

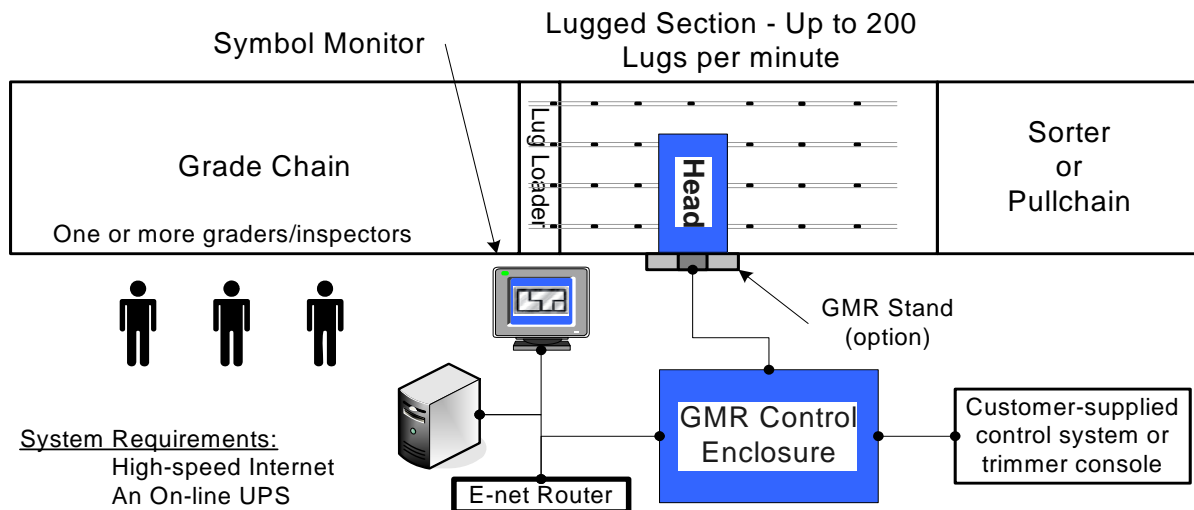


M5 GRADE MARK READER “The Best Vision System Value in the Industry”

M5 Description - Basic System

The Lucidyne M5 Grade Mark Reader (GMR) is a high-resolution vision system that reads handwritten symbols written on the face of lumber. The system interprets the symbols and converts them into instructions. These instructions are then passed to another system (trimmer or sorter control system, lumber tally system, trimmer optimizer, or other form of control).

The typical use of the basic system is as shown below. The M5 GMR head is suspended either over a section of lug chain or its lug loader to assure the boards are singulated. One or more graders are located upstream and write a single symbol on the face of a board. The symbol corresponds to a grade or to any other characteristic that the mill wishes to record. When the board passes beneath the GMR scanner head, the symbol is read and a corresponding output is enabled within the control enclosure.

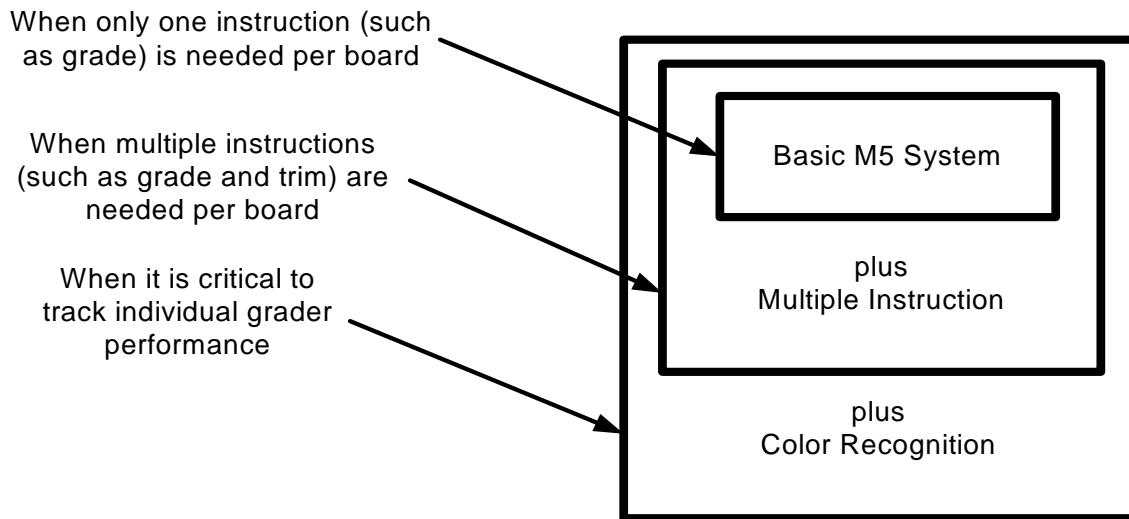


The Lucidyne M5 GMR requires the use of fluorescent crayons or chalk. These markers are available in an assortment of colors and hardness levels. Since the basic system is a symbol recognizing system, the color of the marker is disregarded. Mills can still, however, choose to assign certain colors to specific graders so that the board is visually identifiable to a particular grader. The Lucidyne M5 GMR works with virtually ALL commercially available fluorescent crayon colors.

Note: the five items (GMR Control Enclosure, PC, Router, Symbol Monitor, and the GMR “Scanner Head”) in the above drawing constitute the basic M5 GMR system.

Applications

Today more than ever, Grade Mark Readers are in high demand for they fill many roles. Lucidyne GMRs are found in sawmills on simple grading lines, in planer mills that have multiple graders, and even in the most sophisticated planer lines with fully automated grading systems. Whenever there is a need for mill personnel to tally and/or pass on instructions for individual boards, the GMR is the ideal choice. Please refer to the following applications guide designed to help you customize the basic system resulting in an M5 GMR that will fit the requirements of your mill:



As indicated in the diagram above, the basic M5 system can be enhanced with Multiple Instructions and/or Color Recognition to meet the particular needs of the mill. Multiple Instructions is a capability normally used in sawmills and planer mills that do both grading and trimming. The Color Recognition capability is typically used in mills that not only have multiple graders, but in those mills that wish to track individual grader performance. Further information on these two capabilities follows.

Multiple Instructions

The basic M5 system allows the mill to assign a single instruction (symbol) per board. For those mills that want the ability to record more than one instruction the Multiple Instruction capability is offered. This enables the GMR to read multiple symbols from each board. For example, in a planer mill where both grade and trim instructions are needed, graders can indicate the grade of the board and how the board is to be trimmed. In this case, the GMR can be wired to an existing control system or even directly to a trimmer console. Now, instead of a person pushing buttons at the console, the GMR can activate the appropriate buttons when the board passes the console. This removes the need for a trimmer operator (assuming that the trimmer is automated).

The GMR M5 features an extensive function symbol syntax, using a set of 23 characters that allows the mill to encode the following items on the lumber:

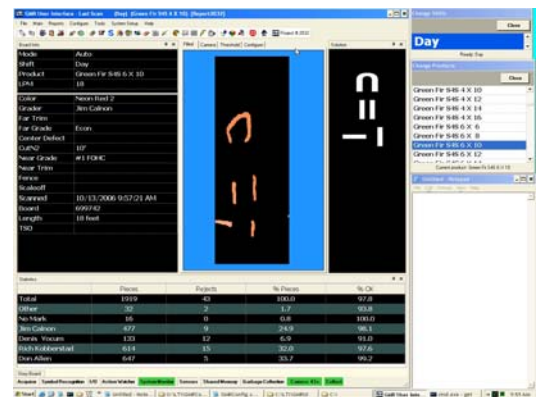
- | | |
|---------------|----------------|
| Near-end Trim | Near-end Grade |
| Far-end Trim | Far-end Grade |
| Cut-in-Two | Fence |
| Scale-off | No Trim |
| Reman | |



The symbol set will also support other processing activities. For example, specific symbols can be assigned to such functions as designating boards for “Off-Species” and “TrimSaver.” TrimSaver allows the grader to write the “dash” symbol (—) on the board exactly where the near-end saw is to cut (this capability requires a linear fence). The GMR measures the distance between the mark and the end of the board and passes that value off to the control system. The control system controls the fence movement.

Color Recognition

GMR fluorescent crayons or chalk are commercially available in an assortment of colors. Just as the GMR can record the grade and trim instructions for a particular board, it can also record who graded the board by detecting the color of the symbol(s). This capability is particularly useful when a mill wants to track individual grader performance when there are two or more graders present on a shift. Furthermore, the M5 with Color Recognition can be used as a grader trainer. A particular color can be selected for a grader trainee so that every board detected with symbols of that color can be sent to a specific bin/tray or to the pull chain for further inspection.



Symbol Monitor

By assigning a specific color crayon to each grader, the mill can, through the use of the optional Reports Package, identify each grader’s grade recovery and trim loss performance.

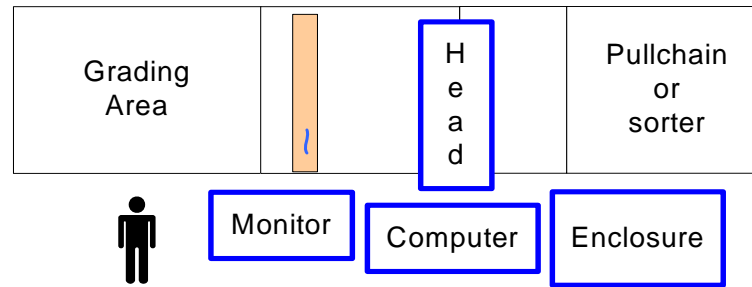
Features

Application

Benefits

M5 Basic System

- ☐ Reads one symbol per board
- ☐ Output instruction to tally system
- ☐ New LED light array
- ☐ One or more graders
- ☐ Diagnostics
- ☐ Automatic threshold settings
- ☐ Automated gain settings

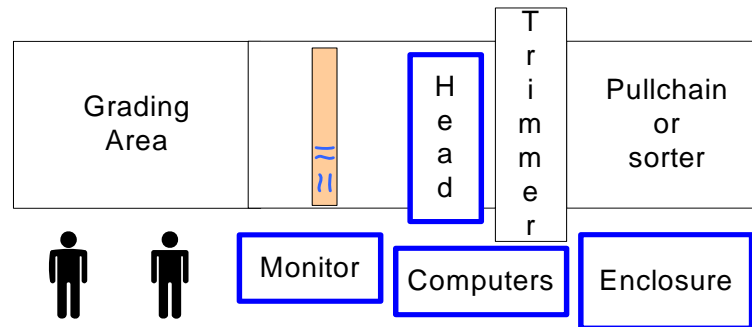


- ☐ Alleviate human error with automated data handling
- ☐ Add graders to increase productivity
- ☐ Lowest maintenance in the industry – no bulbs to replace

**M5 Basic System
Plus Multiple Instructions**

All above plus:

- ☐ Reads multiple symbols per board
- ☐ Wire to trim console or control system
- ☐ External computer
- ☐ Internet updates capable
- ☐ Extended system diagnostics
- ☐ Full 23 Character Symbol Set



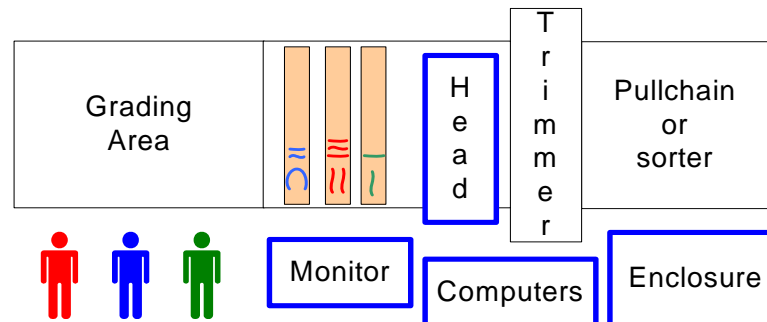
All above plus:

- ☐ No need for trimmer operator
- ☐ Create runs and shifts

**M5 Basic System
Plus Multiple Instructions and Color Recognition**

All above plus:

- ☐ Detects color of symbols



All above plus:

- ☐ Monitor grader performance
- ☐ Train graders
- ☐ System color training

M5 Specifications

Basic System

One output per board

System computer (to be housed within the control room)

Symbol monitor for real-time display of GMR performance at the grading area

Operable up to 200 lugs per minute

On-site modification of input/output configuration

Internet connection for support, updates, and remote troubleshooting by LTI technicians

Character scan zone up to 24" long

Multiple Instructions

*Additional computer supplied with the latest version of *Windows*[®]

Full trim and grade functions – multiple outputs per board

Full 23-character symbol set

TrimSaver function allows infinite near-end trimming

Color Recognition

Color option identifies and reports on 10 or more graders per shift

*Additional computer supplied with the latest version of *Windows*[®]

*Note: A second PC is required for either or both Multiple Instructions and Color Recognition.

System Options

Storyboard display (a large single or dual line display)

Production reports package with report printer (for the Multiple Instruction capability)

Trimmer Solution Override

Adjustable floor mount stand

Random width measurement

Random thickness measurement

Lucidyne's M5 GMR represents two decades of design and production, with almost 650 fielded systems. It answers the call for automation, accuracy, and durability.

When you choose a Lucidyne GMR you will have a system that:

- ✓ *Is the most advanced GMR in the world*
- ✓ *Guaranteed accuracy of 99.7%*
- ✓ *Has the lowest cost of ownership*
- ✓ *Is backed by a pledge of 100% support from our Customer Service Division*
- ✓ *Is a system that can grow as the needs of your mill develop*

We invite you to contact our Sales Department or our Customer Service Division to find out how a Lucidyne M5 GMR can start making your mill more profitable today.