

# KATHREIN-Wallbox – ModBus-Server – Register-Mapping

Release Version 1.1  
Release Date 09.09.2024

## Change History

Release Version	Release Date	Comment
1.0	20.08.2024	1 <sup>st</sup> Release
1.1	09.09.2024	Layout improved and comments added

## Communication Interface

The KATHREIN-ModBus-Server can be accessed via standard ModBus-TCP protocol according to IEC 61158 and IEC 61784-2 (CPF 15/1).

Hereby the associated IPv4-address of the Wallbox and the port **502** are required.

At the moment, the Unit-ID is ignored, but 0x00 (Broadcast) is recommended for future compatibility.

The ModBus-Server functionality has to be generally enabled or disabled in the easyOperate configuration panel.

By factory-default, ModBus-Server is disabled.

## ModBus-TCP Protocol Frame

Section	Byte Count	Description
MBAP-Header (ModBus Application Protocol Header)	2	Transaction-ID
	2	Protocol-ID (0x0000 for ModBus-TCP)
	2	Count of PDU Data + 2 (inclusive Unit-ID and Function-Code)
	1	Unit-ID (0x00)
PDU (Protocol Data Unit)	1	Function-Code
	N	Data

## Data Types

Data Type	Register Count	Byte Count	Description
SINT16 / UINT16	1	2	Integer data types (SINTxy / UINTxy) are stored as big-endian (most significant register / byte first)
SINT32 / UINT32	2	4	" "
SINT64 / UINT64	4	8	" "
FLOAT32	2	4	32-bit Float (Single) according to IEEE 754
STRING	N	0 ... N x 2	0-terminated String; String ends either by character 0x00 or by the count of associated registers
BINARY	N	N x 2	Byte-aligned data-sequence without dedicated data type (little-endian – LSB first)

## Registers Access and Function Codes

The KATHREIN-ModBus-Server just responds on Holding-Registers:

Read multiple registers 0x03

Write multiple registers 0x10

Write single register 0x06

## Register Table (Holding-Registers)

Register Address	Register Count	Byte Count	Data Type	R/W	Register Name	Register Description	Unit
0x0000	1	2	UINT16	R	Header: Mapping-Version	The decimal-version of this register-mapping <b>Current Version = 0x0001</b>	
0x0001	8	16	STRING	R	Device: Number	Format : "620xxxxx(-yyyy)"	
0x0009	8	16	STRING	R	Device: Type	Format : "ACxx(E)"	
0x0011	8	16	STRING	R	Device: Serial	Format : "G0Rxxxxxxx"	
0x0019	1	2	UINT16	R	Device: Info	Bits 0-1 : Power-Class 0x0001 : 11kW (3 x 16A) 0x0002 : 22kW (3 x 32A)  Bit 4 : Cable / Plug 0x0010 : "0" = Cable, "1" = Plug  Bit 7 : Eichrecht 0x0080 : "0" = Standard, "1" = Eichrecht  Bits 8-15 : Relais-Capability 0x0100 : L1 only (1 Line) 0x0200 : L2 only (1 Line) 0x0400 : L3 only (1 Line) 0x1000 : L1 and L2 (2 Lines) 0x2000 : L1 and L3 (2 Lines) 0x4000 : L2 and L3 (2 Lines) 0x8000 : L1 and L2 and L3 (3 Lines)	
0x001A	1	2	UINT16	R	Device: Line-Mapping	0 : L1-L2-L3 (default) 1 : L1-L3-L2 (invalid phase rotation) 2 : L2-L3-L1 3 : L2-L1-L3 (invalid phase rotation) 4 : L3-L1-L2 5 : L3-L2-L1 (invalid phase rotation)	
0x001B	4	8	UINT64	R	Device: Timestamp (UTC)	UTC Date & Time according to "UNIX-Format" Seconds since 01.01.1970 00:00:00	sec
0x001F	17	34	BINARY	R	Reserved 1 <sup>3)</sup>	Reserved (all byte = 0x00)	

0x0030	2	4	FLOAT32	R	Meter: U1	Line 1 : Line to Neutral Volts	V
0x0032	2	4	FLOAT32	R	Meter: U2	Line 2 : Line to Neutral Volts	V
0x0034	2	4	FLOAT32	R	Meter: U3	Line 3 : Line to Neutral Volts	V
0x0036	2	4	FLOAT32	R	Meter: I1	Line 1 : Current	A
0x0038	2	4	FLOAT32	R	Meter: I2	Line 2 : Current	A
0x003A	2	4	FLOAT32	R	Meter: I3	Line 3 : Current	A
0x003C	2	4	FLOAT32	R	Meter: P1 (active)	Line 1 : active Power	W
0x003E	2	4	FLOAT32	R	Meter: P2 (active)	Line 2 : active Power	W
0x0040	2	4	FLOAT32	R	Meter: P3 (active)	Line 3 : active Power	W
0x0042	2	4	FLOAT32	R	Meter: S1 (apparent) <sup>3)</sup>	Line 1 : apparent Power	VA
0x0044	2	4	FLOAT32	R	Meter: S2 (apparent) <sup>3)</sup>	Line 2 : apparent Power	VA
0x0046	2	4	FLOAT32	R	Meter: S3 (apparent) <sup>3)</sup>	Line 3 : apparent Power	VA
0x0048	2	4	FLOAT32	R	Meter: Q1 (reactive) <sup>3)</sup>	Line 1 : reactive Power	VAr
0x004A	2	4	FLOAT32	R	Meter: Q2 (reactive) <sup>3)</sup>	Line 2 : reactive Power	VAr
0x004C	2	4	FLOAT32	R	Meter: Q3 (reactive) <sup>3)</sup>	Line 3 : reactive Power	VAr
0x004E	2	4	FLOAT32	R	Meter: PF1 <sup>3)</sup>	Line 1 : Power Factor (cos φ, 0.0 ... 1.0)	
0x0050	2	4	FLOAT32	R	Meter: PF2 <sup>3)</sup>	Line 2 : Power Factor (cos φ, 0.0 ... 1.0)	
0x0052	2	4	FLOAT32	R	Meter: PF3 <sup>3)</sup>	Line 3 : Power Factor (cos φ, 0.0 ... 1.0)	
0x0054	2	4	FLOAT32	R	Meter: P tot (active)	Total active Power	W
0x0056	2	4	FLOAT32	R	Meter: S tot (apparent) <sup>3)</sup>	Total apparent Power	VA
0x0058	2	4	FLOAT32	R	Meter: Q tot (reactive) <sup>3)</sup>	Total reactive Power	VAr
0x005A	2	4	FLOAT32	R	Meter: PF tot <sup>3)</sup>	Total Power Factor (cos φ, 0.0 ... 1.0)	
0x005C	2	4	FLOAT32	R	Meter: W tot	Total Energy (since production)	kWh
0x005E	2	4	BINARY	R	Reserved 2 <sup>3)</sup>	Reserved (all byte = 0x00)	

0x0060	1	2	UINT16	R	EVSE: Status	0 : Idle 1 : EV Connected 2 : Authentication Waiting 3 : Authentication Confirmed 4 : Charging Active 5 : Charging Paused 6 : Charging Completed 7 : RFID-Pairing 0xFFFF : Error
0x0061	1	2	UINT16	R	EVSE: Error-State	0x0000 : No Error 0x0001 : Relais welded 0x0002 : Residual DC-Current detected (RCD) 0x0004 : Socket Lock-Detection 0x0008 : Charging Overcurrent 0x0010 : CP-D: Ventilation not available 0x0020 : CP-E: Short-Circuit (CP-PE) 0x0040 : CP-F: Loop broken (CP-PE) 0x0080 : PP-Error (Short-Circuit) 0x8000 : Internal Error
0x0062	1	2	UINT16	R	EVSE: PP-State	Plug-Variant: 0 : Cable not connected 13 : 13 A (1500 Ω) 20 : 20 A (680 Ω) 32 : 32 A (220 Ω) 63 : 63 A (100 Ω) 0xFFFF : Error (invalid PP-Resistor)  Cable-Variant: 0 : fix Cable mounted

0x0063	1	2	UINT16	R	EVSE: CP-State	0 : A (EV not detected, standby) 1 : B (EV detected) 2 : C (EV charging) 3 : D (EV charging with fan) 4 : E (CP Short-Circuit) 5 : F (EVSE not available, CP = -12VDC) all other values : Undefined / Error	
0x0064	1	2	UINT16	R	EVSE: Relais-State	0x0000 : Relais OFF 0x0001 : Relais L1 activated 0x0002 : Relais L2 activated 0x0004 : Relais L3 activated	
0x0065	1	2	UINT16	R	EVSE: Granted Current	Granted charging current per Line (related to CP-Signal) 0, 6000 ... 32000	mA
0x0066	1	2	UINT16	R	EVSE: Granted Power	Granted charging power (power-sum of all active lines, related to CP-Signal) 1380 ... 22080 @230VAC (depending on Power-Class and active Relais)	W
0x0067	2	4	UINT32	R	Charging: Duration	Charging Duration	sec
0x0069	2	4	UINT32	R	Charging: Energy	Charging Energy (per charging session)	Wh
0x006B	1	2	UINT16	R	Charging: Tariff Info <sup>3)</sup>	Charging Tariff Info & Currency (TBD)	
0x006C	1	2	UINT16	R	Charging: Current Tariff <sup>3)</sup>	Charging Tariff for active charging session	0,001€
0x006D	1	2	UINT16	R/W	Charging: Next Tariff <sup>3)</sup>	Charging Tariff for next charging session	0,001€
0x006E	50	100	BINARY	R	Reserved 3 <sup>3)</sup>	Reserved (all byte = 0x00)	
0x00A0	1	2	UINT16	R/W	EMS-Control: Control-Register	0x8000 : Enable EMS-Control <b>Default = 0x0000 (EMS-Control disabled)</b>	
0x00A1	1	2	UINT16	R/W	EMS-Control: Setpoint Relais-Matrix <sup>1)</sup>	according to Relais-Capability 0x0001 : Line 1 0x0002 : Line 2 (reserved for future) 0x0004 : Line 3 (reserved for future) <b>Default = 0x0007 (3 Lines)</b>	

0x00A2	1	2	UINT16	R/W	EMS-Control: Setpoint Charging Current	0 : Charging Paused 6000 ... 32000 : Charging 0xFFFF : Charging Cancel <b>Default = max. Current according to Power-Class</b>	mA
0x00A3	1	2	UINT16	R/W	EMS-Control: Timeout Period	0 : Timeout deactivated >0 : Timeout activated (each Setpoint-Write-Cycle resets the Timer) <b>Default = 0 (Timeout deactivated)</b>	sec
0x00A4	1	2	UINT16	R/W	EMS-Control: Timeout Fallback Pattern <sup>2)</sup>	0x0001 : Line 1 0x0002 : Line 2 0x0004 : Line 3 <b>Default = 0x0007 (3 Lines)</b>	
0x00A5	1	2	UINT16	R/W	EMS-Control: Timeout Fallback Current	Timeout fallback charging current 0, 6000 ... 32000 <b>Default = 6000</b>	mA

1) "Setpoint Relais-Matrix" will be used in interaction with "Setpoint Charging Current" command.

2) A combination of the 3 Lines is possible, according to the Relais-Capability. Unsupported Lines are ignored.

3) Reserved for future use.