Product Data Sheet

2024-12-02

MG AFC 300 Alternator Field Controller

MGAFC480300

Description

The MG AFC 300 is an alternator field regulator. It controls the alternator to charge an MG Lithium-Ion battery system. By controlling the field inside the alternator, the current from the alternator can be regulated. Together with a current and a temperature measurement on the alternator it can be protected from overheating. This also allows the AFC 300 to follow the setpoints from the connected BMS to charge the battery system under optimal conditions.
The AFC 300 has a build in load dump to protect the alternator, the AFC 300 itself and any connected peripheral equipment. If during the charging phase of the alternator the connected fuse breaks or the main safety contactor inside the BMS opens the AFC 300 will stop the charging of the alternator as quickly as possible and will clamp the voltage overshoot.

The AFC 300 supports a wide variety of alternators compatible with external field control. As long as one or both field wires come out of the alternator it can be connected to the AFC 300. The AFC 300 is capable to automatically sense what kind of field is connected. This way there are no different cable harnesses needed for different kinds of alternators. The AFC 300 supports 12 V, 24 V and 48 V battery systems.

Interfacing to the BMS is done through M12 CAN-Bus connector. And can be connected to a variety of different BMSs including the MG Master LV, MG SmartLink MX and MG SmartLink Connect. The standard CAN-bus protocol is based on NMEA2000. No additional EMS or PMS is needed, because direct control is possible.

To adjust any settings it is possible to directly connect to the AFC 300's build in Bluetooth module using the MG Connect App. The Bluetooth module can also turned off by a hardware switch if this is required.

Key features:
- Alternator protection.
- Temperature and current regulation.
- Automatic field polarity detection.
- Integrated load dump protection.
- Programmable digital input & output.
- Isolated M12 CAN-bus.
- NMEA2000 and DVCC compatible.
- Bluetooth for easy configuration.
- Fully encapsulated electronics for harsh environments.

Product downloads

https://downloads.mgenergysystems.eu/afc/documents

Specifications

Environmental

Humidity (Non-Condensing)	≤ 95 %
Operating Temperature Range	-20 to +50 °C

IO

Ignition/Enable Input	0-60 V, ≥ 7 V is High/Active
Programmable Input	0-60 V, ≥ 7 V is High/Active
Programmable Output	Voltage is equal to power supplied on “Field supply +”, 0.5 A, short circuit protection & overcurrent protection
W/Tacho Input	0 to 58 Vpp

Mechanical

Data Connection	CAN-Bus M12
Enclosure Material	ABS (Reinforced) PC ABS
Height	63 mm
IP-Protection Class	IP22
Length	255 mm
Mounting Feet	4x max Ø 6.5 mm
Weight	1.5 kg
Width	132 mm

Standards

Connectivity	ETSI EN 300 328 V2.2.2:2019
EMC: Emission	NEN-EN-IEC 61000-6-3:2021
EMC: Immunity	NEN-EN-IEC 61000-6-2:2019
Low Voltage Directive	NEN-EN-IEC 60335-1:2024
RoHs	NEN-EN-IEC 63000:2018

Technical Specifications

Communication	NMEA2000
Maximum Current	300 A
Maximum Field Control Current	20 A
Power Usage Standby	1.2 W
Supply Current	21 A
Supply Voltage Range	8 - 60 Vdc

The specifications provided are for informational purposes only and are subject to change without notice. While every effort has

been made to ensure the accuracy and completeness of the specifications, MG Energy Systems assumes no responsibility for any errors or omissions.

Logistics

HS code	8511800090
Country of origin	Netherlands
Shipping weight	1.75 kg
Classified as dangerous goods	No