

Modbus TCP/IP Protocol Parameters

DEFA Power acts as a slave device in the modbus TCP/IP communication. The charging station should be connected to the same network as the master device, or a proper routing should be applied to provide communication between slave and the master devices in different sub networks. There can be only one active modbus master connection at any time.

Configuring the charging station

- The modbus service needs to be enabled by changing the config /config/modbus/isEnabled to true. Currently, it is possible to enable it by using DEFA Power Setup app.
- The charging stations' Ip address is possible to read with the DEFA Power app.
- The slave address is 255.
- The port number is 502.
- The slave accepts masters from any IP address.

NOTE: Both modbus port number and which master IP addresses are allowed, can only be changed by telling DEFA to configure the modbus-tcp.toml and rebooting the modbus service or DEFA Power.

Registers

A register consists of 2 bytes/ 16 bits, but most stored values range over multiple registers. When writing to multiple registers, write to all registers at the same time. All read/write values are big-endian. The data type String is encoded as printable UTF8 characters. A register with data type String has two printable UTF8 characters. The charging station uses the provided max currents, to limit the amount of ampere per phase, not the sum of all phases.

Function code	Type of value
3 (0x3)	Reading read/write values
4 (0x4)	Reading read values
16 (0x10)	Writing read/write values

Table of Registers

Name	Start address	End address	Number of registers	R/W	Data Type	Unit	Default value	Description
installation max current	290	291	2	R	uint32	mA	-	Max current supported by the charging station
actual current on L1 phase	293	294	2	R	uint32	mA	0	Current consumed by EV on phase L1
actual current on L2 phase	296	297	2	R	uint32	mA	0	Current consumed by EV on phase L2
actual current on L3 phase	299	300	2	R	uint32	mA	0	Current consumed by EV on phase L3

Name	Start address	End address	Number of registers	R/W	Data Type	Unit	Default value	Description
charging station status	302	303	2	R	uint32	N/A	0	ASCII encoded representation of charging station status. bits 8-15 contains the letter A,B,C,D,E or F. bits 0-7 contain "1" or "2" depending on pwm duty cycle. Example: State C2 = 0x4332
charging station power	305	306	2	R	uint32	mW	0	Combined power consumed by EV
eMS max current	2000	2001	2	R/W	uint32	mA	0	Max current set by modbus master
timeout max charge current	2004	2005	2	R/W	uint32	mA	0	Current set when modbus master has not written to alive register during timeout period. The initial value is set to 0 to ensure safe default behaviour, preventing charging until the value is overwritten
alive	2008	2009	2	W	uint32	N/A	N/A	Alive bit which modbus master sets to 1
alive timeout	2012	2013	2	R/W	uint32	ms	100000	Timeout time for when charging station limits charging to timeout max charge current