EVlink Pro AC

OCPP Protocol

Connectivity Guide

GEX1969200
05/2022

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Legal Information

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Safety Information

Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in death or serious injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

⚠DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

Failure to follow these instructions will result in death or serious injury.

⚠WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

NOTICE is used to address practices not related to physical injury.

Failure to follow these instructions can result in equipment damage.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and its installation and has received safety training to recognize and avoid the hazards involved.

About the Book

Purpose of this Document

The purpose of this document is to guide you with the connectivity of EVlink Pro AC range with OCPP protocol 1.6 supervisions.

Document Version History

Document Reference–Version	Release Date	Evolution
GEX1969200–00	May 2022	Document creation

Terminology

Anacronym	Designation
EVSE	Electrical Vehicle Supply Equipment (charging station compliant with OCPP standard).
EVCE	Electrical Vehicle Charging Expert
OCPP	Open Charge Point Protocol (communication protocol used between the charging stations and a central system).

Related Documents

Document Title	Document Reference–Version	Author	Release Date	Link
EVlink Pro AC Installation Guide	NNZ1940301 rev 04	Schneider Electric	01/2022	https://www.se.com/ww/en/download/document/NNZ1940301/
EVP3MM Modem Instruction Sheet	NNZ26782 rev06	Schneider Electric	09/2021	https://www.se.com/ww/en/download/document/NNZ2678201/
Open Charge Point Protocol 1.6	1.6	Open Charge Alliance	12/2019	https://www.openchargealliance.org/
EVlink Pro AC - Cybersecurity Guide	01	Schneider Electric	04/2022	https://www.se.com/ww/en/download/document/GEX5261101/

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Safety Precautions

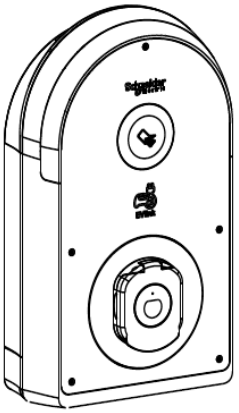
NOTICE

HAZARD OF INCORRECT USE

- This document contains general descriptions and/or general technical specifications of the products mentioned. It cannot be used to determine the suitability or reliability of these products for specific user applications. It is the responsibility of each user or integrator to conduct the appropriate risk analysis in full, assessing and testing products as regards the application in which they will be used and the execution of this application. Neither Schneider Electric nor any of its affiliated companies or subsidiaries can be held responsible for incorrect use of the information contained in this document. If you have any suggestions for improvements or correction, or have found errors in this publication, please notify us.
- All relevant state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to ensure compliance with documented system data, only the manufacturer should perform repairs to components. When equipment is used for applications with technical safety requirements, follow the relevant instructions.

Failure to follow these instructions can result in equipment damage.

Product Family



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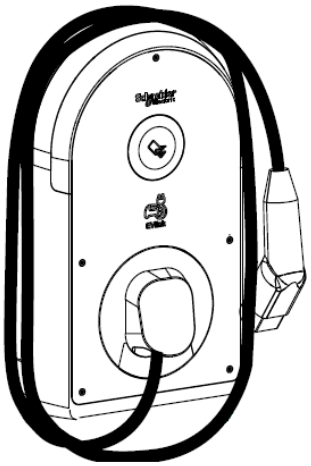
EVB3S 07N4AM
EVB3S 07N40M
EVB3S 11N4A
EVB3S 22N4B
EVB3S 22N4A
EVB3S 22N40M
EVB3S 22N40MR
EVB3S 22N4



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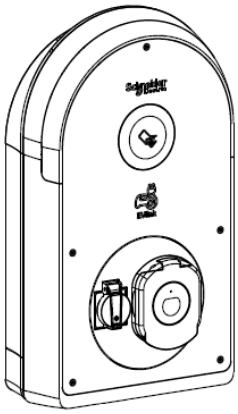
EVB3S 07NCAM
EVB3S 11NCA
EVB3S 22NCA
EVB3S 22NCB
EVB3S 22NC0M



EVB3S 07N4EAM
EVB3S 07N4EA
EVB3S 07N40EM
EVB3S 11N4FB
EVB3S 22N4E
EVB3S 22N4EA
EVB3S 22N4EB
EVB3S 22N4FB
EVB3S 22N40EM
EVB3S 22N40FM

Supported OCPP Operations

Supported protocol is OCPP 1.6 JSON.

The following tables detail the supported OCPP messages.

Operations Initiated by Charge Point

Operation group	Message	Comment
Core	Authorize	Supported
Core	BootNotification	Supported
Core	DataTransfer	Supported
Firmware & diagnostics file transfer	DiagnosticsStatusNotification	Supported
Firmware & diagnostics file transfer	FirmwareStatusNotification	Supported
Core	Heartbeat	Supported
Core	MeterValues	Supported
Core	StartTransaction	Supported
Core	StatusNotification	Supported
Core	StopTransaction	Supported

Operations Initiated by Central System

Operation group	Message	Comment
Reservation	CancelReservation	Supported
Core	ChangeAvailability	Supported
Core	ChangeConfiguration	Supported
Core	ClearCache	Supported
Smart charging	ClearChargingProfile	Supported Refer to Smart Charging, page 12
Core	DataTransfer	Supported
Smart charging	GetCompositeSchedule	Supported Refer to Smart Charging, page 12
Core	GetConfiguration	Supported
Firmware & diagnostics file transfer	GetDiagnostics	Supported
Local auth list management	GetLocalListVersion	Supported
Core	RemoteStartTransaction	Supported
Core	RemoteStopTransaction	Supported
Reservation	ReserveNow	Supported
Core	Reset	Supported
Local auth list management	SendLocalList	Not supported
Smart charging	SetChargingProfile	Supported Refer to Smart Charging, page 12

Operation group	Message	Comment
Remote trigger	TriggerMessage	Supported
Core	UnlockConnector	Supported
Firmware & diagnostics file transfer	UpdateFirmware	Supported

Smart Charging

The table below provides the supported smart charging features:

Class	Attribute	Comment
ChargingProfile	chargingProfileId	Supported
	transactionId	Supported
	stackLevel	Supported
	chargingProfilePurpose	All profiles are supported (TxDefaultProfile, TxProfile, ChargePointMaxProfile).
	reccurencyKind	All types are supported (Daily, Weekly).
	validFrom	Supported
	validTo	Supported
ChargingSchedule	duration	Supported
	startSchedule	Supported
	chargingRateUnit	A is supported – W is not supported.
	minChargingRate	Parameter not used
chargingSchedulePeriod	startPeriod	Supported
	limit	Supported
	numberPhases	Parameter not used

NOTE: Messages containing not supported attributes are rejected by the charging station.

Vendor Error Codes

The table below details all error codes that can be raised by the charging station.

Error group	Error name	Error code	Comments
Software configuration	Capacity out of range	1.0	Bad configuration of the microswitch.
	Firmware downgrade	1.1	Charging station detects that the software version is lower than expected.
Hardware configuration	Mother board issue	2.0	Issue with EVSE hardware.
	Physical derating issue	2.1	Invalid physical derating configuration OR change of physical derating configuration during charge. Configure the microswitch according to the Installation Sheet.
Upstream protection devices RDC_DD	MNX tripping	3.0	Trip of MNX / Contactor discordance.
	RDC DD (6mA) measurement board error	4.0	RDC DD internal device reports an internal error.
6mA_Detection	6 mA DC leakage detected	5.0	DC leakage value higher than 6mA.
Metering	Input voltage issue	6.0	Phase synchronization defect or input voltage or frequency error.
	Internal Metering card issue	6.1	At least one metering fault has been detected.
PowerMeter	Internal Power Meter communication loss	7.0	Loss of communication with Modbus power meter for metering (either internal or external), for 3 consecutive unsuccessful attempts.
Bluetooth	Bluetooth communication issue	8.0	Issue with Bluetooth processor: communication lost or update impossible.
Badge reader	Badge reader issue	9.0	Loss of communication with the RFID, NFC reader.
EV issues	EV issues: Control Pilot (CP)	10.0	Communication fault with a Mode 3 / T2 vehicle (“CP” error: Control Pilot)
	EV issues: Plug Presence (PP)	10.1	Cable status wrong (the value of the coding resistor “PP” is wrong).
	EV issues: Short-circuit CPW	10.2	Charging fault short-circuit on Control Pilot Wire.
Outlet	Lock/Unlock cable Failure	11.0	Wrong handling during the plug/unplug of the socket, or motor blocked.
Contactor	Contactor Discordance	12.0	Contactor is not in the requested state: welded or blocked in open position.
Phase_discordance	Load three-phase compliancy	13.0	Three phases charging not allowed in simplified mode 3.
Overcurrent	EV Overcurrent	14.0	Overcurrent or overload charging fault due to EV.
Ventilation not allowed	Ventilation Not Allowed	15.0	Battery gas leakage risk. Car asking ventilation that is not compatible with our products.
EVCE	EVCE communication loss	16.0	Supervision communication lost between EV Charging Expert and the charging station.
OCPP	Supervision (OCPP) issue	17.0	Communication or configuration of Supervision (OCPP) issue.
EM	Dynamic Energy management communication loss: TIC	18.0	Communication lost with external device for energy management (TIC).
	Dynamic Energy management communication loss: Modbus meter	18.1	Communication lost with external device for energy management (Modbus meter).

Parameters

The table below details all EVSE parameters than can be read or modified from the supervision.

Key	Min	Max	Unit	Access right (*)	Description
SupervisionUrl	String of max 255 characters			RO	Supervision URL
BoxIdentifier	String of max 50 characters			RO	Box identifier
EvPresenceNotification	False	True	-	RW	Enables EV presence notification through DataTransfer
NumberOfConnectors	1	2	-	RO	Number of connectors
MinimumStatusDuration	0	120	s	RW	Minimum status duration
AuthenticationOCPPMode	False	True	-	RW	True = authentication enabled; False = authentication disabled
AllowOfflineTxForUnknownId	False	True	-	RW	Allows offline Tx for unknown id
DefaultIdTag	String of max 20 characters			RW	Default id tag
AuthorizationCacheEnabled	False	True	-	RW	Authorization cache
LocalAuthListEnabled	False	True	-	RW	Local list
LocalPreAuthorize	False	True	-	RW	Local pre-authorize
LocalAuthorizeOffline	False	True	-	RW	Local authorize offline
SampledData	String of max +inf characters			RW	Sample data
SampledDataInterval	0	+inf	-	RW	Sample data interval
SampledDataMaxLength	1	+inf	-	RW	Sample data max length
SampledDataTxEnded	0	+inf	-	RW	Sample data Tx ended
SampledDataTxEndedMax-Length	0	+inf	-	RW	Sample data Tx ended max length
AlignedData	String of max +inf characters			RW	Aligned data
AlignedDataInterval	0	+inf	-	RW	Aligned data interval
AlignedDataMaxLength	1	+inf	-	RW	Aligned data max length
AlignedDataTxEnded	0	+inf	-	RW	Aligned data Tx ended max length
AlignedDataTxEndedMaxLength	0	+inf	-	RW	Aligned data Tx ended max length
HeartbeatInterval	0	+inf	s	RW	Heartbeat interval in seconds
compressDiagnostic	False	True	-	RW	Compress maintenance report
PlugNumberingMode	0	2	-	RW	Ascertain connector id number
EnableDoubleNotification	False	True	-	RW	Double connector notification
AuthorizeRemoteTxRequests	False	True	-	RW	Authentication verification for RemoteStartTransaction
MessageAttemptsTransactionE-vent	1	+inf	-	RW	Message attempts transaction event
MessageAttemptIntervalTran-sactionEvent	1	+inf	-	RW	Message attempt interval transaction event
AuthorizationKey	String of max 40 characters			RW	Key used to connect to OCPP supervision
ConnectionTimeOut	10	600	s	RW	Connection timenout
PhasesConnection	1= “Tri123” 2= “Tri231” 3= “Tri312”4= “Mono1”5= “Mono2” 6= ”Mono3”			RW	Phases Connection

Key	Min	Max	Unit	Access right (*)	Description
ResetRetries	1	5	-	RW	Number of times to retry an unsuccessful reset
ResendBootNotificationInterval	0	65535	s	RW	Time interval to resend BootNotification
GetConfigurationMaxKeys	0	65535	-	RO	Maximum number of requested configurations
LocalAuthListMaxLength	0	65535	-	RO	Max numberSendLocalListMaxLength of identifications that can be stored in the local List
SendLocalListMaxLength	0	65535	-	RO	Maximum number of identifications that can be send in a single local list
ChargeProfileMaxStackLevel	0	65535	-	RO	Max StackLevel of a ChargingProfile
ChargingScheduleMaxPeriods	0	65535	-	RO	Maximum number of periods
MaxChargingProfilesInstalled	0	65535	-	RO	Maximum number of Charging profiles installed at a time
WebSocketPingInterval	10	60	s	RW	Only relevant for websocket implementations
LedIntensity	0	100	%	RW	LED intensity
ChargingScheduleAllowedChar-gingRateUnit	String of max 65535 characters			RO	List of supported quantities for use in a ChargingSchedule
SupportedFeatureProfiles	String of max 65535 characters			RO	List of supported Feature Profiles

(*)

RO = Read Only

RW = Read and Write

Cybersecurity and Data Privacy

Refer to EVlink Pro AC - Cybersecurity Guide, reference GEX5261101.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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