FLEXBUS®

FLEXBUS Lite®

RECEIVER CONTROL SYSTEM

INSTRUCTION MANUAL

Original Instructions Manual
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To every person concerned with use and maintenance of the Maguire Flexbus system it is recommended to read thoroughly these operating instructions. Maguire Products Inc. accepts no responsibility or liability for damage or malfunction of the equipment arising from non-observance of these operating instructions.

To avoid errors and to ensure trouble-free operation, it is essential that these operating instructions are read and understood by all personnel who are to use the equipment.

Should you have problems or difficulties with the equipment, please contact Maguire Products Inc. or your local Maguire distributor.

These operating instructions only apply to the equipment described within this manual.

Manufacturer's Contact Information

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MAGUIRE Flexbus / Flexbus Lite

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Flexbus / Flexbus Lite Overview

The Flexbus System allows you to avoid the guesswork associated with central system conveying. Using one single, central Flexbus controller you can scale control up to five pumps and 120 receivers (24 per pump).

**Flexbus Lite** - Flexbus is also integrated into the Maguire 4088 Weigh Scale Touchscreen Controller as Flexbus Lite for loading control of the individual blender.

This manual describes both the Flexbus Central Vacuum Loading System and the Flexbus Lite Loading System integrated into the Maguire 4088 Weigh Scale Touchscreen Controller. The Flexbus Central Loading System and the Flexbus Lite Loading System are very similar in setup and operation. Differences in the systems will be noted throughout this manual when applicable.

- **Central Vacuum System Efficiency**
  Utilizing a 3-phase vacuum pump to supply multiple vacuum receivers is much more efficient than using separate vacuum loaders.

- **Easy Installation**
  Install a single wire and conveniently located drops to connect the control to all receivers and pumps.

- **System Grows with Your Needs**
  Each Flexbus central control allows addition of up to 5 pumps and up to 24 receivers per pump for a total of 120 receivers.

- **Flexbus Lite**
  Included within the Maguire Weigh Scale Blender Touchscreen, Flexbus Lite enables local control of a single pump and up to 9 receivers.

- **Local Receiver Control**
  Provides ON/OFF and loading time convenience. No need to run back to the central control.

- **Full Featured Central Control**
  Adjustable load, unload, priority, proportioning, purge, blowback and alarm settings.

- **Control over Communications**
  Flexbus provides communication support using Modbus TCP. See the Flexbus Modbus register mapping document for more details.

**Flexbus Loading Controller Features**
- 7” Color Touch Screen
- Control up to 5 pumps & 120 receivers (24 receivers per pump)
- Auto ID of receivers for easy system expansion
- Includes power supply and pump control board
- Audible and Visual Alarms
- Single wire CANbus connectivity
- Adjustable load, unload, priority, proportioning, purge, blowback and alarm settings
- 24 VDC Control Voltage
Flexbus Home Screen Overview

Live View Panel (gray area) - Displays the live view of Receivers

Navigation Menu
- Returns to Home screen
- Display Pumps
  Changes the Live view panel to Pumps
- Event Log and Alarm History
- Flexbus Firmware Information
- Setup
  Enters password protected setup screens.

**Flexbus Setup and Configuration**

Flexbus uses a MAC address to individually identify each Flexbus pump and receiver. Identification and numeric assignment of each Flexbus pump and receiver is setup within the Flexbus controller through the order that the pump or receiver is turned on and discovered during the Pump Assignment routine and the Receiver Assignment routine setup processes.

Once the initial setup has been completed, the Flexbus system will retain the setup and identification of each pump (a single pump with Flexbus Lite) and each receiver indefinitely. After the initial identification order and numeric assignment has been saved, the operator can later make adjustments to the pump's numeric assignment order and to the receiver numeric assignment order and assign a 4-character alphanumeric identification name to each receiver.

**Secondary Control Setup** - Flexbus has the option of installing a second controller to mirror the primary control at a second location on the communication line. To add a second controller, enter the password 12358 and select Secondary. All initialization of pumps and receives must to be done on the Primary controller.

* excludes Flexbus Lite
Enabling Flexbus Lite in the Weigh Scale Blender Touchscreen Controller

Flexbus Lite is an option that can be enabled within the Weigh Scale 4088 Touchscreen controller allowing local control of a single pump and up to 9 receivers. Additional components are required for blender loading including receivers equipped with Flexbus, a T-drop, a position hub, pump module, and necessary cabling. Please see the Flexbus Lite component map on page 26 for setup details.

How to enabled Flexbus Lite in the Maguire Weigh Scale Blender

<table>
<thead>
<tr>
<th>Press</th>
<th>Display will prompt for a password. (default: 22222)</th>
<th>Then press:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press</td>
<td>System Configuration</td>
<td>Display will show the System Configuration categories.</td>
</tr>
<tr>
<td>Press</td>
<td>Preferences</td>
<td>Display will show preferences categories.</td>
</tr>
<tr>
<td>Press</td>
<td>Flexbus Lite</td>
<td>Display will show the Flexbus Lite Options screen.</td>
</tr>
<tr>
<td>Press</td>
<td>Enabled</td>
<td>Flexbus will be enabled displaying Flexbus menu button.</td>
</tr>
<tr>
<td>Press</td>
<td>To save and exit or press the red X to cancel and exit.</td>
<td></td>
</tr>
<tr>
<td>Press</td>
<td>To access Flexbus Lite.</td>
<td></td>
</tr>
<tr>
<td>Press</td>
<td>To toggle the display back to the Weigh Scale Blender controller screen. When the Blender controller is displaying the Weigh Scale Blender, Flexbus continues to operate. Press the Flexbus button at any time to return to Flexbus.</td>
<td></td>
</tr>
</tbody>
</table>
Flexbus System Setup Screen

Pump assignment is set through the SETUP screen. The setup screen is accessed by pressing the Setup button on the right side of the screen.

<table>
<thead>
<tr>
<th>On the HOME screen, PRESS:</th>
<th>Pressing the SETUP button prompts for a password.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS: 22222</td>
<td>Enter the password (default password is 22222)</td>
</tr>
<tr>
<td></td>
<td>Press ✓ to confirm password.</td>
</tr>
</tbody>
</table>

This enters the Setup screen. This screen contains several setup specific options.

Pumps and Receivers Setup Buttons
Pressing PUMPS or RECEIVERS enters Setup for those devices

Navigation Menu
- Returns to Home screen
- Display Pumps
- Changes the Live view panel to Pumps
- Event Log and Alarm History
- Flexbus Firmware Information
- Setup
- Enters password protected setup screens.

Flexbus System Setup Options

Note: Pumps must be assigned before Receivers.
Note: Flexbus Lite uses a single pump and up to 9 receivers.
Pump Assignment - Pumps must be assigned before Receivers.

Flexbus Lite (part of the Maguire 4088 TS Weigh Scale Blender) controls a single pump. The Flexbus System can control up to 5 pumps. If you have two or more pumps (Flexbus only), turn OFF all pumps prior to running Setup in the Flexbus controller, otherwise: To assign Pumps, follow these instructions:

<table>
<thead>
<tr>
<th>On the HOME screen, PRESS:</th>
<th>Pressing the SETUP button prompts for a password.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS: 22222</td>
<td>Enter the password (default password is 22222) Press ✅ to confirm password.</td>
</tr>
</tbody>
</table>

This enters the Setup screen. This screen contains several setup specific options.

To setup Pumps:

<table>
<thead>
<tr>
<th>PRESS:</th>
<th>Press the large Pumps button on the far left of the screen.</th>
</tr>
</thead>
</table>

This enters the PUMP assignment screen. This gray screen contains any previously assigned pumps. For first time setup, this screen is probably blank and no pumps have been assigned. At this time, turn on your Flexbus Pumps in the order that you want them to be assigned.

If you have a single pump, that pump will appear on the screen and be labeled with the number 1. If you have multiple pumps, they will appear on the screen and be numbered in the order that they were turned on. Pressing the pump icon will allow you to re-assign the ID number to a different unassigned number.

<table>
<thead>
<tr>
<th>PRESS:</th>
<th>To return to the Setup screen. When you return to the Setup screen, the Pumps button will show the Setup symbol ✅ on the Pumps button indicating that you are still in the Pump Assignment mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS:</td>
<td>To Exit the Pump Assignment Mode. Setup icon ✅ overlaying the button will disappear indicating you are out of Pump assignment mode.</td>
</tr>
</tbody>
</table>
While in the Setup screen you can go straight to setting up Receivers without re-entering the password.

<table>
<thead>
<tr>
<th>PRESS:</th>
<th>To enter the Receivers assignment screen.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>See ➔ Next Page for Receivers Assignment instructions.</td>
</tr>
<tr>
<td></td>
<td>Otherwise, to exit SETUP...</td>
</tr>
</tbody>
</table>

| PRESS: | To exit the Setup screen. |
# Receiver Assignment

NOTE: If you are already entered into SETUP, skip the password step and go to the step below.

<table>
<thead>
<tr>
<th>On the HOME screen PRESS:</th>
<th>Pressing the SETUP button prompts for a password.</th>
</tr>
</thead>
</table>
| PRESS: 22222 | Enter the password (default password is 22222)
| | Press □ to confirm password. |

This enters the Setup screen. This screen contains several setup specific options.

<table>
<thead>
<tr>
<th>PRESS:</th>
<th>Press the large Receivers button to enter the Receiver assignment screen.</th>
</tr>
</thead>
</table>

The gray screen contains any previously assigned Receivers. For first time setup, this screen is probably blank and no Receivers have been assigned. **Turn on your Flexbus Receivers in the order that you want them to be assigned.**

Your receivers will appear on the screen and be numbered in the order that they were turned on.

If necessary, pressing each receiver icon will allow you to re-assign the ID number to a different unassigned number.

If you have more than 12 Receivers, use the Receiver page navigation arrows to navigate to the next screen.

The Pump navigation arrows allow control of the pumps assigned to the receivers to be taken offline / online. Press the Pump symbol in this navigation panel toggles the selected Pump online or offline.

<table>
<thead>
<tr>
<th>PRESS:</th>
<th>To return to the Setup screen. When you return to the Setup screen, the Receivers button will show the Setup symbol on the pumps button indicating that you are still in the Receiver Assignment mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS:</td>
<td>To Exit the Receiver Assignment Mode. Setup icon will disappear indicating you are out of Receiver assignment mode.</td>
</tr>
<tr>
<td>PRESS:</td>
<td>To exit the Setup screen.</td>
</tr>
</tbody>
</table>
Receiver Configuration

The Receiver configuration screen is accessible from the Home screen. Pressing a receiver on the Home Screen, takes you to the Receiver's Configuration screen. The receiver that you are configuring is identified by the Receiver's ID number on the receiver images on this screen. You can select another Receiver by using the Receiver navigation arrows at the bottom center of this screen.

Receiver Navigation

Receiver Navigation and Status Panel - This multi-function panel displays messages and receiver status, allows for navigation to each Receiver's configuration screen using the arrow buttons, and allows the receiver to be turned OFF or ON.

The receiver symbol can display the following states:

- Pressing the Receiver symbol toggles receiver OFF or ON. This symbol indicates that the receiver is turned off and will not run.
- This symbol indicates that the controller has lost communication with the receiver. The receiver will not run in this state.

Receiver Configuration Fields

- **Blowback** - Blowback is a pulse of air to clear the filter. Blowback has two configuration fields. Skip cycle defines the number of cycles the receiver will skip between blowback pulses. Default for Skip Cycle is 3. Setting Skip Cycle to 0 (zero) will pulse every time. Time Interval is a multiplication factor of 400ms to pressurize the charge canister. Default Time Interval is 1 (1=400ms).

- **Load Time** - The time in seconds that the receiver will load.
### Load Retry
The number of times the receiver will try to successfully load material and satisfy the sensor. Exceeding this retry count will cause the receiver to alarm.

### Dump Time
The time in seconds that the receiver will remain open during the dump cycle.

### Pump Assignment
The ID number of the pump that this receiver is assigned to.

### Layers
Number of layers Regrind will be dispensed in with natural. Zero turns on automatic layering. Maximum 4 layers.

### Percent of Regrind
When a non-zero % value is specified, this will dispense regrind as a % of load time. Proportioning valve is controlled by time.

### Purge Time
The time in seconds that the purge valve will open to purge the convey line. (Purge time follows Load time).

### Priority
Sets the order of importance of the receivers. Setting a receiver to level 1 sets to the highest priority, while setting to level 5 sets to the lowest priority. Higher priority receivers receive material first while lower priority receivers receive material later.

### Layering Proportioning valve
This symbol represents the Virgin (Natural) / Regrind % material layering on the input side of the receiver.

### Purge
This symbol represents the purge valve. When purging, the symbol will show a blue arrow.

The Receiver’s label and defaults can be reset by touching the large receiver image in the center of the screen.

Press the info button to display the ID Number, Serial Number, firmware and the label of the loader. From this screen the loader's label can be set or changed. If info button is not displayed, press the image of the pump.
Pump Configuration

Pressing the pump button in the right navigation takes you to the Pump overview screen and then pressing a pump in this overview screen will open the Pump's Configuration screen. The pump that you are configuring is identified by the pump's ID label on the pump's image on this screen. You can select another pump by using the pump navigation arrows at the bottom center of this screen.

Pump Navigation

Pump Navigation and Status Panel - This multi-function panel displays messages and pump status, allows for navigation to each pump configuration screen using of the arrow buttons, and allows the pump to be turned OFF or ON.

The pump symbol can display the following states:

- Pressing the pump symbol toggles the pump OFF or ON. Message will display PUMP OFF.
- This symbol indicates that the pump has lost communication. The pump will not run in this state. Message will display PUMP LOST COM.
### Pump Configuration Fields

<table>
<thead>
<tr>
<th>Configuration Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blowback</strong></td>
<td>Blowback is a pulse of air to clear the filter. Blowback has two configuration fields. Skip cycle defines the number of Bypass cycles skipped between each blowback pulse. Default for Skip Cycle is 10. Setting Skip Cycle to 0 (zero) will pulse every time. Time Interval is a multiplication factor of 400ms to pressurize the charge canister. Default Time Interval is 5 (1=400ms).</td>
</tr>
<tr>
<td><strong>IDLE TIME</strong></td>
<td>The time in minutes that the pump runs after the last convey request before shutting off.</td>
</tr>
<tr>
<td><strong>BYPASS</strong></td>
<td>The time delay in 10ths of seconds (0-50, zero seconds to 5 seconds) before the Bypass valve opens after all receivers are satisfied.</td>
</tr>
<tr>
<td><strong>PURGE RATIO</strong></td>
<td>The % of time split between two purge valves. Used to clear material that overshoots the receiver.</td>
</tr>
<tr>
<td><strong>PUMP</strong></td>
<td>Selects between pump A or pump B outputs.</td>
</tr>
</tbody>
</table>

Press the info button to display the ID Number, Serial Number, firmware and the label of the loader. From this screen the loaders label can be set or changed. If info button is not displayed, press the image of the pump.
Removing Receivers or Pumps from the configuration

If a pump or receiver needs to be removed from the configuration, it can be removed using this procedure.

<table>
<thead>
<tr>
<th>On the HOME screen PRESS:</th>
<th>Pressing the SETUP button prompts for a password.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS: 22222</td>
<td>Enter the password (default password is 22222) Press ✔️ to confirm password.</td>
</tr>
</tbody>
</table>

This enters the Setup screen. This screen contains several setup specific options.

| PRESS: or Press the large Receiver or Pump button depending on which device you want to remove. |

The screen will contain any previously assigned devices (Pumps or Receivers).

**A device must be turned off or communication must be disconnected to remove the device.** When a device is turned off or communication to the device is disconnected, the loader or pump icon will show a red X over it. The red X enables the option for the device to be removed by pressing the device.

| PRESS: or To remove the pump or loader that you want to remove. |

For Receivers, a prompt to remove the receiver will be shown. If a pump is being removed, a prompt to remove all receivers from this pump will be shown.

| PRESS: | To return to the Setup screen. When you return to the Setup screen, the Receivers button will show the Setup symbol on the pumps button indicating that you are still in the Receiver Assignment mode. |

| PRESS: or To Exit the Assignment Mode. Setup icon will disappear indicating you are out of the assignment mode. |

| PRESS: | To exit the Setup screen. |
**Flexbus System Setup Options**

The Setup screen also allows for setting: Date and time, screensaver timeout, screen brightness, screen calibration, updating Flexbus controller and receiver/pump firmware, changing the password, language selection and date format. To enter Setup press the Setup button on the home screen. Default password is 22222.

<table>
<thead>
<tr>
<th><strong>Set Date and Time</strong></th>
<th>Press the field you would like to edit. Enter the current Date or Time by first pressing to select the field. Press CE to clear the current date or time. Then enter the Date or Time as it would be displayed left to right. Press the green check when complete.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set Screensaver Timeout, Set Screen Brightness, Calibrate Screen</strong></td>
<td>Screen Saver is the elapsed time in minutes until an inactive (untouched) display will blank the screen and show the screen saver. Setting the screen saver to 00 will disable the screen saver. The Brightness slider allows the brightness of the screen to be adjusted. Calibrate set the calibration of the touch screen’s X-Y coordinates. To complete, follow the prompts. Press the green check when complete.</td>
</tr>
<tr>
<td><strong>Update Flexbus Touchscreen Firmware</strong></td>
<td>Requires a firmware update provided by Maguire Products Inc. Copy firmware to USB and insert USB into the controllers USB port. Press this Update button. Press the green check to start the update. The firmware update will be copied from the drive to the controller. When the copy has completed, you will be prompted to turn toggle power (off/on). Update will be verified and applied on reboot of the controller.</td>
</tr>
<tr>
<td><strong>Update Receiver and Pump Firmware</strong></td>
<td>Requires a firmware update provided by Maguire Products Inc. Copy firmware (.XUF file) to USB and insert USB into the controllers USB port. Press this Update button. Press the green check to start the update. The firmware update will be copied from the flash drive to the Pumps and Receivers that require the update (up-to-date firmware will not be changed). When the copy has completed, you will be prompted to turn toggle power (off/on). Updates to devices are logged in the Alarm/Event log.</td>
</tr>
<tr>
<td><strong>Change Passwords</strong></td>
<td>Set the Operator password and the Administrator password.</td>
</tr>
<tr>
<td><strong>Operator Password</strong></td>
<td>- When enabled, all Pump and Receiver parameter fields are password protected.</td>
</tr>
<tr>
<td><strong>Administrator Password</strong></td>
<td>- Changes the Administrator password.</td>
</tr>
</tbody>
</table>
Type the new password, then type the password again in the 2nd field to confirm. Valid passwords are numbers 0-9, 1 to 6 characters long. Press the green check when complete.

<table>
<thead>
<tr>
<th>Set Language, Set Date Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the language (if applicable in firmware update) and Sets the Date Format to US or European. Press the green check when complete.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pump Alarm Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables or disables pump Filter Alarm and pump Motor Failure Alarm. <strong>Filter Alarm</strong> - On power up, system detects if filter is present. During pump operation system detects a clogged filter. <strong>Motor Failure Alarm</strong> - Optional motor failure detection. See wiring diagram on page 22. Press the green check when complete.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TCP/IP Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter the IP address for the Flexbus controller for Modbus TCP communications. MAC address is provided on-screen for DHCP. See the Maguire Modbus Register Mapping document for more information.</td>
</tr>
</tbody>
</table>
Flexbus Controller Main Screen Details

Live Status Panel
Displays the live status of all receivers.
See below for receiver symbol representation.

Navigation Menu

- Returns to Home screen from any screen.
- Display Pumps: Changes the Live view panel to Pumps
- Alarm History: Displays red when there is an alarm notification.
- Flexbus Firmware Information
- Setup: Enters password protected setup screens.

Live Status Panel

In the Live Status Panel, the receivers will display their current status. See the next page for a description of each live receiver status symbol.

If you have more than 12 receivers, use the receiver navigation arrows to view other pages of receivers.

Pressing any of the receiver symbols in the Live Status Panel will display the Receiver Configuration screen for that specific receiver. See Receiver Configuration for more information on configuring receivers.
### What the Receiver Symbols Represent:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Idle Receiver" /></td>
<td>Receiver is online and idle.</td>
</tr>
<tr>
<td><img src="image" alt="Inactive Receiver" /></td>
<td>Receiver is inactive.</td>
</tr>
<tr>
<td><img src="image" alt="Virgin Filling" /></td>
<td>Virgin material filling receiver.</td>
</tr>
<tr>
<td><img src="image" alt="Regrind Layering" /></td>
<td>Regrind Layering</td>
</tr>
<tr>
<td><img src="image" alt="Demand Material" /></td>
<td>Demand for material.</td>
</tr>
<tr>
<td><img src="image" alt="Virgin Purging" /></td>
<td>Virgin material only purging.</td>
</tr>
<tr>
<td><img src="image" alt="Proportioned Purging" /></td>
<td>Proportioned material purging.</td>
</tr>
<tr>
<td><img src="image" alt="Lost Communication" /></td>
<td>Lost communication with receiver. Cause may be receiver's power is off or a disconnected communication wire.</td>
</tr>
<tr>
<td><img src="image" alt="Alarming Receiver" /></td>
<td>Receiver is alarming.</td>
</tr>
<tr>
<td><img src="image" alt="Regrind Filling" /></td>
<td>Regrind material filling receiver.</td>
</tr>
<tr>
<td><img src="image" alt="Proportional Loading" /></td>
<td>Proportional Loading</td>
</tr>
<tr>
<td><img src="image" alt="Discharging Material" /></td>
<td>Material discharging</td>
</tr>
<tr>
<td><img src="image" alt="Regrind Purging" /></td>
<td>Regrind material only purging.</td>
</tr>
<tr>
<td><img src="image" alt="Blowback" /></td>
<td>Blowback active. Cleaning receiver's air filter.</td>
</tr>
</tbody>
</table>
# Event and Alarm Logging

On the main screen is the Event and Alarm button. Pressing this button will display the Event and Alarm Log. Each event or alarm will have the date and time, the receiver or pump ID number involved in the alarm or log and the reason for the alarm or log. Alarms and logs are listed with the most recent displayed at the top of the list.

Options on this screen:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Icon" /></td>
<td>Print Log</td>
</tr>
<tr>
<td><img src="image2.png" alt="Icon" /></td>
<td>Delete Log</td>
</tr>
<tr>
<td><img src="image3.png" alt="Icon" /></td>
<td>Silence Alarm</td>
</tr>
</tbody>
</table>

The Event and Alarm Logging button will display in red when there is an active alarm.
Flexbus Wiring Diagrams

INITIAL RUN FROM CONTROLLER

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PIN#</th>
<th>WIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V</td>
<td>1</td>
<td>RED</td>
</tr>
<tr>
<td>0 V</td>
<td>2</td>
<td>BLUE</td>
</tr>
<tr>
<td>CAN H</td>
<td>3</td>
<td>BLACK</td>
</tr>
<tr>
<td>CAN L</td>
<td>4</td>
<td>WHITE</td>
</tr>
<tr>
<td>GROUND</td>
<td>7</td>
<td>SHIELD</td>
</tr>
</tbody>
</table>

T-JUNCTION

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PIN#</th>
<th>WIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL</td>
<td>1</td>
<td>WHITE</td>
</tr>
<tr>
<td>CH</td>
<td>2</td>
<td>BLACK</td>
</tr>
<tr>
<td>+24</td>
<td>3</td>
<td>BLUE</td>
</tr>
<tr>
<td>GND</td>
<td>4</td>
<td>SHIELD</td>
</tr>
</tbody>
</table>

RECEIVER FLEXBUS CONNECTIONS

<table>
<thead>
<tr>
<th>WIRE</th>
<th>PIN#</th>
<th>FUNCTION</th>
<th>PIN#</th>
<th>WIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>1</td>
<td>24V</td>
<td>1</td>
<td>BROWN</td>
</tr>
<tr>
<td>BLUE</td>
<td>2</td>
<td>0 V</td>
<td>2</td>
<td>BLUE</td>
</tr>
<tr>
<td>BLACK</td>
<td>3</td>
<td>CAN H</td>
<td>3</td>
<td>BLACK</td>
</tr>
<tr>
<td>WHITE</td>
<td>4</td>
<td>CAN L</td>
<td>4</td>
<td>WHITE</td>
</tr>
<tr>
<td>SHIELD</td>
<td>7</td>
<td>GROUND</td>
<td>7</td>
<td>GREEN/YELLOW</td>
</tr>
</tbody>
</table>

CASE GROUND

- 24V REMOTE ALARM
- 24V PROPORTIONING
- 24V PURGE
- 24V LOAD
- 24V BLOWBACK
- 24V BRIDGE BREAKER (PULSED OUTPUT)
- 24V RED LED
- 24V BROWN LEVEL SENSOR WHITE BLUE
- 24V RED YELLOW

PUSH BUTTON SET LOAD TIME

RECEIVER CARD WIRING, FLEXBUS

Drawn by: CDR
Date drawn: 4/22/13
Last Saved by: PWB
Date Changed: 12/19/19
MAGUIRE PRODUCTS, INC.

FLEXBUS™

Considerations

Flexbus Wiring

Material (First from Controller)

Last Wiring Tee

Material

(Receivers(s))

Receivers(s) & Pumps must be bonded to properly grounded equipment.

Vacuum Pump

Controller

Flexbus

Recommended Cable for Flexbus Use:

Maguire Port #: FB-C

18AWG, 4-Conductor, Shielded Pair

AC Lines & any high-current from any material convey cables must be kept away.

All Flexbus communication lines & wires must be high-current from any material convey.

If used to connect to the unused screw terminal, installed across “CL” & “CH” of the unused screw terminal.

The unused tee drop in the line must have a termination resistor.

If the size of the Flexbus system is ever increased, the termination resistor must be moved to the new header tee drop.
Flexbus Component Map

Wiring Tee Drop (FB-TD)

FB-IR-W (FlexBus Initial Run, 20 ft. w/ connector)

PUMP CONTROL
- FB-PC-O (3rd Party Pump)
- OPL-FB-AVB (2nd Maguire AVB)

Wiring Tee Drop (FB-TD)

FB-C (qty. per ft.)

TO NEXT WIRING TEE (IF APPLICABLE)

Flexbus HUB

- FB-H2 (up to 2 RECEIVERS)
- FB-H4 (up to 4 RECEIVERS)
- FB-H8 (up to 6 RECEIVERS)

RECEIVER CONTROL
- OPR-FB (Maguire Option)
- FB-RC-O (3rd Party Receiver)

NOTE:
RUN ALL SIGNAL CABLES SEPARATE OF ANY AC VOLTAGE OR MATERIAL CONVEYING LINES.

FLEXBUS CONTROLLER
- OPL-FBTSC1 (Maguire, 120v)
- OPL-FBTSC2 (Maguire, 230v)
- FB-OLS1 (3rd PARTY, 120v)
- FB-OLS2 (3rd PARTY, 230v)
Flexbus Lite Component Map

NOTE:
- Run all signal cables separate of any AC voltage or material conveying lines.

FlexBus Lite COMPONENT MAP

Wiring Tee
Drop (FB-T)

FB-IR-W (FlexBus Initial Run, 20 ft. w/ connector)

FB-PUMP RUN
- FB-PR-W-25 (25 ft.)
- FB-PR-W-50 (50 ft.)
- FB-PR-W-75 (75 ft.)
- FB-PR-W-100 (100 ft.)
- FB-PR-W-225 (225 ft.)

PUMP CONTROL
- OPL-FB-AVB (Maguire A/B option)
- FB-PC-O (3rd Party Pump)

RECEIVER CONTROL
- OPR-FB (Maguire Option)
- FB-RC-O (3rd Party Receiver)

FlexBus Hub

FB-H2 (up to 2 RECEIVERS)
FB-H4 (up to 4 RECEIVERS)
FB-H8 (up to 6 RECEIVERS)

WSB 4088 CONTROLLER
- ACW-4011 (120V)
- ACW-4012 (230V)

Maguire Products, Inc.

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NOTE:
- ALL CANH (CH) ARE BLACK
- ALL CANL (CL) LEADS ARE WHITE.

FlexBus Touchscreen Board
Maguire Part #: ebTS-7F
(BACK VIEW)

CABLE CONNECTIONS
A CONNECTION DESCRIPTION/CABLE TYPE
1 USB HEADER
2 ETHERNET CONNECTOR TO MAIN BOARD
ETHERNET PATCH CABLE
WARRANTY - Exclusive 5-Year

MAGUIRE PRODUCTS offers one of the MOST COMPREHENSIVE WARRANTIES in the plastics equipment industry. We warrant each Flexbus System manufactured by us to be free from defects in material and workmanship under normal use and service; our obligation under this warranty being limited to making good at our factory any Flexbus System which shall within FIVE (5) YEARS after delivery to the original purchaser be returned intact to us, transportation charges PREPAID, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part, and MAGUIRE PRODUCTS neither assumes nor authorizes any other persons to assume for it any other liability in connection with the sale of its products.

This warranty shall not apply to any Flexbus System which has been repaired or altered outside MAGUIRE PRODUCTS factory, unless such repair or alteration was, in our judgment, not responsible for the failure; nor which has been subject to misuse, negligence or accident, incorrect wiring by others, or installation or use not in accord with instructions furnished by Maguire Products.

Our liability under this warranty will extend only to the Flexbus System components that are returned to our factory in Aston, Pennsylvania PREPAID.

It should be noted, however, that we strive to satisfy our customers in whatever manner is deemed most expedient to overcome any problems they may have in connection with our equipment.
Technical Support and Contact Information

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