

PURPOSE

Provides descriptions for the VFD control schemes offered for the ER2 hoist.

SCOPE

ER2 electric chain hoists equipped with Dual Speed Control, 2-Step Infinitely Variable Control, and 3-Step Infinitely Variable Control. Does not include VFD control for MR2 electric trolley.

INFORMATION

The information is presented two ways below. Section (A) "Control Descriptions" is a written description, and Section (B) "Table of Pendant Actions & Hoist Reactions" provides the control descriptions in tabular form.

(A) CONTROL DESCRIPTIONS**Dual Speed Control:**

Uses a 2-step pushbutton and a VFD to control the speed. Pressing the pushbutton to the first step causes the hoist to accelerate smoothly to the low speed. Pressing the pushbutton to the second step causes the hoist to accelerate smoothly to the high speed. Releasing the pushbutton from the second step to the first step causes the hoist to smoothly decelerate to the low speed. Releasing the pushbutton completely from any step causes the hoist to decelerate quickly to a stop with the brake holding the load. The acceleration and deceleration rates are preset at the factory and cannot be changed. The low and high speeds can be changed by changing the VFD program parameters.

2 – Step Infinitely Variable Control:

Like Dual Speed Control, this control uses a 2-step pushbutton and a VFD to control the speed. Other similarities with Dual Speed Control:

- (1) Pressing the pushbutton to the first step and to the second step causes smooth acceleration to the low speed and then to the high speed.
- (2) Releasing the pushbutton completely from any step causes the hoist to decelerate quickly to a stop with the brake holding the load. The deceleration rate is fixed to produce the quick stopping deceleration, and it cannot be changed.
- (3) The acceleration rate can be changed by changing parameters in the VFD.
- (4) The high and low speeds can be changed by changing parameters in the VFD.

The 2-Step Infinitely Variable differs from the Dual Speed Control in the following way:

- (1) Releasing the pushbutton from the second step to the first step will maintain whatever the speed was at the instant before the pushbutton arrived at the first step. This allows you to hold any speed between the low and the high speed. If the hoist is operating at a speed that is less than high speed, and you wish it to operate at a faster speed, simply press the pushbutton to the second step to accelerate the hoist. When you reach the desired speed, simply release the pushbutton to the first step. Note that there is no deceleration function other than completely releasing the pushbutton. So, if the hoist is operating at a speed that is faster than low speed and you desire a lower speed, you must completely release the pushbutton and either press it again before the hoist stops to "catch" the speed you want, or let the hoist stop and use the second step to accelerate to the desired speed and then release to the first step to hold it.

3 – Step Infinitely Variable Control:

Uses a 3-step pushbutton and a VFD to control the speed. This control scheme is similar to the 2-Step Infinitely Variable Control with the added feature of a deceleration function.

1st Step – Will take the speed of the hoist to the programmed low speed. If you press the pushbutton to the first step, the hoist will accelerate smoothly to the programmed low speed. If you release the pushbutton to the first step, the hoist will deceleration smoothly to the programmed low speed.

2nd Step – Maintains whatever the speed was at the instant before the pushbutton arrived at the second step. If you press the pushbutton to the second step, the hoist continues to operate at the programmed low speed. If you release the pushbutton to the second step, the hoist will maintain whatever the speed was at the instant before the release.

3rd Step – Pressing the pushbutton to the third step will cause the hoist to accelerate smoothly to the programmed high speed.

If the hoist is operating at a particular speed and you wish it to operate at a faster speed, press the pushbutton to the third step to accelerate. When you reach the desired speed, release the pushbutton to the second step to maintain that speed.

If the hoist is operating at a particular speed and you wish it to operate at a slower speed, release the pushbutton to the first step to decelerate. When you reach the desired speed, press the pushbutton to the second step to maintain that speed.

(B) TABLE OF PENDANT ACTIONS & HOIST REACTIONS

The table below shows how the hoist will react to specific actions performed on the push-buttons.

PENDANT ACTION	HOIST REACTION		
	DUAL SPEED	2-STEP INFINITELY VARIABLE	3-STEP INFINITELY VARIABLE
PRESS TO 1ST STEP	Accelerates smoothly at a fixed acceleration rate to the programmed low speed.	Accelerates smoothly at the programmed acceleration rate to the programmed low speed.	Accelerates smoothly at the programmed acceleration rate to the programmed low speed.
PRESS TO 2ND STEP	Accelerates smoothly at a fixed acceleration rate to the programmed high speed.	Accelerates smoothly at the programmed acceleration rate to the programmed high speed.	Maintains whatever the speed was the instant before the button was pushed to the 2 nd Step.
PRESS TO 3RD STEP	N/A	N/A	Accelerates smoothly at the programmed acceleration rate to the programmed high speed.
RELEASE TO 2ND STEP	N/A	N/A	Maintains whatever the speed was the instant before the button was released to the 2 nd Step.
RELEASE TO 1ST STEP	Decelerates smoothly at a fixed deceleration rate to the low speed.	Maintains whatever the speed was the instant before the button was released to the 1 st Step.	Decelerates smoothly at a programmable deceleration rate to the low speed.
COMPLETE RELEASE FROM ANY STEP	Decelerates smoothly at the stopping deceleration rate to a stopped condition with the brake holding the load.	Decelerates smoothly at the stopping deceleration rate to a stopped condition with the brake holding the load.	Decelerates smoothly at the stopping deceleration rate to a stopped condition with the brake holding the load.
REMARKS	<ul style="list-style-type: none"> You can change the low or high speed by changing the VFD program parameters. Accel/Decel rates are factory preset and cannot be changed. The Stopping Deceleration Rate is factory preset and cannot be changed. 	<ul style="list-style-type: none"> You can change the low or high speed by changing VFD program parameters. You can change the Accel rate by changing the VFD program parameters. The Decl rate is the Stopping Deceleration Rate and is factory preset and cannot be changed. 	<ul style="list-style-type: none"> You can change the low or high speed by changing VFD program parameters. You can change the Accel rate by changing the VFD program parameters. You can change the Decel rate between high & low speeds by changing the VFD program parameters. The Stopping Deceleration Rate is factory preset and cannot be changed.

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