground connection for supply voltage
3	+	Positive connection for supply voltage 12 24 V=
4	-	Ground connection for Modbus (connected to connection 1 and connection 2)
5	А	Data line A (+) for Modbus
6	В	Data line B (-) for Modbus
KNX	+	Positive connection for KNX bus
KNX	-	Ground connection for KNX bus

The transmission line must be terminated at the last participant of the Modbus transmission line with a 120 Ohm / 0.25 W resistor. This resistor must be inserted directly between the two signal lines before the input of the last device. No terminating resistor is installed in the device itself.

Only shielded and twisted cables should be used for Modbus.



5 ETS database

The ETS5 database (for ETS 5.7 or newer) can be downloaded from the product website of the KNX Modbus RTU Gateway 886 (www.weinzierl.de) or from the ETS online catalogue.

5.1 Description

escription		
Seneral settings	KNX Modbus RTU Gateway 886 KNX Modbus Gateway with 250 datapoints	EINZIERL
Modbus settings		
Datapoints 1 - 10	The KNX Modbus RTU Gateway 886 is a compact Gateway between KNX TP and Modb	us RTU
Datapoints 11 - 20	with 250 freely configurable channels. The device enables easy integration of Modbus devices that support the RTU	
atapoints 21 - 30	protocol via RS-485 and can act as a Modbus master or slave. As Master the device can address up to 25 slave devices.	
atapoints 31 - 40	The assignment between KNX objects and Modbus registers can be configured via parameters in the ETS without an additional tool.	
atapoints 41 - 50	The gateway provides a galvanic isolation between KNX bus and Modbus.	
atapoints 51 - 60	Two buttons and three LEDs allow local operation and visualization of the device status.	
atapoints 61 - 70		
atapoints 71 - 80		
Datapoints 81 - 90		MODBUS
Datapoints 91 - 100	Wiring scheme:	Master / Slave
atapoints 101 - 110		+ - A B GND
atapoints 111 - 120		
latapoints 121 - 130		
atapoints 131 - 140		
atapoints 141 - 150	Please consult device data sheet and manual for further information.	
atapoints 151 - 160	Contact:	
atapoints 161 - 170	Weinzierl Engineering GmbH Achatz 3 84508 Burgkirchen / Alz	
tapoints 171 - 180	Germany www.weinzierl.de	

The first page shows general information about the device.



5.2 General settings

1.1.1 KNX Modbus RTU Gateway 886 > General settings						
Description	Device name	KNX Modbus RTU Gateway 886				
General settings	Send delay after bus power return	5 s 👻				
Modbus settings	Prog. mode on device front	Oisabled O Enabled				
Determine 1, 10	Manual operation (sync) on device	Disabled O Enabled				
Datapoints 1 - 10	Heartbeat	O Disabled O Enabled				
Datapoints 11 - 20	Cycle time	5 min 👻				
Datapoints 21 - 30	KNX settings					
Datapoints 31 - 40	Telegram rate limitation	O Disabled O Enabled				
Datapoints 41 - 50	Time telegram rate	1.0 s 👻				

Device name (30 characters)

Any arbitrary name can be assigned to the KNX Modbus RTU Gateway 886. The device name should be meaningful, e.g. "Living room ground floor". This helps the clarity of the ETS project.

Send delay after bus power return

The send delay of telegrams after the return of the bus voltage can be set via this parameter. In this case, telegrams from the device are sent to the KNX bus in a delayed manner by the set time. This reduces the bus load when the bus voltage returns. Other functions such as receiving telegrams are not affected by this parameter.

Prog. mode on device front

In addition to the normal programming button 3 the device allows activating the programming mode on the device front without opening the switchboard cover. The programming mode can be activated and deactivated via pressing simultaneously both buttons 7 and 8.

This feature can be enabled and disabled via the parameter Prog. mode on device front. The recessed programming button (3) (next to the programming LED (2)) is always enabled and is not affected by this parameter.

Manual operation (sync) on device

This parameter is used to configure manual operation on the device. The manual operation can be activated or deactivated.

Manual operation enables synchronization of all channels in the direction to KNX (button KNX ()) and in the direction to Modbus (button RTU (3)).

Direction KNX:

All datapoints of the channels configured as "Modbus to KNX" send their current value on the KNX bus.

Direction Modbus:

If the gateway is operating as Modbus master, all registers of the channels configured "KNX to Modbus" are written to Modbus again.

Synchronization can be cancelled by pressing the buttons 7 and 8 simultaneously.



Heartbeat

Cyclic sending of values to the KNX bus, to indicate that the device is operational. For the Cycle time values between 1 min and 24 h are selectable.

Group object	Type KNX	Size	Direction
GO 277 Heartbeat – Trigger	1.001	1 bit	To KNX

Telegram rate limitation

With this parameter the telegram rate limitation can be activated or deactivated.

Time telegram rate

If telegram rate limitation is activated, the time between the telegrams can be configured here. Times between 0.1 sec. and 1.0 sec. can be selected.



The telegram rate limitation only occurs when the bus load is increased.

5.3 Modbus settings

1 KNX Modbus RTU Gat	eway 886 > Modbus settings		
Description	KNX Gateway	O Modbus master O Modbus slave	
General settings	Slave address (common)	1	+
Modbus settings	Baudrate	19200 bits/s	•
	Parity	Even (1 stop bit)	
Datapoints 1 - 10	Byte order	O MSB first CLSB first	
Datapoints 11 - 20	Register address	0 based 1 based	
Datapoints 21 - 30	Request settings		
Datapoints 31 - 40	Time till next request	Minimal	•
Datapoints 41 - 50	Time till next cycle	Minimal	•
Datapoints 51 - 60	Multi read requests	Disabled Enabled	
Datapoints 61 - 70	Diagnostic settings		
	Diagnostic objects	Disabled Enabled	

KNX Gateway

This parameter defines the role of the KNX gateway within the client/server architecture of the Modbus environment. Available are:

- Modbus master
- Modbus slave



Slave address (common)

Here the general slave address (0 ... 247) is set and used according to KNX Gateway configuration.

Modbus master:

The slave address of the Modbus communication partner is entered here. If several Slave devices are to be addressed, a specific slave address can be assigned per parameter page (e.g. datapoints 1-10).

Modbus slave:

The slave address of the KNX gateway is entered here.

Baudrate

Configures the baudrate of the Modbus communication. The following are available:

- 1200 bits/s
- 2400 bits/s
- 4800 bits/s
- 9600 bits/s
- 19200 bits/s
- 38400 bits/s
- 56000 bits/s
- 115200 bits/s

Parity

Here the Modbus frame is parameterized with regard to parity and stop bit. The following options are available:

- Even (1 stop bit)
- Odd (1 stop bit)
- None (2 stop bits)
- None (1 stop bit)

Byte order

Defines the order for the transmission of 2 byte values:

- MSB first (high byte is sent first)
- LSB first (low byte is sent first)

Register address

Here it is set on which address basis the register address is defined:

- 0 based
- 1 based

Time till next request (only in Master mode)

This parameter defines the minimum time for the next request. Used to slow down the master.

Time till next cycle (only in Master Mode)

This parameter defines the time after which a new request cycle has to begin. If the time is too short, the cycle will not be completed. This is indicated by the red flashing of the RTU LED **6**.

Multi read requests (only in Master Mode)

When this parameter is activated, Modbus registers which lie one after the other in the channels are combined in a multi-read request.



The slave address and the function code must be identical. The register address must be continuous, but repetitions may occur. A maximum of 16 channels can be combined.

Example:

Type Slave address: Common Channel 1 – MB to KNX – Read holding register – Address 0 Channel 2 – MB to KNX – Read holding register – Address 1 Channel 3 – MB to KNX – Read holding register – Address 2 Channel 4 – MB to KNX – Read holding register – Address 2 Channel 5 – MB to KNX – Read holding register – Address 3 Channel 6 – MB to KNX – Read holding register – Address 4 Channel 7 – MB to KNX – Read holding register – Address 4

The result is a read-multi-holding-register request for addresses 0 - 4.

Diagnostic objects

Activated, objects for diagnostic are displayed and provide information about the communication with the respective slave device.

Modbus master:

If no response is received from the slave device, "No communication – On" is sent to the KNX bus via the diagnostic object.

Modbus slave:

If no request is received from the master within the time interval, "No communication – On" is sent to the KNX bus via the diagnostic object.

Group object	Type KNX	Size	Direction
GO 276 Diagnostic: Slave (common) – No communication	1.001	1 bit	To KNX



5.4 Datapoints N – M

escription	Slave address type	Common O For this page	
eneral settings	Slave address	1	
odbus settings	Slave description		
atapoints 1 - 10	Channel 1		
atapoints 11 - 20	Datapoint type	Disabled	
	Channel 2	Disabled DPT 01 - binary - 1 bit	
atapoints 21 - 30	Datapoint type	DPT 03 - dimming - 4 bits	
Patapoints 31 - 40		DPT 05 - percent - 1 byte DPT 05 - configured - 1 byte	
atapoints 41 - 50	Channel 3	DPT 05 - unsigned - 1 byte	
)atapoints 51 - 60	Datapoint type	DPT 06 - signed - 1 byte DPT 07 - configured - 2 bytes	
	Channel 4	DPT 07 - unsigned - 2 bytes	
atapoints 61 - 70	Datapoint type	DPT 08 - signed - 2 bytes DPT 09 - float - 2 bytes	
atapoints 71 - 80	Channel 5	DPT 14 - float - 4 bytes	
Datapoints 81 - 90	Datapoint type	Disabled	
Datapoints 91 - 100	Channel 6		
atapoints 101 - 110	Datapoint type	Disabled	
atapoints 111 - 120	Channel 7		
atapoints 121 - 130	Datapoint type	Disabled	
atapoints 131 - 140	Channel 8		
Datapoints 141 - 150	Datapoint type	Disabled	
	Channel 9		
Datapoints 151 - 160	Datapoint type	Disabled	
Datapoints 161 - 170	Channel 10		
atapoints 171 - 180	Datapoint type	Disabled	

10 channels are combined per page.

Slave address type (only in master mode)

This parameter determines whether the general address or another slave address is to be used for the configured channels on this page.

Slave address (only in master mode)

Here the slave address (0 ... 247) of the channels of this page is set.

Slave description (only in master mode)

If the diagnostic is activated, the diagnostic object of this page can be named here.

Group object	Type KNX	Size	Direction
GO 251 Diagnostic: Slave (page 1) – No communication	1.001	1 bit	To KNX



Datapoint type

This parameter activates and defines the KNX interface and the function of this channel. The following options are available:

Disabled

 DPT 01 – binary – 1 bit 				
Group object	Type KNX	Size	Direction	
GO 1 Channel 1: – Switch – 1 bit	1.001	1 bit		

• DPT 03 – dimming – 4 bits

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Dimming – 4 bits	3.007	4 bits	

DPT 05 – percent – 1 byte

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Percent – 1 byte	5.001	1 byte	

DPT 05 – configured – 1 byte

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Configured – 1 byte	5.010	1 byte	

DPT 05 – unsigned – 1 byte

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Unsigned – 1 byte	5.010	1 byte	

DPT 06 – signed – 1 byte

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Signed – 1 byte	6.010	1 byte	

DPT 07 – configured – 2 bytes

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Configured – 2 bytes	7.001	2 bytes	

DPT 07 – unsigned – 2 bytes

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Unsigned – 2 bytes	7.001	2 bytes	

DPT 08 – signed – 2 bytes

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Signed – 2 bytes	8.001	2 bytes	



DPT 09 – float – 2 bytes

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Float – 2 bytes	9.001	2 bytes	

DPT 14 – float – 4 bytes

Group object	Type KNX	Size	Direction
GO 1 Channel 1: – Float – 4 bytes	14.000	4 bytes	

Description (30 characters)

Any name can be assigned to the channel. However, this should be unique and meaningful, which makes it easier to work with the associated group objects later, since the name assigned is displayed there as a description. If no name is assigned, the group objects are designated as "Channel N: …".

Direction

The KNX specific communication direction is set here:

• KNX to Modbus (group object is input)

Group object	Type KNX	Size	Direction
GO 1 Channel 1: Input –	Depending of	n DPT	From KNX

Modbus to KNX (group object is output)

Group object	Type KNX	Size	Direction
GO 1 Channel 1: Output –	Depending on DPT		To KNX

Send condition

If the group object is defined as an output, the time at which the object sends the value to the KNX bus is configured here. The following options are available:

- Read only
 Object sends only on read requests
- On change
 Object sends on value change
- Cyclic
 Object sends after cycle time
- Cyclic and on change
 Object transmits after cycle time and on value change

Cycle time

The time for send condition cyclic.

Туре

This parameter defines the function of the channel as well as the size of the Modbus register used.

Depending on the parameter **Datapoint type N** various channel functions are possible, which will be discussed in more detail in the following chapters.

For "Value in word register" it should be noted that the channel does not work in case of incorrect configuration.



The **Bit count** and **Offset** together must not be greater than 16. The value must fit into **Bit count**, for example **Bit count** = $1 \rightarrow$ "Value" = 0 or 1.

Function

The Modbus function code for this channel is configured here.

Different function codes can be configured depending on **KNX gateway** (Modbus master/slave), **Direction** and **Type**.

Word register:

Modbus Master | KNX to Modbus

- Write single holding register 06
- Write multi holding registers 16 (for "DPT 14" and "Double word register")

Modbus Master | Modbus to KNX

- Read holding registers 03
- Read input registers 04

Modbus Slave | KNX to Modbus

- Read holding registers 03
- Read input registers 04

Modbus Slave | Modbus to KNX

Write single/multi holding registers – 06, 16

Bit Register:

Modbus Master | KNX to Modbus

Write single coil – 05

Modbus Master | Modbus to KNX

- Read coils 01
- Read discrete inputs 02

Modbus Slave | KNX to Modbus

- Read coils 01
- Read discrete inputs 02

Modbus Slave | Modbus to KNX

• Write single/multi coils – 05, 15



Address

Here the address of the Modbus register is configured. An address range from 0 ... 65535 is available.



If address 0 is configured with "1 based", this is a static error which deactivates the channel function and is indicated by LED RTU ⁶ lighting up in red.

Polling interval (only in Master mode and for Modbus to KNX)

This defines the cyclic intervals of read requests for the respective register. The following options are available:

- Every cycle
- Every second cycle
- Every fourth cycle
- Every sixth cycle
- Every eighth cycle

5.5 Channel function "DPT 01 – binary – 1 bit"

Туре

The following types are configurable:

- Bit register
 1 bit (KNX) sets bit register (Modbus)
- Bit in word register
 1 bit (KNX) sets 1 bit in word register (Modbus)
- Value in word register
 1 bit (KNX) is mapped to value in word register (Modbus)

5.5.1 Type – Bit register

1.1.1 KNX Modbus RTU Gate	eway 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 01 - binary - 1 bit 👻
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
1	Туре	Bit register 🔹
Datapoints 21 - 30	Value inverted	No Ves
Datapoints 31 - 40	Function	Write single coil - 05
Datapoints 41 - 50	Address	0

Value inverted

If yes, the inverted value of the group object corresponds to the value of the bit register.

5.5.2 Type – Bit in word register

Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 01 - binary - 1 bit
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	◯ KNX to modbus ◎ Modbus to KNX
Datapoints II - 20	Send condition	On change
Datapoints 21 - 30	Туре	Bit in word register
Datapoints 31 - 40	Position (register)	Bit 00
Datapoints 41 - 50	Value inverted	O No Ves
Determinister E1 60	Function	Read holding registers - 03
Datapoints 51 - 60		Read input registers - 04
Datapoints 61 - 70	Address	0

Position (register)

Defines the bit in the word register.

Value inverted

If yes, the inverted value of the group object corresponds to the value of the bit in the word register.

5.5.3 Type – Value in word register

Bit count

This parameter defines the size of the value in the word register (in bits).

Offset

This parameter defines the position of the value in the word register (offset from the right in bits).

5.5.3.1 Direction – KNX to Modbus

escription	Slave address type	Common For this page
ieneral settings	Channel 1	
lodbus settings	Datapoint type	DPT 01 - binary - 1 bit
Datapoints 1 - 10	Description	
	Direction	KNX to modbus OModbus to KNX
)atapoints 11 - 20	Туре	Value in word register
atapoints 21 - 30	Bit count	16 bit
Datapoints 31 - 40	Offset	00 bit
atapoints 41 - 50	Behaviour on receiving data 'ON'	○ No reaction
Datapoints 51 - 60	Value	1
	Behaviour on receiving data 'OFF'	No reaction O Set register value
atapoints 61 - 70	Value	0
atapoints 71 - 80	Function	Write single holding register - 06

Behaviour on receiving data 'ON'

Here it can be configured whether a value is to be set in the register when an 'ON' telegram is received.

Value

The value that is set in the register when an 'ON' telegram is received.

Behaviour on receiving data 'OFF'

Here it can be configured whether a value is to be set in the register when an 'OFF' telegram is received.

Value

The value that is set in the register when an 'OFF' telegram is received.

5.5.3.2 Direction – Modbus to KNX

Description	Slave address type	Common For this page	
General settings	Channel 1		
Modbus settings	Datapoint type	DPT 01 - binary - 1 bit	
Datapoints 1 - 10	Description		
D	Direction	KNX to modbus O Modbus to KNX	
Datapoints 11 - 20	Send condition	On change	
Datapoints 21 - 30	Туре	Value in word register	
Datapoints 31 - 40	Bit count	16 bit	
Datapoints 41 - 50	Offset	00 bit	
Datapoints 51 - 60	Value	1	
Datapoints 51 - 00	Behaviour on value higher	Send 'OFF'	
Datapoints 61 - 70	Behaviour on value match	Send 'ON'	
Datapoints 71 - 80	Behaviour on value lower	Send 'OFF'	
Datapoints 81 - 90	Function	Read holding registers - 03 Read input registers - 04	
Datapoints 91 - 100	Address	0	
Datapoints 101 - 110	Polling interval	Every cycle	

Value

The value for which the register is checked. Depends on Bit count and Offset.

Behaviour on value higher

This parameter defines the behaviour of the group object if the register value is greater than the parameterized value. The following options are available:

- No reaction
- Send 'ON'
- Send 'OFF'

Behaviour on value match

This parameter defines the behaviour of the group object in case the register value corresponds to the parameterized value. The following options are available:

- No reaction
- Send 'ON'
- Send 'OFF'

Behaviour on value lower

This parameter defines the behaviour of the group object in case the register value is smaller than the parameterized value. The following options are available:

- No reaction
- Send 'ON'
- Send 'OFF'



5.6 Channel function "DPT 03 – dimming – 4 bit"

Туре

The following types are configurable:

- Bit register
 4 bit dimming command (KNX) sets bit register (Modbus)
- Value in word register
 4 bit dimming command (KNX) is mapped to value in word register (Modbus)

5.6.1 Type – Bit Register

5.6.1.1 Direction – KNX to Modbus

escription	Slave address type	Common For this page
neral settings	Channel 1	
dbus settings	Datapoint type	DPT 03 - dimming - 4 bits
tapoints 1 - 10	Description	
atapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
	Туре	Bit register Value in word register
atapoints 21 - 30	Behaviour on receiving data 'DIM UP'	Register '1'
atapoints 31 - 40	Behaviour on receiving data 'DIM DOWN'	No reaction
atapoints 41 - 50	Behaviour on receiving data 'DIM STOP'	Register '0'
	Function	Write single coil - 05
atapoints 51 - 60	Address	0
tapoints 61 - 70		

Behaviour on receiving data 'DIM UP'

This parameter defines the behaviour of the bit register in case a 'DIM UP' telegram has been received at the group object. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on receiving data 'DIM DOWN'

This parameter defines the behaviour of the bit register in case a 'DIM DOWN' telegram was received at the group object. The following options are available:

- No reaction
- Register '1'
- Register '0'



Behaviour on receiving data 'DIM STOP'

This parameter defines the behaviour of the bit register in case a 'DIM STOP' telegram has been received at the group object. The following options are available:

- No reaction
- Register '1'
- Register '0'

5.6.1.2 Direction – Modbus to KNX

1.1 KNX Modbus RTU Gat	eway 886 > Datapoints 1 - 10	
Description	Slave address type	O Common O For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 03 - dimming - 4 bits 🔹
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus O Modbus to KNX
	Send condition	On change 🔹
Datapoints 21 - 30	Туре	O Bit register Value in word register
Datapoints 31 - 40	Behaviour on register '1'	Send 'DIM UP'
Datapoints 41 - 50	Behaviour on register '0'	Send 'DIM STOP'
Datapoints 51 - 60	Function	Read coils - 01 Read discrete inputs - 02
544690.112.51 00	Address	0 *
Datapoints 61 - 70	Polling interval	Every cycle 👻
Datapoints 71 - 80		

Behaviour on register '1'

This parameter defines the behaviour of the group object in case the register value corresponds to the parameterized value. The following options are available:

- No reaction
- Send 'DIM UP'
- Send 'DIM DOWN'
- Send 'DIM STOP'

Behaviour on register '0'

This parameter defines the behaviour of the group object in case the register value corresponds to the parameterized value. The following options are available:

- No reaction
- Send 'DIM UP'
- Send 'DIM DOWN'
- Send 'DIM STOP'



5.6.2 Type – Value in word register

Bit count

This parameter defines the size of the value in the word register (in bits).

Offset

This parameter defines the position of the value in the word register (offset from the right in bits).

5.6.2.1 Direction – KNX to Modbus

1.1.1 KNX Modbus RTU Gate	eway 886 > Datapoints 1 - 10		
Description	Slave address type	Common For this page	
General settings	Channel 1		
Modbus settings	Datapoint type	DPT 03 - dimming - 4 bits	•
Datapoints 1 - 10	Description		
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX	
Datapoints 21 - 30	Туре	Bit register O Value in word register	
Datapoints 31 - 40	Bit count Offset	16 bit 00 bit	•
	Behaviour on receiving data 'DIM UP'	No reaction O Set register value	
Datapoints 41 - 50	Value	1	÷
Datapoints 51 - 60	Behaviour on receiving data 'DIM DOWN'	No reaction Set register value	
Datapoints 61 - 70	Behaviour on receiving data 'DIM STOP'	No reaction O Set register value	
Datapoints 71 - 80	Value	0	▲ ▼
Datapoints 81 - 90	Function	Write single holding register - 06	
Datapoints 91 - 100	Address	0	* *

Behaviour on receiving data 'DIM UP'

Here it can be parameterized whether a value is to be set in the register when a 'DIM OPEN' telegram is received.

Value

The value that is set in the register when a 'DIM OPEN' telegram is received.

Behaviour on receiving data 'DIM DOWN'

Here it can be parameterized whether a value is to be set in the register when a 'DIM DOWN' telegram is received.

Value

The value that is set in the register when a 'DIMM DOWN' telegram is received.

Behaviour on receiving data 'DIM STOP'

Here it can be parameterized whether a value is to be set in the register when a 'DIM STOP' telegram is received.



Value

The value that is set in the register when a 'DIM STOP' telegram is received.

.1 KNX Modbus RTU Ga	teway 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 03 - dimming - 4 bits
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
•	Send condition	On change
Datapoints 21 - 30	Туре	Bit register 🔘 Value in word register
Datapoints 31 - 40	Bit count	16 bit
Datapoints 41 - 50	Offset	00 bit
Datapoints 51 - 60	Value	1
Datapoints 61 - 70	Behaviour on value higher	Send 'DIM STOP'
Datapoints 71 - 80	Behaviour on value match	Send 'DIM UP' Send 'DIM STOP'
	benaviour on value lower	 Read holding registers - 03
Datapoints 81 - 90	Function	Read input registers - 04
Datapoints 91 - 100	Address	0
Datapoints 101 - 110	Polling interval	Every cycle

5.6.2.2 Direction – Modbus to KNX

Behaviour on value higher

This parameter defines the behaviour of the group object if the register value is greater than the parameterized value. The following options are available:

- No reaction
- Send 'DIM UP'
- Send 'DIM DOWN'
- Send 'DIM STOP'

Behaviour on value match

This parameter defines the behaviour of the group object in case the register value corresponds to the parameterized value. The following options are available:

- No reaction
- Send 'DIM UP'
- Send 'DIM DOWN'
- Send 'DIM STOP'



Behaviour on value lower

This parameter defines the behaviour of the group object in case the register value is smaller than the parameterized value. The following options are available:

- No reaction
- Send 'DIM UP'
- Send 'DIM DOWN'
- Send 'DIM STOP'

5.7 Channel function "DPT 05 – percent – 1 byte"

Туре

The following type is configured:

Word register

1 byte percent value (KNX) is mapped to value in word register (Modbus)

5.7.1 Type – Word register

1.1.1 KNX Modbus RTU Gateway	886 > Datapoints 1 - 10	
Description	Slave address type	O Common O For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 05 - percent - 1 byte 🔹
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
	Туре	Word register
Datapoints 21 - 30	Position (register)	Low byte 🔻
Datapoints 31 - 40	Value minimum (register)	0
D	Value maximum (register)	255 🗘
Datapoints 41 - 50	Value minimum (KNX)	0
Datapoints 51 - 60	Value maximum (KNX)	100
Datapoints 61 - 70	Function	Write single holding register - 06
Datapoints 71 - 80	Address	0 ‡

Position (register)

This parameter defines the area of the word register that is mapped. The following areas are available:

- Low byte
- High byte
- High/Low byte

Value minimum (register)

Register value which corresponds to Value minimum (KNX).

Value maximum (register)

Register value which corresponds to Value maximum (KNX).

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Value minimum (KNX)

KNX value which corresponds to Value minimum (register).

Value maximum (KNX)

KNX value, which corresponds to Value maximum (register).



The conversion is always transferred to the entire register area. **Value minimum/maximum (register)** defines no limits.

5.8 Channel function "DPT 05 – configured – 1 byte"

Туре

The following types are configurable:

- Bit register
 1 byte configured value (KNX) sets bit register (Modbus)
- Bit in word register
 1 byte configured value (KNX) sets 1 bit in word register (Modbus)
- Value in word register
 1 byte configured value (KNX) is mapped to value in word register (Modbus)

5.8.1 Type – Bit register

5.8.1.1 Direction – KNX to Modbus

I.1 KNX Modbus RTU Gate	way 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 05 - configured - 1 byte
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
Datapoints 21 - 30	Туре	Bit register -
Datapoints 21 - 50	Value (object)	255
Datapoints 31 - 40	Behaviour on value higher	Register '0'
Datapoints 41 - 50	Behaviour on value match	Register '1' 🗸
Datapoints 51 - 60	Behaviour on value lower	Register '0'
	Function	Write single coil - 05
Datapoints 61 - 70	Address	0

Value (object)

This parameter defines the value for which the group object (KNX) is checked.



Behaviour on value higher

This parameter defines the behaviour of the bit register in case the received value (KNX) is greater than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value match

This parameter defines the behaviour of the bit register in case the received value (KNX) corresponds to the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value lower

This parameter defines the behaviour of the bit register in case the received value (KNX) is smaller than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

5.8.1.2 Direction – Modbus to KNX

Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 05 - configured - 1 byte
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus O Modbus to KNX
	Send condition	On change
Datapoints 21 - 30	Туре	Bit register
Datapoints 31 - 40	Behaviour on register '1'	 No reaction Send value
Datapoints 41 - 50	Value (object)	255
Datapoints 51 - 60	Behaviour on register '0'	 No reaction Send value
	Value (object)	0
Datapoints 61 - 70	Function	Read coils - 01 Read discrete inputs - 02
Datapoints 71 - 80	Address	0
Datapoints 81 - 90	Polling interval	Every cycle



Behaviour on register '1'

This parameter defines the behaviour of the group object in case the register is set. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent to KNX when the register is set.

Behaviour on register '0'

This parameter defines the behaviour of the group object in case the register is not set. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent to KNX when the register is not set.

5.8.2 Type – Bit in word register

5.8.2.1 Direction – KNX to Modbus

Description	Slave address type	Common For this page
ieneral settings	Channel 1	
Modbus settings	Datapoint type	DPT 05 - configured - 1 byte
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus O Modbus to KNX
Jatapoints II - 20	Туре	Bit in word register
Datapoints 21 - 30	Value (object)	255
Datapoints 31 - 40	Position (register)	Bit 00
Datapoints 41 - 50	Behaviour on value higher	Register '0'
	Behaviour on value match	Register '1'
Datapoints 51 - 60	Behaviour on value lower	Register '0'
Datapoints 61 - 70	Function	Write single holding register - 06
Datapoints 71 - 80	Address	0

Value (object)

This parameter defines the value for which the group object (KNX) is checked.

Position (register)

Defines the bit in the word register.



Behaviour on value higher

This parameter defines the behaviour of the bit in the word register in case the received value (KNX) is greater than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value match

This parameter defines the behaviour of the bit in the word register in case the received value (KNX) corresponds to the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value lower

This parameter defines the behaviour of the bit in the word register in case the received value (KNX) is smaller than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

5.8.2.2 Direction – Modbus to KNX

KNX Modbus RTU Gate	eway 886 > Datapoints 1 - 10	
Description	Slave address type	O Common O For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 05 - configured - 1 byte
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	○ KNX to modbus ◎ Modbus to KNX
	Send condition	On change
Datapoints 21 - 30	Туре	Bit in word register
Datapoints 31 - 40	Position (register)	Bit 00
Datapoints 41 - 50	Behaviour on register '1'	No reaction Send value
Datapoints 51 - 60	Value (object)	255
	Behaviour on register '0'	No reaction Send value
Datapoints 61 - 70	Value (object)	0
Datapoints 71 - 80	Function	Read holding registers - 03
Datapoints 81 - 90		Read input registers - 04
	Address	0
Datapoints 91 - 100	Polling interval	Every cycle

Position (register)

Defines the bit in the word register.



Behaviour on register '1'

This parameter defines the behaviour of the group object in case the bit in the word register is set. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent to KNX when the bit in the word register is set.

Behaviour on register '0'

This parameter defines the behaviour of the group object in case the bit in the word register is not set. The following options are available:

- No reaction
- Send value

Value (object)

The value which is sent to KNX if the bit in the word register is not set.

5.8.3 Type – Value in word register

Bit count

This parameter defines the size of the value in the word register (in bits).

Offset

This parameter defines the position of the value in the word register (offset from the right in bits).

5.8.3.1 Direction – KNX to Modbus

1 KNX Modbus RTU Gate	eway 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 05 - configured - 1 byte
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
Datapoints II - 20	Туре	Value in word register
Datapoints 21 - 30	Value (object)	255
Datapoints 31 - 40	Bit count	16 bit
Datapoints 41 - 50	Offset	00 bit
Datapoints 51 - 60	Behaviour on value higher	 No reaction Set register value
Datapoints 51 - 00	Value (register)	0
Datapoints 61 - 70	Behaviour on value match	○ No reaction ◎ Set register value
Datapoints 71 - 80	Value (register)	1
Datapoints 81 - 90	Behaviour on value lower	○ No reaction ◎ Set register value
Datapoints 91 - 100	Value (register)	0
	Function	Write single holding register - 06
Datapoints 101 - 110	Address	0
Datapoints 111 - 120		

Value (object)

This parameter defines the value for which the group object (KNX) is checked.

Behaviour on value higher

This parameter defines the behaviour of the word register in case the received value (KNX) is greater than the parameterized value. The following options are available:

- No reaction
- Set value in register

Value (register)

The value that is set in the word register.

Behaviour on value match

This parameter defines the behaviour of the word register in case the received value (KNX) corresponds to the parameterized value. The following options are available:

- No reaction
- Set value in register

Value (register)

The value that is set in the word register.



Behaviour on value lower

This parameter defines the behaviour of the word register in case the received value (KNX) is smaller than the parameterized value. The following options are available:

- No reaction
- Set value in register

Value (register)

The value that is set in the word register.

5.8.3.2 Direction – Modbus to KNX

escription	Slave address type	Common For this page
eneral settings	Channel 1	
odbus settings	Datapoint type	DPT 05 - configured - 1 byte
atapoints 1 - 10	Description	
atapoints 11 - 20	Direction	○ KNX to modbus
	Send condition	On change
atapoints 21 - 30	Туре	Value in word register
atapoints 31 - 40	Bit count	16 bit
atapoints 41 - 50	Offset	00 bit
atapoints 51 - 60	Value (register)	1
atapoints 61 - 70	Behaviour on value higher	No reaction Send value
	Value (object)	0
tapoints 71 - 80	Behaviour on value match	No reaction Send value
atapoints 81 - 90	Value (object)	255
itapoints 91 - 100	Behaviour on value lower	No reaction Send value
101 110	Value (object)	0
atapoints 101 - 110	Function	Read holding registers - 03
atapoints 111 - 120		Read input registers - 04
tapoints 121 - 130	Address	0

Value (register)

This parameter defines the value for which the word register is checked.

Behaviour on value higher

This parameter defines the behaviour of the group object (KNX) in the event that the register value is greater than the parameterized value. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent via the group object (KNX).



Behaviour on value match

This parameter defines the behaviour of the group object (KNX) in the event that the register value corresponds to the parameterized value. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent via the group object (KNX).

Behaviour on value lower

This parameter defines the behaviour of the group object (KNX) in the event that the register value is smaller than the parameterized value. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent via the group object (KNX).

5.9 Channel function "DPT 05 – unsigned – 1 byte"

Туре

The following type is configured:

Word register

1 byte value unsigned (KNX) is written/read to/from area in word register (Modbus)

5.9.1 Type – Word register

Description	Slave address type	Common For this page	
General settings	Channel 1		
Modbus settings	Datapoint type	DPT 05 - unsigned - 1 byte	
Datapoints 1 - 10	Description		
Datapoints 11 - 20	Direction	KNX to modbus O Modbus to KNX	
	Туре	Word register	
Datapoints 21 - 30	Position (register)	Configured	
Datapoints 31 - 40	Bit count	08 bit	
	Offset	00 bit	
Datapoints 41 - 50	Function	Write single holding register - 06	
Datapoints 51 - 60	Address	0	



Position (register)

This parameter defines the area of the word register which is read/written. The following areas are available:

- Low byte
- High byte
- Configured

Bit count (only for configured)

This parameter defines the size of the area in the word register (in bits).

Offset (only for configured)

This parameter defines the position of the area in the word register (offset from the right in bits).



The **Bit count** and **Offset** together must not be greater than 16. The value must fit into **Bit count**, for example **Bit count** = $1 \rightarrow$ "Value" = 0 or 1.

5.10 Channel function "DPT 06 – signed – 1 byte"

Туре

The following type is configured:

Word register
 1 byte value signed (KNX) is written/read to/from area in word register (Modbus)

5.10.1 Type – Word register

1.1.1 KNX Modbus RTU Gat	teway 886 > Datapoints 1 - 10		
Description	Slave address type	Common For this page	
General settings	Channel 1		
Modbus settings	Datapoint type	DPT 06 - signed - 1 byte	•
Datapoints 1 - 10	Description		
Determine 11 20	Direction	KNX to modbus Modbus to KNX	
Datapoints 11 - 20	Туре	Word register	
Datapoints 21 - 30	Position (register)	Configured	•
Datapoints 31 - 40	Offset	00 bit	•
	Function	Write single holding register - 06	
Datapoints 41 - 50	Address	0	*
Datapointe E1 60			



Position (register)

This parameter defines the area of the word register which is read/written. The following areas are available:

- Low byte
- High byte
- Configured

Offset (only for configured)

This parameter defines the position of the area in the word register (offset from the right in bits).

5.11 Channel function "DPT 07 – configured – 2 bytes"

Туре

The following types are configurable:

- Bit register
 2 byte value configured (KNX) sets bit register (Modbus)
- Bit in word register
 2 byte value configured (KNX) sets 1 bit in word register (Modbus)
- Value in word register
 2 byte value configured (KNX) is mapped to value in word register (Modbus)

5.11.1 Type – Bit register

5.11.1.1 Direction – KNX to Modbus

.1 KNX Modbus RTU Gat	eway 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 07 - configured - 2 bytes
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX
	Туре	Bit register
Datapoints 21 - 30	Value (object)	65535
Datapoints 31 - 40	Behaviour on value higher	Register '0'
Datapoints 41 - 50	Behaviour on value match	Register '1'
	Behaviour on value lower	Register '0'
Datapoints 51 - 60	Function	Write single coil - 05
Datapoints 61 - 70	Address	0

Value (object)

This parameter defines the value for which the group object (KNX) is checked.



Behaviour on value higher

This parameter defines the behaviour of the bit register in case the received value (KNX) is greater than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value match

This parameter defines the behaviour of the bit register in case the received value (KNX) corresponds to the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value lower

This parameter defines the behaviour of the bit register in case the received value (KNX) is smaller than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

5.11.1.2 Direction – Modbus to KNX

Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 07 - configured - 2 bytes
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	○ KNX to modbus ◎ Modbus to KNX
	Send condition	On change
Datapoints 21 - 30	Туре	Bit register
Datapoints 31 - 40	Behaviour on register '1'	No reaction O Send value
Datapoints 41 - 50	Value (object)	65535
Datapoints 51 - 60	Behaviour on register '0'	 No reaction Send value
	Value (object)	0
Datapoints 61 - 70	Function	Read coils - 01 Read discrete inputs - 02
Datapoints 71 - 80	Address	0
Datapoints 81 - 90	Polling interval	Every cycle



Behaviour on register '1'

This parameter defines the behaviour of the group object in case the register is set. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent to KNX when the register is set.

Behaviour with register '0'

This parameter defines the behaviour of the group object in case the register is not set. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent to KNX when the register is not set.

5.11.2 Type – Bit in word register

5.11.2.1 Direction – KNX to Modbus

Description	Slave address type	Common For this page	
General settings	Channel 1		
Modbus settings	Datapoint type	DPT 07 - configured - 2 bytes	
Datapoints 1 - 10	Description		
	Direction	KNX to modbus O Modbus to KNX	
Datapoints 11 - 20	Туре	Bit in word register	
Datapoints 21 - 30	Value (object)	65535	
Datapoints 31 - 40	Position (register)	Bit 00	
Datapoints 41 - 50	Behaviour on value higher	Register '0'	
	Behaviour on value match	Register '1'	
Datapoints 51 - 60	Behaviour on value lower	Register '0'	
Datapoints 61 - 70	Function	Write single holding register - 06	
Datapoints 71 - 80	Address	0	

Value (object)

This parameter defines the value for which the group object (KNX) is checked.

Position (register)

Defines the bit in the word register.



Behaviour on value higher

This parameter defines the behaviour of the bit in the word register in case the received value (KNX) is greater than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value match

This parameter defines the behaviour of the bit in the word register in case the received value (KNX) corresponds to the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

Behaviour on value lower

This parameter defines the behaviour of the bit in the word register in case the received value (KNX) is smaller than the parameterized value. The following options are available:

- No reaction
- Register '1'
- Register '0'

5.11.2.2 Direction – Modbus to KNX

1.1.1 KNX Modbus RTU Gate	eway 886 > Datapoints 1 - 10	
Description	Slave address type	O Common O For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 07 - configured - 2 bytes 🔹
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Ndbus to KNX
	Send condition	On change 🔹
Datapoints 21 - 30	Туре	Bit in word register 🔹
Datapoints 31 - 40	Position (register)	Bit 00 👻
Datapoints 41 - 50	Behaviour on register '1'	○ No reaction ◎ Send value
Datapoints 51 - 60	Value (object)	65535 ÷
	Behaviour on register '0'	No reaction O Send value
Datapoints 61 - 70	Value (object)	0
Datapoints 71 - 80	Function	Read holding registers - 03
Datapoints 81 - 90		Read input registers - 04
	Address	0
Datapoints 91 - 100	Polling interval	Every cycle 👻

Position (register)

Defines the bit in the word register.



Behaviour on register '1'

This parameter defines the behaviour of the group object in case the bit in the word register is set. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent to KNX when the bit in the word register is set.

Behaviour with register '0'

This parameter defines the behaviour of the group object in case the bit in the word register is not set. The following options are available:

- No reaction
- Send value

Value (object)

The value which is sent to KNX if the bit in the word register is not set.

5.11.3 Type – Value in word register

Bit count

This parameter defines the size of the value in the word register (in bits).

Offset

This parameter defines the position of the value in the word register (offset from the right in bits).

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escription	Slave address type	Common For this page
eneral settings	Channel 1	
lodbus settings	Datapoint type	DPT 07 - configured - 2 bytes
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus O Modbus to KNX
vatapoints 11 - 20	Туре	Value in word register
Datapoints 21 - 30	Value (object)	65535
Datapoints 31 - 40	Bit count	16 bit
)atapoints 41 - 50	Offset	00 bit
)atapoints 51 - 60	Behaviour on value higher	No reaction Set register value
atapoints 51 - 00	Value (register)	0
Datapoints 61 - 70	Behaviour on value match	O No reaction O Set register value
Datapoints 71 - 80	Value (register)	1
Datapoints 81 - 90	Behaviour on value lower	No reaction O Set register value
)atapoints 91 - 100	Value (register)	0
	Function	Write single holding register - 06
)atapoints 101 - 110	Address	0

5.11.3.1 Direction – KNX to Modbus

Value (object)

This parameter defines the value for which the group object (KNX) is checked.

Behaviour on value higher

This parameter defines the behaviour of the word register in case the received value (KNX) is greater than the parameterized value. The following options are available:

- No reaction
- Set value in register

Value (register)

The value that is set in the word register.

Behaviour on value match

This parameter defines the behaviour of the word register in case the received value (KNX) corresponds to the parameterized value. The following options are available:

- No reaction
- Set value in register

Value (register)

The value that is set in the word register.



Behaviour on value lower

This parameter defines the behaviour of the word register in case the received value (KNX) is smaller than the parameterized value. The following options are available:

- No reaction
- Set value in register

Value (register)

The value that is set in the word register.

5.11.3.2 Direction – Modbus to KNX

Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 07 - configured - 2 bytes
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus I Modbus to KNX
Datapoints II - 20	Send condition	On change
Datapoints 21 - 30	Туре	Value in word register
Datapoints 31 - 40	Bit count	16 bit
Datapoints 41 - 50	Offset	00 bit
Datapoints 51 - 60	Value (register)	1
	Behaviour on value higher	No reaction Send value
Datapoints 61 - 70	Value (object)	0
Datapoints 71 - 80	Behaviour on value match	○ No reaction
Datapoints 81 - 90	Value (object)	65535
Datapoints 91 - 100	Behaviour on value lower	No reaction Send value
•	Value (object)	0
Datapoints 101 - 110	Function	Read holding registers - 03
Datapoints 111 - 120	Function	Read input registers - 04
Datapoints 121 - 130	Address	0
	Polling interval	Every cycle

Value (register)

This parameter defines the value for which the word register is checked.

Behaviour on value higher

This parameter defines the behaviour of the group object (KNX) in the event that the register value is greater than the parameterized value. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent via the group object (KNX).



Behaviour on value match

This parameter defines the behaviour of the group object (KNX) in the event that the register value corresponds to the parameterized value. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent via the group object (KNX).

Behaviour on value lower

This parameter defines the behaviour of the group object (KNX) in the event that the register value is smaller than the parameterized value. The following options are available:

- No reaction
- Send value

Value (object)

The value that is sent via the group object (KNX).

5.12 Channel function "DPT 07 – unsigned – 2 bytes"

Туре

The following type is configured:

Word register

2 byte value unsigned (KNX) is written/read to/from area in word register (Modbus)

5.12.1 Type – Word register

Description	Slave address type	Common O For this page	
General settings	Channel 1		
Modbus settings	Datapoint type	DPT 07 - unsigned - 2 bytes	
Datapoints 1 - 10	Description		
Determinete 11 - 20	Direction	KNX to modbus O Modbus to KNX	
Datapoints 11 - 20	Туре	Word register	
Datapoints 21 - 30	Position (register)	◯ High/Low byte ◎ Configured	
Datapoints 31 - 40	Bit count	16 bit	
Datapoints 41 - 50	Offset	00 bit	
Datapoints +1 - 50	Function	Write single holding register - 06	
Datapoints 51 - 60	Address	0	



Position (register)

This parameter defines the area of the word register which is read/written. The following areas are available:

- High/Low byte
- Configured

Bit count (only for configured)

This parameter defines the size of the area in the word register (in bits).

Offset (only for configured)

This parameter defines the position of the area in the word register (offset from the right in bits).



The **Bit count** and **Offset** together must not be greater than 16. The value must fit into **Bit count**, for example **Bit count** = $1 \rightarrow$ "Value" = 0 or 1.

5.13 Channel function "DPT 08 - signed - 2 bytes"

Туре

The following type is configured:

Word register
 2 byte value signed (KNX) is written/read to/from area in word register (Modbus)

5.13.1 Type – Word register

1.1.1 KNX Modbus RTU Gat	teway 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 08 - signed - 2 bytes 🔹
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus Modbus to KNX Word register
Datapoints 21 - 30	Position (register)	High/Low byte
Datapoints 31 - 40	Function	Write single holding register - 06
Datapoints 41 - 50	Autress	5 v

Position (register)

This parameter defines the area of the word register which is read/written. The following area is configured:

High/Low byte



5.14 Channel Function "DPT 09 – float – 2 bytes"

Туре

The following type is configured:

Word register
 2 byte float value (KNX) is mapped to area in word register (Modbus)

5.14.1 Type – Word register

I KNX Modbus RTU Gate	way 886 > Datapoints 1 - 10			
Description	Slave address type	Common For this page		
General settings	Channel 1			
Modbus settings	Datapoint type	DPT 09 - float - 2 bytes		
Datapoints 1 - 10	Description			
Datapoints 11 - 20	Direction	○ KNX to modbus ◎ Modbus to KNX		
Datapoints 11 - 20	Send condition	On change		
Datapoints 21 - 30	Value change	0.5		
Datapoints 31 - 40	Туре	Word register		
Datapoints 41 - 50	Position (register)	High/Low byte - unsigned		
Butapointa 41 50	Value minimum (register)	0		
Datapoints 51 - 60	Value maximum (register)	100		
Datapoints 61 - 70	Value minimum (KNX)	0		
Datapoints 71 - 80	Value maximum (KNX)	100		
D	Function	Read holding registers - 03		
Datapoints 81 - 90		Read input registers - 04		
Datapoints 91 - 100	Address	0		
Datapoints 101 - 110	Polling interval	Every cycle		

Position (register)

This parameter defines the area of the word register that is mapped. The following areas are available:

- Low byte unsigned
- High byte unsigned
- High/Low byte unsigned
- Low byte 2th complement
- High byte 2th complement
- High/Low byte 2th complement

Value minimum (register)

Register value which corresponds to Value minimum (KNX).

Value maximum (register)

Register value which corresponds to Value maximum (KNX).



Value minimum (KNX)

KNX value which corresponds to Value minimum (register).

Value maximum (KNX)

KNX value, which corresponds to Value maximum (register).



The conversion is always transferred to the entire register area. **Value minimum/maximum (register)** defines no limits.

5.15 Channel Function "DPT 14 – float – 4 bytes"

Туре

The following types are configurable:

- Word register
 4 byte float value (KNX) is mapped to area in word register (Modbus)
- Double word register
 4 byte float value (KNX) is mapped to two word registers (Modbus)

5.15.1 Type – Word register

Description	Slave address type	Common For this page		
General settings	Channel 1			
Modbus settings	Datapoint type	DPT 14 - float - 4 bytes		
Datapoints 1 - 10	Description			
	Direction	KNX to modbus O Modbus to KNX		
Datapoints 11 - 20	Send condition	On change		
Datapoints 21 - 30	Value change	0.5		
Datapoints 31 - 40	Туре	Word register Double word register		
Datapoints 41 - 50	Position (register)	High/Low byte - unsigned		
Datapoints 51 - 60	Value minimum (register)	0		
Datapoints 51 - 00	Value maximum (register)	100		
Datapoints 61 - 70	Value minimum (KNX)	0		
Datapoints 71 - 80	Value maximum (KNX)	100		
Datapoints 81 - 90	Function	 Read holding registers - 03 Read input registers - 04 		
Datapoints 91 - 100	Address	0		
Datapoints 101 - 110	Polling interval	Every cycle		



Position (register)

This parameter defines the area of the word register that is mapped. The following areas are available:

- Low byte unsigned
- High byte unsigned
- High/Low byte unsigned
- Low byte 2th complement
- High byte 2th complement
- High/Low byte 2th complement

Value minimum (register)

Register value which corresponds to Value minimum (KNX).

Value maximum (register)

Register value which corresponds to Value maximum (KNX).

Value minimum (KNX)

KNX value which corresponds to Value minimum (register).

Value maximum (KNX)

KNX value, which corresponds to Value maximum (register).



The conversion is always transferred to the entire register area. **Value minimum/maximum (register)** defines no limits.

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1.1.1 KNX Modbus RTU Gate	way 886 > Datapoints 1 - 10	
Description	Slave address type	Common For this page
General settings	Channel 1	
Modbus settings	Datapoint type	DPT 14 - float - 4 bytes 🔹
Datapoints 1 - 10	Description	
Datapoints 11 - 20	Direction	KNX to modbus O Modbus to KNX
	Send condition	On change 🔹
Datapoints 21 - 30	Value change	0.5
Datapoints 31 - 40	Туре	○ Word register
Datapoints 41 - 50	Word order	Hi word @ address / Lo word @ address + 1 Lo word @ address / Hi word @ address + 1
Datapoints 51 - 60	Type register value	Modbus holds integer value - unsigned
Datapoints 61 - 70	Value minimum (register)	0
Datapoints 71 - 80	Value maximum (register)	100 ‡
	Value minimum (KNX)	0
Datapoints 81 - 90	Value maximum (KNX)	100
Datapoints 91 - 100	Function	Read holding registers - 03
Datapoints 101 - 110	Address	Read input registers - 04
Datapoints 111 - 120	Polling interval	Every cycle

5.15.2 Type – Double word register

Word order

This parameter defines the byte order in which the value of the group object (KNX) is distributed to the two word registers (Modbus). The following options are available:

- Hi word @ Address / Lo word @ Address + 1
- Lo word @ Address / Hi word @ Address + 1

Type Register value

This parameter defines how the float value is mapped to Modbus. The following options are available:

- Modbus contains integer value unsigned
- Modbus contains integer value 2th complement
- Modbus contains float value (IEEE)

Value minimum (register)

Register value which corresponds to Value minimum (KNX).

Value maximum (register)

Register value which corresponds to Value maximum (KNX).

Value minimum (KNX)

KNX value which corresponds to Value minimum (register).



Value maximum (KNX)

KNX value, which corresponds to Value maximum (register).



The conversion is always transferred to the entire register area. **Value minimum/maximum (register)** defines no limits.

Function (for "KNX to Modbus" and "Double word register")

This parameter defines the transmission mode of the double word register. The following options are available:

- Write multi holding registers 16 Both word registers in one request
- Write single holding register 06
 For each word register one request



As "Modbus master", with "Modbus to KNX" and "Double word register", multi read requests should be activated in order to read both word registers in one request.

Address (for "Double word register")

Double word registers use the register address specified here as well as this register address + 1.



5.16 General information

5.16.1 Scaling

The scaling factor can be defined with the respective minimum/maximum values.

Example:

Value minimum (register) = 0 Value maximum (register) = 100 Value minimum (KNX) = 0 Value maximum (KNX) = 10

The result is scaling * 10 of the KNX value: Value KNX = $10.5 \rightarrow$ Value Register = 105



The conversion is always transferred to the entire register area. **Value minimum/maximum (register)** defines no limits.

5.16.2 2th complement

The 2th complement is used in Modbus registers to represent negative values. Thus, for example, a range of -32768...32767 can be displayed on a word register.

5.16.3 Modbus communication

If the KNX Gateway (master mode) does not receive a response from the slave within 1 second, the request is repeated twice. If these are not successful, all channels of this parameter page are skipped.

If the slave takes longer than 1 second to process the data, it can send an acknowledge telegram which restarts the time interval at the master.



5.16.4 Modbus specification

In Modbus there are various types of register address specification.

Variant 1:

Register type	Access	Size	Address range
Coil	RW	1 bit	00001 - 09999
Discrete inputs	R	1 bit	10001 – 19999
Input register	R	2 bytes	30001 - 39999
Holding register	RW	2 bytes	40001 - 49999



The address range additionally defines the register type. The address range is 1 based.

Example – Coil:

00005 is the fifth coil.

Register address = 1 based Function = Read coils - 01 Function = Write single coil - 05 Function = Write multi coils - 15 Address = 5

Example – Discrete input:

10001 is the first discrete input.

Register address = 1 based Function = Read discrete inputs – 02 Address = 1

Example – Input register:

30002 is the second input register.

Register address = 1 based Function = Read input register - 04Address = 2

Example – Holding register:

40004 is the fourth holding register.

Register address = 1 based Function = Read holding register – 03 Function = Write single holding register – 06 Function = Write multi holding register – 16 Address = 4



Variant 2:

Register type	Access	Size	Address range
Coil	RW	1 bit	0x0001 – 0x9999
Discrete inputs	R	1 bit	1x0001 – 1x9999
Input register	R	2 bytes	3x0001 – 3x9999
Holding register	RW	2 bytes	4x0001 - 4x9999



The address range additionally defines the register type. The address range is 1 based.

Example – Coil:

0x0005 is the fifth coil.

Register address = 1 based Function = Read coils - 01 Function = Write single coil - 05 Function = Write multi coils - 15 Address = 5

Example – Discrete input:

1x0001 is the first discrete input.

Register address = 1 based Function = Read discrete inputs – 02 Address = 1

Example – Input register:

3x0002 is the second input register.

Register address = 1 based Function = Read input register – 04 Address = 2

Example – Holding register:

4x0004 is the fourth holding register.

Register address = 1 based Function = Read holding register – 03 Function = Write single holding register – 06 Function = Write multi holding register – 16 Address = 4



Variant 3:

Register type	Access	Size	Address range
Coil	RW	1 bit	0 - 65535
Discrete inputs	R	1 bit	0 - 65535
Input register	R	2 bytes	0 - 65535
Holding register	RW	2 bytes	0 - 65535



The address range defines the address that is actually sent. The address range is 0 based.

Example – Coil:

5 is the sixth coil.

Register address = 0 based Function = Read coils - 01 Function = Write single coil - 05 Function = Write multi coils - 15 Address = 5

Example – Discrete input:

0 is the first discrete input.

Register address = 0 based Function = Read discrete inputs - 02Address = 0

Example – Input register:

2 is the third input register.

Register address = 0 based Function = Read input register – 04 Address = 2

Example – Holding register:

4 is the fifth holding register.

Register address = 0 based Function = Read holding register – 03 Function = Write single holding register – 06 Function = Write multi holding register – 16 Address = 4



Variant 4:

Register type	Access	Size	Address range
Coil	RW	1 bit	1 – 65535
Discrete inputs	R	1 bit	1 – 65535
Input register	R	2 bytes	1 – 65535
Holding register	RW	2 bytes	1 – 65535



The address range is 1 based.

Example – Coil:

5 is the fifth coil.

Register address = 1 based Function = Read coils - 01 Function = Write single coil - 05 Function = Write multi coils - 15 Address = 5

Example – Discrete input:

1 is the first discrete input.

Register address = 1 based Function = Read discrete inputs – 02 Address = 1

Example – Input register:

2 is the second input register.

Register address = 1 based Function = Read input register - 04Address = 2

Example – Holding register:

4 is the fourth holding register.

Register address = 1 based Function = Read holding register – 03 Function = Write single holding register – 06 Function = Write multi holding register – 16 Address = 4



WARNING

- The device must be mounted and commissioned by an authorized electrician.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.



Product database for ETS 5/6

www.weinzierl.de/en/products/886/ets6

Data sheet www.weinzierl.de/en/products/886/datasheet

CE Declaration www.weinzierl.de/en/products/886/ce-declaration

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