Omnicharge 40A-90A Parallel Kit / Installation and operating manual

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⚡ **WARNING**

This manual is an addition to the main owner's manual that is supplied with each battery charger. Only the information relevant for parallel connection of multiple battery chargers, is provided by this manual. For all other installation and operating information, please consult the main owner's manual!

Connecting multiple battery chargers in parallel to a single battery bank, enables charging at very high current levels. Up to 6 battery chargers of the following models can be connected in parallel:

- Omnicharge OC12-90
- Omnicharge OC24-50
- Omnicharge OC24-80
- Omnicharge OC48-40

The parallel feature only works when 6 battery chargers <u>of the same model</u> are connected to each other. Each parallel system consists of <u>one master</u> charger and <u>one or more slave</u> chargers. The slaves are controlled by the master, through the communication cable provided in this kit.

## Setting up the chargers for parallel operation

Before connecting the chargers to the mains supply and the batteries, some internal switches need to be set up correctly. Two switches inside the battery charger are important for parallel operation, the rotary selector switch and the master/slave slide switch.

In the master battery charger, the slide switch should be set to 'MASTER' as indicated below:
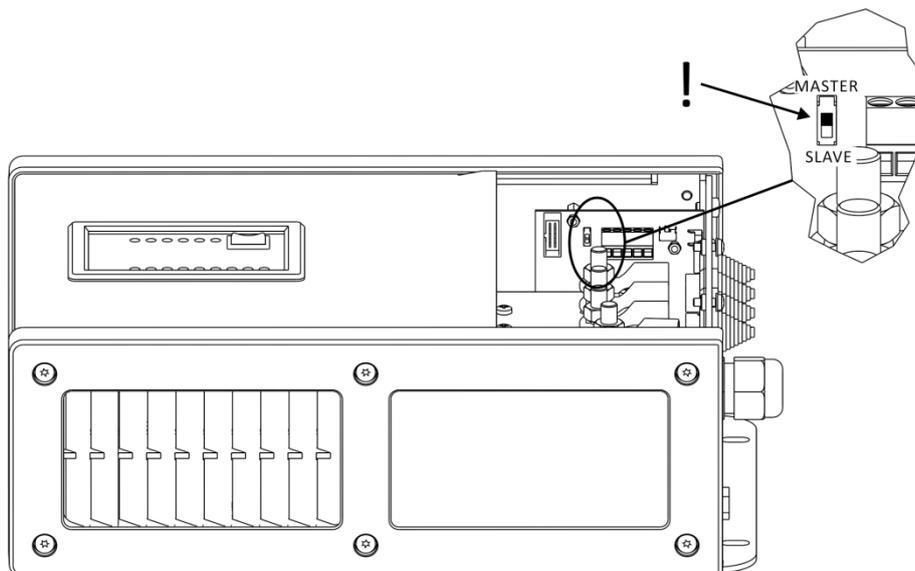
The rotary selector switch of the master battery charger has the same functionality as when used in a stand-alone installation. It just selects the right charge program for your battery.

In a slave battery charger, the slide switch should be set to 'SLAVE' as indicated below:
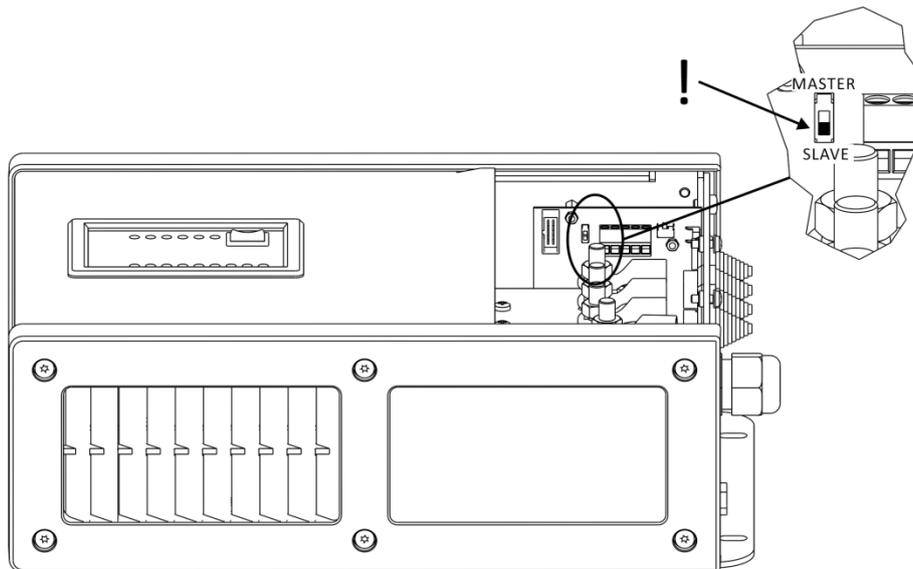
The rotary selector switch of a slave acts as an 'address' selector now. Each slave should use a unique address number. Since a maximum of 6 chargers (1 master and 5 slaves) are allowed in a parallel system, addresses 0, 1, 2, 3 and 4 can be selected. So when a parallel system of 3 battery chargers is installed, slave 1 should be set to address '0' and slave 2 to address '1'. Please see the image below for the location of the rotary selector switch of a slave charger set to '0'.
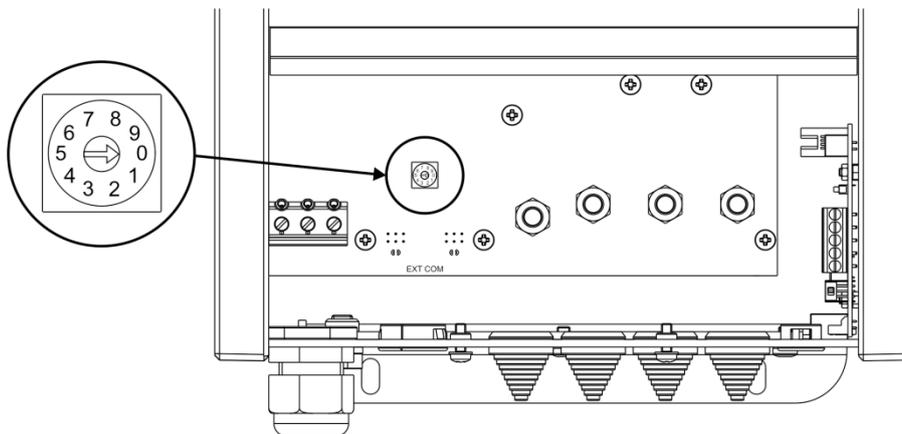
Wiring the chargers for parallel operation

First, we will explain the connection of the parallel communication cable. One cable is needed for each additional charger that will be placed in parallel. So for a system containing three chargers in parallel, two parallel communication cables are needed. Please see the image below for the location of the communication cable connectors:

FRONTVIEW OF COMMUNICATION CABLE CONNECTORS

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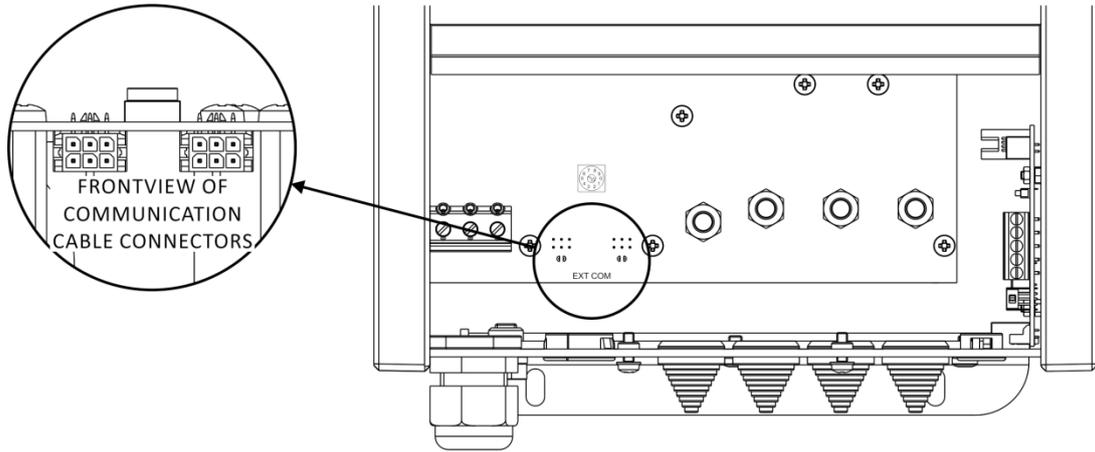
You are allowed to use any of the two communication cable connectors, since these are wired in parallel on the PCB anyway. Once the parallel communication cables are installed, we can start making the AC and DC connections.

⚠ **WARNING**

Please make sure that each AC circuit breaker is set to OFF and that the DC (battery-) fuse is not placed yet!

The image below shows the AC and DC cabling for a typical installation containing three battery chargers in parallel:
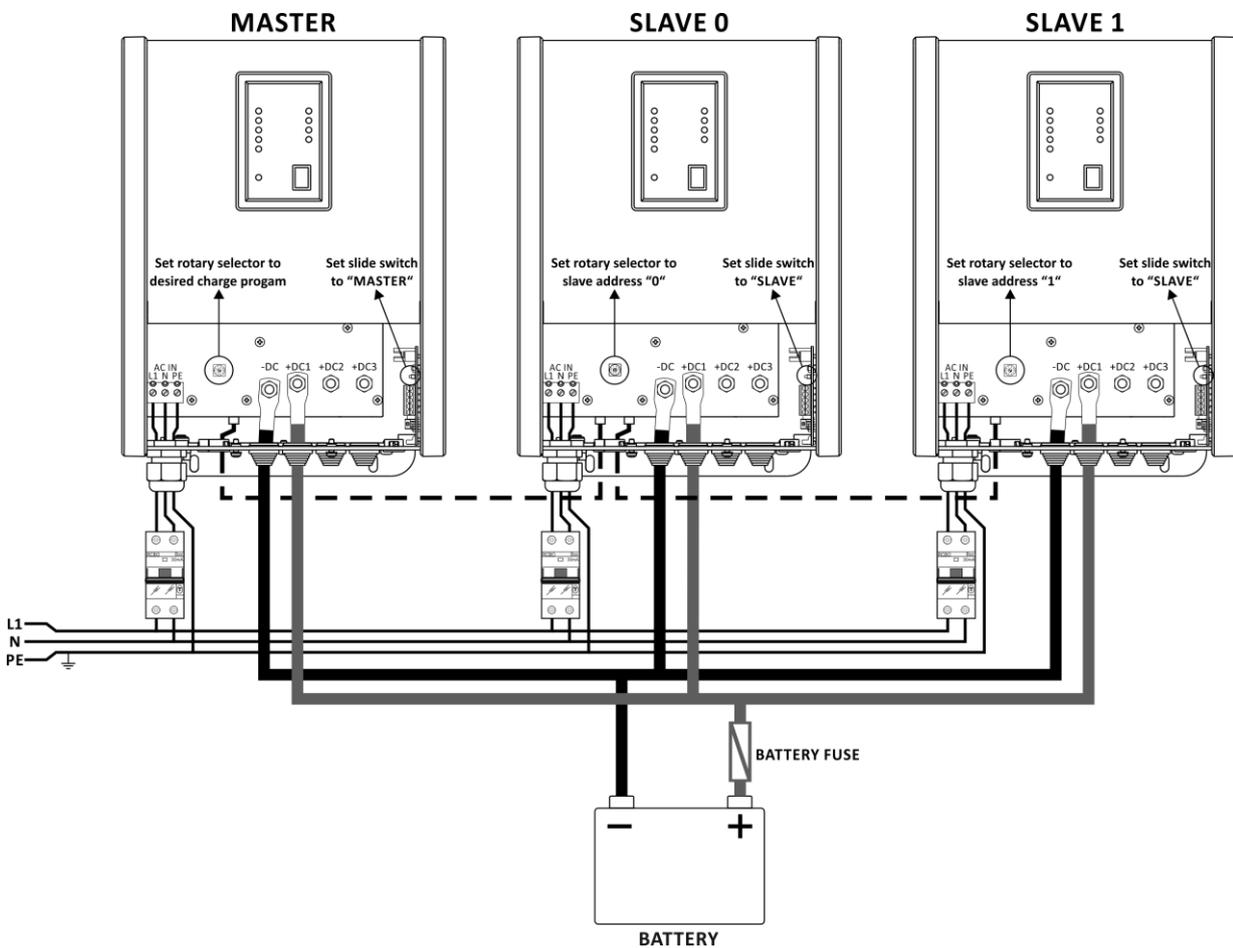
When the charger system is controlled by a Universal Remote Control, a Basic Remote Control or is configured/monitored by TBS Dashboard, please make sure that these connections are always made to the master battery charger. The same applies to the battery temperature sensor. Please see the image below for details:
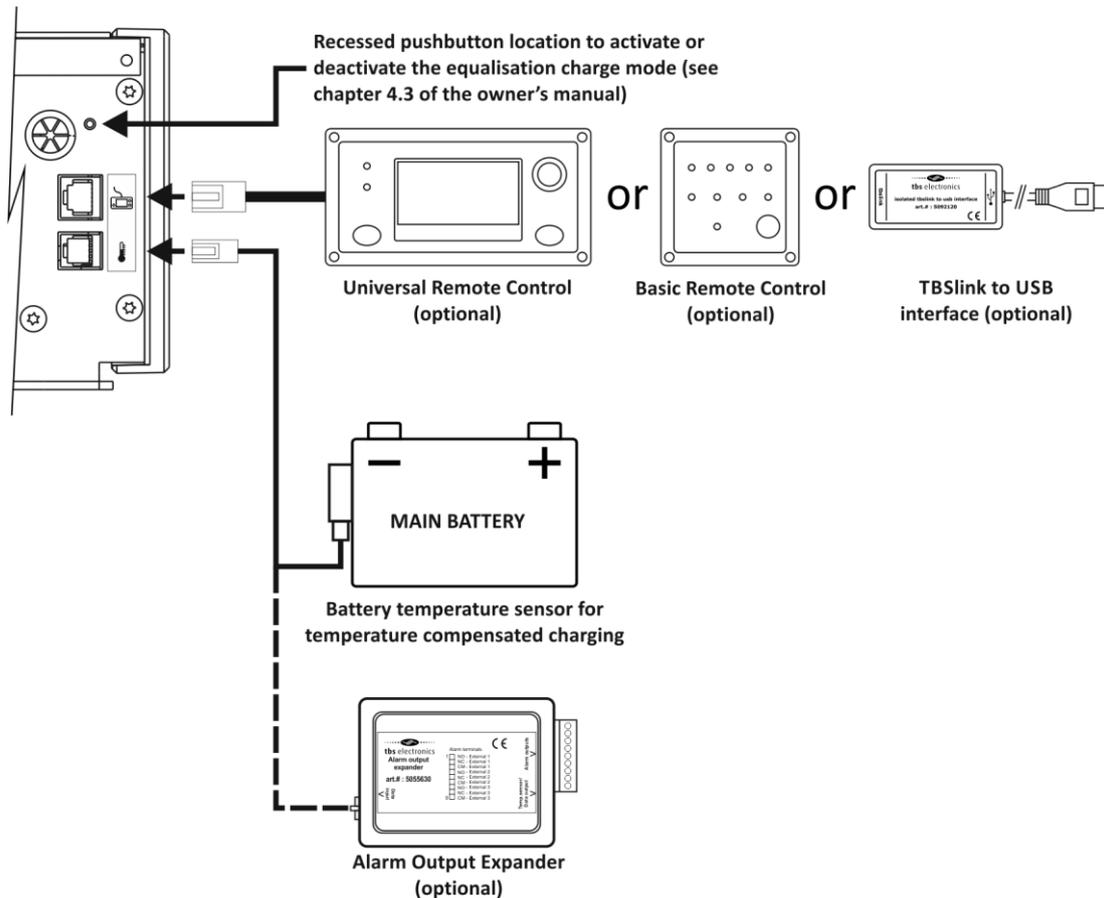
Activating the parallel system

When all connections are made and carefully checked, the connection bay cover plates can be re-installed again. The following power up sequence should be followed:

1. Install the battery fuse (and/or activate a main DC bus switch) to make sure that the batteries are connected to the battery chargers.
2. Connect AC mains to each charger by sequentially switching all AC circuit breakers from OFF to ON. Switching all AC circuit breakers ON sequentially, avoids the main AC circuit breaker to trip due to a too large startup current peak.
3. Activate all chargers by pushing the front panel switch of each charger to position 'I', preferably starting by the master, followed by slave '0', slave '1' etc.. The 'charger on' LED of the slave chargers, may blink orange colored for a short while, indicating that the communication bus is being initialized. If you wish to set the parallel system into 'forced float mode', only the front panel switch of the master should be set to position 'II'.

Now the parallel system is up and running. If you wish to turn off the complete system, only the front panel switch of the master charger should be set to '0'.

Troubleshooting

Please see the table below in case you experience any problems with the parallel system:

Problem	Possible cause	Remedy
Main AC circuit breaker trips when connecting all chargers at once to the AC mains.	The initial startup current of all chargers combined, is too high.	Try connecting each charger to the AC mains individually, by sequentially activating the circuit breaker at each charger AC input.
One or more chargers in the parallel system keep on showing a blinking orange 'charger on' LED	There are more than one slaves carrying the same address number.	Check if the rotary selector switch of each slave charger carries a unique number.
	Master charger is not connected to AC mains or still switched off at the front panel.	Make sure AC mains is connected to the AC input of the master charger and that the front panel switch is in position 'I' or 'II'.
	Parallel communication cable is not properly installed or damaged.	Make sure that the communication cable is installed correctly and that there is no visible damage to the cable or connector.
	Incorrect system startup	Disconnect all chargers from the AC mains, wait for 10 seconds and reconnect each charger to the AC mains again in a sequential order.