

ETA SYSTEMS

IMAGENATION SERIES
MODEL MC12CM
MICROPROCESSOR LIGHTING CONTROLLER

OWNERS MANUAL

ETA SYSTEMS
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ETA LIGHTING SYSTEMS
MICROPROCESSOR LIGHTING CONTROLLER
MODEL MC12CM

Welcome to the ever growing family of professionals who have discovered that ETA Professional Lighting Products are engineered specifically to meet the high standards expected of quality equipment.

We care about your performance; and when you look your best, so do we. With proper care and operation of your system, you and your audiences will enjoy years of spectacular, professional lighting effects.

CAUTION

Please read and follow these instructions carefully to assure the safe use of your new ETA MC Series Lighting Controller. Our engineers have created a durable and safe system. However, as with all sophisticated electronic systems, this equipment is also powerful and, when misused, potentially very dangerous.

Around electricity, a little knowledge is a very dangerous thing. The more electrical experts know about electrical power, the more they respect it. Therefore, if you install or use this ETA system, you must bear the responsibility of taking proper safety precautions. We have made every effort to provide you with complete and accurate instructions for the safe operation of your ETA system, but we cannot accept any responsibility for injury due to negligence or faulty interpretation of our instructions.

If you are uncertain about any electrical connections or usage, please seek qualified technical assistance from a local licensed electrician who is familiar with local codes, or contact your ETA Dealer.

ONE YEAR LIMITED WARRANTY

ETA warrants each new product to be free from defects in material or workmanship for a period of one year from the date of purchase, except triacs, which shall be warranted for the first sixty days after purchase. ETA will, within the warranty period, repair or replace, at its discretion, any ETA product, which in the judgement of ETA has proven to be defective.

This warranty is voided if any portion of an ETA system or product has been altered, tampered with, or has been repaired by anyone other than ETA or one of its authorized service representatives. This warranty does not cover any incidental or accessory items used in conjunction with any ETA products.

This warranty does not apply to any ETA product or system damaged by improper installation, improper operating practices, improper line voltage, misuse, abuse, accident, fire, lightning, flood or acts of God.

ETA shall not be liable for any damage or loss of equipment due to shipping.

It is the responsibility of the owner to retain the original sales receipt or sales invoice showing the date of purchase, dealer's name, purchaser's name, serial number, and model number in order to verify warranty status.

All transportation is the responsibility of the owner.

This warranty is non-transferable and applies to the original purchaser only.

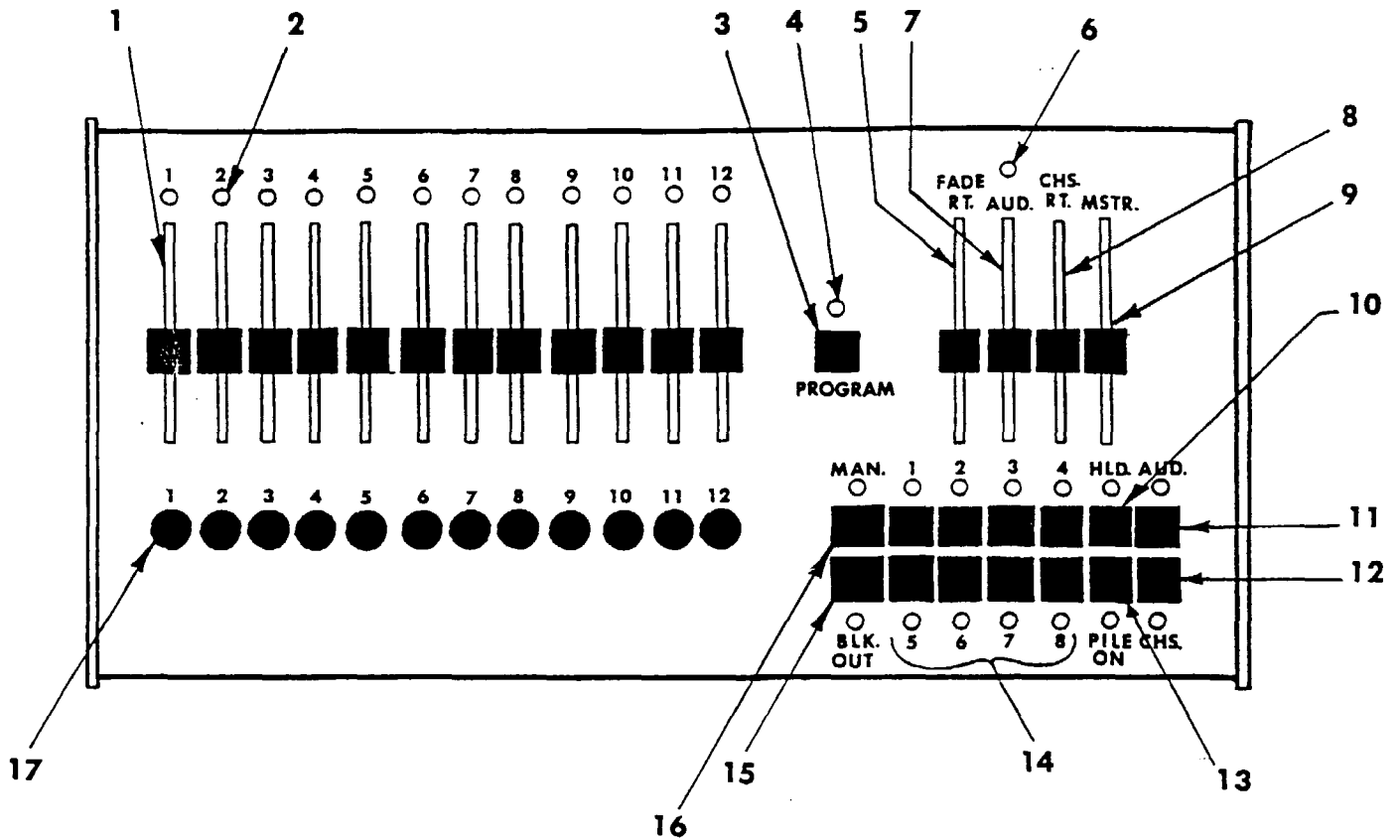
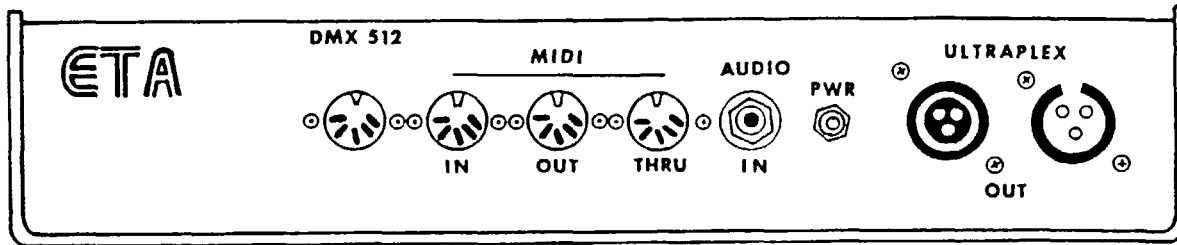
This warranty is in lieu of any and all other warranties expressed or implied, including any implied warranty of merchantability. No person is authorized to assume for ETA any other liability in connection with the sale of the product.

CAUTION **RISK OF ELECTRIC SHOCK** **DO NOT OPEN UNIT**

Never Attempt To Disassemble the Controller.

Disassembly of the chassis and/or tampering with the inside of the Controller can be dangerous to you and may cause serious damage to the unit. There are NO USER SERVICEABLE PARTS INSIDE.

Protect the Controller. Do not set drinks, ashtrays or any spillable items on the console. Keeping the Controller clean and free from debris will assure trouble free operation. Protect the controller from violent shocks or sudden impacts. Use of a protective road case is recommended when the unit is not in use.



ETA MC12CM MICROPROCESSOR LIGHTING CONTROLLER

KEY TO ABOVE ILLUSTRATION

1. Channel Control Slider
2. L.E.D. Channel Output Status Indicator
3. Program Button
4. Program Status L.E.D.
5. Fade Rate Slider
6. Audio Sensitivity L.E.D. Indicator
7. Audio Sensitivity Slider (Chase Trigger)
8. Internal Chase Speed Adjuster Slider
9. Master Level Control Slider
10. Controller Output Hold Button
11. Audio Chase Switch
12. Chase Switch
13. Pile On Switch
14. Eight Programmable Memories for Scenes & Chase Sequences
15. Blackout Switch
16. Manual - Memory Mode Switch
17. Channel Bump Buttons

INTRODUCTION

The IMAGENATION MC12CM is a 12 Channel Microprocessor Lighting Controller with a computerized memory that assures easy programming and use. The MC12CM features eight programmable scenes or eight 20-step chase sequences which can be triggered by a speed adjustable internal timer, or external audio source. The MC12CM also has ports for interfacing with a MIDI sequencer or DMX512 system.

MC12CM POWER OPTIONS

The MC12CM Microprocessor Controller is usually powered by 12VDC which it receives from the dimmer pack power source; or an optional 12VDC wallmount power supply, if the controller is required to be self-powered. ETA's Ultraplex series (MD410U or MD824U) are the compatible dimmers which feature a digitally encoded control signal that will address the 12 channels of control through an industry standard 3 pin microphone cable. Additional dimmers can be added to the system to increase power or total wattage capacity; but the controller remains limited to the 12 channels of control.

An audio input jack ($\frac{1}{4}$ " mono) is provided as a means of syncing your programmed chase sequences to the beat of the music. The audio signal is a direct line feed from the amplifier.

MIDI in/out/thru connectors are provided for MIDI operation and interfacing.

A USITT standard 5 pin XLR connector is provided for dimmers using DMX512 digital control signal. The hook-up is the same as the hook-up for the Ultraplex digital signal, except that a 5 conductor cable is used in place of a 3 conductor microphone cable.

PROGRAMMING INSTRUCTIONS FOR THE MC12CM

When you have completed your lighting designs, which by definition, are beyond the scope of this manual, you are ready to program the controller. Programming is easy. A chart is provided in the back of this manual to plan and record your programs.

SCENE PROGRAMMING

To program each scene, power up controller, remove from blackout and push Program Button (3). Program L.E.D. (4) will flash indicating that the controller is ready to program. The Master Controller Slider (9) is not recorded in the program, but must be raised above zero (or bottom position) if you want to preview your scenes. Set the channel sliders for "Scene One" according to your chart. Push "Scene One" Switch (14). Scene One L.E.D. will light indicating that scene one is recorded, and the Program L.E.D. will go off. To program remaining scenes, repeat the above procedure using programming chart until all scenes are programmed. Scenes may be modified by pushing Program Button (3) and repeating recording sequence.

NOTE: The position of the Channel Slider is relative to the output of the dimmer. This may vary with dimmer used, and type of fixture used. However, in most cases, the light output (not voltage) will be linear. At the Slider's bottom position, there is a zero light output; at the top position, light output is 100%; and at the center position, light output will approximate 50%. Use these percentage settings on your charts.

CHASE PROGRAMMING

Chase programming is similar to scene programming. Each of the eight chase sequences will accept up to 20 steps. Each step in the chase is recorded the same way a scene is recorded. In other words, each sequence is a scene chase with a maximum of 20 scenes. To avoid confusion and mistakes, use the chase program charts provided to design and record your chases. Record each channel as a percentage (i.e. 100%, 50%, 0%). With your charts complete, you are ready to program.

To program chase sequence, push Program Button (3). L.E.D. (4) will flash. Push Chase Button (12) and corresponding Chase L.E.D. will flash. Now you are ready to program into memory each step in your chase sequence. Use the following steps:

One, Set Channel Slider/s (1) to the particular step (Step One in this case) and according to your chart,

Two, Depress sequence (scene) One Switch (14) and corresponding L.E.D. will stay on momentarily indicating that the step is recorded in memory. Then it will flash, indicating that it is ready for the next step in the chase sequence.

Third, repeat the above procedure (one and two) for each step until the particular chase sequence being recorded is completed.

Four, move on to the next chase sequence using Sequence (scene) Two Button, and so on, until you have completed all eight 20-step chase sequences.

IMPORTANT NOTE: When you use all 20 steps in each chase sequence, the controller will not accept any more commands. However, it is not necessary to use all 20 steps in any chase sequence. Simply, when you are finished with a given chase sequence, just move on to the next procedure, (four) as noted above.

When you have completed chase programming, push Program Button (3) and L.E.D. will go off.

NOTE: Exercise care in programming chase sequence because it is not possible to edit the chase program. If a mistake is made, the entire chase sequence must be re-programmed.

MASTER LEVEL CONTROL SLIDER (9)

The Master Control overrides all other level controls on the controller. It is a common mistake to have this control at zero and try to run the controller. There are no outputs with the Master Slider at zero.

BLACKOUT SWITCH (15)

When pushed, the Blackout Switch will take any function (scene, chase, or manual mode) to blackout instantaneously. Push the Blackout Switch again, and the board will return to the function in progress before blackout.

When in blackout, the pushing of any other function switch

will cause the controller to fade to that function at a rate determined by the Fade Rate Slider (5).

NOTE: The controller will always go to "Blackout" on power up.

OPERATING INSTRUCTIONS FOR ETA MODEL MC12CM CONTROLLER

Now that you have programmed the eight scenes and the eight chase sequences, you are ready to discover the real power of your controller.

SCENE OPERATION

To activate a programmed scene, slide Master Control (9) to up position and set Fade Rate Slider (5) to desired position. Check to be sure that all other switches are off. Then, simply tap the desired scene Memory Switch (14, ref. 1 through 8), and the scene will fade to on, at the rate set by the Fade Rate Slider (5). Push another scene, and the controller will automatically cross-fade to the new scene; again, at the fade rate determined by Slider (5). To cross-fade a manual scene, set Channel Sliders (1) to the desired settings. Then, push Manual Switch (16). The controller will cross-fade to the manual scene at the fade rate determined by Slider (5). To return, push the desired programmed scene and the controller will automatically cross-fade back at the fade rate determined by Slider (5).

SCENE PILE ON OPERATION

The pile on function allows you to create additional scenes by combining one scene with another. To pile on two programmed scenes, move Master Control Slider (9) to up position. Push desired programmed scene and it will fade to on. Push Pile On Switch (13), and the corresponding L.E.D. will light up. Then push the programmed scene you wish to add, and it will fade to on in addition to the scene originally pushed. All eight scenes--or any combination--may be added to each other in this way.

To return to single scene operation, push Pile On Switch (13) to off and the controller will automatically fade to the last scene added.

CHASE OPERATION

To select a programmed chase sequence, push Chase Button (12); then, push the desired sequence (1-8). The controller will fade to the chase sequence selected at a rate determined by the Fade Rate Slider (5). Be sure that the Master Control Slider (9) is in up position. The Chase Rate Slider (8) position controls the chase speed.

The chase will also trigger to the beat of the music. To do this, connect the audio input jack; then push Audio Button (11), the Chase Button (12), and the desired Chase Sequence (14). Adjust the Audio Sensitivity Slider (7) until the sensitivity L.E.D. (6) triggers to the beat of the music. To stop chase, push Chase Button (12) and the L.E.D. will go off.

NOTE: Chase will continue to run until another scene (14) or the Blackout Button (15) is pushed. For example, since the controller is in memory mode, when you push programmed scene 3, the controller will then cross-fade to scene 3 from the chase at a rate determined by the Fade Rate Slider (5).

MANUAL MODE OPERATION

To operate the MC12CM as a manual controller, push Manual Mode Switch (16) to on. Push Master Control Slider (9) to up position; and check to be sure that all other functions are off. The controller is now "live." Moving any channel slider will cause a light to respond on stage. To cross-fade to another manual scene, push Hold Button (10). This will freeze or lock the existing scene on. You can now reset the manual scene without affecting stage lights. Push Hold Button (10) to off, and the controller will automatically fade to the new scene at the fade rate determined by Fade Rate Slider (5). This may be repeated, allowing you to use this single scene controller as a multi-scene controller.

MC12CM

TROUBLE SHOOTING

If your ETA Lighting Systems Controller will not operate, check the following:

1. Is the Controller receiving power from the dimmer or wallmount power supply? Do the L.E.D.s light?
2. Are you dimmers "live?" (see Dimmer Operators Manual)
3. Is the Blackout Switch in the operational position?
4. Is the Master Control Slider raised above zero?
5. Is the scene or chase sequence programmed?
6. Is the Fade Rate Slider set properly?
7. Are the remote control microphone cables in good condition and connected properly?
8. Check for Program Lock ("Program" button will not flash)
To remove controller from program lock, push Program Button, then Blackout Button within seconds of each other and finally push Program Button again. The Program L.E.D. should now flash ready for programming. The same sequence can be repeated to put the unit back into program lock to protect your programs.
9. TO CLEAR ALL PROGRAMMED INFORMATION FROM MEMORY, power up unit while Program Button is depressed. The L.E.D.s should all light up, then fade out. Un-power the unit, then re-power and the microprocessor should be cleared of all memory.

MIDI UPDATE 9/6/90
MIDI ACCESS INSTRUCTIONS

THE FOLLOWING SECTION EXPLAINS HOW TO ACCESS THE MIDI FUNCTIONS OF ETA'S IMAGENATION SERIES CONTROLLERS:

A. MIDI IS SET ON CHANNEL "1" AT THE FACTORY.
TO CHANGE MIDI CHANNEL:

1. Press Program Button (L.E.D. will flash);
2. Press Audio Button (L.E.D. will flash); and then
3. Press appropriate Channel Flash Button (1-12).

B. THE MIDI RESPONSE IS SET "ON" AT THE FACTORY.
TO TURN OFF ALL MIDI RESPONSE:

1. Press Program Button (L.E.D. will flash);
2. Press Audio Button (L.E.D. will flash); and then
3. Press Blackout Button

TO TURN MIDI RESPONSE BACK ON:

1. Press Program Button (L.E.D. will flash);
2. Press Audio Button (L.E.D. will flash); and then
3. Press Manual Button

C. TO SET "OMNI LISTEN:"

1. Press Program Button (L.E.D. will flash);
2. Press Audio Button (L.E.D. will flash); and then
3. Press Scene "8."

The signal will still transmit on current address

D. TO COMPLETE A MIDI EXCLUSIVE DUMP TO A COMPUTER, SEQUENCER OR KEYBOARD:

1. Press Program Button (L.E.D. will flash);
2. Press Audio Button (L.E.D. will flash); and then
3. Press Pile-On Button.

Refer to computer software to send and receive dump.

NOTE! PROGRAM LOCK CANNOT BE EXECUTED WHEN IN MIDI MODE.

MIDI CONTROLLER INFORMATION

FLASH BUTTON 1	CONTROL 32	CHANNEL FADER 1	CONTROL 0
2	33	2	1
3	34	3	2
4	35	4	3
5	36	5	4
6	37	6	5
7	38	7	6
8	39	8	7
9	40	9	8
10	41	10	9
11	42	11	10
12	43	12	11

MANUAL BUTTON	PATCH 0	FADE RATE	CONTROL 64
SCENE 1 BUTTON	PATCH 1	AUDIO SENSITIVITY	65
SCENE 2 BUTTON	PATCH 2	CHASE RATE	66
SCENE 3 BUTTON	PATCH 3	MASTER FADER	67
SCENE 4 BUTTON	PATCH 4	BLACK OUT	70
SCENE 5 BUTTON	PATCH 5	AUDIO	69
SCENE 6 BUTTON	PATCH 6	PILE ON	71
SCENE 7 BUTTON	PATCH 7	CHASE	72
SCENE 8 BUTTON	PATCH 8		

MIDI DATA FORMAT

CONTINUOUS CONTROL:

Channel Fader	1011nnnn 0ccccccc 0vvvvvvvv	where nnnn is the channel number where ccccccc equals the channel number 0 thru 11 where vvvvvvv equals the channel intensity, 0 thru 127
Bump Button	1011nnnn 0ccccccc 0vvvvvvvv	where nnnn is the channel number where ccccccc equals the Bump Button 32 thru 43 where vvvvvvv is ignored
Fade Rate Fader	1011nnnn 01000000 0vvvvvvvv	where nnnn is the channel number (64) where vvvvvvv equals the Fade Time Fader position, 0 thru 127
Audio Sens. Fader	1011nnnn 01000001 0vvvvvvvv	where nnnn is the channel number (65) where vvvvvvv equals the Fade Time Fader position, 0 thru 127
Chase Rate Fader	1011nnn 0100010 0vvvvvvvv	where nnnn is the channel number (66) where vvvvvvv equals the Fade Time Fader position, 0 thru 127
Master Fader	1011nnnn 01000011 0vvvvvvvv	where nnnnis the channel number (67) where vvvvvvv equals the Master Fader position, 0 thru 127
Hold	1011nnnn	where nnnn is the channel number (68) where vvvvvvv equals 0 is off and 127 is on
Audio	1011nnnn 01000101 0vvvvvvvv	where nnnn is the channel number (69) where vvvvvvv equals 0 is off and 127 is on
Blackout	1011nnnn 01000110 0vvvvvvvv	where nnnn is the channel number (70) where vvvvvvv equals 0 is off and 127 is on
Pile On	1011nnnn 01000111 0vvvvvvvv	where nnnn is the channel number (71) where vvvvvvv equals 0 is off and 127 is on
Chase	1011nnnn 01001000 0vvvvvvvv	where nnnn is the channel number (72) where vvvvvvv equals 0 is off and 127 is on
Manual	1100nnnn 0pppppppp	where nnnn is the channel number where ppppppp equals 0 is off and 127 is on
Scene Change	1100nnnn 0pppppppp	where nnnn is the channel number where ppppppp equals the Scene Change 1 thru 3

MIDI DATA FORMAT CONT'D.

Memory Dump	F0 00 00 3D 01 dd dd	where the first 5 bytes are the dump header and the dd is 7 bit data
Channel Mode Messages	1011nnnn 0ccccccc 0vvvvvvv	where nnnn is the channel number ccccccc equals 124: Omni Mode off vvvvvvv equals 0
Receive Only:		
Channel Fader	1001nnnn 0ccccccc 0vvvvvvv	where nnnn is the channel number where ccccccc equals the channel number 0 thru 11 where vvvvvvv equals the channel intensity

MIDI DUMP - PRESS
PROGRAM
AUDIO
FILE ON



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SCENE OR CHASE PROGRAMMING CHART

SCENE OR STEP No.	CHANNEL											
	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

EXAMPLE: Shade the above Scene or Step blocks for each channel according to the percentage of light intensity desired from 0% to 100%

