Change History:

Revision	Date	Changes (List)
1.00	08.11.2021	– Inital version -DRAFT
2.00	09.02.2022	– Adjustment to new firmware release
3.00	27.04.2022	– Adjustment to new firmware
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Modbus Specification Webasto NEXT

Notice

The following description defines how the Webasto NEXT communicates with various Energy Management Systems regarding protocol requirements and data structure to enable dynamic control of energy flow.

Webasto is does not provide support on how to understand or implement this document. All problems that arise by usage of this document are in **customer's responsibility**. Additional support is available only for the partners in case of the cooperation (for example, implementation of new HEMS from the provider). Please contact your local Webasto Partner if this is the case.

Protocol requirements

Communication with the Webasto NEXT can be done via Modbus TCP.

Webasto NEXT provides its data as a Modbus server to the controlling device, which is the client or master in the network. Each Webasto NEXT must be addressed individually.

Parameter Modbus TCP

Each Wallbox NEXT must be given a unique IP.

Parameter	Value
IP-adress	Any IP address; All Webasto NEXT on the same subnet (e.g., xxx.xxx.xxx.xxx)
Modbus Port	502
Modbus Unit ID	255

Master dev.	Reg. Type	Address	Name	R/W	Nr.	Description	Type	Unit
TQ-DM100	Holding	1000	Charge Point State	R	1	State of the charging device 0: No vehicle attached (EVSE available, EVSE unavailable) 1: Vehicle attached, no permission (preparing) 3: charging 4: charging paused (suspending EVSE, suspending EV, finishing) 7: charging error 8: charging station reserved	UINT16	
TQ-DM100	Holding	1001	Charge State	R	1	0: Idle 1: Charging	UINT16	
TQ-DM100	Holding	1002	EVSE State	R	1	State of the charging station 0: starting 1: running 2: error	UINT16	
TQ-DM100	Holding	1004	Cable State	R	1	State of the charging cable 0: No cable attached 1: Cable attached (no car attached) 2: Cable attached (car attached) 3: Cable attached (car attached) + lock active	UINT16	
TQ-DM100	Holding	1006	EVSE Error Code	R	1	Error code of the charging station 0: no error 1+: error code * ** Error list under Appendix1*	UINT16	
TQ-DM100	Holding	1008	Current L1	R	1	Charging current L1	UINT16	mA
TQ-DM100	Holding	1010	Current L2	R	1	Charging current L2	UINT16	mA
TQ-DM100	Holding	1012	Current L3	R	1	Charging current L3	UINT16	mA
TQ-DM100	Holding	1020+1021	Total Charge Active Power	R	2	Sum of active charging power	UINT32	W
TQ-DM100	Holding	1024+1025	Charge Active Power L1	R	2	Active power L1	UINT32	W
TQ-DM100	Holding	1028+1029	Charge Active Power L2	R	2	Active power L2	UINT32	W
TQ-DM100	Holding	1032+1033	Charge Active Power L3	R	2	Active power L3	UINT32	W
TQ-DM100	Holding	1036+1037	Energy meter	R	2	Meter reading of the charging station	UINT32	Wh
TQ-DM100	Holding	1100	Max current	R	1	Maximal charging current of the hardware (EVSE, cable, EV)	UINT16	A
TQ-DM100	Holding	1102	Minimum current limit	R	1	Minimal charging current of the hardware (EVSE, cable, EV)	UINT16	A
TQ-DM100	Holding	1104	Max. Current from EVSE	R	1	Maximal charging current of the charging station	UINT16	A
TQ-DM100	Holding	1106	Max. Current from Cable	R	1	Maximal charging current of the cable	UINT16	A
TQ-DM100	Holding	1108	Max. Current from EV	R	1	Maximal charging current of the EV	UINT16	A
TQ-DM100	Holding	1502	Charged Energy (Wh)	R	1	Sum of charged energy for the last session. During a session the value 0Wh is returned	UINT16	Wh

TQ-DM100	Holding	1504+1505	Start Time (hhmmss)	R	2	Start time of current or last charging session	UINT32	hhmmss
TQ-DM100	Holding	1508+1509	Charging Time (seconds)	R	2	Duration since beginning of charge	UINT32	s
TQ-DM100	Holding	1512+1513	End Time (hhmmss)	R	2	End time of the last charging session. During a session the value 0 is returned.	UINT32	hhmmss
TQ-DM100	Holding	1600	User ID	R	2	User ID (OCPP IdTag) from the current session. Bytes 0 to 3. Hex codes for ASCII		
TQ-DM100	Holding	1602	User ID	R	2	User ID (OCPP IdTag) from the current session. Bytes 4 to 7. Hex codes for ASCII		
TQ-DM100	Holding	1604	User ID	R	2	User ID (OCPP IdTag) from the current session. Bytes 8 to 11. Hex codes for ASCII		
TQ-DM100	Holding	1606	User ID	R	2	User ID (OCPP IdTag) from the current session. Bytes 12 to 15. Hex codes for ASCII		
TQ-DM100	Holding	1608	User ID	R	2	User ID (OCPP IdTag) from the current session. Bytes 16 to 19. Hex codes for ASCII		
TQ-DM100	Holding	1620	15118 Smart vehicle detected	R	2	Returns 1 if an EV currently connected is a smart vehicle, or 0 if no EV connected or it is not a smart vehicle		
TQ-DM100	Holding	2000	safeCurrent	R/W	1	Max. charge current under communication failure	UINT16	A
TQ-DM100	Holding	2002	comTimeout	R/W	1	Communication timeout	UINT16	S
TQ-DM100	Holding	5000+5001	Charge Power	W	2	Charge power	UINT32	W
TQ-DM100	Holding	5004	Charge Current	W	1	Charge current	UINT16	A
TQ-DM100	Holding	6000	Life Bit	R/W	1	Communication monitoring 0/1 Toggle-Bit EM writes 1 every 1/2 of comTimeout NEXT deletes it and puts it to 0	UINT16	
TQ-DM100	Holding	5006	Start / Cancel Charging session	W	1	0: no action 1: start charging session - only one charging session (also if value stays at 1). When value changes to 0 and then to 1 another charging session is started, 2: cancel charging session - only one charging session (also if value stays at 2). When value changes to 0 and then to 2 charging session is canceled again.	UINT16	

APPENDIX 1 – Error Mapping

Modbus Error Mapping	Manuf. ID	OCPP Code	Short Info (max. 50 characters)	Description	Trouble Shooting
1	PB02	PowerSwitch Failure	relay welded closed	Error relay welded state closed, contactor not open	Powercycle On/Off If Error still exist: direktly contact 3. level support and exchange the Wallbox If error is gone: please ignore
2	PB07	InternalError	error internal aux voltage	Error internal board supply voltage, 5V Ref Voltage	Powercycle On/Off If Error still exist: direktly contact 3. level support and exchange the Wallbox If error is gone: please ignore
3	PB09	EV Communication Error	error control pilot - car communication error	External error (vehicle) control pilot. Voltage out of Standard Range	When vehicle is connected, replug the vehicle and check the status of the vehicle -> - when your vehicle is plugged in and has no error, please call your installer to the check the Control Pilot - when error exist whne no vehicle is connected please inform 3. level support - when your vehicle has an error please check your vehicle
4	PB17	OverVoltage	error utility power over voltage	External error (installation) over voltage	
5	PB18	UnderVoltage	error utility power under voltage	External error (installation) under voltage	Powercycle On/Off Please call your installer to check: - order of the phases - voltages of the grid connection (230V +-13%) - frequency (45Hz <f> 55Hz) - check PE-resistance - power grid type and DIP-Switches
6	PB23	OverCurrent Failure	error over current drawn by car	External error (vehicle) over current	When vehicle is connected, replug the vehicle and check the status of the vehicle -> - when your vehicle is plugged in and has no error, please call your installer to the check the Control Pilot - when error exist whne no vehicle is connected please inform 3. level support - when your vehicle has an error please check your vehicle
7	PB24	OtherError	error VAC frequency	External error input voltage frequency	Powercycle On/Off Please call your installer to check: - order of the phases - voltages of the grid connection (230V +-13%) - frequency (45Hz <f> 55Hz) - check PE-resistance - power grid type and DIP-Switches
8	PB27	GroundFailure	missing ground/resistance too high	External error (installation) ground detection	Powercycle On/Off Please call your installer to check: - order of the phases - voltages of the grid connection (230V +-13%) - frequency (45Hz <f> 55Hz) - check PE-resistance - power grid type and DIP-Switches
9	PB28	InternalError	error residual current monitor self test	Error RCD module	no possible error -> inform 3. level support
10	PB29	High Temperature	error over temperature	Error overtemperature (not deration)	check if wallbox is hot, let cool down If enviromental conditions of the installation area (directly sun)
11	PB52	OtherError	proximity Pilot Error	Proximity Pilot Error	normally not possible -> if error exhcange the Wallbox
12	PB53	OtherError	shutter Error	Shutter Error	normally not possible -> if error exhcange the Wallbox
13	PB57	OtherError	error three phase check	External error (installation) phase check	Please call your installer to check: - order of the phases - voltages of the grid connection (230V +-13%) - frequency (45Hz <f> 55Hz) - check PE-resistance - power grid type and DIP-Switches
14	PB59	InternalError	PWR internal error	PWR internal error	Powercycle On/Off If Error still exist: direktly contact 3. level support and exchange the Wallbox If error is gone: please ignore
15	PB60	EV Communication Error	negative control pilot out of range	External error on negative control pilot voltage (-12V)	When vehicle is connected, replug the vehicle and check the status of the vehicle -> - when your vehicle is plugged in and has no error, please call your installer to the check the Control Pilot - when error exist whne no vehicle is connected please inform 3. level support - when your vehicle has an error please check your vehicle
1	PB61	PowerSwitchFailure	relay welded open	Error relay welded state open	Powercycle On/Off If Error still exist: direktly contact 3. level support and exchange the Wallbox If error is gone: please ignore
16	PB62	OtherError	DC residual current	External error residual DC current detected (vehicle)	When vehicle is connected, replug the vehicle and check the status of the vehicle -> - when your vehicle is plugged in and has no error, please call your installer to the check the Control Pilot - when error exist whne no vehicle is connected please inform 3. level support - when your vehicle has an error please check your vehicle