

## Soundweb London Interface Kit



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Soundweb London

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<b>Limited warranty</b>	<b>2</b>
<b>Hardware</b>	<b>4</b>
PC to Soundweb London via RS232	4
PC to Soundweb London via Ethernet	4
Direct Inject Messaging protocol	4
Serial	4
Ethernet	4
Message Format	5
Message Body Format	5
Protocol details	7
<b>Implementing the Direct Inject message protocol on other equipment</b>	<b>8</b>
Sending a message	8
Receiving a message	8
<b>Step-by-step guide</b>	<b>9</b>
Types of messages	10
Percentage control	10
Activating Presets	11
<b>Debugging</b>	<b>11</b>
<b>Using the London Direct Inject message tool</b>	<b>12</b>
Menus	12
Getting started	13
Toolbox	15
Contrast	15
Logic outputs	15
Control ports	16
CobraNet	16
Set time from PC	16
Direct Inject message strings from London Architect	18
Creating messages to control a gain	19
Creating messages to subscribe to meters	20
<b>Appendices</b>	<b>22</b>
A. Calculating scaling laws for parameters	22
Percentage, using DI_SETSVPERCENT or DI_BUMPSVPERCENT	22
Discrete	22
Scalar linear scaling	22
Gain scaling (linear and logarithmic)	22
Delay scaling (ms)	23
Frequency (Hz) and Speed (ms) scaling	24
Percentage scaling, using DI_SETSV	24
B. Meter state variable IDs	25
Input	25
Output cards	25
CobraNet receive bundle	25
CobraNet transmit bundle	25
C. FAQ	26
D. Fixed Object IDs	27
E. Telephone Hybrid String Dialing from 3 <sup>rd</sup> Party Controllers	27
F. Fixed State Variable IDs	28
General Device SVs	28
Processing Objects	31

## Introduction

This document is intended for Soundweb London users who wish to provide their own user interface or control system for a Soundweb London system. The user interface can be based on a PC running a custom application, a show controller or even a custom piece of hardware.

The Direct Inject message

This interface protocol builds on the flexibility of the **RAW\_MSG** extension protocol which was introduced with Soundweb Original and gives almost complete control of a Soundweb London network via RS232 and Ethernet.

## Hardware

### PC to Soundweb London via RS232

- 3-wire Null modem cable.

### PC to Soundweb London via Ethernet

- Standard Soundweb London Ethernet network.

### Null modem cable

DB9F - PC	DB9F – Soundweb London
TX pin 3	RX pin 2
RX pin 2	TX pin 3
GND pin 5	GND pin 5

## Direct Inject Messaging protocol

### Serial

- Always use 8-bit data with no parity.
- Bit rate 115200 bps default (adjustable in London Architect software)
- No flow control

### Ethernet

- TCP port 1023

The following bytes have special meanings:

- 0x02 **STX**
- 0x03 **ETX**
- 0x06 **ACK**
- 0x15 **NAK**
- 0x1B **Escape**
- Any other single byte can be used within a message body

To use one of the special bytes within a message body, do the following:

- 0x02 - substitute with 0x1B 0x82
- 0x03 - substitute with 0x1B 0x83
- 0x06 - substitute with 0x1B 0x86
- 0x15 - substitute with 0x1B 0x95
- 0x1B - substitute with 0x1B 0x9B

Please note that these substitutions should be performed on the message **after** the checksum has been calculated and appended, as the checksum itself may be a special reserved byte and need substituting.

The following bytes are command bytes to appear at the beginning of a message after **STX**.

0x88	<b>DI_SETSV</b>	Direct inject message, set state variable.
0x89	<b>DI_SUBSCRIBESV</b>	Direct inject message, subscribe to state variable.
0x8A	<b>DI_UNSUBSCRIBESV</b>	Direct inject message, unsubscribe from state variable.
0x8B	<b>DI_VENUE_PRESET_RECALL</b>	Direct inject message, recall a Venue Preset
0x8C	<b>DI_PARAM_PRESET_RECALL</b>	Direct inject message, recall a Parameter Preset.
0x8D	<b>DI_SETSVPERCENT</b>	Direct inject message, set state variable by percentage.
0x8E	<b>DI_SUBSCRIBESVPERCENT</b>	Direct inject message, subscribe to state variable as a percentage.
0x8F	<b>DI_UNSUBSCRIBESVPERCENT</b>	Direct inject message, unsubscribe from state variable as a percentage.
0x90	<b>DI_BUMPSVPERCENT</b>	Direct inject message, bump the SV by the given signed percentage. + = up, - = down.

## Message Format

**<message> = <STX> <body> <checksum byte> <ETX>**

**<checksum byte>** is the exclusive OR of all the bytes in **<body>**, before substitution.

**Note:** If the checksum is one of the special characters it must be substituted in the same way as bytes in the body of the message.

## Message Body Format

This is one of the following:

**<Body> =**

**<DI\_SETSV> <node> <virtual\_device> <object> <state\_variable> <data>**

**<DI\_SUBSCRIBESV> <node> <virtual\_device> <object> <state\_variable> <rate>**

**<DI\_UNSUBSCRIBESV> <node> <virtual\_device> <object> <state\_variable> <0>**

**<DI\_VENUE\_PRESET\_RECALL> <data>**

**<DI\_PARAM\_PRESET\_RECALL> <data>**

**<DI\_SETSVPERCENT> <node> <virtual\_device> <object> <state\_variable> <percentage>**

**<DI\_SUBSCRIBESVPERCENT> <node> <virtual\_device> <object> <state\_variable> <rate>**

**<DI\_UNSUBSCRIBESVPERCENT> <node> <virtual\_device> <object> <state\_variable> <0>**

**<DI\_BUMPSVPERCENT> <node> <virtual\_device> <object> <state\_variable> <+/-percentage>**

Where data fields are defined as follows:

**<node>** 16-bit word. This is the node address of the London Unit. If the unit you wish to control is the one that you are directly connected to with a serial cable, then this is zero.

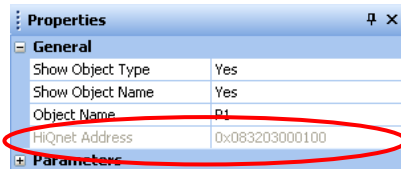
If you wish to control another unit via this cable but which is across the Ethernet network, then this needs to be the *HiQnet Node Address* as seen in the network window in London Architect for the unit in question.



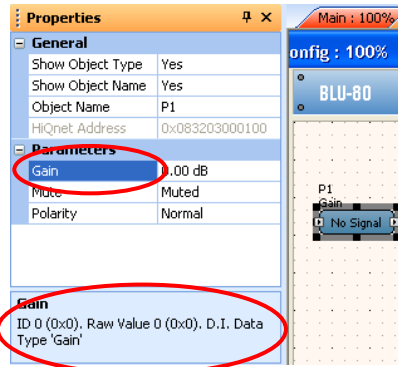
**<virtual\_device>** One Byte. For all controls on audio processing objects, this is 0x03.

**<object>** 24-bit word. This is particular to an object placed in the configuration window. It can be discovered from the full HiQnet address which is obtained by clicking on the object in the configuration window and viewing the properties. The address is made up from: **0xnnnnvvbbbbbb**. Where **nnnn** is the node address, **vv** is the virtual device number and **bbbbbb** is the object address.

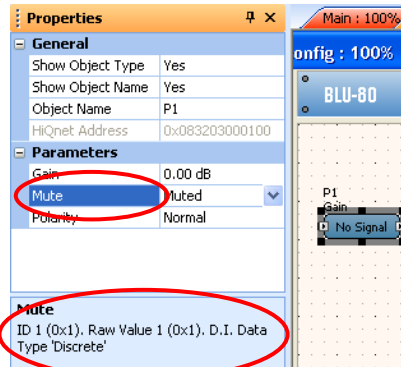
In this example, 0x083203000100, the object address is 000100



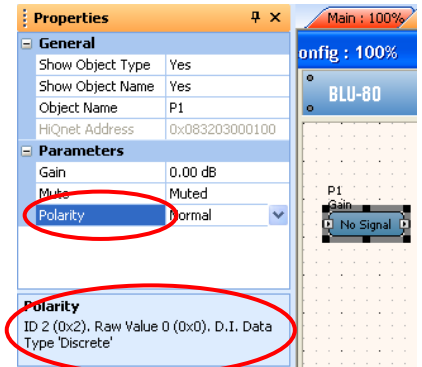
**<state\_variable>** 16-bit word. Each object has a number of state variables which refer to each of the controllable parameters within an object. For example, a gain object has three state variables:



Gain: ID 0



Mute: ID 1



Polarity: ID 2

**<data>** 32-bit word. The data is encoded according to the type of state variable being controlled. See Appendix A for all encoding types.

**<percentage>** 32-bit word. The value of the control as a percentage (i.e. 0 to 100) multiplied by 65536. Actual range of values for SetSVPercent is 0 to 6553600. For BumpSVPercent, the range of values is -6553600 to 6553600.

The percentage is multiplied by 65536 to allow for fractions of a percent.

## Protocol details

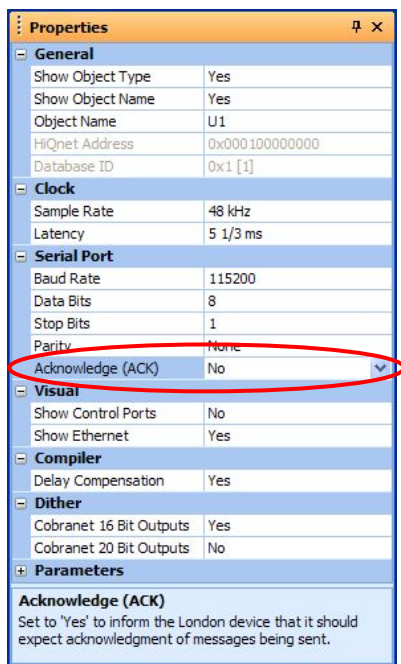
When a message is received successfully, an **ACK** is returned. This should be done within one second of receiving the **ETX**.

When a message is received unsuccessfully, determined by the checksum being incorrect or the frame incorrectly formed with start and end characters, a **NAK** is returned. This should be done within one second of receiving the **ETX** (or the last character received).

If an **ACK** or **NAK** is not received within 1 second of sending a message, then the message should be re-sent.

**Note:** The ACK/NAK mechanism is not used for Ethernet messages as TCP provides it automatically.

The Acknowledge mechanism is configurable for Soundweb London devices in one direction only. In the property sheet for a device, visible by clicking on the device in the main layout window, go to the Serial port section.



Soundweb London will always respond with an **ACK** or **NAK** when it receives a string. The setting here is to control whether or not Soundweb London should expect to receive an **ACK** or **NAK** after transmitting a string. Incorrect set up of this feature can result in a non-functional system, please see the FAQ at the end of this document.

## Implementing the Direct Inject message protocol on other equipment

It is quite possible for other equipment to talk to a Soundweb London device using the Direct Inject message protocol. It is simply a matter of implementing the protocol on the chosen platform.

### Sending a message

The following pseudo code sends a message by putting in escape characters, checksum, **STX** and **ETX**.

```
SEND (STX)
CHAR CHECKSUM = 0
FOR EACH CHARACTER IN MESSAGE BODY
{
    CHECKSUM = CHECKSUM XOR CHARACTER
    IF (IS_SPECIAL (CHARACTER))
    {
        SEND (ESCAPE)
        SEND (CHARACTER + 128)
    }
    ELSE
    {
        SEND (CHARACTER)
    }
}
IF (IS_SPECIAL (CHECKSUM))
{
    SEND (ESCAPE)
    SEND (CHECKSUM + 128)
}
ELSE
{
    SEND (CHECKSUM)
}
SEND (ETX)
/* NOW WAIT FOR AN ACK OR NAK */
```

### Receiving a message

The following pseudo code receives a message, takes out escape characters and makes sure the message is valid by looking at the checksum.

```
BOOL GOT_ESCAPE /* TELLS US THAT THE PREVIOUS CHARACTER WAS ESCAPE*/
CHAR CHECKSUM = 0
ON RECEIVED CHARACTER
{
    IF (CHARACTER = STX)
    {
        CHECKSUM = 0 /* START OF MESSAGE */
        CLEAR_MESSAGE_BUFFER() /* CLEAR THE MESSAGE BUFFER */
        GOT_ESCAPE = FALSE
    }
    ELSE IF (CHARACTER = ETX) /* END OF MESSAGE, CHECK THE CHECKSUM */
    {
        IF (GET_LAST_BYTE_IN_MESSAGE_BUFFER() = CHECKSUM)
        {
            SEND (ACK) /* THE MESSAGE IS OK */
        }
        ELSE
        {
            SEND (NAK)
        }
        GOT_ESCAPE = FALSE
    }
    ELSE IF (CHARACTER = ESCAPE)
    {
        GOT_ESCAPE = TRUE
    }
    ELSE
    {
        IF (GOT_ESCAPE = TRUE)
        {
            ADD_BYTE_TO_MESSAGE_BUFFER (CHARACTER - 128)
            CHECKSUM = CHECKSUM XOR (CHARACTER - 128)
        }
        ELSE
        {
            ADD_BYTE_TO_MESSAGE_BUFFER (CHARACTER)
            CHECKSUM = CHECKSUM XOR CHARACTER
        }
        GOT_ESCAPE = FALSE
    }
}
}
```

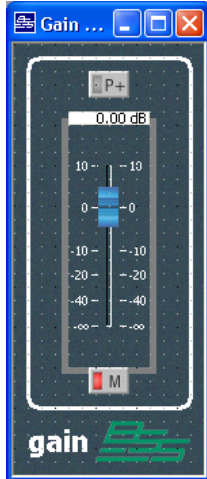


## Step-by-step guide

There are two methods of generating message strings to be sent from your 3<sup>rd</sup> party controller to Soundweb London devices.

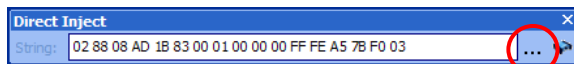
If a small number of fixed serial messages are required for your 3<sup>rd</sup> party controller, then the Direct Inject toolbar provided in London Architect is more than adequate for this purpose. Simply select the control that you wish to control via DI message and copy the contents from the edit field on the toolbar.

For example, to set the gain of this gain object to 0dB:



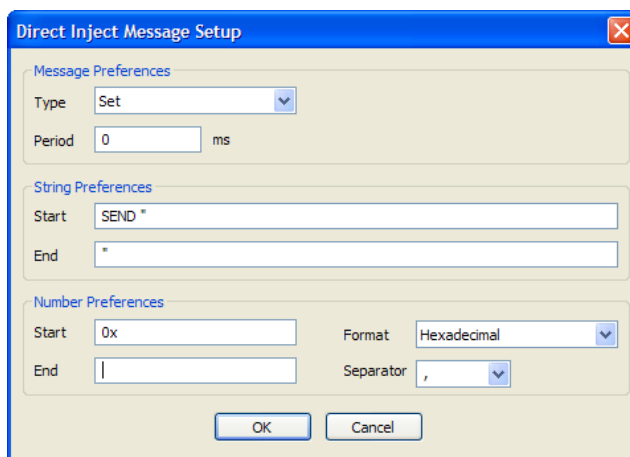
For messages to appear in the toolbar, you either need to be in design mode, or soft-operate mode (hold down ALT, then move the control).

Copy the text string from the Serial tool bar shown below.



Press the ellipsis to open the Message setup dialog. The toolbar can be configured to provide many different serial string formats, in decimal and hex, with surrounding keywords if required.

For example, if your controller requires a function *SEND*, followed by a list of bytes in quotes, then the toolbar should be configured as follows:



The above example generates:

```
SEND "0x02, 0x88, 0x01, 0x0F, 0x1B, 0x83, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x84, 0x03"
```

The alternative and more detailed method of generating message strings is by using the DI message tool which is described on the ["Using The London Direct Inject Message Tool"](#) page.

## Types of messages

There are seven types of messages which can be sent to a Soundweb London device.

### SET

This is used to send control settings into the unit, or any unit on the network.

### SUBSCRIBE

This message is used to configure the unit to send out control changes to your controlling PC or show controller either when they change, or in the case of meters, periodically at the rate you specify in the Period box. The granularity of this period is 50ms, i.e. settings may be 50 = 20 times a second, 100 = 10 times a second and so on.

After issuing this message, you will receive SET messages in the same format as used to send to the unit. In this instance, the parameters refer to the originating object, so the node is that which the message came from, i.e. not necessarily the one you are directly connected to with the serial cable.

### UNSUBSCRIBE

This message performs the reverse of subscribe and removes a subscription so that change or periodic messages will cease.

## Percentage control

### SET%

This is used to send control settings into the unit, or any unit on the network. When the unit receives a percentage, it maps the value onto the parameter that you are controlling. You may think of this as a visual scaling, e.g. if the control is a fader or a rotary, then 50% will be half way of the travel of the control.

### SUBSCRIBE%

This message is used to configure the unit to send out control changes to your controlling PC or show controller either when they change, or in the case of meters, periodically at the rate you specify in the Period box. The granularity of this period is 50ms, i.e. settings may be 50 = 20 times a second, 100 = 10 times a second and so on.

After issuing this message, you will receive SET% messages in the same format as used to send to the unit. In this instance, the parameters refer to the originating object, so the node is that which the message came from, i.e. not necessarily the one you are directly connected to with the serial cable.

### UNSUBSCRIBE%

This message performs the reverse of subscribe and removes a subscription so that change or periodic messages will cease.

### BUMP%

This message is used to increase or decrease the value of the state variable by the given signed percentage. + = up, - = down.

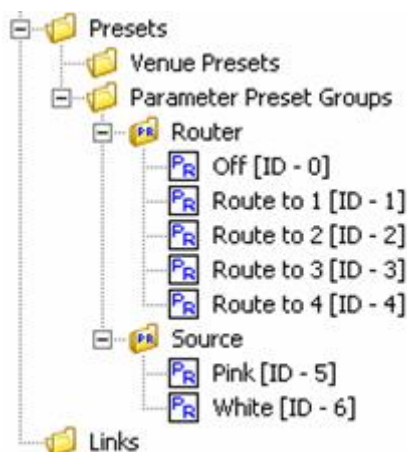
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## Activating Presets

Venue and parameter preset recall messages are broadcast messages and therefore do not require a node address.

Units are configured whether to respond to a preset, the data field in the message is a unique identifier which is simply its index in the unit's list of presets.

To find the ID of a preset, go to the design tree:



The preset IDs are shown in square brackets and are fixed once created. This means that if you were to delete the preset state 'Pink', all remaining presets will maintain the same IDs including 'White' which will still have ID 6.

Venue presets are numbered in exactly the same way.

## Debugging

A good way of debugging a system is to be online to the London unit with London Architect and to run the Direct Inject message tool connected to the serial port of the unit.

With both London Architect and the London Direct Inject application open, messages can be tested in both directions; sending from the unit by adjusting a control in London Architect and by sending from the message tool.

Messages sent from London Architect will appear in the incoming box and serve as examples of message construction for sending from your piece of equipment, since they will be the same.

Remember, start simple with perhaps just a couple of mute buttons to establish you have everything cabled correctly and each unit configured correctly.

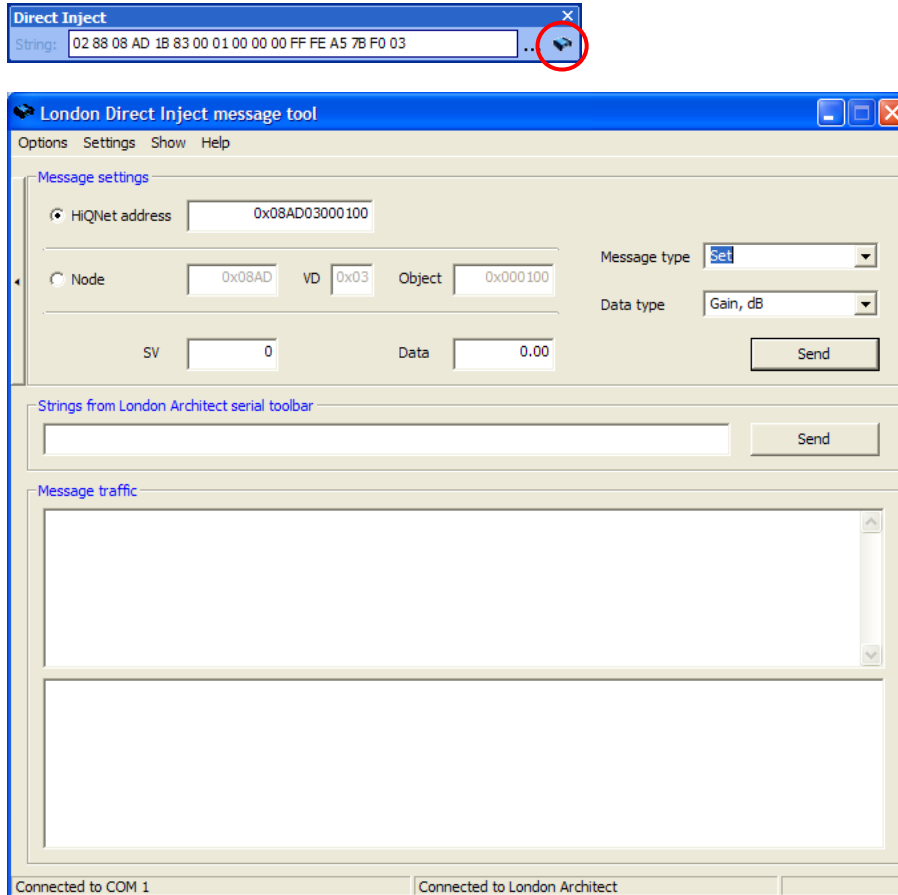
TM



## Using the London Direct Inject message tool

The intention of this tool is for testing and debugging. It can be used to generate strings in a similar way to London Architect, but will allow you to send messages over a serial connection and over Ethernet and also provides testing for subscription.

Launch the DI message tool by clicking on the DI box button on the message toolbar.



### Menus

#### Options

#### Show

##### Incoming bytes

This option controls whether the received bytes are shown in hex. This is useful for debugging serial trigger objects.

##### Incoming ACKs

This option controls whether ACKs are shown in the received message traffic window. The word ACK is shown in the window when an 0x06 byte is received back from the device. If you have incoming bytes also switched on, you will see ACK 0x06.

##### Incoming messages, Outgoing messages

These two options control whether the sent and received messages are shown in the message traffic windows. They default to on which is the most useful. Consider switching them off if you have lots of traffic, e.g. many subscriptions, to improve performance of the graphical meters in the meter window (described below).

A double-click in either of the message traffic windows will clear them.

##### Acknowledge messages

This option controls whether the Acknowledge character is sent in response to received messages. It defaults to ON.

##### Log

## Control ports

This is a useful debug feature if you need to closely inspect the control ports on a device, perhaps tracking down interference. When used in conjunction with the control port subscriptions in the toolbox window, it will write real-time control port values to a file called "cplog.txt" in the directory that the application was launched from (usually "C:\Program Files\Harman Pro\London Architect\"). It is a comma separated value file, as shown:

```
port: 0, 001,  
port: 0, 255,
```

## Auto-track London Architect object

This option connects London Architect to the DI message tool so that the details of the currently selected State variable are copied across to assist in simple testing. See full description in the following pages.

## Auto-track London Architect message toolbar

Similar to tracking the selected object, this option copies the message string from the London Architect message toolbar in the DI message tool so that it can be sent to a device on the selected communications port.

## Settings

### Comms

This option launches the communications setup dialog.

## Show

### Toolbox

Show the toolbox window.

### Meters

Show the meters window.

### Network window

Show the network window (when using Ethernet). There is also a button to show the network window, on the left hand side of the main window.

## Help

### About

Show the about box, with version information.

## Getting started

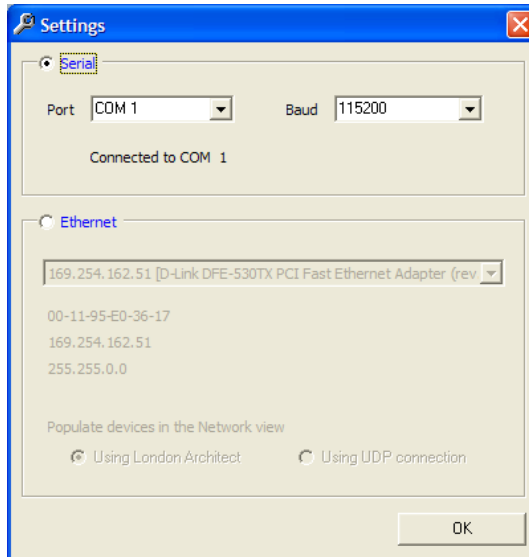
Choose your communication method from the Settings-Comms dialog.

- Serial requires you to choose a valid COM port and baud rate. 20 comm. ports are provided to allow for serial servers such as the Moxa multi-port server.

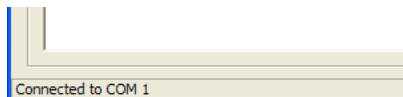
The baud rate can be set for each device in the property sheet in London Architect when you click on the device in the Main design window. Make sure the baud rate you select in the DI Message tool matches that of the device you wish to communicate with.

Note that London Architect can occupy serial ports if selected to do so in the Application preferences-Serial tab. Uncheck these and restart Architect if you don't want Architect to talk to FDS devices on the PC Comm port you need for DI messages.

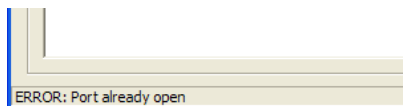
You will need a 3-wire null-modem serial lead to the back of the unit. More wires are fine, but they are not used.



After selecting the correct settings, the status bar of the main application window will indicate whether opening the port was successful or it will show an error.

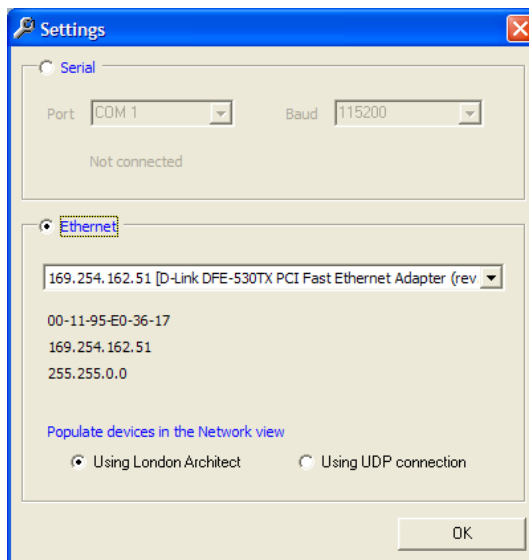


Successfully connected to the serial port on COM1.



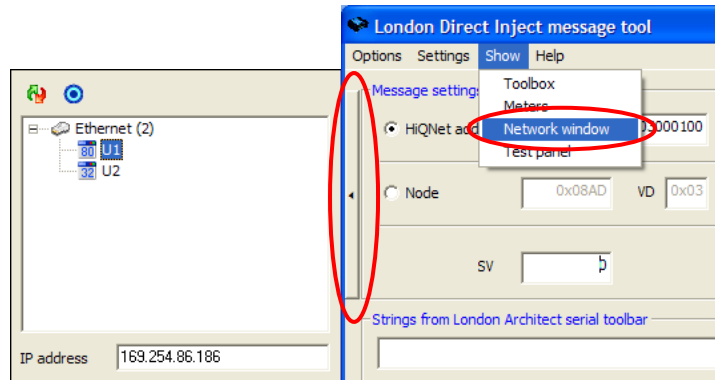
Another application is using the serial port, choose another or close the other application.

- Ethernet is a little more involved. Select the Ethernet option, then choose a network adapter for the DI message tool to use. To aid sending messages to units, we have provided two methods of viewing the devices on the network and therefore retrieving their IP addresses.



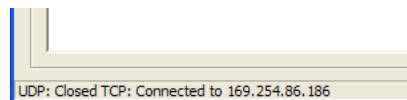
When you are running London Architect at the same time as the DI message tool, the Ethernet port for device discovery (3804) is in use by Architect, so we provide a list of devices directly from Architect. If you are using the DI message tool on its own, then it can discover the devices on the network on its own, via a UDP connection.

The network view pops out the side of the main dialog by choosing “Network window” on the Show menu or by pressing the thin button on the left of the Message settings section of the main dialog.



When this view is populated with units, you will see their name and device type as an icon. As you click on a unit in this tree view, the application will attempt to make a TCP connection to the unit on port 1023 (the DI message port). The status of this connection is shown in the status bar of the main dialog.

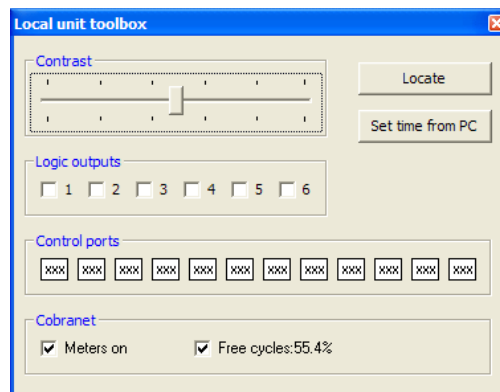
If successful, you can press the locate button in this pop-out view to verify the connection. This will flash the locate button on front and rear of the unit.



Successfully connected to a unit on Ethernet with a remote IP address of 169.254.86.186.

## Toolbox

The Direct Inject message tool provides a useful toolbox for sanity checking. Open this small dialog by clicking on the Show menu, then Toolbox. To very simply check you are connected to the unit correctly and at the right baud rate, press the Locate button on this toolbox dialog. The unit will flash its locate button on the front and rear of the unit.



The following controls are for simple test and debugging. They are not intended to be used for a live system – the supported methods of control are in London Architect where there are duplicate controls on the device control panel. Use these at your own risk.

### Contrast

Slide this control to adjust the display contrast on the device.

### Logic outputs

The logic outputs on the Soundweb London Device can be directly set from these controls.

## Control ports

These controls allow subscription directly to the control port value. Click on each of the edit boxes to subscribe. When subscription messages are sent back from the device, the value is shown in the box for that control port. Click again to toggle the subscription off. Use this in conjunction with the option to log control port values if required.

## CobraNet

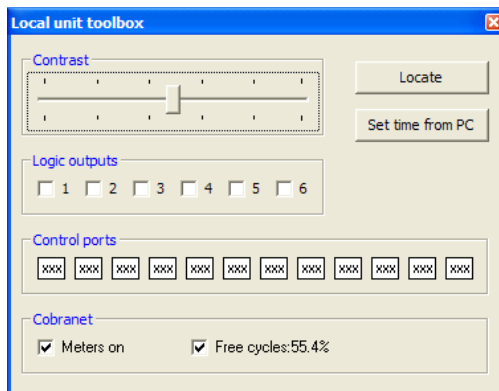
Meters on is a control to globally switch the audio bundle meters on an off on the CobraNet card. When the Free cycles option is checked, a subscription message is sent to the Free cycle meter state variable. This will show a percentage of free processing cycles that the CobraNet card has. These two controls give a very quick method of determining the amount of processing cycles spent on meters.

## Set time from PC

Press to set the time on the Soundweb London device. This is a simple test function, and does not take account of daylight saving adjustments on your local PC.

## GPX/GPZ Toolbox

Open this small dialog by clicking on the Show menu, then GPX/GPZ Toolbox. To very simply check you are connected to the unit correctly and at the right baud rate, press the Locate button on this toolbox dialog. The unit will flash its locate button on the front and rear of the unit.



The following controls are for simple test and debugging. They are not intended to be used for a live system – the supported methods of control are in London Architect where there are duplicate controls on the device control panel. Use these at your own risk.

## TM Contrast

Slide this control to adjust the display contrast on the device.

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Meters on is a control to globally switch the audio bundle meters on an off on the CobraNet card. When the Free cycles option is checked, a subscription message is sent to the Free cycle meter state variable. This will show a percentage of free processing cycles that the CobraNet card has. These two controls give a very quick method of determining the amount of processing cycles spent on meters.



### ***Set time from PC***

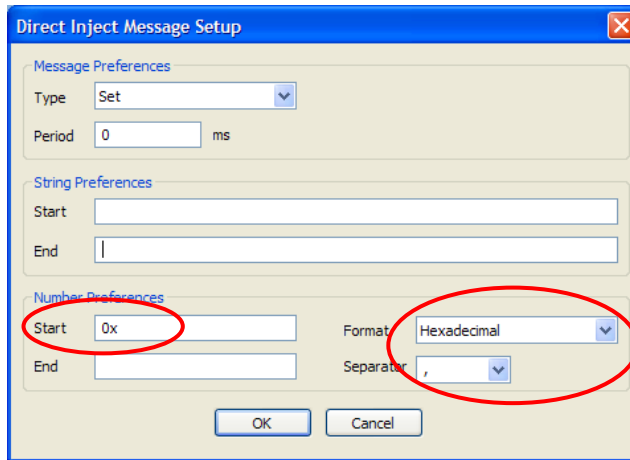
Press to set the time on the Soundweb London device. This is a simple test function, and does not take account of daylight saving adjustments on your local PC.

# Soundweb London

TM

## Direct Inject message strings from London Architect

Strings generated by the Direct Inject message tool bar in London Architect can be sent from the DI Message tool to test your setup. They can be generated in decimal or "0x"-prefixed hex and with either spaces or commas. We recommend hex. To make use of this facility, configure the toolbar as follows:



Example strings are therefore:

Decimal: 2 136 8 173 27 131 0 0 17 0 0 0 0 0 63 3

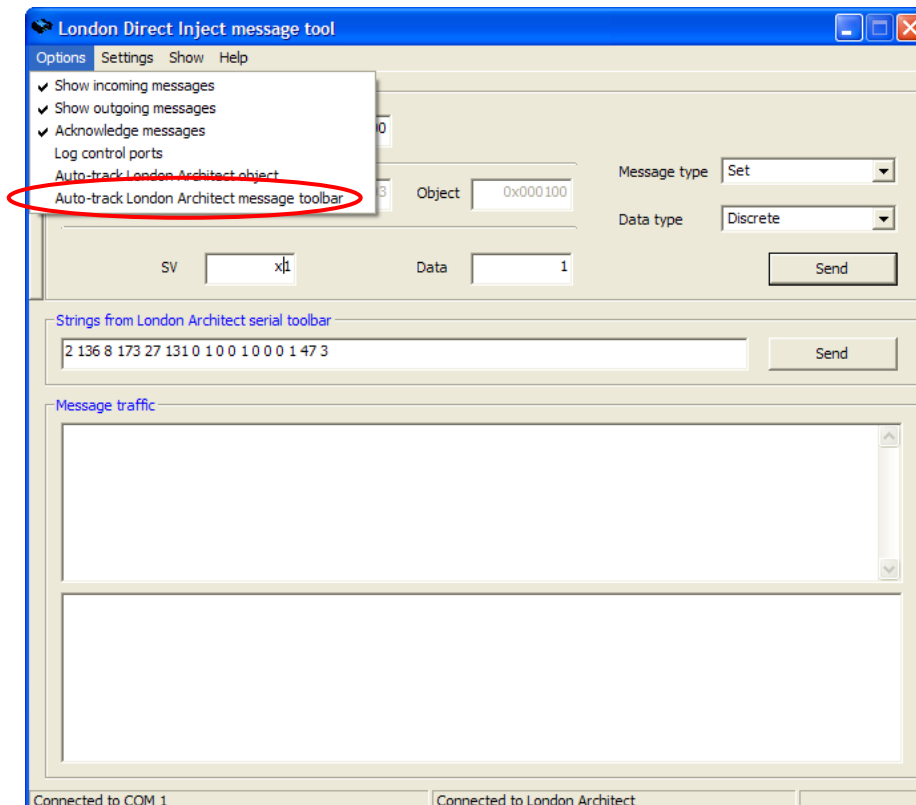
2,136,8,173,27,131,0,0,17,0,0,0,0,0,63,3

Hex: 0x02 0x88 0x08 0xAD 0x1B 0x83 0x00 0x00 0x11 0x00 0x00 0x00 0x00 0x00 0x3F 0x03

0x02,0x88,0x08,0xAD,0x1B,0x83,0x00,0x00,0x11,0x00,0x00,0x00,0x00,0x00,0x3F,0x03

Now switch on the option to track the Serial toolbar in the DI message tool. Go to Options and check the "Auto-track London Architect message toolbar" option.

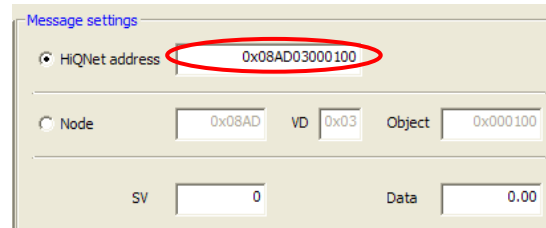
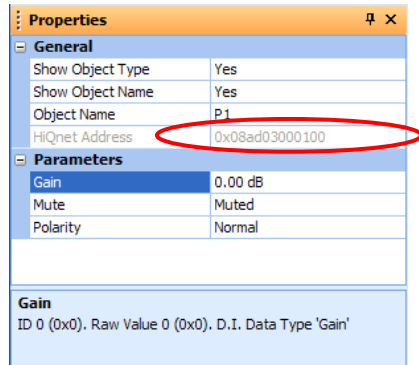
The string that London Architect is displaying will be automatically shown in the DI message tool in real time, so that you don't need to copy and paste it.



## Creating messages to control a gain

The following is an example of using the message tool to set a simple gain:

Turn on the option for Auto-tracking the Selected London Architect object. Select HiQNet address in the Message Settings part of the DI message tool dialog. When clicking on one of the state variables of a gain processing object, you should see the HiQNet address change to that of the object.



For a gain processing object created as the first object in London Architect, this has an address of 0x100, giving a HiQNet address of 0xnnnn03000100, where nnnn is the node address.

When entering hex numbers in any the edit fields, prefix them with 0x. Note that the Node, VD and Object ID fields will accept both hexadecimal and decimal numbers; the numbers generated by London Architect for these values are hexadecimal. The SV ID's generated in London Architect are decimal numbers so these should be input into the DI Tool in decimal.

If you wish to type manually and use the Node, VD and object addressing then audio processing objects all live in virtual device 0x03. Select a message type of Set and a data type of "Gain, dB".

Data can be entered directly in dBs with the "Gain, dB" data type. The current value is copied across with the other object data.

## Creating messages to subscribe to meters

The following example sets up the message tool to display the four input meters from Input card A.

Select Subscribe from the message type combo.

The object should be set to 0x1, which is the first card.

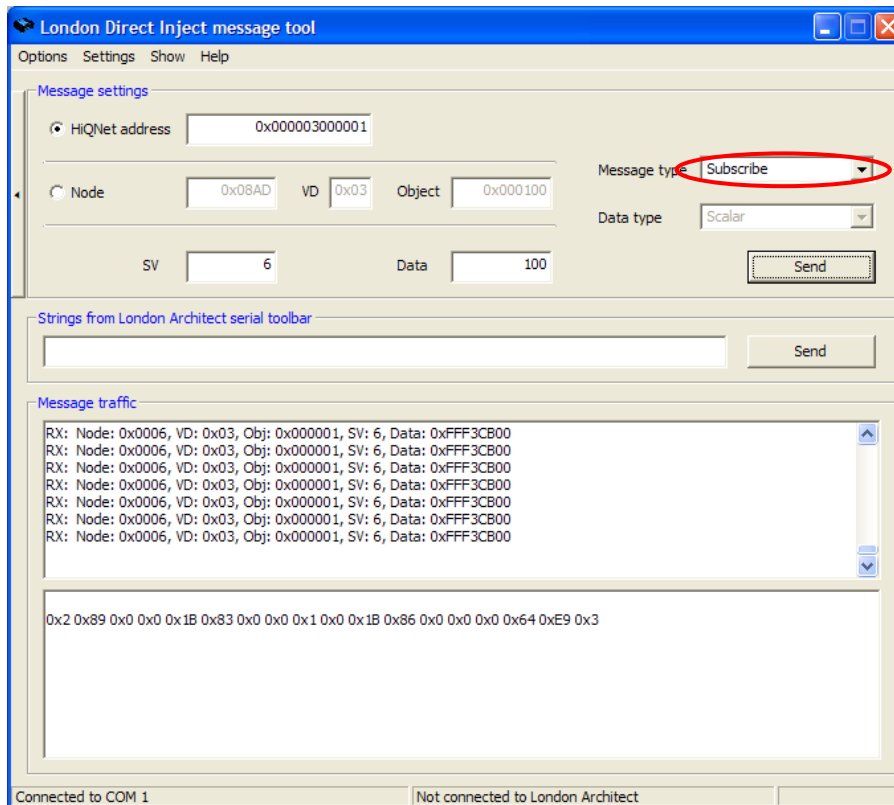
Set the state variable to 0, which is meter 1.

The data field is the subscribe rate in milliseconds, so a value of 50 will produce meter updates at a rate of 20 updates per second.

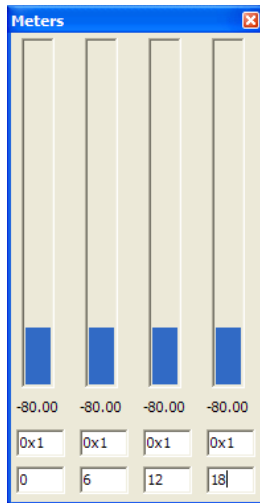
Press send to send this subscribe message.

Repeat this process with for state variable IDs of 6, 12 and 18.

The meter window provides four meters which respond to virtual device 0x3, and the object and state variables that you provide in the edit boxes. The value is always drawn in dBs. The setting of the Data Type field is irrelevant when setting up a subscription. To unsubscribe from Meter 2 of I/O card A change the Message type below to Unsubscribe. The Data field is not used in this case; all other settings remain the same.



Set the meters window up as follows:



The top edit box on each channel is the object to listen to. The bottom edit box is the state variable ID to listen to. This window is configured to show all four meters from Input Card A.

See appendix B for further Meter State variable IDs.

To subscribe to state variables other than indicators and meters, the Data field must be set to zero (0). When you issue the subscribe command to a state variable, the current value of that state variable is immediately sent back. Further updates are sent as and when the state variable changes. It is not possible to subscribe with a periodic rate to non-meter state variables.

You may use the subscribe command on state variables effectively as a GET command. Each time you send a subscribe message, the current value is sent back.

## Appendices

### A. Calculating scaling laws for parameters

When implementing a 3<sup>rd</sup> party control surface with script or in a programming language, a number of the parameters have a conversion from their native value to the value that needs to be sent as data in a direct inject message.

#### **Percentage, using *DI\_SETSVPERCENT* or *DI\_BUMPSVPERCENT***

A multiplication factor is used to encode for fixed-point fractional values. This message type and data type can be used on any control.

To convert to this data type, perform the following conversion:

$$\text{ValueToSend} = \text{PercentageValue} * 65536$$

e.g.

10%	=	655360	( 0x00 0x0A 0x00 0x00 )
12.5%	=	819200	( 0x00 0x0C 0x80 0x00 )
50%	=	3276800	( 0x00 0x32 0x00 0x00 )
100%	=	6553600	( 0x00 0x64 0x00 0x00 )
-10%	=	-655360	( 0xFF 0xF6 0x00 0x00 )
-12.5%	=	-819200	( 0xFF 0xF3 0x80 0x00 )

#### **Discrete**

This data type not encoded. The value is sent as it is, without any scaling. It typically represents enumerated controls, or controls where the value is an integer.

Examples of where this type of data is used are the following controls:

- Input card gain
- Crossover filter type
- Parametric filter slope
- Parametric filter type
- Gain object phase
- Expander ratio
- High pass filter type

#### **Scalar linear scaling**

Where the data is non-integer, a multiplication factor is used to encode for fixed-point fractional values. Examples of where this type of data is used are the following controls:

- Meter reference
- Leveller threshold
- Parametric filter boost/cut
- Compressor threshold
- Automixer slope
- Parametric filter width
- Mixer pan

To convert to this data type, perform the following conversion:

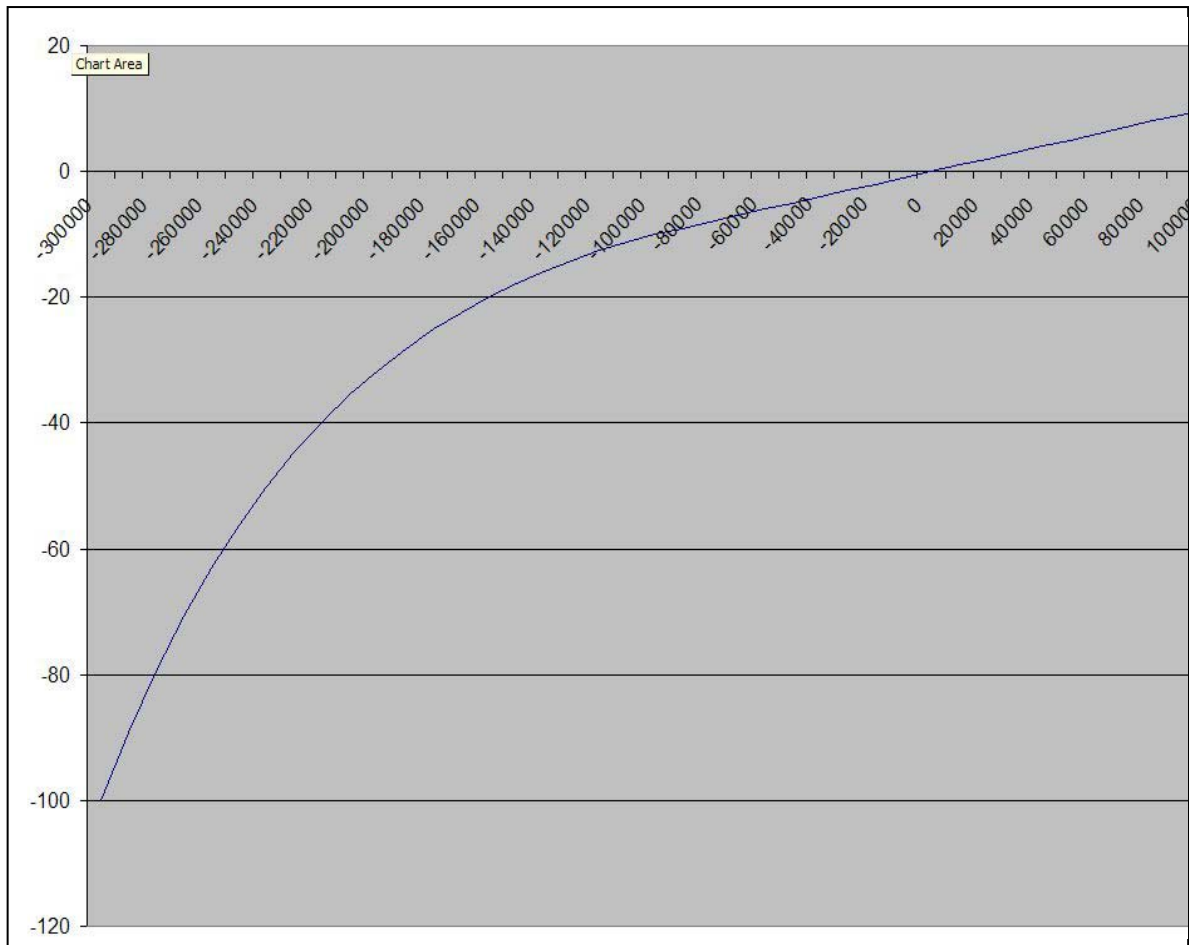
$$\text{ValueToSend} = \text{Value} * 10000$$

To convert back again:

$$\text{Value} = \text{ReceivedValue} / 10000$$

#### **Gain scaling (linear and logarithmic)**

This data type is used for gains objects that have fader law. This is a sub-ranged law with a linear portion between +10dB and -10dB and a logarithmic portion from -10dB down to -100dB. A graph illustrates this nicely. The X axis is the value sent by serial, and the y axis is the dB value.



The 4-byte dword that needs to be sent is scaled so that it is a linear mapping of a graphical fader position.

If the value is equal to or above -10dB:

$$\text{ValueToSend} = \text{dBValue} * 10000$$

If the value is below -10dB, then the formula is:

$$\text{ValueToSend} = ( -\text{Log10}( \text{Abs}( \text{dBValue} / 10 ) ) * ( 200000 ) ) - 100000$$

™ where Abs takes the absolute value - i.e. it drops the minus sign.

Converting back from a received value to give dBs is as follows:

If the value is equal to or above -100000

$$\text{dBValue} = \text{ReceivedValue} / 10000$$

If the value is below -100000, then the formula is:

$$\text{dBValue} = -10 * ( 10 ^ { ( \text{Abs}(\text{ReceivedValue} + 100000) / 200000 ) }$$

### Delay scaling (ms)

Delays are specified in milliseconds with 3 decimal places of accuracy. The delay processing object uses this data type, as do the delays within a crossover object, when enabled.

To convert to this data type, perform the following conversion:

$$\text{ValueToSend} = (\text{msValue} * 96000) / 1000$$

To convert back again

```
msValue = (ReceivedValue * 1000) / 96000
```

## **Frequency (Hz) and Speed (ms) scaling**

Frequency is specified in hertz. Examples of the types of controls that use this data type are as follows:

- High and low pass filter frequencies
- Low pass filter frequencies
- Crossover frequency

Speed is specified in milliseconds. Examples of the types of controls that use this data type are as follows:

- Compressor attack
- Compressor release

To convert to this data type, perform the following conversion:

```
ValueToSend = Log10( Value ) * 1000000
```

To convert back again

```
Value = 10 ^ (ReceivedValue / 1000000)
```

## **Percentage scaling, using DI\_SETSV**

Some controls have their native units in percent. The data encoding for a SET\_SV message is different to a SET\_SV% message. The value is multiplied by 100 to give 2 decimal places of accuracy. Examples of the types of controls that use this data type are as follows:

- Graphic EQ selectivity

To convert to this data type, perform the following conversion:

```
ValueToSend = Percentage * 100
```

To convert back again

```
Percentage = ReceivedValue / 100
```



B. Meter state variable IDs

The following state variables are not shown in London Architect, so are included here for reference. They are used with subscription messages to return the current value.

**Input**

Meter1	=	0
Meter2	=	6
Meter3	=	12
Meter4	=	18

**Output cards**

Meter1	=	0
Meter2	=	4
Meter3	=	8
Meter4	=	12

**CobraNet receive bundle**

Meter1	=	1
Meter2	=	2
Meter3	=	3
Meter4	=	4
Meter5	=	5
Meter6	=	6
Meter7	=	7
Meter8	=	8
AudioReceived	=	9
Dropouts	=	10
MetersActive	=	12

**CobraNet transmit bundle**

TransmitPosition	=	10
Meter1	=	11
Meter2	=	12
Meter3	=	13
Meter4	=	14
Meter5	=	15
Meter6	=	16
Meter7	=	17
Meter8	=	18
DropoutCounter	=	19
MetersActive	=	21

## C. FAQ

**Q1.** My Soundweb London devices are sending me updates once a second, regardless of the subscription rate and even when I have unsubscribed.

**A1.** You have correctly subscribed. The first message has been sent to you, and this is the current value of the control. When the unit re-sends the same value on a 1 second interval, this is the normal behaviour of the protocol when a message has not been acknowledged. The unsubscribe message has also probably worked too, as far as the subscription centre is concerned. It is the comms part of the system that is still trying to deliver a message on a retry basis.

You have two options to rectify this. Either switch off the Acknowledge feature of the protocol, by going to the properties of the device and changing Acknowledge to No or, on your 3<sup>rd</sup> party control equipment, reply with the Acknowledge character to every correctly formatted message you receive.

Please note this Acknowledge option is for message flow out of the Soundweb London device. Acknowledges will still be sent from the device back to your 3<sup>rd</sup> party control equipment in response to receiving correctly formatted messages. This cannot be switched off – simply ignore them if they are not required.

Soundweb London

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## D. Fixed Object IDs

These object IDs are constant for BLU-80, BLU-800, BLU-32, BLU-320, BLU-16, BLU-160, BLU-100, BLU-101, BLU-102 devices created in London Architect.

**NB:** These Object ID values are in hex.

Analogue/Digital/AEC/Hybrid I/O Card A – ID 1  
 Analogue/Digital/AEC/Hybrid I/O Card B – ID 2  
 Analogue/Digital/AEC/Hybrid I/O Card C – ID 3  
 Analogue/Digital/AEC/Hybrid I/O Card D – ID 4  
 Analogue output card E (BLU-100, BLU-101 and BLU-102 only) \_ ID 5

Input CobraNet Bundle A – ID 0x11  
 Input CobraNet Bundle B – ID 0x12  
 Input CobraNet Bundle C – ID 0x13  
 Input CobraNet Bundle D – ID 0x14

Output CobraNet Bundle A – ID 0x15  
 Output CobraNet Bundle B – ID 0x16  
 Output CobraNet Bundle C – ID 0x17  
 Output CobraNet Bundle D – ID 0x18

## E. Telephone Hybrid String Dialing from 3<sup>rd</sup> Party Controllers

The telephone hybrid supports two types of dialing. The first is where the phone is taken off-hook and the telephone number is dialed one digit at a time. The second method is similar to a cell/mobile phone where the entire number is entered first (String Dialing) and then the off-hook command is issued.

The number field is stored internally as 4 different SVs (see General Device SV's in Appendix Section for SV ID's). Called Number Part1, Number Part2, Number Part3, and Number Part4. Each part stores 8 digits from the number as a 4 bit nibbles. This gives a total length of 32 characters per telephone number. So, by setting the current number SVs you can set 8 digits at a time. If a particular digit is not used then you should set it to 0xF (15). The easiest way to visualize this is to simply pretend the telephone number is a hex number and then spit it into groups of 8 digits. :-

Phone number is :-

1234567890

Pretend it's hex :-

0x1234567890

Split into groups of 8:-

0x12 and 0x34567890

Pad with 0xF for unused digits:-

0xFFFFFFFF12 and 0x34567890

Send ALL 4 SV's fully filled to ensure number is correctly entered:

Number Part 1 Data field: 0x34567890

Number Part 2 Data field: 0xFFFFFFFF12

Number Part 3 Data field: 0xFFFFFFFFFF

Number Part 4 Data field: 0xFFFFFFFFFF

Once the number is entered you can send an off-hook to dial it.

## F. Fixed State Variable IDs

These State Variable IDs are constant for all design files created in London Architect.

**NB:** All of the State Variable IDs displayed below are in **decimal**

### General Device SVs

#### Device - BLU-80

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode - 118  
Conductor Priority (255 High, 1 Low) – 1000  
Conductor – 1001  
Secondary Interface - 1009  
CM1 Meters - 1011

#### Device - BLU-32

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode - 118  
Conductor Priority (255 High, 1 Low) – 1000  
Conductor – 1001  
Secondary Interface - 1009  
CM1 Meters - 1011

#### Device - BLU-16

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode – 118

#### Device - BLU-800

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode - 118  
Conductor Priority (255 High, 1 Low) – 1000  
Conductor – 1001  
Secondary Interface - 1009  
CM1 Meters – 1011  
Priority – 2001  
Reset Input Error Count – 2103  
Reset Output Error Count - 2203

#### Device - BLU-320

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode - 118  
Conductor Priority (255 High, 1 Low) – 1000  
Conductor – 1001  
Secondary Interface - 1009  
CM1 Meters – 1011  
Priority – 2001  
Reset Input Error Count – 2103  
Reset Output Error Count - 2203

#### Device - BLU-160

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode – 118  
Priority – 2001  
Reset Input Error Count – 2103  
Reset Output Error Count - 2203

#### Device - BLU-120

Front Panel Display Contrast – 0  
Locate - 4  
3 wire mode – 118  
Priority – 2001  
Reset Input Error Count – 2103  
Reset Output Error Count - 2203

#### Device - BLU-100

Locate - 4  
3 wire mode – 118  
Priority – 2001  
Reset Input Error Count – 2103  
Reset Output Error Count - 2203

#### Device - BLU-10

Sleep Brightness - 50  
Active Brightness - 51  
Sleep - 52

Sleep Delay - 53

Start Page Enable - 55

Start Page Delay – 56

#### Device - BLU-8

LED Max Brightness - 3

Sleep Enabled - 1

Sleep Delay - 2

Lockout on Sleep - 6

Lockout Active – 7

#### Device - BLU-8v2

LED Max Brightness - 50

Sleep Enabled - 51

Sleep Delay – 52

Lockout on Sleep -53

Lockout Active - 54

### BLU Analogue Output Card

#### Channel 1

Meter - 0

Attack - 2

Release - 3

Reference - 1

#### Channel 2

Meter - 4

Attack - 6

Release - 7

Reference - 5

#### Channel 3

Meter - 8

Attack - 10

Release - 11

Reference - 9

#### Channel 4

Meter - 12

Attack - 14

Release - 15

Reference - 13

### BLU Analogue Input Card

#### Channel 1

Meter - 0

Gain - 4

Attack - 2

Release - 3

Reference - 1

Phantom Switch - 5

#### Channel 2

Meter - 6

Gain - 10

Attack - 8

Release - 9

Reference - 7

Phantom Switch - 11

#### Channel 3

Meter - 12

Gain - 16

Attack - 14

Release - 15

Reference - 13

Phantom Switch - 17

#### Channel 4

Meter - 18

Gain - 22

Attack - 20

Release - 21  
Reference - 19  
Phantom Switch – 23

## BLU Digital Output Card

### All Channels

Clock Source – 0  
Clock Source Rate – 1

### Outputs 1&2

Type – 100  
Sample Rate – 101  
Bypass SRC – 102  
Status – 103

### Outputs 3&4

Type – 200  
Sample Rate – 201  
Bypass SRC – 202  
Status – 203

### Channel 1

Meter - 1000  
Attack - 1002  
Release -1003  
Reference – 1001

### Channel 2

Meter - 1004  
Attack - 1006  
Release -100 7  
Reference - 1005

### Channel 3

Meter - 1008  
Attack - 1010  
Release - 1011  
Reference – 1009

### Channel 4

Meter - 1012  
Attack - 1014  
Release - 1015  
Reference – 1013

## BLU Digital Input Card

### Inputs 1&2

Type – 0  
Sample Rate – 2  
Bypass SRC – 1  
Error – 3  
Non-audio – 5

### Inputs 3&4

Type – 100  
Sample Rate – 102  
Bypass SRC – 101  
Error – 103  
Non-audio – 105

### Channel 1

Meter - 1000  
Attack - 1002  
Release -1003  
Reference – 1001

### Channel 2

Meter - 1004  
Attack - 1006  
Release -100 7  
Reference - 1005

### Channel 3

Meter - 1008  
Attack - 1010  
Release - 1011  
Reference - 1009

### Channel 4

Meter - 1012  
Attack - 1014  
Release - 1015  
Reference – 1013

## BLU AEC Input Card

### Channel 1

Meter - 0

Reference – 1

Attack – 2

Release – 3

Gain - 4

Phantom Switch – 5

AEC Enable – 10

NLP Enable – 11

NLP Level – 12

NC Enable – 15

NC Level – 16

ERL Meter – 13

ERLE Meter – 14

Signal Threshold – 17

Mic Active – 18

AGC Enable – 20

AGC Max Gain – 21

AGC Min Gain – 22

AGC Max Target – 23

AGC Min Target – 24

AGC Attack – 26

AGC Release – 27

AGC Current Gain - 25

### Channel 2

Meter - 100

Reference – 1011

Attack – 102

Release – 103

Gain - 104

Phantom Switch – 105

AEC Enable – 110

NLP Enable – 111

NLP Level – 112

NC Enable – 115

NC Level – 116

ERL Meter – 113

ERLE Meter – 114

Signal Threshold – 117

Mic Active – 118

AGC Enable – 120

AGC Max Gain – 121

AGC Min Gain – 122

AGC Max Target – 123

AGC Min Target – 124

AGC Attack – 126

AGC Release – 127

AGC Current Gain -125

### Channel 3

Meter - 200

Reference – 201

Attack – 202

Release – 203

Gain - 204

Phantom Switch – 205

AEC Enable – 210

NLP Enable – 211

NLP Level – 212

NC Enable – 215

NC Level – 216

ERL Meter – 213

ERLE Meter – 214

Signal Threshold –217

Mic Active – 218

AGC Enable – 220

AGC Max Gain – 221

AGC Min Gain – 222

AGC Max Target – 223

AGC Min Target – 224

AGC Attack – 226

AGC Release – 227

AGC Current Gain -225

### Channel 4

Meter - 300

Reference – 301

Attack – 302

Release – 303

Gain - 304

Phantom Switch – 305  
 AEC Enable – 310  
 NLP Enable – 311  
 NLP Level – 312  
 NC Enable – 315  
 NC Level – 316  
 ERL Meter – 313  
 ERLE Meter – 314  
 Signal Threshold – 317  
 Mic Active – 318  
 AGC Enable – 320  
 AGC Max Gain – 321  
 AGC Min Gain – 322  
 AGC Max Target – 323  
 AGC Min Target – 324  
 AGC Attack – 326  
 AGC Release – 327  
 AGC Current Gain – 325

## BLU Telephone Hybrid Input Card

### Channel 1 Mic/Line Input

Meter - 0  
 Gain - 4  
 Attack - 2  
 Release - 3  
 Reference - 1  
 Phantom Switch - 5

### Channel 2 Mic/Line Input

Meter - 6  
 Gain - 10  
 Attack - 8  
 Release - 9  
 Reference - 7  
 Phantom Switch - 11

### Channel 3 Telephone TX

Meter - 142  
 Gain - 141  
 Mute - 140

### Channel 4 Telephone RX

Meter - 145  
 Gain - 144  
 Mute - 143

### Levels

DTMF Level – 146  
 Ring Level – 147  
 Dial Tone Level – 148  
 Side Tone Gain – 149  
 LEC – 153  
 Limiter Active – 154  
 Line Voltage (V) – 155  
 Current Overload – 156

### DTMF Detect

DTMF 0 - 160  
 DTMF 1 - 161  
 DTMF 2 - 162  
 DTMF 3 - 163  
 DTMF 4 - 164  
 DTMF 5 - 165  
 DTMF 6 - 166  
 DTMF 7 - 167  
 DTMF 8 - 168  
 DTMF 9 - 169  
 DTMF Hash - 170  
 DTMF Asterix - 171

### Speed Dial #1

Number Part 1 – 200  
 Number Part 2 – 201  
 Number Part 3 – 202  
 Number Part 4 – 203  
 Store – 204  
 Recall – 205  
 Name – 206

### Speed Dial #2

Number Part 1 – 207  
 Number Part 2 – 208  
 Number Part 3 – 209  
 Number Part 4 – 210

Store – 211  
 Recall – 212  
 Name – 213

### Speed Dial #3

Number Part 1 – 214  
 Number Part 2 – 215  
 Number Part 3 – 216  
 Number Part 4 – 217  
 Store – 218  
 Recall – 219  
 Name – 220

### Speed Dial #4

Number Part 1 – 221  
 Number Part 2 – 222  
 Number Part 3 – 223  
 Number Part 4 – 224  
 Store – 225  
 Recall – 226  
 Name – 227

### Speed Dial #5

Number Part 1 – 228  
 Number Part 2 – 229  
 Number Part 3 – 230  
 Number Part 4 – 221  
 Store – 232  
 Recall – 233  
 Name – 234

### Speed Dial #50

Number Part 1 – 543  
 Number Part 2 – 544  
 Number Part 3 – 545  
 Number Part 4 – 546  
 Store – 547  
 Recall – 548  
 Name - 549

## Cobranet Input Bundle

Number – 0  
 Meter 1 – 1  
 Meter 2 – 2  
 Meter 3 – 3  
 Meter 4 – 4  
 Meter 5 – 5  
 Meter 6 – 6  
 Meter 7 – 7  
 Meter 8 – 8  
 Receiving Audio – 9  
 Dropouts – 10  
 Dropout Reset – 11  
 Meters Active – 12

## Cobranet Output Bundle

Number - 0  
 Priority (255 High, 1 Low) - 1  
 Slot 1 Resolution - 2  
 Slot 2 Resolution - 3  
 Slot 3 Resolution - 4  
 Slot 4 Resolution - 5  
 Slot 5 Resolution - 6  
 Slot 6 Resolution - 7  
 Slot 7 Resolution - 8  
 Slot 8 Resolution - 9  
 Transmit Position – 10  
 Meter 1 – 11  
 Meter 2 – 12  
 Meter 3 – 13  
 Meter 4 – 14  
 Meter 5 – 15  
 Meter 6 – 16  
 Meter 7 – 17  
 Meter 8 – 18  
 Dropouts – 19  
 Dropouts Reset – 20  
 Meters Active – 21

Max Receivers – 22

## BLU link Input

Meter Attack - 0  
Meter Release - 1  
Reference – 2  
Meter 1 – 100  
Meter 2 – 101  
Meter 3 – 102

.  
. .  
. .  
. .  
Meter 32 – 131

## BLU link Output

Meter Attack - 0  
Meter Release - 1  
Reference – 2  
Meter 1 – 100  
Meter 2 – 101  
Meter 3 – 102

.  
. .  
. .  
. .  
Meter 32 – 131

## Processing Objects

### Ambient Noise Compensator

Ambient threshold - 0  
Meter - 1  
Min gain - 2  
Max gain - 3  
Min/Max listen select - 4  
Gap speed - 6  
Gain - 7  
Gap time - 8  
Gap LED - 9  
Gap threshold - 10  
Bypass - 11

### Non-gap Ambient Noise Compensator

Ambient threshold - 0  
Meter - 1  
Min gain - 2  
Max gain - 3  
Min/Max listen select - 4  
Attack - 5  
Release - 6  
Announce meter - 7  
Expansion ratio - 10  
Bypass - 11

## Automixer

### Input 1

Gain - 0  
Mute - 1  
Pan - 2  
Polarity – 3  
Aux 1 send level - 20  
Aux 2 send level - 21  
Aux 3 send level - 22  
Aux 4 send level - 23  
Route to group 1 - 40  
Route to group 2 - 41  
Route to group 3 - 42  
Route to group 4 - 43  
Solo - 4  
Override - 5  
Off Gain - 6  
Auto – 7  
On - 8

### Input 2

Gain - 100  
Mute - 101

Pan - 102

Polarity - 103

Aux 1 send level - 120  
Aux 2 send level - 121  
Aux 3 send level - 122  
Aux 4 send level - 123  
Route to group 1 - 140  
Route to group 2 - 141  
Route to group 3 - 142  
Route to group 4 - 143  
Solo - 104  
Override - 105  
Off Gain - 106  
Auto – 107  
On - 108

### Input 3

Gain - 200  
Mute - 201  
Pan - 202  
Polarity - 203  
Aux 1 send level - 220  
Aux 2 send level - 221  
Aux 3 send level - 222  
Aux 4 send level - 223  
Route to group 1 - 240  
Route to group 2 - 241  
Route to group 3 - 242  
Route to group 4 - 243  
Solo - 204  
Override - 205  
Off Gain - 206  
Auto – 207  
On - 208

### Input 4

Gain - 300  
Mute - 301  
Pan - 302  
Polarity - 303  
Aux 1 send level - 320  
Aux 2 send level - 321  
Aux 3 send level - 322  
Aux 4 send level - 323  
Route to group 1 - 340  
Route to group 2 - 341  
Route to group 3 - 342  
Route to group 4 - 343  
Solo - 304  
Override - 305  
Off Gain - 306  
Auto – 307  
On - 308

### Input 5

Gain - 400  
Mute - 401  
Pan - 402  
Polarity - 403  
Aux 1 send level - 420  
Aux 2 send level - 421  
Aux 3 send level - 422  
Aux 4 send level - 423  
Route to group 1 - 440  
Route to group 2 - 441  
Route to group 3 - 442  
Route to group 4 - 443  
Solo - 404  
Override - 405  
Off Gain - 406  
Auto – 407  
On - 408

### Input 6

Gain - 500  
Mute - 501  
Pan - 502  
Polarity - 503  
Aux 1 send level - 520  
Aux 2 send level - 521  
Aux 3 send level - 522

Aux 4 send level - 523  
Route to group 1 - 540  
Route to group 2 - 541  
Route to group 3 - 542  
Route to group 4 - 543  
Solo - 504  
Override - 505  
Off Gain - 506  
Auto – 507  
On - 508

## Input 7

Gain - 600  
Mute - 601  
Pan - 602  
Polarity - 603  
Aux 1 send level - 620  
Aux 2 send level - 621  
Aux 3 send level - 622  
Aux 4 send level - 623  
Route to group 1 - 640  
Route to group 2 - 641  
Route to group 3 - 642  
Route to group 4 - 643  
Solo - 604  
Override - 605  
Off Gain - 606  
Auto – 607  
On - 608

## Input 8

Gain - 700  
Mute - 701  
Pan - 702  
Polarity - 703  
Aux 1 send level - 720  
Aux 2 send level - 721  
Aux 3 send level - 722  
Aux 4 send level - 723  
Route to group 1 - 740  
Route to group 2 - 741  
Route to group 3 - 742  
Route to group 4 - 743  
Solo - 704  
Override - 705  
Off Gain - 706  
Auto – 707  
On - 708

## Input 9

Gain - 800  
Mute - 801  
Pan - 802  
Polarity - 803  
Aux 1 send level - 820  
Aux 2 send level - 821  
Aux 3 send level - 822  
Aux 4 send level - 823  
Route to group 1 - 840  
Route to group 2 - 841  
Route to group 3 - 842  
Route to group 4 - 843  
Solo - 804  
Override - 805  
Off Gain - 806  
Auto – 807  
On - 808

## Input 10

Gain - 900  
Mute - 901  
Pan - 902  
Polarity - 903  
Aux 1 send level - 920  
Aux 2 send level - 921  
Aux 3 send level - 922  
Aux 4 send level - 923  
Route to group 1 - 940  
Route to group 2 - 941  
Route to group 3 - 942  
Route to group 4 - 943

Solo - 904  
Override - 905  
Off Gain - 906  
Auto – 907  
On - 908

## Input 11

Gain - 1000  
Mute - 1001  
Pan - 1002  
Polarity - 1003  
Aux 1 send level - 1020  
Aux 2 send level - 1021  
Aux 3 send level - 1022  
Aux 4 send level - 1023  
Route to group 1 - 1040  
Route to group 2 - 1041  
Route to group 3 - 1042  
Route to group 4 - 1043  
Solo - 1004  
Override - 1005  
Off Gain - 1006  
Auto – 1007  
On - 1008

## Input 12

Gain - 1100  
Mute - 1101  
Pan - 1102  
Polarity - 1103  
Aux 1 send level - 1120  
Aux 2 send level - 1121  
Aux 3 send level - 1122  
Aux 4 send level - 1123  
Route to group 1 - 1140  
Route to group 2 - 1141  
Route to group 3 - 1142  
Route to group 4 - 1143  
Solo - 1104  
Override - 1105  
Off Gain - 1106  
Auto – 1107  
On - 1108

## Input 13

Gain - 1200  
Mute - 1201  
Pan - 1202  
Polarity - 1203  
Aux 1 send level - 1220  
Aux 2 send level - 1221  
Aux 3 send level - 1222  
Aux 4 send level - 1223  
Route to group 1 - 1240  
Route to group 2 - 1241  
Route to group 3 - 1242  
Route to group 4 - 1243  
Solo - 1204  
Override - 1205  
Off Gain - 1206  
Auto – 1207  
On - 1208

## Input 14

Gain - 1300  
Mute - 1301  
Pan - 1302  
Polarity - 1303  
Aux 1 send level - 1320  
Aux 2 send level - 1321  
Aux 3 send level - 1322  
Aux 4 send level - 1323  
Route to group 1 - 1340  
Route to group 2 - 1341  
Route to group 3 - 1342  
Route to group 4 - 1343  
Solo - 1304  
Override - 1305  
Off Gain - 1306  
Auto – 1307  
On - 1308



## Input 15

Gain - 1400  
Mute - 1401  
Pan - 1402  
Polarity - 1403  
Aux 1 send level - 1420  
Aux 2 send level - 1421  
Aux 3 send level - 1422  
Aux 4 send level - 1423  
Route to group 1 - 1440  
Route to group 2 - 1441  
Route to group 3 - 1442  
Route to group 4 - 1443  
Solo - 1404  
Override - 1405  
Off Gain - 1406  
Auto – 1407  
On - 1408

## Input 16

Gain - 1500  
Mute - 1501  
Pan - 1502  
Polarity - 1503  
Aux 1 send level - 1520  
Aux 2 send level - 1521  
Aux 3 send level - 1522  
Aux 4 send level - 1523  
Route to group 1 - 1540  
Route to group 2 - 1541  
Route to group 3 - 1542  
Route to group 4 - 1543  
Solo - 1504  
Override - 1505  
Off Gain - 1506  
Auto – 1507  
On - 1508

## Input 17

Gain - 1600  
Mute - 1601  
Pan - 1602  
Polarity - 1603  
Aux 1 send level - 1620  
Aux 2 send level - 1621  
Aux 3 send level - 1622  
Aux 4 send level - 1623  
Route to group 1 - 1640  
Route to group 2 - 1641  
Route to group 3 - 1642  
Route to group 4 - 1643  
Solo - 1604  
Override - 1605  
Off Gain - 1606  
Auto – 1607  
On - 1608

## Input 18

Gain - 1700  
Mute - 1701  
Pan - 1702  
Polarity - 1703  
Aux 1 send level - 1720  
Aux 2 send level - 1721  
Aux 3 send level - 1722  
Aux 4 send level - 1723  
Route to group 1 - 1740  
Route to group 2 - 1741  
Route to group 3 - 1742  
Route to group 4 - 1743  
Solo - 1704  
Override - 1705  
Off Gain - 1706  
Auto – 1707  
On - 1708

## Input 19

Gain - 1800  
Mute - 1801  
Pan - 1802  
Polarity - 1803

Aux 1 send level - 1820  
Aux 2 send level - 1821  
Aux 3 send level - 1822  
Aux 4 send level - 1823  
Route to group 1 - 1840  
Route to group 2 - 1841  
Route to group 3 - 1842  
Route to group 4 - 1843  
Solo - 1804  
Override - 1805  
Off Gain - 1806  
Auto – 1807  
On - 1808

## Input 20

Gain - 1900  
Mute - 1901  
Pan - 1902  
Polarity - 1903  
Aux 1 send level - 1920  
Aux 2 send level - 1921  
Aux 3 send level - 1922  
Aux 4 send level - 1923  
Route to group 1 - 1940  
Route to group 2 - 1941  
Route to group 3 - 1942  
Route to group 4 - 1943  
Solo - 1904  
Override - 1905  
Off Gain - 1906  
Auto – 1907  
On - 1908

## Input 21

Gain - 2000  
Mute - 2001  
Pan - 2002  
Polarity - 2003  
Aux 1 send level - 2020  
Aux 2 send level - 2021  
Aux 3 send level - 2022  
Aux 4 send level - 2023  
Route to group 1 - 2040  
Route to group 2 - 2041  
Route to group 3 - 2042  
Route to group 4 - 2043  
Solo - 2004  
Override - 2005  
Off Gain - 2006  
Auto – 2007  
On - 2008

## Input 22

Gain - 2100  
Mute - 2101  
Pan - 2102  
Polarity - 2103  
Aux 1 send level - 2120  
Aux 2 send level - 2121  
Aux 3 send level - 2122  
Aux 4 send level - 2123  
Route to group 1 - 2140  
Route to group 2 - 2141  
Route to group 3 - 2142  
Route to group 4 - 2143  
Solo - 2104  
Override - 2105  
Off Gain - 2106  
Auto – 2107  
On - 2108

## Input 23

Gain - 2200  
Mute - 2201  
Pan - 2202  
Polarity - 2203  
Aux 1 send level - 2220  
Aux 2 send level - 2221  
Aux 3 send level - 2222  
Aux 4 send level - 2223  
Route to group 1 - 2240

Route to group 2 - 2241  
Route to group 3 - 2242  
Route to group 4 - 2243  
Solo - 2204  
Override - 2205  
Off Gain - 2206  
Auto – 2207  
On - 2208

## Input 24

Gain - 2300  
Mute - 2301  
Pan - 2302  
Polarity - 2303  
Aux 1 send level - 2320  
Aux 2 send level - 2321  
Aux 3 send level - 2322  
Aux 4 send level - 2323  
Route to group 1 - 2340  
Route to group 2 - 2341  
Route to group 3 - 2342  
Route to group 4 - 2343  
Solo - 2304  
Override - 2305  
Off Gain - 2306  
Auto – 2307  
On - 2308

## Input 25

Gain - 2400  
Mute - 2401  
Pan - 2402  
Polarity - 2403  
Aux 1 send level - 2420  
Aux 2 send level - 2421  
Aux 3 send level - 2422  
Aux 4 send level - 2423  
Route to group 1 - 2440  
Route to group 2 - 2441  
Route to group 3 - 2442  
Route to group 4 - 2443  
Solo - 2404  
Override - 2405  
Off Gain - 2406  
Auto – 2407  
On - 2408

## Input 26

Gain - 2500  
Mute - 2501  
Pan - 2502  
Polarity - 2503  
Aux 1 send level - 2520  
Aux 2 send level - 2521  
Aux 3 send level - 2522  
Aux 4 send level - 2523  
Route to group 1 - 2540  
Route to group 2 - 2541  
Route to group 3 - 2542  
Route to group 4 - 2543  
Solo - 2504  
Override - 2505  
Off Gain - 2506  
Auto – 2507  
On - 2508

## Input 27

Gain - 2600  
Mute - 2601  
Pan - 2602  
Polarity - 2603  
Aux 1 send level - 2620  
Aux 2 send level - 2621  
Aux 3 send level - 2622  
Aux 4 send level - 2623  
Route to group 1 - 2640  
Route to group 2 - 2641  
Route to group 3 - 2642  
Route to group 4 - 2643  
Solo - 2604  
Override - 2605

Off Gain - 2606  
Auto – 2607  
On - 2608

## Input 28

Gain - 2700  
Mute - 2701  
Pan - 2702  
Polarity - 2703  
Aux 1 send level - 2720  
Aux 2 send level - 2721  
Aux 3 send level - 2722  
Aux 4 send level - 2723  
Route to group 1 - 2740  
Route to group 2 - 2741  
Route to group 3 - 2742  
Route to group 4 - 2743  
Solo - 2704  
Override - 2705  
Off Gain - 2706  
Auto – 2707  
On - 2708

## Input 29

Gain - 2800  
Mute - 2801  
Pan - 2802  
Polarity - 2803  
Aux 1 send level - 2820  
Aux 2 send level - 2821  
Aux 3 send level - 2822  
Aux 4 send level - 2823  
Route to group 1 - 2840  
Route to group 2 - 2841  
Route to group 3 - 2842  
Route to group 4 - 2843  
Solo - 2804  
Override - 2805  
Off Gain - 2806  
Auto – 2807  
On - 2808

## Input 30

Gain - 2900  
Mute - 2901  
Pan - 2902  
Polarity - 2903  
Aux 1 send level - 2920  
Aux 2 send level - 2921  
Aux 3 send level - 2922  
Aux 4 send level - 2923  
Route to group 1 - 2940  
Route to group 2 - 2941  
Route to group 3 - 2942  
Route to group 4 - 2943  
Solo - 2904  
Override - 2905  
Off Gain - 2906  
Auto – 2907  
On - 2908

## Input 31

Gain - 3000  
Mute - 3001  
Pan - 3002  
Polarity - 3003  
Aux 1 send level - 3020  
Aux 2 send level - 3021  
Aux 3 send level - 3022  
Aux 4 send level - 3023  
Route to group 1 - 3040  
Route to group 2 - 3041  
Route to group 3 - 3042  
Route to group 4 - 3043  
Solo - 3004  
Override - 3005  
Off Gain - 3006  
Auto – 3007  
On - 3008

## Input 32

Gain - 3100

Mute - 3101  
Pan - 3102  
Polarity - 3103  
Aux 1 send level - 3120  
Aux 2 send level - 3121  
Aux 3 send level - 3122  
Aux 4 send level - 3123  
Route to group 1 - 3140  
Route to group 2 - 3141  
Route to group 3 - 3142  
Route to group 4 - 3143  
Solo - 3104  
Override - 3105  
Off Gain - 3106  
Auto – 3107  
On - 3108

## Input 33

Gain - 3200  
Mute - 3201  
Pan - 3202  
Polarity - 3203  
Aux 1 send level - 3220  
Aux 2 send level - 3221  
Aux 3 send level - 3222  
Aux 4 send level - 3223  
Route to group 1 - 3240  
Route to group 2 - 3241  
Route to group 3 - 3242  
Route to group 4 - 3243  
Solo - 3204  
Override - 3205  
Off Gain - 3206  
Auto – 3207  
On - 3208

## Input 34

Gain - 3300  
Mute - 3301  
Pan - 3302  
Polarity - 3303  
Aux 1 send level - 3320  
Aux 2 send level - 3321  
Aux 3 send level - 3322  
Aux 4 send level - 3323  
Route to group 1 - 3340  
Route to group 2 - 3341  
Route to group 3 - 3342  
Route to group 4 - 3343  
Solo - 3304  
Override - 3305  
Off Gain - 3306  
Auto – 3307  
On - 3308

## Input 35

Gain - 3400  
Mute - 3401  
Pan - 3402  
Polarity - 3403  
Aux 1 send level - 3420  
Aux 2 send level - 3421  
Aux 3 send level - 3422  
Aux 4 send level - 3423  
Route to group 1 - 3440  
Route to group 2 - 3441  
Route to group 3 - 3442  
Route to group 4 - 3443  
Solo - 3404  
Override - 3405  
Off Gain - 3406  
Auto – 3407  
On - 3408

## Input 36

Gain - 3500  
Mute - 3501  
Pan - 3502  
Polarity - 3503  
Aux 1 send level - 3520  
Aux 2 send level - 3521

Aux 3 send level - 3522  
Aux 4 send level - 3523  
Route to group 1 - 3540  
Route to group 2 - 3541  
Route to group 3 - 3542  
Route to group 4 - 3543  
Solo - 3504  
Override - 3505  
Off Gain - 3506  
Auto - 3507  
On - 3508

## Input 37

Gain - 3600  
Mute - 3601  
Pan - 3602  
Polarity - 3603  
Aux 1 send level - 3620  
Aux 2 send level - 3621  
Aux 3 send level - 3622  
Aux 4 send level - 3623  
Route to group 1 - 3640  
Route to group 2 - 3641  
Route to group 3 - 3642  
Route to group 4 - 3643  
Solo - 3604  
Override - 3605  
Off Gain - 3606  
Auto – 3607  
On - 3608

## Input 38

Gain - 3700  
Mute - 3701  
Pan - 3702  
Polarity - 3703  
Aux 1 send level - 3720  
Aux 2 send level - 3721  
Aux 3 send level - 3722  
Aux 4 send level - 3723  
Route to group 1 - 3740  
Route to group 2 - 3741  
Route to group 3 - 3742  
Route to group 4 - 3743  
Solo - 3704  
Override - 3705  
Off Gain - 3706  
Auto – 3707  
On - 3708

## Input 39

Gain - 3800  
Mute - 3801  
Pan - 3802  
Polarity - 3803  
Aux 1 send level - 3820  
Aux 2 send level - 3821  
Aux 3 send level - 3822  
Aux 4 send level - 3823  
Route to group 1 - 3840  
Route to group 2 - 3841  
Route to group 3 - 3842  
Route to group 4 - 3843  
Solo - 3804  
Override - 3805  
Off Gain - 3806  
Auto – 3807  
On - 3808

## Input 40

Gain - 3900  
Mute - 3901  
Pan - 3902  
Polarity - 3903  
Aux 1 send level - 3920  
Aux 2 send level - 3921  
Aux 3 send level - 3922  
Aux 4 send level - 3923  
Route to group 1 - 3940  
Route to group 2 - 3941  
Route to group 3 - 3942

Route to group 4 - 3943  
Solo - 3904  
Override - 3905  
Off Gain - 3906  
Auto – 3907  
On - 3908

## Input 41

Gain - 4000  
Mute - 4001  
Pan - 4002  
Polarity - 4003  
Aux 1 send level - 4020  
Aux 2 send level - 4021  
Aux 3 send level - 4022  
Aux 4 send level - 4023  
Route to group 1 - 4040  
Route to group 2 - 4041  
Route to group 3 - 4042  
Route to group 4 - 4043  
Solo - 4004  
Override - 4005  
Off Gain - 4006  
Auto – 4007  
On - 4008

## Input 42

Gain - 4100  
Mute - 4101  
Pan - 4102  
Polarity - 4103  
Aux 1 send level - 4120  
Aux 2 send level - 4121  
Aux 3 send level - 4122  
Aux 4 send level - 4123  
Route to group 1 - 4140  
Route to group 2 - 4141  
Route to group 3 - 4142  
Route to group 4 - 4143  
Solo - 4104  
Override - 4105  
Off Gain - 4106  
Auto – 4107  
On - 4108

## Input 43

Gain - 4200  
Mute - 4201  
Pan - 4202  
Polarity - 4203  
Aux 1 send level - 4220  
Aux 2 send level - 4221  
Aux 3 send level - 4222  
Aux 4 send level - 4223  
Route to group 1 - 4240  
Route to group 2 - 4241  
Route to group 3 - 4242  
Route to group 4 - 4243  
Solo - 4204  
Override - 4205  
Off Gain - 4206  
Auto – 4207  
On - 4208

## Input 44

Gain - 4300  
Mute - 4301  
Pan - 4302  
Polarity - 4303  
Aux 1 send level - 4320  
Aux 2 send level - 4321  
Aux 3 send level - 4322  
Aux 4 send level - 4323  
Route to group 1 - 4340  
Route to group 2 - 4341  
Route to group 3 - 4342  
Route to group 4 - 4343  
Solo - 4304  
Override - 4305  
Off Gain - 4306  
Auto – 4307

On - 4308

## Input 45

Gain - 4400  
Mute - 4401  
Pan - 4402  
Polarity - 4403  
Aux 1 send level - 4420  
Aux 2 send level - 4421  
Aux 3 send level - 4422  
Aux 4 send level - 4423  
Route to group 1 - 4440  
Route to group 2 - 4441  
Route to group 3 - 4442  
Route to group 4 - 4443  
Solo - 4404  
Override - 4405  
Off Gain - 4406  
Auto – 4407  
On - 4408

## Input 46

Gain - 4500  
Mute - 4501  
Pan - 4502  
Polarity - 4503  
Aux 1 send level - 4520  
Aux 2 send level - 4521  
Aux 3 send level - 4522  
Aux 4 send level - 4523  
Route to group 1 - 4540  
Route to group 2 - 4541  
Route to group 3 - 4542  
Route to group 4 - 4543  
Solo - 4504  
Override - 4505  
Off Gain - 4506  
Auto – 4507  
On - 4508

## Input 47

Gain - 4600  
Mute - 4601  
Pan - 4602  
Polarity - 4603  
Aux 1 send level - 4620  
Aux 2 send level - 4621  
Aux 3 send level - 4622  
Aux 4 send level - 4623  
Route to group 1 - 4640  
Route to group 2 - 4641  
Route to group 3 - 4642  
Route to group 4 - 4643  
Solo - 4604  
Override - 4605  
Off Gain - 4606  
Auto – 4607  
On - 4608

## Input 48

Gain - 4700  
Mute - 4701  
Pan - 4702  
Polarity - 4703  
Aux 1 send level - 4720  
Aux 2 send level - 4721  
Aux 3 send level - 4722  
Aux 4 send level - 4723  
Route to group 1 - 4740  
Route to group 2 - 4741  
Route to group 3 - 4742  
Route to group 4 - 4743  
Solo - 4704  
Override - 4705  
Off Gain - 4706  
Auto – 4707  
On - 4808

## Aux A

Gain - 10001  
Mute - 10002

## Aux B

Gain - 10011  
Mute - 10012

## Aux C

Gain - 10021  
Mute - 10022

## Aux D

Gain - 10031  
Mute - 10032

## Group A

Gain - 11000  
Mute - 11001

## Group B

Gain - 11010  
Mute - 11011

## Group C

Gain - 11020  
Mute - 11021

## Group D

Gain - 11030  
Mute - 11031

## Output

Gain - 20000  
Mute - 20001  
Gain - 20002  
Mute - 20003  
Speed - 20004  
Slope - 20005

## Compressor

Bypass - 0  
Threshold - 1  
Ratio - 2  
Attack - 3  
Release - 4  
Gain Reduction dB - 5  
Gain - 7  
Auto release - 8

## Crossover

### Band 1

Filter Type (Hi Pass) - 0  
Filter Type (Lo Pass) - 1  
Frequency (Hi Pass) - 2  
Frequency (Lo Pass) - 3  
Gain - 4  
Delay - 15  
Polarity - 16  
Mute - 17  
Limiter Threshold - 18  
Limiter Level dB - 19

### Band 2

Filter Type (Hi Pass) - 32  
Filter Type (Lo Pass) - 33  
Frequency (Hi Pass) - 34  
Frequency (Lo Pass) - 35  
Gain - 36  
Phase - 46  
Delay - 47  
Polarity - 48  
Mute - 49  
Limiter Threshold - 50  
Limiter Level dB - 51

### Band 3

Filter Type (Hi Pass) - 64  
Filter Type (Lo Pass) - 65  
Frequency (Hi Pass) - 66  
Frequency (Lo Pass) - 67  
Gain - 68  
Phase - 78  
Delay - 79  
Polarity - 80  
Mute - 81  
Limiter Threshold - 82  
Limiter Level dB - 83

### Band 4

Filter Type (Hi Pass) - 96  
Filter Type (Lo Pass) - 97

Frequency (Hi Pass) - 98  
Frequency (Lo Pass) - 99  
Gain - 100  
Phase - 110  
Delay - 111  
Polarity - 112  
Mute - 113  
Limiter Threshold - 114  
Limiter Level dB - 115

## Band 5

Filter Type (Hi Pass) - 128  
Filter Type (Lo Pass) - 129  
Frequency (Hi Pass) - 130  
Frequency (Lo Pass) - 131  
Gain - 132  
Phase - 142  
Delay - 143  
Polarity - 144  
Mute - 145  
Limiter Threshold - 146  
Limiter Level dB - 147

## Band 6

Filter Type (Hi Pass) - 160  
Filter Type (Lo Pass) - 161  
Frequency (Hi Pass) - 162  
Frequency (Lo Pass) - 163  
Gain - 164  
Phase - 174  
Delay - 175  
Polarity - 176  
Mute - 177  
Limiter Threshold - 178  
Limiter Level dB - 179

## Delay

Delay - 0

## Ducker

Bypass - 0  
Threshold - 1  
Range - 2  
Duck Time - 3  
Hold - 4  
Recover - 5  
Gain Reduction dB - 9

## Expander

Bypass - 0  
Threshold - 1  
Ratio - 7  
Attack - 3  
Release - 5  
Gain Reduction dB - 9

## Gain

Gain - 0  
Mute - 1  
Polarity - 2

## Gate

Bypass - 0  
Threshold - 1  
Range - 2  
Attack - 3  
Hold - 4  
Release - 5  
Manual Open - 6  
Open - 8  
Below Threshold dB - 10

## Graphic EQ

25.0 - 32  
31.0 - 33  
40.0 - 34  
50.0 - 35  
63.0 - 36  
80.0 - 37

100 - 38  
125 - 39  
160 - 40  
200 - 41  
250 - 42  
315 - 43  
400 - 44  
500 - 45  
630 - 46  
800 - 47  
1.00k - 48  
1.25k - 49  
1.60k - 50  
2.00k - 51  
2.50k - 52  
3.15k - 53  
4.00k - 54  
5.00k - 55  
6.30k - 56  
8.00k - 57  
10.0k - 58  
12.5k - 59  
16.0k - 60  
20.0k - 61  
Bypass - 66  
Selectivity – 65

## High Pass Filter

Bypass - 0  
Frequency - 1  
Filter type – 4

## Leveller

Bypass - 0  
Ratio - 1  
Threshold – 2  
Gain Reduction dB - 4  
Target Output - 5  
Max Gain - 6  
Speed – 7  
Active LED - 8

## Limiter

Threshold - 1  
Attack - 3  
Release – 4  
Active - 5

## Low Pass Filter

Bypass - 0  
Frequency - 1  
Filter type – 4

## Matrix Mixer

### Input 1

Gain Output 1 - 16384  
Gain Output 2 - 16512  
Gain Output 3 - 16640  
Gain Output 4 - 16768  
Gain Output 5 - 16896  
Gain Output 6 - 17024  
Gain Output 7 - 17152  
Gain Output 8 - 17280  
Gain Output 9 - 17408  
Gain Output 10 - 17536  
Gain Output 11 - 17664  
Gain Output 12 - 17792  
Gain Output 13 - 17920  
Gain Output 14 - 18048  
Gain Output 15 - 18176  
Gain Output 16 - 18304  
Gain Output 17 - 18432  
Gain Output 18 - 18560  
Gain Output 19 - 18688  
Gain Output 20 - 18816  
Gain Output 21 - 18944  
Gain Output 22 - 19072

Gain Output 23 - 19200  
Gain Output 24 - 19328  
Gain Output 25 - 19456  
Gain Output 26 - 19584  
Gain Output 27 - 19712  
Gain Output 28 - 19840  
Gain Output 29 - 19968  
Gain Output 30 - 20096  
Gain Output 31 - 20224  
Gain Output 32 - 20352  
Gain Output 33 - 20480  
Gain Output 34 - 20608  
Gain Output 35 - 20736  
Gain Output 36 - 20864  
Gain Output 37 - 20992  
Gain Output 38 - 21120  
Gain Output 39 - 21248  
Gain Output 40 - 21376  
Gain Output 41 - 21504  
Gain Output 42 - 21632  
Gain Output 43 - 21760  
Gain Output 44 - 21888  
Gain Output 45 - 22016  
Gain Output 46 - 22144  
Gain Output 47 - 22272  
Gain Output 48 - 22400

## Input 2

Gain Output 1 - 16385  
Gain Output 2 - 16513  
Gain Output 3 - 16641  
Gain Output 4 - 16769  
Gain Output 5 - 16897  
Gain Output 6 - 17025  
Gain Output 7 - 17153  
Gain Output 8 - 17281  
Gain Output 9 - 17409  
Gain Output 10 - 17537  
Gain Output 11 - 17665  
Gain Output 12 - 17793  
Gain Output 13 - 17921  
Gain Output 14 - 18049  
Gain Output 15 - 18177  
Gain Output 16 - 18305  
Gain Output 17 - 18433  
Gain Output 18 - 18561  
Gain Output 19 - 18689  
Gain Output 20 - 18817  
Gain Output 21 - 18945  
Gain Output 22 - 19073  
Gain Output 23 - 19201  
Gain Output 24 - 19329  
Gain Output 25 - 19457  
Gain Output 26 - 19585  
Gain Output 27 - 19713  
Gain Output 28 - 19841  
Gain Output 29 - 19969  
Gain Output 30 - 20097  
Gain Output 31 - 20225  
Gain Output 32 - 20353  
Gain Output 33 - 20481  
Gain Output 34 - 20609  
Gain Output 35 - 20737  
Gain Output 36 - 20865  
Gain Output 37 - 20993  
Gain Output 38 - 21121  
Gain Output 39 - 21249  
Gain Output 40 - 21377  
Gain Output 41 - 21505  
Gain Output 42 - 21633  
Gain Output 43 - 21761  
Gain Output 44 - 21889  
Gain Output 45 - 22017  
Gain Output 46 - 22145  
Gain Output 47 - 22273  
Gain Output 48 - 22401

## Input 3

Gain Output 1 - 16386

Gain Output 2 - 16514  
Gain Output 3 - 16642  
Gain Output 4 - 16770  
Gain Output 5 - 16898  
Gain Output 6 - 17026  
Gain Output 7 - 17154  
Gain Output 8 - 17282  
Gain Output 9 - 17410  
Gain Output 10 - 17538  
Gain Output 11 - 17666  
Gain Output 12 - 17794  
Gain Output 13 - 17922  
Gain Output 14 - 18050  
Gain Output 15 - 18178  
Gain Output 16 - 18306  
Gain Output 17 - 18434  
Gain Output 18 - 18562  
Gain Output 19 - 18690  
Gain Output 20 - 18818  
Gain Output 21 - 18946  
Gain Output 22 - 19074  
Gain Output 23 - 19202  
Gain Output 24 - 19330  
Gain Output 25 - 19458  
Gain Output 26 - 19586  
Gain Output 27 - 19714  
Gain Output 28 - 19842  
Gain Output 29 - 19970  
Gain Output 30 - 20098  
Gain Output 31 - 20226  
Gain Output 32 - 20354  
Gain Output 33 - 20482  
Gain Output 34 - 20610  
Gain Output 35 - 20738  
Gain Output 36 - 20866  
Gain Output 37 - 20994  
Gain Output 38 - 21122  
Gain Output 39 - 21250  
Gain Output 40 - 21378  
Gain Output 41 - 21506  
Gain Output 42 - 21634  
Gain Output 43 - 21762  
Gain Output 44 - 21890  
Gain Output 45 - 22018  
Gain Output 46 - 22146  
Gain Output 47 - 22274  
Gain Output 48 - 22402

## Input 4

Gain Output 1 - 16387  
Gain Output 2 - 16515  
Gain Output 3 - 16643  
Gain Output 4 - 16771  
Gain Output 5 - 16899  
Gain Output 6 - 17027  
Gain Output 7 - 17155  
Gain Output 8 - 17283  
Gain Output 9 - 17411  
Gain Output 10 - 17539  
Gain Output 11 - 17667  
Gain Output 12 - 17795  
Gain Output 13 - 17923  
Gain Output 14 - 18051  
Gain Output 15 - 18179  
Gain Output 16 - 18307  
Gain Output 17 - 18435  
Gain Output 18 - 18563  
Gain Output 19 - 18691  
Gain Output 20 - 18819  
Gain Output 21 - 18947  
Gain Output 22 - 19075  
Gain Output 23 - 19203  
Gain Output 24 - 19331  
Gain Output 25 - 19459  
Gain Output 26 - 19587  
Gain Output 27 - 19715  
Gain Output 28 - 19843  
Gain Output 29 - 19971

Gain Output 30 - 20099  
Gain Output 31 - 20227  
Gain Output 32 - 20355  
Gain Output 33 - 20483  
Gain Output 34 - 20611  
Gain Output 35 - 20739  
Gain Output 36 - 20867  
Gain Output 37 - 20995  
Gain Output 38 - 21123  
Gain Output 39 - 21251  
Gain Output 40 - 21379  
Gain Output 41 - 21507  
Gain Output 42 - 21635  
Gain Output 43 - 21763  
Gain Output 44 - 21891  
Gain Output 45 - 22019  
Gain Output 46 - 22147  
Gain Output 47 - 22275  
Gain Output 48 - 22403

## Input 5

Gain Output 1 - 16388  
Gain Output 2 - 16516  
Gain Output 3 - 16644  
Gain Output 4 - 16772  
Gain Output 5 - 16900  
Gain Output 6 - 17028  
Gain Output 7 - 17156  
Gain Output 8 - 17284  
Gain Output 9 - 17412  
Gain Output 10 - 17540  
Gain Output 11 - 17668  
Gain Output 12 - 17796  
Gain Output 13 - 17924  
Gain Output 14 - 18052  
Gain Output 15 - 18180  
Gain Output 16 - 18308  
Gain Output 17 - 18436  
Gain Output 18 - 18564  
Gain Output 19 - 18692  
Gain Output 20 - 18820  
Gain Output 21 - 18948  
Gain Output 22 - 19076  
Gain Output 23 - 19204  
Gain Output 24 - 19332  
Gain Output 25 - 19460  
Gain Output 26 - 19588  
Gain Output 27 - 19716  
Gain Output 28 - 19844  
Gain Output 29 - 19972  
Gain Output 30 - 20100  
Gain Output 31 - 20228  
Gain Output 32 - 20356  
Gain Output 33 - 20484  
Gain Output 34 - 20612  
Gain Output 35 - 20740  
Gain Output 36 - 20868  
Gain Output 37 - 20996  
Gain Output 38 - 21124  
Gain Output 39 - 21252  
Gain Output 40 - 21380  
Gain Output 41 - 21508  
Gain Output 42 - 21636  
Gain Output 43 - 21764  
Gain Output 44 - 21892  
Gain Output 45 - 22020  
Gain Output 46 - 22148  
Gain Output 47 - 22276  
Gain Output 48 - 22404

## Input 6

Gain Output 1 - 16389  
Gain Output 2 - 16517  
Gain Output 3 - 16645  
Gain Output 4 - 16773  
Gain Output 5 - 16901  
Gain Output 6 - 17029  
Gain Output 7 - 17157  
Gain Output 8 - 17285



Gain Output 9 - 17413  
Gain Output 10 - 17541  
Gain Output 11 - 17669  
Gain Output 12 - 17797  
Gain Output 13 - 17925  
Gain Output 14 - 18053  
Gain Output 15 - 18181  
Gain Output 16 - 18309  
Gain Output 17 - 18437  
Gain Output 18 - 18565  
Gain Output 19 - 18693  
Gain Output 20 - 18821  
Gain Output 21 - 18949  
Gain Output 22 - 19077  
Gain Output 23 - 19205  
Gain Output 24 - 19333  
Gain Output 25 - 19461  
Gain Output 26 - 19589  
Gain Output 27 - 19717  
Gain Output 28 - 19845  
Gain Output 29 - 19973  
Gain Output 30 - 20101  
Gain Output 31 - 20229  
Gain Output 32 - 20357  
Gain Output 33 - 20485  
Gain Output 34 - 20613  
Gain Output 35 - 20741  
Gain Output 36 - 20869  
Gain Output 37 - 20997  
Gain Output 38 - 21125  
Gain Output 39 - 21253  
Gain Output 40 - 21381  
Gain Output 41 - 21509  
Gain Output 42 - 21637  
Gain Output 43 - 21765  
Gain Output 44 - 21893  
Gain Output 45 - 22021  
Gain Output 46 - 22149  
Gain Output 47 - 22277  
Gain Output 48 - 22405

## Input 7

Gain Output 1 - 16390  
Gain Output 2 - 16518  
Gain Output 3 - 16646  
Gain Output 4 - 16774  
Gain Output 5 - 16902  
Gain Output 6 - 17030  
Gain Output 7 - 17158  
Gain Output 8 - 17286  
Gain Output 9 - 17414  
Gain Output 10 - 17542  
Gain Output 11 - 17670  
Gain Output 12 - 17798  
Gain Output 13 - 17926  
Gain Output 14 - 18054  
Gain Output 15 - 18182  
Gain Output 16 - 18310  
Gain Output 17 - 18438  
Gain Output 18 - 18566  
Gain Output 19 - 18694  
Gain Output 20 - 18822  
Gain Output 21 - 18950  
Gain Output 22 - 19078  
Gain Output 23 - 19206  
Gain Output 24 - 19334  
Gain Output 25 - 19462  
Gain Output 26 - 19590  
Gain Output 27 - 19718  
Gain Output 28 - 19846  
Gain Output 29 - 19974  
Gain Output 30 - 20102  
Gain Output 31 - 20230  
Gain Output 32 - 20358  
Gain Output 33 - 20486  
Gain Output 34 - 20614  
Gain Output 35 - 20742  
Gain Output 36 - 20870

Gain Output 37 - 20998  
Gain Output 38 - 21126  
Gain Output 39 - 21254  
Gain Output 40 - 21382  
Gain Output 41 - 21510  
Gain Output 42 - 21638  
Gain Output 43 - 21766  
Gain Output 44 - 21894  
Gain Output 45 - 22022  
Gain Output 46 - 22150  
Gain Output 47 - 22278  
Gain Output 48 - 22406

## Input 8

Gain Output 1 - 16391  
Gain Output 2 - 16519  
Gain Output 3 - 16647  
Gain Output 4 - 16775  
Gain Output 5 - 16903  
Gain Output 6 - 17031  
Gain Output 7 - 17159  
Gain Output 8 - 17287  
Gain Output 9 - 17415  
Gain Output 10 - 17543  
Gain Output 11 - 17671  
Gain Output 12 - 17799  
Gain Output 13 - 17927  
Gain Output 14 - 18055  
Gain Output 15 - 18183  
Gain Output 16 - 18311  
Gain Output 17 - 18439  
Gain Output 18 - 18567  
Gain Output 19 - 18695  
Gain Output 20 - 18823  
Gain Output 21 - 18951  
Gain Output 22 - 19079  
Gain Output 23 - 19207  
Gain Output 24 - 19335  
Gain Output 25 - 19463  
Gain Output 26 - 19591  
Gain Output 27 - 19719  
Gain Output 28 - 19847  
Gain Output 29 - 19975  
Gain Output 30 - 20103  
Gain Output 31 - 20231  
Gain Output 32 - 20359  
Gain Output 33 - 20487  
Gain Output 34 - 20615  
Gain Output 35 - 20743  
Gain Output 36 - 20871  
Gain Output 37 - 20999  
Gain Output 38 - 21127  
Gain Output 39 - 21255  
Gain Output 40 - 21383  
Gain Output 41 - 21511  
Gain Output 42 - 21639  
Gain Output 43 - 21767  
Gain Output 44 - 21895  
Gain Output 45 - 22023  
Gain Output 46 - 22151  
Gain Output 47 - 22279  
Gain Output 48 - 22407

## Input 9

Gain Output 1 - 16392  
Gain Output 2 - 16520  
Gain Output 3 - 16648  
Gain Output 4 - 16776  
Gain Output 5 - 16904  
Gain Output 6 - 17032  
Gain Output 7 - 17160  
Gain Output 8 - 17288  
Gain Output 9 - 17416  
Gain Output 10 - 17544  
Gain Output 11 - 17672  
Gain Output 12 - 17800  
Gain Output 13 - 17928  
Gain Output 14 - 18056  
Gain Output 15 - 18184



Gain Output 16 - 18312  
Gain Output 17 - 18440  
Gain Output 18 - 18568  
Gain Output 19 - 18696  
Gain Output 20 - 18824  
Gain Output 21 - 18952  
Gain Output 22 - 19080  
Gain Output 23 - 19208  
Gain Output 24 - 19336  
Gain Output 25 - 19464  
Gain Output 26 - 19592  
Gain Output 27 - 19720  
Gain Output 28 - 19848  
Gain Output 29 - 19976  
Gain Output 30 - 20104  
Gain Output 31 - 20232  
Gain Output 32 - 20360  
Gain Output 33 - 20488  
Gain Output 34 - 20616  
Gain Output 35 - 20744  
Gain Output 36 - 20872  
Gain Output 37 - 21000  
Gain Output 38 - 21128  
Gain Output 39 - 21256  
Gain Output 40 - 21384  
Gain Output 41 - 21512  
Gain Output 42 - 21640  
Gain Output 43 - 21768  
Gain Output 44 - 21896  
Gain Output 45 - 22024  
Gain Output 46 - 22152  
Gain Output 47 - 22280  
Gain Output 48 - 22408

## Input 10

Gain Output 1 - 16393  
Gain Output 2 - 16521  
Gain Output 3 - 16649  
Gain Output 4 - 16777  
Gain Output 5 - 16905  
Gain Output 6 - 17033  
Gain Output 7 - 17161  
Gain Output 8 - 17289  
Gain Output 9 - 17417  
Gain Output 10 - 17545  
Gain Output 11 - 17673  
Gain Output 12 - 17801  
Gain Output 13 - 17929  
Gain Output 14 - 18057  
Gain Output 15 - 18185  
Gain Output 16 - 18313  
Gain Output 17 - 18441  
Gain Output 18 - 18569  
Gain Output 19 - 18697  
Gain Output 20 - 18825  
Gain Output 21 - 18953  
Gain Output 22 - 19081  
Gain Output 23 - 19209  
Gain Output 24 - 19337  
Gain Output 25 - 19465  
Gain Output 26 - 19593  
Gain Output 27 - 19721  
Gain Output 28 - 19849  
Gain Output 29 - 19977  
Gain Output 30 - 20105  
Gain Output 31 - 20233  
Gain Output 32 - 20361  
Gain Output 33 - 20489  
Gain Output 34 - 20617  
Gain Output 35 - 20745  
Gain Output 36 - 20873  
Gain Output 37 - 21001  
Gain Output 38 - 21129  
Gain Output 39 - 21257  
Gain Output 40 - 21385  
Gain Output 41 - 21513  
Gain Output 42 - 21641  
Gain Output 43 - 21769

Gain Output 44 - 21897  
Gain Output 45 - 22025  
Gain Output 46 - 22153  
Gain Output 47 - 22281  
Gain Output 48 - 22409

## Input 11

Gain Output 1 - 16394  
Gain Output 2 - 16522  
Gain Output 3 - 16650  
Gain Output 4 - 16778  
Gain Output 5 - 16906  
Gain Output 6 - 17034  
Gain Output 7 - 17162  
Gain Output 8 - 17290  
Gain Output 9 - 17418  
Gain Output 10 - 17546  
Gain Output 11 - 17674  
Gain Output 12 - 17802  
Gain Output 13 - 17930  
Gain Output 14 - 18058  
Gain Output 15 - 18186  
Gain Output 16 - 18314  
Gain Output 17 - 18442  
Gain Output 18 - 18570  
Gain Output 19 - 18698  
Gain Output 20 - 18826  
Gain Output 21 - 18954  
Gain Output 22 - 19082  
Gain Output 23 - 19210  
Gain Output 24 - 19338  
Gain Output 25 - 19466  
Gain Output 26 - 19594  
Gain Output 27 - 19722  
Gain Output 28 - 19850  
Gain Output 29 - 19978  
Gain Output 30 - 20106  
Gain Output 31 - 20234  
Gain Output 32 - 20362  
Gain Output 33 - 20490  
Gain Output 34 - 20618  
Gain Output 35 - 20746  
Gain Output 36 - 20874  
Gain Output 37 - 21002  
Gain Output 38 - 21130  
Gain Output 39 - 21258  
Gain Output 40 - 21386  
Gain Output 41 - 21514  
Gain Output 42 - 21642  
Gain Output 43 - 21770  
Gain Output 44 - 21898  
Gain Output 45 - 22026  
Gain Output 46 - 22154  
Gain Output 47 - 22282  
Gain Output 48 - 22410

## Input 12

Gain Output 1 - 16395  
Gain Output 2 - 16523  
Gain Output 3 - 16651  
Gain Output 4 - 16779  
Gain Output 5 - 16907  
Gain Output 6 - 17035  
Gain Output 7 - 17163  
Gain Output 8 - 17291  
Gain Output 9 - 17419  
Gain Output 10 - 17547  
Gain Output 11 - 17675  
Gain Output 12 - 17803  
Gain Output 13 - 17931  
Gain Output 14 - 18059  
Gain Output 15 - 18187  
Gain Output 16 - 18315  
Gain Output 17 - 18443  
Gain Output 18 - 18571  
Gain Output 19 - 18699  
Gain Output 20 - 18827  
Gain Output 21 - 18955  
Gain Output 22 - 19083

Gain Output 23 - 19211  
Gain Output 24 - 19339  
Gain Output 25 - 19467  
Gain Output 26 - 19595  
Gain Output 27 - 19723  
Gain Output 28 - 19851  
Gain Output 29 - 19979  
Gain Output 30 - 20107  
Gain Output 31 - 20235  
Gain Output 32 - 20363  
Gain Output 33 - 20491  
Gain Output 34 - 20619  
Gain Output 35 - 20747  
Gain Output 36 - 20875  
Gain Output 37 - 21003  
Gain Output 38 - 21131  
Gain Output 39 - 21259  
Gain Output 40 - 21387  
Gain Output 41 - 21515  
Gain Output 42 - 21643  
Gain Output 43 - 21771  
Gain Output 44 - 21899  
Gain Output 45 - 22027  
Gain Output 46 - 22155  
Gain Output 47 - 22283  
Gain Output 48 - 22411

## Input 13

Gain Output 1 - 16396  
Gain Output 2 - 16524  
Gain Output 3 - 16652  
Gain Output 4 - 16780  
Gain Output 5 - 16908  
Gain Output 6 - 17036  
Gain Output 7 - 17164  
Gain Output 8 - 17292  
Gain Output 9 - 17420  
Gain Output 10 - 17548  
Gain Output 11 - 17676  
Gain Output 12 - 17804  
Gain Output 13 - 17932  
Gain Output 14 - 18060  
Gain Output 15 - 18188  
Gain Output 16 - 18316  
Gain Output 17 - 18444  
Gain Output 18 - 18572  
Gain Output 19 - 18700  
Gain Output 20 - 18828  
Gain Output 21 - 18956  
Gain Output 22 - 19084  
Gain Output 23 - 19212  
Gain Output 24 - 19340  
Gain Output 25 - 19468  
Gain Output 26 - 19596  
Gain Output 27 - 19724  
Gain Output 28 - 19852  
Gain Output 29 - 19980  
Gain Output 30 - 20108  
Gain Output 31 - 20236  
Gain Output 32 - 20364  
Gain Output 33 - 20492  
Gain Output 34 - 20620  
Gain Output 35 - 20748  
Gain Output 36 - 20876  
Gain Output 37 - 21004  
Gain Output 38 - 21132  
Gain Output 39 - 21260  
Gain Output 40 - 21388  
Gain Output 41 - 21516  
Gain Output 42 - 21644  
Gain Output 43 - 21772  
Gain Output 44 - 21900  
Gain Output 45 - 22028  
Gain Output 46 - 22156  
Gain Output 47 - 22284  
Gain Output 48 - 22412

## Input 14

Gain Output 1 - 16397

Gain Output 2 - 16525  
Gain Output 3 - 16653  
Gain Output 4 - 16781  
Gain Output 5 - 16909  
Gain Output 6 - 17037  
Gain Output 7 - 17165  
Gain Output 8 - 17293  
Gain Output 9 - 17421  
Gain Output 10 - 17549  
Gain Output 11 - 17677  
Gain Output 12 - 17805  
Gain Output 13 - 17933  
Gain Output 14 - 18061  
Gain Output 15 - 18189  
Gain Output 16 - 18317  
Gain Output 17 - 18445  
Gain Output 18 - 18573  
Gain Output 19 - 18701  
Gain Output 20 - 18829  
Gain Output 21 - 18957  
Gain Output 22 - 19085  
Gain Output 23 - 19213  
Gain Output 24 - 19341  
Gain Output 25 - 19469  
Gain Output 26 - 19597  
Gain Output 27 - 19725  
Gain Output 28 - 19853  
Gain Output 29 - 19981  
Gain Output 30 - 20109  
Gain Output 31 - 20237  
Gain Output 32 - 20365  
Gain Output 33 - 20493  
Gain Output 34 - 20621  
Gain Output 35 - 20749  
Gain Output 36 - 20877  
Gain Output 37 - 21005  
Gain Output 38 - 21133  
Gain Output 39 - 21261  
Gain Output 40 - 21389  
Gain Output 41 - 21517  
Gain Output 42 - 21645  
Gain Output 43 - 21773  
Gain Output 44 - 21901  
Gain Output 45 - 22029  
Gain Output 46 - 22157  
Gain Output 47 - 22285  
Gain Output 48 - 22413

## Input 15

Gain Output 1 - 16398  
Gain Output 2 - 16526  
Gain Output 3 - 16654  
Gain Output 4 - 16782  
Gain Output 5 - 16910  
Gain Output 6 - 17038  
Gain Output 7 - 17166  
Gain Output 8 - 17294  
Gain Output 9 - 17422  
Gain Output 10 - 17550  
Gain Output 11 - 17678  
Gain Output 12 - 17806  
Gain Output 13 - 17934  
Gain Output 14 - 18062  
Gain Output 15 - 18190  
Gain Output 16 - 18318  
Gain Output 17 - 18446  
Gain Output 18 - 18574  
Gain Output 19 - 18702  
Gain Output 20 - 18830  
Gain Output 21 - 18958  
Gain Output 22 - 19086  
Gain Output 23 - 19214  
Gain Output 24 - 19342  
Gain Output 25 - 19470  
Gain Output 26 - 19598  
Gain Output 27 - 19726  
Gain Output 28 - 19854  
Gain Output 29 - 19982

Gain Output 30 - 20110  
Gain Output 31 - 20238  
Gain Output 32 - 20366  
Gain Output 33 - 20494  
Gain Output 34 - 20622  
Gain Output 35 - 20750  
Gain Output 36 - 20878  
Gain Output 37 - 21006  
Gain Output 38 - 21134  
Gain Output 39 - 21262  
Gain Output 40 - 21390  
Gain Output 41 - 21518  
Gain Output 42 - 21646  
Gain Output 43 - 21774  
Gain Output 44 - 21902  
Gain Output 45 - 22030  
Gain Output 46 - 22158  
Gain Output 47 - 22286  
Gain Output 48 - 22414

## Input 16

Gain Output 1 - 16399  
Gain Output 2 - 16527  
Gain Output 3 - 16655  
Gain Output 4 - 16783  
Gain Output 5 - 16911  
Gain Output 6 - 17039  
Gain Output 7 - 17167  
Gain Output 8 - 17295  
Gain Output 9 - 17423  
Gain Output 10 - 17551  
Gain Output 11 - 17679  
Gain Output 12 - 17807  
Gain Output 13 - 17935  
Gain Output 14 - 18063  
Gain Output 15 - 18191  
Gain Output 16 - 18319  
Gain Output 17 - 18447  
Gain Output 18 - 18575  
Gain Output 19 - 18703  
Gain Output 20 - 18831  
Gain Output 21 - 18959  
Gain Output 22 - 19087  
Gain Output 23 - 19215  
Gain Output 24 - 19343  
Gain Output 25 - 19471  
Gain Output 26 - 19599  
Gain Output 27 - 19727  
Gain Output 28 - 19855  
Gain Output 29 - 19983  
Gain Output 30 - 20111  
Gain Output 31 - 20239  
Gain Output 32 - 20367  
Gain Output 33 - 20495  
Gain Output 34 - 20623  
Gain Output 35 - 20751  
Gain Output 36 - 20879  
Gain Output 37 - 21007  
Gain Output 38 - 21135  
Gain Output 39 - 21263  
Gain Output 40 - 21391  
Gain Output 41 - 21519  
Gain Output 42 - 21647  
Gain Output 43 - 21775  
Gain Output 44 - 21903  
Gain Output 45 - 22031  
Gain Output 46 - 22159  
Gain Output 47 - 22287  
Gain Output 48 - 22415

## Input 17

Gain Output 1 - 16400  
Gain Output 2 - 16528  
Gain Output 3 - 16656  
Gain Output 4 - 16784  
Gain Output 5 - 16912  
Gain Output 6 - 17040  
Gain Output 7 - 17168  
Gain Output 8 - 17296

Gain Output 9 - 17424  
Gain Output 10 - 17552  
Gain Output 11 - 17680  
Gain Output 12 - 17808  
Gain Output 13 - 17936  
Gain Output 14 - 18064  
Gain Output 15 - 18192  
Gain Output 16 - 18320  
Gain Output 17 - 18448  
Gain Output 18 - 18576  
Gain Output 19 - 18704  
Gain Output 20 - 18832  
Gain Output 21 - 18960  
Gain Output 22 - 19088  
Gain Output 23 - 19216  
Gain Output 24 - 19344  
Gain Output 25 - 19472  
Gain Output 26 - 19600  
Gain Output 27 - 19728  
Gain Output 28 - 19856  
Gain Output 29 - 19984  
Gain Output 30 - 20112  
Gain Output 31 - 20240  
Gain Output 32 - 20368  
Gain Output 33 - 20496  
Gain Output 34 - 20624  
Gain Output 35 - 20752  
Gain Output 36 - 20880  
Gain Output 37 - 21008  
Gain Output 38 - 21136  
Gain Output 39 - 21264  
Gain Output 40 - 21392  
Gain Output 41 - 21520  
Gain Output 42 - 21648  
Gain Output 43 - 21776  
Gain Output 44 - 21904  
Gain Output 45 - 22032  
Gain Output 46 - 22160  
Gain Output 47 - 22288  
Gain Output 48 - 22416

## Input 18

Gain Output 1 - 16401  
Gain Output 2 - 16529  
Gain Output 3 - 16657  
Gain Output 4 - 16785  
Gain Output 5 - 16913  
Gain Output 6 - 17041  
Gain Output 7 - 17169  
Gain Output 8 - 17297  
Gain Output 9 - 17425  
Gain Output 10 - 17553  
Gain Output 11 - 17681  
Gain Output 12 - 17809  
Gain Output 13 - 17937  
Gain Output 14 - 18065  
Gain Output 15 - 18193  
Gain Output 16 - 18321  
Gain Output 17 - 18449  
Gain Output 18 - 18577  
Gain Output 19 - 18705  
Gain Output 20 - 18833  
Gain Output 21 - 18961  
Gain Output 22 - 19089  
Gain Output 23 - 19217  
Gain Output 24 - 19345  
Gain Output 25 - 19473  
Gain Output 26 - 19601  
Gain Output 27 - 19729  
Gain Output 28 - 19857  
Gain Output 29 - 19985  
Gain Output 30 - 20113  
Gain Output 31 - 20241  
Gain Output 32 - 20369  
Gain Output 33 - 20497  
Gain Output 34 - 20625  
Gain Output 35 - 20753  
Gain Output 36 - 20881

Gain Output 37 - 21009  
Gain Output 38 - 21137  
Gain Output 39 - 21265  
Gain Output 40 - 21393  
Gain Output 41 - 21521  
Gain Output 42 - 21649  
Gain Output 43 - 21777  
Gain Output 44 - 21905  
Gain Output 45 - 22033  
Gain Output 46 - 22161  
Gain Output 47 - 22289  
Gain Output 48 - 22417

## Input 19

Gain Output 1 - 16402  
Gain Output 2 - 16530  
Gain Output 3 - 16658  
Gain Output 4 - 16786  
Gain Output 5 - 16914  
Gain Output 6 - 17042  
Gain Output 7 - 17170  
Gain Output 8 - 17298  
Gain Output 9 - 17426  
Gain Output 10 - 17554  
Gain Output 11 - 17682  
Gain Output 12 - 17810  
Gain Output 13 - 17938  
Gain Output 14 - 18066  
Gain Output 15 - 18194  
Gain Output 16 - 18322  
Gain Output 17 - 18450  
Gain Output 18 - 18578  
Gain Output 19 - 18706  
Gain Output 20 - 18834  
Gain Output 21 - 18962  
Gain Output 22 - 19090  
Gain Output 23 - 19218  
Gain Output 24 - 19346  
Gain Output 25 - 19474  
Gain Output 26 - 19602  
Gain Output 27 - 19730  
Gain Output 28 - 19858  
Gain Output 29 - 19986  
Gain Output 30 - 20114  
Gain Output 31 - 20242  
Gain Output 32 - 20370  
Gain Output 33 - 20498  
Gain Output 34 - 20626  
Gain Output 35 - 20754  
Gain Output 36 - 20882  
Gain Output 37 - 21010  
Gain Output 38 - 21138  
Gain Output 39 - 21266  
Gain Output 40 - 21394  
Gain Output 41 - 21522  
Gain Output 42 - 21650  
Gain Output 43 - 21778  
Gain Output 44 - 21906  
Gain Output 45 - 22034  
Gain Output 46 - 22162  
Gain Output 47 - 22290  
Gain Output 48 - 22418

## Input 20

Gain Output 1 - 16403  
Gain Output 2 - 16531  
Gain Output 3 - 16659  
Gain Output 4 - 16787  
Gain Output 5 - 16915  
Gain Output 6 - 17043  
Gain Output 7 - 17171  
Gain Output 8 - 17299  
Gain Output 9 - 17427  
Gain Output 10 - 17555  
Gain Output 11 - 17683  
Gain Output 12 - 17811  
Gain Output 13 - 17939  
Gain Output 14 - 18067  
Gain Output 15 - 18195

Gain Output 16 - 18323  
Gain Output 17 - 18451  
Gain Output 18 - 18579  
Gain Output 19 - 18707  
Gain Output 20 - 18835  
Gain Output 21 - 18963  
Gain Output 22 - 19091  
Gain Output 23 - 19219  
Gain Output 24 - 19347  
Gain Output 25 - 19475  
Gain Output 26 - 19603  
Gain Output 27 - 19731  
Gain Output 28 - 19859  
Gain Output 29 - 19987  
Gain Output 30 - 20115  
Gain Output 31 - 20243  
Gain Output 32 - 20371  
Gain Output 33 - 20499  
Gain Output 34 - 20627  
Gain Output 35 - 20755  
Gain Output 36 - 20883  
Gain Output 37 - 21011  
Gain Output 38 - 21139  
Gain Output 39 - 21267  
Gain Output 40 - 21395  
Gain Output 41 - 21523  
Gain Output 42 - 21651  
Gain Output 43 - 21779  
Gain Output 44 - 21907  
Gain Output 45 - 22035  
Gain Output 46 - 22163  
Gain Output 47 - 22291  
Gain Output 48 - 22419

## Input 21

Gain Output 1 - 16404  
Gain Output 2 - 16532  
Gain Output 3 - 16660  
Gain Output 4 - 16788  
Gain Output 5 - 16916  
Gain Output 6 - 17044  
Gain Output 7 - 17172  
Gain Output 8 - 17300  
Gain Output 9 - 17428  
Gain Output 10 - 17556  
Gain Output 11 - 17684  
Gain Output 12 - 17812  
Gain Output 13 - 17940  
Gain Output 14 - 18068  
Gain Output 15 - 18196  
Gain Output 16 - 18324  
Gain Output 17 - 18452  
Gain Output 18 - 18580  
Gain Output 19 - 18708  
Gain Output 20 - 18836  
Gain Output 21 - 18964  
Gain Output 22 - 19092  
Gain Output 23 - 19220  
Gain Output 24 - 19348  
Gain Output 25 - 19476  
Gain Output 26 - 19604  
Gain Output 27 - 19732  
Gain Output 28 - 19860  
Gain Output 29 - 19988  
Gain Output 30 - 20116  
Gain Output 31 - 20244  
Gain Output 32 - 20372  
Gain Output 33 - 20500  
Gain Output 34 - 20628  
Gain Output 35 - 20756  
Gain Output 36 - 20884  
Gain Output 37 - 21012  
Gain Output 38 - 21140  
Gain Output 39 - 21268  
Gain Output 40 - 21396  
Gain Output 41 - 21524  
Gain Output 42 - 21652  
Gain Output 43 - 21780

Gain Output 44 - 21908  
Gain Output 45 - 22036  
Gain Output 46 - 22164  
Gain Output 47 - 22292  
Gain Output 48 - 22420

## Input 22

Gain Output 1 - 16405  
Gain Output 2 - 16533  
Gain Output 3 - 16661  
Gain Output 4 - 16789  
Gain Output 5 - 16917  
Gain Output 6 - 17045  
Gain Output 7 - 17173  
Gain Output 8 - 17301  
Gain Output 9 - 17429  
Gain Output 10 - 17557  
Gain Output 11 - 17685  
Gain Output 12 - 17813  
Gain Output 13 - 17941  
Gain Output 14 - 18069  
Gain Output 15 - 18197  
Gain Output 16 - 18325  
Gain Output 17 - 18453  
Gain Output 18 - 18581  
Gain Output 19 - 18709  
Gain Output 20 - 18837  
Gain Output 21 - 18965  
Gain Output 22 - 19093  
Gain Output 23 - 19221  
Gain Output 24 - 19349  
Gain Output 25 - 19477  
Gain Output 26 - 19605  
Gain Output 27 - 19733  
Gain Output 28 - 19861  
Gain Output 29 - 19989  
Gain Output 30 - 20117  
Gain Output 31 - 20245  
Gain Output 32 - 20373  
Gain Output 33 - 20501  
Gain Output 34 - 20629  
Gain Output 35 - 20757  
Gain Output 36 - 20885  
Gain Output 37 - 21013  
Gain Output 38 - 21141  
Gain Output 39 - 21269  
Gain Output 40 - 21397  
Gain Output 41 - 21525  
Gain Output 42 - 21653  
Gain Output 43 - 21781  
Gain Output 44 - 21909  
Gain Output 45 - 22037  
Gain Output 46 - 22165  
Gain Output 47 - 22293  
Gain Output 48 - 22421

## Input 23

Gain Output 1 - 16406  
Gain Output 2 - 16534  
Gain Output 3 - 16662  
Gain Output 4 - 16790  
Gain Output 5 - 16918  
Gain Output 6 - 17046  
Gain Output 7 - 17174  
Gain Output 8 - 17302  
Gain Output 9 - 17430  
Gain Output 10 - 17558  
Gain Output 11 - 17686  
Gain Output 12 - 17814  
Gain Output 13 - 17942  
Gain Output 14 - 18070  
Gain Output 15 - 18198  
Gain Output 16 - 18326  
Gain Output 17 - 18454  
Gain Output 18 - 18582  
Gain Output 19 - 18710  
Gain Output 20 - 18838  
Gain Output 21 - 18966  
Gain Output 22 - 19094

Gain Output 23 - 19222  
Gain Output 24 - 19350  
Gain Output 25 - 19478  
Gain Output 26 - 19606  
Gain Output 27 - 19734  
Gain Output 28 - 19862  
Gain Output 29 - 19990  
Gain Output 30 - 20118  
Gain Output 31 - 20246  
Gain Output 32 - 20374  
Gain Output 33 - 20502  
Gain Output 34 - 20630  
Gain Output 35 - 20758  
Gain Output 36 - 20886  
Gain Output 37 - 21014  
Gain Output 38 - 21142  
Gain Output 39 - 21270  
Gain Output 40 - 21398  
Gain Output 41 - 21526  
Gain Output 42 - 21654  
Gain Output 43 - 21782  
Gain Output 44 - 21910  
Gain Output 45 - 22038  
Gain Output 46 - 22166  
Gain Output 47 - 22294  
Gain Output 48 - 22422

## Input 24

Gain Output 1 - 16407  
Gain Output 2 - 16535  
Gain Output 3 - 16663  
Gain Output 4 - 16791  
Gain Output 5 - 16919  
Gain Output 6 - 17047  
Gain Output 7 - 17175  
Gain Output 8 - 17303  
Gain Output 9 - 17431  
Gain Output 10 - 17559  
Gain Output 11 - 17687  
Gain Output 12 - 17815  
Gain Output 13 - 17943  
Gain Output 14 - 18071  
Gain Output 15 - 18199  
Gain Output 16 - 18327  
Gain Output 17 - 18455  
Gain Output 18 - 18583  
Gain Output 19 - 18711  
Gain Output 20 - 18839  
Gain Output 21 - 18967  
Gain Output 22 - 19095  
Gain Output 23 - 19223  
Gain Output 24 - 19351  
Gain Output 25 - 19479  
Gain Output 26 - 19607  
Gain Output 27 - 19735  
Gain Output 28 - 19863  
Gain Output 29 - 19991  
Gain Output 30 - 20119  
Gain Output 31 - 20247  
Gain Output 32 - 20375  
Gain Output 33 - 20503  
Gain Output 34 - 20631  
Gain Output 35 - 20759  
Gain Output 36 - 20887  
Gain Output 37 - 21015  
Gain Output 38 - 21143  
Gain Output 39 - 21271  
Gain Output 40 - 21399  
Gain Output 41 - 21527  
Gain Output 42 - 21655  
Gain Output 43 - 21783  
Gain Output 44 - 21911  
Gain Output 45 - 22039  
Gain Output 46 - 22167  
Gain Output 47 - 22295  
Gain Output 48 - 22423

## Input 25

Gain Output 1 - 16408

Gain Output 2 - 16536  
Gain Output 3 - 16664  
Gain Output 4 - 16792  
Gain Output 5 - 16920  
Gain Output 6 - 17048  
Gain Output 7 - 17176  
Gain Output 8 - 17304  
Gain Output 9 - 17432  
Gain Output 10 - 17560  
Gain Output 11 - 17688  
Gain Output 12 - 17816  
Gain Output 13 - 17944  
Gain Output 14 - 18072  
Gain Output 15 - 18200  
Gain Output 16 - 18328  
Gain Output 17 - 18456  
Gain Output 18 - 18584  
Gain Output 19 - 18712  
Gain Output 20 - 18840  
Gain Output 21 - 18968  
Gain Output 22 - 19096  
Gain Output 23 - 19224  
Gain Output 24 - 19352  
Gain Output 25 - 19480  
Gain Output 26 - 19608  
Gain Output 27 - 19736  
Gain Output 28 - 19864  
Gain Output 29 - 19992  
Gain Output 30 - 20120  
Gain Output 31 - 20248  
Gain Output 32 - 20376  
Gain Output 33 - 20504  
Gain Output 34 - 20632  
Gain Output 35 - 20760  
Gain Output 36 - 20888  
Gain Output 37 - 21016  
Gain Output 38 - 21144  
Gain Output 39 - 21272  
Gain Output 40 - 21400  
Gain Output 41 - 21528  
Gain Output 42 - 21656  
Gain Output 43 - 21784  
Gain Output 44 - 21912  
Gain Output 45 - 22040  
Gain Output 46 - 22168  
Gain Output 47 - 22296  
Gain Output 48 - 22424

## Input 26

Gain Output 1 - 16409  
Gain Output 2 - 16537  
Gain Output 3 - 16665  
Gain Output 4 - 16793  
Gain Output 5 - 16921  
Gain Output 6 - 17049  
Gain Output 7 - 17177  
Gain Output 8 - 17305  
Gain Output 9 - 17433  
Gain Output 10 - 17561  
Gain Output 11 - 17689  
Gain Output 12 - 17817  
Gain Output 13 - 17945  
Gain Output 14 - 18073  
Gain Output 15 - 18201  
Gain Output 16 - 18329  
Gain Output 17 - 18457  
Gain Output 18 - 18585  
Gain Output 19 - 18713  
Gain Output 20 - 18841  
Gain Output 21 - 18969  
Gain Output 22 - 19097  
Gain Output 23 - 19225  
Gain Output 24 - 19353  
Gain Output 25 - 19481  
Gain Output 26 - 19609  
Gain Output 27 - 19737  
Gain Output 28 - 19865

Gain Output 29 - 19993  
Gain Output 30 - 20121  
Gain Output 31 - 20249  
Gain Output 32 - 20377  
Gain Output 33 - 20505  
Gain Output 34 - 20633  
Gain Output 35 - 20761  
Gain Output 36 - 20889  
Gain Output 37 - 21017  
Gain Output 38 - 21145  
Gain Output 39 - 21273  
Gain Output 40 - 21401  
Gain Output 41 - 21529  
Gain Output 42 - 21657  
Gain Output 43 - 21785  
Gain Output 44 - 21913  
Gain Output 45 - 22041  
Gain Output 46 - 22169  
Gain Output 47 - 22297  
Gain Output 48 - 22425

## Input 27

Gain Output 1 - 16410  
Gain Output 2 - 16538  
Gain Output 3 - 16666  
Gain Output 4 - 16794  
Gain Output 5 - 16922  
Gain Output 6 - 17050  
Gain Output 7 - 17178  
Gain Output 8 - 17306  
Gain Output 9 - 17434  
Gain Output 10 - 17562  
Gain Output 11 - 17690  
Gain Output 12 - 17818  
Gain Output 13 - 17946  
Gain Output 14 - 18074  
Gain Output 15 - 18202  
Gain Output 16 - 18330  
Gain Output 17 - 18458  
Gain Output 18 - 18586  
Gain Output 19 - 18714  
Gain Output 20 - 18842  
Gain Output 21 - 18970  
Gain Output 22 - 19098  
Gain Output 23 - 19226  
Gain Output 24 - 19354  
Gain Output 25 - 19482  
Gain Output 26 - 19610  
Gain Output 27 - 19738  
Gain Output 28 - 19866  
Gain Output 29 - 19994  
Gain Output 30 - 20122  
Gain Output 31 - 20250  
Gain Output 32 - 20378  
Gain Output 33 - 20506  
Gain Output 34 - 20634  
Gain Output 35 - 20762  
Gain Output 36 - 20890  
Gain Output 37 - 21018  
Gain Output 38 - 21146  
Gain Output 39 - 21274  
Gain Output 40 - 21402  
Gain Output 41 - 21530  
Gain Output 42 - 21658  
Gain Output 43 - 21786  
Gain Output 44 - 21914  
Gain Output 45 - 22042  
Gain Output 46 - 22170  
Gain Output 47 - 22298  
Gain Output 48 - 22426

## Input 28

Gain Output 1 - 16411  
Gain Output 2 - 16539  
Gain Output 3 - 16667  
Gain Output 4 - 16795  
Gain Output 5 - 16923  
Gain Output 6 - 17051  
Gain Output 7 - 17179



Gain Output 8 - 17307  
Gain Output 9 - 17435  
Gain Output 10 - 17563  
Gain Output 11 - 17691  
Gain Output 12 - 17819  
Gain Output 13 - 17947  
Gain Output 14 - 18075  
Gain Output 15 - 18203  
Gain Output 16 - 18331  
Gain Output 17 - 18459  
Gain Output 18 - 18587  
Gain Output 19 - 18715  
Gain Output 20 - 18843  
Gain Output 21 - 18971  
Gain Output 22 - 19099  
Gain Output 23 - 19227  
Gain Output 24 - 19355  
Gain Output 25 - 19483  
Gain Output 26 - 19611  
Gain Output 27 - 19739  
Gain Output 28 - 19867  
Gain Output 29 - 19995  
Gain Output 30 - 20123  
Gain Output 31 - 20251  
Gain Output 32 - 20379  
Gain Output 33 - 20507  
Gain Output 34 - 20635  
Gain Output 35 - 20763  
Gain Output 36 - 20891  
Gain Output 37 - 21019  
Gain Output 38 - 21147  
Gain Output 39 - 21275  
Gain Output 40 - 21403  
Gain Output 41 - 21531  
Gain Output 42 - 21659  
Gain Output 43 - 21787  
Gain Output 44 - 21915  
Gain Output 45 - 22043  
Gain Output 46 - 22171  
Gain Output 47 - 22299  
Gain Output 48 - 22427

## Input 29

Gain Output 1 - 16412  
Gain Output 2 - 16540  
Gain Output 3 - 16668  
Gain Output 4 - 16796  
Gain Output 5 - 16924  
Gain Output 6 - 17052  
Gain Output 7 - 17180  
Gain Output 8 - 17308  
Gain Output 9 - 17436  
Gain Output 10 - 17564  
Gain Output 11 - 17692  
Gain Output 12 - 17820  
Gain Output 13 - 17948  
Gain Output 14 - 18076  
Gain Output 15 - 18204  
Gain Output 16 - 18332  
Gain Output 17 - 18460  
Gain Output 18 - 18588  
Gain Output 19 - 18716  
Gain Output 20 - 18844  
Gain Output 21 - 18972  
Gain Output 22 - 19100  
Gain Output 23 - 19228  
Gain Output 24 - 19356  
Gain Output 25 - 19484  
Gain Output 26 - 19612  
Gain Output 27 - 19740  
Gain Output 28 - 19868  
Gain Output 29 - 19996  
Gain Output 30 - 20124  
Gain Output 31 - 20252  
Gain Output 32 - 20380  
Gain Output 33 - 20508  
Gain Output 34 - 20636

Gain Output 35 - 20764  
Gain Output 36 - 20892  
Gain Output 37 - 21020  
Gain Output 38 - 21148  
Gain Output 39 - 21276  
Gain Output 40 - 21404  
Gain Output 41 - 21532  
Gain Output 42 - 21660  
Gain Output 43 - 21788  
Gain Output 44 - 21916  
Gain Output 45 - 22044  
Gain Output 46 - 22172  
Gain Output 47 - 22300  
Gain Output 48 - 22428

## Input 30

Gain Output 1 - 16413  
Gain Output 2 - 16541  
Gain Output 3 - 16669  
Gain Output 4 - 16797  
Gain Output 5 - 16925  
Gain Output 6 - 17053  
Gain Output 7 - 17181  
Gain Output 8 - 17309  
Gain Output 9 - 17437  
Gain Output 10 - 17565  
Gain Output 11 - 17693  
Gain Output 12 - 17821  
Gain Output 13 - 17949  
Gain Output 14 - 18077  
Gain Output 15 - 18205  
Gain Output 16 - 18333  
Gain Output 17 - 18461  
Gain Output 18 - 18589  
Gain Output 19 - 18717  
Gain Output 20 - 18845  
Gain Output 21 - 18973  
Gain Output 22 - 19101  
Gain Output 23 - 19229  
Gain Output 24 - 19357  
Gain Output 25 - 19485  
Gain Output 26 - 19613  
Gain Output 27 - 19741  
Gain Output 28 - 19869  
Gain Output 29 - 19997  
Gain Output 30 - 20125  
Gain Output 31 - 20253  
Gain Output 32 - 20381  
Gain Output 33 - 20509  
Gain Output 34 - 20637  
Gain Output 35 - 20765  
Gain Output 36 - 20893  
Gain Output 37 - 21021  
Gain Output 38 - 21149  
Gain Output 39 - 21277  
Gain Output 40 - 21405  
Gain Output 41 - 21533  
Gain Output 42 - 21661  
Gain Output 43 - 21789  
Gain Output 44 - 21917  
Gain Output 45 - 22045  
Gain Output 46 - 22173  
Gain Output 47 - 22301  
Gain Output 48 - 22429

## Input 31

Gain Output 1 - 16414  
Gain Output 2 - 16542  
Gain Output 3 - 16670  
Gain Output 4 - 16798  
Gain Output 5 - 16926  
Gain Output 6 - 17054  
Gain Output 7 - 17182  
Gain Output 8 - 17310  
Gain Output 9 - 17438  
Gain Output 10 - 17566  
Gain Output 11 - 17694  
Gain Output 12 - 17822  
Gain Output 13 - 17950

Gain Output 14 - 18078  
Gain Output 15 - 18206  
Gain Output 16 - 18334  
Gain Output 17 - 18462  
Gain Output 18 - 18590  
Gain Output 19 - 18718  
Gain Output 20 - 18846  
Gain Output 21 - 18974  
Gain Output 22 - 19102  
Gain Output 23 - 19230  
Gain Output 24 - 19358  
Gain Output 25 - 19486  
Gain Output 26 - 19614  
Gain Output 27 - 19742  
Gain Output 28 - 19870  
Gain Output 29 - 19998  
Gain Output 30 - 20126  
Gain Output 31 - 20254  
Gain Output 32 - 20382  
Gain Output 33 - 20510  
Gain Output 34 - 20638  
Gain Output 35 - 20766  
Gain Output 36 - 20894  
Gain Output 37 - 21022  
Gain Output 38 - 21150  
Gain Output 39 - 21278  
Gain Output 40 - 21406  
Gain Output 41 - 21534  
Gain Output 42 - 21662  
Gain Output 43 - 21790  
Gain Output 44 - 21918  
Gain Output 45 - 22046  
Gain Output 46 - 22174  
Gain Output 47 - 22302  
Gain Output 48 - 22430

## Input 32

Gain Output 1 - 16415  
Gain Output 2 - 16543  
Gain Output 3 - 16671  
Gain Output 4 - 16799  
Gain Output 5 - 16927  
Gain Output 6 - 17055  
Gain Output 7 - 17183  
Gain Output 8 - 17311  
Gain Output 9 - 17439  
Gain Output 10 - 17567  
Gain Output 11 - 17695  
Gain Output 12 - 17823  
Gain Output 13 - 17951  
Gain Output 14 - 18079  
Gain Output 15 - 18207  
Gain Output 16 - 18335  
Gain Output 17 - 18463  
Gain Output 18 - 18591  
Gain Output 19 - 18719  
Gain Output 20 - 18847  
Gain Output 21 - 18975  
Gain Output 22 - 19103  
Gain Output 23 - 19231  
Gain Output 24 - 19359  
Gain Output 25 - 19487  
Gain Output 26 - 19615  
Gain Output 27 - 19743  
Gain Output 28 - 19871  
Gain Output 29 - 19999  
Gain Output 30 - 20127  
Gain Output 31 - 20255  
Gain Output 32 - 20383  
Gain Output 33 - 20511  
Gain Output 34 - 20639  
Gain Output 35 - 20767  
Gain Output 36 - 20895  
Gain Output 37 - 21023  
Gain Output 38 - 21151  
Gain Output 39 - 21279  
Gain Output 40 - 21407

Gain Output 41 - 21535  
Gain Output 42 - 21663  
Gain Output 43 - 21791  
Gain Output 44 - 21919  
Gain Output 45 - 22047  
Gain Output 46 - 22175  
Gain Output 47 - 22303  
Gain Output 48 - 22431

## Input 33

Gain Output 1 - 16416  
Gain Output 2 - 16544  
Gain Output 3 - 16672  
Gain Output 4 - 16800  
Gain Output 5 - 16928  
Gain Output 6 - 17056  
Gain Output 7 - 17184  
Gain Output 8 - 17312  
Gain Output 9 - 17440  
Gain Output 10 - 17568  
Gain Output 11 - 17696  
Gain Output 12 - 17824  
Gain Output 13 - 17952  
Gain Output 14 - 18080  
Gain Output 15 - 18208  
Gain Output 16 - 18336  
Gain Output 17 - 18464  
Gain Output 18 - 18592  
Gain Output 19 - 18720  
Gain Output 20 - 18848  
Gain Output 21 - 18976  
Gain Output 22 - 19104  
Gain Output 23 - 19232  
Gain Output 24 - 19360  
Gain Output 25 - 19488  
Gain Output 26 - 19616  
Gain Output 27 - 19744  
Gain Output 28 - 19872  
Gain Output 29 - 20000  
Gain Output 30 - 20128  
Gain Output 31 - 20256  
Gain Output 32 - 20384  
Gain Output 33 - 20512  
Gain Output 34 - 20640  
Gain Output 35 - 20768  
Gain Output 36 - 20896  
Gain Output 37 - 21024  
Gain Output 38 - 21152  
Gain Output 39 - 21280  
Gain Output 40 - 21408  
Gain Output 41 - 21536  
Gain Output 42 - 21664  
Gain Output 43 - 21792  
Gain Output 44 - 21920  
Gain Output 45 - 22048  
Gain Output 46 - 22176  
Gain Output 47 - 22304  
Gain Output 48 - 22432

## Input 34

Gain Output 1 - 16417  
Gain Output 2 - 16545  
Gain Output 3 - 16673  
Gain Output 4 - 16801  
Gain Output 5 - 16929  
Gain Output 6 - 17057  
Gain Output 7 - 17185  
Gain Output 8 - 17313  
Gain Output 9 - 17441  
Gain Output 10 - 17569  
Gain Output 11 - 17697  
Gain Output 12 - 17825  
Gain Output 13 - 17953  
Gain Output 14 - 18081  
Gain Output 15 - 18209  
Gain Output 16 - 18337  
Gain Output 17 - 18465  
Gain Output 18 - 18593  
Gain Output 19 - 18721



Gain Output 20 - 18849  
Gain Output 21 - 18977  
Gain Output 22 - 19105  
Gain Output 23 - 19233  
Gain Output 24 - 19361  
Gain Output 25 - 19489  
Gain Output 26 - 19617  
Gain Output 27 - 19745  
Gain Output 28 - 19873  
Gain Output 29 - 20001  
Gain Output 30 - 20129  
Gain Output 31 - 20257  
Gain Output 32 - 20385  
Gain Output 33 - 20513  
Gain Output 34 - 20641  
Gain Output 35 - 20769  
Gain Output 36 - 20897  
Gain Output 37 - 21025  
Gain Output 38 - 21153  
Gain Output 39 - 21281  
Gain Output 40 - 21409  
Gain Output 41 - 21537  
Gain Output 42 - 21665  
Gain Output 43 - 21793  
Gain Output 44 - 21921  
Gain Output 45 - 22049  
Gain Output 46 - 22177  
Gain Output 47 - 22305  
Gain Output 48 - 22433

## Input 35

Gain Output 1 - 16418  
Gain Output 2 - 16546  
Gain Output 3 - 16674  
Gain Output 4 - 16802  
Gain Output 5 - 16930  
Gain Output 6 - 17058  
Gain Output 7 - 17186  
Gain Output 8 - 17314  
Gain Output 9 - 17442  
Gain Output 10 - 17570  
Gain Output 11 - 17698  
Gain Output 12 - 17826  
Gain Output 13 - 17954  
Gain Output 14 - 18082  
Gain Output 15 - 18210  
Gain Output 16 - 18338  
Gain Output 17 - 18466  
Gain Output 18 - 18594  
Gain Output 19 - 18722  
Gain Output 20 - 18850  
Gain Output 21 - 18978  
Gain Output 22 - 19106  
Gain Output 23 - 19234  
Gain Output 24 - 19362  
Gain Output 25 - 19490  
Gain Output 26 - 19618  
Gain Output 27 - 19746  
Gain Output 28 - 19874  
Gain Output 29 - 20002  
Gain Output 30 - 20130  
Gain Output 31 - 20258  
Gain Output 32 - 20386  
Gain Output 33 - 20514  
Gain Output 34 - 20642  
Gain Output 35 - 20770  
Gain Output 36 - 20898  
Gain Output 37 - 21026  
Gain Output 38 - 21154  
Gain Output 39 - 21282  
Gain Output 40 - 21410  
Gain Output 41 - 21538  
Gain Output 42 - 21666  
Gain Output 43 - 21794  
Gain Output 44 - 21922  
Gain Output 45 - 22050  
Gain Output 46 - 22178

Gain Output 47 - 22306  
Gain Output 48 - 22434

## Input 36

Gain Output 1 - 16419  
Gain Output 2 - 16547  
Gain Output 3 - 16675  
Gain Output 4 - 16803  
Gain Output 5 - 16931  
Gain Output 6 - 17059  
Gain Output 7 - 17187  
Gain Output 8 - 17315  
Gain Output 9 - 17443  
Gain Output 10 - 17571  
Gain Output 11 - 17699  
Gain Output 12 - 17827  
Gain Output 13 - 17955  
Gain Output 14 - 18083  
Gain Output 15 - 18211  
Gain Output 16 - 18339  
Gain Output 17 - 18467  
Gain Output 18 - 18595  
Gain Output 19 - 18723  
Gain Output 20 - 18851  
Gain Output 21 - 18979  
Gain Output 22 - 19107  
Gain Output 23 - 19235  
Gain Output 24 - 19363  
Gain Output 25 - 19491  
Gain Output 26 - 19619  
Gain Output 27 - 19747  
Gain Output 28 - 19875  
Gain Output 29 - 20003  
Gain Output 30 - 20131  
Gain Output 31 - 20259  
Gain Output 32 - 20387  
Gain Output 33 - 20515  
Gain Output 34 - 20643  
Gain Output 35 - 20771  
Gain Output 36 - 20899  
Gain Output 37 - 21027  
Gain Output 38 - 21155  
Gain Output 39 - 21283  
Gain Output 40 - 21411  
Gain Output 41 - 21539  
Gain Output 42 - 21667  
Gain Output 43 - 21795  
Gain Output 44 - 21923  
Gain Output 45 - 22051  
Gain Output 46 - 22179  
Gain Output 47 - 22307  
Gain Output 48 - 22435

## Input 37

Gain Output 1 - 16420  
Gain Output 2 - 16548  
Gain Output 3 - 16676  
Gain Output 4 - 16804  
Gain Output 5 - 16932  
Gain Output 6 - 17060  
Gain Output 7 - 17188  
Gain Output 8 - 17316  
Gain Output 9 - 17444  
Gain Output 10 - 17572  
Gain Output 11 - 17700  
Gain Output 12 - 17828  
Gain Output 13 - 17956  
Gain Output 14 - 18084  
Gain Output 15 - 18212  
Gain Output 16 - 18340  
Gain Output 17 - 18468  
Gain Output 18 - 18596  
Gain Output 19 - 18724  
Gain Output 20 - 18852  
Gain Output 21 - 18980  
Gain Output 22 - 19108  
Gain Output 23 - 19236  
Gain Output 24 - 19364  
Gain Output 25 - 19492

Gain Output 26 - 19620  
Gain Output 27 - 19748  
Gain Output 28 - 19876  
Gain Output 29 - 20004  
Gain Output 30 - 20132  
Gain Output 31 - 20260  
Gain Output 32 - 20388  
Gain Output 33 - 20516  
Gain Output 34 - 20644  
Gain Output 35 - 20772  
Gain Output 36 - 20900  
Gain Output 37 - 21028  
Gain Output 38 - 21156  
Gain Output 39 - 21284  
Gain Output 40 - 21412  
Gain Output 41 - 21540  
Gain Output 42 - 21668  
Gain Output 43 - 21796  
Gain Output 44 - 21924  
Gain Output 45 - 22052  
Gain Output 46 - 22180  
Gain Output 47 - 22308  
Gain Output 48 - 22436

## Input 38

Gain Output 1 - 16421  
Gain Output 2 - 16549  
Gain Output 3 - 16677  
Gain Output 4 - 16805  
Gain Output 5 - 16933  
Gain Output 6 - 17061  
Gain Output 7 - 17189  
Gain Output 8 - 17317  
Gain Output 9 - 17445  
Gain Output 10 - 17573  
Gain Output 11 - 17701  
Gain Output 12 - 17829  
Gain Output 13 - 17957  
Gain Output 14 - 18085  
Gain Output 15 - 18213  
Gain Output 16 - 18341  
Gain Output 17 - 18469  
Gain Output 18 - 18597  
Gain Output 19 - 18725  
Gain Output 20 - 18853  
Gain Output 21 - 18981  
Gain Output 22 - 19109  
Gain Output 23 - 19237  
Gain Output 24 - 19365  
Gain Output 25 - 19493  
Gain Output 26 - 19621  
Gain Output 27 - 19749  
Gain Output 28 - 19877  
Gain Output 29 - 20005  
Gain Output 30 - 20133  
Gain Output 31 - 20261  
Gain Output 32 - 20389  
Gain Output 33 - 20517  
Gain Output 34 - 20645  
Gain Output 35 - 20773  
Gain Output 36 - 20901  
Gain Output 37 - 21029  
Gain Output 38 - 21157  
Gain Output 39 - 21285  
Gain Output 40 - 21413  
Gain Output 41 - 21541  
Gain Output 42 - 21669  
Gain Output 43 - 21797  
Gain Output 44 - 21925  
Gain Output 45 - 22053  
Gain Output 46 - 22181  
Gain Output 47 - 22309  
Gain Output 48 - 22437

## Input 39

Gain Output 1 - 16422  
Gain Output 2 - 16550  
Gain Output 3 - 16678

Gain Output 4 - 16806  
Gain Output 5 - 16934  
Gain Output 6 - 17062  
Gain Output 7 - 17190  
Gain Output 8 - 17318  
Gain Output 9 - 17446  
Gain Output 10 - 17574  
Gain Output 11 - 17702  
Gain Output 12 - 17830  
Gain Output 13 - 17958  
Gain Output 14 - 18086  
Gain Output 15 - 18214  
Gain Output 16 - 18342  
Gain Output 17 - 18470  
Gain Output 18 - 18598  
Gain Output 19 - 18726  
Gain Output 20 - 18854  
Gain Output 21 - 18982  
Gain Output 22 - 19110  
Gain Output 23 - 19238  
Gain Output 24 - 19366  
Gain Output 25 - 19494  
Gain Output 26 - 19622  
Gain Output 27 - 19750  
Gain Output 28 - 19878  
Gain Output 29 - 20006  
Gain Output 30 - 20134  
Gain Output 31 - 20262  
Gain Output 32 - 20390  
Gain Output 33 - 20518  
Gain Output 34 - 20646  
Gain Output 35 - 20774  
Gain Output 36 - 20902  
Gain Output 37 - 21030  
Gain Output 38 - 21158  
Gain Output 39 - 21286  
Gain Output 40 - 21414  
Gain Output 41 - 21542  
Gain Output 42 - 21670  
Gain Output 43 - 21798  
Gain Output 44 - 21926  
Gain Output 45 - 22054  
Gain Output 46 - 22182  
Gain Output 47 - 22310  
Gain Output 48 - 22438

## Input 40

Gain Output 1 - 16423  
Gain Output 2 - 16551  
Gain Output 3 - 16679  
Gain Output 4 - 16807  
Gain Output 5 - 16935  
Gain Output 6 - 17063  
Gain Output 7 - 17191  
Gain Output 8 - 17319  
Gain Output 9 - 17447  
Gain Output 10 - 17575  
Gain Output 11 - 17703  
Gain Output 12 - 17831  
Gain Output 13 - 17959  
Gain Output 14 - 18087  
Gain Output 15 - 18215  
Gain Output 16 - 18343  
Gain Output 17 - 18471  
Gain Output 18 - 18599  
Gain Output 19 - 18727  
Gain Output 20 - 18855  
Gain Output 21 - 18983  
Gain Output 22 - 19111  
Gain Output 23 - 19239  
Gain Output 24 - 19367  
Gain Output 25 - 19495  
Gain Output 26 - 19623  
Gain Output 27 - 19751  
Gain Output 28 - 19879  
Gain Output 29 - 20007  
Gain Output 30 - 20135  
Gain Output 31 - 20263

Gain Output 32 - 20391  
Gain Output 33 - 20519  
Gain Output 34 - 20647  
Gain Output 35 - 20775  
Gain Output 36 - 20903  
Gain Output 37 - 21031  
Gain Output 38 - 21159  
Gain Output 39 - 21287  
Gain Output 40 - 21415  
Gain Output 41 - 21543  
Gain Output 42 - 21671  
Gain Output 43 - 21799  
Gain Output 44 - 21927  
Gain Output 45 - 22055  
Gain Output 46 - 22183  
Gain Output 47 - 22311  
Gain Output 48 - 22439

## Input 41

Gain Output 1 - 16424  
Gain Output 2 - 16552  
Gain Output 3 - 16680  
Gain Output 4 - 16808  
Gain Output 5 - 16936  
Gain Output 6 - 17064  
Gain Output 7 - 17192  
Gain Output 8 - 17320  
Gain Output 9 - 17448  
Gain Output 10 - 17576  
Gain Output 11 - 17704  
Gain Output 12 - 17832  
Gain Output 13 - 17960  
Gain Output 14 - 18088  
Gain Output 15 - 18216  
Gain Output 16 - 18344  
Gain Output 17 - 18472  
Gain Output 18 - 18600  
Gain Output 19 - 18728  
Gain Output 20 - 18856  
Gain Output 21 - 18984  
Gain Output 22 - 19112  
Gain Output 23 - 19240  
Gain Output 24 - 19368  
Gain Output 25 - 19496  
Gain Output 26 - 19624  
Gain Output 27 - 19752  
Gain Output 28 - 19880  
Gain Output 29 - 20008  
Gain Output 30 - 20136  
Gain Output 31 - 20264  
Gain Output 32 - 20392  
Gain Output 33 - 20520  
Gain Output 34 - 20648  
Gain Output 35 - 20776  
Gain Output 36 - 20904  
Gain Output 37 - 21032  
Gain Output 38 - 21160  
Gain Output 39 - 21288  
Gain Output 40 - 21416  
Gain Output 41 - 21544  
Gain Output 42 - 21672  
Gain Output 43 - 21800  
Gain Output 44 - 21928  
Gain Output 45 - 22056  
Gain Output 46 - 22184  
Gain Output 47 - 22312  
Gain Output 48 - 22440

## Input 42

Gain Output 1 - 16425  
Gain Output 2 - 16553  
Gain Output 3 - 16681  
Gain Output 4 - 16809  
Gain Output 5 - 16937  
Gain Output 6 - 17065  
Gain Output 7 - 17193  
Gain Output 8 - 17321  
Gain Output 9 - 17449

Gain Output 10 - 17577  
Gain Output 11 - 17705  
Gain Output 12 - 17833  
Gain Output 13 - 17961  
Gain Output 14 - 18089  
Gain Output 15 - 18217  
Gain Output 16 - 18345  
Gain Output 17 - 18473  
Gain Output 18 - 18601  
Gain Output 19 - 18729  
Gain Output 20 - 18857  
Gain Output 21 - 18985  
Gain Output 22 - 19113  
Gain Output 23 - 19241  
Gain Output 24 - 19369  
Gain Output 25 - 19497  
Gain Output 26 - 19625  
Gain Output 27 - 19753  
Gain Output 28 - 19881  
Gain Output 29 - 20009  
Gain Output 30 - 20137  
Gain Output 31 - 20265  
Gain Output 32 - 20393  
Gain Output 33 - 20521  
Gain Output 34 - 20649  
Gain Output 35 - 20777  
Gain Output 36 - 20905  
Gain Output 37 - 21033  
Gain Output 38 - 21161  
Gain Output 39 - 21289  
Gain Output 40 - 21417  
Gain Output 41 - 21545  
Gain Output 42 - 21673  
Gain Output 43 - 21801  
Gain Output 44 - 21929  
Gain Output 45 - 22057  
Gain Output 46 - 22185  
Gain Output 47 - 22313  
Gain Output 48 - 22441

## Input 43

Gain Output 1 - 16426  
Gain Output 2 - 16554  
Gain Output 3 - 16682  
Gain Output 4 - 16810  
Gain Output 5 - 16938  
Gain Output 6 - 17066  
Gain Output 7 - 17194  
Gain Output 8 - 17322  
Gain Output 9 - 17450  
Gain Output 10 - 17578  
Gain Output 11 - 17706  
Gain Output 12 - 17834  
Gain Output 13 - 17962  
Gain Output 14 - 18090  
Gain Output 15 - 18218  
Gain Output 16 - 18346  
Gain Output 17 - 18474  
Gain Output 18 - 18602  
Gain Output 19 - 18730  
Gain Output 20 - 18858  
Gain Output 21 - 18986  
Gain Output 22 - 19114  
Gain Output 23 - 19242  
Gain Output 24 - 19370  
Gain Output 25 - 19498  
Gain Output 26 - 19626  
Gain Output 27 - 19754  
Gain Output 28 - 19882  
Gain Output 29 - 20010  
Gain Output 30 - 20138  
Gain Output 31 - 20266  
Gain Output 32 - 20394  
Gain Output 33 - 20522  
Gain Output 34 - 20650  
Gain Output 35 - 20778  
Gain Output 36 - 20906  
Gain Output 37 - 21034

Gain Output 38 - 21162  
Gain Output 39 - 21290  
Gain Output 40 - 21418  
Gain Output 41 - 21546  
Gain Output 42 - 21674  
Gain Output 43 - 21802  
Gain Output 44 - 21930  
Gain Output 45 - 22058  
Gain Output 46 - 22186  
Gain Output 47 - 22314  
Gain Output 48 - 22442

## Input 44

Gain Output 1 - 16427  
Gain Output 2 - 16555  
Gain Output 3 - 16683  
Gain Output 4 - 16811  
Gain Output 5 - 16939  
Gain Output 6 - 17067  
Gain Output 7 - 17195  
Gain Output 8 - 17323  
Gain Output 9 - 17451  
Gain Output 10 - 17579  
Gain Output 11 - 17707  
Gain Output 12 - 17835  
Gain Output 13 - 17963  
Gain Output 14 - 18091  
Gain Output 15 - 18219  
Gain Output 16 - 18347  
Gain Output 17 - 18475  
Gain Output 18 - 18603  
Gain Output 19 - 18731  
Gain Output 20 - 18859  
Gain Output 21 - 18987  
Gain Output 22 - 19115  
Gain Output 23 - 19243  
Gain Output 24 - 19371  
Gain Output 25 - 19499  
Gain Output 26 - 19627  
Gain Output 27 - 19755  
Gain Output 28 - 19883  
Gain Output 29 - 20011  
Gain Output 30 - 20139  
Gain Output 31 - 20267  
Gain Output 32 - 20395  
Gain Output 33 - 20523  
Gain Output 34 - 20651  
Gain Output 35 - 20779  
Gain Output 36 - 20907  
Gain Output 37 - 21035  
Gain Output 38 - 21163  
Gain Output 39 - 21291  
Gain Output 40 - 21419  
Gain Output 41 - 21547  
Gain Output 42 - 21675  
Gain Output 43 - 21803  
Gain Output 44 - 21931  
Gain Output 45 - 22059  
Gain Output 46 - 22187  
Gain Output 47 - 22315  
Gain Output 48 - 22443

## Input 45

Gain Output 1 - 16428  
Gain Output 2 - 16556  
Gain Output 3 - 16684  
Gain Output 4 - 16812  
Gain Output 5 - 16940  
Gain Output 6 - 17068  
Gain Output 7 - 17196  
Gain Output 8 - 17324  
Gain Output 9 - 17452  
Gain Output 10 - 17580  
Gain Output 11 - 17708  
Gain Output 12 - 17836  
Gain Output 13 - 17964  
Gain Output 14 - 18092  
Gain Output 15 - 18220

Gain Output 16 - 18348  
Gain Output 17 - 18476  
Gain Output 18 - 18604  
Gain Output 19 - 18732  
Gain Output 20 - 18860  
Gain Output 21 - 18988  
Gain Output 22 - 19116  
Gain Output 23 - 19244  
Gain Output 24 - 19372  
Gain Output 25 - 19500  
Gain Output 26 - 19628  
Gain Output 27 - 19756  
Gain Output 28 - 19884  
Gain Output 29 - 20012  
Gain Output 30 - 20140  
Gain Output 31 - 20268  
Gain Output 32 - 20396  
Gain Output 33 - 20524  
Gain Output 34 - 20652  
Gain Output 35 - 20780  
Gain Output 36 - 20908  
Gain Output 37 - 21036  
Gain Output 38 - 21164  
Gain Output 39 - 21292  
Gain Output 40 - 21420  
Gain Output 41 - 21548  
Gain Output 42 - 21676  
Gain Output 43 - 21804  
Gain Output 44 - 21932  
Gain Output 45 - 22060  
Gain Output 46 - 22188  
Gain Output 47 - 22316  
Gain Output 48 - 22444

## Input 46

Gain Output 1 - 16429  
Gain Output 2 - 16557  
Gain Output 3 - 16685  
Gain Output 4 - 16813  
Gain Output 5 - 16941  
Gain Output 6 - 17069  
Gain Output 7 - 17197  
Gain Output 8 - 17325  
Gain Output 9 - 17453  
Gain Output 10 - 17581  
Gain Output 11 - 17709  
Gain Output 12 - 17837  
Gain Output 13 - 17965  
Gain Output 14 - 18093  
Gain Output 15 - 18221  
Gain Output 16 - 18349  
Gain Output 17 - 18477  
Gain Output 18 - 18605  
Gain Output 19 - 18733  
Gain Output 20 - 18861  
Gain Output 21 - 18989  
Gain Output 22 - 19117  
Gain Output 23 - 19245  
Gain Output 24 - 19373  
Gain Output 25 - 19501  
Gain Output 26 - 19629  
Gain Output 27 - 19757  
Gain Output 28 - 19885  
Gain Output 29 - 20013  
Gain Output 30 - 20141  
Gain Output 31 - 20269  
Gain Output 32 - 20397  
Gain Output 33 - 20525  
Gain Output 34 - 20653  
Gain Output 35 - 20781  
Gain Output 36 - 20909  
Gain Output 37 - 21037  
Gain Output 38 - 21165  
Gain Output 39 - 21293  
Gain Output 40 - 21421  
Gain Output 41 - 21549  
Gain Output 42 - 21677  
Gain Output 43 - 21805

Gain Output 44 - 21933  
Gain Output 45 - 22061  
Gain Output 46 - 22189  
Gain Output 47 - 22317  
Gain Output 48 - 22445

## Input 47

Gain Output 1 - 16430  
Gain Output 2 - 16558  
Gain Output 3 - 16686  
Gain Output 4 - 16814  
Gain Output 5 - 16942  
Gain Output 6 - 17070  
Gain Output 7 - 17198  
Gain Output 8 - 17326  
Gain Output 9 - 17454  
Gain Output 10 - 17582  
Gain Output 11 - 17710  
Gain Output 12 - 17838  
Gain Output 13 - 17966  
Gain Output 14 - 18094  
Gain Output 15 - 18222  
Gain Output 16 - 18350  
Gain Output 17 - 18478  
Gain Output 18 - 18606  
Gain Output 19 - 18734  
Gain Output 20 - 18862  
Gain Output 21 - 18990  
Gain Output 22 - 19118  
Gain Output 23 - 19246  
Gain Output 24 - 19374  
Gain Output 25 - 19502  
Gain Output 26 - 19630  
Gain Output 27 - 19758  
Gain Output 28 - 19886  
Gain Output 29 - 20014  
Gain Output 30 - 20142  
Gain Output 31 - 20270  
Gain Output 32 - 20398  
Gain Output 33 - 20526  
Gain Output 34 - 20654  
Gain Output 35 - 20782  
Gain Output 36 - 20910  
Gain Output 37 - 21038  
Gain Output 38 - 21166  
Gain Output 39 - 21294  
Gain Output 40 - 21422  
Gain Output 41 - 21550  
Gain Output 42 - 21678  
Gain Output 43 - 21806  
Gain Output 44 - 21934  
Gain Output 45 - 22062  
Gain Output 46 - 22190  
Gain Output 47 - 22318  
Gain Output 48 - 22446

## Input 48

Gain Output 1 - 16431  
Gain Output 2 - 16559  
Gain Output 3 - 16687  
Gain Output 4 - 16815  
Gain Output 5 - 16943  
Gain Output 6 - 17071  
Gain Output 7 - 17199  
Gain Output 8 - 17327  
Gain Output 9 - 17455  
Gain Output 10 - 17583  
Gain Output 11 - 17711  
Gain Output 12 - 17839  
Gain Output 13 - 17967  
Gain Output 14 - 18095  
Gain Output 15 - 18223  
Gain Output 16 - 18351  
Gain Output 17 - 18479  
Gain Output 18 - 18607  
Gain Output 19 - 18735  
Gain Output 20 - 18863  
Gain Output 21 - 18991

Gain Output 22 - 19119  
Gain Output 23 - 19247  
Gain Output 24 - 19375  
Gain Output 25 - 19503  
Gain Output 26 - 19631  
Gain Output 27 - 19759  
Gain Output 28 - 19887  
Gain Output 29 - 20015  
Gain Output 30 - 20143  
Gain Output 31 - 20271  
Gain Output 32 - 20399  
Gain Output 33 - 20527  
Gain Output 34 - 20655  
Gain Output 35 - 20783  
Gain Output 36 - 20911  
Gain Output 37 - 21039  
Gain Output 38 - 21167  
Gain Output 39 - 21295  
Gain Output 40 - 21423  
Gain Output 41 - 21551  
Gain Output 42 - 21679  
Gain Output 43 - 21807  
Gain Output 44 - 21935  
Gain Output 45 - 22063  
Gain Output 46 - 22191  
Gain Output 47 - 22319  
Gain Output 48 - 22447

## Input 1

On/Off Output 1 - 0  
On/Off Output 2 - 128  
On/Off Output 3 - 256  
On/Off Output 4 - 384  
On/Off Output 5 - 512  
On/Off Output 6 - 640  
On/Off Output 7 - 768  
On/Off Output 8 - 896  
On/Off Output 9 - 1024  
On/Off Output 10 - 1152  
On/Off Output 11 - 1280  
On/Off Output 12 - 1408  
On/Off Output 13 - 1536  
On/Off Output 14 - 1664  
On/Off Output 15 - 1792  
On/Off Output 16 - 1920  
On/Off Output 17 - 2048  
On/Off Output 18 - 2176  
On/Off Output 19 - 2304  
On/Off Output 20 - 2432  
On/Off Output 21 - 2560  
On/Off Output 22 - 2688  
On/Off Output 23 - 2816  
On/Off Output 24 - 2944  
On/Off Output 25 - 3072  
On/Off Output 26 - 3200  
On/Off Output 27 - 3328  
On/Off Output 28 - 3456  
On/Off Output 29 - 3584  
On/Off Output 30 - 3712  
On/Off Output 31 - 3840  
On/Off Output 32 - 3968  
On/Off Output 33 - 4096  
On/Off Output 34 - 4224  
On/Off Output 35 - 4352  
On/Off Output 36 - 4480  
On/Off Output 37 - 4608  
On/Off Output 38 - 4736  
On/Off Output 39 - 4864  
On/Off Output 40 - 4992  
On/Off Output 41 - 5120  
On/Off Output 42 - 5248  
On/Off Output 43 - 5376  
On/Off Output 44 - 5504  
On/Off Output 45 - 5632  
On/Off Output 46 - 5760  
On/Off Output 47 - 5888  
On/Off Output 48 - 6016

## Input 2

On/Off Output 1 - 1  
On/Off Output 2 - 129  
On/Off Output 3 - 257  
On/Off Output 4 - 385  
On/Off Output 5 - 513  
On/Off Output 6 - 641  
On/Off Output 7 - 769  
On/Off Output 8 - 897  
On/Off Output 9 - 1025  
On/Off Output 10 - 1153  
On/Off Output 11 - 1281  
On/Off Output 12 - 1409  
On/Off Output 13 - 1537  
On/Off Output 14 - 1665  
On/Off Output 15 - 1793  
On/Off Output 16 - 1921  
On/Off Output 17 - 2049  
On/Off Output 18 - 2177  
On/Off Output 19 - 2305  
On/Off Output 20 - 2433  
On/Off Output 21 - 2561  
On/Off Output 22 - 2689  
On/Off Output 23 - 2817  
On/Off Output 24 - 2945  
On/Off Output 25 - 3073  
On/Off Output 26 - 3201  
On/Off Output 27 - 3329  
On/Off Output 28 - 3457  
On/Off Output 29 - 3585  
On/Off Output 30 - 3713  
On/Off Output 31 - 3841  
On/Off Output 32 - 3969  
On/Off Output 33 - 4097  
On/Off Output 34 - 4225  
On/Off Output 35 - 4353  
On/Off Output 36 - 4481  
On/Off Output 37 - 4609  
On/Off Output 38 - 4737  
On/Off Output 39 - 4865  
On/Off Output 40 - 4993  
On/Off Output 41 - 5121  
On/Off Output 42 - 5249  
On/Off Output 43 - 5377  
On/Off Output 44 - 5505  
On/Off Output 45 - 5633  
On/Off Output 46 - 5761  
On/Off Output 47 - 5889  
On/Off Output 48 - 6017

## Input 3

On/Off Output 1 - 2  
On/Off Output 2 - 130  
On/Off Output 3 - 258  
On/Off Output 4 - 386  
On/Off Output 5 - 514  
On/Off Output 6 - 642  
On/Off Output 7 - 770  
On/Off Output 8 - 898  
On/Off Output 9 - 1026  
On/Off Output 10 - 1154  
On/Off Output 11 - 1282  
On/Off Output 12 - 1410  
On/Off Output 13 - 1538  
On/Off Output 14 - 1666  
On/Off Output 15 - 1794  
On/Off Output 16 - 1922  
On/Off Output 17 - 2050  
On/Off Output 18 - 2178  
On/Off Output 19 - 2306  
On/Off Output 20 - 2434  
On/Off Output 21 - 2562  
On/Off Output 22 - 2690  
On/Off Output 23 - 2818  
On/Off Output 24 - 2946  
On/Off Output 25 - 3074  
On/Off Output 26 - 3202  
On/Off Output 27 - 3330

On/Off Output 28 - 3458  
On/Off Output 29 - 3586  
On/Off Output 30 - 3714  
On/Off Output 31 - 3842  
On/Off Output 32 - 3970  
On/Off Output 33 - 4098  
On/Off Output 34 - 4226  
On/Off Output 35 - 4354  
On/Off Output 36 - 4482  
On/Off Output 37 - 4610  
On/Off Output 38 - 4738  
On/Off Output 39 - 4866  
On/Off Output 40 - 4994  
On/Off Output 41 - 5122  
On/Off Output 42 - 5250  
On/Off Output 43 - 5378  
On/Off Output 44 - 5506  
On/Off Output 45 - 5634  
On/Off Output 46 - 5762  
On/Off Output 47 - 5890  
On/Off Output 48 - 6018

## Input 4

On/Off Output 1 - 3  
On/Off Output 2 - 131  
On/Off Output 3 - 259  
On/Off Output 4 - 387  
On/Off Output 5 - 515  
On/Off Output 6 - 643  
On/Off Output 7 - 771  
On/Off Output 8 - 899  
On/Off Output 9 - 1027  
On/Off Output 10 - 1155  
On/Off Output 11 - 1283  
On/Off Output 12 - 1411  
On/Off Output 13 - 1539  
On/Off Output 14 - 1667  
On/Off Output 15 - 1795  
On/Off Output 16 - 1923  
On/Off Output 17 - 2051  
On/Off Output 18 - 2179  
On/Off Output 19 - 2307  
On/Off Output 20 - 2435  
On/Off Output 21 - 2563  
On/Off Output 22 - 2691  
On/Off Output 23 - 2819  
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On/Off Output 25 - 3075  
On/Off Output 26 - 3203  
On/Off Output 27 - 3331  
On/Off Output 28 - 3459  
On/Off Output 29 - 3587  
On/Off Output 30 - 3715  
On/Off Output 31 - 3843  
On/Off Output 32 - 3971  
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On/Off Output 34 - 4227  
On/Off Output 35 - 4355  
On/Off Output 36 - 4483  
On/Off Output 37 - 4611  
On/Off Output 38 - 4739  
On/Off Output 39 - 4867  
On/Off Output 40 - 4995  
On/Off Output 41 - 5123  
On/Off Output 42 - 5251  
On/Off Output 43 - 5379  
On/Off Output 44 - 5507  
On/Off Output 45 - 5635  
On/Off Output 46 - 5763  
On/Off Output 47 - 5891  
On/Off Output 48 - 6019

## Input 5

On/Off Output 1 - 4  
On/Off Output 2 - 132  
On/Off Output 3 - 260  
On/Off Output 4 - 388  
On/Off Output 5 - 516



On/Off Output 6 - 644  
 On/Off Output 7 - 772  
 On/Off Output 8 - 900  
 On/Off Output 9 - 1028  
 On/Off Output 10 - 1156  
 On/Off Output 11 - 1284  
 On/Off Output 12 - 1412  
 On/Off Output 13 - 1540  
 On/Off Output 14 - 1668  
 On/Off Output 15 - 1796  
 On/Off Output 16 - 1924  
 On/Off Output 17 - 2052  
 On/Off Output 18 - 2180  
 On/Off Output 19 - 2308  
 On/Off Output 20 - 2436  
 On/Off Output 21 - 2564  
 On/Off Output 22 - 2692  
 On/Off Output 23 - 2820  
 On/Off Output 24 - 2948  
 On/Off Output 25 - 3076  
 On/Off Output 26 - 3204  
 On/Off Output 27 - 3332  
 On/Off Output 28 - 3460  
 On/Off Output 29 - 3588  
 On/Off Output 30 - 3716  
 On/Off Output 31 - 3844  
 On/Off Output 32 - 3972  
 On/Off Output 33 - 4100  
 On/Off Output 34 - 4228  
 On/Off Output 35 - 4356  
 On/Off Output 36 - 4484  
 On/Off Output 37 - 4612  
 On/Off Output 38 - 4740  
 On/Off Output 39 - 4868  
 On/Off Output 40 - 4996  
 On/Off Output 41 - 5124  
 On/Off Output 42 - 5252  
 On/Off Output 43 - 5380  
 On/Off Output 44 - 5508  
 On/Off Output 45 - 5636  
 On/Off Output 46 - 5764  
 On/Off Output 47 - 5892  
 On/Off Output 48 - 6020

## Input 6

On/Off Output 1 - 5  
 On/Off Output 2 - 133  
 On/Off Output 3 - 261  
 On/Off Output 4 - 389  
 On/Off Output 5 - 517  
 On/Off Output 6 - 645  
 On/Off Output 7 - 773  
 On/Off Output 8 - 901  
 On/Off Output 9 - 1029  
 On/Off Output 10 - 1157  
 On/Off Output 11 - 1285  
 On/Off Output 12 - 1413  
 On/Off Output 13 - 1541  
 On/Off Output 14 - 1669  
 On/Off Output 15 - 1797  
 On/Off Output 16 - 1925  
 On/Off Output 17 - 2053  
 On/Off Output 18 - 2181  
 On/Off Output 19 - 2309  
 On/Off Output 20 - 2437  
 On/Off Output 21 - 2565  
 On/Off Output 22 - 2693  
 On/Off Output 23 - 2821  
 On/Off Output 24 - 2949  
 On/Off Output 25 - 3077  
 On/Off Output 26 - 3205  
 On/Off Output 27 - 3333  
 On/Off Output 28 - 3461  
 On/Off Output 29 - 3589  
 On/Off Output 30 - 3717  
 On/Off Output 31 - 3845  
 On/Off Output 32 - 3973  
 On/Off Output 33 - 4101

On/Off Output 34 - 4229  
 On/Off Output 35 - 4357  
 On/Off Output 36 - 4485  
 On/Off Output 37 - 4613  
 On/Off Output 38 - 4741  
 On/Off Output 39 - 4869  
 On/Off Output 40 - 4997  
 On/Off Output 41 - 5125  
 On/Off Output 42 - 5253  
 On/Off Output 43 - 5381  
 On/Off Output 44 - 5509  
 On/Off Output 45 - 5637  
 On/Off Output 46 - 5765  
 On/Off Output 47 - 5893  
 On/Off Output 48 - 6021

## Input 7

On/Off Output 1 - 6  
 On/Off Output 2 - 134  
 On/Off Output 3 - 262  
 On/Off Output 4 - 390  
 On/Off Output 5 - 518  
 On/Off Output 6 - 646  
 On/Off Output 7 - 774  
 On/Off Output 8 - 902  
 On/Off Output 9 - 1030  
 On/Off Output 10 - 1158  
 On/Off Output 11 - 1286  
 On/Off Output 12 - 1414  
 On/Off Output 13 - 1542  
 On/Off Output 14 - 1670  
 On/Off Output 15 - 1798  
 On/Off Output 16 - 1926  
 On/Off Output 17 - 2054  
 On/Off Output 18 - 2182  
 On/Off Output 19 - 2310  
 On/Off Output 20 - 2438  
 On/Off Output 21 - 2566  
 On/Off Output 22 - 2694  
 On/Off Output 23 - 2822  
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 On/Off Output 26 - 3206  
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 On/Off Output 28 - 3462  
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 On/Off Output 30 - 3718  
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 On/Off Output 40 - 4998  
 On/Off Output 41 - 5126  
 On/Off Output 42 - 5254  
 On/Off Output 43 - 5382  
 On/Off Output 44 - 5510  
 On/Off Output 45 - 5638  
 On/Off Output 46 - 5766  
 On/Off Output 47 - 5894  
 On/Off Output 48 - 6022

## Input 8

On/Off Output 1 - 7  
 On/Off Output 2 - 135  
 On/Off Output 3 - 263  
 On/Off Output 4 - 391  
 On/Off Output 5 - 519  
 On/Off Output 6 - 647  
 On/Off Output 7 - 775  
 On/Off Output 8 - 903  
 On/Off Output 9 - 1031  
 On/Off Output 10 - 1159  
 On/Off Output 11 - 1287

On/Off Output 12 - 1415  
 On/Off Output 13 - 1543  
 On/Off Output 14 - 1671  
 On/Off Output 15 - 1799  
 On/Off Output 16 - 1927  
 On/Off Output 17 - 2055  
 On/Off Output 18 - 2183  
 On/Off Output 19 - 2311  
 On/Off Output 20 - 2439  
 On/Off Output 21 - 2567  
 On/Off Output 22 - 2695  
 On/Off Output 23 - 2823  
 On/Off Output 24 - 2951  
 On/Off Output 25 - 3079  
 On/Off Output 26 - 3207  
 On/Off Output 27 - 3335  
 On/Off Output 28 - 3463  
 On/Off Output 29 - 3591  
 On/Off Output 30 - 3719  
 On/Off Output 31 - 3847  
 On/Off Output 32 - 3975  
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 On/Off Output 34 - 4231  
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 On/Off Output 36 - 4487  
 On/Off Output 37 - 4615  
 On/Off Output 38 - 4743  
 On/Off Output 39 - 4871  
 On/Off Output 40 - 4999  
 On/Off Output 41 - 5127  
 On/Off Output 42 - 5255  
 On/Off Output 43 - 5383  
 On/Off Output 44 - 5511  
 On/Off Output 45 - 5639  
 On/Off Output 46 - 5767  
 On/Off Output 47 - 5895  
 On/Off Output 48 - 6023

## Input 9

On/Off Output 1 - 8  
 On/Off Output 2 - 136  
 On/Off Output 3 - 264  
 On/Off Output 4 - 392  
 On/Off Output 5 - 520  
 On/Off Output 6 - 648  
 On/Off Output 7 - 776  
 On/Off Output 8 - 904  
 On/Off Output 9 - 1032  
 On/Off Output 10 - 1160  
 On/Off Output 11 - 1288  
 On/Off Output 12 - 1416  
 On/Off Output 13 - 1544  
 On/Off Output 14 - 1672  
 On/Off Output 15 - 1800  
 On/Off Output 16 - 1928  
 On/Off Output 17 - 2056  
 On/Off Output 18 - 2184  
 On/Off Output 19 - 2312  
 On/Off Output 20 - 2440  
 On/Off Output 21 - 2568  
 On/Off Output 22 - 2696  
 On/Off Output 23 - 2824  
 On/Off Output 24 - 2952  
 On/Off Output 25 - 3080  
 On/Off Output 26 - 3208  
 On/Off Output 27 - 3336  
 On/Off Output 28 - 3464  
 On/Off Output 29 - 3592  
 On/Off Output 30 - 3720  
 On/Off Output 31 - 3848  
 On/Off Output 32 - 3976  
 On/Off Output 33 - 4104  
 On/Off Output 34 - 4232  
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 On/Off Output 36 - 4488  
 On/Off Output 37 - 4616  
 On/Off Output 38 - 4744  
 On/Off Output 39 - 4872

On/Off Output 40 - 5000  
 On/Off Output 41 - 5128  
 On/Off Output 42 - 5256  
 On/Off Output 43 - 5384  
 On/Off Output 44 - 5512  
 On/Off Output 45 - 5640  
 On/Off Output 46 - 5768  
 On/Off Output 47 - 5896  
 On/Off Output 48 - 6024

## Input 10

On/Off Output 1 - 9  
 On/Off Output 2 - 137  
 On/Off Output 3 - 265  
 On/Off Output 4 - 393  
 On/Off Output 5 - 521  
 On/Off Output 6 - 649  
 On/Off Output 7 - 777  
 On/Off Output 8 - 905  
 On/Off Output 9 - 1033  
 On/Off Output 10 - 1161  
 On/Off Output 11 - 1289  
 On/Off Output 12 - 1417  
 On/Off Output 13 - 1545  
 On/Off Output 14 - 1673  
 On/Off Output 15 - 1801  
 On/Off Output 16 - 1929  
 On/Off Output 17 - 2057  
 On/Off Output 18 - 2185  
 On/Off Output 19 - 2313  
 On/Off Output 20 - 2441  
 On/Off Output 21 - 2569  
 On/Off Output 22 - 2697  
 On/Off Output 23 - 2825  
 On/Off Output 24 - 2953  
 On/Off Output 25 - 3081  
 On/Off Output 26 - 3209  
 On/Off Output 27 - 3337  
 On/Off Output 28 - 3465  
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 On/Off Output 30 - 3721  
 On/Off Output 31 - 3849  
 On/Off Output 32 - 3977  
 On/Off Output 33 - 4105  
 On/Off Output 34 - 4233  
 On/Off Output 35 - 4361  
 On/Off Output 36 - 4489  
 On/Off Output 37 - 4617  
 On/Off Output 38 - 4745  
 On/Off Output 39 - 4873  
 On/Off Output 40 - 5001  
 On/Off Output 41 - 5129  
 On/Off Output 42 - 5257  
 On/Off Output 43 - 5385  
 On/Off Output 44 - 5513  
 On/Off Output 45 - 5641  
 On/Off Output 46 - 5769  
 On/Off Output 47 - 5897  
 On/Off Output 48 - 6025

## Input 11

On/Off Output 1 - 10  
 On/Off Output 2 - 138  
 On/Off Output 3 - 266  
 On/Off Output 4 - 394  
 On/Off Output 5 - 522  
 On/Off Output 6 - 650  
 On/Off Output 7 - 778  
 On/Off Output 8 - 906  
 On/Off Output 9 - 1034  
 On/Off Output 10 - 1162  
 On/Off Output 11 - 1290  
 On/Off Output 12 - 1418  
 On/Off Output 13 - 1546  
 On/Off Output 14 - 1674  
 On/Off Output 15 - 1802  
 On/Off Output 16 - 1930  
 On/Off Output 17 - 2058  
 On/Off Output 18 - 2186



On/Off Output 19 - 2314  
 On/Off Output 20 - 2442  
 On/Off Output 21 - 2570  
 On/Off Output 22 - 2698  
 On/Off Output 23 - 2826  
 On/Off Output 24 - 2954  
 On/Off Output 25 - 3082  
 On/Off Output 26 - 3210  
 On/Off Output 27 - 3338  
 On/Off Output 28 - 3466  
 On/Off Output 29 - 3594  
 On/Off Output 30 - 3722  
 On/Off Output 31 - 3850  
 On/Off Output 32 - 3978  
 On/Off Output 33 - 4106  
 On/Off Output 34 - 4234  
 On/Off Output 35 - 4362  
 On/Off Output 36 - 4490  
 On/Off Output 37 - 4618  
 On/Off Output 38 - 4746  
 On/Off Output 39 - 4874  
 On/Off Output 40 - 5002  
 On/Off Output 41 - 5130  
 On/Off Output 42 - 5258  
 On/Off Output 43 - 5386  
 On/Off Output 44 - 5514  
 On/Off Output 45 - 5642  
 On/Off Output 46 - 5770  
 On/Off Output 47 - 5898  
 On/Off Output 48 - 6026

## Input 12

On/Off Output 1 - 11  
 On/Off Output 2 - 139  
 On/Off Output 3 - 267  
 On/Off Output 4 - 395  
 On/Off Output 5 - 523  
 On/Off Output 6 - 651  
 On/Off Output 7 - 779  
 On/Off Output 8 - 907  
 On/Off Output 9 - 1035  
 On/Off Output 10 - 1163  
 On/Off Output 11 - 1291  
 On/Off Output 12 - 1419  
 On/Off Output 13 - 1547  
 On/Off Output 14 - 1675  
 On/Off Output 15 - 1803  
 On/Off Output 16 - 1931  
 On/Off Output 17 - 2059  
 On/Off Output 18 - 2187  
 On/Off Output 19 - 2315  
 On/Off Output 20 - 2443  
 On/Off Output 21 - 2571  
 On/Off Output 22 - 2699  
 On/Off Output 23 - 2827  
 On/Off Output 24 - 2955  
 On/Off Output 25 - 3083  
 On/Off Output 26 - 3211  
 On/Off Output 27 - 3339  
 On/Off Output 28 - 3467  
 On/Off Output 29 - 3595  
 On/Off Output 30 - 3723  
 On/Off Output 31 - 3851  
 On/Off Output 32 - 3979  
 On/Off Output 33 - 4107  
 On/Off Output 34 - 4235  
 On/Off Output 35 - 4363  
 On/Off Output 36 - 4491  
 On/Off Output 37 - 4619  
 On/Off Output 38 - 4747  
 On/Off Output 39 - 4875  
 On/Off Output 40 - 5003  
 On/Off Output 41 - 5131  
 On/Off Output 42 - 5259  
 On/Off Output 43 - 5387  
 On/Off Output 44 - 5515  
 On/Off Output 45 - 5643  
 On/Off Output 46 - 5771

On/Off Output 47 - 5899  
 On/Off Output 48 - 6027

## Input 13

On/Off Output 1 - 12  
 On/Off Output 2 - 140  
 On/Off Output 3 - 268  
 On/Off Output 4 - 396  
 On/Off Output 5 - 524  
 On/Off Output 6 - 652  
 On/Off Output 7 - 780  
 On/Off Output 8 - 908  
 On/Off Output 9 - 1036  
 On/Off Output 10 - 1164  
 On/Off Output 11 - 1292  
 On/Off Output 12 - 1420  
 On/Off Output 13 - 1548  
 On/Off Output 14 - 1676  
 On/Off Output 15 - 1804  
 On/Off Output 16 - 1932  
 On/Off Output 17 - 2060  
 On/Off Output 18 - 2188  
 On/Off Output 19 - 2316  
 On/Off Output 20 - 2444  
 On/Off Output 21 - 2572  
 On/Off Output 22 - 2700  
 On/Off Output 23 - 2828  
 On/Off Output 24 - 2956  
 On/Off Output 25 - 3084  
 On/Off Output 26 - 3212  
 On/Off Output 27 - 3340  
 On/Off Output 28 - 3468  
 On/Off Output 29 - 3596  
 On/Off Output 30 - 3724  
 On/Off Output 31 - 3852  
 On/Off Output 32 - 3980  
 On/Off Output 33 - 4108  
 On/Off Output 34 - 4236  
 On/Off Output 35 - 4364  
 On/Off Output 36 - 4492  
 On/Off Output 37 - 4620  
 On/Off Output 38 - 4748  
 On/Off Output 39 - 4876  
 On/Off Output 40 - 5004  
 On/Off Output 41 - 5132  
 On/Off Output 42 - 5260  
 On/Off Output 43 - 5388  
 On/Off Output 44 - 5516  
 On/Off Output 45 - 5644  
 On/Off Output 46 - 5772  
 On/Off Output 47 - 5900  
 On/Off Output 48 - 6028

## Input 14

On/Off Output 1 - 13  
 On/Off Output 2 - 141  
 On/Off Output 3 - 269  
 On/Off Output 4 - 397  
 On/Off Output 5 - 525  
 On/Off Output 6 - 653  
 On/Off Output 7 - 781  
 On/Off Output 8 - 909  
 On/Off Output 9 - 1037  
 On/Off Output 10 - 1165  
 On/Off Output 11 - 1293  
 On/Off Output 12 - 1421  
 On/Off Output 13 - 1549  
 On/Off Output 14 - 1677  
 On/Off Output 15 - 1805  
 On/Off Output 16 - 1933  
 On/Off Output 17 - 2061  
 On/Off Output 18 - 2189  
 On/Off Output 19 - 2317  
 On/Off Output 20 - 2445  
 On/Off Output 21 - 2573  
 On/Off Output 22 - 2701  
 On/Off Output 23 - 2829

On/Off Output 24 - 2957  
 On/Off Output 25 - 3085  
 On/Off Output 26 - 3213  
 On/Off Output 27 - 3341  
 On/Off Output 28 - 3469  
 On/Off Output 29 - 3597  
 On/Off Output 30 - 3725  
 On/Off Output 31 - 3853  
 On/Off Output 32 - 3981  
 On/Off Output 33 - 4109  
 On/Off Output 34 - 4237  
 On/Off Output 35 - 4365  
 On/Off Output 36 - 4493  
 On/Off Output 37 - 4621  
 On/Off Output 38 - 4749  
 On/Off Output 39 - 4877  
 On/Off Output 40 - 5005  
 On/Off Output 41 - 5133  
 On/Off Output 42 - 5261  
 On/Off Output 43 - 5389  
 On/Off Output 44 - 5517  
 On/Off Output 45 - 5645  
 On/Off Output 46 - 5773  
 On/Off Output 47 - 5901  
 On/Off Output 48 - 6029

## Input 15

On/Off Output 1 - 14  
 On/Off Output 2 - 142  
 On/Off Output 3 - 270  
 On/Off Output 4 - 398  
 On/Off Output 5 - 526  
 On/Off Output 6 - 654  
 On/Off Output 7 - 782  
 On/Off Output 8 - 910  
 On/Off Output 9 - 1038  
 On/Off Output 10 - 1166  
 On/Off Output 11 - 1294  
 On/Off Output 12 - 1422  
 On/Off Output 13 - 1550  
 On/Off Output 14 - 1678  
 On/Off Output 15 - 1806  
 On/Off Output 16 - 1934  
 On/Off Output 17 - 2062  
 On/Off Output 18 - 2190  
 On/Off Output 19 - 2318  
 On/Off Output 20 - 2446  
 On/Off Output 21 - 2574  
 On/Off Output 22 - 2702  
 On/Off Output 23 - 2830  
 On/Off Output 24 - 2958  
 On/Off Output 25 - 3086  
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 On/Off Output 27 - 3342  
 On/Off Output 28 - 3470  
 On/Off Output 29 - 3598  
 On/Off Output 30 - 3726  
 On/Off Output 31 - 3854  
 On/Off Output 32 - 3982  
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 On/Off Output 34 - 4238  
 On/Off Output 35 - 4366  
 On/Off Output 36 - 4494  
 On/Off Output 37 - 4622  
 On/Off Output 38 - 4750  
 On/Off Output 39 - 4878  
 On/Off Output 40 - 5006  
 On/Off Output 41 - 5134  
 On/Off Output 42 - 5262  
 On/Off Output 43 - 5390  
 On/Off Output 44 - 5518  
 On/Off Output 45 - 5646  
 On/Off Output 46 - 5774  
 On/Off Output 47 - 5902  
 On/Off Output 48 - 6030

## Input 16

On/Off Output 1 - 15  
 On/Off Output 2 - 143

On/Off Output 3 - 271  
 On/Off Output 4 - 399  
 On/Off Output 5 - 527  
 On/Off Output 6 - 655  
 On/Off Output 7 - 783  
 On/Off Output 8 - 911  
 On/Off Output 9 - 1039  
 On/Off Output 10 - 1167  
 On/Off Output 11 - 1295  
 On/Off Output 12 - 1423  
 On/Off Output 13 - 1551  
 On/Off Output 14 - 1679  
 On/Off Output 15 - 1807  
 On/Off Output 16 - 1935  
 On/Off Output 17 - 2063  
 On/Off Output 18 - 2191  
 On/Off Output 19 - 2319  
 On/Off Output 20 - 2447  
 On/Off Output 21 - 2575  
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 On/Off Output 23 - 2831  
 On/Off Output 24 - 2959  
 On/Off Output 25 - 3087  
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 On/Off Output 29 - 3599  
 On/Off Output 30 - 3727  
 On/Off Output 31 - 3855  
 On/Off Output 32 - 3983  
 On/Off Output 33 - 4111  
 On/Off Output 34 - 4239  
 On/Off Output 35 - 4367  
 On/Off Output 36 - 4495  
 On/Off Output 37 - 4623  
 On/Off Output 38 - 4751  
 On/Off Output 39 - 4879  
 On/Off Output 40 - 5007  
 On/Off Output 41 - 5135  
 On/Off Output 42 - 5263  
 On/Off Output 43 - 5391  
 On/Off Output 44 - 5519  
 On/Off Output 45 - 5647  
 On/Off Output 46 - 5775  
 On/Off Output 47 - 5903  
 On/Off Output 48 - 6031

## Input 17

On/Off Output 1 - 16  
 On/Off Output 2 - 144  
 On/Off Output 3 - 272  
 On/Off Output 4 - 400  
 On/Off Output 5 - 528  
 On/Off Output 6 - 656  
 On/Off Output 7 - 784  
 On/Off Output 8 - 912  
 On/Off Output 9 - 1040  
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 On/Off Output 13 - 1552  
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 On/Off Output 24 - 2960  
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 On/Off Output 28 - 3472  
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On/Off Output 30 - 3728  
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On/Off Output 33 - 4112  
On/Off Output 34 - 4240  
On/Off Output 35 - 4368  
On/Off Output 36 - 4496  
On/Off Output 37 - 4624  
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On/Off Output 39 - 4880  
On/Off Output 40 - 5008  
On/Off Output 41 - 5136  
On/Off Output 42 - 5264  
On/Off Output 43 - 5392  
On/Off Output 44 - 5520  
On/Off Output 45 - 5648  
On/Off Output 46 - 5776  
On/Off Output 47 - 5904  
On/Off Output 48 - 6032

## Input 18

On/Off Output 1 - 17  
On/Off Output 2 - 145  
On/Off Output 3 - 273  
On/Off Output 4 - 401  
On/Off Output 5 - 529  
On/Off Output 6 - 657  
On/Off Output 7 - 785  
On/Off Output 8 - 913  
On/Off Output 9 - 1041  
On/Off Output 10 - 1169  
On/Off Output 11 - 1297  
On/Off Output 12 - 1425  
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On/Off Output 39 - 4881  
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## Input 19

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## Input 20

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## Input 21

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## Input 25

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## Input 26

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## Input 27

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## Input 28

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## Input 29

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## Input 30

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## Input 31

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## Input 32

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## Input 33

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 On/Off Output 41 - 5152  
 On/Off Output 42 - 5280  
 On/Off Output 43 - 5408  
 On/Off Output 44 - 5536  
 On/Off Output 45 - 5664  
 On/Off Output 46 - 5792  
 On/Off Output 47 - 5920  
 On/Off Output 48 - 6048

## Input 34

On/Off Output 1 - 33  
 On/Off Output 2 - 161  
 On/Off Output 3 - 289  
 On/Off Output 4 - 417  
 On/Off Output 5 - 545  
 On/Off Output 6 - 673  
 On/Off Output 7 - 801  
 On/Off Output 8 - 929  
 On/Off Output 9 - 1057  
 On/Off Output 10 - 1185  
 On/Off Output 11 - 1313  
 On/Off Output 12 - 1441  
 On/Off Output 13 - 1569  
 On/Off Output 14 - 1697  
 On/Off Output 15 - 1825  
 On/Off Output 16 - 1953  
 On/Off Output 17 - 2081  
 On/Off Output 18 - 2209  
 On/Off Output 19 - 2337  
 On/Off Output 20 - 2465  
 On/Off Output 21 - 2593  
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 On/Off Output 24 - 2977  
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 On/Off Output 29 - 3617  
 On/Off Output 30 - 3745  
 On/Off Output 31 - 3873  
 On/Off Output 32 - 4001  
 On/Off Output 33 - 4129  
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 On/Off Output 35 - 4385  
 On/Off Output 36 - 4513  
 On/Off Output 37 - 4641  
 On/Off Output 38 - 4769

On/Off Output 39 - 4897  
 On/Off Output 40 - 5025  
 On/Off Output 41 - 5153  
 On/Off Output 42 - 5281  
 On/Off Output 43 - 5409  
 On/Off Output 44 - 5537  
 On/Off Output 45 - 5665  
 On/Off Output 46 - 5793  
 On/Off Output 47 - 5921  
 On/Off Output 48 - 6049

## Input 35

On/Off Output 1 - 34  
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 On/Off Output 3 - 290  
 On/Off Output 4 - 418  
 On/Off Output 5 - 546  
 On/Off Output 6 - 674  
 On/Off Output 7 - 802  
 On/Off Output 8 - 930  
 On/Off Output 9 - 1058  
 On/Off Output 10 - 1186  
 On/Off Output 11 - 1314  
 On/Off Output 12 - 1442  
 On/Off Output 13 - 1570  
 On/Off Output 14 - 1698  
 On/Off Output 15 - 1826  
 On/Off Output 16 - 1954  
 On/Off Output 17 - 2082  
 On/Off Output 18 - 2210  
 On/Off Output 19 - 2338  
 On/Off Output 20 - 2466  
 On/Off Output 21 - 2594  
 On/Off Output 22 - 2722  
 On/Off Output 23 - 2850  
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 On/Off Output 26 - 3234  
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 On/Off Output 36 - 4514  
 On/Off Output 37 - 4642  
 On/Off Output 38 - 4770  
 On/Off Output 39 - 4898  
 On/Off Output 40 - 5026  
 On/Off Output 41 - 5154  
 On/Off Output 42 - 5282  
 On/Off Output 43 - 5410  
 On/Off Output 44 - 5538  
 On/Off Output 45 - 5666  
 On/Off Output 46 - 5794  
 On/Off Output 47 - 5922  
 On/Off Output 48 - 6050

## Input 36

On/Off Output 1 - 35  
 On/Off Output 2 - 163  
 On/Off Output 3 - 291  
 On/Off Output 4 - 419  
 On/Off Output 5 - 547  
 On/Off Output 6 - 675  
 On/Off Output 7 - 803  
 On/Off Output 8 - 931  
 On/Off Output 9 - 1059  
 On/Off Output 10 - 1187  
 On/Off Output 11 - 1315  
 On/Off Output 12 - 1443  
 On/Off Output 13 - 1571  
 On/Off Output 14 - 1699  
 On/Off Output 15 - 1827  
 On/Off Output 16 - 1955



On/Off Output 17 - 2083  
On/Off Output 18 - 2211  
On/Off Output 19 - 2339  
On/Off Output 20 - 2467  
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On/Off Output 22 - 2723  
On/Off Output 23 - 2851  
On/Off Output 24 - 2979  
On/Off Output 25 - 3107  
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On/Off Output 27 - 3363  
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On/Off Output 35 - 4387  
On/Off Output 36 - 4515  
On/Off Output 37 - 4643  
On/Off Output 38 - 4771  
On/Off Output 39 - 4899  
On/Off Output 40 - 5027  
On/Off Output 41 - 5155  
On/Off Output 42 - 5283  
On/Off Output 43 - 5411  
On/Off Output 44 - 5539  
On/Off Output 45 - 5667  
On/Off Output 46 - 5795  
On/Off Output 47 - 5923  
On/Off Output 48 - 6051

## Input 37

On/Off Output 1 - 36  
On/Off Output 2 - 164  
On/Off Output 3 - 292  
On/Off Output 4 - 420  
On/Off Output 5 - 548  
On/Off Output 6 - 676  
On/Off Output 7 - 804  
On/Off Output 8 - 932  
On/Off Output 9 - 1060  
On/Off Output 10 - 1188  
On/Off Output 11 - 1316  
On/Off Output 12 - 1444  
On/Off Output 13 - 1572  
On/Off Output 14 - 1700  
On/Off Output 15 - 1828  
On/Off Output 16 - 1956  
On/Off Output 17 - 2084  
On/Off Output 18 - 2212  
On/Off Output 19 - 2340  
On/Off Output 20 - 2468  
On/Off Output 21 - 2596  
On/Off Output 22 - 2724  
On/Off Output 23 - 2852  
On/Off Output 24 - 2980  
On/Off Output 25 - 3108  
On/Off Output 26 - 3236  
On/Off Output 27 - 3364  
On/Off Output 28 - 3492  
On/Off Output 29 - 3620  
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On/Off Output 31 - 3876  
On/Off Output 32 - 4004  
On/Off Output 33 - 4132  
On/Off Output 34 - 4260  
On/Off Output 35 - 4388  
On/Off Output 36 - 4516  
On/Off Output 37 - 4644  
On/Off Output 38 - 4772  
On/Off Output 39 - 4900  
On/Off Output 40 - 5028  
On/Off Output 41 - 5156  
On/Off Output 42 - 5284  
On/Off Output 43 - 5412  
On/Off Output 44 - 5540

On/Off Output 45 - 5668  
On/Off Output 46 - 5796  
On/Off Output 47 - 5924  
On/Off Output 48 - 6052

## Input 38

On/Off Output 1 - 37  
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On/Off Output 3 - 293  
On/Off Output 4 - 421  
On/Off Output 5 - 549  
On/Off Output 6 - 677  
On/Off Output 7 - 805  
On/Off Output 8 - 933  
On/Off Output 9 - 1061  
On/Off Output 10 - 1189  
On/Off Output 11 - 1317  
On/Off Output 12 - 1445  
On/Off Output 13 - 1573  
On/Off Output 14 - 1701  
On/Off Output 15 - 1829  
On/Off Output 16 - 1957  
On/Off Output 17 - 2085  
On/Off Output 18 - 2213  
On/Off Output 19 - 2341  
On/Off Output 20 - 2469  
On/Off Output 21 - 2597  
On/Off Output 22 - 2725  
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On/Off Output 24 - 2981  
On/Off Output 25 - 3109  
On/Off Output 26 - 3237  
On/Off Output 27 - 3365  
On/Off Output 28 - 3493  
On/Off Output 29 - 3621  
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On/Off Output 31 - 3877  
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On/Off Output 35 - 4389  
On/Off Output 36 - 4517  
On/Off Output 37 - 4645  
On/Off Output 38 - 4773  
On/Off Output 39 - 4901  
On/Off Output 40 - 5029  
On/Off Output 41 - 5157  
On/Off Output 42 - 5285  
On/Off Output 43 - 5413  
On/Off Output 44 - 5541  
On/Off Output 45 - 5669  
On/Off Output 46 - 5797  
On/Off Output 47 - 5925  
On/Off Output 48 - 6053

## Input 39

On/Off Output 1 - 38  
On/Off Output 2 - 166  
On/Off Output 3 - 294  
On/Off Output 4 - 422  
On/Off Output 5 - 550  
On/Off Output 6 - 678  
On/Off Output 7 - 806  
On/Off Output 8 - 934  
On/Off Output 9 - 1062  
On/Off Output 10 - 1190  
On/Off Output 11 - 1318  
On/Off Output 12 - 1446  
On/Off Output 13 - 1574  
On/Off Output 14 - 1702  
On/Off Output 15 - 1830  
On/Off Output 16 - 1958  
On/Off Output 17 - 2086  
On/Off Output 18 - 2214  
On/Off Output 19 - 2342  
On/Off Output 20 - 2470  
On/Off Output 21 - 2598  
On/Off Output 22 - 2726

On/Off Output 23 - 2854  
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On/Off Output 26 - 3238  
On/Off Output 27 - 3366  
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On/Off Output 41 - 5158  
On/Off Output 42 - 5286  
On/Off Output 43 - 5414  
On/Off Output 44 - 5542  
On/Off Output 45 - 5670  
On/Off Output 46 - 5798  
On/Off Output 47 - 5926  
On/Off Output 48 - 6054

## Input 40

On/Off Output 1 - 39  
On/Off Output 2 - 167  
On/Off Output 3 - 295  
On/Off Output 4 - 423  
On/Off Output 5 - 551  
On/Off Output 6 - 679  
On/Off Output 7 - 807  
On/Off Output 8 - 935  
On/Off Output 9 - 1063  
On/Off Output 10 - 1191  
On/Off Output 11 - 1319  
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On/Off Output 13 - 1575  
On/Off Output 14 - 1703  
On/Off Output 15 - 1831  
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On/Off Output 17 - 2087  
On/Off Output 18 - 2215  
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On/Off Output 42 - 5287  
On/Off Output 43 - 5415  
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On/Off Output 45 - 5671  
On/Off Output 46 - 5799  
On/Off Output 47 - 5927  
On/Off Output 48 - 6055

## Input 41

On/Off Output 1 - 40  
On/Off Output 2 - 168  
On/Off Output 3 - 296  
On/Off Output 4 - 424  
On/Off Output 5 - 552  
On/Off Output 6 - 680  
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On/Off Output 8 - 936  
On/Off Output 9 - 1064  
On/Off Output 10 - 1192  
On/Off Output 11 - 1320  
On/Off Output 12 - 1448  
On/Off Output 13 - 1576  
On/Off Output 14 - 1704  
On/Off Output 15 - 1832  
On/Off Output 16 - 1960  
On/Off Output 17 - 2088  
On/Off Output 18 - 2216  
On/Off Output 19 - 2344  
On/Off Output 20 - 2472  
On/Off Output 21 - 2600  
On/Off Output 22 - 2728  
On/Off Output 23 - 2856  
On/Off Output 24 - 2984  
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On/Off Output 27 - 3368  
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On/Off Output 31 - 3880  
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On/Off Output 38 - 4776  
On/Off Output 39 - 4904  
On/Off Output 40 - 5032  
On/Off Output 41 - 5160  
On/Off Output 42 - 5288  
On/Off Output 43 - 5416  
On/Off Output 44 - 5544  
On/Off Output 45 - 5672  
On/Off Output 46 - 5800  
On/Off Output 47 - 5928  
On/Off Output 48 - 6056

## Input 42

On/Off Output 1 - 41  
On/Off Output 2 - 169  
On/Off Output 3 - 297  
On/Off Output 4 - 425  
On/Off Output 5 - 553  
On/Off Output 6 - 681  
On/Off Output 7 - 809  
On/Off Output 8 - 937  
On/Off Output 9 - 1065  
On/Off Output 10 - 1193  
On/Off Output 11 - 1321  
On/Off Output 12 - 1449  
On/Off Output 13 - 1577  
On/Off Output 14 - 1705  
On/Off Output 15 - 1833  
On/Off Output 16 - 1961  
On/Off Output 17 - 2089  
On/Off Output 18 - 2217  
On/Off Output 19 - 2345  
On/Off Output 20 - 2473  
On/Off Output 21 - 2601  
On/Off Output 22 - 2729  
On/Off Output 23 - 2857  
On/Off Output 24 - 2985  
On/Off Output 25 - 3113  
On/Off Output 26 - 3241  
On/Off Output 27 - 3369  
On/Off Output 28 - 3497

On/Off Output 29 - 3625  
On/Off Output 30 - 3753  
On/Off Output 31 - 3881  
On/Off Output 32 - 4009  
On/Off Output 33 - 4137  
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On/Off Output 35 - 4393  
On/Off Output 36 - 4521  
On/Off Output 37 - 4649  
On/Off Output 38 - 4777  
On/Off Output 39 - 4905  
On/Off Output 40 - 5033  
On/Off Output 41 - 5161  
On/Off Output 42 - 5289  
On/Off Output 43 - 5417  
On/Off Output 44 - 5545  
On/Off Output 45 - 5673  
On/Off Output 46 - 5801  
On/Off Output 47 - 5929  
On/Off Output 48 - 6057

## Input 43

On/Off Output 1 - 42  
On/Off Output 2 - 170  
On/Off Output 3 - 298  
On/Off Output 4 - 426  
On/Off Output 5 - 554  
On/Off Output 6 - 682  
On/Off Output 7 - 810  
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On/Off Output 17 - 2090  
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On/Off Output 33 - 4138  
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On/Off Output 35 - 4394  
On/Off Output 36 - 4522  
On/Off Output 37 - 4650  
On/Off Output 38 - 4778  
On/Off Output 39 - 4906  
On/Off Output 40 - 5034  
On/Off Output 41 - 5162  
On/Off Output 42 - 5290  
On/Off Output 43 - 5418  
On/Off Output 44 - 5546  
On/Off Output 45 - 5674  
On/Off Output 46 - 5802  
On/Off Output 47 - 5930  
On/Off Output 48 - 6058

## Input 44

On/Off Output 1 - 43  
On/Off Output 2 - 171  
On/Off Output 3 - 299  
On/Off Output 4 - 427  
On/Off Output 5 - 555  
On/Off Output 6 - 683

On/Off Output 7 - 811  
On/Off Output 8 - 939  
On/Off Output 9 - 1067  
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On/Off Output 14 - 1707  
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On/Off Output 16 - 1963  
On/Off Output 17 - 2091  
On/Off Output 18 - 2219  
On/Off Output 19 - 2347  
On/Off Output 20 - 2475  
On/Off Output 21 - 2603  
On/Off Output 22 - 2731  
On/Off Output 23 - 2859  
On/Off Output 24 - 2987  
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On/Off Output 26 - 3243  
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On/Off Output 35 - 4395  
On/Off Output 36 - 4523  
On/Off Output 37 - 4651  
On/Off Output 38 - 4779  
On/Off Output 39 - 4907  
On/Off Output 40 - 5035  
On/Off Output 41 - 5163  
On/Off Output 42 - 5291  
On/Off Output 43 - 5419  
On/Off Output 44 - 5547  
On/Off Output 45 - 5675  
On/Off Output 46 - 5803  
On/Off Output 47 - 5931  
On/Off Output 48 - 6059

## Input 45

On/Off Output 1 - 44  
On/Off Output 2 - 172  
On/Off Output 3 - 300  
On/Off Output 4 - 428  
On/Off Output 5 - 556  
On/Off Output 6 - 684  
On/Off Output 7 - 812  
On/Off Output 8 - 940  
On/Off Output 9 - 1068  
On/Off Output 10 - 1196  
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On/Off Output 14 - 1708  
On/Off Output 15 - 1836  
On/Off Output 16 - 1964  
On/Off Output 17 - 2092  
On/Off Output 18 - 2220  
On/Off Output 19 - 2348  
On/Off Output 20 - 2476  
On/Off Output 21 - 2604  
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On/Off Output 26 - 3244  
On/Off Output 27 - 3372  
On/Off Output 28 - 3500  
On/Off Output 29 - 3628  
On/Off Output 30 - 3756  
On/Off Output 31 - 3884  
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On/Off Output 33 - 4140  
On/Off Output 34 - 4268

On/Off Output 35 - 4396  
On/Off Output 36 - 4524  
On/Off Output 37 - 4652  
On/Off Output 38 - 4780  
On/Off Output 39 - 4908  
On/Off Output 40 - 5036  
On/Off Output 41 - 5164  
On/Off Output 42 - 5292  
On/Off Output 43 - 5420  
On/Off Output 44 - 5548  
On/Off Output 45 - 5676  
On/Off Output 46 - 5804  
On/Off Output 47 - 5932  
On/Off Output 48 - 6060

## Input 46

On/Off Output 1 - 45  
On/Off Output 2 - 173  
On/Off Output 3 - 301  
On/Off Output 4 - 429  
On/Off Output 5 - 557  
On/Off Output 6 - 685  
On/Off Output 7 - 813  
On/Off Output 8 - 941  
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On/Off Output 14 - 1709  
On/Off Output 15 - 1837  
On/Off Output 16 - 1965  
On/Off Output 17 - 2093  
On/Off Output 18 - 2221  
On/Off Output 19 - 2349  
On/Off Output 20 - 2477  
On/Off Output 21 - 2605  
On/Off Output 22 - 2733  
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On/Off Output 24 - 2989  
On/Off Output 25 - 3117  
On/Off Output 26 - 3245  
On/Off Output 27 - 3373  
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On/Off Output 29 - 3629  
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On/Off Output 31 - 3885  
On/Off Output 32 - 4013  
On/Off Output 33 - 4141  
On/Off Output 34 - 4269  
On/Off Output 35 - 4397  
On/Off Output 36 - 4525  
On/Off Output 37 - 4653  
On/Off Output 38 - 4781  
On/Off Output 39 - 4909  
On/Off Output 40 - 5037  
On/Off Output 41 - 5165  
On/Off Output 42 - 5293  
On/Off Output 43 - 5421  
On/Off Output 44 - 5549  
On/Off Output 45 - 5677  
On/Off Output 46 - 5805  
On/Off Output 47 - 5933  
On/Off Output 48 - 6061

## Input 47

On/Off Output 1 - 46  
On/Off Output 2 - 174  
On/Off Output 3 - 302  
On/Off Output 4 - 430  
On/Off Output 5 - 558  
On/Off Output 6 - 686  
On/Off Output 7 - 814  
On/Off Output 8 - 942  
On/Off Output 9 - 1070  
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On/Off Output 14 - 1710  
On/Off Output 15 - 1838  
On/Off Output 16 - 1966  
On/Off Output 17 - 2094  
On/Off Output 18 - 2222  
On/Off Output 19 - 2350  
On/Off Output 20 - 2478  
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On/Off Output 37 - 4654  
On/Off Output 38 - 4782  
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On/Off Output 40 - 5038  
On/Off Output 41 - 5166  
On/Off Output 42 - 5294  
On/Off Output 43 - 5422  
On/Off Output 44 - 5550  
On/Off Output 45 - 5678  
On/Off Output 46 - 5806  
On/Off Output 47 - 5934  
On/Off Output 48 - 6062

## Input 48

On/Off Output 1 - 47  
On/Off Output 2 - 175  
On/Off Output 3 - 303  
On/Off Output 4 - 431  
On/Off Output 5 - 559  
On/Off Output 6 - 687  
On/Off Output 7 - 815  
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On/Off Output 15 - 1839  
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On/Off Output 17 - 2095  
On/Off Output 18 - 2223  
On/Off Output 19 - 2351  
On/Off Output 20 - 2479  
On/Off Output 21 - 2607  
On/Off Output 22 - 2735  
On/Off Output 23 - 2863  
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On/Off Output 29 - 3631  
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On/Off Output 31 - 3887  
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On/Off Output 37 - 4655  
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On/Off Output 40 - 5039

On/Off Output 41 - 5167  
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On/Off Output 43 - 5423  
On/Off Output 44 - 5551  
On/Off Output 45 - 5679  
On/Off Output 46 - 5807  
On/Off Output 47 - 5935  
On/Off Output 48 - 6063

## Matrix Router

### Input 1

On/Off Output 1 - 0  
On/Off Output 2 - 128  
On/Off Output 3 - 256  
On/Off Output 4 - 384  
On/Off Output 5 - 512  
On/Off Output 6 - 640  
On/Off Output 7 - 768  
On/Off Output 8 - 896  
On/Off Output 9 - 1024  
On/Off Output 10 - 1152  
On/Off Output 11 - 1280  
On/Off Output 12 - 1408  
On/Off Output 13 - 1536  
On/Off Output 14 - 1664  
On/Off Output 15 - 1792  
On/Off Output 16 - 1920  
On/Off Output 17 - 2048  
On/Off Output 18 - 2176  
On/Off Output 19 - 2304  
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On/Off Output 21 - 2560  
On/Off Output 22 - 2688  
On/Off Output 23 - 2816  
On/Off Output 24 - 2944  
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On/Off Output 26 - 3200  
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On/Off Output 28 - 3456  
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On/Off Output 30 - 3712  
On/Off Output 31 - 3840  
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On/Off Output 33 - 4096  
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On/Off Output 35 - 4352  
On/Off Output 36 - 4480  
On/Off Output 37 - 4608  
On/Off Output 38 - 4736  
On/Off Output 39 - 4864  
On/Off Output 40 - 4992  
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On/Off Output 42 - 5248  
On/Off Output 43 - 5376  
On/Off Output 44 - 5504  
On/Off Output 45 - 5632  
On/Off Output 46 - 5760  
On/Off Output 47 - 5888  
On/Off Output 48 - 6016

### Input 2

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On/Off Output 14 - 1665  
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### Input 3

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On/Off Output 8 - 898  
On/Off Output 9 - 1026  
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On/Off Output 39 - 4866  
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On/Off Output 41 - 5122  
On/Off Output 42 - 5250  
On/Off Output 43 - 5378  
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On/Off Output 46 - 5762  
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## Input 4

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On/Off Output 3 - 259  
On/Off Output 4 - 387  
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On/Off Output 10 - 1155  
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On/Off Output 38 - 4739  
On/Off Output 39 - 4867  
On/Off Output 40 - 4995  
On/Off Output 41 - 5123  
On/Off Output 42 - 5251  
On/Off Output 43 - 5379  
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On/Off Output 45 - 5635  
On/Off Output 46 - 5763  
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## Input 5

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On/Off Output 3 - 260  
On/Off Output 4 - 388  
On/Off Output 5 - 516  
On/Off Output 6 - 644  
On/Off Output 7 - 772  
On/Off Output 8 - 900  
On/Off Output 9 - 1028  
On/Off Output 10 - 1156  
On/Off Output 11 - 1284  
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On/Off Output 13 - 1540  
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On/Off Output 15 - 1796  
On/Off Output 16 - 1924  
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On/Off Output 19 - 2308  
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On/Off Output 42 - 5252  
On/Off Output 43 - 5380  
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On/Off Output 45 - 5636  
On/Off Output 46 - 5764  
On/Off Output 47 - 5892  
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## Input 6

On/Off Output 1 - 5  
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On/Off Output 3 - 261  
On/Off Output 4 - 389  
On/Off Output 5 - 517  
On/Off Output 6 - 645  
On/Off Output 7 - 773  
On/Off Output 8 - 901  
On/Off Output 9 - 1029  
On/Off Output 10 - 1157  
On/Off Output 11 - 1285  
On/Off Output 12 - 1413  
On/Off Output 13 - 1541  
On/Off Output 14 - 1669  
On/Off Output 15 - 1797  
On/Off Output 16 - 1925  
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On/Off Output 42 - 5253  
On/Off Output 43 - 5381  
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On/Off Output 46 - 5765  
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## Input 7

On/Off Output 1 - 6  
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On/Off Output 3 - 262



On/Off Output 4 - 390  
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 On/Off Output 8 - 902  
 On/Off Output 9 - 1030  
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 On/Off Output 13 - 1542  
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 On/Off Output 15 - 1798  
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 On/Off Output 17 - 2054  
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 On/Off Output 20 - 2438  
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 On/Off Output 24 - 2950  
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 On/Off Output 43 - 5382  
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## Input 8

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 On/Off Output 9 - 1031  
 On/Off Output 10 - 1159  
 On/Off Output 11 - 1287  
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 On/Off Output 15 - 1799  
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 On/Off Output 19 - 2311  
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 On/Off Output 42 - 5255  
 On/Off Output 43 - 5383  
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## Input 9

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 On/Off Output 4 - 392  
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 On/Off Output 8 - 904  
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 On/Off Output 11 - 1288  
 On/Off Output 12 - 1416  
 On/Off Output 13 - 1544  
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 On/Off Output 16 - 1928  
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 On/Off Output 43 - 5384  
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 On/Off Output 45 - 5640  
 On/Off Output 46 - 5768  
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## Input 10

On/Off Output 1 - 9  
 On/Off Output 2 - 137  
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 On/Off Output 4 - 393  
 On/Off Output 5 - 521  
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 On/Off Output 9 - 1033  
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On/Off Output 11 - 1289  
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 On/Off Output 16 - 1929  
 On/Off Output 17 - 2057  
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 On/Off Output 21 - 2569  
 On/Off Output 22 - 2697  
 On/Off Output 23 - 2825  
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 On/Off Output 25 - 3081  
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 On/Off Output 27 - 3337  
 On/Off Output 28 - 3465  
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 On/Off Output 37 - 4617  
 On/Off Output 38 - 4745  
 On/Off Output 39 - 4873  
 On/Off Output 40 - 5001  
 On/Off Output 41 - 5129  
 On/Off Output 42 - 5257  
 On/Off Output 43 - 5385  
 On/Off Output 44 - 5513  
 On/Off Output 45 - 5641  
 On/Off Output 46 - 5769  
 On/Off Output 47 - 5897  
 On/Off Output 48 - 6025

## Input 11

On/Off Output 1 - 10  
 On/Off Output 2 - 138  
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 On/Off Output 5 - 522  
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 On/Off Output 7 - 778  
 On/Off Output 8 - 906  
 On/Off Output 9 - 1034  
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 On/Off Output 11 - 1290  
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 On/Off Output 13 - 1546  
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 On/Off Output 15 - 1802  
 On/Off Output 16 - 1930  
 On/Off Output 17 - 2058  
 On/Off Output 18 - 2186  
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 On/Off Output 21 - 2570  
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 On/Off Output 23 - 2826  
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 On/Off Output 27 - 3338  
 On/Off Output 28 - 3466  
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 On/Off Output 38 - 4746

On/Off Output 39 - 4874  
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 On/Off Output 43 - 5386  
 On/Off Output 44 - 5514  
 On/Off Output 45 - 5642  
 On/Off Output 46 - 5770  
 On/Off Output 47 - 5898  
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## Input 12

On/Off Output 1 - 11  
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 On/Off Output 14 - 1675  
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 On/Off Output 17 - 2059  
 On/Off Output 18 - 2187  
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 On/Off Output 32 - 3979  
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 On/Off Output 44 - 5515  
 On/Off Output 45 - 5643  
 On/Off Output 46 - 5771  
 On/Off Output 47 - 5899  
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## Input 13

On/Off Output 1 - 12  
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 On/Off Output 14 - 1676  
 On/Off Output 15 - 1804  
 On/Off Output 16 - 1932  
 On/Off Output 17 - 2060



On/Off Output 18 - 2188  
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On/Off Output 44 - 5516  
On/Off Output 45 - 5644  
On/Off Output 46 - 5772  
On/Off Output 47 - 5900  
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## Input 14

On/Off Output 1 - 13  
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On/Off Output 4 - 397  
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On/Off Output 14 - 1677  
On/Off Output 15 - 1805  
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On/Off Output 44 - 5517  
On/Off Output 45 - 5645

On/Off Output 46 - 5773  
On/Off Output 47 - 5901  
On/Off Output 48 - 6029

## Input 15

On/Off Output 1 - 14  
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On/Off Output 3 - 270  
On/Off Output 4 - 398  
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On/Off Output 19 - 2318  
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On/Off Output 43 - 5390  
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On/Off Output 46 - 5774  
On/Off Output 47 - 5902  
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## Input 16

On/Off Output 1 - 15  
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On/Off Output 46 - 5775  
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## Input 17

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## Input 18

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## Input 19

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## Input 20

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## Input 21

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## Input 23

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## Input 24

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## Input 25

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## Input 26

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## Input 27

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## Input 28

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## Input 29

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## Input 30

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## Input 31

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## Input 32

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## Input 33

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## Input 34

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## Input 35

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 On/Off Output 15 - 1826  
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## Input 36

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On/Off Output 4 - 419  
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## Input 37

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On/Off Output 6 - 676  
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## Input 38

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On/Off Output 45 - 5669  
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## Input 39

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## Input 40

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On/Off Output 4 - 423  
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On/Off Output 47 - 5927  
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## Input 41

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On/Off Output 3 - 296  
On/Off Output 4 - 424  
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On/Off Output 13 - 1576  
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## Input 42

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On/Off Output 43 - 5417  
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On/Off Output 45 - 5673  
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On/Off Output 47 - 5929  
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## Input 43

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## Input 44

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## Input 45

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## Input 46

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On/Off Output 45 - 5677  
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On/Off Output 48 - 6061

## Input 47

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On/Off Output 46 - 5806  
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On/Off Output 48 - 6062

## Input 48

On/Off Output 1 - 47  
On/Off Output 2 - 175  
On/Off Output 3 - 303  
On/Off Output 4 - 431  
On/Off Output 5 - 559  
On/Off Output 6 - 687  
On/Off Output 7 - 815  
On/Off Output 8 - 943  
On/Off Output 9 - 1071  
On/Off Output 10 - 1199  
On/Off Output 11 - 1327  
On/Off Output 12 - 1455  
On/Off Output 13 - 1583  
On/Off Output 14 - 1711  
On/Off Output 15 - 1839  
On/Off Output 16 - 1967  
On/Off Output 17 - 2095  
On/Off Output 18 - 2223  
On/Off Output 19 - 2351  
On/Off Output 20 - 2479  
On/Off Output 21 - 2607  
On/Off Output 22 - 2735  
On/Off Output 23 - 2863  
On/Off Output 24 - 2991  
On/Off Output 25 - 3119  
On/Off Output 26 - 3247  
On/Off Output 27 - 3375  
On/Off Output 28 - 3503  
On/Off Output 29 - 3631  
On/Off Output 30 - 3759  
On/Off Output 31 - 3887  
On/Off Output 32 - 4015  
On/Off Output 33 - 4143  
On/Off Output 34 - 4271  
On/Off Output 35 - 4399  
On/Off Output 36 - 4527  
On/Off Output 37 - 4655  
On/Off Output 38 - 4783  
On/Off Output 39 - 4911  
On/Off Output 40 - 5039  
On/Off Output 41 - 5167  
On/Off Output 42 - 5295  
On/Off Output 43 - 5423  
On/Off Output 44 - 5551  
On/Off Output 45 - 5679  
On/Off Output 46 - 5807  
On/Off Output 47 - 5935  
On/Off Output 48 - 6063

## Meter

Meter - 0  
Attack - 1  
Release - 2  
Reference - 3

## Meter Trigger

Meter - 0  
Attack - 1  
Release - 2  
Reference - 3  
Trigger - 4

## Mixer

### Input 1

Gain - 0  
Mute - 1  
Pan - 2  
Polarity - 3  
Aux 1 send level - 20  
Aux 2 send level - 21  
Aux 3 send level - 22  
Aux 4 send level - 23  
Route to group 1 - 40

Route to group 2 - 41  
Route to group 3 - 42  
Route to group 4 - 43  
Solo - 4

### Input 2

Gain - 100  
Mute - 101  
Pan - 102  
Polarity - 103  
Aux 1 send level - 120  
Aux 2 send level - 121  
Aux 3 send level - 122  
Aux 4 send level - 123  
Route to group 1 - 140  
Route to group 2 - 141  
Route to group 3 - 142  
Route to group 4 - 143  
Solo - 104

### Input 3

Gain - 200  
Mute - 201  
Pan - 202  
Polarity - 203  
Aux 1 send level - 220  
Aux 2 send level - 221  
Aux 3 send level - 222  
Aux 4 send level - 223  
Route to group 1 - 240  
Route to group 2 - 241  
Route to group 3 - 242  
Route to group 4 - 243  
Solo - 204

### Input 4

Gain - 300  
Mute - 301  
Pan - 302  
Polarity - 303  
Aux 1 send level - 320  
Aux 2 send level - 321  
Aux 3 send level - 322  
Aux 4 send level - 323  
Route to group 1 - 340  
Route to group 2 - 341  
Route to group 3 - 342  
Route to group 4 - 343  
Solo - 304

### Input 5

Gain - 400  
Mute - 401  
Pan - 402  
Polarity - 403  
Aux 1 send level - 420  
Aux 2 send level - 421  
Aux 3 send level - 422  
Aux 4 send level - 423  
Route to group 1 - 440  
Route to group 2 - 441  
Route to group 3 - 442  
Route to group 4 - 443  
Solo - 404

### Input 6

Gain - 500  
Mute - 501  
Pan - 502  
Polarity - 503  
Aux 1 send level - 520  
Aux 2 send level - 521  
Aux 3 send level - 522  
Aux 4 send level - 523  
Route to group 1 - 540  
Route to group 2 - 541  
Route to group 3 - 542  
Route to group 4 - 543  
Solo - 504

### Input 7

Gain - 600  
Mute - 601

Pan - 602  
Polarity - 603  
Aux 1 send level - 620  
Aux 2 send level - 621  
Aux 3 send level - 622  
Aux 4 send level - 623  
Route to group 1 - 640  
Route to group 2 - 641  
Route to group 3 - 642  
Route to group 4 - 643  
Solo - 604

## Input 8

Gain - 700  
Mute - 701  
Pan - 702  
Polarity - 703  
Aux 1 send level - 720  
Aux 2 send level - 721  
Aux 3 send level - 722  
Aux 4 send level - 723  
Route to group 1 - 740  
Route to group 2 - 741  
Route to group 3 - 742  
Route to group 4 - 743  
Solo - 704

## Input 9

Gain - 800  
Mute - 801  
Pan - 802  
Polarity - 803  
Aux 1 send level - 820  
Aux 2 send level - 821  
Aux 3 send level - 822  
Aux 4 send level - 823  
Route to group 1 - 840  
Route to group 2 - 841  
Route to group 3 - 842  
Route to group 4 - 843  
Solo - 804

## Input 10

Gain - 900  
Mute - 901  
Pan - 902  
Polarity - 903  
Aux 1 send level - 920  
Aux 2 send level - 921  
Aux 3 send level - 922  
Aux 4 send level - 923  
Route to group 1 - 940  
Route to group 2 - 941  
Route to group 3 - 942  
Route to group 4 - 943  
Solo - 904

## Input 11

Gain - 1000  
Mute - 1001  
Pan - 1002  
Polarity - 1003  
Aux 1 send level - 1020  
Aux 2 send level - 1021  
Aux 3 send level - 1022  
Aux 4 send level - 1023  
Route to group 1 - 1040  
Route to group 2 - 1041  
Route to group 3 - 1042  
Route to group 4 - 1043  
Solo - 1004

## Input 12

Gain - 1100  
Mute - 1101  
Pan - 1102  
Polarity - 1103  
Aux 1 send level - 1120  
Aux 2 send level - 1121  
Aux 3 send level - 1122  
Aux 4 send level - 1123  
Route to group 1 - 1140

Route to group 2 - 1141  
Route to group 3 - 1142  
Route to group 4 - 1143  
Solo - 1104

## Input 13

Gain - 1200  
Mute - 1201  
Pan - 1202  
Polarity - 1203  
Aux 1 send level - 1220  
Aux 2 send level - 1221  
Aux 3 send level - 1222  
Aux 4 send level - 1223  
Route to group 1 - 1240  
Route to group 2 - 1241  
Route to group 3 - 1242  
Route to group 4 - 1243  
Solo - 1204

## Input 14

Gain - 1300  
Mute - 1301  
Pan - 1302  
Polarity - 1303  
Aux 1 send level - 1320  
Aux 2 send level - 1321  
Aux 3 send level - 1322  
Aux 4 send level - 1323  
Route to group 1 - 1340  
Route to group 2 - 1341  
Route to group 3 - 1342  
Route to group 4 - 1343  
Solo - 1304

## Input 15

Gain - 1400  
Mute - 1401  
Pan - 1402  
Polarity - 1403  
Aux 1 send level - 1420  
Aux 2 send level - 1421  
Aux 3 send level - 1422  
Aux 4 send level - 1423  
Route to group 1 - 1440  
Route to group 2 - 1441  
Route to group 3 - 1442  
Route to group 4 - 1443  
Solo - 1404

## Input 16

Gain - 1500  
Mute - 1501  
Pan - 1502  
Polarity - 1503  
Aux 1 send level - 1520  
Aux 2 send level - 1521  
Aux 3 send level - 1522  
Aux 4 send level - 1523  
Route to group 1 - 1540  
Route to group 2 - 1541  
Route to group 3 - 1542  
Route to group 4 - 1543  
Solo - 1504

## Input 17

Gain - 1600  
Mute - 1601  
Pan - 1602  
Polarity - 1603  
Aux 1 send level - 1620  
Aux 2 send level - 1621  
Aux 3 send level - 1622  
Aux 4 send level - 1623  
Route to group 1 - 1640  
Route to group 2 - 1641  
Route to group 3 - 1642  
Route to group 4 - 1643  
Solo - 1604

## Input 18

Gain - 1700  
Mute - 1701

Pan - 1702  
Polarity - 1703  
Aux 1 send level - 1720  
Aux 2 send level - 1721  
Aux 3 send level - 1722  
Aux 4 send level - 1723  
Route to group 1 - 1740  
Route to group 2 - 1741  
Route to group 3 - 1742  
Route to group 4 - 1743  
Solo - 1704

## Input 19

Gain - 1800  
Mute - 1801  
Pan - 1802  
Polarity - 1803  
Aux 1 send level - 1820  
Aux 2 send level - 1821  
Aux 3 send level - 1822  
Aux 4 send level - 1823  
Route to group 1 - 1840  
Route to group 2 - 1841  
Route to group 3 - 1842  
Route to group 4 - 1843  
Solo - 1804

## Input 20

Gain - 1900  
Mute - 1901  
Pan - 1902  
Polarity - 1903  
Aux 1 send level - 1920  
Aux 2 send level - 1921  
Aux 3 send level - 1922  
Aux 4 send level - 1923  
Route to group 1 - 1940  
Route to group 2 - 1941  
Route to group 3 - 1942  
Route to group 4 - 1943  
Solo - 1904

## Input 21

Gain - 2000  
Mute - 2001  
Pan - 2002  
Polarity - 2003  
Aux 1 send level - 2020  
Aux 2 send level - 2021  
Aux 3 send level - 2022  
Aux 4 send level - 2023  
Route to group 1 - 2040  
Route to group 2 - 2041  
Route to group 3 - 2042  
Route to group 4 - 2043  
Solo - 2004

## Input 22

Gain - 2100  
Mute - 2101  
Pan - 2102  
Polarity - 2103  
Aux 1 send level - 2120  
Aux 2 send level - 2121  
Aux 3 send level - 2122  
Aux 4 send level - 2123  
Route to group 1 - 2140  
Route to group 2 - 2141  
Route to group 3 - 2142  
Route to group 4 - 2143  
Solo - 2104

## Input 23

Gain - 2200  
Mute - 2201  
Pan - 2202  
Polarity - 2203  
Aux 1 send level - 2220  
Aux 2 send level - 2221  
Aux 3 send level - 2222  
Aux 4 send level - 2223  
Route to group 1 - 2240

Route to group 2 - 2241  
Route to group 3 - 2242  
Route to group 4 - 2243  
Solo - 2204

## Input 24

Gain - 2300  
Mute - 2301  
Pan - 2302  
Polarity - 2303  
Aux 1 send level - 2320  
Aux 2 send level - 2321  
Aux 3 send level - 2322  
Aux 4 send level - 2323  
Route to group 1 - 2340  
Route to group 2 - 2341  
Route to group 3 - 2342  
Route to group 4 - 2343  
Solo - 2304

## Input 25

Gain - 2400  
Mute - 2401  
Pan - 2402  
Polarity - 2403  
Aux 1 send level - 2420  
Aux 2 send level - 2421  
Aux 3 send level - 2422  
Aux 4 send level - 2423  
Route to group 1 - 2440  
Route to group 2 - 2441  
Route to group 3 - 2442  
Route to group 4 - 2443  
Solo - 2404

## Input 26

Gain - 2500  
Mute - 2501  
Pan - 2502  
Polarity - 2503  
Aux 1 send level - 2520  
Aux 2 send level - 2521  
Aux 3 send level - 2522  
Aux 4 send level - 2523  
Route to group 1 - 2540  
Route to group 2 - 2541  
Route to group 3 - 2542  
Route to group 4 - 2543  
Solo - 2504

## Input 27

Gain - 2600  
Mute - 2601  
Pan - 2602  
Polarity - 2603  
Aux 1 send level - 2620  
Aux 2 send level - 2621  
Aux 3 send level - 2622  
Aux 4 send level - 2623  
Route to group 1 - 2640  
Route to group 2 - 2641  
Route to group 3 - 2642  
Route to group 4 - 2643  
Solo - 2604

## Input 28

Gain - 2700  
Mute - 2701  
Pan - 2702  
Polarity - 2703  
Aux 1 send level - 2720  
Aux 2 send level - 2721  
Aux 3 send level - 2722  
Aux 4 send level - 2723  
Route to group 1 - 2740  
Route to group 2 - 2741  
Route to group 3 - 2742  
Route to group 4 - 2743  
Solo - 2704

## Input 29

Gain - 2800  
Mute - 2801



Pan - 2802  
Polarity - 2803  
Aux 1 send level - 2820  
Aux 2 send level - 2821  
Aux 3 send level - 2822  
Aux 4 send level - 2823  
Route to group 1 - 2840  
Route to group 2 - 2841  
Route to group 3 - 2842  
Route to group 4 - 2843  
Solo - 2804

## Input 30

Gain - 2900  
Mute - 2901  
Pan - 2902  
Polarity - 2903  
Aux 1 send level - 2920  
Aux 2 send level - 2921  
Aux 3 send level - 2922  
Aux 4 send level - 2923  
Route to group 1 - 2940  
Route to group 2 - 2941  
Route to group 3 - 2942  
Route to group 4 - 2943  
Solo - 2904

## Input 31

Gain - 3000  
Mute - 3001  
Pan - 3002  
Polarity - 3003  
Aux 1 send level - 3020  
Aux 2 send level - 3021  
Aux 3 send level - 3022  
Aux 4 send level - 3023  
Route to group 1 - 3040  
Route to group 2 - 3041  
Route to group 3 - 3042  
Route to group 4 - 3043  
Solo - 3004

## Input 32

Gain - 3100  
Mute - 3101  
Pan - 3102  
Polarity - 3103  
Aux 1 send level - 3120  
Aux 2 send level - 3121  
Aux 3 send level - 3122  
Aux 4 send level - 3123  
Route to group 1 - 3140  
Route to group 2 - 3141  
Route to group 3 - 3142  
Route to group 4 - 3143  
Solo - 3104

## Input 33

Gain - 3200  
Mute - 3201  
Pan - 3202  
Polarity - 3203  
Aux 1 send level - 3220  
Aux 2 send level - 3221  
Aux 3 send level - 3222  
Aux 4 send level - 3223  
Route to group 1 - 3240  
Route to group 2 - 3241  
Route to group 3 - 3242  
Route to group 4 - 3243  
Solo - 3204

## Input 34

Gain - 3300  
Mute - 3301  
Pan - 3302  
Polarity - 3303  
Aux 1 send level - 3320  
Aux 2 send level - 3321  
Aux 3 send level - 3322  
Aux 4 send level - 3323  
Route to group 1 - 3340

Route to group 2 - 3341  
Route to group 3 - 3342  
Route to group 4 - 3343  
Solo - 3304

## Input 35

Gain - 3400  
Mute - 3401  
Pan - 3402  
Polarity - 3403  
Aux 1 send level - 3420  
Aux 2 send level - 3421  
Aux 3 send level - 3422  
Aux 4 send level - 3423  
Route to group 1 - 3440  
Route to group 2 - 3441  
Route to group 3 - 3442  
Route to group 4 - 3443  
Solo - 3404

## Input 36

Gain - 3500  
Mute - 3501  
Pan - 3502  
Polarity - 3503  
Aux 1 send level - 3520  
Aux 2 send level - 3521  
Aux 3 send level - 3522  
Aux 4 send level - 3523  
Route to group 1 - 3540  
Route to group 2 - 3541  
Route to group 3 - 3542  
Route to group 4 - 3543  
Solo - 3504

## Input 37

Gain - 3600  
Mute - 3601  
Pan - 3602  
Polarity - 3603  
Aux 1 send level - 3620  
Aux 2 send level - 3621  
Aux 3 send level - 3622  
Aux 4 send level - 3623  
Route to group 1 - 3640  
Route to group 2 - 3641  
Route to group 3 - 3642  
Route to group 4 - 3643  
Solo - 3604

## Input 38

Gain - 3700  
Mute - 3701  
Pan - 3702  
Polarity - 3703  
Aux 1 send level - 3720  
Aux 2 send level - 3721  
Aux 3 send level - 3722  
Aux 4 send level - 3723  
Route to group 1 - 3740  
Route to group 2 - 3741  
Route to group 3 - 3742  
Route to group 4 - 3743  
Solo - 3704

## Input 39

Gain - 3800  
Mute - 3801  
Pan - 3802  
Polarity - 3803  
Aux 1 send level - 3820  
Aux 2 send level - 3821  
Aux 3 send level - 3822  
Aux 4 send level - 3823  
Route to group 1 - 3840  
Route to group 2 - 3841  
Route to group 3 - 3842  
Route to group 4 - 3843  
Solo - 3804

## Input 40

Gain - 3900  
Mute - 3901

Pan - 3902  
Polarity - 3903  
Aux 1 send level - 3920  
Aux 2 send level - 3921  
Aux 3 send level - 3922  
Aux 4 send level - 3923  
Route to group 1 - 3940  
Route to group 2 - 3941  
Route to group 3 - 3942  
Route to group 4 - 3943  
Solo - 3904

## Input 41

Gain - 4000  
Mute - 4001  
Pan - 4002  
Polarity - 4003  
Aux 1 send level - 4020  
Aux 2 send level - 4021  
Aux 3 send level - 4022  
Aux 4 send level - 4023  
Route to group 1 - 4040  
Route to group 2 - 4041  
Route to group 3 - 4042  
Route to group 4 - 4043  
Solo - 4004

## Input 42

Gain - 4100  
Mute - 4101  
Pan - 4102  
Polarity - 4103  
Aux 1 send level - 4120  
Aux 2 send level - 4121  
Aux 3 send level - 4122  
Aux 4 send level - 4123  
Route to group 1 - 4140  
Route to group 2 - 4141  
Route to group 3 - 4142  
Route to group 4 - 4143  
Solo - 4104

## Input 43

Gain - 4200  
Mute - 4201  
Pan - 4202  
Polarity - 4203  
Aux 1 send level - 4220  
Aux 2 send level - 4221  
Aux 3 send level - 4222  
Aux 4 send level - 4223  
Route to group 1 - 4240  
Route to group 2 - 4241  
Route to group 3 - 4242  
Route to group 4 - 4243  
Solo - 4204

## Input 44

Gain - 4300  
Mute - 4301  
Pan - 4302  
Polarity - 4303  
Aux 1 send level - 4320  
Aux 2 send level - 4321  
Aux 3 send level - 4322  
Aux 4 send level - 4323  
Route to group 1 - 4340  
Route to group 2 - 4341  
Route to group 3 - 4342  
Route to group 4 - 4343  
Solo - 4304

## Input 45

Gain - 4400  
Mute - 4401  
Pan - 4402  
Polarity - 4403  
Aux 1 send level - 4420  
Aux 2 send level - 4421  
Aux 3 send level - 4422  
Aux 4 send level - 4423  
Route to group 1 - 4440

Route to group 2 - 4441  
Route to group 3 - 4442  
Route to group 4 - 4443  
Solo - 4404

## Input 46

Gain - 4500  
Mute - 4501  
Pan - 4502  
Polarity - 4503  
Aux 1 send level - 4520  
Aux 2 send level - 4521  
Aux 3 send level - 4522  
Aux 4 send level - 4523  
Route to group 1 - 4540  
Route to group 2 - 4541  
Route to group 3 - 4542  
Route to group 4 - 4543  
Solo - 4504

## Input 47

Gain - 4600  
Mute - 4601  
Pan - 4602  
Polarity - 4603  
Aux 1 send level - 4620  
Aux 2 send level - 4621  
Aux 3 send level - 4622  
Aux 4 send level - 4623  
Route to group 1 - 4640  
Route to group 2 - 4641  
Route to group 3 - 4642  
Route to group 4 - 4643  
Solo - 4604

## Input 48

Gain - 4700  
Mute - 4701  
Pan - 4702  
Polarity - 4703  
Aux 1 send level - 4720  
Aux 2 send level - 4721  
Aux 3 send level - 4722  
Aux 4 send level - 4723  
Route to group 1 - 4740  
Route to group 2 - 4741  
Route to group 3 - 4742  
Route to group 4 - 4743  
Solo - 4704

## Aux A

Pre/Post - 10000  
Gain - 10001  
Mute - 10002

## Aux B

Pre/Post - 10010  
Gain - 10011  
Mute - 10012

## Aux C

Pre/Post - 10020  
Gain - 10021  
Mute - 10022

## Aux D

Pre/Post - 10030  
Gain - 10031  
Mute - 10032

## Group A

Gain - 11000  
Mute - 11001

## Group B

Gain - 11010  
Mute - 11011

## Group C

Gain - 11020  
Mute - 11021

## Group D

Gain - 11030  
Mute - 11031

## Output 1

Gain Left - 20000  
Mute Left - 20001



Gain Right - 20002  
Mute Right – 20003

## N-Input Gain

### Input 1

Gain - 0  
Mute - 32  
Polarity - 64

### Input 2

Gain - 1  
Mute - 33  
Polarity - 65

### Input 3

Gain - 2  
Mute - 34  
Polarity - 66

### Input 4

Gain - 3  
Mute - 35  
Polarity - 67

### Input 5

Gain - 4  
Mute - 36  
Polarity - 68

### Input 6

Gain - 5  
Mute - 37  
Polarity - 69

### Input 7

Gain - 6  
Mute - 38  
Polarity - 70

### Input 8

Gain - 7  
Mute - 39  
Polarity - 71

### Input 9

Gain - 8  
Mute - 40  
Polarity - 72

### Input 10

Gain - 9  
Mute - 41  
Polarity - 73

### Input 11

Gain - 10  
Mute - 42  
Polarity - 74

### Input 12

Gain - 11  
Mute - 43  
Polarity - 75

### Input 13

Gain - 12  
Mute - 44  
Polarity - 76

### Input 14

Gain - 13  
Mute - 45  
Polarity - 77

### Input 15

Gain - 14  
Mute - 46  
Polarity - 78

### Input 16

Gain - 15  
Mute - 47  
Polarity - 79

### Master

Master - 96  
Override Mute – 97

## N-Input Graphic EQ

25.0 - 32  
31.0 - 33  
40.0 - 34  
50.0 - 35

63.0 - 36  
80.0 - 37  
100 - 38  
125 - 39  
160 - 40  
200 - 41  
250 - 42  
315 - 43  
400 - 44  
500 - 45  
630 - 46  
800 - 47  
1.00k - 48  
1.25k - 49  
1.60k - 50  
2.00k - 51  
2.50k - 52  
3.15k - 53  
4.00k - 54  
5.00k - 55  
6.30k - 56  
8.00k - 57  
10.0k - 58  
12.5k - 59  
16.0k - 60  
20.0k - 61  
Bypass - 66  
Selectivity – 65

## N-Input Parametric EQ

### Band 01

Filter Type - 4  
Slope Type - 6  
Frequency - 1  
Width - 3  
Boost/Cut - 2  
Bypass - 0

### Band 02

Filter Type - 20  
Slope Type - 22  
Frequency - 17  
Width - 19  
Boost/Cut - 18  
Bypass - 16

### Band 03

Filter Type - 36  
Slope Type - 38  
Frequency - 33  
Width - 35  
Boost/Cut - 34  
Bypass - 32

### Band 04

Filter Type - 52  
Slope Type - 54  
Frequency - 49  
Width - 51  
Boost/Cut - 50  
Bypass - 48

### Band 05

Filter Type - 68  
Slope Type - 70  
Frequency - 65  
Width - 67  
Boost/Cut - 66  
Bypass - 64

### Band 06

Filter Type - 84  
Slope Type - 86  
Frequency - 81  
Width - 83  
Boost/Cut - 82  
Bypass - 80

### Band 07

Filter Type - 100  
Slope Type - 102  
Frequency - 97  
Width - 99

Boost/Cut - 98  
Bypass - 96

## Band 08

Filter Type - 116  
Slope Type - 118  
Frequency - 113  
Width - 115  
Boost/Cut - 114  
Bypass - 112

## Band 09

Filter Type - 132  
Slope Type - 134  
Frequency - 129  
Width - 131  
Boost/Cut - 130  
Bypass - 128

## Band 10

Filter Type - 148  
Slope Type - 150  
Frequency - 145  
Width - 147  
Boost/Cut - 146  
Bypass - 144

## Band 11

Filter Type - 164  
Slope Type - 166  
Frequency - 161  
Width - 163  
Boost/Cut - 162  
Bypass - 160

## Band 12

Filter Type - 180  
Slope Type - 182  
Frequency - 177  
Width - 179  
Boost/Cut - 178  
Bypass - 176

## Other

Bypass All – 512

## Noise Generator

Level - 0  
Type – 1

## Parametric EQ

### Band 01

Filter Type - 4  
Slope Type - 6  
Frequency - 1  
Width - 3  
Boost/Cut - 2  
Bypass - 0

### Band 02

Filter Type - 20  
Slope Type - 22  
Frequency - 17  
Width - 19  
Boost/Cut - 18  
Bypass - 16

### Band 03

Filter Type - 36  
Slope Type - 38  
Frequency - 33  
Width - 35  
Boost/Cut - 34  
Bypass - 32

### Band 04

Filter Type - 52  
Slope Type - 54  
Frequency - 49  
Width - 51  
Boost/Cut - 50  
Bypass - 48

### Band 05

Filter Type - 68  
Slope Type - 70  
Frequency - 65

Width - 67  
Boost/Cut - 66  
Bypass - 64

## Band 06

Filter Type - 84  
Slope Type - 86  
Frequency - 81  
Width - 83  
Boost/Cut - 82  
Bypass - 80

## Band 07

Filter Type - 100  
Slope Type - 102  
Frequency - 97  
Width - 99  
Boost/Cut - 98  
Bypass - 96

## Band 08

Filter Type - 116  
Slope Type - 118  
Frequency - 113  
Width - 115  
Boost/Cut - 114  
Bypass - 112

## Band 09

Filter Type - 132  
Slope Type - 134  
Frequency - 129  
Width - 131  
Boost/Cut - 130  
Bypass - 128

## Band 10

Filter Type - 148  
Slope Type - 150  
Frequency - 145  
Width - 147  
Boost/Cut - 146  
Bypass - 144

## Band 11

Filter Type - 164  
Slope Type - 166  
Frequency - 161  
Width - 163  
Boost/Cut - 162  
Bypass - 160

## Band 12

Filter Type - 180  
Slope Type - 182  
Frequency - 177  
Width - 179  
Boost/Cut - 178  
Bypass - 176

## Other

Bypass All – 512

## Phase Filter

Frequency - 0  
Phase – 1

## RMS Meter

Meter - 0  
Attack - 1  
Release - 2  
Reference – 3

## Source Matrix

Input for Output 1 - 0  
Input for Output 2 - 1  
Input for Output 3 - 2  
Input for Output 4 - 3  
Input for Output 5 - 4  
Input for Output 6 - 5  
Input for Output 7 - 6  
Input for Output 8 - 7  
Input for Output 9 - 8  
Input for Output 10 - 9  
Input for Output 11 - 10

Input for Output 12 - 11  
 Input for Output 13 - 12  
 Input for Output 14 - 13  
 Input for Output 15 - 14  
 Input for Output 16 - 15  
 Input for Output 17 - 16  
 Input for Output 18 - 17  
 Input for Output 19 - 18  
 Input for Output 20 - 19  
 Input for Output 21 - 20  
 Input for Output 22 - 21  
 Input for Output 23 - 22  
 Input for Output 24 - 23  
 Input for Output 25 - 24  
 Input for Output 26 - 25  
 Input for Output 27 - 26  
 Input for Output 28 - 27  
 Input for Output 29 - 28  
 Input for Output 30 - 29  
 Input for Output 31 - 30  
 Input for Output 32 - 31  
 Input for Output 33 - 32  
 Input for Output 34 - 33  
 Input for Output 35 - 34  
 Input for Output 36 - 35  
 Input for Output 37 - 36  
 Input for Output 38 - 37  
 Input for Output 39 - 38  
 Input for Output 40 - 39  
 Input for Output 41 - 40  
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 Input for Output 49 - 48  
 Input for Output 50 - 49  
 Input for Output 51 - 50  
 Input for Output 52 - 51  
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 Input for Output 68 - 67  
 Input for Output 69 - 68  
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 Input for Output 83 - 82  
 Input for Output 84 - 83  
 Input for Output 85 - 84  
 Input for Output 86 - 85  
 Input for Output 87 - 86  
 Input for Output 88 - 87

Input for Output 89 - 88  
 Input for Output 90 - 89  
 Input for Output 91 - 90  
 Input for Output 92 - 91  
 Input for Output 93 - 92  
 Input for Output 94 - 93  
 Input for Output 95 - 94  
 Input for Output 96 - 95

## Source Selector

Input Number – 0

## Stereo Compressor

Bypass - 0  
 Threshold - 1  
 Ratio - 2  
 Attack - 3  
 Release – 4  
 Gain Reduction dB - 5  
 Gain - 7  
 Auto release – 8

## Stereo Crossover

### Band 1

Filter Type (Hi Pass) - 0  
 Filter Type (Lo Pass) - 1  
 Frequency (Hi Pass) - 2  
 Frequency (Lo Pass) - 3  
 Gain - 4  
 Delay - 15  
 Polarity - 16  
 Mute - 17  
 Limiter Threshold – 18  
 Limiter Level Left dB – 19  
 Limiter Level Right dB - 20

### Band 2

Filter Type (Hi Pass) - 32  
 Filter Type (Lo Pass) - 33  
 Frequency (Hi Pass) - 34  
 Frequency (Lo Pass) - 35  
 Gain - 36  
 Phase - 46  
 Delay - 47  
 Polarity - 48  
 Mute - 49  
 Limiter Threshold – 50  
 Limiter Level Left dB – 51  
 Limiter Level Right dB - 52

### Band 3

Filter Type (Hi Pass) - 64  
 Filter Type (Lo Pass) - 65  
 Frequency (Hi Pass) - 66  
 Frequency (Lo Pass) - 67  
 Gain - 68  
 Phase - 78  
 Delay - 79  
 Polarity - 80  
 Mute - 81  
 Limiter Threshold – 82  
 Limiter Level Left dB – 83  
 Limiter Level Right dB - 84

### Band 4

Filter Type (Hi Pass) - 96  
 Filter Type (Lo Pass) - 97  
 Frequency (Hi Pass) - 98  
 Frequency (Lo Pass) - 99  
 Gain - 100  
 Phase - 110  
 Delay - 111  
 Polarity - 112  
 Mute - 113  
 Limiter Threshold – 114  
 Limiter Level Left dB – 115  
 Limiter Level Right dB - 116

### Band 5

Filter Type (Hi Pass) - 128  
 Filter Type (Lo Pass) - 129

Frequency (Hi Pass) - 130  
Frequency (Lo Pass) - 131  
Gain - 132  
Phase - 142  
Delay - 143  
Polarity - 144  
Mute - 145  
Limiter Threshold – 146  
Limiter Level Left dB – 147  
Limiter Level Right dB - 148

**Band 6**

Filter Type (Hi Pass) - 160  
Filter Type (Lo Pass) - 161  
Frequency (Hi Pass) - 162  
Frequency (Lo Pass) - 163  
Gain - 164  
Phase - 174  
Delay - 175  
Polarity - 176  
Mute - 177  
Limiter Threshold – 178  
Limiter Level Left dB – 179  
Limiter Level Right dB - 180

**Stereo Ducker**

Bypass - 0  
Threshold - 1  
Range - 2  
Duck Time - 3  
Hold - 4  
Recover – 5  
Gain Reduction dB - 9

**Stereo Expander**

Bypass - 0  
Threshold - 1  
Ratio - 7  
Attack - 3  
Release – 5  
Gain Reduction dB - 9

**Stereo Gate**

Bypass - 0  
Threshold - 1  
Range - 2  
Attack - 3  
Hold - 4  
Release - 5  
Manual Open – 6  
Open – 8  
Below Threshold dB - 10

**Tone Generator**

Level - 0  
Frequency – 1