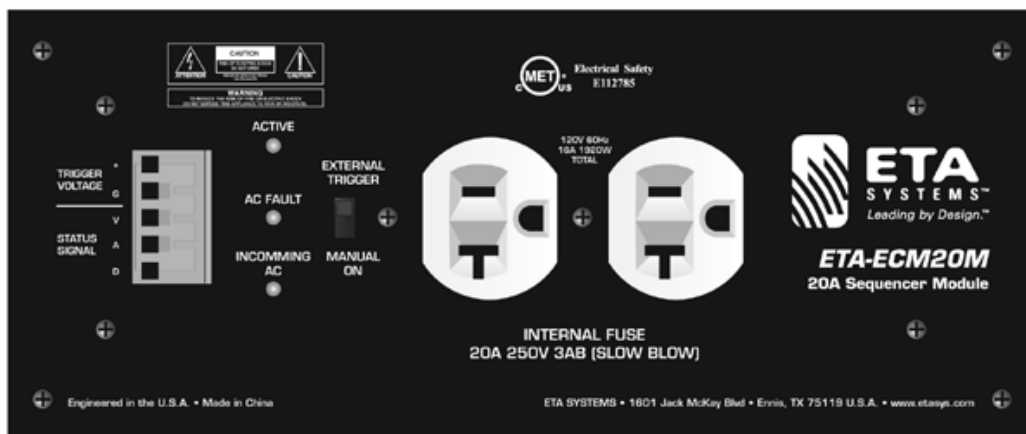
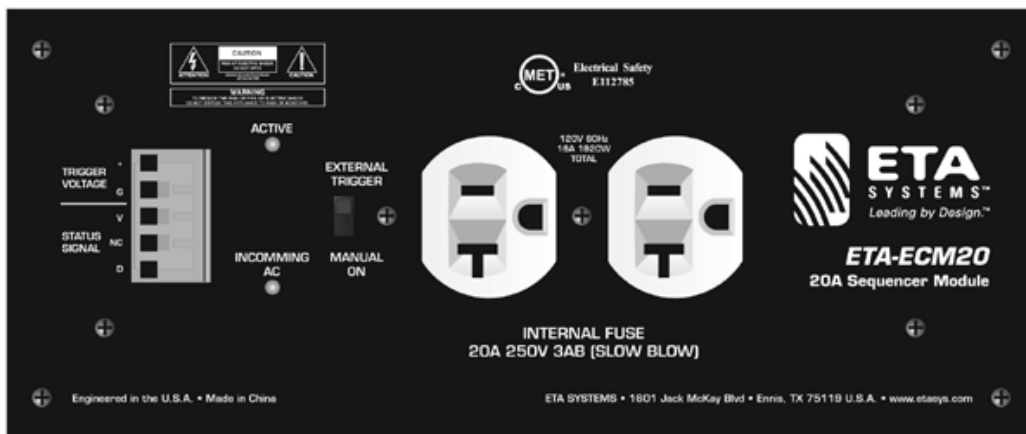




ETA
SYSTEMS™
Leading by Design.™

ETA-ECM20 & ETA-ECM20M Electrical Control Module 20A Power Conditioner



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INTRODUCTION

Thank you for purchasing the ETA Systems Electrical Control Module Raceway system. This information sheet is an overview of the ETA-ECM20 and ETA-ECM20M control modules. **Note: For your safety all electrical wiring must be done by a qualified electrician.**

The ETA Systems ETA-ECM20 and ETA-ECM20M are an Electrical Control Module (ECM) 20A Power Conditioner and AC Spike Suppressor that are designed to be used as a standalone unit or in conjunction with an ETA-ECS6RM Controller up to 1000 ft away. The ETA-ECM20 and ETA-ECM20M are designed to be used with the ETA-RACEWY6 which can house up to 6 modules. Single housing models (ETA-20SH and ETA-15SH) are also available. AC Spikes, or Transients, are commonly caused by utility power plant grid switchovers. The amount of energy that can be injected into the power system can be immense with voltages reaching 6kV or amperage peaks of 3000A. These spikes are very fast and usually only last for a very short period of time. To protect against this potential problem, incoming AC Mains have special suppression circuitry to eliminate the unwanted energy. This circuitry is very fast and can suppress unwanted energy within a nanosecond, while sustaining the suppression for up to 2 milliseconds, thus ensuring virtually trouble free protection. High and low AC Main line voltages are another major contributor to equipment failures. The ECM modules support EVS circuitry which enables the module to be shut off during extreme Low and High AC Line conditions.

The ETA-ECM20M features noise filtering for unwanted Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) filters to reduce noise from such items as electric motors and switching power supplies. The benefit of these filters can be seen on video products or audibly by reducing static pops and external signal interference.

High line can also be known as surges. Surges usually are a slower steady state rise in voltages ranging from 128VAC and up. They can be caused from fluctuations from the utility company's power lines or industrial equipment turning ON and OFF, and are on the same power leg of the building's incoming AC.

Low line is also known as brownouts. This happens when the AC Mains drops below 107VAC. Most of the time it is caused by the utility company not being able to supply enough power during heavy utility consumption time periods, such as heat waves. Another factor can be from voltage drops in AC lines due to long transmissions. The ETA-ECS6RM will inform you if any of these conditions occur. Extreme variances in Unstable AC Mains voltage are one of the main reasons for equipment failure.

The ETA-ECM20 **does not** support the same current monitoring or EMI/RFI Filter features as the ETA-ECM20M, ETA-20SH and the ETA-15SH models. However, it does support AC spike and surge suppression, AC mains voltage monitoring, EVS circuitry, and remote activation.

ECM MODULES KEY FEATURES

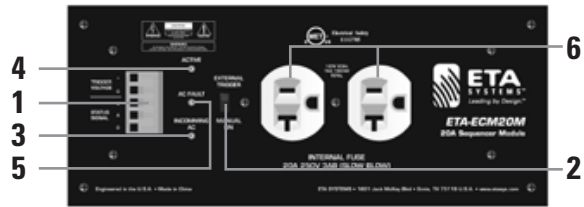
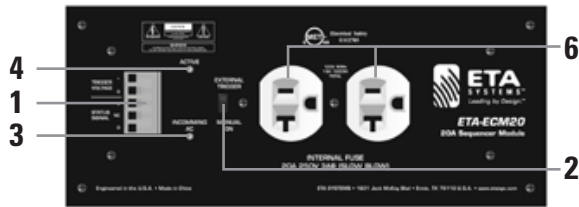
- Manual/Auto ON/OFF switch
- Incoming AC present LED
- Active LED
- AC Fault LED (ETA-ECM20M Only)
- Clamping Spike & Surge Suppression EVS Circuitry
- AC Mains Voltage & Current monitoring (Voltage only for ETA-ECM20)
- EMI & RFI Filtering (ETA-ECM20M Only)

APPLICATIONS

- Restaurants
- Houses of Worship
- Schools
- Home Theaters
- Office Buildings
- Sports Bars
- Industrial Facilities



ETA-ECM20 & ETA-ECM20M Electrical Control Module 20A Power Conditioner



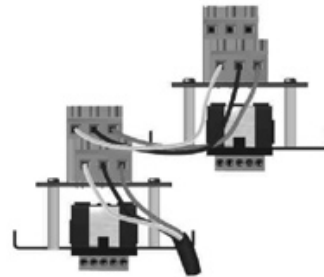
MODULE PANEL FEATURES

- 1. Trigger / Status Port Pin Identification** – All signals are of low voltage and current. DO NOT MISWIRE or damage may occur.
 - + Requires 5 -24VDC to activate the module with 5mA of current. Note: The DCV can be supplied from any source. The EVS protection requires the ETA-ECS6RM for operation.
 - G** Circuit Ground, Must be of the same circuit as the DCV source.
 - V** AC Voltage Status Signal, this signal reports back to the ETA-ECS6RM the Incoming AC Mains Voltage to the ECM module.
 - A** AC Current Status Signal, this signal reports back to the ETA-ECS6RM the AC Mains Current draw at the ECM module. Note: Not available on ETA-ECM20 type module.
 - D** Fault Status Signal, reports to the ETA-ECS6RM fault conditions of an ECM module.
- 2. External Trigger / Manual On Switch** – The ETA-ECM20M has a manual override switch allowing it to be used as a local Power Conditioner and Surge Suppressor. For it to be remotely monitored and activated the switch must be in the "External Trigger" position.
- 3. Incoming AC LED** – This LED will illuminate Red when the ECM has incoming AC power present at the module. This LED must be On to operate. Note: If this LED is not illuminating check the following: 1) The unit is plugged in, 2) The AC Mains Breaker feeding the AC leg to the ECM module is OFF, 3) The internal fuse has been damaged. This should only be inspected by an authorized technician.
- 4. Active LED** – This LED will illuminate Green when the ECM module has sensed the proper DCV to trigger activate the power on circuit. Note: If connected to the ETA-ECS6RM and the EVS circuit is activated this LED will not be ON. The Channel Status LED on the ETA-ECS6RM will flash indicating a problem and will not turn the ECM module ON until the AC Mains voltage is stable.
- 5. AC Fault LED** – If damage to the Spike Suppression circuit occurred this LED will illuminate Red. The module may still operate but may not be protecting the items plugged into the AC outlets. This LED will not turn off until repaired. Have the ECM module inspected by a qualified technician. Note: Not available on ETA-ECM20 type module.
- 6. AC Mains Outlet** – Two 120V AC 20A outlets.

WIRING THE ETA-ECM20M MODULE

The ETA-ECM20M is designed to be mated with the ETA-RACEWY6 housing and the ETA-ECS6RM controller. The specific job install AC power requirements and power distribution layout will dictate how the ETA-ECM20M modules are wired into the ETA-RACEWY6. Each ECM Module can be wired as a single 20A run or in a parallel configuration as illustrated below. Each ECM module has dual 3-position screw terminal blocks that are in parallel and are clearly labeled as follows:

- E - Green = Ground
- L - Black = Load
- N - White = Neutral



Note: The above figures show the ECM wiring configuration of one 20A AC main line coming into an ETA-ECM20M, then paralleling with an ETA-ECM20 type module.

Note: It appears that the wiring is in series but the ECM Module In/Out terminals are in parallel on the PCB.



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ETA-ECM20, ETA-ECM20M SPECIFICATIONS

General

Type:	Power Conditioner Suppressor Module
Power Requirements:	120V 60Hz
Power Consumption:	.5W
RoHS Compliant:	Yes
Safety Approval:	MET (UL 1449 Code)

Panel

Switched Outlets:	Two, 20A
Spike & Surge Suppression:	H-N, N-G, H-G
Manual Override:	Slide switch
Extreme Voltage Shutdown:	ETA-ECM20M Model only, (EVS) Below 102V or Above 132V AC Line (When Used With ETA-ECS6RM)
Connectors:	5 Position Phoenix Euro Block Style
Fuse Protection:	20A Slow Blow
DCV Remote Trigger:	5 – 24DCV
Remote Trigger:	SPST Contact
Status Signals:	Output for Voltage and Current Data (ETA-ECM20M model only)
Indicators:	Incoming AC, Active, AC Fault (ETA-ECM20M model only)
AC Mains Interconnect:	Screw terminal block

Technical Data:

Current Rating:	15 amps
Operating Voltage:	102 - 132 VAC
High Voltage Surge Protection:	Trigger at 133 VAC, 1ms typically (When Used With ETA-ECS6RM) (ETA-ECM20M model only)
Spike & Surge Suppression:	H-N, N-G, H-G
Low Voltage Protection:	Trigger 101 VAC, 1ms typically (When Used With ETA-ECS6RM) (ETA-ECM20M model only)
Spike Protection Modes:	Circuitry on incoming AC Mains.
Minimum Spike Clamping Voltage:	460 VRMS @ 3,000 amps
Maximum Spike Clamping Voltage:	6000V
Maximum Spike Clamping Response Time:	1 nanosecond
Spike Clamping Voltage @ 100A:	1250Vp for 20µs
Maximum surge current:	6,500 amps
Energy Rating @ 2ms:	600 Joules
Noise Attenuation EMI/RFI Sequencer:	10 dB @ 10 kHz, 40 dB @ 100 kHz, 100 dB @ 10 MHz (ETA-ECM20M model only)
Temperature Range:	5° to 35° C
Humidity Range:	5% to 95% R.H.

Mechanical:

Chassis Finish:	Black
Mounting:	#8 5/16" self tapping screws
Dimensions:	3.0" H x 8.5" L x 3.5" W (7.6cm x 21.6 cm x 8.9cm)
Unit Weight:	ETA-ECM20=1.25 lbs(.68 kg), ETA-ECM20M=1.75 lbs(.80 kg)