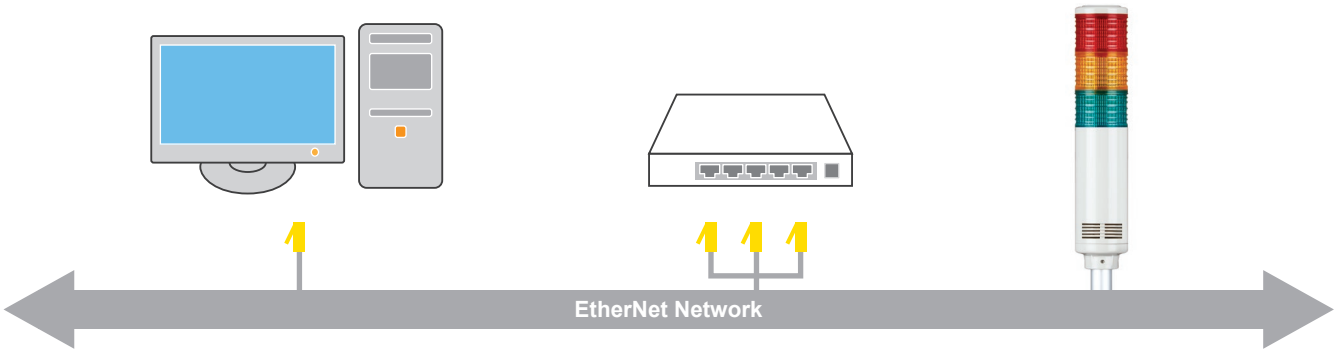
Controllable LED tower light connected to the application program in the PC using a PC and ETN(Ethernet) interface



- ETN tower light is a controllable LED tower light connected to the application program in the PC using a PC and ETN(Ethernet) Interface.
- You can monitor or control the product from a remote location because it is controllable by using a web browser or application on a PC.
- Provides MS runtime libraries for developers(VC ++, VB, Delphi(32bit), c#(64bit)) to utilize on various applications of a PC, and a sample program (VC++) is available for testing purpose.
- Supported OS(32bit 64bit) : Windows XP, Windows 7, Windows 10
- Supported Program : VC++, VB, Delphi(32bit only), C#(64bit only
- Communication speed : 10M/ half duplex method

※ The figure below shows the connection of the ETN tower light.



1. What is Ethernet?

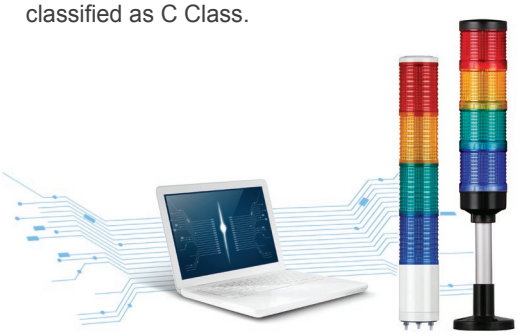
Ethernet is the most popular physical layer LAN technology in use today. It defines the number of conductors that are required for a connection, the performance thresholds that can be expected, and provides the framework for data transmission. A standard Ethernet network can transmit data at a rate up to 10 Megabits per second (10 Mbps). The Institute for Electrical and Electronic Engineers developed an Ethernet standard known as IEEE Standard 802.3. This standard defines rules for configuring an Ethernet network and also specifies how the elements in an Ethernet network interact with one another. By adhering to the IEEE standard, network equipment and network protocols can communicate efficiently.

2. What is TCP/IP Protocol?

TCP/IP (Transmission Control Protocol/Internet Protocol) is the basic communication language or protocol of the Internet. It can also be used as a communications protocol in a private network (either an intranet or an extranet)
TCP/IP is a two-layer program. The higher layer, Transmission Control Protocol, manages the assembling of a message or file into smaller packets that are transmitted over the Internet and received by a TCP layer that reassembles the packets into the original message. The lower layer, Internet Protocol, handles the address part of each packet so that it gets to the right destination. Each gateway computer on the network checks this address to see where to forward the message. TCP/IP communication is primarily point-to-point, meaning each communication is from one point (or host computer) in the network to another point or host computer.

3. IP Address format

The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 203.172.12.7 could be an IP address. An IP address is divided into network address and computer address, and classified as Class A, B, C, D, and E depending on the size of the network or the number of host. Of these, only Class A, B, C are given to a general user.
The IP address what we are about to test is classified as C Class.



192	.	168	.	0	.	128
1st		2nd		3rd		4th

No.	Description	Command
1st	1st address, Classes are A,B,C,D,E. A CLASS : Large network B CLASS : Large network C CLASS : Small network(private IP) D CLASS : Multi cast(use in designated group) E CLASS : Stand by	A CLASS address : 1-127 B CLASS address : 128-191 C CLASS address : 192-223 D CLASS address : 224-239 E CLASS address : 240-255
2nd	2nd address, Being Network ID or Host ID depending on 1st Address	
3rd	3rd address, Being Network ID or Host ID depending on 1st Address	
4th	4th address, Being Network ID or Host ID depending on 1st Address	

IP address assignment by class

GROUP	1st address	2nd address	3rd address	4th address
A CLASS	1-127	0.0.0-255.255.255		
B CLASS	128.0-191.255		0.0-255.255	
C CLASS	192.0.0-223.255.255			0-255

4. What is MAC Address?

MAC address (Media Access Control) is a global unique identifier assigned to network devices. In other words, you can use the Mac Address IP address to find a separate devices. It delivers Data Packet just like a postman delivers a letter.
So what would be the difference between IP address and Mac address? Both IP address and MAC address are the address of its destination. IP address is simply the address while Mac address is a social security number of people living in the house IP address can be changed dynamically, but Mac address only has one unique address per device.

- Mac Address : an address for computers to communicate with each other, and there is no other PC that has a same Mac Addr as yours.
- IP Address: needed routing when other computers are searching for your computer address, that is an address of your computer for others to search.

An IP address is assigned to every device on a network so that device can be located on the network. The internet is a network, and Every device on an TCP/IP network must have a unique IP address. IP addresses are assigned, either automatically by DHCP, or by manual configuration. That number is used by the network routing equipment so that when you ask for a page from the site, that request is routed to the right server. MAC addresses are typically used only to direct packets in the device-to-device portion of a network transaction. That means that your computer's MAC address will be in network packets only until the next device in the chain. If you have a router, then your machine's MAC address will go no further than that. Your router's MAC address will show up in packets sent further upstream, until that too is replaced by the MAC address of the next device.

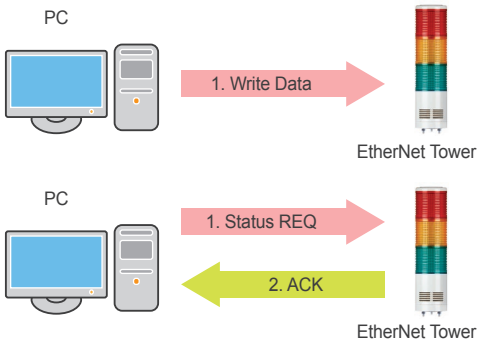
5. What is PORT?

A port (noun) is a "logical connection place" and specifically, using the Internet's protocol and TCP/IP, the way a client's program specifies a particular server program on a computer in a network. Higher-level applications that use TCP/IP such as the Web protocol, Hypertext Transfer Protocol, have ports with preassigned numbers. These are known as "well-known ports" that have been assigned by the Internet Assigned Numbers Authority (IANA). Other application processes are given port numbers dynamically for each connection. When a service (server program) initially starts, it is said to be bound to its designated port number. As any client's program wants to use that server, it also must request to bind to the designated port number.
Port numbers are from 0 to 65535. Ports 0 to 1024 are reserved for use by certain privileged services. For the HTTP service, port 80 is defined as a default and it does not have to be specified in the Uniform Resource Locator.

6. What is Socket Program?

It is to implement a program to send and receive data between host PCs that are apart from each other in network programming. However, the connection between host PCs are far away so a device is that has a feature of connecting the two at a software level is required, and that device is the socket. Generally, the terms “socket programming” and “network programming” have the same meaning. We have provided a library file for users so that they can easily use the socket program.

※ The figure below show the sequence of our ETN Tower Lamp.



1. WRITE to DEVICE
1.Write Data: A command sent when turning on/off each lamp 2.The command is sent from PC to ETN device

2. READ from DEVICE
1.Status REQ: A requesting command for turning on/off each lamp 2.The command is sent from PC to ETN device 3.When the ETN device receives a REQ Command it sends the setting status of each lamps using ACK.

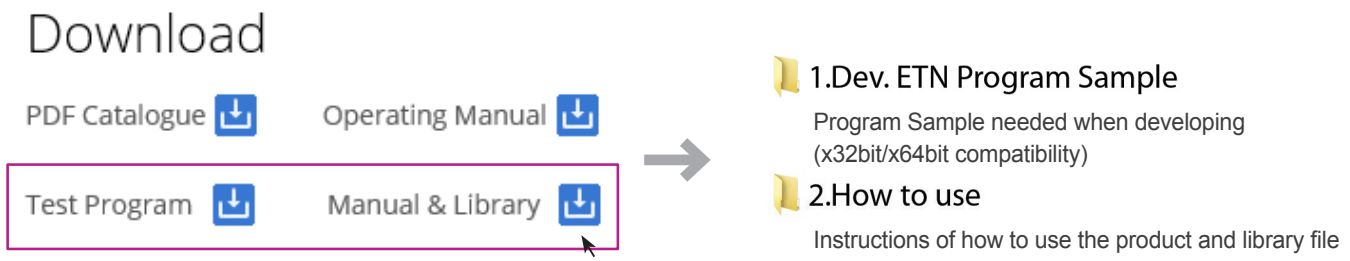
7. Applying the Ethernet Device

1. Proceed to check the current network and the assigned IP address of your PC.
Start(run) -> CMD – ipconfig/all

```
Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.10.101
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.10.1
```

2. Because the ETN tower light is connected to a hub with the PC that is same as the picture on the front page, ETN tower light and the PC are now connected with the same network.
3. Download the library file, test programs and manuals from the CD provided or from our website.
4. When you unzip the file, there will be a file with the same name below. The instructions are listed inside the file.



5. When you unzip “ETN TEST PROGRAM.zip” file, following folders are created.

1.ETN Test Program

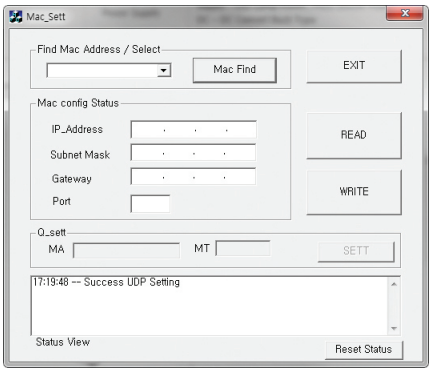
A program for setting IP before testing the ETN device

2.IP Set Program

A program for setting testing the ETN device

6. Run the “Mac_Setting.exe” program that is inside the IP Set Program Folder .

- When the program is running such as the right figure, click the “Mac Find” button in the “Find Mac Address / Select” section
- MAC Address of the connected device appears when you click the Device List combo box . (If the Mac Addr does not appear, make sure that the connection status or the power supply is functional and then retry.)
- Select the MAC Addr of the device you want to change, and then click on the “Read” button.
- Check the information and settings from the “Mac config status”
- Set the value of users network information identified in the previous chapter (subnet mask, gateway) in each text box, and set a different IP_Addr than your PC
  Apply the settings by pressing the Write button
- The port is set to “20000“by default and the port number can be changed if necessary
- Reconnect After Disconnecting the power from the tower light.



7. ETN Test Program Files folder includes the followings.

QLight_Lamptest_TCP.exe

Test Program

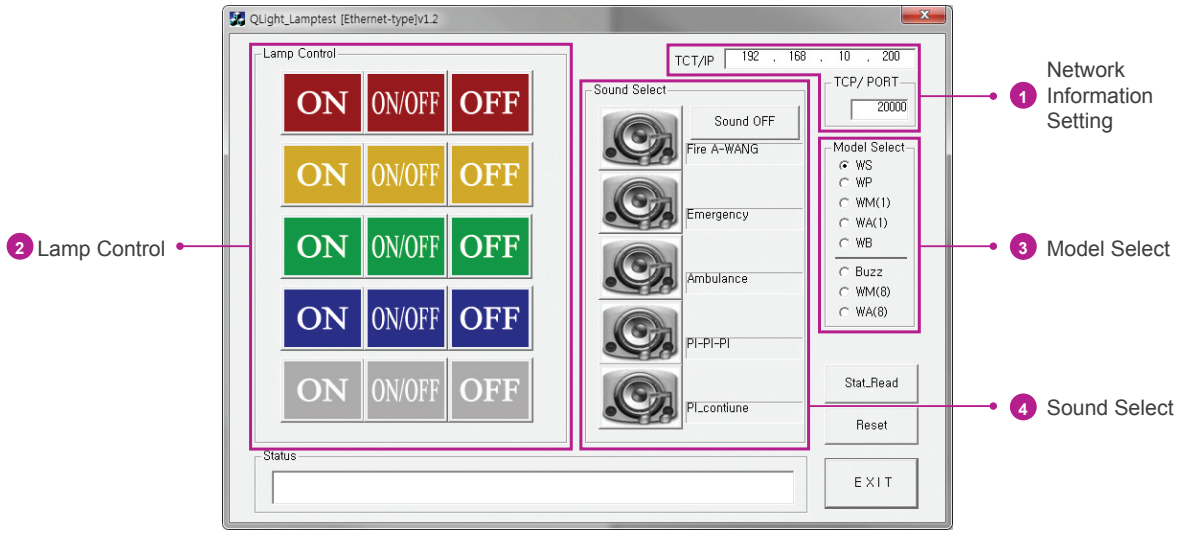
QTvc_dll.dll

Library required for the test program

8. Run the “QLight_Lamptest_TCP” program.

Article	Detailed specification
1 Network Information Setting	- Input port on TCP/PORT and IP address on TCP/IP that set on Ethernet tower lights
2 Lamp Control	- ON : Click the button Lamp ON - ON/OFF : Click the button Lamp Flash - OFF : Click the button Lamp OFF
3 Model Select	- WS : 5 warning sounds(mono) - WP : 5 special warning sounds(mono) - WM(1) : 5 Melodies(mono) - WA(1) : 5 alarms(mono) - WB : Software Buzzer 5 sounds(speaker type) - Buzzer : 5 Buzzer sounds - WM(8) : 5 Melodies(8 chord) - WA(8) : 5 alarms(8 chord)
4 Sound Select	- Select 5 sounds based on model which is fixed on “Model select

• User can select appropriate sound pattern by using ‘Model select’ menu. There’re WS, WP, WM, WA and WB sound patterns and user can choose the option when placing order.



QTC60(M)L-ETN

Ø60mm Ethernet LED Tower Lights

IP54 IP65 -30→50℃ BUZZER 90dB RoHS

Remote control through internet or local area network





QTC60(M)L-ETN

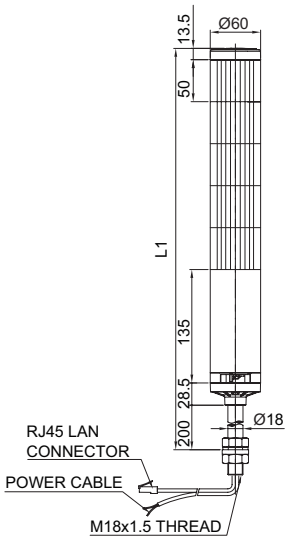
QTC60(M)L-ETN Ø60mm Ethernet Tower Light

Model number	Layer	Voltage	Current	Certificate	Color
QTC60(M)L-ETN-BZ QTCA60(M)L-ETN-BZ	1	DC12V DC24V AC110V-220V	0.245A 0.155A Max. 0.070A	-	● R-Red
	2	DC12V DC24V AC110V-220V	0.335A 0.200A Max. 0.090A		● R-Red ● G-Green
	3	DC12V DC24V AC110V-220V	0.425A 0.245A Max. 0.110A		● R-Red ● A-Amber ● G-Green
	4	DC12V DC24V AC110V-220V	0.515A 0.290A Max. 0.130A		● R-Red ● A-Amber ● G-Green ● B-Blue
	5	DC12V DC24V AC110V-220V	0.605A 0.335A Max. 0.150A		● R-Red ● A-Amber ● G-Green ● B-Blue ● W-White

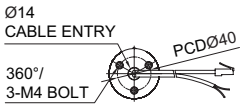
Technical Diagram

(Units : mm)

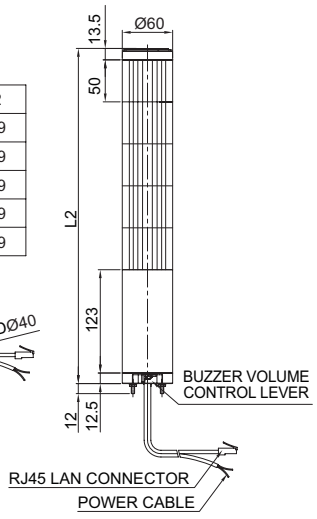
QTC(A)60L-ETN-BZ



LAYER	L1	L2
1	435	199
2	485	249
3	535	299
4	585	349
5	635	399



QTC(A)60ML-ETN-BZ



Mounting Bracket

Standard	LB18	LW18	QZ18
			
Steel	Steel	PC	PC

SZ18	QL18	QLA18
		
Al	PC	PC

※ Please refer to page 162-167 for detailed dimensions.

Customization

- Customized color arrangement available
- Customized pole length available
- Wall mount bracket available



Wall Mount Bracket **TWS45**



Wall Mount Bracket **TWA45**

Wiring Instructions

- Apply properly rated voltage through the POWER CABLE
- Connect the RJ45 connector of the UTP cable into the PC's Ethernet port or router
- External power line standard : UL1015 AWG18(0.75sq)×2C 400mm
- Power plug will be provided in case of AC type
- UTP cable : Category 5 cable

Ordering Specification

QTC60L-ETN-BZ	-	3	-	24	-	RAG	-	LW18
[Model number]		[Layer]		[Voltage]		[Color]		[Mount bracket]
• QTC60L-ETN-BZ • QTC60ML-ETN-BZ • QTCA60L-ETN-BZ • QTCA60ML-ETN-BZ		• 1-1 layer • 2-2 layers • 3-3 layers • 4-4 layers • 5-5 layers		• 12-DC12V • 24-DC24V • 110/220 -AC110V-220V		● R-Red ● A-Amber ● G-Green ● B-Blue ● W-White		• None -Standard • Bracket -LB18 -LW18 -QZ18 -SZ18 -QL18 -SL18 -QLA18