SNAPCO CONTROLS MANUAL

STANDARD CONTROLS PACKAGE

OPERATIONS GUIDE AND ELECTRICAL SCHEMATIC

AN IMPORTANT MESSAGE:

For your safety, and to prevent damage to the dispenser, carefully read this manual, and other technical information provided, prior to operating the dispenser. FAILURE TO DO SO CAN RESULT IN INJURY TO YOURSELF AND/OR THE MACHINE!!!

This manual was written to help you get the most dependable service from your dispenser. In preparing this manual we have tried to include all information the average user will need, and present it in a clear and logical format. If there is any part of this manual, the dispenser, or the dispenser manual you do not understand or unclear about, please contact your Snapco service representative immediately.

This controls manual describes the Spenser's electronic operation. It is a "how to" guide in setting up the dispenser, diagnose problems, and connect external devices to it for automated control.

-Snapco

Contents

THE VIEW PANEL 4

MAIN SCREEN 4

Main Screen Functions 5

DISPENSER OPERATING MODE (fig.1) 5

Dispenser operating mode functions 6

DISPENSER SENSOR STATUS (fig.2) 6

UTILITY SCREEN (fig.3) 8

Utility Screen Functions 8

DISPENSE MODE (fig.5) 9

MANUAL DISPENSE (fig.6) 10

CYCLE COUNT (fig.7) 12

SETUP fig.8 13

FAULTS (fig.9) 14

AUTO MODE- PROCEDURE CONDITIONS TO BE MET. 15

JOGGING THE SCREW- PROCEDURE CONDITIONS TO BE MET 16

TROUBLESHOOTING 16

Problem: Does not dispense a pallet even though in auto mode 16

PANEL PARTS LIST 16

PANEL ELECTRICAL SCHEMATICS 18

WARRANTY 28

All SNAPCO products are covered by a SNAPCO Warranty. The warranty below is specific for any control panel 28

SERVICE 28

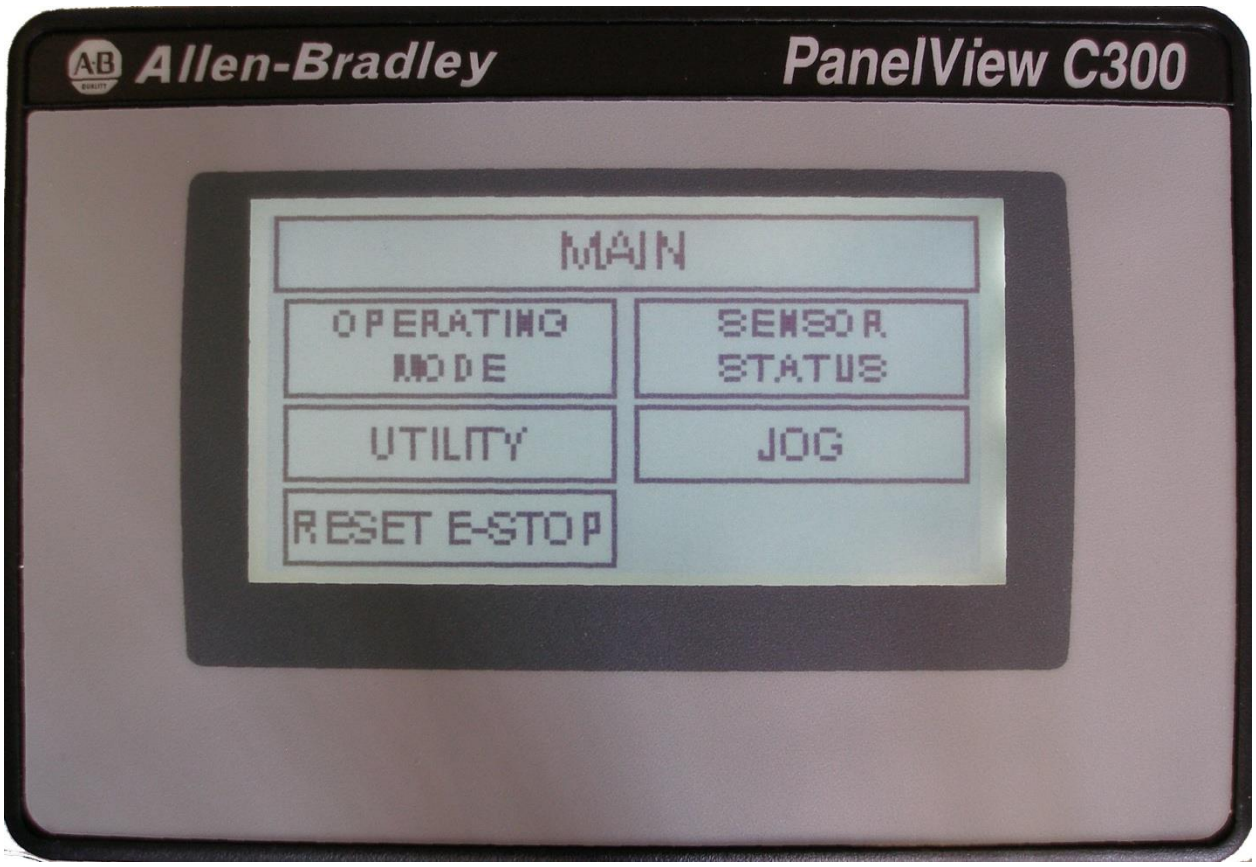
THE VIEW PANEL

The standard control panel features a 3” mono-color touch-screen for moving about the different menus. . See below for specific descriptions and operating instructions.

1. Main Screen
2. Dispenser Control
3. Utility
4. Service
5. Setup

MAIN SCREEN

When powering up the control panel, your view panel will come up to the main screen by default every time.



Main Screen Functions

Operating Mode: This takes you to the screen that allows the user to choose whether the machine is in manual or automatic operating mode. **See fig.1**

Sensor Status - This takes the operator to a sensor status screen so the user can visually see the status of the sensors. **See fig.2**

Utility - This takes you to the window where the operator can select additional screens for dispenser settings and troubleshooting. **See fig.3**

It handles:

1. Dispense mode
2. Sensor status
3. Manual dispense
4. Cycle count
5. Setup
6. Faults
7. Config.

Jog- If the machine is in manual mode, the operator can go to this screen to jog the screws up or down. **See fig.4**

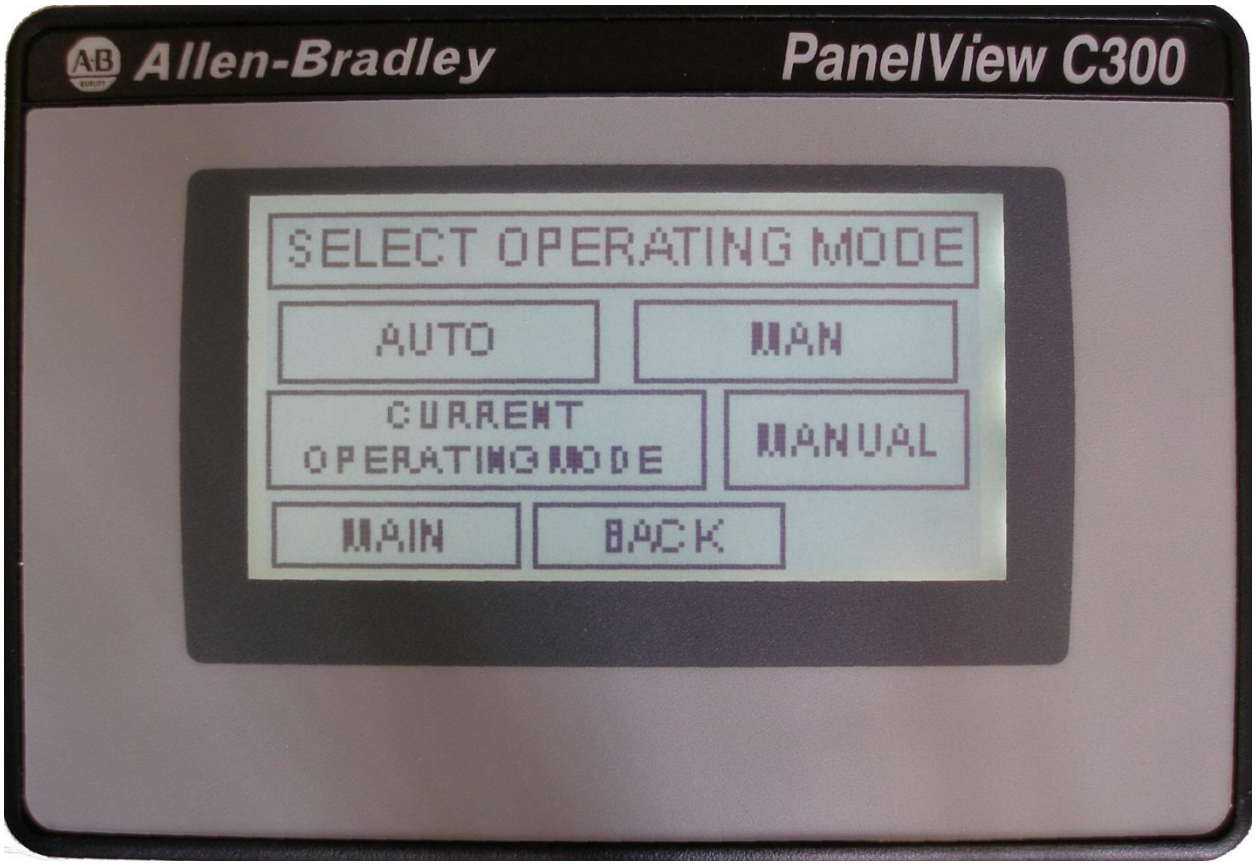
Reset E-stop- This button will only appear if the machine needs to reset the E-stop. Otherwise it will not be visible to the operator. Such cases for this would be if the machine is:

a. Powered on for the first time
b. Remote E-stop was activated*
c. Local E-stop was activated*

*Remote and/or local E-stop condition must be cleared before the Reset E-stop operation can be effective.

DISPENSER OPERATING MODE (fig.1)

This Screen is used to view the dispenser's operating mode



Dispenser operating mode functions

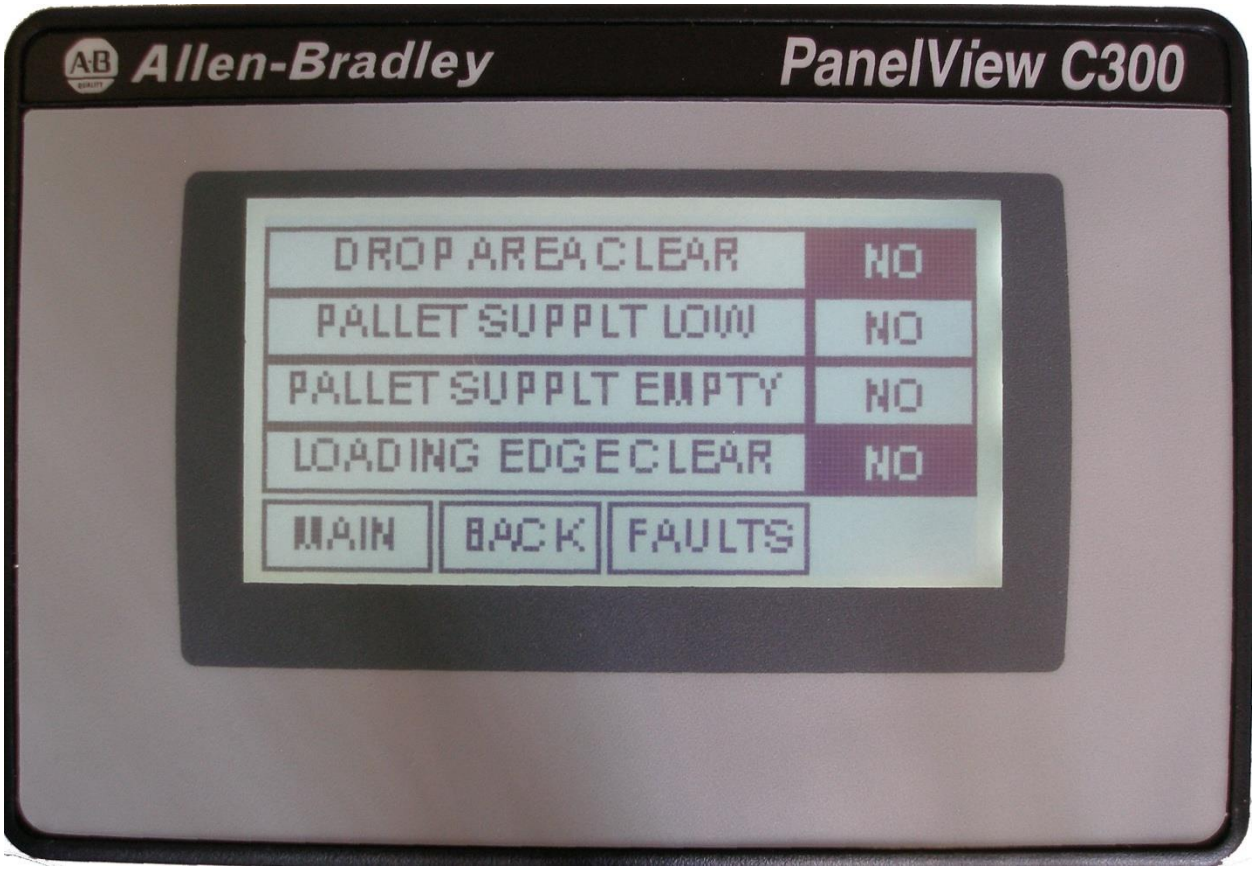
Description: This is where the operator chooses whether the machine is in auto or manual mode. It will display the current status to the right of the "CURRENT OPERATING MODE"

Auto operating mode – Dispenser must be in Auto operating mode to automatically dispense a pallet. A pallet will be dispensed when requested based upon the "dispense mode" setting.

Manual operating mode – Dispenser can be manually jogged up or down using the "JOG" screen. This is helpful in clearing jams and first loading the pallet dispenser. "MAN" select button is not visible if current operating mode is manual. "AUTO" select button likewise is not visible if current operating mode in auto.

DISPENSER SENSOR STATUS (fig.2)

Pallet sensor status: There are 4 sensors on the dispenser that monitor the status. These are very useful when trying to troubleshoot the dispenser.

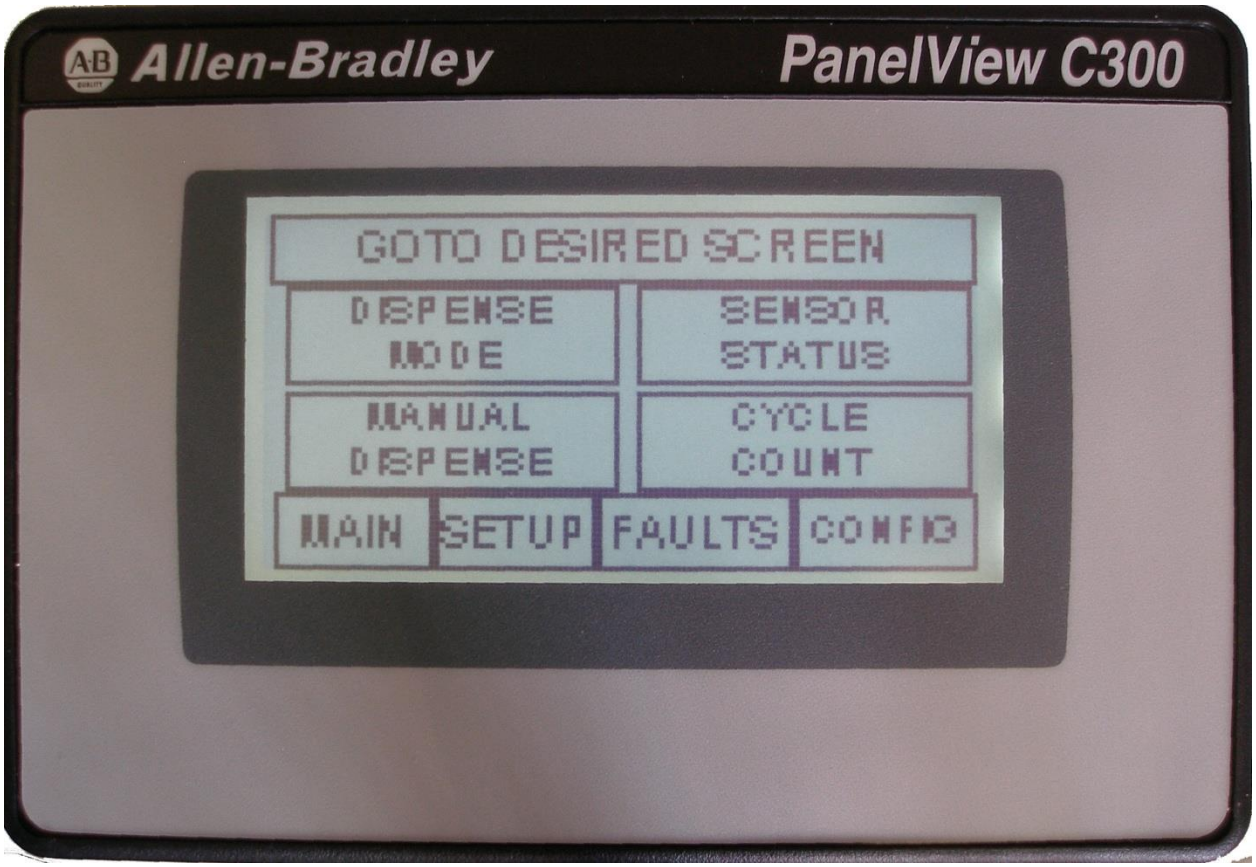


1. **Drop Area clear**: This is the sensor underneath the dispenser that tells the PLC if it is OK to drop a pallet. Otherwise a pallet could dispense on top of another one which would cause a collision. **IMPORTANT!** There are 2 sensors underneath the dispenser to make sure a pallet is not present. The PLC needs to see that both sensors are clear and are so for 5 seconds before allowing another pallet to drop. If these sensors are not positioned correctly, it could cause the dispenser to drop a pallet on top of another cause unwanted jams.
2. **Pallet Supply low**: This is used as a warning to the operator to ad more pallets to the hopper. It is also used as a safety measure so the dispenser cannot be jogged upwards with a full load. This sensor is also sent to an output for external visibility such as an optional light tower or external HMI system.
3. **Pallet Supply empty**: If this sensor is on, the dispenser will not run in "auto mode" until this condition is corrected. This prevents the hopper from running dry which in turn requires an operator to manually refill the cavity up to the loading edge.
4. **Loading Edge clear:** This is the sensor that detects the opening of the hopper for items such as:
    a. Fingers and hands (pinch point)
    b. Pallets that were not loaded into the hopper properly (sticking out to far)

IMPORTANT! If the edge clear has been broken, the dispenser will kick out of "auto" mode and needs to be returned to auto mode to run after the condition is clear.

UTILITY SCREEN (fig.3)

The utility screen allows the operator to select additional screens for dispenser settings and troubleshoot.



Utility Screen Functions

Dispense Mode: **fig.5** Takes operator to the dispense mode screen (Remote, Local, or Auto)

Sensor status: **fig.2** displays the status of the sensors

Manual dispense: **fig.6** takes the operator to the screen where you can dispense a pallet on request via the touch screen.

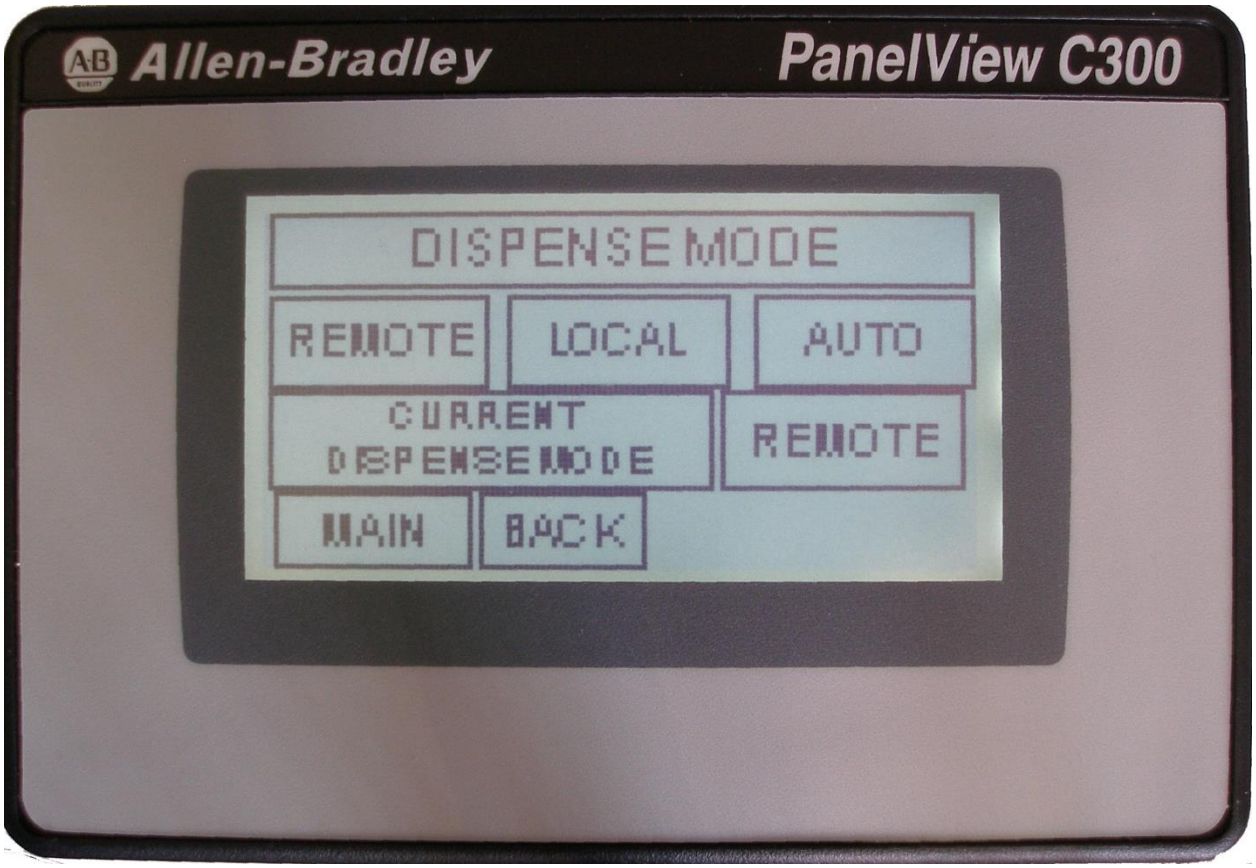
Cycle Count: **fig7** displays the count of how many pallets the dispenser has dispensed

Faults: **fig.9** displays the fault screen

Config: This will take the operator to the internal screen system of the view panel. This would only need to be accessed for basically 2 reasons: the display contrast should ever need to be adjusted, or a new program would need to be downloaded such as a custom change or firmware upgrade. Please refer to the Allen Bradley C300 users manual for more information.

DISPENSE MODE (fig.5)

This screen is for setting up "HOW" you want the dispenser to run.



Remote: If an external source is used to request a pallet such as a system PLC or Robot, you would run it in this mode. It allows your customer signals to control the following:

1. Request a pallet: (see wiring diagram for specific details) If the user does not want the dispenser to drop a pallet automatically once all conditions are met, set it on "remote". The dispenser will now only drop a pallet once an external source has "pulsed a signal"

to the machine requesting a pallet. Once a pallet has been dropped the machine will send a confirmation signal to the external source that it dropped a pallet.

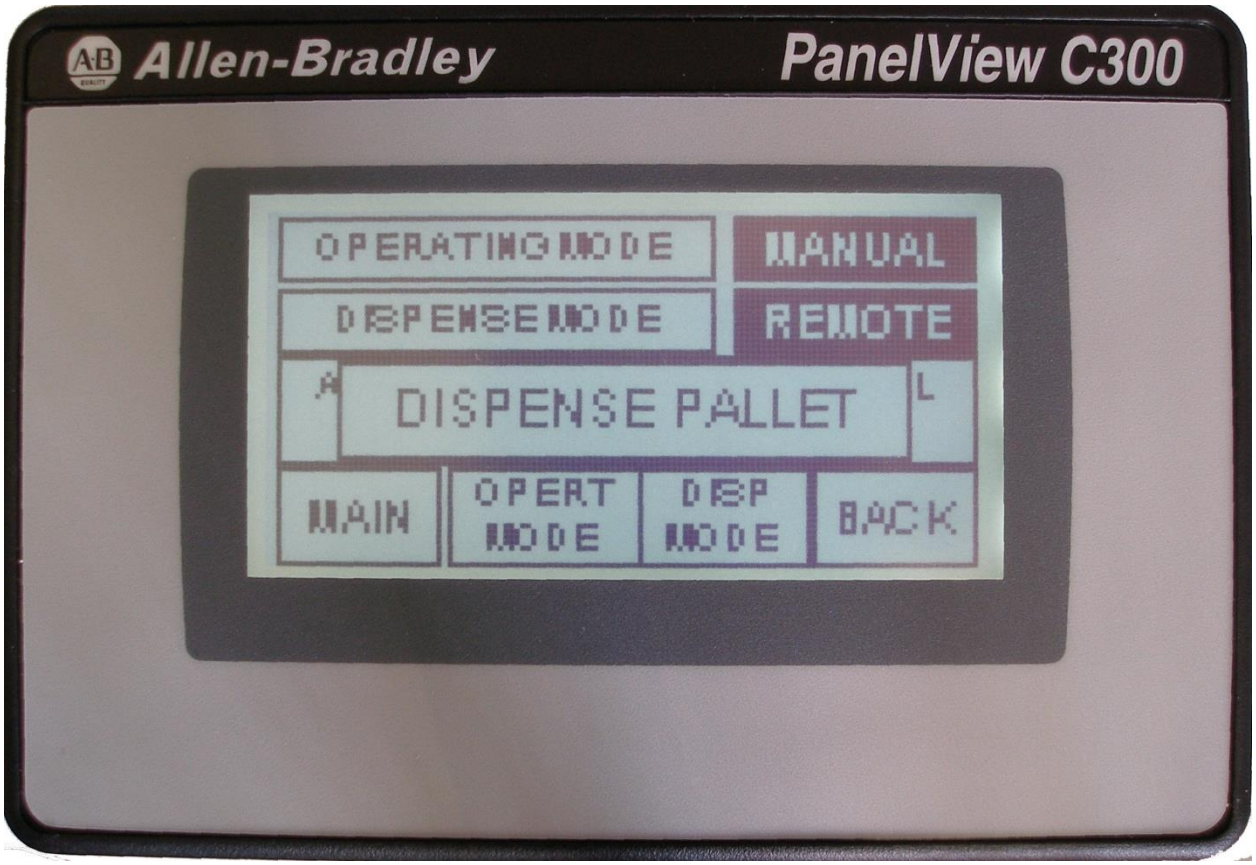
Local: if the operator would like to use the view panel to request a pallet, you would use this mode. Now the operator can use the "Manual Dispense Screen" (fig.6) to dispense pallets.

Auto: This mode will put the dispenser in automatic dispenser mode. In this mode, the dispenser will automatically dispense a pallet as long as the following conditions are met:

1. Underneath the dispenser is clear and has been for 5 seconds. Once this is met, it will dispense another pallet and will continue to do so until it runs out of pallets or pulled out of auto mode. (The current dispense mode is displayed to the right of the label "current dispense mode")

MANUAL DISPENSE (fig.6)

This screen is used when the operator wants to dispense a pallet on demand.



In order to “dispense a pallet” the following conditions must be met:

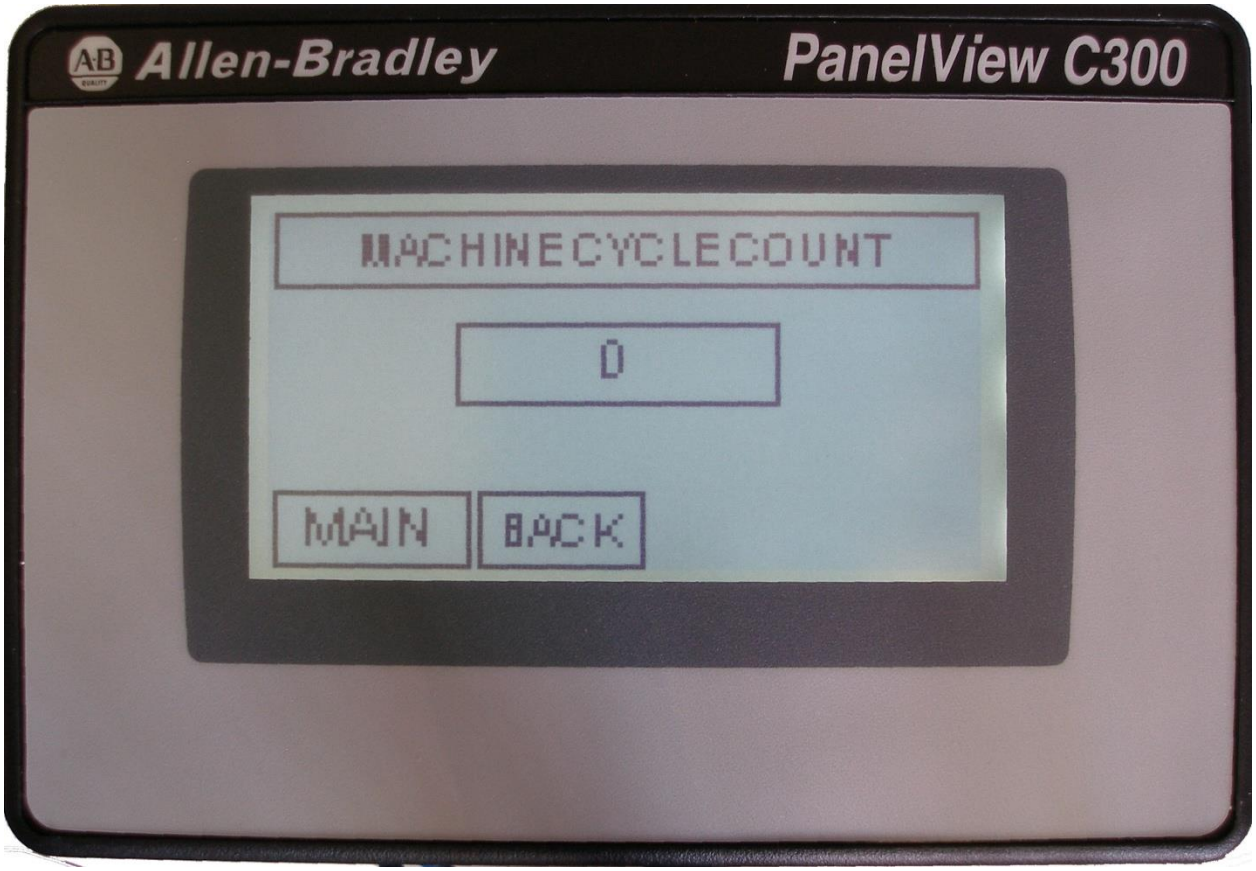
1. Operating mode must be “Auto” (can be changed in “operating mode” screen) fig.1
2. Dispense mode must be “Local” (can be changed in “dispense mode” (fig.5) screen located in the “utility” (fig.3) screen).

Important!! If the above two conditions are not met, the “Dispense Pallet” button will not be visible.

The “operating mode” and “dispense mode” screens can be accessed by using the appropriate screen selector buttons at the bottom of the screen.

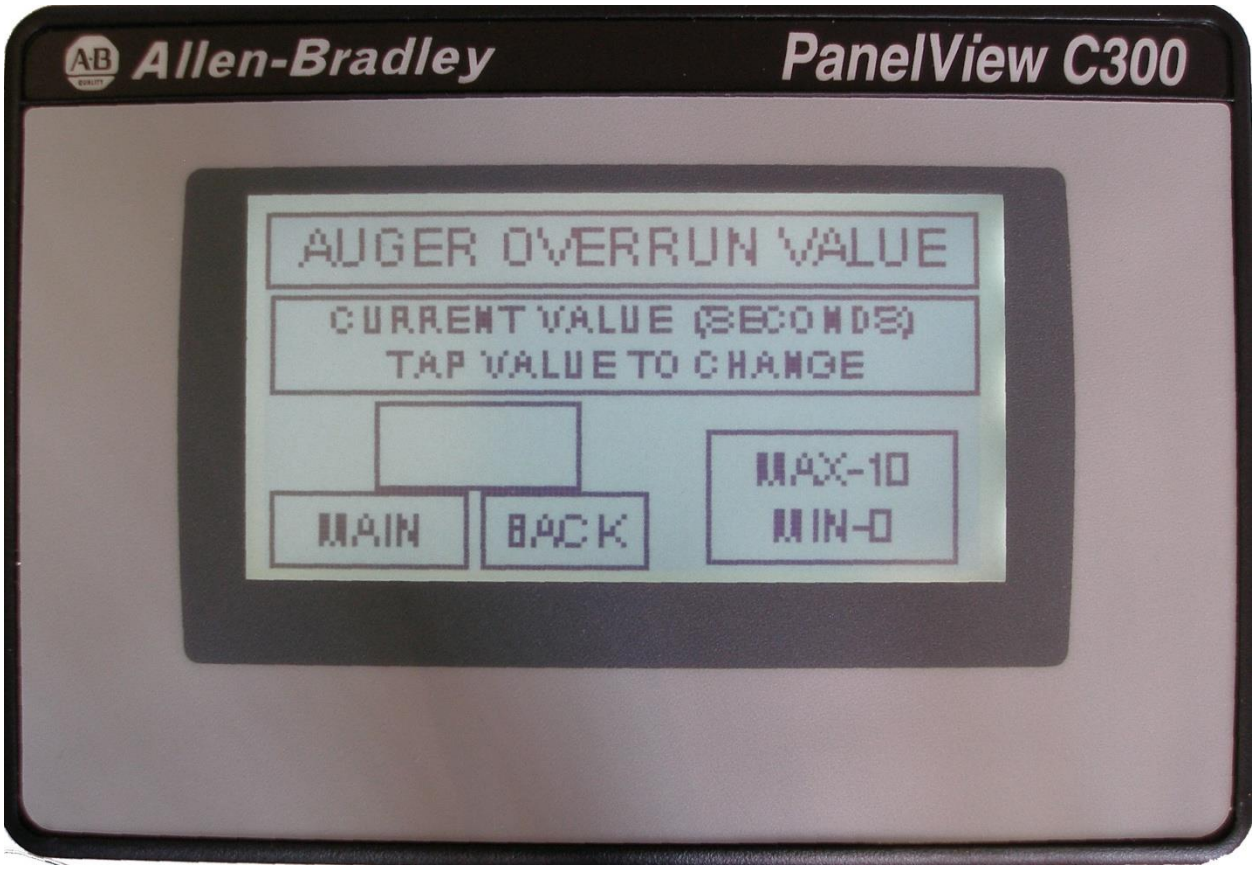
CYCLE COUNT (fig.7)

This is where the operator can see how many pallets have dropped since placed in production. It cannot be reset except through a software editing program.



SETUP fig.8

This screen allows the operator to adjust the auger overrun value.



Definition: when the dispenser dispenses a pallet, once the pallet lands on the conveyor the photo eyes underneath the dispenser tell the PLC that a pallet has been received. Using the overrun value, the PLC will continue to rotate the augers so the next pallet is staged closer to dropping. This will help the time it takes to drop a pallet the next time so a fast cycle time can occur.

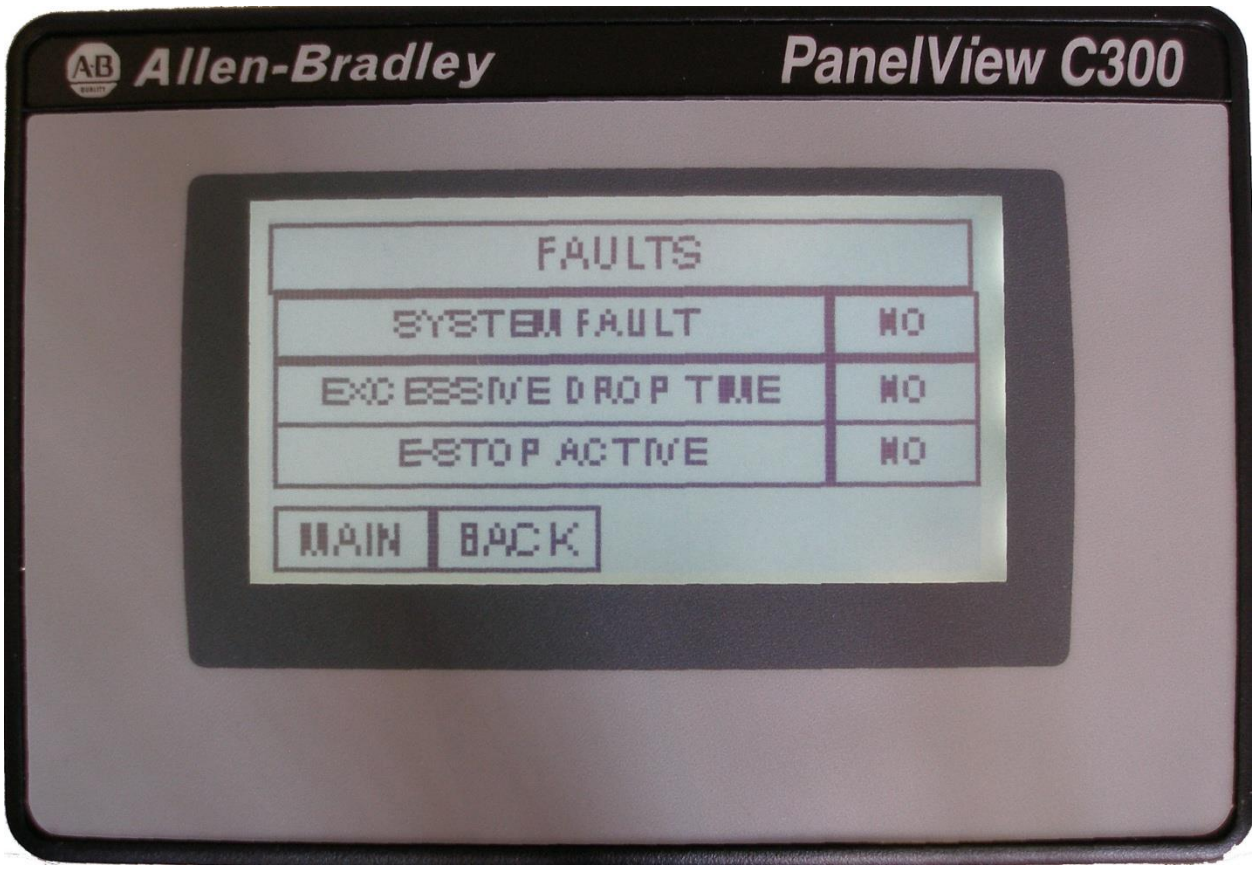
IMPORTANT! If too much time is set, the pallet dispenser could possibly drop a pallet on top of another pallet. If this occurs, the overrun value needs to be reduced.

MINIMUM SETTING =0 SECONDS

MAXIMUM SETTING = 10 SECONDS

FAULTS (fig.9)

This screen is used to determine WHY the machine is not dispensing a pallet when it should be.



System fault: this would be "yes" if the following has occurred:

1. Leading edge broken (either a pallet or someone physically blocked the photo eye.)
2. Pallet dispenser is "Empty"
3. Excessive drop time (see below)
4. E-stop active (see below)

Excessive drop time: If the pallet dispenser is dropping a pallet, the PLC will "timeout" if it does not receive a signal from the photo eyes located under the dispenser after a set allotted time.

Potential Causes:

1. Pallet Jam - a bad pallet has caused a jam and needs to be removed
2. Motor clutch slipping – there is a friction clutch located on the gearmotor. This prevents the motor from stalling as well as prevents the augers from potential damage. Tighten the clutch using the directions located in the pallet dispenser manual.
3. Chain break – if a drive chain has broke, replace the section of chain using the directions located in the pallet dispenser manual.
4. First run pallet – If you just loaded up the dispenser for the first time, or change pallet styles, the first pallet may have needed to travel from the top of the auger all the way to the dropping point. This will time out the machine.
    a. Put machine back in auto and request another pallet. (Now the pallets will be staged correctly and the error should not occur again.)

E-Stop Active: IF the E-stop on the control cabinet or from an external source has been activated, the e-stop will need to be reset once all the conditions are met. If the machine has been powered off and on, the e-stop will also need to be reset.

AUTO MODE- PROCEDURE CONDITIONS TO BE MET.

1. **Sensor status**:
    a. Pallet Supply low – YES or NO (will not affect auto status)
    b. Pallet supply empty – NO (This prevents the dispenser from running completely dry)
    c. Loading edge clear – YES (this is the photo eye on the edge of the hopper opening. This prevents fingers from getting caught in the machine as well as prevents pallets that haven't been properly loaded straight from feeding into the machine.
    d. E-stop is not active and is reset.

JOGGING THE SCREW- PROCEDURE CONDITIONS TO BE MET

1. E-stop is not active and is reset
2. In manual mode

TROUBLESHOOTING

Will not go into Auto mode:

Go to the Utility Screen, from there:

1. Check fault status (fig.9) Correct any faults that are active
2. Check Sensor Status (fig.2) make sure drop area is clear, pallet supply is not empty, and leading edge is not blocked.

Problem: Dispensed a pallet on-top of another one already dropped

Cause: 1. Auger overrun is set too high.
Solution: Go to the utility screen and choose setup to adjust.

2. Photo-eyes underneath are not seeing a previously dropped pallet.
Solution: Adjust the two photo eyes so that they sense a dropped pallet.

Problem: Does not dispense a pallet even though in auto mode

Cause: 1. Check pallet supply – fill pallet hopper.

2. Check Fault Screen – adjust accordingly. Also see: **Faults fig.9**

Clearing out a Jammed pallet:

In most cases, if you have a jammed pallet in the machine and is located in the cavity, you may have to empty the dispenser's hopper in order to remove it. The simplest way to go about this is unload all the pallets that can be removed with a fork lift and then proceed to manually jog the machine "UP". This prevents any unnecessary force on the machine caused by the weight of the pallet in combination with the jam.

PANEL PARTS LIST

This is a list of the main components used in the control panel. Spare parts list for the dispenser can be found in the dispenser manual.

PLC – Allen Bradley micrologix 830: Part No. 2080LC3024QWB

ViewPanel – Allen Bradley C300 Touch: Part No. 2711C-T3M

Photo Eyes -

1. Allen Bradley standard diffuse: Part No. 42EF-D1JBAK-F4
2. Allen Bradley Retro-reflective: Part No. 42EF-P2KBB-F4 (leading Edge Eye)

Motor Starter- Schneider Electric 12a for/rev: Part No. LU2B12BL

Standard control unit for starter – Schneider Electric Part No. LUCA1XBL

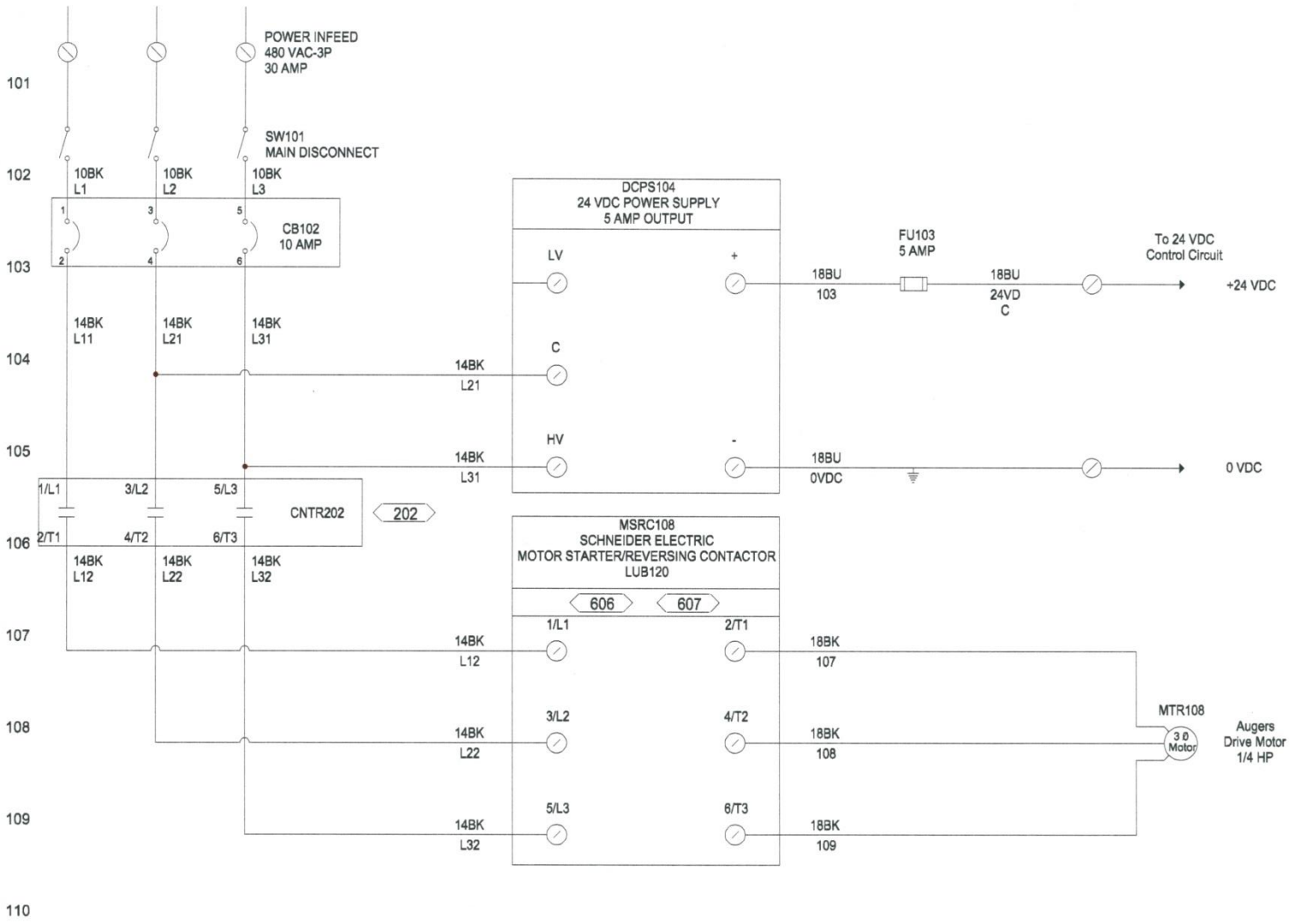
Circuit Breaker – Schneider Electric 3p 10amp: Part No. MG24466

24V Power Supply – Schneider Electric Universal 1phase: Part No. ABL8RPS24050

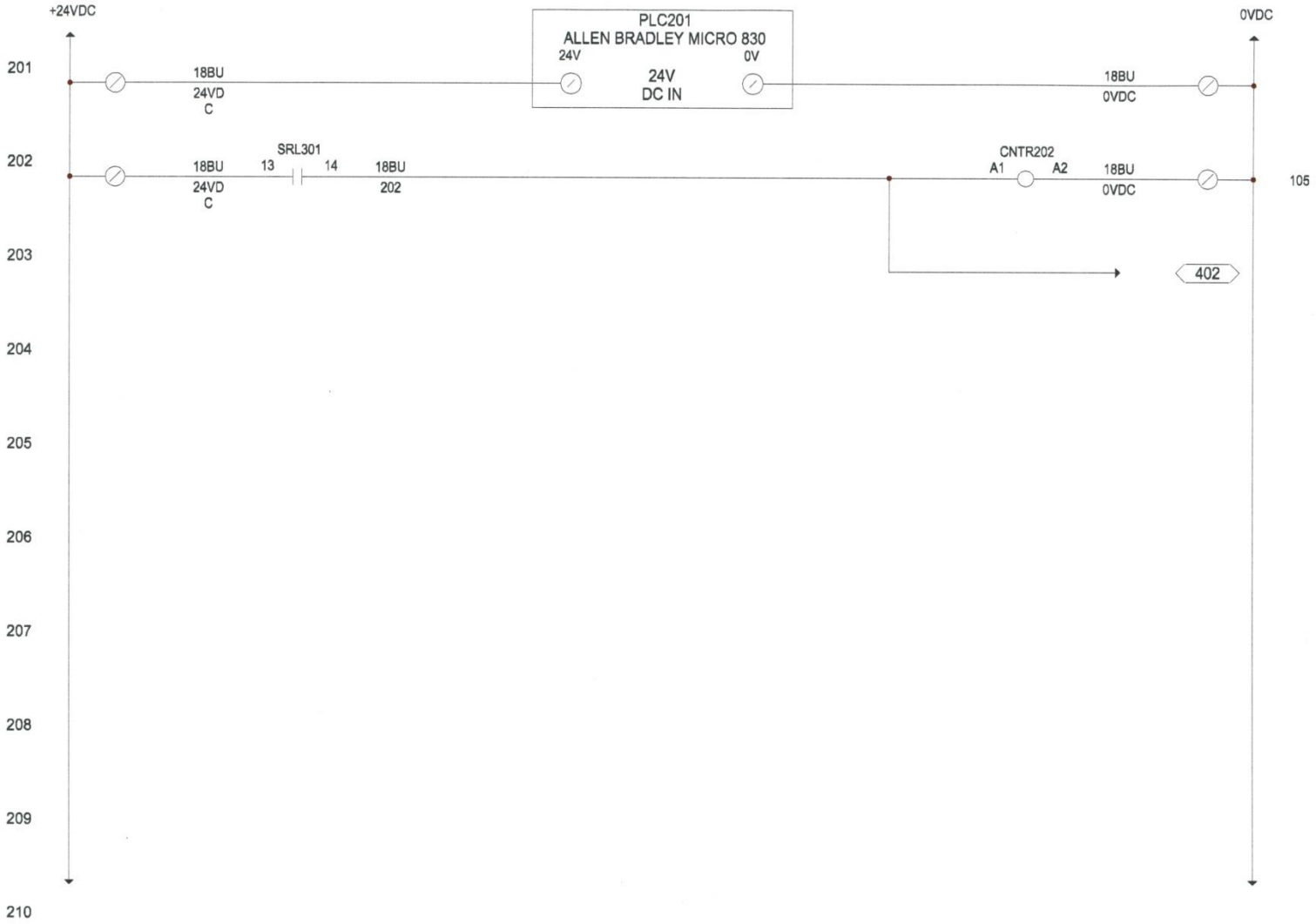
Safety Relay – Schneider Electric 2.5 amp preventa: Part No. XPSAFL5130P

Contactor – Fuji 9amp 3pole 24VDC Coil: Part No. SC-E02G-24VDC

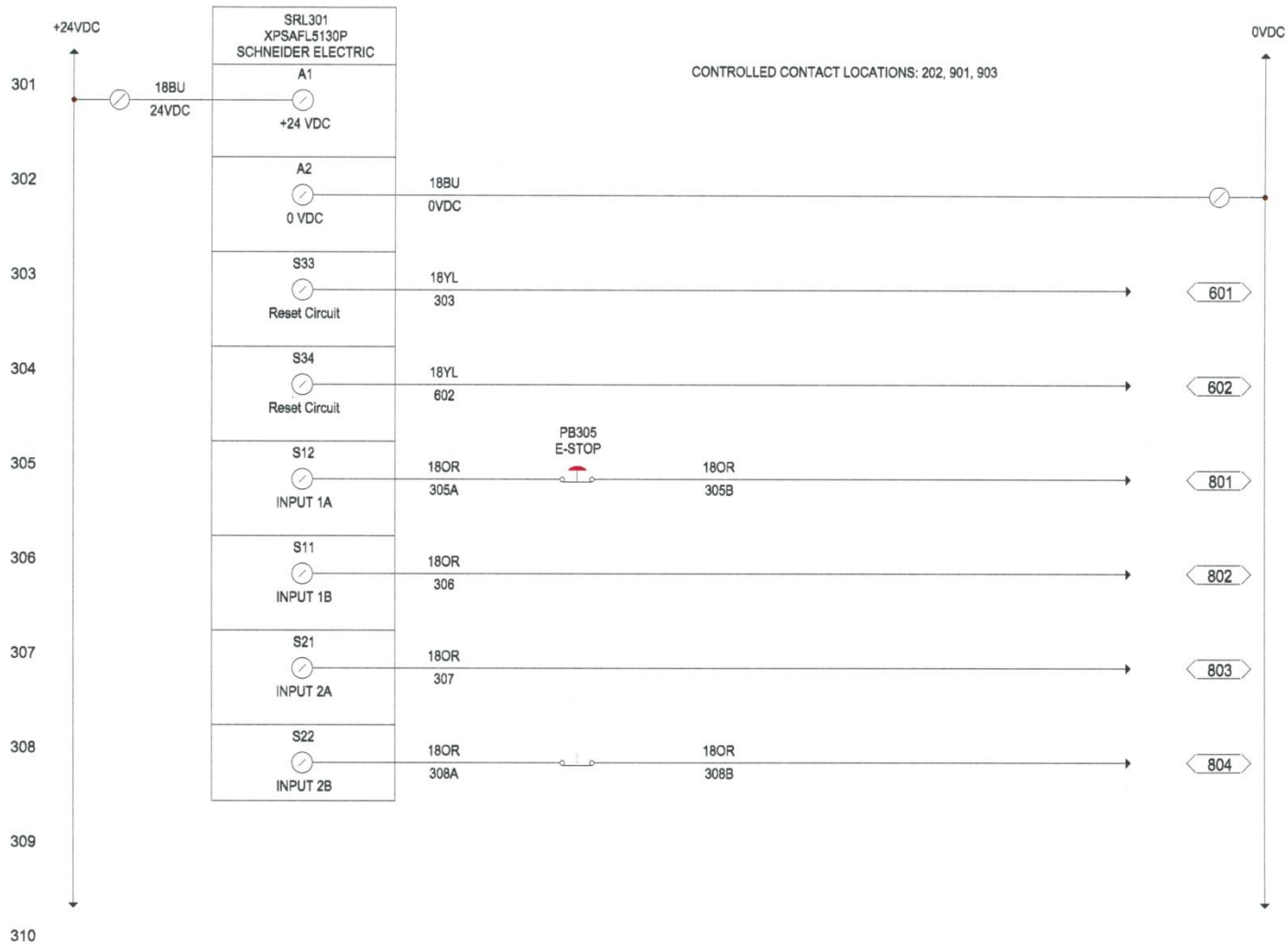
PANEL ELECTRICAL SCHEMATICS



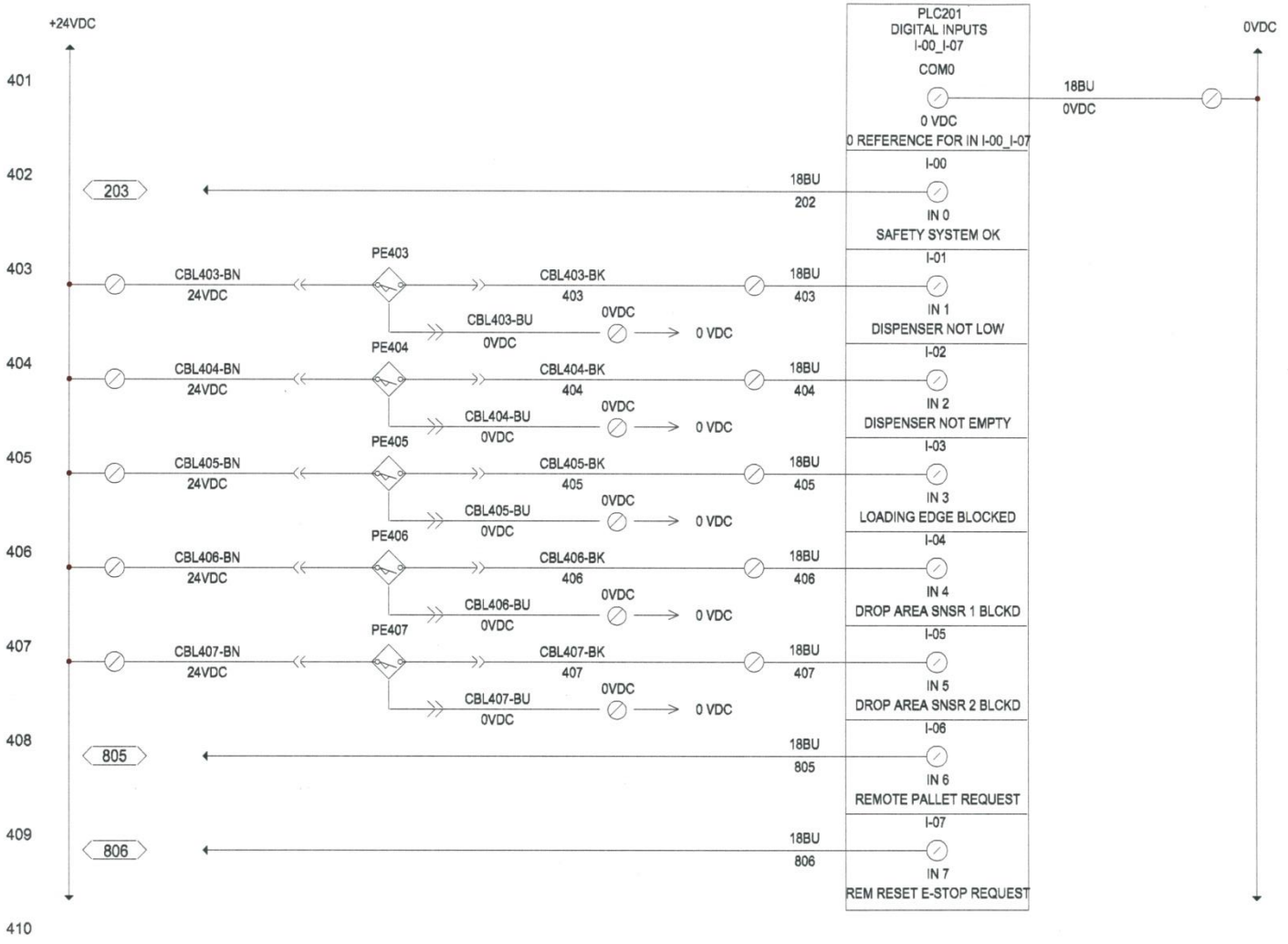
PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	SHEET:
480 VOLT, 3 PHASE CIRCUIT		BWS	MAR 2012	1/9



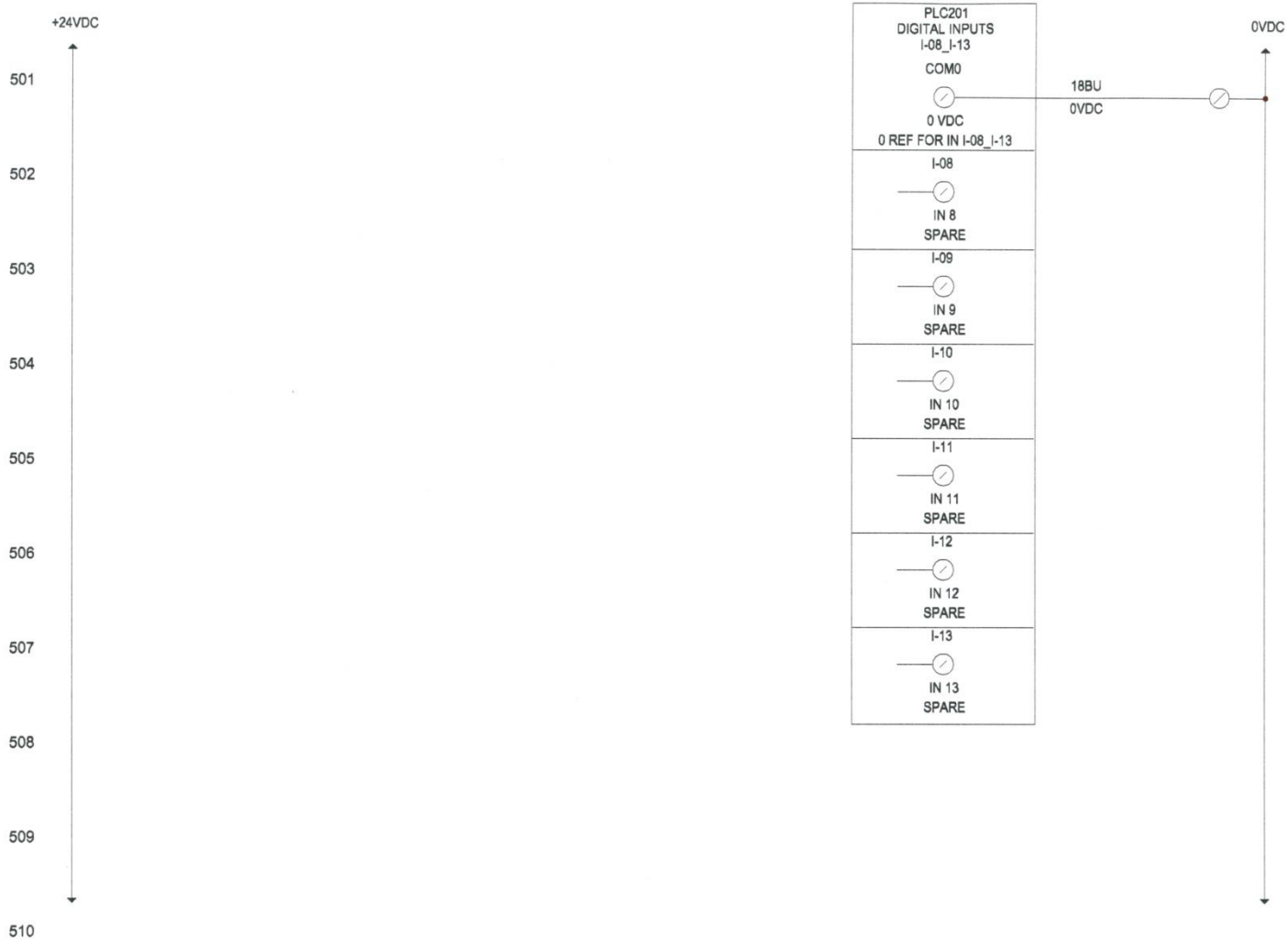
PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
24VDC CONTROL CIRCUIT		BWS	MAR 2012	2/9



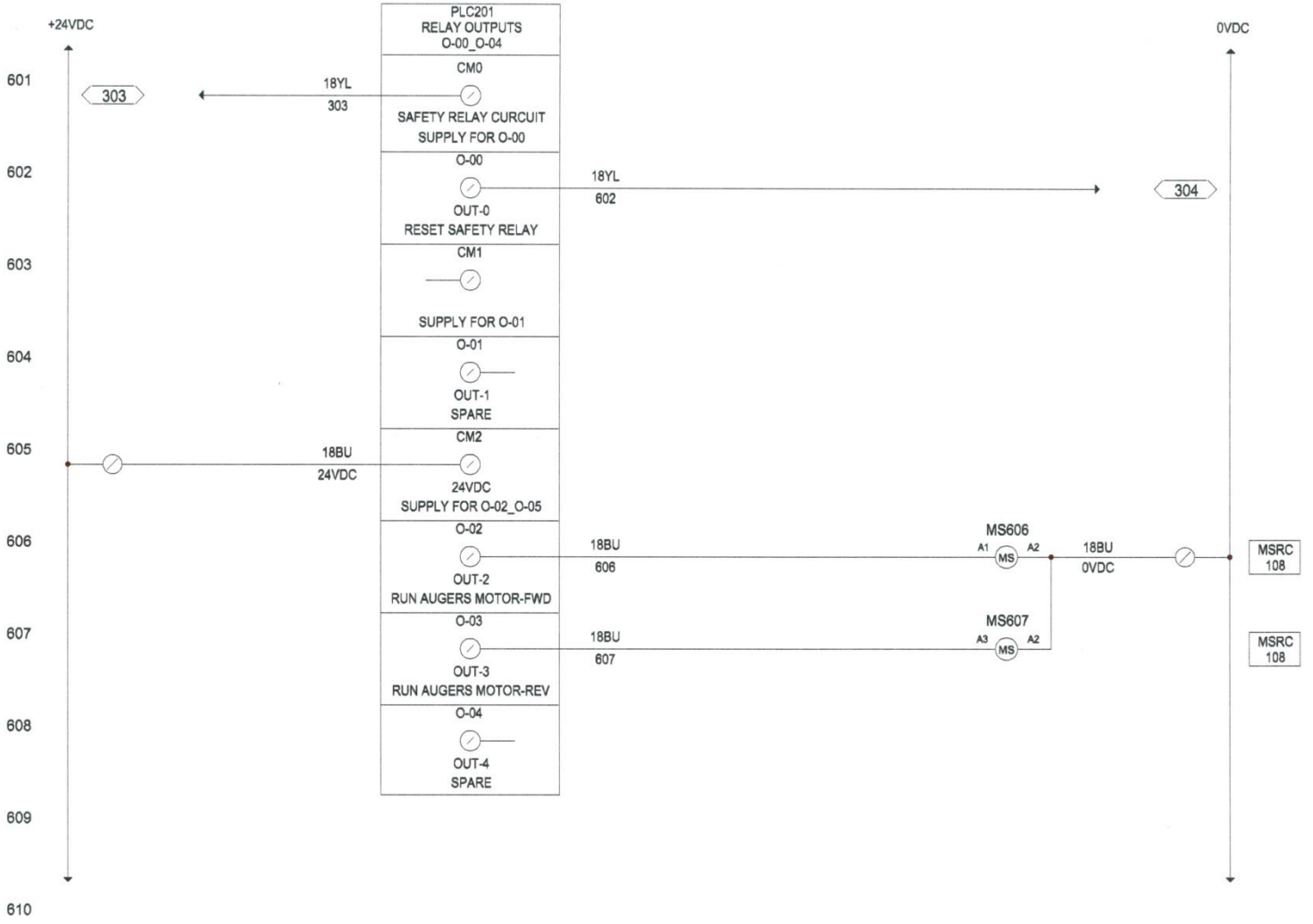
PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
24VDC CONTROL CIRCUIT	SAFETY RELAY CONTROL CIRCUIT	BWS	MAR 2012	3/9



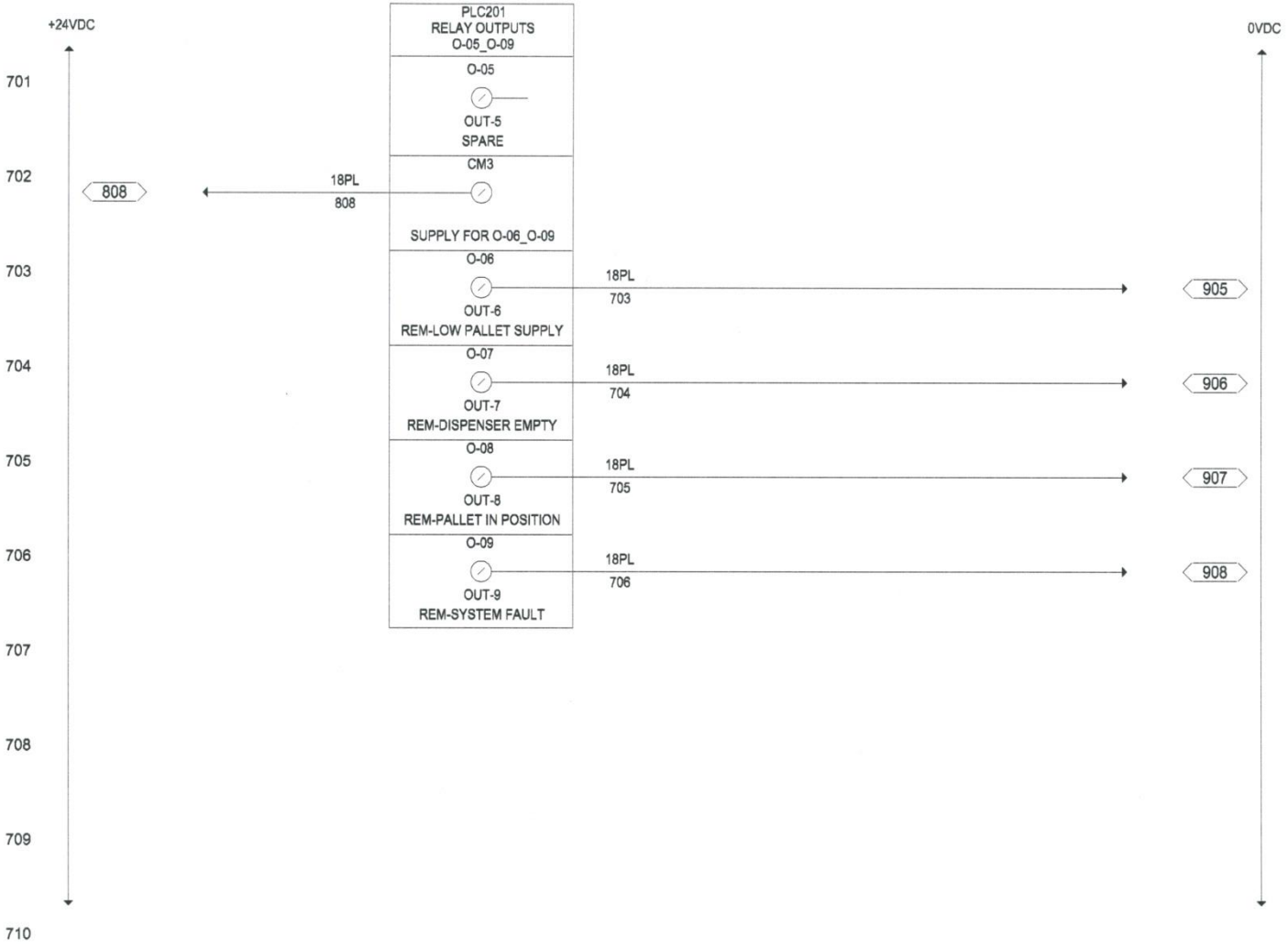
PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
24VDC CONTROL CIRCUIT	PLC DIGITAL INPUTS I-00_I-07	BWS	MAR 2012	4/9



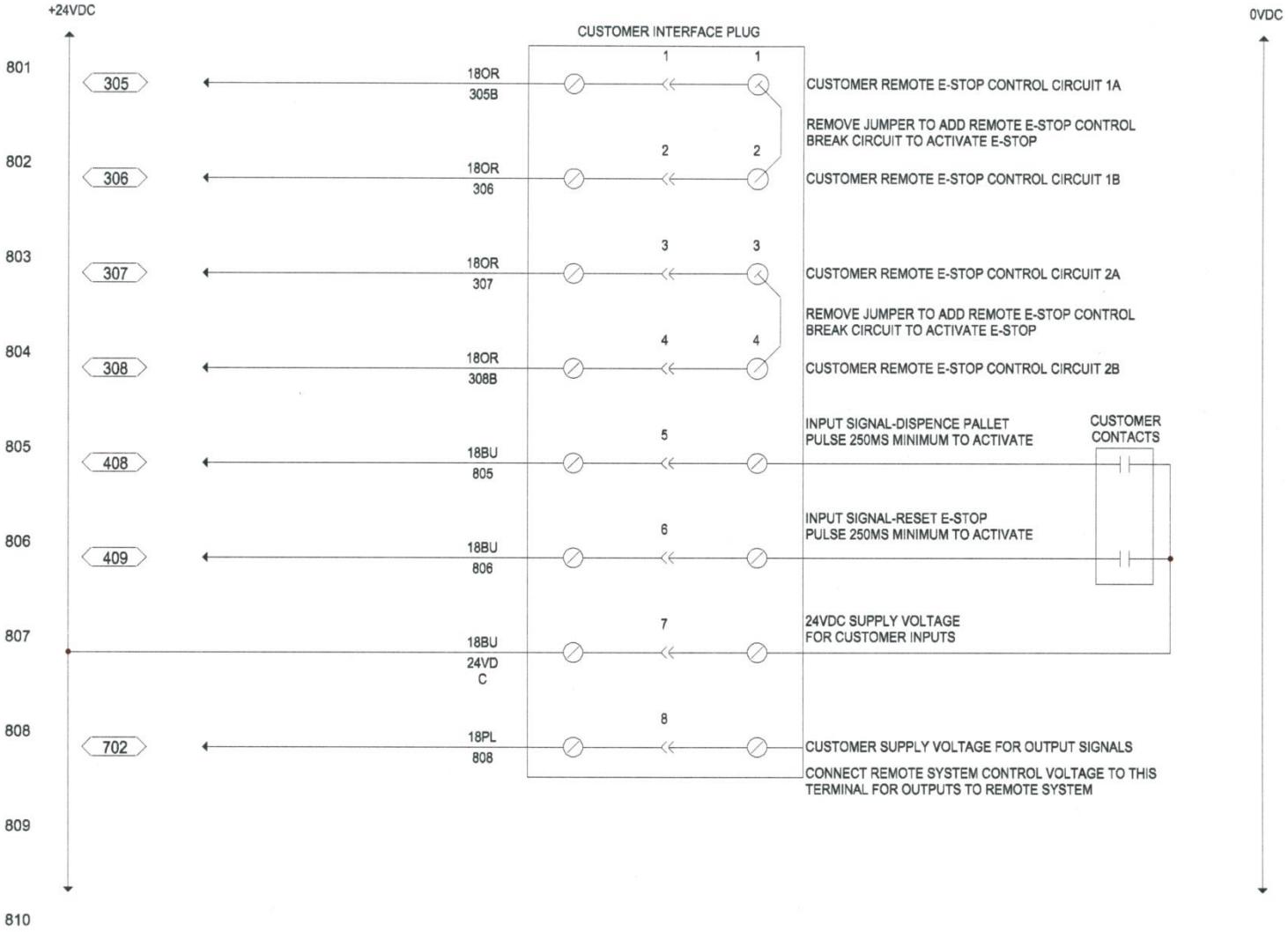
PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
24VDC CONTROL CIRCUIT	PLC DIGITAL INPUTS I-08_I-13	BWS	MAR 2012	5/9



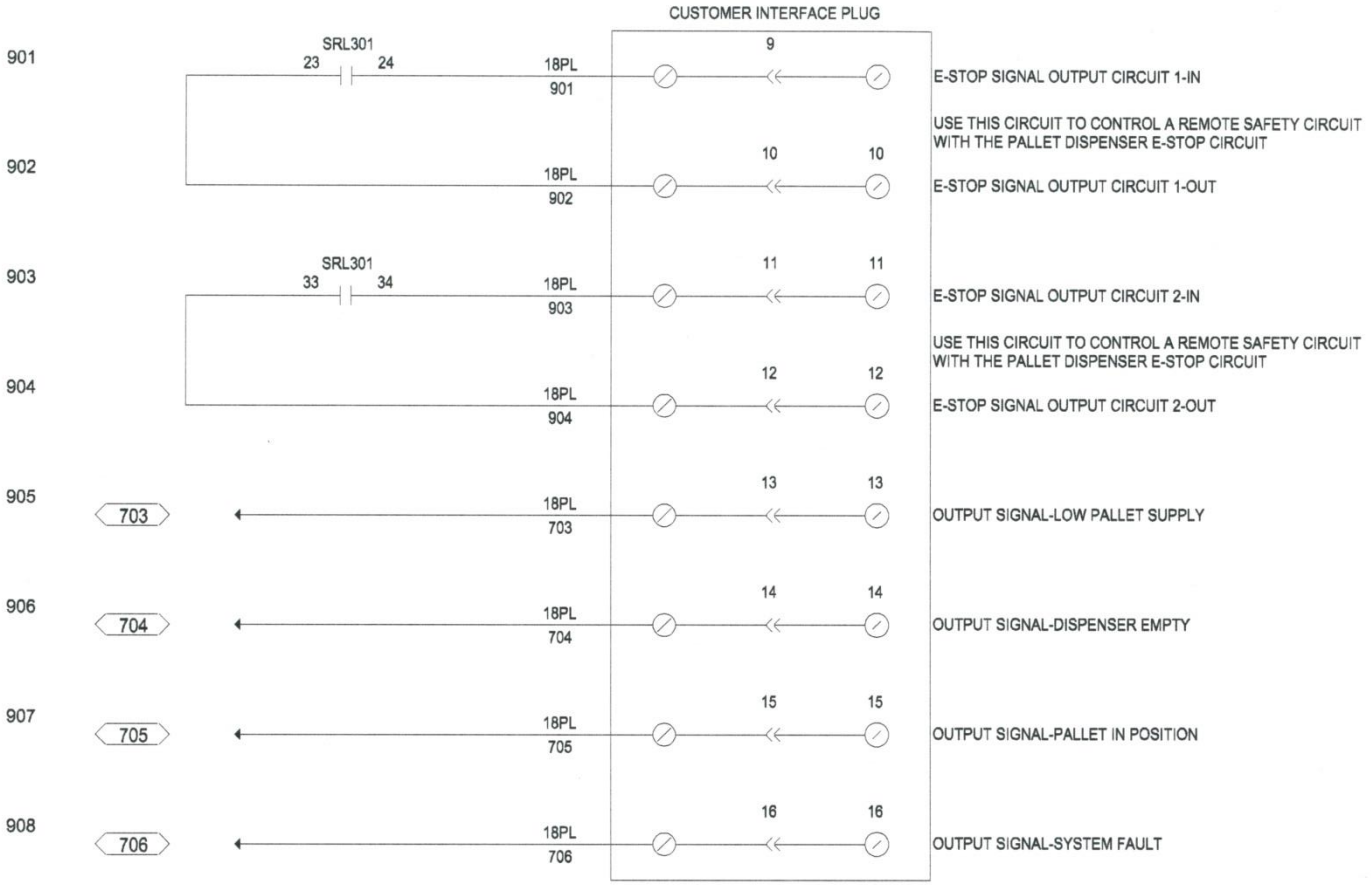
PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
24VDC CONTROL CIRCUIT	PLC RELAY OUTPUTS O-00_O-04	BWS	MAR 2012	6/9



PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
24VDC CONTROL CIRCUIT	PLC RELAY OUTPUTS O-05_O-09	BWS	MAR 2012	7/9



PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
CUSTOMER INTERFACE	CUSTOMER INPUTS	BWS	MAR 2012	8/9



PALLET DISPENSER WIRING DIAGRAM		DRAWN BY:	DATE:	PAGE:
CUSTOMER INTERFACE	CUSTOMER OUTPUTS	BWS	MAR 2012	9/9

WARRANTY

All SNAPCO products are covered by a SNAPCO Warranty. The warranty below is specific for any control panel

Snapco, Inc. warrants that its Products shall be free from defects in materials and workmanship, if Snapco is notified of a defect (i) with respect to the product within a period of one (1) year from the date of its delivery to you.. In addition, Snapco does not warranty systems that have been damaged as a result of poor power quality, whether from phase converters or incoming line power. This warranty shall not apply to any Product which has been incorrectly - installed, modified, or otherwise damaged. Snapco, at its sole option, shall repair, replace, or adjust, free of charge, any defective Products covered by this warranty which shall be returned with Snapco's prior authorization (which shall not be unreasonably withheld), properly packed, to Snapco's place of business in Cynthiana, Kentucky, or to an authorized Snapco repair facility, all costs, insurance and freight prepaid. Snapco shall not be liable for any repairs, replacement, or adjustments of Products covered by this warranty, except those made pursuant to this paragraph or with Snapco's prior written consent. The warranty above is exclusive and is in lieu of all other warranties, express, implied, statutory, or otherwise with respect to the Products or as to the results which may be obtained there from, and all implied warranties or conditions of quality or of merchantability or fitness for a particular purpose or against infringement. The foregoing shall constitute the sole and exclusive remedy for any breach by Snapco of its warranty.

Distributors/OEMs may offer different or additional warranties, but Distributors/OEMs are not authorized to give any additional warranty protection to you or make any representation to you purporting to be binding upon Snapco.

Other restrictions may apply. Please see your authorized Snapco partner for details.

SERVICE

Snapco

3060 US Highway 27s

Cynthiana, KY 41031

859-234-8267

859-234-6665 fax

www.snapco.com