# H3321B / H4321
# Edge Guide Control

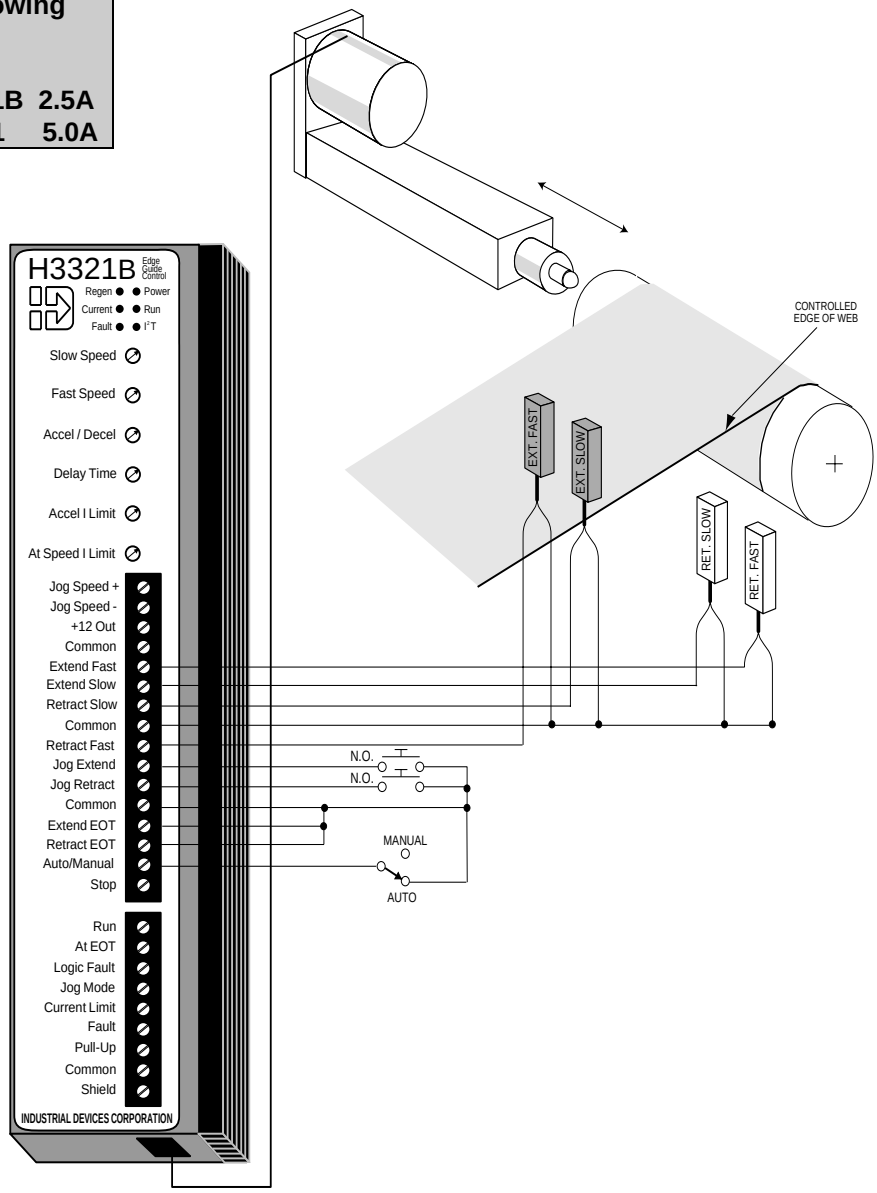
## User's Manual Supplement

**(Supplement to H3301B/H4301 Manual PCW-4705)**

**P/N PCW-4905 Revision 1.0 8/97**

**This manual covers the following IDC Products:**

**Edge Guide Control - H3321B 2.5A**
**- H4321 5.0A**




**INDUSTRIAL DEVICES CORPORATION**

# Product Description

The H3321B and H4321 Edge Guide Controls are designed to be used with an IDC NH and TH Series 160VDC Electric Cylinders (respectively) and 2 or 4 web sensors positioned together at one edge of the web. The H3321B is a lower power version, while the H4321 has more power for the larger TH Series motor. Both edge guide controls are variations of the H3301B and H4301 Limit Switch Controls, but their inputs and outputs have somewhat different functionality, providing the ability to connect edge sensors directly to the Edge Guide Control, eliminating the need for a PLC to translate the sensor signals to extend/retract and speed signals.

The Edge Guide Control centers the web by monitoring the sensor input status and moving the actuator as needed to maintain center. The actuator typically moves the spool or steering roll to maintain this centered position. When operated in *Automatic* mode, the control will extend and retract the actuator in response to the sensor inputs. In *Manual* mode, JOG inputs are used to manually adjust web position.

# I/O Reference

## *LED's*

**POWER**

Indicates line voltage is present and correct and internal power supplies are operating.

**RUN**

Indicates power is being supplied to the motor.

**CURRENT LIMIT**

Indicates a current limit has been reached, (as set by the current limit potentiometer), and the power has been removed from the motor. After a two second delay the drive will automatically reset.

**FAULT**

Indicates a fault has occurred. The fault description is determined by the

*Fault LED Flash Codes*

| | |
|---|---|
| One Blink = | Control Over Temperature |
| Two Blinks = | Motor/Drive Short Circuit |
| Three Blinks = | Over Voltage (Regen.) |
| Four Blinks = | $I^2T$ Current Fault (Duty Cycle Too High) |

## *Potentiometers*

**SLOW SPEED**

Sets slow speed, (from 0-50% of maximum speed) when correcting a web alignment between the inner two sensors.

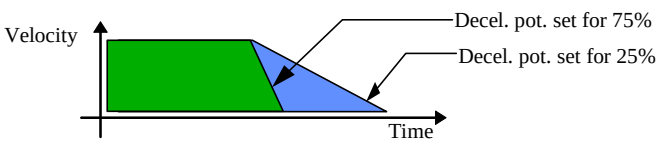
**FAST SPEED**

Sets fast speed, (from 0-100% of maximum speed) when correcting a web alignment between the outer two sensors.

**ACCELERATION / DECELERATION**

Sets the start and stop rate for all moves and in-motion speed changes. A lower setting causes a long acceleration and deceleration ramp, requiring less motor current. Higher settings yield faster response.

Deceleration Profile Adjustment



**DELAY TIME** (0-8 SECONDS RANGE)

Sets the amount of time the unit will wait before correcting an error in the web. Typically this setting is used to prevent the system from hunting or reacting to a frayed edge or small cut in the web.

**ACCEL I** (MOTOR CURRENT) **LIMIT**

Sets the maximum allowed current output to the motor during the acceleration and deceleration portions of a move. Typically used to detect a jam or mechanical malfunction in the system. *If the acceleration load exceeds this setting, motor current is limited and speed/thrust performance may be lower than expected.*

**AT SPEED I** (MOTOR CURRENT) **LIMIT**

Sets the maximum allowed current to the motor during the "constant" speed portion of a move as a percentage of the above Accel I Limit setting. When this setting is at maximum (full CW), motor current limit remains the same throughout the move.

## *Jog Speed*

**JOG SPEED + / JOG SPEED -**

Allows remote speed adjustment when **Jog Extend** or **Jog Retract** inputs are used (*Manual Mode only*).

10K Potentiometer Connected

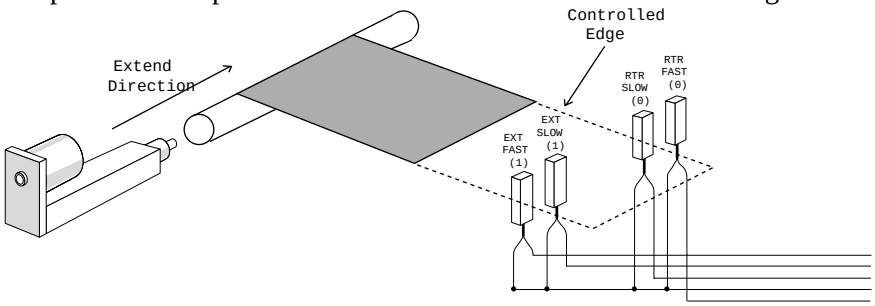
The **Jog Speed** analog input allows external adjustment of jog speed.

No Potentiometer Connected

The actuator will jog at the **Slow Speed** if no external potentiometer is present.

## *Digital Input Descriptions*

All of the inputs are optically isolated sinking inputs that normally are pulled up to 12VDC internally. Activation is accomplished by connecting the input to **Common**, thus sinking the 12VDC and activating the internal photo-coupled LED. Inputs must be active for at least 10ms to be recognized.




**TRUTH TABLE: Web Sensor Inputs**

| Input Terminal Status | | | | Action |
|---|---|---|---|---|
| EXT FAST | EXT SLOW | RTR SLOW | RTR FAST | |
| 0 | 0 | 0 | 0 | Extend: Fast |
| 1 | 0 | 0 | 0 | Extend: Slow |
| 1 | 1 | 0 | 0 | No Motion |
| 1 | 1 | 1 | 0 | Retract: Slow |
| 1 | 1 | 1 | 1 | Retract: Fast |

Legend: 0 = sensor OFF (light beam visible: >10 Volts)
1 = sensor ON (light beam blocked: 0 Volts)

NOTES: 1) ALL OTHER COMBINATIONS OF INPUT TERMINAL STATUS RESULT IN "LOGIC FAULT", INDICATED BY LOGIC FAULT OUTPUT TERMINAL TURNING ON.
2) "EXTEND" IS CCW MOTOR ROTATION.

**EXTEND FAST**

2-Sensor System: Input is connected to the outermost sensor, (not covered when the web is aligned in the proper position). See the sensor truth table for operation.

4-Sensor System: This connection should be left unconnected.

**EXTEND SLOW**

Input is connected to the outer sensor, (not covered when the web is aligned in the proper position). See the sensor truth table for operation.

**RETRACT SLOW**

Input is connected to the inner sensor, (covered when the web is aligned in the proper position). See the sensor truth table for operation

**RETRACT FAST**

2-Sensor System: Input is connected to the innermost sensor, (covered when the web is aligned in the proper position). See the sensor truth table for operation.

4-Sensor System: This input should be jumpered to **Common**.

**JOG EXTEND / JOG RETRACT**

When control is in **Manual Mode**, these inputs jog the actuator in the direction specified. Jog speed is set by the **Slow Speed** input or the **Jog Speed** remote input. *(see previous page, "Jog Speed").*

**EOT EXTEND/ EOT RETRACT INPUT**

Activation of the EOT inputs causes the cylinder to decelerate at maximum rate to a stop. Afterward, no motion will be allowed past the EOT switch encountered.

**MAN / AUTO**

Selects automatic (web sensor) control, and manual jog mode.

Automatic Mode

(**Man/Auto** connected to **-Common**)

Control responds to web sensors through Extend and Retract inputs as shown in the Truth Table above. Jog inputs are ignored.

Manual Mode

(**Man/Auto** terminal not connected)

Control responds to JOG EXT and JOG RTR inputs. Web sensor inputs are ignored.

## *Digital Output Descriptions*

**RUN OUTPUT**

ON: Motor is receiving current

OFF: No current going to motor

**AT EOT OUTPUT**

ON: No end of travel switches are activated.

OFF: An end of travel has been activated.

**LOGIC FAULT**

ON: The web sensors have been activated in a manner that indicates a fault condition. For example: miswiring, a broken sensor, dirty lens, or a loose wire could cause this fault.

OFF: No logic faults.

**JOG MODE**

ON: The unit is operating in the Jog Mode. Web sensors are ignored in this state.

OFF: The unit is operating in the run mode. The control will move the actuator until the **Retract Fast** and **Retract Slow** inputs are activated and the **Extend Fast** and **Extend Slow** outputs are de-activated.

**CURRENT LIMIT**

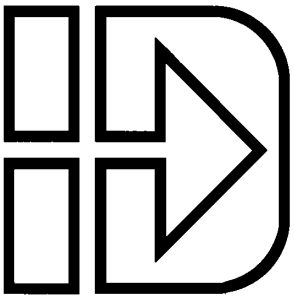
ON: The Current Limit has been exceeded, and motor is stopped.
In some applications where there are high inertial loads, this output may turn on indicating a longer acceleration or more powerful actuator may be needed.

OFF: Motor operating at "safe" current level (below the CUR LIMIT pot. setting).

**Fault Output**

ON: Drive OK

OFF: Drive fault, check Fault LED flashing code for cause.



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