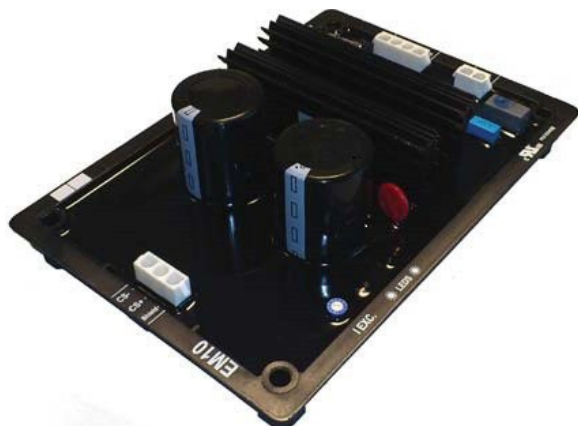




EM10 / EM10A

The EM10 / EM10A Excitation Module is a power electronics component designed to provide excitation current to the generator that is controlled by the Integrated Voltage Regulator (IVR) feature in the EMCP 4 and Cat® Energy Control System (Cat ECS) controls.

Caterpillar is leading the power generation marketplace with power solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness

Features

- Over-excitation protection – limit can be adjusted via a potentiometer (IEXC)
- Green status LED indicating unit is powered on
- Red status LED indicating excitation current limiting (flashing) or shutdown (solid)

When used with EMCP 4.3 / 4.4 and IVR-compatible EMCP 4.1 / 4.2 controllers, and Cat ECS 100 / Cat ECS 200 controllers, the Integrated Voltage Regulator system offers:

- Automatic Voltage Regulation (AVR)
- Programmable stability settings
- Soft start control with an adjustable time setting in AVR control mode
- Dual Slope Under Frequency (Volts / Hz) regulation
- 3 Phase or single-phase generator voltage (RMS) sensing / regulation in AVR mode

EMCP 4.3 / 4.4 and IVR-compatible EMCP 4.2 controllers, and Cat ECS 100 / Cat ECS 200 controllers also offer:

- Power Factor Regulation (PF)
- Generator paralleling with reactive droop compensation
- Line drop compensation

Worldwide Product Support

- Worldwide parts available through the Cat® dealer network
- Over 1,800 dealer branch stores operating in 200 countries
- The best product support record in the industry
- Cat dealers provide extensive post sale support including maintenance and repair agreements

Complete System Integration

Fully designed and factory tested to work seamlessly with Cat generators using Self Excitation (SE), Internal Excitation (IE) or Permanent Magnet (PMG) excitation systems and EMCP controls.

Excitation Module – EM10 / EM10A

Specifications	
Electrical	
Generator Excitation Types	Self-Excitation / Internal Excitation / Permanent Magnet (PMG)
Max. Continuous Field Current Output	6 Amps
Max. Forcing Field Current Output	10 Amps
Max. AC Voltage Input (X1:X2, Z1:Z2)	180 Vrms for EM10 and 240 Vrms for EM10A

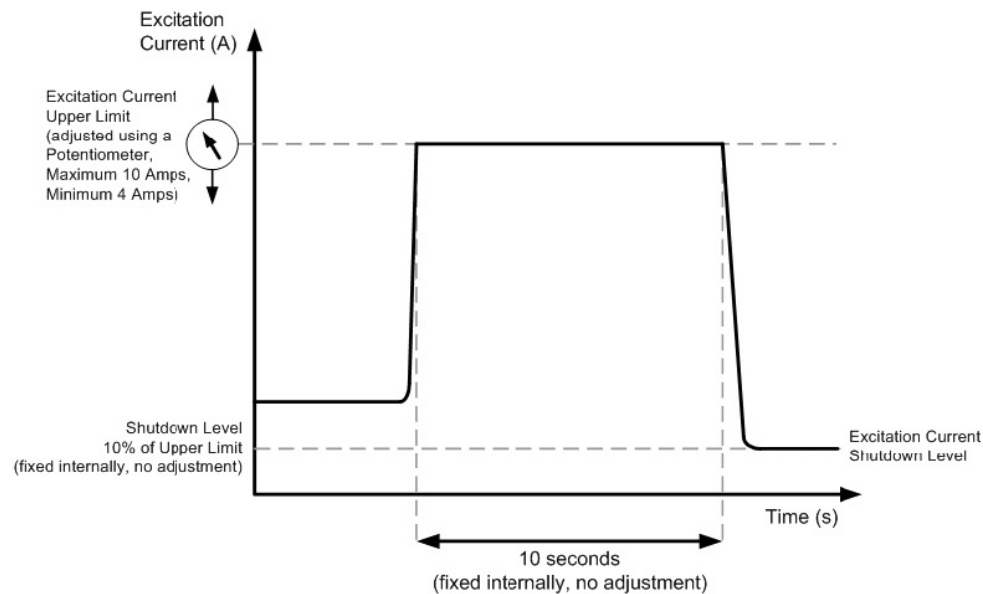
Environmental	
Operating Temperature Range	–40°C (–40°F) to +70°C (+158°F)
Storage Temperature Range	–40°C (–40°F) to +85°C (+185°F)
Relative Humidity Tolerance	95% non-condensing humidity
Salt Spray	5% salt (NaCl) solution for 120 hrs
Vibration	4.5 G-rms, 24-2000 Hz in 3 orthogonal planes
Electromagnetic Compatibility	RF Immunity (Radiated & Conducted) RF Emissions (Radiated & Conducted) Electrical Transients
Weight	770g ±30g
Power Consumption (at Max. Continuous Rating)	450 VA

Conformity	
UL	UL Recognized (U.S. and Canada) File No. E334232
CE Integrated Certificate	In conformity with the applicable requirements of the following Standards: EN 50178 EN 60204-1 EN 61000-6-2 EN 61000-6-4

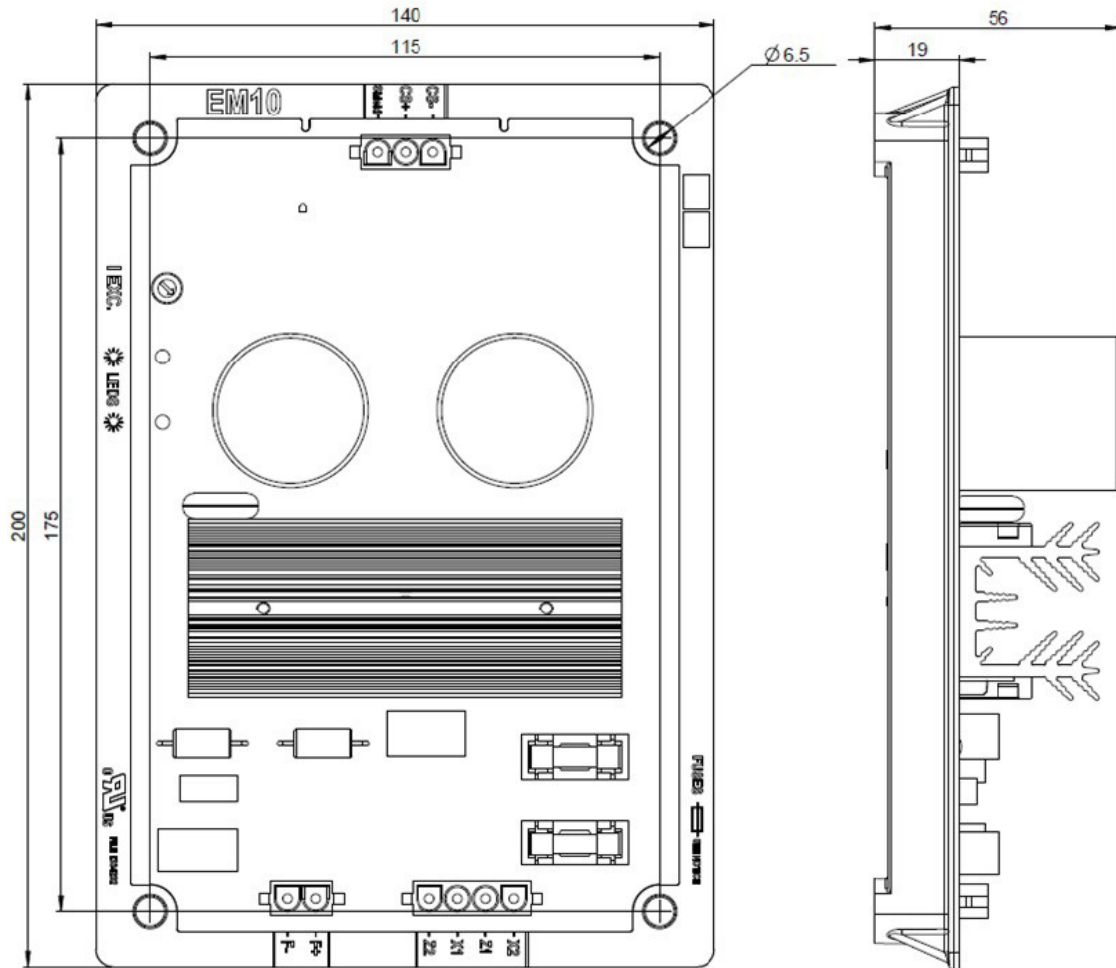
Excitation Module – EM10 / EM10A

Over-Excitation Protection

- If a short-circuit fault occurs at the generator terminals, the EM10 / EM10A will allow the excitation current to rise to the upper limit value set by the adjustment potentiometer (max. 10 Amps).
- The excitation current will be clamped at the upper limit value for 10 seconds (fixed internally).
- After 10 seconds, the excitation current is reduced to a value of 10% of the potentiometer setting.

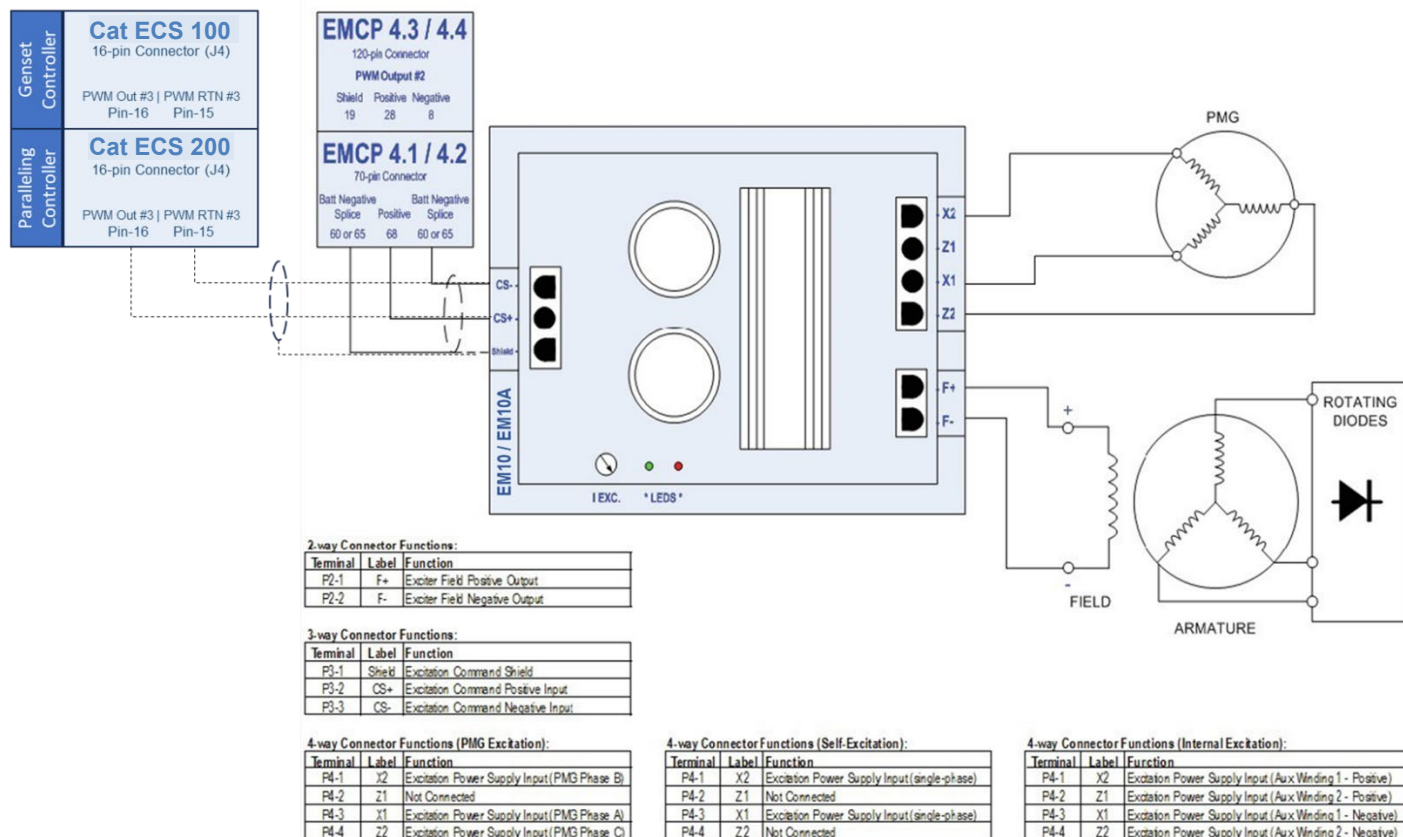


Outline Drawing (Dimensions in mm)



Excitation Module – EM10 / EM10A

Example Connection Diagram (Permanent Magnet Excitation)



Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

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