C04150.0002 Module Installation Instructions

(with software Version 1.20.07)

1.0 Installation

Disconnect all power to the door header. Refer to attached wiring diagram 11300.3 for connections.

WARNING: If manual door operation is anticipated, a suitable threshold detector MUST be installed and configured for either Assist Pause, Threshold Recycle, or Manual Operation per Section 1.0.4, Multifunction Inputs, below. Do NOT enable Parameter P, Assist After Manual Cycle, without this detector! Horton Automatics assumes no liability for improper operation if this detector is not used.

1.0.1 Motor & Module Power

Locate the supplied **six** conductor harness with yellow connector. Install this connector in the header as follows:

Series 4000 Operator

- Locate the C04156 close speed adjustment assembly in the operator. On the top of the bracket next to the adjustment knob is a terminal block. Closely examine the assembly and note that one screw terminal *is directly under (or over) the knob*, while the second is offset to one side or the other.
- Remove a single motor wire from the *screw terminal directly in line with the knob*. Connect the *orange* harness wire with spade tip to this terminal.
- Using a wire nut, connect the *red* wire from the power assist module to the motor wire you just removed.
- Remove the remaining motor wire from the second screw terminal. Connect the *white* harness wire with spade tip to this terminal.
- Using a wire nut, connect the *violet* wire from the power assist module to the motor wire you just removed.

Series 7000 Operator

- Locate the C07156 close speed adjustment assembly in the operator. On the top of the bracket is a terminal block.
- Remove a single motor wire from the *left hand* screw terminal. Connect the orange harness wire with spade tip to this terminal.
- Using a wire nut, connect the *red* wire from the power assist module to the motor wire you just removed.
- Remove the motor wire from the *right hand* screw terminal. Connect the *white* harness wire with spade tip to this terminal.
- Using a wire nut, connect the *violet* wire from the power assist module to the motor wire you just removed.

All Operators

Connect the black wires from the lace to a power supply of 16-24VAC or 24-33VDC (polarity is unimportant). The current requirement is 2A peak and up to 1A continuous if the hold-closed mode is used. Plug the connector into **CN2** on the C04150.0002 module.

1.0.2 Control Actuate Circuit & (Optional) Strike

Connect the supplied five conductor harness to **CN3** on the module. Wire the black and white leads from CN3 to the "actuate" input on the door control (polarity is unimportant).

If a strike is present, use the green, red, and brown output wires as needed and connect the C04150.0002 between the door strike and the strike power supply. The strike relay on the C4150-2 module will engage when the door is to unlock. This output is rated for 32V, 3A maximum. Do not exceed these ratings.

IMPORTANT: Although spike protection is built into the strike contacts, if extremely noisy loads are switched, external protection devices (varistors or MOVs) may also be necessary to prevent erratic operation. These protective devices are typically supplied with magnetic and mortise strikes and should be located as close to the lock as possible.

1.0.3 Actuating Circuit

Disconnect all actuating devices (push plates, card reader, etc.) from the door control. Locate the supplied six conductor harness with red connector, and wire the *black* and *white* leads from this lace to the actuating switches (polarity is unimportant). Plug the connector into **CN1** on the C04150.0002 module.

For proper operation, all actuating devices must be routed through the C04150.0002 module!

1.0.4 Multifunction Input Options

Input 2 of the module (red and green leads) may be used for a variety of different options. The specific function of this input depends on the setting of Parameter 6 as follows:

- If Parameter 6=0, Input 2 is a *close monitor switch* input (this is the default function). The input will be checked immediately after the pre-assist delay and, if closed, will prevent the module from applying power assist close when it is not needed. The switch must *close* when the door is fully closed.
- If Parameter 6=1, Input 2 is an *assist pause* input. The input is only monitored during closing. It resets the pre-assist delay and prevents it from counting down. If it becomes active during a power assist, the assist is immediately switched off and the module returns to the pre-assist delay. Use this mode with a threshold detector when manual operation is anticipated and you do not want the threshold detector to recycle the door open. The input must close to pause the assist.
- If Parameter 6=3, Input 2 is an *assist zone switch* input. When used in this mode, if Input 2 is triggered at any time, power assist will *not* be applied until the input releases. This allows the use of an "assist zone" microswitch to prevent assist from being applied at all unless the door is within the desired "assist zone," that is, close to the door jamb. The switch must *open* when the door is within the desired assist zone.

Input 3 of the module (blue and orange leads) may also be used for a variety of different options. The specific function of this input depends on the setting of Parameter 7 as follows:

• If Parameter 7=0, Input 3 is a *lock monitor switch* input (this is the default function). This switch will speed up the system response time when a strike is used. The switch must *close* when the lock has

released and the door is free to open.

- If Parameter 7=1, Input 3 is a *threshold recycle detector* input. The threshold detector is used to cancel the assist (if necessary) and recycle the door open if it is triggered at any time *except* when the door is idle. It is ignored when the door is idle. The input must *close* when active.
- If Parameter 7=2, Input 3 is a *threshold manual operation detector* input. In this mode of operation, when the detector trips, the door is released to be opened manually, but the C4150-2 does not send an open command to the door control unless its actuating input is triggered. The door remains armed for manual walk-throughs until the threshold detector clears, at which time the module begins its normal closing sequence. The input must *close* when active.
- If Parameter 7=3, Input 3 is an *assist zone switch* input. Refer to the "assist zone switch" description under Input 2 for details.

Other values of Parameters 6 and 7 are reserved for future use and disable their respective inputs if selected. If the optional inputs are not used, cap or cut off the red, green, blue, and orange leads.

This concludes the installation phase.

1.1 Setup

Note: To save energy and prolong component life, the display on the C04150.0002 will be blanked after approximately 60 seconds if no button is pushed. To reactivate it for another 60 seconds, simply press any of the buttons.

For proper operation, the door control's Touch-Stop feature must be disabled!

When power is first applied, the display on the C04150.0002 module will quickly flash the installed software version number in six digits, as in **1.20.07**. After a brief delay, the display should switch I (Idle). The module is now ready for operation.

Refer to section **1.2**, **Parameter Adjustment**, for information on how to change delays and make other adjustments.

The module may be tested by pressing the DOWN button during normal operation. This button simulates an "activate" signal.

During normal operation, the display shows the status of the C04150.0002. The possible codes are as follows:

I	Idle
U	Unlock timer running
u	unlock timer running, with unjam power applied
L	Latched open without latch timeout (latch operation)
L.	Latched open with latch timeout enabled (latch operation)
0	Open timer running (momentary operation)
d	delay (C04150.0002 is waiting for door to begin closing)
С	C losing (C04150.0002 is waiting for door to finish closing)
Р	Pre-Assist timer running
Α	Assist power on, assisting door closed, assist timer running
н	Hold power on, holding door closed
S (wink)	data (parameters) Saved to permanent memory
F (wink)	data Failure detected (replace module)
S then u	Setup (all factory settings restored)

1.1.2 Strike Interface Adjustments

If a strike is *not* present, set Parameter 8 (Strike Present) to "0." The C04150.0002 will function as a power assist close only.

If a strike *is* present, leave Parameter 8 at its factory default of "1." Parameter 0 (Unlock Delay), can usually be left at one second. Parameter 1 (Strike-to-Door Delay), may be left at the factory default of 0.8 seconds for magnetic locks; however, this delay may optionally be decreased for some mortise strikes which can release in as little as 0.5 seconds. If Parameter 1 is set too short, the door will jam. If a lock monitor switch is in use, the C04150.0002 will cancel the Parameter 1 delay as soon as the switch trips.

The strike is normally held released throughout the entire cycle of the door. This results in the quietest door operation. However, to prevent buzzing or burnout of inexpensive mortise strikes, it may be necessary to release the strike while the door is open. If this is the case, set Parameter 9 (Strike Hold) to "0." When Parameter 9 is "0", the strike will be pulled to release the door, and after the Unlock Delay, it will be released for the duration of the door's cycle. If Parameter 9 is set to "0" and the lock must be pulled again to get it out of the way during door closing, set Parameter d (Unlock Before Closing) to "1." The lock will be pulled again (to get it out of the way) just before the door begins closing, and will re-lock the door following the power assist cycle. *Note that Parameter d has no effect if Parameter 9 is set to "1," since the lock is being held in the unlocked position for the entire cycle of the door.*

Set Parameter 2 (Open Delay) to the desired open (dwell) time of the door. The time delay on the door control itself should preferably be set at minimum. The factory default for Parameter 2 is 1 second.

1.1.3 Strike Unjam

If the strike intermittently becomes jammed due to stack pressure or tight weatherseals, set Parameter b (Unjam Power) to "1." When an actuate signal is received, the C04150.0002 will now apply assist force in the close direction, in an attempt to unjam the strike. The duration of the unjam power is determined by Parameter 1 (Strike-to-Door Delay), unless the lock indicates that it has cleared early via the optional lock monitor (bolt position) switch. The display will show **u** (**u**nlock with **u**njam) during the strike unjam.

1.1.4 Power Assist Adjustments

Set Parameter 3 (Pre-Assist Delay) to the length of time the door must be stalled before power assist begins. The C04150.0002 display shows **P** (**P**re-Assist Delay) during this time. NOTE: with a Series 7000 operator, this delay will begin when the operator trips the latch check microswitch. With a Series 4000, the delay may not begin until the door actually arrives at the jamb. Either situation is acceptable. If the red light comes on when the operator trips the latch check switch, be sure Parameter 3 is set long enough to allow the door to close completely *under normal conditions*. The factory default is 5 seconds.

Set Parameter 4 (Assist Delay) for the duration of the power assist to be applied. The C04150.0002 display shows **A** (Assist Power on) while the door is being assisted. Set Parameter 4 long enough to allow the door to close completely under the worst conditions routinely encountered. The factory default is 5 seconds.

Adjust the ASSIST FORCE pot to the desired power assist force. Clockwise is maximum force.

If the door will remain closed without any additional assist after it has finished closing, leave Parameter A (Assist Mode) at "0." The C04150.0002 will assist the door closed, then ramp down to zero assist power and reconnect the motor to the regular door control.

If spring force is not sufficient to hold the door closed due to stack pressure, set Parameter A to "1." The ES540 will assist the door closed as above, then a lower power hold mode will begin. The display will switch to **H** (**H**old Closed). *Note that timed cutoff is always preferred, when possible.*

This concludes the adjustment procedure.

1.2 Parameter Adjustment & Defaults

1.2.1 Parameter Adjustment

To change settings, enter the setup mode by quickly pressing the SET button twice. The decimal point on the display will begin blinking. Use the UP and DOWN buttons to select the parameter (0-F) you wish to change. When you've found it, press <u>and hold</u> the SET button. The display will change to the current value of the parameter. While holding the SET button, press UP or DOWN to adjust the value. When finished, release the SET button. The table below may be used to convert the values shown on the display to their equivalent delay settings.

After all changes are entered, quickly press the SET button twice again. The decimal point will stop blinking and the C04150.0002 module will return to normal operation.

Always remember to save any changes you make before leaving the jobsite! To save the information, the module must be idle (display is showing the function number). Press <u>and hold</u> the SET button until the display briefly winks **S** (data **S**aved). Your changes are now saved in permanent memory.

Display Conversion Chart				
(seconds or 1/10 seconds)				
Display	Value	Display	Value	
1	1	9	9	
2	2	A	10	
3	3	b	15	
4	4	С	20	
5	5	d	30	
6	6	E	45	
7	7	F	60	
8	8	0	90	

1.2.2 Parameter List & Defaults (unlisted parameters are reserved for future use)

Factory Default

0	Liplack Dolay	1 accord
0	UTILOCK Delay	i seconu
1	Strike-to-Door Delay	0.8 second
2	Open Delay	1 second
3	Pre-Assist Delay	5 second
4	Assist Time	5 seconds
5	Latch Timeout	1 minute (Note: enabled only if Parameter n is on)
6	Input 2 Function	0 (Input 2 is close monitor switch)
7	Input 3 Function	0 (Input 3 is lock monitor switch)
8	Strike Present	1 (strike is present)
9	Strike Hold	1 (hold strike during open cycle)
Α	Assist Type	0 (timed cutoff)
b	Unjam Lock	0 (unjam not needed)
d	Unlock before closing	0 (unlock not needed prior to closing door)
L	Latch (Ratchet) Mode	0 (time delay operation)
n	Latch Timeout Enable	0 (latch does not time out)
Р	Assist After Manual Cycle	0 (do not assist following manual operation)*

* Do NOT turn on Parameter P without a threshold detector installed!!

To restore factory defaults, hold the SET button while powering up the C04150.0002. The display will flash the version number, followed by **S** then **u** (Setup). All factory settings are now restored.

