G·LAB
GUITAR LABORATORY

Midi 4 x Loop
M4L

☐ User Manual
☐ Instrukcja obsługi
☐ Bedienungsanleitung

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Dear Customer,

Congratulations for choosing our G LAB product!

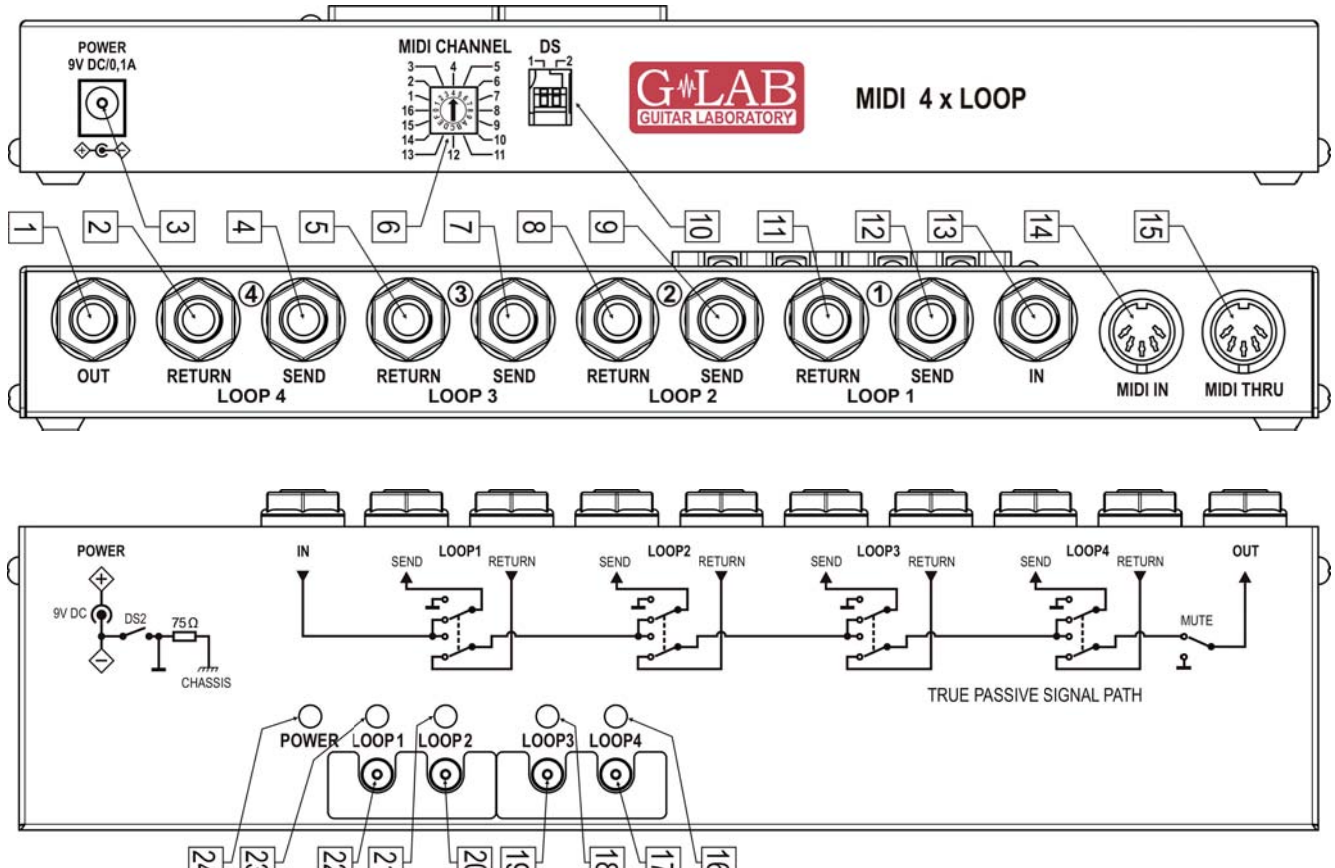
MIDI 4 x LOOP (M4L) is a loops' switcher controlled by MIDI interface or manually, by using the buttons. M4L should be controlled by programmable MIDI controller (which enables to program and send chosen MIDI PROG CHANGE or CTRL CHANGE commands for any controller's preset). It is particularly recommended to use the M4L as an extension of the G LAB GSC guitar system controllers.

Basic characteristics:

- four bypassed (by electro mechanic relay) loops to connect the pedal effects or serially connected sets of effects,
- muting circuit based on opto elements,
- MIDI THRU connector to connect other MIDI devices,
- power supply and active loop indicators,
- four buttons for loops' manual on/off switching,
- power supply 9V DC (direct current).

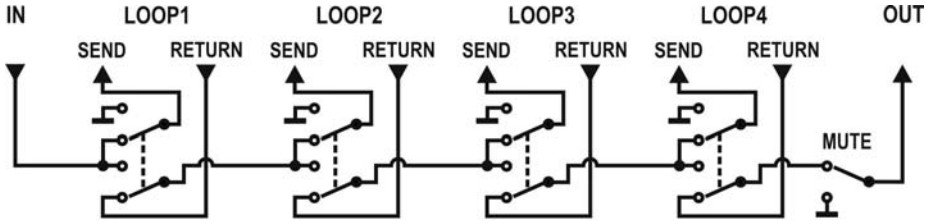
Structure

1 - Signal output connector
2 - LOOP 4 signal input (RETURN)
3 - Power supply connector
4 - LOOP 4 signal output (SEND)
5 - LOOP 3 signal input (RETURN)
6 - MIDI channel settings switcher
7 - LOOP 3 signal output (SEND)
8 - LOOP 2 signal input (RETURN)
9 - LOOP 2 signal output (SEND)
10 - DS1 and DS2 micro switch
11 - LOOP 1 signal input (RETURN)
12 - LOOP 1 signal output (SEND)
13 - Signal input connector
14 - MIDI input
15 - MIDI copy (THRU)
16 - Loop 4 status indicator
17 - Loop 4 on/off button
18 - Loop 3 status indicator
19 - Loop 3 on/off button
20 - Loop 2 on/off button
21 - Loop 2 status indicator
22 - Loop 1 on/off button
23 - Loop 1 status indicator
24 - Power supply indicator


POWER
9V DC/0,1A
MIDI CHANNEL
DS
G-LAB
GUITAR LABORATORY
MIDI 4 x LOOP
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
OUT
RETURN
SEND
LOOP 4
RETURN
SEND
LOOP 3
RETURN
SEND
LOOP 2
RETURN
SEND
LOOP 1
IN
MIDI IN
MIDI THRU
POWER
9V DC
DS2
75Ω
CHASSIS
IN
SEND
LOOP1
RETURN
SEND
LOOP2
RETURN
SEND
LOOP3
RETURN
SEND
LOOP4
RETURN
OUT
MUTE
TRUE PASSIVE SIGNAL PATH
POWER
LOOP1
LOOP2
LOOP3
LOOP4
24
23
22
21
20
19
18
17
16

Scheme and signal path description

M4L has true passive signal path (without signal boosting and buffering elements). Due to this the M4L doesn't influence the guitar tone (doesn't change the tone and doesn't cut the signal). It is recommended to use the M4L to "exclude" from the effects' signal path the effects without true bypass function. Controlling by MIDI provide galvanic separation from controlling device. Every time after switching on the power supply four effect loops are switched off and the signal path is "opened".



TRUE PASSIVE SIGNAL PATH

Manual loops switching

For manual loops switching there are used four buttons signed LOOP1, LOOP2, LOOP3 and LOOP4. To switch on/off the loop press corresponding button.

MIDI channel setting

To set the MIDI channel use the rotatable knob signed as MIDI CHANNEL. To switch the channel use the small screwdriver to turn smoothly central part of the switcher to the right or to the left. The arrow-head indicates set channel (letter A, B, C, D, E, F correspond successively with the channel numbers 10, 11, 12, 13, 14, 15, and number 0 indicates channel 16).

Controlling via MIDI commands

M4L can by controlled by Program Change commands. The table below shows the Program Change command functionality.

PROG. CH.	LOOP		MUTE
	1	2	
1X	OFF	OFF	OFF
2X	ON	OFF	OFF
3X	OFF	ON	OFF
4X	ON	ON	OFF

PROG. CH.	LOOP		MUTE
	3	4	
X1	OFF	OFF	OFF
X2	ON	OFF	OFF
X3	OFF	ON	OFF
X4	ON	ON	OFF

PROG. CH.	LOOP				MUTE
	1	2	3	4	
100	ON	ON	ON	ON	ON
101	RESTORE				OFF

X – every value from 0 to 9 range

The units' digit of program number defines the state of LOOP3 and LOOP4, the decimal digit of program number defines the state of LOOP1 and LOOP2. Receiving of the command which units' digit or decimal digit has out of range value causes ignoring that digit(s) and considering the digit with correct value.

M4L can be controlled by individual Control Change type command or individual controllers of particular functions. The table below shows the Control Change commands functionality.

CONTROL CHANGE		
NUMBER	VALUE	
80	0 - 63	LOOP1 OFF
	64 - 127	LOOP1 ON
81	0 - 63	LOOP2 OFF
	64 - 127	LOOP2 ON
82	0 - 63	LOOP3 OFF
	64 - 127	LOOP3 ON
83	0 - 63	LOOP4 OFF
	64 - 127	LOOP4 ON
7	0	MUTE ON
	1-127	MUTE OFF

CONTROL CHANGE				
NUMBER	VALUE	LOOP		MUTE
		1	2	
89	1X	OFF	OFF	OFF
	2X	ON	OFF	OFF
	3X	OFF	ON	OFF
	4X	ON	ON	OFF

CONTROL CHANGE				
NUMBER	VALUE	LOOP		MUTE
		3	4	
89	X1	OFF	OFF	OFF
	X2	ON	OFF	OFF
	X3	OFF	ON	OFF
	X4	ON	ON	OFF

X – every value from 0 to 9 range

CONTROL CHANGE						
NUMBER	VALUE	LOOP				MUTE
		1	2	3	4	
89	100	ON	ON	ON	ON	ON
	101	RESTORE				OFF

DS1 micro switch

DS1 micro switch connects controlling circuit ground to main signal ground. If the M4L's 9V power supply circuit is fully separated from ground (isn't connected with any ground) the **DS1** switch should be switched to **ON** position.

DS2 micro switch

DS2 micro switch enables/disables the silent switching function. In order to activate the function that mutes the loops switching clicks the **DS2** switch should be switched to **ON** position. The **DS2** switch should be switched to **OFF** position when in the signal path after the M4L there is another device muting the switching clicks.

Power supply

M4L should be supplied from 9V (DC) external adaptor (efficiency 100 mA or more). Before plugging the power supply check the pin polarisation. M4L is protected against opposite polarity (minus as center).
If this protection switches on it is needed to disconnect the power supply and wait few minutes before reactivation of the device.

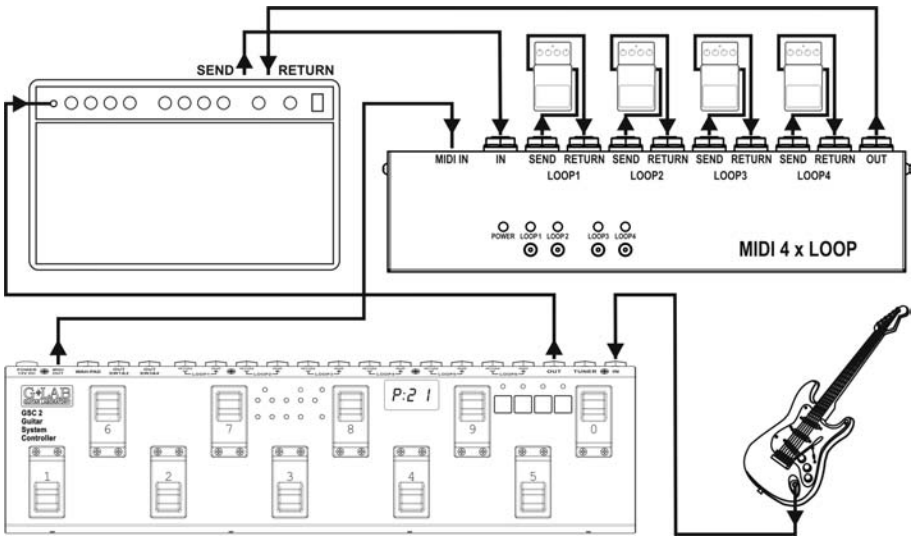
ATTANTION!: Damage of the M4L caused by improper power supply causes the loss of the warranty.

Parameters

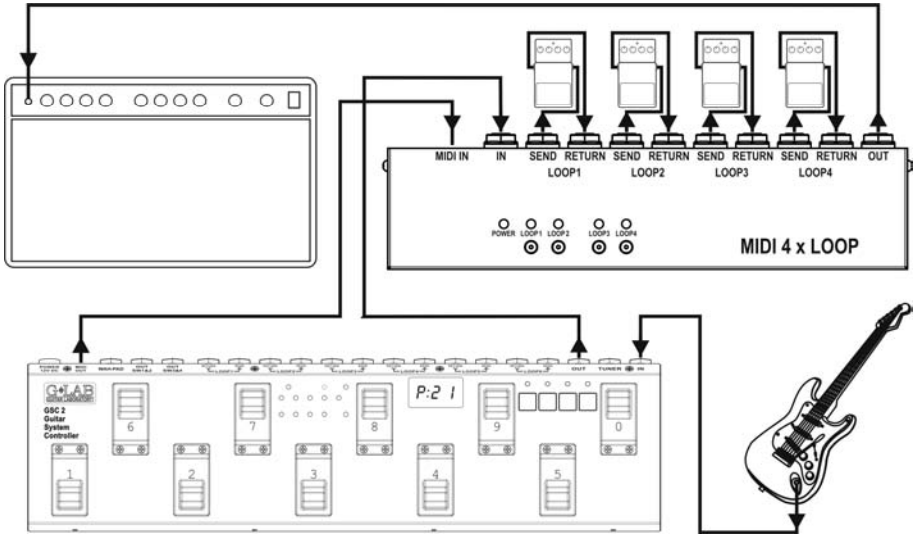
Dimensions (depth x width x height)	270 x 70 x 38 mm
Weight	620 g
Maximal input signal	30 dBu
Power supply	9V DC (8,7 to 9,4V)
Power consumption	0,1 A

Possible using of the M4L

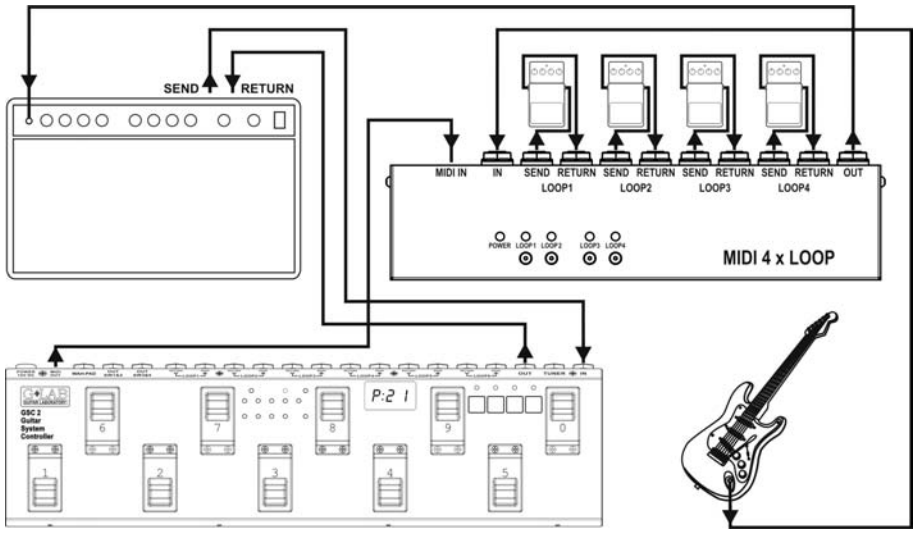
Below are shown the possible schemes of M4L connection with the guitar system.



Scheme of M4L connection to the amp's effects loop



Scheme of adding four effects loops to the GSC controller



Scheme of the system with the M4L connected to the amp input and the GSC in the effects loop

MIDI implementation chart

G LAB MIDI 4xLOOP M4L rev. 1.04 10.01.2009

Function	Transmitted	Recognised
Basic Channel		
Default	X	1
Changed	X	1-16
Mode		
Default		
Messages	X	X
Altered		
Note Number	**X**	**X**
True Voice	X	X
Velocity		
Note ON	X	X
Note OFF	X	X
After Touch		
Keys	X	X
Channels	X	X
Pitch Bend	**X**	**X**
Control Change	**X**	**7, 80-83,89**
Prog Change	**X**	**1-4,10-14,20-24,30-34,40-44,100-101**
System Excl.	**X**	**X**
System Common		
Song Pos	X	X
Song Sel	X	X
Tune	X	X
System real time		
Clock	X	X
Commands	X	X
Aux Messages		
Local ON/OFF	X	X
All Notes OFF	X	X
Active Sense	X	X
Reset	X	X

X: NO

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for help.

Declaration of Conformity

ELZAB S.A., ul. Kruczkowskiego 39, 41-813 Zabrze, Poland,
declare under sole responsibility, that the following product:

G LAB/ MIDI 4 x LOOP (G LAB M4L)

conforms with requirements of the EC Council Directives:

- 2006/95/EEC Low Voltage Directive,
- 2004/108/EEC Electromagnetic Compatibility,

and holds CE mark. Above named product conforms with the following standards:

- PN-EN 60065:2004 /EN 60065:2002/ Audio, video and similar apparatus - Safety requirements.
- PN-EN 55103-1:2000 /EN 55103-1:1996/ Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 1: Emission
- PN-EN 55103-2:2001 /EN 55103-2:1996/ Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 2: Immunity

Jerzy Biernat

President of the ELZAB S.A. Board of Directors

Copy of original EC declaration of conformity is available for download on our webside http://www.glab.com.pl

DO NOT PLACE THIS PRODUCT INTO THE WASTE CONTAINER !

This device is marked with a cross-lined waste container symbol according to 2002/96/EU Directive on Waste Electric and Electronic Equipment.

Such marking informs that after usage equipment can not be trashed together with other household waste.

An user obligation is to return wasted equipment to a party collecting wasted electric and electronic equipment. Parties collecting such equipment organise a system, including local collection points, shops and other units, allowing to return such equipment. This Directive assures an user free of charge utilisation of such delivered equipment.

This device is made of materials which can be recycled or utilised after becoming out of use. Proper handling of wasted electric and electronic equipment reduce demand for row materials and contribute in avoiding harmful consequences for environment and health of people caused by dangerous components and not proper storing and utilising of such equipment.

G LAB is a brand of ELZAB SA

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