The invention relates to power conversion technology and can be used in charging and discharging systems for lithium-ion, lithium iron phosphate, and other types of rechargeable batteries. The three-phase bidirectional converter consists of a three-phase input voltage sensor, a three-phase input current sensor, an input filter (three chokes and three capacitors), a three-phase bridge current inverter based on IGBT or MOSFET transistors with series diodes, an output buffer reactor-rectifier, an output current sensor, a storage unit, an output voltage sensor, four polarity reversal contactors, and a control system. The control system includes a switch control controller and a battery charge current and voltage regulator. The input voltage and current sensors are connected to the switch control controller, while the output current and voltage sensors are connected to the charge regulator, which controls the switch controller of the three-phase inverter. The technical result is the ability to charge batteries from a three-phase grid with a high power factor and the capability for energy recovery.