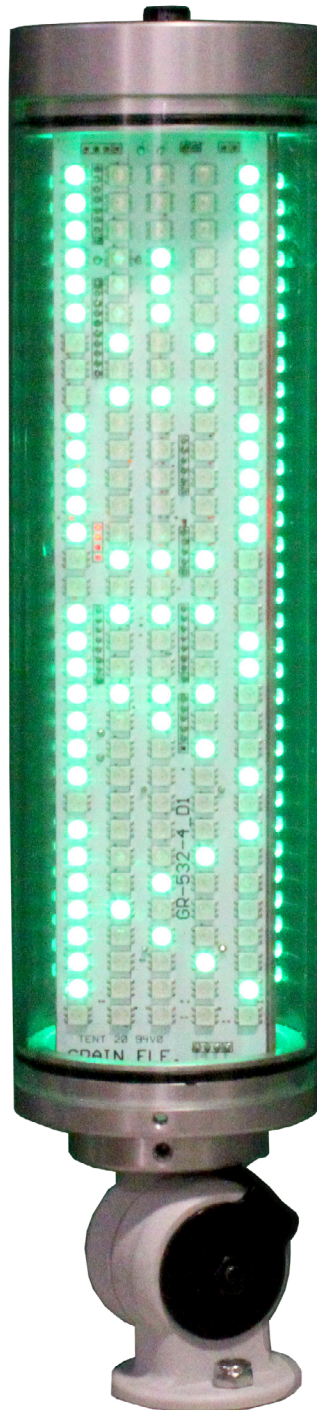


LYNDEX-NIKKEN

OPERATION MANUAL FOR EZ-SMARTTOWER

Wi-Fi Enabled Machine Light Tower with Data Collection



This manual outlines proper installation and setup of the Grain EZ-SMARTTOWER.

Document Information

- **Product Name:** EZ-SMARTTOWER
- **Version:** [v2.0]
- **Date:** [2/13/2026]
- **Prepared By:** [Lyndex-Nikken]
- **Intended Users:** Operators, Supervisors, Maintenance Managers

1. Introduction

1.1 Purpose of This Manual

This manual provides instructions for the **installation, configuration, operation, and monitoring** of the Wi-Fi or ethernet enabled machine light tower system. The system visually communicates machine status using color indicators and collects operational data for management tracking.


1.2 System Overview

The light tower:





- Displays machine status using color indicators.
 - Green:** Normal operation
 - Yellow:** Machine waiting
 - Red:** Fault or downtime
 - Connects to a **Wi-Fi network or ethernet.**
 - Sends data to **monitoring software** for:
 - Machine uptime tracking
 - Part count reporting
 - Machining issue logging
-

2. Safety Information

2.1 Important Safety Notice




Installation and setup must be performed by qualified personnel familiar with industrial equipment and workplace safety standards. 

2.2 General Safety Guidelines

- Follow all facility **lockout/tagout** procedures. 
- Do not install our service while machinery is operating. 
- Comply with local electrical and safety regulations. 
- Use appropriate personal protective equipment (PPE) 

2.3 Warning Symbols

Symbol Meaning

-  Potential hazard
-  Valuable information
-  Best practice

3. System Components

3.1 Included Components


- Light tower assembly (Red / Yellow / Green)
- Mounting Base
- Control module
- Wi-Fi communication module
- Software access

3.2 Required (Not Included)

- Approved mounting surface
- Facility network access
- Computer or tablet for configuration


4. Pre-Installation Checklist

Before beginning installation:

- Machine is powered down and secured. 
- Installation location is approved and visible.
- Wi-Fi signals or ethernet are available at machine locations.
- Software is properly installed.

5. Mechanical Installation

5.1 Mounting Location

- Install the light tower in a position that is:
 - Clearly visible from the shop floor
 - Protected from physical damage or debris 
 - Not obstructing machine operation

5.2 Mounting Procedure (Overview)

1. Secure mounting base to approved surface.
2. Verify tower is stable and vertical.

Note: Follow facility mounting standards and manufacturer recommendations.

6. Electrical & Control Integration

6.1 System Connection Overview

The light tower interfaces with the machine's control signals to determine operating status. The light tower requires 24 V DC constant signal to + (positive) and - (negative).

6.2 Required Components

- CNC machine documentation (I/O and electrical diagrams)
- Proper wire (rated for 1.5A at 24 V DC)
- Terminal connectors or ferrules

6.3. Pre-Installation Checks

1. Confirm Voltage


- Verify the CNC machine provides **24 V DC control power**.
- Wires should be rated for 1.5 Amps.**

2. Identify Output Type

- CNC outputs may be:
 - ◆ Relay
 - ◆ Sinking (NPN)
 - ◆ Sourcing (PNP)

6.4. General Connection Concept (No Live Wiring)

- The CNC provides **24 V DC and 0 V (ground)** from its control power supply.
- CNC output signals **switch the light on or off**.
- Each light color has its own control input.
- A shared common (0 V or 24 V) is used depending on output type.

 Exact terminals and wire colors depend on your CNC model and must be verified in its manual.

6.5 Testing Procedure

After wiring is verified:

1. Restore CNC power.
2. Use manual output tests (if available)
3. Confirm each light activates correctly.
4. Check for:
 - No flickering
 - No error messages
 - No overheating

If anything behaves unexpectedly, power down immediately.

6.6 Signal Logic (Example)

Color	Machine Condition
Green	Running Normally
Yellow	Idle, waiting, or minor issue
Red	Fault, alarm, or downtime

Configuration must match the machine’s control logic.

7. Wi-Fi Configuration

7.1 Network Requirements

- 2.4 GHz or approved industrial Wi-Fi.
- Stable signal strength
- Security system or firewall permissions for data transmission.
- For multiple towers, a good router that can connect to multiple devices at once.
- A router based on customer requirements (signal strength, number of devices that can be connected, range of signal).

7.2 Connecting to Wi-Fi

1. Power on the light tower system
2. Hold Count Reset / WIFI Set for 10 seconds or apply 24VDC to grey reset wire.
3. Select SmartLED_XXXXXX in Available Wi-Fi networks and connect.
4. An Internet browser window should open (if window does not open, redo step 2)
5. Type in IP address you want to use also including subnet and gateway.
6. Confirm successful connection.

7.3 Connection Verification

- **Type In light towers IP address to software then press “Save Modified IP” you should see a green indicator light next to the IP address that means you are connected.**
- When Software is open, confirm connection by changing color, adding, or resetting count.
- Device appears in software dashboard when IP is input/ saved.

8. Ethernet Configuration (applies only to models with Ethernet port built in)

8.1 Hardware Requirements

- Machine light tower
- Ethernet cable (Cat5e or higher)
- Network switch, Router or Ethernet wall port.
- Configuration computer (PC or laptop)

8.2 Connection Indicators

- **Solid light: Network link established.**
- **Blinking light: Data activity present**

8.3 Connection to Ethernet network

- **Press Windows + R to open Run Window**
- **Type /cmd to open command prompt window.**
- **Type /ipconfig**
- **Make notes of Default Gateway IP # and Subnet Mask #**
- **Open Control Panel then select Network and Internet then select Network connections.**
- **Click on Ethernet Connection**
- **Double click Internet Protocol Version 4 (TCP/IPv4)**
- **Use the following IP address (S):**
 - IP address: 192.168.4.2**
 - Subnet mask: 255.255.0.0**
 - Default gateway: 192.168.4.1**

8.4 Key in your browser 192.168.4.1/setup

- **Enter setup page and start a new configuration.**

i Please ensure that the Ethernet cable is plugged into the Smart Tower wired port.

If you cannot find this settings page in your network topology, please connect your laptop's network cable directly to the Smart Tower device's Ethernet wired port without going through any router or switch. Then refresh 192.168.4.1/setup.

8.5 Configure a new static IP address and Gateway/submask. Using the configuration obtained from step 8.3

- Input new “Static IP” (example is 192.168.168.210)
- Input new “Default Gateway IP” (example is 192.168.168.1)
- Input new “Subnet Mask IP” (example is 255.255.255.0)

8.6 Setup successful

- After pressing save you should be redirected to a page with the saved IP

8.7 Change Network Card back to default DHCP (Automatic)

- Reopen Control Panel then select Network and Internet, then select Network connections.
- Click on ethernet port then Internet Protocol Version 4 (TCP/IPV4)
- Select “Obtain an IP address automatically”

8.8 Connection Verification

- Type In light towers IP address to software then press “Save Modified IP” you should see a green indicator light next to the IP address that means you are connected.
- Be sure to always change light tower color and look to see if it changes on the software side.
- If you are still not sure if connected, try /ping “IP#” in command prompt to see if your computer is connected.

9. Software Setup & Data Collection

9.1 Software Overview

The data collection software allows managers to monitor:

- Machine uptime and downtime
- Part counts per shift or job
- Frequency and type of machine issues

9.2 Initial Setup

1. There should be a USB sent with each light tower with a .ZIP file that needs to be extracted.
2. Once extracted open the folder and select GRAIN_EZ-SmartLEDTower.EXE (application).
3. Once extracted and application is opened go to the gear icon (Software Settings), this is where the Light Tower’s IP address will be added. If there is a password to extract the folder it will be PW: lyndexnikken
4. Press “Save Modified IP” once IP address has been added.
5. If everything is done correctly you should see the light tower is now green in your software.
6. Now go to “Smart Tower setting” tab. This is where you can change the name of the tower, product being made, the employee’s name or number who runs the machine and their ID Number (If applicable).
7. Configure data fields to what your company or manager requires.

9.3 Data Parameters

Parameter	Description
Uptime	Time machine is in green state
Downtime	Time in red state
Part Count	Units produced
Alerts	Logged fault events

10. Operation

10.1 Normal Operation

- Light tower automatically updates based on machine status.
- Data is transmitted continuously or at set intervals only when software is open.

10.2 Manager View

Managers can:

- View real-time machine status.
- Analyze historical performance.
- Identify recurring machining issues.

11. Troubleshooting

Issue	Possible Cause	Action
No lights	Power issue	Verify system power
No Wi-Fi	Network issue	Check signal & credentials
Incorrect color	Signal mismatch	Review configuration
Missing data	Software sync issue	Reconnect device

12. Maintenance

12.1 Routine Checks

- Inspect mounting stability.
- Confirm light visibility.
- Verify network connectivity.

12.2 Software Updates

- Apply updates as released.
- Backup data before updates.

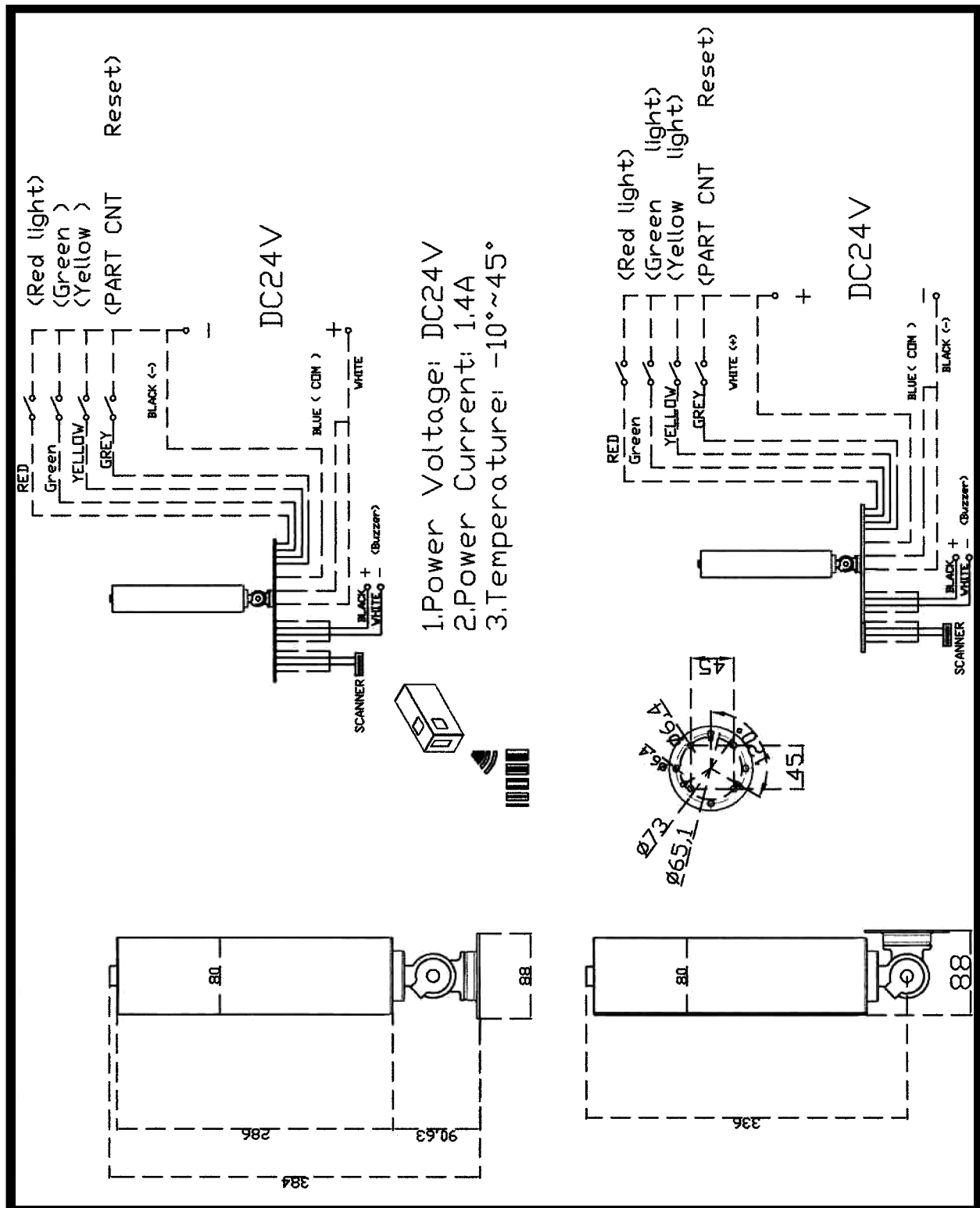
13. Technical Support

- **Support Contact:**
 - michaelr@lyndexnikken.com
 - gregk@lyndexnikken.com
- **Hours: 8am - 5pm Central Time, Monday - Friday**

14. Revision History

Version	Date	Description
1.0	1/5/2026	Initial release
2.0	2/13/2026	Minor text changes, addition of warning symbols

WIRING DIAGRAM



MODERNIZE TO GAIN A COMPETITIVE EDGE

One Smart Step at a Time

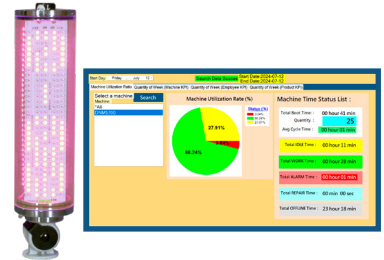
To gain a competitive edge, start by identifying the gaps in your operations that slow your efficiency, productivity, and profitability. Embracing modern, efficient solutions sets you up for success today and future-proofs your shop for tomorrow. With solutions designed to streamline operations, reduce downtime, and increase throughput, you can transform your operations - one smart step at a time.



IDENTIFY EFFICIENCY GAPS USING REAL-TIME DATA

Solution: EZ-SmartTower Machine Tracking System

- Streamline ROI analysis of CNC machines. Automate production data collection, enabling data analysis to identify bottlenecks, make improvements, increase spindle time, and enhance overall machine efficiency.



MAXIMIZE MACHINE UPTIME BY STREAMLINING TOOL SETUPS OFFLINE

Solution: Presetters

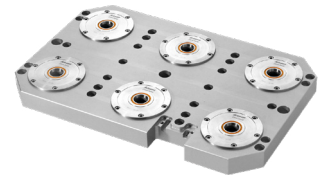
- Optimize your workflow and maintain high levels of accuracy with rock solid precision.



ENHANCE MACHINE THROUGHPUT BY MINIMIZING SET-UP AND CHANGEOVER TIME

Solution: Zero Point Clamping System

- A modern alternative to T-Slot tables, modular work holding has the flexibility and diversity to hold any workpiece while maintaining high accuracy.



IMPROVE EFFICIENCY AND MINIMIZE SKILLS GAP WITH MACHINE TENDING SYSTEM

Solution: EZ-AutoCart & EZ-Cob Machine Tending

- Ideal for high, mix low volume production, machine tending significantly boosts spindle time and enhances overall machine efficiency – NO advanced robotics skills needed.



REDUCE MANUAL INTERVENTION BETWEEN CYCLES

Solution: EZ-Bot Automatic Work Changer

- Enables efficient handling of blank parts, vises, and pallets with automatic setup to maximize CNC machine uptime while minimizing time strain on skilled workers.

