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Visit the Motion Control Systems web page at jrclancy.com for more information.

Note: Please read and understand these instructions before proceeding.
Note: If you need additional information, contact Wenger Corporation using the information below.

Important User Information

General

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In no event will Wenger Corporation be liable for technical or editorial omissions made herein, nor for direct, indirect, special, incidental, or consequential damages resulting from the use or defect of these instructions. The manufacturer reserves the right to change this product at any time.

The information in this document is not intended to cover all possible conditions and situations that might occur. The end user must exercise caution and common sense when assembling or installing Wenger Corporation products. If any questions or problems arise, call Wenger Corporation - Syracuse Operations at (800) 836-1885 or +1-315-451-3440 worldwide.

Manufacturer

The SureTarget™ Motorized Rigging Control System is manufactured by:

Wenger Corporation - Syracuse Operations
7041 Interstate Island Road
Syracuse, NY 13209
(800) 836-1885 • +1 (315) 451-3440
jrclancy.com

Product Use Requirements

- Installation of this equipment must comply with local building codes.
- Equipment must be installed according to manufacturer's drawings. Individual component information is listed in the Bill of Materials of these drawings.
- Proof of inspection is required to activate and maintain the warranty period for this product.

Warranty

Warranty information is available at jrclancy.com.

Safety Precautions

Throughout this document you may find cautions and warnings which are defined as follows:

- **DANGER:** Failure to follow the instruction will result in death, or serious injury, or damage to property.
- **WARNING:** Failure to follow the instruction could result in death, or serious injury, or damage to property.
- **CAUTION:** Failure to follow the instruction could result in minor injury or damage to property.
- **NOTICE:** Indicates information that is considered important but not hazard related.

Important Safety Information

- Read all of these safety instructions before using the equipment.
- The procedures in this manual are for use by qualified personnel only. If you are not qualified, contact the company that installed your system or the J.R. Clancy factory to find the nearest service provider.
- Read this manual carefully before installing or using this product. Failure to do so can result in injury or death.
- An Identification Label is attached to controls enclosure on each unit and contains important model number, speed, and capacity information that is necessary for proper maintenance and use.
- All users must be aware of maintenance requirements and warned of the associated hazards. Keep a copy of this manual available along with all other product documentation for future reference.

WARNING

- *Make sure anyone installing or using the equipment has read and understands these instructions.*
- *Failure to comply with the Dangers, Warnings, Cautions and Notices in this document can result in damage to property or serious injury.*
- *Always observe and comply with the Dangers, Warnings, Cautions and Notices posted on the system equipment.*

WARNING

A competent person must be present and available whenever any operation or maintenance procedures are performed on any system.

A "competent person" is defined as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

WARNING

Improper installation or maintenance can cause the load to fall.

- *Hoisting machines impose significant loads on the structure to which they are attached. You are responsible for verifying that an engineer or other qualified person has determined that this structure can withstand the loads.*
- *Equipment must be installed and maintained by qualified personnel.*
- *Annual inspection and maintenance of this product is required. Some applications may require more frequent inspection and service.*
- *Do not substitute or modify components provided with this equipment.*
- *Do not exceed the recommended working load of the hoist. It varies by model and is marked on the Identification Label on the hoist.*
- *Do not exceed 500 lb [228 kg] on any one wire rope.*
- *Do not lift or support people or animals.*
- *Hoists can weigh up to 800 lb [363 kg] each, plus the weight of any packaging. You must use proper lifting and handling equipment and safe work practices if they are to be moved.*

WARNING

Moving parts can cut or crush.

- *Keep body parts away from machinery in motion.*
- *Remove power source before working on machinery.*
- *Machines with moving parts within 106" (2.7 m) vertically from the floor and less than 60" (1.5 m) horizontally from a safety barrier must be fitted with machine covers. Guards must be in place during use.*

DANGER

Electrocution Hazard.

- *Remove power source before opening electrical panels.*
- *Electrical equipment must be installed by qualified electricians.*

System Overview

The SureTarget control system includes a pushbutton control station, motorized winch/hoist with limit switches and encoder, and electronic motor controls. With the control station, the system permits the operator to record targets (called "soft limits"), operate the winch to those targets, or stop at any position between the safe limits of travel.

Control System

The winch/hoist motor is connected to a set of electronic motor controls. These connections include wiring to the motor, motor brake, limit switches, and a motor-mounted encoder. The electronic motor controls for each unit are housed in an individual starter cabinet. This cabinet also includes a programmable logic controller (PLC), a small, dedicated-purpose industrial computer. The PLC gathers data from the electronic motor controls and issues commands to them. The system control panel that houses the operator controls may be located on the face of a remote control station or on the starter cabinet itself.

System Components

Emergency Stop System

The Emergency Stop system is operated through a red, latching, mushroom-head Emergency Stop ("E-STOP") button on the control panel. All E-STOP buttons in the control system are wired in a series loop; pressing the button will break the loop and signal an emergency stop condition.

Pressing an E-STOP button will immediately stop the motor by removing control power to the starter cabinet and signal the PLC that an emergency stop condition exists. The E-STOP button latches when pressed; to release the E-STOP button, turn the button one-quarter turn clockwise (as indicated by arrows on the button) and allow the button to pop out.

Motor Starters

Each winch includes a fixed-speed starter, which contains circuit protection and electronic motor control devices. The starter controls the mains power feed to the motor and monitors the current flow to the motor, providing both instantaneous shutoff in case of a short circuit and thermal protection against motor in case of a motor overload.

Limit Switches

End-of-travel limits

The equipment is fitted with end-of-travel limit switches. End-of-travel limits are classified by their function, either as normal limits or overtravel limits. The normal limits stop motion in the selected direction but permit motion in the opposite direction. Each normal limit is paired with an overtravel (or ultimate) limit; striking an overtravel limit will cause the starter control power be cut off, preventing all motion of the equipment.

Striking an overtravel is an abnormal situation! A careful inspection of the equipment must be conducted to determine why an overtravel limit switch was activated and the situation safely rectified. A specific maintenance procedure is required to restore normal operation.

Limit switch types

Limit switch functions can be accomplished either with rotary or direct-struck limit switches. Rotary limit switches are mechanically coupled to the drive mechanism. Each rotary limit switch has four elements (up overtravel, up, down, and down overtravel) that rotate in unison, using a tooth-like bump to strike a switch. Direct-struck limit switches are struck by a piece of the driven mechanism (e.g. a moving drum flange, a cam mounted on the counterweight arbor, cable clew, or lift guide).

System Components (continued)

Control Panel

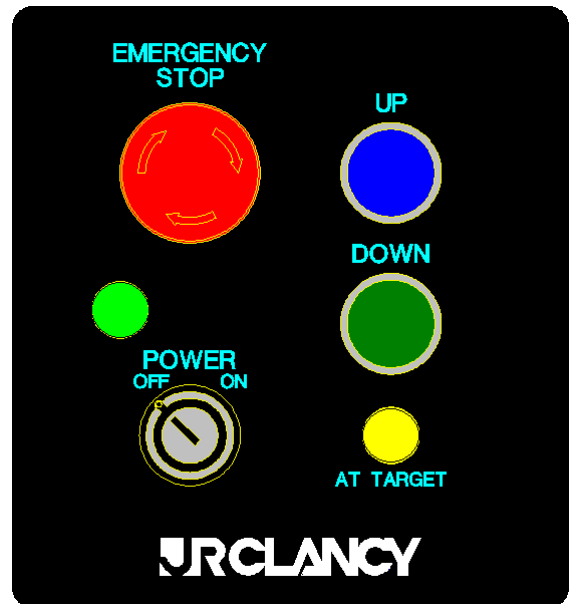
The SureTarget control panel is the main point of user control and contains the following items:

Power – A key switch used to power the control system on or off. The key switch also has an unlabeled, momentary third position used for system programming. The key can only be removed from the Off position.

Emergency Stop – A red, latching, mushroom-head button pressed to initiate an emergency stop condition, turned to release and re-enable normal system operation.

Up and Down – Momentary (hold-to-run) push buttons used to execute an action, such as move Up or Down, and facilitate system programming, discussed below.

At Target Indicator – This amber indicator lights when the winch is at a programmed soft limit position.



Service Light

Every rigging system should be inspected regularly to verify it is in safe operating condition. An amber LED labeled "service" (not shown above) will illuminate one year after system startup as a reminder to have a safety inspection performed on the equipment and rigging system. A J.R. Clancy authorized service representative will be able to reset the service light timer at the completion of inspection and maintenance.

System Setup and Operation

Recording Offsets

After mechanical and electrical connections are complete, the installer/operator must record the stopping distance(s) required for the equipment, referred to as an "up offset" or "down offset". Recording offsets ensures the equipment will stop reliably at the programmed positions. Typically, the up and down offsets only need to be set once, during this initial system setup.

To record the offsets, the operator must first move the equipment to a point near its mid-travel. Since no soft limits have been set at the initial system setup, they may be bypassed to allow the equipment to move freely inside its safe limits of travel. Simply hold the Power key switch in the momentary third position and press/hold Up or Down appropriately to move the equipment to its mid-travel position.

1. Next, press and latch the E-Stop button and hold the Power key switch in the momentary third position.
2. While the key switch is held, press and hold the Up button. Press the Down button six (6) times.
3. Release the Power key switch to the On (middle) position and release the Up and E-Stop buttons.
4. Push and hold the Up button until the equipment is moving steadily at its rated speed (3-5 seconds).
5. When the equipment is moving at speed, release the button and wait ten (10) seconds. The up offset value will be calculated and stored by the PLC.

To record the down offset, repeat the above procedure, moving the winch down (step 4) instead of up. At the end of the down move (step 5), wait ten (10) seconds for the down offset to be calculated and stored by the PLC.

Recording Soft Limits

An operator may record a position as one of the four soft limits, referred to below as "soft lower", "lower intermediate", "upper intermediate", or "soft upper" limit. This is done in snapshot fashion by first moving the equipment to the desired position, then recording the position as a soft limit. All four should be recorded at system startup for easy system operation, and any or all may be changed later using the procedure below.

If the desired position is above the soft upper limit, or below the soft lower limit, the soft limits may be bypassed as described below. To bypass the soft limits, turn the key switch to the momentary third position and hold while pressing the Up or Down pushbuttons. In this mode, the equipment may be run between the up and down normal end-of-travel limits. If the desired position is between the soft upper and soft lower limits, the equipment may be run normally as described in "Normal Operation" below. Once the equipment is at the desired position, that position may be recorded as a soft limit:

1. Press and latch the E-Stop button and hold the Power key switch in the momentary third position.
2. While the key switch is held, press and hold the Up button.
3. Press the Down button as follows:
 - a. One (1x) time to record the soft upper limit,
 - b. Two (2x) times to record the upper intermediate limit,
 - c. Three (3x) times to record the lower intermediate limit, or
 - d. Four (4x) times to record the soft lower limit.
4. Release the Power key switch to the ON (middle) position and release the Up and E-Stop buttons.
5. The At Target light will illuminate to indicate the position was recorded as a soft limit.

System Setup and Operation (continued)

Normal Operation

For normal operation, turn the key switch to the On position and ensure the E-Stop button is released. After verifying a safe path of travel and a clear view of the equipment, press and hold the Up or Down button to move the set.

If the Up or Down button is released at any point, the equipment will stop. The equipment will also stop when it reaches the next soft limit, indicated by the At Target indicator. To continue moving, release the pushbutton, then press and hold it again. The equipment will continue to the next soft limit.

CAUTION

Never move a unit which you, the operator, do not have in direct view. Damage or injury may occur if a unit is moved without first checking that the unit is clear to move. If you cannot maintain a direct view of the unit throughout the move, you must locate spotters where they can have a direct view and stay in clear, reliable communication with them throughout the move.

Load Sensing

SureTarget systems may include a load sensing feature in order to detect an abnormal over/underload on the unit. If the system is equipped with load sensing, a red selector switch will be present on the control panel, featuring two positions: On and Learn. For safety, load sensing is enabled by default and cannot be turned off.

In order to properly identify abnormal loads, the system must first "learn" the characteristics of the current load. To perform a Load Learn:

1. Turn and hold the Load Sense selector switch in the Learn position.
2. Run the unit from its lowest point of travel to its highest and back (or vice versa).
3. Release the Load Sense selector switch to the On position.
4. Resume normal operation.

NOTICE

A Load Learn must be performed each time the load (weight) on the unit is changed. For example, when hanging a new light plot, several lights may be added to the unit. Unless a Load Learn is performed, the system may interpret this new weight as an abnormal overload and fault, stopping the unit.

When a Load Fault occurs, the Load Sense selector switch will flash. To reset the fault:

1. Determine the cause of the fault, observing proper safety features.
2. Engage and release the E-Stop button to reset the fault.

Troubleshooting Load Sensing issues:

1. The unit is too sensitive. I'm getting nuisance faults under safe circumstances.

Repeat the Load Learn procedure. Also, certain elements such as pantographs create dynamic loading situations that may create nuisance faults. If this occurs repeatedly, contact J.R. Clancy.

2. The unit faults immediately, even when I reset the fault.

Is your unit overloaded? Calculate the load on the unit by adding the weights of all hanging items, batten(s), wire rope, and hardware. You may be too close to the rated capacity of the unit; a fault can occur when the added dynamic load of movement exceeds the rated capacity of the unit. Reduce the weight and repeat the Load Learn procedure.

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