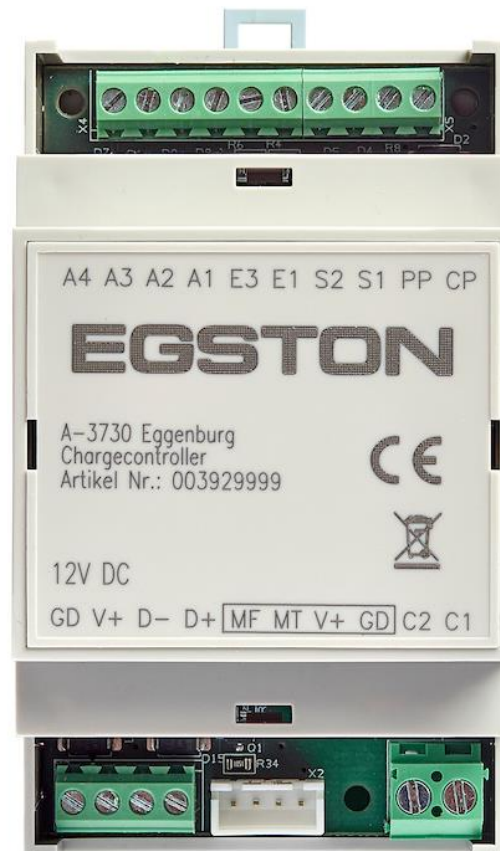


# PRODUCT SPECIFICATION

## Chargecontroller\_S2HKS



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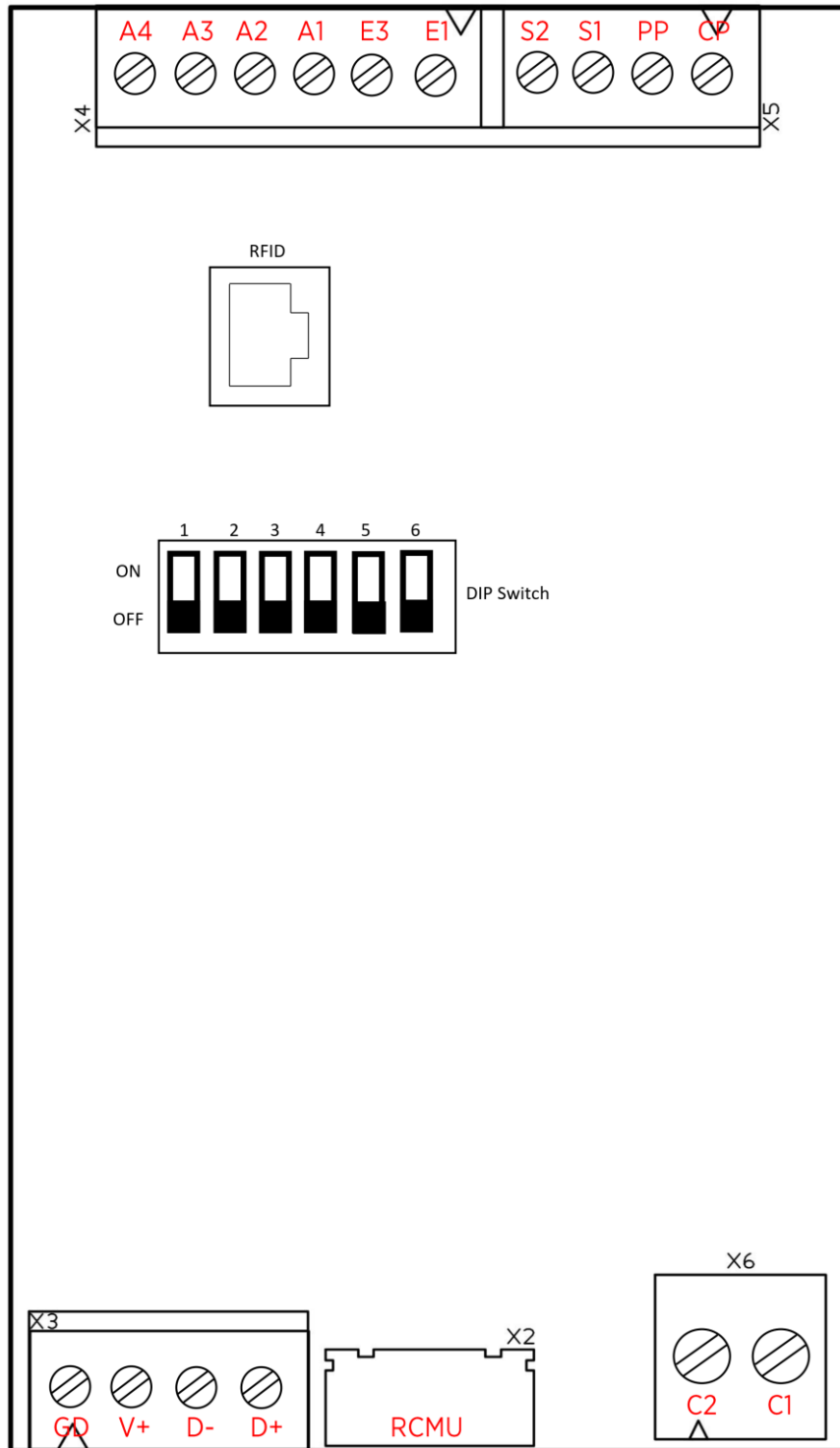
Revision	Date	Author	Change
A	2022-11-10	Mauritz	Initial draft
B	2022-03-23	Trethan	Released version

#### Scope

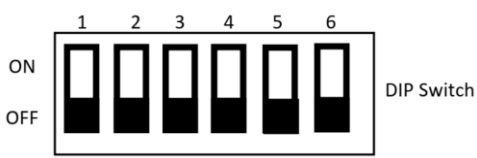
This product is intended to be used inside a wall box charger for electrical cars. It is designed to be mounted on a DIN rail. This product will perform the communication with the car according EN IEC 61851-1 and various interface functions.

Parameter	Symbol	Min	Typ.	Max	Unit	Test Cond.
Specifications are subject to change without any notice.						
Input Voltage	$U_{IN}$	11,5	12	12,5	$V_{DC}$	
Input Current	$I_{IN}$		61	100	mA	without external circuits
<b>Floating relay output C1-C2</b>						
Switching voltage	$U_{SW OUT}$			250	$V_{AC}$	
Switching current	$I_{SW OUT}$			3	A	resistive load
Input impedance (line sense)	$I_{SW OUT}$		660k		$\Omega$	
<b>Analog Input 1,2</b>						
Input voltage	$U_{A IN R}$	0		10	V	Measuring range
	$U_{A IN M}$	0		$U_{IN}$	V	Input range
Impedance	$R_{D IN}$		31k		$\Omega$	(pull-down)
<b>Output LED1,2,3 Lock 1,2 Output 2</b>						
Output voltage	$U_{D OUT}$	0		$U_{IN}$	V	Push-Pull
Output Current	$I_{D OUT}$			+/-200	mA	
Short Term Output Current	$I_{D OUT ST}$			+/-1	A	1s max.
<b>CP</b>						
Output voltage, low	$U_{CP OUT L}$	-12,6	-12	-11,4	V	Acc. EN IEC 61851-1:2018
Output voltage, high	$U_{CP OUT H}$	11,4	12	12,6	V	
Output frequency	$f_{CP OUT}$	980	1000	1020	Hz	
Duty cycle tolerance	$D_{CP OUT}$	-5	0	5	us	
Rise/Fall time	$T_{rg,fg}$			2	us	
Settling time 95%	$T_{sg}$			3	us	
Source Impedance	$R_1$	970	1000	1030	$\Omega$	
<b>PP</b>						
Output voltage	$U_{PP}$		5		V	
Impedance	$R_{PP}$		1k		$\Omega$	Pull-up
<b>General specification</b>						
Operating Temperature	$T_{OP}$	-20		65	$^{\circ}C$	At free convection
Storage Temperature	$T_{ST}$	-40	25	85	$^{\circ}C$	
Operating and Storage Humidity		15		90	%	non condensing
Type of connection		Screw terminals				
Pollution Degree according EN60664-1		PD2				
Over Voltage Category EN60664-1		OVCIII				
Max length of charging cable (EMC)				10	m	
<b>Screw terminals</b>						
Screw terminal C1-C2 max. screw torque				0,4	Nm	
Screw terminal C1-C2 wire size for solid wire		AWG 12-22				
All other screw terminals max. screw torque				0,2	Nm	
All other screw terminals wire size for solid wire		AWG 16-24				

Connection Ports - Overview



Connection Ports		
Port	Function	Description
C1-C2	Contacteur	Relay output charging contactor
C1 is also used to monitor mains voltage and must be connected to the live conductor		
RCMU	RCMU	Residual Current Monitoring unit connector
Compatible with Western Automation RCM14-01		
D+/D-	Data	RS485 communication connection
V+	Power	Module supply voltage 12V DC
GD	Ground	System grounding -> connect external with PE
CP	Control pilot	Interface signal for communication with car
PP	Proximity pilot	Control signal for current carrying capacity of connected charging cable
S1-S2	Lock	Output for electromechanical connection locking
E1	Input 1	Digital input for charge enable
Charge is enabled by either Input 1 or RFID card reader		
E3	Input 2	Analog input for charge current
A1	Output 1	RGB-LED canal R
A2	Output 2	RGB-LED canal G
A3	Output 3	RGB-LED canal B
A4	Output 4	Digital output 4
Function according configuration memory		
X1	RFID	Connector for RFID Reader

DIP Switch settings		
		
<b>1</b>	<b>2</b>	<b>Operating mode and RFID</b>
ON	ON	Teach RFID Master card - all stored cards are deleted
OFF	ON	Standalone - charge pause below minimum current
ON	OFF	Standalone - always deliver at least minimum current
OFF	OFF	Modbus operation, E1 and E3 ignored and function controlled by modbus
<b>3</b>	<b>4</b>	<b>Modbus address</b>
ON	ON	3
OFF	ON	2
ON	OFF	1
OFF	OFF	Use modbus address from configuration memory (default 4)
<b>5</b>	<b>6</b>	<b>Maximum current</b>
ON	ON	32A
OFF	ON	20A
ON	OFF	16A
OFF	OFF	Use current from configuration memory (default 13A)

### Connections



Conformity with the relevant EU directives.

### Marking plate



### Standards and test marks

The unit has following approvals:

EN 61858-1/ IEC 61858-1 (Partial approval -> Only Wall Box itself can fulfill complete standard)

EN 61000-6-1

EN 61000-6-3

IEC 61000-6-1

IEC 61000-6-3

used in conjunction with test levels according to

IEC 61851-21-2

RoHS , REACH compliance

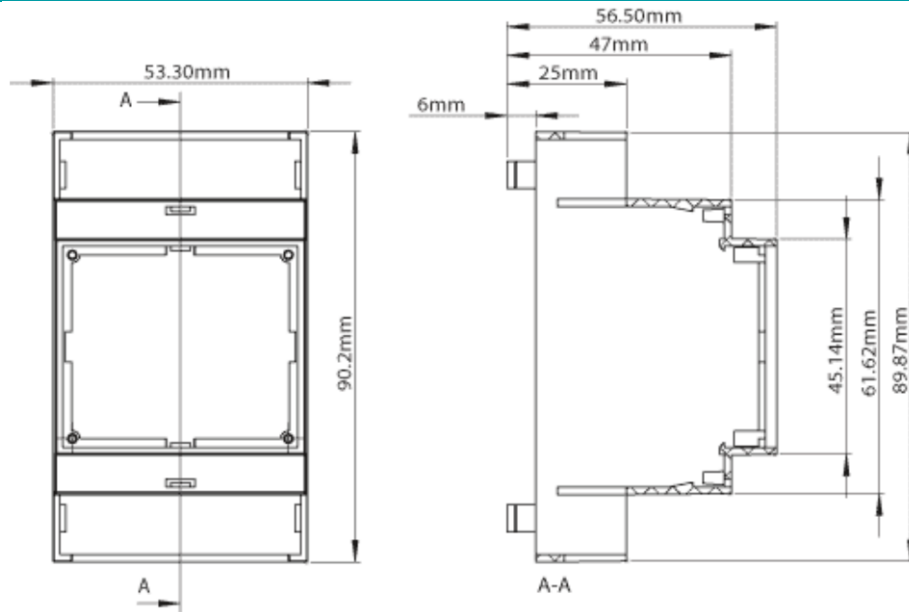
### Description of symbols from marking plate

RoHS conform

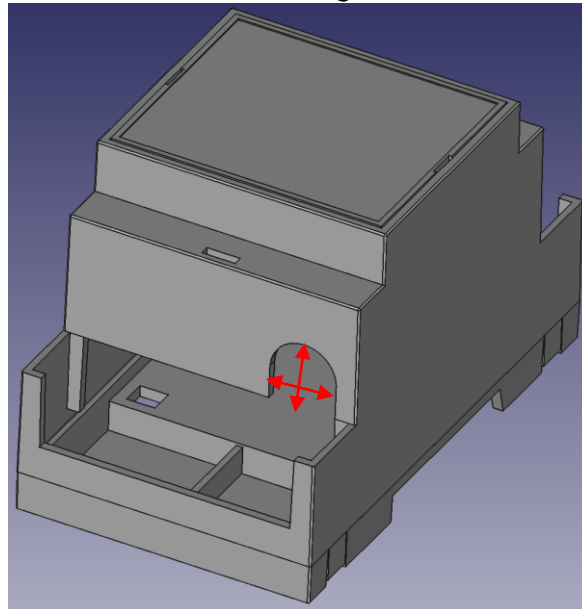


The product has to be disposed appropriately according the local regulations for Waste Electrical and Electronic Equipment.

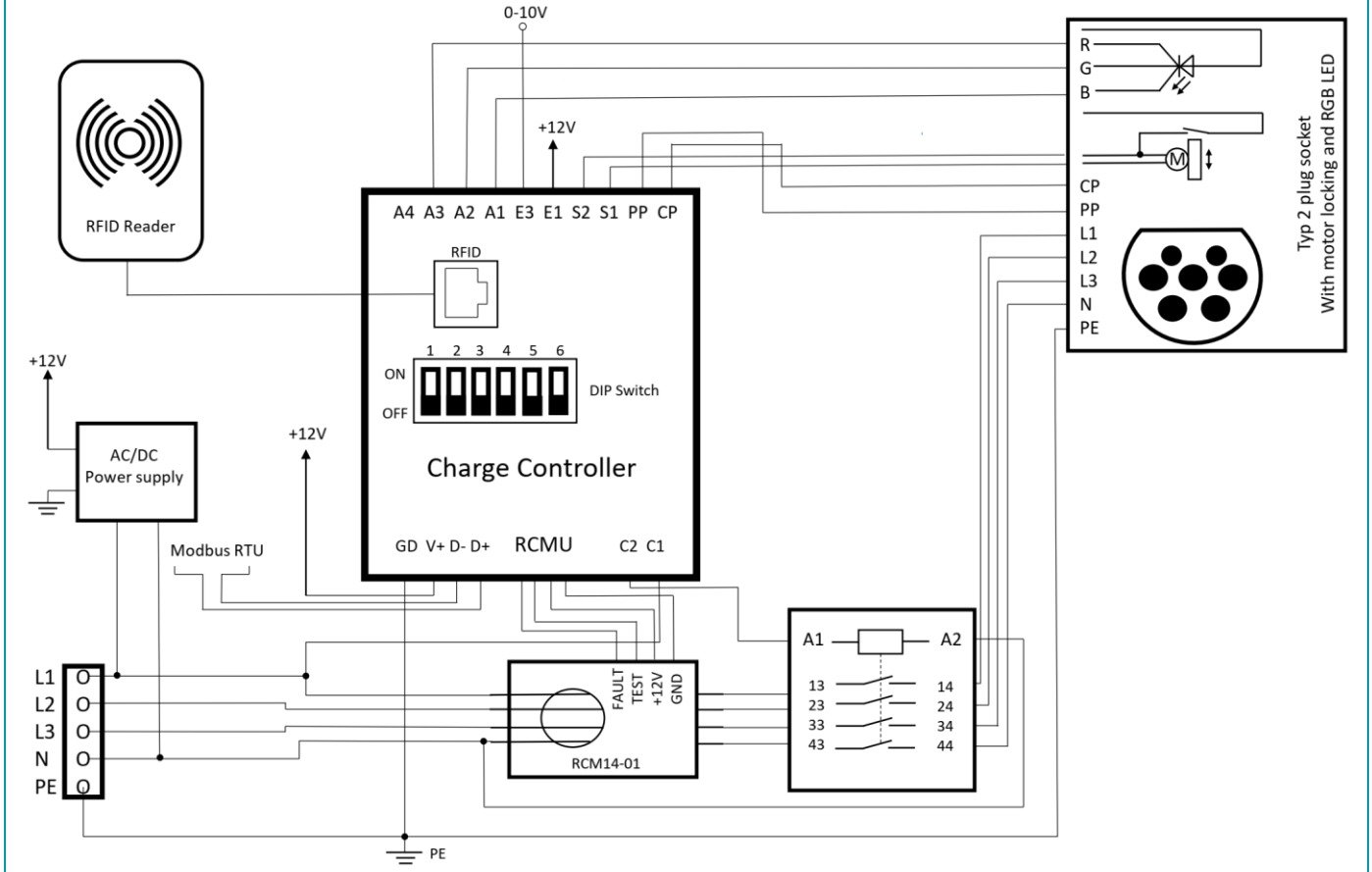
Housing and Dimensions	
Housing Type	Similar or equal to D3MG GAINTA
Main sizes of housing	Y: 90.2mm; X: 53.3mm; Z: 57.5mm
IP protection	This module itself has no IP protection - to reach the required IP protection suitable outer housing is necessary



Cut out in housing: 12x12mm:

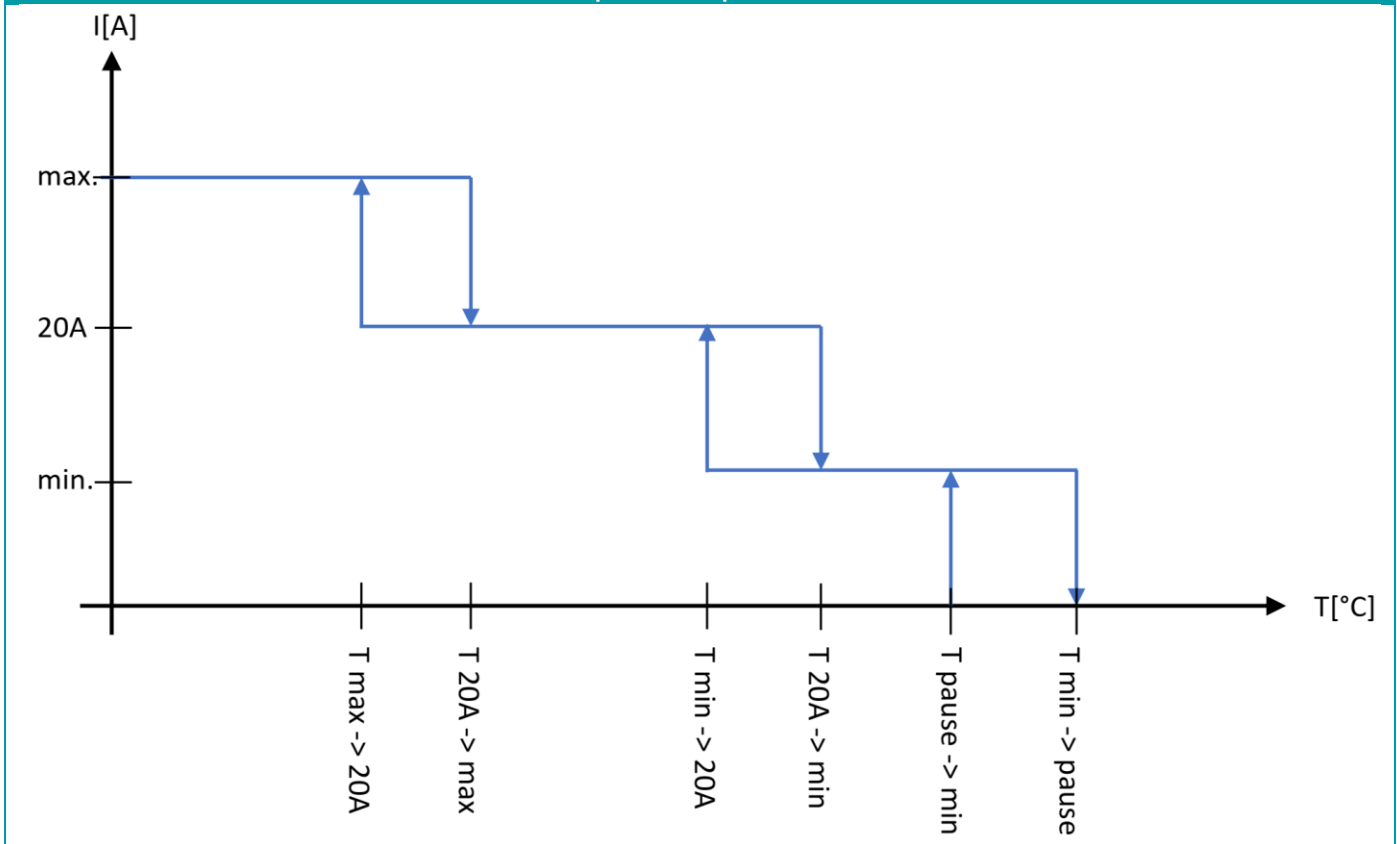


Example Configuration





### Temperature protection



### Software

Please refer to the separate software specification.