

M4 USB Signal Tower Light

User Manual

USB Serial Port Protocol Control · Multi-Layer Multi-Color Warning Light

Product Model:

M4

Red / Yellow / Green · USB 5V DC · CH340 Virtual COM Port · Built-in Buzzer

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1. PRODUCT OVERVIEW

The M4 is a multi-layer, multi-color warning light (signal tower light) that is powered and controlled through one single USB cable. Instead of a PLC output or a manual switch, the lamp is driven by short hexadecimal commands sent from a PC over a virtual serial port. Three stacked high-brightness LED layers (red, yellow and green) show machine status at a glance, and the built-in buzzer adds an audible alarm.

Typical users: machine builders, test engineers, automation integrators and server-room operators. Applications include CNC machines, test benches, server racks, network cabinets, production lines and call stations.

2. TECHNICAL SPECIFICATIONS

Parameter	Value
Model	M4
Product type	USB serial port protocol control multi-layer multi-color warning light
Light colors	Red / Yellow / Green, one color per light layer
Number of light layers	3 light layers; buzzer is built in and does not use a light layer
Power supply	USB 5V DC, USB Type-A connector
Interface	USB to serial converter, CH340 chipset, virtual COM port
Serial parameters	9600 bps, None parity, 8 data bits, 1 stop bit
Protocol frame	0xFF + working mode + buzzer mode + flash frequency + 0xAA (5 bytes)
Working mode byte	0x01 lights off / 0x02 green / 0x03 yellow / 0x04 red
Buzzer mode byte	0x01 buzzer off / 0x02 buzzer on (built-in buzzer)
Flash frequency byte	0x01 no flash / 0x02 0.85 s / 0x03 1.7 s / 0x04 2.5 s per flash
Example command	FF 02 01 01 AA (green light, buzzer off, no flash)
Return value	Identical to the command sent
Debug software	Serial Port Debugging Assistant (commassistent.exe) or any serial terminal
LED life	Long life, low power consumption
Mounting	Screw holes on the lamp base; bracket and screws NOT included
Operating temperature	-20 °C to +50 °C (indoor use)
Certification	CE
Warranty	1 year

Mounting bracket and screws are NOT included - please prepare hardware suited to your mounting surface.

3. PACKAGE CONTENTS

1 x M4 USB warning light (USB cable attached)

NOTE: The mounting bracket and the mounting screws are NOT included in the package. Please prepare hardware suited to your mounting surface.

1 x User manual

4. INSTALLATION INSTRUCTIONS

Step 1 - Confirm the supply: the lamp is powered from the USB port (5V DC). No external power supply or adapter is needed.

Step 2 - Choose the location and mount the lamp: fix it to the panel or machine frame through the screw holes of its base, using screws suited to your surface (bracket and screws are NOT included in the package).

Step 3 - Plug in: insert the USB Type-A connector into a free USB port of the PC. On most Windows 10/11 systems the CH340 driver installs automatically; a "USB-SERIAL CH340 (COMx)" entry then appears in Device Manager.

Step 4 - Identify the COM port: open Device Manager > Ports (COM & LPT) and note the COM number, for example COM7.

Step 5 - Test: open the serial tool, select the same COM port with 9600, N, 8, 1, tick the hexadecimal option, type the command in the send box and click Send. The lamp must respond immediately.

5. WIRING DIAGRAM

NOT APPLICABLE - the lamp has no screw terminals. Power and control are both carried by the USB cable. AC supply: NOT USED. DC supply: 5V DC from the USB port (VBUS).

USB Type-A pin	Function
1 VBUS	+5V DC power
2 D-	USB data line (serial RX / TX pair)
3 D+	USB data line (serial RX / TX pair)
4 GND	Ground

Command reference (hexadecimal)

Byte	Function	Values
1	Command header	0xFF (fixed)
2	Working mode	0x01 off / 0x02 green / 0x03 yellow / 0x04 red
3	Buzzer mode	0x01 off / 0x02 on
4	Flash frequency	0x01 off / 0x02 0.85 s / 0x03 1.7 s / 0x04 2.5 s
5	Command tail	0xAA (fixed)

Example: sending FF 02 01 01 AA turns the green layer on, keeps the buzzer off and sets no flashing. The return value is identical to the command sent. Any serial terminal can be used as long as the port is set to 9600, N, 8, 1 and the hexadecimal option is enabled.

6. COLOR STATUS RECOMMENDATIONS

GREEN — Normal: machine running, process OK

YELLOW — Warning: standby, attention required

RED — Fault: alarm, machine stopped

The built-in buzzer (0x02) can be switched on together with any of the above colors for an audible alarm. It is mounted inside the lamp body and does not occupy a light layer.

7. MAINTENANCE AND CARE

Wipe the lamp with a soft dry or slightly damp cloth. Do not use solvents or abrasives.

Keep the lens free of dust, oil mist and chips so brightness stays constant.

Do not overload the USB port; use a powered hub if the port is shared with other devices.

Close the control software before unplugging the USB cable.

Check the fixing screws periodically for tightness (screws are not supplied).

Store in a dry place between -10 °C and +60 °C, away from direct sunlight.

8. SAFETY WARNINGS

Use a standard USB port (5V DC) only. Never connect the lamp to mains voltage.

Do not open or modify the lamp - there are no user-serviceable parts inside.

Do not install on live equipment. Switch off the machine before fixing the lamp.

Do not immerse the lamp in water. Indoor use only.

Keep the cable away from heat sources, sharp edges and moving machine parts.

Installation must be carried out by qualified personnel.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
Lamp not lit	USB not fully inserted / wrong COM port / Re-select the USB plug, re-check the COM number, send FF 02 01 01	
No COM port in Device Manager	CH340 driver not installed	Reinstall the CH340 driver or try another USB port
Command sent, no reaction	Serial settings wrong / Hex not ticked / wrong baud rate	Set 9600, N, 8, 1, tick Hexadecimal, re-select the port
Wrong color lit	Wrong working mode byte	0x02 green, 0x03 yellow, 0x04 red
Lamp flickers or dims	USB port current limited / long cable	Use another port or a powered USB hub
Buzzer does not sound	Buzzer byte = 0x01	Send 0x02 to switch the built-in buzzer on
No return value displayed	Receive window disabled in the tool	Enable receive / display in the software

10. WARRANTY POLICY

One-year limited warranty from the date of purchase, covering manufacturing defects in materials and workmanship.

Covers: repair or replacement of defective units.

Does NOT cover: damage caused by incorrect supply voltage, water ingress, dismantling or modification, and normal wear of the LED and cable.

Warranty service requires the original order number.

11. AFTER-SALES SERVICE

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