OMNI-SYSTEM

SNOW & ICE DIVISION

OPERATION AND CONFIGURATION MANUAL

TABLE OF CONTENTS

Features and Specifications 4

Controller Pinnouts 5

Operation Screens 6

Controller Alerts 7

Accessing Configuration 8

Configuration Menu—Software/Passcode Reset 9

Configuration Menu—Datalogging Menu 10

Configuration Menu—Spreader Settings 11

Configuration Menu—Dump Settings 13

Configuration Menu—Plow Settings 14

FEATURES & SPECIFICATIONS

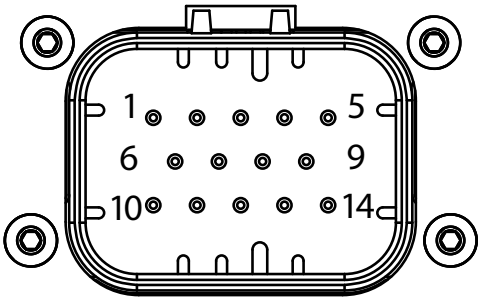
Controller Specifications

- Voltage Input Range (10VDC—16.5VDC)
- Max Operating Current (1.5 Amps)
- Open and Short Circuit Protection
- CAN Communication Protocol

Electrical System Features

- Configurable Error Status Indicators
- Upgradeable Software
- AVL System Ready
- Ground Speed Orientation
- Open & Short Circuit Protection and Alerts
- Expandable I/O
- Adjustable LED Backlighting
- Tactile Switch Controls
- Built-in Audible Alarm
- Air & Road Temperature Sensor Ready

CONTROLLER PINOUTS



Detailed enlarged drawing of the Main Controller Connector.

Pin	Function	Comment
A.1	CAN0 L	No term
A.2	CAN0 H	
A.3	CAN1 L	120 term
A.4	CAN1 H	
A.5	+5VOUT	0.5A MAX
A.6	N/A	
A.7	N/A	
A.8	J1708 A	
A.9	J1708 B	
A.10	+VIN	
A.11	GND	
A.12	DIG1	GND Trigger
A.13	DIG2	Selectable +/-
A.14	DIG3	Selectable +/- or PWM

FEATURES AND SPECIFICATIONS

ON–OFF CONTROLS:

Controller on-off: The controller is powered through a keyed ignition switch.

Spreader on-off: Depress the auger and liquid knobs to activate the auger and spinner. Rotate the auger and spinner knobs to increase the rates to the desired settings. Rates will be displayed in the displays above the adjustment knobs.

Liquid on-off: Depress the liquid and spinner knobs to activate the pre-wet system. Rotate the liquid knob to increase the rate. The rate will be directly displayed above each encoder adjustment knob.

SPREADER OPERATION:

Blast: Press the auger knob to “Blast” granular material. Both the granular rate and time are adjustable in the configuration menu. See Page 11 for additional information on this.

Pause: Press the spinner knob to pause all spreader operations.

Operating Mode: Depress the liquid knob to change operating modes.

- **Auto**: The material output is spread in proportion to vehicle speed (lbs./mile). When the truck stops, the salt stops. A flashing Auto display indicates the system is at 0 MPH or not receiving a groundspeed input.
- **Manual**: The material output is spread at a fixed percentage rate.

Brightness: To adjust the brightness of the display and buttons:

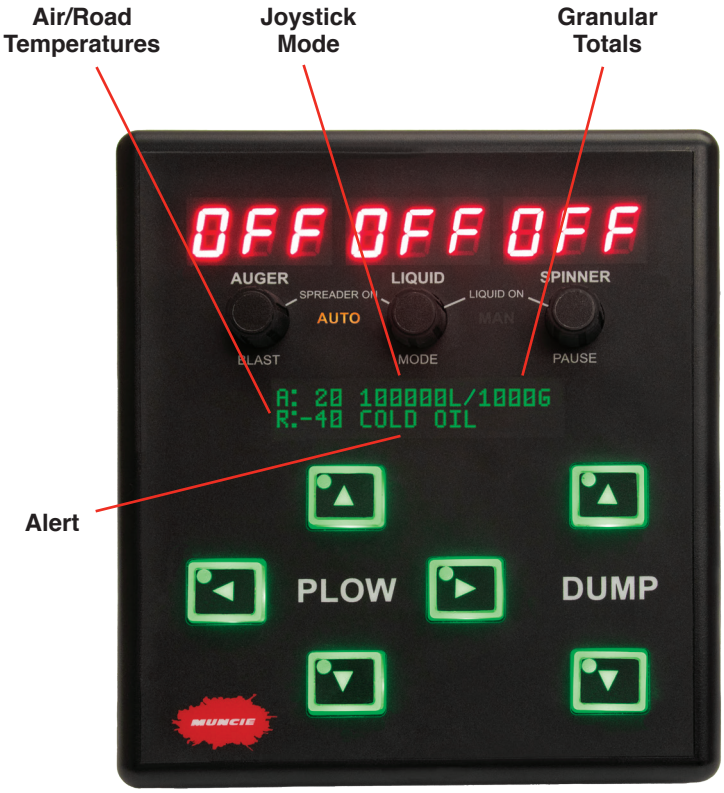
(1) Depress and hold the liquid knob for 6 seconds until a numerical value appears in the spinner window.

(2) Rotate the spinner encoder to adjust the intensity of the backlighting.

DISPLAY:

Air Temp/Road Temp – When the system is equipped with an IR temperature sensor, the controller will display the air and road temperatures.

Totals – Displays the granular material totals.



Joystick Mode – Displays the current piece of equipment the joystick is controlling.

Alerts – Displays error messages.

CYLINDER OPERATION:

Plow: Push the appropriate arrowed buttons to operate. Vertical oriented arrows will raise and lower the plow. Lateral oriented arrows will angle the plow.

Float Operation: When equipped with plow float, quickly depress the down arrow twice to activate. Depress the up arrow or pull back on the joystick to disengage the float functionality.

Dump: Push the appropriate arrowed buttons to operate the dump body. The up arrow will raise the body, and the down arrow will lower the body.

Backlighting: The arrowed buttons will change from green to red to indicate the action has been successfully communicated to the valves.

Fault Detection: Alternating green and red lights on the arrowed buttons indicate a fault with the attempted function. This could be a short or open circuit.

CONTROLLER ALERTS

Cylinder Button Errors: Alternating green and red lights on an individual arrowed button indicates a fault with the particular function. Check the electrical connector at the associated solenoid valve.

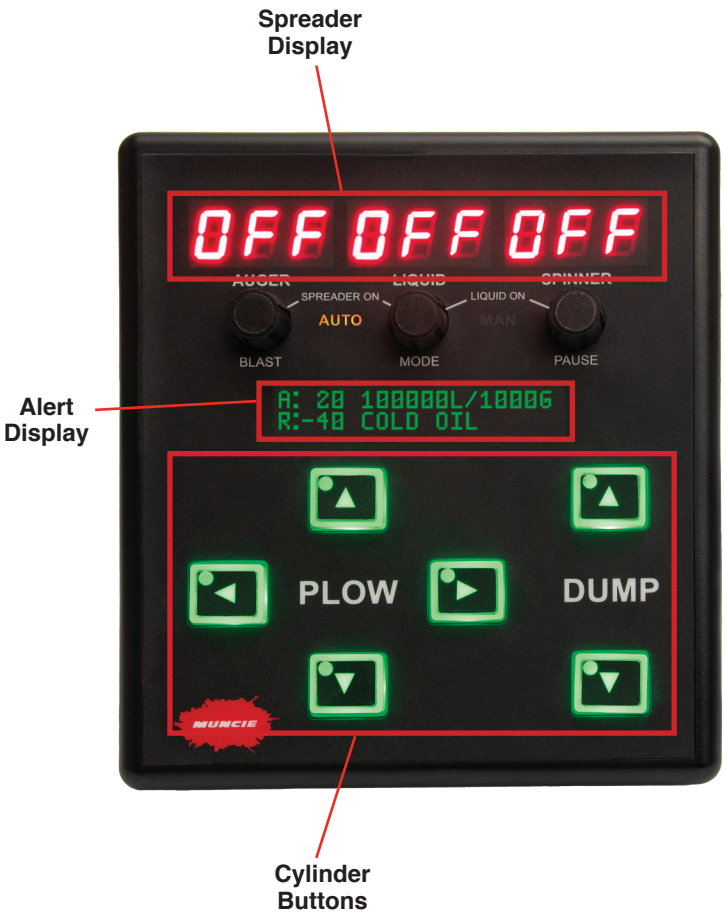
When all buttons appear to flash individually, this typically indicates a fault with the unloader / electrically controlled main relief output. This could also indicate the I/O modules are not connected.

Spreader Display Errors: Whenever an open or short is detected at one of the spreader outputs, ERR will appear in the display of the problematic function. Check the connection of the designated solenoid valve to resolve.

Ground Speed Indicator: A flashing spreader display will indicate the unit is operating within auto mode and is not receiving a MPH signal. Keep in mind the controller will not be receiving a MPH signal when the truck is not moving.

Alert Display: The alert display will provide messages tied to the systems digital inputs. Pending the configuration selected, the system has the ability to alert the operator when there is a hot oil, low oil, body up, and/or filter bypass condition.

ERR will also appear on the alert display in the event a joystick has been disconnected.



CALIBRATION SCREENS

ACCESSING CONFIGURATION MENU:

This menu is passcode protected to limit access to non-authorized personnel. It is recommended to change the passcode from the default value to limit access and prevent unintentional system adjustments.

Follow the steps below to enter the configuration menu:

1. **Accessing Config Menu**: With the spreader off, simultaneously depress the Auger and Spinner knobs.

2. **Passcode Entry**: The liquid knob will adjust the left 2 digits and the spinner control will adjust the right 2 digits.

(Default Passcode = 0001)

3. **Navigating Configuration Menu**:

   - Rotate the auger knob to scroll through the various adjustment items.
   - To enter and exit the sub menus, depress the auger knob.
   - To change settings, rotate the liquid and spinner knobs.

CALIBRATION SCREENS

SOFTWARE MENU:

SOFTWARE

Firmware Bundle: Non-adjustable and reference only.

FIRMWARE BUNDLE
4.0

Firmware Panel: Non-adjustable and reference only.

FIRMWARE PANEL
4.0.89

Firmware HMI: Non-adjustable and reference only.

FIRMWARE HMI
4.0.25

Firmware Primary: Non-adjustable and reference only.

FIRMWARE PRIMARY
0

Firmware Secondary: All firmware menus are non-adjustable and reference only.

FIRMWARE SECONDARY
0

Firmware Liquid Mod: All firmware menus are non-adjustable and reference only.

FIRMWARE LIQUID MOD
0.0.0

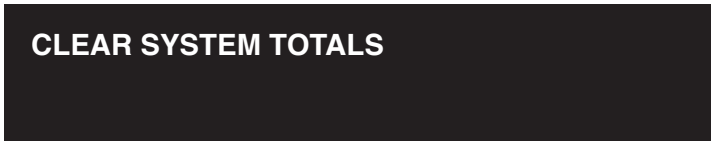
Passcode Change: Using the liquid and spinner knobs, adjust the default passcode.

PASSCODE CHANGE **0001**

CONFIGURATION MENU

DATALOGGING MENU:

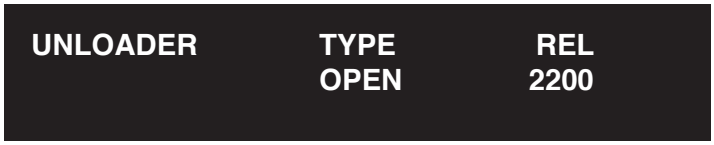
Clear System Totals: Depress the spinner knob to clear the system datalog totals.



GLOBAL EQUIPMENT SETTINGS:

Unloader - Type: Rotate the liquid knob to select the appropriate unloader type. Selections include open (gear pump), closed (piston pump), none (alternate piston pump setup).

Unloader – Rel: Select to adjust the Main Relief Pressure. The system can be set to a maximum of 3,000 PSI. Deadhead the plow angle to observe the main relief pressure.



Road Temp Offset: This adjustment allows the road temperature sensor to be tuned if the current reading is slightly inaccurate.

1. To check the accuracy of the road temperature, insert a cup of ice water under the IR sensor. The temperature should read approximately 32 F.

2. If the temperature is off, use the spinner knob to offset the temperature sensor to correct the displayed value.

* The air temperature cannot be adjusted. Keep in mind that the air temperature can be slower to adjust since it is a function of the sensor housing.

Groundspeed Calibration: The groundspeed calibration can be set using two different methods. Only one method is required to sync the speedometer.

Option 1 – MPH Cal: If the pulse count is known for the chassis, simply use the liquid and spinner knobs to directly enter the value.

Option 2 – MPH Sync: Drive the truck and maintain 20 MPH while pressing the spinner button. This will auto populate the “Groundspeed Cal” text box.

CONFIGURATION MENU

SPREADER MAIN SETTINGS:

Setting Retain: Use the liquid knob to toggle the retain settings feature. This functionality allows the controller to retain the Auger, Liquid, and Spinner rates through power cycles.

CAUTION: This will cause the spreader controller to retain the settings after the controller has been powered off. Be aware that anytime the spreader functionality on the controller is activated, the motors will initiate at the last settings.

Manual Mode Enable: Manual mode can be toggled on or off. Disabling manual mode will prevent the operator from accessing this mode above 7 MPH. Allowing operators to access under 7 MPH is necessary to allow material to be offloaded.

0 SPN: The 0 MPH spinner feature allows the spinner operation to halt when the truck comes to a stop. If the setting is configured for “spinner on” the spinner will remain spinning regardless of truck speed.

Blast LVL: The blast level sets the auger speed when the blast button is pressed. This is adjustable from 0-100%. Use the liquid knob to change.

Blast Time: The blast duration can be adjusted from 0 – 255 seconds. Use the spinner knob to change.

Take-Off Timer: The take-off timer is only applicable to Auto Mode, and it is intended to help expedite material output as a vehicle accelerates from a stop. This setting is adjustable from 0 - 20 seconds. Turning this setting above 0 will cause the auger to blast material. Use the spinner knob to adjust this setting.

CONFIGURATION MENU

BODY SPREADER SETTINGS:

BODY SPREADER

Auger Min/Max: The min setting should be adjusted so that the auger is barely turning. The max setting is the maximum preferred auger speed.

AUGER	MIN 013%	MAX 65%

Spinner Min/Max: The min setting should be adjusted so that the spinner is barely turning. The max setting is the maximum preferred spinner speed.

SPINNER	MIN 015%	MAX 040%

Liquid Min/Max: The min setting should be adjusted so that the liquid is barely flowing from the spray nozzles. The max setting is the maximum preferred liquid speed.

LIQUID	MIN 015%	MAX 040%

Auger OL Cal Const: The calibration values are automatically populated after a weighted dump calibration process. These values can be transferred to other controllers where the spreader body setup is identical.

AUGER OL	CAL	CONST

Spread Cal: This screen is intended for calibrating the spreader system (weighed dump calibration).

SPREAD CAL	DRIVE 039%	RUN START

Purpose—The spreader calibration is recommended for auto mode accuracy. It allows the controller to accurately discharge material at the rate shown and accurately log how much material is discharged.

1. Load the spreader with the primary material and weigh the truck. Before beginning the unloading process, increase and hold the engine at 1,000 RPM for this process.

2. Set the Drive % between the min and max settings. Depress the spinner knob to begin the spreader offloading process.

3. Allow the spreader to unload for 5-7 minutes. During the unloading process, depress the spinner to end the offloading process.

5. When the offloading process is complete:
   A. Reweigh the truck and calculate the amount of material dumped.
   B. Use the liquid and spinner knobs to enter the weight of material dumped.
   C. Depress the spinner knob to enter the value.
   D. Exit the calibration menu.

CONFIGURATION MENU

DUMP SETTINGS:

CYLINDER - DUMP

Dump Down Cylinder: This setting determines if the cylinder is a single acting or double acting design.

DUMP	CYL	PSI
DOWN	SA	0600

Dump PSI: Adjust this setting to control the downside relief pressure. Keep in mind that the downside relief is disabled when the cylinder is set for single acting.

Dump Down Min/Max: Adjust this setting to control the down speed of the dump cylinder. The min% allows the deadband to be removed from the joystick operation. The max% controls the cylinder speed when the joystick if fully deflected or using the panel buttons.

DUMP	MIN	MAX
DOWN	045%	065%

Dump Up Min/Max: Adjust this setting to control the up speed of the dump cylinder. The min% allows the deadband to be removed from the joystick operation. The max% controls the cylinder speed when the joystick is fully deflected or using the panel buttons.

DUMP	MIN	MAX
UP	015%	065%

CONFIGURATION MENU

PLOW SETTINGS:

CYLINDER - PLOW

Plow Cyl: This setting determines if the cylinder is a single acting or double acting design.

PLOW	CYL	PSI
DOWN	SA	0600

Plow PSI: Adjust this setting to control the downside relief pressure. Keep in mind that the downside relief is disabled when the cylinder is set for single acting.

Plow Down Float: This setting enables plow float if applicable. The PSI is only applicable when the system is configured for power float. The higher PSI selected the less pressure the plow is placing upon the road surface. Adjust the setting to help prevent excess wear on the plow edge.

PLOW	FLOAT	PSI
DOWN	OFF	0000

Plow Down Speed: Use the liquid and spinner knobs to adjust this setting to control the down speed of the plow. The min% allows the deadband to be removed from the joystick operation. The max% controls the cylinder speed when the joystick is fully deflected.

PLOW	MIN	MAX
DOWN	018%	040%

Plow Up Min/Max: Use the liquid and spinner knobs to adjust this setting to control the up speed of the plow. The min% allows the deadband to be removed from the joystick operation. The max% controls the cylinder speed when the joystick if fully deflected.

PLOW	MIN	MAX
UP	015%	040%

Plow Left Min/Max: Use the liquid and spinner knobs to adjust this setting to control the left speed of the plow. The min% allows the deadband to be removed from the joystick operation. The max% controls the cylinder speed when the joystick if fully deflected.

PLOW	MIN	MAX
LEFT	075%	085%

Plow Right Speed: Use the liquid and spinner knobs to adjust this setting to control the right speed of the plow. The min% allows the deadband to be removed from the joystick operation. The max% controls the cylinder speed when the joystick is fully deflected.

PLOW	MIN	MAX
RIGHT	075%	085%

Save & Exit:

SAVE & EXIT

Save & Exit: Navigate to this menu item and depress the spinner knob to save and exit the calibration menu.

Muncie® Power Products
A Member of the Interpump Group

IN20-01 (Rev. 05-20)

201 East Jackson Street • Muncie, Indiana 47305
800-367-7867 • Fax 765-284-6991 • info@munciepower.com • www.munciepower.com