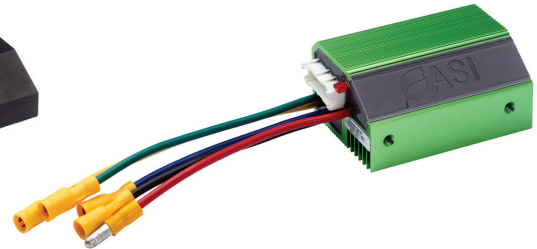


LOW POWER CONTROLLERS

BAC 355 | BAC 555 | BAC 855



The ASI BAC 355, BAC 555 and BAC 855 are a series of high density motor controllers that utilize the latest in sinusoidal flux vector control to ensure smooth and quiet brushless DC motor operation and efficient vehicle operation. They can operate over a nominal battery voltage range of 24VDC to 72VDC.

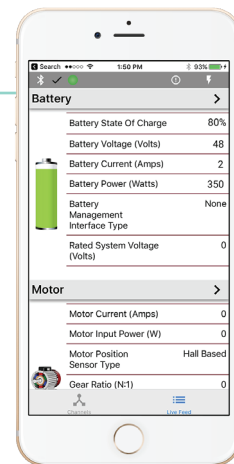
A robust MOSFET-based three phase bridge provides peak efficiencies in excess of 99%, with no audible noise. Hall sensor based motor commutation, and sensorless commutation are also supported.

Programmable performance mapping allows throttle and regenerative braking inputs to be adjusted via ASI's BACDoor™ PC configuration/Engineering software to meet specific performance requirements.

Numerous programmable protection features including motor/controller temperature, battery over/under voltage, and motor/battery current limits increase controller and motor longevity.

Intelligent. Configurable. Reliable. Powerful.

- Can be attached to additional heat sinking to significantly increase performance
- PWM drive for low ripple current and silent drive
- Field oriented control for increased efficiency and smooth motor operation
- Multiple analog and digital inputs
- CANOpen with (optional) BLE communication
- Support multiple sensor configurations
- Single pulse and quadrature pedal or wheel speed inputs
- Configurable throttle, brake cut-off and regeneration options
- Analog voltage model or BMS communication based battery management system interfaces
- Sensorless or hall commutation with automatic switching
- Fault protection including:
 - Bus over and under voltage
 - Motor over current
 - Motor and controller over temperature
 - MOSFET bridge self tests
 - Battery SOC foldback



Includes BACDoor software to fine tune performance. Available for OEM customers.



Engineered in Canada

519.342.2507 | www.accelerated-systems.com

SPECIFICATIONS

OUTPUT PHASE CURRENT CONTROLLER	
CONTROLLER	PEAK
BAC355	55 A-DC
BAC555	75 A-DC
BAC855	90 A-DC

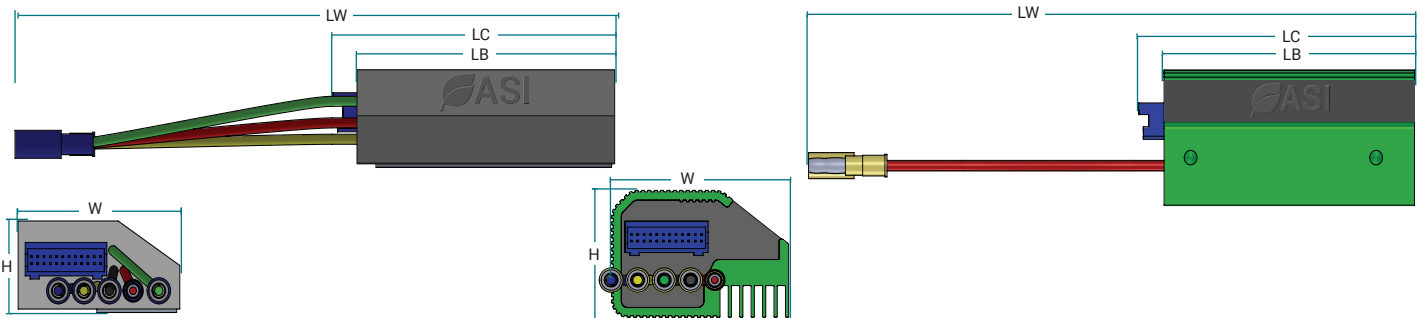
INPUT POWER	
CONTROLLER	VOLTAGE RANGE (DC)
BAC355	24V to 48V (Max 60V)
BAC555	24V to 48V (Max 60V)
BAC855	36V to 72V (Max 84V)

COMMUNICATION PROTOCOL	
TTL-232-CANOpen	Standard
CANOpen with BLE	Optional
TTL-232 with RS-485	Optional
TTL-232 with TTL-232	Optional
TTL-232 with BLE	Optional

CONTROLLER POWER AND PERFORMANCE	
PWM frequency	13.5 kHz default / up to 16.5 kHz when operating in remote mode
Maximum Controller output frequency	500 Hz
Electrical isolation to heatsink	500 VAC
Storage ambient temperature	-40°C to 75°C
Operating ambient temperature	-20°C to 50°C
Thermal cutback	Controller linearly reduces maximum current limit with an internal heatsink temperature from 85°C to 95°C, complete cutoff occurs above 95°C
Package environmental rating	IP67 (excluding electrical connections)
Speed regulation (range)	+/- 5% at top speed
Minimum motor phase to phase inductance	20 µH
Motor control scheme	Sinusoidal field oriented (FOC)
Motors supported	PMAC and BLDC

*Also Available in TTL-232 with LIN and LIN BLE

INPUT SPECIFICATIONS				
TYPE	QTY	VOLTAGE	VMIN	VMAX
Hall sensor inputs	3	Logic High	0 VDC	0.5 VDC
		Logic Low	3.5 VDC	5 VDC
Digital inputs	2	Logic High	-0.3 VDC	1.5 VDC
		Logic Low	4 VDC	5.3 VDC
5V analog inputs	3	Analog	0 VDC	5 VDC
10V analog inputs	1	Analog	0 VDC	10 VDC

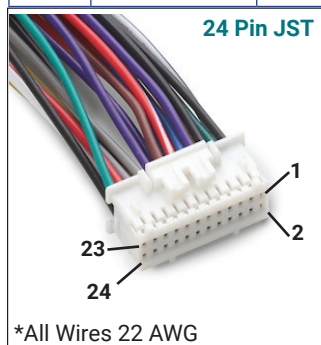


DIMENSIONS* & WEIGHT												
MODEL	LW(W/WIRES)		LC (TO CONNECTOR)		LB (BODY)		W		H		WEIGHT	
	mm	in	mm	in	mm	in	mm	in	mm	in	g	lb
BAC355	190	7.48	90	3.54	82	3.23	51.5	2.03	26.5	1.04	215	.47
BAC555	190	7.48	90	3.54	82	3.23	51.5	2.03	26.5	1.04	215	.47
BAC855	210	8.27	90	3.54	82	3.23	55	2.17	39	1.54	330	.73
Tolerance	+/-10	+/-0.39	+/-1	+/-0.04	+/-1	+/-0.04	+/-1	+/-0.04	+/-1	+/-0.04	+/-1	+/-0.002

Pin Out Table

24 PIN JST PAD CONNECTOR

PIN #	COLOR	FUNCTION	FUNCTION (CLASSIC)	SPECIFICATIONS & RATINGS
1	Black	Hall GND	Hall GND	20mA max
2	White/Black	Hall 5V output	Hall 5V output	20mA max
3	Green	Hall-A	Hall-A	0V ON, 5V OFF
4	Blue	Hall-C	Hall-C	0V ON, 5V OFF
5	Black	GND	GND	400mA max (shared between all grounds)
6	Yellow	Hall-B	Hall-B	0V OFF, 5V ON
7	Purple/White	Analog input 4	ABMS	0-10V (pulled down)
8	Orange/White	Analog input 3	Brake 2	0-5V (pulled up)
9	Blue/Black	Digital input 2	PFS	Pulled up, active low
10	Orange	Analog input 2	Brake 1	0-5V (pulled up)
11	Red/White	5V output	5V output	50mA max
12	Blue/White	Digital input 1	Cruise	Pulled up, active low
13	Brown	12V output	12V output	90mA max
14	Purple	Analog input 1	Throttle	0-5V (pulled down)
15	Purple/Black	Low side switch	HDQ	100mA max
16	Black	GND	GND	400mA max (shared between all grounds)
17	Grey/White	TTL-RX	TTL-RX	5V TTL
18	Yellow/White	TTL-TX	TTL-TX	5V TTL
19	Grey/Black	CAN-L (optional 485-A, TTL2-Rx)	CAN-L (optional 485-A, TTL2-Rx)	120 Ohm termination resistor (when configured for CAN)
20	Yellow/Black	CAN-H (optional 485-B, TTL2-Tx)	CAN-H (optional 485-B, TTL2-Tx)	120 Ohm termination resistor (when configured for CAN)
21	Red	B+ output	Key-out	Always live connected to Controller B+
22	White	Controller enable input	Key-in	Requires B+, may draw up to 100mA
23	Green/White	6V switchable output	6V Light	500 mA max
24	Black	Power GND	Light GND	500 mA max (only for light)



8 Pin JST			
8 PIN JST	24 PIN JST	COLOR	
1	21	Red	
2	24	Black	
3	19	Grey/Black	
4	20	Yellow/Black	
5	22	White	

3 PIN JST	24 PIN JST	COLOR
1	17	Grey/White
2	18	Yellow/White
3	16	Black

3 Pin JST

MATING CONNECTOR;

JST PADP-24V-1-S-24 Pin Crimped Female Connector

Part # JST SPH-001T-PO.5L4

KST Bullet Male Blue -MPD2-156 / Female Blue -FRD2-156

KST Bullet Male Yellow- MPD5.5-195 / Female Yellow-FRD2-5.5-195

COLOR	FUNCTION
Blue	Motor Phase C
Yellow	Motor Phase B
Green	Motor Phase A
Black	Battery GND
Red	B+

