MA LIGHTING

MIDI Converter

User's Manual

April 1995

CE

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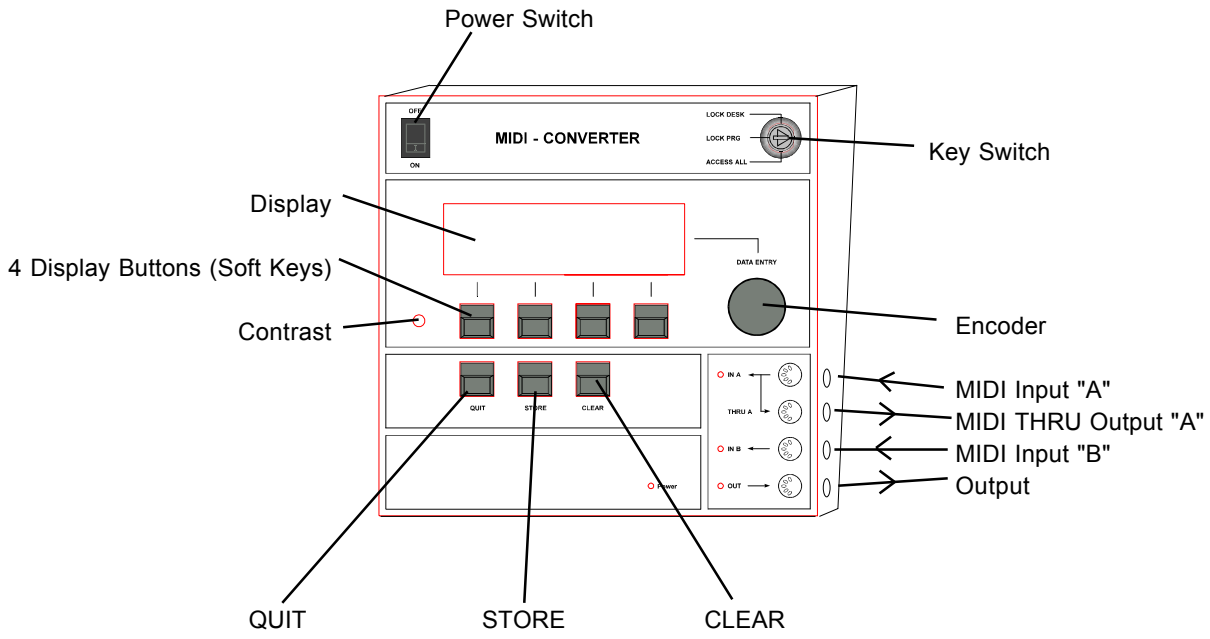
MA MIDI Converter

The MA Midi Converter enables you to control every MIDI-capable unit by every other unit. This can be done by saving up to 256 connections of any input data to any output data.

This universal field of application makes it possible to
- control a Light Control Desk by a synthesizer by means of "NOTE ON" or "PROGRAM CHANGE" commands.
- link and remote control Light Control Desks of different manufacturers and with different MIDI protocol
- do a sequence start by means of a certain note or "PROGRAM CHANGE".
- etc. etc.

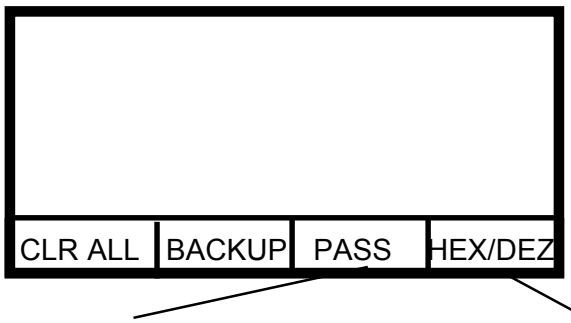
MIDI-system-exclusive data is not processed!

1. Front panel:



2. Basic adjustments

- Connect unit to voltage source
- Power ON
- Set key switch to ALL ACCESS (LOCK PRG - programming not possible; LOCK DESK - no operation possible)
- Optimizing the contrast by means of the encoder wheel
- Adjustments within the utility menu (display button UTILITIES):

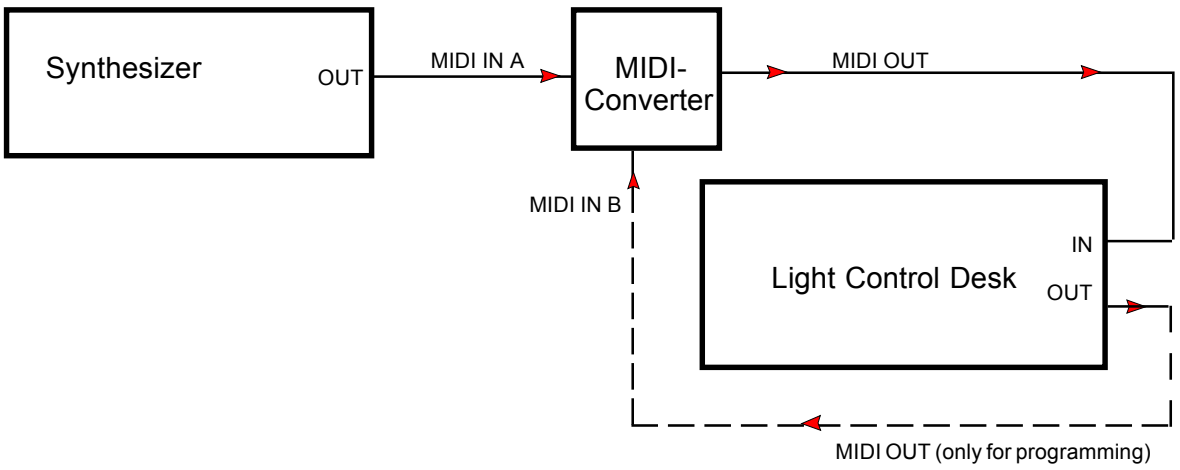


Choose between PASS ON or OFF:
PASS OFF - only the created MIDI data is sent
PASS ON - all MIDI data is sent, including that (>PASS<) which is not known and translated

Possibility to choose between hexadecimal and decimal plotting of the numbers

3. Connecting the MIDI units

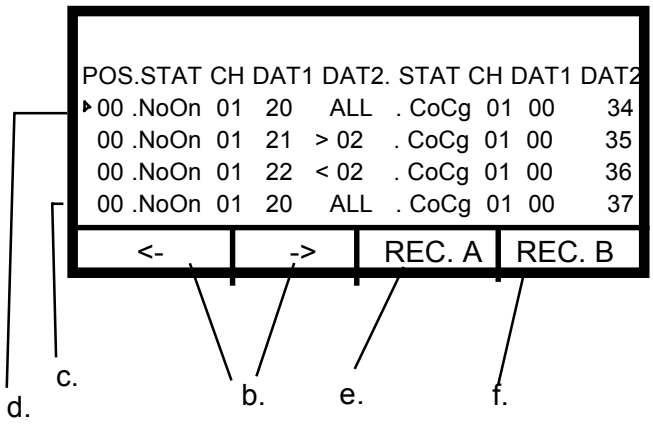
- connect your MIDI capable units:
  MIDI input "A" is the normal input for the DMX source
  MIDI input "B" is the input for the remote controlled unit; this input is only used for programming
  MIDI output for the remote controlled unit



4. Programming the MIDI-Converter:

4.1. Recording the MIDI data directly:

a. Choose "EDIT" in the menu



b. Move the cursor (using cursor button <) to position line ("POS")

c. Select the line "NEW" using the encoder if you want to program a new line.

d. Every other line can be overwritten

e. Recording the incoming Midi data:
- By pressing the button "REC A" (<REC A" is indicated) input A will be set to programming; one MIDI-command can be recorded
- Incoming MIDI-signals will be indicated by a short blinking of the input LED
- Now the first three incoming MIDI-bytes were saved to the marked position.
- After that REC.A is switched off automatically. The recorded data can/must be edited (see 4.2 and 4.3: Editing MIDI-data).

f. Rec. B -> Input B will be set and recorded in the same manner as Rec. A.

g. Pushing STORE will save the line.
If STORE is not pressed, a safety message comes up which must be confirmed with YES or NO.

h. Pushing CLEAR will delete the marked line.

Attention: Some masterkeyboards continuously send MIDI-Clock-data. These should be switched off before recording begins.

4.2. Editing the MIDI data

Another possibility to program is to edit existing or new connections.
To do this, you have to move the cursor to the column "POS" and turn the Encoder Wheel to the desired line. By < and > the value will be chosen and can be changed manually.
Pushing STORE will save the changes.

! *When note commands are used, velocity information can be filtered out off the input signal, otherwise the receiving unit would react only to this information. The same is true when synchronizing two faders, e.g. two lighting control desks.*
To do this, the cursor must be set to data 2 of the corresponding Midi signal value, then the encoder wheel must be turned to "ALL" (>127); now every input value will be recognized. When the output second data byte is set to "ALL", all data of the second data byte is sent unchanged (in this example the velocity).

Furthermore there is the possibility to set a LARGER/SMALLER (>/<) before the second data byte of the incoming data so that only larger or smaller values are recognized (e.g. controlling a Scancommander by faders of a Lightcommander: Here a button function shall be carried out by a special fader value. When the fader is moved very fast, not all data will be transmitted. By the function >/< the value will always be recognized and executed).

Attention: For the application of controlling MA Lighting Control Desks by NOTE ON/NOTE OFF commands, it makes sense to use fader values (e.g. CoCg 01 + 00 + 127 for Memory1 = 100%), because they can be addressed directly and easily.
Please take care to use one command each for "ON" and "OFF".

To change the Page of LC 12/24/48, simple commands are sufficient.

To remote chaser, the chaser master, the chaser number and chaser ON/OFF should be programmed.

When controlling switch memories or flash buttons of the memories of the Lightcommander, it is necessary to understand the MIDI commands of the Lightcommander: MIDI Lighting Control Desks transmit many MIDI commands or combinations e.g. by pressing a cue (memory) button. Therefore all commands must be programmed separately (ON/OFF and many buttons at the same time). This is very time consuming!

If you don't use more than one button at a time, flash buttons can be used very easily.

Please note the examples below!

4.3. Examples

A. MA Lightcommander 24/6 fader controls MA Scancommander

Job:
The memory C10 of the Scancommander shall be controlled by a fader value of 50 % of a Lightcommander:

POS.	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2
0	. CoCg	1	0	> 50	. CoCg	1	1	9

Data to remote the memory C10 of the Scancommander

To guarantee the recognition of the value above 50 %, the ">" sign is set. Even when the fader is moved very fast, all values above 50 % will be recognized and thus memory C10 of the Scancommander will be called.

See also chapter 8: MIDI commands

Attention: The command will be repeated upon pulling the fader down again.

B. MA Lightcommander 24/6 SWITCH Memories control MA Scancommander

Job:
Switch memories of Lightcommander 24/6 shall control different memories or sequences of the Scancommander (max. 8 controls).
Attention: The switch memories should work in KILL mode to avoid double activation.

POS .	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2	
0	. CoCg	1	31	1	. CoCg	1	1	9	(Memory C10)
1	. CoCg	1	31	2	. CoCg	1	2	14	(Sequence 15)
2	. CoCg	1	31	4	. CoCg	1	0	16	(Memory A17)

Switch memories 1 to 3 (no page information is included here)

Position 0 will activate memory C10 of the Scancommander by pressing switch memory 1 of LC 24. Position 1 starts sequence no. 15, position 2 activates memory A17.

See also chap.8: MIDI commands

C. Masterkeyboard controls MA Lightcommander 24 (Memories)

Job:
Memory 10 of LC 24 shall be activated 100 % by pressing one key of the master keyboard. Releasing the key the memory shall switch off.

POS.	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2
0	. NoOn	1	20	>1	. CoCg	1	9	127
1	. NoOn	1	20	0	. CoCg	1	9	0

Brightness 100%
Brightness 0%

Please read note (key number) in the user manual of the master keyboard

Pos.0 activates memory 10 of LC 24 100 % by a key value (velocity) > 1. The page of the Lightcommander will not be changed resp. the last MIDI page is still activated (no indication on page LEDs). Position 1 will set memory C10 to 0 % upon releasing the key.

If the brightness of the memory is dependent on the velocity, please see the following data:

POS.	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2
0	. NoOn	1	20	ALL	. CoCg	1	9	ALL

Here the second line is not necessary because the command ALL will transmit also the brightness value 0 %.

D. Masterkeyboard controls Lightcommander 24 (Chaser)

Job:
Pressing a key of a master keyboard controls chaser no. 3 of Lightcommander 24.

POS.	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2
0	. NoOn	1	20	ALL	. CoCg	1	32	2
1	. NoOn	1	20	> 1	. CoCg	1	20	127
2	. NoOn	1	20	0	. CoCg	1	34	0

Pos. 0 starts chaser no. 3.
Pos. 1 sets chaser master to 100 %.
Pos. 2 switches off chaser when the key is released.

E. Masterkeyboard controls MA Scancommander

Job:
Pressing a key of a master keyboard controls memory C10 of a Scancommander.

POS.	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2
0	. NoOn	1	20	ALL	. CoCg	1	1	9

The memory C10 will be activated by any velocity (ALL).

F. MA Lightcommander 12 controls MA Lightcommander 24 (Memory Fader controls Chaser)

Job:
Fader memory 1 of Lightcommander 12 controls chaser no. 3 of Lightcommander 24.

POS.	STAT	CH	DAT1	DAT2	. STAT	CH	DAT1	DAT2
0	. CoCg	1	0	< 10	. CoCg	1	32	2
1	. CoCg	1	0	ALL	. CoCg	1	20	ALL

Pos. 0 starts chaser no. 3 of LC 24, when the value is smaller than 10. This value ensures that the chaser will start reliably and will not be triggered by accidental fader movements.
Pos. 1 controls the brightness values (0-127 -> 0-100 %).

5. Saving the data to a MIDI drive:

All saved data can also be saved and loaded to a MIDI drive (MIDI-streamer) or sequencer (e.g. Yamaha MDF2).

Please do as follows:

- Connect MIDI streamer
- Select Utility, Backup
- Set MIDI streamer to PLAY or RECORD
- Choose LOAD or SAVE
- Data will be transmitted within a few seconds

6. Error Handling

In case of a power failure with the MIDI Converter, please check the power LED and the display backlight. If necessary change internal fuse (800mA).

Faults can be caused by:	Contact problems at cables or connectors
	Short circuit and /or wrong connections
	Loss of ground, loss of data cables
	Inappropriate cables and extreme cable length

7. Technical data

Power:	220 VAC / 50Hz or 110VAC / 60Hz (factory setting)
Signal input	MIDI to DIN 5pol
Signal output	MIDI to DIN 5pol
Dimensions (mm)	243 x 229 x 63
Weight	2 kg (4,4 lbs)

MADE IN GERMANY
-- Technical changes reserved --

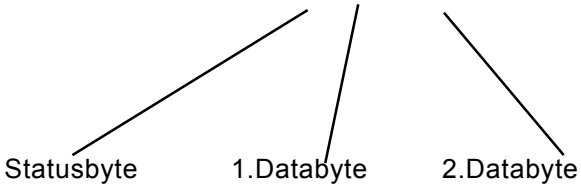
8. Appendix: MIDI Data Format and MIDI Commands of MA Light Control Desks

Scancommander: MIDI Data Format and MIDI Commands

MIDI FORMAT:	Control Change Data	
Start byte:	1011nnnn	(Control Change and MIDI channel) for example Channel 1 =B0=176
1.Data byte:	00000nnn	(0= Memory A1 to B30, 1= C1 to D30 2= Sequence 1-16, 3= GO+/GO-)
2.Data byte:	0nnnnnnn	(Number of the memory etc., starting at 0)

Example for MIDI Channel 1 :

hexadecimal: Memory A1 => B0 + 00 + 00
decimal: Memory A1 => 176 + 00 + 00



Lightcommander 12/2: MIDI Format and MIDI Commands

➔ MIDI exclusively deals with Controller Commands. In the MIDI menu two different sets of controller commands can be activated. Press Shift button within the MIDI menu.

- While MIDI OUT is turned on, all fader settings (Masters), memory buttons, the page and Chaser Program Numbers will be transferred to initiate MIDI.
- While MIDI IN is turned on or off, each internally activated Memory, the Chaser and Insert Fades will be removed.
- When MIDI IN is turned on, the Main Master, the Preset-A and -B Master will be turned to 100 %. The chaser master is set to 0 %.

➔ Commands:
The Status Byte to be transferred is always the Control Change Command.
= 1011nnnn (Bn hex) (nnnn=MIDI Channel).
Hence, two Data bytes are following:

Name:	1.		2. Data byte:
Memory Fader 1	00	(102)	+00-127 (Fader level)
Memory Fader 2	01	(103)	+00-127 (Fader level)
Memory Fader X	XX	(XX)	+.....
Memory Fader 12	11	(113)	+00-127 (Fader level)
Main Master Fader	17	(119)	+00-127 (Fader level)
Preset A Master	18	(120)	+00-127 (Fader level)
Preset B Master	19	(52)	+00-127 (Fader level)
Chaser Master	20	(53)	+00-127 (Fader level)
Memory button 5-8	23	(54)	+08=Mem5 04=Mem6 02=Mem7 01=Mem8
Memory button 1-4	24	(55)	+08=Mem1 04=Mem2 02=Mem3 01=Mem4
Memory button 9-12	26	(57)	+08=Mem9 04=Mem10 02=Mem11 01=Mem12
Page 0-9	27	(58)	+00-09 (Page 0 9)
Solo Function	28	(59)	+16=Channel Flash 08=Zero +04=Memory Flash 02=Preset B Flash +01=Preset A Flash
Chaser Start (+No.)	32	(63)	+00-98 (Chaser number)
Chaser Step button	33	(20)	+00-XX (value doesn´t matter)
Preset Mode ON	48	(29)	+00-XX (value doesn´t matter)
X-Fader	49	(30)	+00-127 (Fader level)
X-Fade Insert	50	(31)	+00 = ON, ~~00~~ = OFF (unequal zero)
X-Fade Manual	51	(84)	+00 = ON, ~~00~~ = OFF (unequal zero)
Preset Flash buttons	52	(85)	+04=Preset A 02=Preset B 01=Zero
Sound to Light Mode	53	(86)	+00 = ON, ~~00~~ = OFF (unequal zero)
Sound to Light Pause	54	(87)	+00-127 (Fader level)
Sound to Light Bass	55	(88)	+00-127 (Fader level)
Sound to Light Mid	56	(81)	+00-127 (Fader level)
Sound to Light Treble	57	(90)	+00-127 (Fader level)
Chaser Speed Fader	58	(70)	+00-127 (Fader level)
Chaser Mode	59	(71)	+00 = Sound, 01 = Run, 02 = Manual

Numbers in brackets are the values for the second controller set.

Lightcommander 24/6 and 48/6: MIDI Format and MIDI Commands

➔ The Lightcommander uses Control Change Data exclusively. Within the MIDI menu two different sets of control orders can be chosen. To avoid coincidences, either one or the other can be used.

As soon as MIDI OUT is switched on, all master adjustments and the page are sent as initialization. Chaser and X-fades are stopped.

➡ As soon as MIDI IN is switched on, all internally running memories, chases and X-fades are cancelled. Main and Chaser fader will automatically be set to 100 %.

➔ Commands:
The command 1011nnnn (Bn hex) (nnnn=MIDI channel)
will always be sent as status byte.
The following two bytes are data bytes:

Command	1.-		2.Data byte			
Memory fader 1	: 00	(102)	+ 00-127 (Fader value)			
Memory fader 2	: 01	(103)	+ 00-127 (Fader value)			
.	: .	+ . .	.			
Memory fader 16	: 15	(117)	+ 00-127 (Fader value)			
Grand Master fader	: 17	(119)	+ 00-127 (Fader value)			
Chaser Master	: 20	(53)	+ 00-127 (Fader value)			
Memory button 5-8	: 23	(54)	+ 08=Me.5	04=Me.6	02=Me.7	01=Me.8
Memory button 1-4	: 24	(55)	+ 08=Me.1	04=Me.2	02=Me.3	01=Me.4
Memory button 13-16:	25	(56)	+ 08=Me.13	04=Me.14	02=Me.15	01=Me.16
Memory button 9-12	: 26	(57)	+ 08=Me.9	04=Me.10	02=Me.11	01=Me.12
Bank A-H	: 27	(58)	+ 00-07 (Bank A-H)			
SWOP Blackout	: 28	(59)	+ 16= channel Flash		8=Switch Flash	
			4= Memory Flash		2=Preset2 Flash	
			1= Preset1 Flash			
DBO	: 29	(60)	+ 00= no DBO			
			01= DBO Switchmemory Flash			
			01= DBO Switchmemory Toggle/Kill			
Switch Memory 5-8	: 30	(61)	+ 08=SW5	04=SW6	02=SW7	01=SW8
Switch Memory 1-4	: 31	(62)	+ 08=SW1	04=SW2	02=SW3	01=SW4
Chaser ON (+No.)	: 32	(63)	+ 00-49	(Chaser number 1-50)		
Chaser Step button	: 33	(20)	+ 00-127	(no specific value)		
Chaser OFF	: 34	(21)	+ 00-127	(no specific value)		
Sequ.ON (+No.)	: 35	(22)	+ 00-49	(Sequence number1-50)		
Sequ.Change (+No.)	: 36	(23)	+ 00-49	(Sequence number 1-50)		
Sequ.Go	: 37	(24)	+ 00-127	(no specific value)		
Sequ.Fadeout	: 38	(25)	+ 00-127	(no specific value)		
Sequ.Off	: 39	(26)	+ 00-127	(no specific value)		
Init Mem.Bank (intern)	: 40	(27)	+ 00,	4Bit Memory 0-15,		3 Bit Bank 0-7
Init Swh-Bank (intern)	: 41	(28)	+ 00,	4Bit SwitchMem 0-7,		3 Bit Bank 0-7

RESET : no Status Byte ; 255 (FF)

Numbers in brackets are the numbers for the alternative controller set.

Safety Instructions:

1. Read all the instructions in the user manual.
2. Keep the user manual for later use.
3. Follow all the instructions on the unit.
4. Pull the plug before cleaning the unit; don't use any liquid or spray cleanser. Clean with a damp cloth.
5. Do not use the unit near water.
6. Do not put the unit on unstable tables etc.. It might fall down and get damaged.
7. Do not block the unit´s ventilation slots. Always insure adequate ventilation when installing the unit in a rack.
8. The unit is provided with a safety plug. This plug can only be used with safety sockets. These safety measures should by all means be followed. In case the plug does not fit into the socket (e.g. with old sockets), the socket should be replaced by an electrician.
9. Do not place any objects on the power cable.
10. In case you use an extension wire make sure the sum of the power consumption of the connected units does not exceed the maximum power of the wire. The sum of the units plugged in the socket should not exceed 10 Ampere.
11. Do not spill any liquid over the unit. Do not put any objects through the slots of the unit, as these might get in contact with parts that are live or might cause short circuits. This may cause fires and shocks.
12. Do not service the unit yourself, you run the risk of getting shocked. All services should only be carried out by a specialist.
13. If one of the following conditions occurs, please pull the plug out and call the service:
    A. Cable or plug is damaged or worn.
    B. Liquid got into the unit.
    C. The unit was exposed to rain or moisture.
    D. The unit does not work properly even if you follow the instructions of the user manual.
    E. The unit fell down and the case was damaged.
14. Only use cables which are marked safety proof.
15. Do not use the unit near high performance walkie-talkies or similar units.

DECLARATION OF CONFORMITY according to guide lines 89/336 EWG and 92/31 EWG:

Name of producer:	MA Lighting Technology GmbH
Address of producer:	Dachdeckerstr. 16 D-97297 Waldbüttelbrunn
declares that the product	
Name of product:	MA MIDI Converter
Type:	MIDI Converter
answers the following product specifications:	
Safety:	EN60065, VDE0860, IEC65
EMV (EMC):	EN55103-1 (E1), EN50081-1 EN55103-2 (E2), EN50082-1
Additional informations:	All MIDI inputs and outputs must be shielded. The shielding of the MIDI connectors must be connected to the ground of the corresponding plug.

Waldbüttelbrunn, 17.01.1995

Dipl. Ing. Michael Adenau