ETREL

MODEL: *Etrel INCH*

Electrical specification

CHARGER POWER SUPPLY INFORMATION

NOMINAL VOLTAGE (SINGLE-PHASE CONNECTION)	230V AC (+5% , -5%) *Nominal voltage depends on the car specification and reaches values between 110V and 300 V
NOMINAL VOLTAGE (THREE-PHASE CONNECTION)	400V AC (+5%, -5%) *Nominal voltage depends on the car specification and reaches values between 110V and 300 V
NOMINAL CURRENT PER PHASE	Max 32A per phase *Three phase model 3 x 32A, single phase model 1 x 32A *Can be adjusted through charger settings
MAXIMUM CHARGING POWER	7,4 kW (single phase) and 22 kW (three phase) *Max power can be adjusted (lowered) when the charging station is installed and later using the power management algorithms and power management settings using the user interface (mobile app, web app)
FREQUENCY	47Hz – 63Hz
SUPPORTED GROUNDING SYSTEMS	The charging station should be properly grounded. Following grounding system are supported: TN-S, TN-C, TN-C-S and TT under special conditions. Where this is possible local grounding should be done.
STANDBY OWN ENERGY CONSUMPTION	Between 5W and 15W *Depends on current operation and integrated modules (GPRS, Wi-Fi, PLC,…)
DEVICE OVERVOLTAGE SENSITIVITY	Category II EN60664

CHARGER OUTPUT

NUMBER OF CHARGING OUTPUTS (EVSE'S)	1
NOMINAL VOLTAGE (SINGLE-PHASE VEHICLE CONNECTED)	230V AC (+5% , -5%) *Nominal voltage depends on the car specification and reaches values between 110V and 300 V
NOMINAL VOLTAGE (THREE-PHASE VEHICLE CONNECTED)	400V AC (+5%, -5%) *Nominal voltage depends on the car specification and reaches values between 110V and 300 V * On a three phase charging station single and three phase vehicles can be charging
NOMINAL CURRENT PER PHASE	Max 32A per phase *Three phase model 3 x 32A, single phase model 1 x 32A *Can be adjusted through charger settings
MAXIMUM CHARGING POWER	7,4 kW (single phase) and 22 kW (three phase) *Max power can be adjusted (lowered) when the charging station is installed and later using the power management algorithms and power management settings using the user interface (mobile app, web app)
CHARGING SOCKET TYPE	Type 2 socket *Support for IEC 62196-2.
CHARGING CABLE TYPE (OPTIONAL)	With Type 2 connector supporting IEC 62196-2 type plug or optionally Type 1 supporting SAE J1772 cable. *Compatible with all the vehicles on the market

ELECTRICAL PROTECTION

DIFFERENTIAL PROTECTION	Delta I=30mA, Different options possible Type B or Type B+ (high immunity). All the differential protection is complying with the following standards: • IEC/EN 62423 (Type B) • VDE 0664-400 (Type B+) *One protection can be installed inside the charging station. If differential protection is integrated in the charging station then overcurrent protection needs to be installed in the electric cabinet or vice versa.	Optional
OVERVOLTAGE/SURGE PROTECTION	Should be installed in external electric cabinet.	●
OVERCURRENT PROTECTION/MCB	Characteristics C, between 16A and 40A. *One protection can be installed inside the charging station. If differential protection is integrated in the charging station then overcurrent protection needs to be installed in the electric cabinet or vice versa. *Rated short time withstand current: 6kA	●

ADDITIONAL PROTECTION, CHECKING IF MEASURED CHARGING CURRENT IS HIGHER THAN SET CURRENT	Slow overcurrent protection based on internal current measurements. *Prevents circuit breaker outage. Stop charging if load (EV) does not follow current's setpoint. *Needs to be installed in the electric cabinet	●

METERING

MID METER	MID meter installed inside the charging station *When MID meter is installed inside the charging station all protection devices need to be installed in the el. cabinet. So that the sufficient protection of household loads, EV and user during charging is guranteed.	Optional
EMBEDDED METER	Accuracy meter rating: Class 2. *Possible measurements: energy and power on all phases, voltage measurements on all phases, power factor, current on all phases and energy in both directions. *When MID meter is installed part of embedded meter is removed.	●

COMMUNICATION INTERFACES WITH SMART HOME OR CPO BACKED

MOBILE	Mobile module Modem supports following frequencies: • GSM | GPRS | EDGE: 850, 900, 1800, 1900 • UMTS | HSPA; 800/850, 900, AWS 1700, 1900, 2100 MHz • Bands B6 and B19 (800 MHz) are a subset of B5 (850 MHz) and supported as well;	Optional
ETHERNET	Ethernet module *10M/100M connection available in the charger service area.	●
WIFI	Wi-Fi module Network standard: • IEEE 802.11n • IEEE 802.11g • IEEE 802.11b Wireless transmission rate: • 11n: max 150Mbps • 11g: max 65Mbps • 11b: max 11Mbps Frequency rate: • 2.4 – 2.4835 G Wireless security: • Wireless MAC address filtering • Wireless security function switch • 64/128/152 bit WEP encryption • WPA-PSK/WPA2-PSK, WPA/WPA2 security mechanism;	Optional
PLC	HomeGreenPHY PLC Features: • Up to 10 Mbps data rate • 128 bit AES network encryption • Open API for status information and device configuration • Integrated UART/SPI interface • QCA7000 chipset • LPC1758 host processor *Works in combination with LOADGUARD PLC and HOME PLC LAN	Optional

COMMUNICATION INTERFACES WITH ELECTRIC VEHICLES

IEC 61851	Standard version from 2017 supported *All vehicles also support older versions.	●
IEC 15118	Standard version from 2015 supported.	Optional

COMMUNICATION PROTOCOLS

OCPP	• OCPP 1.6 SOAP + JSON (all messages /methods supported) *Additionally: Custom data transfer messages supported (for pricing and on display advertising) *Allows OCPP communication with multiple nodes	
CUSTOM WEB API	We can provide API specification. *Authorization is supported/required on this interface.	
MODBUS TCP SERVER	Used for integration with Smart Home/Smart building. *Modbus registers table can be provided.	

USER INTERFACES

COLOR LCD DISPLAY 3.5 INCH WITH TOUCH INTERFACE	Specification: • Size: 3.5 inch (320 x 240) • brightness: 650 cd/m2, • view angle: 12 o'clock • Capacitive touch behind vandal proof cover glass.	●
WEB INTERFACE FOR LOCAL USERS AND MAINTENANCE	Embedded web interface with responsive design (PC, table, phone) *It allows charger configuration, online control of charging session, enables reporting, diagnostics/trouble shooting and firmware upgrades.	●
STATUS LED	Is turned on in standby mode to indicate charger current status.	●

OTHER USER INTERFACE FUNCTIONALITIES

HELP EMBEDDED ON SCREEN	Charging station's LCD provides help tips	●
MULTILINGUAL SUPPORT	Multiple languages supported. *Configurable through web interface	●
LOCATION BASED ON SCREEN ADVERTISING	Advertisement shown on the user interface	Optional

CHARGER UNLOCKING POSSIBILITIES

RFID READER	RFID module Specification: • Supports I2C, SPI and HSU (High speed UART) • 5 to 7 cm reading distance Supported cards: • Mifare 1k, 4k, Ultralight and DesFire cards • ISO/IEC 14443-4 cards (CD97BX, CD light, Desfire, PSCN072(SMX)) • Innovision Jewel cards (IRT5001) • FeliCa cards (RCS_860 and RCS_854)	Optional
PLUG AND CHARGE	YES	●
MOBILE APP	YES *if supported by operator	Optional
SMS	YES *if supported by operator	Optional
AUTHORIZATION USING PIN	Users and PIN's configurable through charger web interface	Optional

BASIC MECHANICAL SPECIFICATION

DIMENSIONS (HXWXD)	45x27x13.5 [cm]	
WEIGHT	6.3 kg with socket, 7.5-8.2 kg with attached cable.	
DIMENSION INCLUDING PACKAGING (HXWXD)	Package adds 7 cm around the width and depth of charging station for protection and 10 cm to the height measurements. For the charging stations with the cable packages' height is 25 cm bigger than the charging station itself.	
WEIGHT INCLUDING PACKAGING	Package adds 5 kg to the charging station.	
CASING MATERIAL	Aluminium, cover plate Polycarbonate Lexan.	
CASING COLOR	White, black, grey...	Optional

INLET CABLE HANDLING

POWER CABLE ENTRANCE DIRECTION	Power cables can be inserted into the station from the back and from bottom of the charging station. With the special wall mounting frame also from the top side.	
ETHERNET CABLE TYPE	CAT-5, SFTP – preferred if layered with power cables or on long distances. Cat-5 cable suggested longest distance without using signal repeaters is 100 m.	
ETHERNET CABLE ENTRANCE	Ethernet cables can be inserted into the station from the back and from bottom of the charging station. With the special wall mounting frame also from the top side.	
POWER CABLE DIMENSIONS	From 3 x 2,5mm2, to 5x 10mm2 *In special condition also 5 x 16mm2 cable can be used	

CHARGING CABLE HANDLING

CABLE TYPE	Standard: straight cable, optionally: spring cable	●
CABLE LENGTH	Multiple lengths supported: 5 m(default), 3 m(optional) or 7 m(optional).	●
CABLE COLOR	Blue	●
CABLE HOLDER	Magnetic cable holder (default) or wall mounted plastic cable holder (optional) for charging station with embedded cable.	●
PLUG HOLDER SIZE	Big or small (optional) magnetic holder.	●

ENVIRONMENTAL SPECIFICATIONS

INGRESSION PROTECTION	IP54 *For model with cable IP65	●
TEMPERATURE RANGE – OPERATION	-20°C + 70°C	●
TEMPERATURE RANGE – STORAGE	-20°C +70°C	●
HUMIDITY	95 % *relative humidity	●
ALTITUDE	2000 m	●

VANDALISM PROTECTION

IMPACT PROTECTION	IK08	●
PLUG LOCKING	Plug locking *Operation can be enabled or disabled in charger configuration.	Optional

MAINTENANCE

FIRMWARE UPDATE	Firmware update done through backend system or web interface.	●
ACCESS TO SERVICE AREA	Service doors with key, servce doors with screw or service doors with MID window and key.	●
FUNCTIONS SUPPORTED THROUGH SERVICE AREA	Access to: • Ethernet • GSM sim • Charger system reset • Charger configuration reset • Protection manipulation • RCD protection test button (pressed once per year)	●
CLEANING PROCEDURE	• Cloth • Water – no alcohol	●

POWER MANAGEMENT

ECONOMIC/PRICE OPTIMIZATION	• Based on energy tariffs • Household RES production (example: solar)	Optional
PREVENT OVERLOADING MAIN FUSE –GRID CONNECTION POINT	By using Load Guard device.	Optional
DEMAND RESPONSE ACTIVATION (BACKEND FUNCTIONALITY)	• Remote power manipulation by DSO • Remote power manipulation by energy supplier	Optional
MANAGING CLUSTER OF CHARGERS	Based on user preferences and current installation's load conditions. *Master-slave relationship with floating master	Optional