KEBA KeContact P30

Installation of a local load management (Master-slave charging solution)

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KeContact P30 | Equipment series

Master-Slave-charging solution with x- and c-series

			WLAN communication for the wireless integration of wallboxes in an existing network
			Mobile communication 4G/LTE for wireless communication to OCPP backend*
			Communication to external energy meter via modbus TCP
			Offline logging of charging sessions (up to 3 months)
		Display (freely programmable)	Display (freely programmable)
		Local load management as a slave	Local load management as a master
		OCPP communication as a slave	OCPP communication as a master
		Slave for Master/Slave communication	Master for Master/Slave communication
		UDP interface (smart home automation)	UDP interface (smart home automation)
		Ethernet interface for permanent installation (LSA+)	Ethernet interface for permanent installation (LSA+)
		Energy meter for the billing of energy consumption: MID-certified / compliant with measuring and calibration laws*	Energy meter for the billing of energy consumption: MID-certified / compliant with measuring and calibration laws*
		Energy meter	Energy meter
	Power monitoring	Power monitoring	Power monitoring
	Authorization (RFID, Key)*	Authorization (RFID)*	Authorization (RFID)*
	Enable input / Switch output	Enable input / Switch output	Enable input / Switch output
	Customizing / branding**	Customizing / branding**	Customizing / branding**
DC leakage detection	DC leakage detection	DC leakage detection	DC leakage detection
Ethernet interface (RJ45)	Ethernet interface (RJ45)	Ethernet interface (RJ45)	Ethernet interface (RJ45)
USB interface	USB interface	USB interface	USB interface
LED strip for status information	LED strip for status information	LED strip for status information	LED strip for status information
e-series	**b-series**	**c-series**	**x-series**
Single phase up to 32A (7,4kW)	Three phase up to 32A (22kW)	Three phase up to 32A (22kW)	Three phase up to 32A (22kW)

- **e-series:** entry-level version of the KeContact P30; offers simple, cost-effective charging with a capacity of up to 7.4 kW
- **b-series:** high degree of branding customization; ability to set user permissions; charging capacity of up to 22 kW for faster charging
- **c-series:** features MID-certified, intelligent charging, smart home integration
- **x-series:** comprehensive e-mobility solutions such as local load management can be effectively deployed

* Optional
** Quantity-dependent
Due to technical or legal restrictions, not all variants/options are available in all combinations.

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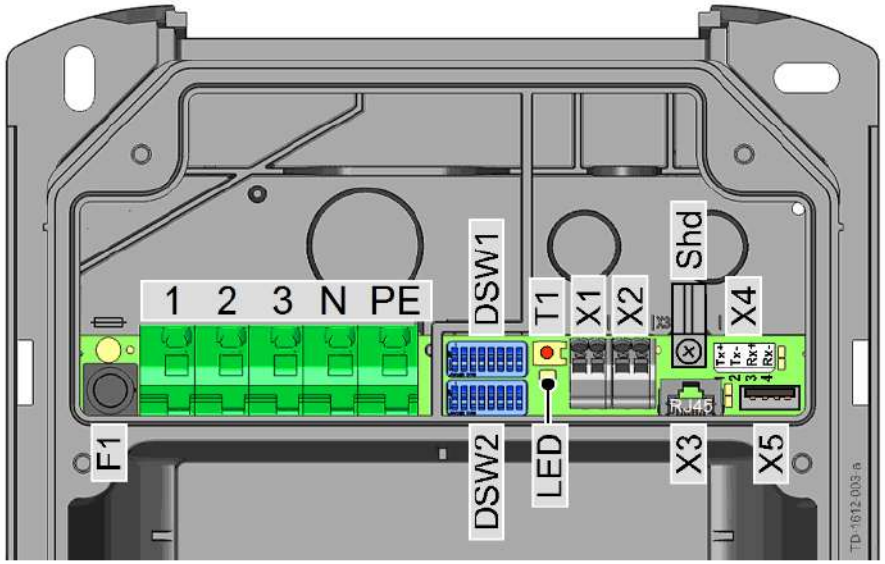
KeContact P30 | Installation

Connections and wiring



1	... Mains connection phase conductor 1	T1	... Service button
2	... Mains connection phase conductor 2	LED	... Status LED (internal)
3	... Mains connection phase conductor 3	X1	... Enable input
N	... Mains connection N conductor	X2	... Switch contact output
PE	... Mains connection PE conductor	X3	... Ethernet2 connection (RJ45)
F1	... Fuse holder	X4	... Ethernet1 connection (LSA+ terminals)
DSW1	... DIP switch configuration	X5	... USB connection (P30 only)
DSW2	... DIP switch addressing	Shd	... Ground for Ethernet1 connection terminals

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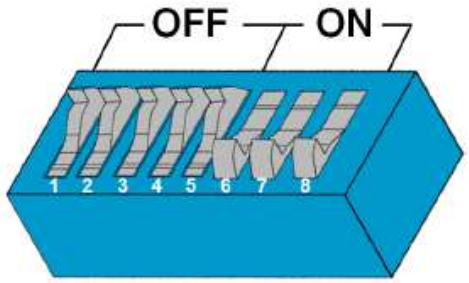
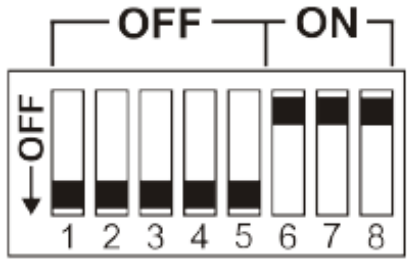
KeContact P30 | Settings and configuration

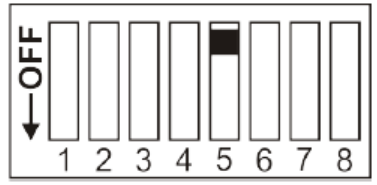
DIP switch settings





- The basic configuration of the charging station takes place using the DIP switches.
- The illustration on the left shows the position of for the ON and OFF setting.
- Changes to the DIP switch settings only become effective after a restart of the charging station! To do this, press the service button for 1 second or switch the power supply voltage off/on

Activation communication - DSW2.5

DIP switch	Function	Illustration
DSW2.5	Activation of communication in the charging network. This DIP switch setting must be made for each master and slave charging station to enable charging station communication.	

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KeContact P30 Master-slave charging solution

- A **master/slave** network makes charging with an intelligent load management possible.
- **Master:** P30 x-series
  Slave: P20/P30 c-series
- Connection to OCPP backend possible
- **Network interfaces:**
  - LAN
  - Wi-Fi (optional at MID)
  - Wi-Fi access point (optional at MID)
  - 4G/LTE (optional)

If the wall box is part of a master-slave network, then the connection to the router/switch must always be via LAN!

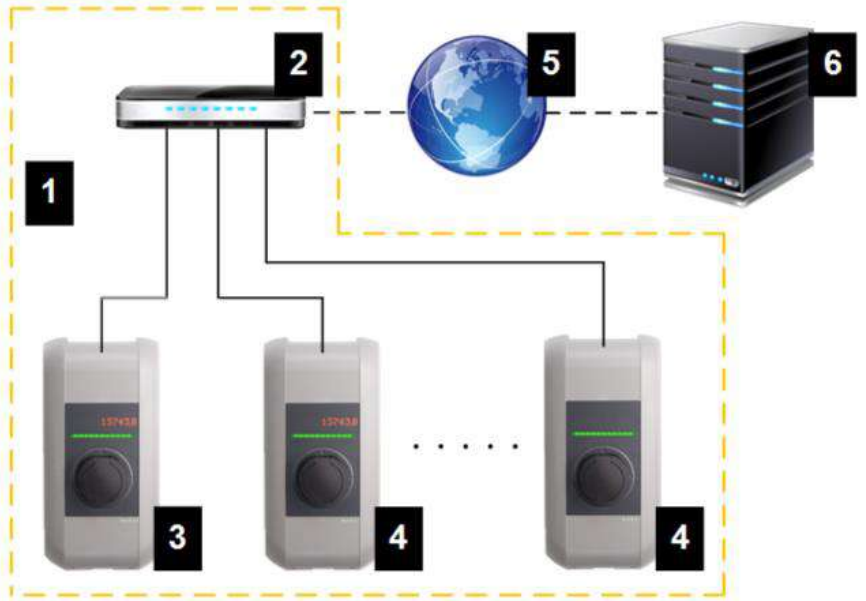

Illustration 2-2: Example network setup

1 ... Local charging network	2 ... Router/Switch
3 ... Master charging station (x-series)	4 ... Slave charging station (c-series)
5 ... Higher-level network/Internet	6 ... OCPP backend

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KeContact P30 x-series | Configuration

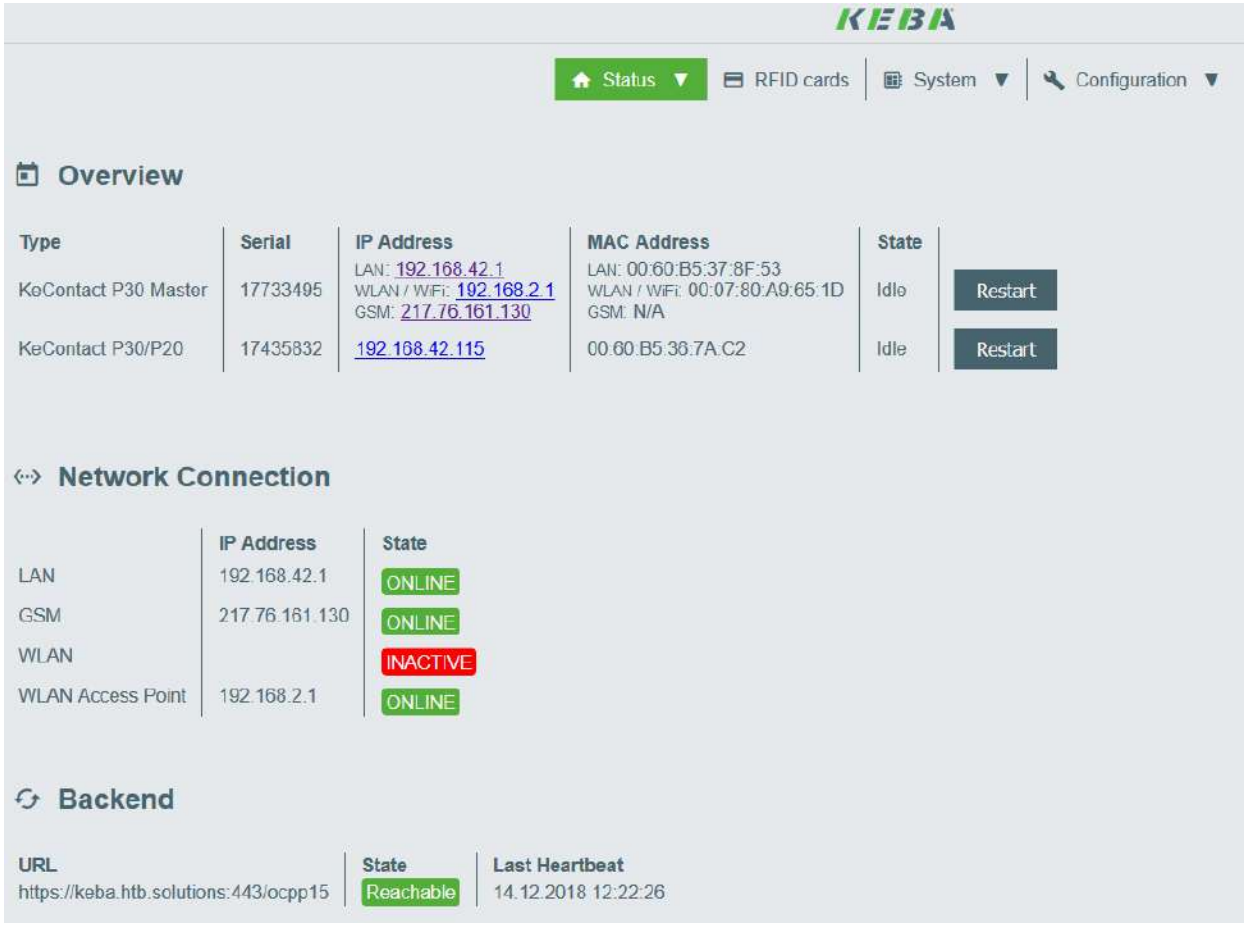
Configuration via web interface

The main menu is divided into the following areas:

- Status
- Charging sessions
- RFID cards
- System
- Configuration

Status

- Overview
- Network connection
- Backend



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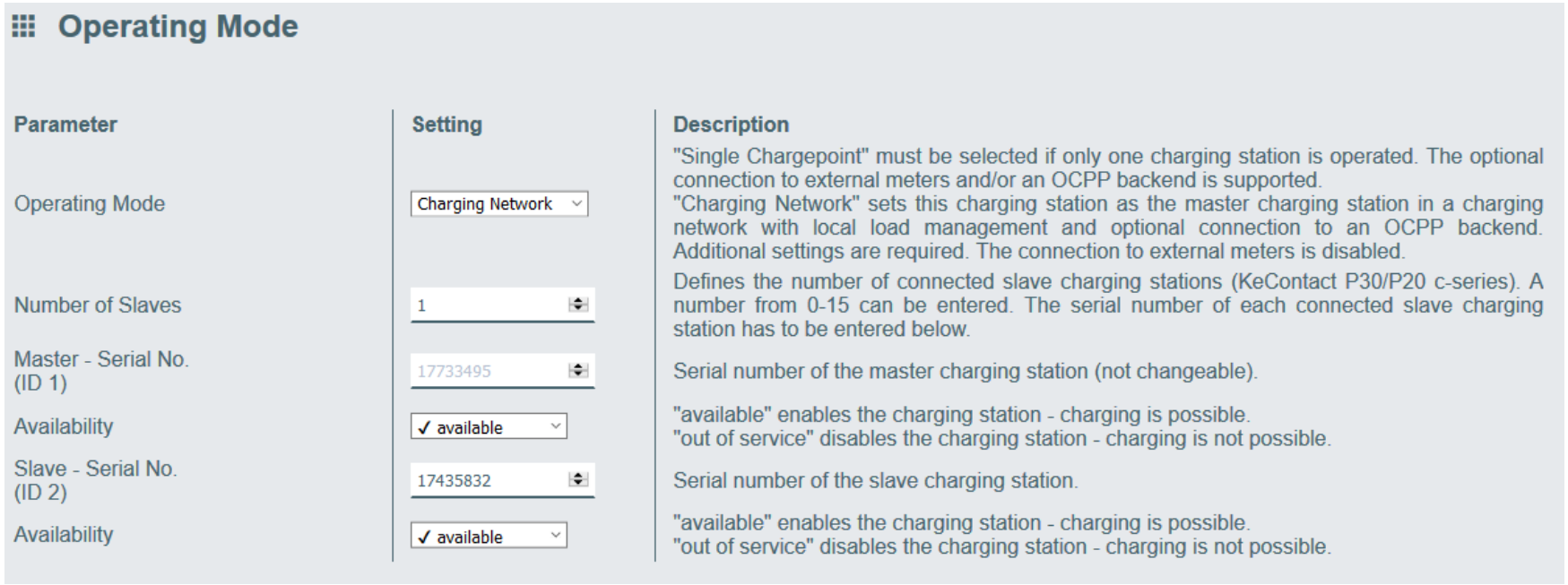
KeContact P30 x-series | Configuration

Configuration via web interface

Configuration:

- Operating mode
- Device
- Phase assignment
- Charging parameters
- Network connection
- Certificates
- WLAN access point
- OCPP
- Display text



Operating Mode

Parameter	Setting	Description
Operating Mode	Charging Network	"Single Chargepoint" must be selected if only one charging station is operated. The optional connection to external meters and/or an OCPP backend is supported. "Charging Network" sets this charging station as the master charging station in a charging network with local load management and optional connection to an OCPP backend. Additional settings are required. The connection to external meters is disabled.
Number of Slaves	1	Defines the number of connected slave charging stations (KeContact P30/P20 c-series). A number from 0-15 can be entered. The serial number of each connected slave charging station has to be entered below.
Master - Serial No. (ID 1)	17733495	Serial number of the master charging station (not changeable).
Availability	✓ available	"available" enables the charging station - charging is possible. "out of service" disables the charging station - charging is not possible.
Slave - Serial No. (ID 2)	17435832	Serial number of the slave charging station.
Availability	✓ available	"available" enables the charging station - charging is possible. "out of service" disables the charging station - charging is not possible.

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KeContact P30 x-series | Configuration

Configuration via web interface

Configuration:

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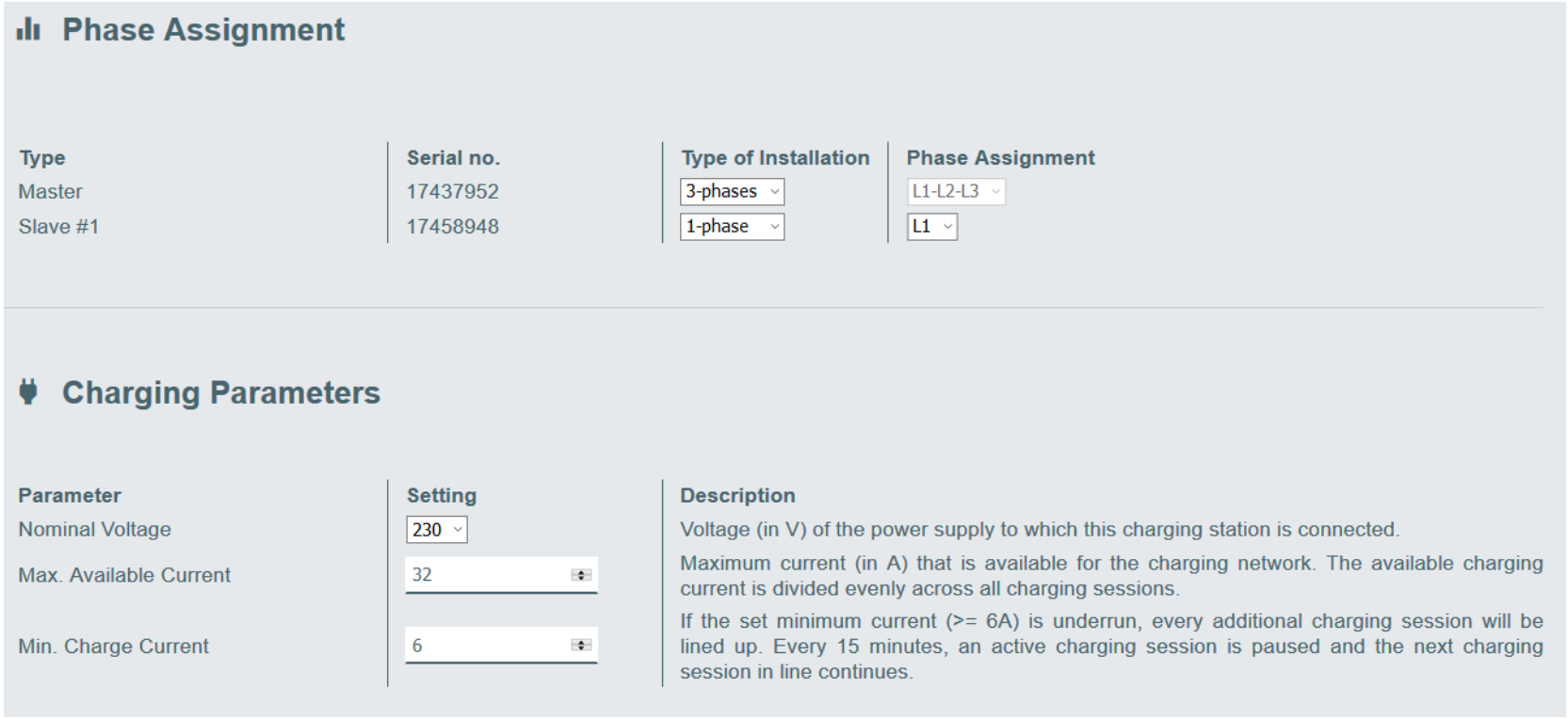

Phase Assignment

Type	Serial no.	Type of Installation	Phase Assignment
Master	17437952	3-phases	L1-L2-L3
Slave #1	17458948	1-phase	L1

Charging Parameters

Parameter	Setting	Description
Nominal Voltage	230	Voltage (in V) of the power supply to which this charging station is connected.
Max. Available Current	32	Maximum current (in A) that is available for the charging network. The available charging current is divided evenly across all charging sessions.
Min. Charge Current	6	If the set minimum current (>= 6A) is underrun, every additional charging session will be lined up. Every 15 minutes, an active charging session is paused and the next charging session in line continues.

- Phase assignment selects the connection type of the charging station.
- For charging parameters, the supply voltage of the charging station is selected and the current limits for the charging network are set.

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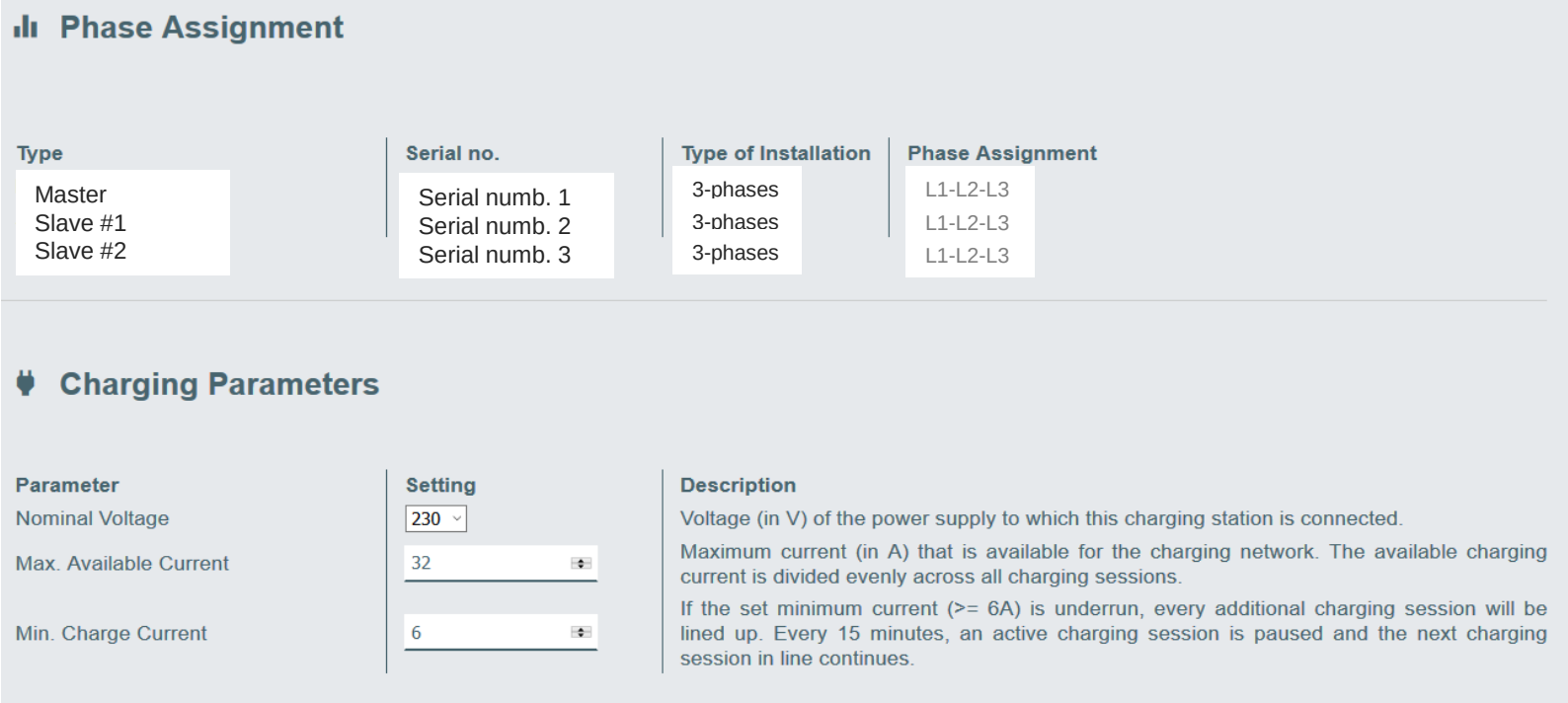
KeContact P30 x-series | Load management

Use case 1 – Charging in equal distribution mode

Use case 1



Attention: Master and slaves are connected to the grid with all three phases and configured as 3-phase installation type. The configuration must always correspond to the available grid power.

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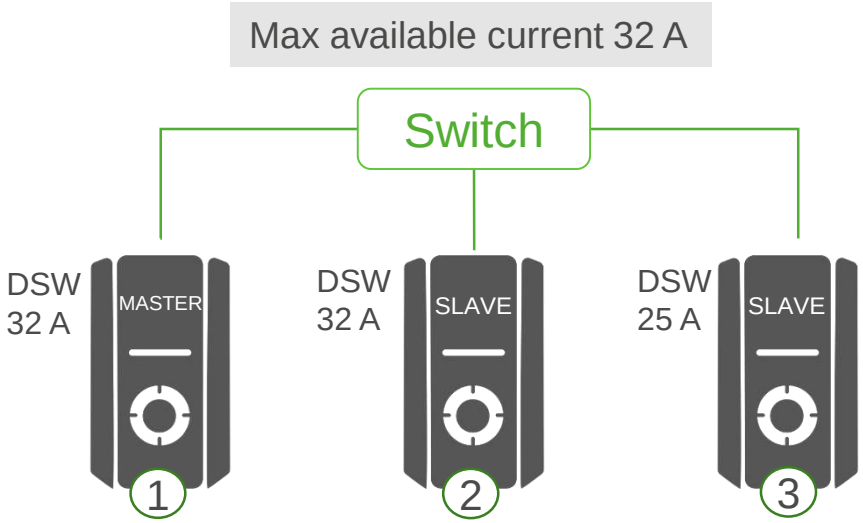
KeContact P30 x-series | Load management

Use case 1 – Charging in equal distribution mode

Use case 1



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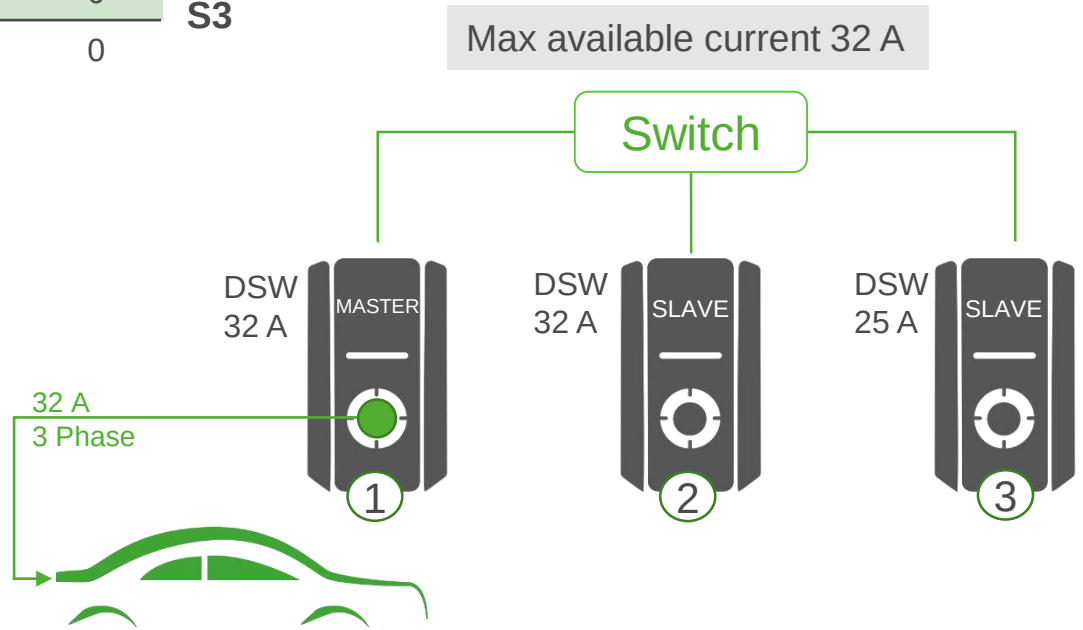
Use case 1 – Charging in equal distribution mode

L1	L2	L3	
32	32	32	**S1**
0	0	0	**S2**
0	0	0	**S3**
0	0	0	



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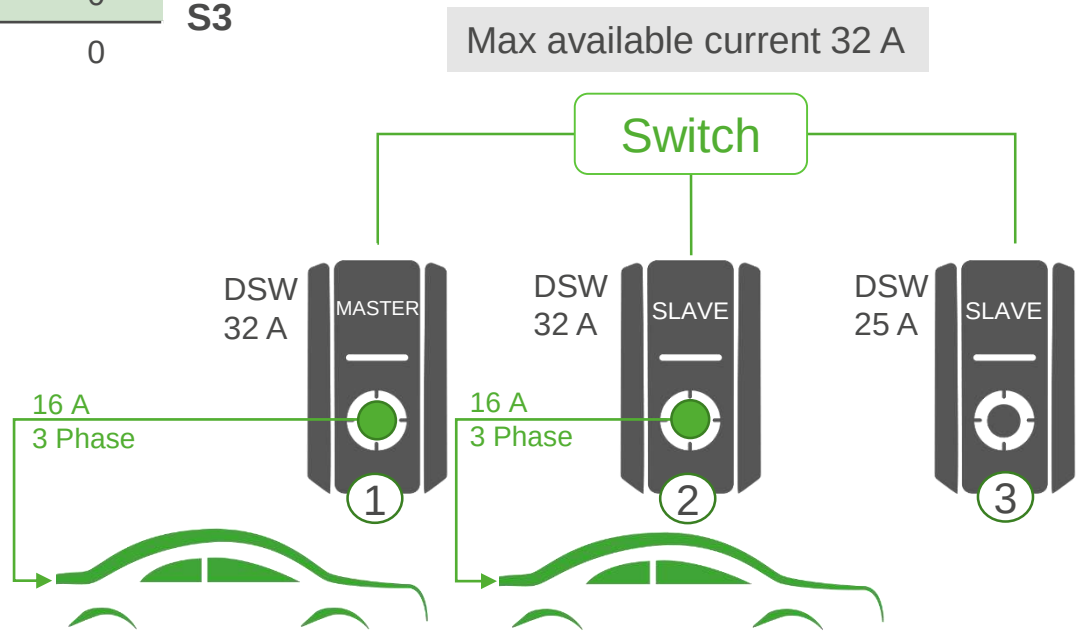
Use case 1 – Charging in equal distribution mode

L1	L2	L3	
16	16	16	**S1**
16	16	16	**S2**
0	0	0	**S3**
0	0	0	



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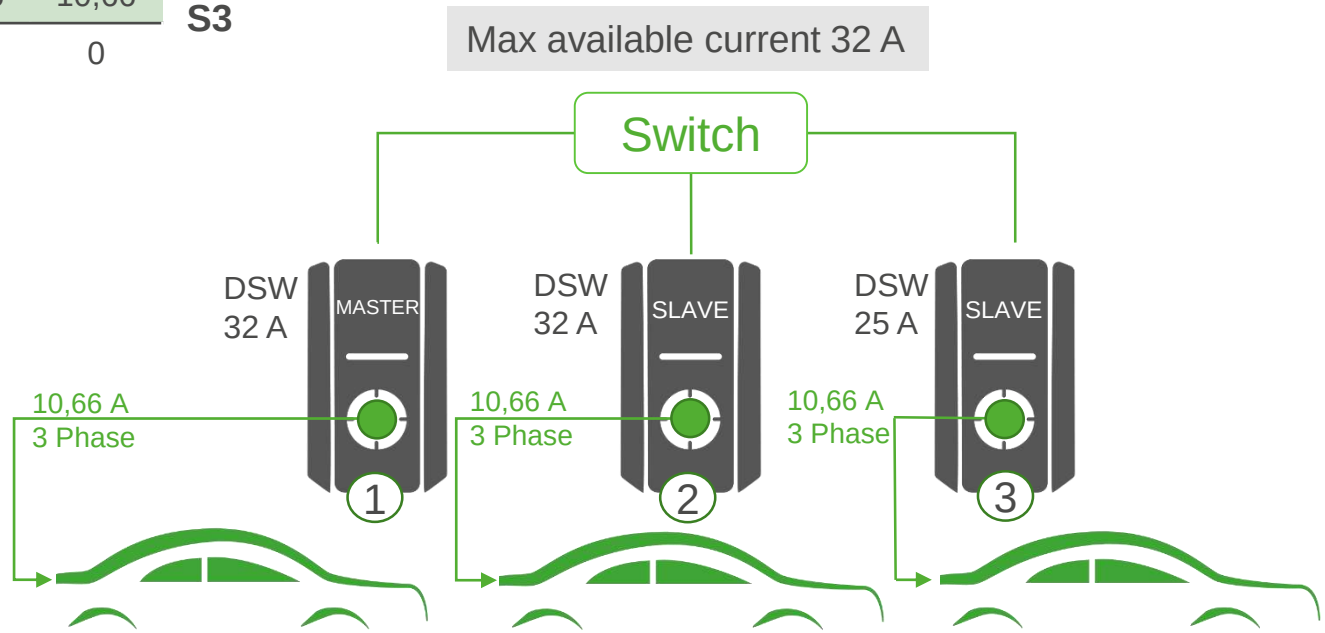
Use case 1 – Charging in equal distribution mode

L1	L2	L3	
10,66	10,66	10,66	**S1**
10,66	10,66	10,66	**S2**
10,66	10,66	10,66	**S3**
0	0	0	



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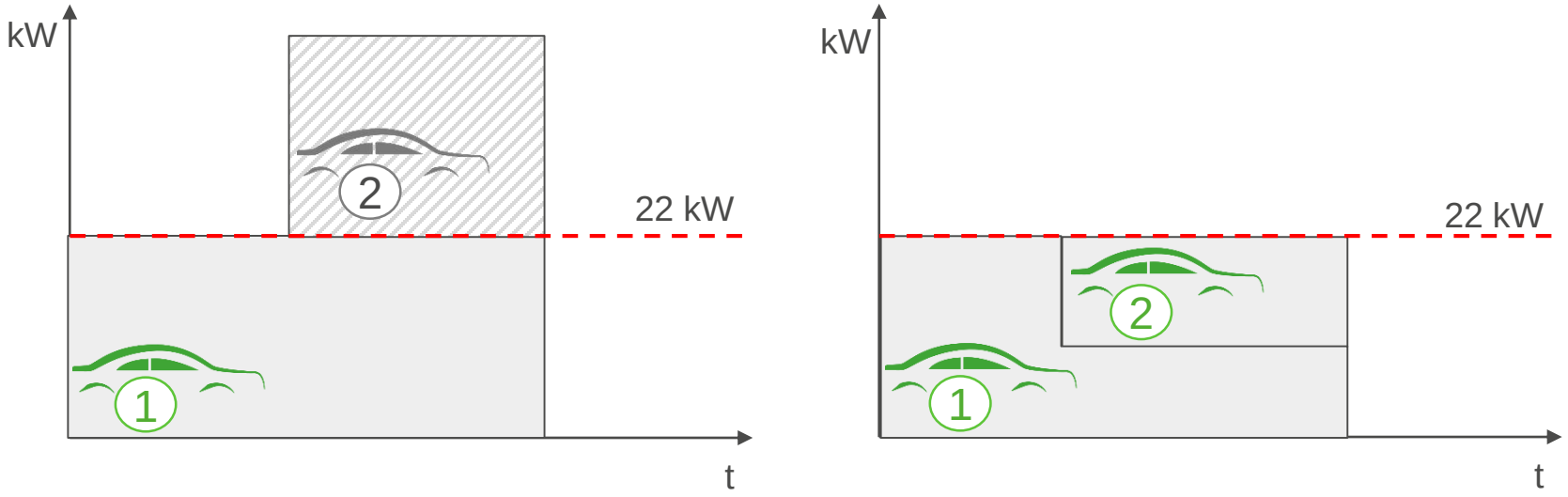
Charging in equal distribution mode



Equal distribution:

- If there is insufficient power available for all connected vehicles, the maximum available current is divided by the number of vehicles connected to the system. All vehicles get an equal amount of current.

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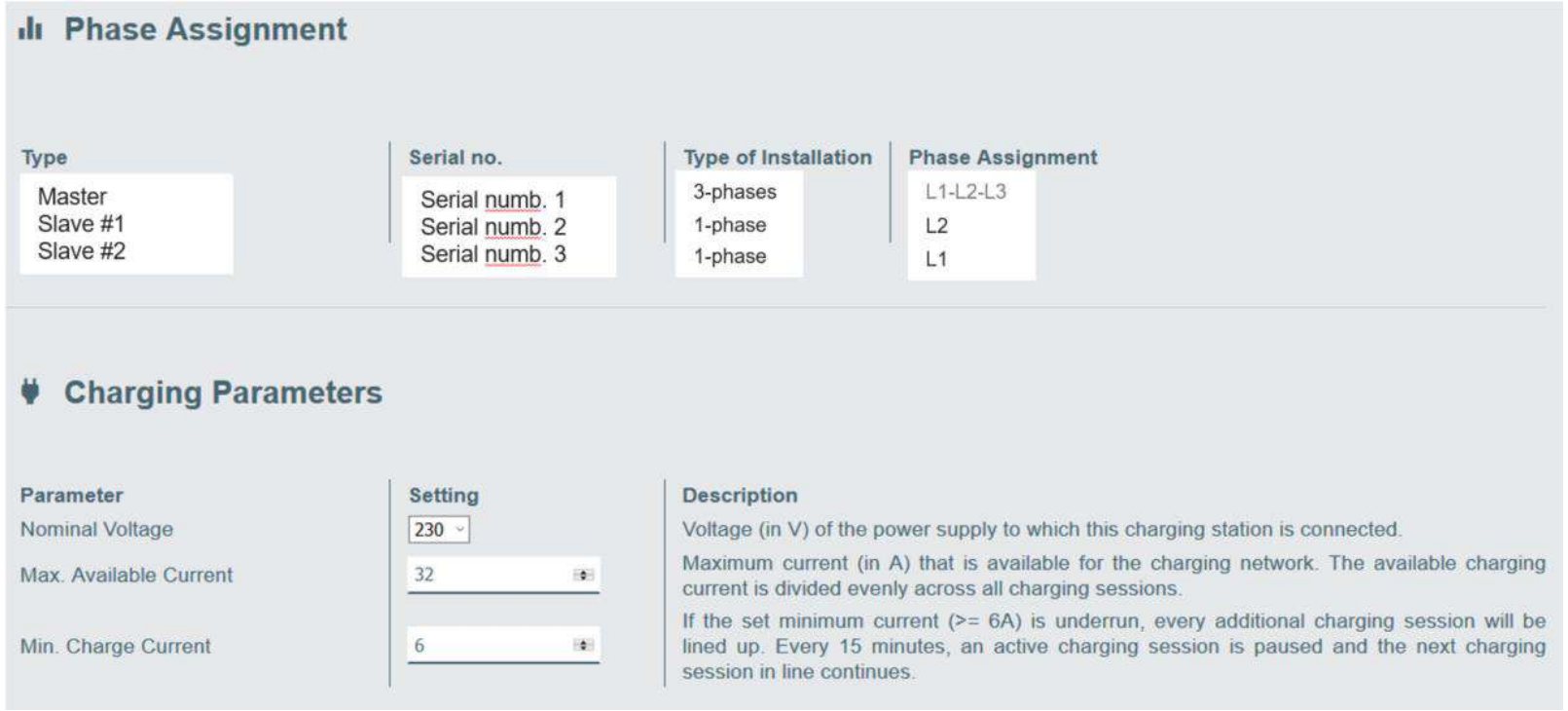
Use case 2 – Charging in equal distribution mode

Use case 2



Attention: The master is connected to the grid with all three phases while the slaves are connected with only one phase. The configuration must always correspond to the available grid power.

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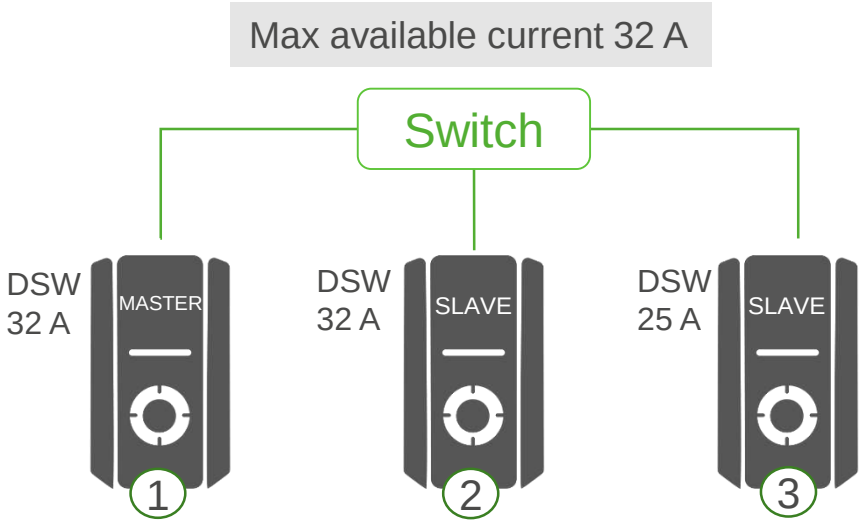
Use case 2 – Charging in equal distribution mode

Use case 2



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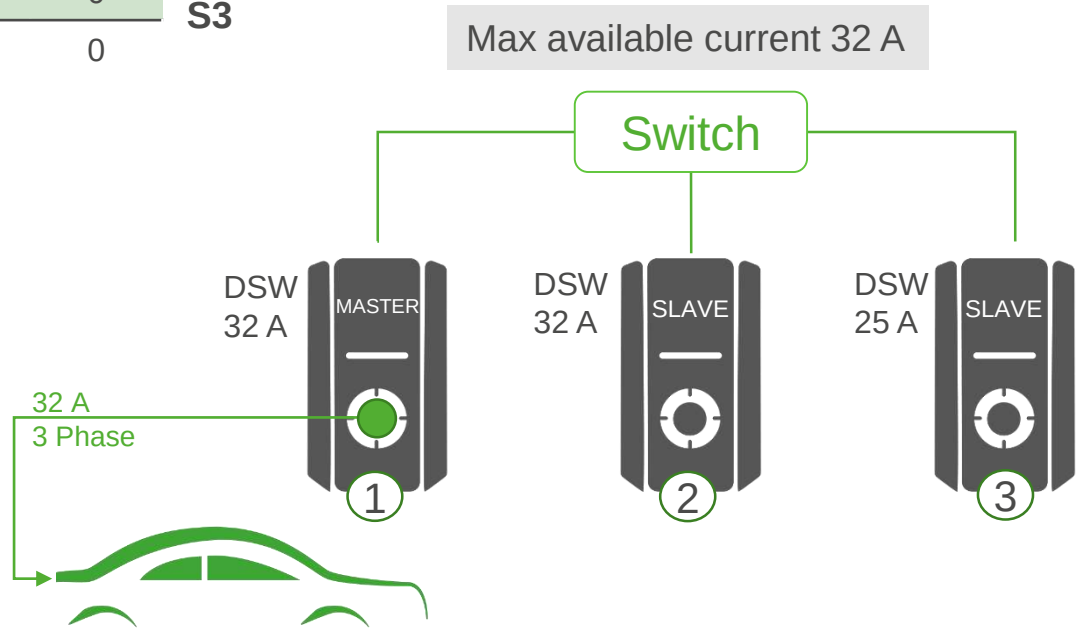
Use case 2 – Charging in equal distribution mode

L1	L2	L3	
32	32	32	**S1**
0	0	0	**S2**
0	0	0	**S3**
0	0	0	



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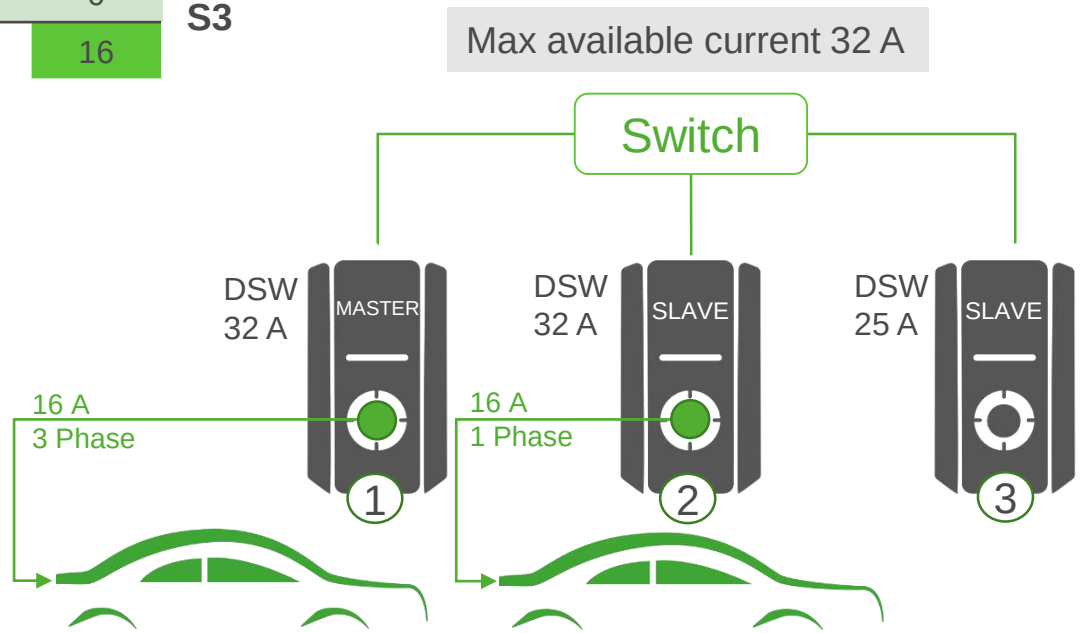
Use case 2 – Charging in equal distribution mode

L1	L2	L3	
16	16	16	**S1**
0	16	0	**S2**
0	0	0	**S3**
16	0	16	

L1 and L3 each still have 16 A available.



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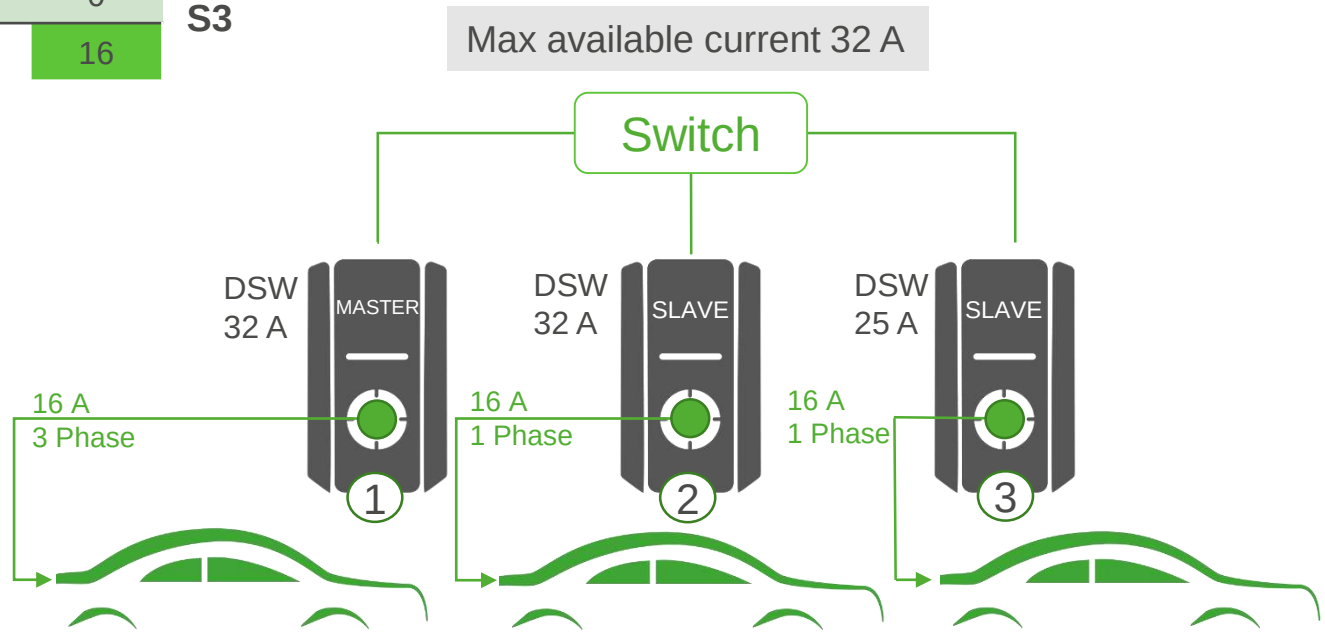
Use case 2 – Charging in equal distribution mode

L1	L2	L3	
16	16	16	**S1**
0	16	0	**S2**
16	0	0	**S3**
0	0	16	

If there were four wall boxes in this example, the fourth wall box would still have 16 A available on L3.



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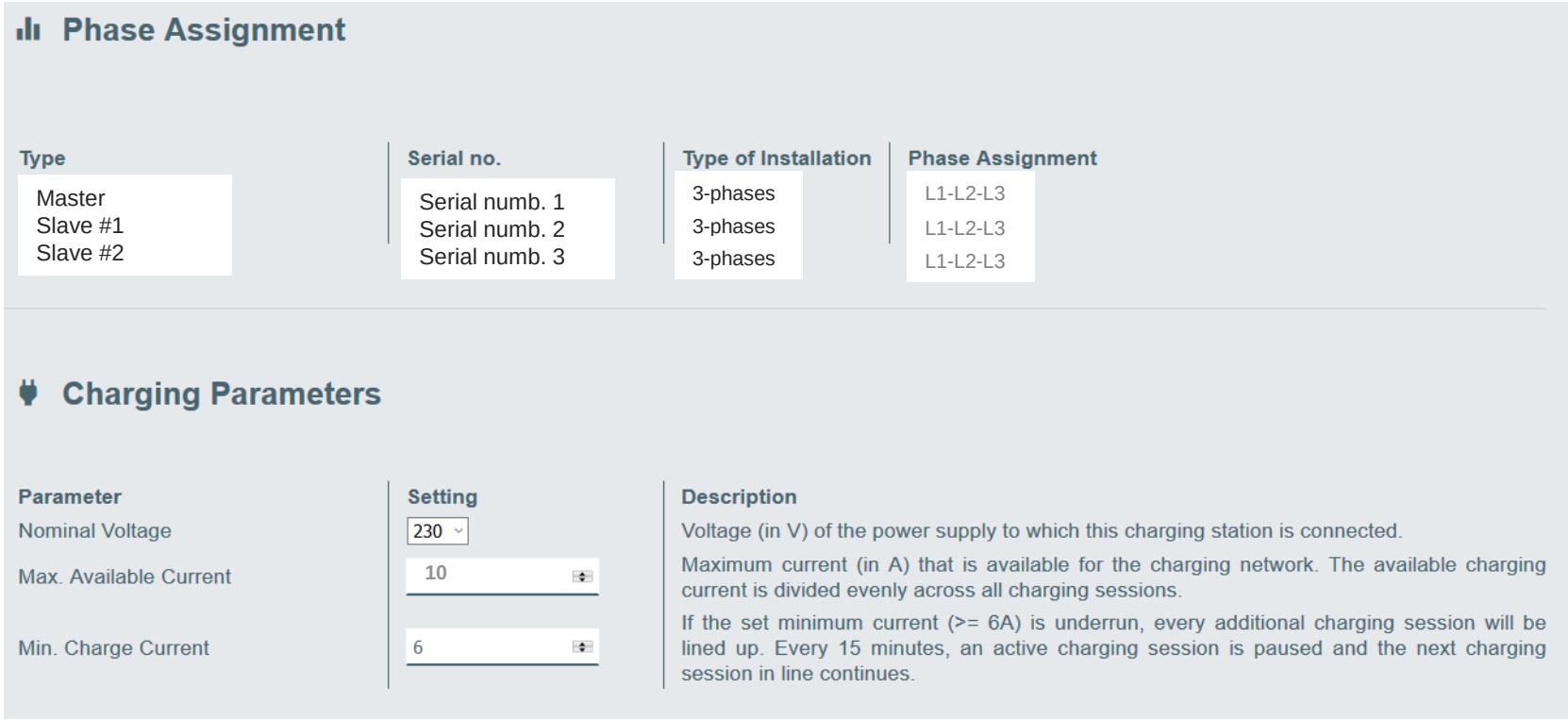
Use case 3 – Pause and rotate when charging current falls below the minimum value

Use case 3



Phase Assignment

Type	Serial no.	Type of Installation	Phase Assignment
Master	Serial numb. 1	3-phases	L1-L2-L3
Slave #1	Serial numb. 2	3-phases	L1-L2-L3
Slave #2	Serial numb. 3	3-phases	L1-L2-L3

Charging Parameters

Parameter	Setting	Description
Nominal Voltage	230	Voltage (in V) of the power supply to which this charging station is connected.
Max. Available Current	10	Maximum current (in A) that is available for the charging network. The available charging current is divided evenly across all charging sessions.
Min. Charge Current	6	If the set minimum current (>= 6A) is underrun, every additional charging session will be lined up. Every 15 minutes, an active charging session is paused and the next charging session in line continues.

The minimum charging current is 6 A for most electric vehicles. This is also the setting for this example.

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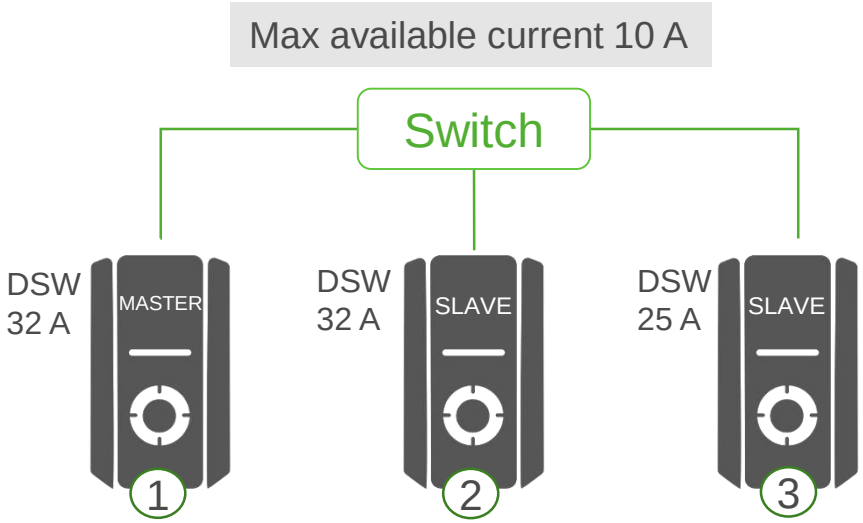
Use case 3 – Pause and rotate when charging current falls below the minimum value

Use case 3

The lowest maximum current value available in this example is 10 A. This is also the reference value for the calculation.



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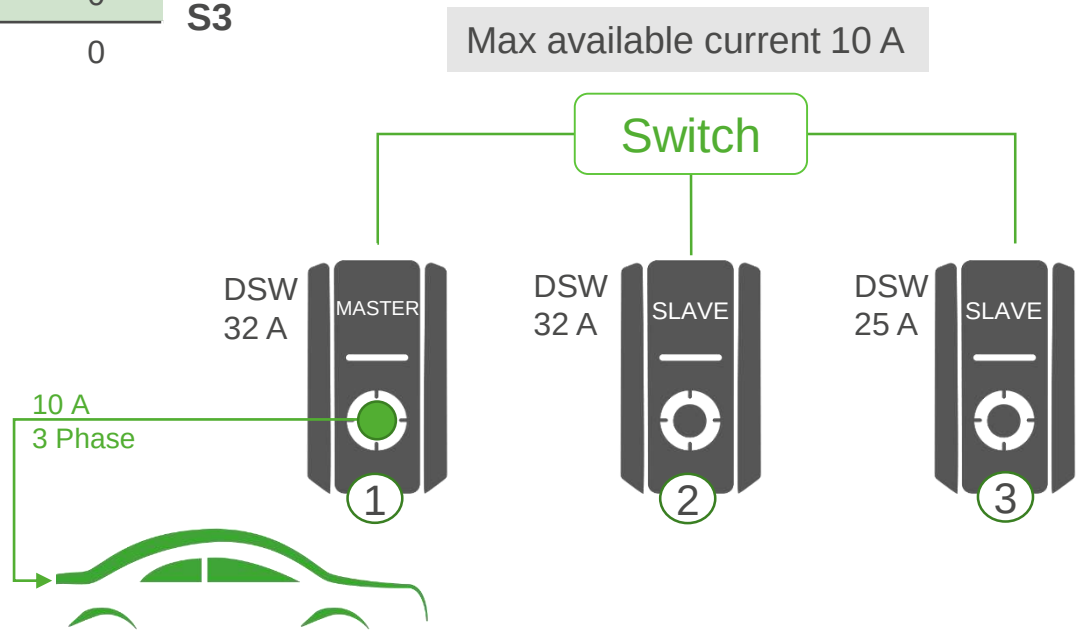
Use case 3 – Pause and rotate when charging current falls below the minimum value

L1	L2	L3	
10	10	10	**S1**
0	0	0	**S2**
0	0	0	**S3**
0	0	0	



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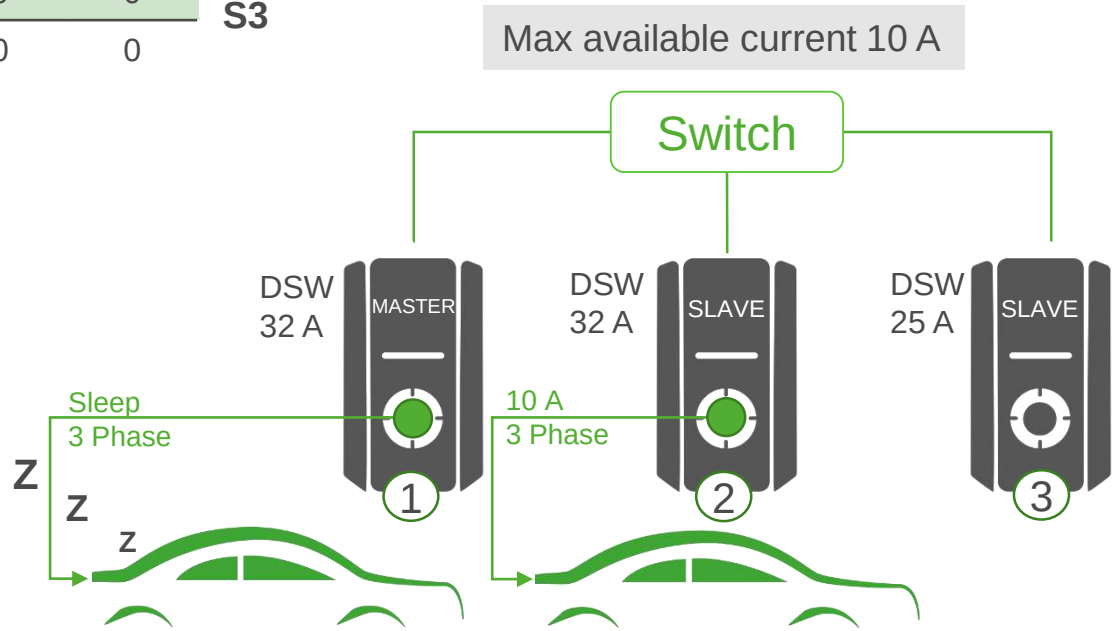
Use case 3 – Pause and rotate when charging current falls below the minimum value

L1	L2	L3	
0	0	0	**S1**
10	10	10	**S2**
0	0	0	**S3**
0	0	0	

10 ÷ 2 = 5 < 6 A Minimum current. This leads to rotation of the charging sequence. The master sets S1 to sleep mode.



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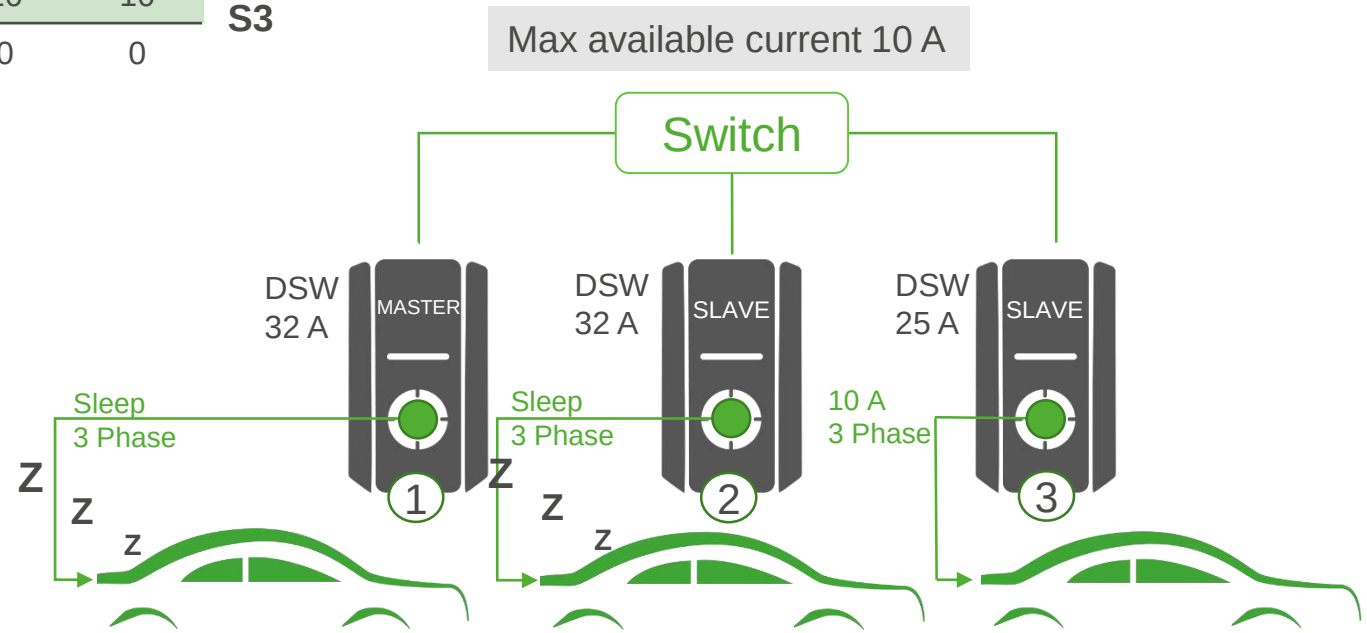
Use case 3 – Pause and rotate when charging current falls below the minimum value

L1	L2	L3	
0	0	0	**S1**
0	0	0	**S2**
10	10	10	**S3**
0	0	0	



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