

# **AQM-100 (Mod-Bus) Datasheet**



**Support Modicon Mod-Bus**

**Ver 2.2**

## 1. Specification

CO2	Type	NDIR
	Range	0 ~ 10,000ppm
	Interval	3 Seconds
	Accuracy	30ppm±5%
Temperature / Humidity	Type	Semiconductor
	Temperature	0 ~50°C
	Humidity	0~95%
VOCs	Type	Semiconductor
	Gas	Benzene, Toluene, Cigarette smoke, Alcohol
	Range	Low / High / Very high
Size		118 x 74 x 22[mm]
Power		12VDC
Output		RS232 or RS 485 2 Wire Modbus RTU Mode
Current Consumption		I avr : 80mA, I pk : 0.5 A
Power Consumption		< 1 W

## 2. Picture

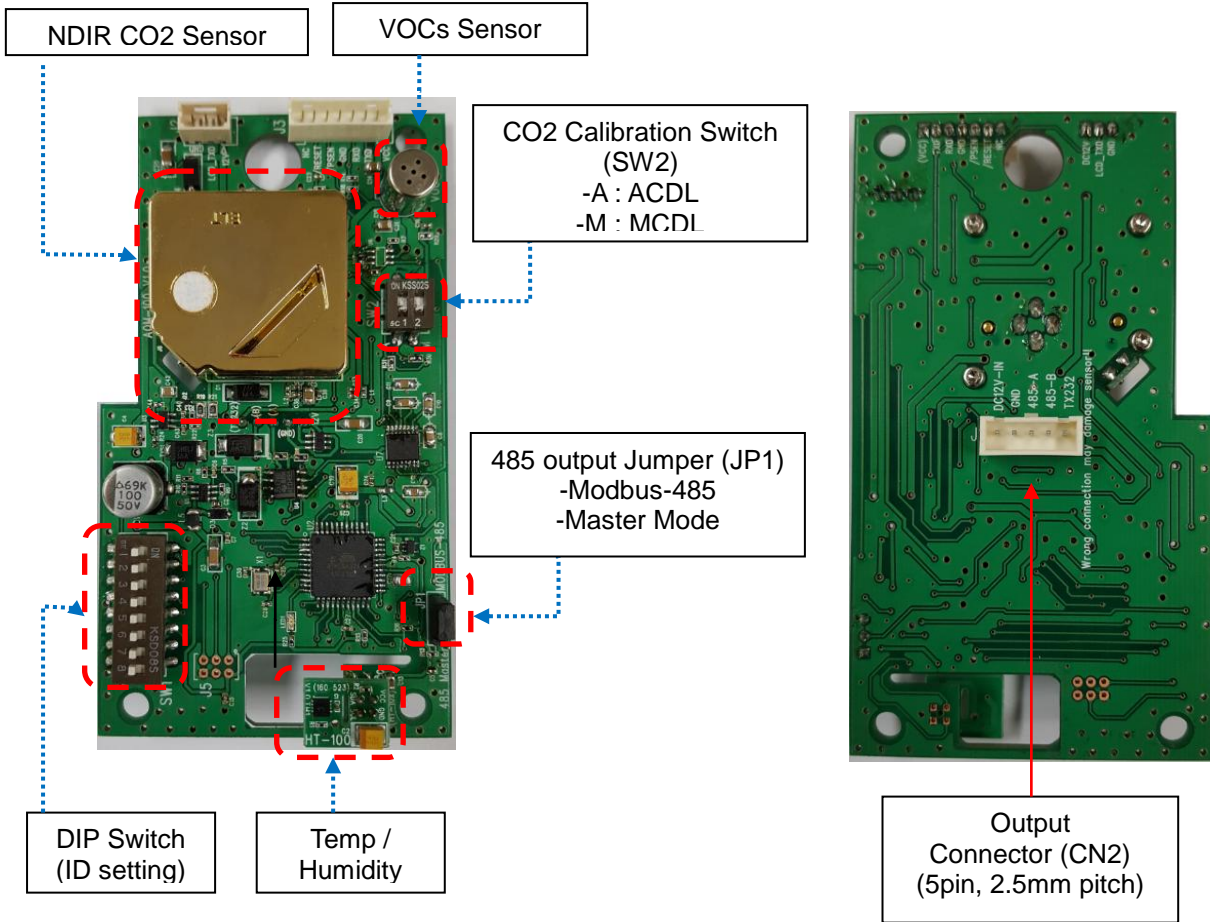


Front



Back

# ELT SENSOR Corp.



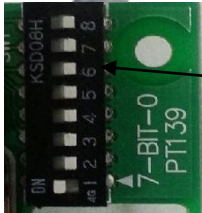
### 3. Output Connection (CN2)

Pin Number	Pin Name	Description
1	+12V	Power 12VDC
2	GND	Power ground
3	485A	RS485TX
4	485B	RS485RX
5	232TX	Not supported (modbus model)

Type	Pin Name	Note
RS485	485A	2 Wire / half-duplex
	485B	
RS232	232TX	Not supported (modbus model)
	GND	Ground

## 4. Mod-Bus Slave Address setting

- Mod-Bus slave address can be set by DIP Switch.



DIP Switch (Slave Address)

- DIP Switch

ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OFF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5	6	7	8

Example) setting Slave Address 1

※ Please refer to Appendix for DIP Switch Settings.

## 5. Protocol

- Modicon Mod-Bus RTU MODE  
Follow Modicon Mod-Bus protocol (<http://www.modbus.org>)

### 2) Communication Specifications

- RS-485 (2-wire, half-duplex)

Parameter	Description
Baud rate	9600 BPS
Data Bit	8 Bits
Parity Bit	None
Stop Bit	1
Flow Control	None

### 3) Hold Register Specifications

- Mapping Base Address : 0x0050.
- Hold Register. Max. Read Size : 4

Register Address	Value	Data Type	Unit	Description
0x0050	Co2	2 Byte Integer	PPM	Co2 Ex) 800 -> 800 PPM
0x0051	Temperature	2 Byte Integer	°C	Temperature Ex) 255 -> 255 / 10 : 25.5°C

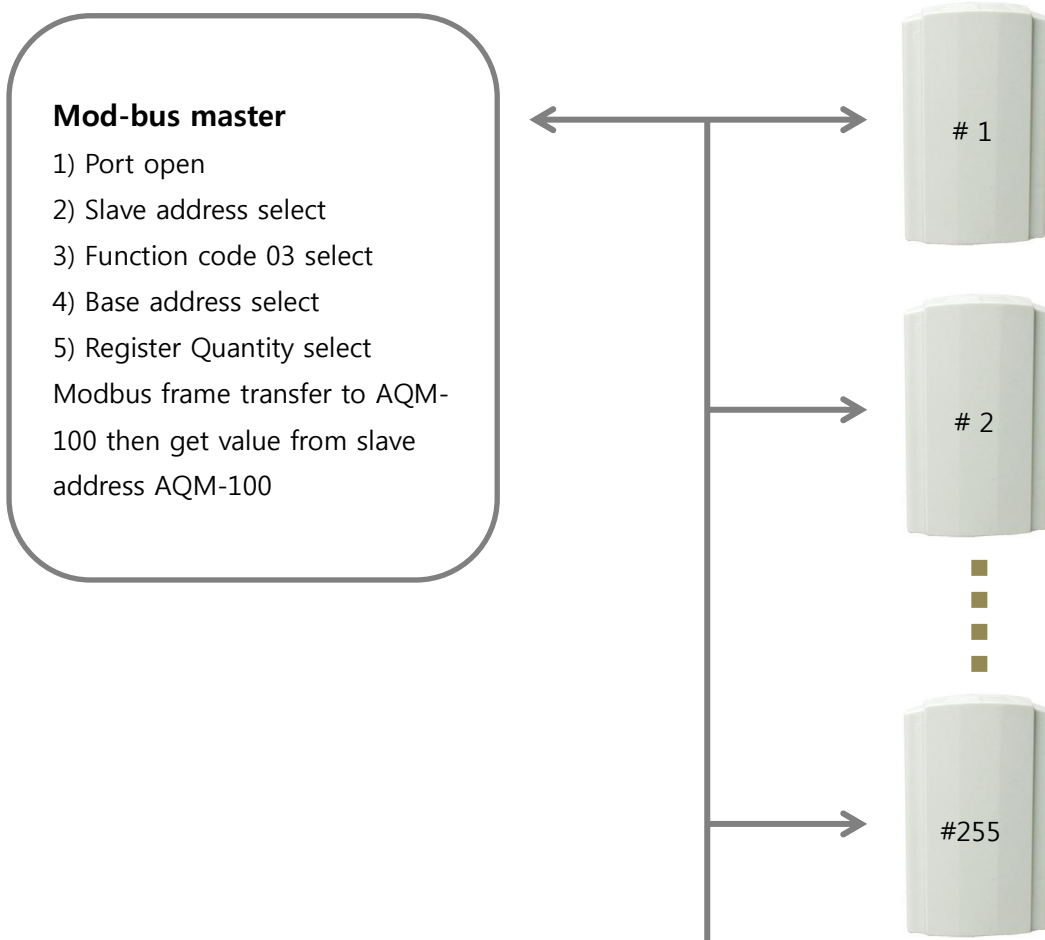
0x0052	Humidity	2 Byte WORD	%	Humidity Ex) 75 -> 75%
0x0053	VOC	2 Byte WORD		0x0000 : Normal 0x0010 : High 0x0040 : Very High

#### 4) Supported Function Code

- Currently supported only code 03 and exception responses.
- Error code 0x83 or other (CODE + 0x80)

Exception code	Description
01	Exception of Function code
02	Exception of Starting Address
03	Exception of Quantity of Registers

#### 5) Example How to get value from AQM-100 by modbus protocol

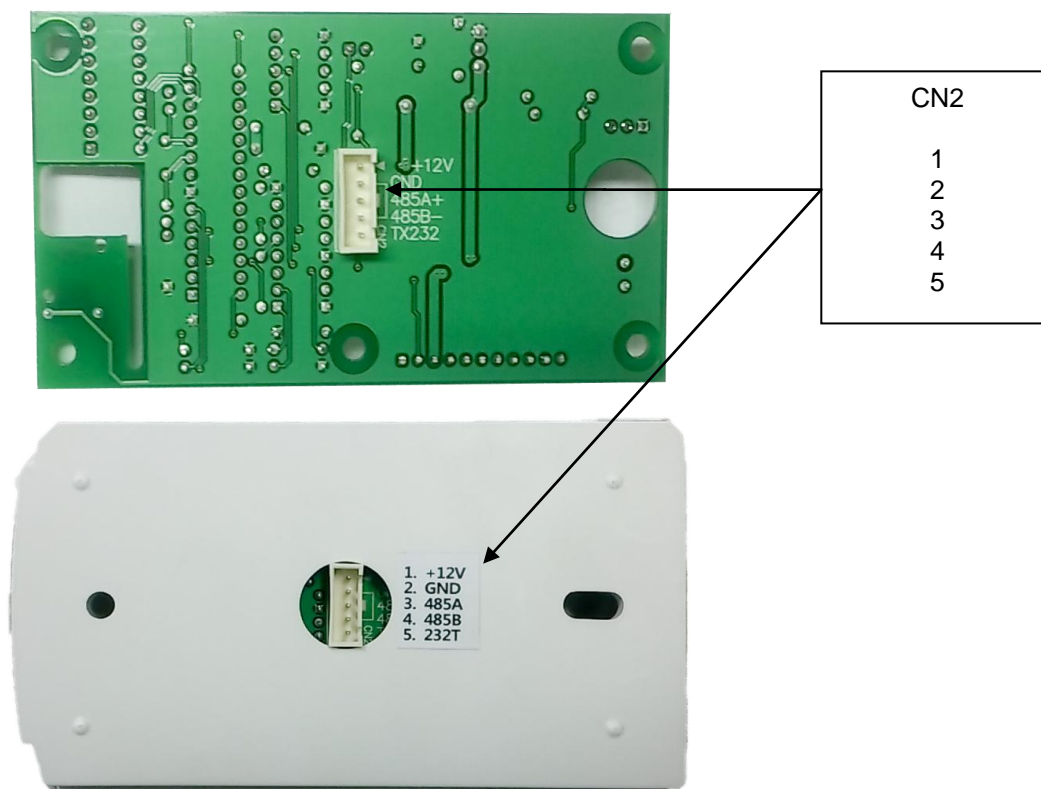


## Appendix

### 1. Pin connection of AQM-100 (CN2)

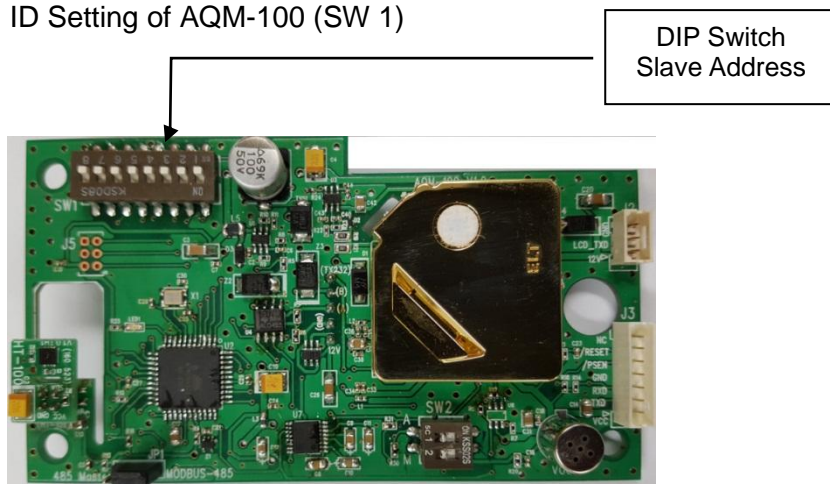
Pin Number	Pin Name	Description
1	+12V	Power 12VDC
2	GND	Power Ground
3	485A	RS485TX
4	485B	RS485RX
5	232T	Not supported

Pin Number	Pin Name	Note
RS485	485A	2 Wire, Half-duplex
	485B	
RS232	232T	Not supported
	GND	



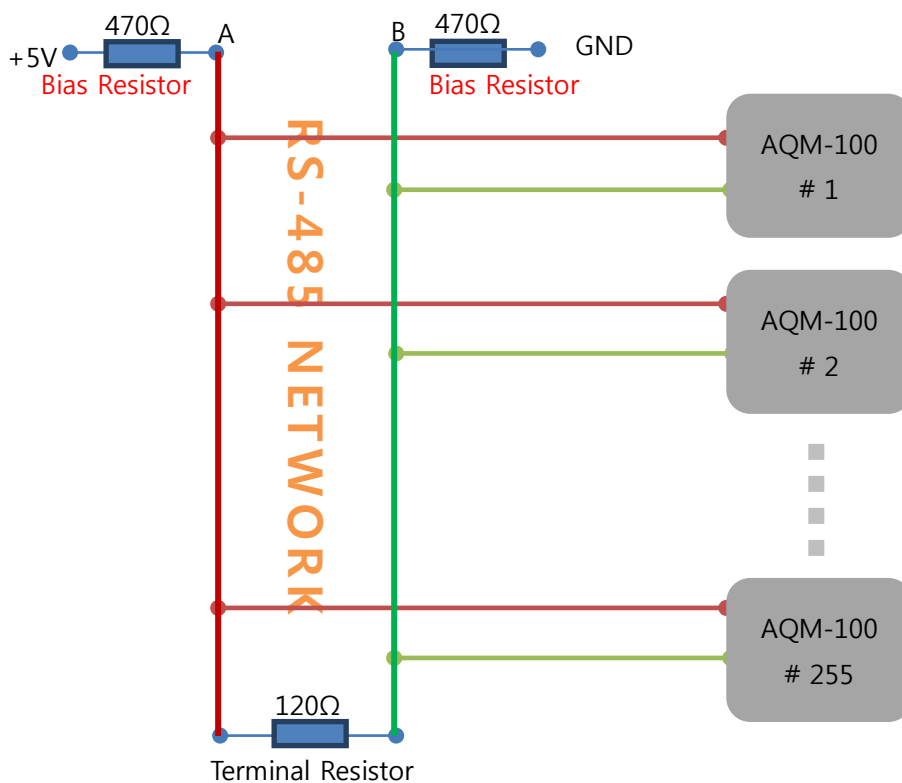
# ELT SENSOR Corp.

## 2. ID Setting of AQM-100 (SW 1)

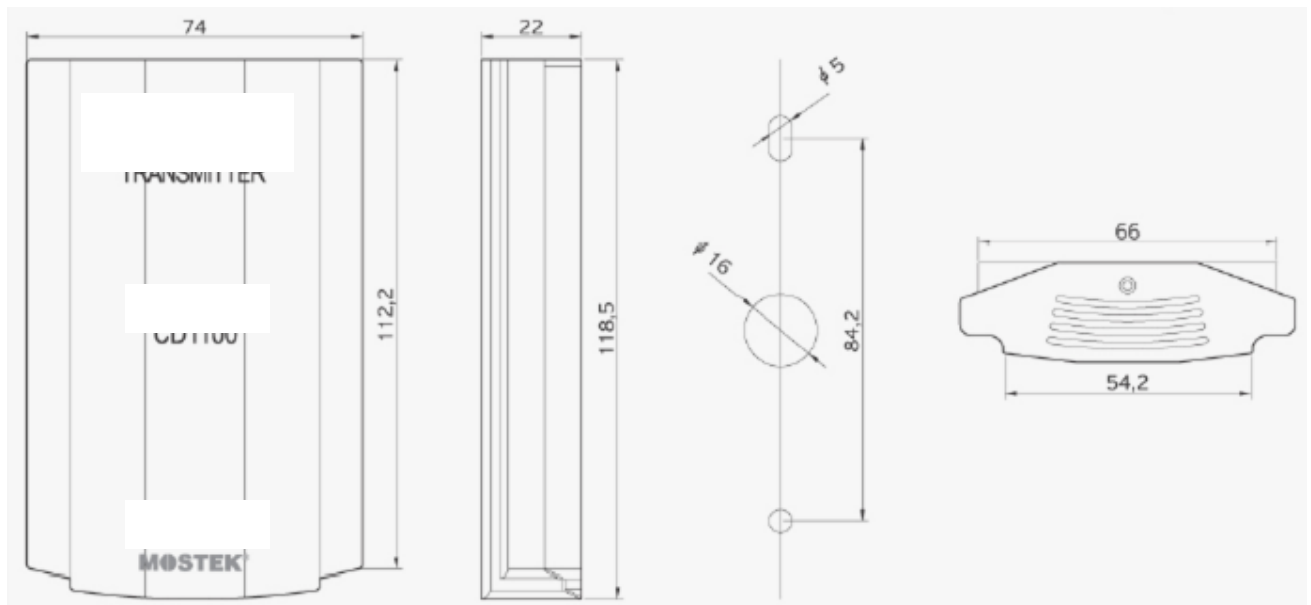


## 3. Bias Resistor.

Bias Resistor required to adjust depend on RS-485 network.



## 5. Dimensions



## Ordering Code with Option selection.

Model	Temp.& Humidity	Note
AQM-100	X	RS232 or RS485
AQM-100M	X	'M' : RS485-Modbus only
AQM-100(M)V	X	'V' : VOCs
AQM-100(M)-HT	O	$\pm 4\%$ RH (10%~ 90%RH) $\pm 7\%$ RH (under 10%~ over 90%)
AQM-100(M)V-HT	O	



## ◆ APPENDIX

DIP No.	OFF	ON(address)
1	<input type="checkbox"/>	1
2	<input type="checkbox"/>	2
3	<input type="checkbox"/>	4
4	<input type="checkbox"/>	8
5	<input type="checkbox"/>	16
6	<input type="checkbox"/>	32
7	<input type="checkbox"/>	64
8	<input type="checkbox"/>	128

### 1. DIP SWITCH Address Settings

#### Address #1

	OFF	ON
1		■
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

#### Address #2

	OFF	ON
1	<input type="checkbox"/>	
2		■
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

#### Address #4

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3		■
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

#### Address #8

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

#### Address #16

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5		■
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

#### Address #32

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6		■
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #64**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7		<input checked="" type="checkbox"/>
8	<input type="checkbox"/>	

**Address #128**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8		<input checked="" type="checkbox"/>

## 2. DIP SWITCH Examples (Address #1~#24)

**Address #1**

	OFF	ON
1		<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #2**

	OFF	ON
1	<input type="checkbox"/>	
2		<input checked="" type="checkbox"/>
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #3**

	OFF	ON
1		<input checked="" type="checkbox"/>
2		<input checked="" type="checkbox"/>
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #4**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #5**

	OFF	ON
1		<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #6**

	OFF	ON
1	<input type="checkbox"/>	
2		<input checked="" type="checkbox"/>
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #7**

	OFF	ON
1		■
2		■
3		■
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #8**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #9**

	OFF	ON
1		■
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #10**

	OFF	ON
1	<input type="checkbox"/>	
2		■
3	<input type="checkbox"/>	
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #11**

	OFF	ON
1		■
2		■
3	<input type="checkbox"/>	
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #12**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3		■
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #13**

	OFF	ON
1		■
2	<input type="checkbox"/>	
3		■
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #14**

	OFF	ON
1	<input type="checkbox"/>	
2		■
3		■
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #15**

	OFF	ON
1		■
2		■
3		■
4		■
5	<input type="checkbox"/>	
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #16**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #17**

	OFF	ON
1		<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #18**

	OFF	ON
1	<input type="checkbox"/>	
2		<input checked="" type="checkbox"/>
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #19**

	OFF	ON
1		<input checked="" type="checkbox"/>
2		<input checked="" type="checkbox"/>
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #20**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #21**

	OFF	ON
1		<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #22**

	OFF	ON
1	<input type="checkbox"/>	
2		<input checked="" type="checkbox"/>
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #23**

	OFF	ON
1		<input checked="" type="checkbox"/>
2		<input checked="" type="checkbox"/>
3		<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	

**Address #24**

	OFF	ON
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4		<input checked="" type="checkbox"/>
5		<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	