AMPERFIED WALLBOX CONNECT SERIES

Modbus TCP Register Layout

Version 1.0.8 – Version 2.0.2

This document describes the use of the implemented register layout for Modbus TCP communication.

- Please do not use registers that are not described in this document or are not intended for use by the user.
- Please check on our homepage that you have the latest version of this Modbus documentation so that you can take into account possible changes to the register layout.

  https://www.amperfied.de/de/service-support/downloads/
- Please refer the original manual of the Wallbox for further information.

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Configuration

Connection by IP address

The IP address under which the Wallbox can be reached in the network must be used for communication.

It is recommended to set the IP address permanently for Modbus TCP Communication.

Connection by Host Name

Host Name

The Wallbox can also be found and addressed in the network via its host name, provided that the network router supports this.

The host's name consists of a defined device designation ("HDM-SMART-CONNECT-") and the last six characters of the MAC address on the communication module.

Example

HDM-SMART-CONNECT-F431F2

Notice

With some routers, e.g., the FRITZ!Box, devices in the network can be reached with their host name as a subdomain, e.g., https://hdm-smart-connect-f431f2.fritz.box/

Communication Port

Port Number

The TCP port 502 is used for Modbus TCP communication.

Notice

Please note that only one connection can be established on this port at a time.

Register Layout: General

[004] Modbus TCP Register Layout Version

Description

This register can be read to check the Modbus Register Layouts Version.
This is important for correct use of registers.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
4	R	04 - readInputRegister	uint16	0..65536	

Examples

The value contained in the register is in hexadecimal format. To determine the register layout version, no conversion to the decimal system is necessary. Instead, the individual digits of the hexadecimal number represent the version directly.

- decimal 256 ↔ hexadecimal 0x100 ↔ Version V1.0.0
- decimal 264 ↔ hexadecimal 0x108 ↔ Version V1.0.8

Notice

The register layout version is not the same as the software version of the Wallbox.

[005] Charging State

Description

This register represents the current charging state between the vehicle and the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
5	R	04 - readInputRegister	uint16	1...11	

Examples

Value	State	Car	Wallbox
2	A1	No vehicle plugged	Wallbox doesn't allow charging
3	A2		Wallbox allows charging
4	B1	Vehicle plugged without charging request	Wallbox doesn't allow charging
5	B2		Wallbox allows charging
6	C1	Vehicle plugged with charging request	Wallbox doesn't allow charging
7	C2		Wallbox allows charging
8	---	---	Derating
9	E	Error	Error
10	F	---	Wallbox locked or not ready
11	---	---	Error

Notice

The charging states refer to the EN 61851-1 standard. Please see more details there.

[006 - 008] Current

Description

These registers represent the current rms drawn by the vehicle from the Wallbox per phase L1, L2. L3.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
6	R	04 - readInputRegister	uint16	L1: 0....350	Ampere rms in steps of 0.1 A
7	R	04 - readInputRegister	uint16	L2: 0....350	Ampere rms in steps of 0.1 A
8	R	04 - readInputRegister	uint16	L3: 0....350	Ampere rms in steps of 0.1 A

Examples

- 1 = 0.1 A rms
- 145 = 14.5 A rms

Notice

If an internal MID power meter is present, these values contain the measured data of the MID power meter. If there is no internal MID power meter, these values are for internal use only and not for billing purposes.

[009] Temperature (PCB)

Description

This register represents the internal temperature of the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
9	R	04 - readInputRegister	int16	-2000 ... +2000	°C in steps of 0.1 °C

Examples

- 325 = +32.5 °C
- -145 = -14.5 °C

[010 – 012] Voltage

Description

This register represents the current voltage rms, provided by the connection point per phase.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
10	R	04 - readInputRegister	uint16	*L1 – N* 0...65536	Volt in steps of 1 V
11	R	04 - readInputRegister	uint16	*L2 – N* 0...65536	Volt in steps of 1 V
12	R	04 - readInputRegister	uint16	*L3 - N* 0...65536	Volt in steps of 1 V

Examples

- 8 = 8 V rms
- 238 = 238 V rms
- 258 = 258 V rms

Notice

If an internal MID power meter is present, these values contain the measured data of the MID power meter. If there is no internal MID power meter, these values are for internal use only and not for billing purposes.

[013] Extern Lock State

Description

This register represents the status of the input for external lock (see manual).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
13	R	04 - readInputRegister	uint16	0 or 1	

Examples

- 0 = system locked
- 1 = system unlocked

[014] Power

Description

This register represents the sum of the power of all three phases (Power L1 + Power L2 + Power L3) consumed by the connected vehicle.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
14	R	04 - readInputRegister	uint16	0..65536	W in steps of 1 W

Examples

- 1000 → 1.000 kW
- 9814 → 9.841 kW
- 11000 → 11.000 kW

Notice

If an internal MID power meter is present, these values contain the measured data of the MID power meter. If there is no internal MID power meter, these values are for internal use only and not for billing purposes.

[015 - 016] Energy since Power on

Description

Electrical energy drawn from the vehicles since the last time the Wallbox was switched on.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
15	R	04 - readInputRegister	uint16	Energy since Power On [high byte]	0..65536	VAh in steps of 2^{16} VAh
16	R	04 - readInputRegister	uint16	Energy since Power On [low byte]	0..65536	VAh in steps of 1 VAh

Examples

- high Byte = 1 → 1 * 2^{16} VAh = 65536 VAh
  low byte = 1000 → 1000 VAh
  ⇒ Result: 65536 VAh + 1000 VAh = 66536 Vah

- high Byte = 5 → 5 * 2^{16} VAh = 327680 VAh
  low byte = 37 → 37 VAh
  ⇒ Result: 327680 VAh + 37 VAh = 327717 VAh

Notice

These values are for internal use only and not for billing purposes.

[017 -018] Energy since Installation

Description

Electrical energy drawn by the vehicles since commissioning of the Wallbox. The register content is not lost when the Wallbox is disconnected from the mains. A reset is not possible.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
17	R	04 - readInputRegister	uint16	Energy since Installation [high byte]	0..65536	VAh in steps of 2^{16} VAh
18	R	04 - readInputRegister	uint16	Energy since Installation [Low byte]	0..65536	VAh in steps of 1 VAh

Examples

- high Byte = 10 → 10 * 2^{16} VAh = 655360 VAh
  low byte = 100 → 100 VAh
  ⇒ Result: 655360 VAh + 100 VAh = 655460 Vah

- high Byte = 23 → 23 * 2^{16} VAh = 1507328 VAh
  low byte = 1974 → 1974 VAh
  ⇒ Result: 1114112 VAh + 1974 VAh = 1509302 VAh

Notice

If an internal MID power meter is present, these values contain the measured data of the MID power meter. If there is no internal MID power meter, these values are for internal use only and not for billing purposes.

[019 -020] Energy during charge cycle

Description

Electrical energy drawn by the vehicle since start of a charging cycle.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
19	R	04 - readInputRegister	uint16	Energy during charge cycle [high byte]	0..65536	VAh in steps of 2^{16} VAh
20	R	04 - readInputRegister	uint16	Energy during charge cycle [Low byte]	0..65536	VAh in steps of 1 VAh

Examples

- high Byte = 1 → 1 * 2^{16} VAh = 65536 VAh
  low byte = 1000 → 1000 VAh
  ⇒ Result: 65536 VAh + 1000 VAh = 66536 Vah

- high Byte = 5 → 5 * 2^{16} VAh = 327680 VAh
  low byte = 37 → 37 VAh
  ⇒ Result: 327680 VAh + 37 VAh = 327717 VAh

Notice

If an internal MID power meter is present, these values contain the measured data of the MID power meter. If there is no internal MID power meter, these values are for internal use only and not for billing purposes.

[100] Hardware configuration maximal current

Description

In this register the configuration of the hardware switch in the Wallbox can be read (see Manual).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
100	R	04 - readInputRegister	uint16	0...16	Ampere in steps of 1 A

Examples

- 6 = 6 A
- 16 = 16 A

[101] Hardware configuration minimal current

Description

In this register the minimal current of the Wallbox can be read. The value not changeable by Hardware or Software.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
101	R	04 - readInputRegister	uint16	6	Ampere

[102 - 133] Logistic String

Description

This block of registers contains a logistic string for internal use.
Each Register represents two ASCII characters.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
102	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
133	R	04 - readInputRegister	char[2]	ASCII	

Notice

Reserved by manufacturer. Only for internal use.

[200] Hardware Variant

Description
In this register hardware variants are described for internal use.

Layout Version
The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type		
200	R	04 - readInputRegister	uint16		

Notice
Reserved by manufacturer. Only for internal use.

[203] Application Software Revision

Description
The register contains the Revision Number of the Application Software.

Layout Version
The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type		
203	R	04 - readInputRegister	uint16		

Notice
Reserved by manufacturer. Only for internal use.

[257] WatchDog TimeOut

Description

This register is used for communication monitoring and sets WatchDog TimeOut for the Modbus TCP Leader. Within this period, at least one successful Modbus TCP communication must have taken place between the Modbus TCP Leader and the Modbus TCP Follower. Otherwise, the Modbus TCP Follower goes into TimeOut mode.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
257	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0...65536	Seconds in steps of 0.001 s

Default Value

15000 = 15.000 s

Examples

- 10000 = 10.000 s
- 9523 = 9.523 s
- 0 = Off, i.e., WatchDog deactivated

Notice

After Power On the stored value is retained.

[259] Remote Lock

Description

This Register can be used to read and write the Remote lock.
It works only if extern lock is unlocked. The extern lock has priority.
If you lock the system with register 259, this is indicated to the user by the LED.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
259	R / W	06 - writeHoldingRegister	uint16	0 or 1	

Default Value

1 = system unlocked

Examples

- 0 = system locked
- 1= system unlocked

Notice

After Power On the stored value is retained.

[261] Maximal Current Command

Description

This Register can be used to read and write the maximal current.

The system can be locked by setting 0 in register 261. However, this is not displayed to the user. It is noticed that the charging does not start or is terminated.

The unit for this value is ampere in steps of 0.1 A

It is recommended to leave the current setting constant for 20 sec. after a change.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
261	R/W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	[0; 60 to 160]	Ampere in steps of 0.1 A

Default Value

The default value 0, i.e., 0 A.

Examples

- 160 = 16 A
- 100 = 10 A
- 1...59 → not allowed, is interpreted as 0 A → means no charging possible
- 0 → is interpreted as 0 A → means no charging possible

[262] FailSafe Current

Description

FailSafe Current configuration in case of loss of Modbus TCP communication. The FailSafe current will be used for charging if TimeOut Mode is activated (see Register 257 WatchDog TimeOut).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
262	R/W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0 60 to 160	Ampere in steps of 0.1 A

Default Value

The default value 0, i.e., 0 A.

Examples

- 0 → 0.0 A, i.e., no charging possible
- 1...59 → not allowed, is interpreted as 0.0 A, i.e., no charging possible
- 60 = 6.0 A
- 160 = 16.0 A

Notice

After Power On the stored value is retained.

[300 - 318] Support Diagnostic Data

Description

Register Area for Support Diagnostic Data.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type		
300	R	04 - readInputRegister	uint16		
...	R	04 - readInputRegister	uint16		
318	R	04 - readInputRegister	uint16		

Notice

Reserved by manufacturer. Only for internal use.

[500 - 819] Error Memory

Description

Register Area for Error Memory.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type		
500	R	04 - readInputRegister	int16		
...	..	..	..		
819	R	04 - readInputRegister	int16		

Notice

Reserved by manufacturer. Only for internal use.

Register Layout: Logistic Data

[1000 - 1017] Wallbox Serial Number

Description

This block of registers contains the serial number of the Wallbox.
Each Register represents two ASCII characters.
Zero byte represents the end of the serial number. Registers padded with 0x0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
1000	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
1017	R	04 - readInputRegister	char[2]	ASCII	

Examples

012345 means the serial number 012345.

[1050 - 1067] Wallbox Item Number

Description

This block of registers contains the item number of the Wallbox.
Each Register represents two ASCII characters.
Zero byte represents the end of the item number. Registers padded with 0x0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
1050	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
1067	R	04 - readInputRegister	char[2]	ASCII	

Examples

00.779.2965 means the item number 00.779.2965

[1100 - 1117] Date of Production

Description

This block of registers contains the date of production based on week and year.
Each Register represents two ASCII characters.
Zero byte represents the end of date of production. Registers padded with 0x0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
1100	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
1117	R	04 - readInputRegister	char[2]	ASCII	

Examples

1723 means calendar week 17 and year 23 as date of production.

[1250 - 1290] Firmware Version

Description

This block of registers contains the firmware version of the Wallbox.
Each Register represents two ASCII characters.
Zero byte represents the end of the firmware version. Registers padded with 0x0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
1250	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
1290	R	04 - readInputRegister	char[2]	ASCII	

Examples

V2.0.0 means Firmware V2.0.0

[1300 - 1340] Firmware Variant

Description

This block of registers contains the firmware version of the Wallbox.
Each Register represents two ASCII characters.
Zero byte represents the end of the firmware variant. Registers padded with 0x0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
1300	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
1340	R	04 - readInputRegister	char[2]	ASCII	

Examples

HDM for Amperfied Wallbox.

Register Layout: RFID Card Handling

[300] RFID Configuration Commands

Description

This register allows to configure the RFID handling in the Wallbox.
Please note: the commands are hexadecimal numbers.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
300	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0x1000 ... 0x1005	

Values

Value	Command
0x1000	Disable internal Whitelist
0x1001	Activate internal Whitelist
0x1002	Disable RFID Card Security
0x1003	Active RFID Card Security
0x1004	Disable Authentication
0x1005	Activate Authentication

Notice

If the register is used for reading, 0x0000 is returned.
Please use input register 2100 to read out the status.

[301] RFID Control Commands

Description

This register allows to control the RFID handling in the Wallbox.
Please note: the commands are hexadecimal numbers.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
301	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0x2002 0x2003 0x2004 0x2008	

Values

Value	Command
0x2002	Start Teaching RFID Card
0x2003	Cancel Teaching RFID Card
0x2004	RFID Card accepted by Modbus Controller (one-time blinking green LED and beeping buzzer)
0x2008	RFID Card rejected by Modbus Controller (three times blinking red LED and beeping buzzer)

Notice

If the register is used for reading, 0x0000 is returned.

[302] Charging Permission Command

Description

This register is responsible to give charging permission.
Please note: the commands are hexadecimal numbers.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
302	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0x3001	

Values

Value	Command
0x3001	charging permission

Notice

If the register is used for reading, 0x0000 is returned.

[2000] RFID Card Counter

Description

This register counts all presented RFID cards used on the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
2000	R	04 - readInputRegister	uint16	0..65536	

Default Value

0 counts = 0x0000
16 counts = 0x0010

[2001] RFID UID Length

Description

This register represents the length of the UID by the current used RFID card.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
2001	R	04 - readInputRegister	uint16	0..65536	

Default Value

0 digits = 0

Examples

UID = 04 49 62 FA BA 10 90.
The value 7 in the register means that the UID is 7 bytes long.

[2002 - 2007] RFID UID

Description

This block of registers represents the UID by the current used RFID card.
The values are hexadecimal.
Each UID consists of 12 Bytes (Byte 0 up to Byte 11).
Each register represents two bytes of the UID.
Zero byte represents the end of the UUID. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Content
2002	R	04 - readInputRegister	uint16	0..65536	UID Byte 0 and Byte 1
2003	R	04 - readInputRegister	uint16	0..65536	UID Byte 2 and Byte 3
2004	R	04 - readInputRegister	uint16	0..65536	UID Byte 4 and Byte 5
2005	R	04 - readInputRegister	uint16	0..65536	UID Byte 6 and Byte 7
2006	R	04 - readInputRegister	uint16	0..65536	UID Byte 8 up to Byte 9
2007	R	04 - readInputRegister	uint16	0..65536	UID Byte 10 and Byte 11

Default Value

0000 0000 0000 0000 0000 0000

Example

UUID = 04 49 62 FA BA 10 90 means

- Reg [2002] = 0449
- Reg [2003] = 62FA
- Reg [2004] = BA10
- Reg [2005] = 9000
- Reg [2006] = 0000
- Reg [2007] = 0000

[2008 - 2017] RFID Card Serial Number

Description

This block of registers represents the serial number by the current used RFID card. The values are the ascii coded card number. Each serial number consists of 20 characters (char 0 up to char 19). Each register represents two characters of the serial number. Zero byte represents the end of the card number. Unused registers are padded with 0000.

Please Note: the serial number is only available with Amperfied Security Cards. This serial number is printed on the Amperfied RFID Card.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Content
2008	R	04 - readInputRegister	char[2]	ASCII	Char 0 and Char 1
2009	R	04 - readInputRegister	char[2]	ASCII	Char 2 up to Char 3
2010	R	04 - readInputRegister	char[2]	ASCII	Char 4 up to Char 5
2011	R	04 - readInputRegister	char[2]	ASCII	Char 6 up to Char 7
2012	R	04 - readInputRegister	char[2]	ASCII	Char 8 up to Char 9
2013	R	04 - readInputRegister	char[2]	ASCII	Char 10 up to Char 11
2014	R	04 - readInputRegister	char[2]	ASCII	Char 12 up to Char 13
2015	R	04 - readInputRegister	char[2]	ASCII	Char 14 up to Char 15
2016	R	04 - readInputRegister	char[2]	ASCII	Char 16 up to Char 17
2017	R	04 - readInputRegister	char[2]	ASCII	Char 18 and Char 19

Default Value

00 00 00 00 00 00 00 00 00 00

Example

Card Number = 00 04 05 50 79 18 97 04 11 56

- Reg [2008] = 3030
- Reg [2009] = 3034
- Reg [2010] = 3035
- Reg [2011] = 3530
- Reg [2012] = 3739
- Reg [2013] = 3138
- Reg [2014] = 3937
- Reg [2015] = 3034
- Reg [2016] = 3131
- Reg [2017] = 3536

0	0	0	4	0	5	5	0	7	9	1	8	9	7	0	4	1	1	5	6
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Reg [2008]		Reg [2009]		Reg [2010]		Reg [2011]		Reg [2012]		Reg [2013]		Reg [2014]		Reg [2015]		Reg [2016]		Reg [2017]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII
30	30	30	34	30	35	35	30	37	39	31	38	39	37	30	34	31	31	35	36

[2018] RFID Security Type

Description

This register represents the security type of the current used RFID card.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
2018	R	04 - readInputRegister	uint16	0 or 1	

Default Value

0 = no secure card

Examples

Value	RFID Card
0	No secure card
1	secure card by Amperfied

[2019] Charging Permission

Description

This register represents the source of permission of the current charging process.
Please note: the register is only used with an active internal whitelist of the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
2019	R	04 - readInputRegister	uint16	0...5	

Default Value

0 = no permission

Examples

Value	Permission
0	no permission
1	via RFID
2	via Web Browser
3	via App
4	via OCPP
5	via Modbus

[2020] Wallbox Ready for Charging

Description

This register shows whether the Wallbox is ready for charging.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
2020	R	04 - readInputRegister	uint16	0 or 1	

Examples

Value	State
0	Wallbox available
1	Wallbox ready for charging

Default Value

0 = Wallbox available

[2100] RFID Status Information

Description

This register shows summary state of RFID handling in the Wallbox.
Please note: the Information is structured as a bit array.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
2020	R	04 - readInputRegister	uint16		

Values

Bit	Value	State
0	0	Internal Whitelist disabled
	1	Internal Whitelist activated
1	0	RFID card security disabled
	1	RFID card security activated
2	0	Authentication disabled
	1	Authentication activated

Default Value

Bit	Value	State
0	0	Internal Whitelist disabled
1	0	RFID card security disabled
2	0	Authentication disabled

Register Layout: Internal MID Power Meter

[3000] Int. MID available

Description

This register shows if there is an internal MID power meter in the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Range
3000	R	04 - readInputRegister	0 or 1

Values

Value	Availability
0	Internal MID not available
1	Internal MID available

[3001 - 3003] Int. MID Current

Description

These registers represent the internal MID current rms drawn by the vehicle from the Wallbox per phase L1, L2. L3.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.0	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3001	R	04 - readInputRegister	uint16	MID L1: 0....350	Ampere rms in steps of 0.1 A
3002	R	04 - readInputRegister	uint16	MID L2: 0....350	Ampere rms in steps of 0.1 A
3003	R	04 - readInputRegister	uint16	MID L3: 0....350	Ampere rms in steps of 0.1 A

Examples

- 1 = 0.1 A rms
- 145 = 14.5 A rms

[3004 – 3006] Int. MID Voltage

Description

This register represents the internal MID voltage rms, provided by the connection point per phase.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.0	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3004	R	04 - readInputRegister	uint16	*MID L1 – N* 0...65536	Volt in steps of 1 V
3005	R	04 - readInputRegister	uint16	*MID L2 – N* 0...65536	Volt in steps of 1 V
3006	R	04 - readInputRegister	uint16	*MID L3 - N* 0...65536	Volt in steps of 1 V

Examples

- 8 = 8 V rms
- 238 = 238 V rms
- 258 = 258 V rms

[3007] Int. MID Power Forward

Description

This register represents the sum of the power of all three phases (Power L1 + Power L2 + Power L3) delivered to the vehicle. The power input is measured by the internal MID power meter.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.0	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3007	R	04 - readInputRegister	uint16	0..65536	W in steps of 1 W

Examples

- 1000 → 1.000 kW
- 9814 → 9.841 kW
- 11000 → 11.000 kW

[3008 - 3009] Int. MID Energy Forward since Installation

Description

Energy delivered to the vehicle since the Wallbox was put into service. The power input is measured by the internal MID power meter.

The register content is not lost when the Wallbox is disconnected from the mains. A reset is not possible.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 1.0.8	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
3008	R	04 - readInputRegister	uint16	Energy since Installation [high byte]	0..65536	Wh in steps of 2^{16} Wh
3009	R	04 - readInputRegister	uint16	Energy since Installation [Low byte]	0..65536	Wh in steps of 1 Wh

Examples

- high register = 10 → 10 * 2^{16} Wh = 655360 Wh
  low register = 100 → 100 Wh
  ⇒ Result: 655360 Wh + 100 Wh = 655460 Wh

- high register = 23 → 23 * 2^{16} Wh = 1507328 Wh
  low register = 1974 → 1974 Wh
  ⇒ Result: 1114112 Wh + 1974 Wh = 1509302 Wh

[3010] Int. MID Power Reverse

Description

This register represents the sum of the power input of all three phases (Power L1 + Power L2 + Power L3) drawn from the vehicle. Only with bidirectional functionality. The power input is measured by the internal MID power meter.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.0	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3010	R	04 - readInputRegister	uint16	0..65536	W in steps of 1 W

Examples

- 1000 → 1.000 kW
- 9814 → 9.841 kW
- 11000 → 11.000 kW

Notice

The bidirectional functionality has not yet been implemented.

[3011 - 3012] Int. MID Energy Reverse since Installation

Description

Electrical energy drawn from the vehicle since the Wallbox was put into service. Only with bidirectional functionality. Power consumption is measured by the internal MID power meter.

The register content is not lost when the Wallbox is disconnected from the mains. A reset is not possible.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.0	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
3011	R	04 - readInputRegister	uint16	Energy since Installation [high byte]	0..65536	Wh in steps of 2^{16} Wh
3012	R	04 - readInputRegister	uint16	Energy since Installation [Low byte]	0..65536	Wh in steps of 1 Wh

Examples

- high register = 10 → 10 * 2^{16} Wh = 655360 Wh
  low register = 100 → 100 Wh
  ⇒ Result: 655360 Wh + 100 Wh = 655460 Wh

- high register = 23 → 23 * 2^{16} Wh = 1507328 Wh
  low register = 1974 → 1974 Wh
  ⇒ Result: 1114112 Wh + 1974 Wh = 1509302 Wh

Notice

The bidirectional functionality has not yet been implemented.

[3100 - 3150] Int. MID Serial Number

Description

This block of registers contains the serial number of the internal MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.0	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
3100	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
3150	R	04 - readInputRegister	char[2]	ASCII	

Examples

The serial number “575144341” is represented in the registers by hexadecimal ASCII code:

- Reg [3100] = 3537
- Reg [3101] = 3531
- Reg [3102] = 3434
- Reg [3103] = 3334
- Reg [3104] = 3100

5	7	5	1	4	4	3	4	1										
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [3100]		Reg [3101]		Reg [3102]		Reg [3103]		Reg [3104]		Reg [3105]		Reg [3106]		Reg [3108]		...	Reg [3150]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
35	37	35	31	34	34	33	34	31	00	00	00	00	00	00	00		00	00

[3151 - 3201] Int. MID Vendor Name

Description

This block of registers contains the vendor's name of the internal MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.2	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
3151	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
3201	R	04 - readInputRegister	char[2]	ASCII	

Examples

The name "WAGO GmbH" is represented in the registers by hexadecimal ASCII code:

- Reg [3151] = 5741
- Reg [3152] = 474F
- Reg [3153] = 2047
- Reg [3154] = 6D62
- Reg [3155] = 4800

W	A	G	O		G	m	b	H								...		
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [3151]		Reg [3152]		Reg [3153]		Reg [3154]		Reg [3155]		Reg [3156]		Reg [3157]		Reg [3158]			Reg [3201]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
57	41	47	4F	20	47	6D	62	48	00	00	00	00	00	00	00		00	00

[3202 - 3252] Int. MID Product Name

Description

This block of registers contains the product name of the internal MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.2	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
3202	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
3252	R	04 - readInputRegister	char[2]	ASCII	

Examples

The name “879-3020 4PS“ is represented in the registers by hexadecimal ASCII code:

- Reg [3202] = 3837
- Reg [3203] = 392D
- Reg [3204] = 3330
- Reg [3205] = 3230
- Reg [3206] = 2034
- Reg [3207] = 5053

8	7	9	-	3	0	2	0		4	P	S								
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓	
Reg [3202]		Reg [3203]		Reg [3204]		Reg [3205]		Reg [3206]		Reg [3207]		Reg [3208]		Reg [3209]		...	Reg [3252]		
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓	
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII	
38	37	39	2D	33	30	32	30	20	34	50	53	00	00	00	00		00	00	

[3253 - 3273] Int. MID Software Version

Description

This block of registers contains the software version of the internal MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.2	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
3253	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
3273	R	04 - readInputRegister	char[2]	ASCII	

Examples

The version “1.34” of the internal MID is represented in the registers by hexadecimal ASCII code:

- Reg [3253] = 312E
- Reg [3254] = 3334

1	.	3	4															
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [3253]		Reg [3254]		Reg [3255]		Reg [3256]		Reg [3257]		Reg [3258]		Reg [3259]		Reg [3260]		...	Reg [3273]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
31	2E	33	34	00	00	00	00	00	00	00	00	00	00	00	00		00	00

[3274 - 3294] Int. MID Hardware Version

Description

This block of registers contains the hardware version of the internal MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	≥ V 2.0.2	*not available*

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
3274	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
3294	R	04 - readInputRegister	char[2]	ASCII	

Examples

The version “1.04” is represented in the registers by hexadecimal ASCII code:

- Reg [3274] = 312E
- Reg [3275] = 3034

1	.	0	4															
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [3274]		Reg [3275]		Reg [3276]		Reg [3277]		Reg [3278]		Reg [3279]		Reg [3280]		Reg [3281]		...	Reg [3294]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
31	2E	30	34	00	00	00	00	00	00	00	00	00	00	00	00		00	00

Register Layout: Internal Power Data

[3500 - 3502] Internal HCB Current

Description

These registers represent the internal HCB current rms per phase L1, L2. L3.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3500	R	04 - readInputRegister	uint16	L1: 0....350	Ampere rms in steps of 0.1 A
3501	R	04 - readInputRegister	uint16	L2: 0....350	Ampere rms in steps of 0.1 A
3502	R	04 - readInputRegister	uint16	L3: 0....350	Ampere rms in steps of 0.1 A

Examples

- 1 = 0.1 A rms
- 145 = 14.5 A rms

Notice

These values are for internal purposes only and should not be used for accurate billing.

[3503 – 3505] Internal HCB Voltage

Description

This register represents the current internal HCB voltage rms, provided by the connection point per phase.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3503	R	04 - readInputRegister	uint16	*L1 – N* 0...65536	Volt in steps of 1 V
3504	R	04 - readInputRegister	uint16	*L2 – N* 0...65536	Volt in steps of 1 V
3505	R	04 - readInputRegister	uint16	*L3 - N* 0...65536	Volt in steps of 1 V

Examples

- 8 = 8 V rms
- 238 = 238 V rms
- 258 = 258 V rms

Notice

These values are for internal purposes only and should not be used for accurate billing.

[3506] Internal HCB Power

Description

This register represents the sum of the internal HCB power of all three phases (Power L1 + Power L2 + Power L3) consumed by the connected vehicle.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
3506	R	04 - readInputRegister	uint16	0..65536	W in steps of 1 W

Examples

- 1000 → 1.000 kW
- 9814 → 9.841 kW
- 11000 → 11.000 kW

Notice

These values are for internal purposes only and should not be used for accurate billing.

[3507 – 3508] Internal HCB Energy since Power on

Description

Internal HCB electrical energy drawn from the vehicles since the last time the Wallbox was switched on.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
3507	R	04 - readInputRegister	uint16	Energy since Power On [high register]	0..65536	Wh in steps of 2^{16} Wh
3508	R	04 - readInputRegister	uint16	Energy since Power On [low register]	0..65536	Wh in steps of 1 Wh

Examples

- high register = 1 → 1 * 2^{16} Wh = 65536 Wh
  low register = 1000 → 1000 Wh
  ⇒ Result: 65536 Wh + 1000 Wh = 66536 Wh

- high register = 5 → 5 * 2^{16} Wh = 327680 Wh
  low register = 37 → 37 Wh
  ⇒ Result: 327680 Wh + 37 Wh = 327717 Wh

Notice

These values are for internal purposes only and should not be used for accurate billing.

[3509 -3510] Internal HCB Energy since Installation

Description

Internal HCB electrical energy drawn by the vehicles since commissioning of the Wallbox. The register content is not lost when the Wallbox is disconnected from the mains. A reset is not possible.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.0	≥ V 2.0.0	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
3509	R	04 - readInputRegister	uint16	Energy since Installation [high register]	0..65536	Wh in steps of 2^{16} Wh
3510	R	04 - readInputRegister	uint16	Energy since Installation [low register]	0..65536	Wh in steps of 1 Wh

Examples

- high register = 10 → 10 * 2^{16} Wh = 655360 Wh
  low register = 100 → 100 Wh
  ⇒ Result: 655360 Wh + 100 Wh = 655460 Wh

- high register = 23 → 23 * 2^{16} Wh = 1507328 Wh
  low register = 1974 → 1974 Wh
  ⇒ Result: 1114112 Wh + 1974 Wh = 1509302 Wh

Notice

These values are for internal purposes only and should not be used for accurate billing.

Register Layout: External Power Meter

[4000 - 4002] Current

Description

These registers represent the current rms per phase L1, L2. L3.measured by an external power meter.

Layout Version

The availability of registers depends on the layout version within the connect series and whether an external power meter is connected.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
4000	R	04 - readInputRegister	uint16	L1: 0....350	Ampere rms in steps of 0.1 A
4001	R	04 - readInputRegister	uint16	L2: 0....350	Ampere rms in steps of 0.1 A
4002	R	04 - readInputRegister	uint16	L3: 0....350	Ampere rms in steps of 0.1 A

Examples

- 1 = 0.1 A rms
- 145 = 14.5 A rms

Notice

These data are only available if an external power meter is connected. They are used for the internal solar mode management by the Wallbox.

[4003 – 4005] Voltage

Description

This register represents the voltage rms of an external power meter, provided by the connection point per phase.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
4003	R	04 - readInputRegister	uint16	*L1 – N* 0...65536	Volt in steps of 1 V
4004	R	04 - readInputRegister	uint16	*L2 – N* 0...65536	Volt in steps of 1 V
4005	R	04 - readInputRegister	uint16	*L3 - N* 0...65536	Volt in steps of 1 V

Examples

- 8 = 8 V rms
- 238 = 238 V rms
- 258 = 258 V rms

Notice

These data are only available if an external power meter is connected. They are used for the internal solar mode management by the Wallbox.

[4006] Ext. Power Meter: Power Forward

Description

This register represents the sum of the power consumption from the grid of all three phases (Power L1 + Power L2 + Power L3) of an external power meter.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
4006	R	04 - readInputRegister	uint16	0..65536	W in steps of 1 W

Examples*

- 1000 → 1.000 kW
- 9814 → 9.841 kW
- 11000 → 11.000 kW

**British Metric decimal separator (dot) used*

Notice

These data are only available if an external power meter is connected. They are used for the internal solar mode management by the Wallbox.

[4007 - 4008] Ext. Power Meter: Energy Forward since Installation

Description

Electrical energy from the grid measured by an external power meter since installation of the power meter.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
4007	R	04 - readInputRegister	uint16	Energy since Power On [high register]	0..65536	Wh in steps of 2^{16} Wh
4008	R	04 - readInputRegister	uint16	Energy since Power On [low register]	0..65536	Wh in steps of 1 Wh

Examples

- high register = 1 → 1 * 2^{16} Wh = 65536 Wh
  low register = 1000 → 1000 Wh
  ⇒ Result: 65536 Wh + 1000 Wh = 66536 Wh

- high register = 5 → 5 * 2^{16} Wh = 327680 Wh
  low register = 37 → 37 Wh
  ⇒ Result: 327680 Wh + 37 Wh = 327717 Wh

Notice

These data are only available if an external power meter is connected. They are used for the internal solar mode management by the Wallbox.

[4009] Ext. Power Meter: Power Reverse

Description

This register represents the sum of the power feed into the grid of all three phases (Power L1 + Power L2 + Power L3) of an external power meter.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
4009	R	04 - readInputRegister	uint16	0..65536	W in steps of 1 W

Examples*

- 1000 → 1.000 kW
- 9814 → 9.841 kW
- 11000 → 11.000 kW

**British Metric decimal separator (dot) used*

Notice

These data are only available if an external power meter is connected. They are used for the internal solar mode management by the Wallbox.

[4010 - 4011] Ext. Power Meter: Energy Reverse since Installation

Description

Electrical energy fed to the grid measured by an external power meter since installation of the power meter.

It is a 32bit number represented in two 16bit registers (see examples).

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Description	Range	Unit
4010	R	04 - readInputRegister	uint16	Energy since Power On [high register]	0..65536	Wh in steps of 2^{16} Wh
4011	R	04 - readInputRegister	uint16	Energy since Power On [low register]	0..65536	Wh in steps of 1 Wh

Examples

- high register = 1 → 1 * 2^{16} Wh = 65536 Wh
  low register = 1000 → 1000 Wh
  ⇒ Result: 65536 Wh + 1000 Wh = 66536 Wh

- high register = 5 → 5 * 2^{16} Wh = 327680 Wh
  low register = 37→ 37 Wh
  ⇒ Result: 327680 Wh + 37 Wh = 327717 Wh

Notice

These data are only available if an external power meter is connected. They are used for the internal solar mode management by the Wallbox.

[4100 - 4150] Ext. MID Serial Number

Description

This block of registers contains the serial number of the external MID power meter.
Each Register represents two ASCII characters.
Zero byte represents the end of the mid serial number. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
4100	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
4150	R	04 - readInputRegister	char[2]	ASCII	

Examples

The number “000001” is represented in the registers by hexadecimal ASCII code:

- Reg [4100] = 3030
- Reg [4101] = 3030
- Reg [4102] = 3031

0	0	0	0	0	1													
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [4100]		Reg [4101]		Reg [4102]		Reg [4103]		Reg [4104]		Reg [4105]		Reg [4106]		Reg [4108]		...	Reg [4150]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
30	30	30	30	30	31	00	00	00	00	00	00	00	00	00	00		00	00

[4151 - 4201] Ext. MID Vendor Name

Description

This block of registers contains the vendor's name of the external MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
4151	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
4201	R	04 - readInputRegister	char[2]	ASCII	

Examples

The name "Amperfied" is represented in the registers by hexadecimal ASCII code:

- Reg [4151] = 416D
- Reg [4152] = 7065
- Reg [4153] = 7266
- Reg [4154] = 6965
- Reg [4155] = 6400

A	m	p	e	r	f	i	e	d										
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [4151]		Reg [4152]		Reg [4152]		Reg [4153]		Reg [4154]		Reg [4155]		Reg [4156]		Reg [4157]			Reg [4201]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	...	↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
41	6D	70	65	72	66	69	65	64	00	00	00	00	00	00	00		00	00

[4202 - 4252] Ext. MID Product Name

Description

This block of registers contains the product name of the external MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
4202	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
4252	R	04 - readInputRegister	char[2]	ASCII	

Examples

The name “PowerMeter63 “ is represented in the registers by hexadecimal ASCII code:

- Reg [4202] = 506F
- Reg [4203] = 7765
- Reg [4204] = 724D
- Reg [4205] = 6574
- Reg [4206] = 6572
- Reg [4207] = 3633

P	o	w	e	r	M	e	t	e	r	6	3							
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [4202]		Reg [4203]		Reg [4204]		Reg [4205]		Reg [4206]		Reg [4207]		Reg [4208]		Reg [4209]		...	Reg [4252]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
50	6F	77	65	72	4D	65	74	65	72	36	33	00	00	00	00		00	00

[4253 - 4273] Ext. MID Software Version

Description

This block of registers contains the software version of the external MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
4253	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
4273	R	04 - readInputRegister	char[2]	ASCII	

Examples

The version “2.2.1-rc0” is represented in the registers by hexadecimal ASCII code:

- Reg [4253] = 322E
- Reg [4254] = 322E
- Reg [4255] = 312D
- Reg [4256] = 7263
- Reg [4257] = 3000

2	.	2	.	1	-	r	c	0										
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [4253]		Reg [4254]		Reg [4255]		Reg [4256]		Reg [4257]		Reg [4258]		Reg [4259]		Reg [4260]		...	Reg [4273]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
32	2E	32	2E	31	2D	72	63	33	00	00	00	00	00	00	00		00	00

[4274 - 4294] Ext. MID Hardware Version

Description

This block of registers contains the hardware version of the internal MID power meter. Each Register represents two ASCII characters. Zero byte represents the end. Unused registers are padded with 0000.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	
4274	R	04 - readInputRegister	char[2]	ASCII	
...	R	04 - readInputRegister	char[2]	ASCII	
4294	R	04 - readInputRegister	char[2]	ASCII	

Examples

The version “1.0” is represented in the registers by hexadecimal ASCII code:

- Reg [4274] = 312E
- Reg [4275] = 3000

1	.	0																
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
Reg [4274]		Reg [4275]		Reg [4276]		Reg [4277]		Reg [4278]		Reg [4279]		Reg [4280]		Reg [4281]		...	Reg [4294]	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		↓	↓
ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII	ASCII		ASCII	ASCII
31	2E	30	00	00	00	00	00	00	00	00	00	00	00	00	00		00	00

Register Layout: Phase Switch

[500] Maximal Power Target Command

Description

This register allows to specify a maximum power and thus indirectly to control the internal phase switch in the Wallbox.

Please note: If this command is used, don't use register [501] Phase Switch Control and register [261] Maximal Current Command.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	*not available*	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
500	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0..65536	W in steps of 1 W

Default Value

The default value for maximal power target is 0.

Examples*

- 1400 → 1400 W = 1.400 kW
- 3700 → 3700 W = 3.700 kW
- 4100 → 4100 W = 4.100 kW
- 6000 → 6000 W = 6.000 kW

**British Metric decimal separator (dot) used*

[501] Phase Switch Control

Description

This register allows to control the internal phase switch in the Wallbox.

Please note: If this command is used, please use register [261] Maximal Current Command; don't use register [500] Maximal Power Target Command.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	*not available*	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range
501	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	1 or 3

Values

Value	Availability
1	Charging with 1 Phase
3	Charging with 3 Phases

Default Value

The default value for phase switch is 3.

[502] Charging Management Strategy

Description

This register allows to change the charging strategy in the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range
502	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0, 1 or 2

Values

Value	Strategy
0	Default Charging Management (Manual Mode)
1	Automatic Solar Management Mode (Eco Mode)
2	*not used*

Default Value

The default value for Charging Management Strategy is 0.

[503] Duration Time Phase Switch

Description

This register allows to specify a duration time (in seconds) for the phase switch from 3 to 1 phase or from 1 to 3 phases back. By adjusting this value, different behavior of electric vehicles to the phase switching can be taken into account.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	*not available*	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
503	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	15..900	s

Default Value

The default value is 90.

Examples

- 15 → 15 s (minimum value)
- 90 → 90 s (default value)
- 473 → 473 s
- 900 → 900 s (maximum value)

[504] Waiting Time Phase Switch

Description

This register allows to specify a minimum waiting time (in seconds) before the next phase switch will be performed. By adjusting this value, different behavior of electric vehicles to the phase switching can be considered.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	*not available*	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
504	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0...3600	s

Default Value

The default value is 300.

Examples

- 0 → 0 s (minimum value) means the waiting time is deactivated.
- 300 → 300 s (default value)
- 1500 → 1500 s
- 3600 → 3600 s (maximum value)

**British Metric decimal separator (dot) used*

[505] Disconnect Simulation Command

Description

This register allows to simulate disconnecting the Wallbox from the car. It can be used for the phase switching process.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	*not available*	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range
505	R / W	03 - readHoldingRegister 06 - writeHoldingRegister	uint16	0 or 1

Values

Value	
0	No Simulation of Disconnecting to the electric vehicle
1	Simulate Disconnecting to the electric vehicle

Default Value

The default value for phase switch is 1. It's recommended to use this value.

[5000] Maximal Power Set

Description

This register allows to read the maximum power set in register [500] Maximal Power Target Command.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range	Unit
5000	R	04 - readHoldingRegister	uint16	0..65536	W in

Examples*

- 1400 → 1400 W = 1.400 kW
- 3700 → 3700 W = 3.700 kW
- 4100 → 4100 W = 4.100 kW
- 6000 → 6000 W = 6.000 kW

**British Metric decimal separator (dot) used*

[5001] Phase Switch State

Description

This register allows to evaluate the status of the internal phase switch in the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
not available	*not available*	≥ V 2.0.1

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range
5001	R	04 - readInputRegister	uint16	0, 1 or 3

Values

Value	Availability
0	phase switching in progress
1	1 phase active
3	3 phases active

[5002] Status Charging Management Strategy

Description

This register shows the status of the internal charging management strategy in the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range
5002	R	04 - readInputRegister	uint16	0 or 1

Values

Value	Status
0	Default Charging Management (Manual Mode)
1	Automatic Solar Management Mode (Eco Mode)

[5003] Status Disconnecting Simulation

Description

This register shows the status of Disconnecting Simulation in the Wallbox.

Layout Version

The availability of registers depends on the layout version within the connect series.

connect.home	connect.business	connect.solar
≥ V 2.0.2	≥ V 2.0.2	≥ V 2.0.2

Parameter

Bus-Adr.	R/W	Modbus TCP Function	Type	Range
5003	R	04 - readInputRegister	uint16	0 or 1

Values

Value	
0	No Simulation of Disconnecting to the electric vehicle
1	Simulate Disconnecting to the electric vehicle