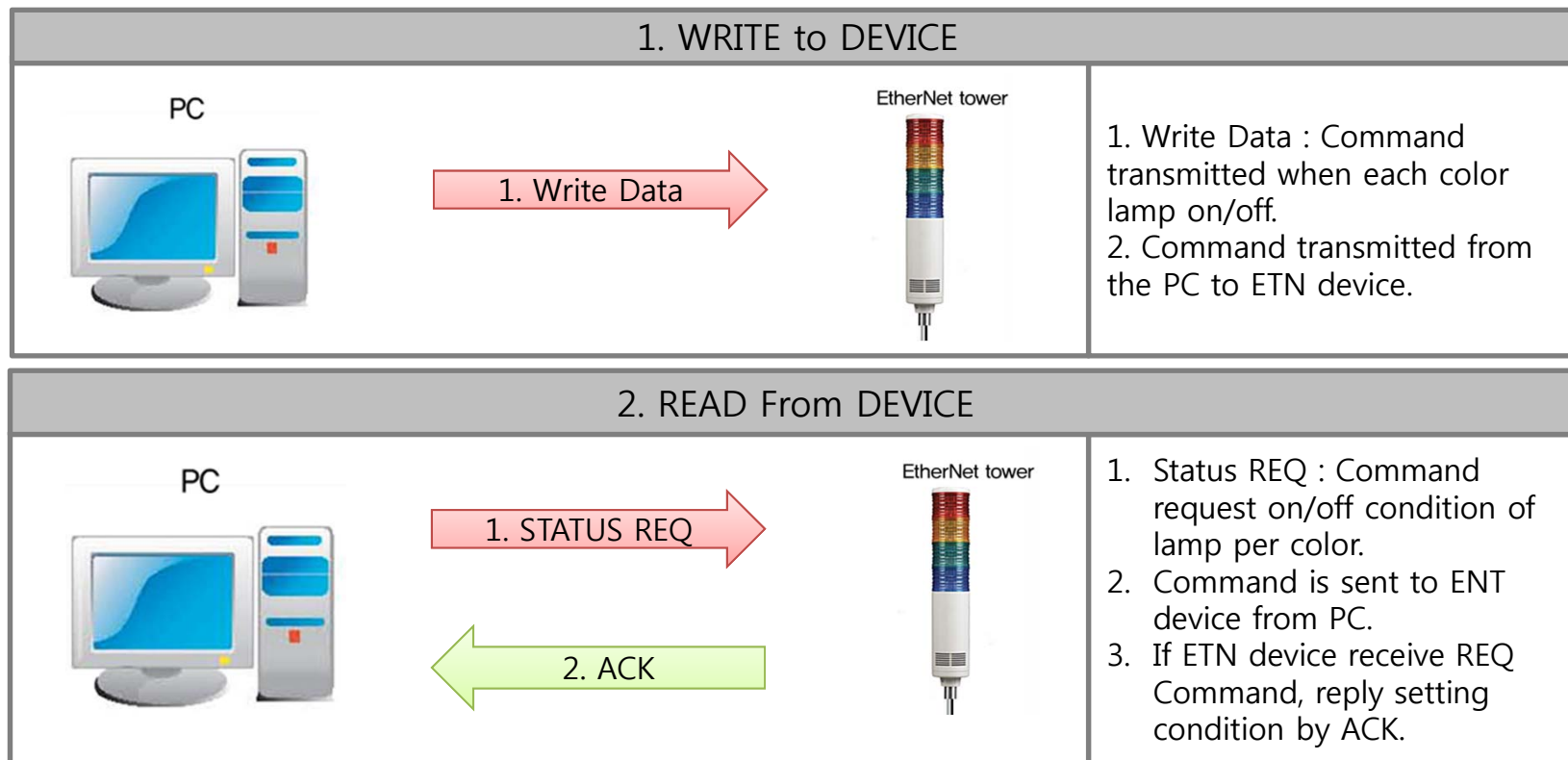


Socket Program

1. What is Socket Program?

Network programming is the implementation of the program for the data communication between host PC. Connection device is necessary and such functional device is socket. Generally socket programming and network programming is used as same meaning.

The Library supplied by Signaworks is also made as library for convenient using of socket program. Below is Signaworks Tower Lamp communication Sequence.



Socket Data Format

As below are necessary DATA FORMAT when socket programming, they necessary data for development of program.

Protocol to Signaworks Lamp Data									
* Total 10byte Send and Receive									
	R/W	Type	Red	Yellow	Green	Blue	White	Sound	Spare
	1byte	1byte	5byte(0 : Off, 1 : On, 2 : Blink)					1byte	2byte
PC->Lamp(write)	' W '	0~4	0~2	0~2	0~2	0~2	0~2	0~5	2byte
PC->Lamp(read)	' R '	0~4	0~2	0~2	0~2	0~2	0~2	0~5	2byte
Lamp->PC(ACK)	' A '	0~4	0~2	0~2	0~2	0~2	0~2	0~5	2byte

■ Example(PC -- > LAMP write data example 10 byte)

Send Byte 0 - 0x57 (W)

Send Byte 1 - Type

(0x00 ~ 0x04 : TYPE(Sound group Select)

0 : Sound 5ea Model --- Generally use model

0-4: Sound 25ea Model(5*5) --- Special use model

*** ETNB Model : Set point of type is not limited(Default setting).**

Send Byte 2 - Red

(0x00:Off, 0x01:On, 0x02:Blink, else Don't care)

Send Byte 3 - Yellow

(0x00:Off, 0x01:On, 0x02:Blink, else Don't care)

Send Byte 4 - Green

(0x00:Off, 0x01:On, 0x02:Blink, else Don't care)

Send Byte 5 - Blue

(0x00:Off, 0x01:On, 0x02:Blink, else Don't care)

Send Byte 6 - White

(0x00:Off, 0x01:On, 0x02:Blink, else Don't care)

Send Byte 7 - Sound

(0x00:Off, 0x01 ~ 0x05:Sound Select, else Don't care)

Send Byte 8 - Spare0

(0x00)

Send Byte 9 - Spare1

(0x00)

Write Data(PC->DEVICE)

Below table is explaining about DATA sent to DEVICE from PC.

LAMP SEETING										
Product :	Ethernet Device						Issue Date:	2012.12.15		
Corp.	Signaworks						Revision No.	R01		
PC to ETN DEVICE										
Byte No.	ABB	7Bit	6Bit	5Bit	4Bit	3Bit	2Bit	1Bit	0Bit	Size(Byte)
0	Write	1. As it means sending of DATA to ETN Device from PC, send 'W'=0x57.								1
1	Sound Group	1. Field for Sound group 1) 0x00 : WS(5 Warning Sounds) *In case of ETNB (built-in buzzer type), no setting meaning.(set as 0x00) 2) 0x01 : WP(Special 5 Warning Sounds) 3) 0x02 : WM(5 sounds of melody) 4) 0x03 : WA(5 sounds of alarm) 5) 0x04 : WB(Play buzzer sound) 2. It composed in Group of 5 kinds, and channel per Group is 1ch ~ 5ch.								1
2	R LAMP	1. Red lamp setting in this field. 2. Regulations 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
3	A LAMP	1. Red lamp setting in this field. 2. Regulations 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
4	G LAMP	1. Green lamp setting in this field. 2. Regulations 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
5	B LAMP	1. Blue lamp setting in this field. 2. Regulations 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
6	W LAMP	1. White lamp setting in this field. 2. Regulations 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
7	SOUND CH	1. CHANNEL FIELD 2. Regulations 1) If input of 1~5, sound is different per sound tone group.(0x00 : SOUNF OFF, 0x01~0x05 : SOUND ON)								1
8	SPARE	SPARE								1
9	SPARE	SPARE								1

Read Data(PC->DEVICE)

Below table is DATA FORMAT used when request the condition to DEVICE from TC.

READ STATUS										
Product :	Ethernet Device							Issue Date:	2012.12.15	
Corp.	Signaworks							Revision No	R01	
PC to ETN DEVICE										
Byte No.	ABB	7Bit	6Bit	5Bit	4Bit	3Bit	2Bit	1Bit	0Bit	Size(Byte)
0	READ	1. As it means to send STATUS DATA to ETN Device from PC, send 'R'=0x52.								1
1	Sound Group	Not available								1
2	R LAMP									1
3	A LAMP									1
4	G LAMP									1
5	B LAMP									1
6	W LAMP									1
7	SOUND CH									1
8	SPARE	SPARE								1
9		SPARE								1

ACK Data(DEVICE->PC)

Below table is the Data Format to answer about request of condition data

ACKNOWLEDGE										
Product : Ethernet Device								Issue Date:		2012.12.15
Corp. Signaworks								Revision No.		R01
ETN DEVICE to PC										
Byte No.	ABB	7Bit	6Bit	5Bit	4Bit	3Bit	2Bit	1Bit	0Bit	Size(Byte)
0	Write	1. As it means to send ACK about REQ to PC from ETN Device, send 'A'=0x41.								1
1	Sound Group	1. There are Group data set at present 1) 0x00 : WS(5 Warning Sounds) *ETNB Product (built-in buzzer) 2) 0x01 : WP(Special 5 Warning Sounds) 3) 0x02 : WM(5 sounds of melody) 4) 0x03 : WA(5 sounds of alarm) 5) 0x04 : WB(Play buzzer sound)								1
2	R LAMP	1. Satus of red lamp 2. Specification 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
3	A LAMP	1. Satus of amber lamp 2. Specification 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
4	G LAMP	1. Satus of green lamp 2. Specification 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
5	B LAMP	1. Satus of blue lamp 2. Specification 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
6	W LAMP	1. Satus of white lamp 2. Specification 1) 0x00 : LAMP OFF, 2) 0x01 : LAMP BLINK(ON/OFF), 3) 0x02 : LAMP ON, 4) Else : N/A								1
7	SOUND CH	1. Field for a specific channel group. 2. Specification 1) If input of 1~5, sound per sound tone group will be different.(0x00 : SOUNF OFF, 0x01~0x05 : SOUND)								1
8	SPARE	SPARE								1
9		SPARE								1