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1 CAN

1.1 CAN settings

The EV Powercharger uses 11-bit CAN identifiers with a default CAN speed of 500 Kbit. The CAN speed can be configured to 125 Kbit, 250 Kbit or 1000Kbit.
The endian configuration is little endian throughout, e.g. a CAN datafield:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	DATA (MSB)							
Byte 0	DATA (LSB)							

1.2 CAN identifiers

An EV Powercharger reserves 16 CAN identifiers. 9 CAN identifiers are reserved for charger control, status messages, configuration and software updates. The remaining 7 CAN identifiers are reserved for future use.

CAN identifier offset	CAN message	Section
1	Charger control	2.1
2	Software update	6
3	Software update response	6
4	Configuration	5.1
5	Configuration response	5.2
6	Status #1	3.1
7	Status #2	3.2
8	Errors / Warnings	3.3
9	Serial number	4
10-16	RESERVED	

The exact CAN identifiers used by an EV Powercharger are determined by a *base CAN identifier*, the charger's logical *address* and a CAN message offset. Both the base CAN identifier and a charger's logical address are configurable.

The CAN identifier for a specific CAN message, base CAN identifier and charger address configuration is:

*Message CAN identifier = CAN identifier offset + base CAN identifier + (charger address – 1) * 16*

1.2.1 Default CAN identifier configuration

The default CAN identifier setup for an EV Powercharger uses:
Base CAN identifier: 0x2FF
Charger address: 1

CAN message	Charger address = 1	Charger address = 2	Charger address = 15	Charger address = 16
Charger control (broadcast)	0x2FF	0x2FF	0x2FF	0x2FF
Individual charger control	0x300	0x310	0x3E0	0x3F0
Software update	0x301	0x311	0x3E1	0x3F1
Software update response	0x302	0x312	0x3E2	0x3F2
Configuration	0x303	0x313	0x3E3	0x3F3
Configuration response	0x304	0x314	0x3E4	0x3F4
Status #1	0x305	0x315	0x3E5	0x3F5
Status #2	0x306	0x316	0x3E6	0x3F6
Errors / Warnings	0x307	0x317	0x3E7	0x3F7
Serial number	0x308	0x318	0x3E8	0x3F8

Note that the base CAN identifier is always used as a broadcast charger control message (handled by all chargers).

2 Charger control

2.1 Charger control

The EV Powercharger is controlled by the *charger control* message. The *charger control* message instructs the charger to turn on/off, deliver a specified amount of power and not exceed the provided DC voltage and current limit.

Once an EV Powercharger receives a charger control message it starts transmitting its status messages. If the charger suddenly stops receiving *charger control* messages from the control system it considers itself *logged off*. When *logged off* the charger stops sending status messages and turns off (CHARGER_ENABLE = 0). The charger communication timeout is 1 second after the last received *charger control* message.

CAN identifier: Broadcast: *Base CAN identifier*
Individual charger control: *1 + base CAN identifier + (charger address – 1) * 16 (individual charger control)*

Length: 7 bytes
Reception interval: 1000 ms (used for communication timeout)
Sender: Control system
Receiver: Charger

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	RESERVED							
Byte 6	CHARGER_MAXDCCURRLIMIT_MSB							
Byte 5	CHARGER_MAXDCCURRLIMIT_LSB							
Byte 4	CHARGER_MAXDCVOLTLIMIT_MSB							
Byte 3	CHARGER_MAXDCVOLTLIMIT_LSB							
Byte 2	CHARGER_POWER_REFERENCE_MSB							
Byte 1	CHARGER_POWER_REFERENCE_LSB							
Byte 0	CHARGER_ENABLE							

Table 1 Charger control message

Signal	Description	Min	Max	Data conversion
CHARGER_ENABLE	Turns the charger on or off (PFC and DC/DC on/off)	0	1	Physical = (HEX)
CHARGER_POWER_REFERENCE	Power reference demand in percent of maximum power	0.0%	100.0%	Physical = (HEX / 10) [%]

CHARGER_MAXDCVOLTLIMIT	Maximum charger DC voltage	0.0V	6553.5V	Physical = (HEX / 10) [V]
CHARGER_MAXDCCURRLIMIT	Maximum charger DC current	0.0A	6553.5A	Physical = (HEX / 10) [A]

Table 2 Charger control signal descriptions

3 Charger status

Once the EV Powercharger receives *charger control* messages from its control system it automatically transmits three status messages containing measurements, warnings and error notifications.

3.1 Status1

CAN identifier: *6 + base CAN identifier + (charger address – 1) * 16*
Length: 8 bytes
Transmission interval: 200 ms
Sender: Charger
Receiver: Control system

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	CHARGER_MAINS_FREQUENCY							
Byte 6	CHARGER_DC_VOLTAGE_MSB							
Byte 5	CHARGER_DC_VOLTAGE_LSB							
Byte 4	CHARGER_DC_CURRENT_MSB							
Byte 3	CHARGER_DC_CURRENT_LSB							
Byte 2	CHARGER_MAINS_CURRENT_MSB							
Byte 1	CHARGER_MAINS_CURRENT_LSB							
Byte 0	CHARGER_STATUS							

Table 3 Charger status1 message

Signal	Description	Min	Max	Data conversion
CHARGER_STATUS	Charger status	1	4	1=IDLE, 2=CHARGE, 3=RECOVERABLE_ERROR, 4=NONRECOVERABLE_ERROR

CHARGER_MAINS_CURRENT	Input current measurement	0.0A	6553.5A	Physical = (HEX / 10) [A]
CHARGER_DC_CURRENT	Output current measurement	0.0A	6553.5A	Physical = (HEX / 10) [A]
CHARGER_DC_VOLTAGE	Output voltage measurement	0.0V	6553.5V	Physical = (HEX / 10) [V]
CHARGER_MAINS_FREQUENCY	Input voltage frequency measurement	0	255	Physical = (HEX) [Hz]

Table 4 Charger status1 signal descriptions

3.2 Status2

CAN identifier: *7 + base CAN identifier + (charger address – 1) * 16*
Length: 7 bytes
Transmission interval: 200 ms
Sender: Charger
Receiver: Control system

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	RESERVED							
Byte 6	CHARGER_AVAILABLE_POWER							
Byte 5	CHARGER_MAX_POWER_MSB							
Byte 4	CHARGER_MAX_POWER_LSB							
Byte 3	CHARGER_MAINS_VOLTAGE_MSB							
Byte 2	CHARGER_MAINS_VOLTAGE_LSB							
Byte 1	CHARGER_SECONDARY_TEMP							
Byte 0	CHARGER_PRIMARY_TEMP							

Table 5 Charger status2 message

Signal	Description	Min	Max	Data conversion
CHARGER_PRIMARY_TEMP	Primary temperature measurement	-128	127	Physical = (HEX) [°C]
CHARGER_SECONDARY_TEMP	Secondary temperature measurement	-128	127	Physical = (HEX) [°C]
CHARGER_MAINS_VOLTAGE	Input voltage measurement	0V	65535V	Physical = (HEX) [V]
CHARGER_MAX_POWER	Maximum charger power (constant value)	0W	65535W	Physical = (HEX) [W]
CHARGER_AVAILABLE_POWER	Maximum available power (may be less than maximum power due to temperature and mains derating)	0	255	Physical = (HEX/2) [% out of CHARGER_MAX_POWER]

Table 6 Charger status2 signal descriptions

3.3 Errors

CAN identifier: 8 *+ base CAN identifier + (charger address – 1) * 16*
Length: 3 bytes
Transmission interval: 200 ms

Sender: Charger
Receiver: Control system

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	RESERVED							
Byte 6	RESERVED							
Byte 5	RESERVED							
Byte 4	RESERVED							
Byte 3	RESERVED							
Byte 2	RESERVED						CNTCOMMFAIL	DCUVS
Byte 1	RESERVED						MODFAIL	RESERVED
Byte 0	CURRLIM	LOWTEMP	HIGHTEMP	LOWMAINS	HIGHMAINS	SCICOMMFAIL	RESERVED	DCOVS

Table 7 Charger errors message

Signal	Description	Action	Status
DCOVS	DC overvoltage shutdown	Turns off PFC & DC/DC	Recoverable error
SCICOMMFAIL	Secondary DSP is unable to communicate with primary DSP over SCI	Turns off DC/DC	Non-recoverable error
HIGHMAINS	High mains shutdown	Turns off PFC & DC/DC	Recoverable error
LOWMAINS	Low mains shutdown	Turns off PFC & DC/DC	Recoverable error
HIGHTEMP	High temperature shutdown (primary or secondary temperature)	Turns off PFC & DC/DC	Recoverable error
LOWTEMP	Low temperature shutdown (primary or secondary temperature)	Turns off PFC & DC/DC	Recoverable error
CURRLIM	Charger is in current limit when it derates due to low input voltage or high temperature and the power demand is higher than available power	None	Recoverable error
MODFAIL	Transformer failure. Unable to provide the demanded power	None	Non-recoverable error
DCUVS	DC undervoltage shutdown	Turns off PFC & DC/DC	Recoverable error
CNTCOMMFAIL	Control system communication timeout. Is triggered if charger doesn't receive the next *charger control* message within 1 second from the last.	Turns off PFC & DC/DC	Recoverable error

Table 8 Charger errors signal descriptions

4 Charger identification

The EV Powercharger always sends a *charger identification* message containing its serial number and base CAN identifier.

CAN identifier: *9 + base CAN identifier + (charger address – 1) * 16*
Length: 8 bytes
Transmission interval: 1000 ms
Sender: Charger
Receiver: Control system

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	CHARGER_BASE_CANIDENTIFIER_MSB							
Byte 6	CHARGER_BASE_CANIDENTIFIER_LSB							
Byte 5	CHARGER_SERIALNUMBER							
Byte 4	CHARGER_SERIALNUMBER							
Byte 3	CHARGER_SERIALNUMBER							
Byte 2	CHARGER_SERIALNUMBER							
Byte 1	CHARGER_SERIALNUMBER							
Byte 0	CHARGER_SERIALNUMBER							

Table 9 Charger identification message

Signal	Description	Min	Max	Data conversion
CHARGER_SERIALNUMBER	Charger serial number	NA	NA	NA
CHARGER_BASE_CANIDENTIFIER	Base CAN identifier (see section X)	0	1791	Physical = (HEX)

Table 10 Charger identification signal descriptions

5 Charger configuration

The charger has a configuration mode and two dedicated CAN identifiers for this purpose. A *configuration* message is used by the control system/configuration tool to configure a charger. A *configuration response* is transmitted by the charger to respond with data to a read operation or to acknowledge a write operation.

A configuration is conducted on a configuration parameter. The available configuration parameters are presented in Section 5.3 in addition to access rights, data length and formats. Configuration parameters with read access are available at all times. In order to write to configuration parameters that has write access the configuration parameter "*unlock configuration*" (#22) must be written with a code to enable **one** write access in a one second time slot. If several values need to be written, then the "*unlock configuration"* parameter must be enabled prior to each write.

5.1 Configuration

CAN identifier: *4 + base CAN identifier + (charger address – 1) * 16*
Length: 2-8 bytes
Sender: Control system
Receiver: Charger

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	CHARGER_CONFIGURATIONDATA							
Byte 6	CHARGER_CONFIGURATIONDATA							
Byte 5	CHARGER_CONFIGURATIONDATA							
Byte 4	CHARGER_CONFIGURATIONDATA							
Byte 3	CHARGER_CONFIGURATIONDATA							
Byte 2	CHARGER_CONFIGURATIONDATA							
Byte 1	CHARGER_CONFIGURATIONPARAM							
Byte 0	RESERVED							CHARGER_RW

Table 11 Charger configuration message

Signal	Description	Min	Max	Data conversion
CHARGER_RW	Charger read/write configuration	0	1	0=Read, 1=Write
CHARGER_CONFIGURATIONPARAM	Configuration parameter	0	255	Physical = (HEX)
CHARGER_CONFIGURATIONDATA	Configuration data	NA	NA	NA

Table 12 Charger configuration signal descriptions

5.2 Configuration response

CAN identifier: *5 + base CAN identifier + (charger address – 1) * 16*
Length: 2-8 bytes

Sender: Charger
Receiver: Control system

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	CHARGER_CONFIGURATIONDATA							
Byte 6	CHARGER_CONFIGURATIONDATA							
Byte 5	CHARGER_CONFIGURATIONDATA							
Byte 4	CHARGER_CONFIGURATIONDATA							
Byte 3	CHARGER_CONFIGURATIONDATA							
Byte 2	CHARGER_CONFIGURATIONDATA							
Byte 1	CHARGER_CONFIGURATIONPARAM							
Byte 0	RESERVED					CHARGER_RESPONSE		CHARGER_RW

Table 13 Charger configuration response message

Signal	Description	Min	Max	Data conversion
CHARGER_RW	Charger read/write configuration	0	1	0=Read, 1=Write
CHARGER_RESPONSE	Charger configuration response	0	7	0=Ok, 1=TooHigh, 2=TooLow, 3=NotInitialized
CHARGER_CONFIGURATIONPARAM	Configuration parameter	0	255	Physical = (HEX)
CHARGER_CONFIGURATIONDATA	Configuration data	NA	NA	NA

Table 14 Charger configuration response signal descriptions

5.3 Configuration parameters

5.3.1 #0 CAN speed

Configuration parameter: 0
Access options: R/W
Data length: 1 byte
Description: Changes the charger's CAN speed. The charger must be power cycled for the new change to take effect.

Data conversion:
CHARGER_CANSPEED 0=125Kbit, 1=250Kbit, 2=500Kbit (default), 3=1000Kbit

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	0							
Byte 0	RESERVED							0

Write operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 2	CHARGER_CANSPEED							
Byte 1	0							
Byte 0	RESERVED							1

5.3.2 #1 Active CAN protocol

Configuration parameter: 1
Access options: R/W
Data length: 1 byte
Description: Changes the charger's active CAN protocol to either car/customer protocol or Eltek's test protocol. The charger must be power cycled for the new change to take effect.

Data conversion:
CHARGER_PROTOCOL 0=Car/customer protocol, 1=Eltek

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	1							
Byte 0	RESERVED							0

Write operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 2	CHARGER_PROTOCOL							
Byte 1	1							

Byte 0	RESERVED	1

5.3.3 #2 CAN base identifier

Configuration parameter: 2
Access options: R/W
Data length: 4 bytes
Description: Changes the charger's CAN base identifier. This CAN identifier is used to configure and shift a charger's reserved CAN identifier range (16 identifiers) in the 11-bit CAN identifier range (see Section 1.2). The charger must be power cycled for the new change to take effect.

The base CAN identifier determines along with the charger address the exact CAN identifiers for a charger's CAN messages.

Data conversion:
CHARGER_CANBASEID 0-0x6FF

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	2							
Byte 0	RESERVED							0

Write operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 5	CHARGER_CANBASEID (msb)							
Byte 4	CHARGER_CANBASEID							
Byte 3	CHARGER_CANBASEID							
Byte 2	CHARGER_CANBASEID (lsb)							
Byte 1	2							
Byte 0	RESERVED							1

5.3.4 #3 Charger type

Configuration parameter: 3

Access options: R
Data length: 1 byte
Description: Reads the charger type (0=80V, 1=200V, 2=400V)

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	3							
Byte 0	RESERVED							0

5.3.5 #4 Charger address

Configuration parameter: 4
Access options: R/W
Data length: 1 byte
Description: The charger address determines along with the base CAN identifier the exact CAN identifiers for a charger's CAN messages. The charger must be power cycled for the new change to take effect.

Data conversion:
CHARGER_ADDRESS 1 - 16

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	4							
Byte 0	RESERVED							0

Write operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 2	CHARGER_ADDRESS							
Byte 1	4							
Byte 0	RESERVED							1

5.3.6 #5 Protocol software part number

Configuration parameter: 5
Access options: R
Data length: 5 bytes
Description: Protocol software part number formatted as e.g. 0x4040700090 = “404070.009”

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	5							
Byte 0	RESERVED							0

5.3.7 #6 Charger part number

Configuration parameter: 6
Access options: R
Data length: 5 bytes
Description: Charger part number formatted as e.g. 0x4040700090 = “404070.009”

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	6							
Byte 0	RESERVED							0

5.3.8 #7 Secondary software part number

Configuration parameter: 7
Access options: R
Data length: 5 bytes
Description: Secondary software part number formatted as e.g. 0x4040700090 = “404070.009”

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)

Byte 1	7	
Byte 0	RESERVED	0

5.3.9 #8 Primary software part number

Configuration parameter: 8
Access options: R
Data length: 5 bytes
Description: Primary software part number formatted as e.g. 0x4040700090 = “404070.009”

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	8							
Byte 0	RESERVED							0

5.3.10#9 Protocol version

Configuration parameter: 9
Access options: R
Data length: 6 bytes
Description: Protocol version number (char[6])

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	9							
Byte 0	RESERVED							0

5.3.11 #10 Charger version

Configuration parameter: 10
Access options: R

Data length: 6 bytes
Description: Charger version number (char[6])

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	10							
Byte 0	RESERVED							0

5.3.12 #11 Secondary software version

Configuration parameter: 11
Access options: R
Data length: 6 bytes
Description: Secondary software version number (char[6])

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	11							
Byte 0	RESERVED							0

5.3.13 #12 Primary software version

Configuration parameter: 12
Access options: R
Data length: 6 bytes
Description: Primary software version number (char[6])

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	12							
Byte 0	RESERVED							0

5.3.14 #13 Charger enabled

Configuration parameter: 13
Access options: R
Data length: 1 byte
Description: Readout of charger enable/disable signal CHARGER_ENABLE (0=disabled, 1=enabled)

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	13							
Byte 0	RESERVED							0

5.3.15 #14 Charger power reference

Configuration parameter: 14
Access options: R
Data length: 2 bytes
Description: Readout of charger power demand CHARGER_POWER_REFERENCE.

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	14							
Byte 0	RESERVED							0

5.3.16 #15 Charger maximum DC voltage

Configuration parameter: 15
Access options: R
Data length: 2 bytes
Description: Readout of charger maximum DC voltage CHARGER_MAXVOLTDCLIMIT

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	15							
Byte 0	RESERVED							0

5.3.17 #17 Software CAN identifier

Configuration parameter: 17
Access options: R
Data length: 4 bytes
Description: Readout of software update CAN identifier

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	17							
Byte 0	RESERVED							0

5.3.18 #18 Software response CAN identifier

Configuration parameter: 18
Access options: R
Data length: 4 bytes
Description: Readout of software update response CAN identifier

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	18							
Byte 0	RESERVED							0

5.3.19 #19 CAN identifier mode

Configuration parameter: 19
Access options: R
Data length: 1 byte
Description: Readout of CAN identifier mode for the car/customer protocol (0=29-bit, 1=11-bit)

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)

Byte 1	19	
Byte 0	RESERVED	0

5.3.20 #20 Charger maximum DC current

Configuration parameter: 20
Access options: R
Data length: 2 bytes
Description: Readout of charger maximum DC current CHARGER_MAXDCCURRLIMIT

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	20							
Byte 0	RESERVED							0

5.3.21 #21 Charger serial number

Configuration parameter: 21
Access options: R
Data length: 6 bytes
Description: Charger serial number

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	21							
Byte 0	RESERVED							0

5.3.22 #22 Unlock configuration

Configuration parameter: 22
Access options: W
Data length: 6 bytes
Description: Unlock write access to one configuration parameter for 1 second.

Write operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 7	0xA6							
Byte 6	0xB5							
Byte 5	0xC4							
Byte 4	0xD3							
Byte 3	0xE2							
Byte 2	0xF1							
Byte 1	22							
Byte 0	RESERVED							1

5.3.23 #23 Charger maximum AC current

Configuration parameter: 23
Access options: R/W
Data length: 2 bytes
Description: Maximum AC current limit

Data conversion:
CHARGER_MAXACCURRENT 10.0A – 16.0A (Physical = (HEX/10) [A])

Read operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 1	23							
Byte 0	RESERVED							0

Write operation:

	Bit 7 (MSB)	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 (LSB)
Byte 3	CHARGER_MAXACCURRENT_MSB							
Byte 2	CHARGER_MAXACCURRENT_LSB							
Byte 1	23							
Byte 0	RESERVED							1

6 Software update

The protocol specification for updating primary, secondary and CAN protocol software is described in the following document:

- Firmware Loader CAN Protocol (2056153-1-1)

Eltek Valere has applications and equipment available to update EV Powercharger software.

The EV Powercharger uses the following CAN identifiers for software update purposes:

Software update: *2 + base CAN identifier + (charger address – 1) * 16*
Software update response: *3 + base CAN identifier + (charger address – 1) * 16*