Integrated Starter Generator Assembly (ISG)

Flux-switching permanent magnet (FSPM) ISG assembly.

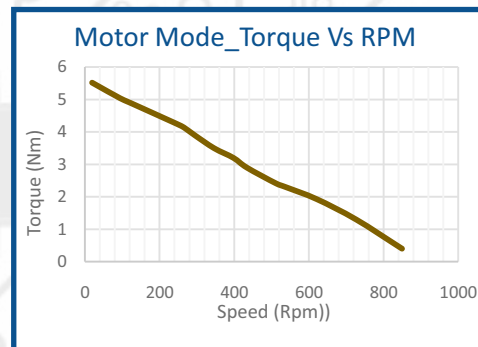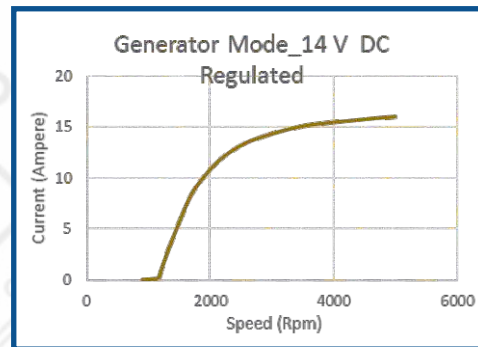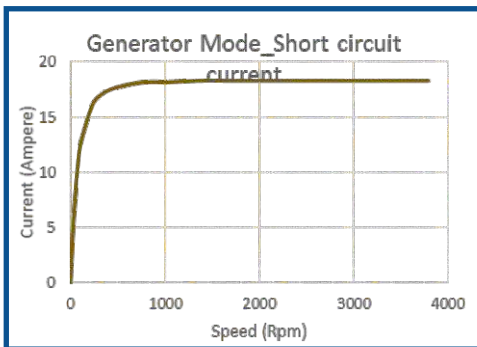## Features:

1. Smooth start
2. Designed to operate in battery less condition
3. Standard grade ferrite magnets used
4. Low Shunting Current i.e. SCC ≤ 18 Amps
5. Battery charging starts at lower RPM i.e. at 1200 rpm
6. Less cranking current, hence more number of starts per charge

Specifications:

1. Rotor OD 114mm; Length-54mm
2. Weight - Stator : 1.2kg ; Rotor :0.9kg
3. Generator Mode - 14 V DC regulated 10 amp @2000 rpm
4. Operating Temperature Range : -10^0 C to + 150^0C

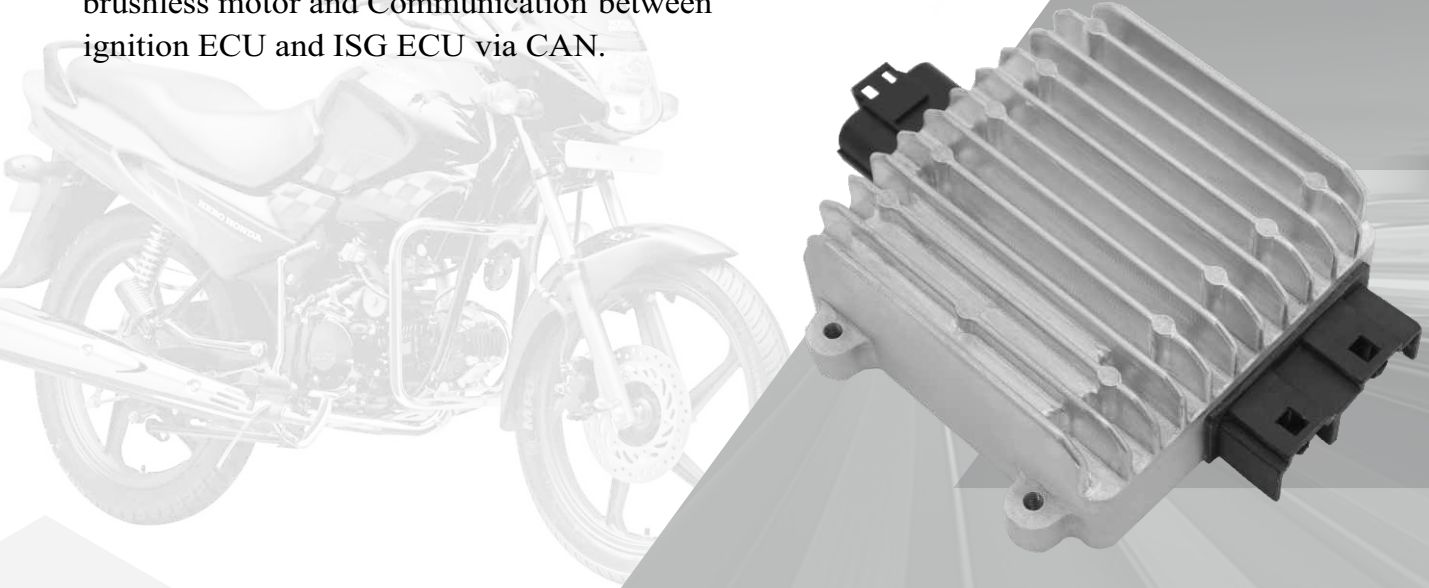| Test Condition	Torque (Nm)	Speed (RPM)	Current (A)
Engine Cranking	-	662	8.6
Rig Load Test	5.5	19	72

Generator Mode_Short circuit current

Generator Mode_14 V DC Regulated

Motor Mode_Torque Vs RPM

ISG Controller

Integrated Starter Generator is the technology which integrates the Starter and Generator functionality together. ISG Controller is designed to control Starter and Generator functionality for 2 wheeler application. During the starting it uses FOC drive techniques to maximize the torque and provide smooth starting. In Generator Mode it regulates the ACG output at 14.3VDC to drive the vehicle load and to charge the battery. The advantage of this ISG Controller unit is to improve the fuel efficiency by idle stop, weight reduction by starter motor deletion, quiet engine start-up, long life due to the brushless motor and Communication between ignition ECU and ISG ECU via CAN.

Technical Specifications:

a)	DC Operating Voltage Range	6~18VDC
b)	DC Output Voltage with and without battery	14.3±0.5V
c)	Maximum DC Output Current	20A
d)	Driving Method	FOC Control
e)	Driving Support	Hall Sensor Based
f)	Regulation Technique	Phase Control
g)	Cranking RPM in Starter Mode	~800
h)	Operating RPM Range	0~12000 RPM
i)	Communication	CAN
2. Protections		
a)	Output Short Circuit	
b)	Output Over Voltage	
c)	Load Dump	
d)	Stall condition	
3. Environmental		
a)	Operating Temperature	-20°C to +60°C
b)	Storage Temperature	-20°C to +80°C
4. Mechanical		
a)	Enclosure	Aluminium Case
b)	Dimensions	116 mm x 96mm x 40mm
c)	Weight	~500 gms.
d)	IP Rating	IP67