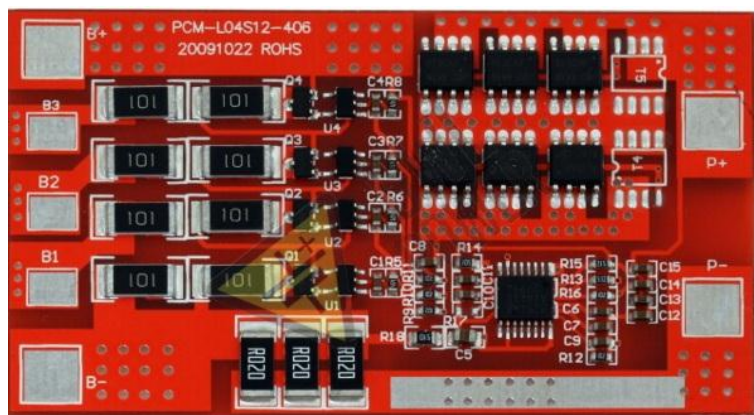


## SBM04/10 Board 4cells (12V/10A)



Model name	SBM 04/10	GWL/Power Simple Battery Management Board 4 cells (12V/10A)
Voltage	Charging voltage	C:14,6V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.025V
Current	Balance current for single cell	42±3mA
	Current consumption for single cell	≤50μA
	Max. continuous current	10A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.5S~1.5S
	Over charge release voltage	3.80±0.05V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	50~100ms
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	15±2A
	Detection delay time	5ms~15ms
	Release condition	Cut load
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500μs
	Release condition	Cut load
Resistance	Protection circuitry	≤30mΩ
Temperature	Operating temperature range	-40~ +85°C
	Storage temperature range	-40~ +125°C
Dimensions	L * W * T	70 * 40 * 4mm
Weight	15g	Grams (tolerance +/- 1g)



**Remarks:**

Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+)

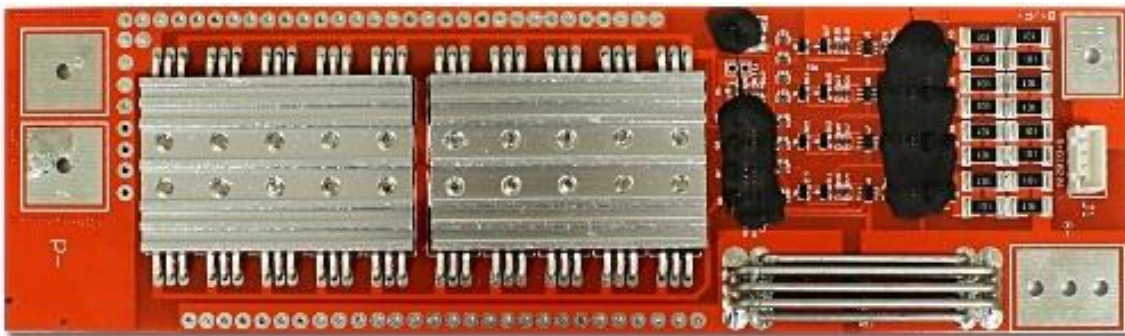
The P+ can be lead out from the positive of the battery pack also.





## SBM04/60 Board 4cells (12V/60A)

Model name	SBM 04/60	GWL/Power Simple Battery Management Board 4 cells (12V/60A)
Voltage	Charging voltage	C:14,4V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.003V
Current	Balance current for single cell	72±10mA
	Current consumption for single cell	≤20µA
	Max. continuous current	60A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173mS
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	200±30A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500µs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	120 * 80 * 30mm
Weight	100g	Grams (tolerance +/- 1g)



### Remarks:

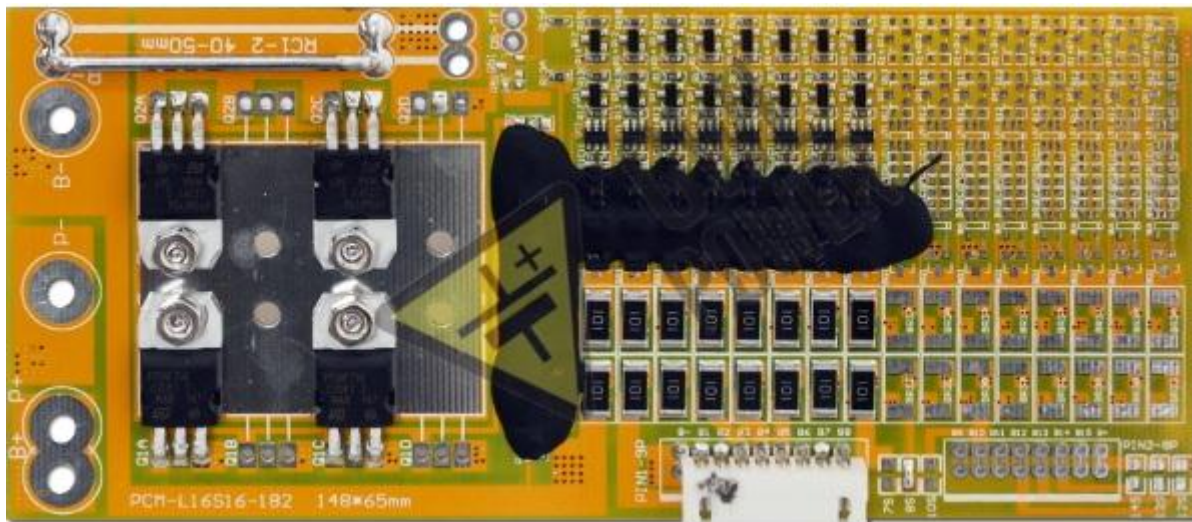
Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+)

The P+ can be lead out from the positive of the battery pack also.



## SBM08/60 Board 8cells (24V/10A)

Model name	SBM 08/60	GWL/Power Simple Battery Management Board 8 cells (24V/10A)
Voltage	Charging voltage	C:28,8V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.025V
Current	Balance current for single cell	72±5mA
	Current consumption for single cell	≤20µA
	Max. continuous current	10A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173mS
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	65±5A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500µs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	148 * 65 * 9mm
Weight	100g	Grams (tolerance +/- 1g)



### Remarks:

Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+)

The P+ can be lead out from the positive of the battery pack also.



## SBM08/60 Board 8cells (24V/60A)

Model name	SBM 08 / 60	GWL/Power Simple Battery Management Board 8 cells (24V/60A)
Voltage	Charging voltage	C:28,8V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.003V
Current	Balance current for single cell	72±10mA
	Current consumption for single cell	≤20µA
	Max. continuous current	60A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173ms
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	200±30A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500µs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	120 * 80 * 30mm
Weight	220g	Grams (tolerance +/- 1g)

P+=B+=Charge+/Discharge+

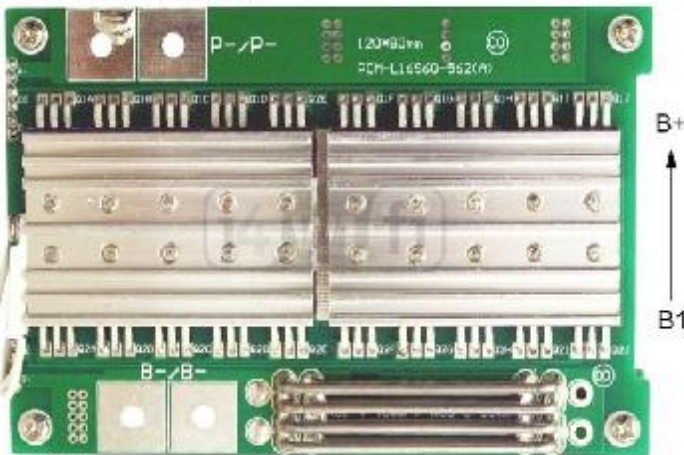
P- =Charge-/Discharge-

Size:L120\*W80\*T30mm

Remarks:

Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+)  
Temperature sensor on the MOSFET provide an protection temperature of 90°C

The P+ can be lead out from the positive of the battery pack also.

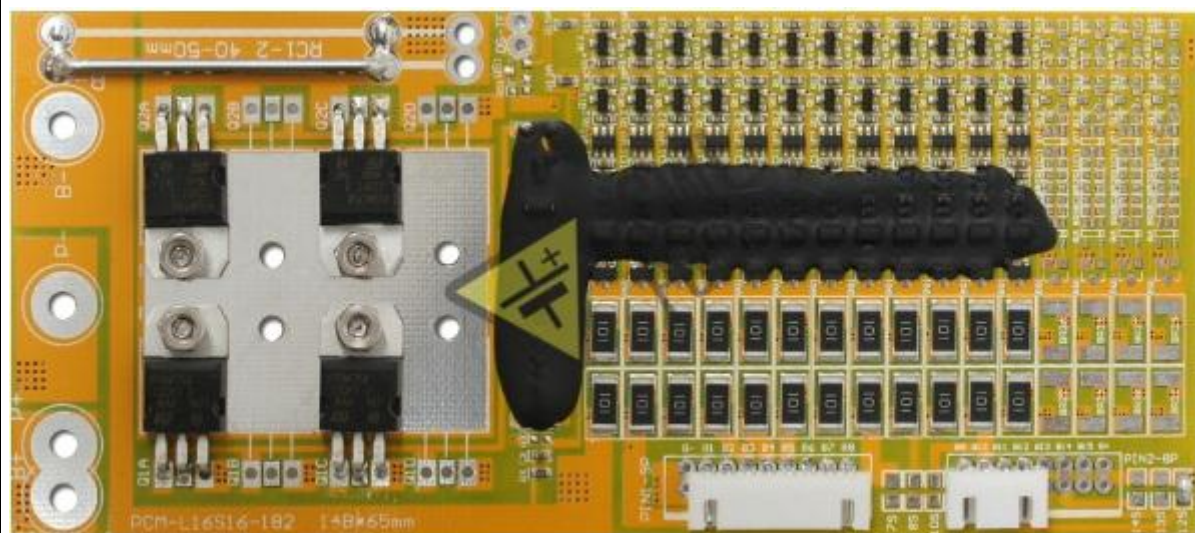


B+  
↑  
B1



## SBM12/10 Board 12cells (36V/10A)

Model name	SBM12/10	GWL/Power Simple Battery Management Board 12 cells (36V/10A)
Voltage	Charging voltage	C:43,2V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.025V
Current	Balance current for single cell	72±5mA
	Current consumption for single cell	≤20μA
	Max. continuous current	10A
	Overcharge Protection	
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173mS
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	65±5A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500μs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	148 * 65 * 9mm
Weight	100g	Grams (tolerance +/- 1g)



### Remarks:

Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+)

The P+ can be lead out from the positive of the battery pack also.



## SBM12/60 Board 12cells (36V/60A)

Model name	SBM12/60	GWL/Power Simple Battery Management Board 12 cells (36V/60A)
Voltage	Charging voltage	C:43,2V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.003V
Current	Balance current for single cell	72±10mA
	Current consumption for single cell	≤20μA
	Max. continuous current	60A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173mS
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	200±30A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500μs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	120 * 80 * 30mm
Weight	120g	Grams (tolerance +/- 1g)



### Remarks:

Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+)

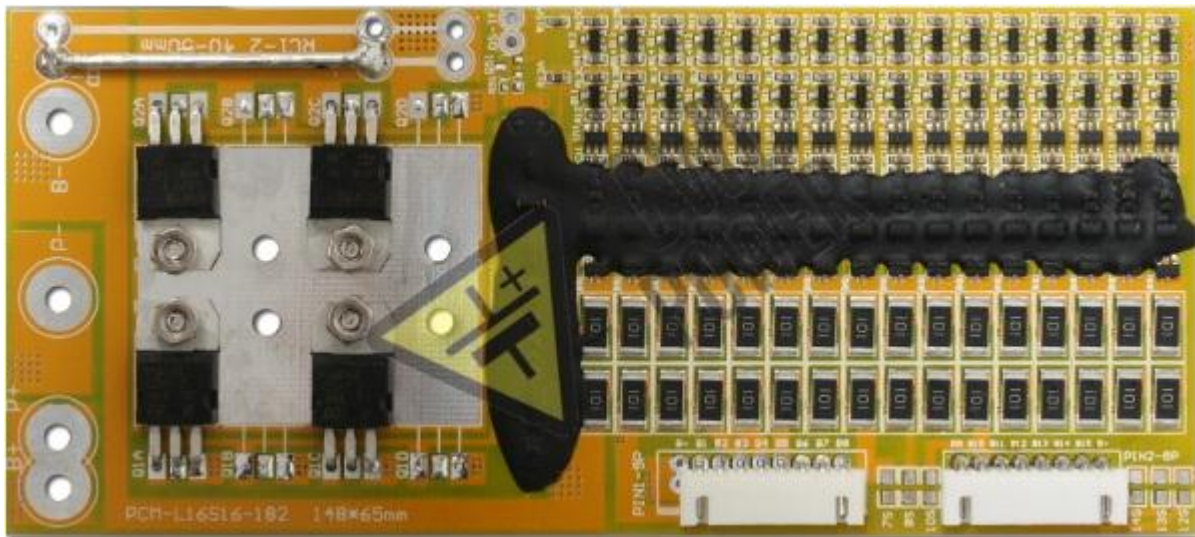
The P+ can be lead out from the positive of the battery pack also.





## SBM Board 16 cells (48V/10A)

Model name	SBM16/10	GWL/Power Simple Battery Management Board 16 cells (48V/10A)
Voltage	Charging voltage	C:57.6V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.025V
Current	Balance current for single cell	72±5mA
	Current consumption for single cell	≤20µA
	Max. continuous current	10A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173mS
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	65±5A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500µs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	148 * 65 * 6mm
Weight	220g	Grams (tolerance +/- 1g)



Remarks:

The P+ can be lead out from the positive of the battery pack also.



# SBM16/60 Board 16 cells (48V/60A)

Model name	SBM16/60	GWL/Power Simple Battery Management Board 16 cells (48V/60A)
Voltage	Charging voltage	C:57.6V 3.6V/Cell
	Balance voltage for single cell	3.6V±0.003V
Current	Balance current for single cell	72±10mA
	Current consumption for single cell	≤20µA
	Max. continuous current	60A
Overcharge Protection	Over charge detection voltage	3.90V±0.025V
	Over charge detection delay time	0.96S~1.4S
	Over charge release voltage	3.80±0.025V
Over-discharge Protection	Over discharge detection voltage	2.0±0.05V
	Over discharge detection delay time	115~173mS
	Over discharge release voltage	2.3±0.05V
Over Current Protection	Over current detection voltage	0.62V
	Over current detection current	200±30A
	Detection delay time	7.2ms~11ms
	Release condition	Automatic Recovery
Short Protection	Detection condition	Exterior short circuit
	Detection delay time	200-500µs
	Release condition	Automatic Recovery
Resistance	Protection circuitry	≤20mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C
Dimensions	L * W * T	120 * 80 * 30mm
Weight	220g	Grams (tolerance +/- 1g)

P+=B+=Charge+/Discharge+

P- =Charge-/Discharge-

Size:L120\*W80\*T30mm

Remarks:

Please follow the connecting drawing to arrange the wire to B-,B1,B2...B+) Temperature sensor on the MOSFET provide an protection temperature of 90°C

The P+ can be lead out from the positive of the battery pack also.



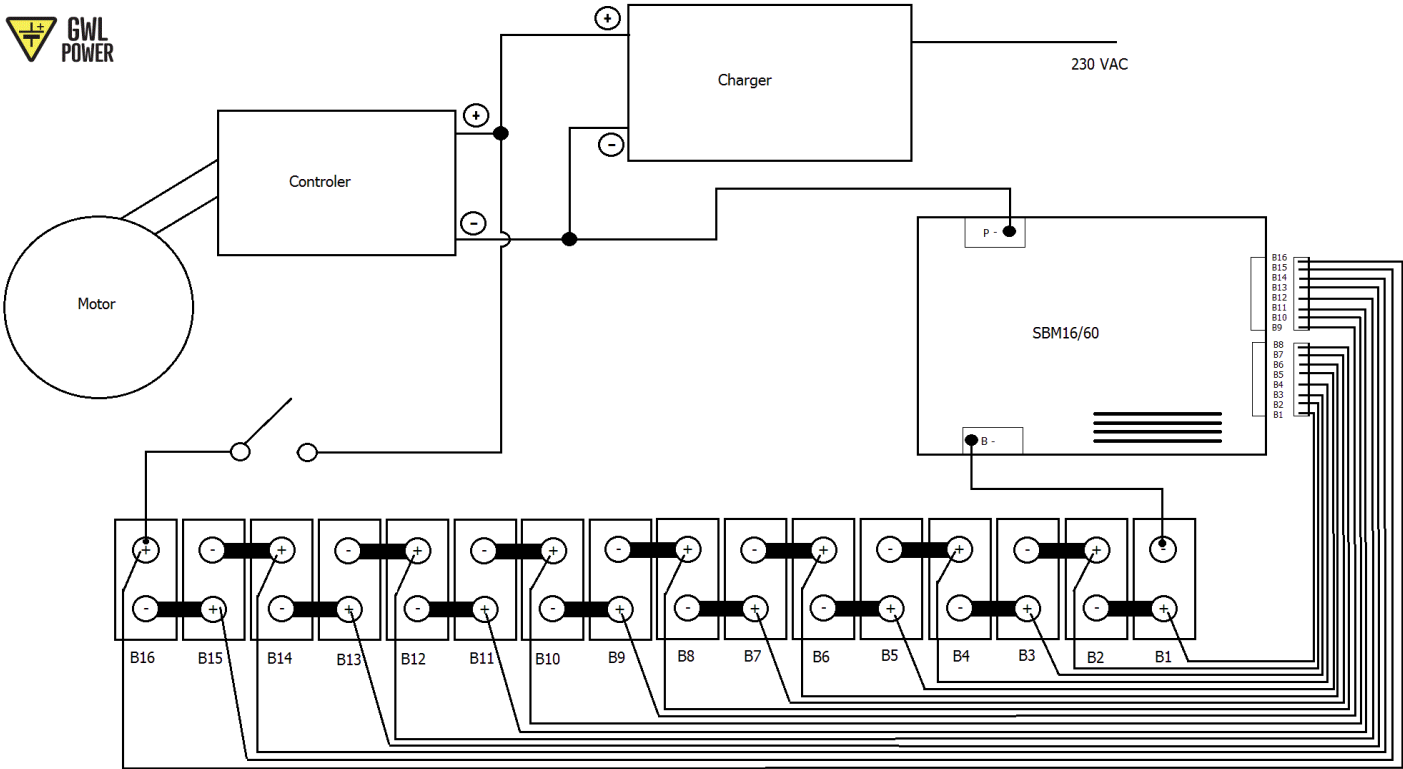
B+  
↑  
B1







# Wiring diagram for SBM16/60



This schema is applicable to every SBM modules with difference in number of monitored cells.

Only certain number of cells can be used for certain version of SBM. I.e. SBM16/60 is only for 16 cells, etc.

